

API Testing : What, Why, and How?

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@fundootesters

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What are the Benefits of API Testing?

1. **Early Evaluation:** It evaluates the API early on and measures its success against a test suite. This prevents a lot of loss of time during the development cycle and over-engineering that might be necessary to address minor issues during the later stages.
2. **CI/CD Compliance:** Because API testing can be automated, validating the business requirements through continuous integration and a continuous delivery pipeline is smooth. The end-to-end testing cycle is thus more efficient and relevant, as is the quality of the application.
3. **Tight Security:** Considering the combined prowess of fuzz, penetration, and security testing that API testing brings to the table, it becomes a robust and authoritative testing method against both the functional and the security anomalies that the API might face.
4. **Time and Cost Reduction:** The automation of API testing ensures that the time and resources invested in API testing are well-spent. Besides, the direct impact of API testing in quicker delivery, compliance to standards, better security, and a controlled scope is visible across every phase of development, making for a well-rounded testing strategy.
5. **Platform Agnosticism:** API testing ensures that the API can be deployed and tested across multiple technologies, regardless of the platform used. With the advantage of testing on different platforms and keeping the availability of both automated and manual testing continuous, API testing becomes a viable option for cross-development frameworks.

Challenges in API Testing

1. Initial Setup of API Testing
2. Sequencing of API Calls
3. Selecting, Testing, and Validating the Parameter Combinations
4. Updating the Schema of API Testing
5. Lack of documentation
6. Lack of standardization

How To Approach API Testing?

1. Define the Scope of Testing
2. Set Up the Environment and Integrate Application Data
3. Apply Various Testing Techniques
4. Choose the Right API Testing Tool
5. Develop Test Cases and Analyze the Results
6. Document Maintenance

Best Practices of API Testing

- Develop a flowchart to help the QA team visualize the API calls and enable developers to build calls that correspond with the flowchart. This will help in building successful call sequencing.
- Test for both positive and negative results. In fact, testing experts recommend testing the API till it produces a negative outcome. This will help the QA team to identify the problems.
- Perform API testing for all API input combinations to widen the scope of test coverage.
- Use data that would reflect the conditions the API would face in the production phase. This makes API testing more accurate.
- Use service virtualization to create a simulated environment and test as many test cases, scenarios, and endpoints as possible. This will enable the QA team to confirm that the application provides an acceptable level of security.
- Perform both manual and automated API tests to produce more trustworthy results.
- Automate the documentation creation process to ensure that all the test cases are documented and updated in a standardized format.

Why ACCELQ for API Test Automation?

- Speed up the continuous delivery cycle by reducing the dependency on manual testing
- Facilitate end-to-end API validation through chain API tests
- Empower testing engineers to make more informed decisions on the run
- Maintain your standards and respond to business requirements rapidly
- Reduce the cost of development and maintenance of the codebase with a lean testing strategy

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