launch Ec2 instance with the AWS CLI IN public subnet and access it over the internet ?

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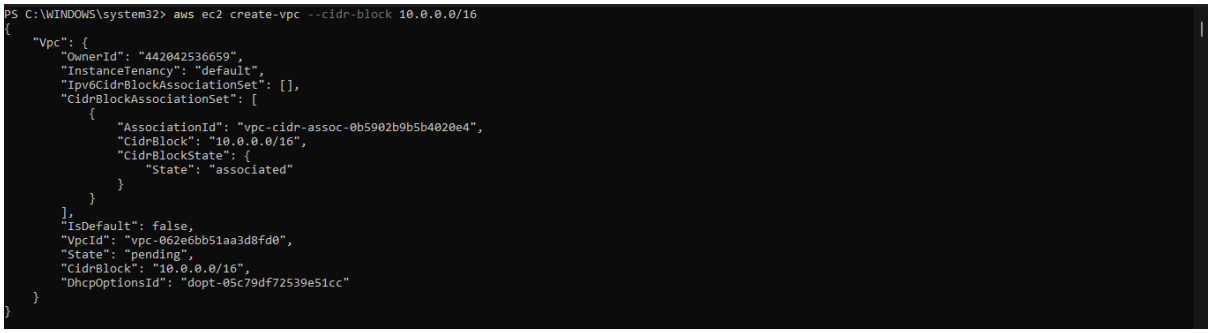
1. Create a VPC

aws ec2 create-vpc --cidr-block 10.0.0.0/16

- This command creates a **Virtual Private Cloud (VPC)** with a CIDR



---

2. Create a Subnet

aws ec2 create-subnet --vpc-id vpc-062e6bb51aa3d8fd0 --cidr-block 10.0.1.0/24

- This command creates a **subnet** within the VPC (vpc-062e6bb51aa3d8fd0) with a CIDR block of 10.0.1.0/24 (256 IP addresses: 10.0.1.0 to 10.0.1.255).

---

3. Create an Internet Gateway

aws ec2 create-internet-gateway

- This command creates an **Internet Gateway (IGW)** to allow instances in the VPC to access the internet

```
PS C:\WINDOWS\system32> aws ec2 create-internet-gateway
{
    "InternetGateway": {
        "Attachments": [],
        "InternetGatewayId": "igw-0238a73acb4c05ad8",
        "OwnerId": "442042536659",
        "Tags": []
    }
}
```

---

4. Attach the Internet Gateway to the VPC

aws ec2 attach-internet-gateway --internet-gateway-id igw-0238a73acb4c05ad8 --vpc-id vpc-062e6bb51aa3d8fd0

- This command attaches the **Internet Gateway** (igw-0238a73acb4c05ad8) to the **VPC** (vpc-062e6bb51aa3d8fd0).

```
PS C:\WINDOWS\system32> aws ec2 attach-internet-gateway --internet-gateway-id igw-0238a73acb4c05ad8 --vpc-id vpc-062e6bb51aa3d8fd0
```

---

5. Create a Route Table

aws ec2 create-route-table --vpc-id vpc-062e6bb51aa3d8fd0

- This command creates a **Route Table** for the **VPC** (vpc-062e6bb51aa3d8fd0).

```
PS C:\WINDOWS\system32> aws ec2 create-route-table --vpc-id vpc-062e6bb51aa3d8fd0
{
    "RouteTable": {
        "Associations": [],
        "PropagatingVgws": [],
        "RouteTableId": "rtb-0b26f600624bf8a89",
        "Routes": [
            {
                "DestinationCidrBlock": "10.0.0.0/16",
                "GatewayId": "local",
                "Origin": "CreateRouteTable",
                "State": "active"
            }
        ],
        "Tags": [],
        "VpcId": "vpc-062e6bb51aa3d8fd0",
        "OwnerId": "442042536659"
    },
    "ClientToken": "fa14ae4d-2668-4103-b94e-caa26f4ddbea"
}
```

---

6. Add a Route to the Internet Gateway

aws ec2 create-route --route-table-id rtb-0b26f600624bf8a89 --destination-cidr-block 0.0.0.0/0 --gateway-id igw-0238a73acb4c05ad8

- This command adds a route to the **Route Table** (rtb-0b26f600624bf8a89).

```
PS C:\WINDOWS\system32> aws ec2 create-route --route-table-id rtb-0b26f600624bf8a89  --destination-cidr-block 0.0.0.0/0 --gateway-id igw-0238a73acb4c05ad8
{
    "Return": true
}
```

---

7. Associate the Route Table with the Subnet

aws ec2 associate-route-table --route-table-id rtb-0b26f600624bf8a89 --subnet-id subnet-0a718e5c7fae5d233

- This command **associates the Route Table** (rtb-0b26f600624bf8a89) with the **Subnet** (subnet-0a718e5c7fae5d233).

```
PS C:\WINDOWS\system32> aws ec2 associate-route-table --route-table-id rtb-0b26f600624bf8a89  --subnet-id subnet-0a718e5c7fae5d233
{
    "AssociationId": "rtbassoc-0343c9ba5d72a345a",
    "AssociationState": {
        "State": "associated"
    }
}
```

---

8. Launch an EC2 Instance

aws ec2 run-instances --image-id ami-00bb6a80f01f03502 --instance-type t2.micro --key-name Ujwal-CLI --security-group-ids sg-0d01d83ca14f2049a --subnet-id subnet-0a718e5c7fae5d233 --associate-public-ip-address

```
PS C:\WINDOWS\system32> aws ec2 run-instances --image-id ami-00bb6a80f01f03502 --instance-type t2.micro --key-name Ujwal-CLI --security-group-ids sg-0d01d83ca14f2049a --
associate-public-ip-address
{
    "ReservationId": "r-05d6019d95098eeb5",
    "OwnerId": "442042536659",
    "Groups": [],
    "Instances": [
        {
            "Architecture": "x86_64",
            "BlockDeviceMappings": [],
            "ClientToken": "6d3869d5-e9ea-4b2a-9db7-67ef83fa20fd",
            "EbsOptimized": false,
            "EnaSupport": true,
            "Hypervisor": "xen",
            "NetworkInterfaces": [
                {
                    "Attachment": {
                        "AttachTime": "2025-02-28T14:18:00+00:00",
                        "AttachmentId": "eni-attach-0dace18c19411a286",
                        "DeleteOnTermination": true,
                        "DeviceIndex": 0,
                        "Status": "attaching",
                        "NetworkCardIndex": 0
                    },
                    "Description": "",
                    "Groups": [
                        {
                            "GroupId": "sg-0d01d83ca14f2049a",
                            "GroupName": "default"
                        }
                    ],
                    "Ipv6Addresses": [],
                    "MacAddress": "0a:ca:a9:1c:9b:01",
                    "NetworkInterfaceId": "eni-04f0cfacc40557e58",
                    "OwnerId": "442042536659",
                    "PrivateDnsName": "ip-172-31-6-33.ap-south-1.compute.internal",
                    "PrivateIpAddress": "172.31.6.33",
                    "PrivateIpAddresses": [
                        {
```

```
                    "PrivateDnsName": "ip-172-31-6-33.ap-south-1.compute.internal",
                    "PrivateIpAddress": "172.31.6.33",
                    "PrivateIpAddresses": [
                        {
                            "Primary": true,
                            "PrivateDnsName": "ip-172-31-6-33.ap-south-1.compute.internal",
                            "PrivateIpAddress": "172.31.6.33"
                        }
                    ],
                    "SourceDestCheck": true,
                    "Status": "in-use",
                    "SubnetId": "subnet-03e0cc288b1bf9e67",
                    "VpcId": "vpc-0473ebd347ec8b538",
                    "InterfaceType": "interface",
                    "Operator": {
                        "Managed": false
                    }
                }
            ],
            "RootDeviceName": "/dev/sda1",
            "RootDeviceType": "ebs",
            "SecurityGroups": [
                {
                    "GroupId": "sg-0d01d83ca14f2049a",
                    "GroupName": "default"
                }
            ],
            "SourceDestCheck": true,
            "StateReason": {
                "Code": "pending",
                "Message": "pending"
            },
            "VirtualizationType": "hvm",
            "CpuOptions": {
                "CoreCount": 1,
                "ThreadsPerCore": 1
            },
            "CapacityReservationSpecification": {
                "CapacityReservationPreference": "open"
            },
            "MetadataOptions": {
                "State": "pending",
                "HttpTokens": "required",
```

Summary of Setup

✅ **VPC** (10.0.0.0/16) created.

✅ **Subnet** (10.0.1.0/24) created within the VPC.

✅ **Internet Gateway** created and attached to the VPC.

✅ **Route Table** created, associated with the subnet, and configured to allow internet access.