
DEV/SECOPS BOOTCAMP

BUILDING RUGGED SOFTWARE

YEAR ONE / WEEK THREE/ LESSON ONE

Agenda

- AWS Basics
 - The AWS Console
 - The CLI
 - IAM
 - EC2
- Control Plane

AWS Basics

Amazon Web Services

Compute

- EC2**
Virtual Servers in the Cloud
- EC2 Container Service**
Run and Manage Docker Containers
- Elastic Beanstalk**
Run and Manage Web Apps
- Lambda**
Run Code in Response to Events

Storage & Content Delivery

- S3**
Scalable Storage in the Cloud
- CloudFront**
Global Content Delivery Network
- Elastic File System** PREVIEW
Fully Managed File System for EC2
- Glacier**
Archive Storage in the Cloud
- Snowball**
Large Scale Data Transport
- Storage Gateway**
Hybrid Storage Integration

Database

- RDS**
Managed Relational Database Service
- DynamoDB**
Managed NoSQL Database
- ElastiCache**
In-Memory Cache

Developer Tools

- CodeCommit**
Store Code in Private Git Repositories
- CodeDeploy**
Automate Code Deployments
- CodePipeline**
Release Software using Continuous Delivery

Management Tools

- CloudWatch**
Monitor Resources and Applications
- CloudFormation**
Create and Manage Resources with Templates
- CloudTrail**
Track User Activity and API Usage
- Config**
Track Resource Inventory and Changes
- OpsWorks**
Automate Operations with Chef
- Service Catalog**
Create and Use Standardized Products
- Trusted Advisor**
Optimize Performance and Security

Security & Identity

- Identity & Access Management**
Manage User Access and Encryption Keys

Internet of Things

- AWS IoT**
Connect Devices to the Cloud

Game Development

- GameLift**
Deploy and Scale Session-based Multiplayer Games

Mobile Services

- Mobile Hub**
Build, Test, and Monitor Mobile Apps
- Cognito**
User Identity and App Data Synchronization
- Device Farm**
Test Android, iOS, and Web Apps on Real Devices in the Cloud
- Mobile Analytics**
Collect, View and Export App Analytics
- SNS**
Push Notification Service

Application Services

- API Gateway**
Build, Deploy and Manage APIs
- AppStream**
Low Latency Application Streaming
- CloudSearch**
Managed Search Service
- Elastic Transcoder**
Simple to Use Scalable Media

Resource Groups [Learn more](#)

A resource group is a collection of resources that share one or more tags. Create a group for each project, application, or environment in your account.

[Create a Group](#) [Tag Editor](#)

Additional Resources

[Getting Started](#) [Read our documentation](#) or view our [training](#) to learn more about AWS.

[AWS Console Mobile App](#) [View your resources on the go with our AWS Console mobile app, available from Amazon Appstore, Google Play, or iTunes.](#)

[AWS Marketplace](#) [Find and buy software, launch with 1-Click and pay by the hour.](#)

[AWS re:Invent Announcements](#) [Explore the next generation of AWS cloud capabilities. See what's new](#)

Service Health

AWS Basics

EC2 Dashboard

- Events
- Tags
- Reports
- Limits
- INSTANCES
 - Instances**
 - Spot Requests
 - Reserved Instances
 - Scheduled Instances
 - Dedicated Hosts
- IMAGES
 - AMIs
 - Bundle Tasks
- ELASTIC BLOCK STORE
 - Volumes
 - Snapshots
- NETWORK & SECURITY
 - Security Groups**
 - Elastic IPs
 - Placement Groups
 - Key Pairs**
 - Network Interfaces
- LOAD BALANCING

Resources

You are using the following Amazon EC2 resources in the US West (Oregon) region:

1 Running Instances	0 Elastic IPs
0 Dedicated Hosts	0 Snapshots
1 Volumes	0 Load Balancers
1 Key Pairs	2 Security Groups
0 Placement Groups	

Build and run distributed, fault-tolerant applications in the cloud with [Amazon Simple Workflow Service](#).

Create Instance

To start using Amazon EC2 you will want to launch a virtual server, known as an Amazon EC2 instance.

[Launch Instance](#)

Note: Your instances will launch in the US West (Oregon) region

Service Health

Service Status:

US West (Oregon):
This service is operating normally

Availability Zone Status:

Scheduled Events

US West (Oregon):
No events

Account Attributes

Supported Platforms

VPC

Default VPC

none

Resource ID length management

Additional Information

[Getting Started Guide](#)
[Documentation](#)
[All EC2 Resources](#)
[Forums](#)
[Pricing](#)
[Contact Us](#)

AWS Marketplace

Find **free software trial** products in the AWS Marketplace from the [EC2 Launch Wizard](#).
Or try these popular AMIs:
[Tableau Server \(10 users\)](#)
Provided by Tableau
Rating ★★★★★

AWS Basics

```
$ aws ec2 describe-instances
{
  "Reservations": [
    {
      "OwnerId":
      "ReservationId": "r-04b4278667b89685f",
      "Groups": [],
      "Instances": [
        {
          "Monitoring": {
            "State": "disabled"
          },
          "PublicDnsName": "e          west-2.compute.amazonaws.com",
          "State": {
            "Code": 16,
            "Name": "running"
          },
          "EbsOptimized": false,
          "LaunchTime": "2016-06-07T23:21:05.000Z",
          "PublicIpAddress":
          "PrivateIpAddress": "10.0.0.25",
          "ProductCodes": [],
          "VpcId": "vpc-a8b03ccc",
          "StateTransitionReason": "",
          "InstanceId": "i-0990ad3249600bcab",
```

AWS Basics

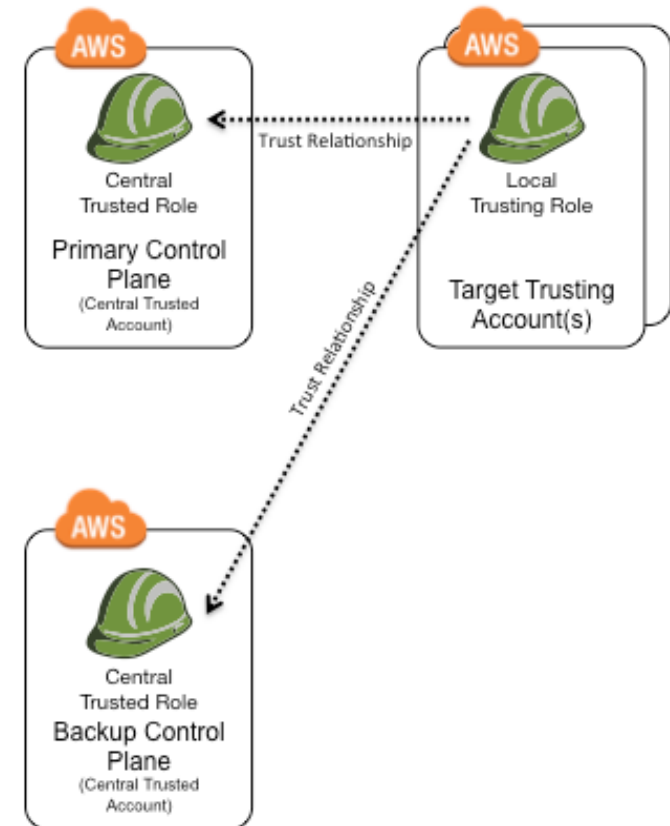
- IAM: Identity and Access Management
 - Two types of users, the **root** user and **IAM users**
 - Root: use a strong password, use MFA, and never use it
 - IAM users: use a strong password, use MFA, use least privilege
 - Separation of duties
 - IAM Admin
 - Deployment Admin
 - Read Only

AWS Basics

- EC2: Elastic Compute Cloud
 - Think stateless
 - Restack often
 - Restrict network access
 - Do not share access keys
 - Never use ec2-user

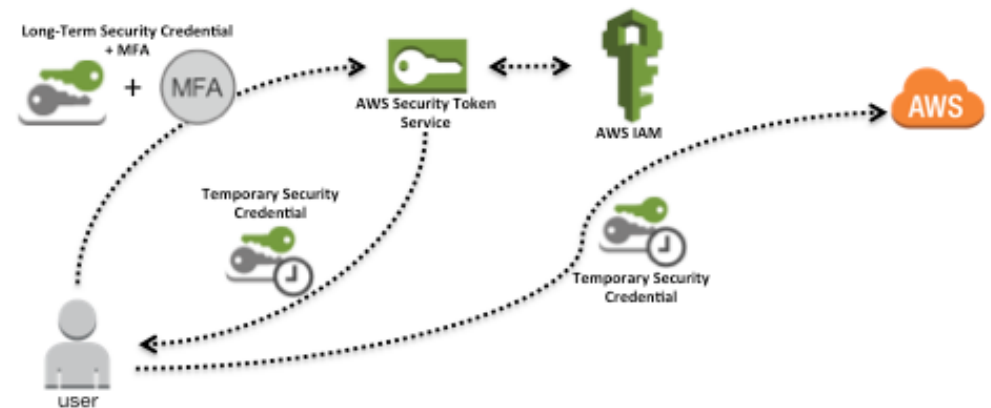
Control Plane

- Native use of AWS
- Blast Radius Containment
- Privileged Access Management
- Least Privilege



Control Plane

1. Long term access keys are used to assume a role in Control Plane (we receive temporary credentials)
2. Temporary credentials are used to assume a role in the Target account (we receive new temporary credentials)
3. Temporary credentials can be used to create resources in Target account



Lab 1

- Week 3 Lab 1:
<https://github.com/devsecops/bootcamp/blob/master/Week-3/labs/LAB-1.md>