

Docker Enterprise

The Modern Platform for High-Velocity Innovation

Overview

Docker Enterprise is the leading container platform for continuous, high-velocity innovation. Docker is the only independent container platform that enables developers to seamlessly build and share any application — from legacy to modern — and operators to securely run them anywhere - from hybrid cloud to the edge. Docker Enterprise is the only platform that provides a seamless end-to-end (desktop to cloud) experience for developing and scaling distributed applications and is the easiest and fastest way to use containers and Kubernetes at scale.

Only Docker Enterprise delivers:

High-Velocity Innovation: Rapidly deliver engaging new customer experiences and transform existing processes - build, share and run with velocity.

- Developers: Quickly ramp productivity and deliver apps to production faster, leverage existing skill-sets.
- Operators: Rapidly distribute applications globally to any datacenter or cloud. Update apps and infrastructure on-demand - with no downtime.

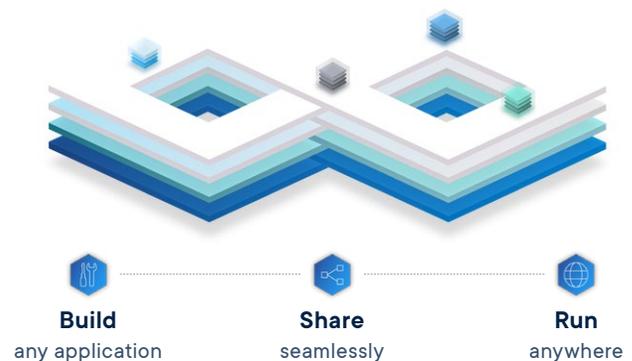
Freedom of Choice: Easily adapt to the next technologies on your own timeline, while leveraging existing knowledge and processes.

- Developers: Freedom to select the best tools, programming languages, and application frameworks for any project.
- Operators: Industry-standard Docker runtime gives the freedom to use the right OS and deployment infrastructure for each project - without vendor lock-in.

Intrinsic Security: Continuously ensure compliance and risk mitigation without slowing down innovation.

- Developers: Build and deploy secure, portable hybrid cloud apps without impacting productivity.
- Operators: Gain audit-ready provenance of changes, secure separation of concerns and rapid vulnerability remediation.

Securely build, share and run any application, anywhere



Common Use Cases:

-  **Modernizing Legacy Applications**
-  **Microservices / Cloud-Native Applications**
-  **Implementing CI/CD or DevOps**
-  **Data Science**
-  **Edge Computing**
-  **Cloud Migration**
-  **Digital Transformation**

High-Velocity Innovation

Only Docker offers a single, unified and integrated platform from the developers' desktops through production. Some key features include:

Desktop-based developer experience – Docker Desktop Enterprise is an application for MacOS and Windows machines, delivering the easiest and fastest way to build production-ready container applications for Kubernetes or Swarm, working with any framework and language and targeting any platform. Build and test Linux and Windows applications and easily share them with others.

Align Desktop to Server – Docker Desktop Enterprise Version Packs keep your local Docker and Kubernetes versions in lock-step with production systems, eliminating “works on my machine” problems once and for all.

Shareable, reusable applications – Docker App is a set of tooling that facilitates packaging, installing, and managing the containers and configuration of an application as a shareable unit. Docker Apps extend the functionality of Docker Compose to streamline DevOps practices and can be stored in Docker Hub and Docker Trusted Registry.

Application Templates – Get developers up and running in minutes instead of days by leveraging customizable application templates that follow organization standards. Free developers from debugging configurations and dependencies to allow them to focus on code.

Simplified Kubernetes Experience – Docker Kubernetes Service (DKS) is a certified Kubernetes distribution that integrates Kubernetes from the developer desktop to production servers, with ‘sensible secure defaults’ out-of-the-box. DKS makes Kubernetes easy to use and more secure for the entire organization without requiring deep expertise. Advanced configuration through Kubernetes CLI is still available for experienced users.

Frictionless app deployment – Consistently deploy different types of applications to Docker Enterprise through either the UI or CLI. Deploy applications with Docker Compose files to either Swarm or Kubernetes, or leverage Kubernetes YAML to deploy to Kubernetes.

Automated Lifecycle Management – Cluster management tools enable teams to easily deploy, scale, backup and restore and upgrade a certified Kubernetes environment using a set of simple CLI commands. This delivers an automated way to install and configure Docker Enterprise across hybrid and multi-cloud deployment, including AWS, Azure, or VMware.

Transparent cluster upgrades – Apply blue-green upgrades to your container infrastructure to reduce and eliminate application impact. Control your infra software lifecycle with more control and less risk.

Rolling updates – Gain confidence in deploying new features and updates with rolling updates. Available performance metrics allow teams to monitor progress and quickly rollback when necessary.

Integrated networking and routing – Applications deployed with Swarm and Kubernetes both have access to “batteries included, but swappable” networking and routing solutions. Docker Enterprise comes pre-installed with Project Calico as a highly scalable networking and routing solution, but users may swap this for their preferred Kubernetes CNI plug-in solution. For Swarm-deployed applications, Docker Enterprise includes enhanced application layer routing and load balancing based on the Interlock architecture.

Unified management – Manage all system components from an integrated web console including; users, containers, services, namespaces, controllers, load balancers, networks, volumes, secrets and nodes across both Swarm and Kubernetes.

Out-of-the-box dashboards – Enhanced health status dashboards provide greater insight into node and container metrics and allow for faster troubleshooting of issues. View cluster-level, pod-level or container-specific metrics and track history to identify emerging issues. In addition, export cluster metrics to an external Prometheus server for local management and monitoring.

Enhanced access controls – Integrate Docker Enterprise with corporate LDAP/AD, SSO through SAML 2.0 or PKI certificate-based authentication. Manage roles and responsibilities to all system components including apps, nodes, secrets, networks and volumes. Leverage either pre-configured roles or design custom roles that align to existing organization processes.

RBAC for nodes – Provide an additional layer of physical isolation by granting certain users or teams access to specific nodes. Applies to both Swarm resource collections and Kubernetes namespaces, enabling a “Bring Your Own Node” service model for IT services organizations.

Application health checks – Improve reliability and resiliency with health checks for services. Configure the frequency of checks in the UI or in the image Dockerfile to ensure timely checks and reconciliation, if needed.

Freedom of Choice

Docker Enterprise is the only major container platform with no ties to an operating system or infrastructure. Our approach is aligned with our customers' interests and desire to innovate using the best tools, systems, and frameworks for each task, while also supporting the ongoing maintenance and modernization of existing applications.

Choice of orchestration – Docker Enterprise includes an integrated and certified Kubernetes 1.14 distribution and is the only platform that runs both Swarm and Kubernetes simultaneously on the same cluster, giving organizations the flexibility to choose orchestrators interchangeably. Docker Kubernetes Service Enterprise includes Kubernetes 1.14 and includes support for autoscaling and Container Storage Interface (CSI), native Kubernetes access controls, and storage protection.

Choice of operating system – Docker Enterprise is supported on multiple Linux distributions (CentOS, Oracle Linux, RHEL, SLES, or Ubuntu) and on Windows Server 2016, 1709, 1803, and Windows Server 2019.

Choice of Infrastructure – Docker Enterprise is optimized and tested to install easily and operate smoothly on virtual machines, bare metal, and leading cloud providers like Amazon Web Services and Microsoft Azure.

Full stack portability – Developers can define networking, storage, secrets and more at the application level. A separation of concerns allows developers to define app configurations and IT to deploy them with either Swarm or Kubernetes and manage them on different infrastructures without recoding. Eliminate the “works of my machine” problem, once and for all.

Extensibility – Docker Enterprise provides open interfaces, drivers, webhooks and plugins to easily integrate to a variety of enterprise systems and processes. Certified Plugins and Containers provide an extra level of quality and assurance for production environments.

Intrinsic Security

Continuously ensure compliance and mitigate risk without slowing down innovation. Docker Enterprise is the only platform that can provide trusted and certified end-to-edge security.

Secure, distributed image management – Operate a private registry for secure storage and management of images and granular access control to repositories. Build a globally consistent supply chain for distributed development teams by connecting multiple Docker Enterprise clusters to a centralized registry, mirroring different image repositories across multiple registries, or provide a locally cached repository for reduced latency and improved performance.

Image signing, verification and policy – Docker Content Trust protects images from man-in-the-middle attacks while moving across the network. Users can cryptographically sign an image at build time, creating a record of who created or modified the image, and enforce policies before an application can be deployed to production.

Image scanning and vulnerability monitoring – Docker Security Scanning ensures only high integrity applications are running in production. Docker Security Scanning indexes the components in both Windows and Linux images and compares them against a known CVE database. When new vulnerabilities are reported, Docker Security Scanning matches the components in new CVE reports to the indexed components in your images, and quickly generates an updated report. Administrators can also control specific vulnerability scanning results and get visibility into vulnerabilities at runtime.

Policy-based image promotion – Define policies to automatically promote images from one repository to another repository within Docker Trusted Registry. Criteria can include tags, package names, vulnerabilities, or license review.

Automated image cleanup – Define policies to reduce container image sprawl and optimize disk space by setting up policy-based image tag pruning and using integrated garbage collection.

Automate workflows with webhooks – Registry webhooks pass real-time information to 3rd party tools like CI/CD solutions. Integrate Webhooks to cause an action in another application in response to an event in the registry.



In addition, there are several features that ensure a secure container platform:

FIPS 140-2 validated Docker Engine – The cryptographic modules in Docker Engine – Enterprise have been validated against FIPS 140-2 standards which also impacts other regulated industries.

Encrypted communications – Automatic mutual TLS authentication ensures that the default mode of communication within the system is encrypted and protected. Swarm and Kubernetes network encryption protects all host-to-host communications with IPsec tunnels.

Cryptographic node identity – Prevent malicious nodes from joining a cluster through built-in root Certificate Authority (CA) with automatic certificate rotation that ensures systems remain secure and online. Support for external CAs and ability to configure rotation frequency provides teams with additional flexibility.

Integrated secrets management – Securely store secrets (API key credentials, etc) encrypted at rest and in transit to only the exact app service that requires them to operate. Docker Enterprise allows teams to easily create, manage and deploy secrets for app services on both Windows and Linux-based containers.

Detailed audit logs – Docker Enterprise includes detailed event logs across both the cluster and registry to capture users, actions, and timestamps for a full audit trail. These are required for forensic analysis after a security incident and to meet certain compliance regulations.

Group Managed Service Accounts (gMSA) for Swarm – Support for gMSA brings Docker Enterprise to a wider set of Windows Server applications that require Active Directory authentication. Swarm allows the creation of credential specs with Docker Configs to bring ease of use and automation to gMSA.

(Experimental) Automated compliance assessment and reporting – Automatically generate compliance reports following the OSCAL standard by NIST (OSCAL is in the final stages of review). Validate Docker Enterprise settings against common compliance standards and get a simple readout of settings for faster auditing and/or address compliance gaps.

Enterprise Support and Certified Partner Ecosystem

Besides platform capabilities, Docker is committed to delivering an enterprise-grade experience. That includes:

Predictable releases and maintenance – Proactively plan deployments and upgrades with a regular release cadence with 24 months of extended software maintenance per release. Software maintenance includes security patches and hotfixes back-ported to every version under support.

Support from the source – Get SLA-backed support from the team that built the platform. Business Day (9am–6pm, Monday to Friday) and Business Critical (24x7) support plans are available.

Professional Services – Based on proven methodologies from working with our enterprise customers, Docker offers a set of Solution Architecture engagements to accelerate your containerization journey beyond technology implementation. It is a complete approach that considers the people and processes involved, with services, training and support to guide you through your adoption journey.

Certified Containers – Independent Software Vendors (ISV) package and distribute their software as containers for Docker Enterprise. These containers are built with best practices, tested, scanned, and reviewed. Cooperative support from Docker and the ISV.

Certified Plugins – Technology partners package and distributes their Networking and Volume Plugins as containers for Docker Enterprise. Built with best practices and must pass a suite of API compliance testing, are scanned, and reviewed. Cooperative support from Docker and the plugin provider.

Certified Infrastructure – Delivers a prescriptive approach to deploying Docker Enterprise on AWS, Azure and vSphere. Certified infrastructure complements Docker's automated lifecycle management capabilities by providing reference architecture and ecosystem solution briefs.

Get Started with Docker Enterprise

Docker Enterprise is available as an annual subscription inclusive of software and support. To learn more, visit docker.com/enterprise or send a request to dockr.ly/contactdocker. Experience Docker Enterprise without installing any software through the Docker Hosted Trial. Get started at trial.docker.com.