

**CodeArts Check**

# User Guide

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For vulnerability information, enterprise customers can visit the following web page:

<https://securitybulletin.huawei.com/enterprise/en/security-advisory>

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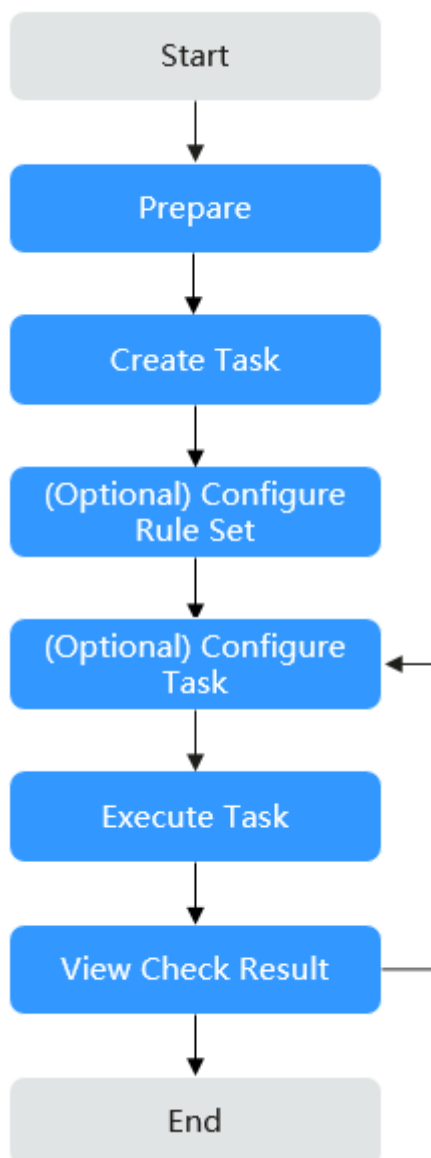
# 1 Process

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## Background

CodeArts Check is a cloud-based service that check code. With years of experience in automatic static check and enterprise application, CodeArts Check provides rich check services on code style, common quality, cyber security risk, and other elements. It also includes comprehensive check reports, convenient bug handling, and many other efficient, easy-to-use functions for enterprises to effectively improve code quality.

## Procedure



**Table 1-1** Process description

N o.	Process	Description
1	<b>Preparing</b>	Before running a code check task, complete preparations such as creating a project.
2	<b>Creating a Task</b>	Create different types of code check tasks.
3	<b>(Optional) Setting a Rule Set</b>	Add, copy, modify, delete, or export custom rule sets as required.

No.	Process	Description
4	<b>(Optional) Configuring a Task</b>	Modify or configure existing check tasks.
5	<b>Executing a Task</b>	Perform a check task to identify issues in the source code.
6	<b>Viewing Check Results</b>	View the check results and fix code issues after a code check task is complete.



# 2 Roles and Permissions

**Table 2-1** describes the default role permissions of CodeArts Check users to manage resources (such as tasks and rule sets) in a project.

**Table 2-1** Default role permissions in CodeArts Check

Resource Permission/Role		Project Administrator	Project Manager	Developer	Test Manager	Tester	Participant	Viewer	O&M Manager	Product Manager	System Engineer	Committer
Code check task	Create	√	√	√	×	×	×	×	×	×	√	√
	Execute	√	√	√	×	×	×	×	×	√	√	√
	View	√	√	√	×	×	×	×	×	√	√	√
	Modify	√	√	√	×	×	×	×	×	√	√	√
	Delete	√	√	×	×	×	×	×	×	√	√	√
Rule set	Configure default rule set	√	√	×	×	×	×	×	×	√	√	√

Resource Permission/Role		Project Administrator	Project Manager	Developer	Test Manager	Tester	Participant	Viewer	O&M Manager	Product Manager	System Engineer	Committer
Issue report	View	√	√	√	×	×	×	×	×	√	√	√
	Modify	√	√	√	×	×	×	×	×	√	√	√
	Export	√	√	√	×	×	×	×	×	√	√	√

# 3 Preparing

---

Before creating a code check task, perform the following operations:

- [Accessing the CodeArts Check Page](#)
- [Creating a Project](#)
- [Creating a Code Repository](#) (for Repo source code)
- [Creating a Service Endpoint](#) (for Git code source)

## Accessing the CodeArts Check Page

You can access CodeArts Check from a project or the homepage.

- **From a project**
  - a. On the **CodeArts** homepage, click a target project name. The project details page is displayed.
  - b. Choose **Code > Check**.

### NOTE

The menu positions in a project are determined by the **Theme&Layout** in **Preferences**. Here the default **Infinite and Classics** settings are used as an example. To modify the appearance, click the *username* in the upper right corner and choose **Appearance Settings**.

- **From the homepage**

On the CodeArts homepage, choose **Services > Check**.

## Creating a Project

Create a project in CodeArts Req. For details, see [Creating a Project](#).

Skip this step if a project has been created.

## Creating a Code Repository

[Create a code repository](#) in CodeArts Repo.

Skip this step if a code repository has been created.

## Creating a Service Endpoint

Create a service endpoint first if you select Git code source when creating a code check task. Skip this step if a service endpoint has been created.

1. Access a project, choose **Settings > General > Service Endpoints**.
2. Click **Create Endpoint** and choose **Git repository** from the drop-down list.
3. In the **Create Service Endpoint** dialog box displayed, configure parameters.

**Table 3-1** Parameters

Parameter	Description
Service Endpoint Name	Name of the service endpoint.
Git Repository URL	Web URL of a Git repository (HTTPS address).
Username	Username used for logging in to the Git repository.
Password or Access Token	Currently, only the access token is supported.

4. Click **OK**.

# 4 Creating a Task

## 4.1 Creating a Task to Check Code from Repo

### Prerequisite

You have completed the preparations described in [Preparing](#).

#### NOTE

- If you select **Automatically create Check task** when creating a cloud repository in CodeArts Repo, you can view the check task of the repository in the code check task list after the repository is created.
- This section describes how to create a task to check code from CodeArts Repo, if you do not select **Automatically create Check task** when creating a cloud repository in CodeArts Repo.

### Procedure

The following example describes how to create a code check task by accessing the CodeArts Check page [from a project](#).

**Step 1** On the **Check** page, click **Create Task**.

**Step 2** Set parameters on the displayed page.

**Table 4-1** Parameters

Parameter	Description
Project	Project that the task belongs to. Retain the default project.
Code source	Select <b>Repo</b> to check code from CodeArts Repo.
Task name	Customize your task name.

Parameter	Description
Repository	Select the code repository to be checked.
Branch	Select the code branch to be checked.
Language	Select the code language to be checked.

**Step 3** Click **Create Task**. On the displayed page, click **Start Check** to run the check task. After the check task is complete, [view the check results](#).

----End

## 4.2 Creating a Task to Check Code from Git

### Prerequisite

You have completed the preparations described in [Preparing](#).

### Procedure

The following example describes how to create a code check task by accessing the CodeArts Check page [from a project](#).

**Step 1** On the **Check** page, click **Create Task**.

**Step 2** Set parameters on the displayed page.

**Table 4-2** Parameters

Parameter	Description
Project	Project that the task belongs to. Retain the default project.
Code source	Select <b>Git</b> . For code hosted on other services, you can use a Git connection to pull the code.
Task name	Customize your task name.
Endpoint	Select the service endpoint created in <a href="#">Preparations</a> .
Repository	This parameter is automatically set based on the selected endpoint.

Parameter	Description
Branch	Enter the code branch to be checked.
Language	Select the code language to be checked.

**Step 3** Click **Create Task**. On the displayed page, click **Start Check** to run the check task. After the check task is complete, [view the check results](#).

----End

# 5 (Optional) Setting a Rule Set

## 5.1 Rule Set List

CodeArts Check supports rule sets in Java, C++, PHP, C#, JavaScript, TypeScript, HTML, CSS, Go, Lua, Rust, Shell, and Python by default, and each language corresponds to multiple rule sets. System rule sets are listed in [Table 5-1](#).

**Table 5-1** System rule sets

Language	System Rule Set	Extension of Scannable File
C++	<ul style="list-style-type: none"><li>• Critical Criterion Set</li><li>• General Criterion Set</li><li>• Comprehensive Criterion Set</li></ul>	.c/.cc/.cpp/.cxx/.cp/.c+ +/.inc/.inl/.mm/.h/.hh/.hpp/.h xx/.h++
Java	<ul style="list-style-type: none"><li>• Critical Criterion Set</li><li>• General Criterion Set</li><li>• Comprehensive Criterion Set</li></ul>	.java
Go	<ul style="list-style-type: none"><li>• Critical Criterion Set</li><li>• General Criterion Set</li><li>• Comprehensive Criterion Set</li></ul>	.go
Python	<ul style="list-style-type: none"><li>• Critical Criterion Set</li><li>• General Criterion Set</li></ul>	.py
JavaScript	<ul style="list-style-type: none"><li>• Critical Criterion Set</li><li>• General Criterion Set</li><li>• Comprehensive Criterion Set</li></ul>	.js/.jsx



Language	System Rule Set	Extension of Scannable File
C#	<ul style="list-style-type: none"><li>• Critical Criterion Set</li><li>• General Criterion Set</li><li>• Comprehensive Criterion Set</li></ul>	.cs
TypeScript	<ul style="list-style-type: none"><li>• Critical Criterion Set</li><li>• General Criterion Set</li><li>• Comprehensive Criterion Set</li></ul>	.ts/.tsx
CSS	<ul style="list-style-type: none"><li>• General Criterion Set</li></ul>	.css
HTML	<ul style="list-style-type: none"><li>• General Criterion Set</li></ul>	.html
PHP	<ul style="list-style-type: none"><li>• Critical Criterion Set</li><li>• General Criterion Set</li></ul>	.php



## Accessing Rule Sets

**Step 1** [Access the CodeArts Check page.](#)

**Step 2** On the displayed page, click the **Rule Sets** tab.

You can add, modify, copy, delete, view, configure, or export rule sets as required. For details, see [Table 5-2](#).

**Table 5-2** Rule set operation description

Operation	Description
Add a rule set	On the <b>Rule Sets</b> tab page, click <b>Create Rule Set</b> to customize a rule set. For details, see <a href="#">Adding a Custom Code Check Rule Set</a> .
Configure a rule set	Click  in the <b>Operation</b> column of the target rule set to access the <b>Configure Rule Sets</b> page. You can select rules and set rule levels on the displayed page.
Modify the basic information of a rule set	On the <b>Configure Rule Sets</b> page, click <b>Modify Basic Info</b> . You can modify the rule set name and description. For details, see <a href="#">Modifying a Custom Rule Set</a> .
Copy a rule set	Click  in the <b>Operation</b> column of the target rule set. In the displayed dialog box, set a rule set name to copy the rule set. <b>NOTE</b> A rule set name must be unique.

Operation	Description
Default rule set (under a project)	On the project details page, choose <b>Code &gt; Check &gt; Rule Sets</b> . On the displayed page, click <b>⋮</b> in the row where the rule set is located and select <b>Default Set</b> to set it as the default check rule set of a check task in the project.
Delete a rule set	Click <b>⋮</b> in the row where the rule set is located and choose <b>Delete Set</b> . For details, see <a href="#">Deleting a Custom Code Check Rule Set</a> . <b>NOTE</b> You cannot delete system rule sets, rule sets not created by yourself and rule sets in use.
View a rule set	You can click a rule set name to view its details.
Configure a rule set	Go to a check details page, click the <b>Settings</b> tab, choose <b>Rule Sets</b> , select a created rule set, and set it as the check rule set for the task. For details, see <a href="#">Configuring a Rule Set</a> .
Export a rule set	Go to the <b>Configure Rule Sets</b> page of a rule set and click <b>Export</b> to export all its rules. For details, see <a href="#">Exporting a Rule Set</a> .

----End

## 5.2 Adding a Custom Code Check Rule Set

- In addition to system rule sets, you can customize rule sets.
- At least one rule must be set for each rule set template.

### NOTICE

Purchase the code security check enhancement package as required before using CodeArts Check. This package identifies code security risks and vulnerabilities more comprehensively for Java, C++, Go, and Python.

### Prerequisite

A rule set can be configured with only one language.

### Procedure

**Step 1** Go to the [Task page](#) and click the **Rule Sets** tab.

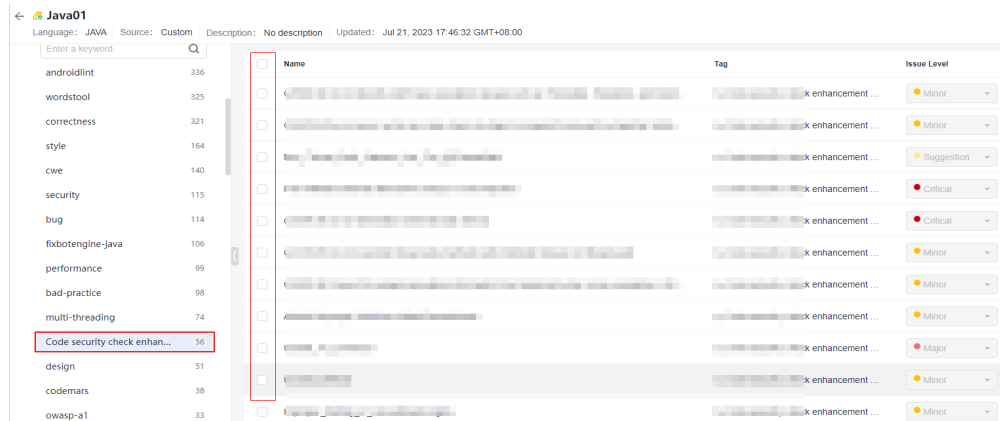
**Step 2** Click **Create Rule Set**. In the displayed dialog box, enter a rule set name and description, and select a language.


(Optional) You can also copy an existing rule set by selecting it from the **Replicated in** drop-down list.

**Step 3** Click **OK**.

**Step 4** Select rule names, set rule levels as required, and click **Save** in the upper right corner.

The following uses a code security check enhancement package of a Java rule set as an example:



**Step 5** Go to the **View Task Details** page, click **Settings** tab, and choose **Rule Sets**. On the displayed page, click  in the row where **Languages Included** is located to re-obtain the code repository language, enable the target language, and select the configured custom rule set. For details, see [Configuring a Rule Set](#).

**Step 6** Click **Start Check** to run the check task based on the custom rule set.

----End


## 5.3 Deleting a Custom Code Check Rule Set

You cannot delete a custom check rule set associated with a code check. After deleting the code check task that uses the rule set or associating the code check task with another rule set, you can delete the custom rule set.

### Procedure

**Step 1** Go to the [Task page](#) and click the **Rule Sets** tab.

**Step 2** If the check rule set you want to delete is in use, delete the code check task that uses this rule set or associate the code check task with another rule set.

**Step 3** Click  in the row where the rule set is located and choose **Delete Set**.

#### NOTE

- Only a creator can delete the created rule set.
- System rule sets and rule sets in use cannot be deleted.

----End

## 5.4 Modifying a Custom Rule Set

You can modify the basic information of a custom rule set, including the rule set name and description.

### Prerequisites

- System rule sets cannot be modified.
- Only a creator can modify the created rule set.

### Procedure

- Step 1** Go to the [Task page](#) and click the **Rule Sets** tab.
- Step 2** Select a language in the search box to filter rule sets.
- Step 3** Click a rule set name and enter the rule set details page.
- Step 4** Click **Modify Basic Info**.
- Step 5** Modify the rule set name or description, and click **OK**.

#### NOTE

The **Language** cannot be modified.

----End

## 5.5 Exporting a Rule Set

You can download a rule set to view details.

### Procedure

- Step 1** Go to the [Task page](#) and click the **Rule Sets** tab.
- Step 2** Select a language in the search box to filter rule sets.
- Step 3** Click a rule set name and enter the rule set details page.
- Step 4** Click **Export**.

----End

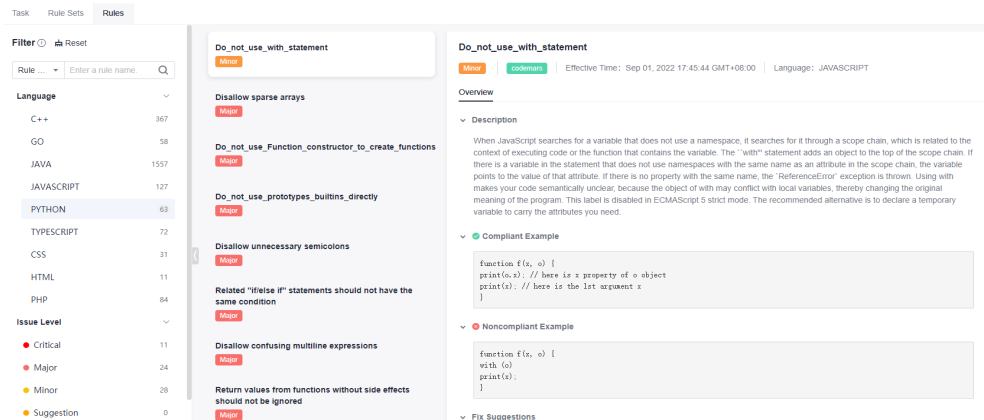
## 5.6 Viewing Rule Details

Rule details include the issue levels, compliant and noncompliant examples, and fix suggestions.

### Procedure: Method 1

- Step 1** Go to the [Task page](#) and click the **Rules** tab.

**Step 2** On the **Rules** page, select different languages and the corresponding rule details are displayed.



----End

## Procedure: Method 2

**Step 1** Go to the **Task page** and click the **Rule Sets** tab.

**Step 2** On the **Rule Sets** page, click the rule set name or the number of rules.

**Step 3** On the displayed page, click a rule name. The corresponding rule details are displayed.

----End

# 6 (Optional) Configuring a Task

## 6.1 Overview

You can modify or configure existing check tasks. For details about how to configure a task, see [Table 6-1](#).

### NOTICE

**Advanced** in **Settings** is available at the Mexico regions.

**Table 6-1** Configuring a code check task

Configuration Item	Operation Description
Basic Info	Modify the task name and default branch, and delete the task. For details, see <a href="#">Configuring Basic Info</a> .
Rule Sets	Re-enable code check rule sets as required. For details, see <a href="#">Configuring a Rule Set</a> .
Quality Gate	See <a href="#">Configuring Quality Gate</a> .
Execution Plans	See <a href="#">Configuring Execution Plans</a> .
Notifications	See <a href="#">Enabling and Disabling Notifications</a> .
Check Modes	See <a href="#">Configuring Check Modes</a> , <a href="#">Configuring Checked Catalogs</a> , .
Integration Services	See <a href="#">Configuring an Automatic Check Task for Branch Merge</a> and <a href="#">Configuring an Automatic Check Task Executed upon Code Commit</a> .
Advanced	See <a href="#">Configuring the Start Time of New Issues</a> , <a href="#">Configuring Source File Encoding</a> , <a href="#">Configuring a Custom Image</a> , and <a href="#">Configuring User-defined Executors</a> .

## 6.2 Configuring Basic Info

You can set the basic information about a task as required, such as the task name and default branch, and also can delete the check task.

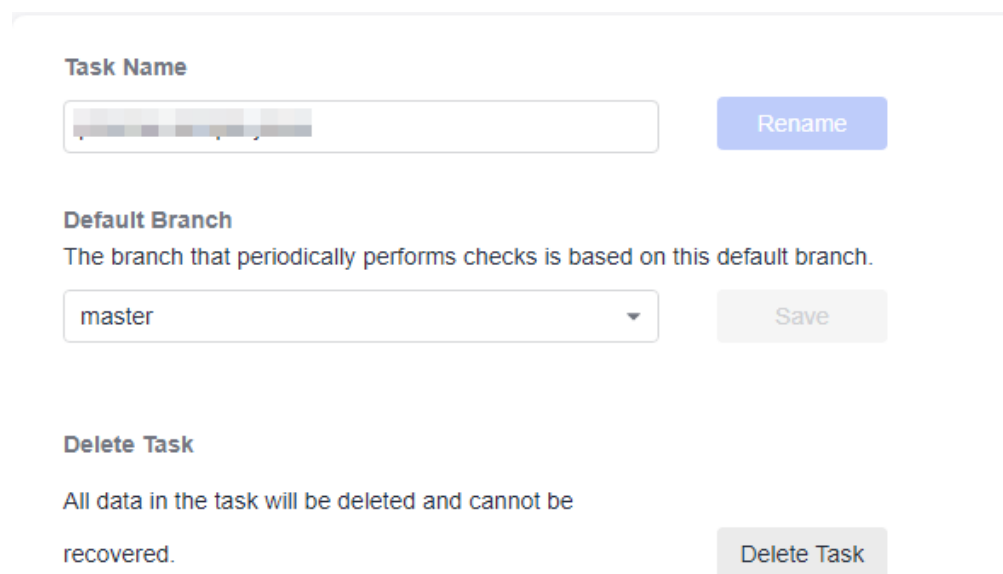
### NOTE

A project creator, or project administrator can modify or delete a check task. For details, see [Roles and Permissions](#).

### Modifying the Name and Default Branch of a Check Task

**Step 1** Go to the [Task page](#). In the task list, click a task name.

**Step 2** On the displayed **View Task Details** page, click **Settings** > **Basic Info**, and modify the task name and default branch.



**Task Name**

**Default Branch**  
The branch that periodically performs checks is based on this default branch.

master


**Delete Task**

All data in the task will be deleted and cannot be recovered.

----End

### Deleting a Check Task

- **Deleting from the task page**

**Step 1** Click  in the row where the code check task is located.

**Step 2** Select  from the drop-down list.

**Step 3** In the **Delete Task** dialog box, enter the task name.

**Step 4** Click **OK**.

----End

- **Deleting from the task settings page**

**Step 1** In the task list, click the task name.

**Step 2** On the displayed **View Task Details** page, click **Settings > Basic Info**.

**Step 3** Click **Delete Task**. On the displayed dialog box, enter the task name.

**Step 4** Click **OK**.

----End

 **NOTE**

When the task to be deleted has a code repository with multiple branches, the deletion will be successful if there are fewer than 200 branches. Otherwise, the deletion will fail.

## 6.3 Configuring a Rule Set

You can change code check rule sets as required. The new rule set takes effect in the next check.

---

**NOTICE**

Rule sets of multiple languages cannot be used to check a task at the same time. Example: C# rule sets cannot be applied with other language rule sets to check a task.

---


### Procedure

**Step 1** Go to the [Task page](#). In the task list, click a task name.

**Step 2** On the displayed **View Task Details** page, click **Settings > Rule Sets**.

**Step 3** In the **Languages Included** area, enable the target language. In the **Enable Rule Set** area, click the rule set which you want to change.

 **NOTE**

- When you access **Rule Sets** page for the first time, you need to click  in the row where **Languages Included** is located to re-obtain the code language.
- For details about how to add a new rule set, see [Adding a Custom Code Check Rule Set](#). After the rule set is added, refresh the page to obtain the rule set.

**Step 4** In the displayed dialog box, click **OK** to change the language rule set.

**Step 5** (Optional) To configure extended parameters for the selected rule set, click **Check Parameter**, configure extended parameter, enable the configuration function, and click **OK**.

 **NOTE**

To use a code security enhancement package, you need to configure check parameters.

----End



## 6.4 Configuring Ignored Files

You can configure the file scope by task.

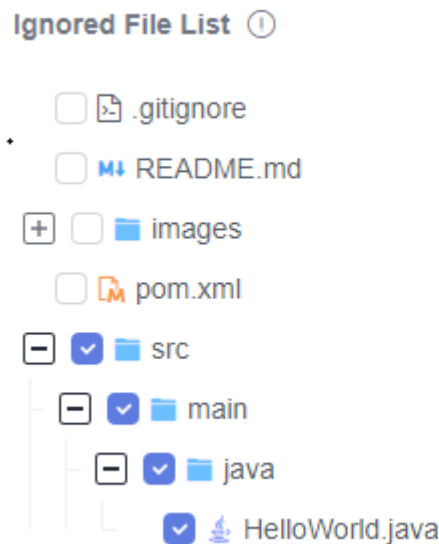
- If you do not specify a file path, all code of the selected repository branch is checked.
- If you specify a file path, the files in the specified path are ignored during a check.

### Procedure

**Step 1** Go to the [Task page](#). In the task list, click a task name.

**Step 2** On the displayed **View Task Details** page, click **Settings > Check Modes**.

**Step 3** In the **Ignored File List** area, select the file paths that do not need to be checked.



**Step 4** Run the code check task. The files in the selected paths will not be checked.

----End

## 6.5 Configuring Quality Gate

Set the threshold based on the quality requirements to check whether the project is ready for production.

Quality gate can be set at the tenant, project, and task levels in a descending order of precedence. The navigation paths are as follows:

- Tenant level: Go to the CodeArts Check homepage, and choose **Config Center**. The **Quality Gate** details are displayed by default.
- Project level: Go to the project details page, and choose **Code > Check > Config Center > Quality Gate**.

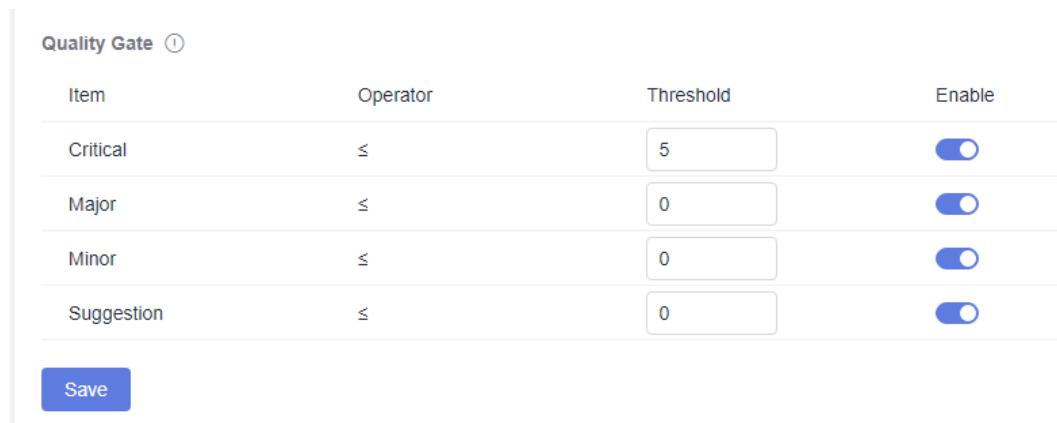
- Task level: Go to the CodeArts Check details page, and choose **Settings > Quality Gate**. This section uses a task-level quality gate as an example to describe how to configure a quality gate.

 **NOTE**

**Notification settings** are supported at the project level and task level.

## Procedure

- Step 1** Go to the **Task page**. In the task list, click a task name.
- Step 2** On the displayed **View Task Details** page, click **Settings > Quality Gate**.
- Step 3** In the **Quality Gate** area, enable gate items and set thresholds based on quality requirements.



Item	Operator	Threshold	Enable
Critical	≤	5	<input checked="" type="checkbox"/>
Major	≤	0	<input checked="" type="checkbox"/>
Minor	≤	0	<input checked="" type="checkbox"/>
Suggestion	≤	0	<input checked="" type="checkbox"/>

- Step 4** Click **Save**.

You can click **Start Check** and view the check results.

If the issues of a gate item exceed the corresponding thresholds for a gate, **Failed** is displayed in the **Task-level Gate Result** area of the **Overview** tab page.

----End

## 6.6 Configuring Execution Plans

You can set the execution plans of a code check task as required to periodically execute the check task for the default branch.

 **NOTE**

- It is advised to configure this for tasks in non-pipeline mode.
- The interval on the current day must be longer than 5 minutes.

## Procedure

- Step 1** Go to the **Task page**. In the task list, click a task name.
- Step 2** On the displayed **View Task Details** page, click **Settings > Execution Plans**.

**Step 3** Enable **Scheduled Check** and set the automatic execution time.

You can configure a day or time segment in a week to execute a check task.

**Step 4** Click **Save**.

----End

## 6.7 Enabling and Disabling Notifications

You can set notifications for **Task Checked** and **Delete Task** as required. **Notify** and **Email** are supported.

You can set notification modes for the code check task event types as required.

- Event type: check task completed, task deletion, and quality gate failure
- Notification mode: event notice and email

For example, when the code gate failed, you can configure the notification modes, recipient roles, and custom members. In this way, a notification is sent to the task executor, configured recipient roles, and custom members. Otherwise, a notification is only sent to the task executor.

The notification can be configured at the project level or task level. The navigation paths are as follows:

- Project level: On the project details page, choose **Code > Check > Config Center > Notifications**.
- Task level: Go to the check details page and choose **Settings > Notifications**. This section uses the task-level notification settings as an example to describe how to enable and disable notifications.

### Procedure

**Step 1** Go to the **Task page**. In the task list, click a task name.

**Step 2** On the displayed **View Task Details** page, click **Settings > Notifications**.

**Step 3** Enable or disable the notification of an event type as required.

- If **Notify** is enabled, event notices will be sent to specific members of current project.
- If **Email** is enabled, emails will be sent to specific members of current project.

----End

## 6.8 Configuring Check Modes

You can set check modes and checked catalogs for efficiency.

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### NOTICE

Neither C# nor the secbrella engine supports merge requests.

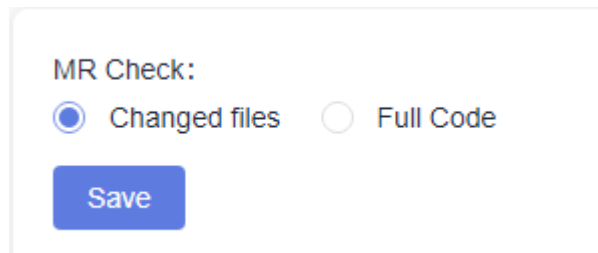
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## Configuring Check Modes

**Step 1** Go to the [Task page](#). In the task list, click a task name.

**Step 2** On the displayed **View Task Details** page, click **Settings > Check Modes**.

**Step 3** In the **MR Check** area, select **Changed Files** or **Full Code**. By default, **Changed Files** is selected.



**Step 4** Click **Save**.

----End

## Configuring Checked Catalogs

**Step 1** Go to the [Task page](#). In the task list, click a task name.

**Step 2** On the displayed **View Task Details** page, click **Settings > Check Modes**.

**Step 3** Configure catalogs to be checked.

You can specify certain directories to be checked in the code repository.

- By default, all code in the code repository is checked.
- If you specify one or more directories, the files in the specified directories are checked.

### Checked Catalogs ?

Enter directories to be checked and separate them with commas (,).

Save

### NOTE

You can specify multiple directories by separating them with commas (,). For example:

- To check the **dir1** and **dir2** directories, enter **dir1,dir2**.
- To check **dir3** in the **dir1** directory, enter **dir1/dir3**.
- You need to specify directories instead of file names. By default, all code in the code repository is checked.
- The specified directories cannot start with a period (.


**Step 4** Click **Save**.

----End

## 6.9 Configuring an Automatic Check Task for Branch Merge


If branch merging exists in CodeArts Repo, you can configure an automatic check task and generate a subtask. That is, if branch merging exists in a code repository, a new code check subtask is generated.

### Procedure

- Step 1** Go to the [Task page](#). In the task list, click a task name.
- Step 2** On the displayed **View Task Details** page, click **Settings > Integration Services > CodeArts Repo**.
- Step 3** Determine whether to select **MR Status** (MR indicates merge requests). If you select it, the automatic check of code review is enabled.
- Step 4** If a branch is merged in the code repository of the task, a code check job is automatically generated.
  1. Access **View Task Details** page.
  2. Click  and create a merge request in CodeArts Repo.

#### NOTE

Based on the [Check Modes](#) you selected, the changed files or full code will be checked after the branch is merged.

3. Click  **master** ▾. You can view all historical records of MR-triggered code check in the drop-down list.

----End

## 6.10 Configuring an Automatic Check Task Executed upon Code Commit

When code is successfully committed in CodeArts Repo, you can set an automatic check task in CodeArts Check.

### Procedure

- Step 1** Go to the [Task page](#). In the task list, click a task name.
- Step 2** On the displayed **View Task Details** page, click **Settings > CodeArts Repo**.
- Step 3** Select **Executed upon code submission**.

#### NOTE

This function applies only to branches with created tasks.


- Step 4** Click **Save**.

----End

## 6.11 Configuring the Start Time of New Issues

You can configure the start time of new issues for each task and perform the scanning again after configuration. If the finding time is later than the configured time, the issue is classified as new. If the start time is not configured, gaps between two consecutive check results are considered the number of new issues.

### Procedure

- Step 1** Go to the [Task page](#). In the task list, click a task name.
- Step 2** On the displayed **View Task Details** page, click **Settings > Advanced**.
- Step 3** In the **New Defects Start** area, click  to configure the start time of the new issues.

#### NOTE

By default, findings since the first successful check are incremental.

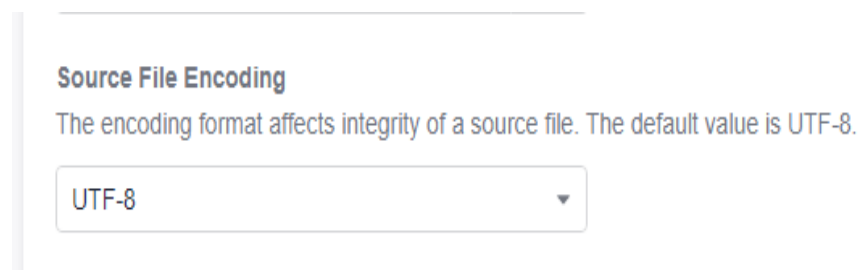
----End

## 6.12 Configuring Source File Encoding

You can configure how to encode a file. The source file encoding affects integrity of the source code content identified by the system. The default encoding mode is UTF-8.

### Procedure

- Step 1** Go to the [Task page](#). In the task list, click a task name.
- Step 2** On the displayed **View Task Details** page, click **Settings > Advanced**.
- Step 3** In the **Source File Encoding** area, select an encode format from the drop-down list.



- Step 4** Check whether a message is displayed, indicating that the modification is successful.

----End

## 6.13 Configuring a Custom Image

If a common build environment does not have the required dependency packages and tools when you use CodeArts Check, you can use the base image provided by a custom build environment to execute the code check task.

### Prerequisite

- You have customized an environment.
- After the build is complete, push the custom environment to the image repository.

### Procedure

- Step 1** Go to the [Task page](#). In the task list, click a task name.
  - Step 2** On the displayed **View Task Details** page, click **Settings > Advanced**.
  - Step 3** In the **Custom Image** area, enter the content in the format of Domain name/Organization name/Image repository name:Tag name.
  - Step 4** Click **Save**.
- End

## 6.14 Configuring User-defined Executors

When a code check task is run, default executor is used. If you have your own executors, you can customize an executor as required to solve problems in special compilation scenarios. Select an agent machine in the agent resource pool to execute the code check task without depending on the public execution resources provided by the service.

### Prerequisite

You have created a resource pool and agent.

Synchronize resources to CodeArts Check. Then, you can configure user-defined executor for the check task in **Settings**. For details, see [Connecting to a Custom Executor](#).

### Procedure

- Step 1** Go to the [Task page](#). In the task list, click a task name.
- Step 2** On the displayed **View Task Details** page, click **Settings > Advanced**.
- Step 3** In the **Execution host** area, select **User-defined executor**.
- Step 4** Select an agent resource pool from the drop-down list box.
  - Click **Managing Resource Pools** to view resource pool details and modify resource pools. For details, see [Creating Agent Pools and Agents](#).

- Click **Synchronize resource pools** to update the resource pool names in the drop-down list.

**Step 5** Click **Save**.

----**End**



# 7 Executing a Task

## 7.1 Executing a Check Task

You can perform a check task to identify issues in the source code in time.

You can use either of the following methods to check code:

- Manual execution: For details, see [Procedure](#).
- Scheduled execution: Configure [Execution Plans](#) for a code check task.


### Prerequisite

- You have [created a code check task](#).

### Procedure

- Step 1** Go to the [Task page](#) and click **Execute immediately** in the **Last Check** column of the target code check task.

 **NOTE**

If the code check task has been executed, click  in the row where the task is located to execute the task again.

You can also click the task name. On the displayed **View Task Details** page, click **Start Check**.



- Step 2** Wait until the task is complete as prompted. For details, see [Viewing Check Details](#).

----End

## 7.2 Configuring Multi-Branch Check

On the **View Task Details** page, you can switch between **Checked Branches** and **Unchecked Branches**.

## Procedure

- Step 1** Go to the [Task page](#). In the task list, click a task name.
- Step 2** On the **View Task Details** page, the **Overview** tab page is displayed by default. You can click `master`  to switch among different branches.
- Step 3** After switching to the target branch, click .

----End

# 8 Viewing Check Results

---

## 8.1 Viewing Check Details

Check details include overview, issues, metrics, logs, and settings.

### Prerequisite

You have [created](#) and [executed](#) a code check task.

### Viewing Check Details

**Step 1** Go to the [Task page](#) and search for the target task.

#### NOTE

You can view the status of the check task in the **Issue** column of the code check task list.

- **New:** new issues that need to be solved after the code check task is executed.
- **Unsolved:** issues that have not been solved after the code check task is executed.
- **Solved:** issues that have been solved after the code check task is executed.

**Step 2** Click the task name to view the check details.

- **Overview:** For details, see [Viewing Task Overview](#).
- **Issues:** View and fix code issues. For details, see [Viewing Code Issues](#).
- **Metrics:** View the cyclomatic complexity and duplicates of code. For details, see [Fixing Code Cyclomatic Complexity Issues](#) and [Fixing Code Duplicates Issues](#).
- **Logs:** View check logs. For details, see [Viewing Check Logs](#).
- **Settings:** For details, see [Overview](#).

----End

### Viewing Task Overview


After a check task is complete, the check result is displayed.

On the **View Task Details** page, the **Overview** tab page is displayed by default. You can view the task overview information.

## 8.2 Viewing Code Issues

After executing a code check task, you can modify the status of the code issues and transfer the owner in the issue list.

### Procedure

- Step 1** Go to the **Task page**. In the task list, click a task name.
- Step 2** On the displayed **View Task Details** page, click **Issues** tab. For details, see **Table 8-1**.
- Step 3** In the **Filters** area on the left, you can filter issues by criteria and select one or multiple issues in the right area for separate, batch, or full operations.
  - Click **Owner** to submit the issue to another owner.
  - If an issue does not need to be modified, change the issue status to **Ignore Issue**.
  - Click **View Context**. On the **Context** page, you can modify the issue status, transfer the owner, and click  to modify the code based on **Help**.
  - Click **Create Ticket** to submit the service ticket.

**Table 8-1** Code issue description

Operation	Description
Issue Level	Includes <b>Critical, Major, Minor, and Suggestion</b> .
Issue Status	Includes <b>Pending, Resolved, Ignored, and Fixed</b> .
Check Time	Includes <b>New</b> and <b>Inventory</b> issues. <b>NOTE</b> You can set the start time of new issues by choosing <b>Settings &gt; Advanced</b> . Issues found after that time are new.
Language	Statistics are collected by programming language.
Rule	Statistics are collected based on matched rules so that users can fix the same type of issues at a time.
User Tag	Statistics are collected by user tag of rules.
Owner	Statistics are collected by assigned issue owner. <b>NOTE</b> During check, new issues are automatically assigned to the last committer of the faulty code line when you enable <b>Accurate Matching of Issue Owners</b> .
CWE	Statistics are collected by security rule name.

Operation	Description
File	Search for code issues by source file.
Export All	Choose <b>All Change</b> > <b>Export All</b> to export all filtered code issues.
Change Statuses	Change the status of all code issues to <b>Resolved</b> or <b>Ignore Issue</b> . <b>NOTE</b> If the number of code issues is 0, this button is not displayed.
Change Owners	Transfer all code issues to other owners.
Handle specified issues in batches	Select the target issues and click <b>Batch Transfer Owner, Modify problem status in batches</b> , or <b>Export</b> .

----End

## 8.3 Viewing Code Metrics


Code metrics reflect the quality of committed code, helping you detect and fix issues in a timely manner and improving R&D efficiency.






- **Cyclomatic Complexity:** Measures code complexity. You can determine the logic complexity and modify the code based on the cyclomatic complexity, facilitating subsequent maintenance.
- **Duplicates:** Evaluates code quality risks. You can modify the redundant code to improve the code quality.

### NOTE

Code cyclomatic complexity is not supported for Shell.

### Fixing Code Cyclomatic Complexity Issues

- Step 1** Go to the [Task page](#). In the task list, click a task name.
- Step 2** On the **View Task Details** page, click the **Metrics** tab to view the cyclomatic complexity and duplicates of the completed check task.
- Step 3** Click a file name to go to the file details page.
- Step 4** Click  to view and modify the source code of the file.

```
worker/src/main/java/worker/Worker.java       
1 package worker;  
2  
3 import redis.clients.jedis.Jedis;  
4 import redis.clients.jedis.exceptions.JedisConnectionException;  
5 import java.sql.*;  
6 import org.json.JSONObject;  
7  
8 class Worker {  
9     public static void main(String[] args) {  
10        try {  
11            Jedis redis = connectToRedis("redis");  
12            Connection dbConn = connectToDB("db");  
13  
14            System.err.println("Watching vote queue");  
15  
16            while (true) {  
17                String voteJSON = redis.blpop(0, "votes").get(1);  
18                JSONObject voteData = new JSONObject(voteJSON);  
19                String voterID = voteData.getString("voter_id");  
20                String vote = voteData.getString("vote");  
21  
22                System.err.printf("Processing vote for '%s' by '%s'\n", vote, voterID);  
23                updateVote(dbConn, voterID, vote);  
24            }  
25        }  
26    }  
27 }
```

----End

## Fixing Code Duplicates Issues

**Step 1** Go to the [Task page](#). In the task list, click a task name.

**Step 2** On the **View Task Details** page, click the **Metrics** tab to view **Duplicates** of the completed check task.

**Step 3** Click a file name to go to the file details page.

The vertical bars on the left of the file details page identify duplicated code blocks. If you click a vertical bar, the list of files that contain the same code blocks is displayed.

```

319 // hyear is just approximate, it may need adjustment up or down by 1.
320 if (daysSinceJan0101 < absDays) {
321     hyear--;
322     absDays -= daysInYear;
323 }
324 else if (daysSinceJan0101 === absDays) {
325     hyear--;
326     absDays = this.daysToYear(hyear);
327 }
328 else {
329     if (daysSinceJan0101 > (absDays + daysInYear)) {
330
331         Duplicated By
332         result/views/app-assets/js/core/libraries/jquery_ui/globalize/cultures/globalize.culture.a...
333         Lines: 309 - 382
334         result/views/app-assets/js/core/libraries/jquery_ui/globalize/cultures/globalize.culture.a...
335         Lines: 309 - 382
336         result/views/app-assets/js/core/libraries/jquery_ui/globalize/cultures/globalize.culture.a...
337         Lines: 92 - 165
338         result/views/app-assets/js/core/libraries/jquery_ui/globalize/cultures/globalize.culture.a...
339
340         hmonth++;
341     }
342     hmonth--;
343     hday = daysIntoYear - this.monthDays[hmonth];
344     return [hyear, hmonth, hday];
345 },
346 daysToYear: function(year) {
347     // calculates how many days since Jan 1, 0001
348     var yearsToYear30 = Math.floor((year - 1) / 30) * 30,
349         yearsInto30 = year - yearsToYear30 - 1,
350         days = Math.floor((yearsToYear30 * 10631) / 30) + 227013;
    
```

Click a file name to compare the duplicated code blocks of the two files.

**Step 4** Click to view and modify the source code of the file.

----End

## 8.4 Viewing Check Logs

After executing a code check task, you can view the code check results in check logs.

## Procedure

- Step 1** Go to the [Task page](#). In the task list, click a task name.
- Step 2** On the **View Task Details** page, click the **Logs** tab. Log details include **Step**, **Check Parameter**, and others.

----End



# 9 Connecting to a Custom Executor

---

## 9.1 Creating Agent Pools and Agents

You can choose **All Account Settings > Agent Pool > Agent Pool** to connect your high-performance ECSs as agents.

When executing a code check task, you can select an agent pool to execute the task, improving the task execution efficiency.

 **NOTE**

For details, see [Agent Pool Management](#).

## 9.2 Selecting a User-defined Executor

When a code check task is run, default executor is used. If you have your own executors, you can customize an executor as required to solve problems in special compilation scenarios. Select an agent machine in the agent resource pool to execute the code check task without depending on the public execution resources provided by the service.

[Table 9-1](#) lists the recommended specifications.

---

**NOTICE**

Currently, there is no unified and clear description for the association between the code check specifications and the number of code lines in the industry. Therefore, the specifications in this document are for reference only. If the specifications in the following table are used and the memory is still insufficient due to the specifications, you are advised to use an executor with higher specifications.

---

**Table 9-1** Code check specification reference

<b>Code Specifications (Unit: 10 Thousand Lines)</b>	<b>Executor Specifications</b>
< 50	3 vCPUs, 6 GB
50-300	8 vCPUs, 16 GB
> 300	8 vCPUs, 64 GB

For details, see [Configuring User-defined Executors](#).