

PNNL-37468

Flow Tradeoff Tool Setup Guide

March 2025

Hongfei Hou

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Prepared for
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Pacific Northwest National Laboratory
Richland, Washington 99354

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March 13, 2025

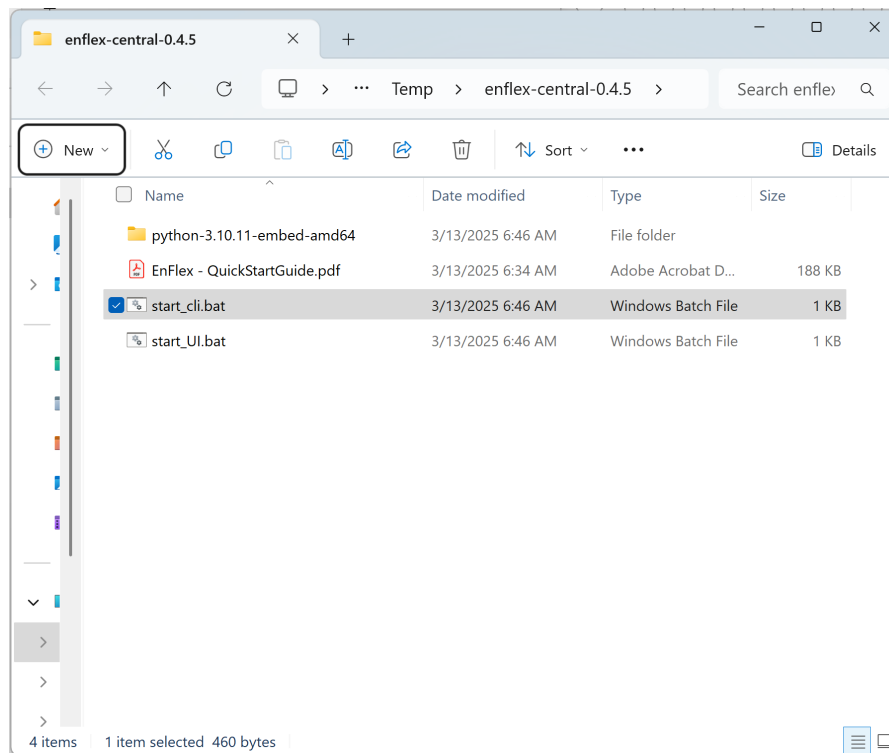
The current version of the tool was designed and tested on Windows 10 and Windows 11. When upgrading from a previous version, users will be prompted to choose whether to retain the existing configuration and database if using the same installation path.

Installation of HEC-RAS

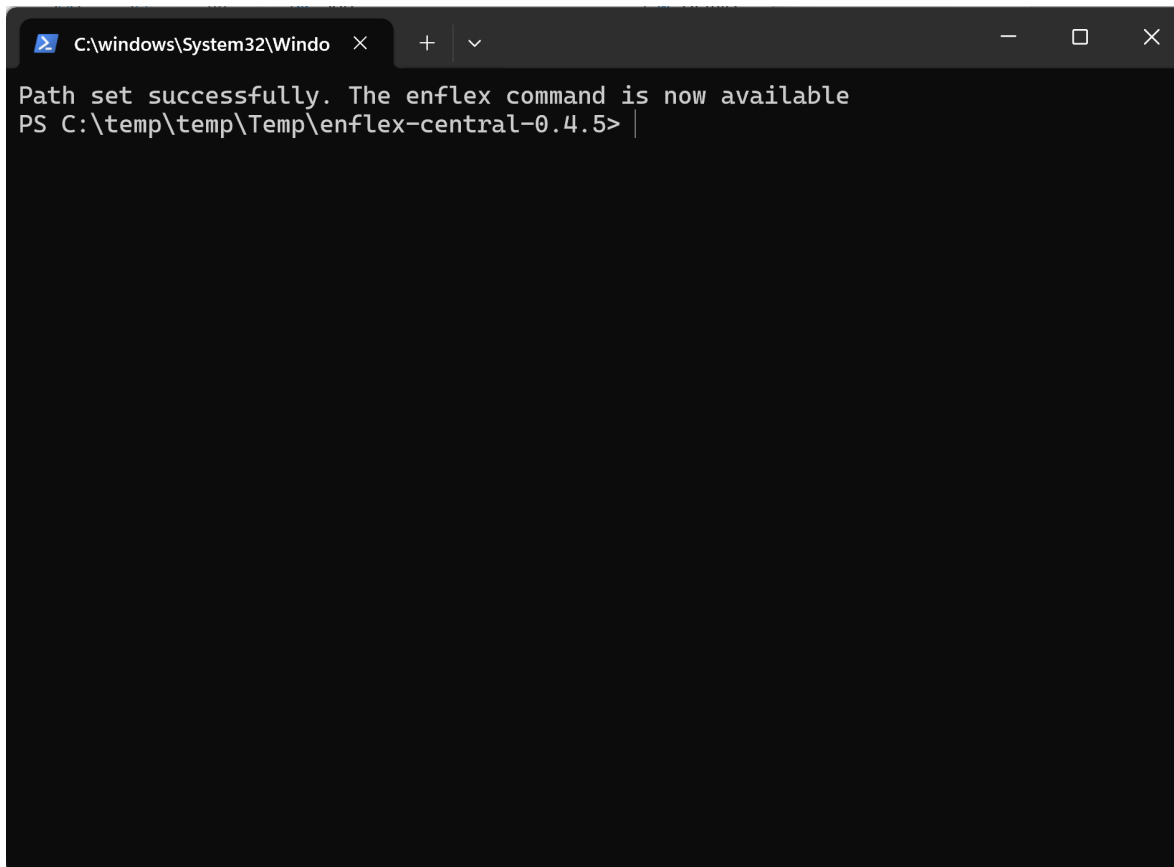
To access all features of this tool, users must install the Hydrologic Engineering Center's River Analysis System (HEC-RAS). This software enables users to perform one-dimensional steady flow analysis, one- and two-dimensional unsteady flow calculations, sediment transport, and mobile bed modeling, as well as water temperature and quality simulations. Download and install HEC-RAS using the following link: <https://www.hec.usace.army.mil/software/hec-ras/download.aspx>

Installation of Flow tradeoff tool

1. Download the ZIP file (e.g., "enfle-central-0.4.5.zip" and "demo_data_models.zip") to your local computer and extract the "enfle-central-0.4.5.zip" file. This process may take approximately 30 minutes.

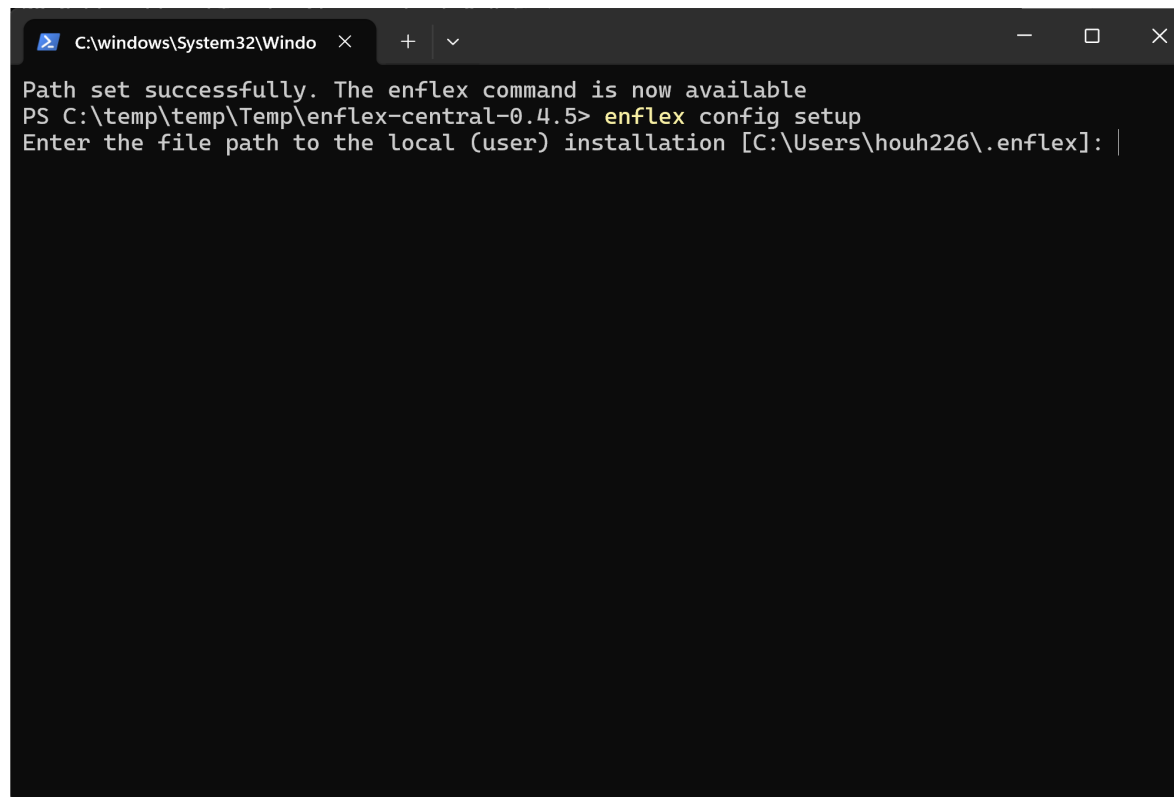


2. Double-click the "*start_cli.bat*" file to execute it:



A screenshot of a Windows command prompt window. The title bar shows the path "C:\windows\System32\Windo" and standard window controls. The command prompt displays the message "Path set successfully. The enflex command is now available" followed by the prompt "PS C:\temp\temp\Temp\enflex-central-0.4.5>".

3. Type "*enflex config setup*" and press the "Enter" key to begin the setup process:



A screenshot of a Windows command prompt window. The title bar shows the path "C:\windows\System32\Windo" and standard window controls. The command prompt displays the message "Path set successfully. The enflex command is now available" followed by the prompt "PS C:\temp\temp\Temp\enflex-central-0.4.5>". The user has entered the command "enflex config setup", and the prompt now shows "Enter the file path to the local (user) installation [C:\Users\houh226\enflex]:".

4. Enter the full path of the desired installation directory, or press "Enter" to use the default location.

```
C:\Windows\System32\Windo x + v
Found the following R installation(s):
C:\Program Files\Microsoft SQL Server\150\R_SERVER
C:\Program Files\Microsoft SQL Server\MSSQL15.MSSQLSERVER\R_SERVICES
C:\Program Files\Microsoft SQL Server\MSSQL15.SQLEXPRESS\R_SERVICES
C:\Program Files\R\R-4.2.1
C:\Program Files\R\R-4.3.1
C:\Program Files\R\R-4.3.2
C:\Program Files\R\R-4.3.3
C:\Program Files\R\R-4.4.0
C:\Program Files\R\R-4.4.1
C:\Program Files\R\R-4.4.2
C:\Program Files\R\R-4.4.3
=====
Last item will become default value...
Attempting to find the R installation folder. This may take a little...
Found the following R installation(s):
C:\Program Files\Microsoft SQL Server\150\R_SERVER
C:\Program Files\Microsoft SQL Server\MSSQL15.MSSQLSERVER\R_SERVICES
C:\Program Files\Microsoft SQL Server\MSSQL15.SQLEXPRESS\R_SERVICES
C:\Program Files\R\R-4.2.1
C:\Program Files\R\R-4.3.1
C:\Program Files\R\R-4.3.2
C:\Program Files\R\R-4.3.3
C:\Program Files\R\R-4.4.0
C:\Program Files\R\R-4.4.1
C:\Program Files\R\R-4.4.2
C:\Program Files\R\R-4.4.3
=====
Last item will become default value...
R Home [C:\Program Files\R\R-4.4.3]:
```

5. Enter the full path of R, or press "Enter" to use the default location.

```
C:\Windows\System32\Windo x + v
Applying admin.0001_initial... OK
Applying admin.0002_logentry_remove_auto_add... OK
Applying admin.0003_logentry_add_action_flag_choices... OK
Applying api.0001_initial... OK
Applying api.0002_alter_evaluationtimewindow_scenario_comparison_and_more... OK
Applying api.0003_alter_evaluationtimewindow_time_window_and_more... OK
Applying api.0004_alter_timewindow_unique_together... OK
Applying api.0005_remove_timewindow_api_timewindow_name_is_unique_in_project_and_more... OK
Applying api.0006_remove_evaluationtimewindow_api_evaluationtimewindow_target_is_unique_in_comparison_and_more... OK
Applying contenttypes.0002_remove_content_type_name... OK
Applying auth.0002_alter_permission_name_max_length... OK
Applying auth.0003_alter_user_email_max_length... OK
Applying auth.0004_alter_user_username_opts... OK
Applying auth.0005_alter_user_last_login_null... OK
Applying auth.0006_require_contenttypes_0002... OK
Applying auth.0007_alter_validators_add_error_messages... OK
Applying auth.0008_alter_user_username_max_length... OK
Applying auth.0009_alter_user_last_name_max_length... OK
Applying auth.0010_alter_group_name_max_length... OK
Applying auth.0011_update_proxy_permissions... OK
Applying auth.0012_alter_user_first_name_max_length... OK
Applying sessions.0001_initial... OK
enflex_core.api.scripts.setup INFO Flushing DB and loading fixtures...
Installed 4 object(s) from 1 fixture(s)
Installed 12 object(s) from 1 fixture(s)
Installed 2 object(s) from 1 fixture(s)
Installed 33 object(s) from 1 fixture(s)
Installed 3 object(s) from 1 fixture(s)
Installed 3 object(s) from 1 fixture(s)
Do you want to generate a new superuser or update the password of an existing one? [Y/n]:
```

6. Type "Y" and press "Enter" to create a new superuser and set up the password. **Note: The password you enter will not be displayed on the screen.**

```
C:\Windows\System32\Windo x + v
Applying admin.0002_logentry_remove_auto_add... OK
Applying admin.0003_logentry_add_action_flag_choices... OK
Applying api.0001_initial... OK
Applying api.0002_alter_evaluationtimewindow_scenario_comparison_and_more... OK
Applying api.0003_alter_evaluationtimewindow_time_window_and_more... OK
Applying api.0004_alter_timewindow_unique_together... OK
Applying api.0005_remove_timewindow_api_timewindow_name_is_unique_in_project_and_more... OK
Applying api.0006_remove_evaluationtimewindow_api_evaluationtimewindow_target_is_unique_in_comparison_and_more... OK
Applying contenttypes.0002_remove_content_type_name... OK
Applying auth.0002_alter_permission_name_max_length... OK
Applying auth.0003_alter_user_email_max_length... OK
Applying auth.0004_alter_user_username_opts... OK
Applying auth.0005_alter_user_last_login_null... OK
Applying auth.0006_require_contenttypes_0002... OK
Applying auth.0007_alter_validators_add_error_messages... OK
Applying auth.0008_alter_user_username_max_length... OK
Applying auth.0009_alter_user_last_name_max_length... OK
Applying auth.0010_alter_group_name_max_length... OK
Applying auth.0011_update_proxy_permissions... OK
Applying auth.0012_alter_user_first_name_max_length... OK
Applying sessions.0001_initial... OK
enflex_core.api.scripts.setup INFO Flushing DB and loading fixtures...
Installed 4 object(s) from 1 fixture(s)
Installed 12 object(s) from 1 fixture(s)
Installed 2 object(s) from 1 fixture(s)
Installed 33 object(s) from 1 fixture(s)
Installed 3 object(s) from 1 fixture(s)
Installed 3 object(s) from 1 fixture(s)
Do you want to generate a new superuser or update the password of an existing one? [Y/n]: Y
Enter a password or leave blank to generate a random PW: |
```

7. Type *"enflex dbmanage load-dd"* to load the demo data:

```
C:\Windows\System32\Windo x + v
Applying api.0004_alter_timewindow_unique_together... OK
Applying api.0005_remove_timewindow_api_timewindow_name_is_unique_in_project_and_more... OK
Applying api.0006_remove_evaluationtimewindow_api_evaluationtimewindow_target_is_unique_in_comparison_and_more... OK
Applying contenttypes.0002_remove_content_type_name... OK
Applying auth.0002_alter_permission_name_max_length... OK
Applying auth.0003_alter_user_email_max_length... OK
Applying auth.0004_alter_user_username_opts... OK
Applying auth.0005_alter_user_last_login_null... OK
Applying auth.0006_require_contenttypes_0002... OK
Applying auth.0007_alter_validators_add_error_messages... OK
Applying auth.0008_alter_user_username_max_length... OK
Applying auth.0009_alter_user_last_name_max_length... OK
Applying auth.0010_alter_group_name_max_length... OK
Applying auth.0011_update_proxy_permissions... OK
Applying auth.0012_alter_user_first_name_max_length... OK
Applying sessions.0001_initial... OK
enflex_core.api.scripts.setup INFO Flushing DB and loading fixtures...
Installed 4 object(s) from 1 fixture(s)
Installed 12 object(s) from 1 fixture(s)
Installed 2 object(s) from 1 fixture(s)
Installed 33 object(s) from 1 fixture(s)
Installed 3 object(s) from 1 fixture(s)
Installed 3 object(s) from 1 fixture(s)
Do you want to generate a new superuser or update the password of an existing one? [Y/n]: Y
Enter a password or leave blank to generate a random PW:
Confirm password:
enflex_core.api.scripts.setup INFO Superuser 'admin' created.
Setup complete. Use the 'enflex start' command to start the application or load demo data with 'enflex dbmanage load-dd'
.
PS C:\temp\temp\Temp\enflex-central-0.4.5> enflex dbmanage load-dd|
```

8. Enter the full path of the installation directory specified in Step 4. If you choose to use the default directory in Step 4, simply press "Enter" to continue.

```
C:\windows\System32\Windo x + v
Applying api.0005_remove_timewindow_api_timewindow_name_is_unique_in_project_and_more... OK
Applying api.0006_remove_evaluationtimewindow_api_evaluationtimewindow_target_is_unique_in_comparison_and_more... OK
Applying contenttypes.0002_remove_content_type_name... OK
Applying auth.0002_alter_permission_name_max_length... OK
Applying auth.0003_alter_user_email_max_length... OK
Applying auth.0004_alter_user_username_opts... OK
Applying auth.0005_alter_user_last_login_null... OK
Applying auth.0006_require_contenttypes_0002... OK
Applying auth.0007_alter_validators_add_error_messages... OK
Applying auth.0008_alter_user_username_max_length... OK
Applying auth.0009_alter_user_last_name_max_length... OK
Applying auth.0010_alter_group_name_max_length... OK
Applying auth.0011_update_proxy_permissions... OK
Applying auth.0012_alter_user_first_name_max_length... OK
Applying sessions.0001_initial... OK
enflex_core.api.scripts.setup INFO Flushing DB and loading fixtures...
Installed 4 object(s) from 1 fixture(s)
Installed 12 object(s) from 1 fixture(s)
Installed 2 object(s) from 1 fixture(s)
Installed 33 object(s) from 1 fixture(s)
Installed 3 object(s) from 1 fixture(s)
Installed 3 object(s) from 1 fixture(s)
Do you want to generate a new superuser or update the password of an existing one? [Y/n]: Y
Enter a password or leave blank to generate a random PW:
Confirm password:
enflex_core.api.scripts.setup INFO Superuser 'admin' created.
Setup complete. Use the 'enflex start' command to start the application or load demo data with 'enflex dbmanage load-dd'
PS C:\temp\temp\Temp\enflex-central-0.4.5> enflex dbmanage load-dd
Enter the file path to the local (user) installation [C:\Users\houh226\enflex]: |
```

9. Type "*enflex start*" to launch the tool. Note: The first-time startup may take up to 10 minutes.

```
C:\windows\System32\Windo x + v
PS C:\temp\temp\Temp\enflex-central-0.4.5> enflex start
```

Please wait until the following window pops up.

Energy Flexibility and Habitat Evaluation To...

localhost:8584/projects

Projects

Timeseries Explorer

Reservoir Simulations

Habitat Simulations

Scenario Comparisons

About

Documentation

SELECT A PROJECT

Projects

CREATE PROJECT

Name	Description	Activate
Demo Project 0815	A project for demonstrating EnFlex use cases.	DELETE DETAILS ACTIVATE PROJECT

Items per page: 10 1-1 of 1

10. Enter "<http://localhost:8584/admin/>" in the address bar and press "Enter":

Log in | Enflex Administration

localhost:8584/admin/login/?next=/admin/

Enflex Administration

Username:

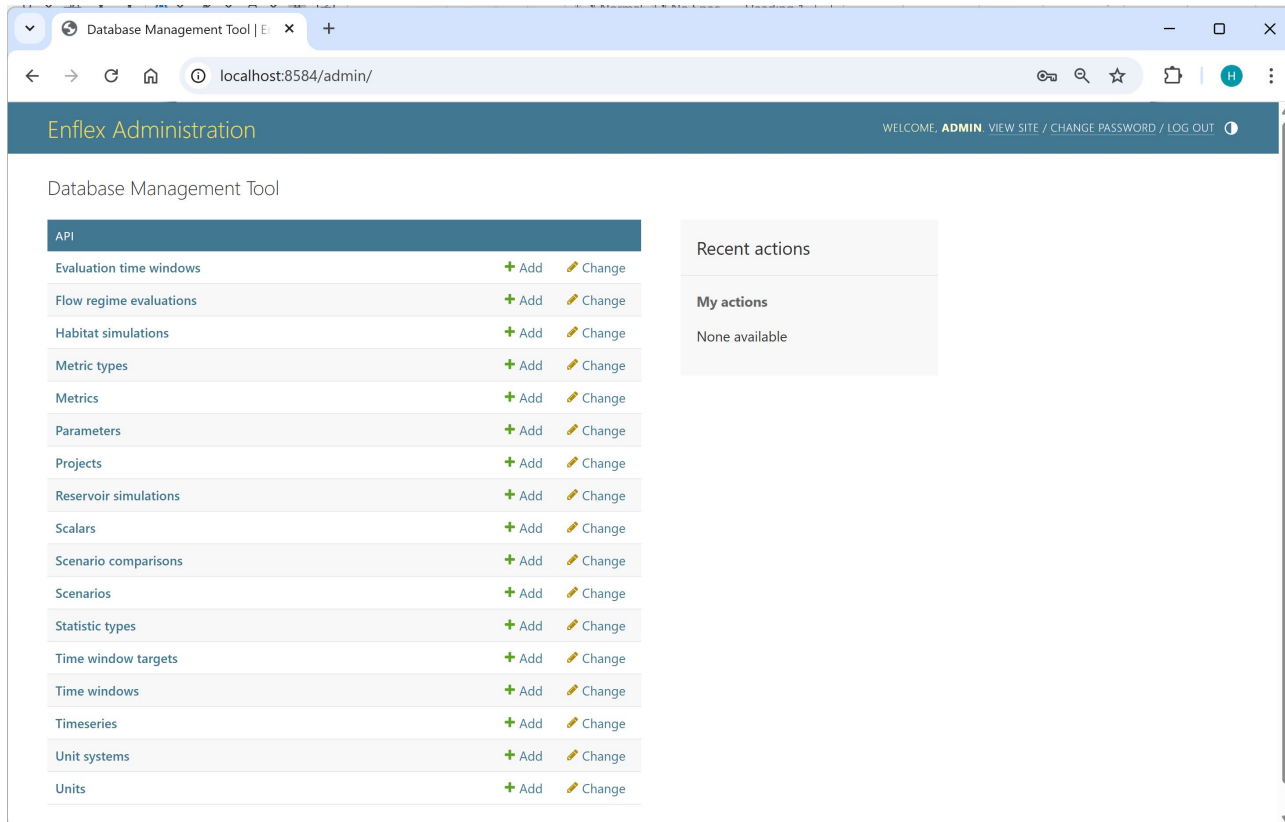
Admin

Password:

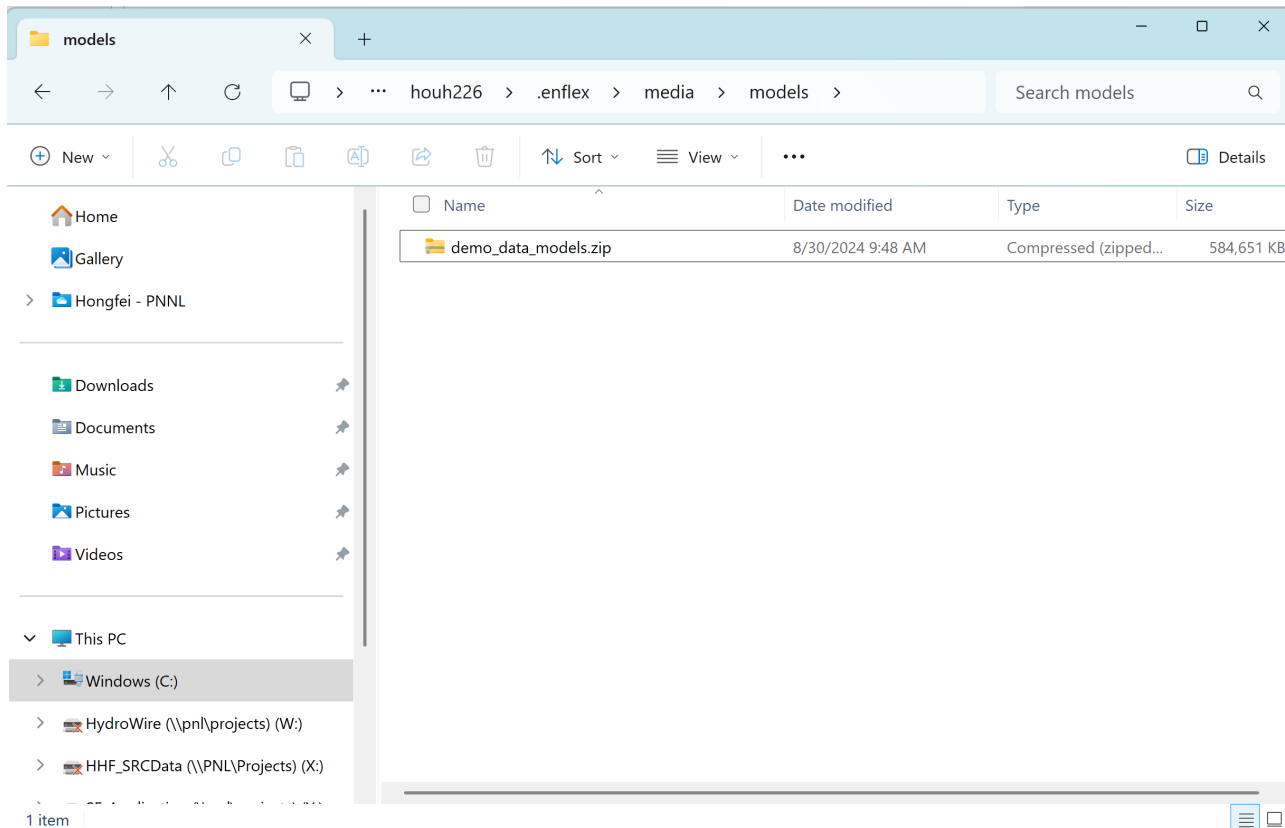
.....

Log in

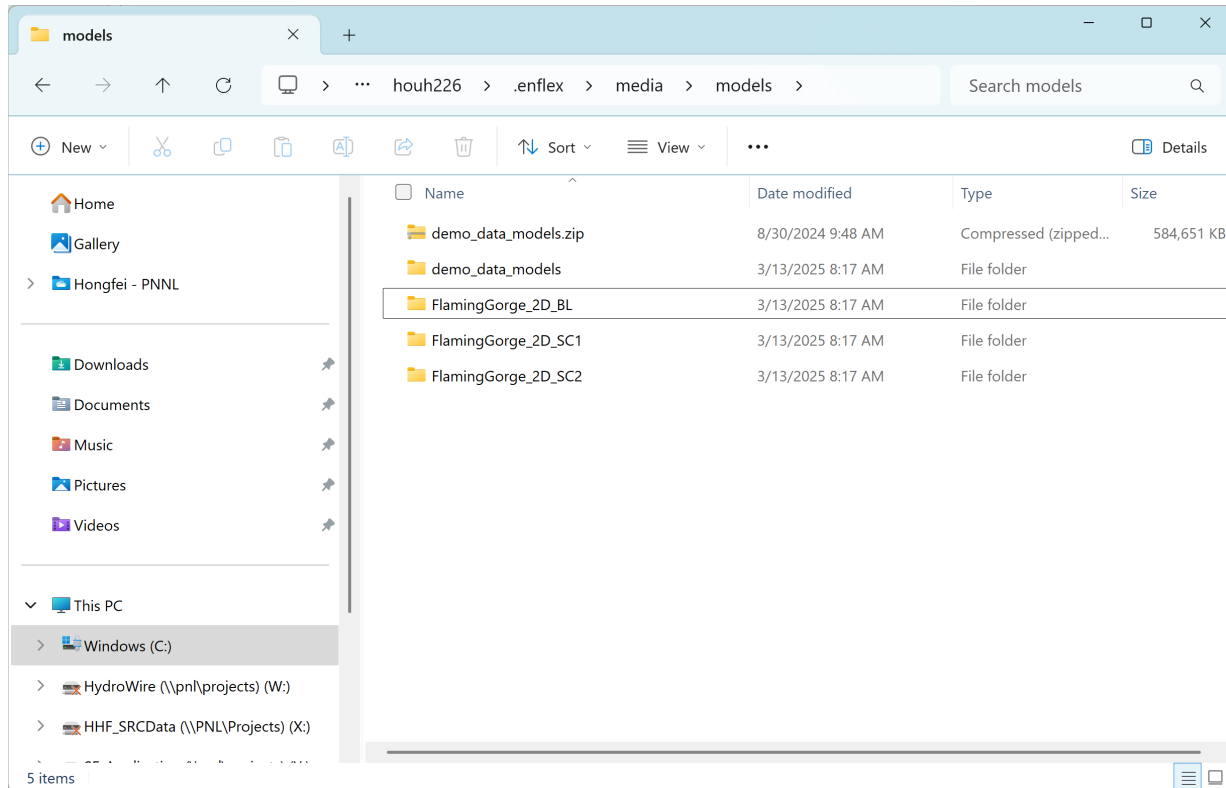
11. Enter "*admin*" as the username and the password set in Step 6, then click "*Log in*".



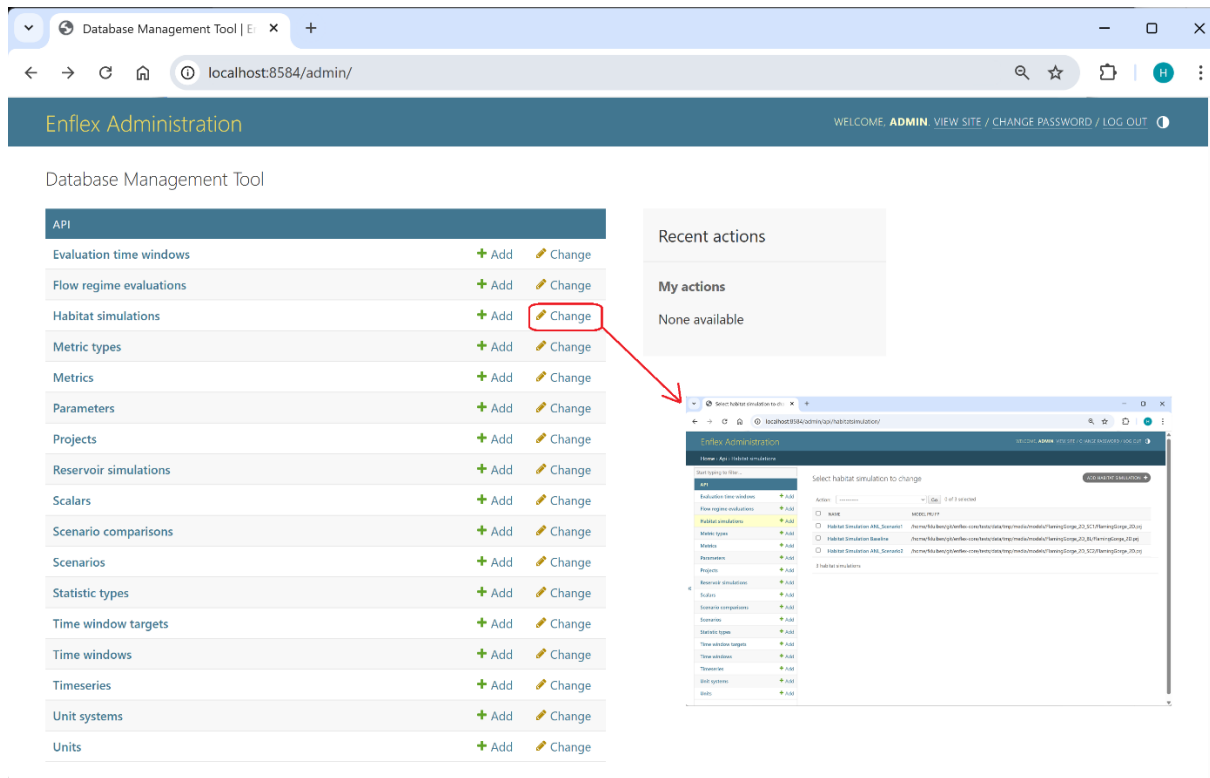
12. Use File Explorer to move the "demo_data_models.zip" file to the "media\models" folder within the tool's installation path. For example: "C:\Users\houh226.enflex\media\models".



13. Extract the ZIP file and move all subdirectories into the "media\models" folder. The final structure should look like this:



14. Return to the web browser and click the "Change" button next to "Habitat Simulations":



15. Click "Habitat Simulation ANL_Scenario1":

Change habitat simulation

Habitat Simulation ANL_Scenario1 (ANL_Scenario1)

☒ Enabled
Disabled rows will be neglected from some queries

Order:
Used for custom ordering of rows

Name:
Display name

Description:
Optional description

Scenario:

Model prj fp:
Model project file path

Mapping interval:
Interval for generating output maps in minutes.

Sim time window:

Status:
Status of the habitat simulation

Pid:
Process ID of the habitat simulation

16. Copy the value of "Model prj fp:" and replace it with the corresponding path on your local computer. For example, from `"/home/fkluiben/git/enflex-core/tests/data/tmp/media/models/FlamingGorge_2D_SC1/FlamingGorge_2D.prj"` to `"C:\Users\houh226\.enflex\media\models\FlamingGorge_2D_SC1\FlamingGorge_2D.prj"`. Scroll down to the bottom of the page and click the "Save" button.

Enflex Administration

WELCOME, ADMIN VIEW SITE / CHANGE PASSWORD / LOG OUT

Home > Api > Habitat simulations

The habitat simulation "Habitat Simulation ANL_Scenario1 (ANL_Scenario1)" was changed successfully.

Select habitat simulation to change

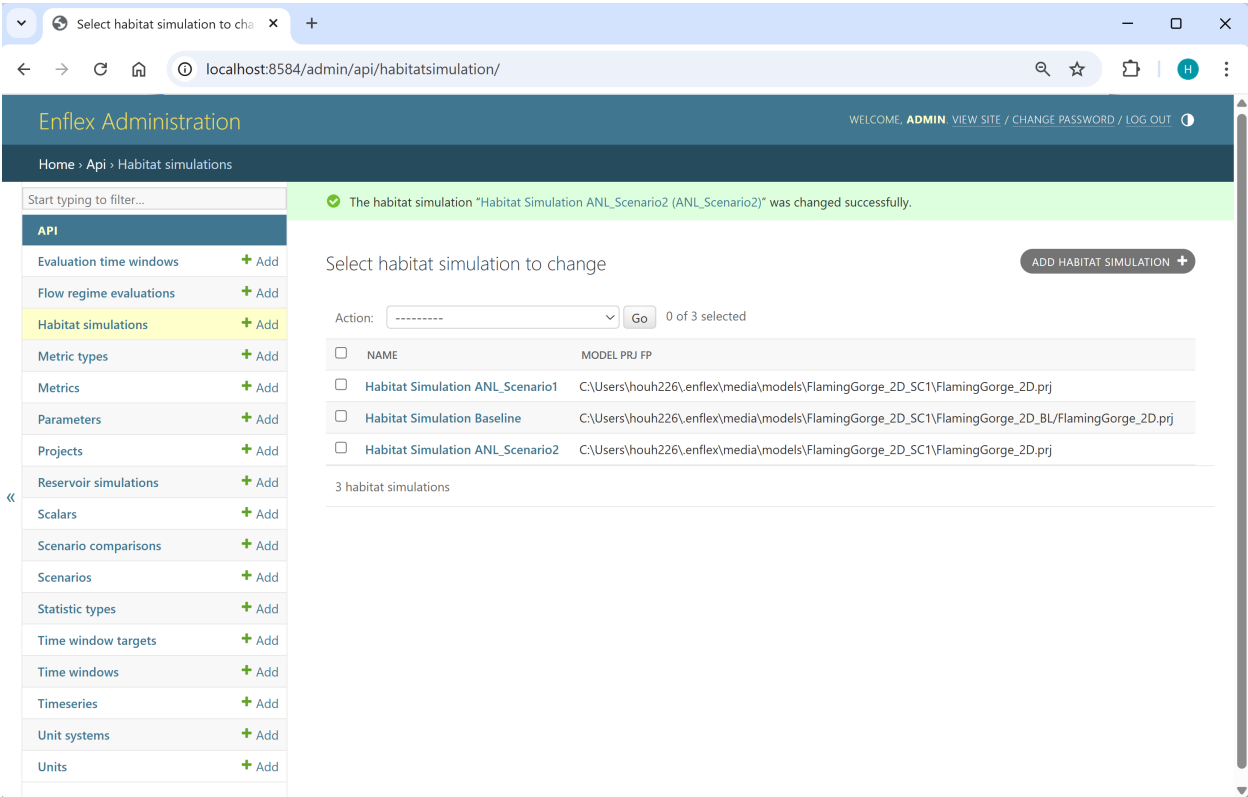
ADD HABITAT SIMULATION +

Action: Go 0 of 3 selected

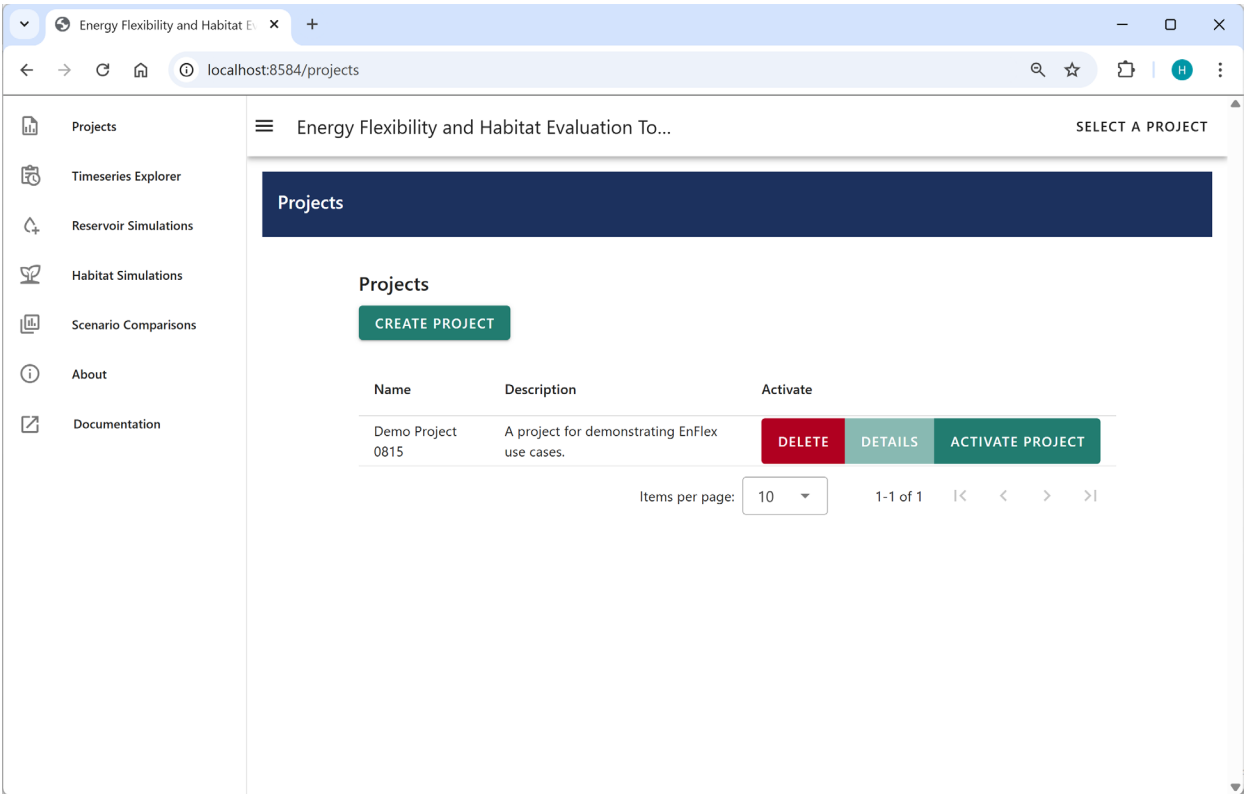
☐	NAME	MODEL PRJ FP
☐	Habitat Simulation ANL_Scenario1	C:\Users\houh226\.enflex\media\models\FlamingGorge_2D_SC1\FlamingGorge_2D.prj
☐	Habitat Simulation Baseline	/home/fkluiben/git/enflex-core/tests/data/tmp/media/models/FlamingGorge_2D_BL/FlamingGorge_2D.prj
☐	Habitat Simulation ANL_Scenario2	/home/fkluiben/git/enflex-core/tests/data/tmp/media/models/FlamingGorge_2D_SC2/FlamingGorge_2D.prj

3 habitat simulations

17. Repeat the same steps for the remaining two habitat simulations: "Habitat Simulation Baseline" and "Habitat Simulation ANL_Scenario2".



18. The setup is now complete. Enter "<http://localhost:8584/>" in the address bar to start using the tool.



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