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Using Basic Gateway Tools:

Log in or Create a new account:

1. Go to the SimCCS Gateway at https://simccs.org/
2. Select Log In
   a. Select **Sign in with existing institution credentials** to sign in with CLogin
   b. To create a new account, select **Create Account** and enter the required fields

Log Out:

1. Select the dropdown menu that currently shows your name in the upper right corner
2. Click on **Log Out**
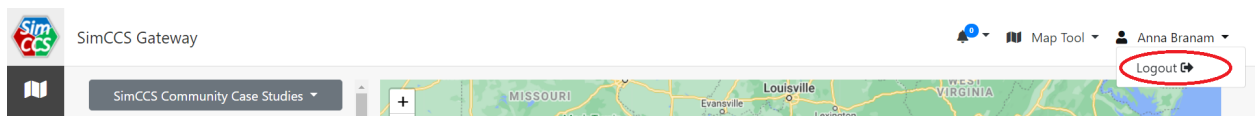
Create or edit a project:

1. Select **Workspace** from the dropdown menu header.
2. Select the **Projects** icon on the left-hand toolbar.
3. To create a new project, select the **New Project** button.
4. Enter the project name and description in the project creation popup and click OK.
5. To edit an existing project, click on the **Edit** icon under the actions column of the desired project. If the **Edit** icon is not present, you do not have administrative access to this project.
6. Select the **Share** button in the upper right-hand corner to share the project with other users and groups
7. Once editing is complete, click **Save** to return to the project list.

Create or Edit a Group:

1. Select **Groups** from the dropdown menu header
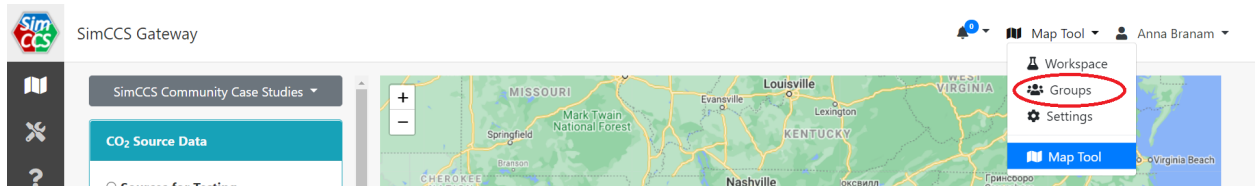
   a. To create a new group, select **Create new group**
   b. To edit an existing group, click on the edit icon under the **Actions** column of the desired group. If the edit icon is not present, you do not have administrative access to this group.
2. Once in the group creation/edit view, enter a name for your group in the **Name** field
3. Enter a description of the group in the **Description** field, if desired
4. Add new users to the group by typing the name or email of another user into the search bar and selecting the desired user. Only users who have created an account may be added to a group.
5. Filter group members using names, usernames, and emails in the **Filter** field.
6. To alter the role of a group member, select the dropdown menu in the **role** column. Select the desired role.
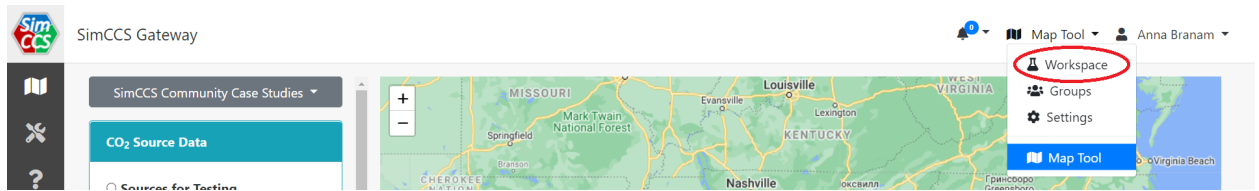7. Click **Submit** to save the group and return to the group list.

Delete a group:

1. Select the trash icon in the actions column of the desired group.
2. You should see a popup confirmation of your intent to delete the group, select **yes.**

View Experiments:

1. If **View Experiment Summary** was selected from the **Map Tool**, begin at Step 4.

2. Select Workspace from the dropdown menu header

3. Select an experiment from the Right-hand Recent Experiments list side by clicking on the name of the desired experiment. To view the full list of experiments, select the Experiments icon in the left-hand toolbar.
4. Selecting an experiment name will bring you to the **Experiment Summary** page. When the experiment is completed, **Analyze in Map Tool** will appear at the top of the screen. When selected, the results will appear in the **Map Tool.**
5. If **Analyze in Map Tool** does not appear, the experiment likely failed, as will be shown by "Failed" appearing in the **Experiment Status** row. The cause of the failure will be shown at the bottom of the page in **Errors**.

Using the Map Tool:

Use Community Case Studies:

1. The Gateway should open directly to the map tool. If it does not, select **Map Tool** from the dropdown menu header.
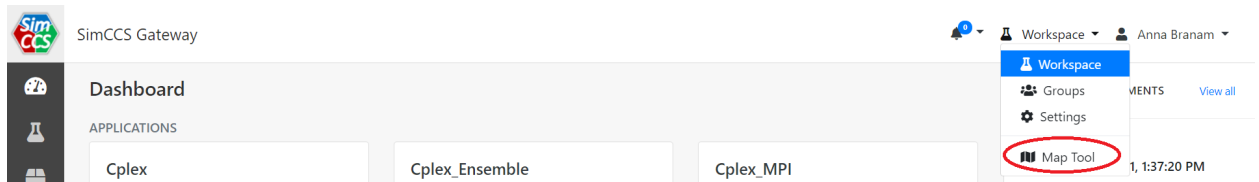
2. Click on **SimCCS Community Case Studies** at the top of the left-hand toolbar.
3. You should see a list of saved case studies. These case studies are from published literature that used SimCCS in their research. Select the case study you want to use.

4. Select **More information** to view the case study publication.

5. Select the **Edit this scenario** button
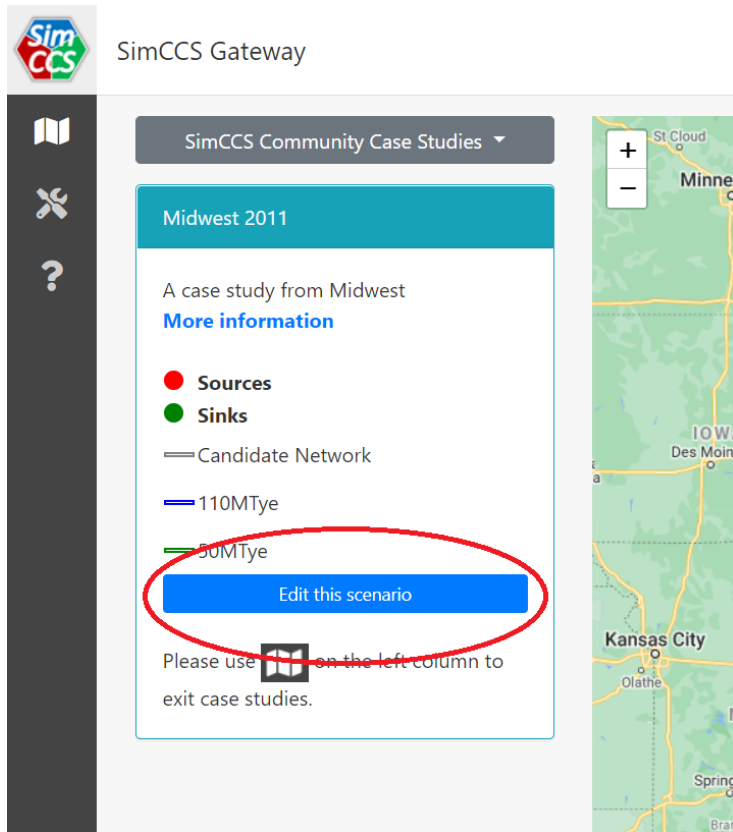
6. Select sources:
    a. Hover over a source (red circles) to view details, including source ID, capture costs, and capturable CO_2. To select an individual source, click on the source icon.
    b. To select all available sources in the case study, click the **Select all sources button** in the left toolbar.
7. Select sinks:
    a. Hover over a source (green circles) to view details, including sink ID, storage costs, and CO_2 storage capacity. To select an individual sink, click on the sink icon.
    b. To select all available sinks in the case study, click **Select all sinks** in the left toolbar.
8. To download the selected sources and sinks as textfiles, select **Generate Data Files** in the left toolbar.
9. Once the desired sources and sinks are selected, click the **Generate Candidate Network** button in the left toolbar. A new candidate pipeline network will be created for your scenario. Depending on the number of sources and sinks selected, this may take a few minutes.
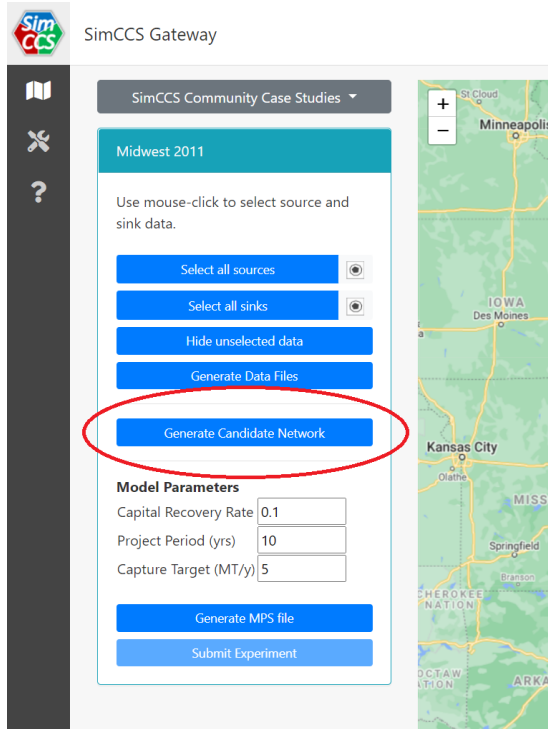
10. Once the candidate network has been created, select **Submit Experiment in the left toolbar.**
11. **View Experiment Summary** will appear after the experiment has been submitted to the high performance computer. Selecting this will send you to a new page with additional details on the experiment status.

View National Datasets on the Map Tool:

1. If the **Map Tool** is not currently open, select **Map Tool** from the dropdown menu in the header.

2. To view all available sources on the map tool, select **Sources for Testing** at the top of the left hand toolbar.
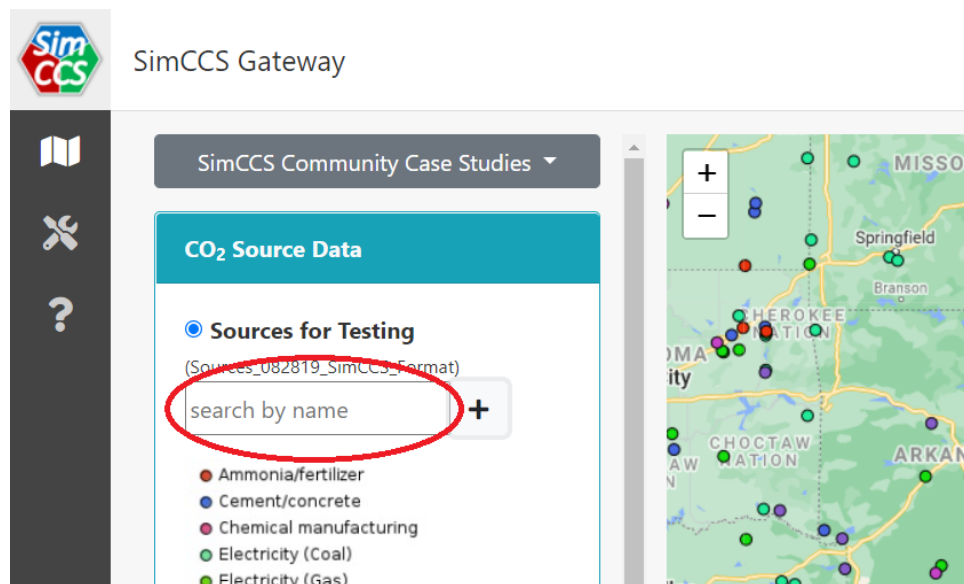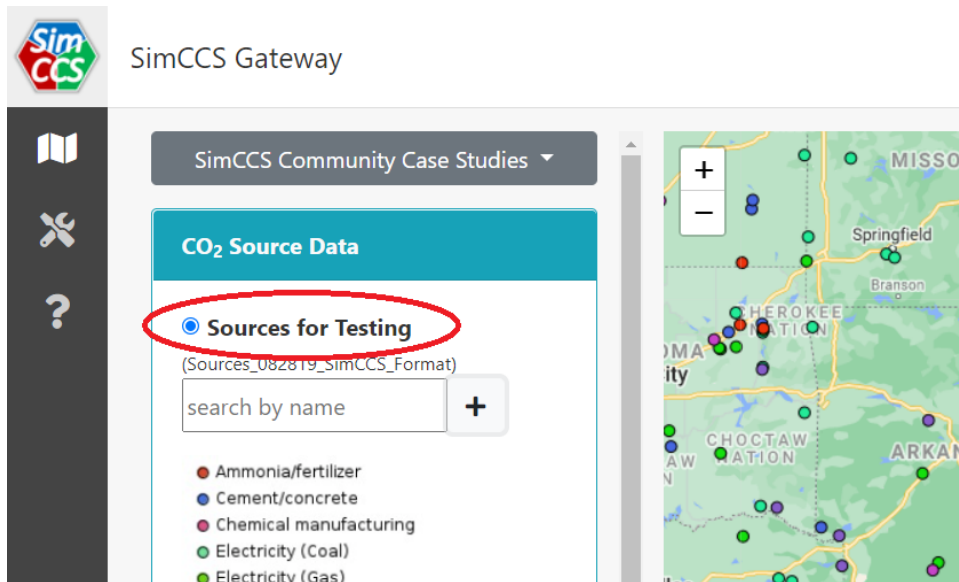
3. Sources can be filtered by name using the search textbox in the left-hand toolbar.
4. To view more filter options, click on the **+** icon.
5. Sources can be filtered based on type using the **Extra filters** dropdown selection.
6. Filter sources based on capturable CO_2 and capture cost using the two sliders.
7. To search only the visible section of the map, select **Search in the current map extent.**
8. Click on **Apply Filters** to see the filters applied to the map.
9. Click on **Reset Filters** to remove all filters.
10. To view **Saline Sinks**, select **Saline Formation**.
11. Use the sliders to filter the saline sinks based on **Storage capacity** and **Capture Cost**.

12. Once a slider is set to the desired range, click the arrow icon on the left of the slider to apply the filter.
13. To view oil and gas sinks, select **Oil/Gas Reservoir**.

Use the Drawing Tool in the Map Tool:

1.
2. Select **Set up working area using drawing tool** at the bottom of the toolbar.
   a. To draw rectangular areas, click on the square icon on the right-hand side of the map. Drag across the desired location of the map to select a working area.
   b. For more complex shapes, click on the polygon icon on the right-hand side of the map. Click on the map to create points of a shape. To complete the working area, click on the initial point of the polygon.
3. To edit a working area, first click on the **edit** icon, then click and drag any area, altering to the desired shape. Once finished with editing, click **Save** or the shape will revert to its original form.
4. To delete a working area, first click on the **delete** icon, then click on any shapes you wish to remove. Once finished, click **Save** to confirm the deletion.
5. Once the drawn shape covers the desired working area, click on the shape and select **Use this area.**

Select Sources and Sinks in the Map Tool:

1. Sources and sinks are selected after setting up a Working Area. Refer to **Using the Drawing Tool in Map Tool** if you are unfamiliar with the process.
2. The map should show icons indicating the source and sink locations in the selected working area.
   a. Sources are denoted with circles.
   b. SInks are denoted with squares.
3. Hover over a source or sink icon to display further details and click on the desired sources and sinks to select them. Click on a source or sink to deselect.
4. Click on **Select all sources** to select all sources in the working area.
5. To select all sinks click on **Select all Saline Sinks** and/or **Select all Oil/Gas Sinks**.
6. Clicking **Clear all selections** will deselect all sources and sinks in the working area.

Run an Experiment:

1. After selecting sources and sinks, you are prepared to run an experiment.
2. If you would like to download the source and sink selections as text files, select **Generate Data Files,** then click **Download Source.txt** and **Download Sinks.txt.**
3.
4. Click **Generate Candidate Network**. Depending on the number of sources and sinks selected, this may take a few minutes.
5. Edit **Capital Recovery Rate**, **Project Period**, and **Capture Target** under **Model Parameters,** as desired. For a successful scenario to be completed, the available

storage capacity among selected sinks must be greater than or equal to the total captured CO_2 of the project (Project Period x Capture Target), and the capturable CO_2 among selected sources must be greater than or equal to the defined Capture Target.

6. Click **Generate MPS file.**
7. There should be a popup indicating that the MPS file was successfully created. Click **Create Experiment.**

Using the Build Tool:

Add Cases:

1. Go to the **Map Tool**
2. Click on the **Build** icon in the left-hand toolbar.
3. Select the project you would like to add a new case to in the **Project** dropdown field or click **New Project** to create a new project.
4. Make sure the **Cases** tab is selected
5. Click **New Case.**
6. Enter the Case name in the **Title** field.
7. If you have any datasets saved, you can add them to the Case by clicking **Add Dataset** and selecting the desired dataset from the dropdown field. To create a new dataset, select **Create new dataset** at the bottom of the dropdown field.
8. Once finished, click **Save** to return to the **Cases** list.

Editing Cases:

1. Go to the **Map Tool.**
2. Click on the **Build** icon in the left-hand toolbar. Select the project that contains the case you would like to edit in the **Project** dropdown.
3. Select the **Cases** tab.
4. Select the desired case from the cases list and click on the **Edit** icon under the actions column. If the edit icon is not present, you don't have access to edit the case.
5. Once finished editing, click **Save** to return to the case list.

Add Datasets:

1. Go to the **Map Tool.**
2. Click on the **Build** icon in the left-hand toolbar.
3. Select the project where you would like to add the dataset in the **Project** dropdown.
4. Select the **Datasets** tab.
5. Click **New Dataset.**
6. Enter the dataset name, select the type of dataset (Source or Sink), and upload the dataset file from your local machine. An Excel template for properly formatting the Source and Sink files can be found here.
7. Once finished, click **Save** to return to the build tool.

Edit Datasets:

1. Go to the **Map Tool.**
2. Click on the **Build** icon in the left-hand toolbar.
3. Select the project that contains the dataset you would like to edit in the **Project** dropdown.
4. Select the **Datasets**.
5. Select the desired dataset from the dataset list and click on the **Edit** icon under the actions column.
6. Once finished editing, click **Save** to return to the **Build Tool.**

Create a New Workspace:

1. Go to the **Map Tool.**
2. Click on the **Build** icon in the left-hand toolbar.
3. Select the project you would like to add a new workspace to in the **Project** dropdown.
4. Select the **Cases** tab.
5. Find the case you want to use and click **New Workspace.**

Open a Saved Workspace:

1. Go to the **Map Tool.**
2. Click on the **Build** icon in the left-hand toolbar.
3. Select the project that contains the workspace you would like to open in the **Project** dropdown.
4. Select the **Cases** tab.
5. Click on the name of the workspace you would like to open. Workspaces will be separated by case.
6. Selecting a workspace will open the saved workspace in the **Map Tool**, where new experiments can be created.
7.
8. Click on the suitcase icon to edit the name and description of the workspace.
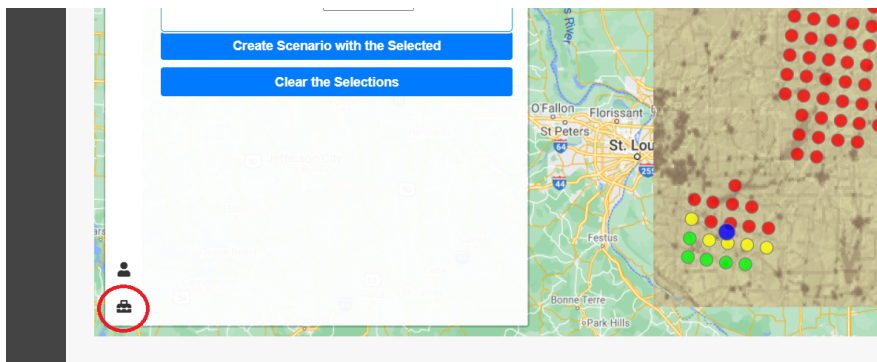
9. Enter the desired name for your workspace and then click **Save Current Workspace.**

Use a Scenario:

1. Once you have created and saved a workspace, you can run experiments using the created scenarios in your workspace.
2. After navigating to the desired workspace, click on the **Scenario** icon.
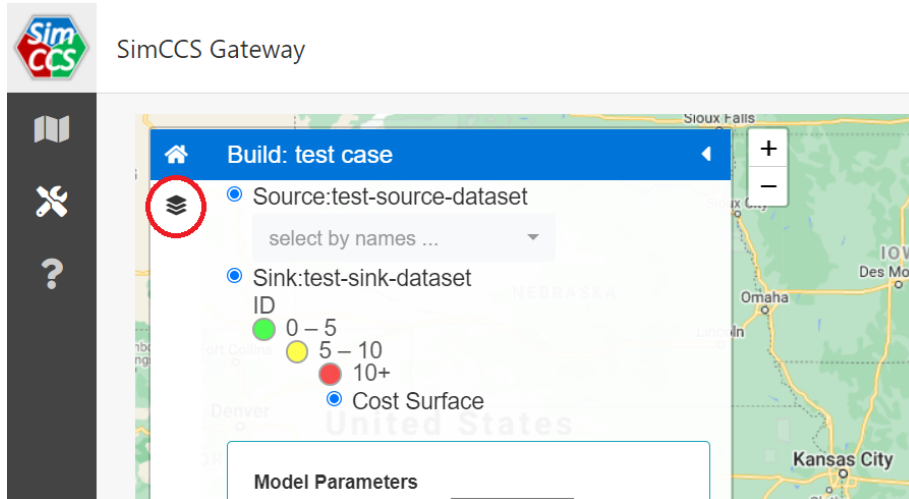
3. Select sources and sinks for your experiment as described in **Select Sources and Sinks in the Map Tool**.
4. Click on **Generate Candidate Network**. Depending on the number of sources and sinks selected, this may take a few minutes.
5. You can enter an experiment name in the text box, if desired.
6. To create a single experiment, click **Create a New Experiment.**
7. To create multiple experiments, add multiple values, separated by commas, to the **Capture Target** field. Verify all experiments will be successful using the methods described in **Run an Experiment**, then click **Create Multiple Experiments**. The experiment names are created by default and use the date and time created and the capture target in the experiment name. Model parameters can also be found for each experiment on the **Experiment Summary** page.
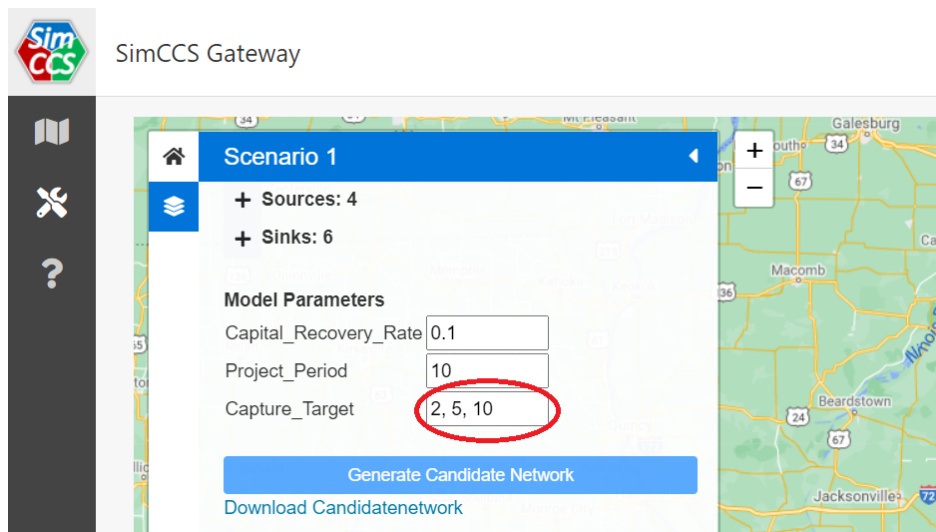
Accessing Experiment Result Files:

1. After selecting **Analyze in Map Tool** on the Experiment Summary page, the input files and select results will be available for download on the Experiment Summary page under **Exp Data Dir**.
2. To download, click on the desired file.
3. The results are also included as shapefiles and geojsons, which can be accessed in their respective folders. Clicking **Download All** next to one of these folders will download all contents of the folder as a zipped folder.