



# IBM Cloud 用戶實作研習營

## IBM Cloud Object Storage (COS) 使用教學(二)

2019/10/16

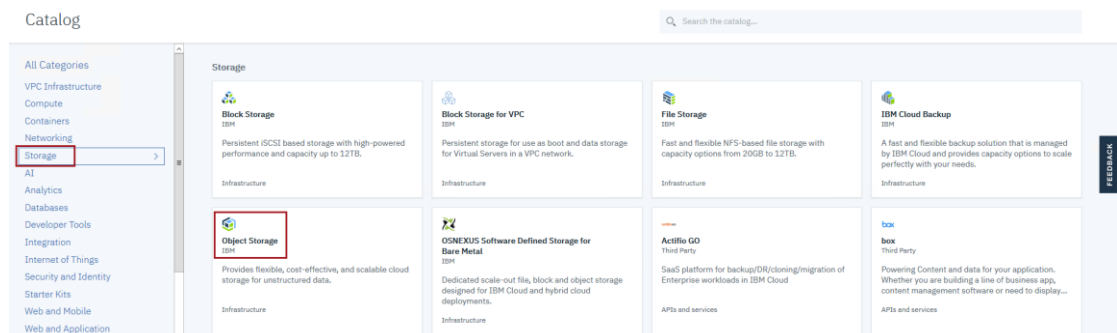
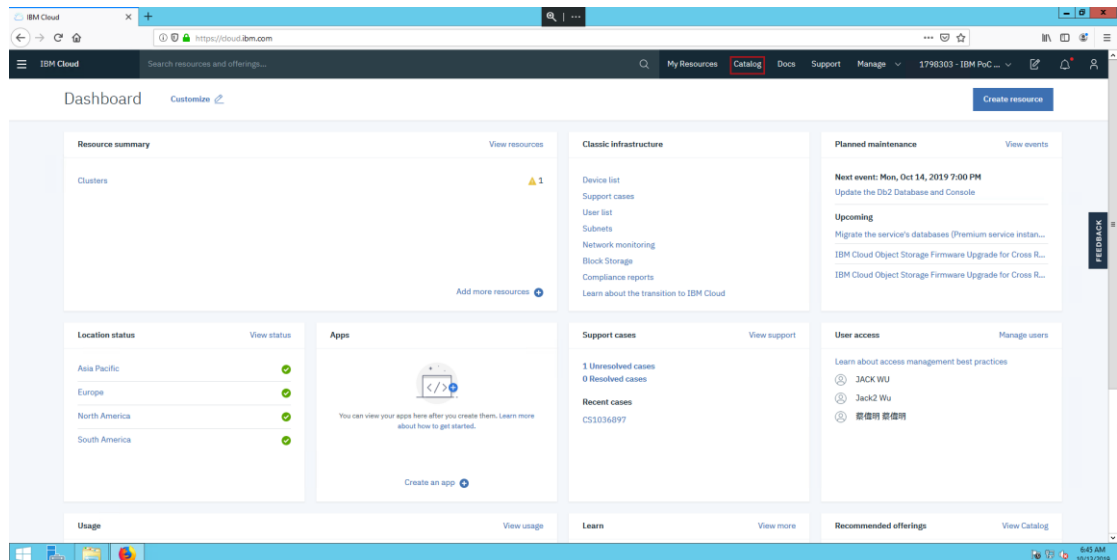


# Upload files to IBM Cloud Object Storage

## Creating your object storage service instance

Follow these steps to create an IBM Cloud Object Storage service instance.

- Deploy an IBM Cloud Object Storage service instance.
  - Open the **IBM Cloud Object Storage catalog page**.



- Enter a name for your service instance, such as **cos-backup**.
- Review the **plan options** for pricing information and select a plan.
- Click **Create**. The service details page opens.



Cloud Object Storage Life IBM Service SAP-enabled

Author: IBM • Date of last update: 09/30/2019

Need Help? [Contact Support](#) [View docs](#)

Summary

Cloud Object Storage Free

Region: Global  
Plan: Life  
Service name: Cloud Object Storage-bc  
Resource group: Default

Monthly prices shown are for country or region: United States

PLAN	FEATURES	PRICING
<input checked="" type="checkbox"/> <b>Life</b>	1 COS Service Instance Storage up to 25 GB/mo. Up to 25,000 GET requests/mo. Up to 2,000 PUT requests/mo. Up to Data Retrieval 10 GB/mo. Up to 10GB Public Outbound Applies to aggregate total across all storage bucket classes  The Life service plan for Cloud Object Storage includes Regional and Cross Regional resiliency, flexible data classes, and built in security. Life plan services are deleted after 30 days of inactivity.	Free
<input type="checkbox"/> Standard	There is no minimum fee, so you pay only for what you use.	<a href="#">Starting at \$</a>

Configure your resource

Service name:

Select a resource group:

Tags: [?](#)  
Examples: env/dev, version-1

[Create](#) [Add to estimate](#) [View terms](#)

- On the Creating buckets page, Click **Create Bucket**.
- Input bucket name, select Resiliency, Location and Storage class.

Getting started

Setting up

**Creating buckets**

Access management

Buckets

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## Create a bucket

One of the crucial steps in designing your IBM® Cloud Object Storage is organizing your data into buckets to meet your needs. Few things to consider while creating a bucket - availability, data sovereignty, how often do you need to access the data

[Create Bucket](#)

### Naming your bucket

Choose a unique name; all buckets in all regions across the globe share a single namespace.

### Avoid Personal Information

Personally Identifiable Information (PII): When creating buckets, please ensure to not use any information that can identify any user (natural person) by name, location or any other means.

### Special Characters

Avoid using these characters: /\"?:<>1  
This will not cause issues with IBM Cloud Object Storage but may cause issues with your applications.

Resource list /

COS-Backup

Resource group: Default [Add Tags](#)

## Create bucket

Unique bucket name [See naming rules](#)

Resiliency  Location

Highest availability

Storage class [See pricing for each class](#)

Additional configuration (optional)

☐ Add Archive rule [?](#)  
The feature is currently not supported in the location you have selected. [Learn more](#)

☐ Add Expiration rules [?](#)

☐ Add Retention policy [?](#)  
The feature is currently not supported in the location you have selected. [Learn more](#)  
This feature is available for our Standard plan customers only. [See pricing](#)

Key Management Services (optional)

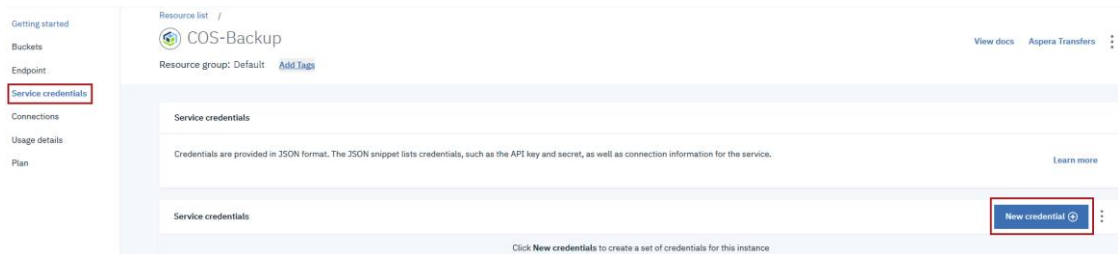
Services can only be added at bucket creation; additionally if the key is deleted later all bucket data will become inaccessible.

☐ Add Key Protect key [?](#)  
The feature is currently not supported in the location you have selected. [Learn more](#)

☐ Add Hyper Protect Crypto Services key [?](#)



- Retrieve the IBM Cloud Object Storage service credentials.
  - In the navigation on the service details page, click **Service Credentials**.
  - Click **New credential**. A dialog box displays.



- Enter a name for your credentials.
- From the **Role** drop-down, select **Writer** or **Manager**. When you select **Reader**, then you cannot use the credentials to create buckets in IBM Cloud Object Storage and write data to it.
- Optional: In **Add Inline Configuration Parameters (Optional)**, enter **{"HMAC":true}** to create additional HMAC credentials for the IBM Cloud Object Storage service. HMAC authentication adds an extra layer of security to the OAuth2 authentication by preventing the misuse of expired or randomly created OAuth2 tokens. **Important:** If you have a private-only cluster with no public access, you must use HMAC authentication so that you can access the IBM Cloud Object Storage service over the private network.
- Click **Add**. Your new credentials are listed in the **Service Credentials** table.

Add new credential

Name:

Role:

Select Service ID (Optional)

☒ Include HMAC Credential

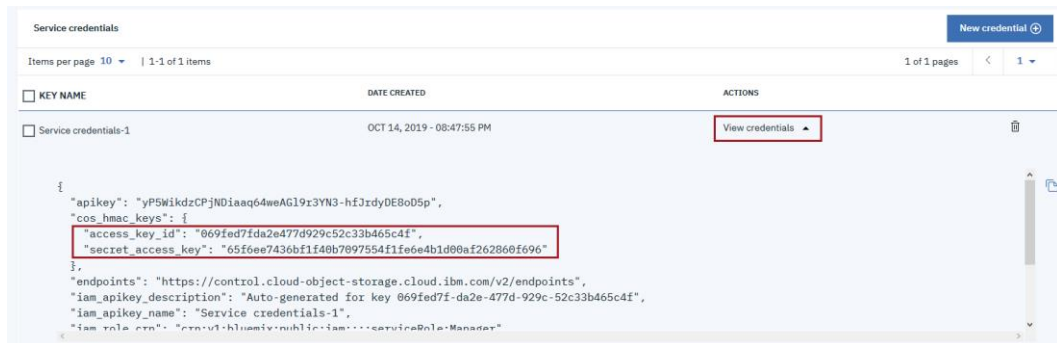
Add Inline Configuration Parameters (Optional):

- Click **View credentials**.

# IBM Cloud



- Make note of the **apikey** to use OAuth2 tokens to authenticate with the IBM Cloud Object Storage service. For HMAC authentication, in the **cos\_hmac\_keys** section, note the **access\_key\_id** and the **secret\_access\_key**.



## Using rclone

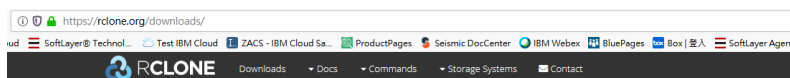
Getting the most out of IBM® Cloud Object Storage when you have access to tools and solutions like **rclone** and the command-line interface (cli).

## Install rclone

The **rclone** tool is useful for keeping directories synchronized and for migrating data between storage platforms. It's a Go program and comes as a single binary file.

## Quickstart Installation

- Download the relevant binary.( <https://rclone.org/downloads/>)



### Rclone Download v1.49.5

Arch-OS	Windows	macOS	Linux	.deb	.rpm	FreeBSD	NetBSD	OpenBSD	Plan9	Solaris
AMD64 - 64 Bit										
386 - 32 Bit										
ARM - 32 Bit										
ARM - 64 Bit										
MIPS - Big Endian										
MIPS - Little Endian										

You can also find a mirror of the downloads on [github](#).

### Script download and install

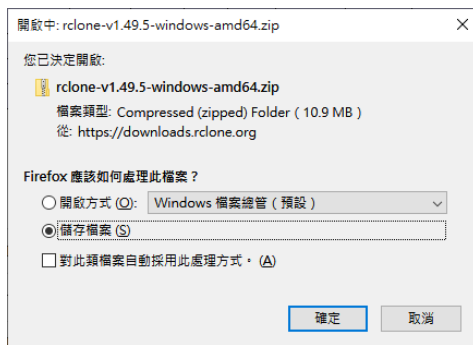
To install rclone on Linux/macOS/BSD systems, run:

```
curl https://rclone.org/install.sh | sudo bash
```

For beta installation, run:

```
curl https://rclone.org/install.sh | sudo bash -s beta
```

Note that this script checks the version of rclone installed first and won't re-download if not needed.



- Extract the rclone or rclone.exe binary from the archive.
- Run rclone config to set up.

## Configure access to IBM COS

- Run rclone config and select n for a new remote.

No remotes found - make a new one

n) New remote

s) Set configuration password

q) Quit config

n/s/q> n

```
G:\rclone>rclone config
No remotes found - make a new one
n) New remote
s) Set configuration password
q) Quit config
n/s/q> n_
```

- Enter the name for the configuration:

name> <YOUR NAME>

```
name> test_
```

- Select "s3" storage.

Choose a number from below, or type in your own value

2 / Alias for a existing remote

\ "alias"

3 / Amazon Drive



\ "amazon cloud drive"

4 / Amazon S3 Complaint Storage Providers (Dreamhost, Ceph, Minio, IBM COS)

\ "s3"

5 / Backblaze B2

\ "b2"

[snip]

23 / http Connection

\ "http"

Storage> 4

```
Type of storage to configure.
Enter a string value. Press Enter for the default <"">.
Choose a number from below, or type in your own value
1 / iFichier
  \ "fichier"
2 / Alias for an existing remote
  \ "alias"
3 / Amazon Drive
  \ "amazon_cloud_drive"
4 / Amazon S3 Complaint Storage Provider <AWS, Alibaba, Ceph, Digital Ocean, Dreamhost, IBM COS, Minio, etc>
  \ "s3"
5 / Backblaze B2
  \ "b2"
6 / Box
  \ "box"
7 / Cache a remote
  \ "cache"
8 / Dropbox
  \ "dropbox"
9 / Encrypt/Decrypt a remote
  \ "crypt"
10 / FTP Connection
  \ "ftp"
11 / Google Cloud Storage <this is not Google Drive>
  \ "google cloud storage"
12 / Google Drive
  \ "drive"
13 / Google Photos
  \ "google photos"
14 / Hubic
  \ "hubic"
15 / JottaCloud
  \ "jottaccloud"
16 / Koofr
  \ "koofr"
17 / Local Disk
  \ "local"
18 / Mega
  \ "mega"
19 / Microsoft Azure Blob Storage
  \ "azureblob"
20 / Microsoft OneDrive
  \ "onedrive"
21 / OpenDrive
  \ "opendrive"
22 / Openstack Swift <Rackspace Cloud Files, Menset Menstore, OVH>
  \ "swift"
```

Storage> 4\_

- Select IBM COS as the S3 Storage Provider.

Choose the S3 provider.

Enter a string value. Press Enter for the default <"">

Choose a number from below, or type in your own value

1 / Amazon Web Services (AWS) S3

\ "AWS"

3 / Ceph Object Storage

\ "Ceph"

4 / Digital Ocean Spaces

\ "Digital Ocean"

# IBM Cloud



5 / Dreamhost DreamObjects

\ "Dreamhost"

6 / IBM COS S3

\ "IBMCOS"

[snip]

Provider>6

```
** See help for s3 backend at: https://rclone.org/s3/ **
Choose your S3 provider.
Enter a string value. Press Enter for the default <"">.
Choose a number from below, or type in your own value
1 / Amazon Web Services <AWS> S3
  \ "AWS"
2 / Alibaba Cloud Object Storage System <OSS> formerly Aliyun
  \ "Alibaba"
3 / Ceph Object Storage
  \ "Ceph"
4 / Digital Ocean Spaces
  \ "DigitalOcean"
5 / Dreamhost DreamObjects
  \ "Dreamhost"
6 / IBM COS S3
  \ "IBMCOS"
7 / Minio Object Storage
  \ "Minio"
8 / Netease Object Storage <NOS>
  \ "Netease"
9 / Wasabi Object Storage
  \ "Wasabi"
10 / Any other S3 compatible provider
    \ "Other"
provider> 6_
```

- Enter **False** to enter your credentials.

Get AWS credentials from the runtime (environment variables or EC2/ECS meta data if no env vars).

Only applies if access\_key\_id and secret\_access\_key is blank.

Enter a boolean value (true or false). Please Enter for the default ("false").

Choose a number from below, or type in your own value

1 / Enter AWS credentials in the next step

\ "false"

2 / Get AWS credentials from the environment (env vars or IAM)

\ "true"

env\_auth>false or 1

```
Get AWS credentials from runtime (environment variables or EC2/ECS meta data if
no env vars).
Only applies if access_key_id and secret_access_key is blank.
Enter a boolean value (true or false). Press Enter for the default <"false">.
Choose a number from below, or type in your own value
1 / Enter AWS credentials in the next step
  \ "false"
2 / Get AWS credentials from the environment (env vars or IAM)
  \ "true"
env_auth> 1_
```

- Enter the Access Key and Secret.

AWS Access Key ID - leave blank for anonymous access or runtime credentials.

access\_key\_id> <>

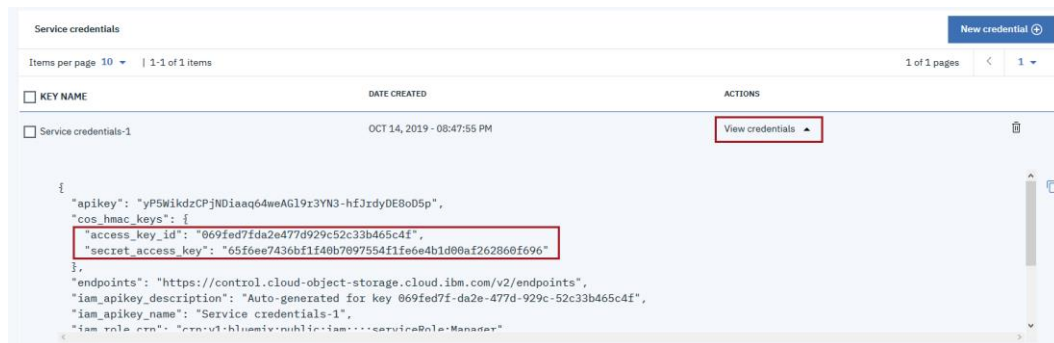




AWS Secret Access Key (password) - leave blank for anonymous access or runtime credentials.

secret\_access\_key> <>

```
AWS Access Key ID.
Leave blank for anonymous access or runtime credentials.
Enter a string value. Press Enter for the default <"">.
access_key_id> 069fed7fda2e477d929c52c33b465c4f
AWS Secret Access Key (password)
Leave blank for anonymous access or runtime credentials.
Enter a string value. Press Enter for the default <"">.
secret_access_key> 65f6ee7436bf1f40b7097554f1fe6e4b1d00af262860f696
```



```
Region to connect to.
Leave blank if you are using an S3 clone and you don't have a region.
Enter a string value. Press Enter for the default <"">.
Choose a number from below, or type in your own value
1 / Use this if unsure. Will use v4 signatures and an empty region.
  \ ""
2 / Use this only if v4 signatures don't work, eg pre Jewel/v10 CEPH.
  \ "other-v2-signature"
region> 1_
```

- Specify the endpoint for IBM COS. For Public IBM COS, choose from the provided options. For more information about endpoints, see Endpoints and storage locations.

Endpoint for IBM COS S3 API.

Choose a number from below, or type in your own value

1 / US Cross Region Endpoint

\ "s3.us.cloud-object-storage.appdomain.cloud"

2 / US Cross Region Dallas Endpoint

\ "s3-api.dal.us-geo.objectstorage.s3.us-south.cloud-object-storage.appdomain.cloud.net"

3 / US Cross Region Washington DC Endpoint

\ "s3-api.wdc-us-geo.objectstorage.s3.us-south.cloud-object-storage.appdomain.cloud.net"

4 / US Cross Region San Jose Endpoint

\ "s3-api.sjc-us-geo.objectstorage.s3.us-south.cloud-object-storage.appdomain.cloud.net"



## 5 / US Cross Region Private Endpoint

```
\ "s3-api.us-geo.objectstorage.service.networklayer.com"
```

[snip]

## 34 / Toronto Single Site Private Endpoint

```
\ "s3.tor01.objectstorage.service.networklayer.com"
```

endpoint&gt;23

```
11 / US Region South Endpoint
12 > "s3.us-south.objectstorage.softlayer.net"
13 > "s3.us-south.objectstorage.service.networklayer.com"
14 / EU Cross Region Endpoint
15 > "s3.eu-geo.objectstorage.softlayer.net"
16 > "s3.fra-eu-geo.objectstorage.softlayer.net"
17 / EU Cross Region Milan Endpoint
18 > "s3.mil-eu-geo.objectstorage.softlayer.net"
19 > "s3.ams-eu-geo.objectstorage.softlayer.net"
20 / EU Cross Region Private Endpoint
21 > "s3.eu-geo.objectstorage.service.networklayer.com"
22 > "s3.fra-eu-geo.objectstorage.service.networklayer.com"
23 > "s3.mil-eu-geo.objectstorage.service.networklayer.com"
24 / EU Cross Region Amsterdam Private Endpoint
25 > "s3.ams-eu-geo.objectstorage.service.networklayer.com"
26 / Great Britain Endpoint
27 > "s3.eu-gb.objectstorage.softlayer.net"
28 > "s3.eu-gb.objectstorage.service.networklayer.com"
29 / APAC Cross Regional Endpoint
30 > "s3.ap-geo.objectstorage.softlayer.net"
31 > "s3.tok-ap-geo.objectstorage.softlayer.net"
32 / APAC Cross Regional HongKong Endpoint
33 > "s3.hkg-ap-geo.objectstorage.softlayer.net"
34 / APAC Cross Regional Seoul Endpoint
35 > "s3.seo-ap-geo.objectstorage.softlayer.net"
36 / APAC Cross Regional Private Endpoint
37 > "s3.ap-geo.objectstorage.service.networklayer.com"
38 > "s3.tok-ap-geo.objectstorage.service.networklayer.com"
39 / APAC Cross Regional Tokyo Private Endpoint
40 > "s3.hkg-ap-geo.objectstorage.service.networklayer.com"
41 / APAC Cross Regional Seoul Private Endpoint
42 > "s3.seo-ap-geo.objectstorage.service.networklayer.com"
43 / Melbourne Single Site Endpoint
44 > "s3.mel01.objectstorage.softlayer.net"
45 / Melbourne Single Site Private Endpoint
46 > "s3.mel01.objectstorage.service.networklayer.com"
47 / Toronto Single Site Endpoint
48 > "s3.tor01.objectstorage.softlayer.net"
49 / Toronto Single Site Private Endpoint
50 > "s3.tor01.objectstorage.service.networklayer.com"
endpoint> 23
```

Getting started

**Buckets**

Endpoint

Service credentials

Connections

Usage details

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Resource list /

**COS-Backup**

Resource group: Default [Add tags](#)

View docs Aspera Transfers

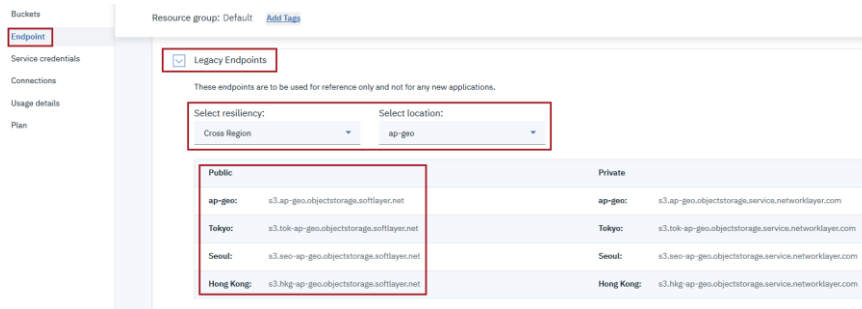
Buckets

Prefix filter

Create bucket

Name	Public Access	Location	Storage Class	Created	Advanced
coses201910		ap-geo	Standard	10/13/2019 8:25:22 PM	<a href="#">View</a> ...

Items per page: 10 | 1-10 of items



- Specify an IBM COS Location Constraint. The location constraint must match the endpoint. For more information about endpoints, see Endpoints and storage locations.

1 / US Cross Region Standard

\ "us-standard"

2 / US Cross Region Vault

\ "us-vault"

3 / US Cross Region Cold

\ "us-cold"

4 / US Cross Region Flex

\ "us-flex"

5 / US East Region Standard

\ "us-east-standard"

[snip]

32 / Toronto Flex

\ "tor01-flex"

location\_constraint>21



```

9 / US South Region Standard
  \ "us-south-standard"
10 / US South Region Vault
   \ "us-south-vault"
11 / US South Region Cold
   \ "us-south-cold"
12 / US South Region Flex
   \ "us-south-flex"
13 / EU Cross Region Standard
   \ "eu-standard"
14 / EU Cross Region Vault
   \ "eu-vault"
15 / EU Cross Region Cold
   \ "eu-cold"
16 / EU Cross Region Flex
   \ "eu-flex"
17 / Great Britain Standard
   \ "eu-gb-standard"
18 / Great Britain Vault
   \ "eu-gb-vault"
19 / Great Britain Cold
   \ "eu-gb-cold"
20 / Great Britain Flex
   \ "eu-gb-flex"
21 / APAC Standard
   \ "ap-standard"
22 / APAC Vault
   \ "ap-vault"
23 / APAC Cold
   \ "ap-cold"
24 / APAC Flex
   \ "ap-flex"
25 / Melbourne Standard
   \ "mel01-standard"
26 / Melbourne Vault
   \ "mel01-vault"
27 / Melbourne Cold
   \ "mel01-cold"
28 / Melbourne Flex
   \ "mel01-flex"
29 / Toronto Standard
   \ "tor01-standard"
30 / Toronto Vault
   \ "tor01-vault"
31 / Toronto Cold
   \ "tor01-cold"
32 / Toronto Flex
   \ "tor01-flex"
location_constraint> 21_

```

Getting started  
[Backups](#)  
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 COS-Backup  
Resource group: Default [Add tags](#)

View docs Aspera Transfers

Buckets

Prefix filter

Create bucket

Name	Public Access	Location	Storage Class	Created	Advanced
costest201910		ap-gco	Standard	10/13/2019 8:25:22 PM	View

Items per page: 10 | 1-10 of items

- Specify an ACL. Only public-read and private are supported.

Canned ACL used when creating buckets and/or storing objects in S3.

Choose a number from below, or type in your own value

1 "private"

2 "public-read"

3

4

acl>1



```
Canned ACL used when creating buckets and storing or copying objects.

This ACL is used for creating objects and if bucket_acl isn't set, for creating
buckets too.

For more info visit https://docs.aws.amazon.com/AmazonS3/latest/dev/acl-overview.html#canned-acl

Note that this ACL is applied when server side copying objects as S3
doesn't copy the ACL from the source but rather writes a fresh one.
Enter a string value. Press Enter for the default (""").
Choose a number from below, or type in your own value
1 / Owner gets FULL_CONTROL. No one else has access rights (default). This acl
is available on IBM Cloud (Infra), IBM Cloud (Storage), On-Premise COS
  \ "private"
2 / Owner gets FULL_CONTROL. The AllUsers group gets READ access. This acl is a
available on IBM Cloud (Infra), IBM Cloud (Storage), On-Premise IBM COS
  \ "public-read"
3 / Owner gets FULL_CONTROL. The AllUsers group gets READ and WRITE access. Thi
s acl is available on IBM Cloud (Infra), On-Premise IBM COS
  \ "public-read-write"
4 / Owner gets FULL_CONTROL. The AuthenticatedUsers group gets READ access. Not
supported on Buckets. This acl is available on IBM Cloud (Infra) and On-Premise
IBM COS
  \ "authenticated-read"
acl> 1
```

- Do not edit advanced config

```
Edit advanced config? (y/n)
y> Yes
n> No
y/n> n
```

- Review the displayed configuration and accept to save the “remote” then quit. The config file should look like this

[YOUR NAME]

type = s3

Provider = IBMCOS

access\_key\_id = xxx

secret\_access\_key = yyy

endpoint = s3.ap-geo.objectstorage.softlayer.net

location\_constraint = ap-standard

acl = private

```
Remote config
-----
[test]
type = s3
provider = IBMCOS
env_auth = false
access_key_id = 069fed7fda2e477d929c52c33b465c4f
secret_access_key = 65f6ee7436bf1f40b7097554f1fe6e4b1d00af262860f696
endpoint = s3.ap-geo.objectstorage.softlayer.net
location_constraint = ap-standard
acl = private
-----
y> Yes this is OK
e> Edit this remote
d> Delete this remote
y/e/d> y
```

## Command reference

### Create a bucket

```
rclone mkdir RemoteName:newbucket
```

# IBM Cloud



## List available buckets

```
rclone ls RemoteName:
```

## List contents of a bucket

```
rclone ls RemoteName:newbucket
```

## Copy a file from local to remote

```
rclone copy /Users/file.txt RemoteName:newbucket
```

## Copy a file from remote to local

```
rclone copy RemoteName:newbucket/file.txt /Users/Documents/
```

## Delete a file on remote

```
rclone delete RemoteName:newbucket/file.txt
```

## List Commands

There are several related list commands

- ls to list size and path of objects only
- lsl to list modification time, size, and path of objects only
- lsd to list directories only
- lsf to list objects and directories in easy to parse format
- lsjson to list objects and directories in JSON format

## rclone sync

The sync operation makes the source and destination identical, and modifies the destination only. Syncing doesn't transfer unchanged files, testing by size and modification time or MD5SUM. Destination is updated to match source, including deleting files if necessary. Since this operation can cause data loss, test first with the --dry-run flag to see exactly what would be copied and deleted.

If dest:path doesn't exist, it is created and the source:path contents go there.

```
rclone sync source:path dest:path [flags]
```

## Scheduling a Job

Before scheduling a job, make sure that you have done your initial upload and it has completed.



## Windows

- Create a text file that is called backup.bat somewhere on your computer and paste in the command you used in the section about syncing a directory. Specify the full path to the rclone.exe and don't forget to save the file.

`C:\full\path\to\rclone.exe sync "C:\path\to\my\backup\directory"`

`RemoteName:newbucket`

```
C:\rclone>dir
Volume in drive C has no label.
Volume Serial Number is CCPE-BA23

Directory of C:\rclone

10/10/2019  11:20 AM  <DIR>          .
10/10/2019  11:20 AM  <DIR>          ..
08/28/2019  04:58 PM                19 git-log.txt
08/28/2019  04:57 PM            833,671 rclone.1
08/28/2019  04:58 PM        33,853,952 rclone.exe
08/28/2019  04:57 PM        880,575 README.html
08/28/2019  04:57 PM        716,679 README.txt
               5 File(s)        36,284,896 bytes
               2 Dir(s)      91,413,553,152 bytes free

C:\rclone>rclone.exe sync . test:costest201910
C:\rclone>
```

Object Name	Size	Last Modified
README.html	859.9 KB	10/14/2019 9:30:00 PM
README.txt	699.9 KB	10/14/2019 9:30:00 PM
git-log.txt	19 bytes	10/14/2019 9:29:59 PM
rclone.1	814.1 KB	10/14/2019 9:30:00 PM
rclone.exe	32.3 MB	10/14/2019 9:30:04 PM

- Use schtasks to schedule a job. This utility takes a number of parameters.
  - /RU – the user to run the job as. This is needed if the user you want to use is logged out.
  - /RP – the password for the user.
  - /SC – set to DAILY
  - /TN – the name of the job. Call it backup
  - /TR – the path to the backup.bat file you created.
  - /ST – the time to start the task. This is in the 24-hour time format. 01:05:00 is 1:05 AM. 13:05:00 would be 1:05 PM.

`schtasks /Create /RU username /RP "password" /SC DAILY /TN Backup /TR`

`C:\path\to\backup.bat /ST 01:05:00`