

CodeArts Check

User Guide

Issue 01
Date 2024-10-09



Copyright © Huawei Cloud Computing Technologies Co., Ltd. 2024. All rights reserved.

No part of this document may be reproduced or transmitted in any form or by any means without prior written consent of Huawei Cloud Computing Technologies Co., Ltd.

Trademarks and Permissions



HUAWEI and other Huawei trademarks are the property of Huawei Technologies Co., Ltd.

All other trademarks and trade names mentioned in this document are the property of their respective holders.

Notice

The purchased products, services and features are stipulated by the contract made between Huawei Cloud and the customer. All or part of the products, services and features described in this document may not be within the purchase scope or the usage scope. Unless otherwise specified in the contract, all statements, information, and recommendations in this document are provided "AS IS" without warranties, guarantees or representations of any kind, either express or implied.

The information in this document is subject to change without notice. Every effort has been made in the preparation of this document to ensure accuracy of the contents, but all statements, information, and recommendations in this document do not constitute a warranty of any kind, express or implied.

Contents

1 Working with CodeArts Check.....	1
2 Purchasing CodeArts Check.....	4
2.1 Purchasing CodeArts Check.....	4
3 Configuring Project-level Role Permissions.....	5
4 Creating a Task.....	8
5 Configuring a Task.....	12
5.1 Configuring a Rule Set.....	12
5.1.1 Configuring a Preset Rule Set.....	12
5.1.2 Configuring a Custom Rule Set.....	15
5.2 Configuring Quality Gates.....	16
5.3 Configuring a Scheduled Task.....	17
5.4 Configuring Notifications.....	18
5.5 Configuring Check Modes.....	18
5.6 Viewing Health Status.....	21
5.7 Configuring Integration Services.....	21
5.8 Configuring a Custom Environment.....	22
5.9 Configuring Advanced Configurations.....	23
6 Executing a Task.....	24
7 Viewing Check Results.....	25
8 Querying Audit Logs.....	30

1 Working with CodeArts Check

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.

Usage Process

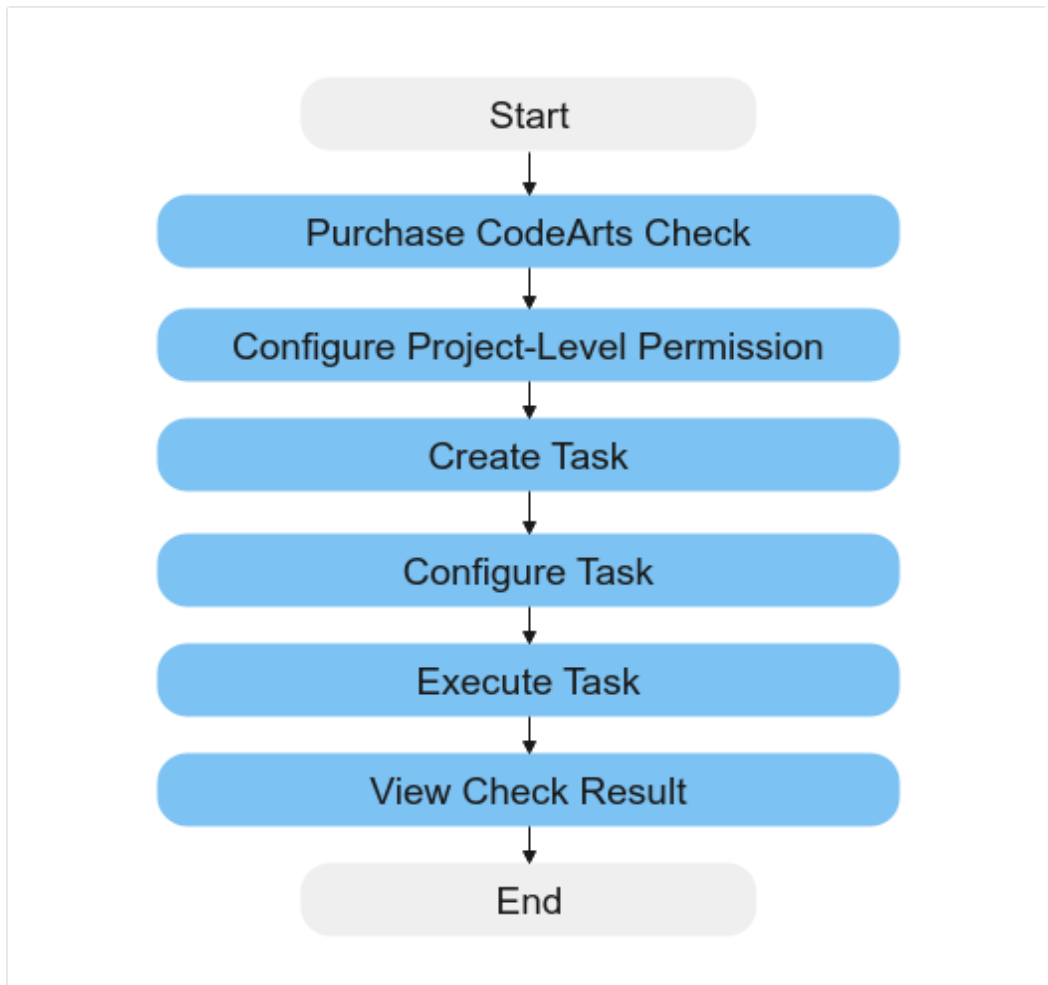


Table 1-1 Process description

Process	Description
Purchasing CodeArts Check	Purchase CodeArts Check.
Configuring Project-level Role Permissions	Access the CodeArts Check homepage and configure project-level permissions.
Creating a Task	Create tasks from different repositories.
Configuring a Task	Modify or configure existing check tasks.
Executing a Task	Execute a check task to identify issues in the source code.

Process	Description
Viewing Check Results	View the check results and fix code issues after a code check task is complete.

2 Purchasing CodeArts Check

2.1 Purchasing CodeArts Check

Prerequisites

You have registered with Huawei Cloud and completed real-name authentication. If you do not have a HUAWEI ID yet, follow these steps to create one:

1. Visit the [Huawei Cloud official website](#).
2. Click **Sign Up** and create your account as instructed.
Once your account is created, the system automatically redirects you to your personal information page.
3. Complete individual or enterprise real-name authentication. For details, see [Real-Name Authentication](#).

Purchasing CodeArts Check

Refer to [Purchasing a CodeArts Package](#).

3 Configuring Project-level Role Permissions

Assign a role to the new member. Each role comes with its own default permissions. For details, see [Table 3-1](#).

Table 3-1 Default role permissions in CodeArts Check


Permission /Role		Project Administrator	Project Manager	Developer	Test Manager	Tester	Participant	Viewer	Product Manager	System Engineer	Committer
Tasks	Create	√	√	√	×	×	×	×	×	√	√
	Execute	√	√	√	×	×	×	×	√	√	√
	View	√	√	√	×	×	×	×	√	√	√
	Edit	√	√	√	×	×	×	×	√	√	√
	Delete	√	√	×	×	×	×	×	√	√	√
Rulesets	Set as default	√	√	×	×	×	×	×	√	√	√
Issues	View	√	√	√	×	×	×	×	√	√	√
	Edit	√	√	√	×	×	×	×	√	√	√

Prerequisites

- You have [purchased CodeArts Check and authorized users](#).
- You have added members and [assigned a role](#) to them. For details, see *CodeArts User Guide* > "Preparations" > "Adding Project Members".

Accessing CodeArts Check

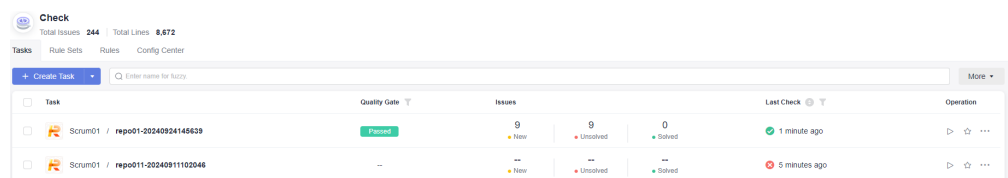
Step 1 [Log in to the Huawei Cloud console](#).

Step 2 Click  in the upper left corner and choose **Developer Services > CodeArts Check** from the service list.

Step 3 You can access CodeArts Check in either of the following ways:


- **Homepage entry**

Click **Access Service**. This page displays the check task list of the current user.



- **Project entry**

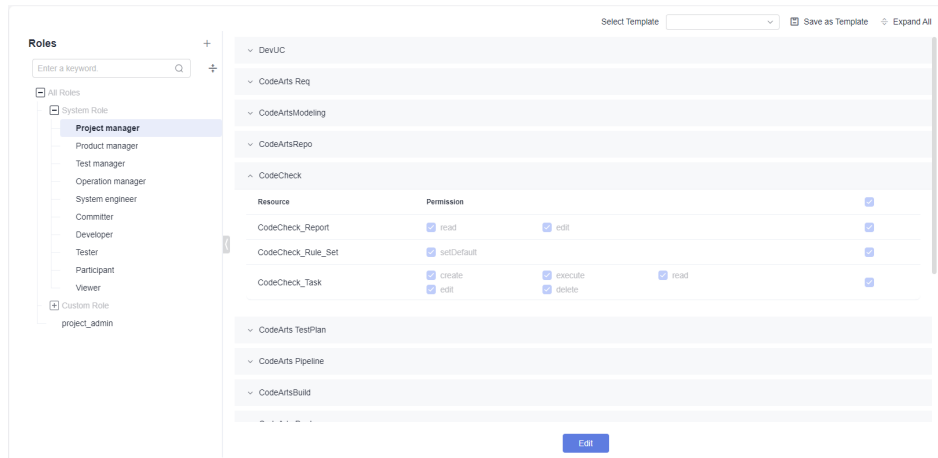
- a. Click **Access Service**.
- b. On the navigation bar, click **Homepage**.
- c. Click the name of the project to be viewed.
- d. Choose **Code > Check**.

Click  in the upper left corner of the page and select a region.

----End

Configuring Project-level Role Permissions

1. [Access CodeArts Check](#) through a project.
2. In the navigation pane, choose **Settings > Permissions**.
3. On the displayed page, configure permissions for different roles in CodeArts Check.



4 Creating a Task

CodeArts Check supports different code repositories. Before task creation, you should:

- Create a project.
- (Optional) **Create a code repository** by referring to *CodeArts Repo User Guide* > "Creating a Repo".
- (Optional) Create a third-party code repository.

Creating a Task to Check Code from CodeArts Repo

If you select **Automatically create Check task** when creating a code repository in CodeArts Repo, a code check task will be created synchronously. You can view the task in the task list of CodeArts Check.

If you do not select **Automatically create Check task** when creating a code repository, perform these steps to create a task:

Step 1 **Access CodeArts Check** through a project.


Step 2 Click **Create Task**, configure parameters by referring to **Table 4-1**, and click **Create Task**.

Table 4-1 Task parameters

Parameter	Description	Mandatory
Project	Project that the task belongs to. <ul style="list-style-type: none">• This parameter is set by default when you access CodeArts Check from the project entry.• During access through the service entry, select the project created in Creating a Project based on the site requirements.	Yes
Code Source	Select Repo .	Yes

Parameter	Description	Mandatory
Name	Customize your task name. Enter 1 to 128 characters: letters, digits, underscores (_), hyphens (-), and periods (.).	Yes
Repository	Select the code repository to be checked.	Yes
Branch	Select the code branch to be checked.	Yes
Language	Select the code language to be checked.	No

 NOTE

- To modify the task name and default branch, go to the task details page, choose **Settings > Basic Info**, and then modify the target task.
- To delete a task, go to the task details page, choose **Settings > Basic Info**, and then delete the target task. Alternatively, click  in the row where the target task is located, and choose **Delete** from the drop-down list.

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.

----End

Creating a Task to Check Code from Git

Step 1 [Access CodeArts Check](#) through a project.

Step 2 Click **Create Task**, configure parameters by referring to [Table 4-2](#), and click **Create Task**.

Table 4-2 Task parameters

Parameter	Description	Mandatory
Project	Project that the task belongs to. <ul style="list-style-type: none"> This parameter is set by default when you access CodeArts Check from the project entry. During access through the service entry, select the project created in Creating a Project based on the site requirements. 	Yes

Parameter	Description	Mandatory
Code Source	Select Git . For code hosted on other services, use a Git connection to pull the code.	Yes
Name	Customize your task name. Enter 1 to 128 characters: letters, digits, underscores (_), hyphens (-), and periods (.).	Yes
Endpoint	Select the service endpoint connected to the Git repository. If no, create one .	Yes
Repository	Select the code repository to be checked.	Yes
Branch	Select the code branch to be checked.	Yes
Language	Select the code language to be checked.	No

NOTE

- To modify the task name and default branch, go to the task details page, choose **Settings > Basic Info**, and then modify the target task.
- To delete a task, go to the task details page, choose **Settings > Basic Info**, and then delete the target task. Alternatively, click ******* in the row where the target task is located, and choose **Delete** from the drop-down list.

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.

----End

Creating a Service Endpoint

When you select any third-party repository, the **Endpoint** is a mandatory setting.

A service endpoint is an extension to CodeArts and supports connection to third-party services.

By default, CodeArts Check pulls code from CodeArts Repo for your build. CodeArts Build also uses service endpoints to connect to third-party repositories to obtain project source code.

NOTE

- The network may be unstable or other problems may occur when a third-party repository is used.
- Use the code import function of CodeArts Repo for secure, stable, and efficient download and build.

Creating a Git service endpoint

1. Click ▼ and click **Create Endpoint** in the drop-down list.
2. On the displayed page, click **Create Endpoint** and select **Git repository**.
3. In the displayed dialog box, set parameters by referring to [Table 4-3](#).

Table 4-3 Git service endpoint parameters

Parameter	Description	Mandatory
Service Endpoint Name	Enter a maximum of 256 characters, including letters, digits, hyphens (-), underscores (_), periods (.), and spaces.	Yes
Git Repository URL	Enter the URL of the Git repository (HTTPS address).	Yes
Username	Enter the username of the Git repository.	No
Password or Access Token	Enter the password used for logging in to the Git repository.	No

4. Click **Confirm**. The page for creating a task is displayed.

5 Configuring a Task

5.1 Configuring a Rule Set

5.1.1 Configuring a Preset Rule Set

A rule set is a set of rules used for code checks, with variations within different sets. These sets are classified based on different objectives, such as security, Android apps, and coding styles.

You can modify the rule sets as needed, and the updated rules will be applied during the next check.

CodeArts Check supports rule sets in multiple languages at different levels. For details about system rule sets, see [Table 5-1](#).

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.

Table 5-1 Preset rule sets

Language	System Rule Set	Default Rule Set	Extension of Supported File
C++	<ul style="list-style-type: none">Generic Inspection Rule Set	Generic Inspection Rule Set	.c/.cc/.cpp/.cxx/.c p/.c+ +/.inc/.inl/.mm/ h/.hh/.hpp/.hxx/ h++
Java	<ul style="list-style-type: none">Generic Inspection Rule Set	Generic Inspection Rule Set	.java

Language	System Rule Set	Default Rule Set	Extension of Supported File
Go	<ul style="list-style-type: none"> Generic Inspection Rule Set 	Generic Inspection Rule Set	.go
Python	<ul style="list-style-type: none"> Generic Inspection Rule Set 	Generic Inspection Rule Set	.py
JavaScript	<ul style="list-style-type: none"> Generic Inspection Rule Set 	Generic Inspection Rule Set	.js/.jsx
C#	<ul style="list-style-type: none"> Generic Inspection Rule Set 	Generic Inspection Rule Set	.cs
TypeScript	<ul style="list-style-type: none"> Generic Inspection Rule Set 	Generic Inspection Rule Set	.ts/.tsx
CSS	<ul style="list-style-type: none"> Generic Inspection Rule Set 	Generic Inspection Rule Set	.css
HTML	<ul style="list-style-type: none"> Generic Inspection Rule Set 	Generic Inspection Rule Set	.html
PHP	<ul style="list-style-type: none"> Generic Inspection Rule Set 	Generic Inspection Rule Set	.php
LUA	General Criterion Set	General Criterion Set	.lua
RUST	General Criterion Set	General Criterion Set	.rs
Shell	General Criterion Set	General Criterion Set	.sh
KOTLIN	General Criterion Set	General Criterion Set	.kt

d
e
t
e
k
t
o
u
t

Viewing Rule Details in a Rule Set

View the rule details in rules sets, such as issue levels, compliant and non-compliant examples, and fix suggestions, to select a desired rule set.

Step 1 [Access CodeArts Check](#) through a project.

Step 2 Click the **Rule Sets** tab.

Step 3 Click the rule set name to go to the details page.

The screenshot displays the 'Huawei Java Coding Standard Rule Set' details page. The main content is a table of rules with the following columns: Rule Name, Tag, Issue Level, and Option. The Issue Level column contains dropdown menus for each rule, with options like 'Minor', 'Suggestion', and 'Major'. The page also includes a filters sidebar on the left and a pagination bar at the bottom.

Rule Name	Tag	Issue Level	Option
G.TYP.07 Do not hardcode the characters that indicate new lines and file path...	cwe,fixbotengine-java.hua...	Minor	
G.CMT.01 Javadoc comments should be present for every public or protected...	cwe,fixbotengine-java.hua...	Suggestion	
G.CTL.01 Do not assign values or conduct complex condition judgment in con...	cert,cwe,fixbotengine-java...	Minor	
G.OBJ.07 When child classes override methods of parent classes or impleme...	cwe,fixbotengine-java.hua...	Minor	
Rule-9-3 Use hash algorithm with salted value to store passwords safely--salt...	codemars,cwe.huawei.sec...	Major	
G.CON.11 Do not use Thread stop() to terminate threads	cert,codemars,cwe.huawei...	Major	
G.CON.07 Name a thread when creating it	cwe,fixbotengine-java.hua...	Minor	
G.OTH.03 Delete unused code segments instead of commenting them out--re...	cwe,fixbotengine-java.hua...	Minor	
G.FMT.12 Reduce unnecessary blank lines to keep the code compact	cwe,fixbotengine-java.hua...	Suggestion	
G.OTH.02 Use SSLSocket rather than Socket for secure data exchange	cert,codemars,cwe.huawei...	Major	
G.MET.04 Exercise caution when using a variable number of arguments	cert,cwe,fixbotengine-java...	Minor	
G.COL.02 Prefer generic collections to arrays	cwe,fixbotengine-java.hua...	Minor	
G.EXP.02 Use parentheses to specify the operation sequence of expressions...	cert,cwe,fixbotengine-java...	Suggestion	

Alternatively, click **Export** to export the enabled rules in the rule set to the local PC and view the rule details.

----End

Modifying the Default Rule Set

Each language has its default set, as shown in [Table 5-1](#). Perform the following operations to modify the default rule set if needed.

NOTE

To view the default rule sets, access CodeArts Check through a project.

Step 1 On the **Rule Sets** tab page, filter the target language in the **Language** column.

Step 2 Click ******* in the row where the rule set locates and select **Default Set** to set the current rule set as default.

----End

Configuring the Rule Set to Be Used

Perform the following operations to use other preset rule sets. Alternatively, customize rule sets if needed. For details, see [Configuring a Custom Rule Set](#).

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

Step 2 On the task details page, choose **Settings > Rule Sets**.

Step 3 In the **Languages Included** area, enable the switch of target language.

Step 4 In the **Enable Rule Set** area, click to select the rule set to be used.

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

Parameter

Extended Parameters: Do not include sensitive information here.

Build Tool ⓘ

maven

buildToolVersion

maven3.5.3-jdk1.8

compileScriptCmd ⓘ

mvn clean compile -Dmaven.test.skip=true -B -U -q

OK

Cancel

NOTE

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

----End

5.1.2 Configuring a Custom Rule Set

CodeArts Check supports custom rule sets. Each rule set must contain at least one rule.

A rule set can be configured with only one language.

NOTE

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.

Customizing a Rule Set

Step 1 [Access CodeArts Check](#) through a project.

Step 2 Click the **Rule Sets** tab.

Step 3 Click **Create Rule Set**. In the displayed dialog box, enter a rule set name and description, and select a language.


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

Step 4 Click **OK**.

Step 5 Select rules, set rule levels as required, and click **Save** in the upper right corner.

- Click the rule set name to go to the details page.
- Alternatively, on the details page, click **Export** to export the enabled rules in the rule set to the local PC and view the rule details.
- On the details page, click **Modify Basic Info** to modify the rule set name or description.

 **NOTE**

- The **Language** cannot be modified.
 - Preset rule sets cannot be modified.
 - Custom rule sets can be deleted only by the one who created them.
- Click  in the row where the rule set is located and choose **Delete Set**.


 **NOTE**


- Custom rule sets can be deleted only by the one who created them.
- System rule sets and custom rule sets in use cannot be deleted.
- To delete a rule set being used by a code check task, you can either delete the task or assign another rule set to the task.

----End

Using a Custom Rule Set

Step 1 Go to the task details page, and choose **Settings > Rule Sets**.

Step 2 If any changes are made to the code repository after you create a code check task, click  in the **Languages Included** row to re-obtain the target language, and enable the switch of language.

Step 3 Click  to select the created custom rule set.

----End

5.2 Configuring Quality Gates

Set the threshold based on the quality requirements to check whether the project is ready for production. If the actual check result surpasses the gate threshold, the project is deemed unfit 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 task details page, and choose **Settings > Quality Gate**.

 **NOTE**

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

This section uses a task-level quality gate as an example to describe how to configure a quality gate.

- Step 1** [Access CodeArts Check](#) through a project.
- Step 2** Go to the task page. In the task list, click a task name.
- Step 3** On the task details page, choose **Settings > Quality Gate**.
- Step 4** In the **Quality Gate** area, enable gate items and set thresholds based on quality requirements.

Figure 5-1 Configuring a gate

Issue Level	Operator	Threshold	Enable
Critical	≤	<input type="text" value="0"/>	<input checked="" type="checkbox"/>
Major	≤	<input type="text" value="0"/>	<input checked="" type="checkbox"/>
Minor	≤	0	<input type="checkbox"/>
Suggestion	≤	0	<input type="checkbox"/>

- Step 5** 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. Fix code as prompted.

----End

5.3 Configuring a Scheduled Task

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.

Configuring an Execution Plan

- Step 1** [Access CodeArts Check](#) through a project.
- Step 2** Go to the task page. In the task list, click a task name.
- Step 3** On the task details page, choose **Settings > Execution Plans**.
- Step 4** Enable **Scheduled Check** and set the automatic execution time.

Figure 5-2 Configuring an execution plan

Scheduled Check ?

* Time:

Sun Mon Tue Wed Thu Fri Sat 00:00

Save

Step 5 Click **Save**.

----End

5.4 Configuring Notifications

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

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: Go to the project details page, and choose **Code > Check > Config Center > Notifications**.
- Task level: Go to the task 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.

Configuring Message Notices

Step 1 [Access CodeArts Check](#) through a project.

Step 2 Go to the task page. In the task list, click a task name.

Step 3 On the task details page, choose **Settings > Notifications**.

Step 4 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

5.5 Configuring Check Modes

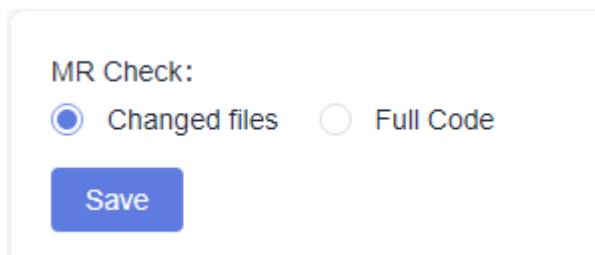
You can set check modes and checked catalogs for efficiency.

NOTICE

Neither C# nor the secbrella engine supports merge requests.

Configuring Check Modes

- Step 1** [Access CodeArts Check](#) through a project.
- Step 2** Go to the task page. In the task list, click a task name.
- Step 3** On the task details page, choose **Settings > Check Modes**.
- Step 4** In the **MR Check** area, select **Changed Files** or **Full Code**. By default, **Changed Files** is selected.



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

----End

Configuring Checked Catalogs

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:

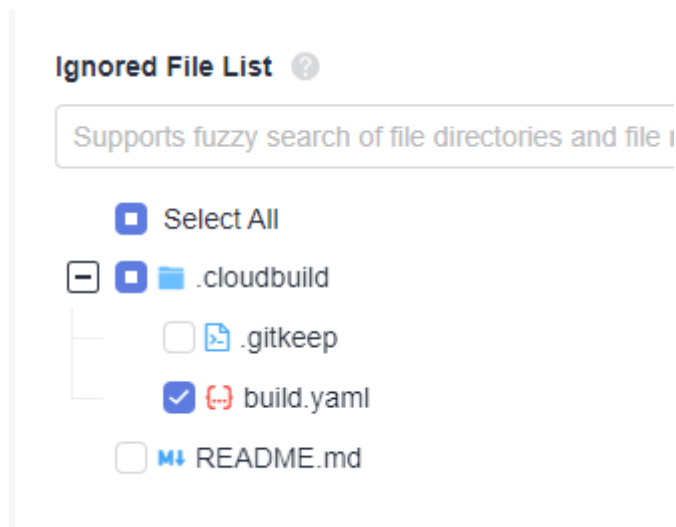
- To check the **dir1** and **dir2** directories, enter **dir1,dir2**.
- To check **dir3** in the **dir1** directory, enter **dir1/dir3**.
- You need to specify directories instead of file names. By default, all code in the code repository is checked.
- The specified directories cannot start with a period (.).
- By default, all directories are checked if you leave the text box empty. If you specified directories, all files within them are checked except for those that have been **set to be ignored**.
- This function takes effect only for the files that do not need to be compiled. If file B is generated after the compilation of file A, issues in file B are not reported.

Setting an Ignored File List

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 it are ignored during a check.

In the **Ignored File List** area, select the file paths that do not need to be checked. Run the code check task. The files in the selected paths will not be checked.

**NOTE**

This function takes effect for the files that (do not) need to be compiled.

- Files that do not need to be compiled: If these files are set to be ignored, they are not checked.
- Files that need to be compiled: For example, file A and file B depend on each other. If file A is set to be ignored, file A is not checked, but file A is still involved in the compilation process before the check.

5.6 Viewing Health Status

After the check task is complete, you can view the code health status and mark the code in the code repository.

The impact degree of each issue level is as follows:

Critical: 5

Major: 3

Minor: 1

Suggestion: 0.1

The health status levels are as follows (Formula: Health status score = $\text{SUM } \Sigma(\text{The number of issues} \times \text{Issue level}) / \text{Code volume}$):

A: Health score ≤ 0.001

B: $0.001 < \text{Health score} \leq 0.005$

C: $0.005 < \text{Health score} \leq 0.01$

D: Health score > 0.01

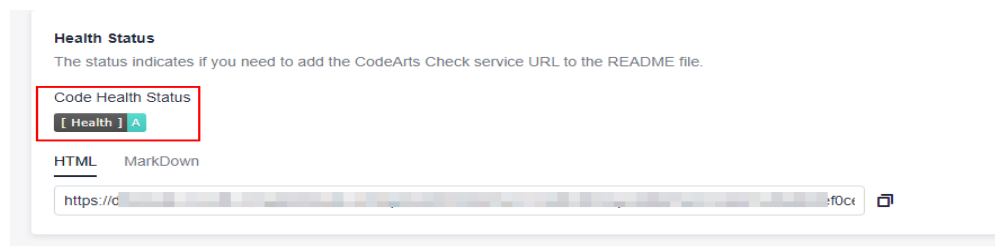
Viewing Health Status

Step 1 [Access CodeArts Check](#) through a project.

Step 2 In the task list, click a task name.

Step 3 On the task details page, choose **Settings > Health Status**.

HTML and **MarkDown** are supported.




----End

5.7 Configuring Integration Services

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.


Configuring MR Check Status

Step 1 [Access CodeArts Check](#) through a project.

- Step 2** Go to the task page. In the task list, click a task name.
- Step 3** On the task details page, choose **Settings > Integration Services > CodeArts Repo**.
- Step 4** Determine whether to select **MR Status** (MR indicates merge requests). If you select it, the automatic check of code review is enabled.
- Step 5** If a branch is merged in the code repository of the task, a code check job is automatically generated.
1. Access the 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

Configuring an Automatic Check Task Executed upon Code Commit

- Step 1** Select **Executed upon code submission**.

 **NOTE**

This function applies only to branches with created tasks.

- Step 2** Click **Save**.

----End

5.8 Configuring a Custom Environment

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 pushed the custom environment to the image repository.

Configuring a Custom Image

- Step 1** [Access CodeArts Check](#) through a project.
- Step 2** Go to the task page. In the task list, click a task name.
- Step 3** On the task details page, choose **Settings > Custom Environment**.
- Step 4** In the **Custom Image** area, enter the content in the format of *Domain name/Organization name/Image repository name:Tag name* or an image link of SoftWare Repository for Container (SWR).

Step 5 Click **Save**.

----End

5.9 Configuring Advanced Configurations

Currently, this function is not available in the AP-Singapore, R-Istanbul, and ME-Riyadh regions.

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.

Step 1 [Access CodeArts Check](#) through a project.

Step 2 Go to the task page. In the task list, click a task name.

Step 3 On the task details page, choose **Settings > Advanced**.

Step 4 In the **New Defects Start** area, click  to configure the start time of the new issues.

NOTE

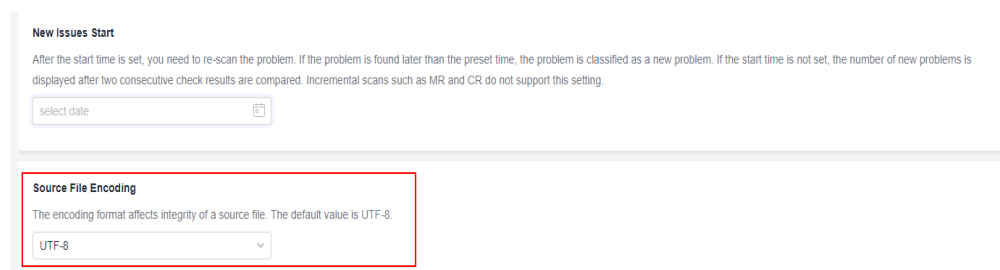
By default, findings since the first successful check are incremental.

----End

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.

Step 1 In the **Source File Encoding** area, select an encode format from the drop-down list.



Step 2 Check whether a message is displayed, indicating that the modification is successful.

----End

6 Executing a 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: After creating a task, manually execute it. This section uses it as an example.
- Scheduled execution: For details, see [Configuring a Scheduled Task](#).

Prerequisites

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

Executing a Task

Step 1 [Access CodeArts Check](#) through a project.

Step 2 Click  in the row where the task is located and wait until the task is complete.

----End

Checking Code in Other Branches

On the task details page, you can switch between checked and unchecked branches.

Step 1 Click a task name.

Step 2 On the task details page, the **Overview** tab page is displayed by default. Click  **master** ▾ to switch among different branches.

Step 3 After switching to the target branch, click **Start Check** and wait until the task is complete.

Clicking  again will automatically switch the branch to the default branch for checking.

----End

7 Viewing Check Results

Prerequisite

You have **created** and **executed** a task.

Viewing Check Details

Step 1 [Access CodeArts Check](#) through a project.

Step 2 Go to the **CodeArts Check** page and search for the target task. 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 task is executed.
- Unsolved: issues that have not been solved after the task is executed.
- Solved: issues that have been solved after the task is executed.

Step 3 Click the task name to view the check details.

- Number of lines of code.
- Gate result: The result can be **Passed** or **Failed**, and the numbers of critical issues and major issues are displayed.

You can set the gate threshold by referring to [Configuring Quality Gates](#).

- Number of issues detected.
- Number of delayed rollout issues detected by the upgraded check engines.
- Number of unresolved new issues.
- Number of resolved new issues.
- Average [cyclomatic complexity](#).
- Code [duplication rate](#).
- Number of non-blank non-comment lines of code.
- Top 10 rules with the most issues and the numbers of these issues.
- Pending issues by severity.
- Issue assignments. If the number of assigned issues does not match the total number of issues, there are some issues that have not been assigned to owners.

- Historical trends. By default, the figures show trends of issues, cyclomatic complexity, and duplicate rates in the last month.

----End

Viewing Code Issues

You can view code issue details in either of the following ways:

- **Exporting issues to the local PC**

Method 1:

- a. On the task list page, select the tasks for which you want to export issues in batches (max. 20 tasks at a time).
- b. Choose **More > Export Task Issues**.
- c. In the displayed dialog box, select the items to be exported and click **Export**.
- d. Click **View Downloads** to view the export progress.
- e. After the export is complete, click **Download** to export the issues to the local PC.

Method 2:



- a. Click the **Issues** tab.
- b. Choose **Apply to Filtered > Export** to export issues to the local PC.

- **Online viewing**

- a. Click the **Issues** tab. In the **Filters** area, set filter criteria to filter issues. The following table lists the filter criteria.

Filter Criteria	Description
Issue Level	The options are Critical , Major , Minor , and Suggestion .
Issue Status	The options are Pending , Resolved , Ignored , and Fixed .
Latency Issues	Indicates the number of issues in the official version and in the delayed version.
Check Time	Indicates New issues and Inventory issues distinguished based on the detection time. NOTE You can set the start time of new issues . Issues found after that time are new.
File	Filter issues by source file name.
Language	Filter issues by language.
Rule	Filter issues by rule so that users can solve the same type of issues at a time.

Filter Criteria	Description
User Tag	Filter issues by user tag of rules.
Owner	Filter issues by issue owner. NOTE During check, new issues are automatically assigned to the last committer of the faulty code line when you enable Accurate Matching of Issue Owners .
CWE	Filter issues by security rule name.

- b. After setting the filter criteria, you can perform the following operations in the right pane.
- If an issue has been resolved, click **Pending** and select **Resolved**. If an issue does not need to be handled, click **Pending** and select **Ignore Issue**. To ignore the issue, you need to submit a comment.
 - Click **Owner** to transfer the issue to another owner.
 - Click **Help** to view the rule details corresponding to the issue.
 - Click **View Context**. On the **Context** page, you can modify the issue status, transfer the owner, and click  to modify the code in the repository based on **Help**.
 - Click **Create Ticket** to submit the service ticket to the specified owner. This function is available only in Scrum projects.
 - Click **Generate Report** to generate a report in PDF format.
 - Choose **Apply to Filtered > Change Status** to modify the status of all filtered issues.
 **NOTE**
If the number of issues is 0, this button is not displayed.
 - Choose **Apply to Filtered > Change Owner** to transfer all the filtered issues to a specified owner.


Viewing Code Metrics

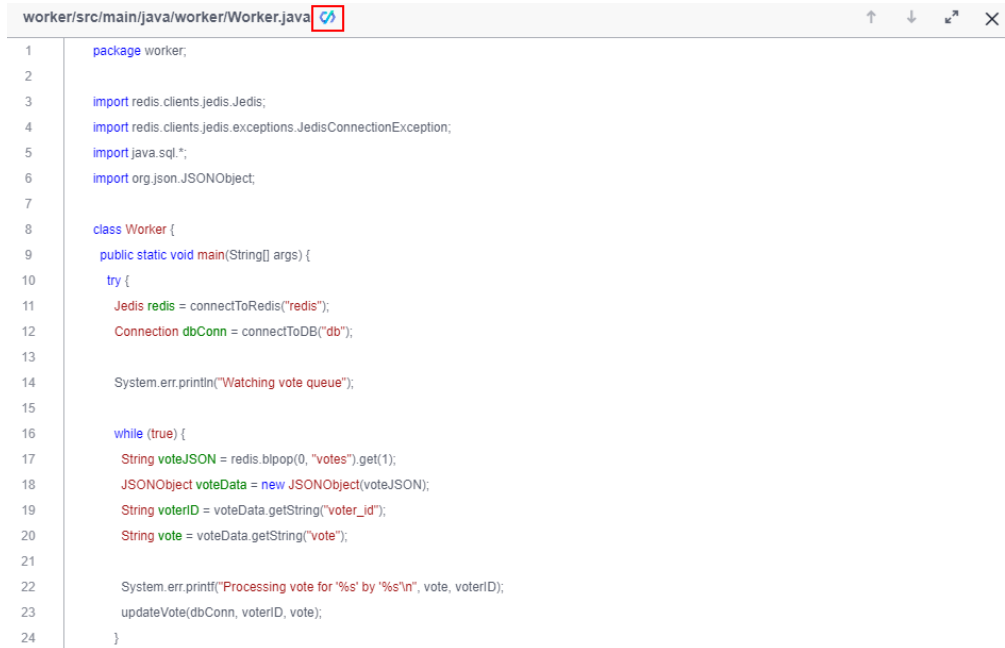
Code metrics reflect the quality of committed code, helping you detect and fix issues in a timely manner and improving R&D efficiency. Code metrics cover the following two types of issues:

- Cyclomatic complexity.

 **NOTE**

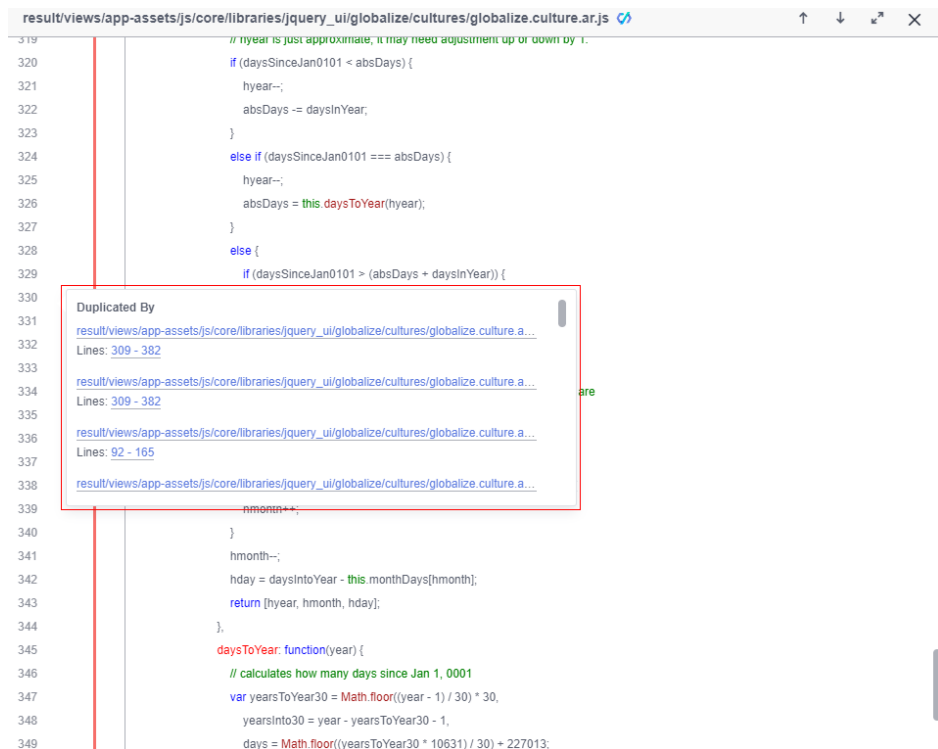
Code cyclomatic complexity is not supported for code in Shell.

Click a file name to go to the file details page. Click  to modify the code in the code repository.




```
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 }
```

- Duplication rate. CodeArts Check identifies duplicate lines, blocks, and rates. To solve this problem, perform the following steps:
 - a. Click a file name to go to the file details page.
 - b. 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.



```
result/views/app-assets/js/core/libraries/jquery_ui/globalize/cultures/globalize.culture.ar.js
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         hmonth++;
340     }
341     hmonth--;
342     hday = daysIntoYear - this.monthDays[hmonth];
343     return [hyear, hmonth, hday];
344 },
345 daysToYear: function(year) {
346     // calculates how many days since Jan 1, 0001
347     var yearsToYear30 = Math.floor((year - 1) / 30) * 30;
348     yearsInto30 = year - yearsToYear30 - 1;
349     days = Math.floor((yearsToYear30 * 10631) / 30) + 227013;
```

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

d. Click  to modify the code in the code repository.

Viewing Check Logs

Click the **Logs** tab to view the logs and check parameters.

Figure 7-1 Logs

Step	Duration	Status
init	<1s	Success
check	1m41s	Success
uccp_complete@farman...	30s	Success
check	30s	Success
report	<1s	Success
sonarqube	1m37s	Success
check	1m37s	Success
report	<1s	Success

Figure 7-2 Check parameters

Parameter	Value
Executor	glt@codehub
Job Type	FULL
Tool Version	202408
Triggered By	customer
Code Repository Address	0d500e21c9614981999400f9b51b9ecb...
Branch	master
Commit ID	a77c50ecc4d5f432301d2cb737e84f1240a101f2
Language	JAVA
Rule Sets	General Criterion Set
arch	X86

8 Querying Audit Logs

Cloud Trace Service (CTS) records operations on CodeArts Check for query, audit, and backtrack.

Operations Recorded by CTS

Table 8-1 Operations recorded by CTS

Operation	Resource Type	Event
Creating a task	task	create
Modifying a task	task	modify
Deleting a task	task	delete
Executing a task	job	create
Canceling a task	job	modify_job
Following a task	followingTask	create_followingTask
Unfollowing a task	followingTask	delete_followingTask
Modifying rule set information	ruleset	modify_ruleset
Modifying rules in a rule set	ruleset	modify_ruleset
Deleting a rule set	ruleset	delete_ruleset
Setting a rule set as default	ruleset	set_default_ruleset
Exporting a rule set	ruleset	export_ruleset
Exporting issues	defectExcel	export_defectExcel
Downloading issues	defectExcel	downloadAndExport_defectExcel

Operation	Resource Type	Event
Modifying an issue status	issueStatus	update_issueStatus
Changing the owner	issueOwner	update_issueOwner
Modifying an issue comment	issueComment	update_issueComment

Viewing Audit Logs

Query CodeArts Check traces on the CTS console. For details, see [Viewing Audit Logs](#).