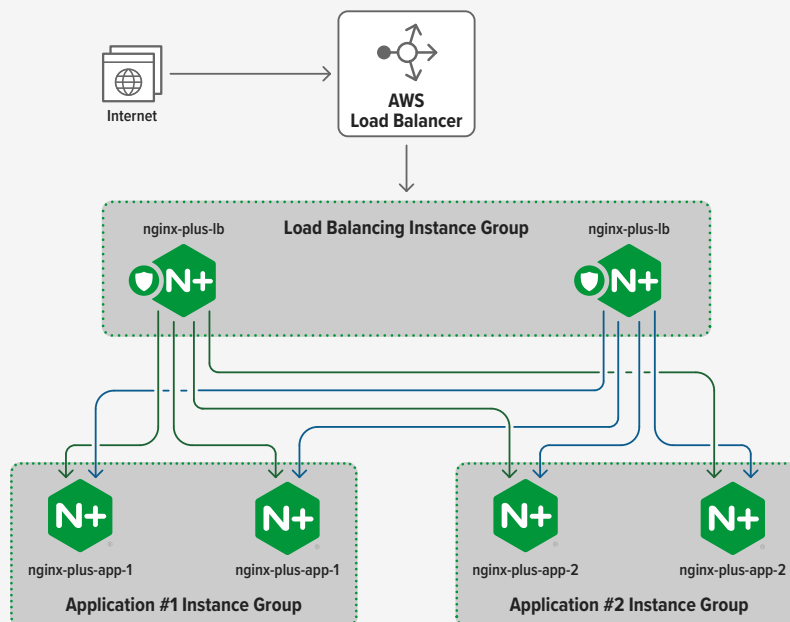


F5 NGINX for AWS Deployment Guide

Deliver Apps and APIs 90% Faster

Looking for consistent, high-performance app delivery and web services?

NGINX Plus can operate standalone or integrate with AWS services – such as existing load-balancing solutions, Auto Scaling groups, and AWS Lambda – to reduce your application delivery and management costs. Eliminate tool sprawl and complexity with the only all-in-one solution for load balancing, reverse proxy, API gateway, web server, and content cache.



Use NGINX Plus as a:

- **Load balancer** – Distribute traffic efficiently across backend servers for reliable, high-performance application delivery
- **Reverse proxy** – Pass, modify, and manage requests between clients and backend servers
- **API gateway** – Handle request routing, authentication, rate limiting, and SSL/TLS offload, and deliver API responses in real time (under 30 milliseconds)
- **Web server** – Deliver content like the majority of the busiest sites on the Internet, with high performance, low resource demands, and a small memory footprint

Goals/Objectives

As new apps are written and deployed, security is built into the code pipeline (DevSecOps).

Enterprise, public sector, and service providers can rapidly innovate without waiting for security and network teams to approve and enable application deployments.

Customer Deployment Resources

- NGINX Plus
- NGINX Controller
- NGINX Ingress Controller
- NGINX App Protect
- Advanced WAF
- Cloud Partners
- Automation Partners
- Container Platform Partners

Regions Supported

All, no limitations

Use Cases

- Security and Performance in CI/CD Pipelines
- Manage and Secure APIs
- Mitigate App Vulnerabilities
- Compliance

Time to Completion

1 hour



Introductory Material

<https://www.nginx.com/blog/deploying-nginx-ingress-controller-on-amazon-eks-how-we-tested/#deploy-controller>

Prerequisites and Requirements

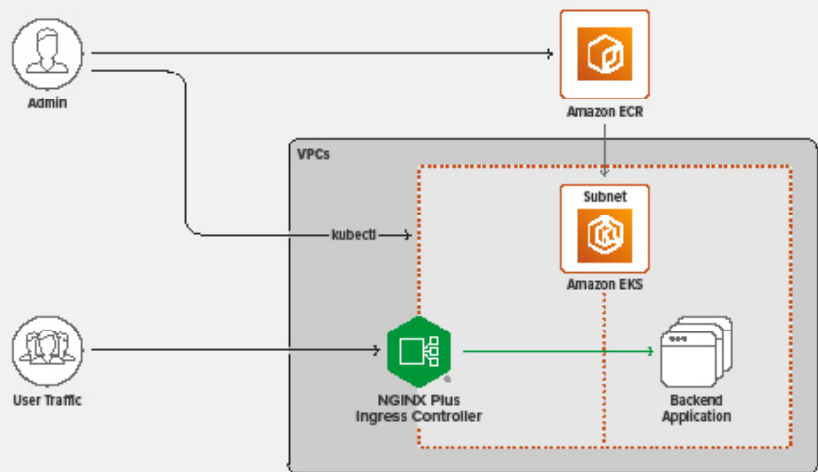
Deploying the NGINX Plus Ingress Controller on Amazon EKS is now easier than ever. There are some technical prerequisites and requirements to complete the deployment process.

- Create an OIDC Identity Provider (IdP) for your EKS cluster.
- Create iamserviceaccount, the standard paired IAM Role and Service Account (IRSA) for EKS, and attach the AWSMarketplaceMeteringRegisterUsage IAM policy for monitoring the usage of the NGINX Plus Ingress Controller image and authorizing the deployment.
- In the YAML file for RBAC, edit the value of name in the subjects field to match the service-account-name you set in the previous step.
 - Apply the YAML file
 - Install the Docker client software on the local machine.
 - Subscribe to the NGINX Plus Ingress Controller (Premium Edition) listing in the Amazon Marketplace for Containers.
- Authenticate your Docker client with the Amazon ECR.
- Edit nginx-ingress.yaml values.
- Apply the YAML manifest.
- Deploy the Backend Pods.

The technical prerequisites and detailed requirements to complete the deployment process, skills or specialized knowledge needed, and environment configuration are fully documented here: <https://www.nginx.com/blog/deploying-nginx-ingress-controller-on-amazon-eks-how-we-tested/#deploy-controller>

Architecture Diagrams

The following diagram shows the needed architecture, topology, and network considerations to use for deployment:



This diagram can be viewed and expanded upon here: <https://www.nginx.com/blog/deploying-nginx-ingress-controller-on-amazon-eks-how-we-tested/#deploy-controller>. Third party assets/APIs and on-premises/hybrid assets are organically and flexibly integrated as needed or desired but have zero requirements for a full deployment depicted above.

Security

NGINX running in EKS does not require the use of root privileges for deployment or operation. You can follow the AWS provided overview for a typical EKS deployment here: <https://www.nginx.com/blog/deploying-nginx-ingress-controller-on-amazon-eks-how-we-tested/#deploycontroller>

This guide, as well as the resources at: <https://www.nginx.com/blog/deploying-nginx-ingress-controller-on-amazon-eks-how-we-tested/#deploycontroller>

The deployment guide at: <https://www.nginx.com/blog/deploying-nginx-ingress-controller-on-amazon-eks-how-we-tested/#deploycontroller>

- Any public resources needed (none required)
- The purpose of each IAM role and IAM policy needed
- The purpose and location of each key the user is instructed to create
- Clear instruction on maintaining any stored secrets (we do not require any secrets)
- An explanation of all data encryption configuration (we do not encrypt data)
- Deployments involving more than a single element

Costs

The list of billable services and guidance on whether each service is mandatory/optional can be found at the NGINX page of the AWS Marketplace at: <https://aws.amazon.com/marketplace/seller-profile?id=741df81b-dfdc-4d36-b8da-945ea66b522c>

The cost model and licensing costs can also be found at the NGINX page of the AWS Marketplace at: <https://aws.amazon.com/marketplace/seller-profile?id=741df81b-dfdc-4d36-b8da-945ea66b522c>. For normal deployment costing, follow the AWS provided overview at: <https://aws-quickstart.github.io/quickstart-amazon-eks/>, for a typical EKS deployment, then add in NGINX+ and IC from the NGINX page of the AWS Marketplace.

The screenshot shows the AWS Marketplace interface for NGINX, Inc. The header includes the AWS Marketplace logo, a search bar, and navigation links for 'About', 'Categories', 'Delivery Methods', 'Solutions', 'AWS IQ', 'Resources', and 'Your Saved List'. The main content area features the NGINX logo and the text 'Part of F5'. Below this, there is a section titled 'About NGINX, Inc.' with a paragraph describing the company. To the right, there is a section for 'NGINX, Inc. Products (29)' with a pagination control showing '1 2 3'. The first product listed is 'NGINX Plus with NGINX App Protect Developer - Ubuntu' with a price of '18.04'. It includes a 'Free Trial' badge, a version number 'Version 2.4 | Sold by NGINX, Inc.', and '2 external reviews'. A description below the product states: 'Starting from \$0.29/hr or from \$2,100.00/yr (17% savings) for software + AWS usage fees. Deliver apps with performance, reliability, security, and scale. NGINX Plus and NGINX App Protect on AWS deploy quickly and cost-effectively, and you'll benefit from speeds <30ms. Get the all in one (yet surprisingly lightweight) load balancer, reverse proxy, and API gateway with WAF.' The second product, 'NGINX Plus Standard - Ubuntu', is partially visible at the bottom.

Goals/Objectives

For sizing, scripts, and/or related technical information, the NGINX Ingress Controller solution brief with sizing guidelines for Amazon Elastic Kubernetes Service (EKS) is the best resource to view: <https://www.nginx.com/resources/datasheets/nginx-ingress-controller-kubernetes/>. This resource follows the AWS provided overview for a typical EKS deployment.

Health Check

Step-by-step instructions for how to assess and monitor the health and proper function of the deployed solution can be found at <https://www.nginx.com/blog/deploying-nginx-ingress-controller-on-amazon-eks-how-we-tested/#deploy-controller>.

Routine Maintenance

There are no system credentials or cryptographic keys that are required for this solution. For prescriptive guidance for software patches and upgrades please visit <https://docs.nginx.com/nginx-ingress-controller/installation/using-aws-marketplace-image/>. No licenses are required if purchased via the marketplace, so there is no needed prescriptive guidance on managing licenses. For managing AWS service limits, please visit <https://www.nginx.com/blog/deploying-nginx-ingress-controller-on-amazon-eks-how-we-tested/#deploy-controller>.

Deployment Assets

Step-by-step instructions for deploying the workload on AWS as per typical deployment architecture, as well as prescriptive guidance for testing/troubleshooting can be found at <https://www.nginx.com/blog/deploying-nginx-ingress-controller-on-amazon-eks-how-we-tested/#deploy-controller>.

Backup and Recovery

Data stores, the configurations to be backed up, and step by step instructions for backup and recovery can be found <https://www.nginx.com/blog/deploying-nginx-ingress-controller-on-amazon-eks-how-we-tested/#deploy-controller>.

Emergency Maintenance

For step-by-step instructions on handling fault conditions, and step-by-step instructions on how to recover the software, please visit <https://docs.nginx.com/nginx-ingress-controller/troubleshooting/troubleshoot-ingress-controller/>.

Support

For details on how to receive support, please visit <https://support.f5.com/csp/article/K23782072>. For details on technical support tiers, different support tiers, and SLAs, visit <https://www.nginx.com/support/>.

To discover how NGINX can help you, visit [nginx.com](https://www.nginx.com).

Appendix

- **Deployment options (e.g. single-AZ, multi-AZ or multi-region)** – Multi-region, and single-region are all supported, it depends on your deployment of EKS.
- **Skills or specialized knowledge needed by the user (e.g. familiarity with AWS, specific AWS services, a scripting or programming language)** – Users will need to know how to deploy a typical EKS instance, have basic level Kubernetes knowledge and a general understanding of NGINX products found at www.nginx.com/products.
- **The solution does not require the use of root privileges for deployment or operation.** For the use of root privileges when deploying, you would follow the provided overview for a typical EKS deployment. Do not use root user privileges for other operations. Learn more here: <https://docs.aws.amazon.com/accounts/latest/reference/root-user.html>.
- **Prescriptive guidance on following the policy of least privilege for all access granted as part of the deployment.** Always remember to use least permission roles when deploying. To learn more about IAM least privilege policies, visit here <https://docs.aws.amazon.com/IAM/latest/UserGuide/best-practices.html#grant-least-privilege>.
- **The purpose and location of each key the user is instructed to create.** There is no needed key, other than what EKS would require for normal deployment.
- **Deployments involving more than a single element (e.g. launching an EC2 node with a partner AMI) include c (e.g. VPCs, subnets, security groups, NACLs, and route tables)** – For deployments involving more than a single element, you would follow the provided overview for a typical EKS deployment. Please note that it matters how you want to deploy your EKS cluster, this has nothing to do with NGINX its about deploying EKS. NGINX is not more than a single element, just the ingress controller. For more information about how to deploy EKS in a multi-az, please use best practices as defined by AWS.
- **Prescriptive guidance on managing AWS service limits** – Service quotas are defined by your purchased account limits, where you can only have a finite amount of instances. Please check your AWS account limits to know your deployment boundaries.

