

UiPath Test Suite

Software testing

Software testing is the process of verifying that a software meets certain requirements and behaves as expected;

Every industry nowadays is in the software business. Thus, software failure becomes business failure;

Testing reduces the risk of failure by helping detect defects before the product reaches the customer;

The main stages of a typical test process are the following:

Plan

Design

Implement

Execute

Analyze

System testing

Developers or testers assessing the behavior of an entire product

Integration testing

Testing the interactions between different components

Unit testing

Testing individual code units

Acceptance testing

End users interacting with the entire system

UiPath Test Suite

The UiPath Test Suite is built to cover the end-to-end (and continuous) software testing process

The main value of the UiPath Test Suite solution relies in the synergies between the components, as well as the integration with the most popular tools in software development. To name a few:

- **Jira** - UiPath Test Manager is able to pull the requirements from Jira as test requirements;
- **Git** - UiPath StudioPro integrates with Git for version control management;
- **Jenkins** - UiPath Test Suite integrates with Jenkins for continuous deployment and continuous integration.

Installing and configuring UiPath Test Suite

UiPath Test Manager

UiPath Test Suite **Enterprise** license to have access to your own UiPath Test Manager.

UiPath StudioPro

StudioPro is part of the same build as Studio and StudioX. There are two ways to set it up:

- Through the **Enterprise** licensing model, if your company grants access to the UiPath StudioPro features;

- Through the **Community** licensing model. Make sure you install the latest version of UiPath Studio community edition for this.

UiPath Orchestrator : There are two ways to set it up:

- Through the **Enterprise** licensing model and an on-premises instance of UiPath Orchestrator, if your company grants access to the UiPath Test Suite features.
- Through the **Community** licensing model. Visit the UiPath Forum link below for more details.

UiPath Robots: There are two ways to set it up:

- Through the **Enterprise** licensing model and an on-premises instance of UiPath Orchestrator, if your company grants access to UiPath Testing Robots;
- Through the **Community** licensing model. You will need to set up at least one robot of type 'Testing'. See the Testing Capabilities in Orchestrator Forum post above for more details.

Integrating UiPath Test Suite with the CI/CD Environment

Jira

Jira is an agile software project management tool used to track, organize, and prioritize bugs, new features, and improvements.

Git

Git is a version control system for tracking changes in computer files and coordinating work on those files among multiple people.

Jenkins

Jenkins is an open source automation tool typically used to build and test software project continuously.

The **UiPath Jenkins Plugin** allows you to integrate RPA development and software testing with UiPath into Jenkins. This enables starting test sets as soon as a code change is committed and pushed to the supported version control repository .

What is UiPath Test Manager?

It's the component of the UiPath Test Suite used for managing test projects and test requirements, referencing test cases and handling the execution of manual testing. Another important function is managing test results for supporting the decision process.

UiPath Test Manager consists of the web application and the hub or server. The server integrates directly with UiPath StudioPro and UiPath Orchestrator and can be integrated with third party Application Lifecycle Management (ALM) tools, such as Jira

What is UiPath StudioPro?

It's a superset of UiPath Studio with a direct integration with UiPath Test Manager and specific capabilities for automating software testing.

A new type of project called **Test Automation** is now available to start with. It will automatically add the Test Activities Package and a Test Case workflow.

Specific Workflow Types

Two new workflow types are available in StudioPro:

- **Test Case** - a template for one simple test automation;
- **Data Driven Test Case** - a template taking the input data from an Excel file.

Specific Testing Activities

Testing (Verification) activities were added through the UiPath.Testing.Activities package. The first version comes with these 3 activities:

- Verify Expression;
- Verify Expression with Operator;
- Verify Control Attribute.

Verify Expression

This activity verifies a single expression (e.g. whether two variables are equal). Its outcome can be True or False.

Verify Expression with Operator

This activity compares the outcomes of two expressions, variables or arguments using 6 predefined operators. Its outcome is also True or False.

Verify Control Attribute

This is the most versatile verification activity in the of the Testing activities package. It allows the comparison of a property returned by another activity with an expression, variable or argument. Its outcome is also True or False.

RPA Test Cases in UiPath Test Suite

We recommend you to use the **Given-When-Then** formula in defining test cases and building them in UiPath StudioPro:

- **Given** - the context or pre-conditions of the test case: the application used, the input data and other relevant information;
- **When** - the actions that will be carried out;
- **Then** - the expected (observable) outcomes.

This is especially true for **RPA Testing**. You will see that creating a test case based on an RPA workflow will automatically leverage the Given-When-Then structure.

Test case:

A set of conditions, input data, procedures and expected results that define a single test to be executed to verify a software requirement

Test set:

A group of test cases that are grouped based on a clear reason - e.g. focus on a certain part of the system, belong to a certain task

Unit testing:

Testing individual 'code' units, down to the level of methods and functions. It is also called component testing and is usually performed by the developer, in isolation with regards to other components.

Integration testing:

Verifying if the interfaces between different components work as designed

System testing:

Testing the behavior of the entire system or product. This is typically done by specialized testers or testing robots in a dedicated pre-production environment, with as few variations from the production environment

Functional testing:

Testing a specific functionality of the product

Non-functional testing:

Checking the non-functional aspects of a software application - e.g. performance, usability, security, scalability

Scripted manual testing:

Testing in which the input data, the operation steps and the verification steps are predefined and need to be executed the same way every time

Exploratory testing:

Testing in which the tester receives only a high-level charter and then it is up to her to explore the software application in detail

UI testing:

Testing the user interface layer of the application to make sure that it behaves as expected for end users

API testing:

Testing the business logic of an application through different interfaces and protocols

CI/CD:

These acronyms stand for Continuous Integration and Continuous Delivery. In software development and testing, these cover the practice of integrating new code into the main branch as often as possible. In CI/CD, testing is extremely important.

ALM:

Stands for Application Lifecycle Management. It covers all the stages in software development, starting with requirements management and software architecture and going through software testing and project management.

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