

# **ACEP Data Catalog User Guides**

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# Welcome

This documentation provides some helpful tutorials for working with the ACEP Data Catalog.

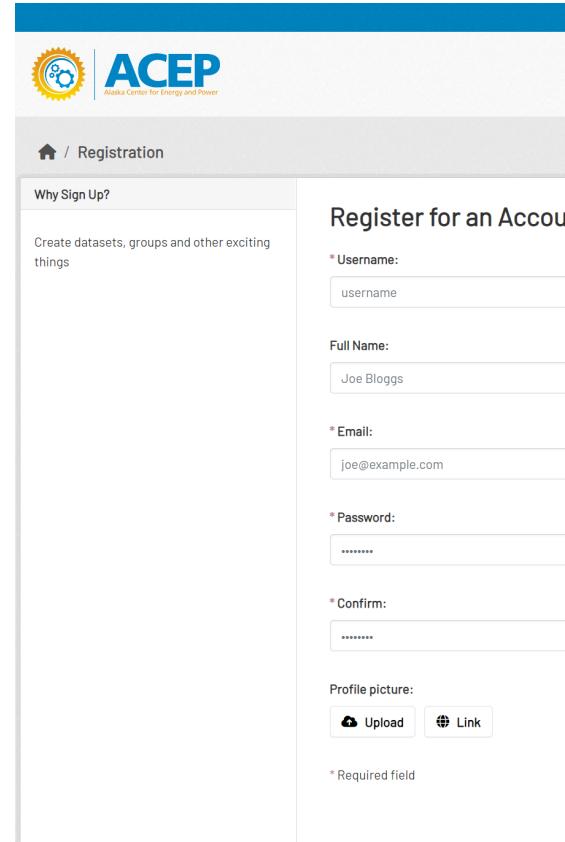


# 1 Getting Started

Guides for anyone using the data catalog.

## Making an Account

1. Click the **Register** button in the upper right corner of the screen.



The screenshot shows the ACEP (Alaska Center for Energy and Power) registration page. At the top, there's a logo for ACEP and a subtext "Alaska Center for Energy and Power". Below the logo, the page title is "Registration". On the left, there's a sidebar with a "Why Sign Up?" section containing the text "Create datasets, groups and other exciting things". The main form area has several input fields:

- "Username": A text input field containing "username".
- "Full Name": A text input field containing "Joe Bloggs".
- "Email": A text input field containing "joe@example.com".
- "Password": A password input field showing "\*\*\*\*\*".
- "Confirm": A password confirmation input field showing "\*\*\*\*\*".
- "Profile picture": A section with "Upload" and "Link" buttons.

A note at the bottom right of the form says "\* Required field".

2. Fill out your information, using your UA email if you have one.
3. In order to see the Internal Use datasets or post datasets, you will need permissions granted to your account. If you are an ACEP employee, contact Liz or another admin.

# Searching for Datasets

There are many ways to search for datasets in the catalog.

- **Search Bar**

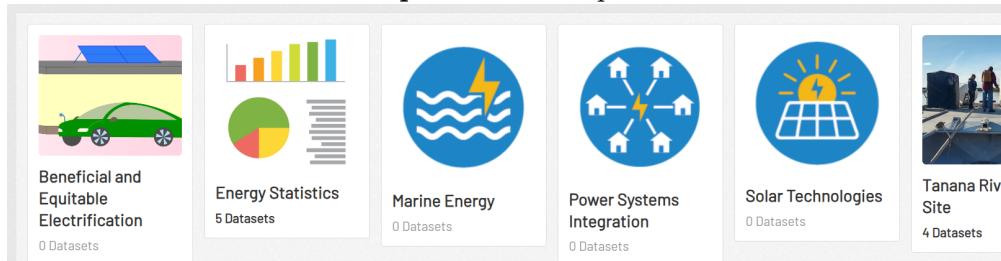
Use key words to find datasets, just like Google. On the left sidebar of the search results page, you can filter by tags and other categories to get more specific results.

The screenshot shows a search results page for the term "Tanana". The left sidebar contains filters for Organizations (ACEP Open Data - 3), Groups (Tanana River Test Site - 3), Tags (Alaska - 3, CEC - 3, Code - 3, Energy - 3, Hydrokinetic - 3, Marine - 3, MATLAB - 3, MHK - 3, Nenana - 3, Power - 3), Formats (none found), and Licenses (none found). The main search bar has "Tanana" entered, and the results are ordered by Relevance. Three datasets are listed:

- Water Horse Hydroelectric Harvester Single Oscillator Field Testing Data,...**  
Raw and processed timeseries data generated during field testing of a single oscillating hydrofoil Water Horse prototype at PMEC (Pacific Marine Energy Center) Tanana River Test...  
Tags: Alaska, CEC, Code, Current Energy Converter, Energy, Field Test Content Model, Hydrokinetic, MATLAB, MHK, Marine, Nenana, Oscillating Hydrofoil, Power, Pre-Processed Data, Processed Data, Raw Data, River, Tanana River, Technology
- Water Horse Hydroelectric Harvester Dual Oscillator Field Testing Data,...**  
Raw and processed timeseries data generated during field testing of a single oscillating hydrofoil Water Horse prototype at PMEC (Pacific Marine Energy Center) Tanana River Test...  
Tags: Alaska, CEC, Code, Current Energy Converter, Energy, Field Test Content Model, Hydrokinetic, MATLAB, MHK, Marine, Nenana, Oscillating Hydrofoil, Power, Pre-Processed Data, Processed Data, Raw Data, River, Tanana River, Technology
- Simulink Model of a New Energy EVG-005 5kW Hydropower Turbine**  
Simulink model for a New Energy 5kW hydropower turbine. ADCP data ("ds\_streamwise\_7\_13.nc") and DC voltage, DC current, and rotor rotation observed from the New Energy EVG-005...

- **Groups**

Browse through the groups that can be found at the **Groups** tab at the top of the screen



or listed on the home page.

- **Organizations**

Sort by larger categories by looking the **Organization** tab at the top of the screen.

- The **ACEP Open Data** organization holds datasets created and owned by ACEP’s research teams.
- The **ACEP Internal Use** organization holds datasets that ACEP does not own. These are useful resources for ACEP researchers. **You must be an ACEP employee to gain access to these datasets.** Contact Liz to get the necessary permissions for your account.

## **Submitting a Comment/Complaint**

If you find a problem with a dataset or have a comment or suggestion for the data catalog, please contact the ACEP data team at [uaf-acep-dcm-support@alaska.edu](mailto:uaf-acep-dcm-support@alaska.edu).

## 2 Researcher

Guides for researchers and those posting datasets to the catalog.

### Posting a Dataset

There are two ways to access the **Add Dataset** button:

- Click on the **Datasets** tab at the top of the screen
  - Click on the **Organizations** tab at the top of the screen and select the organization you want to add a dataset to:
    - Choose **ACEP Open Data** if you are posting your own data or data that ACEP owns.
    - Choose **ACEP Internal Use** if you are posting a useful dataset that ACEP does not own.
1. Click on the **Add Dataset** button above the search bar.

2. On the first page, fill out the metadata fields for your dataset.
  - Double check the organization field.
    - Choose **ACEP Open Data** if you are posting your own data or data that ACEP owns.
    - Choose **ACEP Internal Use** if you are posting a useful dataset that ACEP does not own.
  - If you are a researcher, your dataset's visibility will automatically be set to private. An admin will review your dataset and make it public.
3. Once you have completed the metadata fields, click the **Next: Add Data** button at the bottom of the form.

**Create Dataset**

**Data:**

**Name:**

**Description:**

**Format:**

4. On the next page, add the data resources to your dataset.
  - Small datasets (<2MB) can be uploaded directly to the catalog
  - Alternatively, enter a link to where the data is stored, such as a GitHub repository or Google Drive.
5. If you have more resources to add, click the **Save & add another** button at the bottom of the form. Otherwise click **Finish** to post your dataset.

## Tagging a Dataset

TBD

## Editing/Deleting a Dataset

1. Navigate to the dataset page and click on the **Manage** button in the upper right.

The screenshot shows the ACEP dataset management interface. At the top, there's a navigation bar with links for Datasets, Organizations, Groups, About, and FAQ. A search bar is also present. Below the navigation, the dataset title "Alaska Railroad Features" is displayed, along with its status as PRIVATE and a follower count of 0. There are "Follow" and "Organization" buttons. To the right, there's a "Manage" button, which is circled in red. The main content area shows the dataset details: "Alaska Railroad Features" is described as "Geodata displaying various features of the Alaska Railroad". It lists four resources: "Crossings.geojson", "MP.geojson", "Railroad\_Boundary.geojson", and "Track\_Centerline.geojson", each with an "Explore" button. Below the resources is a tag cloud containing terms like "alaska railroad", "alaska railroad corporation", "mileposts", "railroad", "railroad boundary", "railroad crossings", and "track centerline". A "Metadata" section is also visible at the bottom.

2. This displays the **Edit metadata** page where you can change the metadata of the dataset. After making changes, click the **Update Dataset** button at the bottom of the form.

- To delete the dataset, click the **Delete** button at the bottom of the form.

NOTE: Deleting a dataset does not remove it completely from the database. The url of the deleted dataset will not be able to be reused until it has been purged by a sysadmin.

3. To edit the resources or add more resources, click on the **Resources** tab.

- To delete a resource, select it from the list and then click the **Delete** button at the bottom of the page.

## Adding a Dataset to a Group

1. Navigate to the dataset page and click on the **Groups** tab.
2. Select a group from the dropdown menu and click the **Add to group** button.
3. To remove the dataset from a group, hover your cursor over the group and click the **Re-**

The screenshot shows the ACEP Internal Use interface. At the top, there's a navigation bar with links for Datasets, Organizations, Groups, About, and FAQ, along with a search bar and user profile icons. Below the header, the URL indicates the user is on the 'Alaska Railroad Features' organization page under 'Groups'. On the left, there's a sidebar for the organization with a follower count of 0 and a 'Follow' button. The main area shows a list of groups. One group, 'Power Systems Integration', is highlighted with a red oval around its 'Remove' button.

move button.

## Creating a New Group

Groups are a good way to group together datasets that are connected. You may want to create groups for common research themes, funding organizations, or projects.

1. Click on the **Groups** tab at the top of the screen.

The screenshot shows a web browser window with the ACEP (Alaska Center for Energy and Power) logo at the top left. The top navigation bar includes links for Datasets, Organizations, Groups (which is highlighted in blue), About, and FAQ. Below the navigation, a breadcrumb trail shows the user is at the home page / Groups / Create a Group. The main content area is titled "Create a Group". It contains a sidebar with information about what groups are and how they can be used to manage datasets. The main form fields include "Name" (set to "My Group"), "Description" (with placeholder text "A little information about my group..."), and "Image" (with "Upload" and "Link" buttons). A note at the bottom of the form states "\* Required field".

2. Click the **Add Group** button.
3. Enter the information for the group. Find a logo or simple image to upload to represent the group.
4. Once you have entered the information, click the **Create Group** button at the bottom of the form.

# 3 Admin

Guides for admins managing the data catalog.

## Giving User Permissions

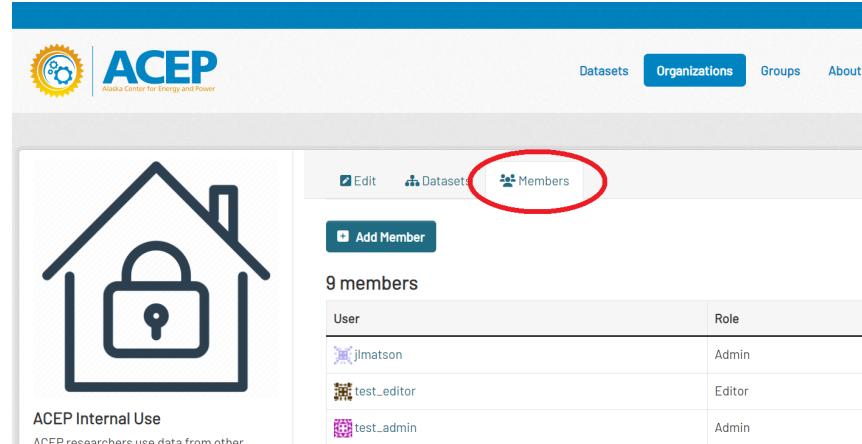
Users have roles in each organization that give them different permissions.

The roles are:

- **Member:** can see private datasets in the organization
- **Editor:** can add private datasets to the organization and delete datasets from the organization
- **Admin:** can change users' roles in an organization and publish datasets from private to public

To give a user a role in an organization:

1. Click on the **Organizations** tab at the top of the screen and click on the organization you want to add the user to.
2. Click on the **Manage** button in the upper right.



A screenshot of the ACEP data catalog interface. At the top, there's a navigation bar with links for Datasets, Organizations (which is highlighted in blue), Groups, and About. Below the navigation, there's a large icon of a house with a padlock inside it, labeled "ACEP Internal Use" and "ACEP researchers use data from other". To the right of the icon, there's a "Members" tab which is circled in red. Below the tab, there's a "Add Member" button and a table showing "9 members". The table has columns for "User" and "Role". The data in the table is as follows:

User	Role
jimatson	Admin
test_editor	Editor
test_admin	Admin

3. Click on the **Members** tab at the top.

- To add a new member to the organization, click the **Add Member** button. Enter their username, select their new role from the dropdown, and click the **Add Member** button at the bottom of the form.

**Add Member**

Existing User : If you wish to add an existing user, search for their username below.

Username:

Role: Member

- To change an existing member's role, click the wrench next to their user name.

test_editor	Editor	
-------------	--------	--

- Select their new role from the dropdown menu and click **Update Member**
- To remove the user from the organization completely, click the **Delete** button.

**Edit Member**

test\_editor

Role: Editor

Delete Update Member

## Reviewing and Publishing a Dataset

1. Navigate to the dataset you would like to publish.
2. Review the metadata and ensure the files/links are correct and function properly.
3. To publish, click on the **Manage** button in the top right of the dataset page.

4. In the metadata fields, find the **Visibility** field.

The screenshot shows a form for editing a dataset. At the top, there is a dropdown menu labeled "Organization" with "ACEP Open Data" selected. Below it is a section labeled "Visibility" with three options: "Private" (selected), "Private" (highlighted in blue), and "Public". There is also a "Source" field containing the URL "https://arcg.is/4j5b50".

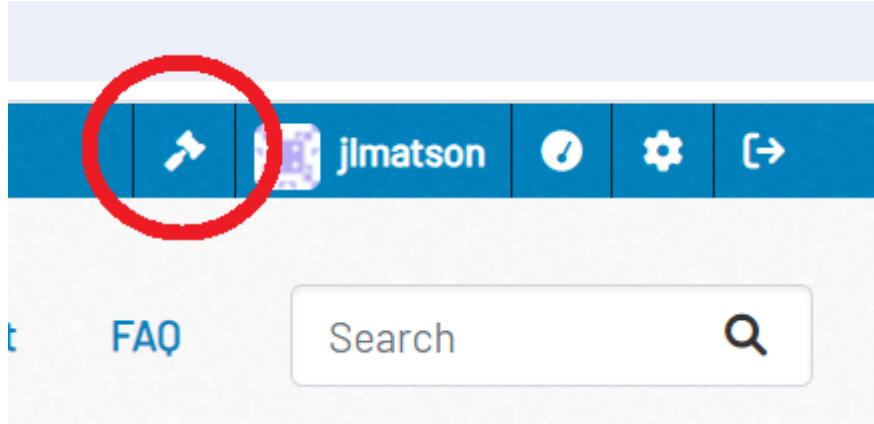
5. Change the **Visibility** field from **Private** to **Public**, and click the **Update Dataset** button at the bottom of the form.

## Deleting Datasets/Groups/Organizations

1. To delete a dataset, group, or organization, navigate to its page and click the **Manage** button in the upper right.
2. Click the **Delete** button at the bottom of the form to delete.
3. **Deleting a dataset, group, or organization does not remove it from the database.** After deleting, a sysadmin can restore the item or purge it to remove it from the database. If not purged, the url for the deleted item cannot be reused.

## Purge Deleted Datasets/Groups/Organizations

1. Navigate to sysadmin settings by clicking the hammer icon at the top of the page.



2. Click on the **Trash** tab. This page will list all the currently deleted datasets, groups, and

The screenshot shows the ACEP web application interface. At the top, there is a navigation bar with links for Datasets, Organizations, Groups, About, FAQ, and a search bar. Below the navigation bar, a user profile for 'jimatson' is displayed. The main content area is titled 'Trash' and contains instructions: 'Purge deleted datasets, organizations or groups forever and irreversibly.' A red circle highlights the 'Trash' tab in the top navigation bar. On the right side of the trash page, there are three sections: 'Deleted datasets' (listing 'Avalanche Zones' with a 'Purge' button), 'Deleted organizations' (listing none), and 'Deleted groups' (listing 'ARCTIC Program' with a 'Purge' button). A 'Purge all' button is located at the top right of the trash page.

organizations.

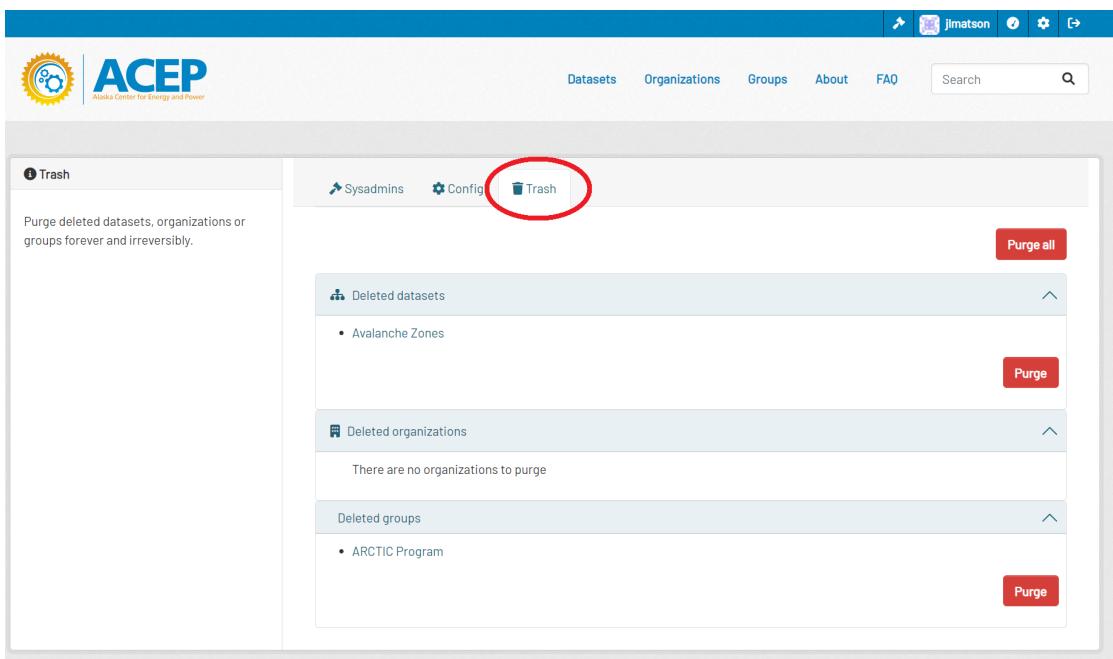
3. You can purge all deleted items using the **Purge all** button at the top of the form. To purge only one group of items (datasets, group, or organizations) use the **Purge** button in that section.

## Restore Deleted Datasets

1. Navigate to sysadmin settings by clicking the hammer icon at the top of the page.

The screenshot shows the ACEP web application interface. At the top, there is a navigation bar with links for Datasets, Organizations, Groups, About, FAQ, and a search bar. Below the navigation bar, a user profile for 'jimatson' is displayed. A red circle highlights the hammer icon in the top navigation bar, which is part of the sysadmin settings menu. The main content area shows the 'FAQ' page.

2. Click on the **Trash** tab. This page will list all the currently deleted datasets, groups, and organizations.



3. Click on the dataset you would like to restore, and click the **Manage** button in the upper right.

Visibility:

Private

State:

Deleted

Source:

<http://example.com/dataset.json>

4. In the metadata fields find the **State** field.
5. Change the **State** field from **Deleted** to **Active**, and then click the **Update Dataset** button at the bottom of the form.

## Restoring a Deleted User

When a user is deleted from the website, their information remains in the database with the `state` field set to `deleted`. To reactivate the user, you must set this field to `active` in the database.

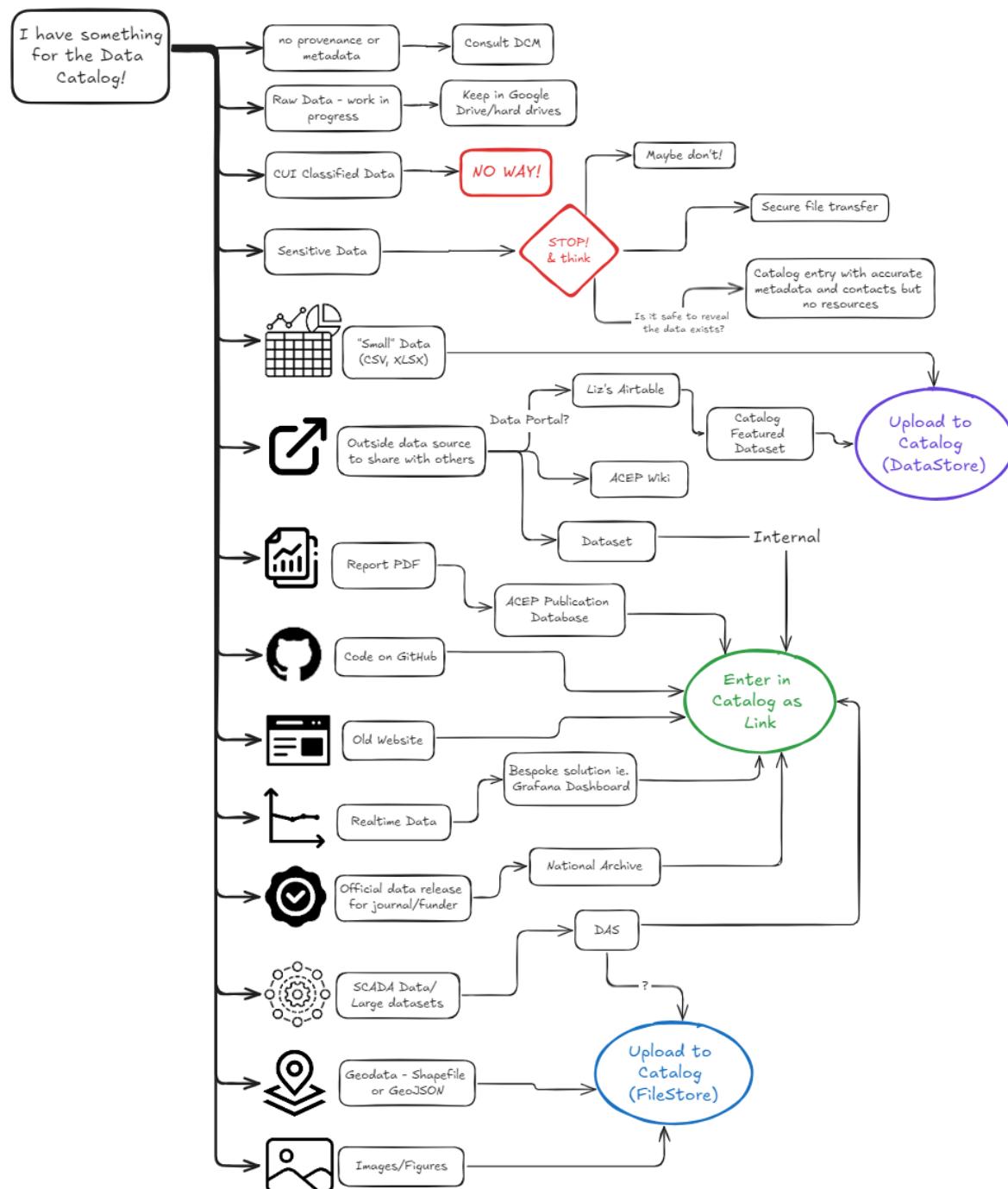
1. Enter the `acep-db-cont` docker container
  - `> docker exec -it acep-db-cont /bin/bash`
2. Access the postgres database
  - `> psql -U postgres`
3. List all the databases and connect to the `ckandb` database.
  - `> \l`
  - `> \c ckandb`
4. List all the tables and list the columns of the user table.
  - `> \d`
  - `> \d user`
5. List all the users in the user table.
  - `> SELECT * FROM public.user`
6. Find the deleted user with the username [username].
  - `> SELECT id, name, email, state FROM public.user WHERE name = '[username]'`
7. Update the user's state field.
  - `> UPDATE public.user SET state = 'active' WHERE name = '[username]'`
8. Find the user again and ensure that the state field is set to active.
  - `> SELECT id, name, email, state FROM public.user WHERE name = '[username]'`

# **For Developers**

Documentation of the development of the ACEP Data Catalog.

For more information and guides, visit the official [CKAN Documentation](#)

## Data Sources Overview



## Developing the Data Catalog

The ACEP Data Catalog is run on a VM hosted by RCS. Extensions can be updated by pushing to the aceportal-ckan GitHub repository. After pushing, changes take ~30 min to update on the main site.

### Basic Docker Commands

List all running containers:

- `docker ps -a`

There are 5 containers that run the data catalog

- `acep-ckan-cont`
- `acep-db-cont`
- `acep-redis-cont`
- `acep-solr-cont`
- `acep-datapusher-cont`

### Spin up Application

- `docker compose up`

This will turn the terminal into an output stream for the docker containers.

TIP: I recommend keeping two terminal open: one for the output stream so you can see errors, and another to run other commands in

### Rebuild and spin up containers:

- `docker compose up -d --build`

Run this command after installing a new extension and adding it to the `.env` file.

### Go into container:

- `docker exec -it [container_name] /bin/bash`

Or if bash is not installed in the container:

- `docker exec -it [container_name] /bin/sh`

Or if in a bash terminal:

- `docker exec -it [container_name] bash`

### **Restart a container:**

- `docker restart [container_name]`

Restart the `acep-ckan-cont` container after making changes to non-HTML files. Changes in html files can be seen by refreshing the webpage.

### **Take Down Application**

- `docker compose down`

### **Clean up Project**

- `docker compose down --rmi all -v --remove-orphans`

This removes all containers, images, and volumes associated with a project. **Only do this if you want to clean up your environment and reset the containers.**

## **Creating a Local Instance**

Creating a local version of the data catalog is a useful tool for developing and testing new features.

1. Install Docker: <https://www.docker.com/get-started/>
2. Clone the ACEP CKAN repository from Github: <https://github.com/UAF-RCS/acepportal-ckan.git>
3. Create the `.env` file inside the main `acepportal-ckan` folder. Copy the contents from the `.env.example` file.
4. Specify the location of the source files, storage files, backups, etc. in the `.env` file. You will move those files to these locations in the next steps. For example:

```
# CKAN Mounts Directory
CKAN_EXTENSIONS_MOUNT=./ckan-extension
SRC_EXTENSIONS_PATH=/srv/app/src_extensions
CKAN_SOURCE_MOUNT=./ckan-src/src
CKAN_STORAGE_MOUNT=./ckan-src/storage
CKAN_INI_MOUNT=./ckan-src/ckan.ini
```

5. To create a replica of the current main Data Catalog, copy over the source files, storage files, `ckan.ini` file, and database backups from the VM. These files are located on the VM inside `/opt/ckan/backups`. Use `scp` to copy the files onto your machine. These backups are created everyday: replace `[date]` with the most recent date in the format `yyyymmdd`.

Inside of `acepportal-ckan/ckan-src` run the following

- `scp user@portal.lab.acep.uaf.edu:/opt/ckan/backups/app_[date].tar.bz2`
- `scp user@portal.lab.acep.uaf.edu:/opt/ckan/backups/app_storage_[date].tar.bz2`
- `scp user@portal.lab.acep.uaf.edu:/opt/ckan/acepportal-ckan/ckan-src/ckan.ini`

6. Use tar to decompress the source and storage tar files

- `tar -jxvf app_[date].tar.bz2`
- `tar -jxvf app_storage_[date].tar.bz2`

Decompressing the `app_storage` tar file should create a folder called `ckan` containing the folders `resources`, `storage`, and `webassets`. Rename the `ckan` folder to `storage`. This should result in the directory structure specified in `ckan-src/README.txt`

7. Create a backups folder alongside the `acepportal-ckan` repository on your machine. Specify the name in the `BACKUP_TO` setting in the `.env` file.

```
# Backups
BACKUP_TO=.../.../[backups folder name]
```

8. Run the following commands inside the backups folder to copy over the database and datastore.

- `scp user@portal.lab.acep.uaf.edu:/opt/ckan/backups/ckandb_[date].tar`
- `scp user@portal.lab.acep.uaf.edu:/opt/ckan/backups/datastore_[date].tar`
- `scp user@portal.lab.acep.uaf.edu:/opt/ckan/backups/resource_[date].tar`

9. Inside of the `ckan.ini` file, set the `ckan.site_url` setting to the localhost url as so:

```
ckan.site_url = http://127.0.0.1:5000
```

10. Build the containers using,

- `docker compose up`

11. Once the containers are up, use the `import_database.sh` bash script to import the database.

- `bash import_database.sh`

12. Rebuild the CKAN search index.

- `docker exec -it acep-ckan-cont /bin/bash`
- `cd /srv/app`
- `ckan search-index rebuild`

## Create a New Extension

1. Enter the acep-ckan-cont Docker container
  - `docker exec -it acep-ckan-cont /bin/bash` and run the following command
  - `ckan generate extension -o /srv/app/src/ckan-extension` This will create an extension in the `ckan-extension` folder which can be edited outside of the container.
2. Add the extension name to the `CKAN_PLUGINS` list in the `.env` file.
3. Run `docker compose up -d --build ckan`

## Install an Extension

1. Ensure that the extension supports CKAN 2.10.4 and Python 3.10. Clone the extension repository into the `ckan-extension` folder.
2. Ensure that all dependencies for the extension are listed in `requirements.txt` or a similar file.
3. Add the extension name to the `CKAN_PLUGINS` list in the `.env` file.
4. Run `docker compose up -d --build ckan`

## Updating the Main Site

To add a feature from your local instance to the main Data Catalog,

1. Push the files to the acepportal-ckan GitHub repository.
2. Wait about 30 min. for the changes to be pulled to VM.
3. If you have added a new extension, SSH into the VM and add the extension name to the `.env` file.
  - `ssh user@portal.lab.acep.uaf.edu`
  - `cd /opt/ckan/acepportal-ckan`
  - `vi .env`
4. After installing new extensions or making other changes, you may need to restart the `acep-ckan-cont` container to make them take effect. Inside the VM, run
  - `docker restart acep-ckan-cont`

## **Extensions**

### **Currently Installed**

#### **ckanext-customtheme**

**Author:** Jenae Matson

**Purpose:** Add custom theming and features for the CKAN instance, including

- ACEP logos, colors, and fonts
- Home page layout, images, and featured dataset
- Changed font weight of Register button
- Added tags to search page display
- HTML file for About page text
- Removed social media links from dataset/resources pages
- Added support contact info to dataset sidebar
- Added default blank option to add-to-group dropdown menu

#### **ckanext-faqpage**

**Author:** Jenae Matson

**Purpose:** Create an FAQ page linked in the masthead with collapsible boxes for questions and answers.

#### **ckanext-restrictpublish**

**Author:** Jenae Matson

**Purpose:** Restrict the ability to change the visibility of a dataset to admins only. Datasets posted by editors default to private.

#### **ckanext-geoview**

**Link:** <https://github.com/ckan/ckanext-geoview>

**Purpose:** Created resource views for geojson and other geo-data file types. We have implemented the OpenLayers Viewer.

## ckanext-package-group-permissions

**Link:** <https://github.com/salsadigitalauorg/ckanext-package-group-permissions>

**Purpose:** Allows all editors and admins to add datasets to any group, without having to be added as members to each group.

**Modifications:** This extension was created and works with CKAN 2.9. This instance is version 2.10, so the extension requires some small modifications to work. The following changes were made to the original extension:

- In the file `plugin.py`, change the `member_create` function to the following

```
def member_create(self, next_auth, context, data_dict):  
    """  
    This code is largely borrowed from /src/ckan/ckan/logic/auth/create.py  
    With a modification to allow users to add datasets to any group  
    :param context:  
    :param data_dict:  
    :return:  
    """  
  
    group = logic_auth.get_group_object(context, data_dict)  
  
    authorized = False  
    if not group.is_organization and data_dict.get('object_type') == 'package':  
        authorized = helpers.user_has_admin_access(include_editor_access=True)  
  
    if not authorized:  
        # Fallback to the default CKAN behaviour  
        return next_auth(context, data_dict)  
    else:  
        return {'success': True}
```

- In the the file `templates/package/group_list.html`, add the line `{ h.csrf_input() }` to the beginning of the two post forms, as follows

```
{% if groups %}  
<form class="add-to-group" method="post">  
    {{ h.csrf_input() }}  
    ...  
</form>  
{% endif %}
```

```
{% if c.pkg_dict.groups %}  
<form method="post">  
    {{ h.csrf_input() }}  
    ...  
{% endif %}
```

## ckanext-scheming

**Link:** <https://github.com/ckan/ckanext-scheming>

**Purpose:** Allows for the creation of alternate metadata templates (schemas) defined by .yaml or .json files.

### Adding Alternate Schemas with ckanext-scheming

1. Create a .yaml or .json file in the folder `ckanext-scheming/ckanext/scheming` to define the metadata schema. See extension documentation for more information and examples.
2. In `ckan.ini`, add your schema to the `scheming.dataset_schemas` config option. For example:

```
scheming.dataset_schemas = ckanext.scheming:arctic_dataset.json  
                           ckanext.scheming:geo_dataset.json
```

3. The new dataset creation form is located at a url defined by the schema type name. For example, the creation form for datasets of type `arctic-dataset` is located at `/arctic-dataset/new`. You can define a new Add Dataset button using this new url.

## Attempted Extensions

### ckanext-spatial

**Link:** <https://github.com/ckan/ckanext-spatial>

**Purpose:** This extension adds the ability to search for datasets on a map widget, as well as a dataset extent map widget on the dataset page, provided correct geospatial metadata.

**Problems:** This extension is not currently installed due to the following,

- Configuring map tiles for ckanext-spatial caused the map tiles for ckanext-geoview to disappear.

- Datasets with the required spatial metadata were not searchable on the map search widget, although the dataset extent widet worked correctly.

### **ckanext-oidc-pkce**

**Link:** <https://github.com/DataShades/ckanext-oidc-pkce/tree/master>

**Purpose:** This extension allows for users to be authenticated through an external application when they login.

**Problems:** Ideally users on the ACEP Data Catalog would be able to login using their UA login credentials through Google Authentication. This extension installs correctly, but does not seem to support Google Authentication.