

Analytical Applications

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Analytical Applications

This feature gives data scientists a way to create web applications/dashboards and easily share them with other business stakeholders. Applications can range from single visualizations embedded in reports, to rich dashboard solutions such as Tableau. They can be interactive or non-interactive.

Applications stand alongside other existing forms of workloads in CDSW (sessions, jobs, experiments, models). Like all other workloads, applications must be created within the scope of a project. Each application is launched within its own isolated engine. Additionally, like models, engines launched for applications do not time out automatically. They will run as long as the web application needs to be accessible by any users and must be stopped manually when needed.



Note: Only logged-in CDSW users can view the Applications.

Testing Applications before deployment

Before you deploy an application using the steps described here, make sure your application has been thoroughly tested.

About this task

You can use sessions to develop, test, and debug your applications. You can test web applications by embedding them in sessions as described in [hWeb Applications Embedded in Cloudera Data Science Workbench](#).

Procedure

1. Go to a project's Overview page.
2. Click Applications.
3. Click New Application.

4. Fill out the following fields.

- **Name:** Enter a name for the application.
- **Subdomain:** Enter a subdomain that will be used to construct the URL for the web application. For example, if you use test-app as the subdomain, the application will be accessible at test-app.<csw-domain-name>.

Subdomains shall be valid DNS hostname characters: letters from a to z, digits from 0 to 9, and the hyphen.

- **Description:** Enter a description for the application.
- **Script:** Select a script that hosts a web application on either CDSW_READONLY_PORT or CDSW_APP_PORT. Applications running on either of these ports are available to any users with at least read access to the project. The Python template project includes an entry.py script that you can use to test this out.



Note: CDSW does not prevent you from running an application that allows a read-only user (Viewers) to modify files belonging to the project. It is up to you to make the application truly read-only in terms of files, models, and other resources belonging to the project.

- **Engine Kernel and Engine Profile:** Select the kernel and computing resources needed for this application.



Note: The list of options here is specific to the default engine you have specified in your Project Settings: ML Runtimes or Legacy Engines. Engines allow kernel selection, while ML Runtimes allow Editor, Kernel, Variant, and Version selection. Resource Profile list is applicable for both ML Runtimes and Legacy Engines.

- **Set Environment Variables:** Click Set Environment Variables, enter the name and value for the new application variable, and click Add.

If there is a conflict between the project-level and application-level environment variables, the application-level environment variables override the project-level environment variables.

5. Click Create Application.

In a few minutes, you shall see the application status change to Running on the Applications page.

6. Click on the name of the application to access the web application interface.

You can Stop, Restart, or Delete an application from the Applications page.

7. If you want to make changes to an existing application, click Overview under the application name.

8. Go to the Settings tab to make any changes and update the application.

Limitations for Analytical Applications

This topic lists all the limitations associated with the Analytical Applications feature.

- Securing project resources

Cloudera Data Science Workbench (CDSW) applications are accessible by any user with read-only (or higher) access to the project. However, CDSW does not actively prevent you from running an application that allows a read-only user (for example, Viewers) to modify files belonging to the project. We recommend to make the application truly read-only in terms of files, models, and other resources belonging to the project.

- **Public Applications**

By default, authentication for applications is enforced on all ports and users cannot create public applications. If desired, the Administrator user can allow users to create public applications that can be accessed by unauthenticated users.

To allow users to create public applications on an ML workspace:

1. As an Administrator user, turn on the feature flag in Admin > Security by selecting Allow applications to be configured with unauthenticated access.
2. When creating a new application, select Enable Unauthenticated Access.
3. For an existing application, in Settings select Enable Unauthenticated Access.

To prevent all users from creating public applications, go to Admin > Security and deselect Allow applications to be configured with unauthenticated access. After one minute, all existing public applications stop being publicly accessible.

- **Port availability**

CDSW exposes only 3 ports per running session. This means you can run a maximum of 3 web applications simultaneously in a session:

- one on CDSW_APP_PORT
- one on CDSW_READONLY_PORT
- and, one on the now-deprecated CDSW_PUBLIC_PORT

However, by default the editors feature runs third-party browser-based editors on CDSW_APP_PORT. Therefore, for projects that are already using browser-based third-party editors, you are left with only 2 other ports to run applications on: CDSW_READONLY_PORT and CDSW_PUBLIC_PORT.

- **Transparent Authentication**

CDSW can pass user authentication to an Application, if the Application expects an authorized request. CDSW uses the REMOTE-USER field for this task.

Troubleshooting for Analytical Applications

Follow the instructions to troubleshoot Analytical Applications.

About this task

View old application logs with the help of the instructions.

Procedure

1. Open the browser's Developer Tools Network Tab .
2. Click Application Settings in the CDSW UI.
3. In the Network Tab, find the dashboards entry field.
4. View the response field, you will see the chronological order in which the Applications have been run.
5. Copy the ID of the actual run you are interested in, and open it in a new browser tab as a session to view the start-up logs. For instance, if the ID is: nmqswhg70tlp68d2 then the URL will be: {cdsw-url}.company.com/{slug}/engines/{ID}. The {slug} is visible in the JSON response, in the following format {username}/{application name}.