

# **University of Essex Post Graduate Certificate in Computer Science**

## **Unit 3: Secure Software Development**

### **Development Team Project: Code Output**

**Created by**

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## **Secure Software Application**

The National Cyber Security Centre (NCSC) is the governing body of cybersecurity in the Netherlands, with a goal of increasing resilience to internet crime, which has been on the rise (Bendovschi, 2015). It is responsible for ensuring digital security through continuous monitoring, alerting public authorities of suspect sources, informing the public, and ensuring patched security systems (ICO, n.d.).

This application has been created as a platform for NCSC officers to perform these crucial tasks in a GDPR compliant way.

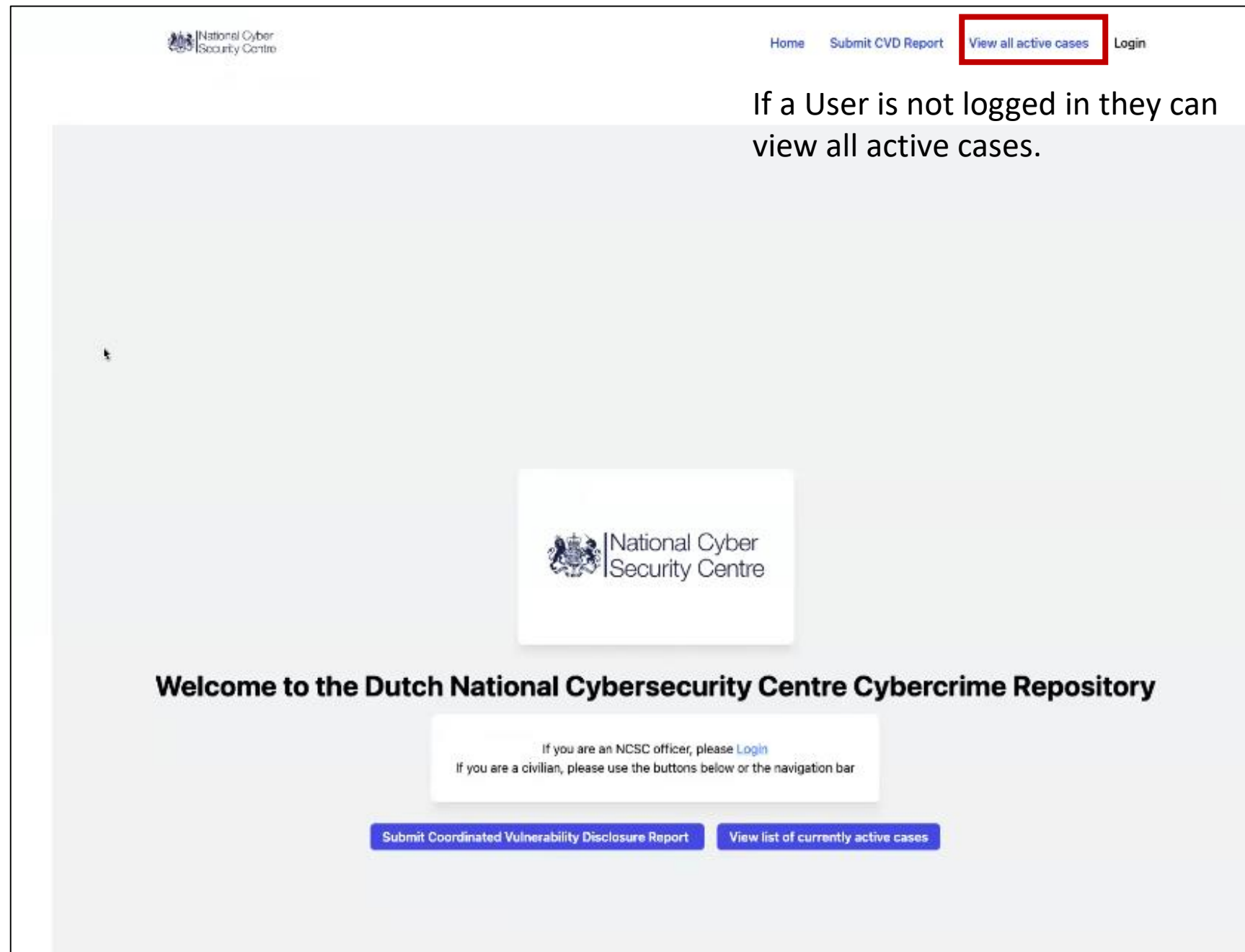
## **Users, Roles, and Authorisation**

There are 3 primary authorised types of users on this platform:

- Admin users to perform account management activities,
- Officer users who will manage CVD forms and create cases, and
- General users, who can create CVD forms without the need for authentication.


# General Users Non Logged In

This what a user can do  
to report a vulnerability  
without being logged in.



If a User is not logged in they can  
view all active cases.

# General Users - View All Active Cases



[Home](#) [Submit CVD Report](#) [View all active cases](#) [Login](#)

If a User is not logged in they can view all active cases in the Case List.

**Case List**


Case ID	Title	Actions
115	<script>alert('Test alert!');</script>.	<a href="#">View Case</a>

You can view a case in more detail by clicking here.

You can view a case in more detail by clicking here.

# General Users - Case Detail

This shows the case detail file of any given case.

[Home](#) [Submit CVD Report](#) [View all active cases](#) [Login](#)

## Case Detail

<script>alert('Test alert');</script>.


Case ID: 115

Created by: test Officer


Description: <script>alert('Test alert');</script>.

This contains information with a unique ID, who created it, and the issue reported.

# General Users Non Logged in - Submit a CVD Report

[Home](#)[Submit CVD Report](#)[View all active cases](#)[Login](#)

Click **Submit a CVD Report**



National Cyber  
Security Centre

**Welcome to the Dutch National Cybersecurity Centre Cybercrime Repository**

If you are an NCSC officer, please [Login](#)

If you are a civilian, please use the buttons below or the navigation bar

[Submit Coordinated Vulnerability Disclosure Report](#)[View list of currently active cases](#)


You can also select Click **Submit a CVD Report** here.

# General Users

## Create a CVD

This User will fill in all the required fields. There is a dropdown menu for ‘Vulnerability Type’.

At the bottom there are disclaimers about use of data to ensure it is GDPR compliant.



[Home](#) [Submit CVD Report](#) [View all active cases](#) [Login](#)

Create CVD

First Name

Enter first name

Last Name

Enter last name

Email (required)

Enter email

Phone

Enter phone

Vulnerability Type (required)

✓ Select vulnerability type

Injection

Broken Authentication

Sensitive Data Exposure

XML External Entities (XXE)

Security Misconfigurations

Cross-Site Scripting (XSS)

Broken Access Control

Insecure Deserialization

Availability

Integrity

Confidentiality

Step-by-step explanation of the vulnerability (required)

Enter explanation

Explain why the identified vulnerability needs reporting (required)

Enter vulnerability reason

Domain or IP address(es) relating to the report (required)

Enter domain or IP

☐ I have read and agree to the terms of the CVD policy. (required)

Information about the processing of your personal data

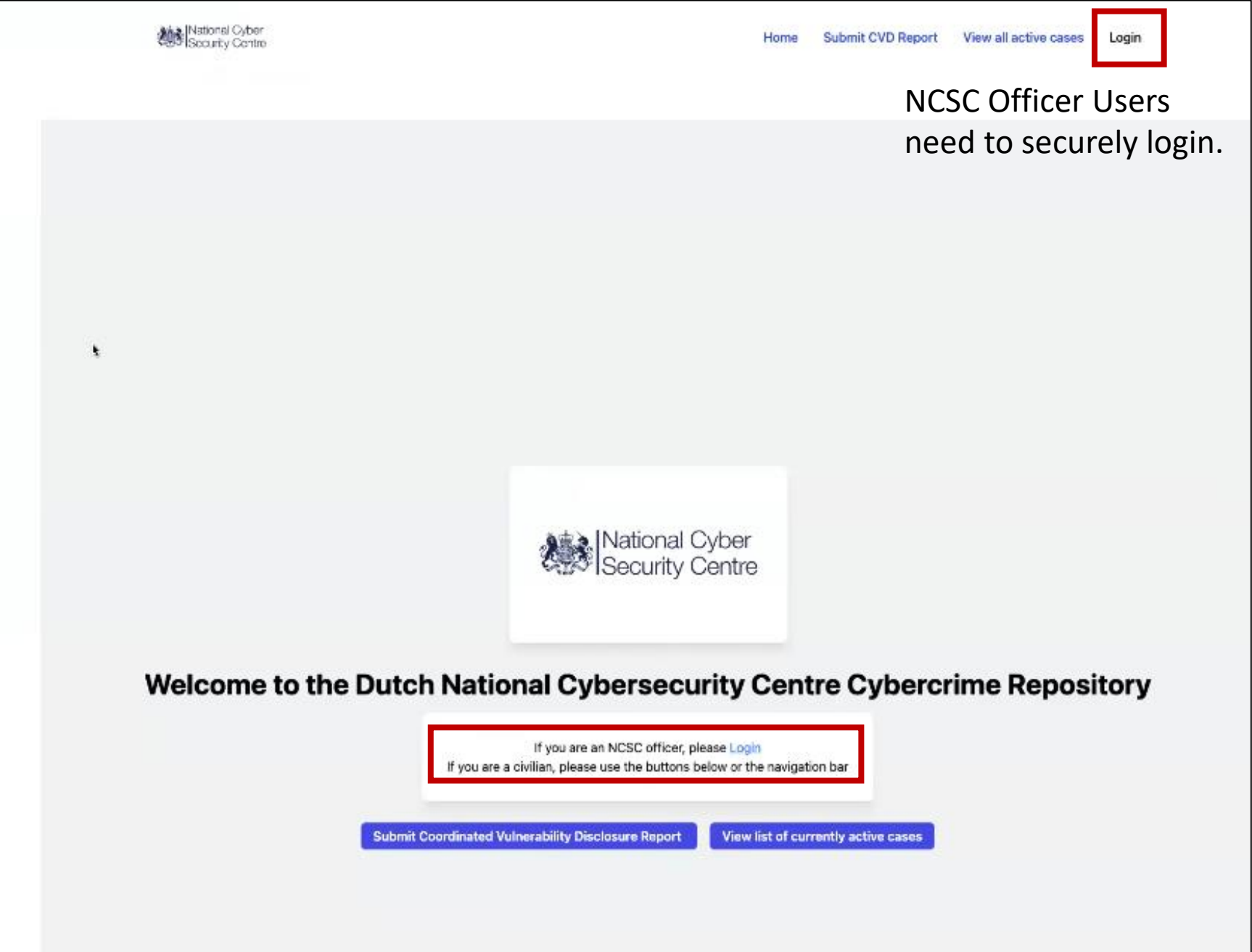
We ask you to provide your name, email address and telephone number in order to communicate with you regarding your report. Providing a name and telephone number is optional. If you are eligible for a reward, we will also need your address if you wish us to send it to you. We may therefore ask for your address after your report is processed. Your data will not be shared with third parties, unless disclosure of these data is compelled by law, or a court ruling.

Statement of agreement (required)

☐ Data provided by you may be used for communication in relation to the notification you made and for sending a reward if you qualify.

Create

# NCSC Officer Users



National Cyber  
Security Centre

[Home](#) [Submit CVD Report](#) [View all active cases](#) [Login](#)

National Cyber  
Security Centre

**Welcome to the Dutch National Cybersecurity Centre Cybercrime Repository**

If you are an NCSC officer, please [Login](#)  
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[Submit Coordinated Vulnerability Disclosure Report](#)

[View list of currently active cases](#)


NCSC Officer Users  
need to securely login.



# NCSC Officer Users Login Page

 National Cyber  
Security Centre

[Home](#) [Submit CVD Report](#) [View all active cases](#) [Login](#)

 National Cyber  
Security Centre

Sign in to your account

Username

test\_officer\_user1

Password

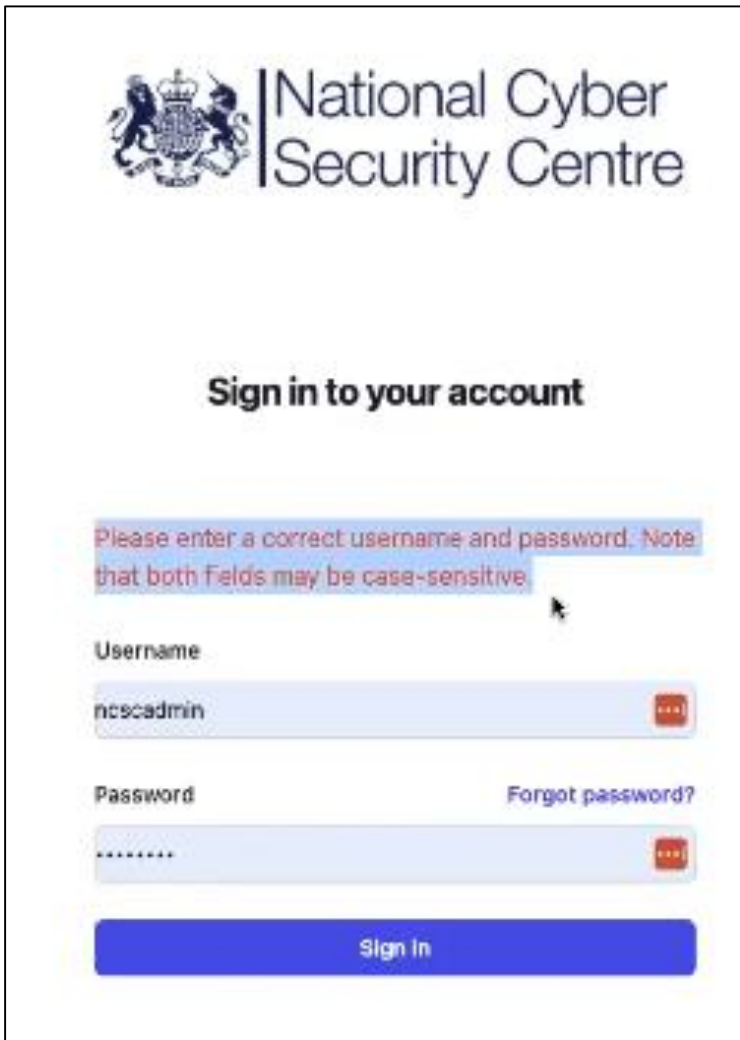
XXXXXXXXXX

[Forgot password?](#)

Sign In

NCSC Officer Users can securely login in this page by inputting their Username and Password.

# NCSC Officer Users Login



The image shows the NCSC Officer Users Login page. At the top is the NCSC logo and the text "National Cyber Security Centre". Below this is the heading "Sign in to your account". A red error message states: "Please enter a correct username and password. Note that both fields may be case-sensitive". The form has two input fields: "Username" with the value "ncscadmin" and "Password" with masked characters "\*\*\*\*\*". There is a "Forgot password?" link next to the password field. A blue "Sign In" button is at the bottom.

Failed logins will be captured and IP addresses logged and all API calls that are made.

```
[07/Jul/2023 21:42:47] "GET /static/admin/css/changelists.css HTTP/1.1" 304 0
[07/Jul/2023 21:42:47] "GET /admin/jsi18n/ HTTP/1.1" 200 3343
[07/Jul/2023 21:42:47] "GET /static/admin/img/icon-no.svg HTTP/1.1" 304 0
[07/Jul/2023 21:42:47] "GET /static/admin/js/filters.js HTTP/1.1" 304 0
[07/Jul/2023 21:42:47] "GET /static/admin/img/sorting-icons.svg HTTP/1.1" 304 0
[07/Jul/2023 21:42:47] "GET /static/admin/img/tooltag-add.svg HTTP/1.1" 304 0
Not Found: /favicon.ico
[07/Jul/2023 21:42:47] "GET /favicon.ico HTTP/1.1" 404 3760
[07/Jul/2023 21:43:02] "POST /admin/logout/ HTTP/1.1" 200 4024
[07/Jul/2023 21:43:04] "GET /accounts/login/ HTTP/1.1" 200 5912
Failed login attempt - Username: haarismian, IP address: 127.0.0.1
[07/Jul/2023 21:43:12] "POST /accounts/login/ HTTP/1.1" 200 6049
Not Found: /favicon.ico
[07/Jul/2023 21:43:13] "GET /favicon.ico HTTP/1.1" 404 3760
Not Found: /favicon.ico
[07/Jul/2023 21:43:13] "GET /favicon.ico HTTP/1.1" 404 3760
```

# NCSC Officer Users Home Page



## Welcome to the Dutch National Cybersecurity Centre Cybercrime Repository

Welcome, test Officer!

Last Login: July 7, 2023, 9:39 p.m.

This will display their Username and last login. Users will be logged out if the app is inactive for 5 minutes.

NCSC Officer Users can navigate to the CVD page and view list of active cases.

Go to CVD page

View list of currently active cases

# NCSC Officer Users

## View list of currently active cases

 National Cyber Security Centre

HomeCVD moduleCases moduleLogout

Create New Case

NCSC Officer Users can create a new case by clicking this button.


Case List

Case ID	Title	Actions
115	<script>alert("Test alert");</script>.	<div>Delete CaseView Case</div>

NCSC Officer Users can view cases or delete a case by clicking these buttons.

# NCSC Officer Users

## Go to CVD page

 National Cyber Security Centre

HomeCVD moduleCases moduleLogout

CVD Report List

Create New CVD

NCSC Officer Users can create a new CVD by clicking this button.

First Name: test  
Last Name: test  
Email: test@gmail.com  
Phone: test  
Vulnerability Type: broken\_auth  
Explanation: tttt  
Reason: ttt  
Domain/IP: ttt  
RGB Key: ttt

View

NCSC Officer Users can view a case by clicking this button.

NCSC Officer Users can delete a case by clicking this button.


Delete

# NCSC Officer User

## Create a CVD

This NCSC Officer User will fill in all the required fields. There is a dropdown menu for ‘Vulnerability Type’.

At the bottom there are disclaimers about use of data to ensure it is GDPR compliant.

National Cyber  
Security Centre

[Home](#) [Submit CVD Report](#) [View all active cases](#) [Login](#)

Create CVD

First Name

Enter first name

Last Name

Enter last name

Email (required)

Enter email

Phone

Enter phone

Vulnerability Type (required)

✓ Select vulnerability type

Injection

Broken Authentication

Sensitive Data Exposure

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Security Misconfigurations

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Enter explanation

Explain why the identified vulnerability needs reporting (required)

Enter vulnerability reason

Domain or IP address(es) relating to the report (required)

Enter domain or IP

☐ I have read and agree to the terms of the CVD policy. (required)

Information about the processing of your personal data

We ask you to provide your name, email address and telephone number in order to communicate with you regarding your report. Providing a name and telephone number is optional. If you are eligible for a reward, we will also need your address if you wish us to send it to you. We may therefore ask for your address after your report is processed. Your data will not be shared with third parties, unless disclosure of these data is compelled by law, or a court ruling.

Statement of agreement (required)

☐ Data provided by you may be used for communication in relation to the notification you made and for sending a reward if you qualify.

Create

# NCSC Officer User Admin Rights

Default Admin Login	Default Admin Password
ncsc_admin	ssd_password

This NCSC Officer User can login into the Django Administration.



The screenshot shows the Django administration interface. At the top, a dark blue header bar contains the text "Django administration". Below this, a red-bordered box displays an error message: "You are authenticated as test\_officer\_user1, but are not authorized to access this page. Would you like to login to a different account?". Underneath the error box, there are two input fields: "Username:" with the value "ncscadmin" and "Password:" with masked characters. Both fields have a red "X" icon on the right. At the bottom, there is a blue "Log in" button.

# NCSC Officer User Admin Rights

Site administration

AUTHENTICATION AND AUTHORIZATION

Groups

+ Add   ✎ Change

Users

+ Add   ✎ Change

CASES\_SERVICE

Cases

+ Add   ✎ Change

Recent actions

My actions

- ✎ test\_officer\_user2 User
- + test\_officer\_user2 User
- ✎ test\_officer\_user1 User
- + Officer Group
- + test\_officer\_user1 User
- + test Question

NCSC Officer Users can set up new groups, users or cases or change them.

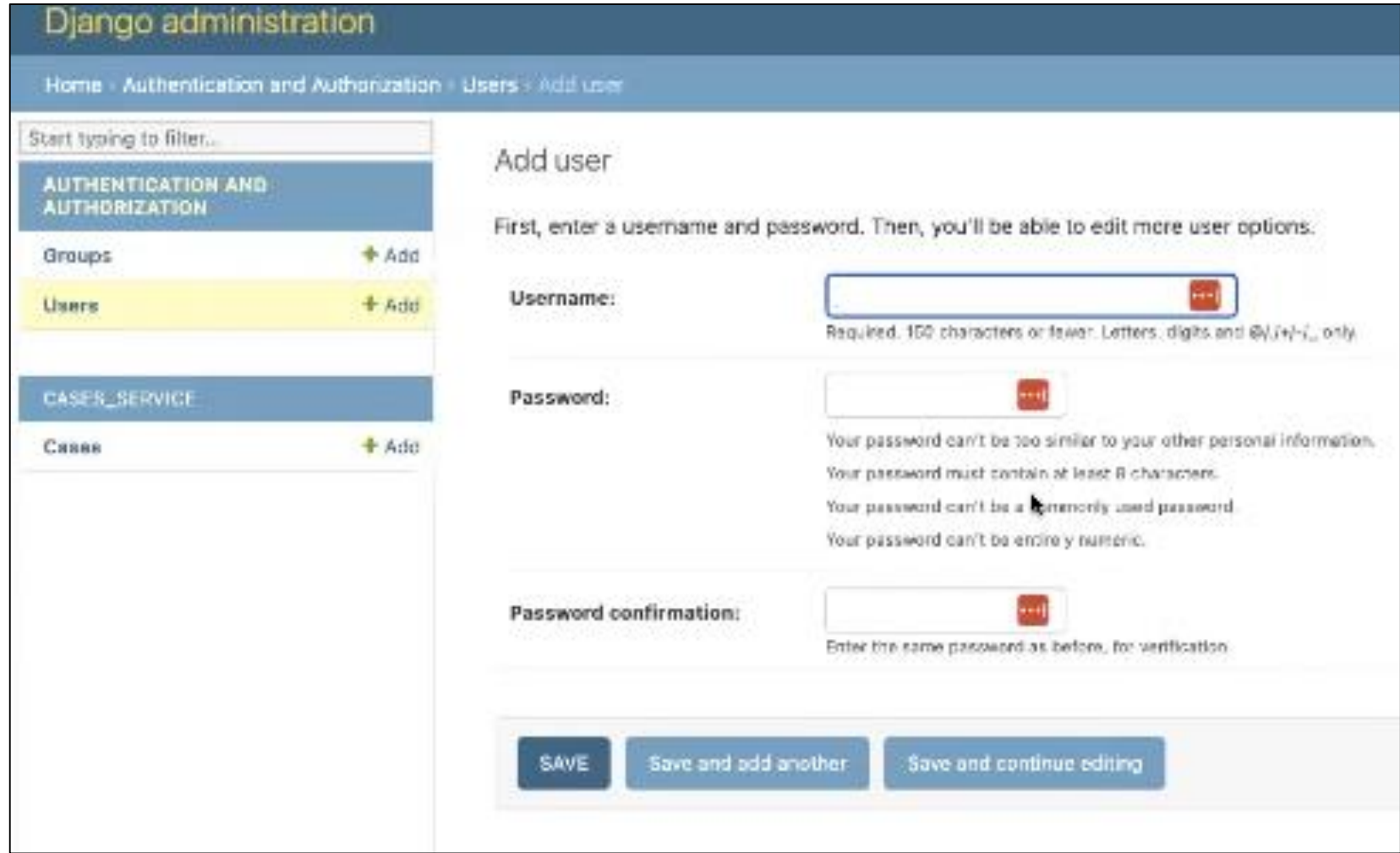
Any recent login action is displayed here.



# NCSC Officer User Create New User

This NCSC Officer User can add a new user.

The password must meet certain criteria to ensure strength.



The screenshot shows the Django administration interface for adding a new user. The breadcrumb trail at the top reads: Home > Authentication and Authorization > Users > Add user. On the left sidebar, under the 'AUTHENTICATION AND AUTHORIZATION' section, the 'Users' link is highlighted in yellow and has a '+ Add' button next to it. Below this, under the 'CASES\_SERVICE' section, the 'Cases' link is visible with a '+ Add' button. The main content area is titled 'Add user' and includes the instruction: 'First, enter a username and password. Then, you'll be able to edit more user options.' There are three input fields: 'Username:', 'Password:', and 'Password confirmation:'. Each field has a red eye icon to toggle visibility. The 'Username' field has a validation message: 'Required. 100 characters or fewer. Letters, digits and @/./+/-/\_ only.' The 'Password' field has three validation messages: 'Your password can't be too similar to your other personal information.', 'Your password must contain at least 8 characters.', and 'Your password can't be a commonly used password.' The 'Password confirmation' field has a validation message: 'Enter the same password as before, for verification.' At the bottom, there are three buttons: 'SAVE', 'Save and add another', and 'Save and continue editing'.

# NCSC Officer User Change User

Password is  
GDPR  
compliant

We can choose  
Staff status or  
Superuser status.

Officer Group  
has all  
permissions.

Change user

Username:

required: 150 characters or fewer. Letters, digits and @/./+/-/\_ only.

Password: **algorithm: pbkdf2\_sha256 iterations: 600000 salt: Xd1gvu\*\*\*\*\* hash: myZj0\*\*\*\*\***  
Raw passwords are not stored, so there is no way to see this user's password, but you can change the password using this form.

Personal info

First name:

Last name:

Email address:

Permissions

☒ Active  
Designates whether this user should be treated as active. Unselect this instead of deleting accounts.

☐ Staff status  
Designates whether the user can log into this admin site.

☐ Superuser status  
Designates that this user has all permissions without explicitly assigning them.

Groups:

Available groups

Officer

Chosen groups

Choose all Remove all

The groups this user belongs to. A user will get all permissions granted to each of their groups. Hold down "Control", or "Command" on a Mac, to select more than one.

User permissions:

Available user permissions

admin | log entry | Can add log entry  
admin | log entry | Can change log entry  
admin | log entry | Can delete log entry  
admin | log entry | Can view log entry  
auth | group | Can add group  
auth | group | Can change group  
auth | group | Can delete group  
auth | group | Can view group  
auth | permission | Can add permission  
auth | permission | Can change permission  
auth | permission | Can delete permission  
auth | permission | Can view permission  
auth | user | Can add user

Chosen user permissions

# NCSC Officer User

## User List

Django administration

Home > Authentication and Authorization > Users

Start typing to filter...

**AUTHENTICATION AND AUTHORIZATION**

- Groups + Add
- Users + Add**

**CASES\_SERVICE**

- Cases + Add

✓ The user "haarismian" was changed successfully.

Select user to change

Q  Search

Action:  Go 0 of 4 selected

<input type="checkbox"/>	USERNAME	EMAIL ADDRESS	FIRST NAME	LAST NAME	STAFF STATUS
<input type="checkbox"/>	haarismian	mail@haarismian.com	Haaris	Mian	✗
<input type="checkbox"/>	ncscadmin	mail@haarismian.com			✓
<input type="checkbox"/>	test_officer_user1	mail@haarismian.com	test	Officer	✗
<input type="checkbox"/>	test_officer_user2	mail@haarismian.com	John	Irvine	✗

4 users