AWS-Part1

1. AWS Region:
    - Definition: clusters of data center. Name: us-east-1, eu-west-3…
    - Factors to choose region:
        1) Compliance: government and legal requirements,
        2) Proximity to customer: reduce latency
        3) Available service within a region
        4) Pricing: varies from region to region
    - # of AWS availability zones *(AZ)*: usually3, (2,6), with >=1 discrete data center with redundant power, networking, connectivity. ->link together we get region

2. IAM:
    - groups or users, policies define the permission of the users, least privilege principle: don't give a permission than a user need
    - not requires for area selection, a global service
    - using IAM user is better than using root account, more safety; Functionally, these two have no difference at all.
    - IAM policies:
        - Inheritance
        - Policy structure: version number, id, statement: sid (identifier for the statement), effect (allow, deny), principle (which police apply to), action, resource, condition (when the statement is effect, optional)
        - Password: Multi-Factor Authentication (MFA)=password you know+ security device you own. Set password policy.
        - Access key->user's name; Secret access key->password

3. AWS SDK: software development kit, embedded in your application, language specific API, manage AWS service programmatically. AWS CLI is built on SDK for python.

4. Log in AWS-three ways:1) AWS Management Console 2) CLI (access key) 3) SDK-for code: protected by access keys

5. Configure the AWS CLI: access key/default access region/ default output format/ profile:

    aws configure --profile new_name

```
Last login: Sun Jun 12 12:00:45 on ttys000
[(base) macbookpro@WANGQiuting ~ % aws configure
AWS Access Key ID [None]:
AWS Secret Access Key [None]:
Default region name [None]: us-east-1
Default output format [None]:
(base) macbookpro@WANGQiuting ~ %

[(base) macbookpro@WANGQiuting ~ % aws iam list-users
{
    "Users": [
        {
            "Path": "/",
            "UserName": "WangQiutingDoris",
            "UserId": "AIDAZM4YOVWOBEGWGLDBK",
            "Arn": "arn:aws:iam::646175436188:user/WangQiutingDoris",
            "CreateDate": "2022-06-09T11:29:52+00:00"
        }
    ]
}
```

6. CloudShell:
    - a terminal in AWS platform.
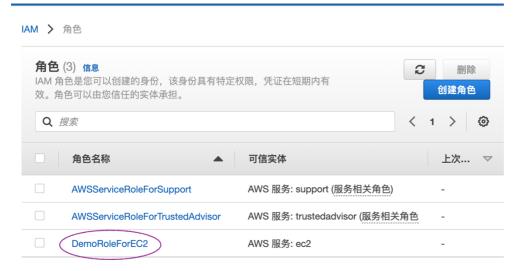   - Only can be used in several regions not globally.

Create a .txt file:

```
[cloudshell-user@ip-10-0-141-203 ~]$ echo "test">demo.txt
[cloudshell-user@ip-10-0-141-203 ~]$ cat.demo.txt
bash: cat.demo.txt: command not found
[cloudshell-user@ip-10-0-141-203 ~]$ cat demo.txt
"test"
[cloudshell-user@ip-10-0-141-203 ~]$ ls
demo.txt
```

Pwd: get the path of the file→in order to create path of download the file on the cloudshell

7. The role of IAM in Service:
   - Assign permissions to aws services with iam role
   - Other roles: EC2 instance: visual server/lambda function role/cloudformation
   - Create a role

IAM > 角色

角色 (3) 信息
IAM 角色是您可以创建的身份，该身份具有特定权限，凭证在短期内有效。角色可以由您信任的实体承担。

创建角色

Q 搜索

	角色名称 ▲	可信实体	上次... ▽
☐	AWSServiceRoleForSupport	AWS 服务: support (服务相关角色)	-
☐	AWSServiceRoleForTrustedAdvisor	AWS 服务: trustedadvisor (服务相关角色)	-
☐	DemoRoleForEC2	AWS 服务: ec2	-

8. IAM Security Tools:
   - Create IAM credential report (account level): list all your account's users and the status of their various credential
   - IAM Access Advisor (user-level): service permission granted to user and when those service were last accessed

status_reports_2022-06-12T12-15-16+00-00

user	arn	user_creation_time	password_enabled	password_last_used	password_last_changed	password_next_rotation	mfa_active	access_key_1_active	access_key_1_last_rotated	access_key_1_last_used_date	access_key_1_last_used_region	access_key_1_last_used_service	access_key_2_active	access_key_2_last_rotated	access_key_2_last_used_date	access_key_2_last_used_region	access_key_2_last_used_service	cert_1_active	cert_1_last_rotated	cert_2_active	cert_2_last_rotated
<root_account>	arn:aws:iam::6401754361198:root	2022-02-27T02:45:55+00:00	not_supported	2022-06-12T12:05:19+00:00	not_supported	not_supported	TRUE	TRUE	2022-06-12T04:21:09+00:00	N/A	N/A	N/A	FALSE	N/A	N/A	N/A	N/A	FALSE	N/A	FALSE	N/A
WangQiutingDoris	arn:aws:iam::6401754361198:user/WangQiutingDoris	2022-06-09T11:29:52+00:00	TRUE	no_information	2022-06-09T11:29:54+00:00	N/A	FALSE	TRUE	2022-06-12T04:31:08+00:00	2022-06-12T04:37:00+00:00	us-east-1	iam	FALSE	N/A	N/A	N/A	N/A	FALSE	N/A	FALSE	N/A