Section 7) Amazon S3 Introduction

Machine generated alternative text:
Section introduction 
• Amazon S3 is one of the main building blocks ofAWS 
• It's advertised as "infinitely scaling" storage 
• It's widely popular and deserve 
section 
• Many websites use Amazon S 
a ac one 
• Many AWS services uses Amazo 
as an integration as well 

Bucket and object

Machine generated alternative text:
Amazon S3 Overview - Buckets 
• Amazon S3 allows people to store objects (files) in "buckets" ( 
• Buckets must have a globally unique name 
• Buckets are defined at the region level 
• Naming convention 
. No uppercase 
• No underscore 
• 3-63 characters long 
. Not an IP 
tter or number 
we written a note here. 

Machine generated alternative text:
Amazon S3 Overview - Objects 
• Objects (files) have a Key 
• The key is the FULL path: 
• s3://my-bucket/my_file.txt 
• /anot r my_flle.txt 
• The key is composed of prefix 
ame 
• s3://my-bucket/my_folderl /anoth 
/my_flle.txt 
• There's no concept of "directories" within buckets 
(although the UI will trick you to think otherwise) 
• Just keys with very long names that contain slashes ("l") 

Machine generated alternative text:
Amazon S3 Overview — Objects (continued) 
• Object values are the content of the body: 
• Max Object Size is 5TB (5000GB) 
• If uploading more than 5GB, must use "multi-part upload" 
• Metadata (list of text key / value pairs — system or user metadata) 
• Tags (Unicode key / value pair — up to 10) — useful for security / lifecycle 
• Version ID (if versioning is enabled) 

**NOTE :** s3 is global service but bucket create for specific region

So we need to select region

**Step:**

**Create bucket**

**Upload files**

**By clicking bucket url access denied is coming**

Machine generated alternative text:
Owner 
46393ef9a2532d49b176ee700917fb8f899bf8a8ff64fdaad4aee6c8f3fb3b87 
Last modified 
Oct 5, 2020 AM GMT+0530 
Etag 
1 ef66f833a1 b5fbObaef8c56aea09da8 
Storage class 
Standard 
Server-side encryption 
None 
Size 
65.3 KB 
Key 
coffee.jpg 
Object URL 
https://thebucketofsaurabh2020.s3.ap-south-1 .amazonaws.com/coffee.jpg 

**Reason is above url is not public**

**But if we open on image right click and open then will open because this is presigned url**

**Note:**

public url of bucket is not open because bucket is private

But presigned URL will open

Machine generated alternative text:
Amazon S3 
thebucketofsaurabh2020 
Permissions 
Management 
Access point 
Last modified 
Oct 5, 2020 10:06 
GMT+0530 
coffee.jpg 
Download Copy path 
Latest version 
x 
thebucketofsaurabh2020 
Overview 
Properties 
Select from 
coffee.jpg 
65.3 KB 
NIA 
NIA 
lef66f833a1 
Oct 5, 2020 GMT+0530 
https://thebucketofsaurabh2020.s3.ap- 
south-1.amazonaws.com/coffee.jpg 
Type a prefix and press Enter to search. Press ESC to clear. 
Upload 
Name 
+ Create folder 
Download 
Actions v 
Key 
Size 
Expiration date 
Expiration rule 
ETag 
Last modified 
Object URL 
Overview 
coffee-jpg 

S3 Versioning

Machine generated alternative text:
Amazon S3 -Versioning 
• You can version your files in Amazon S3 
• It is enabled at the bucket level 
• Same key overwrite will increm 
• It is best practice to version y r 
'Version": l, 2, 3.... 
• Protect against unintended del es —rty restore a version) 
• Easy roll back to previous versio 
• Notes: 
• Any file that is not versioned prior to enabling versioning will have version "null" 
• Suspending versioning does not delete the previous versions 

Step

Click properties/versioning/enable versioning/save

Machine generated alternative text:
Versioning 
Keep multiple versions of an object in the 
same bucket. 
Learn more 
Enabled 

Now we got new pannel of version by default hide

Machine generated alternative text:
thebucketofsaurabh2020 
Permissions 
Overview 
Properties 
Management 
Versions 
Hide 
Access points 
Show 
Asia Pacific (Mumbai) 
Viewing 1 to 1 
Storage class 
Q 
Type a prefix and press Enter to search. Press ESC to clear. 
Upload 
Name 
+ Create folder 
Download 
Actions v 
Size 
Last modified 

**Click show**

**Note:** for coffee.jpg version id is null because we enabled version after uploading coffee.jpg

Machine generated alternative text:
El 
Upload 
Name 
+ Create folder 
Download 
Actions v 
Versions 
Hide 
Show 
Last modified 
Oct 5, 2020 AM 
Asia Pacific (Mumbai) 
Viewing 1 to 1 
Storage class 
Standard 
Viewing 1 to 1 
Size 
65.3 KB 
Version ID 
null 
coffee.jpg 
Oct 5, 2020 AM (Latest version) 

After enabling version we uploaded beach.jpg and it got a version

**NOTE :-**

we uploaded same beach file again and got 2 version of beach

Which have different version id

Machine generated alternative text:
Q Type a prefix and press Enter to search. Press ESC to clear. 
Versions 
Hide 
Show 
Oct 5, 2020 AM 
Oct 5, 2020 AM 
Asia Pacific (Mumbai) 
Standard 
Standard 
Standard 
Viewing 1 to 3 
Upload 
+ Create folder 
Download 
Actions v 
5.4 KB 
5.4 KB 
65.3 KB 
beach.jpg 
Oct 5, 
Oct 5, 
coffee.jpg 
Oct 5, 
2020 AM (Latest version) 
2020 AM 
2020 AM (Latest version) 
GwdTaLAk8keXaf7a9Yza15nJ... 
MRkf43xrnaZvHLw1058iFz4jR. 
null 

**Step : click hide and delete beach.jpg**

Machine generated alternative text:
Q 
Type a prefix and press Enter to search. Press ESC to clear. 
Versions 
Hide 
Show 
Asia Pacific (Mumbai) 
Storage class 
Standard 
Viewing 1 to 1 
+ Create folder 
Download 
Actions 
Upload 
Name 
Size 
65.3 KB 
Last modified 
Oct 5, 2020 AM 
GMT+0530 
coffee.jpg 

**Note: when we click on show beach.jpg is still there and delete marker is added**

Machine generated alternative text:
Q 
Type a prefix and press Enter to search. Press ESC to clear. 
Versions 
Hide 
Asia Pacific (Mumbai) 
Standard 
Standard 
Standard 
Standard 
+ Create folder 
Download 
Actions 
Upload 
Show 
Oct 5, 2020 AM 
Oct 5, 2020 AM 
5.4 KB 
5.4 KB 
65.3 KB 
65.3 KB 
beach.jpg 
Oct 5, 
Oct 5, 
Oct 5, 
coffee.jpg 
Oct 5, 
Oct 5, 
2020 AM 
2020 AM 
2020 AM 
m ark 
GwdTaLAk8keXaf7a9Yza15nJ... 
MRkf43xrnaZvHLw1058iFz4jR. 
kBBBU8es.5galmYgeOPufON... 
null 
2020 AM (Latest version) 
2020 AM 

**Note : but if we delete , delete marker then previous version of beach will be restored**

Machine generated alternative text:
Overview 
Oct 5, 2020 AM 
Oct 5, 2020 AM 
Properties 
Permissions 
Management 
Access points 
Q 
Versions 
Hide 
Show 
Type a prefix and press Enter to search. Press ESC to clear. 
Upload 
Name 
+ Create folder 
Download 
Actions v 
Size 
5.4 KB 
65.3 KB 
Asia Pacific (Mumbai) 
Viewing 1 to 2 
Storage class 
Standard 
Standard 
Last modified 
GMT+0530 
GMT+0530 
beach.jpg 
coffee.jpg 

**Note : versioning will help if we by mistake delete file**

**Versioning is very powerful feature of s3 because we can now keep same versioning of file or rollback**

**S3 Encryption for object**

Machine generated alternative text:
S3 Encryption for Objects 
• There are 4 methods of encrypting objects in S3 
• SSE-S3: encrypts S3 objects using ke handled & managed by AWS 
• SSE-KMS: leverage AWS Key M geme ervice to manage encryption keys 
• SSE-C: when you want to man ge 
• Client Side Encryption 
encryption keys 
• It's important to understand which ones are adapted to which situation 
for the exam 

**First sse-s3 ( here data key is entirely managed by s3)**

Machine generated alternative text:
SSE-S3 
• SSE-S3: encryption using keys handled & managed by Amazon S3 
• Object is encrypted server side 
• AES-256 encryption type 
• Must set header: "x-amz-serveeside-e 
Object 
HTTP/S + Header 
lave written a note here. 
" ES256" 
je 
encryption 
S3 Managed Data Key 
Amazon S3 
Bucket 

**Second :sse kms**(key management service**)**

Machine generated alternative text:
SSE-KMS 
• SSE-KMS: encryption using keys handled & managed by KMS 
• KMS Advantages: user control + audit trail 
• Object is encrypted server side 
• Must set header: "x-amz-server-sid 
Obj 
Object 
HTTP/S + Header 
encryption 
KMS Customer Master Key 
(CMK) 
Amazon S3 
00 
Bucket 

Machine generated alternative text:
SSE-C 
• SSE-C server-side encryption using data keys fully managed by the customer outside of ANS 
• Amazon S3 does not store the encryption key you provide 
• HTTPS must be used 
• Encryption key must provided in HTTP heade 
very HITP request made 
Object 
HTTPS only + 
Data Key in Header 
o 
Client side data key 
je 
o 
encryption 
Amazon S3 
Bucket 
Client-provided data key 

Machine generated alternative text:
Client Side Encryption 
• Client library such as the Amazon S3 Encryption Client 
• Clients must encrypt data thernselves before sending to S3 
• Clients must decrypt data themselves when retrieving from S3 
• Customer fully manages the keys and encryption cycle 
Client - S3 Encryption SDK 
Object 
HTTP/S 
encryption 
o 
Client side data key 
Amazon S3 
00 
Bucket 

Machine generated alternative text:
Encryption in transit (SSIJTLS) 
• Amazon S3 exposes: 
• HTTP endpoint: non encrypted 
• HTTPS endpoint: encryption in flight 
• You're free to use the endpoi 
, but HTTPS is recommended 
• Most clients would use the H PS end oint by default 
• I-ITTPS is mandatory for SSE-C 
• Encryption in flight is also called SSL / TLS 

**Encryption setting hands on**

**Steps : upload files**

**S3 encryption**

Machine generated alternative text:
Select files 
None g 
Metadata 
Set permissions 
O 
Amazon S3 master-key 
AWS KMS master-key 
Upload 
Set properties 
4 
Review 
Previous 
x 
Next 
Metadata is a set of name-value pairs. You cannot modify object metadata after it is uploaded. 
Header 
Select a key 
Tag 
Value 
Save 
Clear 
Add tags to search, organize and manage access 
Key 
Upload 
3rati( 
Value 
Value 

**Now see encryption is enabled**

Machine generated alternative text:
Upload 
Name 
+ Create folder 
Download 
13 Success 
Actions v 
0 Error 
Versions 
Hide 
Show 
Itions 
x 
Select from 
Standard 
AES-256 
1 
O Tags 
Disabled 
Last modified 
Oct 5, 2020 11:54 
GMT+0530 
coffee.jpg 
Download Copy path 
Latest version 
coffee-jpg 
0 In progress 
Properties 
Permissions 
Storage class 
Encryption 
Tags 
Object lock 
Owner 

**Aws kms**

Machine generated alternative text:
Select files 
Set permissions 
Upload 
Set properties 
4 
Review 
Previous 
x 
Next 
Amazon S3 master-key 
AWS KMS master-key 
aws/s3 
Metadata 
Metadata is a set of name-value pairs. You cannot modify object metadata after it is uploaded. 
Header 
Select a key 
Tag 
Value 
Add tags to search, organize and manage access 
Upload 

Machine generated alternative text:
Q 
perations 
Type a prefix and press Enter to search. Press ESC to clear. 
Versions 
Hide 
Show 
Download 
14 Success 
Actions 
0 Error 
Upload + Create folder 
Name 
beach-jpg 
coffee.jpg 
0 In progress 
Last modified 
Oct 5, 2020 11:58 
GMT+0530 
Oct 5, 2020 11:54 
GMT+0530 
beach.jpg 
Download Copy path 
Latest version 
Select from 
Standard 
AWS-KMS 
O Tags 
Disabled 
x 
Properties 
Permissions 
Storage class 
Encryption 
Metaöaid 
Tags 
Object lock 
Owner 

**NOTE:**

**We can also configure default encryption now when object will upload**

**Default encryption will follow**

Machine generated alternative text:
Overview 
Properties 
Permissions 
Management 
Access points 
Static website hosting 
Host a static website, which does not 
require server-side technologies. 
Learn more 
Disabled 
Versioning 
Keep multiple versions of an object in the 
same bucket. 
Learn more 
Enabled 
Object-level logging 
Server access logging 
Set up access log records that provide 
details about access requests. 
Learn more 
Disabled 
Default encryption 

Machine generated alternative text:
aws 
Services v 
Object-level logging 
Record object-level API activity using the 
Cloud Trail data events feature (additional 
cost). 
Learn more 
Disabled 
4 
Default encryption 
This property does not affect existing objects in your bucket. 
O 
None 
O AES-256 
Use Server-Side Encryption with Amazon S3-Managed Keys (SSE-S3) 
AWS-KMS 
Use Server-Side Encryption with AWS KMS-Managed Keys (SSE-KMS) 
Amazon S3 evaluates and applies bucket policies before applying 
bucket encryption settings. Even if you enable bucket encryption 
settings, your PUT requests without encryption information will be 
rejected if you have bucket policies to reject such PUT requests. Check 
saurabh @ awsdeveloperlearn v 

**We uploaded coffee.jpg again and default encryption is enabled**

Machine generated alternative text:
Type a prefix and press Enter to search. Press ESC to clear. 
+ Create folder 
Download 
Actions v 
Upload 
Versions 
Hide 
Show 
coffee.jpg 
Download Copy path 
Latest version 
Select from 
Standard 
AES-256 
1 
O Tags 
Disabled 
x 
Oct 5, 2020 11:58 
GMT+0530 
Oct 5, 2020 12:03 
GMT+0530 
beach.jpg 
coffee-jpg 
Properties 
Storage class 
Encryption 
Metadata 
Tags 
Object lock 

**S3 Security and Bucket Policy**

**Note: if IAM policy allow to access bucket but bucket policy does not allow it then IAM user will not able to access to bucket**

Machine generated alternative text:
S3 Security 
• User based 
• IAM policies - which API calls should be allowed for a specific user from IAM 
console 
• Resource Based 
• Bucket Policies - bucket wide r es —srq_th S3 console - allows cross account 
• Object Access Control List (A L) 
g in 
• Bucket Access Control List (A 
— ess c 
mon 
• Note: an IAM principal can access an S3 object if 
• the user IAM permissions allow it OR the resource policy ALLOWS it 
• AND there's no explicit DENY 

Machine generated alternative text:
S3 Bucket Policies 
• JSON based policies 
• Resources: buckets and objects 
• Actions: Set of API to Allow or Deny 
• Effect: Allow / Deny 
• Principal: The account or user t 
the policy to 
• Use S3 bucket for policy to: 
• Grant public access to the bucket 
• Force objects to be encrypted at upload 
• Grant access to another account (Cross 
Account) 
"Version 
"2M2-1ø-17", 
"Statement" : 
"Sid": ' 'Pub licRead" , 
"Effect" : 
"Allow", 
"Principal" : 
"Action": 
: GetObj ect" 
"Resource" : 
"arn : aws : s3: : 

Machine generated alternative text:
Bucket settings for Block Public Access 
• Block public access to buckets and objects granted through 
• new access control lists (ACLs) 
• any access control lists (ACLs) 
• new public bucket or access point policies 
• Block public and cross-account access to buckets and objects 
through any public bucket or access point policies 
• These settings were created to prevent company data leaks 
• If you know your bucket should never be public, leave these on 
• Can be set at the account level 

Machine generated alternative text:
S3 Security - Other 
. Networking: 
• Supports VPC Endpoints (for instances in VPC without wwvv internet) 
• Logging and Audit: 
• S3 Access Logs can be stored in other S3 bucket 
• API calls can be logged in AWS CloudTraiI 
• User Security: 
• MFA Delete: MFA (multi factor authentication) can be required in versioned 
buckets to delete objects 
• Pre-Signed URLs: URLs that are valid only for a limited time (ex: premium video 
service for logged in users) 

**S3 Bucket policies Hands on**

**Step :)** permission /Bucket policy

We need to put json document here use policy generator or documentation

Machine generated alternative text:
aws 
Services v 
Properties 
Permissions 
Management 
Access points 
Bucket PolÉy 
Block public access 
CORS configuration 
Access Control List 
Object Ownership 
Bucket policy editor ARN: 
Type to add a new policy or edit an existing policy in the text area below 
The block public access settings turned on for this bucket prevent granting public access. 

Aws s3 generator use for bucket policy

<https://awspolicygen.s3.amazonaws.com/policygen.html>

The AWS Policy Generator is a tool that enables you to create policies that control access to [Amazon Web Services (AWS)](http://aws.amazon.com/) products and resources.

Machine generated alternative text:
AWS serv•ce 
Actions 
Amazon Resource Name (ARN) 
Amazon S3 
All Services ('*') 
Use multiple statements to add permissions for more than one service. 
- Select Actions 
ARN should follow the following format: 
Use a comma to separate multiple values. 
Cl All Actions ('*') 
Conditions 
• Null 
o s3:x-amz-server-side- 
encryption: "true" 
None 
Add Conditions (Optional) 
Add Statement 
You added the following statements. Click the button below to Generate a policy. 
Principal(s) Effect 
Deny 
Deny 
Step 3: Generate Policy 
Action 
• s3:PutObject 
• s3:PutObject 
Resource 
arn : aws: s3: : : thebucketofsaurabh2020/* 
arn : aws: s3: : : thebucketofsaurabh2020/* 
A policy is a document (written in the Access Policy Language) that acts as a container for one or more statements. 

Click deny

Principal --\*

Action-putObject

Resource : check under permission

|  |
| --- |
| Bucket policy editor ARN: arn:aws:s3:::thebucketofsaurabh2020 |
| arn:aws:s3:::thebucketofsaurabh2020/\* (note add / \*) |
| Add conditional : |
| Machine generated alternative text: Condition Null  Key s3:x-amz-server-side-encryption  Value true    Machine generated alternative text: Condition  Key  Value  StringNotEquaIs  s3:x-amz-server-side-encryption  AES2561  Add Condition  Add Statement      Click generate policy and paste in bucket policy under permission section    **Bucket policy**    Machine generated alternative text: Policy JSON Document  Click below to edit. To save the policy, copy the text below to a text editor.  Changes made below will not be reflected in the policy generator tool.  "Policy16e1882421675" ,  "Version" :  "2812-1e-17" ,  "Statement" :  "Sid" :  "Action" :  "s3 : PutObject"  "Effect" :  "Deny" ,  "Resource" .  "arn : aws : s3 : : : thebucketofsaurabh2B2B/*'  "true"  "Condition" :  "Null" :  " s3 :x-amz-server  "Principal" :  -side-encryption"    **NOTE: we can also search in google : s3 bucket policy deny encryption**    **NOTE: we can set ACL(access control list) at bucket level and object level**      **S3 Websites**  Machine generated alternative text: S3 Websites  • S3 can host static websites and have them accessible on the wvvw  • The website URL will be:  •  OR  rV.amazonaws.com  n .amazonaws.com  • If you get a 403 (Forbidden) error, make sure the bucket policy allows  public reads!    **S3 websites hands on**    **Step 1) Upload index.html and error.html in s3**    Machine generated alternative text: (head»  (title» my first webpage  K/ head»  (body»  4/1-11»  (h love Coffee  K/ title»  Hello world  K/ body»  (img src—" coffee . jpg"  K/ html»  width—    **Step 2: ) go to properties ----static website hoisting**    Machine generated alternative text: Static website hosting  Endpoint : http://thebucketofsaurabh2020.s3-website.ap-south-  1 .amazonaws.com  O  Use this bucket to host a websiteO Learn more  Save  Redirect requestsO Learn more  Disable website hosting  Disabled  Cancel |

Click use this bucket to host a website

Machine generated alternative text:
Static website hosting 
Endpoint : http://thebucketofsaurabh2020.s3-website.ap-south- 
1 .amazonaws.com 
Use this bucket to host a websiteO Learn more 
Index document O 
index.html 
Error document O 
error.html 

Note : **now we will get endpoint to host a website**

Machine generated alternative text:
C A Not secure 
ebucketofsaurabh2020.s3-website.ap-south-1 .amazonaws.co 
403 Forbidden 
• Code: AccessDenied 
Message: Access Denied 
• Requestld: FG6T3H7R2N8V4P5G 
• Hostld: HT6p4y6wOSha1rjbQucOiMHGOpXT2mZX/c10jFOubRujV4by/s9nlcMXOvfcsaGIGBOPXGxE51w- 
An Error Occurred While Attempting to Retrieve a Custom Error Document 
• Code: AccessDenied 
Message: Access Denied 

**NOTE:**

**Above url is public but coffee.jpg is private so we need to make coffee.jpg public**

**For this we need to do block public access enabled under permission**

Machine generated alternative text:
Amazon S3 
thebucketofsaurabh2020 
Permissions 
Management 
Access points 
Bucket Policy 
thebucketofsaurabh2020 
Overview 
Block public access 
Properties 
CORS configuration 
Access Control List 
Object Ownership 
Block public access (bucket settings) 
Public access is granted to buckets and objects through access control lists (ACLs), bucket policies, access point policies, or all. In order to ensure that public access 
buckets and objects is blocked, turn on Block all public access. These settings apply only to this bucket and its access points. AWS recommends that you turn on Bloc 
access, but before applying any of these settings, ensure that your applications will work correctly without public access. If you require some level of public access to 
or objects within, you can customize the individual settings below to suit your specific storage use cases. Learn more 
Block all public access 

**Uncheck it and save**

Machine generated alternative text:
Block all public access 
Turning this setting on is the same as turning on all four settings below. Each of the following settings are independent of one another. 
El Block public access to buckets and objects granted through new access control lists (ACLs) 
Cancel 
Save 
S3 will block public access permissions applied to newly added buckets or objects, and prevent the creation of new public access ACLs for existing buckets and objects. This setting doesn't 
change any existing permissions that allow public access to S3 resources using ACLs. 
El Block public access to buckets and objects granted through any access control lists (ACLs) 
S3 will ignore all ACLs that grant public access to buckets and objects. 
El Block public access to buckets and objects granted through new public bucket or access point policies 
S3 will block new bucket and access point policies that grant public access to buckets and objects. This setting doesn't change any existing policies that allow public access to S3 resources. 
El Block public and cross-account access to buckets and objects through any public bucket or access point policies 
S3 will ignore public and cross-account access for buckets or access points with policies that grant public access to buckets and objects. 

**Now if we refresh still we are getting 403 error**

Machine generated alternative text:
C A Not secure I thebucketofsaurabh2020.s3-website.ap-south-1.amazonaws.com 
403 Forbidden 
• Code: AccessDenied 
Message: Access Denied 
• Requestld: 8455B2A73EE16021 
• Hostld: zcEHtHPeNNAgwwrEp1AwnOp4ttMrAfuLWvCnyp61stRKMXYUXdzhTQU5bBs5x1GmOLaGTIDncB 
An Error Occurred While Attempting to Retrieve a Custom Error Document 
• Code: AccessDenied 
Message: Access Denied 

**So to make it public we need to create a bucket policy**

Select getObject to view website for action

Machine generated alternative text:
Select Type of Policy 
Step 2: Add Statement(s) 
S3 Bucket Policy 
A statement is the formal description of a single permission. See a description of elements that you can use in statements. 
Effect 
Principal 
AWS Service 
Actions 
Amazon Resource Name (ARN) 
@ Allow C) Deny 
Use a comma to separate multiple values. 
Amazon S3 
All Services ('*') 
Use multiple statements to add permissions for more than one service. 
1 Action(s) Selected 
arn:aws:s3:::thebucketofsau 
ARN should follow the following format: 
Use a comma to separate multiple values. 
Add Conditions (Optional) 
Add Statement 
Cl All Actions ('*') 

Now hit url:

<http://thebucketofsaurabh2020.s3-website.ap-south-1.amazonaws.com/>

It will work (wow first static website launch)

**Name of the bucket.s3-website.my-region.amazonaws.com**

Machine generated alternative text:
C A Not secure I thebucketofsaurabh2020.s3-website.ap-south-1.amazonaws.com/lol 
oohh there was an error 

**S3 CORS (cross origin resource sharing)**

Machine generated alternative text:
CORS - Explained 
• An origin is a scheme (protocol), host (domain) and port 
• E.g.: https://wvvw.example.com (implied port is 443 for HTTPS, 80 for HIT P) 
• CORS means Cross-Origin Reso 
Sharing 
• Web Browser based mechani •vallo requests to other origins while 
visiting the main origin 
• Same origin: http://example.co 
http://example.com/app2 
• Different origins: http://www.example.com & http://other.example.com 
• The requests won't be fulfilled unless the other origin allows for the 
requests, using CORS Headers (ex: Access-Control-Allow-Origin) 

**From one url we want to go another url then other url should allow it and secondurl should proper CORS**

**imp**

Machine generated alternative text:
CORS - 
Origin 
Diagram 
Preflight Request 
OPTIONS / 
Host: www.other.com 
Origin: https://www.example.com 
Cross Origin 
https://www.other.com 
https://www.example.com 
Preflight Respon 
Access-Ccntrol - —igi : https://www.example.com 
Access-Co rol „,Ow-Methods: GET, PUT, DELETE 
Web Browser 
Web Server 
GET/ 
Host: www.other.com 
Origin: https://www.example.com 
CORS Headers received previously allowed the origin 
The web browser can now make the requests 
O Stephane Maarek 

Machine generated alternative text:
S3 CORS 
• If a client does a cross-origin request on our S3 bucket, we need to 
enable the correct CORS headers 
• It's a popular exam question 
• You can allow for a specific origin or for * (all origins) 
GET index.html 
bucket-html 
Enabled as a website 
Web 
Browser 
GET coffee.jpg 
ORIGIN: http://bucket-html.s3-website.eu-west-3.amazonaws.com 
Access-Control-Allow-Origin: 
bucket-assets 
Cross Origin 

**CORS Hands ON**

Note:

**CASE1) if same origin extra-page.html work**

Machine generated alternative text:
X 
0 
O 
O 
o index.html 
o extra-page. html 
beach.jpg 
coffee.jpg 
CORS_CONFlG.xml 
error.html 
extra-page.html 
index.html 
o index.html X 0 extra-page.html 
o index.html html script 
etitle*y First Webpagee/titlo 
5 
8 
9 
11 
12 
15 
16 
2ø 
22 
23 
25 
26 
27 
heads 
love coffeec/hl» 
world ! c/p 
bodys 
CORS demo 
ediv idz"tofetch' 
esc rip b 
var tofetch 
do 
Byld( "tofetch") ; 
return response. 
tofetch. innerHNL : html 
c/ scripto 
e/ h tnb 

**Case 2nd) if extra-page.html in other bucket**

**Create another bucket and make it public and add policy**

Machine generated alternative text:
aws 
Amuon S3 
O 
Resource Groups 
thebucketofstephane2020-assets 
Block pu access 
List 
Delete 
Bucket policy editor ARN: 
Tm 'a a new existng in 
-version-: -zø22-:ø-27•, 
-re-: -policy.S886974946ss-. 
-Sic: -st„t1S886974932n-, 
• EffKt-: 
•Action•: 
•Resource : : s3 : : 

**Enable static website also**

|  |
| --- |
| Machine generated alternative text: Ultimate AWS Certified Developer Associate 2020 - NEW  Static website hosting  O) æ.—tsO team mee  aws  Resource Groups  Amuon S3  thebucketofstephane2020-assets  Versioning  multiple versions Of an in  the same bucket.  Disabled  Server access logging  access  Feedback  English  Pdiey    Upload extra.html    Machine generated alternative text: avvS  Amuon S3  Resource Groups  thebucketofst  Global  EU (Ireland)  V%ewing 1 to I  class  khev.•ing to I  Support •  thebucketofstephane2020-assets  Q  a press Enter to Search. Press ESC to  Upload  + Create folder  Down load  e extrx-øgvml  PM GMT.01m    Delete extrapage.html    Machine generated alternative text: aws  Resource Groups  extra-page. html  Key  Size  ETag  Last  URL  Tags  Global  0.0 B  x  Amaon S3 thebucketofstephane2020  thebucketofstephane2020  a Enter to Search. Press ESC to  Upload  + Create folder  1  Add t—  91  May 5.2020 PM GMT.OI  020.S3•  AES-2S6  O Tags  beachåpg  coffee_jpg  htm  e extra •pa*  e hdex.html  1  2:41 PM GMT.otm  May S. 2020 pt.'  May S. 2020 P"  May S. PM GMT+01m  May 202-0 6:0127 PM  O In      Note: now fetch extra-page.html from other bucket    Machine generated alternative text: O index.html X O extra-page.html  o index.html html script  etitle*y First Webpagee/titlo  5  8  9  11  12  15  16  19  21  22  25  26  heads  love coffeec/hl»  world ! c/p  c/ bodys  CORS demo  cdiv idz"tofetch'  esc ripb  var tofetch do  fetch('hft /  extra—page. html  . then ( (response)  ofst  Byld( "tofetch") ;  sets.s3—æbsite—eu—west—1.amazonaws.com/  return response. ) ;  tofetch. inner-HTML html  script'    Change the url    Machine generated alternative text: I love coffee  Hello world!  Sources Network  Filter  03  Default levels  top  A  O  O  DevTOOIs failed to toad SourceMap: Could not load content for chrome—ext  j npimakedha :  HTTP error: status code 04, net:  Access to fetch at Aindex)xl  . from origin  • has been blocked  by CORS policy: No header is present on  the requested resource. If an opaque response serves your needs, set the  request's "de to •no—cors' to fetch the resource With CORS disabled.  net: : ERR_FAILED  • Uncaught (in pronise)  TypeError: Failed to fetch      Unable to access second URL from first URL because we haven't define correct CORS    **NOTE: so to make it work change permission in second bucket go co cors congiguration**    Machine generated alternative text: aws  0  Resource Groups  Amuon S3  thebucketofstephane2020-assets  Block pu access  CORS configuration editor ARN:  •t äistng  O In  List  1    **In above section copy cors config**    Machine generated alternative text: x  0  O  O  o index.html  CORS_CONFIG.xml  beach.jpg  coffee.jpg  CORS_CONFlG.xml  error.html  extra-page.html  index-html  o index.html  CORS_CONFlG.xml  CORS_CONHG.xm1 X  5  8  CCORsconfiguration»  .:CORSRute»  CAI lowedOr ig rl—heree/A RowedOrigin'  towedMeth t hods  CA izat ion«/Al lowedHeader:•  C/CORSRu1e»  C ORS Con f igurat ionq      **Note : in allowed origin copy the first url from where request is coming**    Machine generated alternative text: aws  Global  Support  Resource Groups  Amuon S3  thebucketofstephane2020-assets  Block pub": access  List  CORS configuration editor ARN:  ét nistng me text  CCORS figu  CAI nghttp: .  S e c Sec ond»  CAI lcmedHeade rAuthCM•i zat  UCORSRuto  Configu rat iOr»      **Or we can put start(\*) it will allow for any origin**    Machine generated alternative text: thebucketofstephane2020-assets  C:OÆ  Block pu access  List  CORS configuration editor ARN:  edit äistng rea  f igu  zat  ocoRSRu  f igu rat    **And now it will worked**  Machine generated alternative text: I love coffee  Hello world!  This extra page has been successfully loaded!,  Sources Network  Filter  Default levels  top  A DevTOOIs failed to toad SourceMap: Could not load content for chrome—ext  j npÅmaXedh_a s._rnap :  HTTP error: status code 4ø4, net:      **Consistency Model** |
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| Machine generated alternative text: Amazon S3 - Consistency Model  • Read after write consistency for PUTS of new objects  • As soon as a new ob'ect is written, we can retrieve it  ex: (PUT 200 GdT 200)  • This is true, except if we did a GET before to see if the object existed  ex: (GET 404 PUT 200 GET 404) - eventually consistent  • Eventual Consistency for DELETES and PUTS of existing objects  • If we read an object after updating, we might get the older version  ex: (PUT 200 PUT 200 GET 200 (might be older version))  • If we delete an object, we mi ht still be able to retrieve it for a short time  ex: (DELETE 200 GET 260)  • Note: there's no way to request "strong consistency"      Section 8) AWS CLI,SDK,IAM Roles and Policies    Machine generated alternative text: Section Introduction  • So far, we've interacts with services manually and they exposed standard  information for clients:  • EC2 exposes a standard Linux machine we can use any way we want  • RDS exposes a standard databas  • ElastiCache exposes a cache U  • ASG / ELB are automated and e  • Route53 was setup manual  connect to using a URL  n nnect to using a URL  to program against them  • Developing against AWS has two components:  • How to perform interactions with AWS without using the Online Console?  • How to interact with AWS Proprietary services? (S3, DynamoDB, etc... )  This is where cli come in picture |