Step-by-Step Guide: Deploying VPC, EC2, and Networking Components using AWS CLI

Prerequisites:

- AWS CLI installed and configured (aws configure)
- An AWS IAM user with necessary permissions
- A valid EC2 Key Pair (aws ec2 create-key-pair --key-name my-key-pair)

Step 1: Create a VPC

aws ec2 create-vpc --cidr-block 10.0.0.0/16 --tag-specifications 'ResourceType=vpc,Tags=[{Key=Name,Value=MyVPC}]'

Copy the **VPC ID** from the output for later use.

Step 2: Create an Internet Gateway and Attach to the VPC

aws ec2 create-internet-gateway --tag-specifications 'ResourceType=internet-gateway,Tags=[{Key=Name,Value=MyInternetGateway}]'

Get the **Internet Gateway ID** and attach it:

aws ec2 attach-internet-gateway --vpc-id <VPC_ID> --internet-gateway-id <IGW_ID>

Step 3: Create a Private Subnet

aws ec2 create-subnet --vpc-id <VPC_ID> --cidr-block 10.0.1.0/24 --tag-specifications 'ResourceType=subnet,Tags=[{Key=Name,Value=MyPrivateSubnet}]'

Copy the **Subnet ID** for later use.

Step 4: Create a Security Group Allowing SSH

aws ec2 create-security-group --group-name MySecurityGroup --description "Allow SSH access" --vpc-id <VPC_ID> --tag-specifications 'ResourceType=security-group,Tags=[{Key=Name,Value=MySecurityGroup}]'

Get the **Security Group ID**, then allow SSH:

aws ec2 authorize-security-group-ingress --group-id <SG_ID> --protocol tcp --port 22 --cidr 0.0.0.0/0

Step 5: Launch an EC2 Instance in the Private Subnet

aws ec2 run-instances --image-id ami-0c55b159cbfafe1f0 --instance-type t3.micro --subnet-id <SUBNET_ID> --security-group-ids <SG_ID> --key-name my-key-pair --tag-specifications 'ResourceType=instance,Tags=[{Key=Name,Value=MyPrivateInstance}]'

Copy the **Instance ID** for reference.

Step 6: Verify Resources

aws ec2 describe-vpcs --filters "Name=tag:Name,Values=MyVPC"

aws ec2 describe-subnets --filters "Name=tag:Name,Values=MyPrivateSubnet"

aws ec2 describe-instances --filters "Name=tag:Name,Values=MyPrivateInstance"

Step 7: Cleanup (Optional - Delete All Resources)

If you need to delete all resources:

aws ec2 terminate-instances --instance-ids <INSTANCE_ID>

aws ec2 delete-security-group --group-id <SG_ID>

aws ec2 detach-internet-gateway --internet-gateway-id <IGW_ID> --vpc-id <VPC_ID>

aws ec2 delete-internet-gateway --internet-gateway-id <IGW_ID>

aws ec2 delete-subnet --subnet-id <SUBNET_ID>

aws ec2 delete-vpc --vpc-id <VPC_ID>

Conclusion

✅ **VPC, Internet Gateway, Subnet, Security Group, and EC2 instance deployed successfully using AWS CLI!** 🚀

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