

API Testing – Complete Industry Roadmap

This roadmap helps in:

- ✓ Crack API Testing Interviews
 - ✓ Work confidently in Backend Testing Projects
 - ✓ Build API Automation Frameworks
 - ✓ Become Industry-Ready API Test Engineers
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1 API Testing Fundamentals

Basics of API Testing

- What is API
 - What is API Testing
 - Importance of API Testing
 - Frontend vs Backend Testing
 - Client-Server Architecture
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2 Types of APIs

Very important interview topic.

- REST API
- SOAP API
- GraphQL Basics

You should understand where each is used.

3 HTTP Protocol Basics

Mandatory for API testing.

Topics:

- HTTP vs HTTPS

- Request & Response
 - URL Structure
 - Headers
 - Query Parameters
 - Path Parameters
 - Cookies & Sessions
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4 HTTP Methods

Most important topic.

- GET
- POST
- PUT
- PATCH
- DELETE

You should know real-time examples.

5 HTTP Status Codes

Frequently asked in interviews.

- 200 OK
 - 201 Created
 - 400 Bad Request
 - 401 Unauthorized
 - 403 Forbidden
 - 404 Not Found
 - 500 Internal Server Error
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6 API Request & Response Validation

- Request Body
 - Response Body
 - Response Headers
 - Response Time Validation
 - Schema Validation
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7 JSON & XML Basics

You must understand:

- JSON Structure
 - JSON Objects
 - JSON Arrays
 - Nested JSON
 - XML Basics
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8 Postman Tool

Postman Fundamentals

- Installation & Setup
 - Collections
 - Environment Variables
 - Authorization
 - Request Building
 - Response Validation
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9 Authentication & Authorization

Very important real-time concept.

- Basic Authentication
 - Bearer Token
 - OAuth Basics
 - API Keys
 - JWT Token Basics
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10 CRUD Operations

You should practice:

- Create
- Read
- Update
- Delete

Using real-time APIs.

11 API Automation using REST Assured

Most important for automation interviews.

REST Assured Topics

- REST Assured Setup
 - GET Request Automation
 - POST Request Automation
 - PUT Request Automation
 - DELETE Request Automation
 - Request Specification
 - Response Specification
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12 Assertions & Validations

- Status Code Validation
 - Header Validation
 - Body Validation
 - JSON Path Validation
 - Response Time Validation
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13 **Serialization & Deserialization**

Advanced interview topic.

- POJO Classes
 - Converting Java Objects to JSON
 - Converting JSON to Java Objects
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14 **API Framework Development**

Most important for high-paying roles.

Framework Topics

- Page Object Model Concept for APIs
 - Reusable Methods
 - Base Class Design
 - Utility Classes
 - Configuration Files
 - Logging
 - Reporting
 - Data-Driven Framework
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15 **Maven Build Tool**

- Maven Setup

- pom.xml
 - Dependency Management
 - Plugins
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16 TestNG Framework

- TestNG Annotations
 - Assertions
 - DataProvider
 - Parallel Execution
 - Retry Mechanism
 - XML Configuration
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17 SQL for API Testers

Very important for backend validation.

Topics:

- SELECT Queries
- WHERE Clause
- JOINS
- GROUP BY
- ORDER BY

You should validate API data with database records.

18 Git & GitHub

- Git Basics
- Repository Handling
- Push & Pull

- Branching
 - Merge Conflicts
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19 CI/CD Integration

- Jenkins Integration
 - Scheduled API Execution
 - GitHub Actions Basics
 - API Automation in CI/CD
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20 Performance & Security Basics

Industry expectation nowadays.

Performance Basics

- Response Time
- Load Basics

Security Basics

- Authentication Validation
 - Authorization Validation
 - Input Validation
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21 Agile & Jira

Mandatory in real-time projects.

Agile Topics

- Scrum Framework
- Sprint Planning
- Daily Standups
- User Stories

- Retrospectives

Jira Topics

- Story Tracking
 - Bug Reporting
 - Sprint Boards
 - Dashboards
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22 Real-Time Project Implementation

You should practice:

- E-Commerce APIs
 - Login APIs
 - Payment APIs
 - Token Handling
 - CRUD Operations
 - API + Database Validation
 - End-to-End API Framework
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23 Interview Preparation

Frequently Asked Interview Questions

- Difference between PUT & PATCH
- Difference between Authorization & Authentication
- What is REST API?
- What is JSON?
- What are Status Codes?
- Explain API Automation Framework
- How do you validate API response?

- Real-time API testing challenges
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24 Industry Survival Skills

Technical Skills

- API Debugging
- Log Analysis
- Framework Maintenance
- Root Cause Analysis
- Backend Validation

Soft Skills

- Communication
 - Agile Participation
 - Requirement Understanding
 - Team Collaboration
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Recommended Teaching Plan

Week 1

API Fundamentals + HTTP Methods

Week 2

Postman + Authentication + CRUD

Week 3

REST Assured Basics

Week 4

Assertions + JSON Validation

Week 5

Framework Development

Week 6

TestNG + Maven + Reporting

Week 7

SQL + CI/CD + Git

Week 8

Real-Time Project + Mock Interviews

Important Industry Advice

Those who learn only Postman basics struggle in projects.

To become industry-ready, they must learn:

- ✓ API Concepts Strongly
- ✓ REST Assured Automation
- ✓ Authentication Handling
- ✓ Database Validation
- ✓ Framework Development
- ✓ CI/CD Integration
- ✓ Debugging Skills
- ✓ Communication Skills

That combination helps you crack API Testing roles confidently and work effectively in enterprise backend projects.