

Setup IBM Cloud Object Storage to store your files

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Note: if the interface for Watson Studio has changed, please post a question in the form, we are working on updating this document.

This section will teach you how to setup IBM Object Storage and store your dashboard files hosted on Python. You use IBM Cloud Object Storage, an affordable, reliable, and secure Cloud storage solution that will help you get started with IBM Cloud Object Storage.

What is Object Storage and why should you use it?

The “Storage” part of object storage is pretty straightforward, but what exactly is an object and why would you store one? An object is basically any conceivable data. It could be a text file, a song, or a picture. For this tutorial, our objects will all be HTML files.

Unlike a typical filesystem (like the one used by the device you’re reading this article on) where files are organized in hierarchies of directories/folders, object storage has a flat structure. All objects are stored in groups called buckets. This structure allows for better performance, massive scalability, and cost-effectiveness.

By the end of this article, you will know how to store your files on IBM Cloud Object Storage and easily access them using Python.

Provisioning an Object Storage Instance on IBM Cloud

[Sign up or log in with your IBM Cloud account here](#) (it’s free) to begin provisioning your Object Storage instance. You can choose to use the Lite plan, which is free and allows you to store up to 25 GB per month. You can customize the instance name if you wish, or just leave it as the default. You can also leave the resource group to the default. Resource groups are useful to organize your resources on IBM Cloud, particularly when you have many of them running. When you’re ready, click the **Create** button to finish provisioning your Object Storage instance.

Service name:

Cloud Object Storage-Ok

Select a resource group:

default

Features

- **Storage for the IBM Cloud**

IBM Cloud Object Storage provides unstructured data storage for cloud applications. Libraries and SDKs support a common set of S3 API functions for connecting new applications to scalable cloud storage and integrating your data into other services on the IBM Watson and Cloud Platform.

- **Encryption management**

All data is encrypted at-rest and in-flight by default. Keys are automatically managed by default, but can optionally be self-managed or managed using IBM Key Protect*. (*Key Protect is only available for buckets created in the US South (Dallas) and EU GB (London) regions.)

- **Data storage classes for Active, Less Active, Archive and Dynamic workloads**

Choose storage classes for frequently accessed data, occasionally accessed data and long-term data retention with Standard, Vault, and Cold Vault. Or, choose Flex class for dynamic data access needs that fluctuate month to month.

- **IAM Policies - Bucket level access management**

IBM Identity and Access Management (IAM) integr

- **Regional and Cross Region resiliency options**

Select the best resiliency option for your data. Cho

your data within a single region.

- **Lite and pay-as-you-go plans**

Pricing Plans

	PLAN	FEATURES
✓	Lite	1 COS Service Instance Storage up to 25 GB/mo. Up to 20,000 GET requests/mo. Up to 2,000 PUT requests/mo. Up to Data Retrieval 10 GB/mo. Up to 5GB Public Outbound Applies to aggregate total across all storage bucket classes
	The Lite service plan for Cloud Object Storage includes Regional and Cross Regional resiliency, flexible data classes, and built in security. Lite plan services are deleted after 30 days of inactivity.	
	Standard	There is no minimum fee, so you pay only for what you use.

Working with Buckets

Since you just created the instance, you'll now be presented with options to create a bucket. You can a Object Storage instance by selecting it from your IBM Cloud Dashboard. There's a limit of 100 buckets per Storage instance, but each bucket can hold billions of objects. In practice, how many buckets you need by your availability and resilience needs. For the purposes of this tutorial, a single bucket will do just r

Creating your First Bucket

Click the **Create Bucket** button and you'll be shown a window like the one below, where you can cus details of your Bucket. All these options may seem overwhelming at the moment, but don't worry, we a moment. They are part of what makes this service so customizable, should you have the need later o several naming conventions including Must start and end in alphanumeric characters (from 3 to 255) limited to:lowercase, numbers and non-consecutive dots, and hyphens. For now all you have to do is n that **Resiliency** is set to **Cross Region** and the **location** is set to **us-geo** .

Create a bucket

Name: ⓘ

cc-tutorial

Resiliency: ⓘ

Cross Region ▼

Location: ⓘ

us-geo ▼

Storage class: ⓘ

Standard ▼

ADVANCED CONFIGURATION

☐ Add Key Protect Keys ⓘ

Key Protect is not available in the selected location. To enable, choose another location.

Cancel

Create

If you don't care about the nuances of bucket configuration, you can type in any unique name you like and click the Create button, leaving all other options to their defaults. You can then skip to the [Putting Objects in a Bucket](#) section below. If you would like to learn about what these options mean, read on.

Configuring your bucket

Resiliency Options		
Resiliency Option	Description	Characteristics
Cross Region	Your data is stored across three geographic regions within your selected location	High availability and very low latency
Single Region	Your data is stored across three different data centers within a single geographic region	High availability and durability

Frequency of Data Access IBM Cloud Object Storage Class

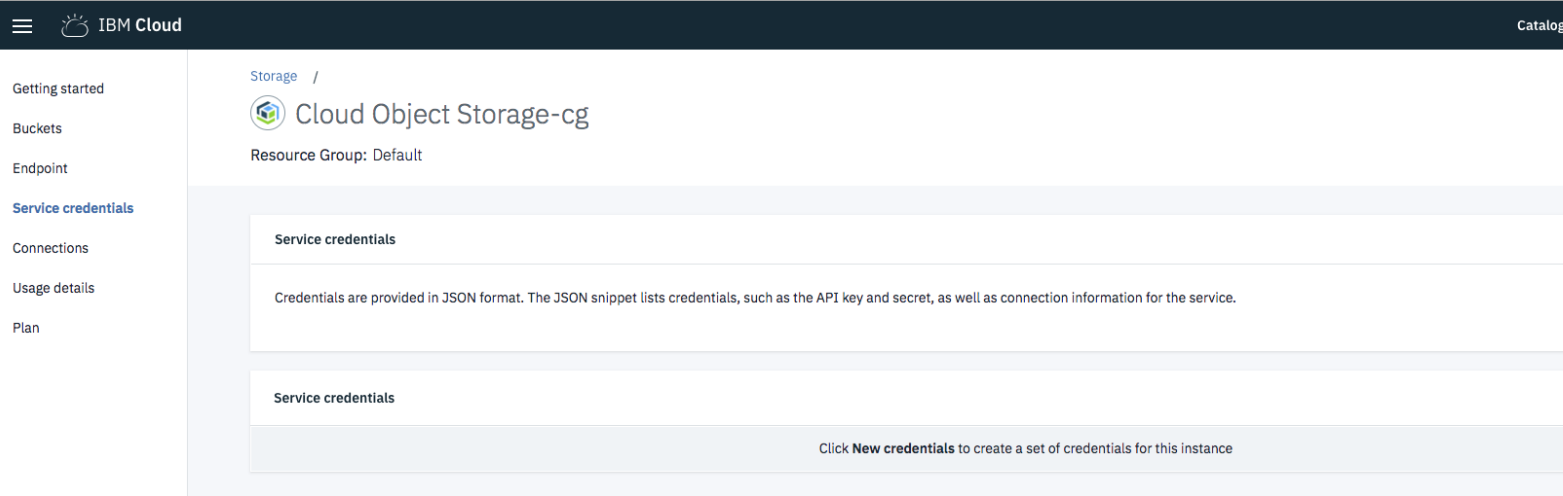
Weekly or monthly	Vault
Less than once a month	Cold Vault
Unpredictable	Flex

Feel free to experiment with different configurations, but I recommend choosing “Standard” for your s this tutorial’s purposes. Any resilience option will do.

After you’ve created your bucket, later you will have to store the name of the bucket into the Python variable `bucket_name` (replace `cc-tutorial` with the name of your bucket) in your Jupyter notebook.

Creating Service Credentials

To access your IBM Cloud Object Storage instance from anywhere other than the web interface, you v credentials. Click the **New credential** button under the **Service credentials** section to get started.



In the next window, select Manager as your role, and add `{"HMAC":true}` to the Add Inline Configuratio (Optional) field. You can leave all other fields as their defaults and click the **Add** button to continue.

Add new credential

Name:

Credentials-1

Role: 

Manager

Select Service ID (Optional) 

Select Service ID...

Add Inline Configuration Parameters (Optional): 

```
{"HMAC":true}
```

Provide service-specific configuration parameters in a valid JSON object

Choose File...

Cancel

You'll now be able to click on **View credentials** to obtain the JSON object containing the credentials y
You'll want to store everything you see in a credentials variable like the one below (obviously, repla