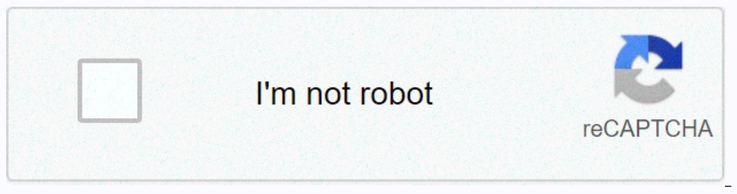

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File from s3 bucket python

Photo Jeff Kingma on the UnsplashAmazon Simple Storage Service, or S3, provides space to store, protect, and share data with optimized access control. When working with Python, you can easily interact with S3 with the Boto3 package. In this post, I will put together a sheet of Python command tricks that I use a lot when working with S3. I hope you find it useful. Let's start with a few words about the data structures of you S3. On your computer, files are stored in folders. On S3, folders are called buckets. Within buckets, you can store objects, such as .csv files. You can refer to buckets by their name, and to objects, based on their key. To make code blocks more treatable, we will use emojis. Here's the key to the symbols:Both 🗑 and 🔑 can indicate a name that already exists in S3 or a name that you want to give to a newly created bucket or object. 📄 indicates a file that you have or want to have somewhere locally on your computer. Configuring a clientTo access any AWS service with Boto3, we need to connect to it with a client. Here we create an S3 client. We specify the area where our data lives. We also need to pass the access key and password, which we can generate in the AWS console, as described here. Buckets: By listing, creating, and deletingTo list existing buckets on S3, delete one, or create a new bucket bucket, we simply use the list_buckets(), create_bucket(), and delete_bucket() functions, respectively. Objects: List, download, load, and deleteIn a bucket, objects reside. We can list them list_objects(). The MaxKeys argument sets the maximum number of objects listed; it's like calling head() on the results before printing them. We can also list only objects whose keys (names) begin with a specific prefix using the Prefix argument. We can upload_file() to upload a file called 📄 to S3 under the name 🔑. Similarly, download_file() will save a file named 🔑 on S3 locally under the name 📄. To get some metadata about an object, such as the time of creation or change, permission rights, or dimensions, we can call head_object(). Deleting an object works in the same way as deleting a bucket: we just need to pass the bucket name and object key to delete_object(). Loading multiple files into a single data frameOftentimes, data is distributed across multiple files. For example, you can have sales data for different stores or regions in different CSV files with corresponding column names. For analysis or modeling, we may want to have all this data in a single panda data frame. The following code block will do just that: download all the data files in 🗑 whose name starts with some_prefix and put it in a single data frame. Make objects Or private access control lists (ACLs)One way to manage access rights on S3 is with ACCESS CONTROL lists or ACLs. By default, all files are private, which is best practice (and safer!). You can specify a public read file, in which case everyone can access it, or private, making yourself the only one person, among others. Search for the comprehensive list of sign-in options here. You can set the ACL of a file both when it is already on S3 using put_object_acl() and at the time of upload by passing extraArgs appropriate to upload_file(). Access to private files with a presigned URLYou can also grant anyone short-term access to a private file by generating a presigned temporary URL by using the generate_presigned_url() function. This will produce a string that can be inserted directly into the read_csv (for example, to download the data. You can specify how long this temporary access link will be valid through the ExpiresIn argument. Here we create a link valid for 1 hour (3600 seconds). Thank you for reading! I hope you have learned something useful that will increase your projects 🚀Ye you liked this post, try one of my other articles. Can't you choose? Choose one of these: in this post we show examples of how to download files and images from an Aws S3 bucket using the Python library and Boto 3. Boto is an AWS SDK for Python. It provides easy-to-use features that can interact with AWS services such as EC2 and S3 buckets. Dowload S3 Objects With Python and Boto 3 In the following example, we download a file from a specified S3 bucket. First we need to create an S3 client using boto3.client(s3).import boto3 BUCKET_NAME = 'my_s3_bucket' BUCKET_FILE_NAME = 'my_file.json' LOCAL_FILE_NAME = 'downloaded.json' def download_s3_file(): s3 = boto3.client('s3') s3.download_file(BUCKET_NAME, BUCKET_FILE_NAME, LOCAL_FILE_NAME) The download_file takes three parameters: the first parameter is the bucket name in S3. The second is the file (name and extension) that we want to download and the third parameter is the name of the file that we want to save as. Download all S3 objects to a specified bucket The following example downloads all objects to a specified S3 bucket. The code snippet assumes that the files are located directly at the root of the bucket and not in a subcarra.import boto3 def download_all_files(): #initiate s3 resource s3 = boto3.resource('s3') # select bucket my_bucket = s3. Bucket('bucket_name') # download file in the current directory for s3_object at my_bucket.objects.all(): filename = s3_object.key my_bucket.file_download(s3_object.key, filename) The following code shows how to download files contained in a subfolder to an S3 bucket. Suppose the files

are in the following bucket and path: BUCKET_NAME = 'images' PATH = pets/cats/import boto3 import os def download_all_objects_in_folder(): s3_resource = boto3.resource('s3') my_bucket = s3_resource. Bucket('images') objects = my_bucket.objects.filter(Prefix='pets/cats/') for obj in objects: path, filename = os.path.split(obj.key) my_bucket.download_file(obj.key, filename) References Boto Documentation 3 Methods provided by AWS SDK for Python for files are similar to those provided to upload files. The download_file accepts the names of the bucket and object to download and the file name in which to save the file. file. boto3 s3 = boto3.client('s3') s3.download_file('BUCKET_NAME', 'OBJECT_NAME', 'FILE_NAME') The download_fileobj method takes an object similar to a writable file. The file object must be opened in binary mode, not text mode. s3 = boto3.client('s3') with open('FILE_NAME', 'wb') such as f: s3.download_fileobj('BUCKET_NAME', 'OBJECT_NAME', f) Like load cousins, download methods are provided by the S3 Client, Bucket, and Object classes, and each class provides identical functionality. Use whatever class is convenient. Also like loading methods, download methods support the optional ExtraArgs and Callback parameters. The list of extraargs settings that apply to download methods is specified in the ALLOWED_DOWNLOAD_ARGS attribute of the S3Transfer object in boto3.s3.transfer.S3Transfer.ALLOWED_DOWNLOAD_ARGS. The Callback parameter of the download method is used for the same purpose as the load method. Loading and download methods can both invoke the same callback class. import botocore3 BUCKET_NAME = 'my-bucket' # replace with your bucket name KEY = 'my_image_in_s3.jpg' # replace with your object key s3 = boto3.resource('s3') try: s3. Bucket(BUCKET_NAME).download_file(KEY, 'my_local_image.jpg') except botocore.exceptions.ClientError as and: if e.response['Error']['Code'] == 404: print(The object does not exist.) else: raise Page 2 Amazon Simple Storage Service (Amazon S3) is a Web service that provides highly scalable cloud storage. Amazon S3 offers an easy-to-use object store, with a simple web service interface to store and get any amount of data from anywhere on the web. The Python API for Amazon S3 is exposed via AWS. Client class S3. For more information about Amazon S3, see the Amazon S3 documentation. You can use the following examples to access the Amazon Simple Storage Service (Amazon S3) using the AWS Python SDK. For more information about Amazon S3, see the Amazon S3 documentation. Examples Page 3 This section provides code examples that demonstrate common Amazon Web Services scenarios using the Amazon Web Services (AWS) SDK for Python. Page 4 Boto is the Amazon Web Services (AWS) SDK for Python, which allows Python developers to write software that makes use of Amazon services such as S3 and EC2. Boto provides an easy-to-use object-oriented API and direct access to the low-level service. In this article, I will explain what Amazon S3 is and how to connect to it using python. This article will focus on beginners who are trying to get their hands on python and working around the AWS ecosystem. AWS, as you may know, is one of the largest cloud providers along with Microsoft Azure and Google Cloud Platform. There are many services offered by Amazon including AWS S3. Amazon S3, also abbreviated as amazon simple storage service, is a cloud provider that allows users to store any type of file in this service. It is designed to simplify web-scale processing By definition provided by Wikipedia - Amazon S3 or Amazon Simple Storage Service is a service offered by Amazon Web Services (AWS) that provides object storage through a web service interface. Individual Amazon S3 storage drives are known as buckets. These buckets can also be considered as the root directory where all subsequent items will be stored. All directories and files are considered objects within the S3 ecosystem. These objects are represented by a unique and user-assigned key. You can access Amazon S3 buckets using one of the following four ways. Using the Amazon Console Web Interface Through Amazon CLI (Command-Line Interface) Using the Amazon SDK for any programming language Using the REST Apis Objects or items stored using Amazon CLI or rest APIs are limited to 5 TB in size with 2 KB of metadata information. Read more about Amazon S3 from Amazon's official documentation. Prerequisites As already mentioned, in this article we will use AWS S3 and python to connect to the AWS service, the following prerequisites must already be met. A valid AWS account : To access your S3 environment, you must have a valid AWS subscription. If you don't need AWS, create a new account by signing up for AWS on Python 3.7 – You need to have the python executable installed on your computer. You can download python by visiting and select the correct version according to the visual studio code of your operating system - In this article we will use Visual Studio code as a code editor. You are free to choose any other code editor of your choice Using AWS S3 from the console Once you have registered with Amazon Web Services, sign in to the console application. Click Services and select S3 under Storage. Figure 1 - Starting S3 You'll see that the S3 home screen opens that looks something like the following. Figure 2 - Home screen of AWS S3 As you can see in the figure above, I didn't create buckets inside my S3. Let's go ahead and create some buckets first. I'm going to make two buckets with names as follows. sql-server-shack-demo-1 sql-server-shack-demo-2 Figure 3 – Creating S3 Buckets Equal Repetition for Both Buckets. After you create the buckets, you can view the list as follows. Figure 4 – S3 buckets created I'm also going to upload a sample CSV file to one of the buckets just to read the data from it later during the tutorial. Figure 5 – Sample CSV file uploaded Generate secret tokens Now that we've created our buckets in S3, the next step is to go ahead and generate credentials to programmatically access S3 buckets using Python. You can follow this tutorial to generate AWS credentials follow Amazon's official documentation. Once these credentials are generated, save this information to a secure location. An example of the access key and secret secret are as follows. ACCESS KEY: AKIAIOSFODNN7 SECRET KEY EXAMPLE: wJalrXUtnFEMI/K7MDENG/bPxRfiCYEXAMPLEKEY Writing python code So, now we have our buckets ready in S3 and we have also generated the login credentials needed to connect to the AWS environment from the python file. Let's go ahead and start writing our own code. First, we need to import the following boto3 module into our code. This is the AWS Python SDK provided by Amazon. If this is not installed on your machine, have it installed using python PIP. In addition, we will also make use of the panda python module so that we can read the data from the S3 and store it in a pandas data frame. You can run the following commands to install the modules if you have not already done so. pip install boto3 pip install panda This command will install the module on the machine. Since I have already installed it previously, it will show the following message. Figure 6 - Installing AWS SDK for Python - Boto3 We import this module into our python code now. Once the form has been imported into the code, the next step is to create an S3 client and a resource that allows us to access objects stored in our S3 environment. Both the client and the resource are available to connect to S3 objects. The client is a low-level functional interface, while the resource is a high-level object-oriented interface. If you want to use individual S3 files, you can choose to work with the client. However, if you need to work with multiple S3 buckets and need to scroll over those, using resources would be ideal. Let's go ahead and create both. In addition, you must specify credentials when creating objects. You can use the following code to create the client and resource. # Low-level functional client creation aws_access_key_id = 'AKIA46SFIWN5AMWMDQVB', aws_secret_access_key = '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'. region_name = 'ap-south-1'# Creating the interfaceresource resource oriented to high-level objects = boto3.resource(aws_access_key_id = 'AKIA46SFIWN5AMWMDQVB', aws_secret_access_key = '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'. region_name = 'ap-south-1' Once both objects are created, let's go ahead and try to see a list of all the buckets within our S3 environment. Use the following code to print a list of all buckets. # Retrieve the list of existing bucketsclientResponse = client.list_buckets()# Print bucket names one by oneprint('Printing bucket names...')for buckets in clientResponse['Buckets']: print(f'Bucket Name: {bucket[Name]}') The output of the preceding code is as follows. Figure 7 – Print bucket names from AWS S3 Now that we've listed all existing buckets within our Amazon S3 environment, let's try to create new bucket with the name sql-server-shack-demo-3. to create a bucket in the s3 you must specify the name of the bucket that must be unique in all regions of the aws of the aws However, buckets can be created in a region geographically closer to the user so that latency can be minimized. You can use the following code to create a bucket in S3. # Create a bucket in AWS S3location = {'LocationConstraint': 'ap-south-1'} Bucket='sql-server-shack-demo-3', CreateBucketConfiguration=location After running the previous code, the S3 bucket will be automatically created in the specified area. You can verify the same by running the preceding code to list all buckets in your S3 environment. Figure 8 - New S3 bucket created Finally, let's go ahead and try reading the CSV file that we had previously uploaded to the Amazon S3 bucket. For this, we will use the python pandas library to read data from the CSV file. First, we will create an S3 object that will reference the location of the CSV file and then using the read_csv() method, we will read the data from the file. You can use the following code to retrieve and read data from the CSV file in S3. Bucket = 'sql-server-shack-demo-1', Key = 'sql-shack-demo.csv'# Read data from S3 objectdata = pandas.read_csv(obj['Body'])print('Printing the data frame...') Once you run the previous code, you will see that the CSV file has been read and the data frame has been displayed on the console as follows. Figure 9 - Reading data from Amazon S3 Conclusion In this article, we learned what Amazon S3 is and how to use it. Amazon S3 is a storage service provided by AWS and can be used to store any type of file within it. We also learned how to use python to connect to the AWS S3 and read data from within buckets. Python uses the boto3 python library to connect to Amazon services and use resources from within AWS. Aws.