Netskope Security Cloud Adoption & Activation

Lab Guide

NETSKOPE CONFIDENTIAL

Version 23.11

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Before you begin

To participate in the Netskope Cloud Security Adoption and Activation Lab, you will need to:

- Obtain the NSCAA onboarding email with credentials and IP addresses.
- Download and install the Amazon WorkSpaces thick client on your computer

Note: If you are using a Windows computer, you can download either the 32-bit or 64-bit version.

- Test your Amazon WorkSpace credentials.
- Test your Netskope tenant credentials (which will be provided to you the day of the lab).

If you have an issue with those credentials, please send an email to: `training@netskope.com`

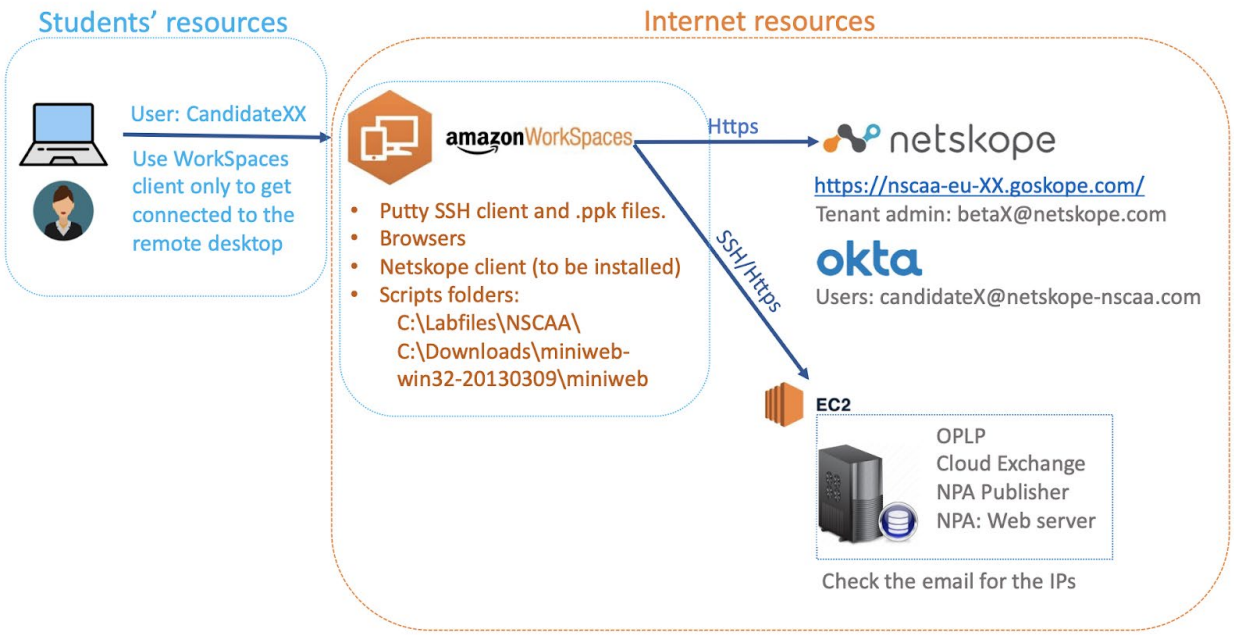
Note: Your Amazon WorkSpaces account will be of the form candidate{X}, where {X} is your student number. You will enter your student number to name different entities during the lab. For example, if you see the instruction to name your policy `Policy{X}`, and your student number is 4, you should name your policy `Policy4`.

During the lab, your Amazon WorkSpace will provide you with connectivity to all required elements to complete the lab.

The PuTTY SSH client will be used to connect from the WorkSpace to the Cloud Exchange server and Netskope virtual appliance (NS-VA, also often referred to as On-Premises Log Parser or OPLP, which is the most used role of the NS-VA).

During the lab, you will be asked to use specific browsers. These browsers have been made available in your Amazon WorkSpace.

Lab resources diagram



Lab Scenario

The Super Duper Cars and Trucks Company has recently installed Netskope as their security solution. Super Duper sells new and used cars and trucks and has just purchased Acme Loan Company so they can also offer to finance loans to their customers. With this recent addition, Super Duper now has access to and stores not only PII data but also financial data of their customers. Acme Loan Company runs a third-party endpoint protection product that conflicts with the Netskope client. They need an interim solution for the Acme Loan employees to connect to until their systems can be migrated to Netskope. Super Duper also shares cloud applications such as Salesforce with their partners and suppliers for their built-in collaboration and sharing capabilities. The company has some security concerns they need to address.

They need to:

- Centralize all logs to a SIEM server, including security logs collected from CrowdStrike.
- Install and authenticate all client deployments to their employees.
- Create marketing surveys in near real time, requiring new domains to host the surveys and landing pages.
- Deploy an OPLP virtual appliance to do fingerprinting locally because the CISO is reluctant to upload the company's most sensitive documents to Netskope.
- Implement a solution to provide external access to internal resources; suppliers for the company need to access certain internal company apps and resources, using their own devices to connect.
- Provide internet access to the Acme Loan employees who will not have the Netskope client installed on their computers for the interim; the CIO wants to use the Cloud Explicit Proxy access method until they can migrate the Acme Loan employees' systems to Netskope.
- Continually investigate any exposure or loss of customers' payment card data and other sensitive information.

Lab A: Configure Cloud Exchange for log shipping

The SOC team is centralizing all logs in a SIEM server. To include logs from the Netskope tenant, they need to deploy a Netskope Cloud Exchange server and set it up for log shipping.

During this lab, you will complete the following tasks:

- Deploy Cloud Exchange software containers.
- Configure the Cloud Log Shipper feature.

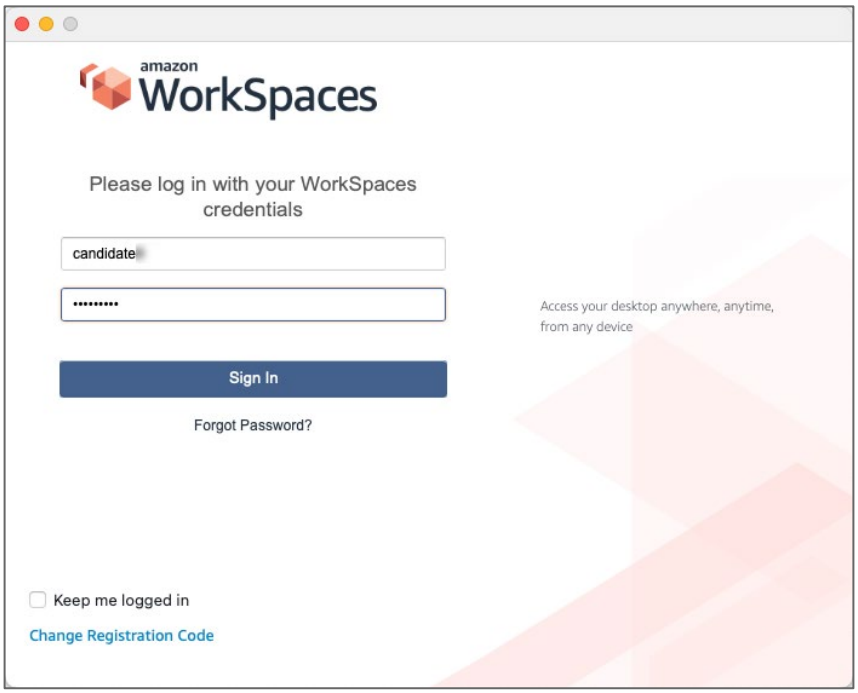
Your instructor has provisioned an EC2 instance with Ubuntu 18.04 on which you can install Netskope Cloud Exchange. You will also install the rsyslog server to act as a stand-in for a SIEM system.

Part 1 – Deploy Cloud Exchange

Task 1.1 – Check Availability of Docker

Netskope Cloud Exchange is provided as a set of containers that need **Docker** to run. The setup script uses Docker Compose (v1.x), a tool that simplifies deployment of multi-container applications. In this task, you will ensure that both Docker and Docker Compose are installed on the Ubuntu server.

1. Open the Amazon WorkSpaces client and connect using the registration code, username, and password provided by your instructor.

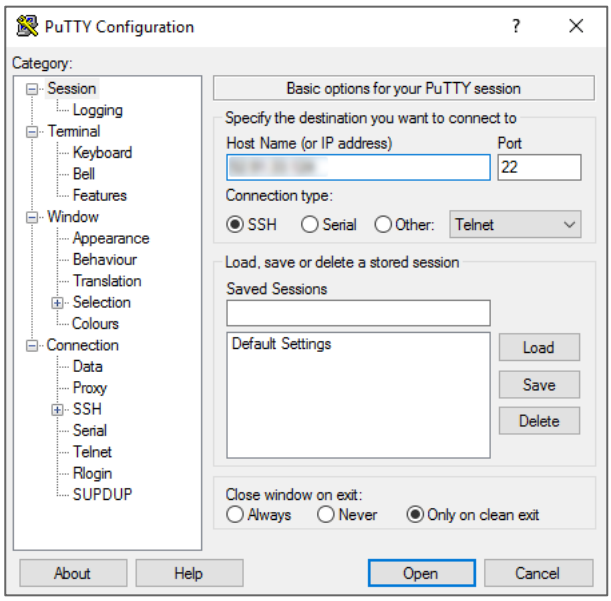


   Note: The first time you connect, the WorkSpace status will display as Resuming for a while.

   IMPORTANT: From this point on, perform all lab steps within your Amazon WorkSpace.

2. Run the PuTTY SSH client to connect to the virtual appliance.

3. In the **Host name (or IP address)** field enter the public IP address of the Cloud Exchange server provided by the instructor.

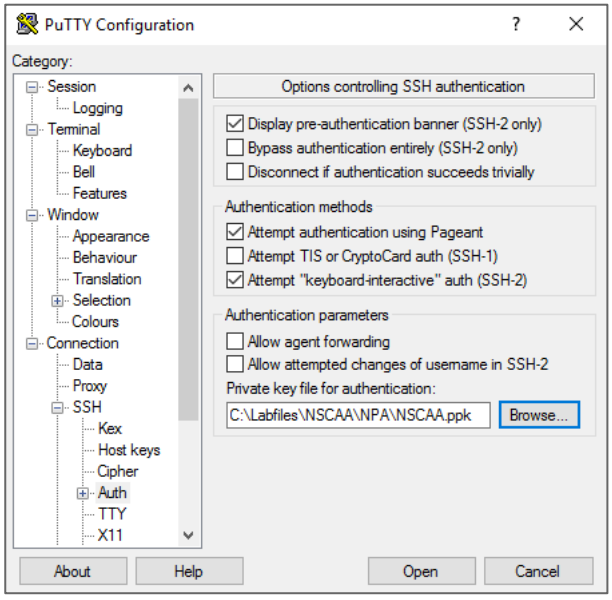


Note: The SSH server on this Ubuntu instance is configured to use public key authentication. To access the server, you will need to provide your private key, located in the lab files folder.

4. Select the private key to use for the SSH session:

   a. In the side menu, navigate to **Connection** > **SSH** > **Auth**.

   b. Click **Browse** and open the private key file `C:\Labfiles\NSCAA\NPA\NSCAA.ppk`.

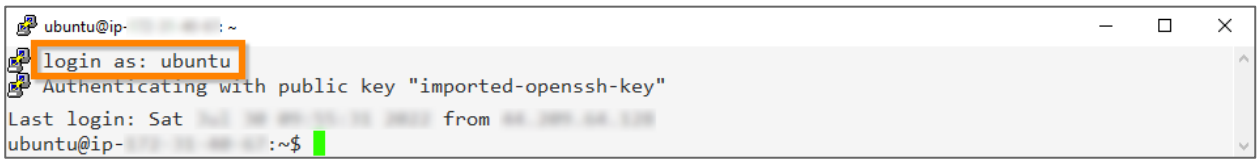


Hint: If the C: drive is not available, type `C:\` in the path field.

5. Click **Open**, then in the **PuTTY Security Alert** window click **Accept**.

6. To log in, type the username:

   `ubuntu`



7. To check if prerequisite software git, python3, docker, and docker-compose are installed, use the command:

   `which git python3 docker docker-compose`

```
ubuntu@ip-:~$ which git python3 docker docker-compose
/usr/bin/git
/usr/bin/python3
/usr/bin/docker
ubuntu@ip-:~$
```

   Note: If the `which` command returns a path, the software has been installed. Notice that the command did not return path for docker-compose. You will update the Ubuntu server first and then install Docker Compose.

8. To update software packages on the Ubuntu server, use the following commands:

   `sudo apt update`

```
ubuntu@ip-:~$ sudo apt update
Hit:1 http://us-west-2.ec2.archive.ubuntu.com/ubuntu bionic InRelease
Hit:2 http://us-west-2.ec2.archive.ubuntu.com/ubuntu bionic-updates InRelease
Hit:3 http://us-west-2.ec2.archive.ubuntu.com/ubuntu bionic-backports InRelease
Fetched 90.2 kB in 1s (121 kB/s)
Reading package lists... Done
Building dependency tree
Reading state information... Done
2 packages can be upgraded. Run 'apt list --upgradable' to see them.
ubuntu@ip-:~$
```

   `sudo apt upgrade -y`

```
ubuntu@ip-:~$ sudo apt upgrade -y
Reading package lists... Done
Building dependency tree
Reading state information... Done
Calculating upgrade... Done
The following packages were automatically installed and are no longer required:
  libaio1 librados2 librbd1
Use 'sudo apt autoremove' to remove them.
The following packages have been kept back:
  aws-neuron-dkms nvidia-fabricmanager-510
0 upgraded, 0 newly installed, 0 to remove and 2 not upgraded.
ubuntu@ip-:~$
```

   Note: Although the Ubuntu software repositories contain a package for Docker Compose, you should not use it. The version of Docker Compose in Ubuntu 18.04 repositories is too old and not compatible with Netskope Cloud Exchange installation scripts. You will download a newer version of Docker Compose as a precompiled binary.

9. Download the Docker Compose binary using the following command (as a continuous line without breaks):

```
sudo curl -L
"https://github.com/docker/compose/releases/download/1.29.2/docker-
compose-$(uname -s)-$(uname -m)" -o /usr/local/bin/docker-compose
```

```
ubuntu@ip-[redacted]:~$ sudo curl -L "https://github.com/docker/compose/releases/download/1.29.2/dock
er-compose-$(uname -s)-$(uname -m)" -o /usr/local/bin/docker-compose
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
  0     0    0     0    0     0      0      0 --:--:-- --:--:-- --:--:--     0
100 12.1M  100 12.1M    0     0  29.6M      0 --:--:-- --:--:-- --:--:-- 29.6M
ubuntu@ip-[redacted]:~$
```

10. To grant the downloaded binary execution permissions for all users, type:

```
sudo chmod +x /usr/local/bin/docker-compose
```

11. To verify the installation, enter the following command:

```
docker-compose --version
```

```
ubuntu@ip-[redacted]:~$ sudo chmod +x /usr/local/bin/docker-compose
ubuntu@ip-[redacted]:~$
ubuntu@ip-[redacted]:~$ docker-compose --version
docker-compose version 1.29.2, build 5becea4c
ubuntu@ip-[redacted]:~$
```

Task 1.2 – Install Netskope Cloud Exchange

Management scripts and other necessary files to run Netskope Cloud Exchange are publicly available in a Github repository. You will clone the repository and run the scripts to download and start the containers comprising Netskope Cloud Exchange.

More information about installing Netskope Cloud Exchange is available at the link *https://docs.netskope.com/en/install-cloud-exchange.html*

1. Clone the `netskopeoss/ta_cloud_exchange` Github repository into a dedicated folder using the following commands:

```
cd /opt
sudo mkdir -p netskope
cd netskope
sudo git clone https://github.com/netskopeoss/ta_cloud_exchange
cd ta_cloud_exchange
```

```
ubuntu@ip-[redacted]:~$ cd /opt/
ubuntu@ip-[redacted]:/opt$ sudo mkdir netskope
ubuntu@ip-[redacted]:/opt$ cd netskope/
ubuntu@ip-[redacted]:/opt/netskope$ sudo git clone https://github.com/netskopeoss/ta_cloud_exchange
Cloning into 'ta_cloud_exchange'...
remote: Enumerating objects: 330, done.
remote: Counting objects: 100% (160/160), done.
remote: Compressing objects: 100% (79/79), done.
remote: Total 330 (delta 126), reused 83 (delta 81), pack-reused 170
Receiving objects: 100% (330/330), 3.10 MiB | 11.25 MiB/s, done.
Resolving deltas: 100% (179/179), done.
ubuntu@ip-[redacted]:/opt/netskope$ cd ta_cloud_exchange/
ubuntu@ip-[redacted]:/opt/netskope/ta_cloud_exchange$
```

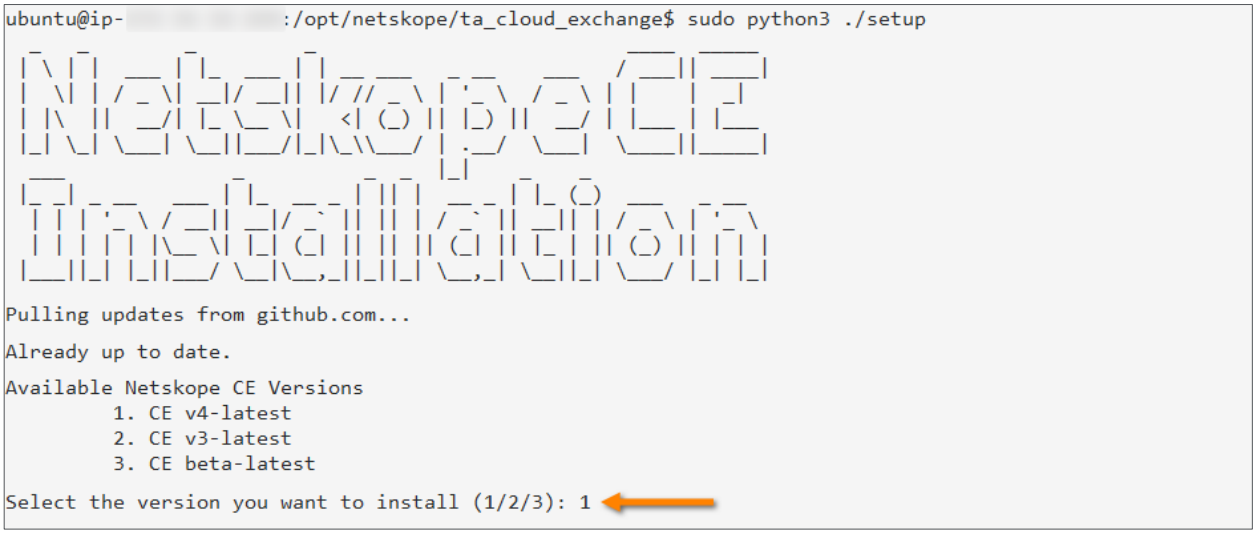
2. Execute the setup script:

```
sudo python3 ./setup
```

3. At the prompt `Select the version you want to install`, enter:

   1

   Note: 1 should correspond to CE v4-latest



4. At the prompt `Are you using HTTP(s) proxy for outbound traffic?` enter:

   n

5. When prompted, enter the name of your Netskope tenant, making sure you do *not* include the `.goskope.com` part.

6. After the setup script checks the prerequisites, complete the installation by providing the following answers to the prompts:

   a. Do you want to access CE over HTTP or HTTPS (HTTPS is recommended)?
      Enter: HTTP

   b. Do you still want to access CE over HTTP?
      Enter: y

   Note: We use HTTP due to the specifics of the lab environment. In a production setting you should use HTTPS, unless you have specific reasons not to.

   c. Enter the port on which you want to access the Netskope CE UI (Default: "80")
      Press ENTER to accept the default UI port of 80 TCP.

```
Do you want to access CE over HTTP, or HTTPS (HTTPS is recommended)? HTTP
Accessing CE over HTTP is not recommended
Do you still want to access CE over HTTP? (y/yes) y
> Enter the port on which you want to access the Netskope CE UI (Current: "80"):
[P] Port 80 is available.
```

d. Enter a JWT secret which will be used for signing authentication tokens:
   Enter: `secret`

e. Enter maintenance password…
   Enter and confirm: `netskope`

f. Do you want to enable TLSv1.2… (Default: "No")
   Press ENTER to opt out of using TLSv1.2 for the CE UI.

g. Do you want to provide custom CA certs?
   Enter: n

h. Do you want to take backup of .env file?
   Enter: n

```
> Enter a JWT Secret which will be used for signing the authentication tokens:
> Enter maintenance password that will be used for RabbitMQ and MongoDB services (This password can be s
et only once):
> Confirm maintenance password:
> Do you want to enable TLSv1.2 along with TLSv1.3 for CE UI (Default: "No"):

> Do you want to provide custom CA certs? (y/n): n
> Do you want to take backup of .env file? [y/n]: n
Setup completed successfully...
Execute this command to start CE:
  > ./start
Please re-run the setup script to update any parameter.
```

7. Start the Cloud Exchange server using the command:

   `sudo ./start`

```
ubuntu@ip-          :/opt/netskope/ta_cloud_exchange$ sudo ./start
docker-compose version 1.29.2, build 5becea4c
docker-py version: 5.0.0
CPython version: 3.7.10
OpenSSL version: OpenSSL 1.1.0l  10 Sep 2019
Pulling rabbitmq-stats  ... done
Pulling mongodb-primary ... done
Pulling core            ... done
Pulling ui              ... done
Creating network "ta_cloud_exchange_default" with the default driver
Creating ta_cloud_exchange_rabbitmq-stats_1  ... done
Creating ta_cloud_exchange_mongodb-primary_1 ... done
Creating ta_cloud_exchange_core_1            ... done
Creating ta_cloud_exchange_ui_1              ... done
ubuntu@ip-          :/opt/netskope/ta_cloud_exchange$
```

   When all downloads are complete, the status "done" is displayed for each container.

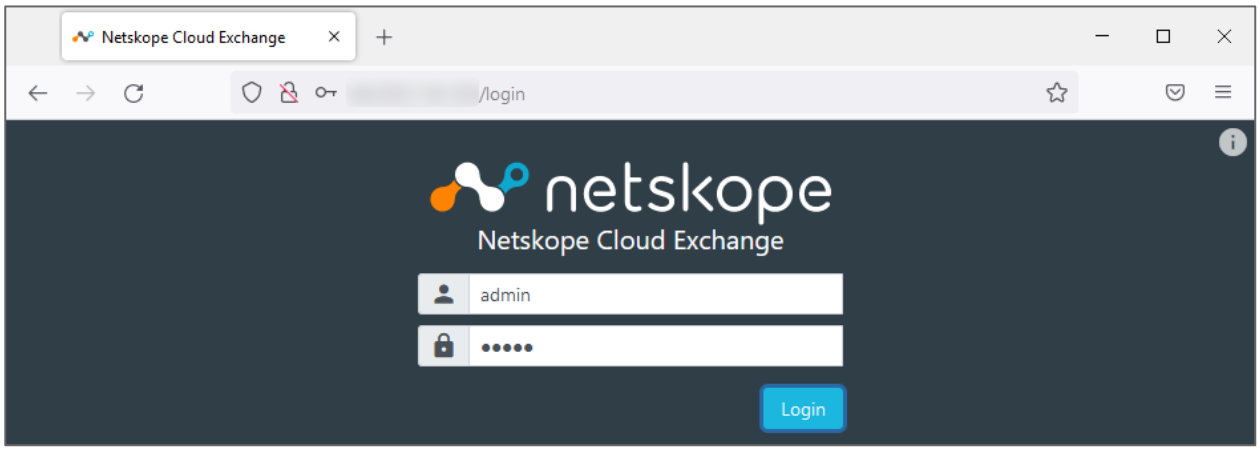
8. After the container deployment process is finished and you are returned to the command line prompt, open a web browser window and navigate to:

`http://{your assigned Cloud Exchange public IP Address}`

9. Log in to Cloud Exchange with the following credentials:

   username: `admin`

   password: `admin`



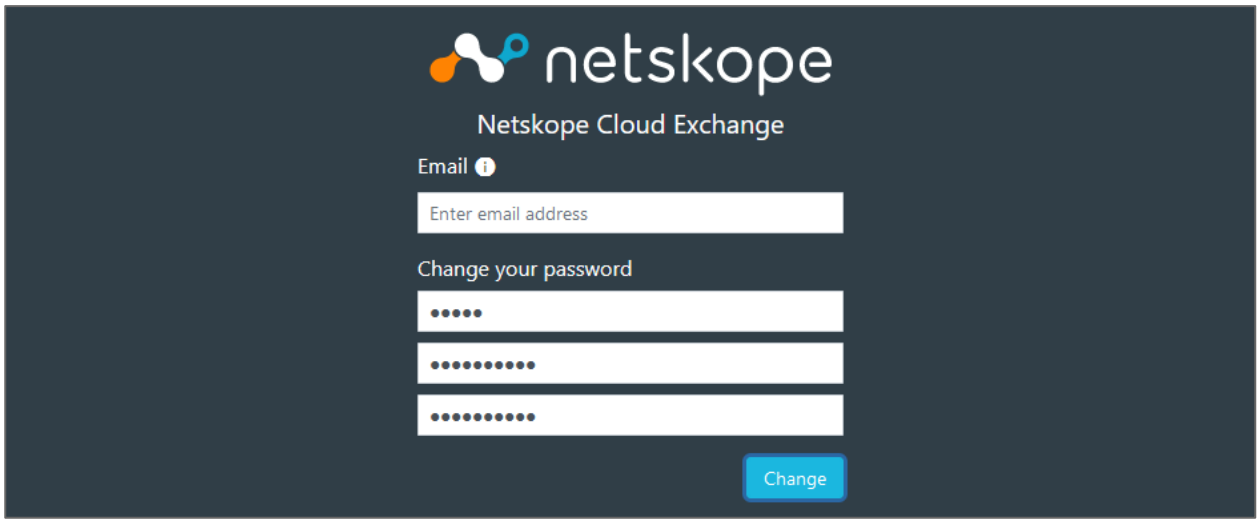
10. When the license agreement is displayed, scroll to the bottom of the agreement and click **Accept**.

11. At the **Change your password** screen, perform the following:

    a. Leave the **Email** field blank

    b. Change the password from admin to `Password1!` (making sure to confirm the new password).

    c. Click **Change**.

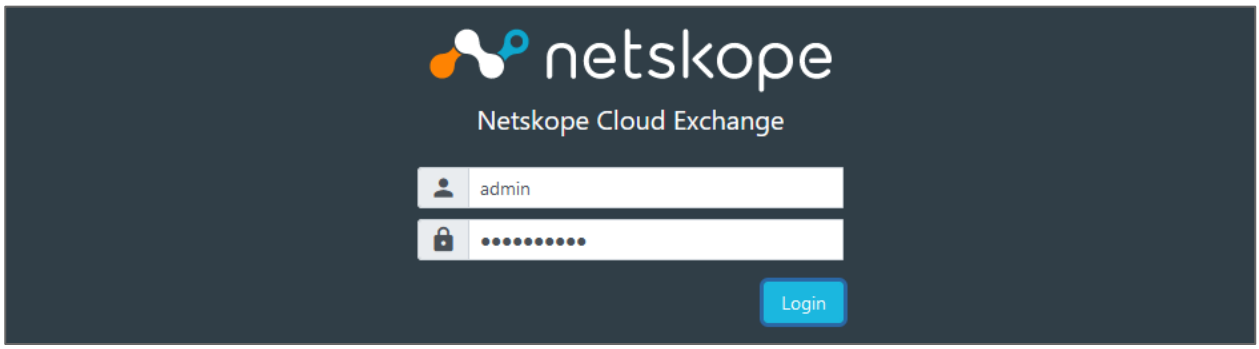


12. In the **Confirm Action** window, click **Proceed**.

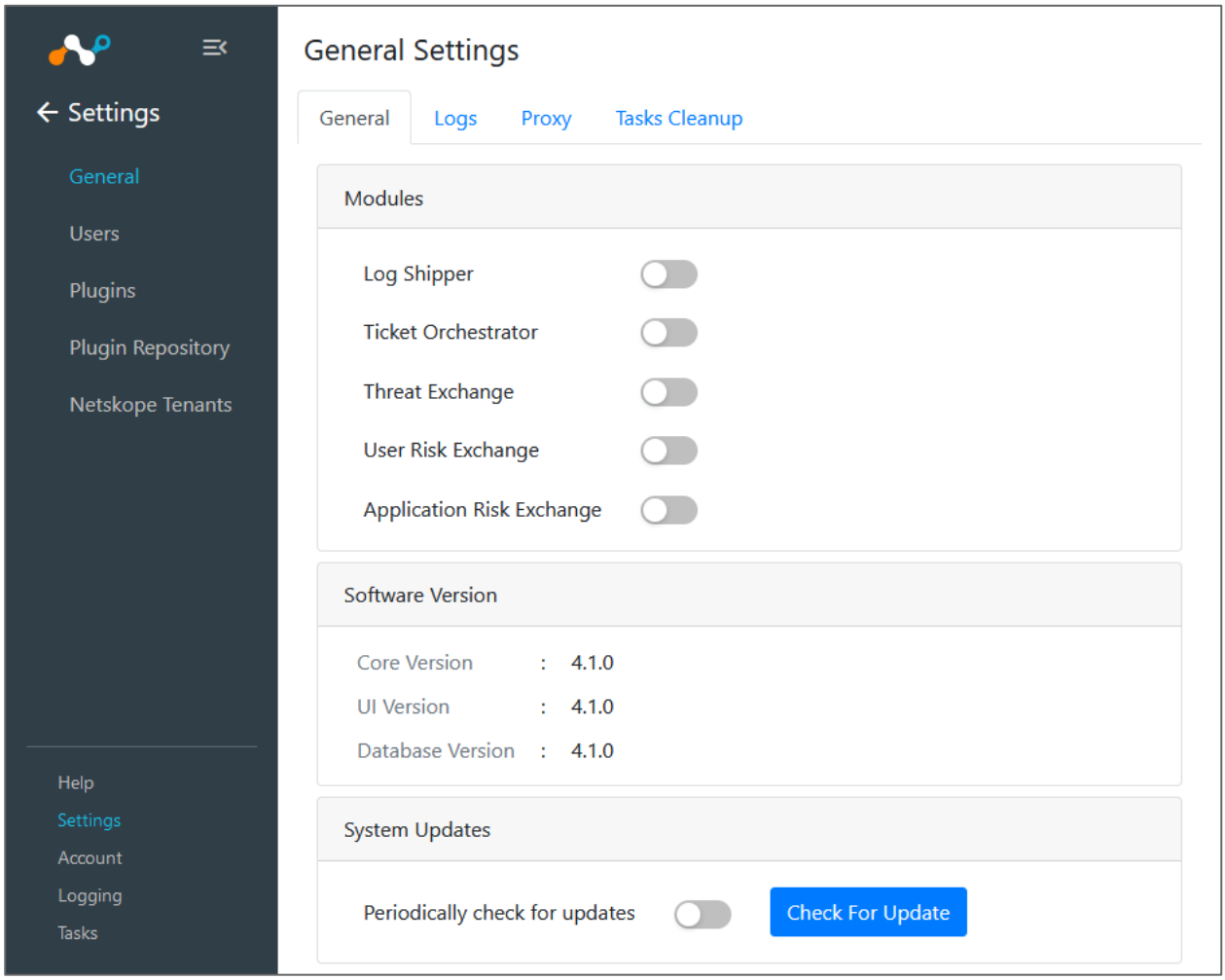
13. When the login screen is displayed again, log in with your new password:

    username: `admin`

    password: `Password1!`



Netskope Cloud Exchange is ready for use.



Part 2 – Set up log shipping

Task 2.1 – Install and configure a syslog server

You will deploy the rsyslog server on the same Ubuntu server to act as a stand-in for a SIEM platform. This is for simplicity and demo purposes. It is not recommended to install any additional software on the server acting as Netskope Cloud Exchange.

In a production environment the SIEM system is already provisioned, but you may need to set up a new connector to receive the incoming logs.

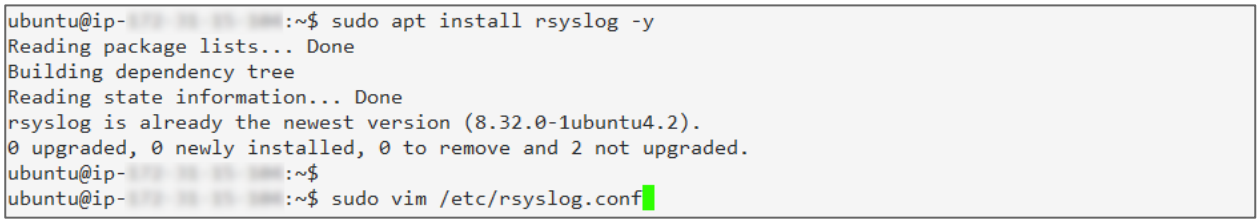
1. Go back to the SSH session established with the Netskope Cloud Exchange server.

2. To install rsyslog, type:

   ```
   sudo apt install rsyslog -y
   ```

3. To edit the rsyslog configuration file, type:

   ```
   sudo vim /etc/rsyslog.conf
   ```

4. Press the INSERT key on your keyboard to enter the editing mode.

5. To specify the protocol and port for incoming log messages:

   a. Remove **#** at the beginning of the line

      ```
      module(load="imudp")
      ```

   b. Remove **#** at the beginning of the line

      ```
      input(type="imudp" port "514")
      ```

6. Hit the ESC key, type
   `:wq`
   and press ENTER to save the configuration file.

```
#  /etc/rsyslog.conf    Configuration file for rsyslog.
#
#                       For more information see
#                       /usr/share/doc/rsyslog-doc/html/rsyslog_conf.html
#
#  Default logging rules can be found in /etc/rsyslog.d/50-default.conf


#################
#### MODULES ####
#################

module(load="imuxsock") # provides support for local system logging
#module(load="immark")  # provides --MARK-- message capability

# provides UDP syslog reception
module(load="imudp")
input(type="imudp" port="514")

# provides TCP syslog reception
#module(load="imtcp")
#input(type="imtcp" port="514")

:wq
```

You have configured rsyslog to receive log messages over UDP on port 514.

7. For the new configuration to take effect, restart the rsyslog service with the command:

   `sudo systemctl restart rsyslog`

```
ubuntu@ip-[redacted]:~$ sudo systemctl restart rsyslog
ubuntu@ip-[redacted]:~$
```

No output means that the service restarted without errors. If you see a warning or an error message, you may have made mistakes in the configuration file. Open the configuration again and check for typos or ask the instructor for assistance.

8. To verify that the rsyslog server is listening on UDP port 514, type the command:

   `netstat -lnu`

```
ubuntu@ip-[redacted]:~$ netstat -lnu
Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
udp        0      0 127.0.0.53:53           0.0.0.0:*
udp        0      0 172.31.15.104:68        0.0.0.0:*
udp        0      0 0.0.0.0:111             0.0.0.0:*
udp        0      0 127.0.0.1:323           0.0.0.0:*
udp        0      0 0.0.0.0:514             0.0.0.0:*
udp        0      0 0.0.0.0:729             0.0.0.0:*
udp6       0      0 :::111                  :::*
udp6       0      0 ::1:323                 :::*
udp6       0      0 :::514                  :::*
udp6       0      0 :::729                  :::*
ubuntu@ip-[redacted]:~$
```

Syslog is now configured.

Task 2.2 – Configure the Cloud Exchange Log Shipper

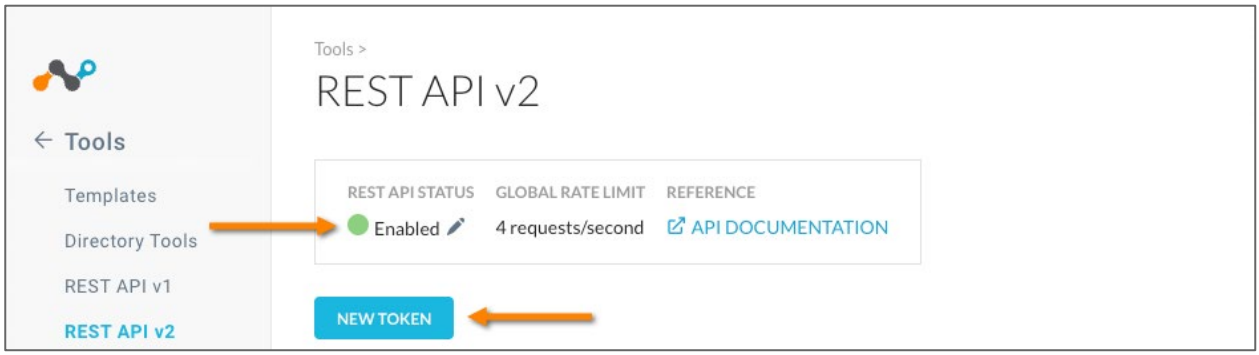
1. Open a web browser and navigate to the Netskope tenant assigned to you for this training.

2. Log in with the tenant credentials provided to you for this training.

3. Following the first login, change the initial password to `Password1!` and accept the Netskope Service Operation Policy.

4. On the Netskope tenant, click **Settings**, then navigate to **Tools** > **REST API v2**.

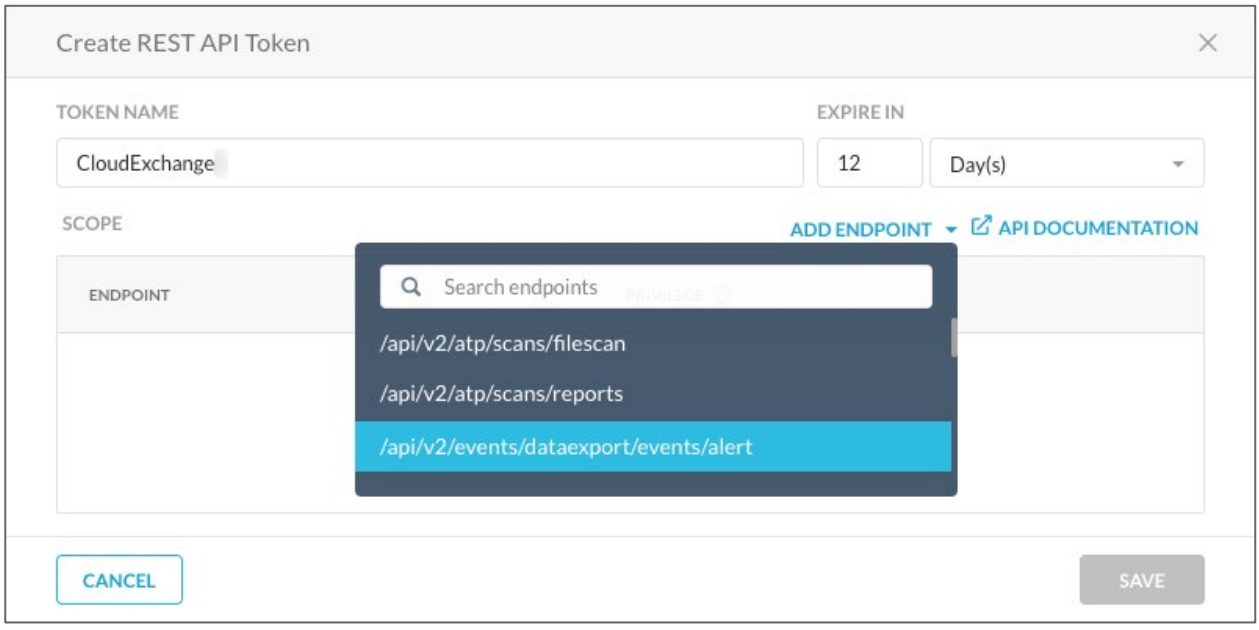
5. Ensure that **REST API Status** shows **Enabled**, then click **New Token**.



6. In the **Token name** field type, type `CloudExchange{X}`, where {X} is your student number.

7. In the **Expire in** field, type `12`

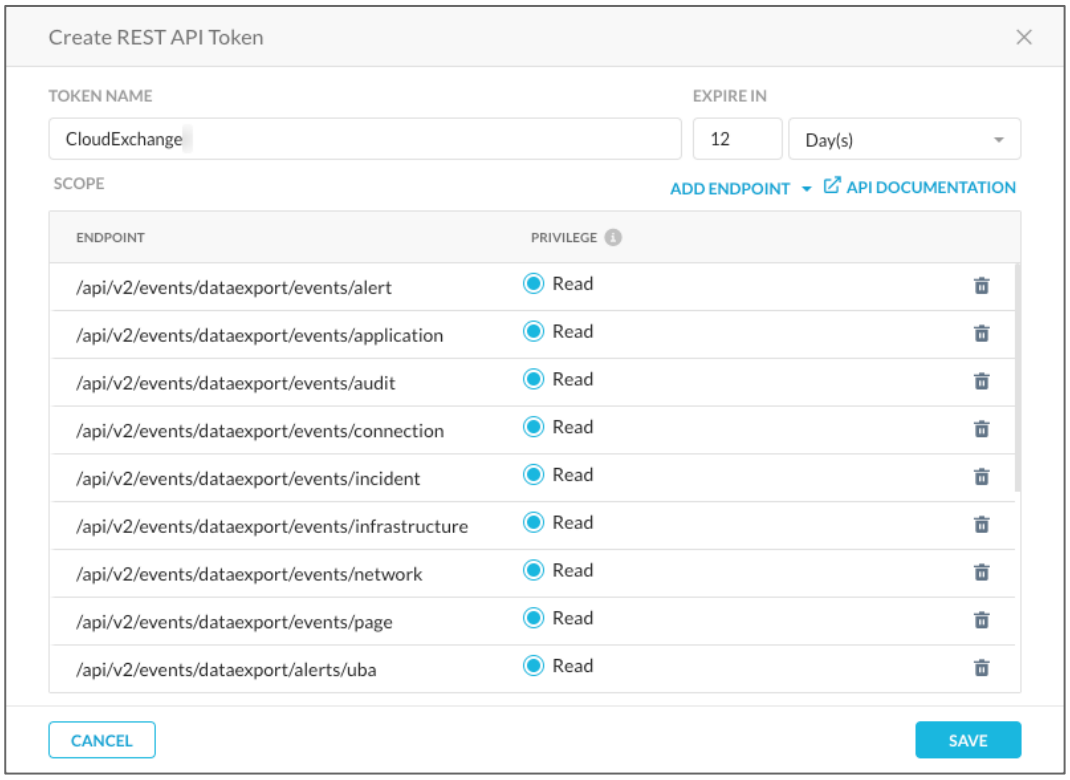
8. Click **Add endpoint** and select **/api/v2/events/dataexport/events/alert**.



9. Use the **Add endpoint** link to add all other endpoints containing `dataexport`:

   - /api/v2/events/dataexport/events/application
   - /api/v2/events/dataexport/events/audit
   - /api/v2/events/dataexport/events/connection
   - /api/v2/events/dataexport/events/incident

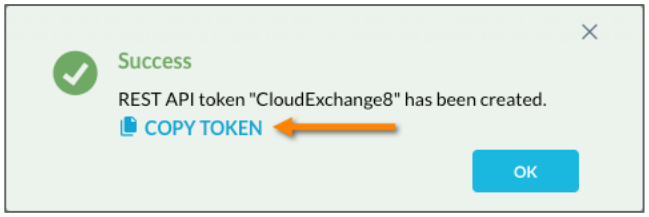
- /api/v2/events/dataexport/events/infrastructure
- /api/v2/events/dataexport/events/network
- /api/v2/events/dataexport/events/page
- /api/v2/events/dataexport/alerts/uba
- /api/v2/events/dataexport/alerts/securityassessment
- /api/v2/events/dataexport/alerts/quarantine
- /api/v2/events/dataexport/alerts/remediation
- /api/v2/events/dataexport/alerts/policy
- /api/v2/events/dataexport/alerts/malware
- /api/v2/events/dataexport/alerts/malsite
- /api/v2/events/dataexport/alerts/compromisedcredential
- /api/v2/events/dataexport/alerts/ctep
- /api/v2/events/dataexport/alerts/dlp
- /api/v2/events/dataexport/alerts/watchlist



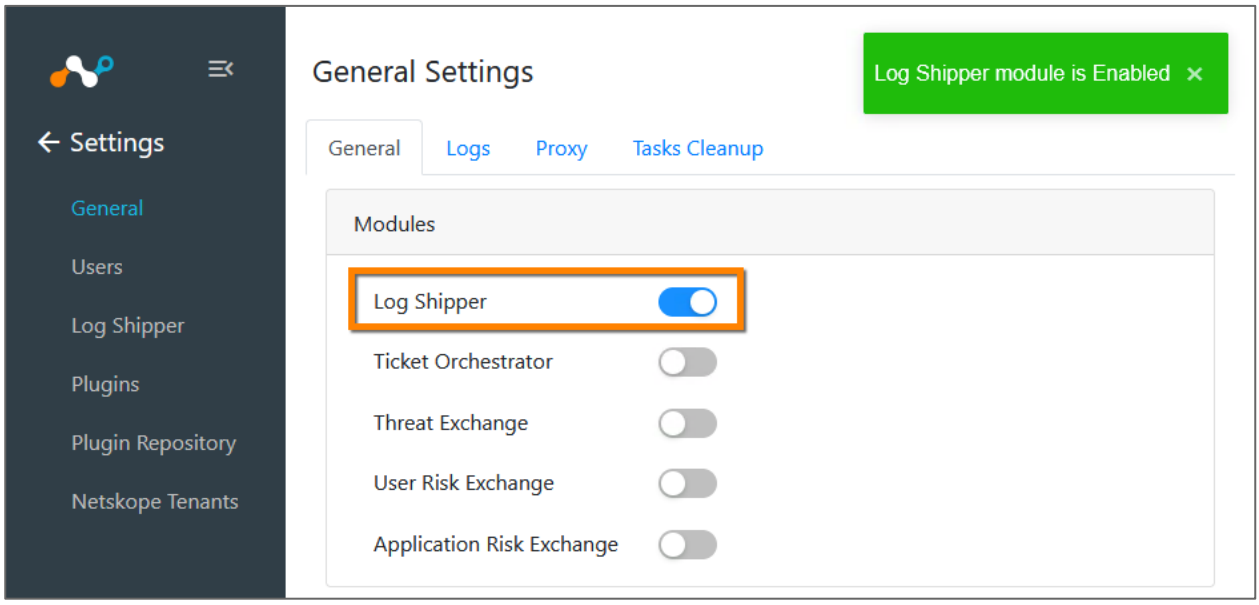
10. Click **Save**.

    *IMPORTANT: Make sure to click **COPY TOKEN** in the next step.*

11. In the **Success** message click **Copy token**.



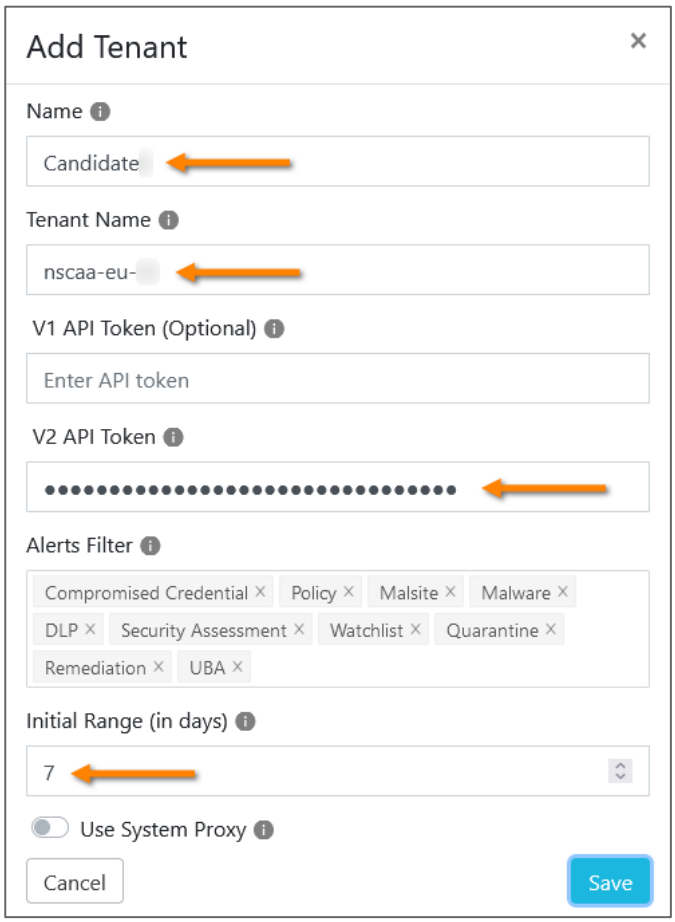
12. Paste the copied token into a text editor.
13. Go back to your tenant and click **Ok** in the **Success** message.
14. Go back to the Netskope Cloud Exchange console and navigate to **Settings** > **General**.
15. Enable **Log Shipper**.



16. Navigate to **Settings** > **Netskope Tenants**.
17. Click **Add Tenant** and enter the following parameters:

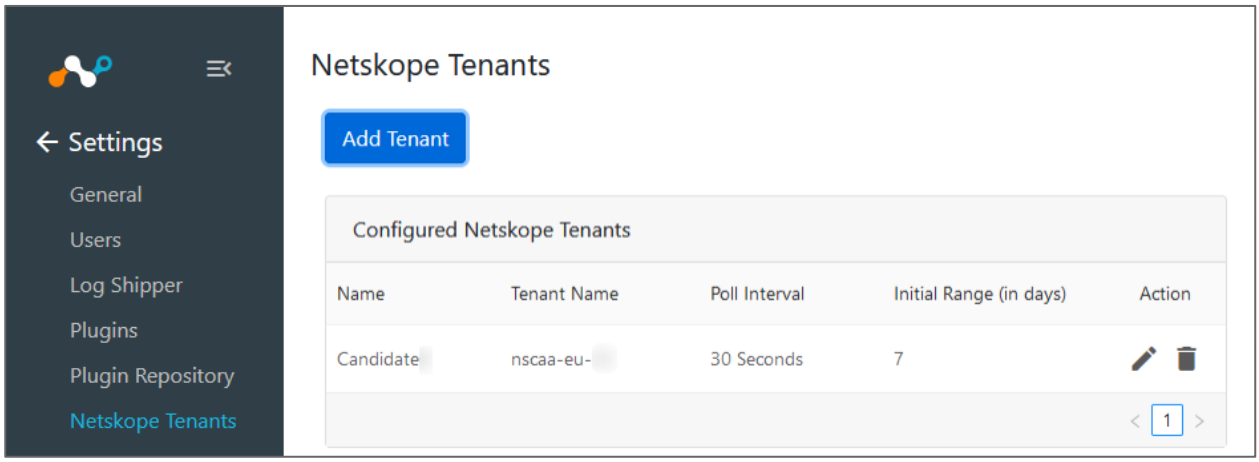
Name	`Candidate{X}`, where {X} is your student number
Tenant Name	Your Netskope tenant name without the `.goskope.com` part
V1 API Token	Leave blank
V2 API Token	Paste the V2 API token you created [CloudExchangeX]
Alerts Filter	Leave the default selection
Initial Range (in days)	7

*Note: **Initial Range** defines the number of days required to pull data for the initial run.*



18. Click **Save**.

19. Verify that the tenant is listed in the **Configured Netskope Tenants** section.

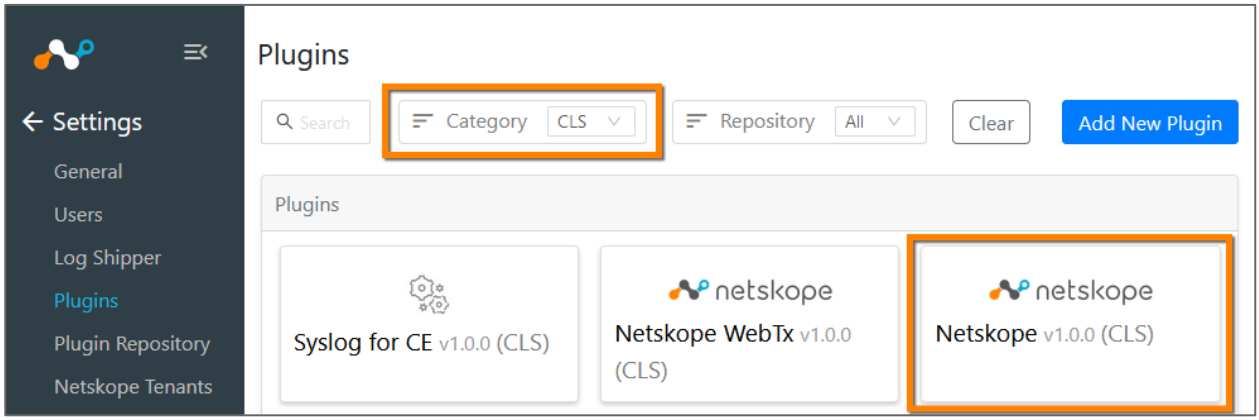


20. Navigate to **Settings** > **Plugins**.

21. From the **Category** drop-down menu, select **CLS**.

Note: Plugins marked as CLS, CTO, CTE, URE, and ARE correspond to the Log Shipper, Ticket Orchestrator, Threat Exchange, User Risk Exchange, and Application Risk Exchange features, respectively.

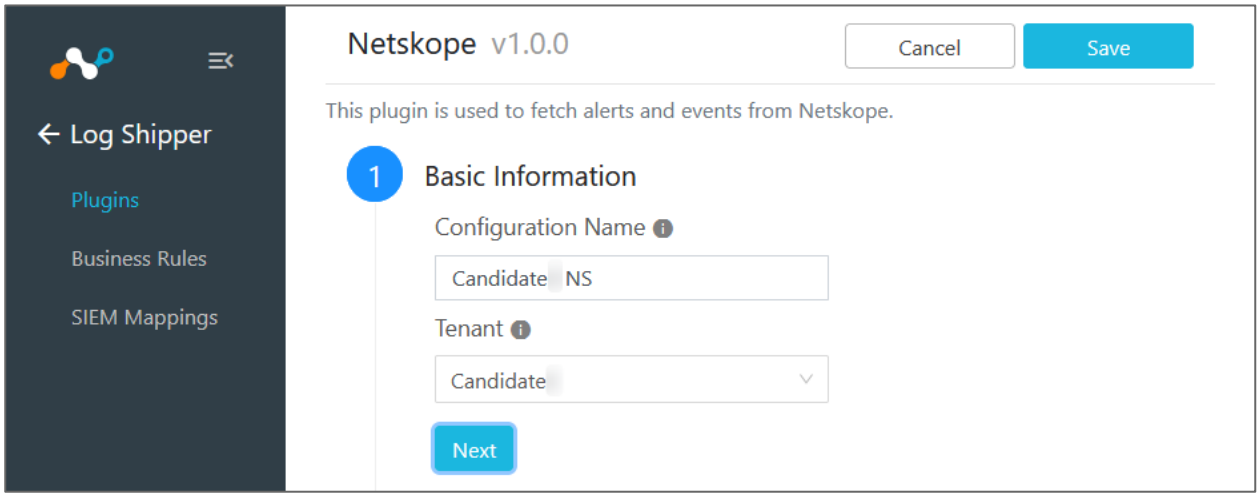
22. Click the **Netskope v{x.y.z} (CLS)** plugin.



23. Configure the **Basic Information** using the following parameters:

Configuration Name	`Candidate{X}` NS, where {X} is your student number
Tenant	Candidate{X}

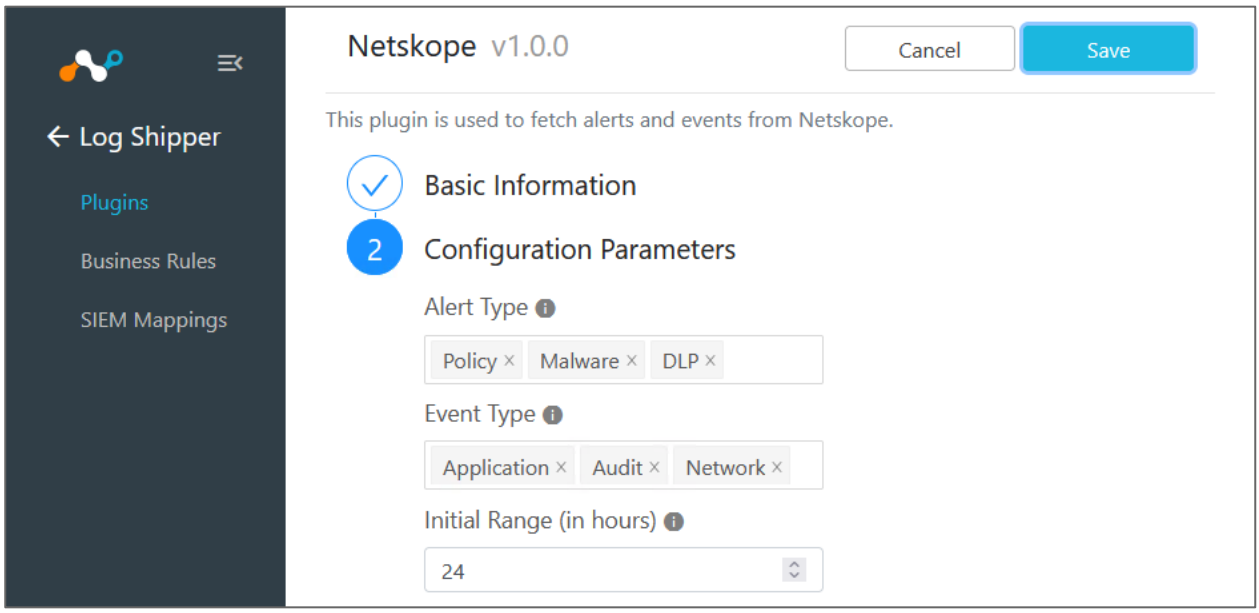
24. Click **Next**.



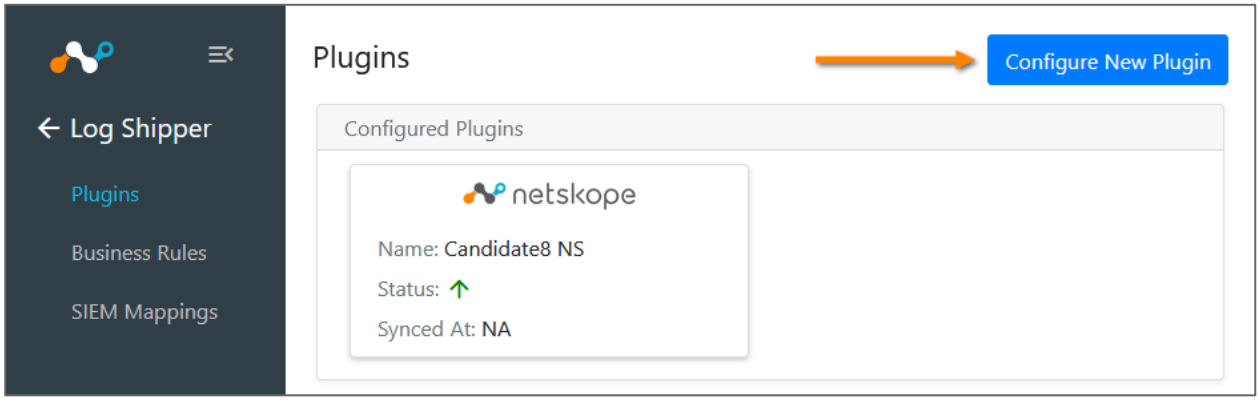
25. Configure records to be shipped from the Netskope tenant under **Configuration Parameters**:

Alert Type	Policy, Malware, DLP
Event Type	Application, Audit, Network
Initial Range (in hours)	24

26. Click **Save**.



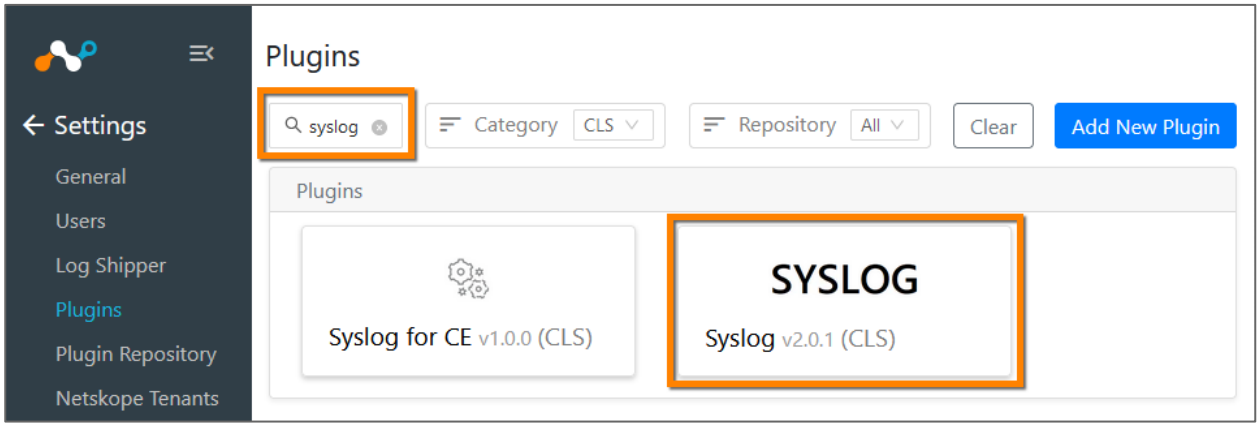
27. Verify that the plugin is listed in the **Configured Plugins** section and its **Status** is **Up**.



28. Click **Configure New Plugin**.

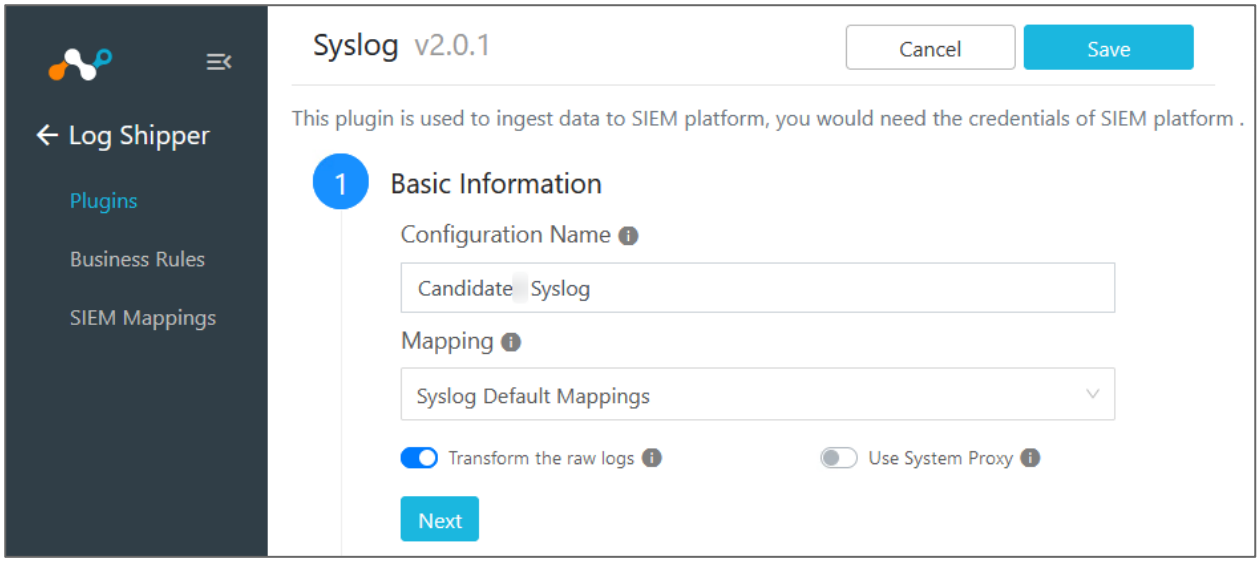
29. Find the **Syslog v{x.y.z} (CLS)** plugin and click it.

    Hint: Type sysLog in the search field above the plugins to narrow down the list.



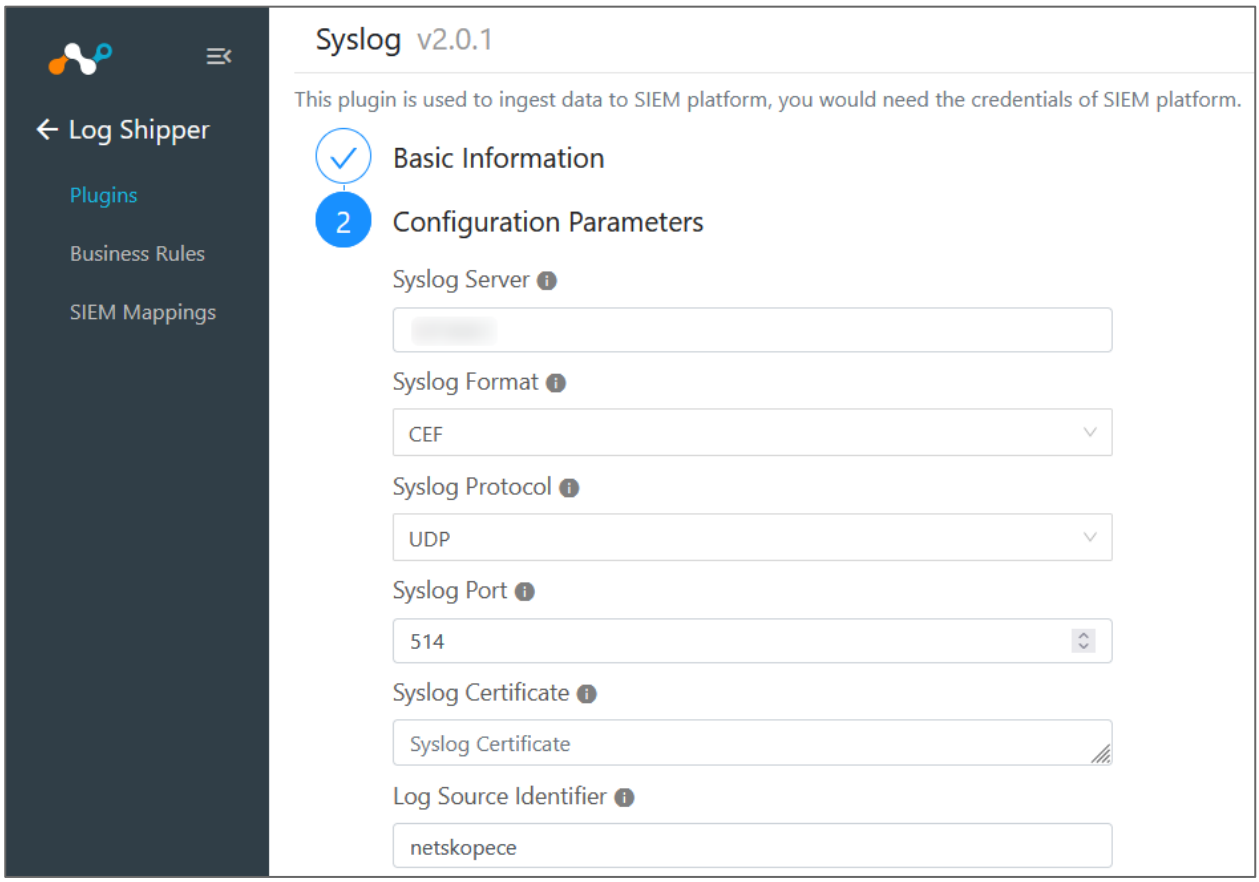
30. Enter the **Basic Information** using the following parameters:

Configuration Name	`Candidate{X} Syslog`, where {X} is your student number
Mapping	Syslog Default Mappings
Transform the raw logs	Enabled



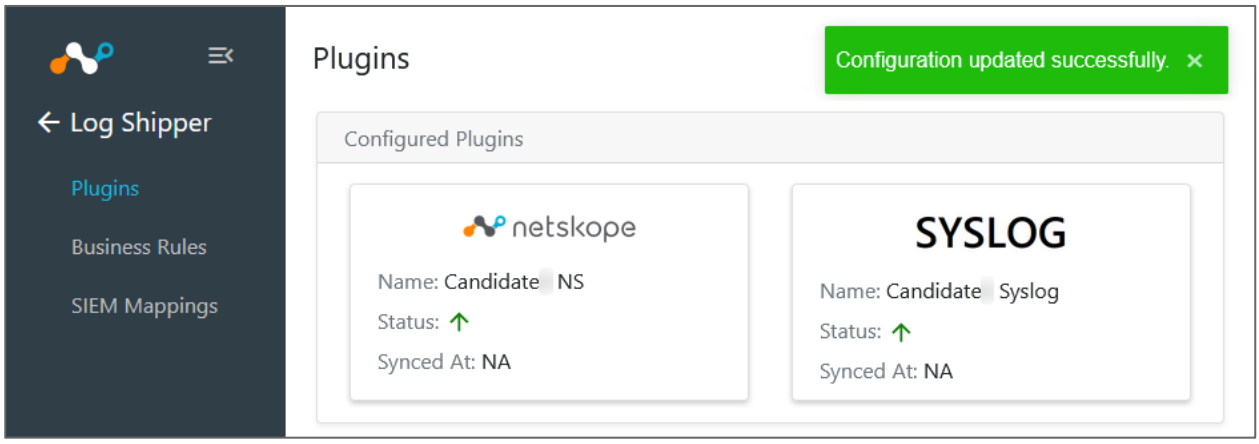
31. Click **Next**, then enter the **Configuration Parameters** using the following values:

Syslog Server	Cloud Exchange server public IP
Syslog Format	CEF
Syslog Protocol	UDP
Syslog Port	514
Syslog Certificate	Leave blank
Log Source Identifier	netskopece



32. Click **Save**.

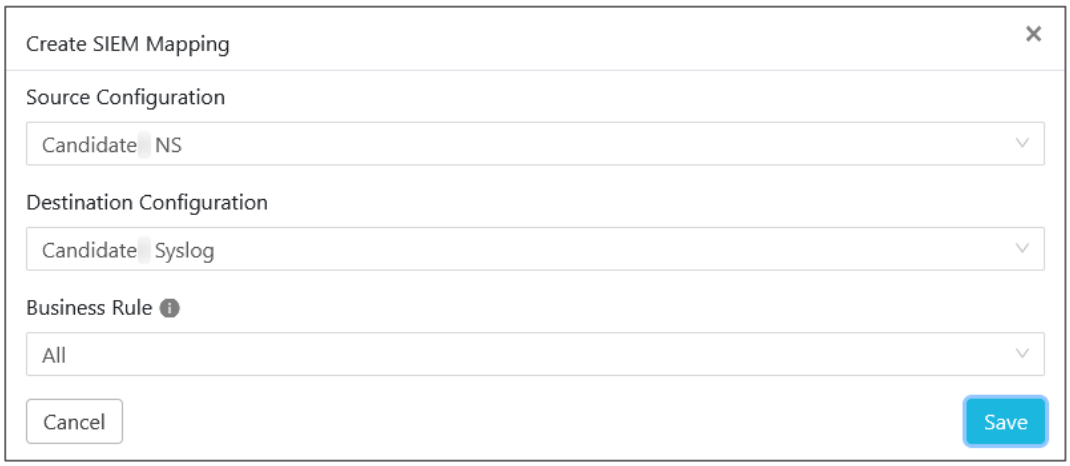
33. Ensure both plugins are listed in the **Configured Plugins** section and their **Status** is **Up**.



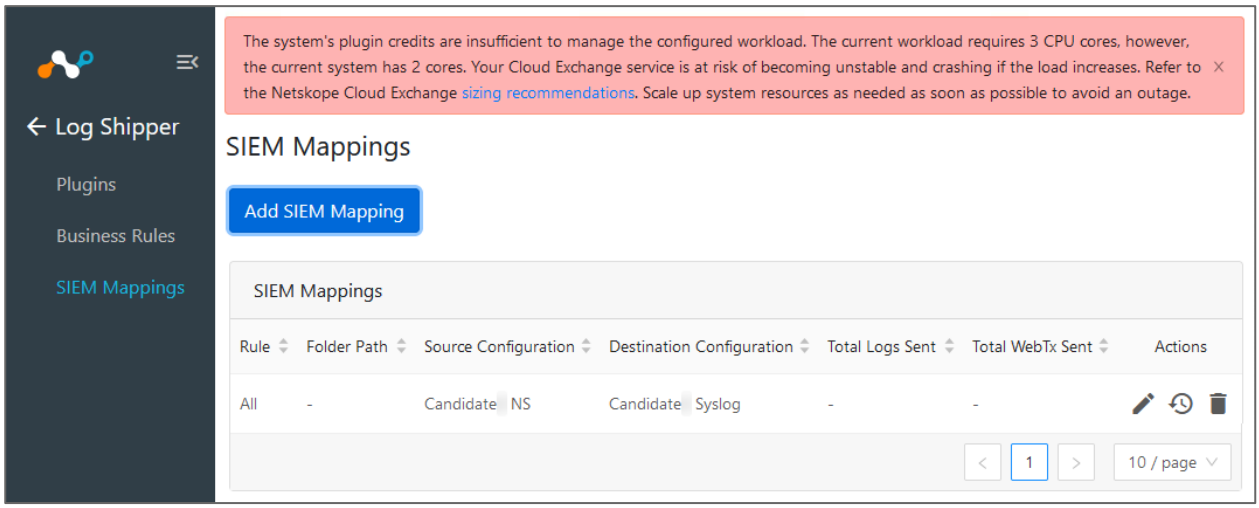
34. In the left menu under **Log Shipper**, select **SIEM Mappings**.

35. Click **Add SIEM Mapping** and configure the mapping with the following parameters:

Source Configuration	`Candidate{X} NS`, where {X} is your student number
Destination Configuration	`Candidate{X} Syslog`, where {X} is your student number
Business Rule	All



36. Click **Save** and verify that the mapping is listed in the **SIEM Mappings** section.



Note: In the lab environment you can ignore the warning at the top of the page. In a production environment you should size your Cloud Exchange server to match the expected workload.

Task 2.3 – Validate Logs

1. Go back to the SSH session established to your Cloud Exchange server.

2. To verify that syslog messages are coming from the Netskope tenant, type:

   ```
   grep Netskope /var/log/syslog | tail -n 3
   ```

   Hint: Look for the Netskope name at the beginning of the messages.

```
ubuntu@ip-                :~$ grep Netskope /var/log/syslog | tail -n 3
                  netskopece CEF: 0|Netskope|nscaa eu    |NULL|audit|NULL|Medium|auditLogEvent=Logout Succe
ssful auditType=admin_audit_logs suser=candidate @nscaa-training.com timestamp=      569
                  netskopece CEF: 0|Netskope|nscaa eu    |NULL|audit|NULL|Medium|auditLogEvent=Login Succes
sful auditType=admin_audit_logs suser=candidate @nscaa-training.com timestamp=      592
                  netskopece CEF: 0|Netskope|nscaa eu    |NULL|audit|NULL|Medium|auditLogEvent=Created REST
 API token auditType=admin_audit_logs suser=candidate @nscaa-training.com timestamp=      686
```

Note: At this point there no traffic events or alerts in the tenant, but you should see audit events about your actions in the tenant: login, create token, etc. You can revisit this command after completing the next lab.

Lab Complete

Lab B: Installing Netskope Client in Identity Provider mode

This lab will showcase the installation of Netskope Client in Identity Provider (IdP) mode.

Scenario

Super Duper Cars and Trucks uses Okta as their identity provider. To ensure that the policies are applied correctly when the users' traffic is steered by the Netskope client, you will install the Netskope client in the Identity Provider mode.

Lab Tasks

During this lab, you will complete the following tasks:

- Install the Netskope Client in Identity Provider mode.
- Verify installation.

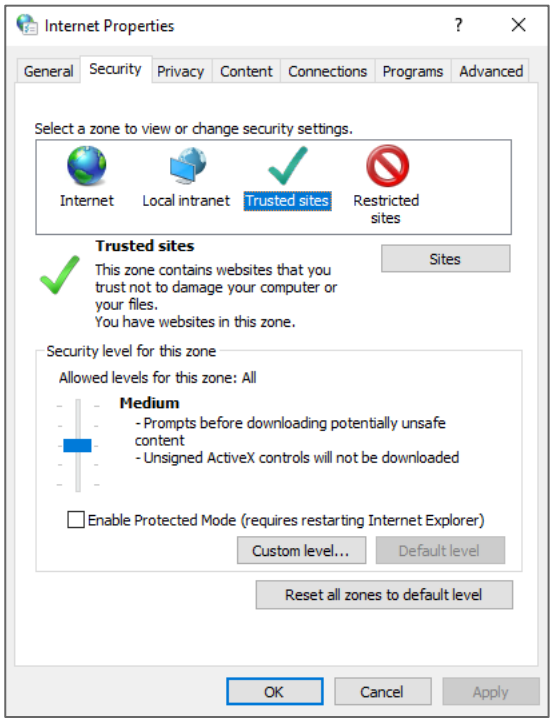
Part 1 – Install Netskope Client in identity provider mode

To properly enroll your Netskope client with Okta as identity provider, you must allow JavaScript for the Okta domains as well as the Netskope tenant authentication URL. Too strict Internet security settings for these domains will prevent the enrollment of the client.

Task 1.1 – Add Okta to trusted sites

1. Click **Start**, type `internet` and choose **Internet Options**.

2. On the **Security** tab, select **Trusted sites** and click **Sites**.

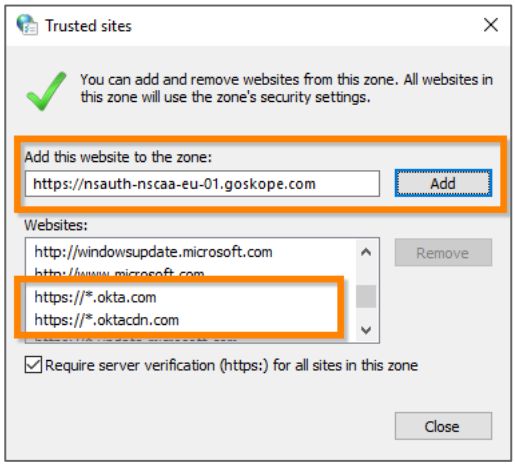


3. Add the following URLs to the list of trusted websites:

a. `https://*.okta.com`

b. `https://*.oktacdn.com`

c. `https://nsauth-{your tenant URL}`



4. Click **Close** and then click **OK** to save the settings.

Task 1.2 – Install Netskope Client

1. Open a web browser and download the Netskope client installer from your tenant by navigating to `https://download.goskope.com/dlr/win/get`

2. Open a regular (non-admin) command prompt window and change to the `Downloads` folder by typing:

   `cd Downloads`

3. Install Netskope client with the following command (as one line without breaks):

   `msiexec /i NSClient.msi tenant={your tenant name} domain={your tenant domain} mode=peruserconfig installmode=idp`

   Hint: Your tenant name is the lowest level domain in your tenant URL, from the left to the first dot. The rest after the dot is your tenant domain.

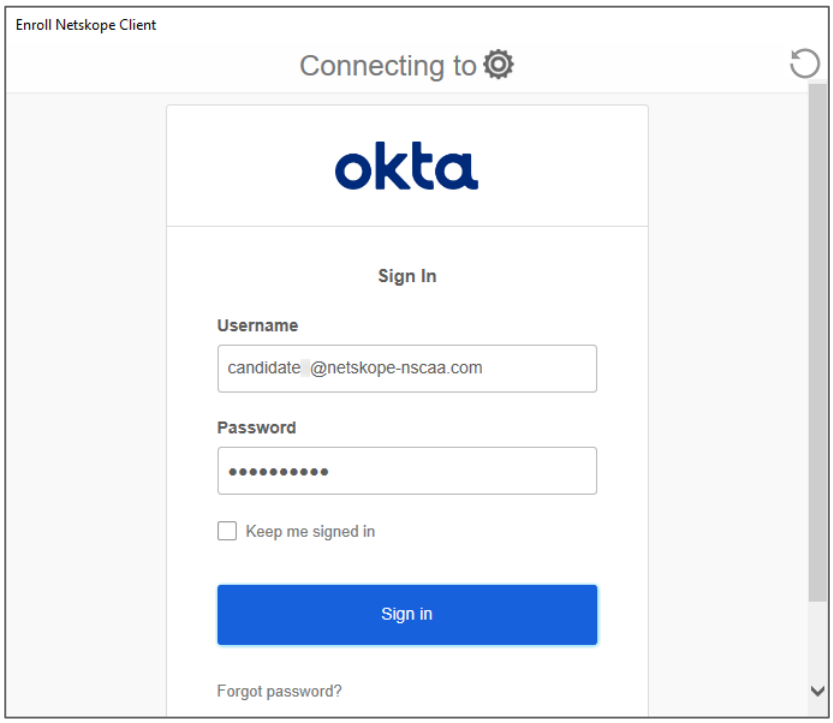
```
Microsoft Windows [Version 10.0.14393]
(c) 2016 Microsoft Corporation. All rights reserved.

D:\Users\student1>cd Downloads

D:\Users\ \Downloads>msiexec /i NSClient.msi tenant=nscaa  domain=goskope.com mode=peruserconfig installmode=idp
```

   Note: When installing the Netskope Client on a VDI host, disable automatic updates with the parameter `autoupdate=off`. For non-VDI hosts, don't use `autoupdate=off` and manage updates with the client configuration settings in the tenant instead.

4. When prompted, authenticate using your Okta credentials:

   Username: `candidate{X}@netskope-nscaa.com` (where {X} is your student number)

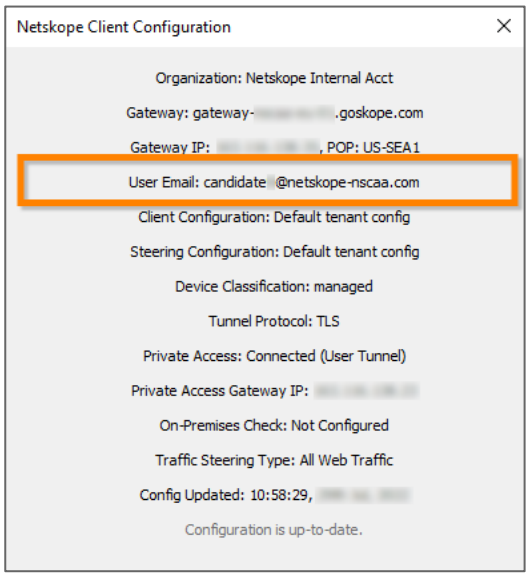
   Password: `Password1!`



5. Wait for the Netskope client to display as enabled on the taskbar. Your Netskope client is installed in identity provider mode.

Part 2 – Verify the Netskope Client is tunneling traffic

1. Right-click the Netskope client icon and select **Configuration**.



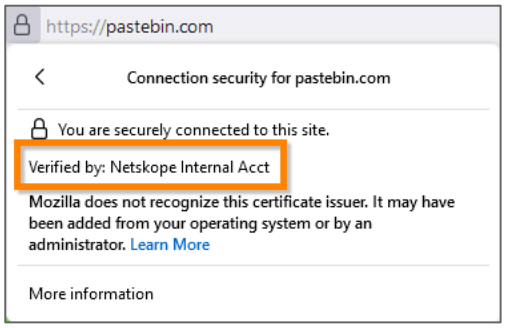
Note: The User Email in the identity provider mode is your Okta login, and not the Windows domain user.

2. If you see a link to update the configuration, please do so.

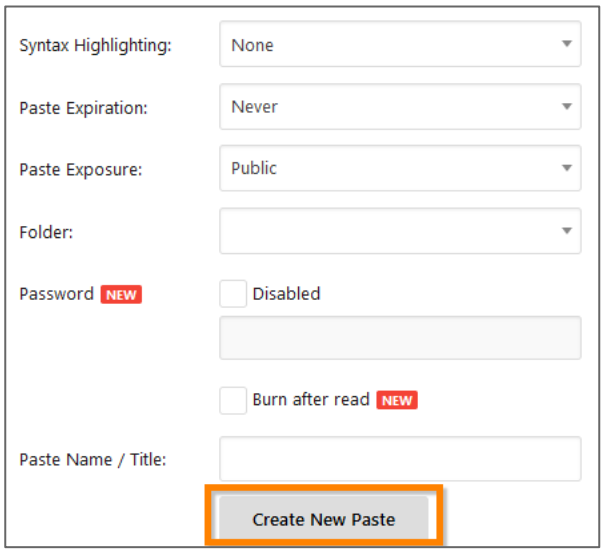
3. Open a browser window and navigate to `https://pastebin.com`

4. Click the padlock icon (🔒) in the address bar, then click **Connection secure** (or **Connection is secure**, depending on the web browser).

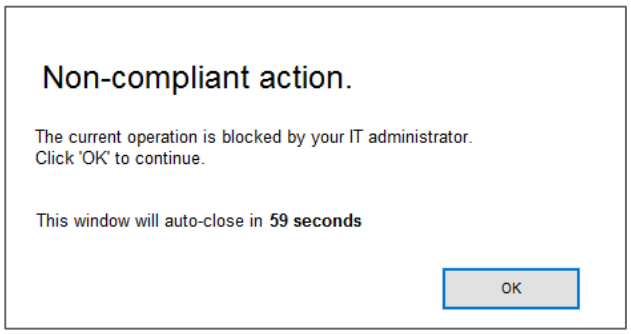
5. Ensure that the site certificate is verified by a Netskope certificate. This indicates Netskope has visibility into the SSL connection.



6. On the **pastebin.com** webpage, scroll down and click **Create New Paste**.



A block notification should display. This indicates that Netskope is intercepting browser traffic to the website.



7. In the Netskope tenant, navigate to **Skope IT™** > **Events** > **Application Events**.

8. Use the filter options to search for your identity (i.e., `user like candidate{X}`, where {X} is your student number).

9. Click the **magnifier** icon (🔍) next to your event to review the details. The presence of events verifies that traffic to the Pastebin application is being steered through Netskope and events are being recorded.

Lab Complete

Lab C: Automating fingerprint uploading using a Netskope Virtual Appliance

Scenario

Super Duper Cars and Trucks has a set of documents that they want to be able to track using the DLP fingerprinting feature. However, for regulatory and privacy reasons, they are reluctant to upload the documents to the Netskope tenant for fingerprinting purposes. To allow for on-premises fingerprinting, a Netskope virtual appliance has already been provisioned. Your task is to register the appliance with the tenant and automate the workflow of uploading the documents to the appliance, requesting and uploading a fingerprint for the document, and deleting the document afterwards.

Lab Tasks

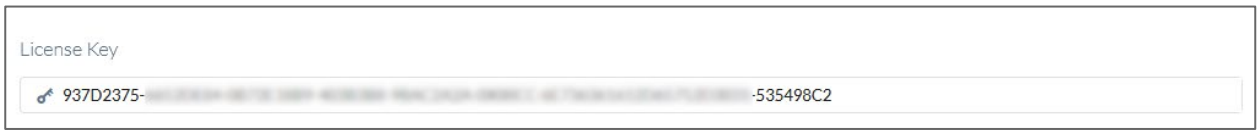
During this lab you will perform the following tasks:

- Create a new fingerprint object in the lab tenant.
- Automate the process of creating Fingerprint content for this object.
- Upload the file to a tenant using the on-premises virtual appliance.
- Verify the detection of a document using the fingerprint classification.

Part 1 – Register your on-premises virtual appliance

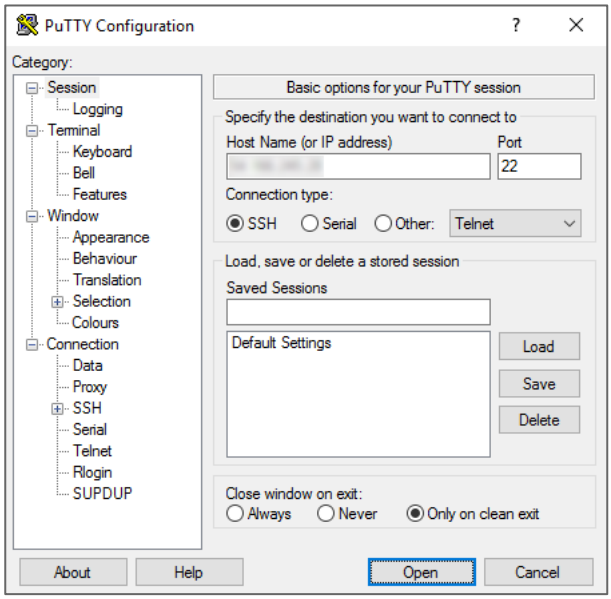
1. In your Netskope tenant console, navigate to **Settings** > **Security Cloud Platform** > **On-Premises Infrastructure**.

2. Copy the key in the **License Key** section.



3. Run PuTTY to connect to your assigned OPLP virtual appliance over SSH.

4. In the **Host Name (or IP address)** field, enter your assigned OPLP public IP address and click **Open**.

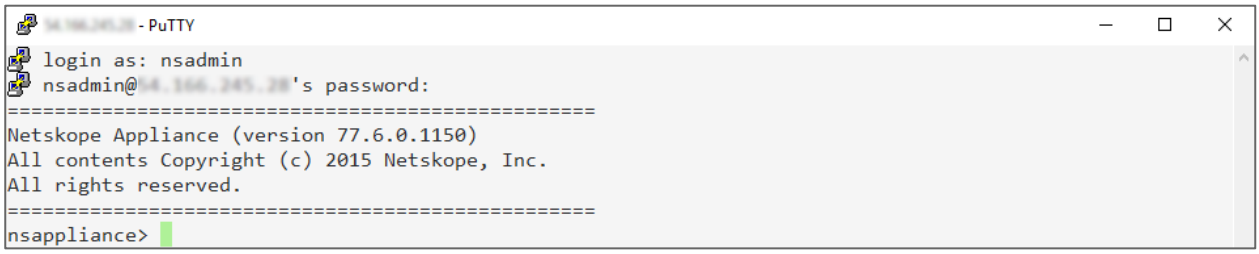


5. In the security alert dialog, click **Accept** to continue.

6. Enter the following credentials:

   username: `nsadmin`

   password: `nsappliance`



7. Enable configuration mode using the command

   `configure`

8. Provide a hostname for your OPLP using the command

   `set system hostname candidate{X}oplp`

   where {X} is your student number

9. License your OPLP using the following command. To enter the license key you copied earlier, right-click inside the PuTTY window.

   `set system licensekey <key>`

10. To save the configuration, type:

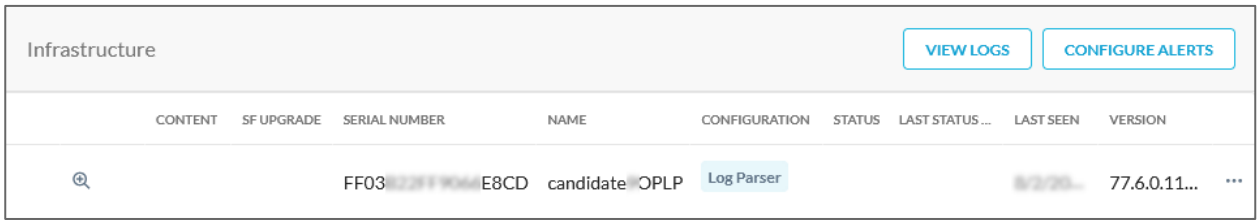
    `save`

11. To exit configuration mode, type:

    `exit`

```
nsappliance> configure
Entering configuration mode

nsappliance(config)# set system hostname candedate OPLP
nsappliance(config)#
nsappliance(config)# set system licensekey 937D2375-[redacted]
-535498C2
nsappliance(config)#
nsappliance(config)# save
Restarting lccloudsync-oplp container
Configuration saved

candedate OPLP(config)# exit
Exiting configuration mode

candedate OPLP>
```

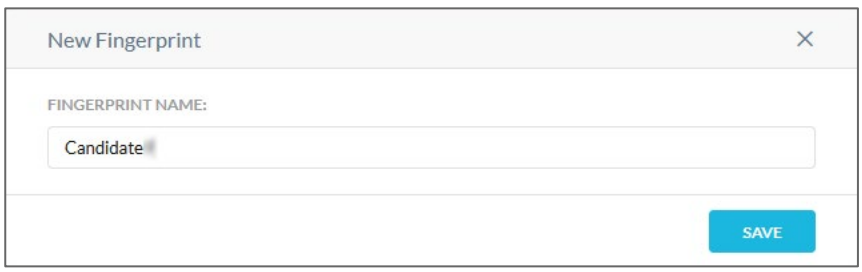
    When the appliance completes the registration process with the tenant, it will appear in **Settings** > **Security Cloud Platform** > **On-Premises** > **On-Premises Infrastructure**. This could take up to 20 minutes. While the appliance gets registered you should proceed to the next task.



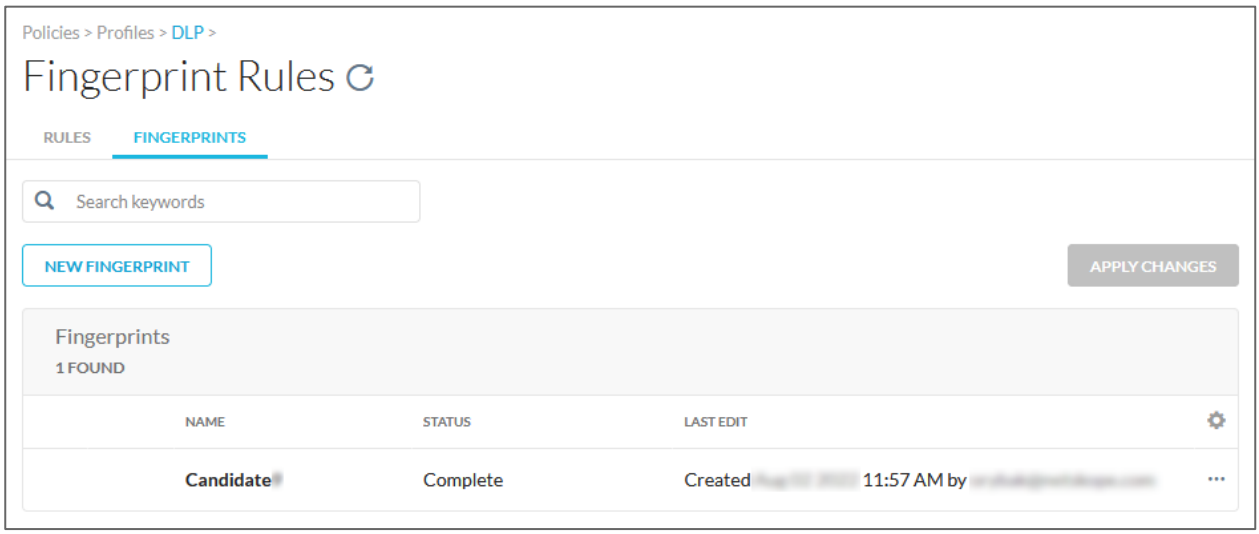
Part 2 – Create an empty fingerprint

Before you can upload the fingerprint from the appliance, you will need to configure a fingerprint classification in the tenant.

1. Navigate to **Policies** > **Profiles** > **DLP**.
2. Click **Edit Rules** and choose **Fingerprint Classification**.
3. Switch to the **Fingerprints** tab.
4. Click **New Fingerprint**.
5. Name the fingerprint `Candidate{X}`, where {X} is your candidate number.



6. Click **Save**, then **Apply Changes**, and then **Apply** to confirm.



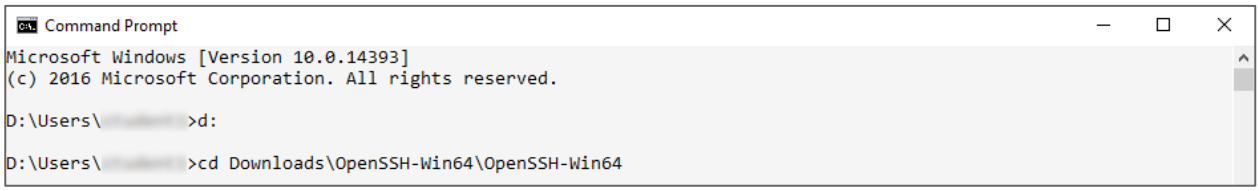
Part 3 – Upload the fingerprint with a script

Task 3.1 – Obtain the SSH keys to the on-premises Virtual Appliance

1. In your Amazon WorkSpace, open a web browser and browse to `https://github.com/powershell/win32-openssh/releases`
2. Scroll down to the **Assets** section and download `OpenSSH-Win64.zip`.
3. After the zip file has completed downloading, right-click and extract all files.
4. Open a command prompt and change to the extracted files folder by typing:

   `D:`

   `cd D:\Users\CandidateX\Downloads\OpenSSH-Win64\OpenSSH-Win64`

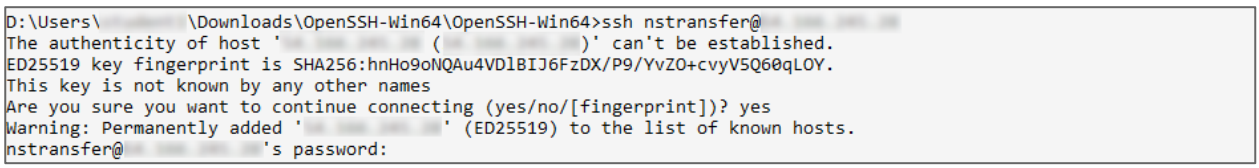


5. Type the command:

   `ssh nstransfer@{your assigned OPLP public IP address}`

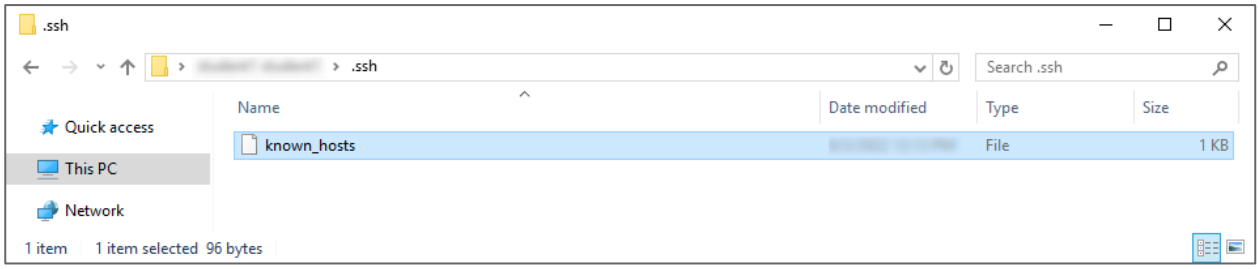
6. To the message to confirm that you want to continue connecting, enter:

   `yes`



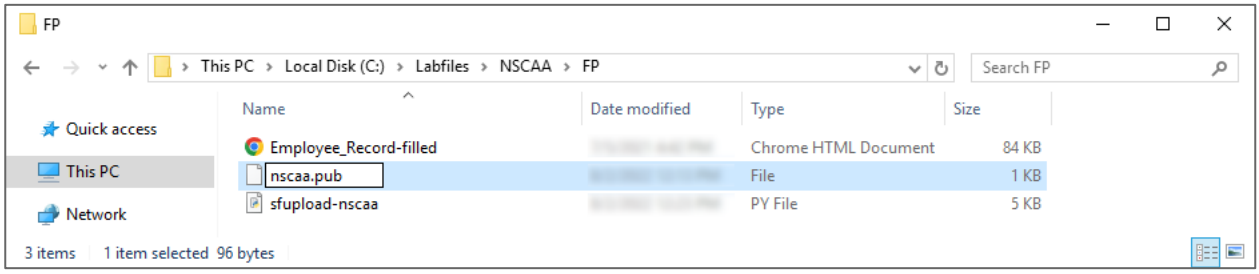
The OPLP's public key has been added to the list of known hosts. You do not have to enter a password to finish the connection.

7. Open File Explorer and navigate to the folder `D:\Users\Candidate{X}\.ssh`.



8. Copy the `known_hosts` file to the `C:\Labfiles\NSCAA\FP` folder, which also contains the Python script. This step is required for the script to run.

9. Rename the `known_hosts` file to: `nscaa.pub`

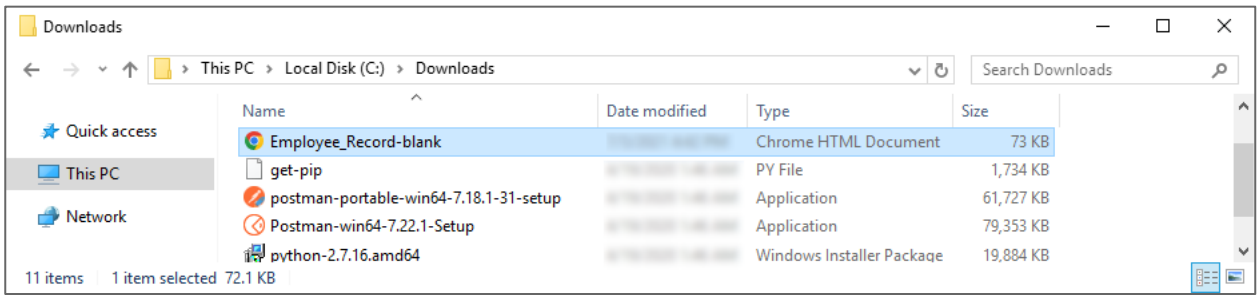


Task 3.2 – Run the script

1. In the Netskope tenant, navigate to **Settings** > **Security Cloud Platform** > **On-Premises** > **On-Premises Infrastructure** and confirm that the appliance registration has completed.

Note: Do not proceed to the next step, until the appliance is registered.

2. In your Amazon WorkSpace, ensure that the file named `Employee_Record-blank.pdf` is in `C:\Downloads`.

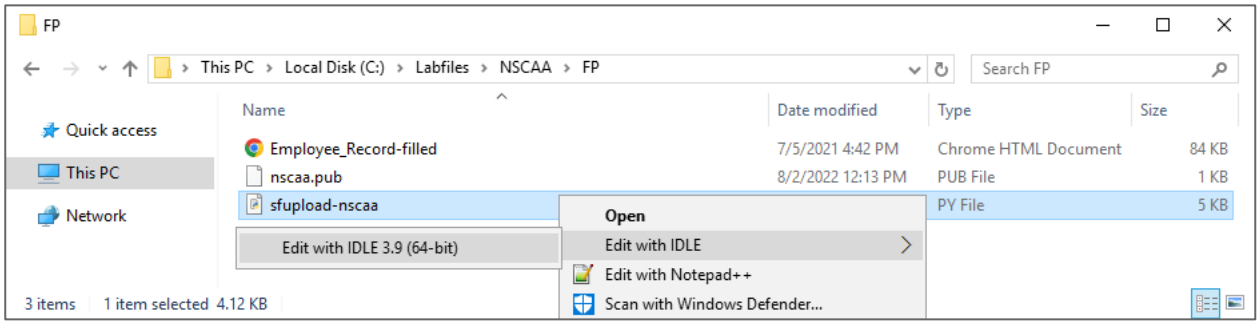


Note: The file may appear to be an html file; however, the file extension is .pdf.

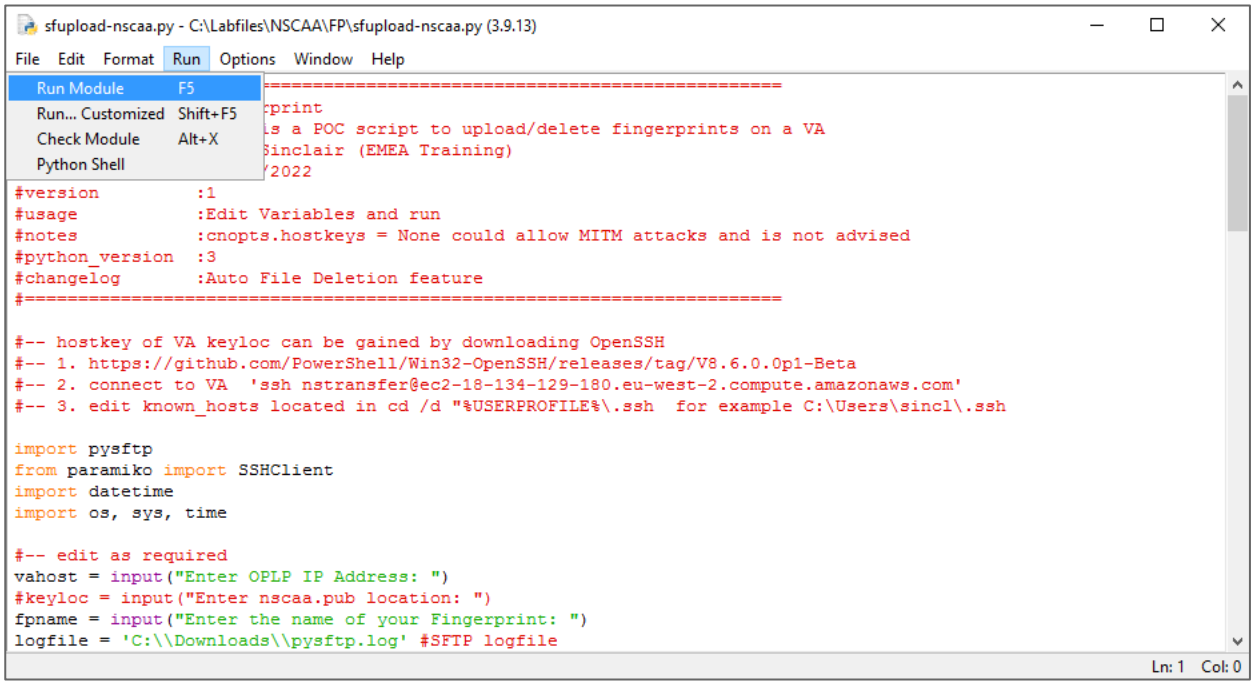
3. Navigate back to the folder `C:\Labfiles\NSCAA\FP`.

4. Right-click the `sftpupload-nscaa.py` Python file and select **Edit with Idle** > **Edit with Idle 3.9 (64-bit)**.

   Note: The script requires Python 3.x to run.



5. When the file opens, click **Run** > **Run Module** in the top menu.



6. At the first prompt, enter your assigned OPLP public IP address.

7. At the second prompt, type the name of your fingerprint classification, created in the tenant UI (i.e., `Candidate{X}`, where {X} is your student number).

Note: The script will generate the fingerprint and then display the status, using the commands:

`request dlpfingerprint generate classification`

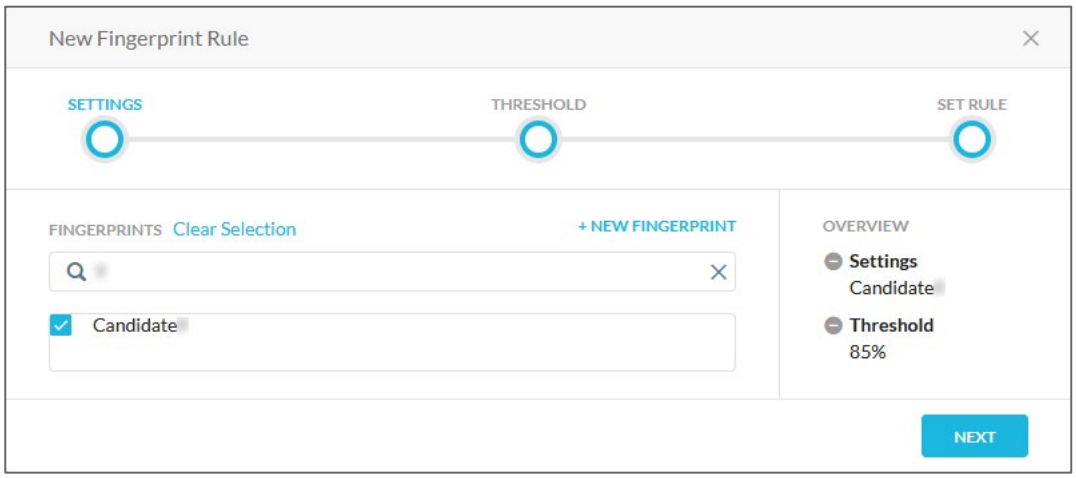
`request dlpfingerprint status`

The script then waits 60 seconds and removes the uploaded file from the appliance.

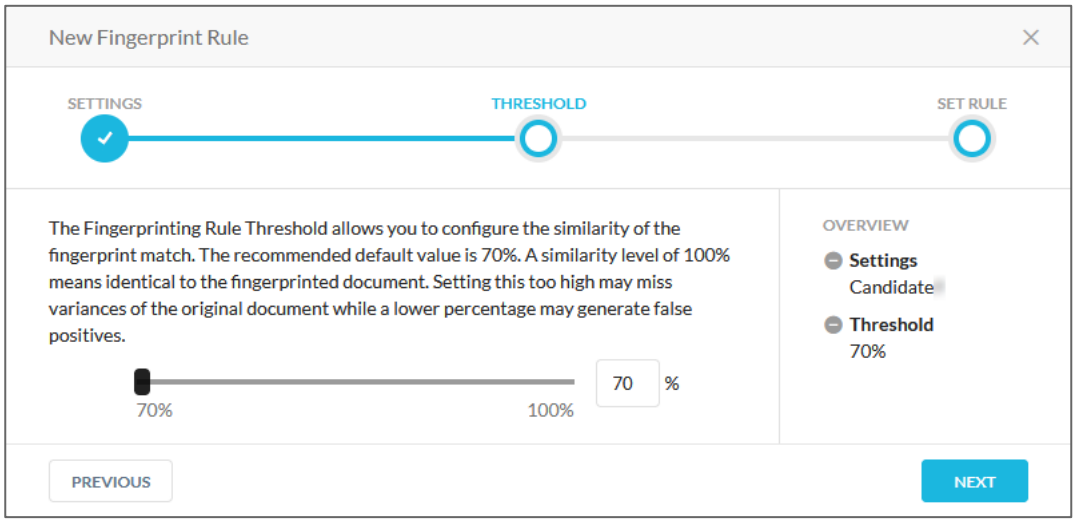
Part 4 – Configure a policy to block documents matching the fingerprint

Task 4.1 – Create a DLP rule

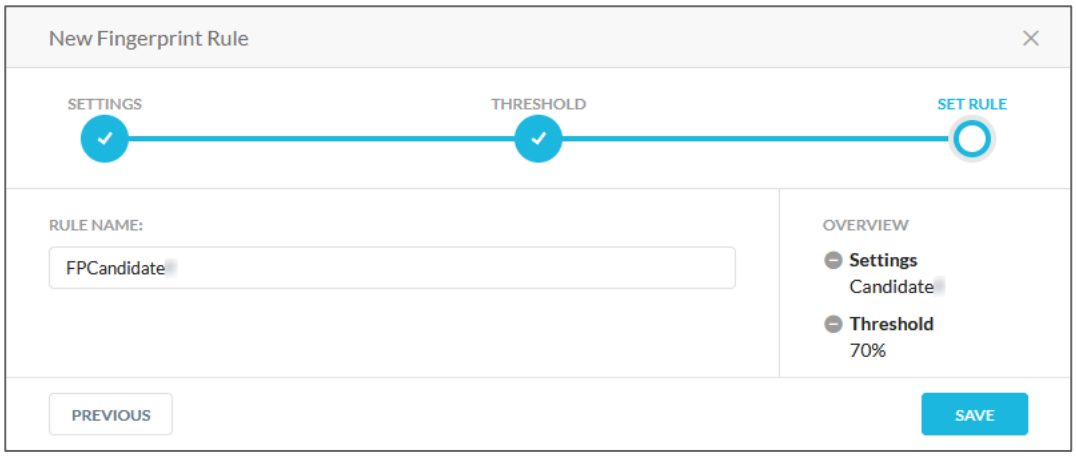
1. In the Netskope tenant, navigate to **Policies** > **Profiles** > **DLP**.
2. Click **Edit Rules** and choose **Fingerprint Classification**.
3. Click **New Fingerprint Rule**.
4. Select your **Candidate{X}** fingerprint classification and click **Next**.



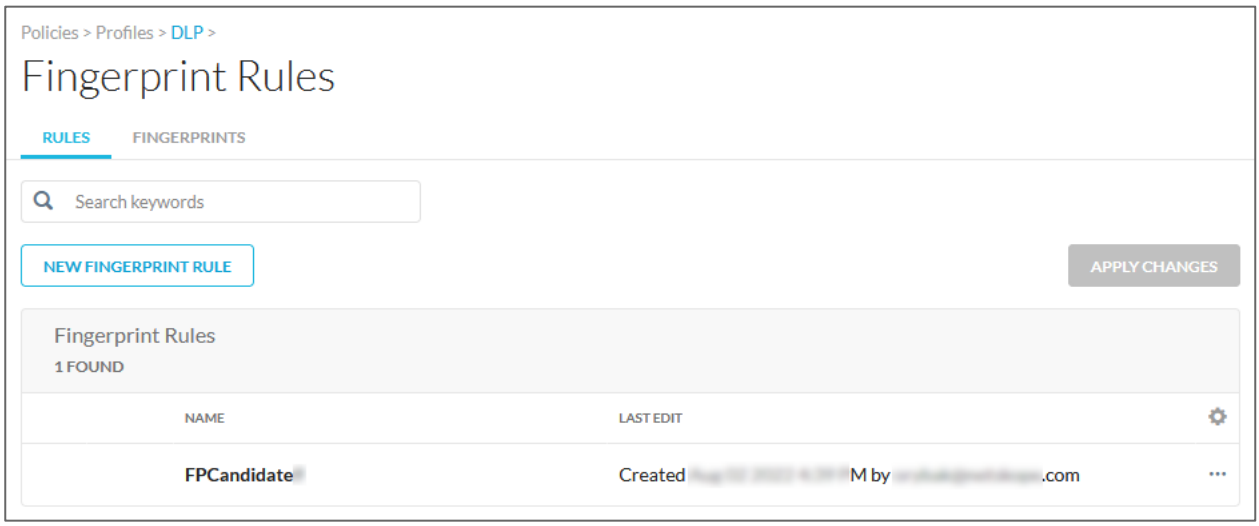
5. In the **Threshold** section, move the slider to the **70%** position and click **Next**.



6. In the **Rule Name** field, type `FPCandidate{X}` (where {X} is your student number) and click **Save**.



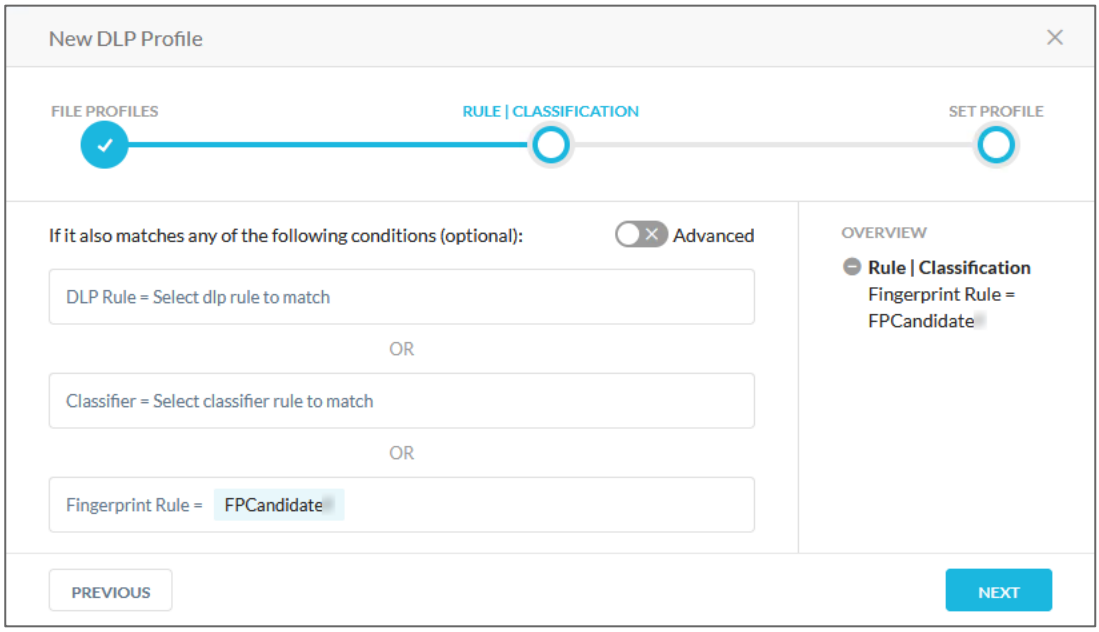
7. Click **Apply Changes**, then click **Apply** to confirm.



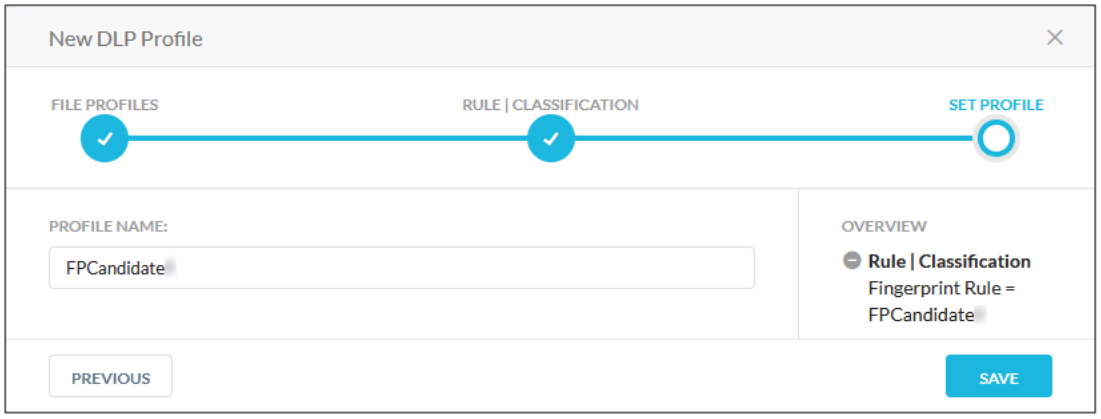
Task 4.2 – Create a DLP profile

Next, create a DLP profile for your rule.

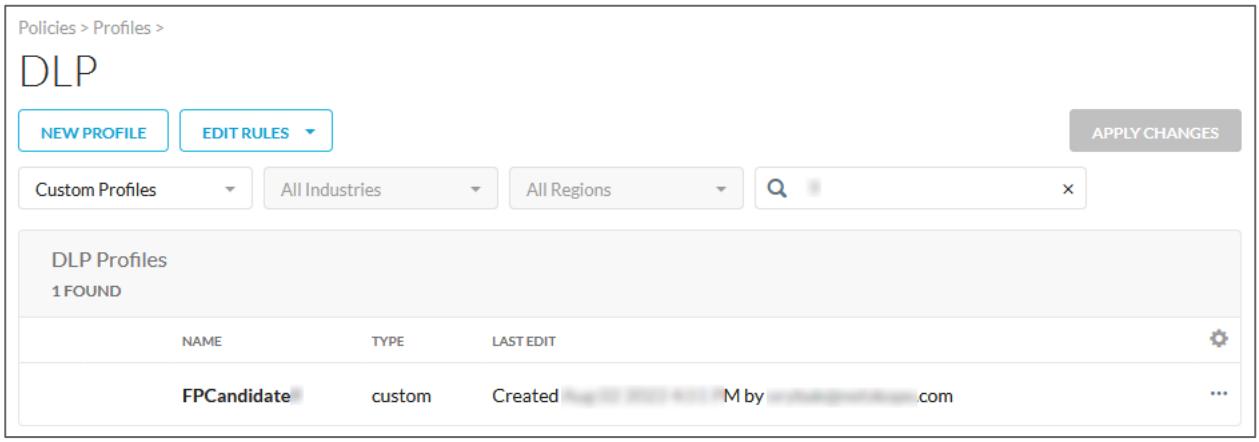
1. Navigate again to **Policies** > **Profiles** > **DLP**.
2. Click **New Profile**.
3. On the **File Profiles** page, click **Next**.
4. On the **Rule** | **Classification** page, in the **Fingerprint Rule** field, select your rule **FPCandidate{X}**, then click **Next**.



5. On the **Set Profile** page, in the **Profile Name** field, enter the same name as your rule: `FPCandidate{X}` (where {X} is your student number) and click **Save**.



6. Click **Apply Changes**, then click **Apply** to confirm.



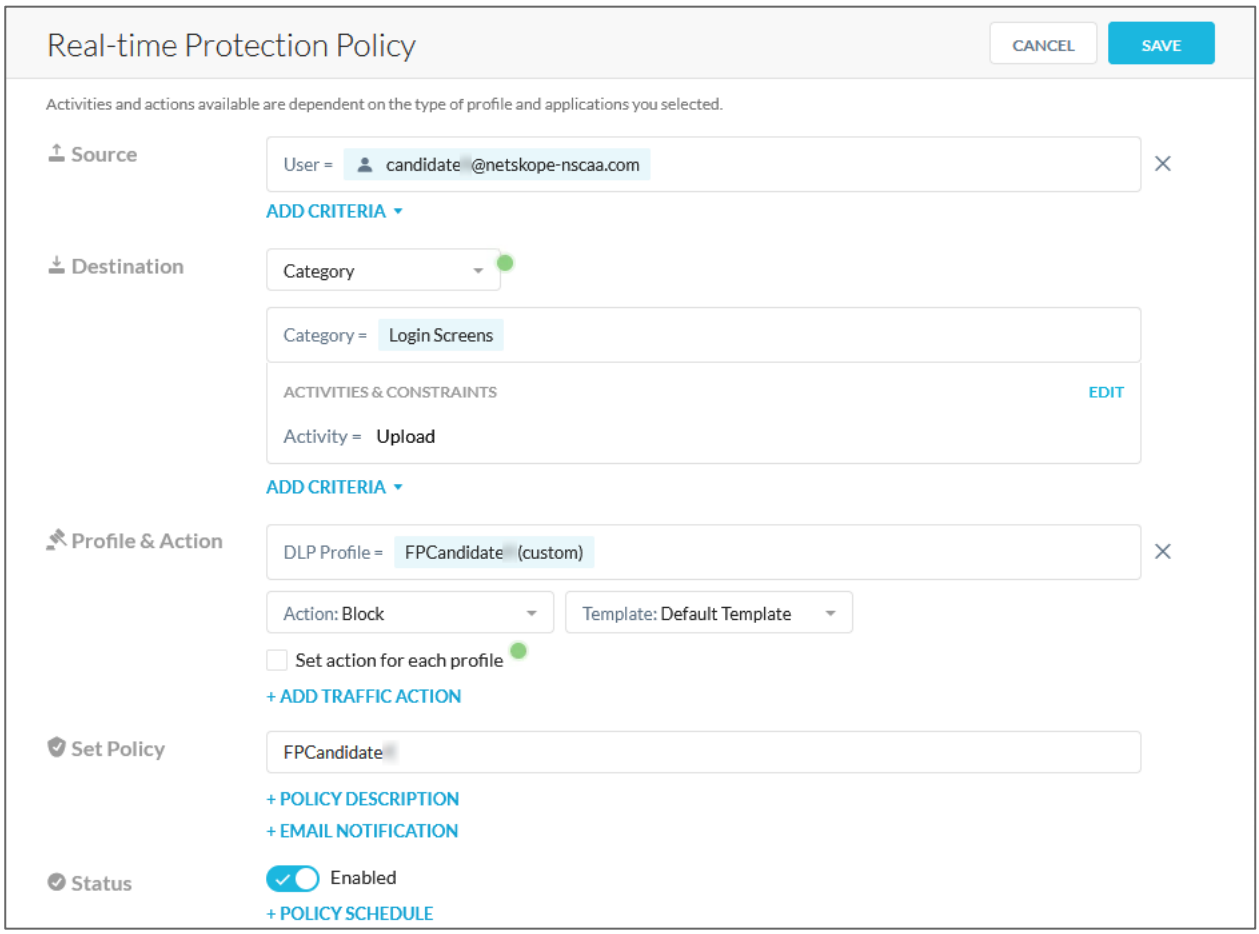
Task 4.3 – Create a real-time protection policy

1. Navigate to **Policies** > **Real-time Protection**.

2. Click **New Policy**, then select **DLP** from the dropdown menu.

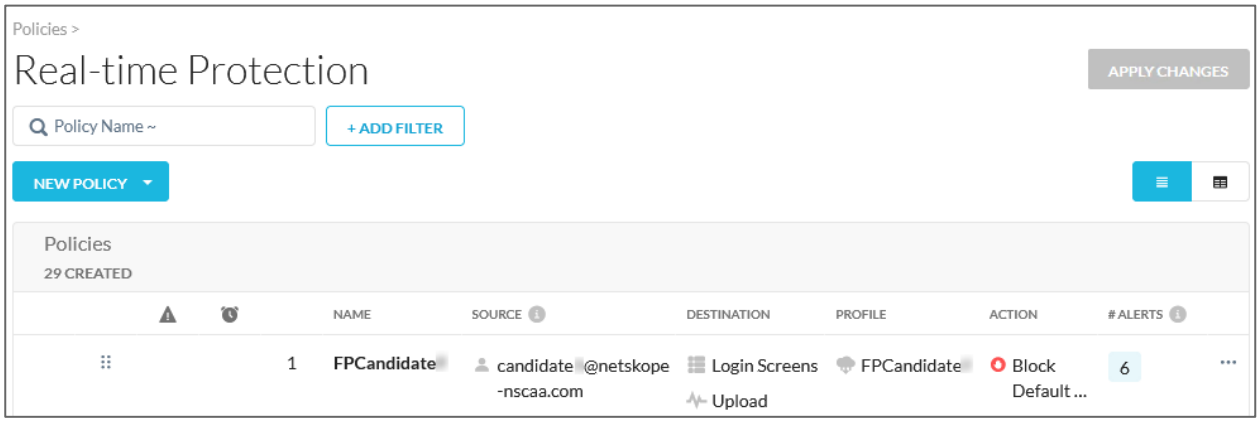
3. Configure the policy with the following information:

Source > User	Your Okta user `candidate{X}@netskope-nscaa.com`
Destination > Category	Login Screens
Destination > Activity	Upload
Profile & Action > DLP Profile	FPCandidate{X} (custom)
Action	Block
Set Policy > Policy Name	`FPCandidate{X}`, where {X} is your student number



4. Click **Save**, choose **To the top** and click **Save** again.

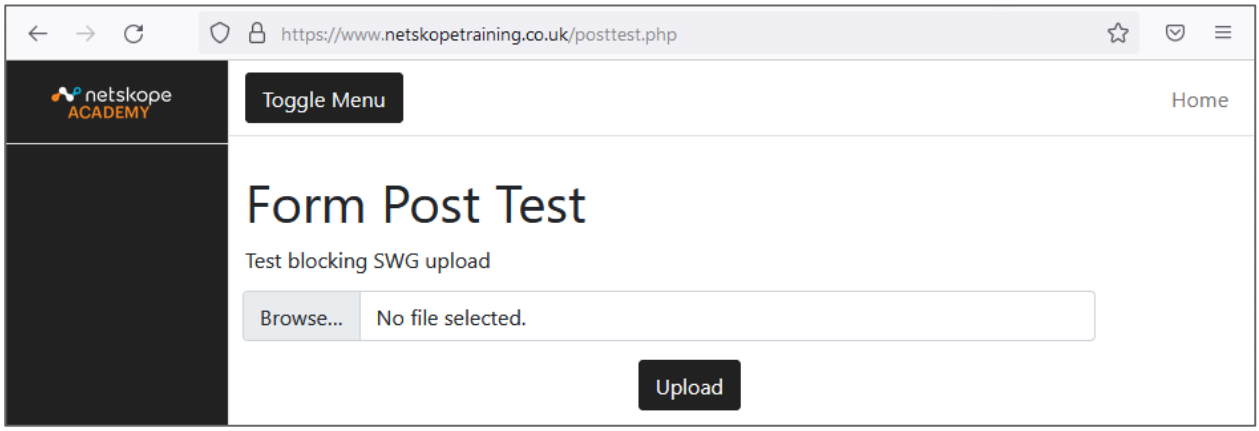
5. Click **Apply Changes**, then click **Apply** to confirm.



Part 5 – Verify that the fingerprint-based policy is working

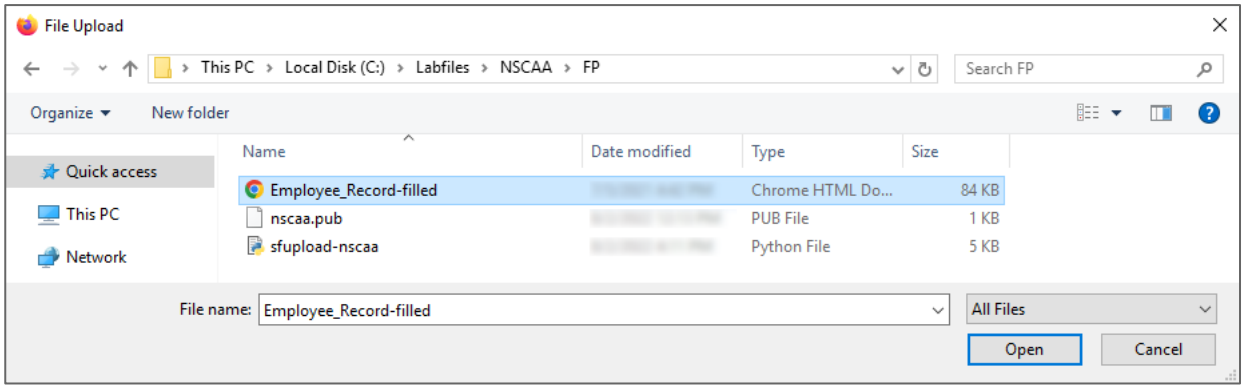
1. Ensure that your Netskope client is active, and that the icon is displaying in blue and orange in the system tray.

2. In a browser window, navigate to `https://www.netskopetraining.co.uk/posttest.php`

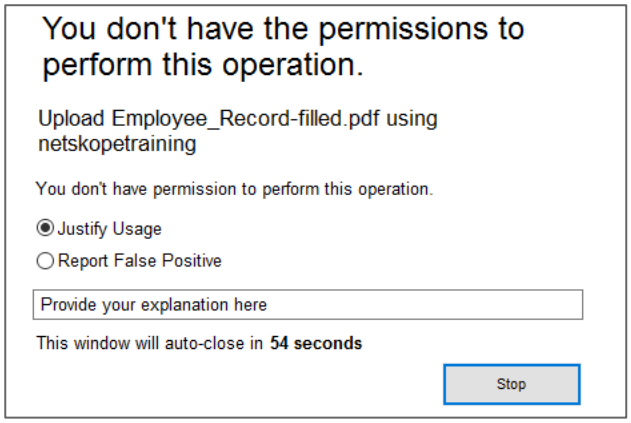


3. Attempt to upload the `Employee_Record-filled.pdf` file from `C:\Labfiles\NSCAA\FP`.

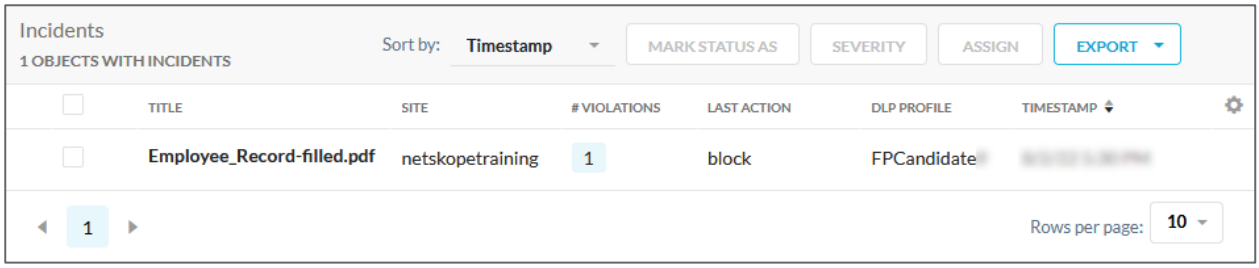
   Note: This document is slightly different from the original document.



4. Ensure that the upload is blocked.



5. In the Netskope tenant, navigate to **Incidents** > **DLP** to find and review the DLP incident that was created.



Lab Complete

Lab D: Browser-based Netskope Private Access (NPA)

This lab covers automating the process of registering the NPA publisher using APIs.

Scenario

Super Duper Cars and Trucks Company has 10 partners. Each partner is required to deploy and register an NPA publisher. However, the partners do not have access to the Netskope tenant because the tenant is managed and maintained by Super Duper. In this scenario, you will create a RestAPI token for the partners, allowing them to deploy a publisher and pull the registration token from your tenant. The partners can then register their publishers via the command menu.

In this lab, the NPA publisher appliance has already been deployed in AWS by your instructor.

In this lab, you will complete the following tasks:

- Create a RestAPI registration token for deploying a publisher.
- Retrieve the registration token from the Netskope tenant.
- Register the publisher via the command line interface.
- Publish a private app and access it from a web browser.

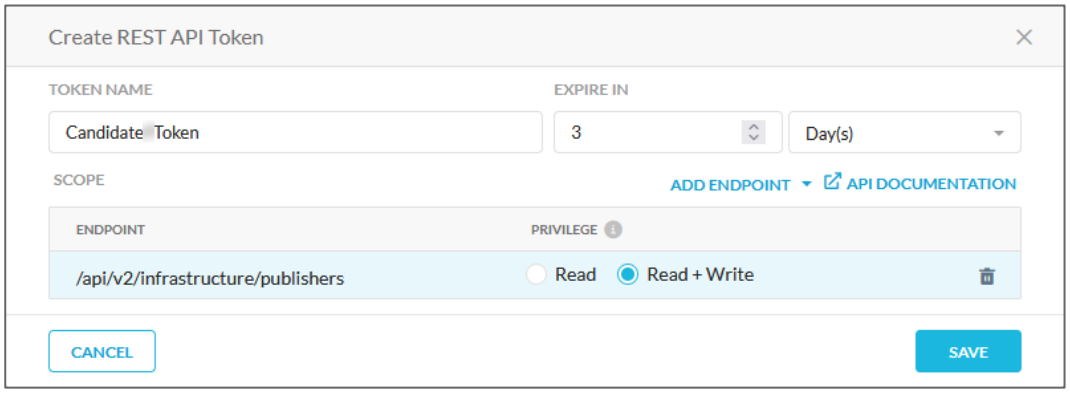
Part 1 – Create NPA Publisher on the Netskope tenant

Task 1.1 – Create a REST API v2 token for publisher management

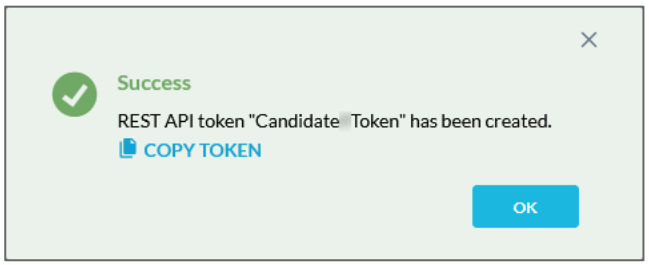
1. In your Netskope tenant, click **Settings** and navigate to **Tools** > **REST API v2**
2. Ensure that **Rest API Status** displays **Enabled**, then click **New Token**.
3. Enter a token name `Candidate{X}Token` and set the token expiration time to 3 days.
4. Click **Add Endpoint** to select the following endpoint to use with the token:

   /api/v2/infrastructure/publishers

   Hint: Type pub in the search field to narrow down the list of API endpoints.
5. Change the privilege for the endpoint to **Read + Write** and click **Save**.



6. In the **Success** message, click **Copy Token** to save it for later use in your API requests.



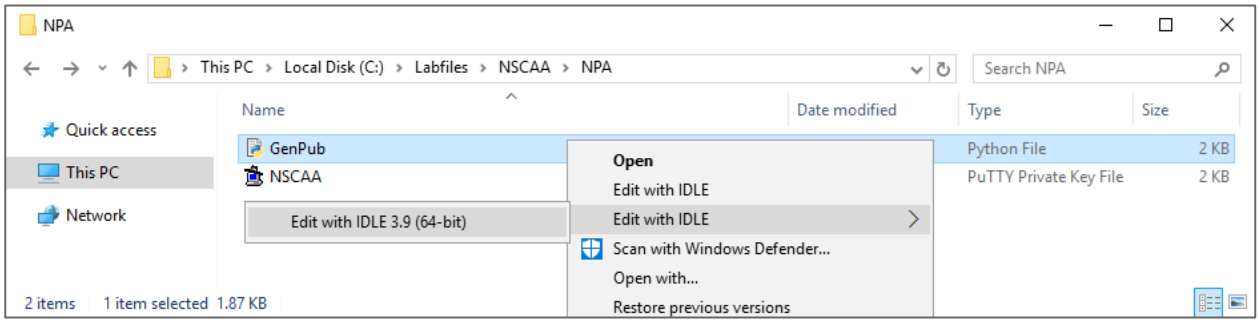
Hint: paste the copied token into a text file and save it within your WorkSpace.

7. When finished, click **OK**.

Task 1.2 – Register a new Publisher with a script

1. Open File Explorer and navigate to `C:\LabFiles\NSCAA\NPA`.

2. Right-click the GenPub.py Python script file and select **Edit with Idle** > **Edit with Idle 3.9 (64-bit)** from the options displayed.



3. In the Idle Editor window, select **Run** > **Run Module**.

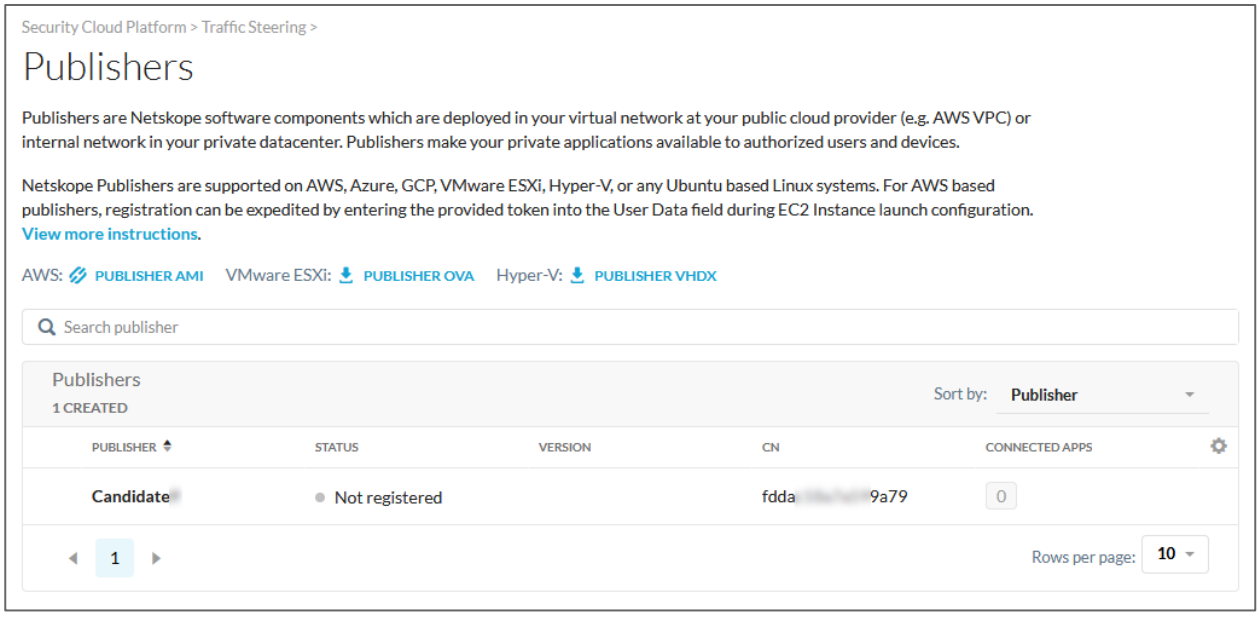
4. Enter the following information to the successive prompts:

Publisher name	`Candidate{X}`, where {X} is your student number
Full tenant URL	Training Netskope tenant URL
RestAPI token	The REST API token copied from your tenant at a previous step

5. Copy the publisher registration token value within the quotation marks from the script output.

```
========== RESTART: C:\Labfiles\NSCAA\NPA\GenPub.py ==========
Enter Publisher Name: Candidate
Enter the full tenant url e.g. academy-emea.goskope.com: .goskope.com
Enter your RestAPI Token: f748 1f57
2
https:// .goskope.com/api/v2/infrastructure/publishers/2/registration_token
{"data":{"token":"eyJhbGciOiJSUzI1NiJ9.eyJpc3MiOiJucy0xNTEzOC5ubC1hbTIubnBhLmdvc2tvcGUuY29tIiwic3ViIjoiZmRkYWMxOGE3
YTU5OWE3OSIsImV4cCI6MTY1OTYzMDM1MywianRpIjoiYjE2Y2YwYTktZjEyZS00YjZjLTg5MTgtNjUzOTAxZmIzMDU4In0.mILNr7nMQ7HwBRz7AoP
Oj-btE4cUq2QWYGbFZJAoQ-TIAFLh0FjDtxG7mJ9d2UU0F3vFQXABftYgZZOU2qF5D-Tl1O7s9gksSTk-BkwI8yR8jByfP4-JXvN7BTcpLBXdOyJ8tE
u7Sp3pbb-mzYRE7jwqEerq6cKUL7WqGrm18x8Aghxh1rtUIwGYeecOZvD4ykqWKIIMc8SgLbob0REl-EMOJ_VtLTXk4KBsDZl7RZov7nqcu-U6wd0kW
2vc1cEqfVEw64eU19BBv-nC4CyaMYwk-Qh-Bne9JtLmXCqAoR66zJdK-nSHWrmzc-kZmrtKuH9QQ0ahN8wDNnhKoGVu0Q"},"status":"success"}

>>>
```

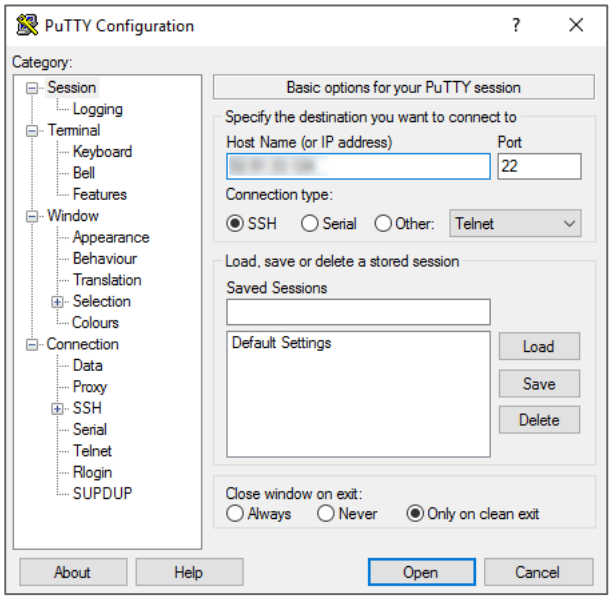
6. In the Netskope tenant settings navigate to **Security Cloud Platform** > **Traffic Steering** > **Publishers**. Verify that your NPA Publisher has been created but not registered.



Task 1.3 – NPA Publisher registration

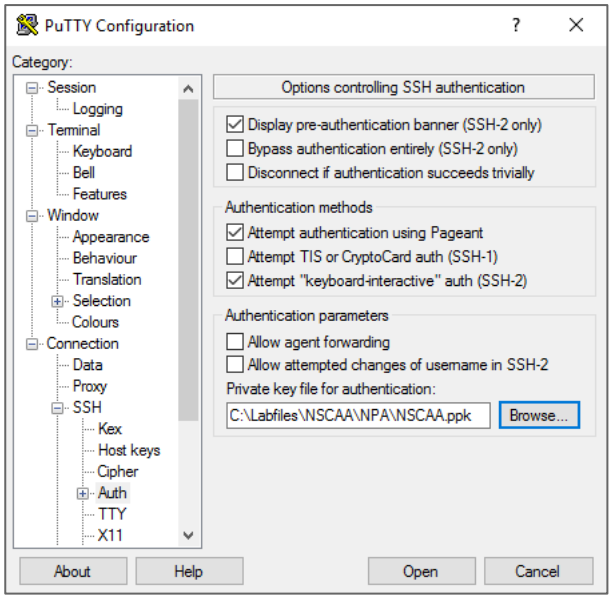
1. From your Amazon WorkSpace, open a PuTTY window.

2. In the **Host Name (or IP address)** field, enter your assigned publisher public IP address.



3. In the side menu, navigate to **Connection** > **SSH** > **Auth**.

4. Click **Browse** and open the private key `C:\LabFiles\NSCAA\NPA\NSCAA.ppk`



5. Click **Open** and answer **Accept** in the security alert window.

6. In the command line interface, enter `centos` in the login as prompt.

7. To register your publisher, at the **Configuration menu** prompt, type: `1`

8. Paste the publisher registration token copied from the Python script output and press ENTER.

9. Verify that the publisher has been registered successfully.

10. In the Netskope tenant settings navigate to **Security Cloud Platform** > **Traffic Steering** > **Publishers**.

11. Ensure that the status of your publisher has changed to **Connected**.

Note: Status update can take up to a minute. Refresh the page as necessary.

Part 2 – Review remote user authentication settings

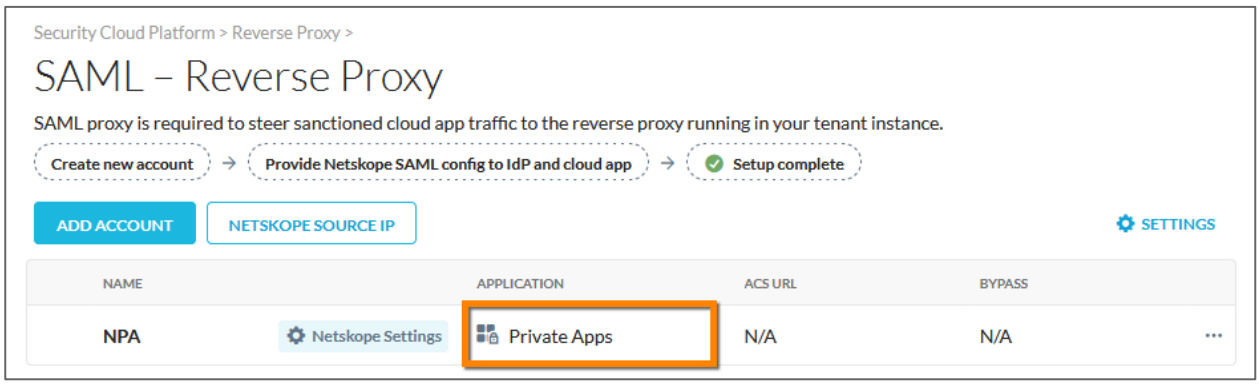
Private app access, whether browser-based or client-based, assumes user authentication. Since browser-based private app access is based on the reverse proxy technology, the authentication comes from an identity provider which must be set up in the Netskope tenant reverse proxy settings.

You will not set up authentication in this lab, but you will review the settings configured for your Netskope tenant by the instructor.

1. In the Netskope tenant settings, navigate to **Security Cloud Platform** > **Reverse Proxy** > **SAML**.

2. Ensure that there is a SAML account for integrating with an identity provider to authenticate users accessing private apps.

   Note: In this lab the identity provider is Okta.



   Note: In a production environment you will have to create this configuration. Read more at the link: https://docs.netskope.com/en/configure-browser-access-for-private-apps.html

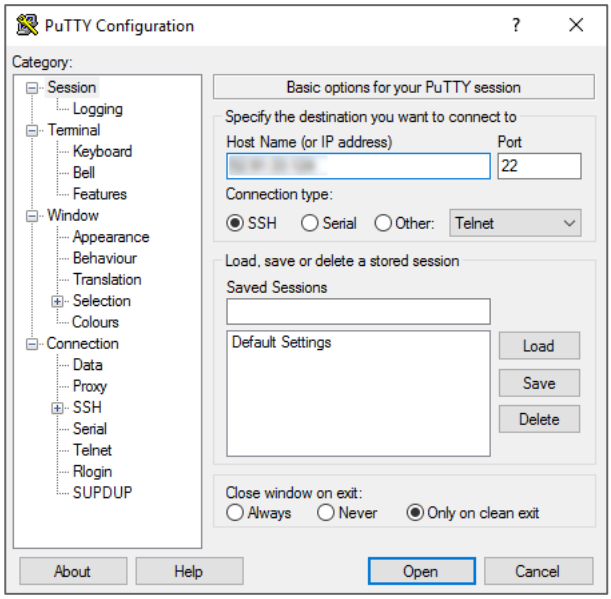
Part 3 – Grant browser-based access to a private application

Task 3.1 – Publish the private app for browser access

Next, a private application needs to be created in the Netskope tenant. You will use your Cloud Exchange web UI as the private application.

1. Run PuTTY.

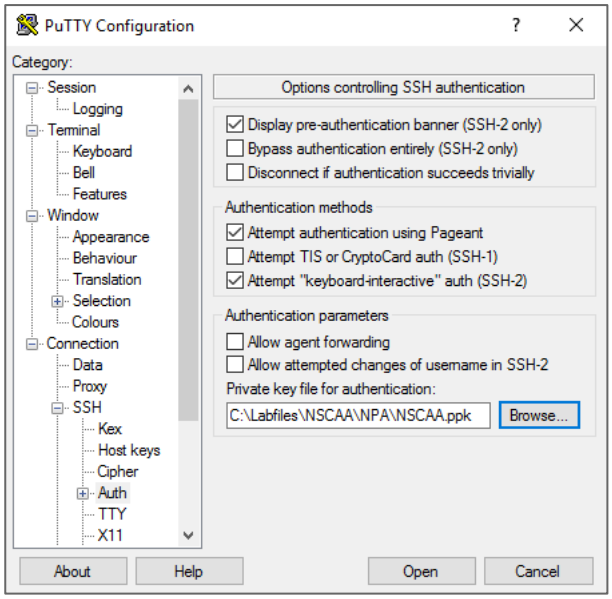
2. In the **Host name (or IP address)** field enter the public IP address of the Cloud Exchange server provided by the instructor.



3. Select the private key to use for the SSH session:

   a. In the side menu, navigate to **Connection** > **SSH** > **Auth**.

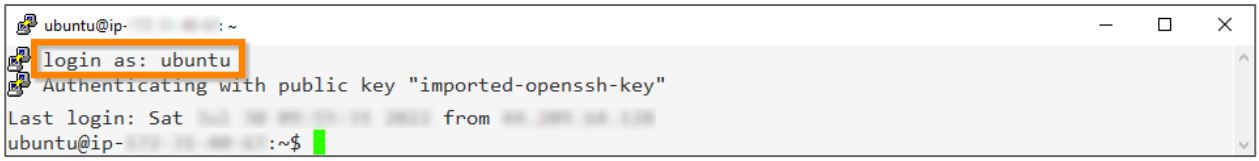
   b. Click **Browse** and open the private key file `C:\Labfiles\NSCAA\NPA\NSCAA.ppk`.



4. Click **Open**.

5. To log in, type the username:

   `ubuntu`



6. To determine the local address of the Cloud Exchange server, run the command:

   `ip -br a`

```
ubuntu@ip-172-31-34-33:~$ ip -br a
lo               UNKNOWN        127.0.0.1/8 ::1/128
ens5             UP             172.31.34.33/20 fe80::ce9:8aff:fe11:facf/64
docker0          DOWN           172.17.0.1/16
br-fba3862e3979  UP             172.18.0.1/16 fe80::42:21ff:fe55:53a8/64
vethd2199da@if5  UP             fe80::7004:33ff:fee3:662/64
veth197f7dd@if7  UP             fe80::dc68:82ff:fe40:d724/64
veth163dd4a@if9  UP             fe80::240d:f5ff:fe6a:85f4/64
vethe9c4125@if11 UP             fe80::c7:7bff:fe7b:27e6/64
ubuntu@ip-172-31-34-33:~$
```

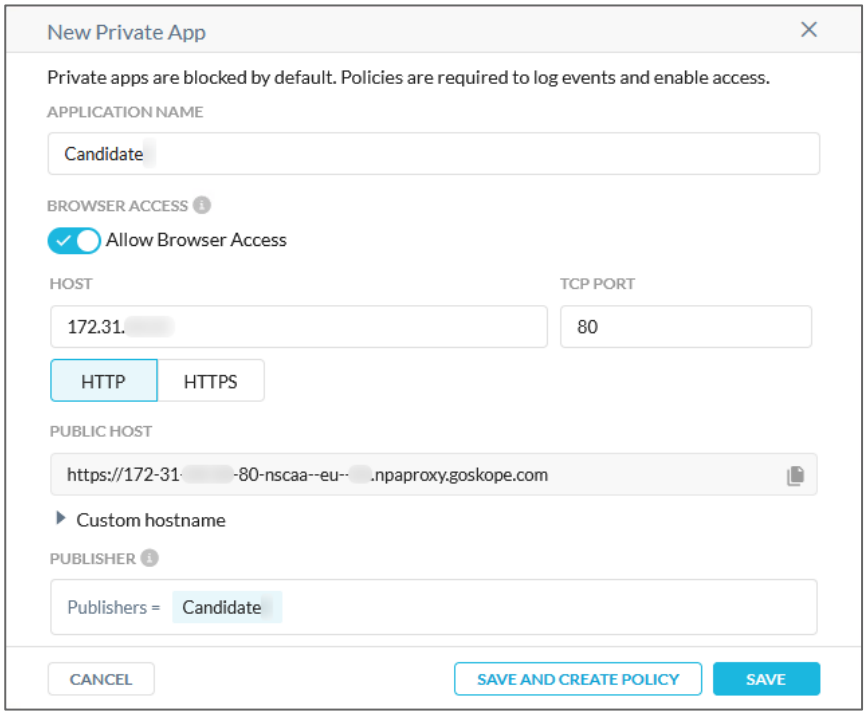
7. Copy the address of the **ens5** interface and save it for future use.

8. In the Netskope tenant settings, navigate to **Security Cloud Platform** > **Traffic Steering** > **App Definition**.

9. On the **App Definition** page, switch to the **Private Apps** tab and click **New Private App**.

10. Create a new private app using the following information:

Application Name	`Candidate{X}`, where {X} is your student number
Allow Browser Access	Enabled
Host	Cloud Exchange local IP address copied earlier
TCP Port	80
HTTP/HTTPS	HTTP
Publisher	Your publisher Candidate{X}



11. Click **Save**.

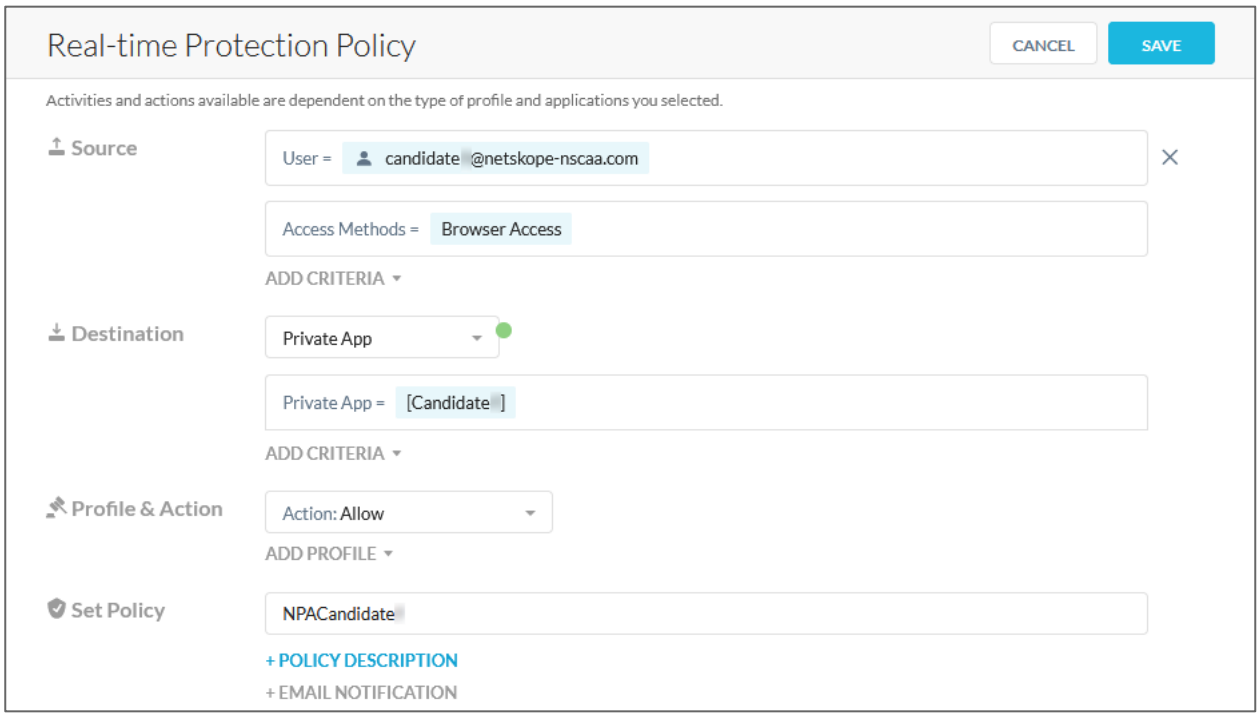
Task 3.2 – Create a policy to grant access to the published app

1. In the Netskope tenant, navigate to **Policies** > **Real-time Protection**.

2. Click **New Policy** > **Private App Access**.

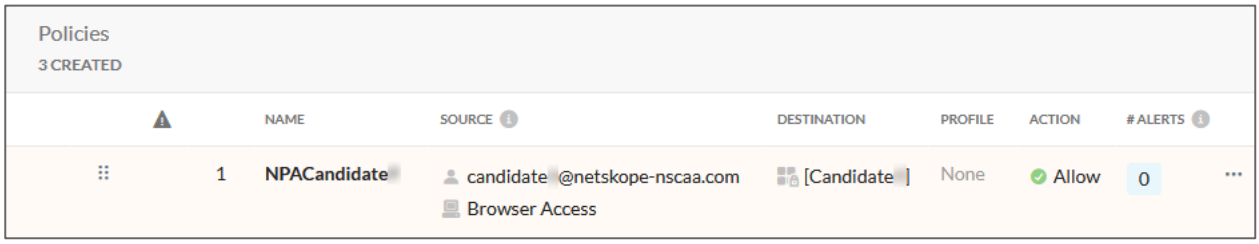
3. Configure a new policy using the following information:

Source > User	Your Okta user `candidate{X}@netskope-nscaa.com`
Source > Access Methods	Browser Access
Destination > Private App	[Candidate{X}]
Profile & Action > Action	Allow
Set Policy > Policy Name	NPA`Candidate{X}`, where {X} is your student number



4. Click **Save** and choose **To the top**, then click **Save**.

5. Click **Apply Changes** and click **Apply** to confirm.

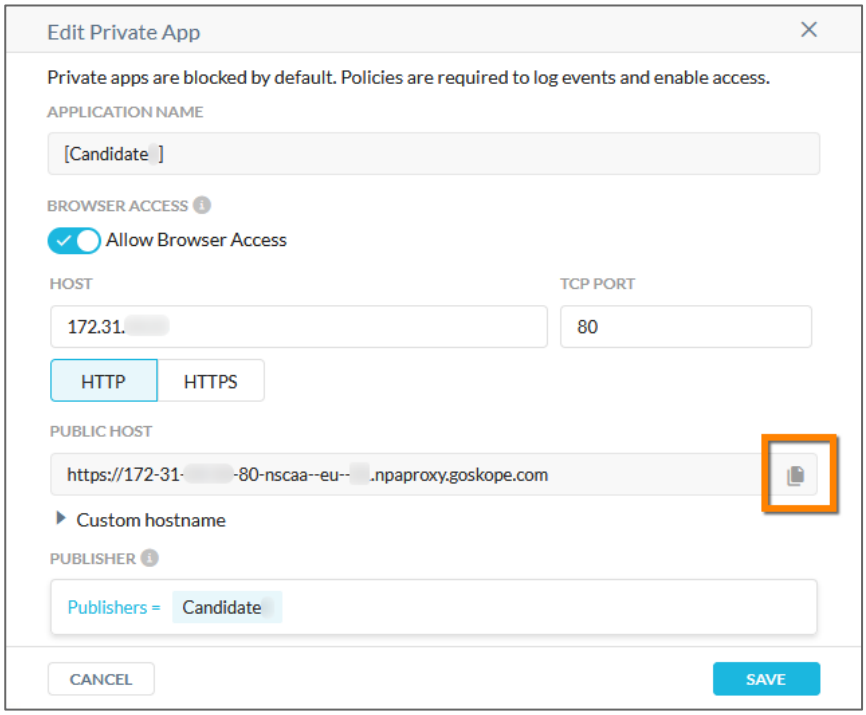


Task 3.3 – Verify Access

1. Open Netskope tenant settings and navigate to **Security Cloud Platform** > **App Definition** > **Private Apps**.

2. Click the name of your private app **[Candidate{X}]**, where {X} is your student number.

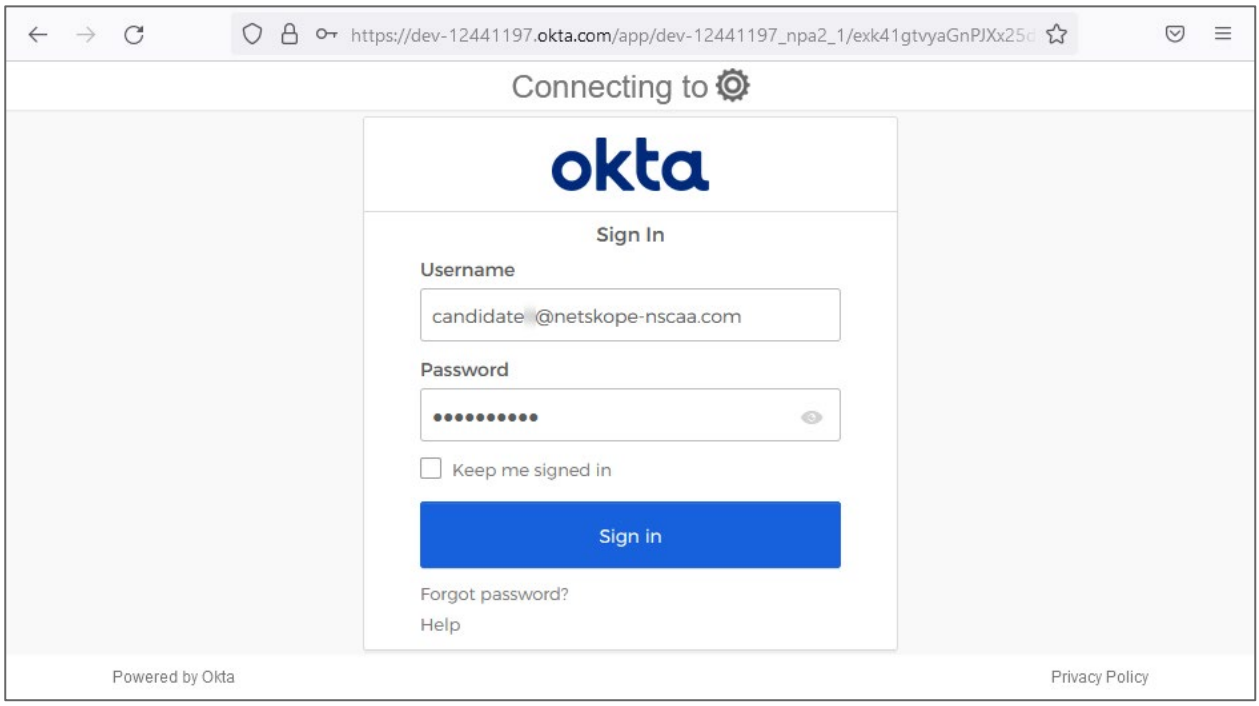
3. Copy the URL displayed in the **Public Host** field, then click **Cancel**.



4. Ensure that the Netskope client in your Amazon WorkSpace is disabled.

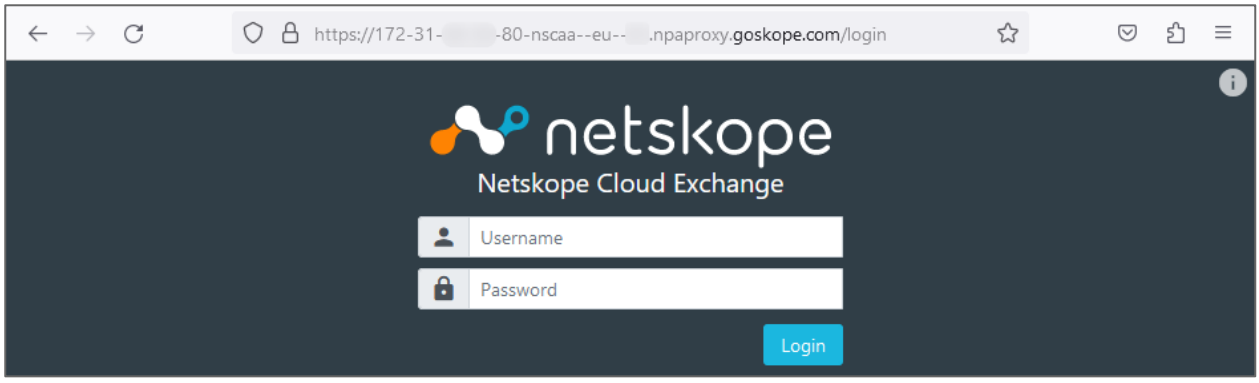
5. Open a new browser window and browse to the copied URL of the private app.

6. Sign in with your Okta username `candidate{X}@netskope-nscaa.com`, where {X} is your student number, and the `Password1!` password.



Note: Browser-based private app access requires users to authenticate with an identity provider.

7. Ensure that the Netskope Cloud Exchange UI is displayed.



Lab Complete

Lab E: Cloud Explicit Proxy (CEP)

Scenario

The newly acquired Acme Loan company employees need an interim solution to connect to company resources since they cannot install the Netskope client on their systems. To ensure visibility and control of their activity, the security team has decided to implement a Cloud Explicit Proxy (CEP) deployment.

In this lab, you will implement the final part of this deployment — direct user's traffic to your tenant's Cloud Explicit Proxy using a proxy auto-configuration (PAC) file.

Lab Tasks

During this lab, you will complete the following tasks:

- Review the tenant-side CEP configuration.
- Download the sample.pac file from the tenant and adapt it to your environment.
- Set up proxy server settings using the PAC file.
- Verify conditional redirection to the Cloud Explicit Proxy.

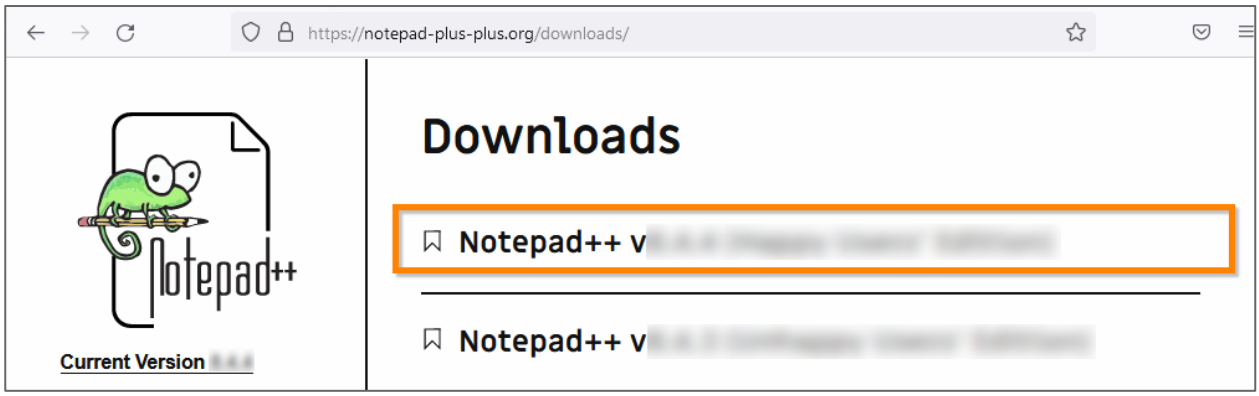
Part 1 – Preparation

Task 1.1 – Install Notepad++

1. In your Amazon WorkSpace, open a web browser and navigate to:

   `https://notepad-plus-plus.org/downloads`

2. Click the newest version.



3. Download the installer and install it within your Amazon WorkSpace with the default installation settings.

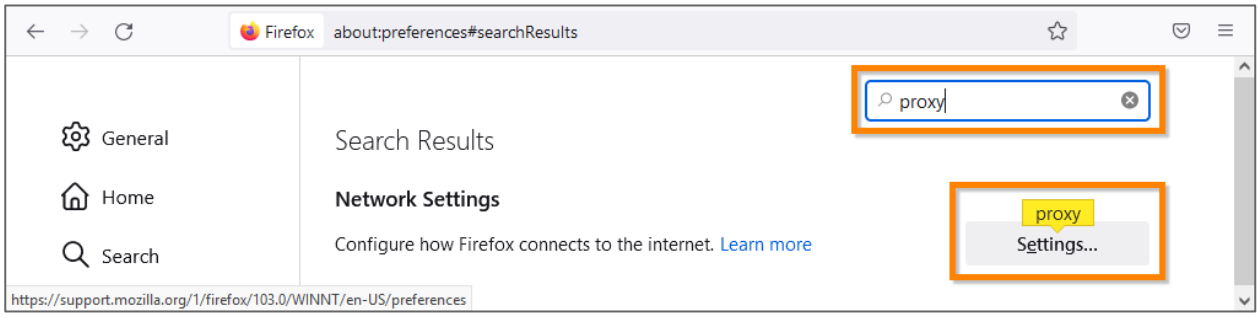
Task 1.2 – Set up Firefox to use system proxy and certificates

To ensure this lab works for Firefox as well as for Chrome, you will configure Firefox to use system proxy configuration and system certificates.

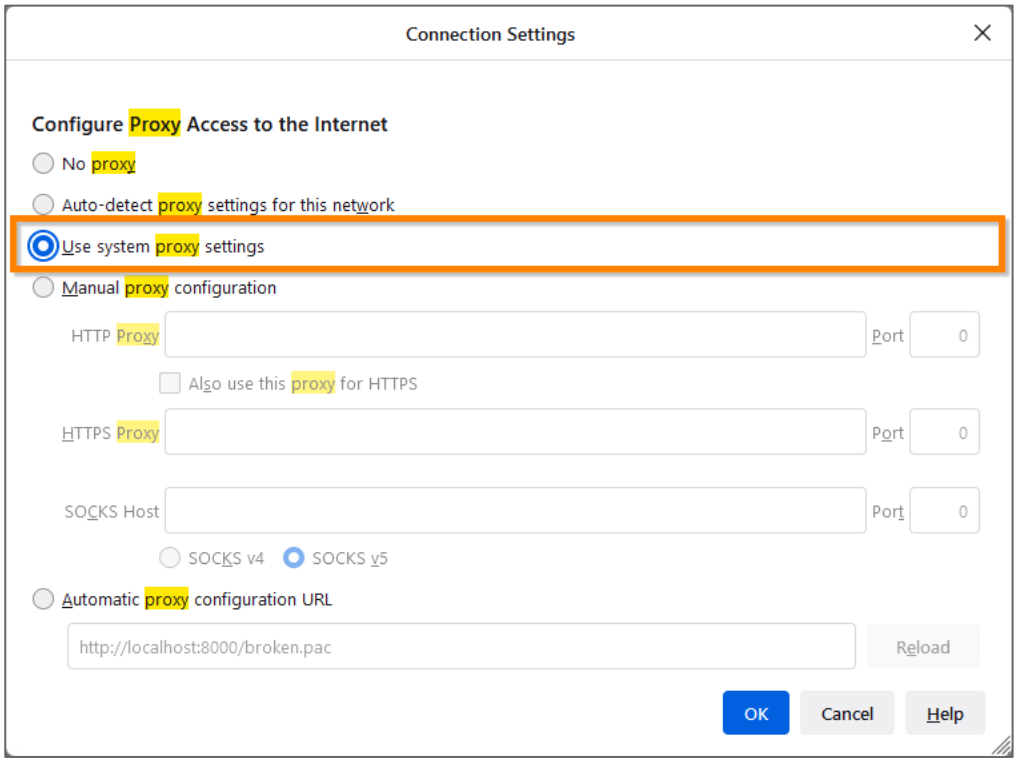
1. Open a Firefox browser window.

2. Open the Application menu (☰) and click **Settings**.

3. Type `proxy` in the search field and then click **Settings** in the **Network Settings** section.



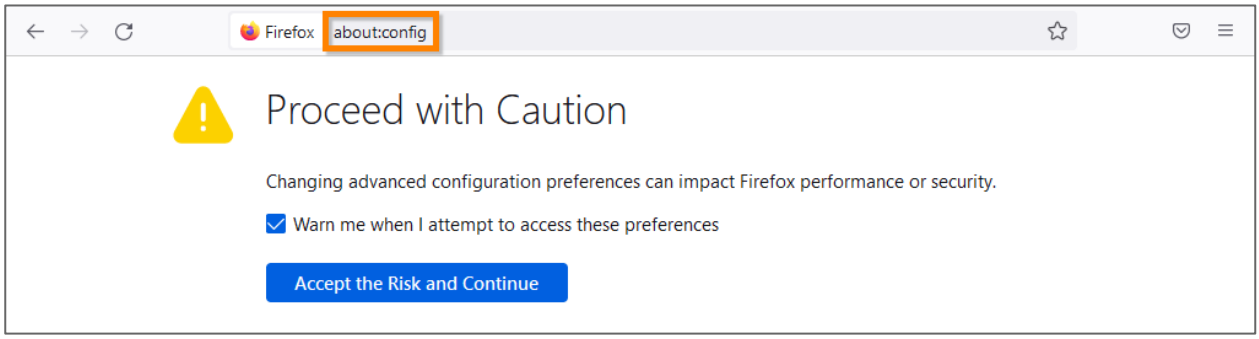
4. Choose **Use system proxy settings** and click **OK**.



5. In the Firefox address bar, enter:

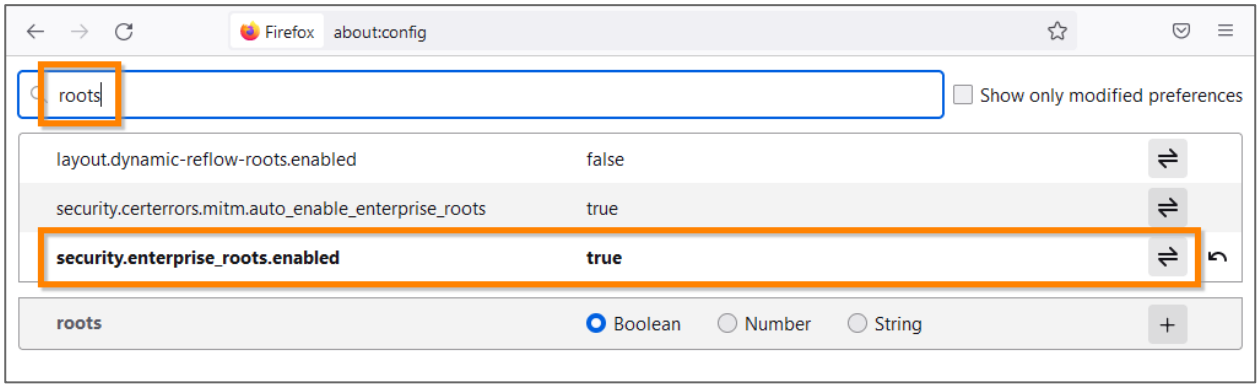
   `about:config`

6. Click **Accept the Risk and Continue**.



7. In the search field, type `roots`

8. Click the toggle icon (⇌) to set the **security.enterprise_roots.enabled** parameter to **true**.

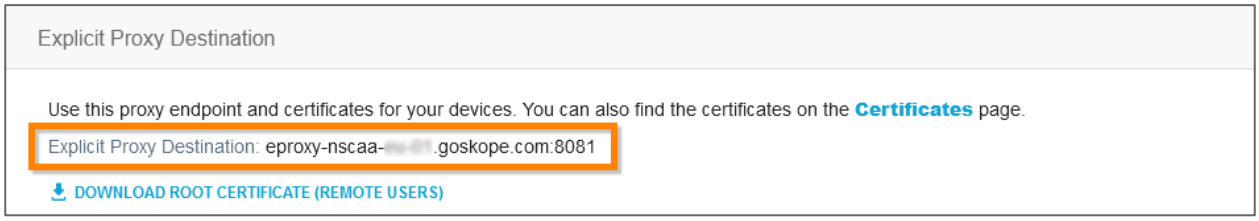


Part 2 – Review the tenant-side CEP configuration

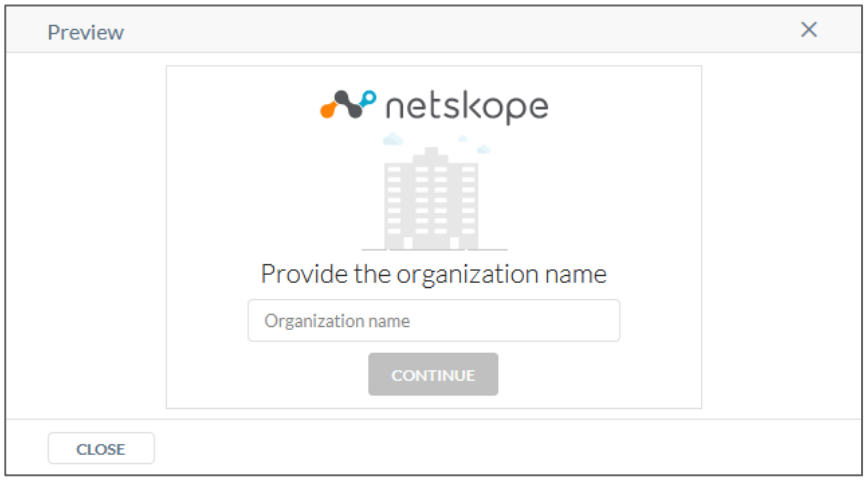
Tenant-side configuration steps are not included in this lab because students are sharing the same tenant. You will review the configuration prepared by the instructor.

1. In the Netskope tenant, click **Settings** and navigate to **Security Cloud Platform** > **Traffic Steering** > **Explicit Proxy**.

2. Examine the **Explicit Proxy Destination** URL. This is the address of your tenant's Cloud Explicit Proxy that you will use in the proxy auto-configuration (PAC) file later in the lab.

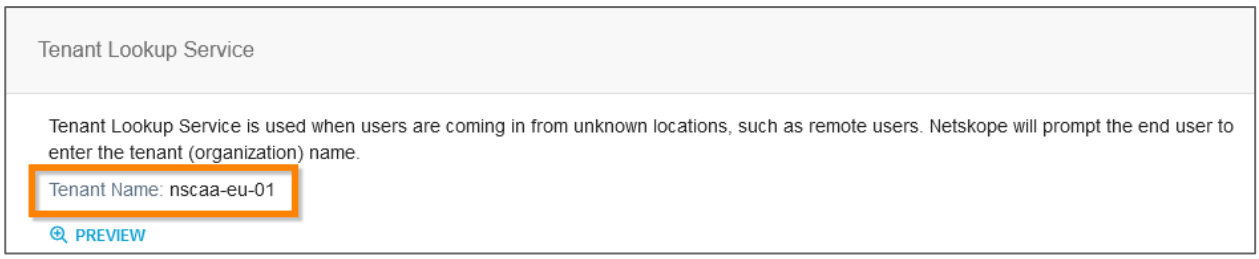


3. In the **Tenant Lookup Service** section, click **Preview**.



Note: Remote users will use the Netskope tenant name as their organization name.

4. Click **Close** and note the tenant name.



Note: In a production environment, you will need to communicate the tenant name to your remote users.

5. Examine the **IP Address Allowlist & User Identity** settings.

Note: There are no addresses in the allowlist. All remote users will require authentication via an identity provider.

6. Navigate to **Security Cloud Platform** > **Forward Proxy** > **Authentication**.

7. Ensure that **Authentication** is **enabled** and a **SAML Authentication** configuration is used.

8. Navigate to **Security Cloud Platform** > **Forward Proxy** > **SAML**.

9. Ensure that the **SAML authentication** configuration uses Okta as an identity provider.

Note: In a production environment, forward proxy authentication via a SAML-supporting identity provider must be configured for remote users to authenticate themselves at the Netskope Cloud Explicit Proxy. Read more at the link: https://docs.netskope.com/en/saml-forward-proxy.html

Part 3 – Prepare a PAC file

You will download a sample PAC file from your Netskope tenant and modify it to suit your environment.

Task 3.1 – Inspect the sample PAC file

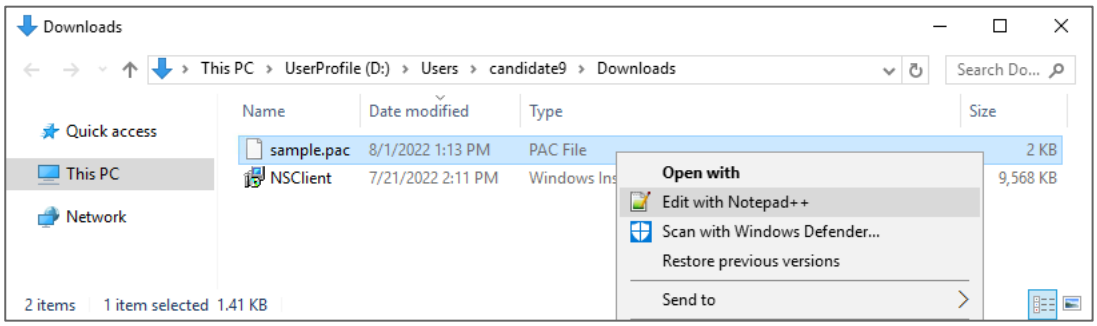
1. In your Amazon WorkSpace, ensure that the Netskope client is disabled.

2. In the Netskope tenant settings, navigate back to **Security Cloud Platform** > **Traffic Steering** > **Explicit Proxy**.

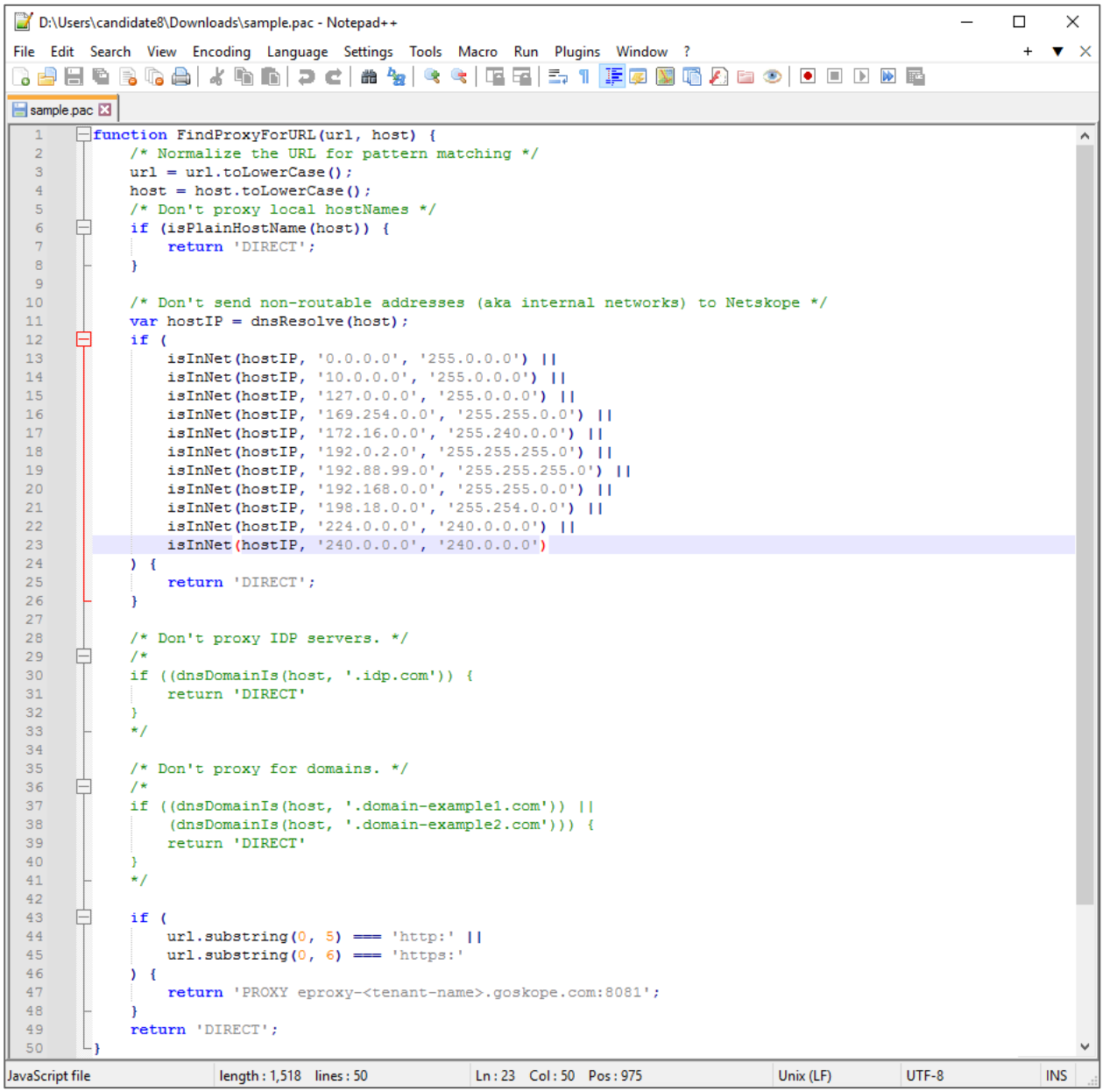
3. In the top right corner, click **Download Sample PAC File** and save it to the default `Downloads` folder.

4. Open File Explorer and navigate to `D:\Users\Candidate{X}\Downloads\`

5. Right-click the `sample.pac` file and select **Edit with Notepad++**.



6. To make the code more readable, select **Language** > **J** > **JavaScript** in the top menu.



Note: A PAC file contains a JavaScript function which the browser executes for every URL it accesses. If the function returns 'DIRECT' the browser tries to access the URL directly. If the function returns 'PROXY' followed by a proxy address and port, the browser tries to access the original URL via the proxy.

This `sample.pac` file is incomplete and cannot be used as it is. You will modify it before usage.

7. Review the distinct sections of the file from top to bottom.

```
function FindProxyForURL(url, host) {
    /* Normalize the URL for pattern matching */
    url = url.toLowerCase();
    host = host.toLowerCase();
```

The browser passes the URL and the host part of the URL to the function as parameters. To make further comparisons easier, this PAC file normalizes both the URL and the host to lowercase.

```
    if (isPlainHostName(host)) {
        return 'DIRECT';
    }
```

If the host name does not contain dots and is meant to be resolved in the local network, the PAC file instructs the browser to access such hosts directly.

```
    /* Don't send non-routable addresses (aka internal networks) to Netskope */
    var hostIP = dnsResolve(host);
    if (
        isInNet(hostIP, '0.0.0.0', '255.0.0.0') ||
        isInNet(hostIP, '10.0.0.0', '255.0.0.0') ||
        isInNet(hostIP, '127.0.0.0', '255.0.0.0') ||
        isInNet(hostIP, '169.254.0.0', '255.255.0.0') ||
        isInNet(hostIP, '172.16.0.0', '255.240.0.0') ||
        isInNet(hostIP, '192.0.2.0', '255.255.255.0') ||
        isInNet(hostIP, '192.88.99.0', '255.255.255.0') ||
        isInNet(hostIP, '192.168.0.0', '255.255.0.0') ||
        isInNet(hostIP, '198.18.0.0', '255.254.0.0') ||
        isInNet(hostIP, '224.0.0.0', '240.0.0.0') ||
        isInNet(hostIP, '240.0.0.0', '240.0.0.0')
    ) {
        return 'DIRECT';
    }
```

Likewise, if the host resolves into a private/non-routable IP address, it is to be accessed directly.

```
    /* Don't proxy IDP servers. */
    /*
    if ((dnsDomainIs(host, '.idp.com'))
    {
        return 'DIRECT'
    }
    */
```

This is a placeholder for identity provider exclusions. Netskope Cloud Explicit Proxy redirects users to an identity provider for authentication; therefore, the identity provider domains should be excluded to avoid a redirection loop.

```
    /* Don't proxy for domains. */
    /*
    if ((dnsDomainIs(host, '.domain-example1.com')) ||
    (dnsDomainIs(host, '.domain-example2.com')))
    {
        return 'DIRECT'
    }
    */
```

Then follows another placeholder for any other exclusions.

```
41      if (url.substring(0, 5) === 'http:' || url.substring(0, 6) === 'https:') {
42          return 'PROXY eproxy-<tenant name>.goskope.com:8081';
43      }
44
45      return 'DIRECT';
```

Finally, any URL or host that starts with http or https (web traffic) and doesn't match the above exclusions is to be redirected to the Netskope Cloud Explicit Proxy. Remaining URLs and hosts that do not match any of the conditions are to be accessed directly.

Task 3.2 – Configure proxy URL and exclusions

1. To redirect web traffic to your tenant Cloud Explicit Proxy, replace `<tenant-name>` with your tenant name in the line:

   `return 'PROXY eproxy-<tenant-name>.goskope.com:8081';`

```
43      if (
44          url.substring(0, 5) === 'http:' ||
45          url.substring(0, 6) === 'https:'
46      ) {
47          return 'PROXY eproxy-nscaa-eu-  .goskope.com:8081';
48      }
49      return 'DIRECT';
50  }
```

2. To directly access your tenant's configured identity provider, replace `.idp.com` with `.okta.com` and remove comments around the condition.

```
28      /* Don't proxy IDP servers. */
29      if ((dnsDomainIs(host, '.okta.com')) {
30          return 'DIRECT'
31      }
32
33      /* Don't proxy for domains. */
```

Note: Okta uses another domain for authentication: ***.oktacdn.com****. Exclude it too.*

3. To add an exclusion for the `.octacdn.com` domain, replace the condition

   `if ((dnsDomainIs(host, '.okta.com'))`

   with

   `if (dnsDomainIs(host, '.okta.com') || dnsDomainIs(host, '.oktacdn.com'))`

```
28      /* Don't proxy IDP servers. */
29      if (dnsDomainIs(host, '.okta.com') || dnsDomainIs(host, '.oktacdn.com')) {
30          return 'DIRECT'
31      }
32
33      /* Don't proxy for domains. */
```

IMPORTANT: Make sure to keep the opening curly bracket after the closing paranthesis of the condition.

4. To ensure direct access to the tenant itself, exclude .goskope.com

   To do this, uncomment the code under /* Don't proxy for domains. */ and replace the condition

   ```
   if ((dnsDomainIs(host, '.domain-example1.com')) ||
   (dnsDomainIs(host, '.domain-example2.com')))
   ```

   with

```
if (dnsDomainIs(host, '.goskope.com'))
```

```
28      /* Don't proxy IDP servers. */
29      if (dnsDomainIs(host, '.okta.com') || dnsDomainIs(host, '.oktacdn.com')) {
30          return 'DIRECT'
31      }
32
33      /* Don't proxy for domains. */
34      if (dnsDomainIs(host, '.goskope.com')) {
35          return 'DIRECT'
36      }
37
38      if (
39          url.substring(0, 5) === 'http:' ||
40          url.substring(0, 6) === 'https:'
41      ) {
42          return 'PROXY eproxy-nscaa-eu-01.goskope.com:8081';
43      }
44      return 'DIRECT';
45  }
```

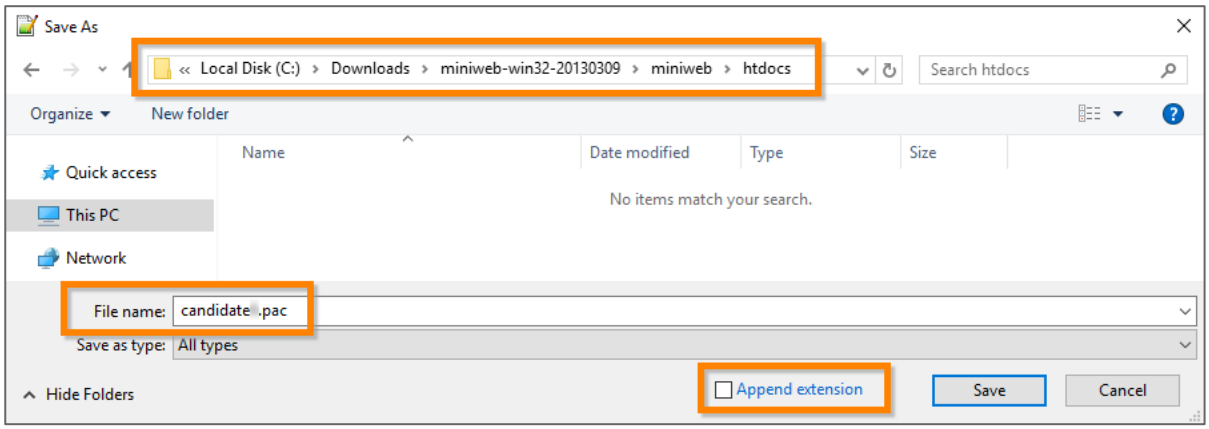
Part 4 – Configure proxy settings using a PAC file

Task 4.1 – Publish the PAC file on a web server

This lab uses a simple web server running locally from your Amazon WorkSpace.

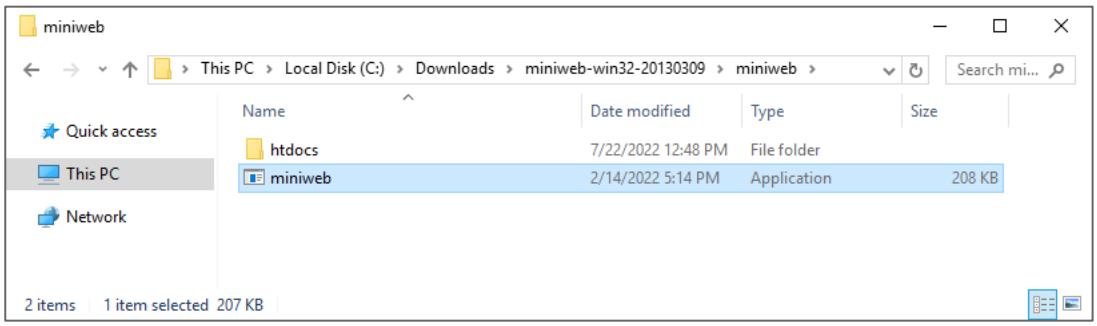
1. In Notepad++, click **File** > **Save As**, then navigate to `C:\Downloads\miniweb-win32-20130309\miniweb\htdocs`

2. Deselect the **Append extension** checkbox and save the file as `candidate{X}.pac`, where {X} is your student number.

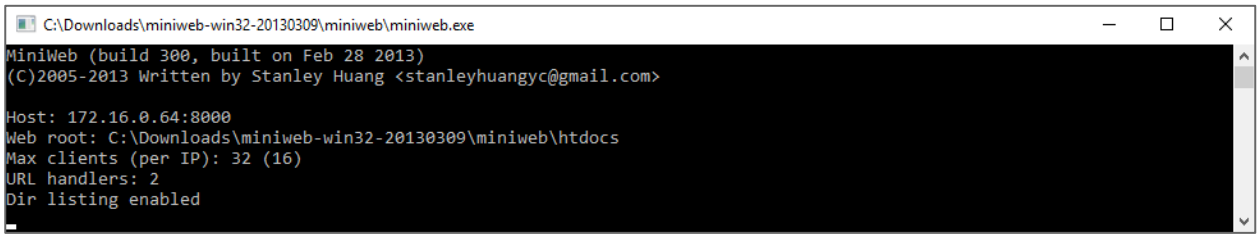


3. Run File Explorer and navigate to `C:\Downloads\miniweb-win32-20130309\miniweb`

4. Run `miniweb.exe`.



5. Do not close the command line window.



6. To test that your web server is functioning, open a browser window and navigate to:

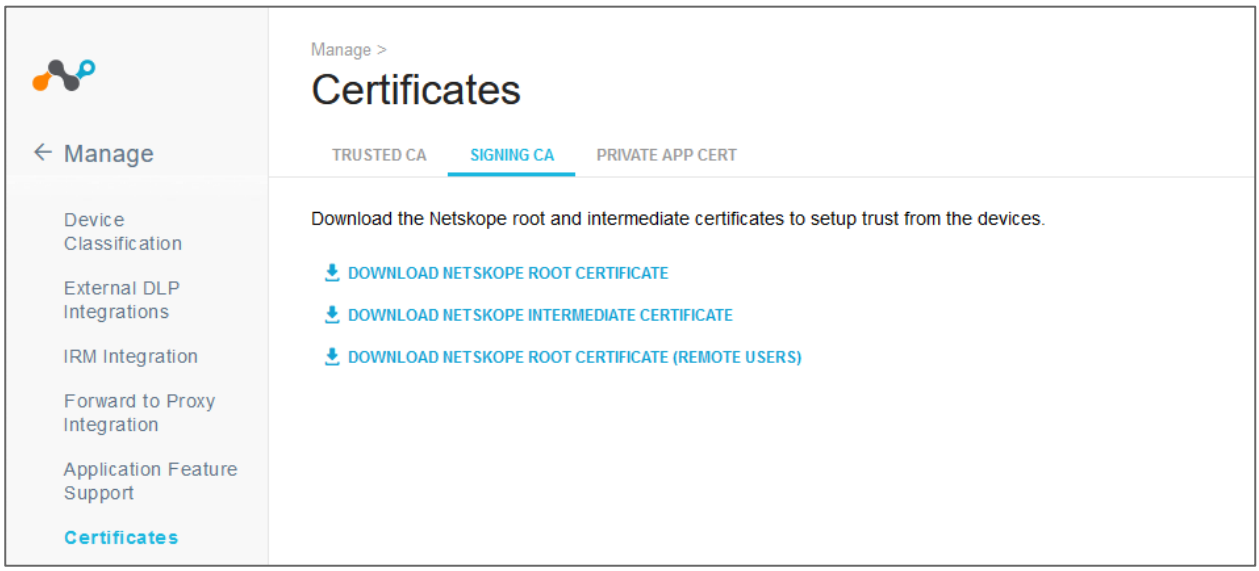
   `localhost:8000`

Task 4.2 – Import Netskope certificates into the local stores

In this task you will download and import your tenant certificates into the local certificate stores to ensure that browsers trust site certificates that are signed by Netskope. In a production environment, you would distribute certificates via GPO or another management tool, depending on what kind of devices you are managing (e.g., Android, iPhone, Windows, etc.).

1. In the Netskope tenant settings, navigate to **Manage** > **Certificates**.

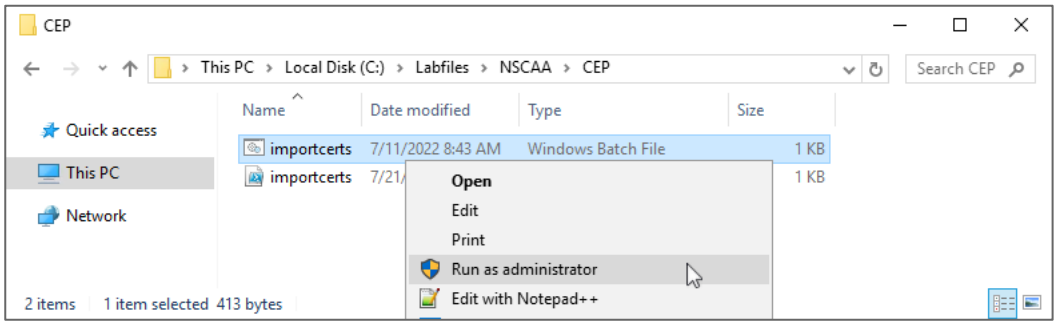
2. Switch to the **Signing CA** tab and download the three certificates to the default `Downloads` folder `D:\Users\Candidate{X}\Downloads`.



3. Open File Explorer and navigate to `C:\Labfiles\NSCAA\CEP`.

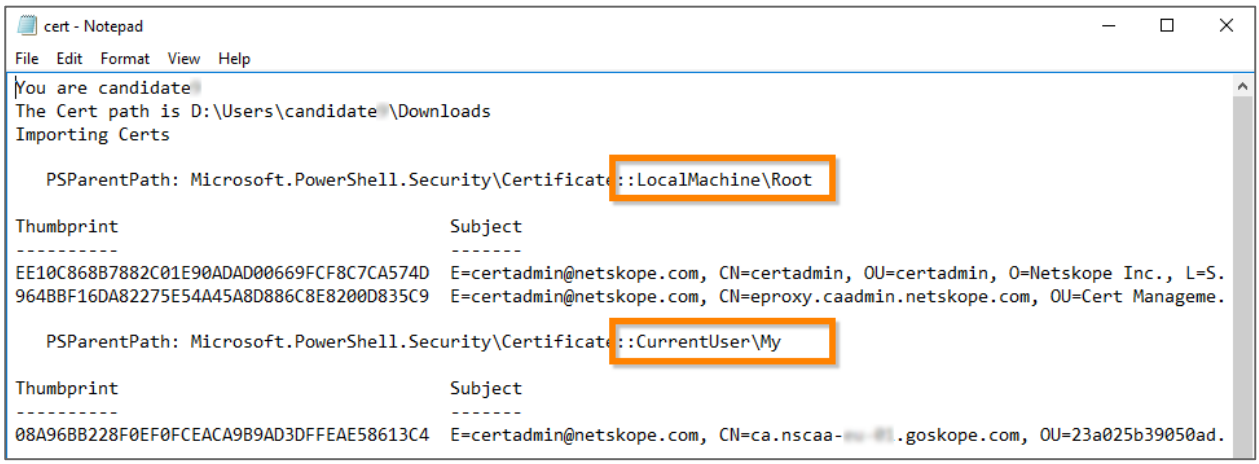
4. Run the batch file `importcerts.bat` as administrator.

   IMPORTANT: Do not run the PowerShell script by the same name.



5. In the command prompt, type your student number.

6. Double-click the `cert.log` file to review the results.

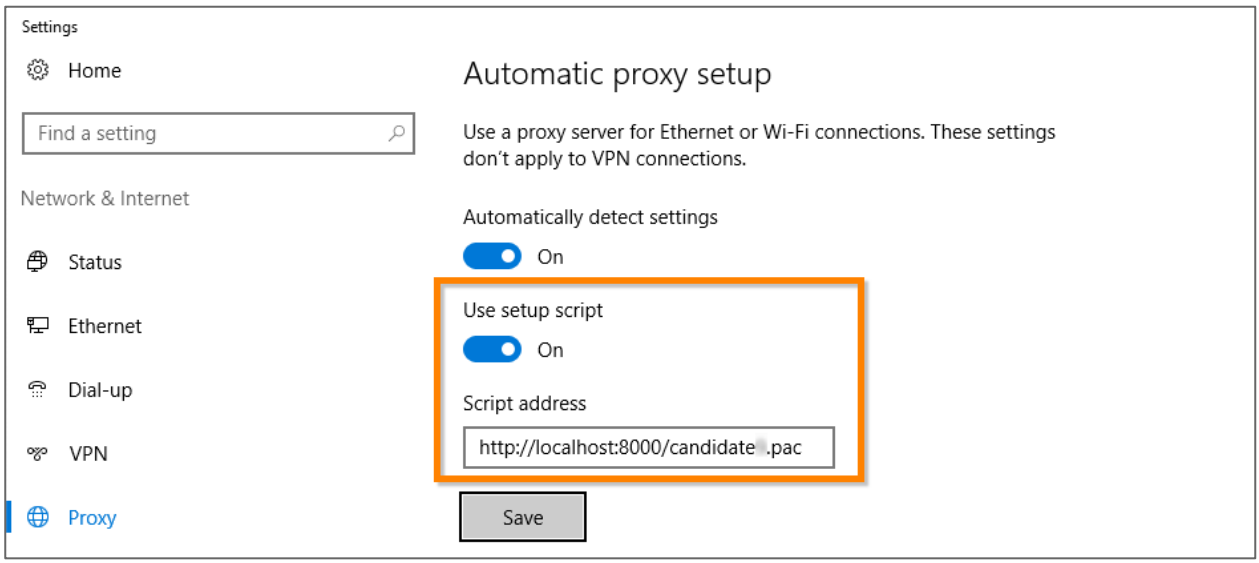


Note: The script imports two of the certificates into the computer's root store and one into the user's personal store. If there are any errors, use the log to assist with troubleshooting.

Task 4.3 – Set up system proxy settings to use the PAC file

1. Open system proxy settings (click **Start** > (settings) and navigate to **Network & Internet** > **Proxy**).
2. Set **Use setup script** to **On**.
3. In the **Script address** field, type the URL to your PAC file:

   `http://localhost:8000/candidate{X}.pac`
4. Click **Save**.

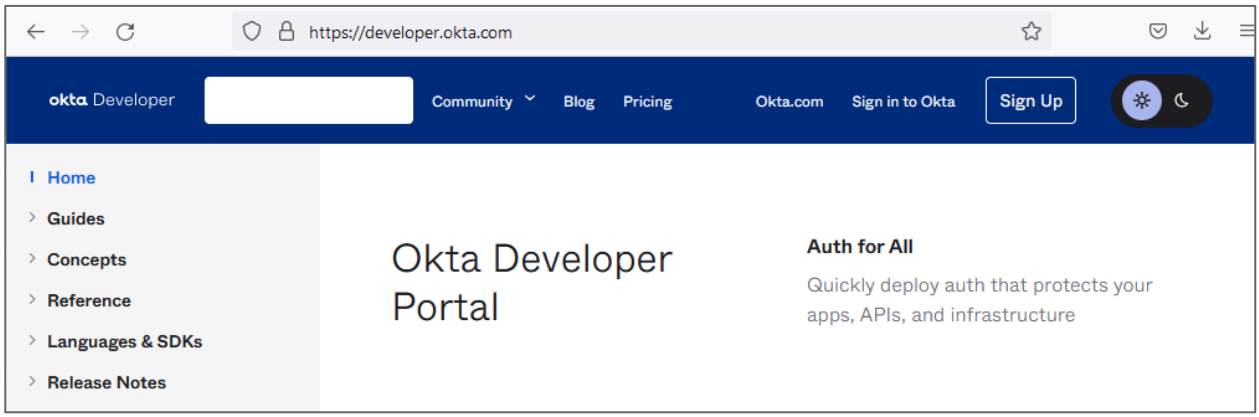


Note: In a production environment, you can distribute proxy server settings via a GPO or another third-party tool, depending on the kind of devices you are managing.

Part 5 – CEP validation

Task 5.1 – Validate direct connection to Okta developer website

1. Restart your browser, then open a new private/incognito browser window.
2. Navigate to `developer.okta.com`



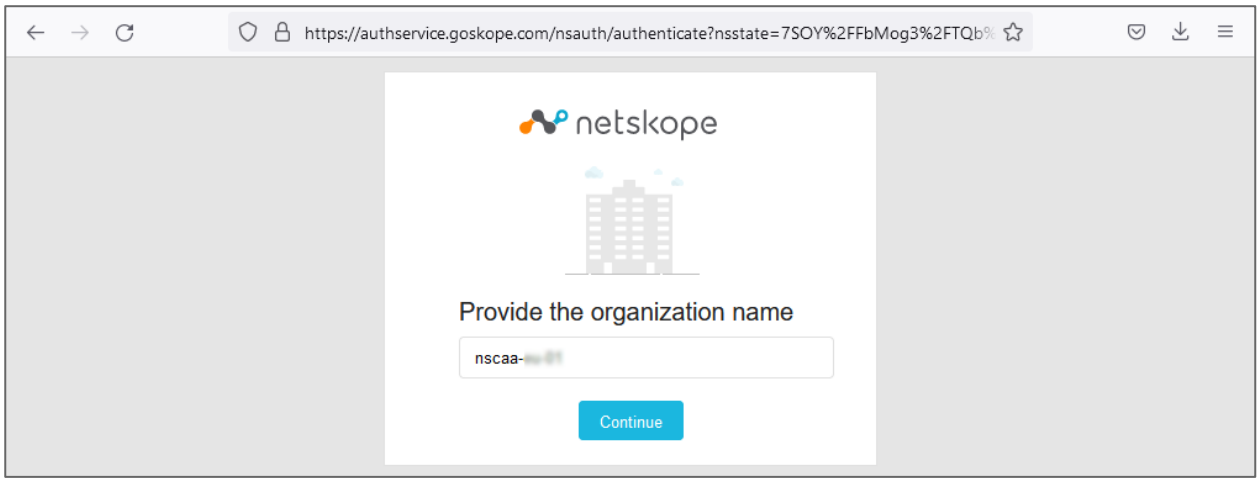
The website opens without any redirect.

Task 5.2 – Validate redirection to Netskope Cloud Explicit Proxy

1. Navigate to `www.cnn.com`

   Note: The connection is redirected to the Netskope Cloud Explicit Proxy, which requires users to authenticate.

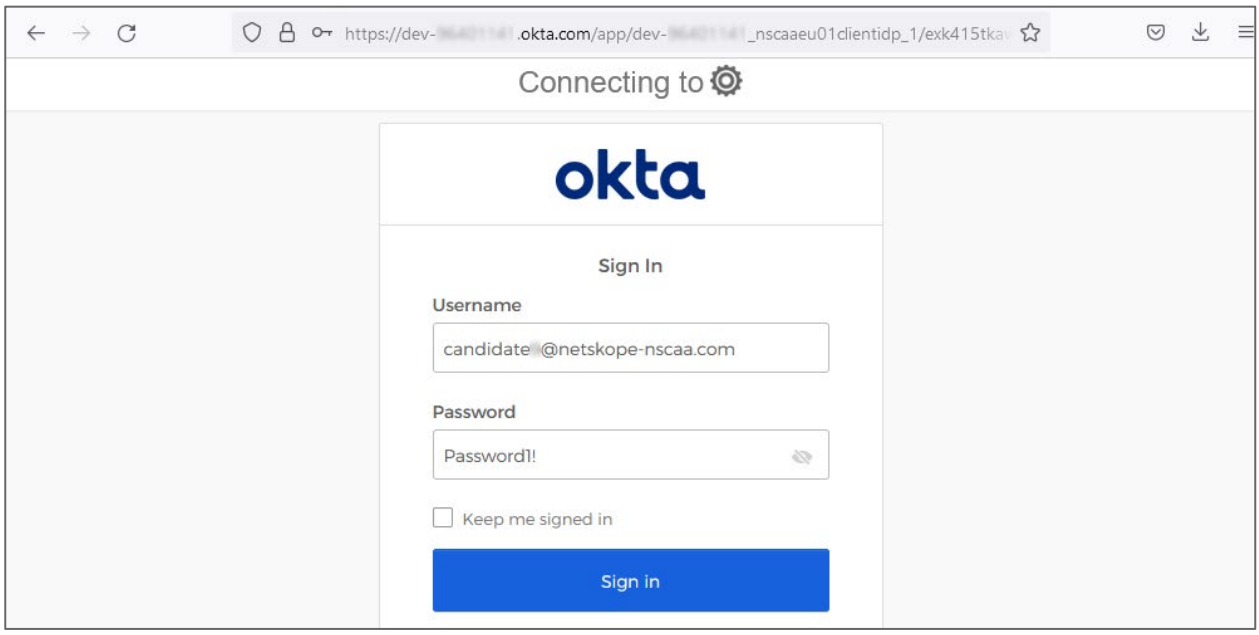
2. In the **Organization name** filed, enter your Netskope tenant name without the domain name and click **Continue**.



3. On the Okta login page, authenticate with your Okta credentials:

   Username: `candidate{X}@netskope-nscaa.com`

   Password: `Password1!`

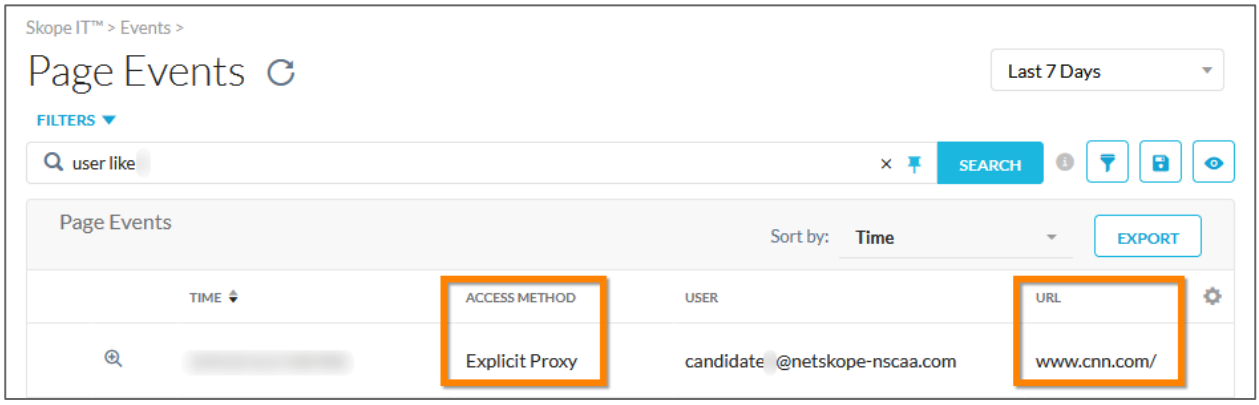


The browser will redirect you to the website.

4. In the Netskope tenant, navigate to **Skope IT™** > **Page Events**.

5. Locate the event and click the magnifying glass icon (🔍) to review the **Page Event Details** pane.

6. Add the **Access Method** column and the **URL** column to the table. The Access Method is displayed as Explicit Proxy and the User is displayed as candidate{X}@netskope-nscaa.com.



Note: It may take a minute or two before the events appear. Refresh the page as necessary.

Lab Complete

Lab F: PAC file troubleshooting

You will practice how to troubleshoot a PAC file.

Lab Tasks

During this lab, you will complete the following tasks:

- Create a broken PAC file and fix it.
- Add troubleshooting messages to the PAC file code.

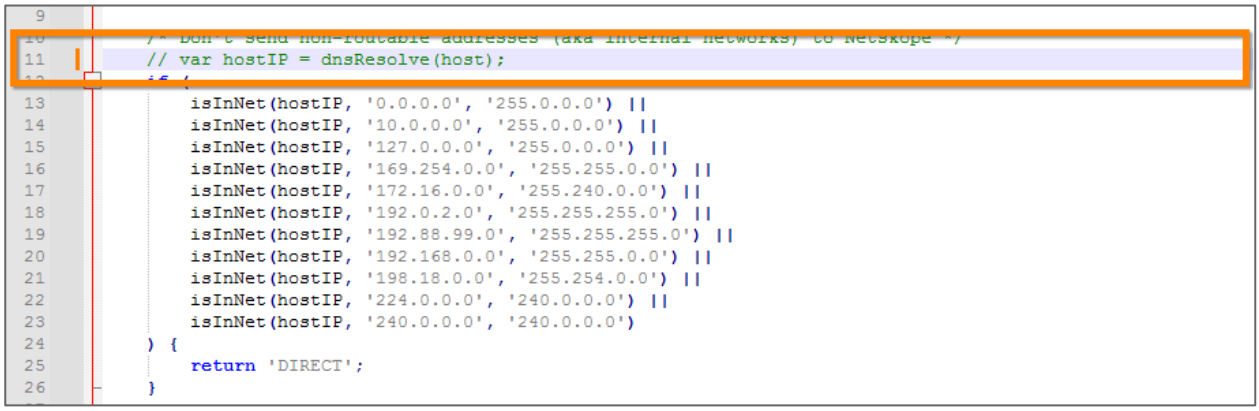
Part 1 – Detect coding errors in the PAC file

Task 1.1 – Modify the PAC file to add broken code

1. Open your PAC file in Notepad++:
   `C:\Downloads\miniweb-win32-20130309\miniweb\htdocs\candidate{X}.pac`

2. Comment out the declaration of the hostIP variable by adding two forward slashes at the beginning of the line:

   ```
   // var hostIP = dnsResolve(host);
   ```

   Now the code contains an error, as the variable **hostIP** is used by never declared.

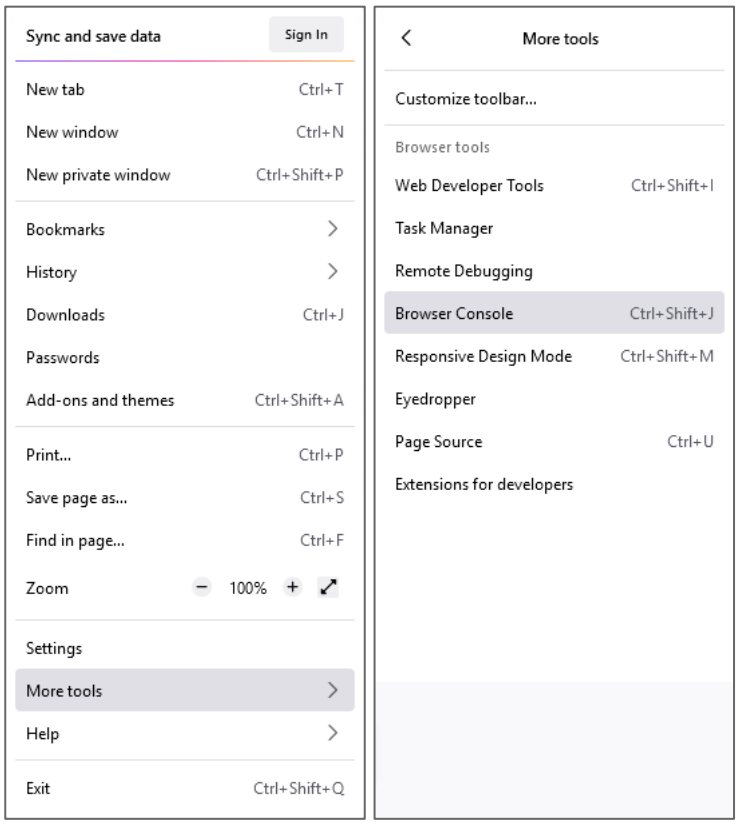
3. Click **File** > **Save** in the top menu of Notepad++.

Task 1.2 – Locate the error in the PAC code

You will use Firefox throughout this lab because it provides much easier access to the PAC-related messages.

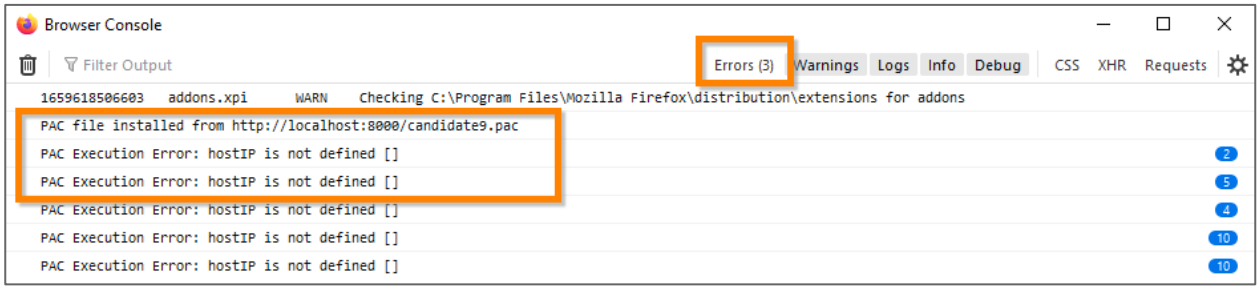
1. Restart your Firefox browser.

2. In a Firefox window, open the menu (☰) and navigate to **More tools** > **Browser Console**.



Note: This is a different console from the more familiar web developer console accessible with the F12 keyboard shortcut.

3. Ensure that Browser Console displays the source of the PAC file and an error processing the broken PAC file: hostIP is not defined.



Note: Several unrelated issues might be reported that are usually related to issues with browser extensions. These can be safely ignored. To hide them, click the Errors label.

Task 1.3 – Fix the error in the PAC file

1. Open your PAC file with Notepad++.

2. Remove the two forward slashes before the declaration of the **hostIP** variable.

```
9
10      /* Don't send non-routable addresses (aka internal networks) to Netskope */
11      var hostIP = dnsResolve(host);
12      if (
13          isInNet(hostIP, '0.0.0.0', '255.0.0.0') ||
14          isInNet(hostIP, '10.0.0.0', '255.0.0.0') ||
15          isInNet(hostIP, '127.0.0.0', '255.0.0.0') ||
16          isInNet(hostIP, '169.254.0.0', '255.255.0.0') ||
17          isInNet(hostIP, '172.16.0.0', '255.240.0.0') ||
18          isInNet(hostIP, '192.0.2.0', '255.255.255.0') ||
19          isInNet(hostIP, '192.88.99.0', '255.255.255.0') ||
20          isInNet(hostIP, '192.168.0.0', '255.255.0.0') ||
21          isInNet(hostIP, '198.18.0.0', '255.254.0.0') ||
22          isInNet(hostIP, '224.0.0.0', '240.0.0.0') ||
23          isInNet(hostIP, '240.0.0.0', '240.0.0.0')
24      ) {
25          return 'DIRECT';
26      }
```

Note: The function isInNet automatically resolves hostnames into IP addresses to check if the host belongs to a subnet.

3. To save your PAC file, click **File** > **Save**.

Task 1.4 – Verify the code

1. Close all Firefox windows, including the Browser Console.
2. Start Firefox and open the Browser Console: ☰ > **More tools** > **Browser Console**.
3. Ensure that the PAC file has been loaded without errors.

Part 2 – Add troubleshooting messages to the PAC file

Task 2.1 – Print a message about proxy decision

1. Open your PAC file with Notepad++.
2. Add the following lines right below the `function` definition:

```
var debugMode = true;
var debugMsg = "";
```

```
1  function FindProxyForURL(url, host) {
2      var debugMode = true;
3      var debugMsg = "";
```

Note: The script will print or suppress troubleshooting messages depending on the value of the debugMode variable.

3. Add the following lines inside the condition for identity provider domains, right above the `return` statement:

```
debugMsg += "Proxy bypass for IDP servers";
```

```
if (debugMode) alert(debugMsg);
```

```
30      /* Don't proxy IDP servers. */
31      if (dnsDomainIs(host, '.okta.com') || dnsDomainIs(host, '.oktacdn.com')) {
32          debugMsg += "Proxy bypass for IDP servers";
33          if (debugMode) alert(debugMsg);
34          return 'DIRECT'
35      }
```

4. Add the lines to print another message above the line that redirects web traffic to proxy:

```
debugMsg += "Redirect to proxy for web traffic";
if (debugMode) alert(debugMsg);
```

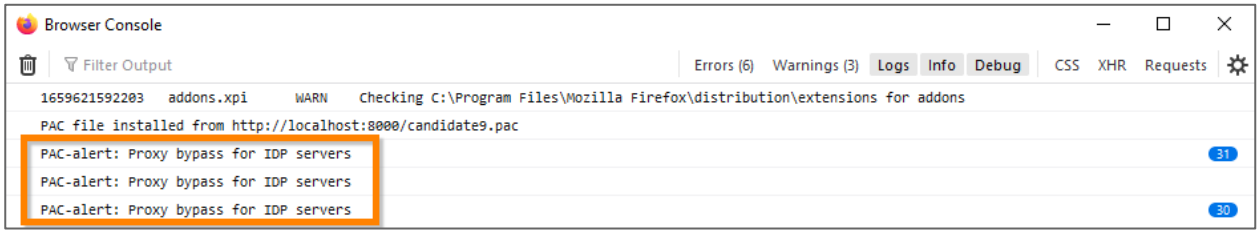
```
42      if (
43          url.substring(0, 5) === 'http:' ||
44          url.substring(0, 6) === 'https:'
45      ) {
46          debugMsg += "Redirect to proxy for web traffic";
47          if (debugMode) alert(debugMsg);
48          return 'PROXY eproxy-nscaa-eu-  goskope.com:8081';
49      }
```

Note: In a production environment, you would want to print the PAC decision before every return statement. To save time, you won't be doing this step as part of this lab.

5. To save the file, click **File** > **Save**.

Task 2.2 – Verify the new PAC code

1. Close all Firefox windows, including the Browser Console.
2. Start Firefox and open the Browser Console: ☰ > **More tools** > **Browser Console**.
3. Open a new private Firefox window and navigate to `developer.okta.com`
4. Ensure that in the Browser Console there are messages about bypassing proxy for IdP servers as well as about redirecting web traffic to proxy.



The messages don't tell us which URL is being accessed. You will fix this in the next task.

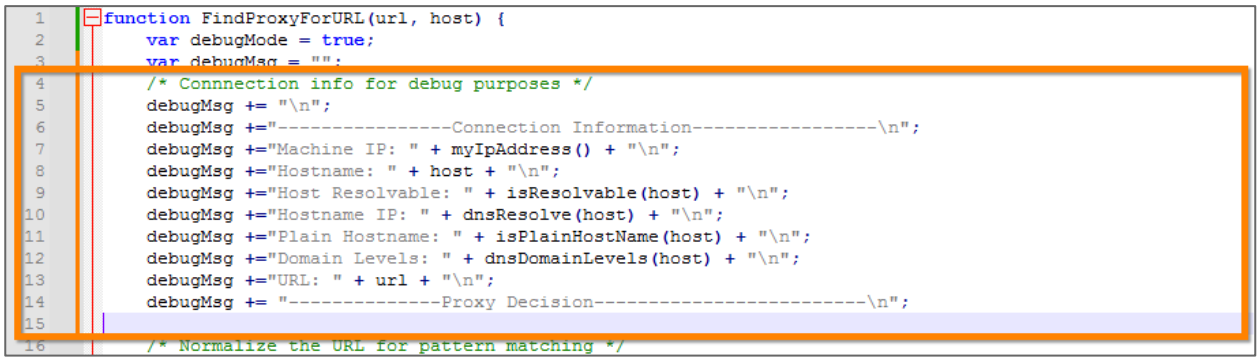
Part 3 – Add context information to the troubleshooting message

Task 3.1 – Print information about the requested URL

1. Open your PAC file with Notepad++.
2. Add the following lines right below the initial `var debugMsg = "";` statement:

```
/* Connnection info for debug purposes */
```

```
debugMsg += "\n";
debugMsg +="----------------Connection Information----------------\n";
debugMsg +="Machine IP: " + myIpAddress() + "\n";
debugMsg +="Hostname: " + host + "\n";
debugMsg +="Host Resolvable: " + isResolvable(host) + "\n";
debugMsg +="Hostname IP: " + dnsResolve(host) + "\n";
debugMsg +="Plain Hostname: " + isPlainHostName(host) + "\n";
debugMsg +="Domain Levels: " + dnsDomainLevels(host) + "\n";
debugMsg +="URL: " + url + "\n";
debugMsg += "--------------Proxy Decision------------------------\n";
```



3. To save the file, click **File** > **Save**.

Task 3.2 – Verify the new PAC code

1. Close all Firefox windows, including the Browser Console.

2. Start Firefox and open the Browser Console: ☰ > **More tools** > **Browser Console**.

3. Notice that there are already messages about the traffic generated by the browser itself even before you typed any URL.

4. Open a new private Firefox window and navigate to `developer.okta.com`

5. Ensure that in the Browser Console the messages include detailed connection info.

Part 4 – Disable troubleshooting messages

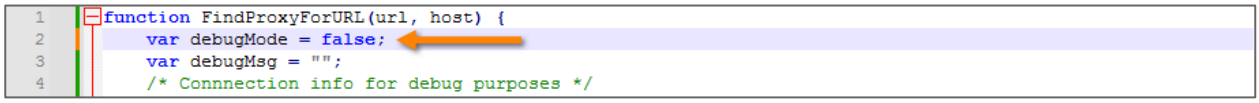
Task 4.1 – Set debugMode to false

1. Open your PAC file with Notepad++.
2. Change the statement

   `var debugMode = true;`

   to

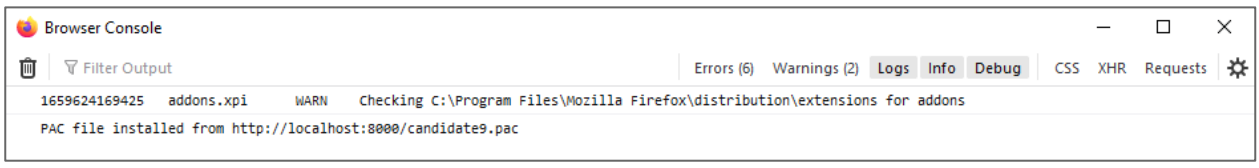
   `var debugMode = false;`



3. To save the file, click **File** > **Save**.

Task 4.2 – Verify the new PAC code

1. Close all Firefox windows, including the Browser Console.
2. Start Firefox and open the Browser Console: ☰ > **More tools** > **Browser Console**.
3. Open a new private Firefox window and navigate to `developer.okta.com`
4. Ensure that in the Browser Console there are no debugging messages.



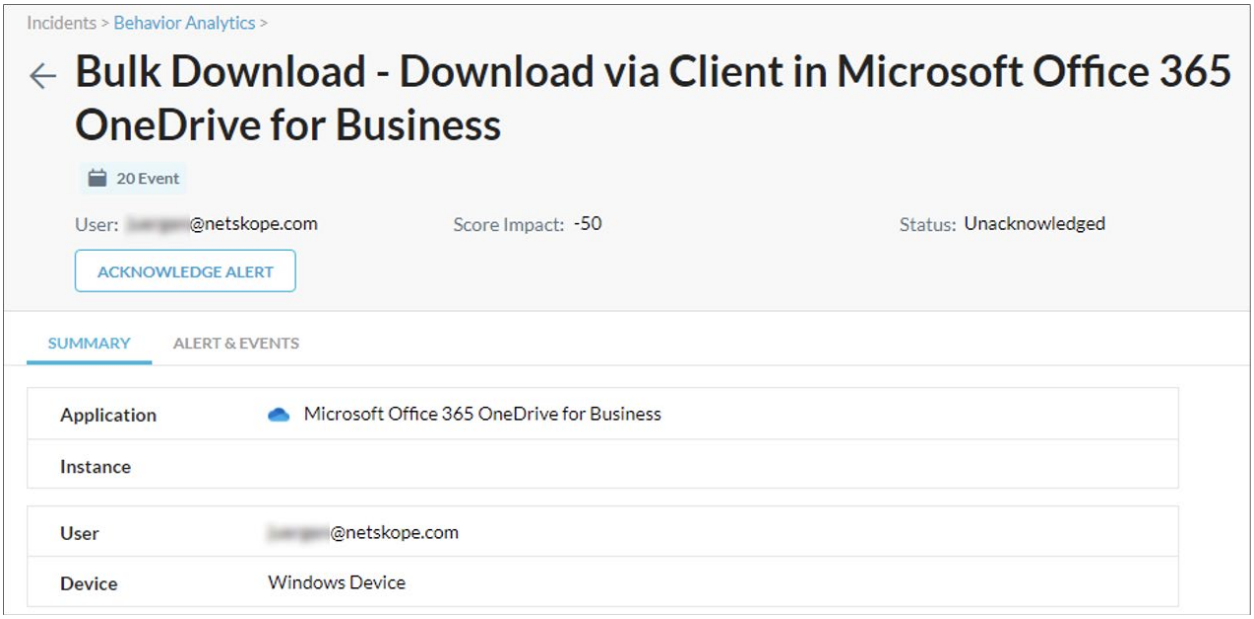
Lab Complete

Lab G: Investigating with Netskope Advanced Analytics

In this lab, you will examine how to investigate a user's suspicious activities using Netskope Advanced Analytics.

Scenario

You have been informed of a possible insider threat. An employee (`candidate1@netskope-nscaa.com`) is acting suspiciously, and there is concern that this employee is exfiltrating data. In addition, the system has already generated a Behavior Analytics alert about a Bulk Download by this user.



You will investigate this user to understand if sensitive data has been exfiltrated and whether there are any gaps in the security policies. You will use Netskope Advanced Analytics and Sankey visualizations to answer the questions throughout this lab.

Lab Tasks

During this lab, you will complete the following tasks:

- Investigate the suspicious user.
- Determine how this person has exfiltrated credit card information.

At the conclusion of the exercise, you will send a private message to the instructor with the app name and activity detected.

Part 1 – Review the user's activities using Advanced Analytics

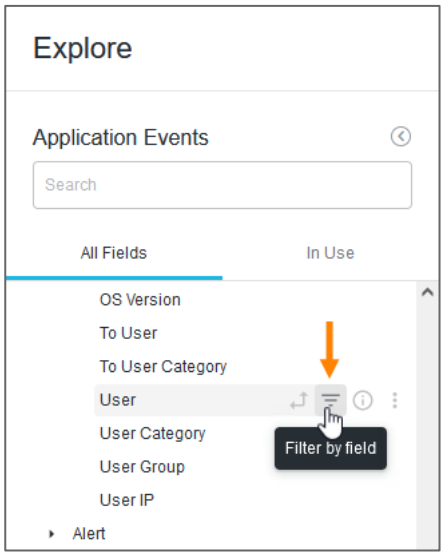
1. Log in to your Netskope tenant.

2. From the left navigation pane, select **Advanced Analytics** > **Explore**.

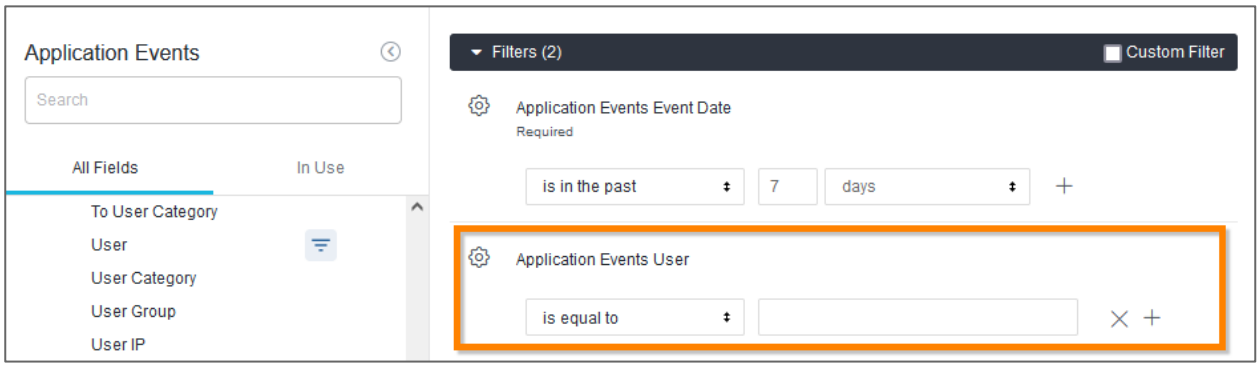
3. From the **Data Collection** dropdown menu at the top-right corner of the page, select **Application Events**.

4. In the left menu of Advanced Analytics, expand the **Application Events** > **User** section.

5. Hover over the **User** dimension and click the **Filter by field** icon.

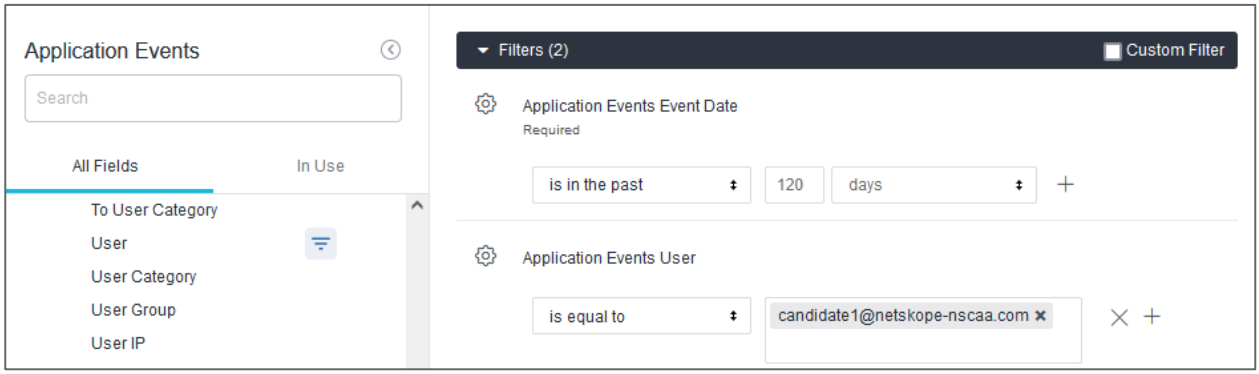


6. Expand the **Filters** section.



7. Under the **Application Events Event Date** filter and to the right of the dropdown menu (which should be set to **is in the past**), change the number to `120` days.

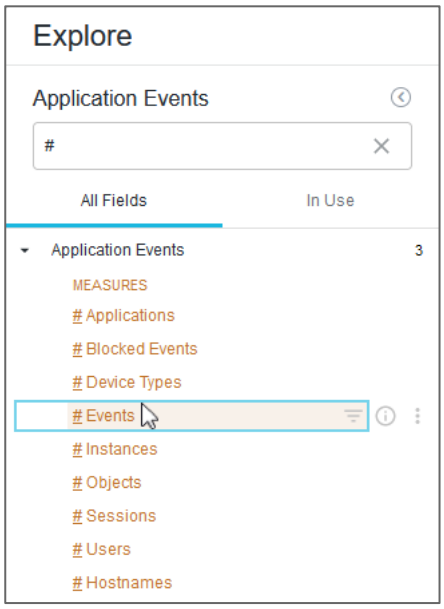
8. Under the **Application Events Users** filter and to the right of the dropdown menu (which should currently be set to **is equal to**), enter the username `candidate1@netskope-nscaa.com`.



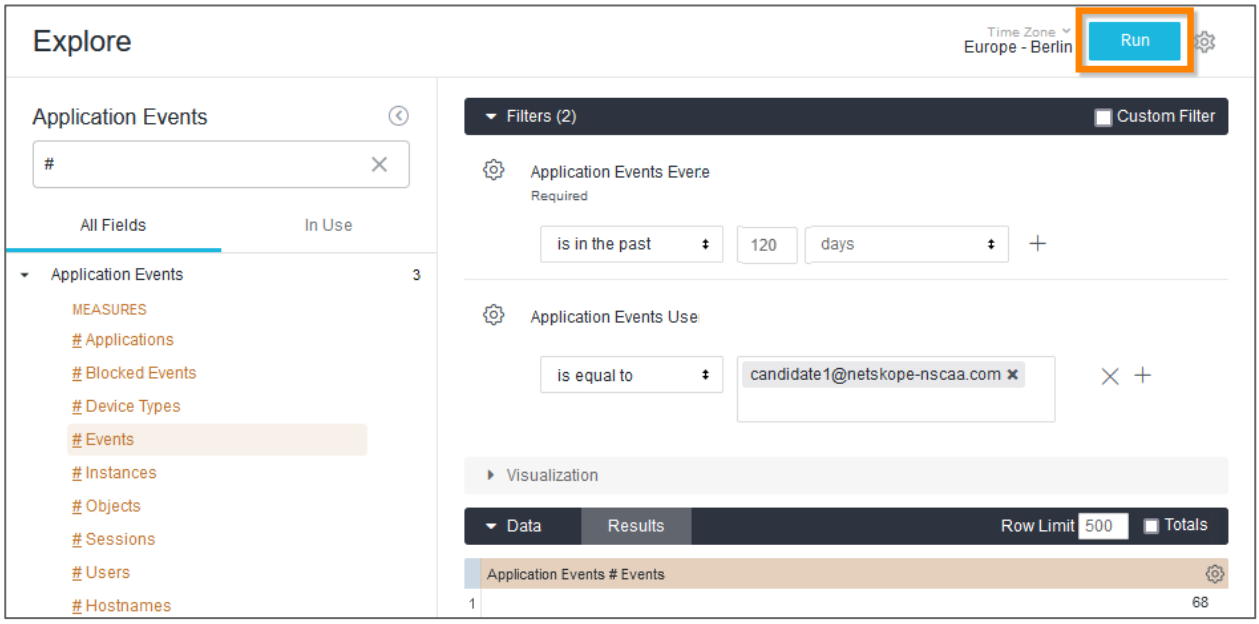
Next, you will add the Events measure.

9. To the left of the **Filters** section, in the **Application Events** search field, type #

10. Under **Application Events** > **Measures**, select **# Events**.



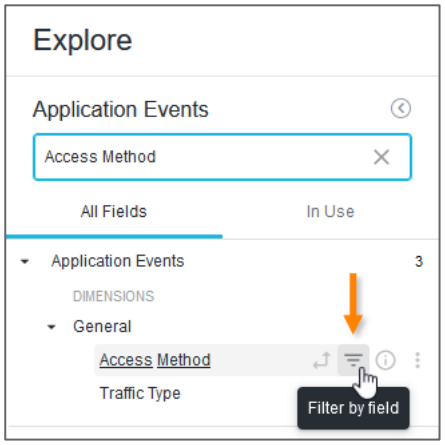
11. Click **Run** at the top-right of the page.



Note: There are several access methods for importing data into the Netskope environment, so some of the same events are captured through multiple products, resulting in duplicate events. For example, an event captured by API Connector can also be captured by Next Generation Secure Web Gateway Inline (NG SWG/Inline). To ensure events are not duplicated, a filter needs to be added.

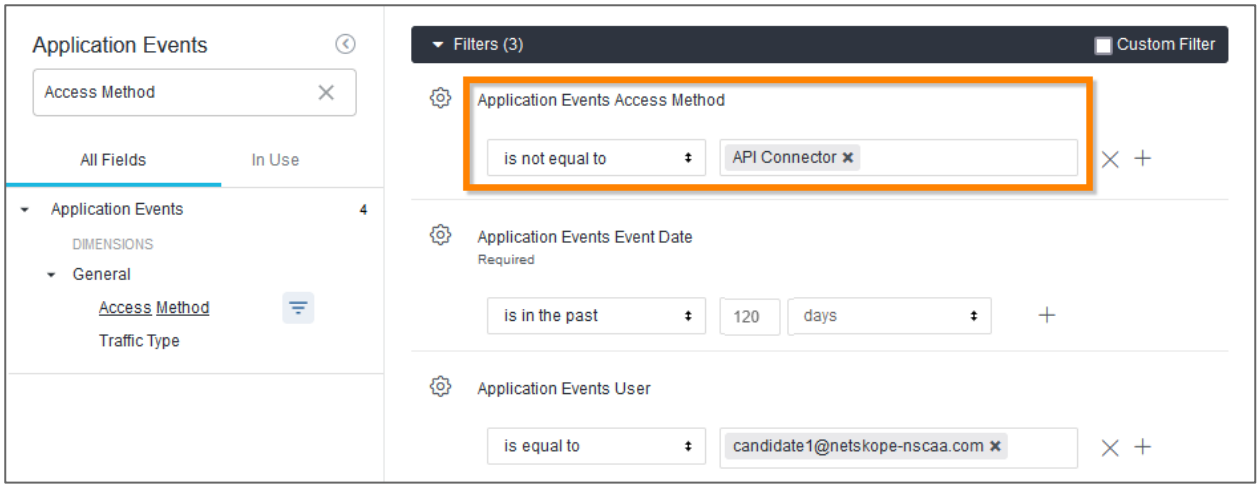
12. In the **Application Events** search field, type: `Access Method`

13. From the results displayed, click the **Filter by field** icon ( ) to the right of **Access Method**.



You should now see **Application Events Access Method** as an option in the **Filters** section.

14. Under the **Application Events Access Method** filter and to the right of the dropdown menu (which should currently be set to **is equal to**), enter: `API Connector`



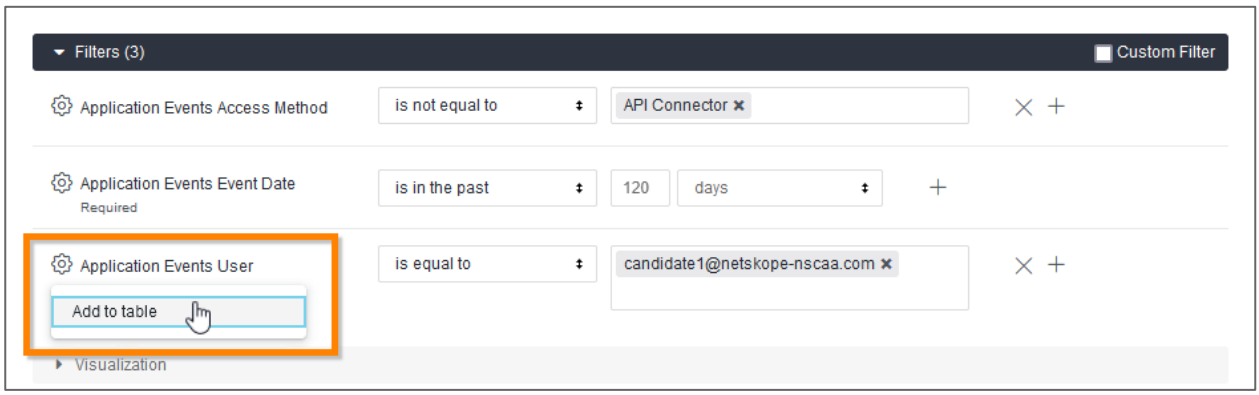
15. Click **Run**.

    Note: Adding a filter to exclude API Connector events removes any events generated by data at rest analysis and leaves the inline (i.e., data in motion) events.

Part 2 – What other identities are being used in the environment by the same user?

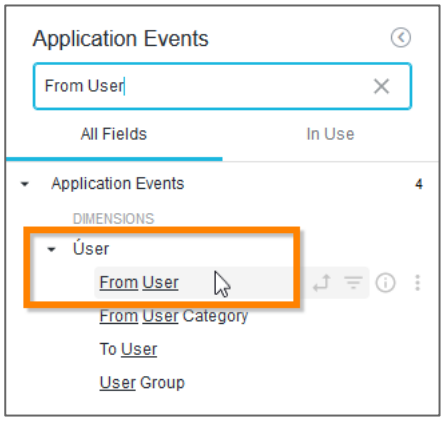
Is this user using other logins and accounts to exfiltrate sensitive company data? You will add the From User field to identify the identity/login used to access SaaS applications.

1. In the **Filters** section, click the gear icon (⚙) next to **Application Events User** to add this field to the **Data** table.

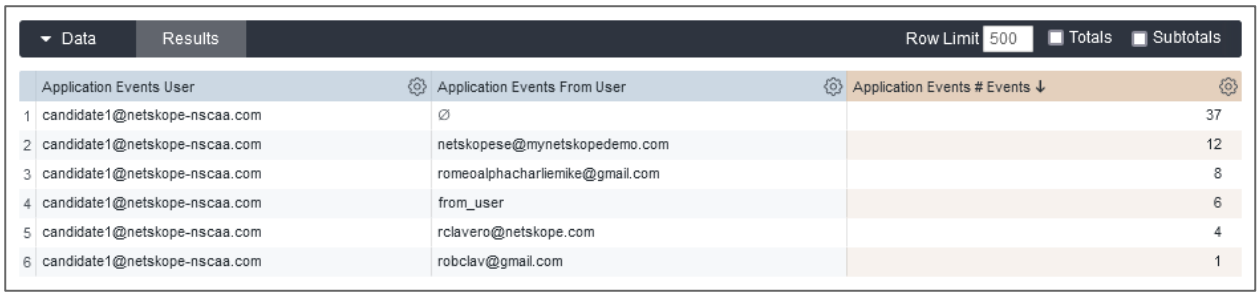


2. In the **Application Events** search field, type: `From User`

3. Under **User**, click the **From User** dimension to add it to the Data section.

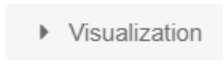


4. Click **Run**. In the **Data** section, you should see the **Application Events User** column as the left column and the **Application Events From User** column as the middle column. Next, you will select how the report is to be visualized.

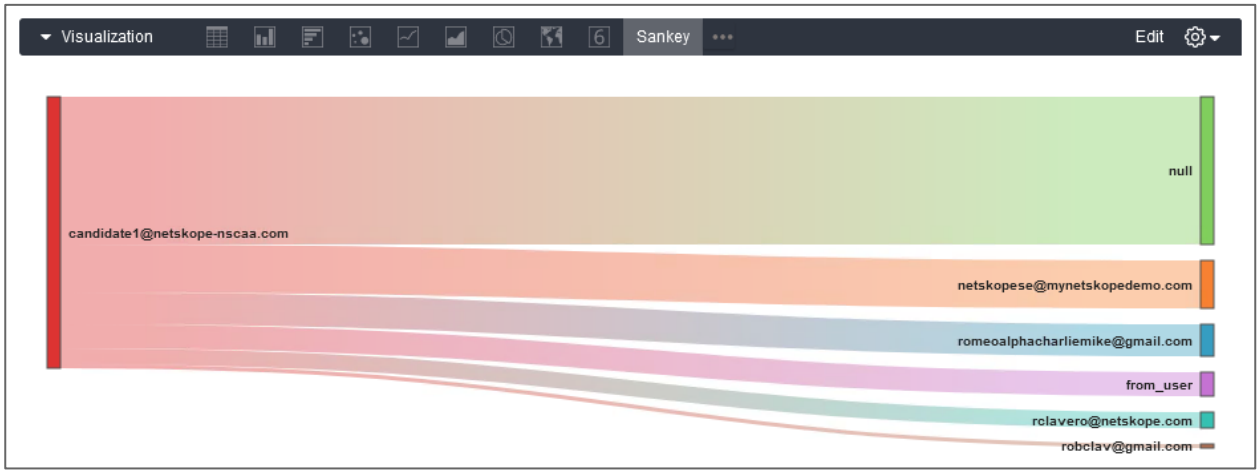


	Application Events User	Application Events From User	Application Events # Events ↓
1	candidate1@netskope-nscaa.com	∅	37
2	candidate1@netskope-nscaa.com	netskopese@mynetskopedemo.com	12
3	candidate1@netskope-nscaa.com	romeoalphacharliemike@gmail.com	8
4	candidate1@netskope-nscaa.com	from_user	6
5	candidate1@netskope-nscaa.com	rclavero@netskope.com	4
6	candidate1@netskope-nscaa.com	robclav@gmail.com	1

5. Expand the **Visualization** section, by clicking the arrow ( ) icon.



6. In the **Visualization** section, click the additional menu option icon ( ) and select the **Sankey** option.



In the example screenshot above, the Sankey visualization shows the corporate identity `rclavero@netskope.com`. It also captured a personal identity

`romeoalphacharliemlke@gmail.com`. This second identity appears suspicious and warrants further investigation.

Your report might differ from the screenshot displayed in this guide. Review your report and determine the identities/accounts the user has been using to access cloud resources.

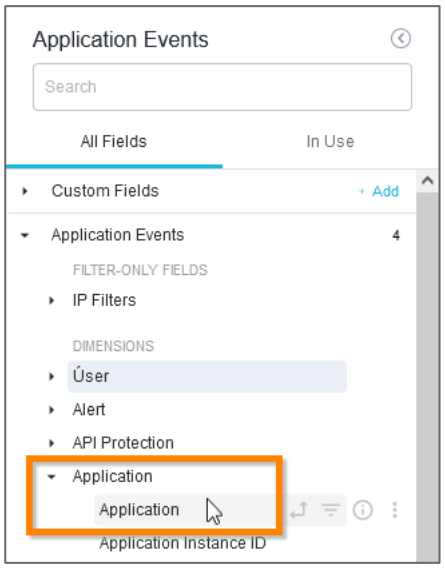
Note: The null value in the identity column refers to any activity performed that did not require identity authentication (for example, browsing to a website such as the Wall Street Journal — `http://wsj.com`).

Part 3 – What applications is the user accessing?

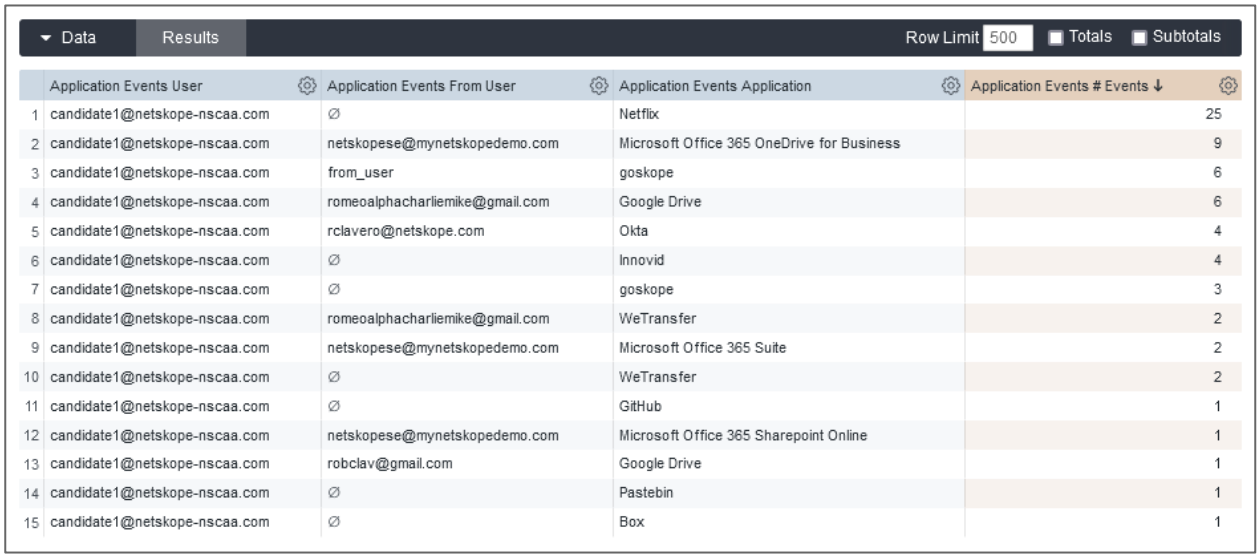
Now that you have discovered the user's other identities, you need to investigate which applications these identities are using.

1. In the left menu of Advanced Analytics, clear the search field, then navigate to **Application Events** > **Application**

2. Click **Application** to add this dimension to the **Data** section.



3. Click **Run**.

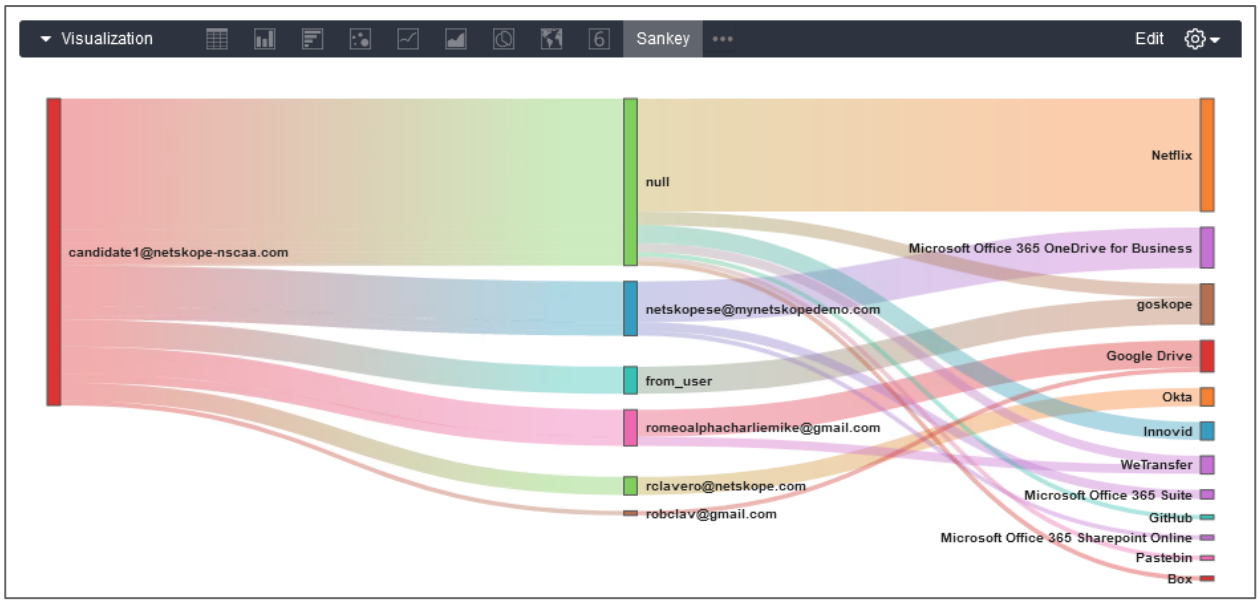


Data | Results | Row Limit 500 | Totals | Subtotals

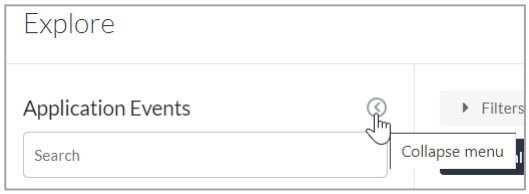
	Application Events User	Application Events From User	Application Events Application	Application Events # Events ↓
1	candidate1@netskope-nscaa.com	∅	Netflix	25
2	candidate1@netskope-nscaa.com	netskopese@mynetskopedemo.com	Microsoft Office 365 OneDrive for Business	9
3	candidate1@netskope-nscaa.com	from_user	goskope	6
4	candidate1@netskope-nscaa.com	romeoalphacharliemike@gmail.com	Google Drive	6
5	candidate1@netskope-nscaa.com	rclavero@netskope.com	Okta	4
6	candidate1@netskope-nscaa.com	∅	Innovid	4
7	candidate1@netskope-nscaa.com	∅	goskope	3
8	candidate1@netskope-nscaa.com	romeoalphacharliemike@gmail.com	WeTransfer	2
9	candidate1@netskope-nscaa.com	netskopese@mynetskopedemo.com	Microsoft Office 365 Suite	2
10	candidate1@netskope-nscaa.com	∅	WeTransfer	2
11	candidate1@netskope-nscaa.com	∅	GitHub	1
12	candidate1@netskope-nscaa.com	netskopese@mynetskopedemo.com	Microsoft Office 365 Sharepoint Online	1
13	candidate1@netskope-nscaa.com	robclav@gmail.com	Google Drive	1
14	candidate1@netskope-nscaa.com	∅	Pastebin	1
15	candidate1@netskope-nscaa.com	∅	Box	1

4. Review the results in the Sankey visualization. You should observe the following:

- The user had been accessing risky applications such as WeTransfer and Pastebin.
- Google Drive was accessed using two different identities, neither of which appear to be the user's corporate identity.



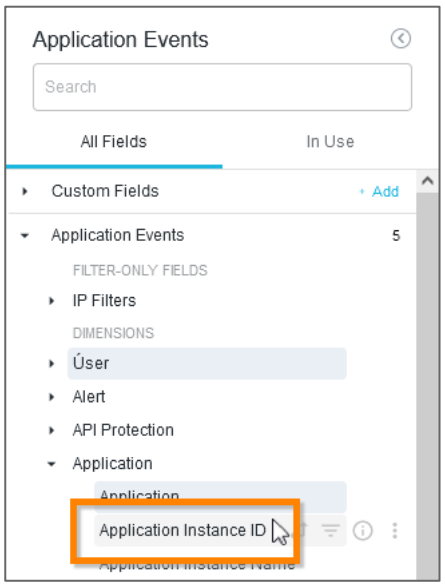
Hint: To see the full expanded view of the Visualization, minimize the Application Events/Search left menu pane using the arrow icon (<) to collapse the menu.



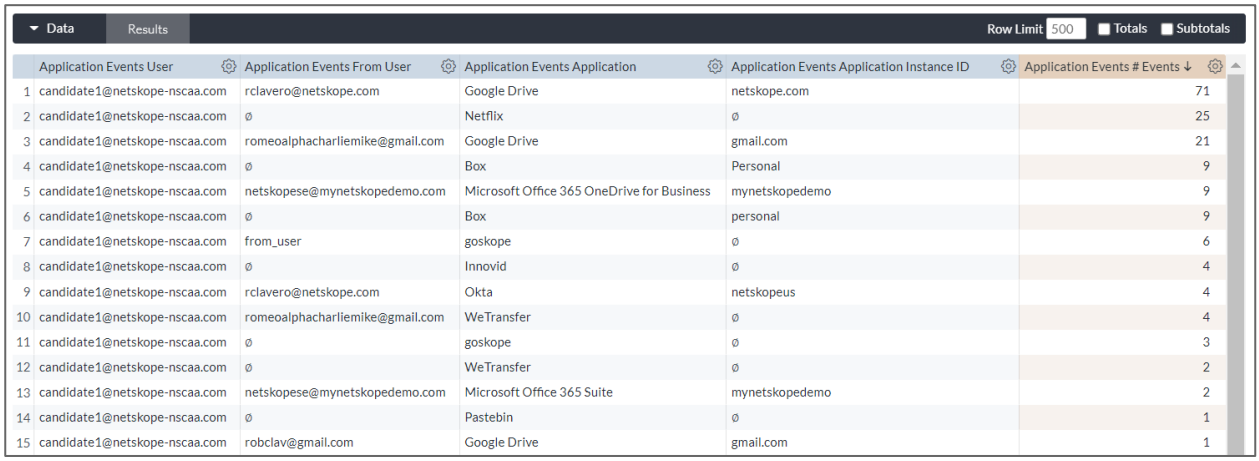
Part 4 – Which instances of the application is the user accessing?

Next, you will investigate whether the user has been accessing instances of the applications using different identities by filtering for the application instance ID.

1. In the left menu of Advanced Analytics, navigate to **Application Events** > **Application**, then click **Application Instance ID** to add it to the **Data** section of the report.

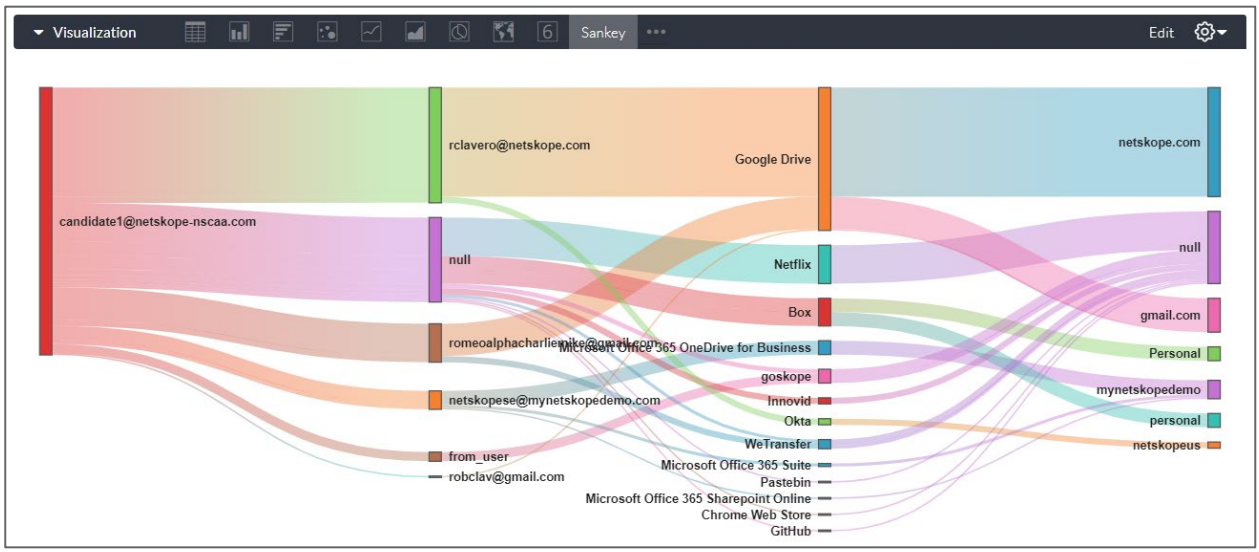


2. Click **Run**.



Data | Results | Row Limit 500 | Totals | Subtotals

	Application Events User	Application Events From User	Application Events Application	Application Events Application Instance ID	Application Events # Events ↓
1	candidate1@netskope-nscaa.com	rclavero@netskope.com	Google Drive	netskope.com	71
2	candidate1@netskope-nscaa.com	ø	Netflix	ø	25
3	candidate1@netskope-nscaa.com	romeoalphacharliemike@gmail.com	Google Drive	gmail.com	21
4	candidate1@netskope-nscaa.com	ø	Box	Personal	9
5	candidate1@netskope-nscaa.com	netskopese@mynetskopedemo.com	Microsoft Office 365 OneDrive for Business	mynetskopedemo	9
6	candidate1@netskope-nscaa.com	ø	Box	personal	9
7	candidate1@netskope-nscaa.com	from_user	goskope	ø	6
8	candidate1@netskope-nscaa.com	ø	Innovid	ø	4
9	candidate1@netskope-nscaa.com	rclavero@netskope.com	Okta	netskopeus	4
10	candidate1@netskope-nscaa.com	romeoalphacharliemike@gmail.com	WeTransfer	ø	4
11	candidate1@netskope-nscaa.com	ø	goskope	ø	3
12	candidate1@netskope-nscaa.com	ø	WeTransfer	ø	2
13	candidate1@netskope-nscaa.com	netskopese@mynetskopedemo.com	Microsoft Office 365 Suite	mynetskopedemo	2
14	candidate1@netskope-nscaa.com	ø	Pastebin	ø	1
15	candidate1@netskope-nscaa.com	robclav@gmail.com	Google Drive	gmail.com	1



Part 5 – Which activities is the user performing in these applications?

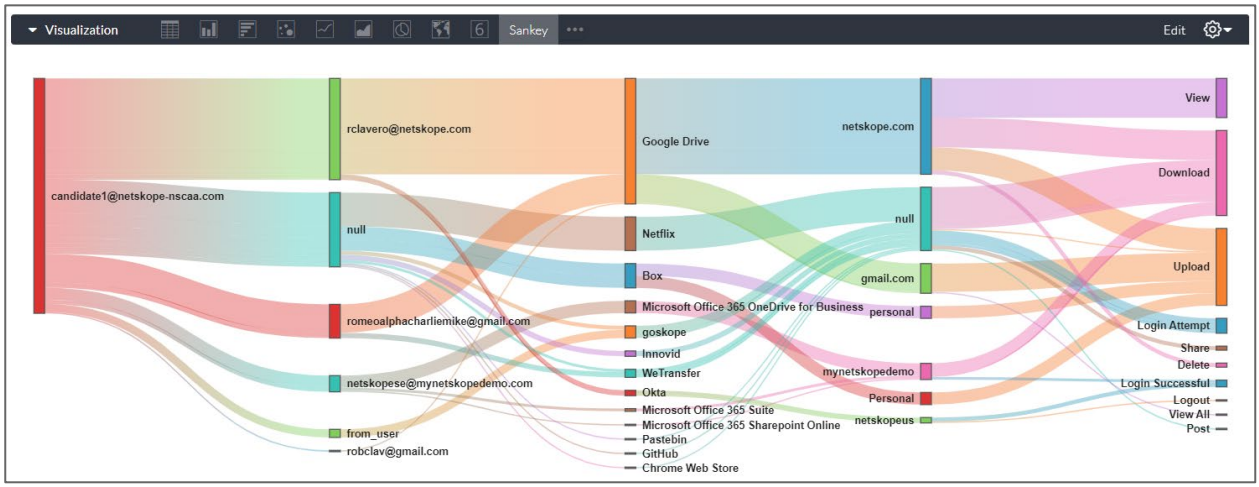
You have now determined that candidate1 used personal identities to access Google Drive as well as some risky applications such as Pastebin and Wetransfer. To figure out if the user performed any suspicious activities in these applications and instances, you will include the Activity field in the Data table.

1. In the **Application Events** search field, type: `Activity`
2. Select **Activity** under **General** to add to the **Data** section.

   Note: The Activity option displays actions performed by the user, e.g., Edit, Download, Delete, Create, etc.

3. Click **Run** to update the report.

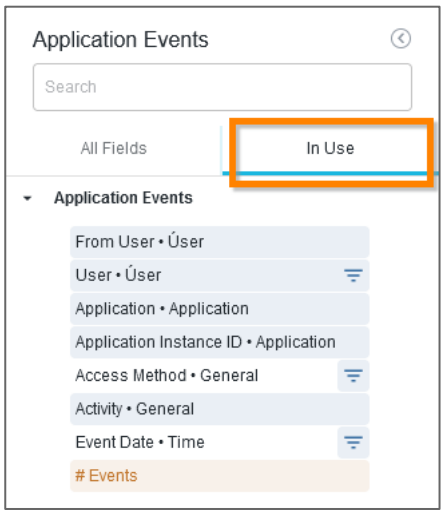
   Note: The last column of the Sankey visualization displays the different activities performed by the user.



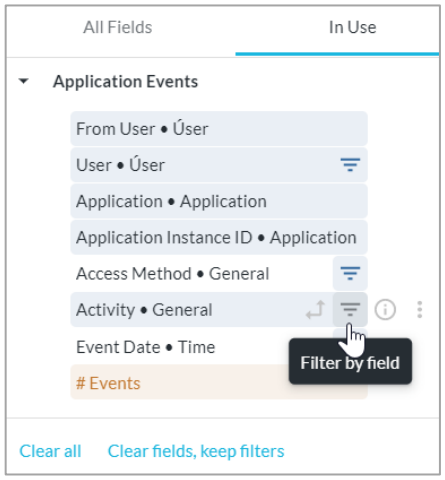
Part 6 – Create a filter for high-risk activities

You will create a filter for this user's activities, filtering for high-risk activities: Downloads, Uploads, Shares, and Posts.

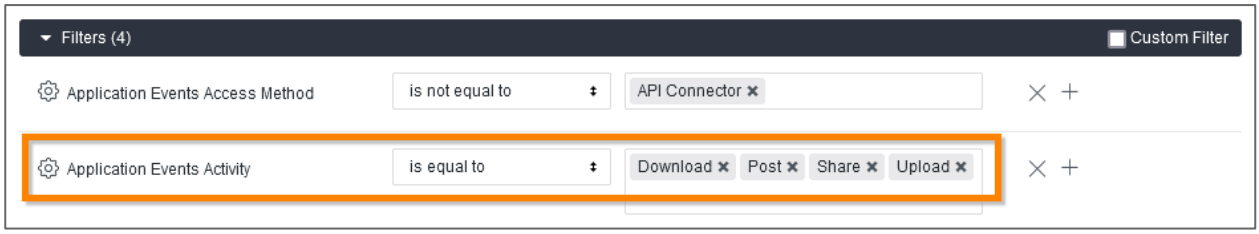
1. Click the **In Use** tab in the left menu pane under the **Application Events search field** to apply a filter to an existing data field.



2. To create a filter for an existing data field, click the **Filter by field** icon ( ) for the **Activity • General** data field to add it to the **Filters** section.



3. In the **Filters** section, under the **Application Events Activity** filter and in the field to the right of the dropdown menu (which should currently be set to **is equal to),** and select **Download**, **Post**, **Share**, and **Upload**.



4. Click **Run**.

5. Collapse the **Application Events** left menu pane and minimize the **Filters** and **Data** sections to fully view the Sankey visualization.

   The report now shows Candidate1's data in the Sankey columns. From left to right, here is a summary of what you should see:

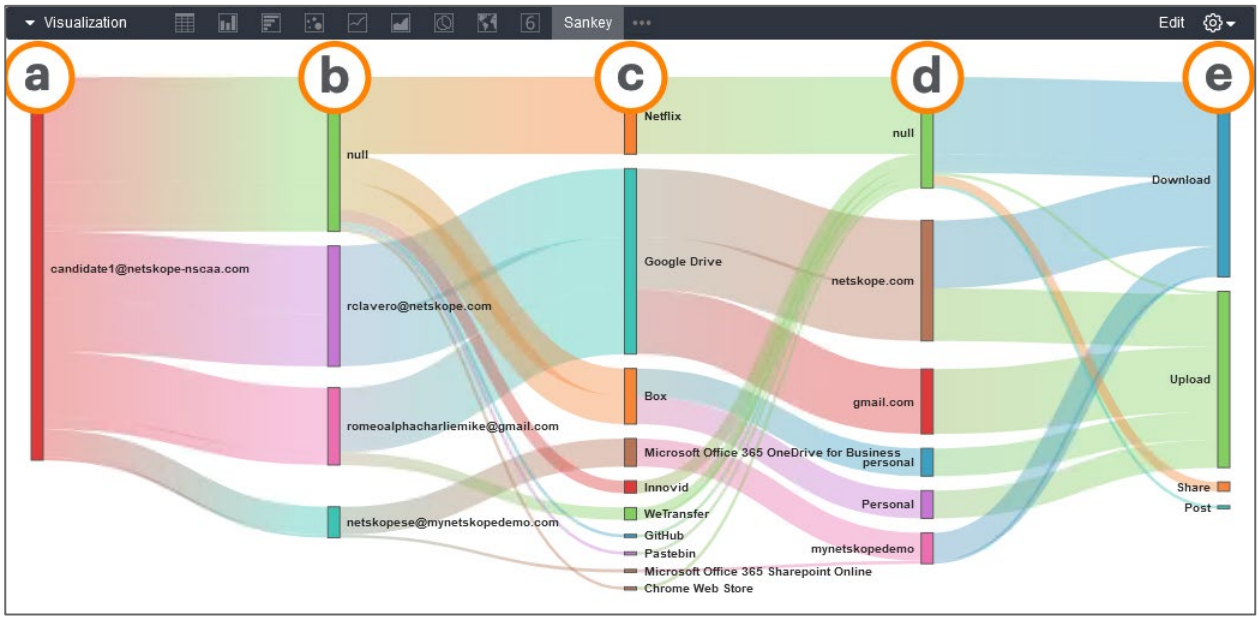
   a. The candidate's username (candidate1@netskope-nscaa.com)

   b. The identities associated with this user

   c. The list of applications accessed by the user

   d. The instances for each application

   e. Activities such as Uploads, Downloads, Shares, and Posts



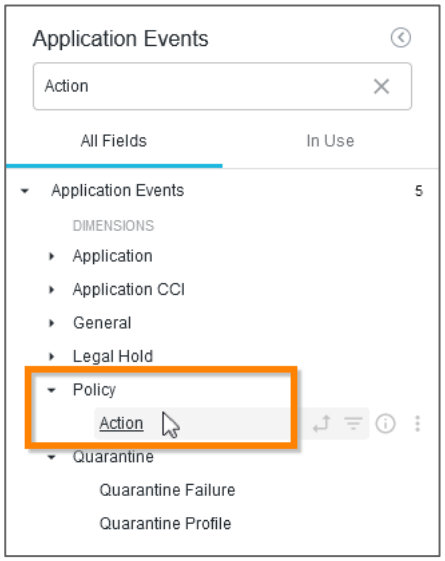
Part 7 – What security actions were implemented to control this user's activities?

You have observed that the user in question is uploading and posting to personal instances of Google Drive and to risky apps. However, these activities may not be an issue if there are policies in place to alert and block these activities. Next, you will check to see which policy actions occurred.

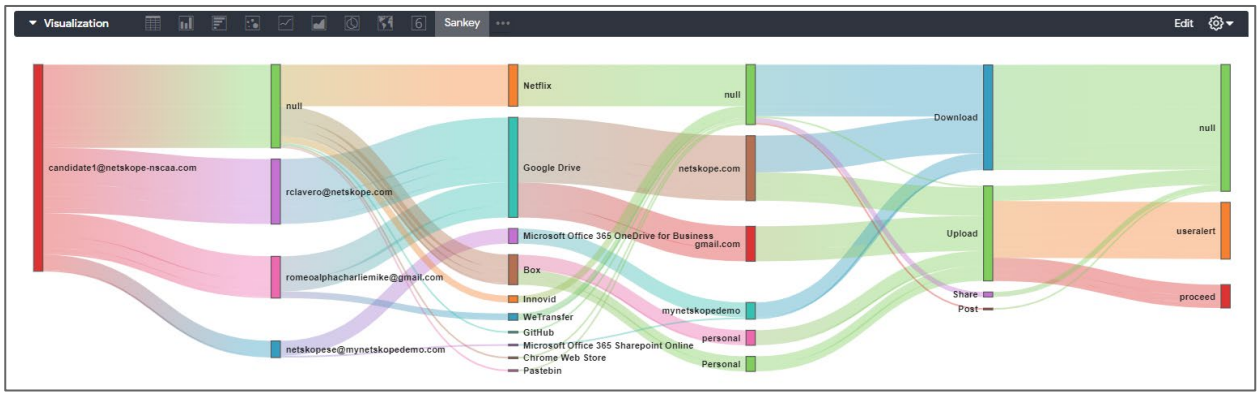
1. Expand the **Application Events** left menu pane by clicking the **arrow icon** ( ).

2. In the **Application Events search field**, type: `Action`

3. Under **Policy**, click **Action** to add it to the **Data** section.



4. Click **Run**.

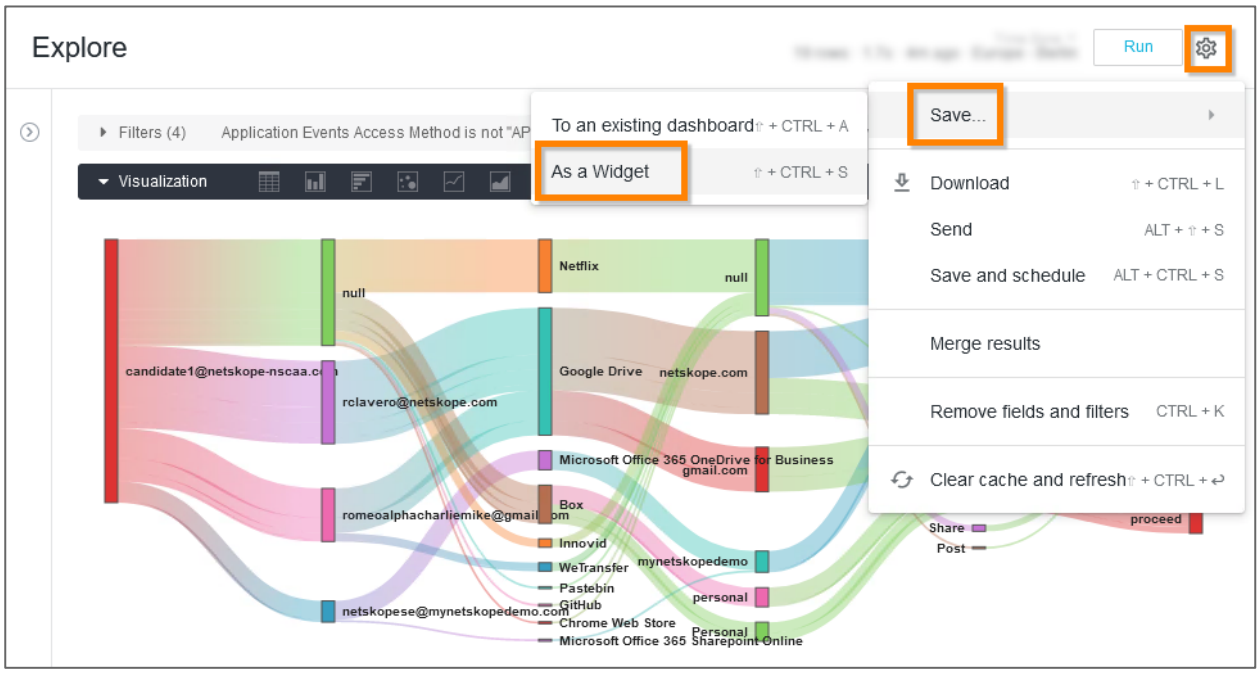


Part 8 – Save the report as a widget

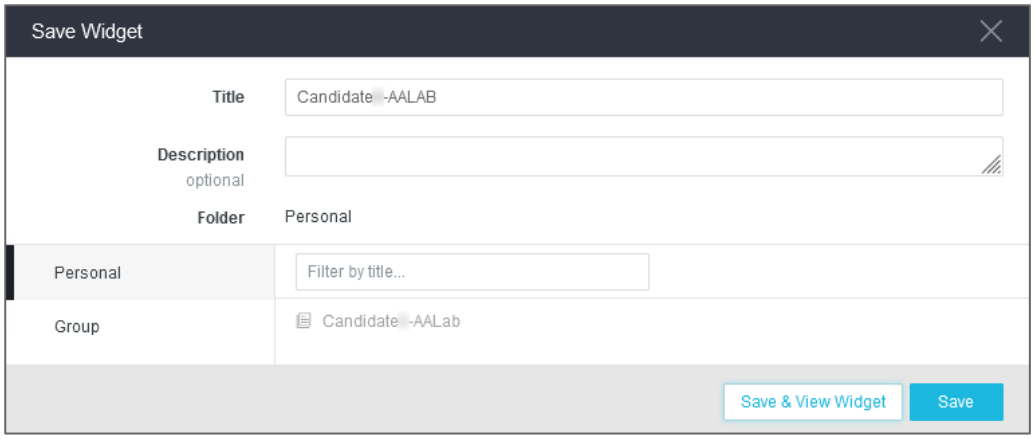
You have the option to save this investigation as a widget or add it to an existing dashboard.

1. Click the **settings gear icon** next to the **Run** button.

2. Click **Save** > **As a Widget**.



3. Enter `Candidate{X}-AALAB` (where {X} is your student number) as the title of the widget.



4. Click **Save & View Widget**.

Lab Complete