

# Serverless Cloud Function

## FAQs

### Product Documentation



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# FAQs

## General

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### What should I do if the error "Cannot find module" or "No module named" is reported or the dependencies can't be found during function execution? How do I install dependencies?

This problem is usually caused by the fact that the dependency file for code execution is not uploaded to the cloud environment. You can troubleshoot as follows:

1. Check whether the path of the dependency file referenced in the code is correct. If a relative path is used, **the dependency file must be placed in the same root directory as the function code file** and packaged and uploaded to the cloud together with the function code. If an absolute path is used, make sure that the path is accessible to SCF, and the specified dependency file exists under the path.
2. If you have uploaded the dependency file to a layer in advance, check whether the binding relationship between the layer version and the function runtime version is as expected.
3. If you have used the [online dependency installation](#) feature, check whether all dependencies are successfully installed.

#### Note:

For more information on function deployment, see [Deploying Functions](#).

For more information on dependency installation, see [Dependency Installation](#).

### What is the time zone in the SCF environment? How do I eliminate the impact of time zone differences?

UTC (GMT+0) is used in the SCF operating environment, which is 8 hours behind Beijing time.

You can use a time processing library or code package in your programming language to identify the UTC time zone and convert it to Beijing time (GMT+8). You can also set the `TZ=Asia/Shanghai` environment variable to specify the time zone.

### Why am I prompted the "no permission" error while writing a file? Is there any space in the environment for write operations?

SCF function has a temporary disk space of 500 MB ( `/tmp` ) during execution. You can perform read and write operations in this space or create subdirectories while executing the code, but data written in this space will not be retained after the function is executed.

#### Note:

The temporary disk spaces of different instances are isolated, i.e., each instance has its own independent temporary space.

In the operating environment, all directories are read-only except for `/tmp` .

## What should I do if an error occurs after there is no more space for write operations?

If data is written to the `/tmp` directory continuously and the instance is constantly used due to frequent invocations, the directory may be full and data cannot be written into.

In this case, check the writes in the directory and use codes to delete obsolete temporary files to free up space.

## Why does the returned data format have extra quotation marks?

API Gateway parses the returned result from SCF into JSON format by default. To solve this problem, you can select integration response in function configuration as instructed in [Integration response and passthrough response](#). Note that after integration response is enabled, the required data structure needs to be returned.

## Can the root account restrict a sub-account's permission to manipulate certain functions?

Yes. For more information, see [Sub-user and Authorization](#).

## How can SCF logs be delivered to COS?

Upload logs to CLS as instructed in [Log Delivery Configuration \(Legacy\)](#) and configure CLS to [ship logs to COS](#).

## How does an application trigger a function directly?

The function can be triggered directly by calling the `Invoke` API of SCF. The owner of the function or an authorized account can call this API directly.

## Can a function still be used when its code or configuration changed?

Yes. There is a short window period of less than 1 minute in general when the function is updated, during which the request will be implemented by either the old or new function code.

## Is there a limit to the number of concurrency instances for a single function?

SCF supports large numbers of concurrent function instances. For the total function concurrency quota per region, see [Quota Limits](#). For the function concurrency management, see [Function Concurrency](#).

## What should I do if a failure occurs when a function handles an event?

In case of failure, a function that makes sync invocations will return the exception information, while a function that makes async invocations will automatically retry. For more information, see [Error Types and Retry Policies](#).

## Can I use threads and processes in my function code?

Yes. You can use general programming language and operating system features, such as creating additional threads and processes. Resources allocated to the function, including memory, execution duration, disk, and network, are shared by the threads or processes it uses.

## What restrictions apply to function code?

We try not to impose restrictions on normal activities at the programming language and operating system levels, but certain activities such as inbound network connection are disabled.

## **A jar package of Java is deployed on the backend of SCF. How can a WeChat Mini Program on the frontend call the deployed code?**

API Gateway can be used to this end. Configure the backend of API Gateway as a function and then call the gateway API to trigger the function. For detailed directions, see [Creating Triggers](#) and [Overview](#).

## **What events can trigger SCF functions?**

Currently, SCF functions can be triggered by manual triggers (APIs), timer triggers, COS, CMQ, and API Gateway, and more triggering methods will be supported soon.

## **What languages does SCF support?**

Currently, it supports Python 2.7 and 3.6, Node.js 6.10, 8.9, 10.15, and 12.16, Java 8, PHP 5 and 7, Go, and Custom Runtime. More programming languages will be supported soon.

## **Can I access the infrastructure where SCF runs?**

No. SCF manages the computing infrastructure on your behalf.

## **How does SCF isolate code?**

Each function runs in its own unique environment and has its own resources and file system. SCF uses the same technology as CVM to provide security and isolation at the infrastructure and execution levels.

## **Can SCF interconnect with other Tencent Cloud services such as CVM or TencentDB?**

Yes. When you create or modify a function, select VPC configuration and deploy the function in the same VPC as the CVM or TencentDB instance.

## **Does SCF reuse function instances?**

To improve performance, SCF will retain your function instance for a certain period of time and reuse it for subsequent requests. However, do not rely on this reuse.

## **Why should I keep an SCF function stateless?**

Keeping the statelessness of the function allows the function to launch as many instances as needed to meet the requested rate.

## **How do I troubleshoot?**

SCF provides a logging feature. Each invocation will output its log to the logs window in the console. The log records the resources consumed by the function during each use, the log in the code, and the platform invocations. You can

easily insert troubleshooting log statements into your code.

## I uploaded a zip file to create function, and I was prompted that "Unable to create the function. Try again" or "Function execution entry point file not found. Confirm that the filename matches with the handler setting or the code package is correct". What should I do?

A possible reason is that the function's execution method cannot find the corresponding executable file or function entry in the zip package, because an outer folder is compressed together.

The execution method format is `a.b`, where `a` is the name of the `.py` file, and `b` is the method name in the code.

If a file named `a.py` cannot be found in the root directory of the unzipped folder, the system will prompt that "The function code cannot be displayed. The file name specified by the execution method cannot be found in the code zip package".

For example, if a folder structure is as follows:

```
--RootFolder
----SecondFolder
-----a.py
-----thirdfolder
-----sth.json
```

If you compress `SecondFolder` when creating the zip package, the above error will occur; instead, you should only compress `a.py` and `thirdfolder`.

## What should I do if timeout occurs?

Set the timeout period to a larger value (up to 900) and test the function again. If it still times out, check whether there are excessive input data and computation, loops that cannot be jumped out, or prolonged sleeps in the log of your code.

## How do I scale a function?

You don't need to care about function scaling as the SCF platform will automatically do so on your behalf. Whenever a function request is received, SCF will quickly locate the free capacity and execute your code. Since your code is stateless, as many instances as needed can be launched without lengthy delays in deployment and configuration.

## How do I allocate computing resources to a function?

You can select the amount of memory allocated to a function, and the CPU and other resources will be allocated proportionally. For example, if you select 256 MB of memory, the CPU allocated to the function will be approximately twice that allocated for 128 MB of memory.

## Can I use a local library?

Yes. You can add your own code repository to the function code and upload it to the platform as a zip package.

### What should I do if the error "Resource limit exceeded for function" is reported during function invocation?

A common reason is that the function concurrency exceeds the quota limit. You can calculate the required amount of function concurrency with the formula "function concurrency = QPS (number of requests per second) \* function execution duration (in seconds)".

For example, if QPS = 100 and function execution duration = 100 ms, then the actual required function concurrency will be  $100 * 0.1 = 10$ . If the result exceeds the quota limit, you can [submit a ticket](#) to increase the limit.

### What should I do if the error "Account Arrears, Operation not Allowed" is reported during function creation?

There are overdue payments in your account. Top up and try again.

### What should I do if the error "The SCF\_QcsRole role does not exist. Visit <https://console.tencentcloud.com/scf> to create it" is reported during function creation?

The `SCF_QcsRole` role is required for creating a function. Log in to the [SCF console](#) with your root account and follow the instructions to complete the authorization.

### What should I do if the error "xxx you are not authorized to perform operation xxx" is reported during function creation?

Click `SCF_QcsRole` on the [Role](#) page in the CAM console and confirm whether it has been associated with the preset policy `QcloudAccessForScfRole`, and if not, click **Add Policy** to associate `QcloudAccessForScfRole` and try again.

### How do I get the `DemoId` when creating a function with a template?

Select **Template** as the creation method when creating a function in the SCF console, select the template you want to use, click **View Details** in the top-right corner of the template, and click **Click to download template function** on the template details page. The template code will be downloaded to the local system with the name `DemoId`.

#### Note:

The `DemoId` of the same function template varies by region. Pay attention to the region when getting the `DemoId`.



# Web Function

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## What are the differences between web function and event function?

As a new function type, web function can be directly triggered by HTTP requests, breaking through the limit of JSON event format required by the current event function type. It has more flexible application scenarios and delivers a development experience much similar to that of native web services.

## What are the use cases of web function?

Web function focuses on optimization of web service scenarios and can directly send HTTP requests to URLs to trigger function execution. You can use SCF to develop web services or quickly migrate your local web framework to Tencent Cloud.

## How is web function billed?

As a new type of SCF function, web function is billed in the same way as event function. Both of them are billed by the number of invocations, resource usage, and public network outbound traffic. For more information, please see [Billing Overview](#).

## What is a bootstrap file? How do I write it?

A web function runs in the image environment built in it based on the standard programming language. You must create an executable file `scf_bootstrap` to start your web server, and then package the file with your code files for deployment to create a web function. During actual request processing, your `scf_bootstrap` file will start the service first, after which your web server will receive all HTTP requests by listening on the specified `9000` port, forward them to the backend service for logic processing, and return the responses to end users.

## Can I simulate the cloud environment during local development?

Currently, the standard SCF runtime environment image has been opened up. For directions on how to use it, please see [Using Container Image](#). You can select an appropriate image tag for local development and testing based on your actual development scenario. Before deploying a web function, please make sure that your project can be normally started in the local image.

## Why don't some header requests work?

When an HTTP request is sent, certain header fields will be entered automatically by API Gateway and cannot be customized, because information exchange between the function and gateway has certain requirements and capability limits. Such fields mainly include the following:

`connection` field

Custom fields starting with `X-SCF-`

## How do I quickly troubleshoot function execution failures?

You can quickly identify the cause of failure and find the solution based on the returned error code.

# Billing FAQs

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## Why are fees billed within the free tier?

Check whether the billable item is response traffic. SCF free tier and resource package don't cover the respond traffic of HTTP-triggered functions. For more information, see [Free Tier](#) and [HTTP-Triggered Function Billing](#).

## Why are public network outbound traffic fees incurred only in this month when the function is executing for a long time without update?

You can view the public network outbound traffic statistics through the SCF monitoring data.

The payment will be deducted from the account as long as the aggregate amount reaches two decimal places.

# Network FAQs

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## Can I initiate network connections in my function code?

Yes. You can use general programming language and operating system features, such as initiating TCP and UDP connections. Through relevant language libraries, you can also perform operations such as connecting to databases and accessing APIs.

## My TencentDB for Redis instance only supports private network access. How do I connect SCF to it?

You can [deploy a function to a VPC](#) through which SCF can access resources in the private network.

## After SCF is deployed to a VPC, how do I configure public network access?

There are several ways for a VPC to access the public network. For more information, see the [NAT Gateway documentation](#).

## Is the IP used for SCF to access the public network random or fixed?

It is random by default. You can also set a fixed public IP. For more information, please see [Fixed Public Outbound IP](#).

# Log FAQs

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## What should I do if the error “A query error has occurred” is reported during log query?

This issue is usually caused by the incorrect index configuration of the log topic associated with the function.

Reconfigure the index as instructed in [Configuring index](#) and try again.

### Note:

It generally takes 60 seconds for the log index configuration to take effect.

The index configuration update only affects new input data.

## What should I do if the error “server response timeout” is reported during log query?

This API timeout issue is usually caused by the oversized logs of the log topic associated with the function. Please shorten the log query time frame and try again.

# SCF utility class

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## Installation Issues

### setuptools is too old

**Problem:** `error in scf setup command: 'install_requires' must be a string or list of strings containing valid project/version requirement specifiers`

**Solution:** `pip install -U setuptools`

### The existing distutils installation package cannot be upgraded

**Problem:** `Cannot uninstall 'PyYAML'. It is a distutils installed project and thus we cannot accurately determine which files belong to it which would lead to only a partial uninstall.`

**Solution:** `pip install -I PyYAML==x.x.x` (view the specific version in requirements.txt)

### six is too old

**Problem:** `pip "Cannot uninstall 'six'. It is a distutils installed project..."`

**Solution:** `sudo pip install six --upgrade --ignore-installed six`

### pytz is too old

**Problem:** `uninstalling pytz : [error 1] Operation not permitted ...`

**Solution:** `sudo pip install pytz --upgrade --ignore-installed six`

## Usage Issues

### How do I specify a function for local debugging if the YAML configuration file contains multiple function descriptions?

**Problem:** `Error: You must provide a function identifier (function's Logical ID in the template). Possible options in your template: ['xxxB', 'xxxA']`

**Solution:** include the function name when running the `local invoke` command, such as `scf local invoke -t template.yaml xxxA`

### The `[SSL: CERTIFICATE_VERIFY_FAILED]` error occurred during deployment

Problem: when `deploy` was used, function deployment failed with error message `[SSL: CERTIFICATE_VERIFY_FAILED]`

Cause: in macOS 10.12 + Python 3.6 and higher versions, Python no longer reads certificates from the system path, resulting in certificate reading failures, and SSL verification will fail when TencentCloud API is called for deployment

Solution: in the Python installation directory, run the `Install Certificates.command` script to install the `certifi` package automatically.

# Event Handling FAQs

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## What is an event source?

An event source is an application created by a Tencent Cloud service or developer to generate events that trigger an SCF function.

## What event sources are supported?

Currently, triggering by manual triggers (APIs), timer triggers, COS, CMQ topics, API Gateway, and CKafka is supported, and more trigger types will be available in the future.

## How is the delay when a function responds to an event?

SCF can achieve request response in a matter of milliseconds for regular requests. However, the delay will become higher when the function is created, updated, or idle for a long time.



# API Gateway Trigger FAQs

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## What should I do if SCF returns a 504 error?

1. Check the timeout period configured for the function and gateway and try to increase the gateway timeout period.
2. [View log analysis](#) to identify specific causes.

## What should I do if SCF returns the "error":403,"error":"Invalid scf response format. please check your scf response format." error message?

API Gateway parses the function response and constructs an HTTP response based on the parsed content. This integration response allows you to control the status code, headers, and body content of the response by using codes, and customize the response in the XML, HTML, JSON, and even JS format. This feature requires that [data structures of integration response for API Gateway trigger](#) should be returned to API Gateway for parsing; otherwise, the error message `{"error":403,"error":"requestId xxx , Invalid scf response. expected scf response valid JSON."}` will appear.

## How do I use a custom domain name?

You can bind your independent domain name to the SCF service, so that the service can be accessed at it. For more information, see [Configuring a Custom Domain Name](#). Then you can select **Use Existing API Service** to create an API Gateway trigger for a function that requires a custom domain name.