

Configuring spark-submit drop-in migration tool for migrating Spark workloads to CDE

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The Cloudera logo is displayed in a bold, orange, sans-serif font. The word "CLOUDERA" is written in all caps, with the letter 'E' in the middle of "UDERA" having a unique design where the top and bottom bars are separated by a horizontal gap.

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Installing and using the migration tool

You can install and use the migration tools on a gateway host so that all the users on that machine can use the tool.

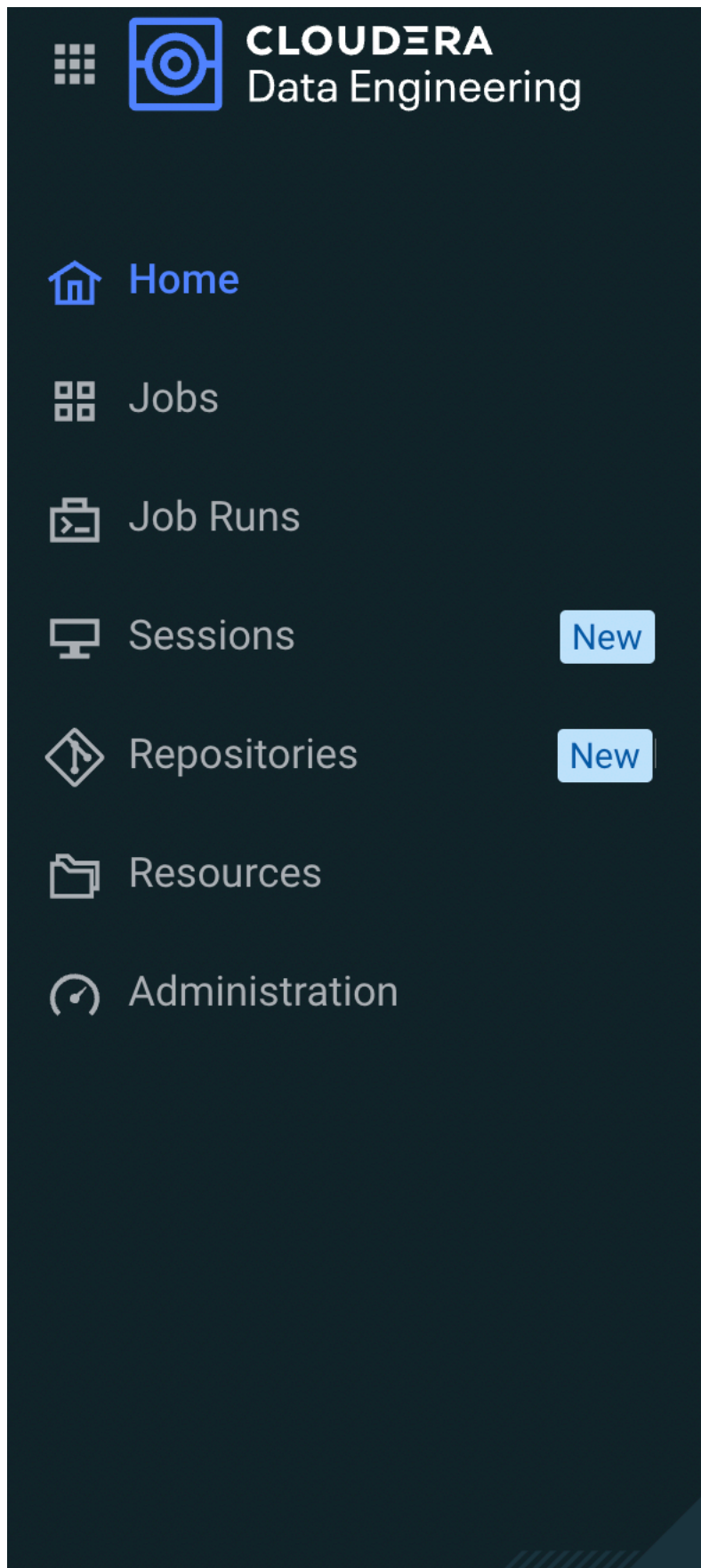
Downloading the cde-env tool

You can use the cde-env tool to migrate your spark-on-YARN workloads to CDE:

Procedure

1. in the Cloudera Data Platform (CDP) console, click the Data Engineering tile. The CDE Home page displays.
2. In the Home page, click the Migration Tool link under Resources & Guides to download the migration tool.
3. Select the Virtual Cluster.

4. Download the tool for either Linux or Mac.



The sidebar features the Cloudera logo and 'Data Engineering' text at the top. Below are menu items: Home (house icon), Jobs (grid icon), Job Runs (briefcase icon), Sessions (monitor icon with a 'New' badge), Repositories (diamond icon with a 'New' badge), Resources (folder icon), and Administration (gauge icon).

Home

Quick Links

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Resources & G

Downloads

[CLI Tool ?](#)

[Migration Tool ?](#)

Release Notes

[View Release Notes](#)

5. Unzip the archive.

This is a temporary installation package and can be saved in any location. The folder contains README.md, cde, cde-env.sh, spark-submit-cde, and spark3-submit-cde files.

Installing the cde-env tool

You can install the cde-env tool as an Administrator or as a normal user. Cloudera recommends you to install the tool as an Administrator in the /opt/cloudera/bin folder so that all the users in the host can access the tool.

For Administrator

1. Install the tool by copying the required binary and script files to the /opt/cloudera/bin folder so that the migration tool can run in the current gateway host.

```
$ ./cde-env.sh enable-spark-submit-proxy -f private
```



Note: If the host machine has update-alternatives installed, no need to perform the following step. You can check this by running the update-alternatives command.

2. Enable the installed binary and script files by granting access to those files for all users on the host using one of the following options.



Note: If the host machine has update-alternatives installed, no need to perform this step. You can check this by running the update-alternatives command. Otherwise, perform the following:

- Link the existing /usr/bin/spark-submit and /usr/bin/spark3-submit.

```
$ ln -s /opt/cloudera/bin/cde /usr/bin/cde
$ ln -s /opt/cloudera/bin/cde-env.sh /usr/bin/cde-env.sh
$ ln -s -f /opt/cloudera/bin/spark-submit /usr/bin/spark-submit
$ ln -s -f /opt/cloudera/bin/spark3-submit /usr/bin/spark3-submit
```

or

- Update PATH to point to the new installation location at the host level.

```
$ export PATH=/opt/cloudera/bin:$PATH
```

For User

1. Install the tool on the host by running the following command:

By default, the binary and script files will be installed in the \$HOME/bin folder. You can change the location by replacing the \$HOME/bin folder to the target folder in the following command.

Linux

```
$ sed -i "s#CLLOUDERA_BIN=/opt/cloudera/bin#CLLOUDERA_BIN=$HOME/bin#g"
cde-env.sh && ./cde-env.sh enable-spark-submit-proxy -f private
```

MacOS

```
$ sed -i '' "s#CLLOUDERA_BIN=/opt/cloudera/bin#CLLOUDERA_BIN=$HOME/bin#g"
cde-env.sh && ./cde-env.sh enable-spark-submit-proxy -f private
```

2. Update PATH to give access to those binary and script files.

```
$ export PATH=$HOME/bin:$PATH
```

Configuring the cde-env tool

The CDE env-tool uses the `~/cde/config.yaml` configuration file to manage jobs in CDE virtual clusters. You must manually edit the `~/cde/config.yaml` file and update the profiles with the required information.

For more information, see [Creating and using multiple profiles](#).

Prerequisites for setting up the cde-env tool

You must obtain the virtual cluster endpoint URL, CDP endpoint URL, and generate user keys for each user whose Spark jobs you are migrating over to CDE.

Procedure

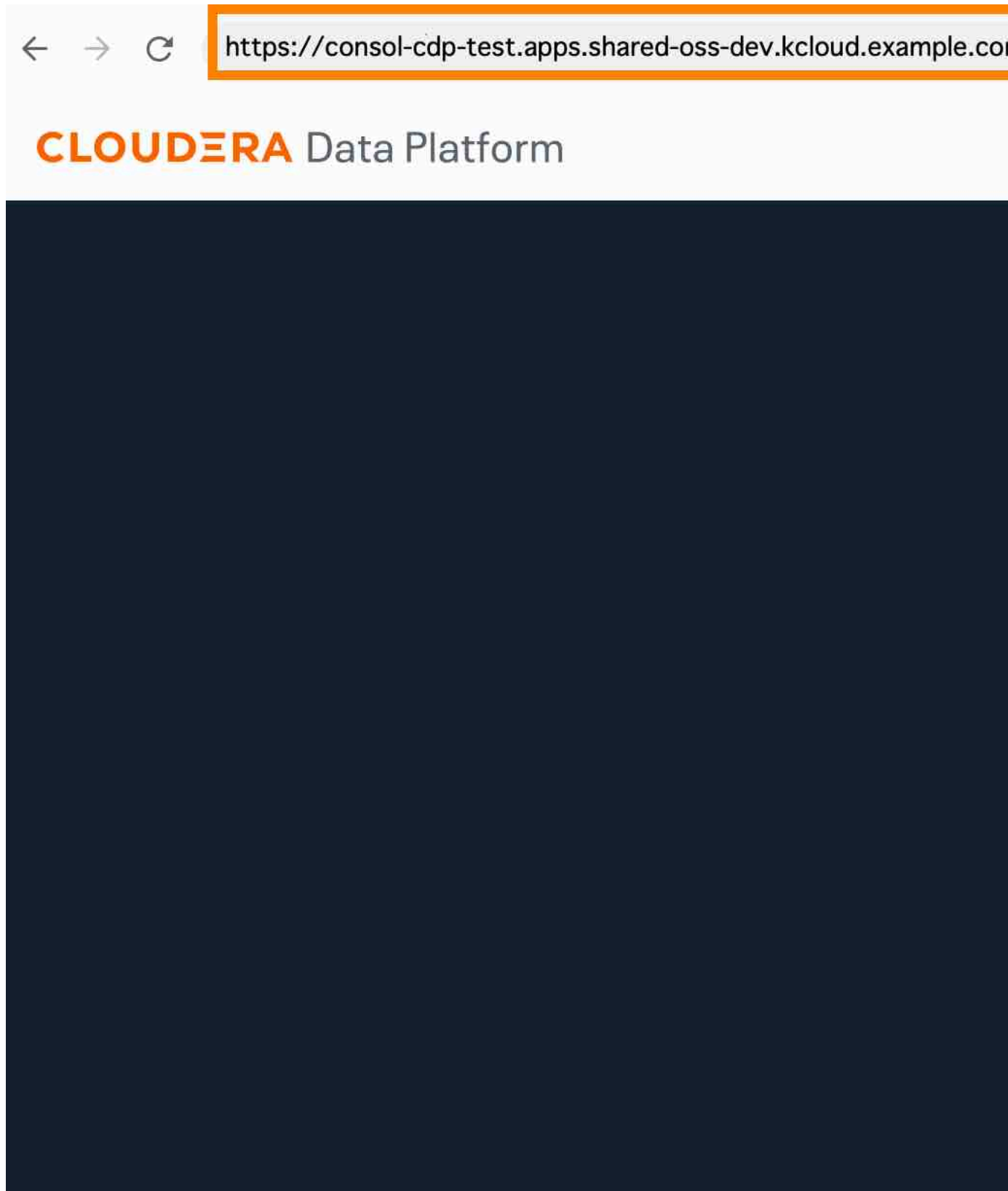
- 1. Virtual Cluster Endpoint URL:** Determine the virtual cluster endpoint URL.
 - a.** In the Cloudera Data Platform (CDP) console, click the Data Engineering tile. The CDE Home page displays.
 - b.** Click Administration in the left navigation menu, select the environment containing the virtual cluster you want to use.
 - c.** In the Virtual Clusters column on the right, click the Cluster Details icon for the virtual cluster you want to use to migrate your spark jobs to.
 - d.** Click JOBS API URL to copy the URL to your clipboard.
 - e.** Paste the URL into a text editor to identify the endpoint host. For example, the URL is similar to the following:

```
https://dfdj6kgx.cde-2cdxw5x5.apps.ecs-demo.example.com/dex/api/v1
```

In the above example, the endpoint host is

```
dfdj6kgx.cde-2cdxw5x5.apps.ecs-demo.example.com
```


2. **CDP Endpoint URL:** Copy the CDP console URL.



3. **Access Key:** Generate access key for each user whose Spark jobs you are migrating over to CDE:
 - a. Sign in to the Cloudera Data Platform console as an Administrator.
 - b. In the Cloudera Data Platform Home page, click Management Console.
 - c. On the left navigation menu, click Users.
 - d. On the Users page, click the name of the user or the machine user account for which you want to generate an access key.
 - e. On the user account page, go to the Access Keys section and click Generate Access Key.

Cloudera Data Platform creates the key and displays the information on the screen.

Adding profile for each user and creating the Credentials file

You must create a profile for each user in the `~/.cde/config.yaml` file and add the access key in the Credentials file.

Procedure

1. Create the `config.yaml` and `credentials` files under `~/.cde` folder. If the `~/.cde` folder does not exist, create it where the `cde-env` tool is installed.
2. Edit the `config.yaml` file. You can create multiple profiles in the `~/.cde/config.yaml` file and can be used while running commands.

Edit the `~/.cde/config.yaml` file to add the `allow-all-spark-submit-flags: true` parameter and update the profiles.

```
# ~/.cde/config.yaml

allow-all-spark-submit-flags: true
credentials-file: <credentials-location>
cde-endpoint: <CDP-endpoint>
tls-insecure: true

profiles:
- name: <Profile Name1>
  vcluster-endpoint: <VC-endpoint>

- name: <Profile Name2>
  vcluster-endpoint: <VC-endpoint>
```

Example configuration file:

```
# ~/.cde/config.yaml

allow-all-spark-submit-flags: true
credentials-file: /home/cdpuser1/.cde/credentials
cde-endpoint: https://console-xhu-141.apps.shared-os-dev-01.kcloud.example.com
tls-insecure: true

profiles:
- name: vc-2
  vcluster-endpoint: https://5b27g4jm.cde-x6j2nh5j.apps.apps.shared-osdev-01.kcloud.example.com/dex/api/v1/

- name: spark3-1
  vcluster-endpoint: https://7j92n8q4.cde-smstx27m.apps.apps.shared-osdev-01.kcloud.example.com/dex/api/v1/
```

3. Add your access key information generated from the CDP management console in the `credentials` file.

Example `credentials` file:

```
[default]
```

```
cdp_access_key_id=a4e8f324-5940-454c-a172-5c748e56e4c2
cdp_private_key=qpG0CzVqodKTQYXakm89bjX0606c7fP3EnAcxuy+Rzs=
```

Configuring the migration tool using a docker container

You can run the docker image in an interactive mode after you mount the config.yaml and credentials files into the docker container.

Configuring the cde-env tool

The CDE env-tool uses the `~/cde/config.yaml` configuration file to manage jobs in CDE virtual clusters. You must manually edit the `~/cde/config.yaml` file and update the profiles with the required information.

For more information, see [Creating and using multiple profiles](#).

Prerequisites for setting up the cde-env tool

You must obtain the virtual cluster endpoint URL, CDP endpoint URL, and generate user keys for each user whose Spark jobs you are migrating over to CDE.

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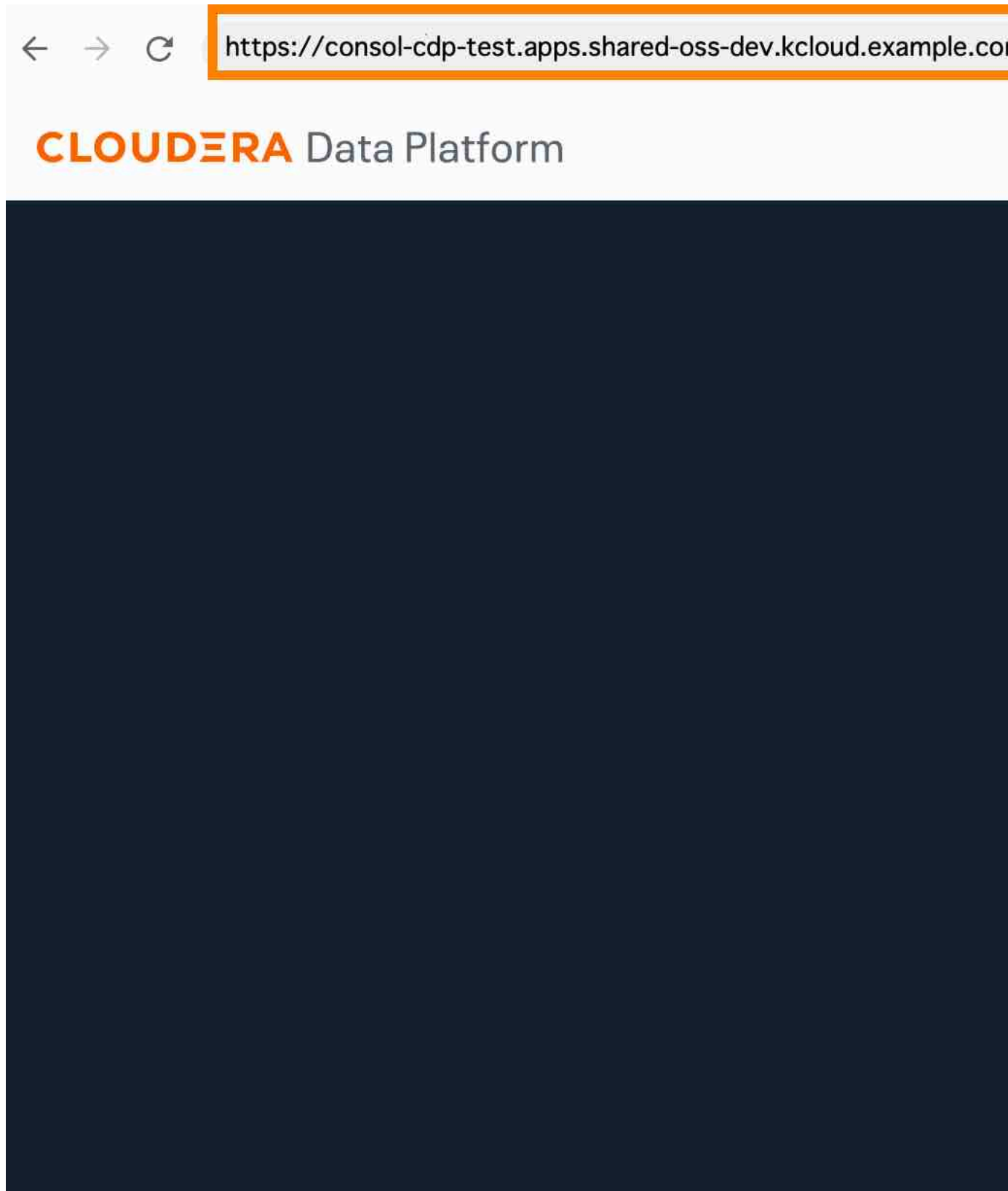
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```

In the above example, the endpoint host is

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Edit the `~/.cde/config.yaml` file to add the `allow-all-spark-submit-flags: true` parameter and update the profiles.

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credentials-file: <credentials-location>
cde-endpoint: <CDP-endpoint>
tls-insecure: true

profiles:
- name: <Profile Name1>
  vcluster-endpoint: <VC-endpoint>

- name: <Profile Name2>
  vcluster-endpoint: <VC-endpoint>
```

Example configuration file:

```
# ~/.cde/config.yaml

allow-all-spark-submit-flags: true
credentials-file: /home/cdpuser1/.cde/credentials
cde-endpoint: https://console-xhu-141.apps.shared-os-dev-01.kcloud.example.com
tls-insecure: true

profiles:
- name: vc-2
  vcluster-endpoint: https://5b27g4jm.cde-x6j2nh5j.apps.apps.shared-osdev-01.kcloud.example.com/dex/api/v1/

- name: spark3-1
  vcluster-endpoint: https://7j92n8q4.cde-smstx27m.apps.apps.shared-osdev-01.kcloud.example.com/dex/api/v1/
```

3. Add your access key information generated from the CDP management console in the `credentials` file.

Example `credentials` file:

```
[default]
```

```
cdp_access_key_id=a4e8f324-5940-454c-a172-5c748e56e4c2  
cdp_private_key=qpG0CzVqodKTQYXakm89bjX0606c7fP3EnAcxuy+Rzs=
```

Known Issues and Limitations

This page lists the current known issues and limitations that you might run into while using the cde-env tool.

- Limited to spark-submit commands and does not include spark-shell, pyspark, and sparksql.
- When activating a profile using the cde-env.sh script, there is no validation yet on whether such profile exists. However, if a profile does not exist, it will display an error when running the spark-submit command.
- The following spark-submit flags are not yet supported in CDE:
 - --archives
 - --exclude-packages
 - --driver-class-path
 - --driver-library-path
 - --driver-java-options

You are instead suggested to create CDE jobs to handle the above mentioned scenarios.

- Using the profile yarn is not supported in the container version of the migration tool.