

AWS Free Services

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

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



IAM - Identity Access Management



Amazon VPC



Auto Scaling



CloudFormation



Elastic Beanstalk



Opsworks



Amplify



AppSync



CodeStar



Organizations & Consolidated Billing



AWS Cost Explorer

The AWS services are also free. however these AWS Services provision other services which may cost money



SUBSCRIBE

AWS Support Plans

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

Basic

Email Support only
For Billing and Account

Developer

Tech Support via **Email** ~24 hours until reply

No third party support

General Guidance

System Impaired

Business

Tech Support via **Chat, Phone** Anytime 24/7

< 24 hrs

Production System Impaired

< 4 hrs

Production System **DOWN!**

< 1 hrs

Business-Critical System **DOWN!** < 15m

 Personal Concierge

 TAM

7 Trusted Advisor Checks

All Trusted Advisor Checks

\$0 USD /month

***\$29 USD /month**

***\$100 USD / month**

***\$15,000 USD / month**



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)

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



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.



SUBSCRIBE

AWS Marketplace

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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**.

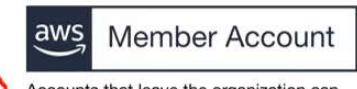
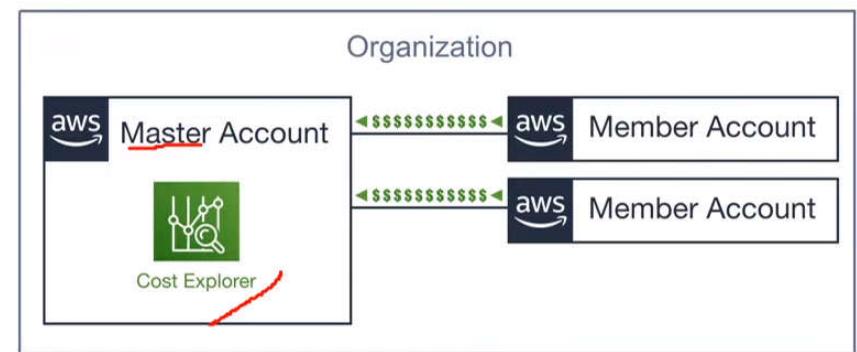
For billing AWS treats all the accounts in an organization as if they were one account.

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



Accounts that leave the organization can no longer access Cost Explorer data



SUBSCRIBE

Consolidated Billing – Volume Discounts

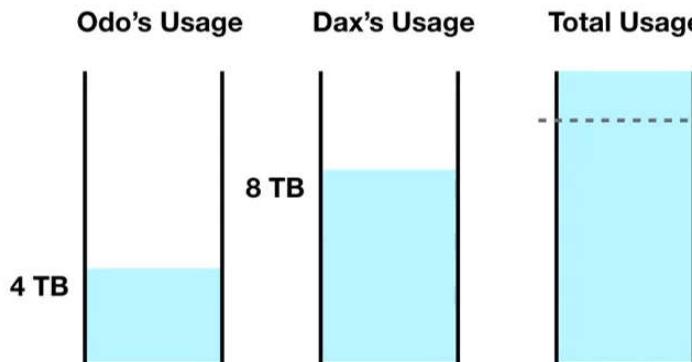
Cheat sheets, Practice Exams and Flash cards  www.exampro.co/clf-c01

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



Tier 2
Tier 1

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

| | | | |
|----------------|--|-------------|----------------|
| Odo | $(4 * \underline{1024}) * 0.17$ | = \$696.32 | 1 TB = 1024 GB |
| Dax | $(8 * \underline{1024}) * 0.17$ | = \$1392.64 | |
| Unconsolidated | $696.32 + 1392.64$ | = \$2088.96 | |
| Consolidated | $((10 * \underline{1024}) * 0.17) + ((2 * \underline{1024}) * 0.13)$ | = \$2007.04 | |



SUBSCRIBE

AWS Trusted Advisor

Cheat sheets, Practice Exams and Flash cards [👉 www.exampro.co/clf-c01](http://www.exampro.co/clf-c01)



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

The screenshot shows the AWS Trusted Advisor dashboard. On the left, there's a sidebar with links for Trusted Advisor, Dashboard, Cost optimization, Performance, Security, Fault tolerance, Service limits, and Preferences. The main area is titled 'Dashboard' and contains a 'Checks summary' section. It shows two items: 'Action recommended' (2) and 'Investigation recommended' (1). A red arrow points from the top of the page down to the 'Checks summary' section. Another red arrow points from the 'Investigation recommended' section to a detailed view of a specific finding: 'Security Groups - Specific Ports Unrestricted'. This finding details that it checks security groups for rules that allow unrestricted access (0.0.0.0/0) to specific ports, with 51 of 146 security group rules allowing such access. There are also 'Refresh all checks' and 'Download all checks' buttons at the top of the main dashboard area.



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 going to hit the maximum limit for a service?



AWS Trusted Advisor

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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 provides the following checks for free:

1. MFA on Root Account
2. Security Groups – Specific Ports of Unrestricted
3. 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



AWS Trusted Advisor

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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



AWS Trusted Advisor

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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
- ENI Driver Version for EC2 Windows Instances
- NVMe Driver Version for EC2 Windows Instances
- PV Driver Version for EC2 Windows Instances



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

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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%
- 99.99999999% (commonly called **Nine nines**)
- 99.999999999% (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 |
|--------------------------|--|---------------------------|
| <i>Global Tables SLA</i> | Less than 99.999% but equal to or greater than 99.0% | 10% |
| | Less than 99.0% but equal to or greater than 95.0% | 25% |
| | Less than 95.0% | 100% |
| <i>Standard SLA</i> | Less than 99.99% but equal to or greater than 99.0% | 10% |
| | Less than 99.0% but equal to or greater than 95.0% | 25% |
| | Less than 95.0% | 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:

1. 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 |
|---------------------------|---|---------------------------|
| <i>Region-Level SLA</i> | Less than 99.99% but equal to or greater than 99.0% | 10% |
| | Less than 99.0% but equal to or greater than 95.0% | 30% |
| | Less than 95.0% | 100% |
| <i>Instance-Level SLA</i> | Less than 99.5% but equal to or greater than 99.0% | 10% |
| | Less than 99.0% but equal to or greater than 95.0% | 30% |
| | Less than 95.0% | 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.

Monthly Uptime Percentage

Service Credit Percentage

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

10%

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

25%

Less than 95.0%

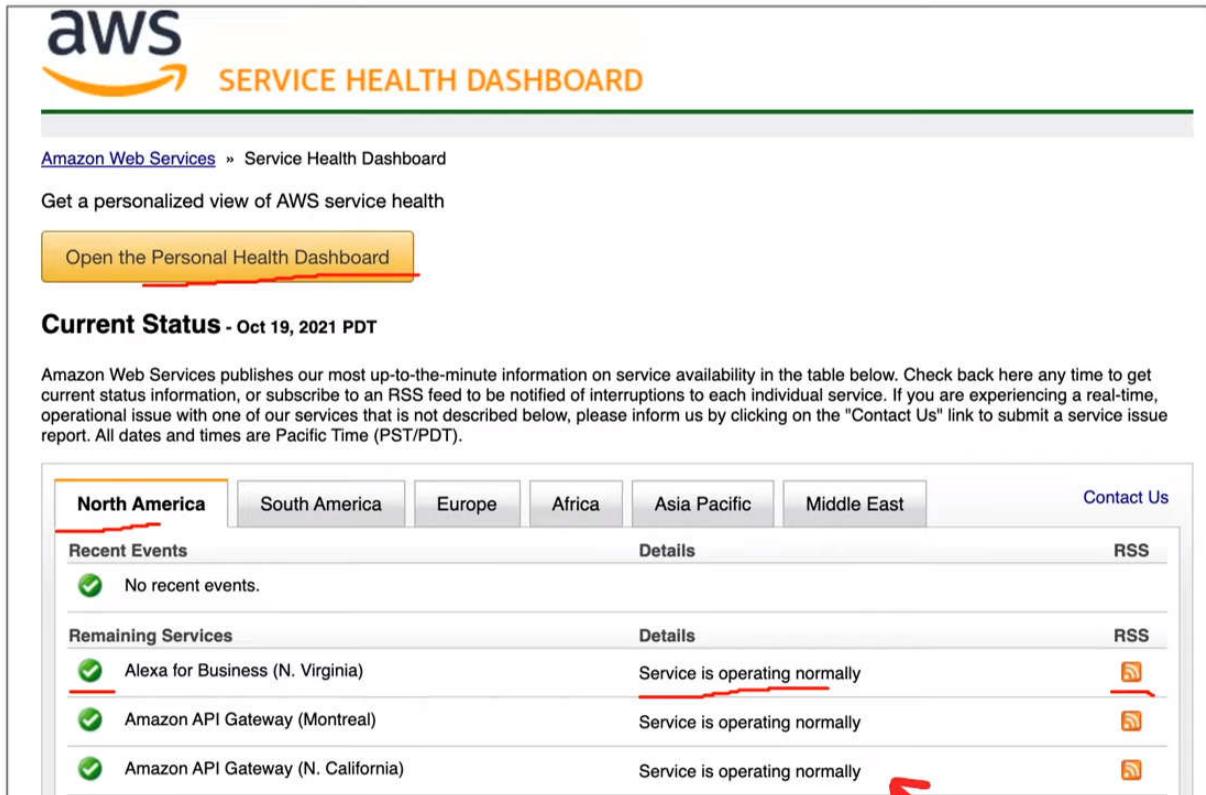
100%



Service Health Dashboard

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



The screenshot shows the AWS Service Health Dashboard. At the top, there's a navigation bar with the AWS logo and the text "SERVICE HEALTH DASHBOARD". Below it, a breadcrumb trail says "Amazon Web Services » Service Health Dashboard". A sub-header reads "Get a personalized view of AWS service health" with a button "Open the Personal Health Dashboard". A section titled "Current Status - Oct 19, 2021 PDT" contains a message about staying up-to-date with service availability. Below this is a table with tabs for "North America", "South America", "Europe", "Africa", "Asia Pacific", and "Middle East", with "Contact Us" and "RSS" links. The "North America" tab is selected. The table has two sections: "Recent Events" (which shows "No recent events") and "Remaining Services" (which lists three services: Alexa for Business (N. Virginia), Amazon API Gateway (Montreal), and Amazon API Gateway (N. California), all marked as "Service is operating normally"). Red arrows highlight the "RSS" link under the "Remaining Services" table and point to the "Details" column for the first service in the list.

| Recent Events | Details | RSS |
|-------------------|---------|-----|
| No recent events. | | |

| Remaining Services | Details | RSS |
|------------------------------------|-------------------------------|---|
| Alexa for Business (N. Virginia) | Service is operating normally |  |
| Amazon API Gateway (Montreal) | Service is operating normally |  |
| Amazon API Gateway (N. California) | Service is operating normally |  |

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



AWS Personal Health Dashboard

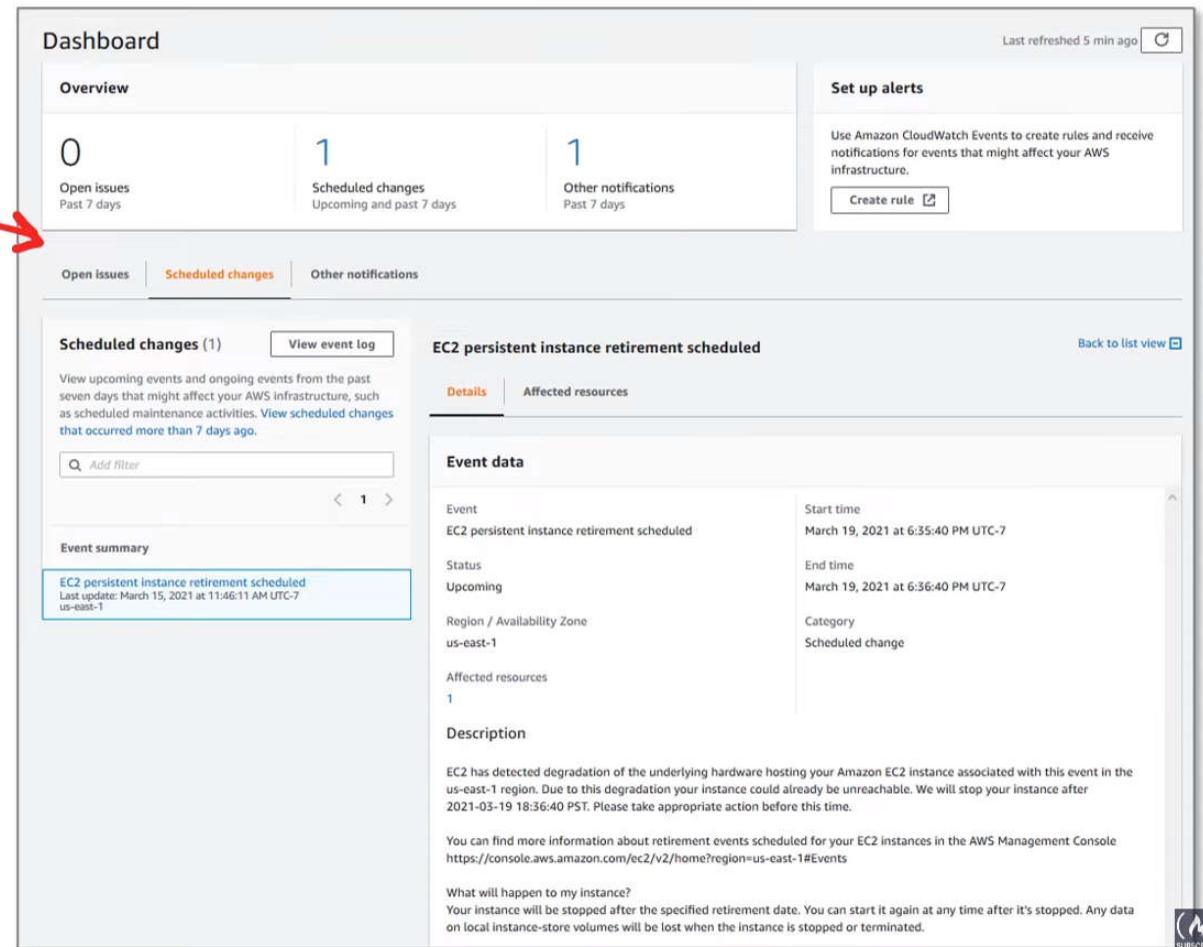
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AWS Personal Health Dashboard provides **alerts and guidance** for AWS events that might affect your environment.

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.



The screenshot shows the AWS Personal Health Dashboard interface. At the top, there's an 'Overview' section with three metrics: 0 Open issues (Past 7 days), 1 Scheduled changes (Upcoming and past 7 days), and 1 Other notifications (Past 7 days). To the right, there's a 'Set up alerts' section with a 'Create rule' button. Below the overview, there are tabs for 'Open issues', 'Scheduled changes' (which is highlighted in orange), and 'Other notifications'. The main content area shows a list of 'Scheduled changes' with one item: 'EC2 persistent instance retirement scheduled'. This item is detailed in a card: 'Event' (EC2 persistent instance retirement scheduled), 'Status' (Upcoming), 'Region / Availability Zone' (us-east-1), and 'Affected resources' (1). To the right of the event card, there's a table with columns for 'Event data' (Event, Status, Region / Availability Zone, Affected resources) and 'Affected resources' (Start time, End time, Category). Below the event details, there's a 'Description' section with a warning about hardware degradation and a link to the AWS Management Console for more information. At the bottom right, there's a 'SUBSCRIBE' button with a bell icon.

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



EC2 Web Server

t2.micro 750 hours per month for 1 year

The Best Deals



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



SUBSCRIBE

AWS Credits

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



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
- ...

Redeem credit

Summary

| Total amount remaining | Total amount used |
|------------------------|-------------------|
| \$500.00 | \$332.00 |



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 Partner Network (APN)

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



The AWS Partner Network (APN) is a global partner program for AWS. Joining the APN will open your organization up to business opportunities and allows exclusives trainings and marketing events



When joining the APN you can either be a:

Consulting Partner – you help companies utilize AWS

Technology Partner – you build technology ontop of AWS as a service offering

- A partner belongs to a specific Tier: Select, Advanced or Premier
- Different tiers have different Annual fee commitments
- Different tiers have different Knowledge requirements
 - AWS Certification
 - AWS APN-Exclusive Certifications
- You can get back Promotional AWS Credits
- You can have unique speaking opportunities in the official AWS marketing channels. Eg blogs, webinars
- Being part of the APN is a requirement to be a Sponsor with a vendor booth at AWS Events



AWS Budgets

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



AWS Budgets give you the ability to setup alerts if you **exceed** or are **approaching** your defined budget

Create Cost, Usage or Reservation Budgets

It can be tracked at the **monthly, quarterly, or yearly levels**, with customizable start and end dates

Alerts support **EC2, RDS, Redshift, and ElastiCache** reservations.



AWS Budgets can be used to Forecast costs but is limited compared to Cost Explorer or doing your analysis with AWS Cost and Usage Reports along with a Business Intelligence tool

Budget based on a fixed cost or plan your upfront based on your chosen level
Can be easily managed from the **AWS Budgets** dashboard or via the **Budgets API**.
Get Notified by providing an email or **Chatbot** and threshold how close to the current or forecasted budget

Choose your budget amount in \$\$\$

Budgeted amount

\$100

Last month's cost \$126.59

Usage unit(s)

Usage Type Group

EC2: Running Hours (Hrs) X

Usage Type

Choose based a different kind of unit

Budgeted amount

100

Hrs

Last month's usage 2260.54 Hrs



SUBSCRIBE

AWS Budgets

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You have a list of budgets:



| Budgets (3) <small>Info</small> | | | | | | | |
|---------------------------------|-----------------------|---|----------|-------------|------------------|--|--|
| <input type="checkbox"/> | Name | Thresholds | Budget | Amount used | Forecasted am... | Current vs. budgeted | Forecasted vs. bud... |
| <input type="checkbox"/> | AWS Credits Budgets | ⚠ Exceeded (1) | \$200.00 | \$318.79 | \$392.07 | 159.39% | 196.01% |
| <input type="checkbox"/> | MinecraftServerBudget | OK | \$100.00 | \$0.00 | - | 0.00% | - |
| <input type="checkbox"/> | Overall Costs | ⚠ Exceeded (1) | \$100.00 | \$393.77 | \$539.28 | 393.77% | 539.28% |

You can see your budget history, download it as a CSV



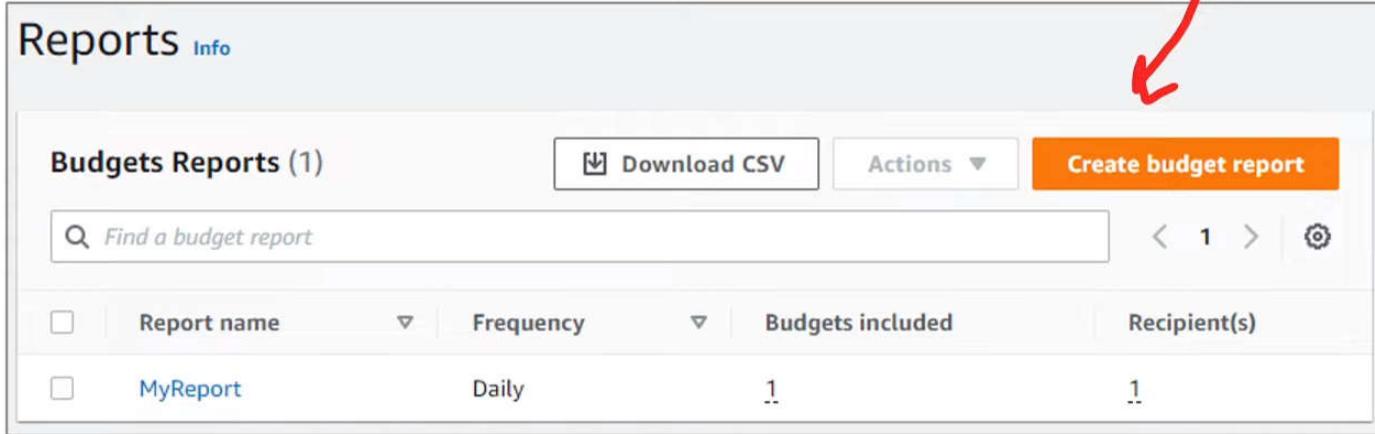
- **first two budgets are free** of charge
- Each budget is **\$0.02 per day ~\$0.60 USD / month**
- **20,000 budgets limit**



AWS Budget Reports

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

AWS Budget Report is used alongside AWS Budgets to create and send daily, weekly, or monthly reports to monitor the performance of your AWS Budget that will be emailed to specific emails.



A red arrow points from the text above to the 'Create budget report' button in the screenshot.

| Report name | Frequency | Budgets included | Recipient(s) |
|-------------|-----------|------------------|--------------|
| MyReport | Daily | 1 | 1 |

AWS Budget Reports serve as a more convenient way of staying on top of reports since they are delivered to your email instead of logging into the AWS Management Console



SUBSCRIBE

AWS Cost and Usage Reports (CUR)

Cheat sheets, Practice Exams and Flash cards [👉 www.exampro.co/clf-c01](http://www.exampro.co/clf-c01)



Generate a **detailed spreadsheet**, enabling you to
better analyze and understand your AWS costs

| M | N | O | P | Q | R | S | T |
|----------------------|----------------------------------|--------------------|---------------------------|----------------------|-----------------------|---|---|
| LineItem/ProductCode | LineItem/UsageType | LineItem/Operation | LineItem/AvailabilityZone | LineItem/UsageAmount | LineItem/CurrencyCode | LineItem/LineItemDescription | |
| AmazonEC2 | CW:AlarmMonitorUsage | Unknown | | 0.00134409 | USD | \$0.00 per alarm-month - first 10 alarms | |
| AmazonS3 | Requests-Tier1 | ListAllMyBuckets | | 2 | USD | \$0.00 per request - PUT, COPY, POST, or LIST requests under the monthly global free tier | |
| AmazonEC2 | CW:AlarmMonitorUsage | Unknown | | 0.00134409 | USD | \$0.00 per alarm-month - first 10 alarms | |
| AmazonEC2 | APS2-BS5-VolumeUsage-gp2 | CreateVolume-gp2 | | 0.01344096 | USD | \$0.00 per GB-month of General Purpose (SSD) provisioned storage under monthly free tier | |
| AmazonEC2 | APS2-BS5-VolumeUsage-gp2 | CreateVolume-gp2 | | 0.01344096 | USD | \$0.00 per GB-month of General Purpose (SSD) provisioned storage under monthly free tier | |
| AmazonEC2 | USW2-BoxUsage-t2.micro | RunInstances-0002 | us-west-2a | 3 | USD | \$0.00 per Windows 12.micro instance-hour (or partial hour) under monthly free tier | |
| AmazonEC2 | USW2-USE1-AWS-Out-Bytes | PublicIP-Out | | 0.000002174 | USD | \$0.00 per GB - data transfer out under the monthly global free tier | |
| AmazonEC2 | USW2-USE1-AWS-In-Bytes | PublicIP-In | | 0.00000138 | USD | \$0.00 per GB - US West (Oregon) data transfer from US East (Northern Virginia) | |
| AmazonEC2 | USW2-USW1-AWS-In-Bytes | PublicIP-In | | 0.00000149 | USD | \$0.00 per GB - US West (Oregon) data transfer from US West (Northern California) | |
| AmazonS3 | Requests-Tier1 | ListAllMyBuckets | | 2 | USD | \$0.00 per request - PUT, COPY, POST, or LIST requests under the monthly global free tier | |
| AmazonEC2 | USW2-DataTransfer-Out-Bytes | RunInstances | | 0.0008144 | USD | \$0.00 per GB - data transfer out under the monthly global free tier | |
| AmazonEC2 | USW2-USW1-AWS-Out-Bytes | PublicIP-Out | | 0.00000174 | USD | \$0.00 per GB - data transfer out under the monthly global free tier | |
| AmazonEC2 | USW2-DataTransfer-In-Bytes | RunInstances | | 0.00030951 | USD | \$0.00 per GB - data transfer in per month | |
| AmazonEC2 | USW2-BoxUsage-t2.micro | RunInstances-0002 | us-west-2a | 1 | USD | \$0.00 per Windows 12.micro instance-hour (or partial hour) under monthly free tier | |
| AmazonEC2 | USW2-USW1-AWS-Out-Bytes | PublicIP-Out | | 0.00000349 | USD | \$0.00 per GB - data transfer out under the monthly global free tier | |
| AmazonEC2 | USW2-USW1-AWS-In-Bytes | PublicIP-In | | 0.00000276 | USD | \$0.00 per GB - US West (Oregon) data transfer from US West (Northern California) | |
| AmazonEC2 | APS2-BS5-VolumeUsage-gp2 | CreateVolume-gp2 | | 0.01344096 | USD | \$0.00 per GB-month of General Purpose (SSD) provisioned storage under monthly free tier | |
| AmazonEC2 | CW:AlarmMonitorUsage | Unknown | | 0.00134409 | USD | \$0.00 per alarm-month - first 10 alarms | |
| AmazonEC2 | USW2-BoxUsage-t2.micro | RunInstances-0002 | us-west-2a | 1 | USD | \$0.00 per Windows 12.micro instance-hour (or partial hour) under monthly free tier | |
| AmazonEC2 | USW2-DataTransfer-Regional-Bytes | PublicIP-Out | | 0.00000349 | USD | \$0.00 per GB - regional data transfer under the monthly global free tier | |
| AmazonEC2 | USW2-DataTransfer-In-Bytes | RunInstances | | 0.000002071 | USD | \$0.00 per GB - data transfer in per month | |
| AmazonEC2 | USW2-DataTransfer-Regional-Bytes | PublicIP-In | | 0.000003002 | USD | \$0.00 per GB - regional data transfer under the monthly global free tier | |
| AmazonEC2 | USW2-DataTransfer-Out-Bytes | PublicIP-In | | 0.000002071 | USD | \$0.00 per GB - regional data transfer under the monthly global free tier | |
| AmazonEC2 | USW2-USE1-AWS-Out-Bytes | PublicIP-Out | | 0.00000174 | USD | \$0.00 per GB - data transfer out under the monthly global free tier | |
| AmazonEC2 | USW2-DataTransfer-Out-Bytes | RunInstances | | 0.00045736 | USD | \$0.00 per GB - data transfer out under the monthly global free tier | |
| AmazonEC2 | USW2-DataTransfer-In-Bytes | RunInstances | | 0.000001737 | USD | \$0.00 per GB - data transfer in per month | |
| AmazonEC2 | USW2-APN2-AWS-In-Bytes | PublicIP-In | | 0.00000005 | USD | \$0.00 per GB - data transfer from Asia Pacific (Seoul) | |
| AmazonEC2 | USW2-APN2-AWS-Out-Bytes | PublicIP-Out | | 0.00000018 | USD | \$0.00 per GB - data transfer out under the monthly global free tier | |
| AmazonEC2 | USW2-USE1-AWS-In-Bytes | PublicIP-In | | 0.000000153 | USD | \$0.00 per GB - US West (Oregon) data transfer from US East (Northern Virginia) | |
| AmazonEC2 | USW2-DataTransfer-Out-Bytes | RunInstances | | 0.000009945 | USD | \$0.00 per GB - data transfer out under the monthly global free tier | |
| AmazonEC2 | CW:AlarmMonitorUsage | Unknown | | 0.00134409 | USD | \$0.00 per alarm-month - first 10 alarms | |

choose the granularity of your data by
selecting hourly, daily or monthly

The report will contain Cost Allocation Tags

CUR data is stored in a CSV (GZIP) or
Parquet format in your selected S3 bucket



Places the reports into S3



Use Athena to turn the report into a queryable database



Use QuickSight to visualize your billing data as graphs



Cost Allocation Tags

Cheat sheets, Practice Exams and Flash cards [👉 www.exampro.co/clf-c01](http://www.exampro.co/clf-c01)

Cost Allocation Tags are optional metadata that can be attached to AWS resource so when you generate out a Cost and Usage Report you can use that data to better analyze your data.

There are **two types** of tags:

- User-Defined
 - Eg Project
- AWS Generated
 - E.g. aws:createdBy

The screenshot shows the 'Cost allocation tags' page in the AWS Management Console. It has two tabs: 'User-defined cost allocation tags' (disabled) and 'AWS-generated cost allocation tags' (enabled). A red arrow points from the text 'There are two types of tags:' to the 'User-defined cost allocation tags' tab. Another red arrow points from the text 'You have to activate the tags you want to show up in the report' to the 'Activate' button. The 'AWS-generated cost allocation tags' section shows 17 tags with columns for 'Tag key' and 'Status'. The tags listed are: aws:createdBy (Active), aws:cloudformation:stack-name (Inactive), and aws:ec2launchtemplate:id (Inactive).

| Tag key | Status |
|-------------------------------|----------|
| aws:createdBy | Active |
| aws:cloudformation:stack-name | Inactive |
| aws:ec2launchtemplate:id | Inactive |



Billing Alerts/Alarms

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You can create your own Alarms in CloudWatch Alarms to monitor spend. They are commonly called “Billing Alarms”

You first need to turn on **Billing Alerts**



The screenshot shows two main sections. On the left, under 'Cost Management Preferences', there are two checked checkboxes: 'Receive Free Tier Usage Alerts' and 'Receive Billing Alerts'. The 'Receive Billing Alerts' section includes a text input for an email address ('andrew@exampro.co'). On the right, a 'Specify metric and conditions' dialog is open. It displays a graph titled 'Graph' showing 'EstimatedCharges' over time (10/21 to 10/25). A blue line represents the metric, and a red line indicates the threshold. The dialog includes fields for 'Namespace' (AWS/Billing), 'Metric name' (EstimatedCharges), 'Currency' (USD), 'Statistic' (Maximum), and 'Period' (6 hours). A red arrow points from the 'Billing' button in the middle of the slide towards the 'EstimatedCharges' graph in the dialog.

Go create a CloudWatch Alarm and you can choose Billing as your Metric

Billing

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Billing Alarms are much more flexible than AWS Budgets and ideal for more complex use-cases for monitoring spend and usage

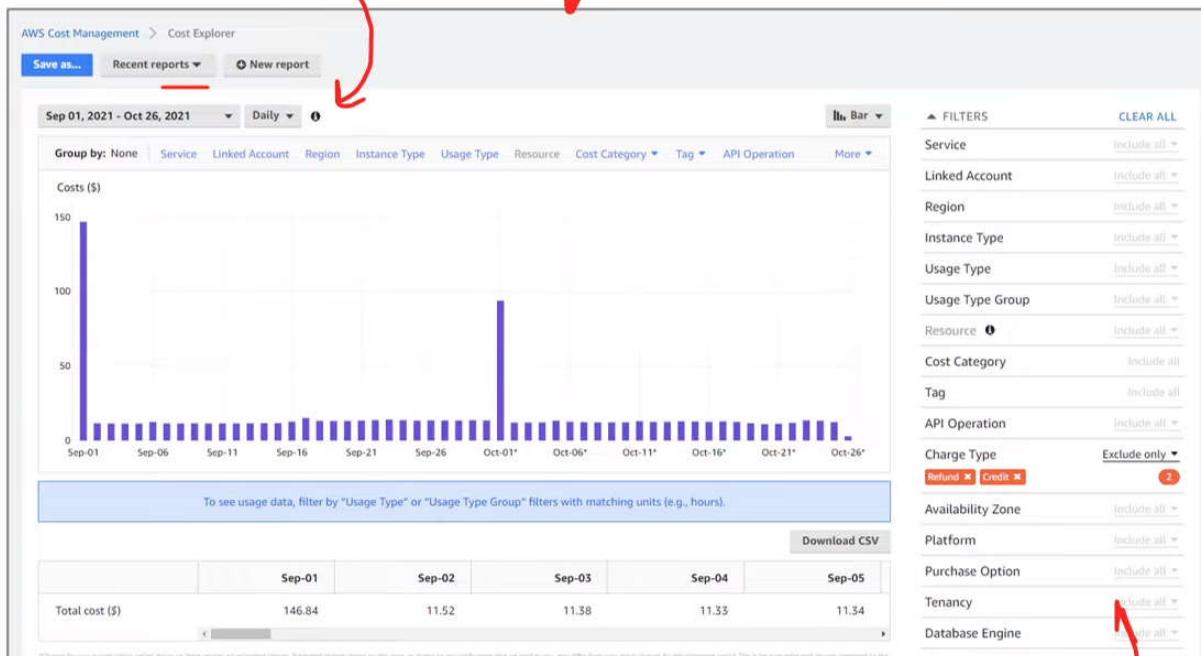
AWS Cost Explorer

Cheat sheets, Practice Exams and Flash cards [👉 www.exampro.co/clf-c01](http://www.exampro.co/clf-c01)



AWS Cost Explorer lets you visualize, understand, and manage your AWS costs and usage over time.

Specific type range and aggregation



Robust filtering

Default reports help you gain insight into your cost drivers and usage trends.

The screenshot shows the 'Reports' dropdown menu. It lists several options: 'Cost and Usage Reports', 'Monthly costs by service', 'Monthly costs by linked account', 'Monthly EC2 running hours costs and usage', 'Daily costs', 'AWS Marketplace', 'Reservation Reports', 'RI Utilization', and 'RI Coverage'. Red arrows point from the 'Default reports help you gain insight into your cost drivers and usage trends.' text to the 'Cost and Usage Reports' and 'Monthly costs by service' items.

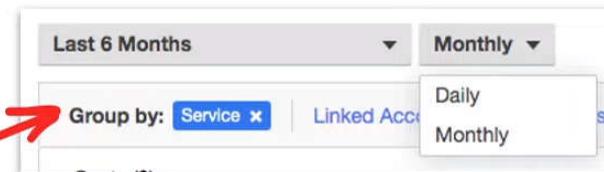
Use **forecasting** to get an idea of future costs

The screenshot shows a 'Forecasted month end costs' section. It displays '\$456.94' in large text, a '1%' decrease icon, and the text 'Over last month'. There is a 'SUBSCRIBE' button at the bottom right. A red arrow points from the 'Use forecasting to get an idea of future costs' text to the '\$456.94' value.

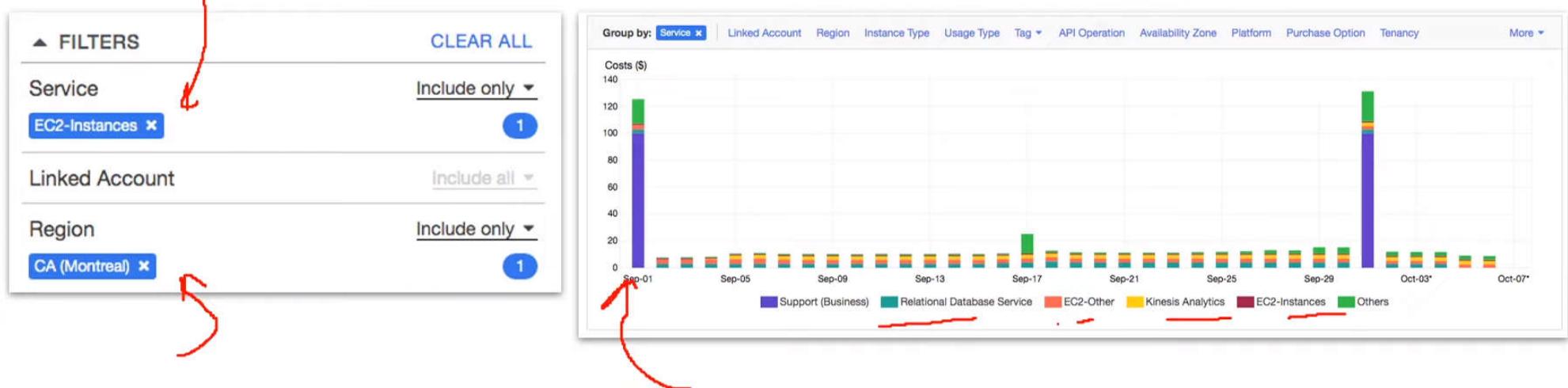
AWS Cost Explorer

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Choose if you want to view your data at a
monthly or daily level of granularity



Use **filter** and **grouping** functionalities to dig even deeper into your data!



Cost Explorer shows up in **US-East-1**



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



SUBSCRIBE