

1. INTRODUCTION to Object Storage

Welcome to AURO Enterprise Cloud! This document will help you get started using our Object Storage service. Object Storage is a storage system where objects are stored in a flat hierarchy of containers and retrieved using unique identifiers. This scales better than normal file systems, due to the way the metadata is maintained, and one can add seemingly infinitely many objects (files) to a container. It is ideal for pictures, files, virtual machine images, email storage and backups with a minimum of triple replication across different physical hardware nodes.

With Object Storage, you have the ability to access your files over the Internet, just by pointing your browser to a unique URL, valid for a certain amount of time. You can also mimic a normal file system using third party products like S3QL, or use programs like Cyberduck to graphically drag and drop files into/out of your containers. Another excellent usage of object storage is for backups, e.g. regular backups, using tools like Duplicity for Linux. The data stored in Object Storage is encrypted at rest, but to achieve maximum security, we recommend utilizing AURO's or a designated add-on service to fully encrypt your data.

In this document, we will explain the basic usage of our Object Storage, including steps on how to create containers and upload and download files using the AURO Dashboard. In addition, you will see instructions on how to use Object Storage together with Cyberduck and Duplicity. The document will cover the following topics:

- Logging in to AURO Dashboard (Section 2)
- Creating a Container (Section 3)
- Storing Files in a Container (Section 4)
- Retrieving Files from a Container (Section 5)
- Deleting a File from a Container (Section 6)
- Deleting Many Files from a Container (Section 7)
- Copying Files (Section 8)
- Moving Files (Section 9)
- Deleting a Container (Section 10)
- Searching a Container (Section 11)

2. LOGGING INTO AURO'S DASHBOARD

To login to the AURO Dashboard, follow these steps:

- 1) Point your browser to the URL (<https://login.auro.io>), which was also sent to you in the initial email when you signed up with AURO. You can also access it by visiting www.auro.io and clicking on the login button.
- 2) Enter your username and password for the AURO Dashboard.
- 3) When you press the "Sign in" button, you will be logged into the AURO Dashboard. To begin using Object Storage, the main point of interest is the "Containers" tab on the left hand side.

3. CREATING A CONTAINER

To create a container, follow these steps:

- 2) Under the "Object Store" tab, click "Containers" on the side bar on the left hand side of the AURO Dashboard (Figure 1). Here, you can see a table with all containers that are available.

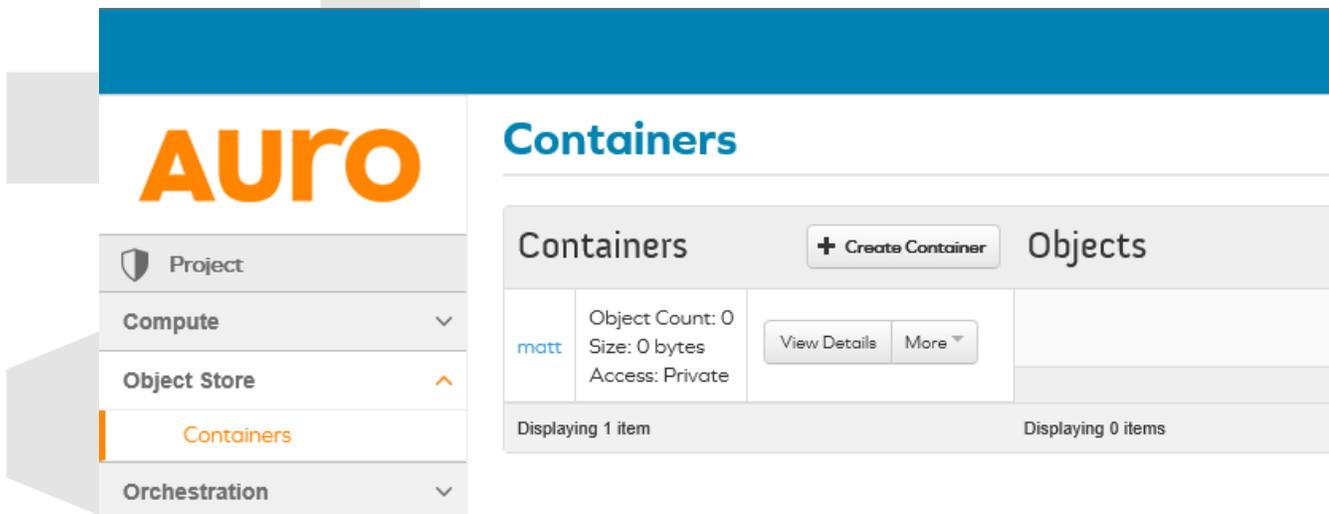


Figure 1: Containers tab with a list of all available containers.

2) Press the “Create Container” button above the table. This will take you to the “Create Container” dialog window (Figure 2).

Create Container [Close]

Container Name *

Container Access *

Private [Dropdown Arrow]

Description:
 A container is a storage compartment for your data and provides a way for you to organize your data. You can think of a container as a folder in Windows® or a directory in UNIX®. The primary difference between a container and these other file system concepts is that containers cannot be nested. You can, however, create an unlimited number of containers within your account. Data must be stored in a container so you must have at least one container defined in your account prior to uploading data.

Note: A Public Container will allow anyone with the Public URL to gain access to your objects in the container.

[Cancel] [CREATE CONTAINER]

Figure 2: Create Container dialog window.

- 3) Enter a name for your container.
- 4) Press the “Create Container” button.
- 5) The new container will be visible in the table on the “Containers” page in the AURO Dashboard (Figure 3).

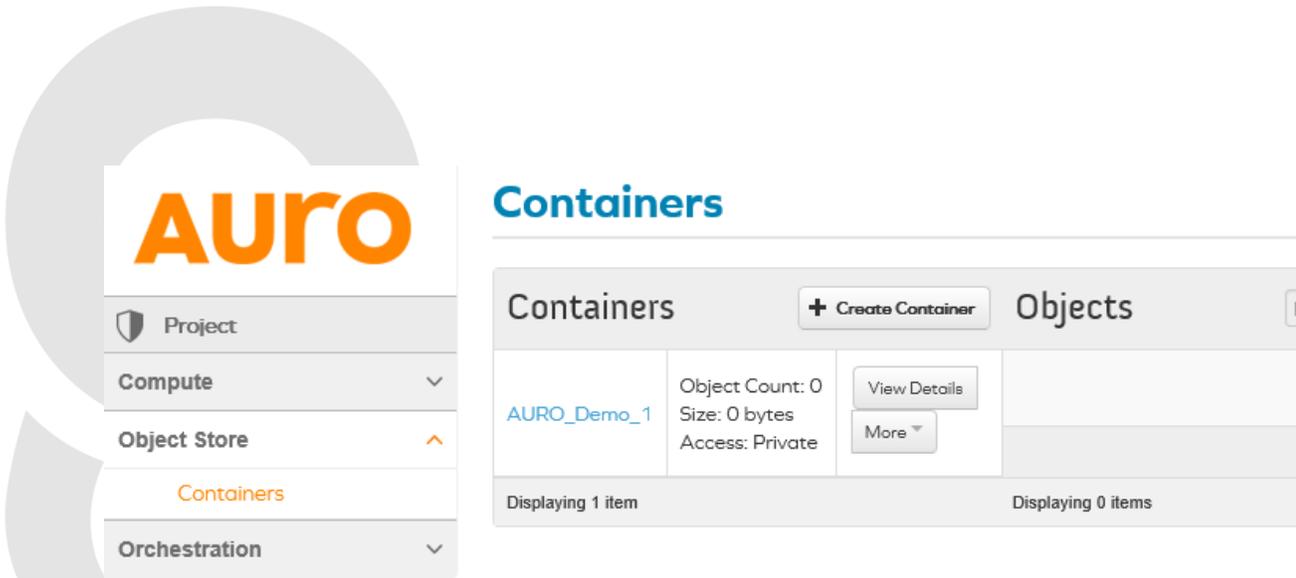


Figure 3: The table of containers on the “Containers” tab, after just having created one container.

4. STORING FILES IN A CONTAINER

There are several ways you can store a file in a container. You can drag and drop it, for example, using a program like Cyberduck, or you can write it to the container using the Swift command line interface. In this introduction, we cover how to upload a file to a container using the AURO Dashboard.

Follow the following steps:

- 1) Make sure you are on the “Containers” tab in the AURO Dashboard (Figure 3) and that the container which you want to upload a file into has been selected (by clicking on its name).
- 2) Press the “Upload Object” button above the table. (If the button is not visible, click on the name of the container.)
- 3) Enter an “Object Name” on the resulting “Upload Object to Container” page (Figure 4). This will be the name of the file that will be stored in the container.

Upload Object To Container: AURO_Demo_1



Object Name *

File

Description:

Object: An object is the basic storage entity that represents a file you store in the OpenStack Object Storage system. When you upload data to OpenStack Object Storage, the data is stored as-is (no compression or encryption) and consists of a location (container), the object's name, and any metadata consisting of key/value pairs.

Pseudo-folder: Within a container you can group your objects into pseudo-folders, which behave similarly to folders in your desktop operating system, with the exception that they are virtual collections defined by a common prefix on the object's name. A slash (/) character is used as the delimiter for pseudo-folders in the Object Store.

Cancel

UPLOAD OBJECT

Figure 4: Upload Object to Container dialog window.

- 4) Under the "File" heading, press the "Browse" button and find the location of the file you want to upload.
- 5) Click the "Upload Object" button in the "Upload Object to Container" dialog window to upload the file from your local computer.
- 6) When it has finished uploading, it will be visible in the table under the "Containers" tab in the AURO Dashboard (Figure 5).

Containers

Containers
+ Create Container

Objects

+ Create Pseudo-folder
↑ Upload Object
DELETED OBJECTS

AURO_Demo_1	Object Count: 1 Size: 191.9 KB Access: Public	View Details More ▾	<input type="checkbox"/> AURO_Demo_1	191.9 KB	Download More ▾
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Displaying 1 item
Displaying 1 item

Figure 5: Containers tab showing the newly uploaded object.

5. RETRIEVING FILES FROM A CONTAINER

To retrieve a file from a container, follow these steps:

- 1) On the “Containers” tab in the AURO Dashboard, select (i.e. click on its name) the container from which you want to retrieve a file (Figure 5).
- 2) Click on the “Download” button to the right of the desired file.
- 3) The download starts, possibly after asking where to save the file.

6. DELETING ONE FILE FROM A CONTAINER

To delete a file from a container, follow these steps:

- 1) On the “Containers” tab in the AURO Dashboard, select (i.e. click on its name) the container from which you want to delete a file (Figure 5).
- 2) Then select the “Delete Object” option from the “More” dropdown menu to the right of the file that you want to delete (Figure 6).

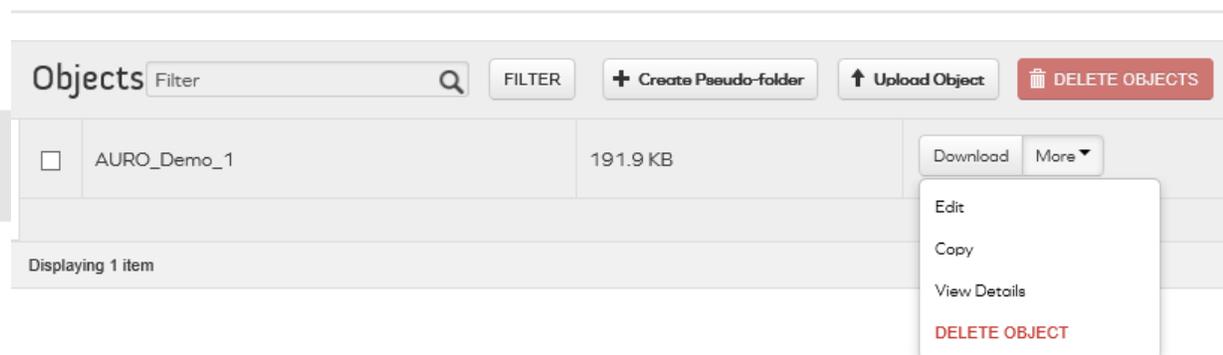


Figure 6: To delete a file, select the “Delete Object” option from the “More” dropdown menu.

- 3) You will be asked to confirm your choice (Figure 7), and if you do, the file will be deleted from the container and cannot be recovered.

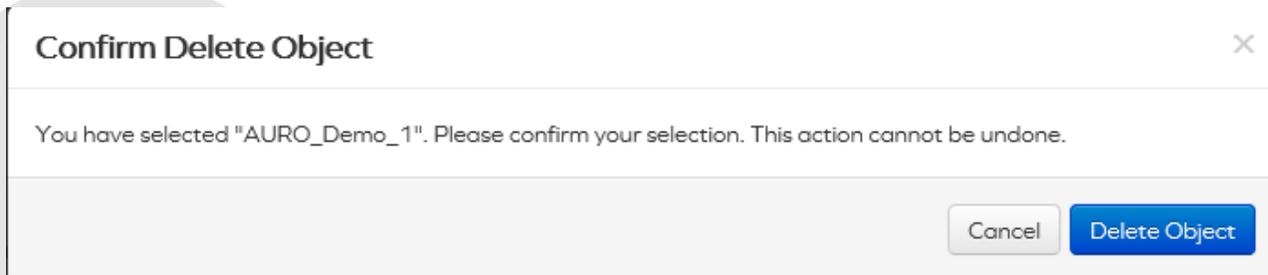


Figure 7: “Confirm Delete Object” dialog window.

7. DELETING MULTIPLE FILES FROM ONE CONTAINER

If you want to delete multiple files at the same time, follow these instructions:

- 1) On the “Containers” tab in the AURO Dashboard, select (i.e. click on its name) the container from which you want to delete files (Figure 8).

Containers

Containers		Objects	
AURO_Demo_1	Object Count: 2 Size: 383.8 KB Access: Public	<input checked="" type="checkbox"/>	AURO_Demo_1
AURO_Demo_2	Object Count: 1 Size: 2.2 MB Access: Public	<input type="checkbox"/>	AURO_Demo_1 copy

Figure 8: “Containers” tab with one selected container.

- 2) Select the files to be deleted by clicking the check boxes to the left of the file names (Figure 9).

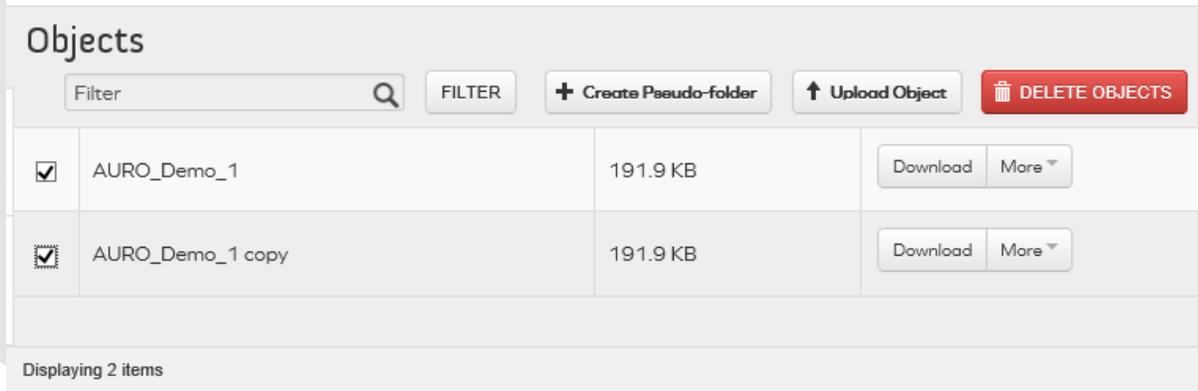


Figure 9: Both files in a container have been selected by checking their checkboxes.

- 3) Click the “Delete Objects” button on the top right corner of the “Containers” page.
- 4) If you confirm your action, the selected files will be deleted and cannot be recovered.

8. COPYING FILES

To copy a file between containers, follow these steps:

- 1) On the “Containers” tab in the AURO Dashboard, select (i.e. click on its name) the container containing the file you want to copy.
- 2) Select the “Copy” option in the “More” dropdown menu to the right of the file you want to copy (Figure 10).

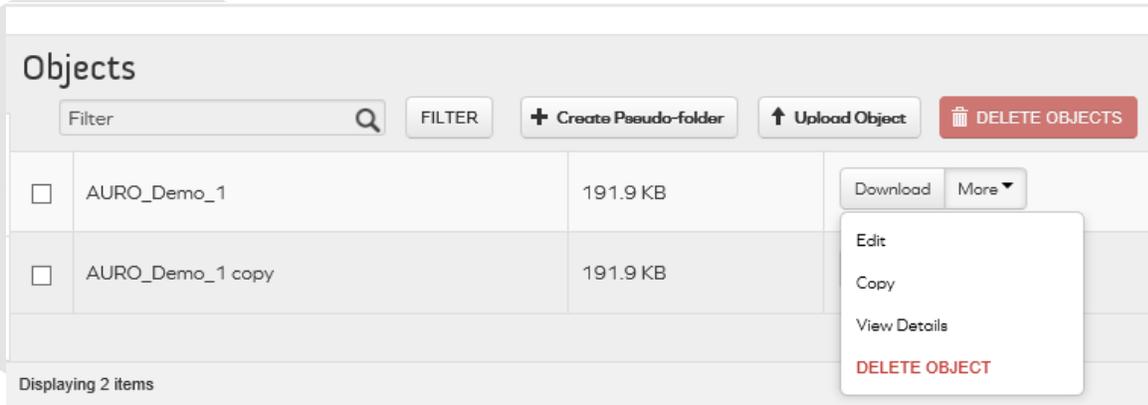


Figure 10: Select the “Copy” option to copy a file.

- 3) On the resulting “Copy Object” page, specify a “Destination Container” (Figure 11).

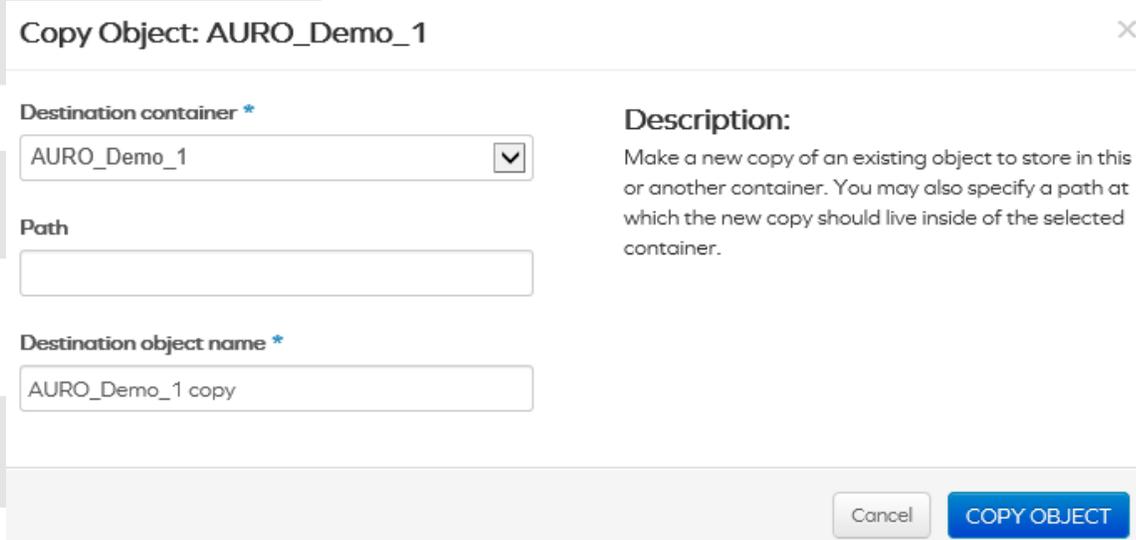


Figure 11: “Copy Object” dialog window.

- 4) Do not enter a Path in this dialog. This Path should be left blank. Specifying a Path is not supported by AURO.
- 5) Under “Destination object name”, enter the new file name for the copy of the file.
- 6) Then click the “Copy Object” button, and the copy will appear under the specified destination object name in the specified destination container.

9. MOVING FILES

To move a file, perform the following steps:

- 1) Copy the file (Section 8).
- 2) Delete the original file (Section 6).

10. DELETING A CONTAINER

To delete an entire container, perform the following steps:

- 1) You can only delete an empty container. To delete a container, the first step is therefore to delete all its contents. To do so follow the steps described in Section 6.
- 2) To delete an empty container, select the “Delete Container” option from the “More” drop-down menu next to the name of the container under the “Containers” tab (Figure 12).

Containers

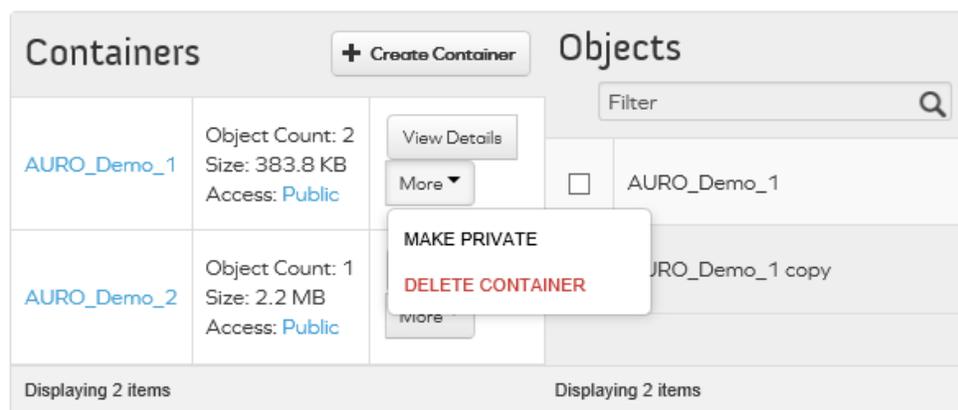


Figure 12: Deleting a Container.

- 3) When you confirm your action in the resulting dialog window, the container will be

deleted.

11. SEARCHING FOR A CONTAINER

To find a file in a container, you can type in the file name or part of its name in the search box. Only the files containing this searched keywords will then be displayed.