



OVERVIEW & SETUP

S3 managed cloud service
Install CLI
aws configure / az login / gcloud
auth login
Set region
aws configure set region us-east-1
Use IAM roles in production, not
access keys

AUTHENTICATION & IAM

IAM Roles, Policies, and Least
Privilege
Assume role
aws sts assume-role --role-arn
arn:aws:iam::123:role/MyRole \
--role-session-name session
Attach policy to role
aws iam attach-role-policy --role-name
MyRole \
--policy-arn
arn:aws:iam::aws:policy/ReadOnlyAccess

CORE FEATURES

Key capabilities and use cases for
this service
Create resource
aws <service> create-<resource> --name
MyResource
List resources
aws <service> list-<resources>
Describe resource
aws <service> describe-<resource> --name
MyResource

CONFIGURATION

AWS CLI config: ~/.aws/credentials
[default]
aws_access_key_id = AKIA...
aws_secret_access_key = ...
region = us-east-1
output = json
Prefer environment variables or
instance profiles over config files

MONITORING & ALERTS

Enable CloudWatch / Azure Monitor /
Cloud Monitoring
Create CloudWatch alarm
aws cloudwatch put-metric-alarm \
--alarm-name HighCPU \
--comparison-operator
GreaterThanOrEqualToThreshold \
--threshold 80
Set dashboards for key metrics
before production launch

SECURITY BEST PRACTICES

Enable encryption at rest and in
transit
Enable server-side encryption
--sse-algorithm aws:kms
--kms-key-id arn:aws:kms:...
Rotate credentials regularly
Enable CloudTrail / activity logs
for audit
Use VPC for network isolation

SDK USAGE

Python (boto3)
import boto3
client = boto3.client('s3',
region_name='us-east-1')
client.upload_file('file.txt',
'my-bucket', 'key')
Node.js
const AWS =
require('@aws-sdk/client-s3')
Use SDK over direct HTTP for
automatic retry/signing

CLI COMMANDS

aws <service> help
aws <service> list-<resources> --query
'...' --output table
aws <service> create-<resource>
--cli-input-json file://input.json
aws <service> delete-<resource> --name
...
aws cloudformation deploy
--template-file template.yaml

INTEGRATION PATTERNS

Event-driven: trigger functions on
service events
SNS Lambda SQS pattern
API Gateway Lambda DB
Use managed services over
self-hosted where possible
Infrastructure as Code:
Terraform/CDK/CloudFormation
Multi-region for disaster recovery

PRICING & COST OPT

Understand pricing model: per
request, per GB, per hour
Use Reserved Instances / Committed
Use for 30-70% savings
Enable Cost Explorer / budget alerts
Right-size resources regularly
Tag resources for cost allocation
aws <service> tag-resource --tags
Project=myapp Env=prod

DEPLOYMENT PATTERNS

Blue/Green: shift traffic between
environments
Canary: gradual traffic shift with
rollback
Infrastructure as Code
terraform init && terraform plan &&
terraform apply
Or CloudFormation
aws cloudformation deploy --stack-name
myapp \
--template-file infra.yaml

COMMON GOTCHAS

Never commit credentials to git use
secrets manager
Check service quotas before scaling
Test in staging before production
deployments
Enable MFA for root account and
admin users
Review IAM policies regularly
remove unused permissions