CodeArts TestPlan

Service Overview

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HUAWEI

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1 What Is CodeArts TestPlan

Overview

CodeArts TestPlan is a one-stop test management platform developed by Huawei, covering the entire process of test plan, test design, test cases, test execution, and test evaluation. The platform originates from Huawei's years of high-quality software test engineering methodologies and practices, and aims to help enterprises with collaborative, efficient, and trustworthy test activities before product release.

- **Test design**

  Heuristic test design is performed based on mind maps to visualize a four-layer test design method. Test scenarios are split based on requirements, test points are split based on scenarios, draft test cases are generated based on test points and archived as test cases, and finally an overall test scheme is output.

- **Test management**

  Test management incorporates concepts such as full-lifecycle tracing, multi-role collaboration, agile tests, and requirement-driven tests. It enables one-stop management of test requirement management, task assignment and execution, progress management, coverage management, result management, defect management, test reports and dashboard. Test management can be tailored for different teams and processes, supporting product quality evaluation from multiple perspectives, efficient test activity management, and quality product delivery.

- **Auto API test**

  The auto API test function allows you to quickly orchestrate API automation test cases based on the API script template generated with API URLs or Swagger files. It integrates pipelines and supports microservice tests. No code compiling is required for test cases. The technical barrier is low. Different roles such as API developers, API consumers, test personnel, and service personnel can run tests with ease. You can import a swagger API definition in a few clicks to automatically generate a script template, based on which you can orchestrate and manage automated test cases of APIs. API test supports HTTP and HTTPS, a visualized case editing interface, various preset check points and built-in variables, customized variables, parameter transfer, and continuous automated testing.

Key Features

- **Case management**

  Manual test cases and API automation test cases are designed in a unified manner. Test case classification, prerequisites, procedure, and expected results are provided to guide test case design.

- **Test suite management**

  Suite management assembles manual test suites or API automation test suites based on test cases. A test suite is used to manage a group of test cases. Generally, a test suite can be used to perform multiple rounds or iterative regression tests. You can create a manual test case suite or API automation test suite based on the test case type.

- **API automation test cases**

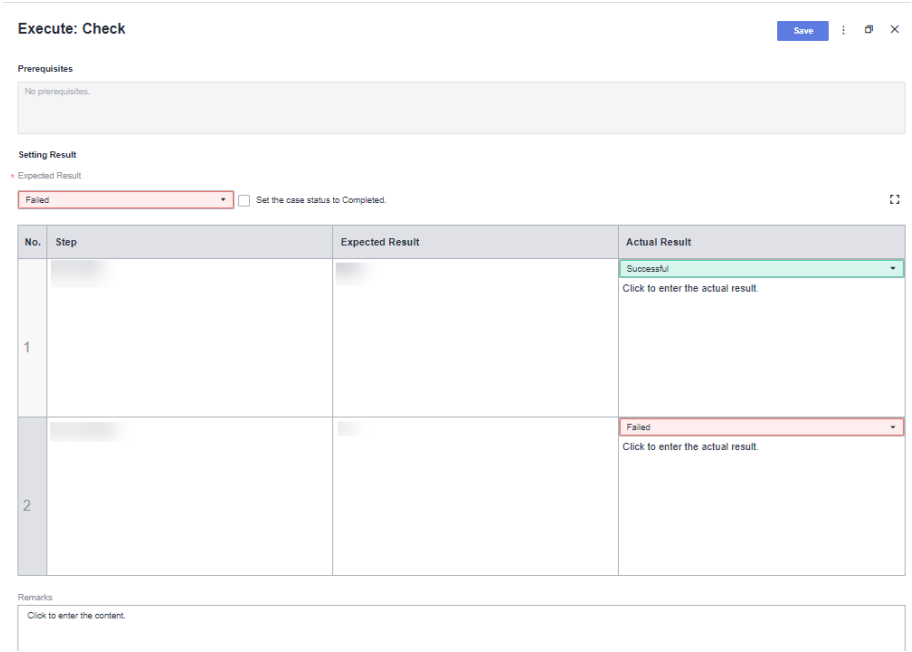
  API automation test cases simulate an HTTP client to establish a session with the server and send a request to the target API or web page to complete the API function test. An API test case contains a series of test requests, test check points, and test logic.

  NOTE

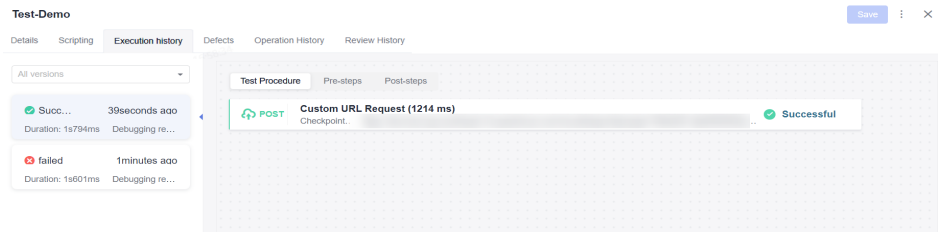
  By default, only APIs that can be accessed from the public network can be tested. For details about the enterprise intranet API test solution, contact the customer service.

- **Manual test case execution and results setting**

  You can set results step by step or in batches, apply the last execution result in one-click mode, and add screenshots to the result. Reproduction procedure can be automatically filled in during defect creation.

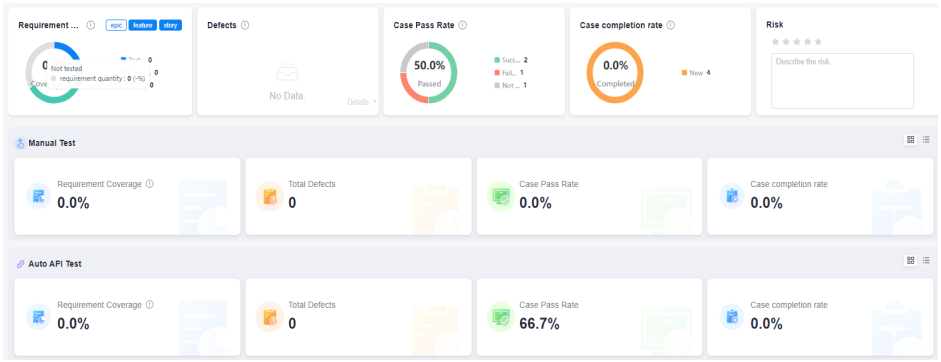


- **API automation test case execution and execution history**
  - Case execution: Test cases can be executed in parallel or serial mode or in the pipeline. Quality gate can be configured.
  - Execution history: Each execution result and logs are recorded in detail.



- **Quality report**

  You can view the requirement coverage, defect distribution, case pass rate, and case completion rate. You can also customize reports.



2 Advantages

Large-Scale Efficient Collaborative Test

For high-quality product release, this one-stop test management platform integrates test management, automatic testing, hierarchical management of hundreds of millions of test cases, and efficient and collaborative test activities such as test case design, test execution, defect submission, and report statistics.

Bidirectional Traceability

Test requirements, cases, defects, and results are associated with each other, and changes are logged. In this way, you can visualize the evidence chain of the test process, monitor and identify risks in time, accelerate tracking and closure, and effectively reduce missing test findings from organization and project perspectives.

Automatic Test

CodeArts TestPlan quickly orchestrates APIs based on API URLs or swagger documents, integrates with CodeArts Pipeline, and supports microservice and layered automatic tests. Flexible and configurable scheduled execution policies improve test execution efficiency and shorten the product go-to-market period.

Visualized Design and Measurement

Heuristic test design provides visualized test breakdown design capabilities at four layers: requirement, scenario, test point, and test case. The dashboard collects statistics on the test progress, defects, and test requirement coverage in real time, comprehensively evaluates the test quality, and provides a decision-making basis for product launch.

3 Application Scenarios

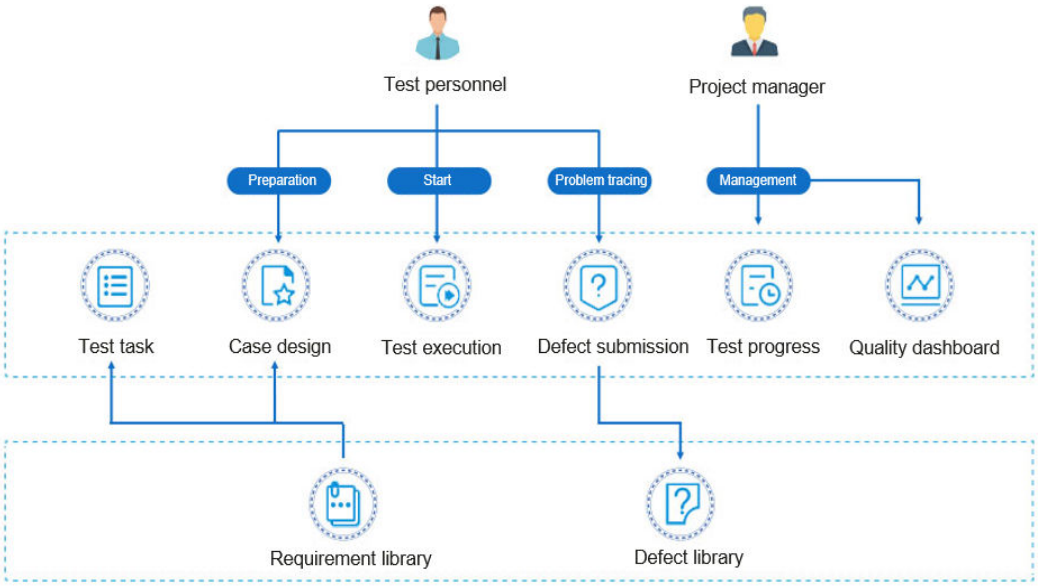
Software Test Quality Management

- Higher Test Efficiency and Coverage

  Agile test processes are available for teams of different scales. The requirement-driven method prevents missing or false testing.
- Efficient Collaboration Between Development and Test

  Bidirectional tracing is performed among requirements, cases, and defects. Different roles collaborate with each other in a timely and efficient manner.
- Multi-Dimensional Quality Dashboards

  Multi-dimensional quality dashboards and quality evaluation ensure efficient product acceptance.

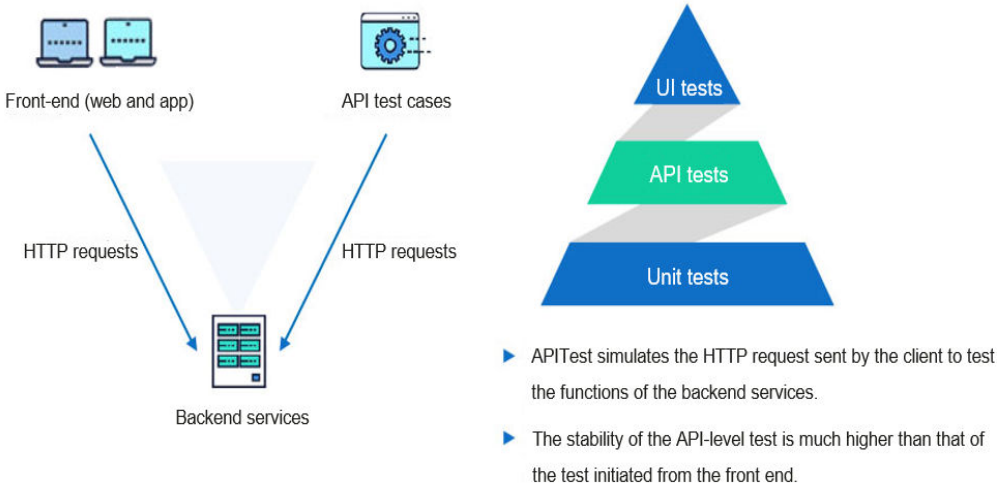


Continuous Automated Testing

- Automated API testing

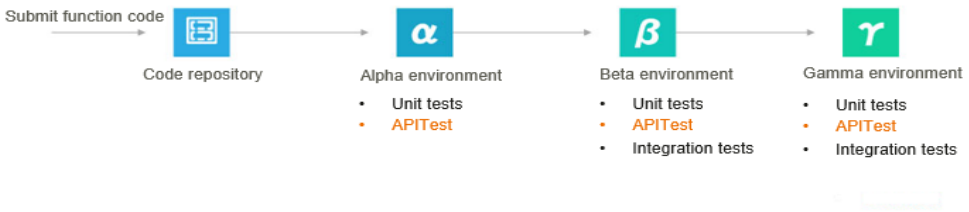
  The test pyramid is used to perform automatic API-layer function tests.

Compared with UI tests, API tests have low development cost, short running period, and high running stability, implementing quick and accurate test feedback.



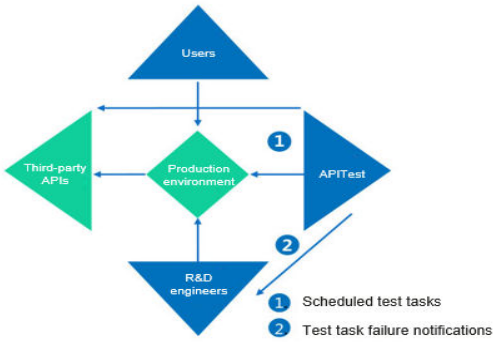
- Continuous Integration of Automated Tests

  Continuous integration and pipeline are used to implement build, deployment, and tests. Problems can be detected in a timely manner during quick tests, preventing faulty artifacts from entering the next phase or environment.



- Monitoring Production Environment and Third-Party Dependent APIs

  24/7 API-level test monitoring is established for monitoring products or third-party dependent APIs in the production environment to detect live network problems earlier than customers and rectify the problems in a timely manner.



24/7 monitoring of the health status of services in the production environment and third-party dependent APIs, earlier problem detection than users, and notifications to engineers to solve the problems in a timely manner

4 Security

Shared Responsibilities
Authentication and Access Control
Data Protection Technologies
Auditing and Logging
Service Resilience
Certificates

4.1 Shared Responsibilities

Huawei guarantees that its commitment to cyber security will never be outweighed by the consideration of commercial interests. To cope with emerging cloud security challenges and pervasive cloud security threats and attacks, Huawei Cloud builds a comprehensive cloud service security assurance system for different regions and industries based on Huawei's unique software and hardware advantages, laws, regulations, industry standards, and security ecosystem.

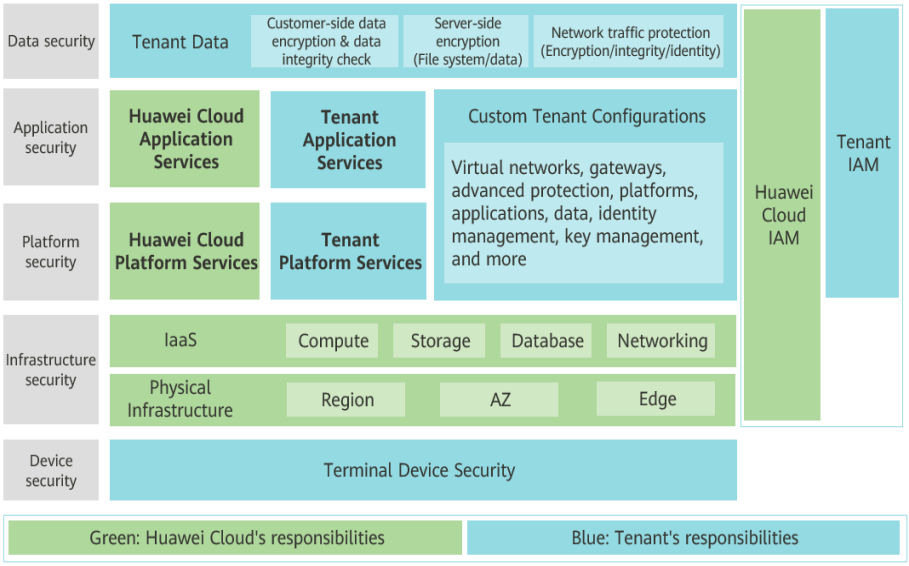
Figure 4-1 illustrates the responsibilities shared by Huawei Cloud and users.

- **Huawei Cloud**: Ensure the security of cloud services and provide secure clouds. Huawei Cloud's security responsibilities include ensuring the security of our IaaS, PaaS, and SaaS services, as well as the physical environments of the Huawei Cloud data centers where our IaaS, PaaS, and SaaS services operate. Huawei Cloud is responsible for not only the security functions and performance of our infrastructure, cloud services, and technologies, but also for the overall cloud O&M security and, in the broader sense, the security and compliance of our infrastructure and services.
- **Tenant**: Use the cloud securely. Tenants of Huawei Cloud are responsible for the secure and effective management of the tenant-customized configurations of cloud services including IaaS, PaaS, and SaaS. This includes but is not limited to virtual networks, the OS of virtual machine hosts and guests, virtual firewalls, API Gateway, advanced security services, all types of cloud services, tenant data, identity accounts, and key management.

Huawei Cloud Security White Paper elaborates on the ideas and measures for building Huawei Cloud security, including cloud security strategies, the shared

responsibility model, compliance and privacy, security organizations and personnel, infrastructure security, tenant service and security, engineering security, O&M security, and ecosystem security.

Figure 4-1 Huawei Cloud shared security responsibility model



4.2 Authentication and Access Control

Authentication

You can access CodeArts TestPlan using its UI, APIs, and SDKs. Regardless of the access mode, your requests are sent through REST APIs provided by CodeArts TestPlan.

CodeArts TestPlan APIs can be accessed only after requests are authenticated.

CodeArts TestPlan supports two authentication modes:

- Token: Requests are authenticated using tokens. By default, token authentication is required to access the CodeArts TestPlan console.
- AK/SK: Requests are encrypted using an AK/SK. This method is recommended because it provides higher security than token-based authentication.

Access Control

CodeArts TestPlan controls user operations in two ways.

- Role permission control: Roles and permissions are required for adding, deleting, modifying, and querying objects such as test plans, cases, suites, reports, and customized settings of CodeArts TestPlan.
- Fine-grained permission control (IAM): Operations such as querying tenant projects, setting project creators, and managing tenant project member lists require fine-grained authorization from IAM.

4.3 Data Protection Technologies

CodeArts TestPlan uses multiple methods to secure data.

Method	Description
Transmission encryption (HTTPS)	To secure data transmission, CodeArts TestPlan uses HTTPS.
Personal data protection	This service controls access to data and records logs for operations performed on the data.
Privacy protection	CodeArts TestPlan does not consume or store sensitive user data.
Data destruction	When you delete service data or deregister your account: • Non-key data is physically deleted in real time. • Key data will be marked as soft deleted and then physically deleted 15 days later.

4.4 Auditing and Logging

Auditing

Cloud Trace Service (CTS) records operations on the cloud resources in your account. You can use the logs generated by CTS to perform security analysis, track resource changes, audit compliance, and locate faults.

After you enable CTS and configure a tracker, CTS can record management and data traces of CodeArts TestPlan for auditing.

For details about how to enable and configure CTS, see **Overview**.

Logs

Log Tank Service (LTS) provides one-stop log collection, log search in seconds, massive log storage, log structuring and transfer. Graphical application O&M, visual analysis of network logs, and operation analysis make organization tracking easier.

For analysis, CodeArts TestPlan records system running logs to LTS in real time and stores the logs for three days.

4.5 Service Resilience

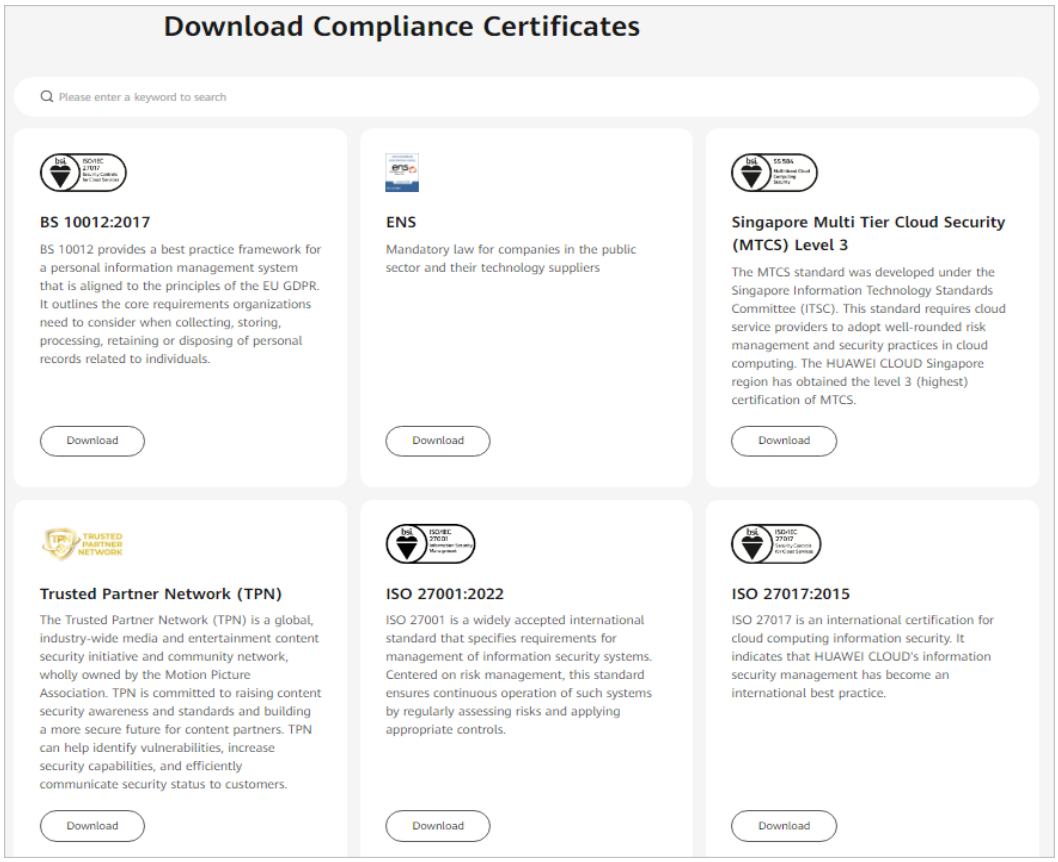
CodeArts TestPlan uses multi-active stateless cross-AZ deployment and inter-AZ data disaster recovery (DR) to enable service processes to be quickly started and recovered if a fault occurs, ensuring service reliability.

4.6 Certificates

Compliance Certificates

Huawei Cloud services and platforms have obtained various security and compliance certifications from authoritative organizations, such as International Organization for Standardization (ISO). You can **download** them from the console.

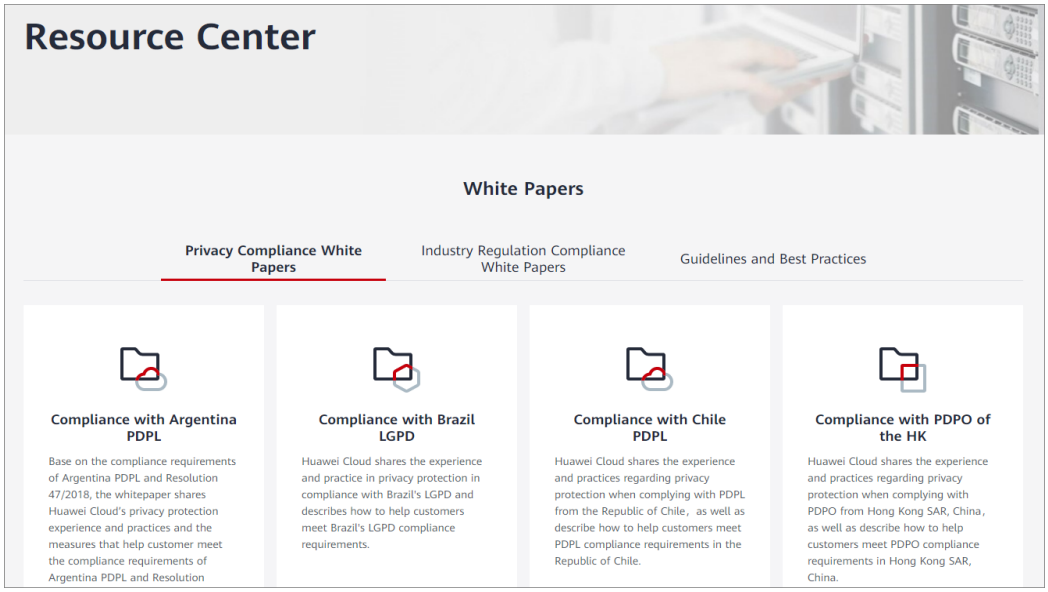
Figure 4-2 Downloading compliance certificates



Resource Center

Huawei Cloud also provides the following resources to help users meet compliance requirements. For details, see **Resource Center**.

Figure 4-3 Resource center



5 Constraints

This section describes the constraints on the use of CodeArts TestPlan, as shown in **Table 5-1**.

Table 5-1 Constraints

Category	Item	Constraints
Browser	Type	The following browsers are supported: • Chrome: The latest three stable versions are supported and tested. • Firefox: The latest three stable versions are supported and tested. • Edge: Windows 10 uses Edge by default. The latest three stable versions are supported and tested. **Chrome and Firefox are recommended.**
Resolution	Resolution	1280 × 1024 or higher is recommended.
Constraints on a project	Maximum number of test cases in a version	20,000
	Maximum number of versions (including the baseline) in a project	6
	Maximum size of an attachment (MB)	10
	Maximum number of tags bound with a test case	10
	Maximum number of directories in a project	5,000

Category	Item	Constraints
	Maximum number of test cases associated with a requirement	500
	Maximum number of requirements associated with a test plan	100
	Maximum number of test cases that can be added to a test plan	15,000
	Maximum number of custom states of a manual test case	10
	Maximum number of custom results of a manual test case	10
	Maximum number of custom states of a manual test suite	10
	Maximum number of custom results of a manual test suite	10
	Maximum number of times that a manual test case can be executed	10,000
	Maximum number of environments for API automation in a project	50
	Maximum number of variables in an environment for API automation	150
	Maximum execution duration of an API test task (minute)	10
	Maximum number of test cases associated with a manual test suite	1,000
	Maximum number of test cases associated with an automatic API test suite	150

Category	Item	Constraints
	Maximum number of test suites in a project	10,000

