

# TCExam Multiple Vulnerabilities

Medium

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#### **Synopsis**

Tenable has discovered multiple vulnerabilities in TCExam 14.2.2 on Ubuntu 18.04 with XAMPP 7.4.4-1.

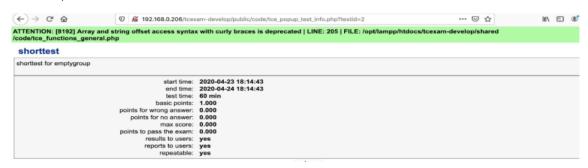
A remote, unauthenticated attacker is able to gain administrative access to the application by exploiting cross-site scripting and cross-site request forgery vulnerabilities in combination.

#### CVE-2020-5743: Authenticated Insecure direct object reference /public/code/tce\_popup\_test\_info.php

Insecure direct object reference in tce\_popup\_test\_info.php allows for authenticated, low privileges student users (level 1 and above) to view test metadata for tests they don't have permission to access. The test ID can be specified in the HTTP GET parameter 'testid'.

For example, the start time, end time, test length, max score, points to pass the exam, etc are accessible.

#### **Proof of Concept**



## ${\tt CVE-2020-5744: Authenticated\ Directory\ Traversal\ /\ Arbitrary\ File\ Read\ /admin/code/tce\_edit\_backup.php}$

Directory traversal in tce\_edit\_backup.php allows for an authenticated user to read the contents of arbitrary files on disk. By default, the user must be level 10 (admin) and have permission to download backup files and exploit this vulnerability.

Specifically, the 'backup\_file' HTTP POST parameter is not validated sufficiently. For example, the /etc/passwd file can be read by specifying multiple leading '...' sequences.

Code Snippet:

\$file\_to\_download = K\_PATH\_BACKUP.\$backup\_file;

#### Proof of Concept



### CVE-2020-5745: Cross-site Request Forgery (CSRF)

CSRF allows an unauthenticated attacker to forge application requests via crafted links or forms. An attacker could trick a legitimate user (e.g. admin) into clicking a link that would then fire off a valid application request for which the user has permission to perform.

For example, an admin could be tricked into granting the attacker admin privileges.

To edit a user this way using CSRF, we just need to know the user id. In my database, which should be the default setup, user id 1 is an anonymous user, and user id 2 is admin. Note that this works even if K\_CHECK\_SESSION\_FINGERPRINT is true if the victim clicks the attacker's button in the same browser as the valid session.

This can also be used to change a random user's username and password (and anything else, e.g. the privilege level) by entering the values desired for username/pass/privilege level, etc. and choosing a random user\_id (3 for example).

#### Proof of Concept

 $Please \ note \ that \ the \ IP \ address \ would \ have \ to \ be \ changed \ to \ target \ the \ "victim" \ TCExam \ application.$ 

## **Otenable**

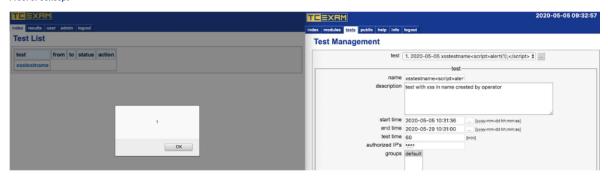
```
cinput type="hidden" name="x8#95;newpassword" value="password" />
cinput type="hidden" name="newpassword value="password" />
cinput type="hidden" name="newpassword*#95;repeat" value="newtest3" />
cinput type="hidden" name="newpassword*#95;repeate" value="2002-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04-04&#45
```

#### CVE-2020-5746: Authenticated Stored Cross-site Scripting (XSS) in index.php

Stored XSS allows an authenticated attacker (level 5+) to inject malicious JavaScript when creating tests. For example, a test can be created and assigned to all groups with the test name field filled with HTML script tags containing JavaScript. Upon login, this script will execute for all users assigned to a group. This includes the admin.

More specifically, in shared/code/tce\_functions\_test.php there's a function F\_testInfoLink( $Stest_id$ ,  $Slink_name = ""$ ) that is called with the unsanitized test name as the  $Slink_name$  via index.php's F\_getUserTests() call.

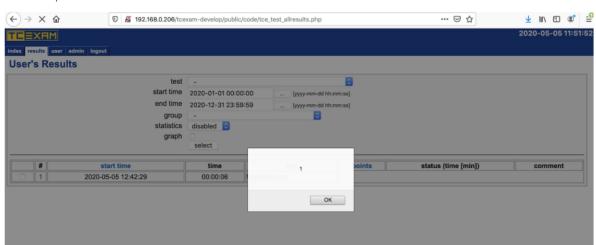
#### **Proof of Concept**



#### CVE-2020-5747: Authenticated Stored Cross-site Scripting (XSS) in tce\_test\_allresults.php

Stored XSS allows an authenticated attacker to inject malicious JavaScript when creating tests. Operators (level 5) or higher can create a new test whose name contains Javascript script tags. In public/code/tce\_test\_allresults.php there's a call to F\_printTestResultStat() that is called with the unsanitized test name. This will be output without sanitization, causing the Javascript in the test name to execute whenever someone accesses public/code/tce\_test\_allresults.php and has access to results from a test with a crafted name. So, like previous, the test\_name stores the XSS, but it's executed differently.

### Proof of Concept



### ${\tt CVE-2020-5748: Unauthenticated Stored Cross-site Scripting (XSS) in tce\_edit\_user.php}$

Stored XSS allows an unauthenticated attacker to inject malicious JavaScript when performing self-registration. Specifically, the username field can be crafted to contain HTML script tags.

When an admin updates or deletes a username containing Javascript tags in tce\_edit\_user.php, the Javascript will be executed due to a call to  $F_print_error()$  with the username passed as the second parameter, which displays the username without any sanitization.

 $Please note that F\_print\_error() is called with unsanitized user input in other locations (tce\_edit\_group.php, tce\_edit\_subject.php, tce\_edit\_module.php, tce\_edit\_test.php, and tce\_edit\_subject.php) leading to the same issue.$ 





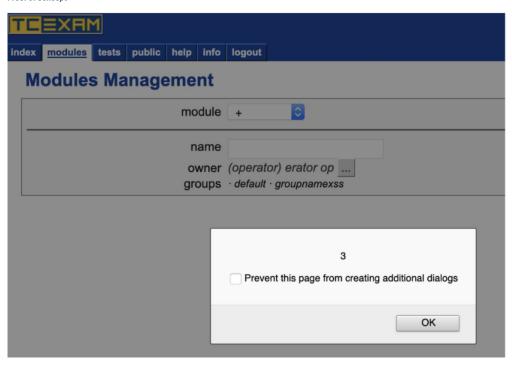
#### CVE-2020-5749: Authenticated Stored Cross-site Scripting (XSS) in /admin/code/tce\_edit\_module.php

Stored XSS allows an authenticated attacker to inject malicious JavaScript when creating a group. Specifically, the group name can be crafted to contain HTML script tags. This group can then be assigned to other users. When a user with this group name (and operator or higher privileges) navigates to tce\_edit\_module.php, the malicious JavaScript will execute.

Code snippet:

```
367 while ($mg = F_db_fetch_array($rg)) {
368 echo ' · '.$mg['group_name'].'';
```

#### **Proof of Concept**



#### CVE-2020-5750: Unauthenticated Stored Cross-site Scripting (XSS) in /admin/code/tce\_show\_online\_users.php

Stored XSS allows an unauthenticated attacker to inject malicious JavaScript when performing self-registration. Specifically, the first and last name fields can be crafted to contain HTML script tags. If they then log in this Javascript will run when an admin navigates to admin/code/tce\_show\_online\_users.php.

Code snippet:

```
122 if (F_isAuthorizedEditorForUser($this_session['session_user_id'])) {
123 echo ''.$user_str.'';
124 } else {
125 echo $user_str;
126 }
```

Where  $\$ user\_str is set with the first and last names of the user.

Proof of Concept

# **Otenable**





#### CVE-2020-5751: Authenticated Stored Cross-site Scripting (XSS) in /admin/code/tce\_edit\_module.php

Stored XSS allows an authenticated attacker to inject malicious JavaScript into the first and last name of an operator. An administrator can change the first or last name of an operator (or any non-admin user who can edit modules, by default though just the operator) to contain Javascript script tags. This will be executed when the operator navigates to admin/code/tce\_edit\_module.php.

Code snippet:

```
332 echo '('.$m['user_name'].')'.$m['user_tastname'].' '.$m['user_firstname'].''.K_NEWLINE;
```

Only executed when an operator, not admin, user goes to tce\_edit\_module.php

#### **Proof of Concept**





### Solution

Upgrade to TCExam 14.2.3 or later.

### **Additional References**

https://github.com/tecnickcom/tcexam/commit/c1795493a318cb062ced5b471d8f00334cbd8a69

## **Disclosure Timeline**

 $05/05/2020 - Tenable \ asks \ in fo@tecnick.com for \ designated \ security \ contact.$ 

05/05/2020 - Tecnick replies that info@tecnick.com can be used.

 $05/06/2020 - Vulnerabilities\ disclosed\ to\ info@tecnick.com.\ 90-day\ date\ set\ to\ August\ 4,2020.$ 

 $05/06/2020 - TCExam\,reports\,that\,these\,issues\,were\,addressed\,in\,14.2.3.\,Asks\,if\,we\,can\,confirm.$ 

 $05/07/2020 - Tenable\ confirms\ that\ these\ are\ fixed.\ Informs\ TCExam\ of\ our\ intent\ to\ release\ an\ advisory\ today\ and\ CVE\ assignments.$ 

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For more details on submitting vulnerability information, please see our Vulnerability Reporting Guidelines page.

If you have questions or corrections about this advisory, please email advisories@tenable.com

### **Risk Information**

CVE ID: CVE-2020-5743

CVE-2020-5744

CVE-2020-5745

CVE-2020-5746

CVE-2020-5747

CVE-2020-5748

CVE-2020-5749



CVSSv2 Base / Temporal Score: 6.8 / 5.3 CVSSv2 Vector: (AV:N/AC:M/Au:N/C:P/I:P/A:P)

Affected Products: TCExam 14.2.2

Risk Factor: Medium

## **Advisory Timeline**

05/07/2020 - Advisory released

### FEATURED PRODUCTS

Tenable One Exposure Management Platform

Tenable.cs Cloud Security

Tenable.io Vulnerability Management

Tenable.io Web App Scanning

Tenable.asm External Attack Surface

Tenable.ad Active Directory

Tenable.ot Operational Technology

Tenable.sc Security Center

Tenable Lumin

Nessus

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### FEATURED SOLUTIONS

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