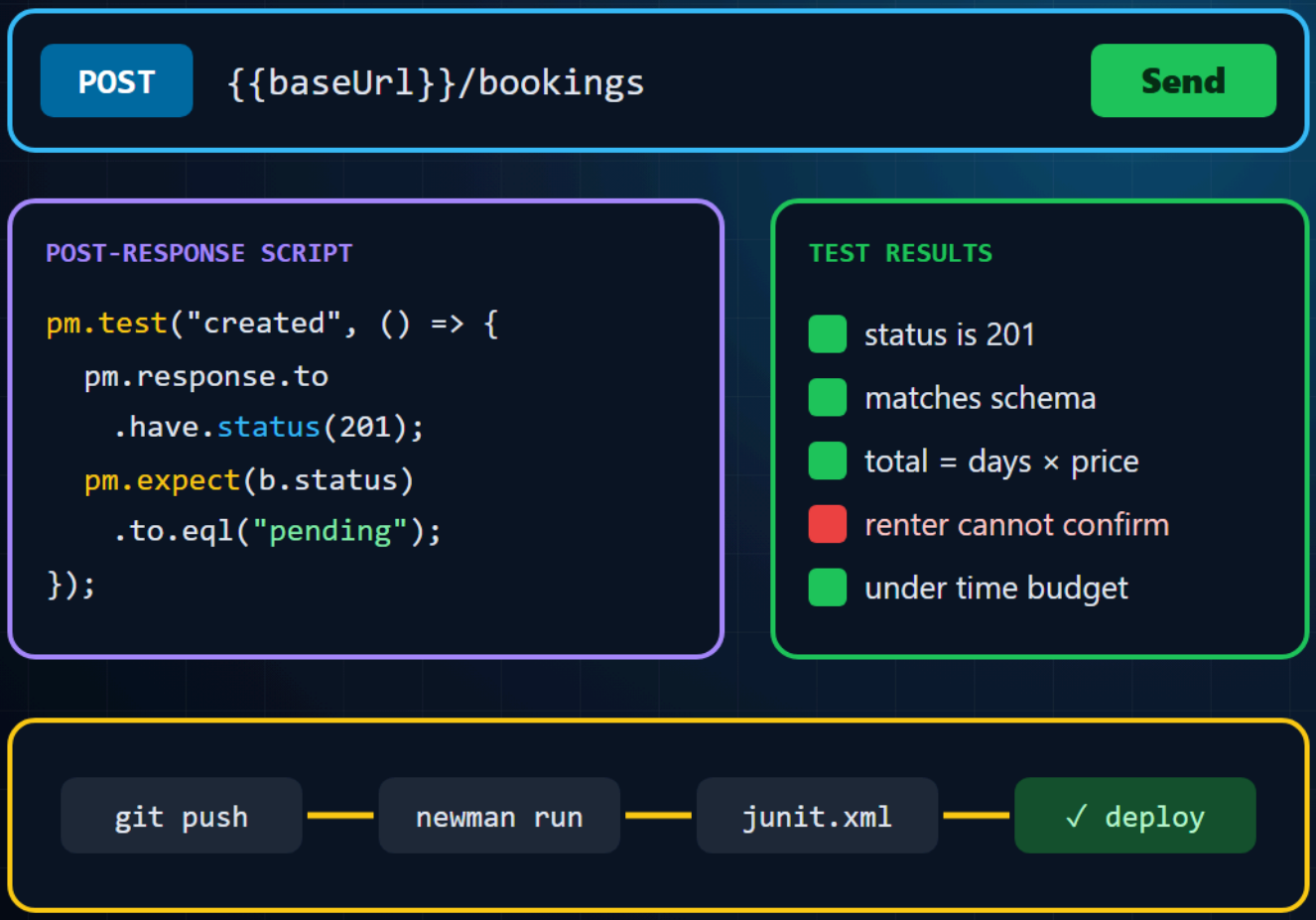


COLLECTIONS · SCRIPTS · CONTRACTS · MOCKS · CI/CD

FROM FIRST REQUEST TO CI/CD

API Testing with Postman

Build reliable, automated API test suites that teams trust

Assertions, schemas, auth, data-driven tests, OpenAPI contracts, mock servers, Newman, and monitoring

REST · GRAPHQL · SECURITY · NEWMAN · CI/CD

THENEXBOOKS

API Testing with Postman

From First Request to Automated Test Suites in CI/CD Collections, scripts, contracts, mocks, Newman, and monitoring

First Edition

THENEXBOOKS

API Testing with Postman
From First Request to Automated Test Suites in CI/CD

First Edition, 2026

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Trailkit, the running example in this book, is fictional, as are all users, gear listings, and companies mentioned in its examples. The practice server and all credentials in this book are for local testing only. Any resemblance to real companies or products is coincidental.

Preface

Almost every modern product is really a set of APIs. Mobile apps, single-page web apps, partner integrations, internal microservices, and increasingly AI agents all talk to backends over HTTP. When those APIs break — a field silently renamed, a permission check missing, a status code changed, a response that suddenly takes ten times longer — users feel it immediately, often before anyone looks at a user interface.

Testing at the API layer is one of the most valuable things a team can do. API tests are faster and far more stable than end-to-end UI tests, they catch problems closer to their source, and they document how a service is supposed to behave. Postman has become one of the most widely used tools for this work because it lets you start by clicking **Send** and grow, step by step, into scripted assertions, data-driven suites, contract checks, mock servers, and automated runs in CI/CD.

This book takes you along that whole path. We begin with HTTP and your first request, then build a real, maintainable test suite for a realistic API — covering variables and environments, assertions and schemas, authentication, chaining, data-driven tests, security-focused checks, contracts, mocks, test data, the command line, CI pipelines, monitoring, and performance basics. We explain *why* each technique works and where it breaks, not just *where to click*.

Who This Book Is For

- **QA engineers and testers** moving from manual or UI testing into API testing and automation.
- **Developers** who want fast, reliable API tests for their own services.
- **SDETs and automation engineers** building suites that run in CI/CD and scale across teams.
- **Tech leads and QA leads** designing an API test strategy and conventions for their organization.

What You Will Learn

- HTTP from a tester's point of view, and how to send any request in Postman.
- Collections, folders, variables, environments, and handling secrets safely.
- Writing tests with `pm.test` and `pm.expect`, validating schemas, headers, and response times.
- Pre-request scripts, dynamic data, and chaining requests into realistic workflows.
- Authentication (API keys, Basic, Bearer, OAuth 2.0) and security-focused tests for roles and permissions.
- Data-driven testing, GraphQL, WebSockets, gRPC, SOAP, file uploads, webhooks, and asynchronous APIs.
- Test design: coverage, boundaries, negative testing, error contracts, OpenAPI contract testing, and mock servers.
- Test data management, the Collection Runner, Newman, the Postman CLI, CI/CD pipelines, reports, and monitoring.

- Performance testing basics, collaboration, maintainable collections, and a complete test strategy.

How This Book Is Organized

Part I — API Testing Foundations (Chapters 1–5) explains why API testing matters, sets up Postman and the practice API, and teaches HTTP, requests, and collections. **Part II — Variables, Scripts, and Assertions** (Chapters 6–10) turns requests into real tests. **Part III — Authentication and Advanced Requests** (Chapters 11–15) covers auth, security checks, data-driven tests, other protocols, uploads, and webhooks. **Part IV — Test Design** (Chapters 16–20) is about testing the right things: coverage, negative cases, contracts, mocks, and test data. **Part V — Automation and CI/CD** (Chapters 21–25) runs your suites automatically, from the Collection Runner to pipelines, monitoring, and performance. **Part VI — Teams and Practice** (Chapters 26–28) covers collaboration, maintainability, and a complete test strategy. The appendices provide a scripting cheat sheet, templates, an API testing checklist, and a glossary.

Each chapter includes practice exercises and ends with a **Key Takeaways** box for quick review.

The Running Example: Trailkit

Throughout the book we test **Trailkit**, a fictional marketplace where people rent outdoor gear — tents, kayaks, e-bikes — from local owners. Its API has everything a real API has: login with roles (renter, owner, admin), searchable gear listings with pagination and filters, a booking workflow with a state machine and date rules, photo uploads, signed webhooks, rate limits, and a consistent error format. Chapter 2 gives you a small practice server you can run on your own machine, so every request and test in this book works exactly as written.

Versions and Conventions

Examples use a recent version of the Postman desktop app. Postman evolves quickly, so we describe where things are rather than relying on exact pixel positions, and we mark newer features as such. Scripts are written in JavaScript as Postman's sandbox runs them; command-line examples use Newman and the Postman CLI.

> **TIP**
> A recommended practice or a technique that makes your work easier.

> **NOTE**
> Background information, version details, or a useful aside.

> **WARNING**
>
> A common mistake or a behavior that causes flaky tests, false confidence, or leaked secrets.

Variables appear as `{{baseUrl}}`, scripts in `monospace`, and captions such as *Bookings › Create booking › Post-response script* tell you where a script lives in the collection.

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PART I

API Testing Foundations

Why testing at the API layer pays off, a working Postman setup with the Trailkit practice server, HTTP from a tester's point of view, and sending and organizing requests.

1 · Why API Testing Matters
2 · Setting Up
3 · HTTP for Testers
4 · Sending Requests in Postman
5 · Collections and Folders

CHAPTER 1 · PART I — API TESTING FOUNDATIONS

Why API Testing Matters: The Test Pyramid, Contracts, and Where Postman Fits

Before we click a single button in Postman, we need a clear picture of what an API test is, why it catches problems that other tests miss, and where it belongs in a healthy test strategy. This chapter builds that picture and introduces Trailkit, the rental marketplace API we will test for the rest of the book.

What an API Is, Seen Through a Tester's Eyes

An API (application programming interface) is a set of rules that lets one piece of software ask another piece of software to do something. When a mobile app shows you a list of tents for rent, it does not read a database directly. It sends a request over the network to a server, the server applies business rules, reads or writes data, and sends back a response. The app then turns that response into something you can see and tap. The API is the agreed shape of that conversation: which addresses exist, what you are allowed to send, and what you will get back.

Most of the APIs you will test in modern teams are **web APIs** that speak HTTP and exchange JSON. They are often described as REST or "RESTful" APIs, which mostly means that they organize data as resources with URLs (`/gear`, `/bookings/b-5001`) and use HTTP methods such as `GET`, `POST`, and `DELETE` to act on them. Chapter 3 covers HTTP in detail; for now it is enough to know that each interaction is a request followed by a response.

For a tester, an API is *honest*: no layout to shift, no animation to wait for. You send a precise message and receive a precise answer that either matches the promise or does not. That precision makes API tests valuable — and demands precision from us, because a vague test gives a false sense of safety.

When a renter books a kayak, the server must check the login, the role, that the gear exists, that the dates are valid and in order, the maximum length, and conflicts with confirmed bookings — then compute a price. All of those rules are enforced behind the API, so the API is the most direct place to ask whether they work.

Meet Trailkit, Our Practice API

Every example in this book tests the same system: **Trailkit**, a fictional outdoor-gear rental marketplace. Owners list gear such as tents, kayaks, and e-bikes. Renters search for gear in their city, book it for a range of dates, and pay a daily price. Owners confirm bookings, renters can cancel them, and an administrator can do almost anything. Trailkit is small enough to understand in an afternoon

but rich enough to exercise every concern a real API tester meets: authentication and roles, create-read-update-delete operations, search with filters and pagination, a booking state machine, money and dates, file uploads, webhooks, rate limits, and a consistent error format.

In Chapter 2 we will run a small reference server for Trailkit on our own machine, so every request in this book can be sent for real. The server lives at the base URL `http://localhost:3000/api/v1`, which we will store in a Postman variable called `{{baseUrl}}`. It ships with three test accounts:

Email	Role	User ID
`maya@trailkit.test`	renter	`u-1001`
`leo@trailkit.test`	owner (lists gear)	`u-2001`
`admin@trailkit.test`	admin	`u-9001`

Two extra test accounts, a second renter `sam@trailkit.test` (`u-1002`) and a second owner `nora@trailkit.test` (`u-2002`) who owns no gear, exist for authorization tests in Chapter 12. The server also starts with five pieces of gear, all listed by Leo: an Alpine 2-Person Tent (`g-101`) and Carbon Trekking Poles (`g-102`) in Denver, a Touring Kayak (`g-201`) and a Wetsuit 4/3 (`g-202`) in Seattle, and a Mountain E-Bike (`g-301`) in Austin. One booking already exists: Maya has booked the tent from 2026-10-02 to 2026-10-05, three days for 75.00 USD, and Leo has confirmed it. That booking, `b-5001`, will be useful when we test overlapping dates.

Here is the shape of the API at a glance. Do not worry about memorizing it; each part gets its own chapter later.

Area	Main endpoints	What we test there
Auth	`POST /auth/login`, `POST /auth/refresh`, `GET /me`	Tokens, expiry, bad credentials
Gear	`GET /gear`, `GET /gear/{gearId}`, `POST`, `PATCH`, `DELETE`	Search, filters, paging, roles
Bookings	`POST /bookings`, confirm, cancel, list	Dates, prices, state machine
Photos	`POST /gear/{gearId}/photos`	Uploads, file types, size limits
Webhooks	`POST /webhooks/subscriptions`	Signed event deliveries
Health	`GET /health`	Smoke tests and monitors

We will keep our Postman work in one collection named `Trailkit API Tests`, with folders `Auth`, `Gear`, `Bookings`, `Photos`, `Webhooks`, and `Smoke`. By the end of the book that collection will run from the command line inside a CI pipeline, produce reports, and act as living documentation of how Trailkit behaves.

Why Test at the API Layer?

Teams already have unit tests written by developers, and many have end-to-end tests that drive a browser. So why add a third kind? Because the API layer has a unique combination of properties that neither of the others offers.

API tests are close to the business rules

The rule "a booking may not last more than 14 days" is not a property of any single function, and it is not really a property of the web page either. It is a promise the system makes to every client. An API test asks the system directly: "If I try to book 15 days, do you refuse, and do you refuse in the documented way?" The answer covers the validation code, the routing, the serialization, and the error formatting in one realistic round trip.

API tests are fast, stable, and precise

A browser test must start a browser, load pages, and find elements designers are free to change. An API test sends and reads a few hundred bytes, usually in a fraction of a second against a nearby server, and it breaks only when behavior changes. Its failures are precise too: "expected status 201 but got 409" names the endpoint, the input, and the rule, where "element not found" could mean almost anything.

One API, many clients

A single API often serves web and mobile apps, partner integrations, and internal tools, so testing it tests the shared foundation. It also reaches behavior no interface exposes, such as admin-only endpoints, or that a form deliberately prevents, such as a negative price.

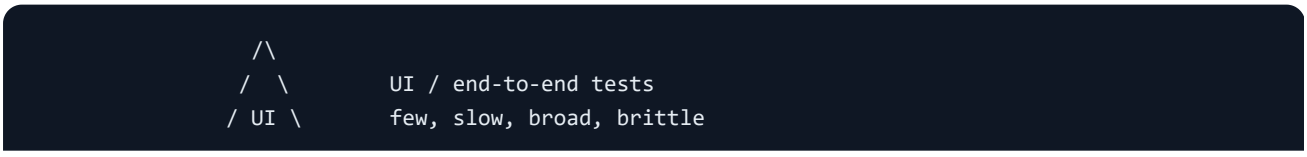
API tests reach the places attackers reach

Attackers do not politely use your front end. They send requests straight to the API, skipping every client-side check. If Maya can cancel someone else's booking simply by changing an ID in a URL, no amount of UI testing will reveal it, because the UI never offers that button. API tests are where you check authorization rules, input validation, and data exposure the way an attacker would. Chapter 12 is dedicated to this.

The Test Pyramid

The test pyramid is a simple model, popularized in the agile testing community, that describes how to balance different kinds of automated tests. It is a heuristic, not a law, but it is useful for conversations about where a new test should live.

The classic test pyramid



```
          /------\
         /  API   \     service / API tests
        / service  \    many, fast, business-focused
       /------------\
      /    unit      \  unit tests
     /                \ most, fastest, narrowest
    /------------------\
```

At the bottom are **unit tests**: small tests of individual functions or classes, usually written by developers in the same language as the code. They run in milliseconds and pinpoint failures precisely, but each one sees only a tiny piece of the system. A unit test can prove that a function computes three days between two dates; it cannot prove that the booking endpoint actually calls that function, or that the result is returned under the field name `days`.

In the middle are **service tests**, which for most teams means **API tests**. They exercise a running service through its public interface. They are slower than unit tests because they involve a network hop and real infrastructure such as databases, but they are still fast compared with browser tests. They verify that the pieces work together and that the service keeps its promises.

At the top are **UI or end-to-end tests**, which drive the real user interface. They give the most realistic signal — this is what users actually experience — but they are the slowest and most fragile, and a single failure can have many causes. The pyramid suggests having relatively few of them, focused on critical user journeys.

Why the shape matters

The pyramid's shape is about cost and feedback. Tests lower in the pyramid are cheaper to write, cheaper to run, and cheaper to debug. Tests higher up cover more realistic scenarios but cost more on every axis. A healthy suite pushes each check as low as it can go while still being meaningful. If a rule can be verified by an API test, a UI test for the same rule mostly adds run time and flakiness. If a rule is pure calculation, a unit test is usually the best home.

The opposite shape is sometimes called the **ice-cream cone**: a thin layer of unit tests, few API tests, and a huge scoop of slow UI tests and manual checks on top. Teams in that situation often complain that the test suite takes hours, fails randomly, and still misses bugs. Adding a solid API test layer is one of the most effective ways out.

You will also hear of other shapes, such as the "testing trophy" or the microservice "honeycomb." They disagree about proportions but agree on the point that matters here: tests that exercise a service through its real interface are among the most valuable you can have.

> **NOTE**
>
> The pyramid talks about *automated* tests. Exploratory testing — a human deliberately probing the system with curiosity and skepticism — sits alongside it rather than inside it. Postman is excellent for exploratory API testing too, and many of the tests you automate later begin as a question you asked by hand in a Postman request tab.

Kinds of API Tests

"API testing" is an umbrella term. It helps to name the different kinds of checks, because each answers a different question and each has a different home in a test suite.

Kind	Question it answers	Trailkit example
Smoke	Is the service up at all?	`GET /health` returns 200
Functional	Does this endpoint do its job?	Search by city returns Denver gear
Negative	Does bad input fail safely?	15-day booking returns 422
Contract	Does the response keep its shape?	Gear has `pricePerDay` as a number
Workflow	Do multi-step journeys work?	Book, confirm, then cancel
Security	Are roles and data protected?	Renter cannot create gear
Performance	Is it fast enough under load?	Search stays responsive
Monitoring	Is it still healthy in production?	Scheduled smoke run

Most of this book focuses on the first six, which Postman handles very well. Chapter 25 covers performance testing basics and explains when a dedicated load tool is the better choice, and Chapter 24 covers monitoring.

These kinds overlap: one request can be a functional check, a contract check, and a workflow step at once. Be deliberate about which question each test answers, because that decides what it asserts.

Contracts: The Promise an API Makes

The single most useful idea in API testing is the **contract**. An API contract is everything a client is allowed to rely on. For an endpoint like `POST /bookings`, the contract includes:

- **The request shape**: the method, the path, required headers such as `Authorization` and `Content-Type`, and a JSON body with `gearId`, `startDate`, and `endDate`, where the dates use the `YYYY-MM-DD` format.
- **The success response**: status `201 Created`, and a body containing `id`, `gearId`, `renterId`, the dates, `days`, `totalPrice`, `currency`, a `status` of `"pending"`, and `createdAt`.

- **The error responses**: `409 Conflict` when the dates overlap a confirmed booking, `422 Unprocessable Entity` for an invalid date range, `401` without a valid token, `403` for the wrong role, each with a body in the documented error format.
- **The semantics**: the meaning behind the fields. `totalPrice` equals `days` times the gear's daily price. The end date is the return date. A pending booking does not block other bookings; a confirmed one does.
- **Cross-cutting rules**: every response carries an `X-Request-Id` header; clients that exceed 100 requests per minute receive `429 Too Many Requests` with a `Retry-After` header.

Contracts are often written down in a machine-readable specification, most commonly **OpenAPI** (formerly known as Swagger). Chapter 2 includes an OpenAPI excerpt for Trailkit, and Chapter 18 shows how to test against a specification automatically. But a contract exists whether or not anyone wrote it down. If clients have been relying on a field for a year, that field is part of the contract in practice, and removing it will break them.

Breaking and non-breaking changes

Thinking in contracts helps you judge which changes are risky. Adding a new optional field to a response is usually safe: well-written clients ignore fields they do not know. Renaming `pricePerDay` to `dailyPrice` is a breaking change: every client that reads the old name now reads nothing. Changing a status code from 409 to 400 is breaking for any client that handles conflicts specially. Changing a number to a string — `"25.00"` instead of `25` — is breaking even though it looks harmless on a screen.

API tests are how teams find out about breaking changes *before* clients do. A test that asserts the type of `pricePerDay` fails the moment someone changes it, in a pipeline, with a clear message, instead of in a customer's app on a Friday evening.

The error contract deserves as much care as the happy path

Many teams test success responses carefully and treat errors as an afterthought. That is a mistake, because clients depend on errors just as much. A mobile app must know whether a failed booking was a date conflict (show "those dates are taken") or a validation problem (highlight the date field). Trailkit uses the standard "problem details" format, sent with the media type `application/problem+json`. Here is what an overlapping booking attempt returns:

Response to an overlapping booking (409)

```
HTTP/1.1 409 Conflict
Content-Type: application/problem+json; charset=utf-8
X-Request-Id: 3f1c9a52-7d0e-4c1b-9a51-2f6b0c8e4d17

{
  "type": "https://trailkit.test/problems/conflict",
  "title": "Conflict",
  "status": 409,
  "detail": "The dates overlap an existing confirmed booking.",
```

```
  "instance": "/api/v1/bookings",
  "errors": []
}
```

Every Trailkit error has the same six fields: `type`, `title`, `status`, `detail`, `instance`, and `errors`, where `errors` lists field-level problems as objects with `field` and `message`. A consistent error contract is a gift to testers: we can write one reusable check for "this is a well-formed Trailkit error" and apply it to every negative test. Chapter 17 does exactly that.

Anatomy of a Good API Test

Whatever tool you use, a good API test has the same three parts, often described as **arrange, act, assert**:

1. **Arrange**: put the system into a known state. Log in to get a token, create the gear you need, or pick seed data you know exists.
2. **Act**: send exactly one request that exercises the behavior under test.
3. **Assert**: check the response against the contract — status code, key headers, body structure, and the specific values that prove the behavior worked.

In Postman, arranging often happens in earlier requests or in a pre-request script, acting is the request itself, and asserting happens in the post-response script (labeled "Tests" in older versions). Here is a preview of what that looks like for a successful login. You do not need to understand every line yet; Chapter 7 teaches the syntax from the ground up.

`Auth › Login as renter › Post-response script`

```
pm.test("returns 200 OK", () => {
    pm.response.to.have.status(200);
});

pm.test("returns a bearer token that lasts 15 minutes", () => {
    const body = pm.response.json();
    pm.expect(body.tokenType).to.equal("Bearer");
    pm.expect(body.accessToken).to.be.a("string").and.not.be.empty;
    pm.expect(body.expiresIn).to.equal(900);
});

// Save the token so later requests can use it (Chapter 10 explains chaining).
pm.environment.set("accessToken", pm.response.json().accessToken);
```

Notice what this test does *not* assert: the random token value or the response time. Deciding what not to assert is as important as deciding what to assert.

Qualities to aim for

- **Deterministic**: same system state, same result. Random input is fine if the test controls it.

- **Independent**: no silent reliance on another test having run first; workflows make their dependencies explicit.
- **Specific and readable**: one behavior per test name, such as "returns 409 when dates overlap a confirmed booking."
- **Fast enough**: no fixed waits or unnecessary requests.

> **TIP**
> Write the test name before the assertions. If you cannot express the behavior in one plain sentence — "renter cannot confirm a booking" — the test is probably trying to check too much at once. Split it.

Where Postman Fits

Postman started as a convenient way to send HTTP requests and inspect responses, and that is still its heart. Over time it has grown into a broader platform for working with APIs. For testers, the relevant pieces are:

- **The request builder**: compose any HTTP request with a method, URL, parameters, headers, authentication, and body, then read the response in a formatted view. This is where exploratory testing happens.
- **Collections and folders**: save requests in an organized tree that can be shared, versioned, run, and exported as JSON (Chapter 5).
- **Variables and environments**: switch the same collection between local and staging servers, and keep tokens and IDs out of hard-coded URLs (Chapter 6).
- **Scripts**: JavaScript that runs before a request or after its response, in a sandbox with the `pm` object for assertions, variables, and extra requests (Chapters 7 to 10).
- **The Collection Runner**: run a whole collection or folder, repeat it over iterations, and feed it data files (Chapters 13 and 21).
- **Command-line runners**: Newman, the long-standing open-source runner, and the Postman CLI, Postman's own command-line tool. Both let collections run in CI pipelines (Chapters 22 and 23).
- **Mock servers, monitors, and documentation**: simulate APIs that do not exist yet, run tests on a schedule, and publish readable docs (Chapters 19, 24, and 26).

Postman lowers the entry barrier without capping the ceiling: a manual tester can start by eyeballing responses and gradually grow the same collection into a suite running in CI.

Where Postman is not the best fit

An honest strategy also knows the limits. Logic inside a single function is best unit-tested in code, close to that code. Very large suites with heavy shared logic can become awkward in request-attached scripts; some teams prefer a code-first framework such as REST Assured for Java or pytest with requests for Python. For serious load testing, dedicated tools such as k6 or JMeter offer more control (Chapter 25). Other capable API clients — Insomnia, Bruno, Hoppscotch — exist too. The concepts in this book transfer to any of them: Postman is the vehicle; the thinking is what makes the tests good.

> **NOTE**
>
> Postman's interface changes frequently, and features are renamed, moved, or introduced between versions. Throughout this book we describe locations in general terms such as "the request's Scripts tab" or "the environment selector at the top right." If a label differs in your version, look for the equivalent option. Features that are relatively new are marked "recent versions," and for anything related to plans, pricing, or usage limits, check Postman's current plans and documentation.

What Goes Wrong in Real Teams

API testing is simple to start and surprisingly easy to get wrong at scale. The following problems appear again and again, and much of this book is about preventing them.

Tests that assert almost nothing

The most common weak test checks only the status code. A `GET /gear/g-101` that returns 200 with an empty object, or with the wrong gear, or with `pricePerDay` as a string, still passes. Status code checks are necessary but rarely sufficient. At minimum, assert the identity of what came back (the right ID), the type of key fields, and the specific values that prove the behavior.

Tests that assert everything

A test that compares the whole body to a saved copy breaks whenever a timestamp changes or a field is added. It fails for harmless reasons until the team ignores it. Assert what the contract promises, not what the response happened to contain.

Shared, drifting test data

If every test in the team uses "the first booking in the list," then a test that creates or cancels bookings changes the ground under all the others. Tests that pass alone fail together, or fail only on Tuesdays. The cure is deliberate test data management: create what you need, clean it up, and use unique values (Chapter 20).

Hidden order, leaked secrets, happy paths, and flakiness

Request 12 silently relies on a variable set by request 3, so running it alone fails confusingly (Chapter 10 makes such dependencies explicit). Tokens and passwords get pasted into shared collections or committed in exported environments (Chapter 6 covers secrets). Suites test only success and miss expired tokens, double submissions, and missing permissions — often the least exercised code in the system (Chapter 17). And a test that fails one run in ten trains the team to click "re-run" instead of investigating; typical causes are timing assumptions, shared data, the current date, and rate limits hit by parallel runs.

> **WARNING**
>
> Never point exploratory or automated tests that create, change, or delete data at a production API unless your team has explicitly designed for it. A "quick test" that cancels real bookings or creates fake listings can harm real customers. Use a local server, a dedicated test environment, or a mock. The Trailkit reference server exists precisely so that you can experiment without consequences.

A Tester's Mindset for APIs

Tools come and go; the mindset stays. When you look at any endpoint, train yourself to ask a standard set of questions:

- **Who** may call this? What happens for each role, and for no role at all?
- **What** inputs are valid? What are the boundaries — the smallest and largest allowed values, the empty string, the missing field?
- **What state** must the system be in? What happens if the resource does not exist, was deleted, or is in the wrong state?
- **What changes** as a result? Which later reads should reflect the change, and which should not?
- **What is promised** in the response — status, headers, body shape, and meaning?
- **What happens twice**? Is the operation safe to repeat, or does a second call create a duplicate?

Apply these questions to `POST /bookings/{bookingId}/confirm` and a test plan appears almost by itself. The gear's owner and admins may confirm, the renter may not; only pending bookings can be confirmed, so a second confirm returns 409; afterwards, overlapping bookings are rejected; and the 200 body shows `status` as `"confirmed"`. Each becomes a Postman test later.

This is what separates a request collection, which proves the API *can* work, from a test suite, which proves it keeps its promises and tells you quickly when it stops.

How This Book Is Organized

The book follows the path most testers take. Part I (Chapters 1–5) lays foundations: setup, HTTP, sending requests, and organizing collections. Part II (Chapters 6–10) covers variables, assertions, schema validation, dynamic data, and chaining. Part III (Chapters 11–15) handles authentication, security tests, data-driven runs, other protocols, uploads, and webhooks. Part IV (Chapters 16–20) is about test design, and Part V (Chapters 21–25) about automation and CI/CD. Part VI (Chapters 26–28) closes with collaboration, maintainability, and a complete Trailkit test strategy. The JavaScript you need is taught as we go; you only need to be willing to read small pieces of code carefully.

Practice

These exercises need only this chapter and a pen or a text editor. Suggested answers follow each one.

1. **Place the test.** For each check, decide whether it belongs mainly at the unit, API, or UI level: (a) the function that counts days between two dates handles leap years; (b) a renter receives 403 when creating gear; (c) the booking form shows a red border around an invalid date.
   Solution: (a) unit — pure calculation; (b) API — an authorization rule enforced by the service; (c) UI — a visual behavior only the interface has. You might add an API test for the underlying 422 as well, but the red border itself is a UI concern.
2. **Name the contract.** List at least five things a client may rely on when calling `GET /gear/{gearId}`.
   Solution: Status 200 for existing gear; status 404 with a problem body for unknown IDs; `Content-Type` of JSON; a body with `id`, `name`, `category`, `city`, `pricePerDay`, `currency`, `ownerId`, `available`, `createdAt`; `pricePerDay` is a number and `currency` is `"USD"`; an `X-Request-Id` header; 401 without a valid token.
3. **Spot the breaking change.** Which of these would break existing clients? (a) adding a `rating` field to gear; (b) returning `available` as `"yes"` instead of `true`; (c) returning 400 instead of 422 for a 15-day booking; (d) adding a new optional query parameter `brand`.
   Solution: (b) and (c) are breaking: a type change and a status code change. (a) and (d) are additive and normally safe.
4. **Apply the mindset.** Using the six questions from "A Tester's Mindset for APIs," sketch at least six test ideas for `POST /bookings/{bookingId}/cancel`.
   Solution (examples): renter cancels own pending booking (200, status `cancelled`); admin cancels any booking (200); owner tries to cancel (403); cancelling an already-cancelled booking (409); cancelling an unknown booking ID (404); cancelling without a token (401); after cancelling a confirmed booking, the same dates can be booked and confirmed again.
5. **Critique a test.** A colleague's test for `GET /gear?city=denver` asserts only `pm.response.to.have.status(200)`. What would you add?
   Solution: Assert that `items` is an array, that every item has `city` equal to `"denver"`, that `total` is a number consistent with the results, and that `page` and `pageSize` reflect the defaults (1 and 20).