

Product Requirements Document

Project P764

Postman Inc.

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Version v10

Introduction

Postman is the industry's de facto API development platform, used by more than 25 million developers worldwide. Customer satisfaction surveys have reported that Postman simplifies each step of the API lifecycle and streamlines collaboration so it is feasible to create better APIs—faster. Users also express a desire for a tool that can be used to write functional tests, integration tests, regression tests, and more, and Node.js-based runtime support for common patterns and libraries that can be used to build tests quickly. Observational studies show an opportunity to expand the scope of the tool to help teams monitor API performance, troubleshoot issues, understand usage patterns, and identify opportunities for optimization through API observability. These will be backed up by various components and technological developments such as Node.js, Electron, React, Redux, Chromium, Electron Builder, AngularJS, OpenAPI and Swagger, OAuth 2.0, JSON and XML, REST and HTTP, WebSocket, and PostgreSQL.

Objectives

This tool aims to simplify and develop API development and testing, streamline collaboration, improve system design, and enhance API quality through user-friendly design, automation, and documentation for the updation of the Postman tool. The reviews show that Postman's revenue will hit \$102.7 million and The target is to design APIs for machines as it will become increasingly important as AI becomes more embedded in software interfaces. And work to provide a more reliable and efficient platform, aiming to reduce response times and errors, Which would increase the user base by 20%. With scripting capabilities, sequential responses, and advanced automation features, Postman aims to outshine tools like Insomnia and SoapUI. Additionally, Postman also places a strong emphasis on collaboration, providing real-time interaction and documentation sharing, which rivals alternatives such as Swagger and Paw. Moreover, the cross-platform support and extensive integration options position Postman as a versatile and efficient solution, competing effectively with alternatives like RestAssured and KarateDSL in the competitive API testing and development market. For a full overview of competitors, see Appendix A.

Stakeholders

Target group. High-end professional Developers and Q/A Testers from different Organizations and Companies. The main benefits sought are API Testing, Test Automation, API Designing, API Development, and Documentation.

Target purchaser. Primary target purchasers: The key decision-makers include IT departments, Development Leads, and QA managers within organizations to acquire and implement the tool.

Secondary target purchasers: Product Managers, DevOps teams, and API architects influence the decision to purchase Postman for specific use cases.

Customer service. Offers technical support, Documentation, and Community Resources to assist with API development and testing. Provides E-mail support, and knowledge base access support with licensing and billing inquiries.

Marketing & Sales division. The marketing division employs digital strategies, content, and community engagement, while the sales approach includes self-service with freemium and premium plans and enterprise solutions for larger organizations.

Senior Management. Ensures compliance to monitor reports for API performance, manages budget allocations, and oversees integration decisions.

Retailers. The distribution of Postman licenses to end-users, To maximize the benefits of value-added services such as providing training, technical support, regional expertise, simplifying billing and invoicing, and providing ongoing support and maintenance. Leverage Postman to offer tailored solutions, customization, and integration services.

Regulatory instances. The tool needs to comply with data privacy regulations, General Data Protection Regulation (GDPR) in the European Union or the California Consumer Privacy Act (CCPA) in the United States on handling personal data in the API requests and responses. The encryption, access controls, and compliance of the APIs with the industry-specific security standards. The API testing and development in specific industries such as HIPAA for Healthcare sectors, and PCI DSS in financial services are compliant. Tool accessibility to users with disabilities following international standards such as WCAG.

Use Cases

User Story #1: David

David, a software developer on a dynamic project involving multiple APIs and continuous iterations, relies on Postman to streamline his workflow. Postman's user-friendly interface and organized workspace facilitate the swift creation of API requests, testing, and response analysis. David maximizes the tool's collaboration features for effective communication and version control with his remote team. He also utilizes Postman's scripting capabilities for task automation, ensuring API endpoint reliability. As the project progresses, Postman's monitoring and reporting features help him track API performance and identify bottlenecks, while its versatile integrations boost his productivity. Postman remains David's top choice for efficient API development and testing, regardless of the project's complexity or team collaboration requirements.

User Story #2: Sarah

Sarah, a dedicated Quality Assurance (QA) analyst, relies on Postman to enhance her software testing efforts. Postman's testing features provide her with a user-friendly platform to efficiently create, organize, and execute test suites. Sarah leverages the tool's scripting capabilities to automate repetitive test scenarios, ensuring thorough test coverage while saving valuable time.

In her collaborative role, Sarah uses Postman's version control and collaboration features to communicate effectively with developers and team members, streamlining issue identification and resolution. She can easily share test collections for collaborative feedback, contributing to a more cohesive and productive team environment. Sarah values Postman's robust reporting and monitoring capabilities, which empower her to track API performance, pinpoint bottlenecks, and provide data-driven insights to enhance software quality. Her loyalty to

Postman has made it her preferred tool for QA analysis, ensuring that the software she tests meets the highest quality standards and solidifying her role as a vital asset to her team.

User Story #3: Alex

Alex, a seasoned technical manager, relies on Postman to oversee software development projects and multiple teams effectively. Postman's collaboration features enable seamless coordination, allowing him to share API collections, test results, and documentation with team members, ensuring alignment and adherence to project requirements. He values Postman's monitoring and reporting capabilities, which help him track critical API performance, identify issues early, and proactively ensure project success. As a technical manager, Postman has become an indispensable tool for Alex to excel in effective communication, maintain project quality, and meet deadlines, cementing his role as a trusted leader in his organization.

Aspects

1. System Design

The new system design will be based on that of Postman with improvements based on the following requirements:

- 1.1 Postman is a standalone API platform for building, testing, and documenting APIs using a graphic interface and collections.
- 1.2 API design includes schema import (Open API, RAML, GraphQL), automatic collection generation, GitHub sync, and API element validation.
- 1.3 User authentication with secure login, multi-factor authentication, OAuth integration, and password security.
- 1.4 Scripting and code editor for customizing and automating API testing, with pre-request scripts, test scripts, and dynamic data.
- 1.5 Responsive design for access on different devices and screen sizes.
- 1.6 Mobile access on Android and iOS with native features and synchronization.
- 1.7 Dashboard provides an overview, manages APIs, and tracks response times and error rates.
- 1.8 User-friendly interface for navigation, customization, collaboration, and code editing.
- 1.9 Postman uses cloud servers for secure data storage and dynamically provisions resources for increased load.
- 1.10 Load balancers maintain optimal performance, automated failover, and data backups.
- 1.11 Cross-platform access on Windows, Linux, and macOS, with real-time collaboration via cloud architecture.
- 1.12 Integrates with cloud-hosted APIs and external endpoints, managed through integration management systems

2. Features

- 2.1 Postman supports functional, integration, and regression tests with a Node.js-based runtime and libraries for quick test building.
- 2.2 Connects to cloud-hosted APIs and third-party services, managed through integration systems for API testing.
- 2.3 Postman Echo simplifies REST client and API call testing by echoing requests and supporting various protocols and authentication methods.
- 2.4 Postman's Visualizer allows custom response representation with HTML, CSS, and JavaScript, including popular charting libraries.
- 2.5 Offers external libraries like Moment.js and Lodash for pre-requests and test scripts, enhancing date formatting, utility functions, and data generation.

- 2.6 Flexible request order management in collections with conditional logic for precise workflow control.
- 2.7 Supports solo API testing to collaborative teamwork in shared workspaces with comments, forking, and pull requests.
- 2.8 Uses the DRY principle for collection-level variables and authentication for reuse.
- 2.9 Monitors track API health with automation for continuous regression testing in various environments.
- 2.10 GraphQL support includes variables and post requests in request bodies, with query auto-completion and user-defined schemas.
- 2.11 Postman's documentation uses Fireball Markdown, allowing GIFs for informative visuals.
- 3. Adaptive Intelligence**
 - 4.1 The adaptive algorithms provide intelligent suggestions for requests and scripting, enhancing workflow efficiency.
 - 4.2 Postman analyzes API responses to detect potential users or anomalies which aid in troubleshooting.
 - 4.3 Users can set up test scenarios for different conditions to handle tests.
 - 4.4 Postman offers validation rules and smart comparisons for response data, improving accuracy in test results.
 - 4.5 Users can switch between different environments and configurations, adapting to various testing and development stages.
 - 4.6 The monitors provide adaptive monitoring with insights into API performance under various conditions.
- 4. Customization**
 - 4.1 Postman offers user-configurable themes and layouts for personalized user experiences.
 - 4.2 The tool provides options for users to customize keyboard shortcuts and workflow preferences.
 - 4.3 The ability to create and manage custom test scripts or collections to tailor testing scenarios.
 - 4.4 A variety of integrations and extensions are provided to enable users to customize and extend its functionality to suit their specific testing needs.
- 5. Updation**

Pain point: postman users are unable to reuse the pre-written scripts or add more requests, which means testers have to create new test scripts for each project.

Solution:

 - 5.1 Implement a script library or repository within Postman where users can store and manage the pre-written scripts.
 - 5.2 Allow users to create and save custom script templates that can be easily reused in multiple projects.
 - 5.3 Provide a scripting version control system to track changes and updates in scripts.
 - 5.4 Enable users to save request templates for various types of APIs, including SOAP, REST, GraphQL, etc.
 - 5.5 Allow users to create and share request templates with the teams, fostering collaboration and consistency.
 - 5.6 Introduces a feature that enables users to create collections specifically for scripts, making it easier to organize and reuse scripts.
 - 5.7 Allow scripts to reference and reuse variables and functions defined within the same collection.
 - 5.8 Improve the script editor interface with features such as code autocompletion, syntax highlighting, and error checking.

- 5.9 Support multiple scripting languages, including JavaScript, Python, and more, to cater to a wider user base.
- 5.10 Implement the ability to add comments and documentation to scripts to explain their purpose and usage.
- 5.11 Provide tooltips and hints for common scripting tasks, aiding users in script creation and understanding.
- 5.12 Offer advanced scripting tools and libraries, including libraries for handling XML and SOAP-specific functions.
- 5.13 Integrate script testing and debugging capabilities to identify and resolve scripting errors.
- 5.14 Create a platform for users to share, rate, and comment on reusable scripts, fostering a community of script contributors and consumers.

6. Regulations

- 6.1 SOC2 and SOC3 assessments validate postman's security posture and controls by focusing on security, availability, and confidentiality practices.
- 6.2 Postman complies with the Payment Card Industry Data Security Standard(PCI DSS), for organizations handling credit card information.
- 6.3 Postman follows privacy controls to limit personal data collection. Compliance with the General Data Protection Regulation(GDPR) ensures data protection and privacy for EU and European Economic Area citizens.
- 6.4 Postman respects the California Consumer Privacy Act(CCPA), providing customers control over their personal information.
- 6.5 Postman has achieved a CSA STAR 1 attestation, the self-assessment evaluates and documents the security controls and practices of cloud-computing providers.

Open Questions

- Can we introduce a feature for integration with emerging technologies, such as blockchain and IoT devices?
- How can we enhance the product's performance and reduce response time for API testing?
- Are there opportunities to improve the product's documentation and support resources?

Milestones

Concept presentation: 12/12/2023

Design presentation: 11/08/2024








Design freeze: 04/18/2025

Planned release: 10/28/2025

Wireframes

<https://whimsical.com/postman-ExCn1t8URwSkKX9eyrFmSZ>

Appendix A: Competitive Analysis

Tool		Description	Pros	Cons	Pricing Ranges (Subscription)	Notable Features	Functionality
Insomnia		API Testing and Design Platform	Intuitive interface Graph QL and REST support. Cross-platform compatibility.	Limited built-in documentation features. Limited collaboration.	Free version available. The pro version starts at \$7/month.	Request history and export. Code generation. Plugin system	Testing, debugging, and designing APIs. Works with Graph QL and RESTful services.
SoapUI		API Testing and Simulation Tool	Strong SOAP and REST support. Automated testing and data-driven testing.	Steeper learning curve. Free version limitations.	Free version available. Pro version starts at \$659/year	Data-driven testing. Security testing. Load testing.	Thorough testing of SOAP and REST APIs. Automation capabilities.
Swagger		API Documentation and Testing	Excellent API documentation capabilities. Code-based API design. Open-source.	Focused on documentation. Limited testing features.	Swagger Hub offers subscription plans, starting at \$20/month.	Auto-generated API documentation Code-first API design.	Primarily used for API documentation. Integrates with various other tools.
Paw		API Testing and Documentation	Design and testing collaboration. Support for various authentication methods.	Paid with no free version. Limited platform compatibility (Mac-only).	Starting at \$49.99/year.	Team collaboration. Dynamic values. Import from API definitions.	Mac-only. Collaboration friendly tool. Supports Various Authentication methods.
Rest Assured		Java Library for API Testing	Strong integration with Java projects. Highly customizable. Integrates with Selenium	Requires coding skills in Java. Limited to Java environments	Open-source. No direct subscription.	Java-based API testing. Custom request building. Test suites.	Ideal for Java projects. Customizable testing of APIs. Integration with Selenium.
Karate DSL		API Testing Tool	Easily readable DSL for API testing. Supports HTTP, WebSocket, and other protocols. Open-source.	May not be as feature-rich. Limited IDE support.	Open-source. No direct subscription.	Readable DSL. Parallel test execution. Cucumber integration.	Ideal for readable API testing scripts. Supports HTTP, WebSocket, and more.
Postman		API Testing and Documentation	Large community. Easy test creation and execution. Continuous integration support.	Some features are limited to paid plans. The learning curve for advanced features.	Free version available. Pricing for teams starts at \$12/user/month.	-Automated testing. -Monitoring and reporting. -API collaboration.	Popular for API testing and collaboration. Supports automated testing and monitoring.