

# Tencent Cloud Infrastructure as Code Getting Started Product Documentation



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## **Getting Started**

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To quickly familiarize you with Tencent Cloud Infrastructure as Code (TIC), this document describes the basic features of TIC:

- Authorizing TIC: you can authorize TIC to orchestrate cloud resources such as CVM, COS, and MySQL.
- Creating a Stack: you can compile stack code and perform operations such as plan and apply to create cloud resources and build the cloud infrastructure.
- Querying Cloud Resources: you can query cloud resources created using TIC.
- Destroying Cloud Resources: you can release cloud resources to return to the initial status.

### A Note:

TIC is free of charge and you will only be billed for cloud resources (such as CVM and MySQL) created using TIC. You can modify the configuration file based on business requirements to avoid unexpected costs.

## Authorizing TIC

When using TIC for the first time, you must authorize the service to orchestrate cloud resources under your Tencent Cloud account. Otherwise, the operations cannot be performed.

1. Log in to the TIC console.

2. In the left sidebar, choose **Settings** -> **API Credentials** to go to the **API Credentials** page.

3. Click the **TIC Authorization** switch. In the pop-up dialog box, click **Access Management** to go to the CAM page.

тіС	API Credentials	
⊡     Orchestration     ▼       Image: Settings     ▼       Image: API Credentials	TIC Authorization	
	Service authorization         You are authorizing TIC service orchestration of CVM/VPC/COS and other Tencent Cloud resources. Please go to "Access Management" to complete the authorization.         Access Management       Cancel	×

- 4. On the CAM page, click Grant to complete the authorization.
- 5. Go back to the API Credentials page. TIC authorization has now been enabled.

тіс	API Credentials
∃ Orchestration ▼	
	TIC Authorization
Settings +	Authorize TIC to orchestrate CVM//PC/COS and other Tencent Cloud resource permissions
<ul> <li>API Credentials</li> </ul>	
	Status Authorization succeeded

## Creating a Stack

#### Step 1: Select Mode

- 1. In the left sidebar, choose **Orchestration** -> **Stacks** to go to the **Stacks** page.
- 2. Click New stack. On the New Stack page, configure parameters as follows:
  - Provider: the default value is Tencent Cloud. Currently, only Tencent Cloud is supported.
  - **Region**: select a region where all resources in the stack will reside. To facilitate testing, select **Chengdu**. You can also select another region for testing.

- 3. In Specify Template, specify how you want to create the stack.
  - **URL**: only Tencent Cloud COS and GitHub are supported. Only one file can be obtained at a time.
  - Private templates: select a private template. For more information, see Template Management
  - **Public templates**: select a public template. For more information, see Template Management.
  - Enter template content: enter the infrastructure code. Multi-file compiling is supported.

In this example, **Enter template content** is selected to configure a new stack from scratch.

Stacks / Ne	ew Stack
1 Select	Mode $\rightarrow$ 2 Configure Stack $\rightarrow$ 3 Plan $\rightarrow$ 4 Apply
Cloud Environ	iment
Provider	Tencent Cloud
Region	ap-chengdu 🔹 🧭
O URL Please ente Private Please sele	er the URL of the template file with .tf and .zip suffixes. For security reasons, we only supports template files hosted on Tencent Cloud Object Storage (COS) or Github. templates ect private template which saved in the "Resource Orchestration" "Template Management" page.
Please sele	templates ct the sample public template built by the system in the "Resource Arrangement" "Template Management" page.
O Import Import the	resources cloud resources of the Tencent Cloud console into the TIC, and automatically generate configuration templates.
O Enter te Manually e	emplate content Inter the configuration content of the template to quickly experience the functional features of the TIC service.

4. Click **Next** to go to Step 2.

## Step 2: Configure Stack

TIC parameter configuration is compatible with Terraform's HCL syntax. For more information about HCL syntax, see Terraform Configuration Language.

1. Create resource parameter configuration files. To be consistent with the current network environment, we created two CVMs, one VPC, one subnet, one route table, one security group, and one TencentDB for MySQL instance.



The corresponding configuration files are cvm.tf , vpc.tf , subnet.tf , route\_table.tf , security\_group.tf , and mysql.tf . The file structure is as follows:

Stacks / New Stack		
<pre>Select Mode &gt; 2 Configure Stack &gt; 3 Plan &gt; 4 Apply</pre> Files P 1 1 1 const x mysqlut x mule x such x varia x vpc.tf x P 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Stacks / New Stack	
Files          if	Select Mode > 2	Configure Stack > 3 Plan > 4 Apply
	Files I I I   I cvm.tf I I   I mysql.tf I I   I route_table.tf I I   I subnet.tf I I   I variable.tf I I   I variable.tf I I	<pre>cvm.tf × mysql.tf × route × secur × subn × varia × vpc.tf ×  scown.tf f // Create cvm f resource "tencentcloud_instance" "cvm_demo" {     instance_name = "ajaxhe-cvm-demo"     a vailability_zone = var.default_az     image_id = "img-pi0ii46r"     instance_type = "S2.SMALL1"     system_disk_type = "CLOUD_PREMIUM"     allocate_public_ip = true     security_groups = [         tencentcloud_security_group.sg_demo.id         j         vpc_id = tencentcloud_subnet.subnet_demo.id         internet_max_bandwidth_out = 10         count = 2     }     tags = {         role = "cgi"         env = "prod"         z2         }         .         .         .</pre>

2. For the template to be used universally, we created variable.tf that defines two variables: the default region ap-chengdu and the default availability zone ap-chengdu-1. Note that the region name must be the same as that selected in Step 1.

```
// variable.tf
variable "default_region" {
  type = string
  default = "ap-chengdu"
  }
variable "default_az" {
  type = string
  default = "ap-chengdu-1"
  }
```

3. The variables defined in variable.tf will be referenced by other .tf files. The cvm.tf file is used as an example to describe the syntax. To obtain the complete content of the .tf configuration file, download tic-

demo-config.zip.

```
// Create cvm
resource "tencentcloud instance" "cvm demo" {
instance_name = "ajaxhe-cvm-demo"
availability_zone = var.default_az
image_id = "img-pi0ii46r"
instance type = "S2.SMALL1"
system_disk_type = "CLOUD_PREMIUM"
allocate_public_ip = true
security_groups = [
tencentcloud_security_group.sg_demo.id
]
vpc_id = tencentcloud_vpc.vpc_demo.id
subnet_id = tencentcloud_subnet.subnet_demo.id
count = 2
tags = {
role = "cgi"
env = "prod"
}
}
```

**resource "tencentcloud\_instance"**: cloud resources currently created are CVM instances. For more information about cloud resources, see Resource Types.

- cvm\_demo: local resource name, which is used for cross-cloud referencing.
- instance\_name: name of the CVM instance.
- availability\_zone: availability zone of the CVM instance. The default\_az variable defined in the variable.tf file is referenced.

- image\_id: ID of the CVM image. The value "img-pi0ii46r" indicates Ubuntu Server 18.04.1 LTS (64-bit). You can obtain the image ID from the Image page in the Tencent Cloud Console.

- instance\_type: instance type.

**system\_disk\_type**: system disk type. CLOUD\_PREMIUM indicates premium cloud storage. For more information, see the DiskType description in CreateDisks.

- allocate\_public\_ip: whether to configure a public IP address. To configure a public IP address, configure the value to true.

- security\_groups: list of security groups associated with the CVM instance. The

tencentcloud\_security\_group.sg\_demo.id indicates that the CVM instance is associated with the
security group defined in security\_group.tf .

- vpc\_id: VPC associated with the CVM instance. The tencentcloud\_vpc.vpc\_demo.id indicates that the CVM is associated with the VPC defined in vpc.tf .

- count: reserved field. The value 2 indicates two CVM instances with above configurations will be created.
- tags: used to classify CVM instances.

## Step 3: Plan

After compiling configuration files, click **Next** to go to the **Plan** step. In this step, TIC verifies the configuration syntax and preprocesses resource change operations.

According to the result of the plan operation as shown in the following figure, 8 cloud resources will be created, and no



resource will be changed or destroyed.

[std] + security_group_id = (known after apply)		
[std] + source_sgid = (known after apply)		
[std] + type = "ingress"		
[std] }		
[std] # tencentcloud_subnet.subnet_demo will be		
[std] + resource "tencentcioud_subnet" "subnet_d	mo" (	
[std] + availability_zone = ap-chengou-i		
[std] + available_lp_count = (known after apply		
[std] + cldr_block = 10.0.1.0/24		
[std] + id = (known after apply)		
[std] + is default = (known after apply)		
[std] + is multicast - true		
[std] + name = "alaxhe-subpet-demy		
[std] + route table id = (known after apply)		
[std] + tags = {		
[std] + "env" = "prod"		
[std] + "role" = "cgi"		
[std] }		
[std] + vpc_id = (known after apply)		
[std] }		
[std] # tencentcloud_vpc.vpc_demo will be created		
[std] + resource "tencentcloud_vpc" "vpc_demo" {		
[std] + cidr_block = "10.0.0.0/16"		
[std] + create_time = (known after apply)		
[std] + dns_servers = (known after apply)		
[std] + id = (known after apply)		
[std] + is_default = (known after apply)		
[std] + is_multicast = true		
[std] + name = "ajaxhe-vpc-demo"		
[std] + tags = {		
[std] + "env" = "prod"		
[std] + "role" = "cgi"		
[std] }		
[std] }		
[std] Plan: 8 to add, 0 to change, 0 to destroy.		
[system]planned		
[system] start analyzing the results of iac engine ex	ecution	
[system] save the generated state files		

## Step 4: Apply

If the result meets your requirements, perform the following operations:



1. Click Next, enter the stack name and description, and click Confirm.

Select Mode	> 🗸 Configure Stack > 🗸 Van >	4 Apply
Stack name	tic-demo	
Description	TIC demo	
API Credentials	TIC authorization	

2. In the pop-up confirmation box, click **Confirm**.

Confirm		×
Stack name:	tic-demo	
Description:	TIC demo	
Region:	ap-chengdu	
API Credentials:	TIC authorization	
The static creation	is completed, you can get detail information from events.	
	Confirm Cancel	

TIC will perform the apply operation to create cloud resources. You will be redirected to the Stacks -> Event page.
 The APPLY\_IN\_PROGRESS status indicates cloud resources are being created. The creation process takes



several minutes.

itacks / tic-demo					
Property Version	Resource Event				
			Filter by key words of version name		Q,
Version name	Status	Content	Time ‡	Operation	
20200812181945	APPLY_IN_PROGRESS		2020-08-12 18:22:19	Details	
20200812181945	PLAN_COMPLETED	Plan: 8 to add, 0 to change, 0 to d	2020-08-12 18:19:46	Details	
Total items: 2			10 🔻 / page 🛛	4 1 / 1 page	Þ

4. Click the refresh icon in the upper-right corner of the **Event** page. When the status becomes

**APPLY\_COMPLETED**, cloud resources are created successfully.

Stacks / tic-demo				
Property Version	Resource Event			
			Filter by key words of version name	Q ¢
Version name	Status	Content	Time ‡	Operation
20200812181945	APPLY_COMPLETED	Apply complete! Resources: 8 add	2020-08-12 18:22:19	Details
20200812181945	PLAN_COMPLETED	Plan: 8 to add, 0 to change, 0 to d	2020-08-12 18:19:46	Details
Total items: 2			10 🔻 / page 🛛 🕅	4 1 /1 page ▶ ▶

## **Viewing Cloud Resources**

1. On the **Stacks** page, locate the newly created stack and click on its *ID/Name* to go to the details page.



2. Click the **Resource** tab to view cloud resources managed by TIC.

Stacks / <b>tic-demo</b>						
Property Version	Resource Event					
			Filter b	v key words of resource name		Q
				,,		
Instance ID	Name	Status	Туре	Resource name	Operation	
ins-3808cm5j	ajaxhe-cvm-demo	Running	tencentcloud_instance	cvm_demo	Details	
ins-m6d64mn5	ajaxhe-cvm-demo	Running	tencentcloud_instance	cvm_demo	Details	
cdb-86ngiw74	ajaxhe_mysql_demo	Running	tencentcloud_mysql_instance	e mysql_demo	Details	
rtb-b8c99qqj	ajaxhe-rtb-demo	Running	tencentcloud_route_table	rtb_demo	Details	
sg-c7pvzhnr	ajaxhe-sg-demo	Running	tencentcloud_security_group	sg_demo	Details	
eyJzZ19pZCl6InNnLWM3c		Running	tencentcloud_security_grou	. sg_rule_demo	Details	
subnet-ojj33zvn	ajaxhe-subnet-demo	Running	tencentcloud_subnet	subnet_demo	Details	
vpc-0ynlowba	ajaxhe-vpc-demo	Running	tencentcloud_vpc	vpc_demo	Details	
Total items: 8				10 🔻 / page 🛛 🖂 🚽	1 / 1 page	► 1

3. The **Resource** page only displays key fields of cloud resources. To query resource details, go to the corresponding Tencent Cloud service console. For example, you can log in to the CVM console to view the two CVM instances created using TIC.

Create Start up	p	Shutdown	Restart	Reset Password	More Actions 👻				¢φ
Separate keywords with	"; press	Enter to separate	e filter tags				Q	View instances pen	ding repossession
ID/Name	Mon itori ng	Status 🔻	Availabilit 🔻	Instance Type T	Instance Configuration	Primary IPv4 (j)		Instance Billin: T	Operation
ins-3808cm5j New ajaxhe-cvm-demo	ılı	left Running	Chengdu Zone 1	Standard S2 🗳	1-core 1GB 10Mbps System disk: Premium Cloud Storage Network: ajaxhe-vpc-demo		c) []	Pay as you go Created at 2020- 08-12 18:22:45	Log In More 🔻
ins-m6d64mn5 New ajaxhe-cvm-demo	di.	left Running	Chengdu Zone 1	Standard S2 🇳	1-core 1GB 10Mbps System disk: Premium Cloud Storage Network: ajaxhe-vpc-demo		ic) <mark>[1</mark>	Pay as you go Created at 2020- 08-12 18:22:45	Log In More 🔻

## **Destroying Cloud Resources**

TIC is free of charge but you will be billed for cloud resources created using TIC. To avoid costs incurred by idle resources, promptly destroy resources used only for testing purposes.

1. Go to the **Stacks** page, locate the stack to be destroyed and click **Destroy**.

Stacks						
New stack			Filter b	y key words of stack name or descrip	tion	Q ¢ ¢
ID/Name	Region <b>T</b>	Version	Status 🝸	Created time \$	Operation (i)	
stk-66byn2qy tic-demo ℯ*	ap-chengdu	20200812181945	APPLY_COMPLETED	2020-08-12 18:19:45	Destroy Delete	

2. Before the stack is destroyed, information about cloud resources to be destroyed is displayed. Once the stack is destroyed, cloud resources in the stack cannot be recovered.

Stacks / Destroy-tic-demo
<ul> <li>tencentcloud_instance.cvm_demo:[id=ins-3808cm5j]</li> <li>tencentcloud_instance.cvm_demo:[id=ins-m6d64mn5]</li> <li>tencentcloud_mysql_instance.mysql_demo:[id=cdb-86ngiw74]</li> <li>tencentcloud_route_table.rtb_demo:[id=rtb-b8c99qqi]</li> <li>tencentcloud_security_group.sg_demo:[id=sg-c7pvzhnr]</li> <li>tencentcloud_security_group_rule.gg_rule_demo:</li> <li>[id=eyJzZ19pZCl6inNnLWM3cHZ6aG5yliwicG9saWN5X3R5cGUIOIJpbmdyZXNzliwiY2lkcl9pcCl6ijAuMC4wLjAvMClsinByb3RvY29siJoidGNwliwicG9ydF9yYW5nZSi6iJiyLDgwliwiYWN0aW9ulJoIYV</li> <li>tencentcloud_subnet.subnet_demo:[id=vpc-0ynlowba]</li> <li>Plan: 0 added, 0 changed, 8 desteoyed</li> </ul>
Once the stack is destroyed, resources of the stack can NOT be restored           Destory         Cancel

3. Click **Destroy**. In the pop-up confirmation box, click **Confirm**. TIC will then destroy cloud resources. The process is as shown in the following figure:



Stacks / Destroy-tic-demo
[std] tencentcloud_security_group_rule.sg_rule_demo: Refreshing state
[id=eyJzZ19pZCl6InNnLWM3cHZ6aG5yliwicG9saWN5X3R5cGUiOIJpbmdyZXNzliwiY2lkcl9pcCl6IjAuMC4wLjAvMClsInByb3RvY29sIjoldGNwliwicG9ydF9yYW5nZSl6IjlyLDgwliwiYWN0aW9uljolY
[std] tencentcloud_vpc.vpc_demo: Refreshing state [id=vpc-0ynlowba]
[std] tencentcloud_security_group_rule.sg_rule_demo: Destroying
[id=eyJzZ19pZCl6InNnLWM3cHZ6aG5yliwicG9saWN5X3R5cGUiOiJpbmdyZXNzliwiY2lkcl9pcCl6IjAuMC4wLjAvMClsInByb3RvY29sljoidGNwliwicG9ydF9yYW5nZSl6JjlyLDgwliwiYWN0aW9uljoiYV
[std] tencentcloud_instance.cvm_demo[1]: Destroying [id=ins-m6d64mn5]
[std] tencentcloud_instance.cvm_demo[0]: Destroying [id=ins-3808cm5]]
[std] tencentcloud_mysql_instance.mysql_demo: Destroying [id=cdb-86ngiw74]
[std] tencentcloud_security_group_rule.sg_rule_demo: Destruction complete after 1s
[std] tencentcloud_instance.cvm_demo[1]: Still destroying [id=ins-m6d64mn5, 10s elapsed]
[std] tencentcloud_instance.cvm_demo[0]: Still destroying [id=ins-3808cm5j, 10s elapsed]
[std] tencentcloud_mysql_instance.mysql_demo: Still destroying [id=cdb-86ngiw74, 10s elapsed]
Once the stack is destroyed, resources of the stack can NOT be restored
Destory Cancel

4. Wait several minutes until all cloud resources are destroyed.

Stacks / Destroy-tic-demo
[std] tencentcloud_subnet.subnet_demo: Destruction complete after 1s
[std] tencentcloud_route_table.rtb_demo: Destroying [id=rtb-b8c99qq]]
[std] tencentcloud_route_table.rtb_demo: Destruction complete after 1s
[std] tencentcloud_vpc.vpc_demo: Destroying [id=vpc-0ynlowba]
[std] tencentcloud_vpc.vpc_demo: Destruction complete after 1s
[std] Destroy complete! Resources: 8 destroyed.
[system]destroyed
[system] start analyzing the results of iac engine execution
[system] save the generated state files
[system] save the generated state files finish
[finish]
Once the stack is destroyed, resources of the stack can NOT be restored
Finish Cancel



5. Click **Finish** to return to the stack list page. The status of the stack has become **DESTROY\_COMPLETED**.

Stacks / tic-demo				
Property Version	Resource Event			
			Filter by key words of version name	Q Ø
Version name	Status	Content	Time \$	Operation
20200812181945	DESTROY_COMPLETED	Destroy complete! Resources: 8 d	2020-08-12 18:30:35	Details
20200812181945	APPLY_COMPLETED	Apply complete! Resources: 8 add	2020-08-12 18:22:19	Details
20200812181945	PLAN_COMPLETED	Plan: 8 to add, 0 to change, 0 to d	2020-08-12 18:19:46	Details
Total items: 3			10 🔻 / page	1 /1 page 🕨 🕅