CodeArts Deploy

Service Overview

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1 What Is CodeArts Deploy?

Overview

CodeArts Deploy provides visualized and automatic deployment services. It has various deployment actions to help you make a standard deployment process, reduce deployment costs, and improve release efficiency.

CodeArts Deploy has the following features:

- Supports host (physical machine and VM) deployment and container deployment.
- Provides system templates such as Tomcat, SpringBoot, and Django for you to create tasks quickly. You can drag and drop atomic actions to orchestrate tasks flexibly.
- Supports multiple hosts in environment at the same time.
- Implements container deployment using Cloud Container Engine (CCE).
- Deploys microservice applications using ServiceStage.
- Saves custom templates to create applications at one click.
- Supports parameterized configuration, provides parameter types such as string, environment, and enumeration, and supports dynamic parameter replacement during application deployment.
- Seamlessly integrates with CodeArts Pipeline to support continuous service release.
- Generates deployment logs for atomic actions and provides keywords to accurately match FAQs. If the deployment fails, you can quickly locate the cause and find a solution.

What Can I Do with CodeArts Deploy?

The table below describes the functions provided by CodeArts Deploy.

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Table 1-1 CodeArts Deploy functions

Function	Description
Basic resource management	Add one or more hosts and verify the connectivity. Create a host cluster to perform operations on multiple hosts in a unified manner. Search for a host by name or IP address. Modify or delete a host or host cluster.
Application management	You can create one or more applications using a predefined template or custom orchestration procedure, search for and filter applications by name, and modify and delete applications.
Parameter configuration	Application steps support parameter reference. During deployment, you can specify parameter values. You can deploy applications by replacing corresponding parameters with specified values.
Dynamic parameter	Applications support dynamic parameter execution. During deployment, you can dynamically enter parameters without modifying applications, enhancing reusability and flexibility.
Application package selection	Application packages can be selected from CodeArts Artifact. Application packages can be automatically archived to CodeArts Artifact during building.
Application package upload	Application packages can be uploaded from the local host to CodeArts Artifact.
Deployment dynamics	Dynamic messages, including deployment success, deployment failure, and application update and deletion messages, are generated during application deployment.
Concurrent deployment	You can select multiple hosts and environments in an application to implement parallel deployment of multiple hosts.
Deployment details	You can view the deployment details, including the deployment progress and application deployment information.
Deployment log	You can view deployment logs. If multiple hosts are deployed concurrently, you can view logs by host.
CodeArts Pipeline integration	Applications can be integrated in CodeArts Pipeline and orchestrated to be executed in parallel or serially. Pipeline parameters are supported.

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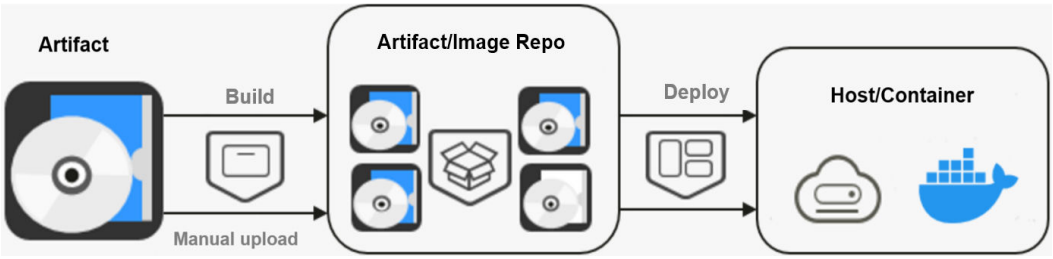
How Does CodeArts Deploy Work?

You can either manually upload artifacts or create a build task to save artifacts to Artifact or an image repository. CodeArts Deploy uploads the artifacts and installs them on a host or container.



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2 Features

Easily Creating an Application Following a Wizard

Diverse System Templates and Instant Preview

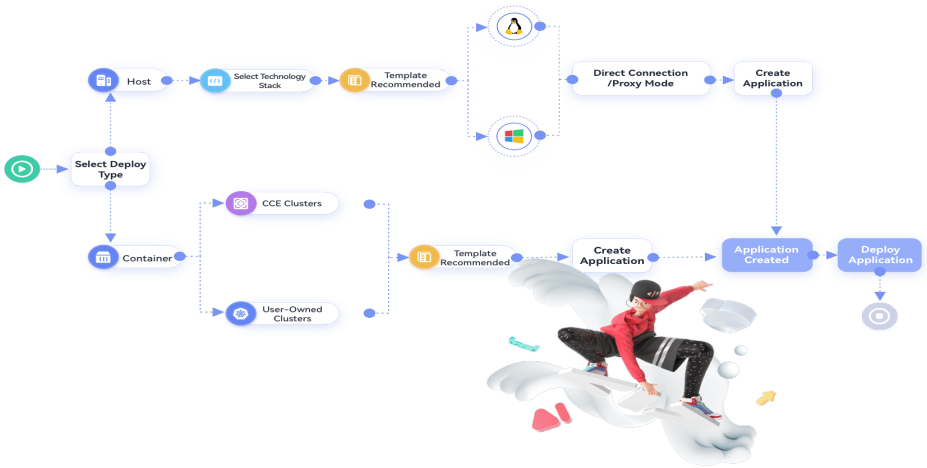
Grayscale Release of Kubernetes nginx-ingress

Differentiated Environment Management

Multi-Region DR and Multi-Account Collaborative Deployment

2.1 Easily Creating an Application Following a Wizard

To help new users quickly get started, CodeArts Deploy provides a wizard to create an application. The decision tree guide also reduces usage costs.



2.2 Diverse System Templates and Instant Preview

CodeArts Deploy covers host, container, and serverless deployment scenarios. It provides many types of **system deployment templates** for Node.js application deployment, Go application deployment, nginx-ingress grayscale release, and

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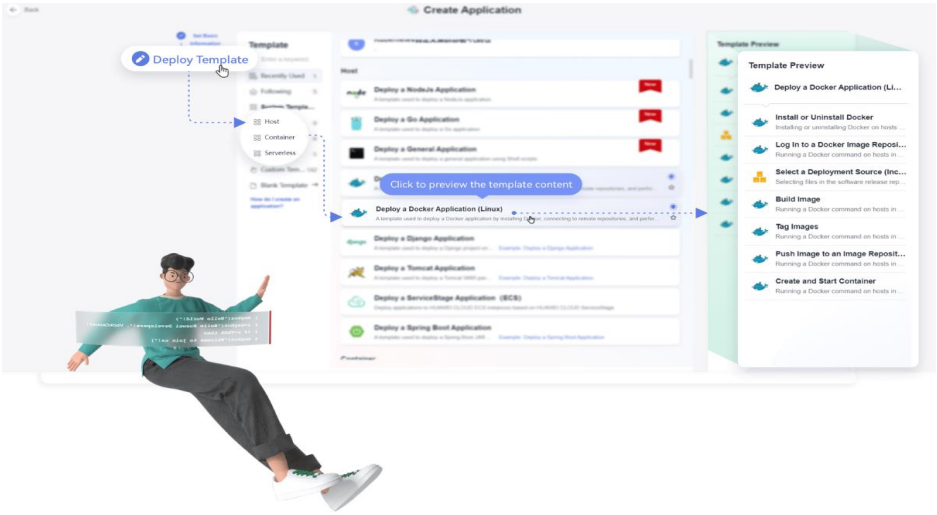
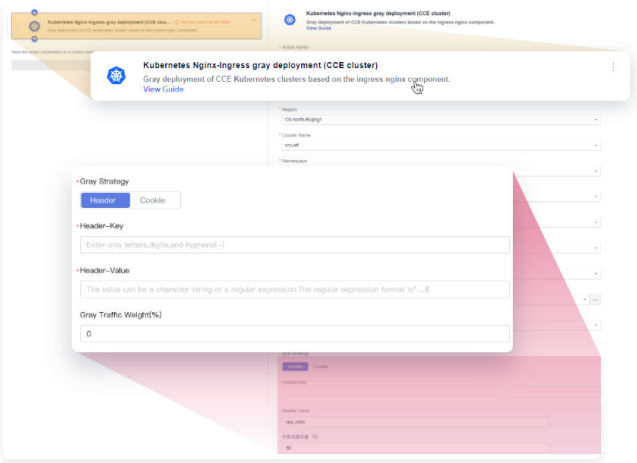
general deployment. It also supports template preview, so that you can quickly preview deployment capabilities of each template and select a proper one.



2.3 Grayscale Release of Kubernetes nginx-ingress

CodeArts Deploy supports gray deployment on CCE Kubernetes clusters based on the Nginx-Ingress component. The deployment action **Kubernetes nginx-ingress gray deployment (CCE cluster)** is added to simplify configuration and improve efficiency. For details, see **procedure description**.



2.4 Differentiated Environment Management

CodeArts Deploy provides the **Environment Management** to host environment resources such as host clusters consisting of hosts and proxies and Kubernetes clusters (available soon). Refined environment permission management further standardizes dependencies between applications (software packages) and environments, and implements application-level isolation and differentiated management.

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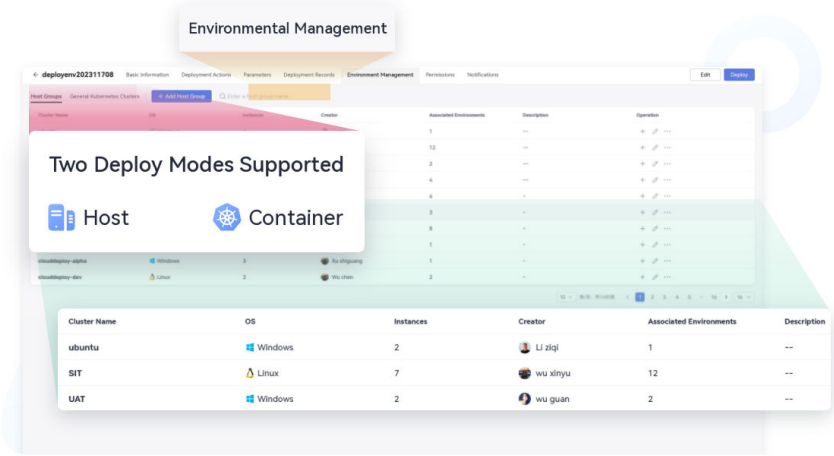
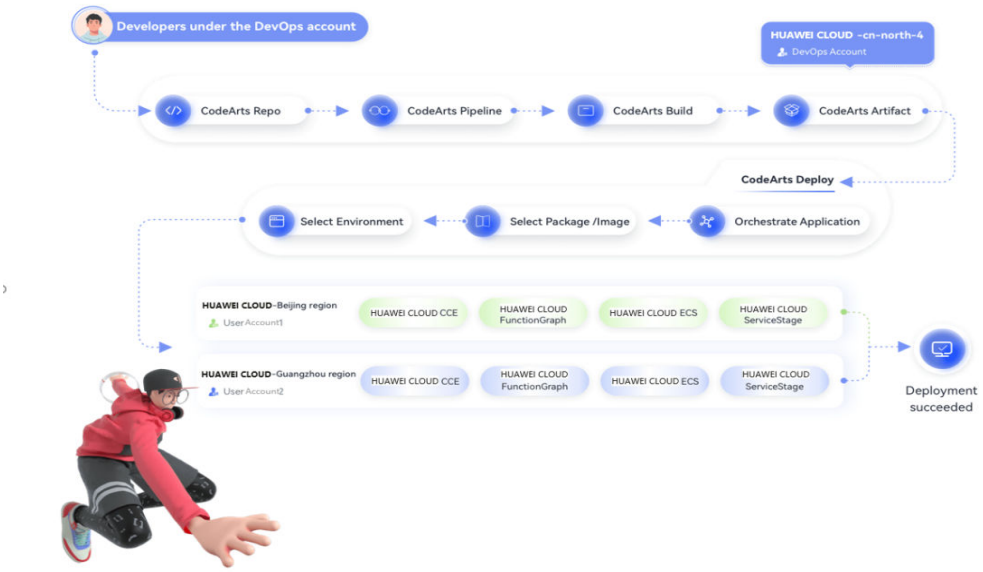


2.5 Multi-Region DR and Multi-Account Collaborative Deployment

To solve region and permission restrictions during application deployment, CodeArts Deploy provides functions such as application-level cross-region HA DR deployment and collaborative deployment of multiple accounts in an enterprise for flexibility, continuity, and security.

The deployment scope is as follows:

- **Kubernetes (CCE Cluster)**
- **FunctionGraph**



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3 Security

Shared Responsibilities
Authentication and Access Control
Data Protection Technologies
Auditing and Logs
Service Resilience
Certificates

3.1 Shared Responsibilities

Huawei guarantees that its commitment to cyber security will never be outweighed by the consideration of commercial interests. To cope with emerging cloud security challenges and pervasive cloud security threats and attacks, Huawei Cloud builds a comprehensive cloud service security assurance system for different regions and industries based on Huawei's unique software and hardware advantages, laws, regulations, industry standards, and security ecosystem.

Figure 3-1 illustrates the responsibilities shared by Huawei Cloud and users.

- **Huawei Cloud**: Ensure the security of cloud services and provide secure clouds. Huawei Cloud's security responsibilities include ensuring the security of our IaaS, PaaS, and SaaS services, as well as the physical environments of the Huawei Cloud data centers where our IaaS, PaaS, and SaaS services operate. Huawei Cloud is responsible for not only the security functions and performance of our infrastructure, cloud services, and technologies, but also for the overall cloud O&M security and, in the broader sense, the security and compliance of our infrastructure and services.
- **Tenant**: Use the cloud securely. Tenants of Huawei Cloud are responsible for the secure and effective management of the tenant-customized configurations of cloud services including IaaS, PaaS, and SaaS. This includes but is not limited to virtual networks, the OS of virtual machine hosts and guests, virtual firewalls, API Gateway, advanced security services, all types of cloud services, tenant data, identity accounts, and key management.

Huawei Cloud Security White Paper elaborates on the ideas and measures for building Huawei Cloud security, including cloud security strategies, the shared

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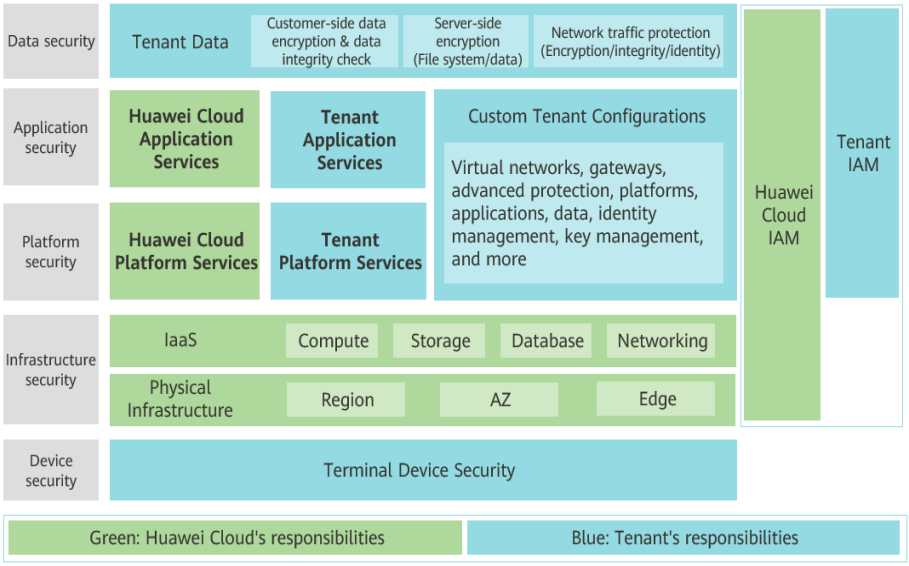
responsibility model, compliance and privacy, security organizations and personnel, infrastructure security, tenant service and security, engineering security, O&M security, and ecosystem security.

Figure 3-1 Huawei Cloud shared security responsibility model



3.2 Authentication and Access Control

Authentication

You can log in to the console to access CodeArts Deploy. You can also use core CodeArts Deploy functions by calling REST APIs or SDKs.

CodeArts Deploy performs authentication on multiple nodes, such as API Gateway, frontend framework, and backend APIs, for multiple times to ensure access validity.

When accessing CodeArts Deploy through the console, you need to enter the correct username and password. When calling APIs, CodeArts Deploy supports the following authentication modes:

- **Token**: Requests are authenticated using tokens. By default, token authentication is required to access the CodeArts Deploy console.
- **AK/SK authentication**: Requests are encrypted using an Access Key ID (AK) / Secret Access Key (SK) This method is recommended because it provides higher security than token-based authentication.

Access Control

CodeArts Deploy controls operations in horizontal and vertical authentication modes. Your can add, delete, modify, and query applications, and cluster, and deploy applications.

Horizontal authentication: Based on the isolation logic between CodeArts projects, CodeArts Deploy authenticates and intercepts members of the same

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tenant who do not belong to the same project to ensure that members of different projects do not perform unauthorized operations.

Vertical authentication: Verify the permissions of different member roles in the same project to ensure that the permissions of each member role in the project are clearly defined and prevent unauthorized operations.

3.3 Data Protection Technologies

CodeArts Deploy uses multiple methods to secure data.

Method	Description
Encrypted transmission (HTTPS)	HTTPS is used to transmit data over all links to secure data transmission.
Personal data protection	• Controls access to data and records logs for operations performed on the data. • Encrypts sensitive data entered on the console before storing it, further securing data.
Privacy data protection	CodeArts Deploy strictly complies with terms of the Huawei Cloud privacy statement. It does not store unnecessary user privacy data or consume user data.
Data destruction	If a user deregisters an account and deletes data, CodeArts Deploy logically deletes the data based on Huawei Cloud requirements. After 15 days, CodeArts Deploy physically deletes the data.

3.4 Auditing and Logs

Auditing

Cloud Trace Service (CTS) is a professional log audit service in Huawei Cloud security solutions, which can record, store and search operations on the cloud resources in your account to perform security analysis, audit compliance, track resource, and locate faults. After you enable CTS and configure a tracker, CTS can record management and data events of CodeArts Deploy for auditing.

After CodeArts Deploy interconnects with CTS, key operations performed on CodeArts Deploy can be recorded in CTS for future audit.

For details about how to enable and configure CTS, see **Getting Started > Enabling CTS**.

Logs

Log Tank Service (LTS) provides one-stop log collection, search in seconds, massive storage, structured process, dump and visualized chart for application operations and maintenance and visualized network log analysis and operation analysis.

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For analysis, CodeArts Deploy records system running logs to LTS in real time and stores the logs for seven days.

3.5 Service Resilience

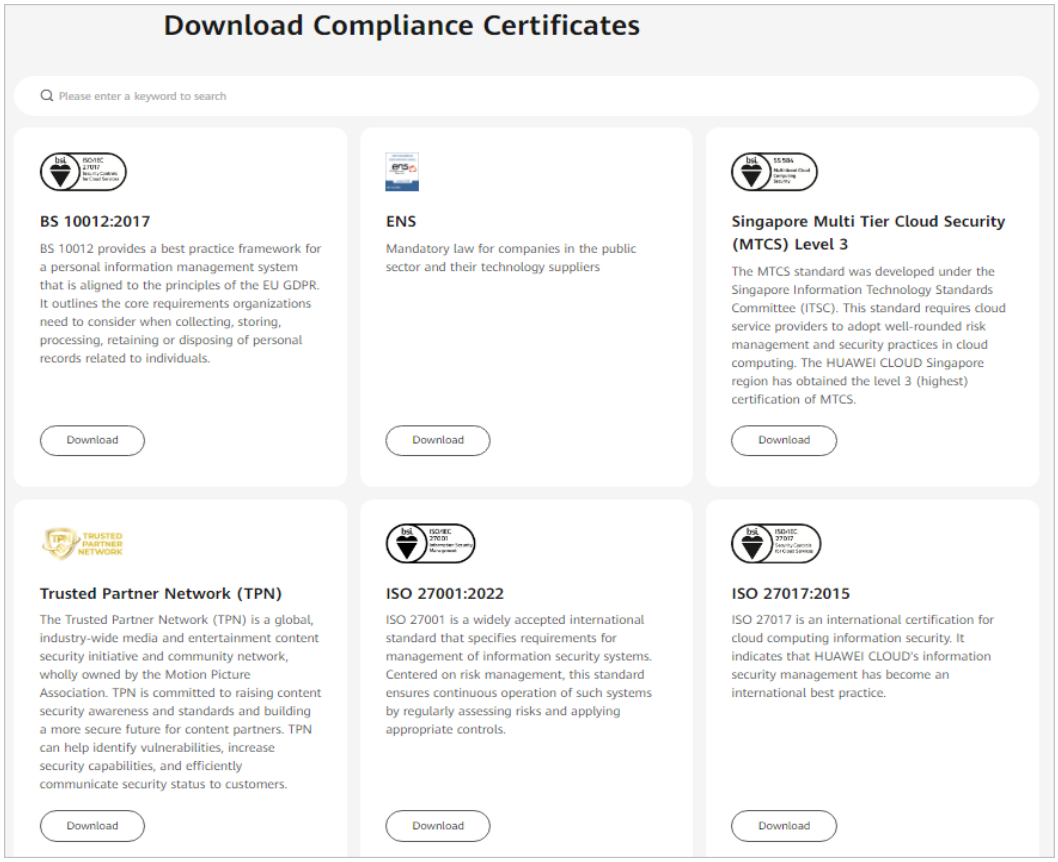
CodeArts Deploy uses multi-active stateless cross-AZ deployment, inter-AZ data DR, and cross-region DR to ensure that services can be quickly restarted and recovered in the event of extreme faults, ensuring service continuity and reliability.

3.6 Certificates

Compliance Certificates

Huawei Cloud services and platforms have obtained various security and compliance certifications from authoritative organizations, such as International Organization for Standardization (ISO). You can **download** them from the console.

Figure 3-2 Downloading compliance certificates



Resource Center

Huawei Cloud also provides the following resources to help users meet compliance requirements. For details, see **Resource Center**.

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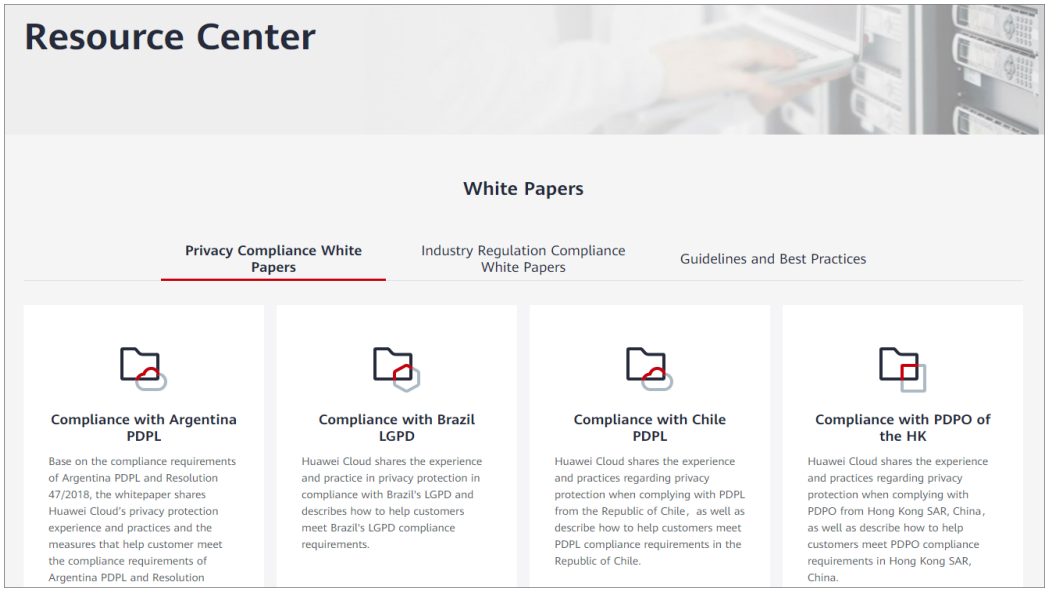
Figure 3-3 Resource center



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4 Notes and Constraints

Before You Start

- If you apply CodeArts Deploy in specific industries (such as education, healthcare, and banking), you must comply with the user data protection laws and content management laws stipulated by related countries/regions.
- Do not use CodeArts Deploy to crawl, process, or upload data on external video or audio webpages.
- Do not use CodeArts Deploy to perform operations other than source code compilation and building.
- Do not use commands such as **sleep**, **usleep**, **read**, **timeout**, **yes**, **dd** and **while** loop to occupy server processes for a long time (more than 10 minutes).

Naming

Item	Description
Cluster name	• Use digits, letters, hyphens (-), underscores (_), and periods (.). • The value can contain 3 to 128 characters.
Host name	• Use digits, letters, hyphens (-), underscores (_), and periods (.). • The value can contain 3 to 128 characters.
Application name	• Use digits, letters, hyphens (-), and underscores (_). • The value can contain 3 to 128 characters.
Action name	• Do not start or end with a space. Use letters, digits, spaces, and these special characters:-_,;:./(). • The value can contain 1 to 128 characters.

Specifications Limitations

This section describes the constraints on CodeArts Deploy.

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- Basic constraints

  Table 4-1 Basic constraints

Category	Item	Constraint
Application management	Maximum number of applications in a single project	2,000
	Maximum number of days for which deployment records can be viewed under an application	92
	Maximum time for deploying an application (minutes)	30
Basic resource management	Maximum number of host clusters in a project	1,000
	Maximum number of hosts in a host cluster	200
	Maximum number of hosts whose connectivity is verified in batches	200
Environment management	Maximum number of environments in a single application	100
	Maximum number of hosts in a single environment	200
	Maximum number of hosts whose connectivity is verified in batches	200

- Only OSs listed in the table below are supported.

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Table 4-2 OSs supported

OS	Version
CentOS	6.3, 6.5, 6.8, 6.9, 7.0, 7.1, 7.2, 7.3, 7.4, 7.5, 7.6, 8.0, 8.1, 8.2, and Stream 9 **NOTE** Docker 18.09.0 is not compatible with CentOS 8.
Debian	9.0.0, 8.8.0, 8.2.0, and 10.0.0
EulerOS	2.0, 2.2, 2.3, and 2.5
Huawei Cloud EulerOS	2.0 **NOTE** Nginx 1.12.2 and Docker 18.09.0 are incompatible with Huawei Cloud EulerOS 2.0.
Ubuntu	14.04, 16.04, 18.04, 20.04, 22.04 **NOTE** Ubuntu 22.04 supports only Docker 19.03 and later versions. It is incompatible with Nginx 1.12.2 and does not support all PHP versions. Ubuntu 20.04 is incompatible with Nginx 1.12.2 and PHP 5.6.38.
Windows	2012 R2, 2016, 2019, Win 7, and Win 10
KylinOS	V10 SP1 **NOTE** Nginx 1.12.2 and PHP-5.6.38 are incompatible with KylinOS.
UnionTechOS	Server 20 (1050e)
OpenEuler	20.03, 22.03 **NOTE** JDK11 and PHP-5.6.38 are incompatible with OpenEuler ×86. All versions of Nginx, Python, JDK, and PHP are incompatible with OpenEuler ARM.
AlmaLinux	AlmaLinux 8, AlmaLinux 9

- Only cluster versions listed in the table below are supported.

Table 4-3 Cluster versions

Type	Version
CCE cluster	1.17–1.25
Self-managed K8S cluster	Comply with constraints and limitations in the **Kubernetes community**

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Billing

- To use CodeArts Deploy, subscribe to CodeArts first. CodeArts Deploy cannot be purchased separately.
- CodeArts Deploy is available for free.
- However, the resources (such as ECSs, EIPs, and traffic) used by the deployed applications and the services on which the applications depend are charged by the corresponding services.
- If your account is in arrears, you can still use CodeArts Deploy for free. However, if the resources (such as ECSs, EIPs, and traffic) in CodeArts Deploy are unavailable when the account is in arrears, the corresponding application deployment may fail.

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