

# Red Hat OpenShift Operator Certification

## Key benefits of Red Hat OpenShift and Operators

- Extends and orchestrates Kubernetes to reliably streamline and automate installation, updates, back-ups, and management of container-based services.
- Runs an entire platform in an autonomous manner, scaling clusters easily, consistently, and automatically.
- Allows users to manage applications using Kubernetes APIs, exposing only the relevant options for the application.
- Built on Red Hat Enterprise Linux™, so it's enterprise grade unlike other offerings.
- Standardizes and simplifies installation and upgrades of the complete software stack, from operating system to application.
- Codifies and packages best practices and business workflows, with consistency across hybrid cloud platforms.
- Continuously scans for anything out of place to deliver a NoOps experience, regardless of infrastructure.



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Deploying on Red Hat® OpenShift® lets you take advantage of Kubernetes and containers to manage and scale your deployments. Building and certifying your operator for Red Hat OpenShift is a Red Hat recommended practice to orchestrate cloud-native applications on Kubernetes, and can help differentiate your product and company. And you can sell them through the [Red Hat Marketplace](#).

## Introduction to Red Hat OpenShift and Operators

Red Hat OpenShift is a Kubernetes and container platform. It uses Kubernetes-native applications (Operators) to create an environment that is simple to install, easy to configure, and seamless to upgrade. It determines if your application is running correctly according to your instructions and in line with best practices. If it's not, the Operator automatically acts to correct it.

By using Operators, Red Hat OpenShift allows you to manage the entire lifecycle (install, patch, update, reconfigure, backup, and heal) of core and supplementary components and the host operating system, and then scale the cluster—easily, consistently, and automatically.

Red Hat OpenShift includes a curated set of Red Hat certified Operators listed in the OpenShift OperatorHub dashboard and the Red Hat Container Catalog. These Operators provide self-service access to popular application workloads on Red Hat OpenShift, giving users a managed service-like experience. And when using the Red Hat Build Service, updates for vulnerabilities occur automatically for customers to download.

Without Operators, updating and maintaining containerized applications for security and scalability for Kubernetes is a considerable challenge and is dependent on the experience of the user.

For specific use cases such as storage and networking, partners can also obtain Red Hat Certification Badge designations.

## Why build an Operator?

Kubernetes has become the *new application server*, but manually managing applications can be a challenge. The complexity increases over time as *configuration drift* occurs. By encoding management best practices into Operators, your customers apply your application expertise now and throughout your application's lifecycle. As a result, support incidents/costs decrease and customer satisfaction increases. And you differentiate your product and company.

## The Operator maturity model

How you approach and build your Operator is up to you. This Operator maturity model (Table 1) shows five phases of engagement/participation/involvement—your participation can range from simplified application installation to enhanced lifecycle features, or to full optimization with auto configuration and tuning.

### Key benefits of Red Hat OpenShift Operator Certification

- **Interoperability.** Kubernetes-native operator functionality verified by partner and Red Hat on OpenShift.
- **Market awareness.** Listed in Red Hat OpenShift OperatorHub catalog and Red Hat Container Catalog, which is visible to all Red Hat customers. Certified Operators can be sold in the Red Hat Marketplace.
- **Continuous certification.** Ongoing verification for security compliance. Rapid turnaround for security updates with Red Hat Build Service.
- **Support coverage.** Full Red Hat support for the foundation for Operators and their containers when used with Red Hat OpenShift.

**Table 1: The Operator maturity model**

Phase I	Phase II	Phase III	Phase IV	Phase V
Installation	Upgrades	Lifecycle	Insights	Autopilot
Configuration and one-shot deployment	Patches and minor-version upgrades supported	App lifecycle, storage lifecycle (backup, failure recovery)	Metrics, alerts, log processing and workload analysis	Horizontal/vertical scaling, auto config tuning, abnormal detection, scheduling tuning

### OpenShift Certification Badges

Red Hat awards OpenShift Certification Badges to Kubernetes Operators built and tested for specific-use, cloud-native cases—like networking and storage—and comply with industry-standard specifications or domain best practices. Current OpenShift Certification Badges are:

- Container Storage Interface (CSI)—for providing and supporting a block/file persistent storage backend for OpenShift.
- Container Networking Interface (CNI)—for delivery of networking services through a pluggable framework.
- Cloud-Native Network Functions (CNF)—for implementation of Telco functions deployed as containers.

### Certify your Operators with Red Hat

Red Hat OpenShift Operator Certification is a self-service offering, with an easy step-by-step process for partners to verify the functionality of an operator and its dependencies on Red Hat OpenShift. The OpenShift Operator Certification workflow consists of certifying the application container image, certifying the operator container image, and then deploying both certified images for a functional test. This entire process is completed within the self-service framework located in Red Hat Connect partner portal.

Certified Operators offer customers a broad range of applications and infrastructure that can be managed in a consistent manner, across both private and public clouds. Red Hat OpenShift Certified Operators are backed by collaborative support between Red Hat and partners, extending trust from the container platform to the application stack.

### Sell your certified products through Red Hat Marketplace

Helping your customers to deploy on any cloud shouldn't mean they have to use a different purchasing channel for each of them. Introducing the [Red Hat Marketplace](#)—the new standard for selling enterprise software for any cloud, public or private, with broad exposure to enterprise customers looking for cloud-native solutions. All Red Hat Certified OpenShift Operators are eligible for participation. Red Hat Marketplace is in technical preview, see [the website](#) for the list of available countries and additional terms and conditions.

## Solution for customer pain points

Customer pain point	How certification differentiates your product and company
<p>Customers are uncertain about interoperability and performance between Operators and the container platform.</p>	<p>With your Operator, customers immediately gain your expertise to manage your application because best practices are built into the Operator—this is jointly verified on OpenShift by Red Hat and you.</p>
<p>Gaps in support coverage for components in the stack.</p>	<p>Certified Operators are part of Red Hat OpenShift, where containers are fully supported. Collaborative support is delivered between Red Hat and you through Technical Support Alliance Network (TSANet) for application components.</p>
<p>Change management: handling platform updates and application updates. Risk of issues or incompatibilities after upgrades.</p>	<p>Certified Operators are continuously tested on new releases of Red Hat OpenShift to identify upgrade issues before customers are impacted. Operators can incorporate partner expertise on how to handle application upgrades.</p>
<p>How long until vulnerabilities are fixed? How long will my company be exposed?</p>	<p>Red Hat Build Service continuously scans for known vulnerabilities in Red Hat components. The Red Hat Build Service can be used to automate image updates as soon as a vulnerability is identified. This means faster time to delivery and your developers don't spend time updating images.</p>

## Red Hat OpenShift Operator Certification benefits

### Faster Operator development and testing

Customers can standardize on the Operator Framework to manage the lifecycle of a broad range of applications and infrastructure in a consistent manner across private and public clouds. The OpenShift Operator Framework is an open source toolkit (SDK) to manage Kubernetes-native applications (Operators). Use your operator to test application changes inside your CI/CD workflow and automate your updates.

### Assured quality and compatibility

Red Hat certified Operators are continuously monitored and verified for interoperability and safety, with fast turnaround for updates. Red Hat also tests certified Operators on new releases of Red Hat OpenShift to identify potential upgrade issues before they affect customers.

### Continuous monitoring for security vulnerabilities

Red Hat OpenShift Operator Certification greatly enhances the security state of Kubernetes-native applications. Red Hat continuously scans Operators for potential vulnerabilities. Red Hat Build Service automatically updates and publishes the Operator, rapidly closing the risk window.

Red Hat OpenShift Operator Certification creates a trusted ecosystem of enterprise applications with consistent packaging, deployment, and lifecycle management across all OpenShift footprints.

### **Verified interoperability**

Red Hat and partners verify application functionality on Red Hat OpenShift and the Operator Lifecycle Manager. Red Hat Certification Badges further this by testing conformance with specific platform interfaces or use cases.

### **Lower costs, better governance erified interoperability**

Using Red Hat OpenShift Certified Operators improves time to value by relying on components that have been pre-tested on OpenShift, thus expediting deployment and configuration for both customers and partners.

For software providers, certified Operators embed operational expertise for DevOps teams, reducing IT costs and risk when managing applications at scale. For customers, certified Operators reduce configuration drift and support costs by adhering to operational best practices set by the software provider.

### **Red Hat global, enterprise-grade support**

Red Hat OpenShift Certified Operators are backed by collaborative support between Red Hat and technology partners, extending trust from the container platform to the application stack.

Customers don't have to worry about gaps in support coverage for components in the stack, including Kubernetes:

- The foundation: Red Hat Enterprise Linux with Red Hat Universal Base Image is fully supported by Red Hat when used with Red Hat OpenShift.
- Application components are supported by Red Hat and partners through TSANet communications.

### **Greater market awareness**

Red Hat OpenShift Certified Operators gain broad exposure to enterprise customers by their presence in the OperatorHub, where certified products can be easily identified and deployed by OpenShift users.

Certification gives technology partners access to additional global go-to-market benefits and resources through the Red Hat Connect Partner Program, like:

- Rights to use the Red Hat Certified technology logo.
- Co-branded marketing materials.
- Joint promotional campaigns.

And the best thing is you can sell your Operators on the Red Hat Marketplace.

## Resources

- Get started with [Red Hat Operator Certification](https://connect.redhat.com) connect.redhat.com.
- As a Red Hat partner, get a [no-cost OpenShift development subscription](#).
- Install OpenShift on your laptop with [CodeReady Containers](#) (for OpenShift 4).
- Get the [OpenShift Operator SDK](#).
- Sell your Operator-based solutions on the [Red Hat Marketplace](#).

## About Red Hat



Red Hat is the world's leading provider of enterprise open source software solutions, using a community-powered approach to deliver reliable and high-performing Linux, hybrid cloud, container, and Kubernetes technologies. Red Hat helps customers integrate new and existing IT applications, develop cloud-native applications, standardize on our industry-leading operating system, and automate, secure, and manage complex environments. Award-winning support, training, and consulting services make Red Hat a trusted adviser to the Fortune 500. As a strategic partner to cloud providers, system integrators, application vendors, customers, and open source communities, Red Hat can help organizations prepare for the digital future.



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