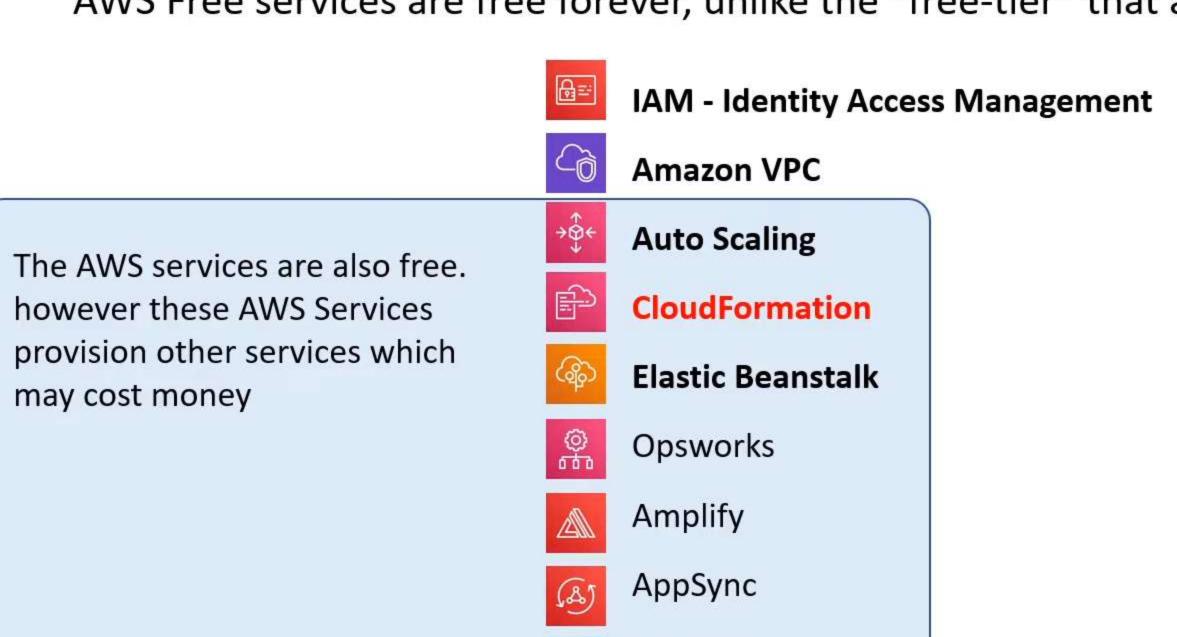
AWS Free Services

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AWS Free services are free forever, unlike the "free-tier" that are up to a point of usage or time





Organizations & Consolidated Billing

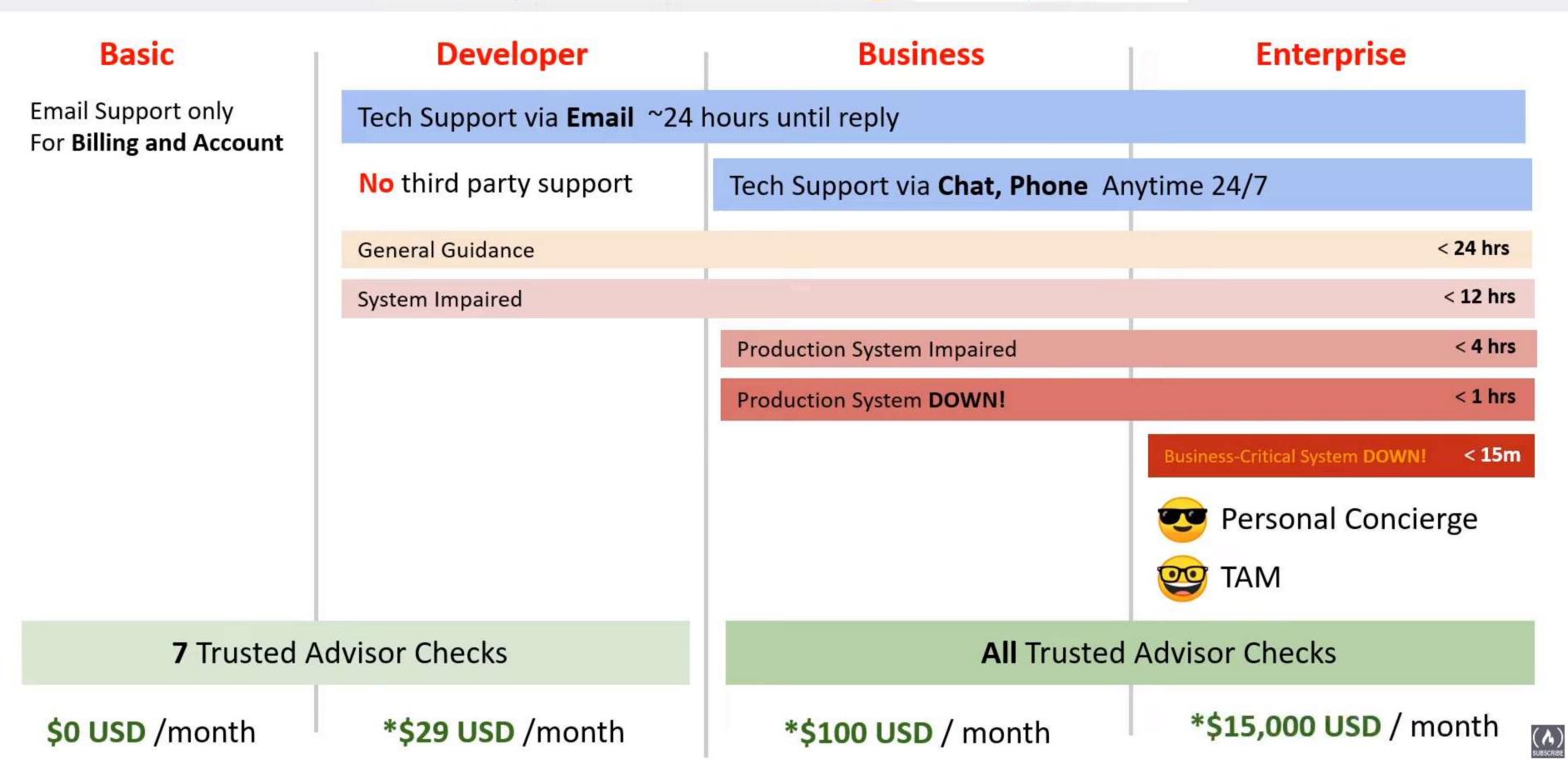


AWS Cost Explorer

CodeStar

AWS Support Plans

Cheat sheets, Practice Exams and Flash cards www.exampro.co/clf-c01



AWS Support Plans

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Developer

*\$29 USD /month

or 3% of monthly AWS usage whichever is greater

eg. **Monthly Spend is \$500** 3% of 500 = \$15 USD (\$29)

Monthly Spend is \$1000 3% of 1000 = \$30 USD

Business

*\$100 USD / month

or 10% of monthly AWS usage for the first \$0-\$10K 7% of monthly AWS usage from \$10K-\$80K 5% of monthly AWS usage from \$80K-\$250K 3% of monthly AWS usage over \$250K whichever is greater

eg.

Monthly Spend is \$1000

10% of 1000 = \$100 USD

Monthly Spend is \$5000

10% of 5000 = \$500 USD

Monthly Spend is \$12,000

10% of 10,000 = \$1000 USD 7% of 2,000 = 140 USD \$1140 USD

Enterprise

*\$15,000 USD / month

or

10% of monthly AWS usage for the first \$0-\$150K 7% of monthly AWS usage from \$150K-\$500K 5% of monthly AWS usage from \$500K-\$1M 3% of monthly AWS usage over \$1M whichever is greater



Technical Account Manager (TAM)

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A Technical Account Manager? (TAM) provides both proactive guidance and reactive support to help you succeed with your AWS journey

What does a TAM do? (Straight from an AWS Job Posting)

- Build solutions, provide technical guidance and advocate for the customer
- Ensure AWS environments remain operationally healthy whilst reducing cost and complexity
- · Develop trusting relationships with customers, understanding their business needs and technical challenges
- Using your technical acumen and customer obsession, you'll drive technical discussions regarding incidents, trade-offs, and risk management
- Consult with a range of partners from developers through to C-suite executives
- Collaborates with AWS Solutions Architects, Business Developers, Professional Services Consultants, and Sales Account Managers
- Proactively find opportunities for customers to gain additional value from AWS
- · Provide detailed reviews of service disruptions, metrics, detailed prelaunch planning
- Being part of a wider Enterprise Support team providing post-sales, consultative expertise
- Solve a variety of problems across different customers as they migrate their workloads to the cloud
- Uplift customer capabilities by running workshops, brown bag sessions, etc.



TAMs follow the Amazon Leadership Principles Especially about being Customer Obsessed!



TAMs are only available at the Enterprise Support tier.



AWS Marketplace

Cheat sheets, Practice Exams and Flash cards www.exampro.co/clf-c01

AWS Marketplace is a curated digital catalogue with **thousands** of software listings from independent software vendors.

Easily find, buy, test, and deploy software that already runs on AWS.

The product can be **free** to use or can have an **associated charge**. The charge becomes part of your AWS bill, and once you pay, AWS Marketplace pays the provider.

The sales channel for ISVs and Consulting Partners allows you to sell your solutions to other AWS customers.



Products can be offered as

- Amazon Machine Images (AMIs)
- AWS CloudFormation templates
- Software as a service (SaaS) offerings
- Web ACL
- AWS WAF rules



Consolidated Billing

Cheat sheets, Practice Exams and Flash cards www.exampro.co/clf-c01

Consolidated Billing is a feature of AWS Organizations that allows you to pay for multiple AWS accounts with **one bill**.

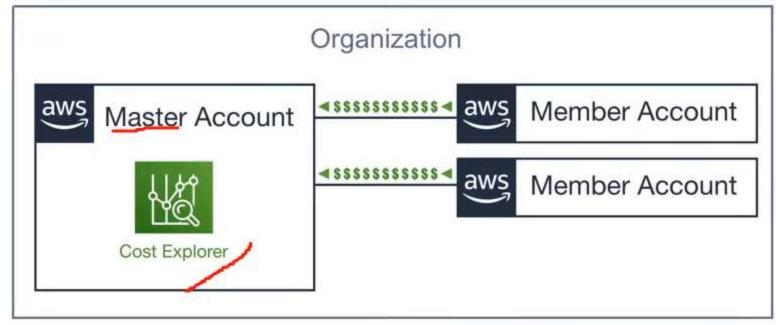
For billing AWS treats all the accounts in an organization as if they were one account.

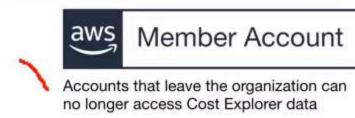
You can designate one master account that pays the charges of all the other member accounts.

Consolidated billing is offered at no additional cost!

Use **Cost Explorer** to visualize usage for consolidated billing

You can combine the usage across all accounts in the organization to share the volume pricing discounts







Consolidated Billing - Volume Discounts

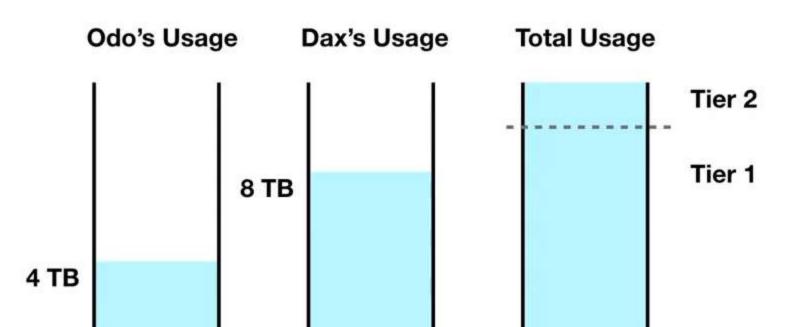
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AWS has **Volume Discounts** for many services

The more you use, the more you save.

Consolidated Billing lets you take advantage of Volume Discounts

Consolidate Billing is a feature of AWS Organizations



Data Transfer	
First 10 TB	\$0.17 per GB
Next 40 TB	\$0.13 per GB

8

Odo

(4*1024)*0.17

= \$696.32

1 TB = 1024 GB

Dax (8*1024)*0.17

= \$<u>1392</u>.64

Unconsolidated 696.32+1392.64

= \$2088.96

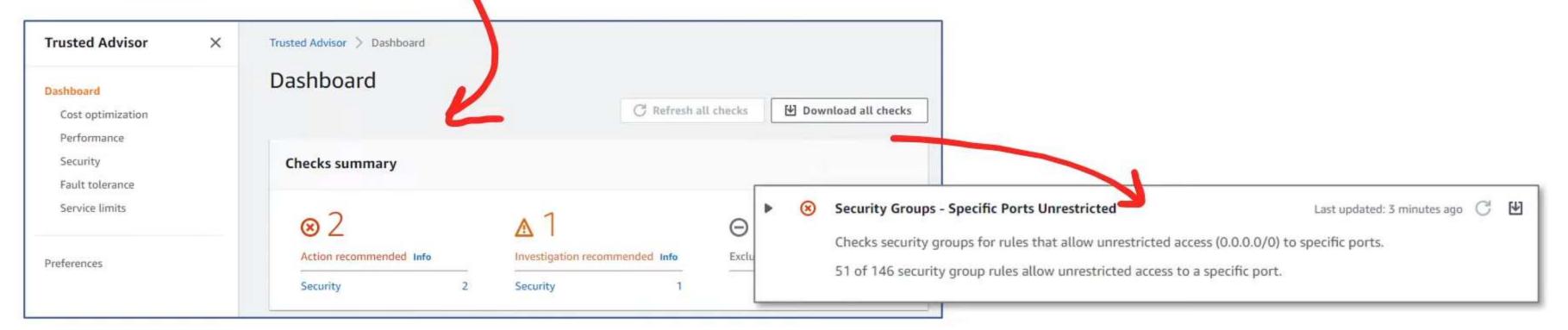
Consolidated

((10*1024)*0.17)+((2*1024)*0.13) = \$2007.04

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AWS Trusted Advisor is a recommendation tool which automatically and actively monitors your AWS account to provide actional recommendations across a series of categories.





Think of AWS Trusted Advisor like an automated checklist of best practices on AWS

The 5 categories of AWS Trusted Advisor

- Cost Optimization How can we save money?
- Performance How can improve performance?
- Security How we can improve security?
- Fault Tolerance How can we prevent a disaster or data loss?
- Service Limits Are we are going to hit the maximum limit for a service?



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AWS Trusted Advisor providers different level of checks based on your AWS Support Plan

Basic

Developer

Business

Enterprise

7 Trusted Advisor Checks

All Trusted Advisor Checks

AWS providers the following checks for free:

- 1. MFA on Root Account
- 2. Security Groups Specific Ports of Unrestricted
- Amazon S3 Bucket Permissions
- 4. Amazon EBS Public Snapshots
- 5. Amazon RDS Public Snapshots
- 6. IAM Use discourage the use of root access
- 7. Service Limits (All Service limits checks are free)

Six security checks

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Cost Optimization

Amazon EC2 Reserved Instances Optimization

Low Utilization Amazon EC2 Instances

Underutilized Amazon EBS Volumes

Amazon EC2 Reserved Instance Lease Expiration

Amazon RDS Idle DB Instances

Amazon Route 53 Latency Resource Record Sets

Idle Load Balancers

Unassociated Elastic IP Addresses

Underutilized Amazon Redshift Clusters



Performance

CloudFront Alternate Domain Names

Amazon EBS Provisioned IOPS (SSD) Volume Attachment Configuration

Amazon EC2 to EBS Throughput Optimization

Amazon Route 53 Alias Resource Record Sets

CloudFront Content Delivery Optimization

CloudFront Header Forwarding and Cache Hit Ratio

High Utilization Amazon EC2 Instances

Large Number of EC2 Security Group Rules Applied to an Instance

Large Number of Rules in an EC2 Security Group

Overutilized Amazon EBS Magnetic Volumes



Security

AWS CloudTrail Logging

IAM Password Policy

MFA on Root Account

Security Groups - Specific Ports Unrestricted

Security Groups - Unrestricted Access

Amazon S3 Bucket Permissions

IAM Access Key Rotation

Amazon EBS Public Snapshots

Amazon RDS Public Snapshots

Amazon RDS Security Group Access Risk

Amazon Route 53 MX Resource Record Sets and Sender Policy Framework

CloudFront Custom SSL Certificates in the IAM Certificate Store

CloudFront SSL Certificate on the Origin Server

ELB Listener Security

ELB Security Groups

Exposed Access Keys

IAM Use



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Fault Tolerance

Amazon EBS Snapshots

Amazon RDS Multi-AZ

Amazon S3 Bucket Logging

Amazon S3 Bucket Versioning

Amazon Aurora DB Instance Accessibility

Amazon EC2 Availability Zone Balance

Amazon RDS Backups

Amazon Route 53 Deleted Health Checks

Amazon Route 53 Failover Resource Record Sets

Amazon Route 53 High TTL Resource Record Sets

Amazon Route 53 Name Server Delegations

Auto Scaling Group Health Check

Auto Scaling Group Resources

ELB Connection Draining

ELB Cross-Zone Load Balancing

Load Balancer Optimization

VPN Tunnel Redundancy

AWS Direct Connect Connection Redundancy

AWS Direct Connect Location Redundancy

AWS Direct Connect Virtual Interface Redundancy

EC2Config Service for EC2 Windows Instances

ENA Driver Version for EC2 Windows Instances

NVMe Driver Version for EC2 Windows Instances

DV Driver Version for EC2 Windows Instances

M

Service Limits

Auto Scaling Groups

Auto Scaling Launch Configurations

CloudFormation Stacks

DynamoDB Read Capacity

DynamoDB Write Capacity

EBS Active Snapshots

EBS Active Volumes

EBS Cold HDD (sc1) Volume Storage

EBS General Purpose SSD (gp2) Volume Storage

EBS Magnetic (standard) Volume Storage

EBS Provisioned IOPS (SSD) Volume Aggregate IOPS

EBS Provisioned IOPS SSD (io1) Volume Storage

EBS Throughput Optimized HDD (st1) Volume Storage

EC2 Elastic IP Addresses

EC2 On-Demand Instances

EC2 Reserved Instance Leases

ELB Active Load Balancers

IAM Group

IAM Instance Profiles

IAM Policies

IAM Roles

IAM Server Certificates

IAM Users

Kinesis Shards per Region

RDS Cluster Parameter Groups

RDS Cluster Roles

RDS Clusters

RDS DB Instances

RDS DB Parameter Groups

RDS DB Security Groups

RDS DB Snapshots Per User

RDS Event Subscriptions

RDS Max Auths per Security Group

RDS Option Groups

RDS Read Replicas per Master

RDS Reserved Instances

RDS Subnet Groups

RDS Subnets per Subnet Group

RDS Total Storage Quota

Route 53 Hosted Zones

Route 53 Max Health Checks

Route 53 Reusable Delegation Sets

Route 53 Traffic Policies

Route 53 Traffic Policy Instances

SES Daily Sending Quota

VPC

VPC Elastic IP Address

VPC Internet Gateways



Service Level Agreements

Cheat sheets, Practice Exams and Flash cards www.exampro.co/clf-c01

What is a Service Level Agreement (SLA)?

A SLA is a **formal commitment** about the **expected level of service** between a customer and provider. When a service level is not met and if Customer meets its obligations under the SLA, Customer will be eligible to receive the compensation eg. **Financial or Service Credits**

What is a Service Level Indicator (SLI)?

A metric/measurement that indicates what measure of performance a customer is receiving at a given time A SLI metric could be uptime, performance, availability, throughput, latency, error rate, durability, correctness

What is a Service Level Objective (SLO)?

The objective that the provider has agreed to meet SLOs are represented as a specific target percentage over a period of time.

Availability SLA of 99.99% in a period of 3 months

Target percentages

- 99.95%
- 99.99%
- 99.999999999 (commonly called Nine nines)
- 99.99999999999% (commonly called **Nine elevens**)



AWS Service Level Agreements

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DynamoDB SLA

AWS will use commercially reasonable efforts to make DynamoDB available with a Monthly Uptime Percentage for each AWS region, during any monthly billing cycle, of (a) at least 99.999% if the Global Tables SLA applies, or (b) at least 99.99% if the Standard SLA applies

In the event DynamoDB does not meet the Service Commitment, you will be eligible to receive a Service Credit as described below

	Monthly Uptime Percentage	Service Credit Percentage
Global Tables SLA	Less than 99.999% but equal to or greater than 99.0% Less than 99.0% but equal to or greater than 95.0% Less than 95.0%	10% 25% 100%
Standard SLA	Less than 99.99% but equal to or greater than 99.0% Less than 99.0% but equal to or greater than 95.0% Less than 95.0%	10% 25% 100%

AWS Service Level Agreements

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Compute SLAs

- Amazon Elastic Compute Cloud (Amazon EC2)*
- Amazon Elastic Block Store (Amazon EBS)
- Amazon Elastic Container Service (Amazon ECS)
- AWS Fargate for Amazon ECS and Amazon EKS

AWS makes two SLA commitments for the Included Services:

- a Region-Level SLA that governs Included Services deployed across multiple AZs or regions, and
- 2. an Instance-Level SLA that governs Amazon EC2 instances individually.

	Monthly Uptime Percentage	Service Credit Percentage
Region-Level SLA	Less than 99.99% but equal to or greater than 99.0% Less than 99.0% but equal to or greater than 95.0% Less than 95.0%	10% 30% 100%
Instance-Level SLA	Less than 99.5% but equal to or greater than 99.0% Less than 99.0% but equal to or greater than 95.0% Less than 95.0%	10% 30% 100%



AWS Service Level Agreements

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RDS SLA

AWS will use commercially reasonable efforts to make Multi-AZ instances available with a Monthly Uptime Percentage of at least 99.95% during any monthly billing cycle

In the event Amazon RDS does not meet the Monthly Uptime Percentage commitment, you will be eligible to receive a Service Credit as described below.

Mo	nthl	y Upti	ime Pe	rcentage
----	------	--------	--------	----------

Less than 99.95% but equal to or greater than 99.0%	
Less than 99.0% but equal to or greater than 95.0%	
Less than 95.0%	

10% 25%

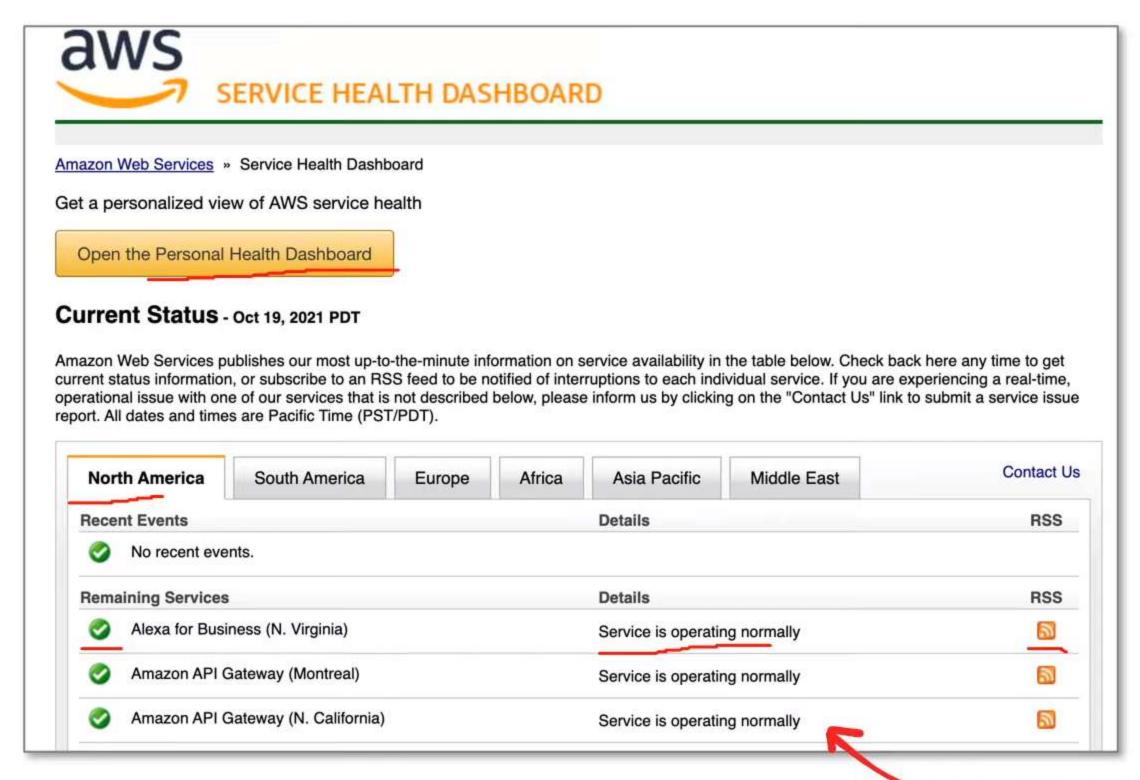
100%

Service Credit Percentage

Service Heath Dashboard

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The Service Health Dashboard shows the general status of AWS services,



An icon and details will indicate the status of each AWS Service



AWS Personal Heath Dashboard

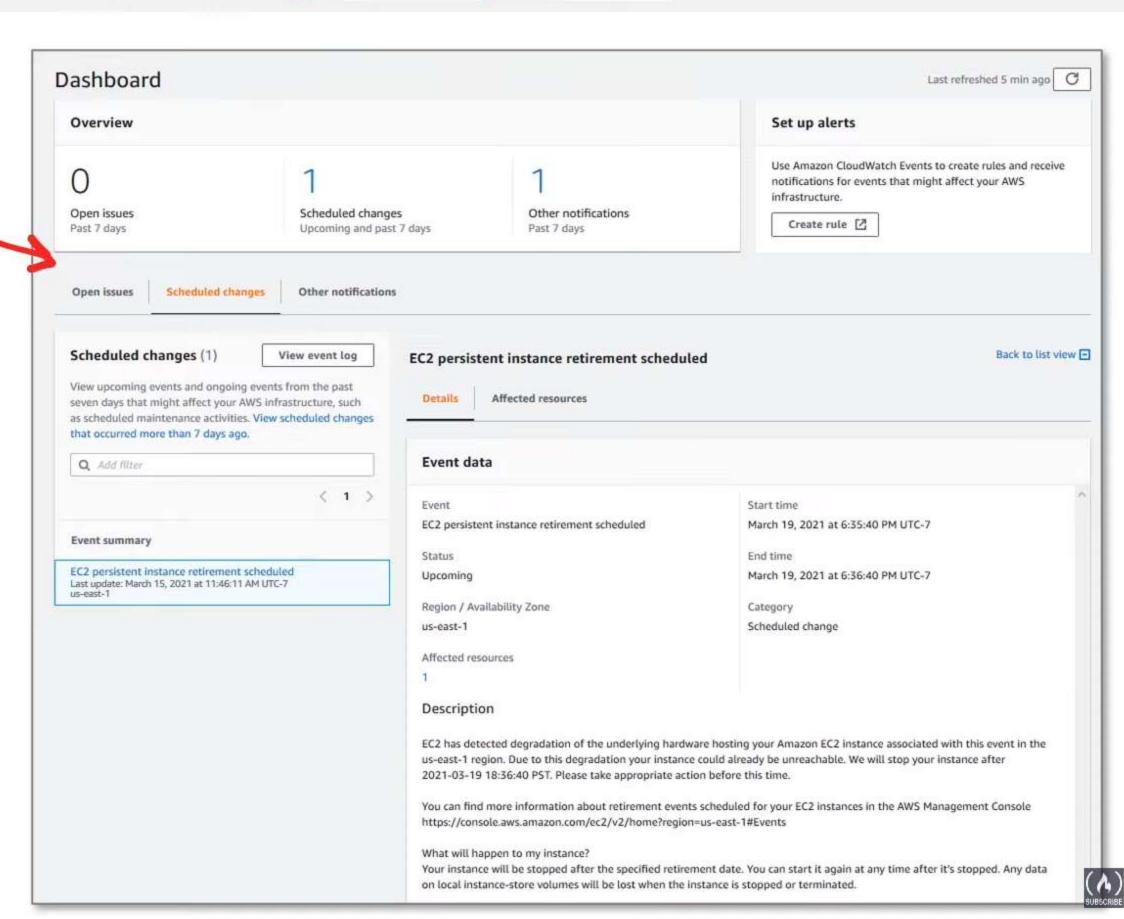
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AWS Personal Health Dashboard provides **alerts and guidance** for AWS events that might affect your environment.

All AWS customers can access the Personal Health Dashboard.

The Personal Health Dashboard shows recent events to help you manage active events, and shows proactive notifications so that you can plan for scheduled activities

Use these alerts to get notified about changes that can affect your AWS resources, and then follow the guidance to diagnose and resolve issues.



AWS Abuse

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AWS Trust & Safety is a team that specifically deals with abuses occurring on the AWS platform for the following issues:

Spam

You are receiving unwanted emails from an AWS-owned IP address, or AWS resources are used to spam websites or forums.

Port scanning

Your logs show that one or more AWS-owned IP addresses are sending packets to multiple ports on your server. You also believe this is an attempt to discover unsecured ports.

Denial-of-service (DoS) attacks

Your logs show that one or more AWS-owned IP addresses are used to flood ports on your resources with packets. You also believe that this is an attempt to overwhelm or crash your server or the software running on your server.

Intrusion attempts:

Your logs show that one or more AWS-owned IP addresses are used to attempt to log in to your resources.

Hosting prohibited content:

You have evidence that AWS resources are used to host or distribute prohibited content, such as illegal content or copyrighted content without the consent of the copyright holder.

Distributing malware

You have evidence that AWS resources are used to distribute software that was knowingly created to compromise or cause harm to computers or machines that it's installed on.



AWS Support does not deal with Abuse tickets. You need to contact abuse@amazonaws.com or fill out the Report Amazon AWS abuse form.

AWS Free-Tier

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AWS has a free-tier which allows you to use AWS at no cost

- for the first 12 months of signup
- Or free usage up to a certain monthly limit forever

The Best Deals



EC2 Web Server

t2.micro 750 hours per month for 1 year



RDS Database (MySQL or Postgres)

t2.db.micro 750 hours per month for 1 year



ELB Load Balancer

750 hours per month for 1 year

Amazon CloudFront Homepage Video 50 GB data-transfer out in total for 1 year

Amazon Connect Toll Free Number 90 minutes of call-time per month for 1 year

Amazon ElastiCache Caching cache.t3.micro 750 hours per month for 1 year

Amazon ElasticSearch Service Full Text Search 750 hours per month for 1 year

PinPoint Campaign / Marketing Emails 5,000 targeted users per month for 1 year

SES Emails sent by your web-application 62,000 emails per month forever

AWS CodePipeline CI/CD 1 Pipeline free

AWS CodeBuild Building Code 100 build minutes per month forever

AWS Lambda Serverless Compute
1M free request per month
3.2M seconds of compute time per month



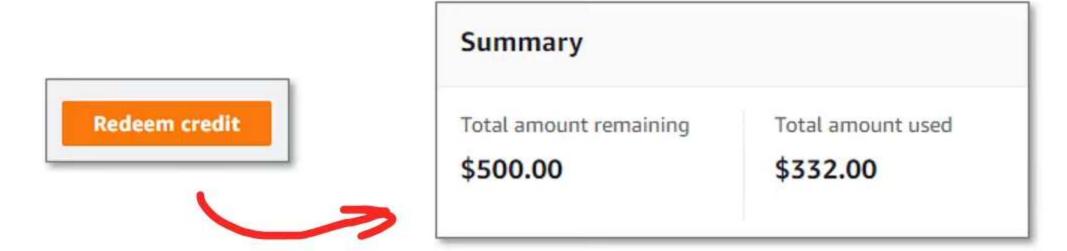
AWS Credits

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AWS Promotional Credits (or AWS Credits for short) are the equivalent to USD dollars on the AWS platform. AWS Credits can be earned several ways:

- Joining the AWS Activate startup program
- Winning Hackathons
- Participating in Surveys
- ...



AWS Credits generally have an expiry date attached to them.

AWS Credits can be used for most services but there are exceptions where AWS Credits cannot be used eg. Purchasing a domain via Route53

AWS Pricing API

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With AWS you can programmatically access pricing information to get the latest price offering for services.

There are two versions of this API:

- Query API The Pricing Service API via JSON
 - https://api.pricing.us-east-1.amazonaws.com
- Batch API The Price List API via HTML
 - https://pricing.us-east-1.amazonaws.com/offers/v1.0/aws/index.json

You can also subscribe to Amazon Simple Notification Service (Amazon SNS) notifications to get alerts when prices for the services change.

AWS prices change periodically, such as when AWS cuts prices, when new instance types are launched, or when new services are introduced