

This cheat sheet includes **all re:Invent 2022 service launches and top new feature, instance, and region expansion announcements**

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\* Top new feature, instance, and region expansion announcements

## AI/ML

### Amazon CodeWhisperer

Build applications faster with the ML-powered coding companion

#### What is it?

Amazon CodeWhisperer is a machine learning (ML)-powered service that helps improve developer productivity by generating code recommendations based on their comments in natural language and code in the integrated development environment (IDE).

#### Benefits

Accelerate application development with automatic code recommendations based on the code and comments in your IDE.

Empower developers to responsibly use artificial intelligence (AI) to create syntactically correct and secure applications. Generate entire functions and logical code blocks without having to search for and customize code snippets from the web.

Stay focused and never leave the IDE, with real-time customized code recommendations for all your Java, Python, and JavaScript projects.

#### Use Cases

##### Develop next-gen applications

Accelerate frontend and backend development by empowering developers with automatic code recommendations.

##### Use ML in your applications

Save time and effort by using CodeWhisperer to generate code to build and train your ML models.

##### Build applications using AWS services

Speed up the development process with code recommendations for AWS APIs across the most popular services, including Amazon EC2, AWS Lambda, and Amazon S3.

##### Automate unit test generation

Offload writing repetitive unit test code. Based on natural language comments, CodeWhisperer automatically recommends unit test code that matches your implementation code.

#### Availability

During the preview period, developers can use CodeWhisperer at no cost.

#### Resources

[Product Detail Page](#)

### Amazon Omics

Store, transform, and analyze genomic and other multiomic data to generate health insights

#### What is it?

Amazon Omics helps you store, query, analyze, and generate insights from genomics and other multiomic data to improve human health.

## Benefits

Securely combine the genome data of individuals with their medical history.  
Use your purpose-built data stores to support large-scale analysis and collaborative research across entire populations.  
Accelerate your research and innovation by using automated workflow execution and integrated tools.  
Protect patient privacy with GDPR compliance, HIPAA eligibility, and built-in data access and logging.

## Use Cases

### Scale population sequencing

Store your data efficiently and analyze thousands of genomes at once to understand how genomic variation maps to phenotypes across a population.

### Simplify clinical genomics

Build reproducible and traceable clinical genomics workflows to reduce turnaround time and increase productivity.

### Accelerate clinical trials

Integrate genome analysis into your clinical trials to help stratify patient populations and better identify responders versus non-responders.

### Enhance research and innovation

Use built-in access control to streamline storage and analysis of anonymized genomic data for researchers.

## Availability

For availability, please see the [AWS Regional Services List](#) (updated daily).

## Resources

[Product Detail Page](#) | [What's New Blog Post](#)

# Geospatial ML with Amazon SageMaker (preview)

Build, train, and deploy ML models using geospatial data faster

## What is it?

Amazon SageMaker supports geospatial machine learning (ML) capabilities, allowing Data Scientist and ML Engineers to easily build, train, and deploy ML models using geospatial data. Access geospatial data sources, purpose-built processing operations, pre-trained ML models and built-in visualization tools to run geospatial ML faster and at scale.

## Benefits

Access readily available geospatial data sources, including satellite imagery, maps, and location data.  
Efficiently process or enrich large-scale geospatial datasets with purpose-built operations such as resampling, mosaicking, and reverse geocoding.  
Accelerate model building by using built-in, pretrained deep neural network models such as land cover segmentation and cloud masking.  
Analyze geospatial data and explore model predictions on an interactive map using 3D accelerated graphics with built-in visualization tools.

## Use Cases

### Assess risk and insurance claims

Measure risk, validate claims and prevent fraud, analyze damage impact from natural disasters on local economies, and track construction projects.

### Inform trading strategies

Monitor financial assets globally, forecast market commodity prices, enhance your hedging or trading strategies, and mitigate the impact of price volatility.

### Monitor climate change

Track deforestation and biodiversity, measure methane gas emissions, create climate resiliency plans, and improve power grid reliability.

### Support sustainable urban development

Design more sustainable and livable urban environments, identify areas for land development, track traffic trends, or evaluate the feasibility of energy projects.

### Maximize harvest yield and food security

View satellite images to diagnose plant health, insure and classify crops, predict harvest yield, forecast demand for agriculture produce, or detect farm boundaries.

### Predict retail demand

Track high-growth city areas to improve sales or supply distribution channels, or combine location data with competitive intelligence to choose new store locations.

## Availability

For availability, please see the [AWS Regional Services List](#) (updated daily).

## Resources

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# ML governance with Amazon SageMaker

Simplify access control and enhance transparency

## What is it?

Purpose-built governance tools to help you implement ML responsibly. With SageMaker Role Manager, administrators can define minimum permissions in minutes. SageMaker Model Cards creates a single source of truth for model information by centralizing and standardizing documentation throughout the lifecycle, and SageMaker Model Dashboard gives you unified monitoring across all your models by providing deviations from expected behavior, automated alerts, and troubleshooting.

## Benefits

Generate customized roles allowing machine learning (ML) practitioners to start working with SageMaker faster. Streamline model documentation and provide visibility into key assumptions, characteristics, and artifacts from conception to deployment.

Quickly audit and troubleshoot performance for all models, endpoints, and model monitoring jobs through one pane. Track deviations from expected model behavior, and missing or inactive monitoring jobs with automated alerts.

## Use Cases

### **Define minimum permissions in minutes with SageMaker Role Manager**

You can quickly create a role with minimum permissions using the Role Manager's pre-built IAM policies for ML activities and different personas.

You can attach your managed policies to tailor the permissions to your use case.

### **Streamline model documentation with SageMaker Model Cards**

You can autopopulate training details to accelerate the documentation process.

You can attach model evaluation results and provide visualizations.

You can export your model cards to a pdf format.

### **Get unified model monitoring with SageMaker Model Dashboard**

You can stay informed of changes in model behavior through a single view.

You can setup and receive alerts for deviations in model behavior.

You can drill deeper into individual models to troubleshoot violations.

## Availability

For availability, please see the [AWS Regional Services List](#) (updated daily).

## Resources

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## Analytics

### **\*AWS Glue for Ray (preview)**

Pay only for the resources that you use while running code, and no need to configure or tune any resources

## Resources

[What's New Blog Post](#)

### **\*Amazon QuickSight Paginated Reports**

Create, schedule, and share reports and data exports

## Resources

[What's New Blog Post](#)

### **\*Expanded API capabilities for Amazon QuickSight**

New and expanded APIs let customers and developers treat QuickSight

## Resources

[What's New Blog Post](#)

## Amazon OpenSearch Serverless (preview)

Provides consistently fast data-ingest rates and millisecond response times

### Resources

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## Amazon DataZone

Unlock data across organizational boundaries with built-in governance

### What is it?

Use Amazon DataZone to discover and share data at scale across organizational boundaries with governance and access controls. Amazon DataZone makes data accessible to everyone in the organization.

### Benefits

Get a 360-degree view of all your trusted business data regardless of where it is stored.

Increase productivity by inviting team members to collaborate and access data project assets and analytics tools.

Analyze data with a personalized view of your projects without signing in to the AWS Management Console.

Access your data in accordance with your organization's security and compliance regulations.

### Use Cases

#### Find data in the business data catalog

Use business terms to search, share, and access cataloged data stored on AWS, on premises, or with third-party providers.

#### Streamline workflow processes

Increase your efficiency by collaborating seamlessly across teams and accessing data and analytics tools in a self-service fashion.

#### Simplify analytics access

Get a personalized view to discover, prepare, transform, analyze, and visualize data using a web-based application.

#### Administer access from one place

Manage and govern data access in accordance with your organization's security regulations from a single place.

### Availability

For availability, please see the [AWS Regional Services List](#) (updated daily).

### Resources

[Product Detail Page](#)

## **\*Amazon Redshift integration with Apache Spark**

Expand the breadth of data sources that you can use in your rich analytics and machine learning applications

Resources

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## **AWS Clean Rooms (preview)**

Create clean rooms in minutes. Collaborate without sharing raw data.

Resources

[Product Detail Page](#)

## **\*Automated data-prep for Amazon QuickSight Q**

Includes artificial intelligence-enhanced automated data preparation

Resources

[What's New Blog Post](#)

## **\*Amazon Athena for Apache Spark**

Develop interactive workloads that work across diverse data formats and data lakes

Resources

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## **\*AWS Glue Data Quality (preview)**

Automatically measures, monitors, and manages data quality in your data lakes and pipelines

Resources

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## Business Apps

### AWS Wickr

Protect enterprise communications with end-to-end encryption

#### What is it?

AWS Wickr is an end-to-end encrypted collaboration service that ensures the privacy and security of your team's messaging, voice and video calling, file sharing, and more. All while giving you the administrative controls you need to manage your users.

#### Benefits

Secure collaboration across messaging, voice and video calling, file sharing, and screen sharing.  
Use flexible administrative controls to deploy and manage communication networks at scale.  
Retain information as required for compliance, legal hold, and auditing purposes.  
Gain multi-device (mobile, desktop) access and the ability to function in low-bandwidth environments.

#### Use Cases

##### **Secure sensitive communications**

Combat threats, and enable out-of-band communications for disaster recovery and incident response.

##### **Facilitate data governance**

Protect the privacy of regulated data, including personally identifiable information and protected health information.

##### **Enable internal and external collaboration**

Safely communicate with internal stakeholders and external partners through federation.

##### **Strengthen administrative control**

Establish and maintain control over user accounts, security settings, and compliance policies.

#### Availability

For availability, please see the [AWS Regional Services List](#)

#### Resources

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### \*Step-by-step guides for Amazon Connect agent workspace (preview)

Empower agents with a unified experience, including step-by-step guides

#### Resources

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## \*Amazon Connect forecasting, capacity planning, and scheduling

Respond faster to capacity and workforce changes with ML-powered contact center capabilities

### Resources

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## AWS Supply Chain (preview)

Mitigate risks and lower costs with an ML-powered supply chain application

### What is it?

AWS Supply Chain is a cloud-based application that unifies data, provides ML-powered actionable insights, and offers built-in contextual collaboration. AWS Supply Chain can connect to your existing enterprise resource planning (ERP) and supply chain management systems, without requiring replatforming, upfront licensing fees, or long-term commitments.

### Benefits

Quickly gain visibility across your supply chain without replatforming, upfront licensing fees, or long-term commitments.

Make more informed supply chain decisions with machine learning (ML)-powered actionable insights.

Reduce errors by using contextual chat and messaging to collaborate across teams and quickly resolve issues.

Mitigate overstock and stock-out risks to improve customer experiences while lowering excess inventory costs.

### Use Cases

#### **Unify supply chain data**

Quickly set up AWS Supply Chain using pretrained ML models that understand, extract, and transform disparate data into a unified data lake.

#### **Reveal risks and derive insights**

View the overall health of your supply chain network, and get ML-powered insights about potential inventory risks such as excess stock or stock outs.

#### **Take the right action quickly**

Review recommended actions that can mitigate risks, and use built-in, contextual collaboration capabilities to agree on and implement decisions faster.

#### **Deliver on customer promises**

Generate more accurate demand forecasts to reduce stock outs. Increase demand planning accuracy with ML models that continually improve over time.

### Availability

For availability, please see the [AWS Regional Services List](#) (updated daily).

### Resources

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## Cloud Operations

### \*Amazon CloudWatch Internet Monitor (preview)

Provides data and actionable insights for AWS, hybrid, and on-premises applications and infrastructure resources

Resources

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## Compute

### \*Amazon EC2 C6in instances

Compute optimized instances powered by 3rd Generation Intel Xeon Scalable processors

Resources

[Product Detail Page](#) | [What's New Blog Post](#)

### \*Amazon EC2 C7gn (preview)

Best price performance for compute-intensive workloads in Amazon EC2

Resources

[Product Detail Page](#) | [What's New Blog Post](#)

### \*Amazon EC2 M6in and M6idn instances

General purpose instances powered by 3rd Generation Intel Xeon Scalable processors

Resources

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### \*Amazon EC2 R6in and R6idn instances

Memory-optimized instances powered by 3rd Generation Intel Xeon Scalable processors

Resources

[Product Detail Page](#) | [What's New Blog Post](#)

### \*Amazon EC2 Inf2 instances (preview)

High performance at the lowest cost in Amazon EC2 for the most demanding inference workloads

Resources

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## \*Amazon EC2 Hpc6id Instances

HPC-optimized instances powered by 3rd Generation Intel Xeon Scalable processors

### Resources

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## AWS SimSpace Weaver

Create large-scale spatial simulations across multiple instances in the AWS cloud

### What is it?

AWS SimSpace Weaver is a managed service that lets you create expansive simulation worlds at increased levels of complexity and scale, without worrying about the underlying compute, memory, or networking—all while paying only a fraction of the cost compared to procuring high-end hardware.

### Benefits

Scale spatial simulations across multiple instances to increase the size, complexity, or number of objects in your simulation.

Time-consuming challenges surrounding data management, cross-server replication, and time synchronization across instances are automatically managed for you by the service.

Integrate with popular development toolkits and simulation engines out of the box, such as Unreal Engine 5 and Unity.

### Use Cases

#### Large-scale crowd simulation

Simulate crowds with millions of individual entities to plan large-scale events.

#### Recreate virtual city environments

Simulate traffic patterns to public transportation networks to future infrastructure projects and build it all at real-world scale.

#### Create immersive interactive experiences

Let multiple users observe and interact with virtual 3D worlds.

### Availability

For availability, please see the [AWS Regional Services List](#) (updated daily).

### Resources

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## Databases

### \*Amazon Aurora zero-ETL integration with Amazon Redshift (preview)

Supports zero-ETL integration with Amazon Redshift

#### Resources

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## DevOps

### Amazon CodeCatalyst (preview)

Spark a faster planning, development, and delivery lifecycle on AWS

#### What is it?

Build and deliver faster on AWS with Amazon CodeCatalyst, a unified software development service. CodeCatalyst is fully managed by AWS, so you can focus on development.

#### Benefits

Launch new projects in minutes using blueprints with virtually everything that you need—from source code to service configurations.

Quickly create personal cloud-based development environments that are fully configured for your project and work with popular IDEs.

Easily define continuous integration and delivery (CI/CD) pipelines and run them on automatically scalable, managed compute environments.

Collaborate efficiently with integrated activity feeds, real-time notifications, and shared development resources.

#### Availability

For availability, please see the [AWS Regional Services List](#) (updated daily).

#### Resources

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## Networking and Content Delivery

### AWS Verified Access (preview)

Secure access to corporate applications without a VPN

#### What is it?

AWS Verified Access enables secure access to corporate applications without a VPN. AWS Verified Access built on AWS zero trust principles, continuously evaluates each user request in real-time and grants access based on policies using security signals like Identity, device security status, location, thereby improving the overall security posture of the organization.

## Benefits

### Improved Security Posture

AWS Verified access evaluates each user request in real-time. When a user tries to access an application, AWS Verified Access gets the user's attributes from security data providers like identity, device management, and other security systems

### Seamless User Experience

AWS Verified Access enables your users to access corporate applications without the need for a VPN. Users can simply connect to their corporate application through supported browsers.

### Simplify policy Implementation for Application Access

You can easily define application access policies in a single location. You can on-board new applications in minutes and rapidly make changes to polices based on business needs.

## Use Cases

### Secure distributed users

With AWS Verified Access, users access to corporate applications is based on AWS zero trust principles using multiple security signals like identity, location, and device security status. AWS Verified Access evaluates each request in real-time against security requirements as defined in the policy to ensure secure access to the applications.

### Manage corporate application access

Using AWS Verified Access, IT administrators can define policies, and on-board new applications within minutes. IT administrators can use AWS Verified Access to build a set of fine-grained policies using security data like device security status and up-to-date security software that define a user's ability to access each application.

### Accelerate time to troubleshoot

AWS Verified Access evaluates each access request and logs all request data including security signal input used to authorize or deny requests. This provides visibility to the networking team into corporate application access requests thereby enabling the team to quickly gather data and intelligence to direct a faster response.

## Availability

For availability, please see the [AWS Regional Services List](#) (updated daily).

## Resources

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## Amazon VPC Lattice (preview)

Simplify service-to-service connectivity, security, and monitoring

### What is it?

Amazon VPC Lattice is an application layer service that consistently connects, monitors, and secures communications between your services, helping to improve productivity so that your developers can focus on building features that matter to your business. You can define policies for network access, traffic management, and monitoring to connect compute services in a simple and consistent way across instances, containers, and serverless.

## Benefits

Simplify and automate service connectivity using Amazon VPC Lattice to discover and securely connect services with each other.

Create an improved and more consistent security posture with reliable authentication and context-specific authorization.

Scale compute and network resources for high-bandwidth workloads with millions of HTTP requests per second. Improve productivity and deployment flexibility with support for instances, containers and serverless compute.

## Use Cases

### **Simplify service-to-service connectivity at scale**

Connect thousands of services across VPCs and accounts without increasing network complexity.

### **Enhance application-layer security**

Improve service-to-service security and support zero trust architectures with centralized access controls, authentication, and context-specific authorization.

### **Implement advanced traffic management**

Apply granular traffic controls, such as request-level routing and weighted targets for blue/green and canary deployments.

### **Gain visibility into service-to-service interactions**

Monitor and troubleshoot service-to-service communication for request type, traffic volume, errors, response time, and more.

## Availability

For availability, please see the [AWS Regional Services List](#) (updated daily).

## Resources

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# Security, Compliance, and Identity

## Amazon Verified Permissions (preview)

Manage fine-grained permissions and authorization within custom applications

### What is it?

Amazon Verified Permissions is a scalable, fine-grained permissions management and authorization service for custom applications. The service centralizes fine-grained permissions for custom applications and helps developers authorize user actions within applications. Amazon Verified Permissions uses the [Cedar](#) policy language to define fine-grained permissions for application users.

### Benefits

Accelerate application development by decoupling authorization from business logic.

Save time and resources with centralized permissions and policy lifecycle management.

Simplify compliance audits at scale using automated analysis to confirm that permissions work as intended.

Build applications that support Zero Trust architectures with dynamic, real-time authorization decisions.

## Use Cases

### **Define a fine-grained authorization model**

Create policies from templates and enforce those controls within Amazon API Gateway and AWS AppSync.

### **Grant fine-grained permissions within applications**

Administrators can create application-wide policies, and developers can grant user permissions to access data and resources.

### **Audit permissions across applications**

Review policy model changes and monitor authorization requests using Amazon Verified Permissions.

### **Centralize the policy administration system**

Create and centrally store policy-based access controls, and meet your application latency requirements with millisecond processing.

## Availability

For availability, please see the [AWS Regional Services List](#) (updated daily).

## Resources

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# Amazon Security Lake (preview)

Automatically centralize your security data in a few steps

## What is it?

Amazon Security Lake automatically centralizes security data from cloud, on-premises, and custom sources into a purpose-built data lake stored in your account. With Security Lake, you can get a more complete understanding of your security data across your entire organization. You can also improve the protection of your workloads, applications, and data. Security Lake has adopted the [Open Cybersecurity Schema Framework](#) (OCSF), an open standard. With OCSF support, the service can normalize and combine security data from AWS and a broad range of enterprise security data sources.

## Benefits

Use your preferred analytics tools while retaining control and ownership of your security data.  
Centralize data visibility from cloud and on-premises sources across your accounts and Regions.  
Normalize data to an open standard to more efficiently share and use with multiple analytics tools.  
Improve and manage security data for more efficient storage and query.

## Use Cases

### **Analyze multiple years of security data quickly**

Centralize years of cloud, on-premises, and custom data in your Amazon S3 buckets and use your preferred tools for security analytics.

### **Support on-demand analysis of petabyte-scale data**

Build a data lake to support security investigations and rapid incident response scenarios.

**Examine your data with custom analytics**

Give your security teams broader visibility to investigate and respond to suspicious activities using your custom analytics models.

**Use your preferred tools with centralized data**

Streamline the process of accessing data for teams across your organization using their preferred analytics tools, without duplicating data.

**Availability**

For availability, please see the [AWS Regional Services List](#) (updated daily).

**Resources**

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## Serverless Compute

### \*AWS Lambda SnapStart

Assets like software code and integrate with DevOps processes

**Resources**

[What's New Blog Post](#)

## AWS Application Composer (preview)

Visually design and build serverless applications quickly

**What is it?**

AWS Application Composer helps to streamline and accelerate the architecture, configuration, and build of serverless applications.

**Benefits**

Visually compose serverless applications using AWS services with little guesswork.  
Rapidly generate ready to deploy infrastructure as code (IaC) that follows best practices.  
Maintain a model of your architecture with simplified team sharing and building.

**Use Cases****Design and build new serverless applications**

Streamline the composition of serverless applications from multiple AWS services.

**Manage applications through IaC**

Simplify common tasks, such as generating deployment-ready configuration and IaC for each service in your architecture.

**Visualize your application architecture and configuration**

Quickly understand your application architecture and its components as you collaborate with your team.



## Availability

For availability, please see the [AWS Regional Services List](#) (updated daily).

## Resources

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## Other

### **AWS water positive by 2030**

AWS returns more water than it uses in direct operations by 2030

## Resources

[What's New Blog Post](#)

### **Just Walk Out Technology by Amazon**

Elevate the retail experience with Just Walk Out technology

## Resources

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