 **Warning:** Join the [#hex-snowflake](#) slack channel and give the team a heads up you will be running a lab

Setup Guide for Running a Snowpark Hands-on Lab in Hex

If you want your customers to say things like: *“I went to the Snowpark Hands on Lab in Hex and came out feeling Snow-much smarter!”* then you’ve come to the right place!

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What is Hex?

[Hex](#) is a notebook-style UI for collaborative analytics and data science. Users can connect to data, write SQL, Python, R or leverage no-code capabilities in a collaborative notebook interface, and build interactive dashboards to share with anyone. Hex unifies data workflows and brings everyone into the same workspace.

Hex is purpose-built to run on the Data Cloud

- Native Snowflake data connection
- Pre-built Snowpark integration
- Complete pushdown of SQL and Python to Snowflake compute
- Natively write back results to Snowflake

Hex Product Definitions

- **Organization (Org) or Workspace** - account within Hex
- **Admins** - Admins can access all projects shared with the workspace, as well as create and duplicate projects.
 - Admins also have access to workspace settings where they can manage users and assets, and view certain private project details, such as title and workspace assets utilization.
- **Editors** - Editors can access all projects shared with the workspace, as well as create and duplicate projects.
- **Viewers** - Viewers can access all projects shared with the workspace, but only with up to "Can View" permissions. Viewers cannot create or duplicate projects.
- **Allowed domains** - Admins can allow anyone with an email address belonging to a certain domain (e.g. hex.tech) to log into your workspace with the default role.
 - By default, any user with an allowed domain will be able to log in, so there's no need to manually create a user account for each person in your workspace.
- **Invite links** - Admins can generate invite links to easily add new users to Hex, individually or in bulk.

- You can choose the permissions an invite link grants, set the expiration date of a link, or limit it to just a one-time use.

Lab Setup Options

We'll walk through a few different ways you can orchestrate a Snowpark hands-on lab in Hex. This guide has two tracks: Multi-Customer Lab or a Single-Customer Lab.

- [Multi-Customer Labs](#) are open events where many customers may attend
- [Single-Customer Labs](#) are closed events targeted at one customer

Multi-Customer Lab

These labs are hosted for multiple customers.

There are two routes for multi-customer labs:

1. [Every user goes through Partner Connect](#)
2. [Every user joins a training organization](#)

Every User Goes Through Partner Connect

In this situation, users will create a Hex trial or be dropped into an existing Hex trial by navigating through [Snowflake's Partner Connect](#).

Pros

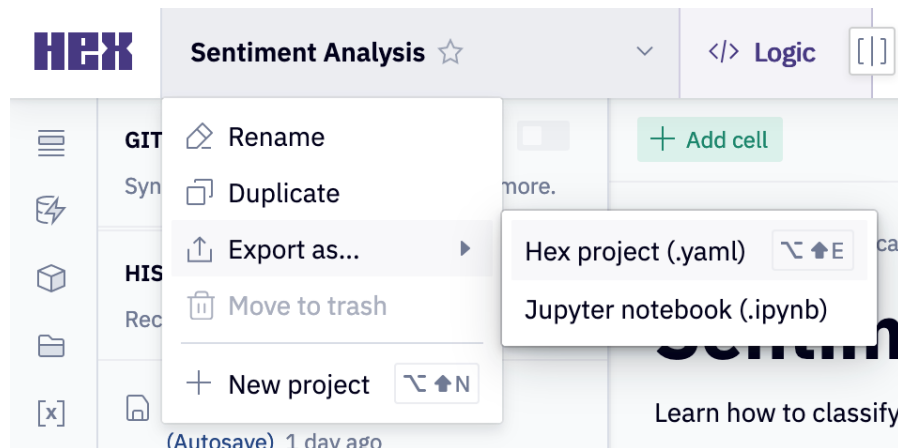
1. User can use their own customer data
2. Users will leave training with an example project and Hex trial account that they are able to continually reference

Cons

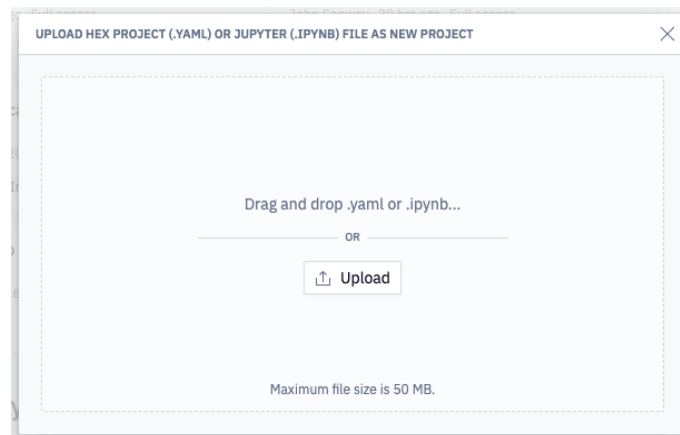
1. Lab instructor needs to ensure that all users have access to the same data for lab
 - a. This can be time consuming to set up

Notebook Setup

In this workflow, the lab instructor can create a complete Hex notebook and export it as a .yaml file.



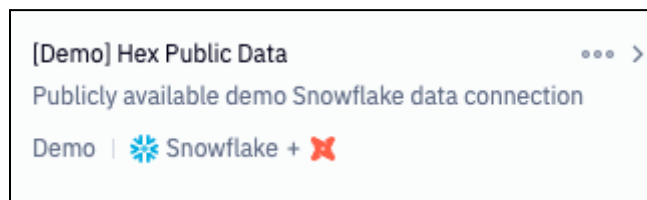
After users go through Partner Connect to create a Hex trial or are added to an existing Hex organization, they will be able to simply [import](#) the notebook.



The lab instructor will need to ensure that all attendees have access to the same data that is used in the notebook. Below are a few common ways to ensure all attendees have access to the same data:


- **[Demo] Hex Public Data**

- This database is automatically added to every new org in Hex. This means that all users will have access to this data!
- If you build a notebook using this data, simplifying importing the notebook will just work



- Send a CSV file with data. Attendees can [easily import this data](#) into Hex
- Generate dummy data within the notebook
 - [Step 7](#) shows an example
 - [Step 8](#) shows how to use Hex's writeback cell to write the data back to Snowflake so it appears as a table in our database
- Use Snowflake Marketplace data
 - Make sure that when importing this data into your database that you are correctly defining the right user access to the data
 - [Page 6](#) shows an example

Example setup steps:

-  Set-up Instructions For Snowpark Hands On Lab:
- See step 3 and 4: [Building and deploying a time series forecast with Hex + Snowflake](#)

Every User Joins a Training Organization

In this situation, users will join a pre-created training organization.

Pros

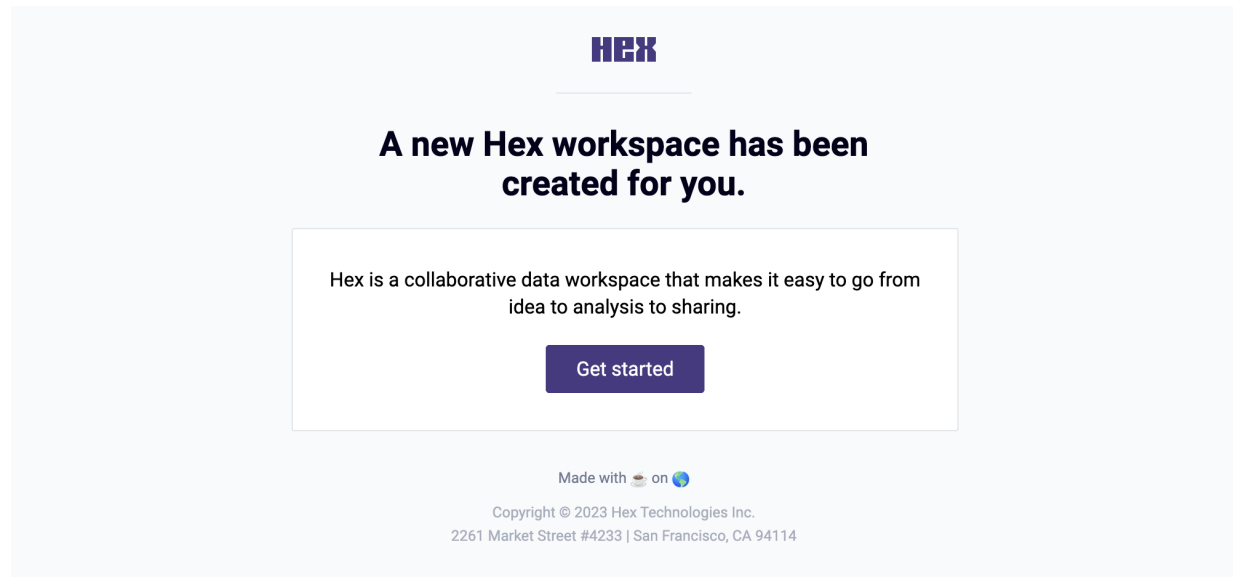
1. Pre-configured environment and data connection with pre-established user permissions
 - a. This will ensure no time is spent on set up

Cons

1. A pre-configured data connection will be shared with all users.
 - a. Setting variables to target specific db/schema/table is recommended.
 - b. Alternatively, create a Snowpark session per user using variables which would allow for more warehouses to be used.
2. User will need to create their own org if they want to use Hex after the training

Login Considerations

- Email addresses appear to all users in the Settings page.
 - Using lab participant emails addresses could be a privacy concern.
 - Use proxy domain as a viable option.
- When admins invite users, an email is sent. Email could be perceived as spam if user did not sign up or is not aware of Hex



- If reusing logins, clearing previous user's notebook requires manually logging in to remove
 - If not reusing logins, Hex can deactivate the org post event

💡 **PRO TIP:** [Create matching users](#) in a Snowflake account with restricted permissions to a specific role and schema with a default warehouse to speed up setup

To create a new training org, please reach out to Ariel Harnik (aharnik@hex.tech) by email or in slack [#hex-snowflake](#). Ariel will need to know:

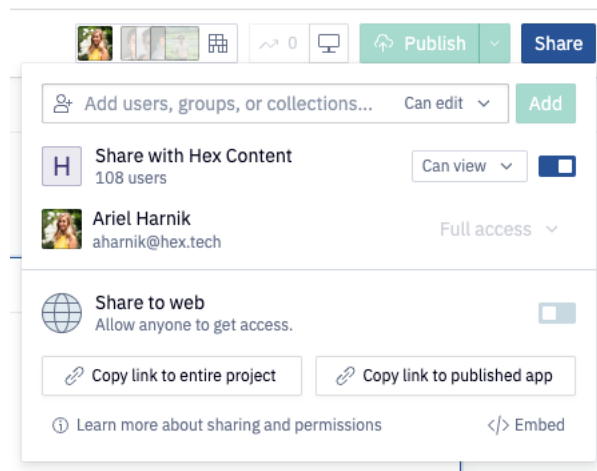
- Name of Org (ie. NYC Snowpark Lab)
- Name of Snowflake users to add
- Timing of lab

Notebook Setup

In this workflow, the lab instructor can create a complete Hex notebook analysis with a pre-configured data connection.

The lab instructor will instruct users to [Duplicate that notebook](#) and then each participant will have a copy of the notebook that they can use themselves to run their own code, alongside the lab.

💡 PRO TIP: It is best practice to set the notebook's sharing preferences to "Can view." This way attendees can view the notebook, but they cannot edit the master copy. Attendees will still be able to Duplicate the notebook.



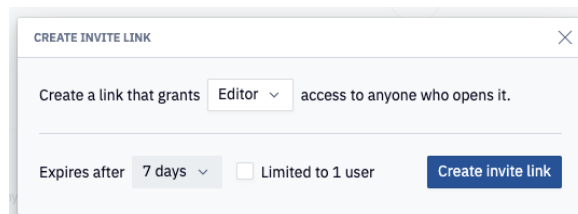
Adding Users


To add users to the org, you can leverage [invite links](#) or [SSO](#).

Invite Links

Create an Invite Link with a predefined role. Admins can create these invite links and send them to registrants in a prerequisite email.

If you are instructing users to Duplicate a Hex notebook so they can have their own copy and then run their own code, the role must be Editor.



 **Warning:** In this setup, users will be able to see each other's names and email addresses if they navigate to the Settings page.

SSO Setup


Hex provides SSO integration instructions for [Okta](#), but any OpenID compatible SSO such as Auth0 (free plan for 7,000 active users) will work.

Creating Users

SSO requires that the users be created in Hex. Using a SCIM compatible SSO provider is preferred (this will automatically create the users in Hex), but you can also manually create users in Hex by using the email address as the common connection.

If you manually create users, you can use the Web UI. You can also use the [GraphQL API Endpoint](#) (unofficial) to create users. This requires authenticating with an Admin user, grabbing the browser cookie, and using that cookie while using the endpoint.

SSO example: <https://snowflakehol.com/>

 **PRO TIP:** SSO can be reused to authenticate into a Snowflake demo account. Not necessarily recommended for Snowpark authentication due to external browser.

Single-Customer Lab

These labs are hosted for a single customer.

These customers may be in a Hex trial or already be Hex customer; regardless, it is recommended to create a new training organization used for the Lab and Snowpark enablement. This will make it easy for the lab instructor to create data connections and Hex notebooks with dummy data.

To create a new training org, please reach out to **Ariel Harnik** (aharnik@hex.tech) by email or in slack **#hex-snowflake**. Ariel will need to know:

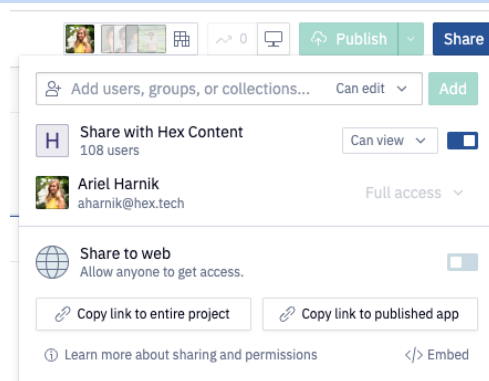
- Customer name
- Name of Org (ie. Target Snowpark Lab)
- Name of Snowflake users to add
- Timing of lab

Notebook Setup

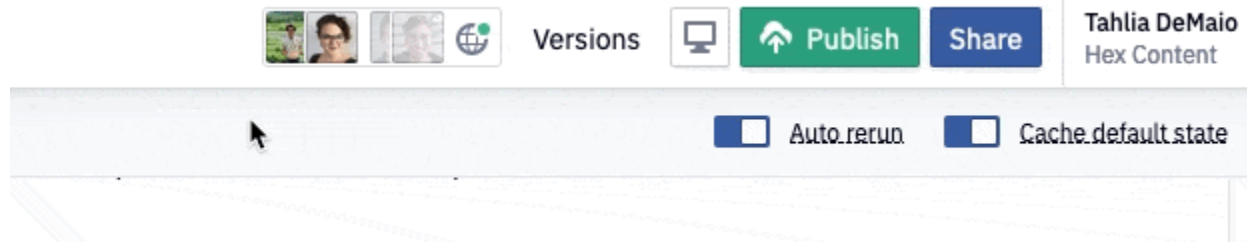
In this workflow, the lab instructor can create a complete Hex notebook analysis with a pre-configured data connection.

If the lab is run for a large group of users, the lab instructor will instruct users to [Duplicate that notebook](#) and then each participant will have a copy of the notebook that they can use themselves to run their own code, alongside the lab.

PRO TIP: It is best practice to set the notebook's sharing preferences to "Can view." This way attendees can view the notebook, but they cannot edit the master copy. Attendees will still be able to Duplicate the notebook.



If the lab is run for a small group of users, the lab instructor could have the attendees all work in the same notebook. This would allow the lab instructor to highlight Hex's [real-time collaboration functionalities](#) and work as a group.



Adding Users

To add users to the org, you can leverage [invite links](#) or set an [allowed email domain](#).

Invite Links

Create an Invite Link with a predefined role. Admins can create these invite links and send them to registrants in a prerequisite email.

If you are instructing users to Duplicate a Hex notebook so they can have their own copy and then run their own code, the role must be Editor.

A screenshot of the 'CREATE INVITE LINK' dialog box. It has a title bar with a close button. The main content area says 'Create a link that grants' followed by a dropdown menu set to 'Editor' and the text 'access to anyone who opens it.' Below this, there's a section for 'Expires after' with a dropdown set to '7 days' and a checkbox for 'Limited to 1 user' which is currently unchecked. A 'Create invite link' button is at the bottom right.

Allowed domains

Admins can allow anyone with an email address belonging to a certain domain (e.g. hex.tech) to log into your workspace with the default role. By default, any user with an allowed domain will be able to log in, so there's no need to manually create a user account for each person in your workspace.


Allowed email domains


Anyone with email addresses at these domains can automatically join your workspace.

 Add new allow-listed domain

Viewer ▾

Add

DOMAIN	DEFAULT WORKSPACE ROLE	ACTIONS
hex.tech	Viewer ▾	 Delete
hex.site	Viewer ▾	 Delete

 **PRO TIP:** If you are instructing users to Duplicate a Hex notebook so they can have their own copy and then run their own code, the default workspace role must be Editor.

Hex FAQ

Q: What is the best audience profile for Hex?

A: Members of a data team: data scientists, data analysts, or analytics engineers. Familiarity with Notebooks is a nice-to-have, but not a requirement. Hex supports many teams of SQL-only users.

Q: Can I sign up for a Hex trial after this session?

A: Yes - head over to [Snowflake Partner Connect](#) (under Admin panel) and select Hex tile. A new trial will be created for you.

Q: How is Hex different from a Jupyter Notebook?

A: Hex is a supercharged, collaborative, cloud-native way to notebook. Below are a few of the biggest differences:

- **Hex does not require any installation**, its a cloud-hosted service
- **Hex has first-class SQL support** (with built-in autocomplete, syntax highlighting, caching, and more)
- **Hex notebooks are fully polyglot** - users can easily switch between SQL & Python
- It is easy to **increase the amount of memory and processing** of a Hex notebook
 - Users can also **work with data at any scale** using [Query Mode](#)
- Hex has **built-in autosaving and version control**
 - Hex also integrates with [GitHub and GitLab](#)
- Hex natively supports **real-time multiplayer collaboration**
- Users can **easily share and publish [interactive dashboards](#)** (built via drag and drop UI)
- Hex uses a **reactive, graph-based execution model** to keep cell state in sync

Full summary of differences can be found in this blog post: [Modernizing Jupyter workflows with Hex + Snowflake](#).

Troubleshooting Guide

Problem	Solution
Duplicated a project but nothing happened	Try disabling pop-up blocker. Projects will be duplicated in another tab and can take a few seconds to load.
Snowpark doesn't work	Make sure Environment Image is set to "Snowpark (Python 3.8)"
Error running UDF in Hex	<p>Need to accept Anaconda terms and conditions enabled by the ORGADMIN role.</p> <p>Within Snowflake click on your username in the top left corner. You'll see a section that will allow you to switch to the ORGADMIN role. Once switched over, navigate to the Admin tab and select Billing & Terms. From here, you will see a section that will allow you to accept the anaconda terms and conditions. Once this is done, you can head back over to Hex and run the cell that defines our UDTF.</p>