

# **Tencent Cloud Elastic Microservice**

## **Operation Guide**

## **Product Documentation**





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## Operation Guide Environment Management Creating Environment

Last updated : 2024-01-26 16:35:41

### Overview

In TEM, an environment is a collection of computing, network, storage, and other resources. TEM provides the multienvironment management feature. In this way, you can create multiple environments for development, testing, prerelease, and production according to your business needs, deploy applications separately, and thus implement environment isolation. Applications in different environments are isolated from each other. Applications in the same environment can access each other through the K8s service mechanism or registries such as ZooKeeper and Eureka. This document describes how to create an environment in the TEM console.

#### Directions

- 1. Log in to the TEM console.
- 2. On the **Environment** page, select a deployment region and click **Create**.
- 3. Configure the environment information.

Create Environme	nt				
Name	TEST				
Region	Guangzhou				
Description (optional)	Enter descriptions				
VPC	vpc-2psnvlrd   test-tem-vpc	10.0.0/16	•	$\phi$	
	If no suitable networks are ava	ilable, you can <b>create a VPC</b>	₫.		
Subnet	Subnet ID	Subnet Name	AZ	Remaining I	φ
	subnet-mfkqdygg	test-tem-subnet1	Guangzhou	125	
	✓ subnet-2a6gqw4a	test-tem-subnet	Guangzhou	253	
	You can select multiple subnet available IP addresses and is r	s. TEM directly uses the IP a ot shared with other produc	addresses of the sele	ected subnet, so we suggest you select a subnet the onets are not suitable, you can go to the console to	t has sufficient create a subnet
	We suggest you select multiple	AZs for service deploymen	t to improve the disa	ister recovery capability.	
		ОК	Cancel		

Name: enter up to 40 characters.

VPC: select an existing VPC. If your existing VPCs are not suitable or you haven't created a VPC yet, you can click Create VPC to create one (note that the selected region must be the same as that of the environment), return to and refresh this page, and select it.

Subnet: select an existing subnet. We recommend you choose multi-AZ deployment to improve the disaster recovery capabilities. If your existing subnets are not suitable or you haven't created a subnet yet, you can click Create Subnet to create one, return to and refresh this page, and select it.

CoreDNS is automatically deployed to support service discovery in the environment. Specifically, two replica nodes of Deployment:coredns are automatically deployed in the Kubernetes cluster namespace kube-system. This service is free of charge, and we recommend you not modify it.

4. Click **OK** and the environment will enter the initialization state. Wait a few minutes, and the environment will be created.

## Adding Environment Resources

Last updated : 2024-01-09 12:40:53

### Overview

This document describes how to add environment resources in the TEM console.

### Directions

1. Log in to the TEM console.

2. On the **Environment** page, select a deployment region and click **View Details** under the target environment block to go to the environment details page.

3. Click the **Resource Management** tab and click **Add** to add storage, log, or registry resources.

Storage: select an existing storage resource. If there are no suitable CFS file systems, you can create one.

Log: select an existing log resource. If there are no suitable logsets, you can create one.

lesource Source	Associate existing resource			
Resource Type	Log Collector	•	CLS	Ŧ
CLS	Select a logset	- ¢	1	
	If no suitable logsets are availabl	e, you c	an create one 🛂 .	

## **Configuring Application Access and Routing**

Last updated : 2024-01-09 12:40:53

### Overview

This document describes how to configure application access and routing in the TEM console. You can configure forwarding rules to implement HTTP/HTTPS forwarding rules over the public network. The use cases of this feature include:

Scenarios with applications that require public network access entries, such as microservice gateway applications. Scenarios where domain name association is needed.

Scenarios where the same domain name has different routing/forwarding paths.

Scenarios where different domain names need to point to the same application.

### Directions

1. Log in to the TEM console.

2. On the **Environment** page, select a deployment region and click **View Details** under the target environment block to go to the environment details page.

3. Click the Access Management tab on the top, click Create, and enter the forwarding rule name.

Rule Name	rule1 Enter up to 63 characte	ers containin	g lowercase letters, digits, and "-" (i	must start with a lowercas	se letter and end with a digit or low
Network Type	Public Network				
Load Balancer	Automatically creat	t <b>e</b> s HTTP/HTTF	°S)0.22 USD/day		
Protocol & Port	V Http:80 Http:	s:443			
Forwarding Configuration	Protocol	Listenin	Domain name (j)	Path	Backend Service
	HTTP 🔻	80	IPv4 IP assigned by defau	1	provider-consul
	HTTP 🔻	80	IPv4 IP assigned by defau	1	consul-provider
	Add forwarding rule				

**Network Type**: check **Public Network**. To configure an intra-environment access, please see Creating and Deploying Application.

#### Load Balancer: check Automatically create.

Protocol and Port: HTTP:80 and HTTPS:443 are supported, and HTTPS domain names can be bound to certificates.

#### Forwarding Configuration:

Domain Name: existing domain names can be bound. If there are no domain names, you will be assigned an IPv4 IP by default.

Path: the default value is "/". You can configure according to the actual situation.

Backend Service: select according to the actual situation.

Service Port: select according to the actual situation.

Server Certificate: if the HTTP protocol is selected, you need to select a server certificate. If the existing certificates are not suitable, you can create one.

4. Click **OK** to complete the application access and routing configuration.

### **Related Operations**

**Modifying an access configuration rule:** click **Edit** in the **Operation** column of the target rule and modify the access configuration in the pop-up window.



**Deleting an access configuration rule:** click **Delete** in the **Operation** column of the target rule and click **OK** in the pop-up window.

Viewing the details of a forwarding rule: click View Forwarding Rule in the Operation column of the target rule and view the details in the pop-up window.

## **Terminating Environment**

Last updated : 2024-01-09 12:40:53

### Overview

This document describes how to terminate an environment in the TEM console.

### Directions

#### Note:

If there are running application instances in an environment, they need to be terminated first before the environment can be terminated.

- 1. Log in to the TEM console.
- 2. On the **Environment** page, select a deployment region and click **Terminate** under the target environment block.
- 3. Click Terminate in the pop-up window to terminate the environment.

## Creating and Using Configurations

Last updated : 2024-01-09 12:40:53

### Overview

This document describes how to create and use configurations in the TEM console.

### Directions

1. Log in to the TEM console.

2. On the **Environment** page, select a deployment region and click **View Details** under the target environment block to go to the environment details page.

3. Select the **Configuration Management** tab at the top of the page, click **Create**, and enter configuration details.

Name	test-config		
Content	O Manually Input		
	key	Value	Operation
	tse-default-spring-cloud-config	eureka.client.serviceURL	Delete
	+ Add Configuration Item		

Name: enter the name of the configuration file. Content: enter the configured key-value pairs.

4. Click **Submit** to complete the creation.

### **Related Operations**

**Modifying a configuration item:** click **Edit** in the **Operation** column of the target configuration item and modify the configuration in the pop-up window.



Deleting a configuration item: click Delete in the Operation column of the target configuration item and click OK

in the pop-up window.

Note:

Before deleting a configuration that is associated with an application, you need to disassociate it from the application first.

Associating a configuration with an application: go to the Deploy Application page, set the path to the container to which the configuration item is mounted in the **Configuration Setting** area. For operation details, please see Creating and Deploying Application.

<ul> <li>Configuration Set</li> </ul>	tting			
	Configuration Name (i)		Mount Path (1)	
	test-comfig	Ŧ	/nginxpath	•
	Add Configuration			
	Please enter the new mount p Multiple configuration items c If no suitable configurations a	ath with caution annot be assoc re available, you	n as it will completely overwrit iated with the same mount pa u can <b>create one </b> [2].	e the original one. th. Please enter configuration items with

## Application Management Creating and Deploying Application

Last updated : 2024-01-09 12:40:53

### Overview

This document describes how to create an application and deploy it in the TEM console.

### Prerequisites

- 1. You have already created an environment.
- 2. You have added environment resources (choose log service, storage service, or registry as needed).

### Directions

1. Log in to the TEM console.

2. In the left sidebar, click **Application Management** to go to the application list page and select a deployment region for your application.

Region	AZs Supported for Deployment
Guangzhou	Zones 3, 4, and 6
Shanghai	Zones 2, 3, 4, and 5

3. Click **Create** to access the **New application** page and enter the application information.

Name *	consul-provider
	Enter up to 45 characters containing lower case letters, digits and "-" (cannot start or end with "
Description	consul-provider
Programming Language	O JAVA Other languages
Package Upload Method	Image O JAR package WAR package
	Submit Disable

Name: enter the application name, which can contain up to 45 lowercase letters, digits, and hyphens and cannot start or end with a hyphen.

Programming Language: select your programming language.

Package Upload Method: select a package upload method. The Java language supports uploading images, JAR packages, and WAR packages, while other languages only support uploading images. If you select **JAR package** or **WAR package**, TEM will automatically build a container image for you and push it to your personal container image repository created by TEM.

4. Click **Submit** and select **OK** in the pop-up window to enter the application deployment page. If you select **Cancel**, you can click **Deploy to New Environment** in the application list to complete the application deployment later.

Go to deploy the servic	e?		×
	ОК	Cancel	

5. On the application deployment page, configure the relevant parameters according to the specific conditions of your application.

S Tencent Cloud
-----------------

Service Name	consul-provider
Release Environment	env-qn2j54yz / TEST
JDK Version	KonaJDK 8 -
Upload Package	consul-provider-0.0.1-SNAP: Upload Again Download Demo 💌
Version	Enter one that is easy to identify Use a timestamp as the version number
	Enter up to 32 characters containing letters, "-", "_", and ".".
Version Description	consul-provider
Start Parameter	-Xms128m -Xmx512m -XX:MetaspaceSize=128m - XX:MaxMetaspaceSize=512m
Resource Configu	CRU 1-core T MEM 1G
opecification	
Number of Instances	Manually adjust Automatically scale
	Number of instances Up to 50
<ul> <li>Access Configura</li> </ul>	tion
<ul> <li>Environment Varia</li> </ul>	ables
_	
Persistent Storage	Provides storage for the container. Currently, CFS is supported, which needs to be mounted to the spe
▼ Log Configuratior	1
Deploy	Cancel

The parameters are described as follows:



Parameter	Description
Release Environment	Select the environment where the application is located. If there are no suitable environments, you can create one on the Environment page as instructed in Creating Environment.
JDK Version	Select the JDK version, which can be KonaJDK 11 (recommend), OpenJDK 11, KonaJDK 8 or OpenJDK 8.
Upload Package/Image	Upload your package or image or download the demos in the console to deploy them and try out all the features of TEM.
Version Number	Set the application version number. You can choose to enter the version number or click <b>Use</b> <b>Timestamp as Version Number</b> to use the timestamp as the application version number.
Version Description	Enter the version description.
Start Parameter	Set the start parameter.

#### Note:

If your application is in Java and associated with a registry, TEM will be able to automatically inject the registry information. For more information, please see <u>Service Registration and Discovery</u>.

6. (Optional) You can set the following advanced options as needed:

Parameter	Required	Description
Resource Configuration	Yes	You can set a number manually or set an auto scaling rule to automatically scale.
Access Configuration	No	Access Method: access within the environment. The public network access can be configured globally in Environment. For more information, please see Configuring Application Access and Routing. Protocol: TCP and UDP protocols are supported. When public network/private network CLB instances are used, TCP and UDP protocols cannot be used together.
Application Management	No	Configure processing tasks to be executed before and after the application process, for example, environment preparation and application exit.
Configuration Setting	No	Configuration usage and management.
Environment Variables	No	Configure environment variables.



Health Check	No	Liveness check: check whether an application instance is running properly. If not, restart the instance. Readiness check: check whether an application instance is ready. If not, stop forwarding traffic to the instance. For operation details, see Health Check.
Persistent Storage	No	Persistent Storage: provide storage for the container. Currently, CFS is supported, which needs to be mounted to the specified path of the container. Data Volume: add the CFS storage resources associated in Adding Environment Resource. Mount Target: select the target path to mount the data volume added in this step and enter the version description.
Security Group	No	You can configure a security group rule to allow or reject the outbound and inbound traffic of instances in the security group. If you need to open other ports for your business, you can create a security group accordingly.
Log Configuration	No	You can enable <b>Persistent storage in CLS</b> . This supports standard output stdout and * configuration paths such as /logs/*, which should be separated by commas. Standard output is used by default.

7. Click **Submit** to complete the application deployment.

8. For microservice applications, the steps to deploy consumer and server applications are similar to steps 3–7.

### **Application Access**

TEM provides two ways of access: intra-environment access and public network access.

Intra-environment access: microservices in the same environment can call each other through the registered service names. Service registration and discovery based on registries such as Consul as well as service discovery based on Kubernetes are supported.

Public network access: click **View Details** under the target environment block and create public network CLB instances and HTTP/HTTPS forwarding rules on the **Access Management** page to access the application. Taking public network access as an example, the steps are as follows:

- 1. Create a public network access route as instructed in Configuring Application Access and Routing.
- 2. You can view the public IP of the application under **Access Management** on the environment details page.

Rule Name	rule1				
Network Type	Enter up to 63 chai	racters containin	g lowercase letters, digits, and "-" (r	must start with a lowercase	e letter and end with a digit or lower
Load Balancer	Automatically of	create			
	CLB instance (sup)	ports HTTP/HTTP	PS)0.22 USD/day		
Protocol & Port	Http:80	Https:443			
Forwarding Configuration	Protocol	Listenin	Domain name (i)	Path	Backend Service
	HTTP 🔻	80	IPv4 IP assigned by defau	1	provider-consul
	HTTP 👻	80	IPv4 IP assigned by defau	/	consul-provider
	Add forwarding rul	e			

3. Enter the following URL in a browser:



<public network access address/domain name>+<path>

For example, if the following result is returned after you enter http://xx.xx.xx/ping-provider, the application is deployed successfully.





Hello World!

## Service Registration and Discovery

Last updated : 2024-01-09 12:40:53

### Overview

This document describes how to register and discover a Spring Cloud application service in the TEM console.

### Directions

#### **Operations in console**

1. Log in to the TEM console.

2. On the left sidebar, click **Application management** to enter the application management page and select a deployment region for your application.

3. Click **Create** to go to the application creation page and enter the application information for deployment. For more information, see Creating and Deploying Application.

4. For a Spring Cloud application, if a registry is associated with the selected **release environment**, you can select **Auto Inject Registry Info**.

#### Specific configuration

If you selected **Auto Inject Registry Info**, when you submit the service for deployment, TEM will automatically save the default parameters of the registry as a .properties file to the ConfigMap named tse-config in the environment and mount it to the /config/tse-default-spring-cloud-config.properties directory of the application in the form of VolumeMounts.

At the same time, TEM will add the directory to the SPRING\_CONFIG\_ADDITIONAL-LOCATION environment variable of the application. If the variable does not exist in the application, it will be created.

The basic configuration is as follows:







```
volumeMounts:
        - name: tse-config
        mountPath: /config/tse-default-spring-cloud-config.properties
        subPath: tse-default-spring-cloud-config.properties
volumes:
        - name: tse-config
        configMap:
        name: tse-config
        items:
            - key: tse-default-spring-cloud-config.properties
            path: tse-default-spring-cloud-config.properties
```

TEM will inject different parameters for different registries:

zookeeper

nacos

Suppose the requested ZooKeeper address is 10.0.1.30:2181 :





```
apiVersion: v1
data:
   tse-default-spring-cloud-config.properties: |
     spring.cloud.zookeeper.connectString=10.0.1.30:2181
     spring.cloud.zookeeper.discovery.preferIpAddress=true
kind: ConfigMap
metadata:
   name: tse-config
```



Suppose the requested Nacos address is 10.0.120.11:8848 :



```
apiVersion: v1
data:
   tse-default-spring-cloud-config.properties: |
    spring.cloud.nacos.discovery.server-addr=10.0.120.11:8848
kind: ConfigMap
metadata:
   name: tse-config
```

### Notes and Precautions

#### Notes on preferIpAddress

xxx.preferIpAddress=true is added to all injected registry parameters, as when Spring Cloud gets the local server IP (i.e., Pod IP in TEM), it will automatically query the domain name based on the IP; if preferIpAddress is determined to be false (default value), the service will be registered through the domain name; otherwise, it will be registered through the IP.

If a PodName is mapped by the Pod IP in TEM, that is, if preferIpAddress=true is not set, then the address registered with the registry will be a PodName, which will be the service instance address pulled by other services from the registry, making the instance inaccessible through the PodName.

#### Notes on Spring Boot additional location

The SPRING\_CONFIG\_ADDITIONAL-LOCATION environment variable automatically added by TEM enables you to externally customize the configuration of a Spring Boot application, but it takes effect only in Spring Boot v2.0 or later. If you use Spring Boot 1.x, add the mounted directory /config/tse-default-spring-cloud-config.properties to the SPRING\_CONFIG\_LOCATION environment variable on your own. You can also set this by directly adding the JVM launch parameters as follows: zookeeper nacos

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# Suppose the requested ZooKeeper address is `10.0.1.30:2181`
-Dspring.cloud.zookeeper.connectString=10.0.1.30:2181
-Dspring.cloud.zookeeper.discovery.preferIpAddress=true



# Suppose the requested Nacos address is `10.0.120.11:8848`
-Dspring.cloud.nacos.discovery.server-addr=10.0.120.11:8848

## **Deleting Application**

Last updated : 2024-01-09 12:40:53

### Overview

This document describes how to delete an application instance in the TEM console.

### Directions

1. Log in to the TEM console.

2. In the left sidebar, click **Application Management** to go to the application list page and select a deployment region for your application.

3. Click **Delete** in the **Operation** column of the target application.

4. Select **Delete** in the pop-up window to delete the instances of the application in an environment.

#### Note:

If the application is deployed in multiple environments, only the instances in a certain environment will be deleted.

If the application is deployed in only one environment, the instances in the environment will be deleted, and you can also select to delete the application at the same time.

If the application has no instances deployed, the application will be deleted.

## Auto Scaling

Last updated : 2024-01-09 12:40:53

### Overview

This document describes how to modify the number of service instances in the TEM console.

### Directions

1. Log in to the TEM console.

2. In the left sidebar, click **Application Management** to go to the application list page and select a deployment region for your application.

3. Click the ID of the target application to go to the application details page.

4. Click Edit and Update in the Auto-Scaling module and configure the instance count change policy.

Scheduled Policy: specify the instance trigger time and the number of instances to trigger. You can configure multiple trigger conditions but only one of them can take effect.

Auto-Scaling		
Auto-scaling Policy	Condition Type	Metric-scaling Policy
	Auto-Scaling Rule	CPU Utilization       >=       80       %         Enter your desired metric value. The scaling ratio is calculated based on the current and desired metric values. Number instances * (current metric value / desired metric value). Take the nearest integer.
	Number of Instances	10     ~     20       To avoid business interruption, the number should range from 1 to 50.

Metric-scaling Policy: enter an expected metric value. The system will calculate the scaling ratio according to current and expected metric values.

Auto-Scaling					
Auto-scaling Policy	Condition Type	Scheduled Policy			
	Trigger If the policies conflict, they will be executed according to the order of the list. You can rearrange the list to adjunct current time, the policy takes effect starting from the next period.				
		Policy Name Cycle	Trigger Time and Number of Pods $(\hat{\textbf{i}})$		
		ii Demo Daily 🔻	Time: 00:00 (C) ; expected pods:		
			8		
			Time: 10:30 (\$); expected pods:		
			۵		
			Add		
		Add Policy			

5. Click **Submit** to modify the number of instances.

## Logging in to Container via WebShell

Last updated : 2024-01-09 12:40:53

### Overview

This document describes how to log in to a container via WebShell in the TEM console.

### Directions

1. Log in to the TEM console.

2. In the left sidebar, click **Application Management** to go to the application list page and select a deployment region for your application.

3. Click the ID of the target application to go to the application details page.

4. Select the **Application List** tab, click **WebShell** in the **Operation** column of the target instance, and log in to the container via WebShell. sh is supported by default.

Instance List	Log	Monitoring	Basic Info			
Deploy	Terminate	Scale				
Default Deple	oyment Inform	nation				
Running instanc	es: 1 / Desired ir	nstances: 1				
ID		AZ		IP	Status	Creation T
provider-cons	ul-5c66979f84-h	9 Guangzho	ou Zone 6	10.0.10.14	Running	2021-06-2

The UI after login is as follows:



## **Viewing Application Log**

Last updated : 2024-01-09 12:40:53

### Overview

This document describes how to view the log information of a created application.

### Prerequisites

You have created an application.

### Directions

- 1. Log in to the TEM console and click **Application Management** in the left sidebar to go to the application list page.
- 2. Select the target application and click the application ID to go to the application details page.

3. On the **Log** tab on the application details page, you can view the log information under the current application (for real time, last 24 hours, last 7 days, last 15 days, last 30 days, or a custom time range).



Instance Lis	t Log	Monitoring	Basic Info				
<ol> <li>Auto-</li> </ol>	refresh is perform	ed every 10 seconds					
Instance	provider-consu	l-5c66979f84-b					
notanoo	providor contra						
Time Range	Real-Time	Last 24 hours	Last 7 davs	Last 15 days	Last 30 davs	2021-06-23 10:31:56 ~ 2021-06-23 11:31:56	<b>D</b>
				,	,		-
Display 10	0 logs by default						
2							
3. /\\ /	'()	////					
4. ( ( ))	!'_!''_!''_V.						
5. W_		))))					
6. ' 🖵		_, ////					
7. ===	====== _ =====	============ /=/_/	1_1				
8. :: Sj	oring Boot :: (v2.4	.5)					
1 <b>9.</b> 202 0.0.	1-06-23 11:22:55 1-SNAPSHOT.jar	.452 INFO 1 [ main started by root in /ap	i] c.e.hellworld.HellM o)	VorldApplication : Sta	arting HellWorldAppl	ication v0.0.1-SNAPSHOT using Java 1.8.0_252	on provider-co
11. 202	1-06-23 11:22:55	.455 INFO 1 [ main	] c.e.hellworld.HellW	orldApplication : No	active profile set, fa	lling back to default profiles: default	
12. 202	1-06-23 11:22:57	.942 INFO 1 [ main	] o.s.b.w.embedded	l.tomcat.TomcatWeb	Server : Tomcat initia	alized with port(s): 8201 (http)	
13. 202	1-06-23 11:22:57	.986 INFO 1 [ main	] o.apache.catalina.	core.StandardServic	e : Starting service [	Tomcat]	
14. 202	1-06-23 11:22:57	.986 INFO 1 [ main	] org.apache.catalin	a.core.StandardEngi	ne : Starting Servlet	engine: [Apache Tomcat/9.0.45]	
15. 202	1-06-23 11:22:58	.120 INFO 1 [ main	] o.a.c.c.C.[Tomcat].	[localhost].[/] : Initiali	izing Spring embedo	led WebApplicationContext	
16. 202	1-06-23 11:22:58	.120 INFO 1 [ main	] w.s.c.ServletWebS	erverApplicationCon	text : Root WebApp	licationContext: initialization completed in 2512	ms
17. 202	1-06-23 11:22:59	.167 INFO 1 [ main	] o.s.s.concurrent.TI	hreadPoolTaskExecu	tor : Initializing Exec	utorService 'applicationTaskExecutor'	
18. 202	1-06-23 11:22:59	.610 INFO 1 [ main	] o.s.b.w.embedded	l.tomcat.TomcatWeb	Server : Tomcat star	ted on port(s): 8201 (http) with context path "	
19. 202	1-06-23 11:22:59	.659 INFO 1 [ main	] c.e.hellworld.HellW	orldApplication : Sta	arted HellWorldAppli	cation in 5.303 seconds (JVM running for 6.351)	

4. You can click

to automatically refresh the log information.

5. You can click

to export the logs to your local file system.

## Viewing Application Monitoring Information

Last updated : 2024-01-09 12:40:53

### Overview

This document describes how to view the monitoring data of a created application.

### Prerequisites

You have created an application.

### Directions

1. Log in to the TEM console and click **Application Management** in the left sidebar to go to the application list page.

2. Select the target application and click the application ID to go to the application details page.

 On the Monitoring tab on the application details page, you can view the CPU and memory utilization details under the current application (for real time, last 24 hours, last 7 days, last 15 days, last 30 days, or a custom time range).
 You can click

to download the relevant monitoring data.



stance List	Log	Monitoring	Basic Info				
e Range	Real-Time	Last 24 hours	Last 7 days	Last 15 days	Last 30 days	2021-06-23 10:33:45 ~	2021-06-23 11:33:45 📋
CPU Utilizat	<b>ion</b> (%)						
12							
10							
8							
6							
4							
2							
2021-06-23	0:30:00	2021-06-23 10:40:0	0	2021-06-23 10:50:00	202	1-06-23 11:00:00	2021-06-23 11:10:00
Memory Uti	ization (%)						
Memory Uti	ization (%)						
Memory Util	ization (%)						
Memory Util	ization (%)						
Memory Util 12 10 8	ization (%)						
Memory Util 12 10 8 6	ization (%)						
Memory Util 12 10 8 6 4	ization (%)						
Memory Util 12 10 8 6 4 2	ization (%)						

### **Rolling Back Application**

Last updated : 2024-01-09 12:40:53

### Overview

This document describes how to roll back a deployed application to its previous version.

### Prerequisites

You have created and deployed an application.

### Directions

- 1. Log in to the TEM console and click **Application Management** in the left sidebar to go to the application list page.
- 2. Select the target application and click the application ID to go to the application details page.
- 3. On the application details page, click **Rollback**.

Deploy Ter	minate	Stop Applicat	ion Scale	Roll Back	]		
Application Ove	rview						
Application Name						Image Version	tem_demo/tem_de
Status	Norma	al				Previous Deployment	2021-09-06 11:42:
Creation Time	2021-	09-06 11:27:01				Previous Successful Deployment	2021-09-06 11:42:
Basic Info	Log	Monitoring	Instance List				
Basic IIIIO	LUg	Wohitohing	Instance List				
Default Deple	oyment	Information					
Running instanc	es: 5 / De	sired instances: 5					

4. In the pop-up rollback window, select a historical version to be rolled back to in the **Historical version** area.

Application Name				
Environment				
Historical version	Deployment Time	Image Version	Version	Version Description
	2021-09-06 11:42:22	tem_demo/tem_demo:hello-world	hello-world	
	2021-09-06 11:41:28	tem_demo/tem_demo:hello-world	hello-world	
	2021-09-06 11:35:03	tem_demo/tem_demo:hello-world	hello-world	
	2021-09-06 11:30:10	tem_demo/tem_demo:hello-world	hello-world	
	2021-09-06 11:27:16	tem_demo/tem_demo:hello-world	hello-world	
	Up to 10 legacy versions can be	eretained.		
Roll Back	Cancel			

Up to 10 historical versions can be retained.

#### Deployment Result: Deployed successfully or Failed to deploy.

Application Details: displays the configuration information of the application deployment.

**Download**: If the historical version was uploaded using a JAR or WAR package, you can download the corresponding package in the list.

5. Click **Rollback** to redirect to the **Instance List** page. The system will roll back the application to the specified historical version in a rolling deployment mode.

## Activating Image Repository

Last updated : 2024-01-09 12:40:53

### Overview

This document describes how to create a Personal Edition image repository in the TKE console to receive container images built or pushed by TEM.

### Directions

1. Log in to the TKE console and enter the **Image Repositories** > **Personal Edition** page. If you are accessing this service for the first time, the initialization page will be displayed.

Personal Edition Default	regions (including 🔻	View API	Inspector ×
My Images Namespace			
Create Delete	Reset Password	Source Authorization Image Lifecycle Managen	ient
Notice: TCR Enterpr	se Edition is now a paid	service, providing the capabilities of secure ente	rprise-grade cloud native artifacts hostin
	Reset Password	I	×
Name	This password is us	ed to log in to Tencent Cloud Image Registry via Docker	login command.
	Username	1006 -	A
e est	New Password	Enter the new password	it 2020-04-26 TC
Total items: 1	Confirm Password	Enter the new password agair	ecords per page 20 💌
		Done Cancel	

- 2. Select the region of the application environment.
- 3. Set a password for your personal container image repository, which can be used to log in to the repository through docker login .
- 4. After the personal image repository is activated, you can return to the TEM console to create an application.



If you select **Image** > **Auto Create** for package upload, the image you upload will be pushed to the namespace created by TEM.

If you select **JAR** or **WAR** for package upload, TEM will automatically build a container image for you and push it to the namespace created by TEM.

My Ima	ages Namespace		
C	reate		
	Namespace	Number of Repositories	Time Created
	tem-200019482031-ljvl	8	2021-06-23 11:12:06

## Batch Deployment

Last updated : 2024-01-09 12:40:53

### Overview

In service rollout and upgrade scenarios, the stability of the deployment process and application is extremely important. This document describes how to use batch deployment to ensure deployment stability when the application is deployed again.

The batch deployment feature allows you to deploy applications in multiple batches. Each batch updates only a part of the running instances of an application. In addition, you can suspend manual verification and rollback to avoid the impact of faults and the fluctuations in the deployment process.

### Prerequisites

You have created and deployed an application.

#### Directions

- 1. Log in to the TEM console and click Application Management in the left sidebar to go to the application list page.
- 2. Select the target application and click the application ID to go to the application details page.
- 3. On the application details page, click **Deploy** to go to the redeployment details page.

Deploy	rminate Stop Application Scale Roll Back	
Application Ove	rview	
Application Name		Image Version
Status	Normal	Previous Deployment
Creation Time	2021-09-06 11:27:01	Previous Successful Deploy

4. On the deployment details page, configure batch deployment in the **Deployment Policy** area.

Deployment Policy	Current pods/Desired pods	2/2
	Trial batch	
	Deployment Batches	-     1     +     batch(es)       Remaining pods are automatically and averagely assigned to the batches.
	How to trigger (	Automatic 💌
	Hide	
	Deploy Now	
	[Manual Star	t] Batch 1: 2 pod(s)
	<ul> <li>Deployment of</li> </ul>	completed

If your application has more than one running instance, redeployment automatically triggers batch deployment.

**Trial Batch**: you can specify a trial batch that contains no more than 50% of the total number of instances. After the execution of the trial batch is completed, you need to manually start the remaining batches.

**Deployment Batches**: select the number of batches to launch. Then all instances will be evenly distributed across batches.

**How to trigger**: you can choose either to manually or automatically (at an interval of 5 minutes) start the next batch. Deployment flowchart: you can expand the flowchart to view the deployment process and batch details.

5. Click **Deploy** to redirect to the **Instance List** page to start deployment.





6. Click **View Details** in the **Status** parameter in the **Application Overview** area. You can view and manage the batch deployment process in the deployment list.

em_demo/tem_demo ello-world 021-09-06 11:42:23 eploy in batches ending auto-execution <b>4 pods)</b>		P	rogress Deploy Now [Manual Start] Batch 1: 1 pod(s) [Manual Start] Batch 2: 2 pod(s) [Manual Start] Batch 3: 2 pod(s) Deployment completed
em_demo/tem_demo ello-world 021-09-06 11:42:23 eploy in batches ending auto-execution <b>4 pods)</b>		P	rogress Deploy Now [Manual Start] Batch 1: 1 pod(s) [Manual Start] Batch 2: 2 pod(s) [Manual Start] Batch 3: 2 pod(s) Deployment completed
em_demo/tem_demo ello-world 021-09-06 11:42:23 eploy in batches ending auto-execution <b>4 pods)</b>			Deploy Now [Manual Start] Batch 1: 1 pod(s) [Manual Start] Batch 2: 2 pod(s) [Manual Start] Batch 3: 2 pod(s) Deployment completed
ello-world 021-09-06 11:42:23 eploy in batches ending auto-execution <b>4 pods)</b>			[Manual Start] Batch 1: 1 pod(s) [Manual Start] Batch 2: 2 pod(s) [Manual Start] Batch 3: 2 pod(s) Deployment completed
021-09-06 11:42:23 eploy in batches ending auto-execution <b>\$ pods)</b>			[Manual Start] Batch 2: 2 pod(s) [Manual Start] Batch 3: 2 pod(s) Deployment completed
eploy in batches ending auto-execution \$ pods)		•	[Manual Start] Batch 3: 2 pod(s) Deployment completed
eploy in batches ending auto-execution \$ pods)		•	[Manual Start] Batch 3: 2 pod(s) Deployment completed
ending auto-execution \$ pods)		•	Deployment completed
ending auto-execution 4 pods)			
ŧ pods)			
AZ	Status		Creation Time
Tokyo Zone 2	Running		2021-09-06 11:42:23
	AZ Tokyo Zone 2	AZ Status Tokyo Zone 2 Running	AZ Status Tokyo Zone 2 Running

Rollback is to terminate the current deployment process and restore all instances to their previous versions.

## Health Check

Last updated : 2024-01-09 12:40:53

### Overview

During the running of an application instance, the process may exit due to an exception, or the instance may run abnormally because the running environment disk is too full, and so on. In such cases, you need to restart the application instance.

In addition, the application instance may be temporarily unable to receive new requests due to database and other access exceptions. In that case, you need to remove the exceptional instance from the load balancer and add the instance to the load balancer when the instance recovers.

For the above two types of OPS requirements, TEM provides two types of health checks to meet the requirements of automatic OPS:

Liveness check: check whether an application instance is running properly. If not, restart the instance.

Readiness check: check whether an application instance is ready. If not, stop forwarding traffic to the instance.

#### **Overall process**

TEM provides the HTTP request method for health checks, and the corresponding HTTP APIs need to be provided by the application itself. Therefore, the overall process of using the health check feature consists of two steps:

1. Implement health check HTTP APIs in the application.

2. Configure the health check feature when deploying the application on the TEM platform.

### Directions

#### Step 1: implement health check HTTP APIs in the application

The application needs to implement the health check HTTP APIs based on the development language and framework used. The following are some common examples in the industry:

Spring Boot

**ASP.NET Core** 

Django

Nodejs

The application needs to implement two health check HTTP APIs to handle liveness and readiness checks separately (in this example, the request paths for the liveness and readiness checks are set to /livez and /healthz respectively).

## Step 2: configure the health check feature when deploying the application on the TEM platform

If no environment is created, create an environment.

Create and deploy an application as follows (a JAR package is used in this example):

- 1. Select the application deployment region at the top of the **Application Management** page in the TEM console.
- 2. Click **Create** to access the **New application** page and enter the application information.

New application	
Name •	demo-healthcheck
	Enter up to 45 characters containing lower case letters, digits and "-" (cannot start or end with "-" ).
Description (optional)	Enter descriptions
Programming Language	O JAVA Other languages
Package Upload Method	Image O JAR package WAR package
	An image will be automatically created with the uploaded program package and stored to the image repository. If you've not used image repositories before, please first enable Tencent Cloud Image Registry 🕻.
	Submit Disable

3. Click Submit and click OK in the pop-up window to deploy the application.

4. On the **Deploy Application** page, configure the relevant parameters as needed.

Set **Request Path** and **Port** to the HTTP API path and port number for health check respectively.

▲ Health Check	Liveness Check	Check whether the application is normal. If not, the instance will be restarted.
	Checking Method	HTTP Request Check
	Protocol	HTTP
	Request Path ()	/livez
	Port	80
		Port range: 1 - 65535. Port names are supported.
	Start-up Latency	5 sec
		The waiting period before the Alive check after the application startup. It defaults to 5 second(s)
	Response timeout	3 sec
		The timeout period for a health check request. It defaults to 3 seconds.
	Check Interval	The interval between two health checks. It defaults to 30 seconds.
	✓ Readiness Chec	${f k}$ Check whether the container is ready. If it's not ready, traffic will not be forwarded to the current instan
	Checking Method	HTTP Request Check
	Protocol	HTTP v
	Request Path 🛈	/healthz
	Port	80
		Port range: 1 - 65535. Port names are supported.
	Start-up Latency	10 sec
		The waiting period before the Ready check after the application startup. It defaults to 10 second(s)
	Response timeout	3 sec
	Check Interval	20 and 200
	CHOCK HILBIVEI	The interval between two health checks. It defaults to 30 seconds.

5. Click **Deploy Application**. The platform automatically manages the application according to the health check configuration.

## Permission Management Overview

Last updated : 2024-01-09 12:40:53

**TEM** currently allows the **root account** to configure and grant TEM operation and resource permissions to subaccounts flexibly in the console.

### Overview

A TEM permission policy specifies the **operation scope** and **resource scope**. A complete permission policy can define all operations that can be performed by the policy holder on the specified resources.

Resource Type	Resource Scope	Operation Scope
Environment	Specified/All environments	View environment details: This option includes read operations and deployment operations (deploying applications and associate gateways to the environment) of the environment. Manage environment: This option includes the read, deployment, and write operations of the environment.
Application	Specified/All applications	View application details: This option includes the read operations of the application. <b>Manage application:</b> This option includes the read and write operations of the application.
CLB gateway	Specified/All CLB gateways	View CLB gateway details: This option includes the read operations of the CLB gateway. Manage CLB gateway: This option includes the read and write operations of the CLB gateway.

## **Creating and Granting Permission Policy**

Last updated : 2024-01-09 12:40:53

### Overview

This document describes how to **configure a permission policy in the TEM console** and use CAM to **grant the policy to a sub-account**.

### Directions

1. Log in to the TEM console and click **Permission management** on the left sidebar.

2. On the **Permission management** page, click **Create permission policy** and enter a policy name and description.

Create pe	permission policy	
1 Configu	gure policy > (2) Preview policy	
	sers are granted the permissions to query the list of resources and create resources. For	the nermission to view resource details and manage resources, you need to specify here
	service granted the permissions to query the list of resources and create resources i to	the permission to their resource details and manage resources, you need to specify herei
Policy Name *	demq	
Description	Enter the description	
Permissions	Environment	
Permissions	Environment Application	

3. (Optional) Authorize environment resources:

Permissions	Environm	ent		
	Operations	O View environment details()		
	Resources	Specified environments  All environments		
		Select environments on your own		Selected (0)
		Q		Environment ID
		Environment ID Environment name		
		No data yet		
			$\Leftrightarrow$	
		L Press and hold the Shift key to select multiple items		

Select **Environment** and select the operation and resource scopes in the options expanded below.

Select the scope of environment operations to be authorized:

**View environment details**: This option includes read operations and deployment operations (deploying applications and associate gateways to the environment) of the selected environment.

**Manage environment**: This option includes the read, deployment, and write operations of the selected environment. Select the scope of environment resources to be authorized:

Specified environments: You can select resources in the resource selector below.

All environments: This option refers to all existing environments and includes those added subsequently.

4. (Optional) Authorize application resources:

Operations	O View application details () ○ Manage applications ()				
Resources	Specified applications  All applications				
	Select applications on your own			Selected (0)	
		Q,		Application ID	
	Application ID Application name				
	No data yet				
			↔		

Select **Application** and select the operation and resource scopes in the options expanded below.

Select the scope of application operations to be authorized:

View application details: This option includes read operations of the selected application.

Manage application: This option includes the read and write operations of the selected application.

Select the scope of application resources to be authorized:

**Specified applications**: You can select resources in the resource selector below.

All applications: This option refers to all existing applications and includes those added subsequently.

5. (Optional) Authorize CLB gateway resources:

Operations	🔾 View CLB details 👔 💫 Manage CLBs 🚯					
Resources	Specified CLBs All CLBs					
	Select CLBs on your own		Selected (0)			
	Q		CLB ID			
	CLB ID CLB name					
	No data yet					
		4				

Select CLB gateway and select the operation and resource scopes in the options expanded below.

Select the scope of CLB gateway operations to be authorized:

View CLB gateway details: This option includes the read operations of the selected CLB gateway.

Manage CLB gateway: This option includes the read and write operations of the selected CLB gateway.

Select the scope of CLB gateway resources to be authorized:

Specified CLB gateway: You can select resources in the resource selector below.

All CLB gateways: This option refers to all existing CLB gateways and includes those added subsequently.

6. Preview the configured permission policy content, confirm that everything is correct, and click **Confirm and go to CAM for authorization**. You will be redirected to the **CAM Policy Generation** page.



🕑 Config	ure policy > 2 Pre	view policy	
Policy Name	demo		
Description	-		
Permissions	Environment Application	n CLB gateway	
	Resource		Permissions
			Not configured

#### 7. Generate the corresponding permission policy in CAM and click Complete.

#### Note:

Do not modify the generated policy content; otherwise, the policy may not take effect.

8. Associate the generated policy to the target users/user groups to complete authorization.

## Granting Existing Permission Policy

Last updated : 2024-01-09 12:40:53

### Overview

This document describes how to grant an existing TEM permission policy to a sub-account through CAM. If you have completed authorization in CAM when creating a policy, you can directly grant the policy to other users/user groups in the CAM console. If the policy generated in CAM is deleted or cannot be found, generate the corresponding CAM policy and grant it as follows:

#### Directions

- 1. Log in to the TEM console and click **Permission management** on the left sidebar.
- 2. In the permission policy list, select the target policy and click **Generate CAM policy**.

Tencent Cloud Elastic Microservice (TEM) has b	een commercialized since July 18, 2022. The us	age of TEM will incur charges. For more information, see <u>Billing Overview</u>	<u>v</u> Z.
Create permission policy			
Policy ID/name	Description	Creation time	Update time
XXX		2022-11-16 10:55:25	2022-11-16 10:55:25
Total items: 1			

3. In the CAM console, create a policy, click **Complete**, and **associate the policy to the target users/user groups**.



Description	
Policy Con	tent
1 {	"version": "2.0"
2	"statement": [
2	statement . [
4	1 Un C Const Un Un 1 1
5	"effect": "allow",
6	"action": [
7	"tem:*"
8	],
9	"resource": [
10	
11	]
12	},
13	{
14	"effect": "allow",
15	"action": "cam:PassRole",
16	"resource": "qcs::cam::uin/100010948100:role/tencentcloudServiceRoleName/TEM_QCSL
17	},
18	{
19	"effect": "allow",
20	"action": "cam:GetRole",
21	"resource": "*"
	}
22	
22	1

### View Change Record

Last updated : 2024-01-09 12:40:53

### Overview

This document describes how to view change records in the console after an application is created.

### Prerequisites

You have created an application.

### Directions

1. Log in to the TEM console and click Change Record on the left sidebar to enter the change record page.

2. Selecting a deployment region at the top, select an event type and an event object, and then you can see the filtered change records.

¢	hange F	Record	🔇 Guangzhou 🔻					
E	vent Type	All	•	Event Object	consul-provider	v		
	Event Type	е	Event Object (	Environmen	Event Description	Change Status	Changed By	S
	Create Ser	vice	consul-provide	r			200 031	