

API QUICK REFERENCE

★ HTTP Verbs

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- GET :- Retrieve data from the Server
- POST :- Send data to the server to create a resource.
- PUT :- Send data to the Server to Update a resource.
- PATCH :- Send data to the server to update a resource Partially.
- DELETE :- Delete a resource from the Server.
- TRACE :- Returns the full HTTP request received by the server for debugging and diagnostic Purposes.
- OPTIONS :- Returns the HTTP methods supported by the server for the request URL.
- CONNECT :- Converts the request connection to a transparent TCP/ IP tunnel for secure communication.

- PURGE :- Invalidates a cached resource.
- LOCK :- Locks the resource for exclusive use by the client.
- UNLOCK :- Unlock the resource Previously Locked by the client.
- MKCOL :- Creates a new collection resource.
- COPY :- Copies the resource identified by the Request-URI to the destination URI.

★ HTTP Status Codes

- 1xx :- Informational
- 2xx :- Success
- 3xx :- Redirection
- 4xx :- Client Errors
- 5xx :- Server Errors

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Response Headers

- Content-type :- Specifies the MIME type of the data in the response body.
- Content-Length :- Specifies the length of the response body in bytes.
- Cache-Control :- Specifies the caching behavior of the response.
- Location :- Specifies the URI of a resource that can be used to retrieve the requested resource.
- Server :- Specifies the name and version of the server software that generated the response.
- Access-Control-Allow-Origin :- Specifies which Origins are allowed to access the resource.
- Set-Cookie :- Specifies a cookie that should be stored by the client and sent back to the server with future requests.

- Expires :- Specifies the date and time after which the response is considered stale.
- Last-Modified :- Specifies the date and time the resource was last modified.

API Design

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- Rest :- Representational State Transfer, a design pattern for building web services.
- SOAP :- Simple Object Access Protocol, a messaging protocol for exchanging structured data.
- GraphQL :- A query language and runtime for building APIs
- API Gateway :- A service that manages, protects, and scales APIs.

API Architectures

- SOA :- Service-Oriented Architectures, an architectures style for building distributed system.

- Microservices :- An architectural style for building complex applications as a suite of small, independent services.
- Serverless :- A cloud computing execution model where the cloud provider manages the infrastructure and automatically allocates resources as needed.
- Event-Driven :- An architectural style where the flow of data between components is triggered by events.
- RESTful API :- An architectural style that uses HTTP requests to GET, POST, PUT, and DELETE data.

API Design Patterns

- Adapter Pattern :- A pattern that converts the interface of a class into another interface that clients expect.
- Decorator Pattern :- A pattern that adds behaviour to an individual object dynamically.

- Proxy Pattern :- A pattern that provides a surrogate or placeholder for another object to control access to it.
- Chain of Responsibility Pattern :- A pattern that delegates commands to a chain of processing objects.
- Observer Pattern :- A pattern that defines a one-to-many dependency between objects so that when one object changes state, all its dependents are notified and updated automatically.

API Security

- OAuth :- An open standard for authorization used for protecting APIs
- JWT :- JSON Web Tokens, a standard for securely transmitting information between parties as a JSON object.
- SSL/TLS :- Secure Sockets Layer / Transport Layer Security, a protocol for establishing a secure connection between a client and a server.

- API Key :- A secret token used to limit the number of requests that can be made to an API over a specific period of time.
- OpenID Connect :- An authentication layer built on top of OAuth that allows users to be authenticated across multiple domains.
- Cross-Origin Resource Sharing (CORS) :- A mechanism that allows many resources (e.g., fonts, javascript, etc.) on a web page to be requested from another domain outside the domain from which the resource originated.

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API Testing

- Postman :- A popular tool for testing and debugging APIs
- SOAPUI :- A tool for testing SOAP and REST web services.
- Swagger :- A tool for designing, building, and testing APIs
- JMeter :- A tool for testing the performance of APIs.

- TestRail :- A test management tool for planning, executing, and tracking API tests.
- Dreed :- A command-line tool for testing API documentation against its backend implementation.
- REST Assured :- A Java-based library for testing RESTful APIs.
- Karate DSL :- A testing framework for API testing using Gherkin Syntax.
- HTTPMaster :- A tool for testing and debugging APIs.
- Assertible :- A tool for testing and monitoring APIs with automated tests.

API Development

- Node.js :- A JavaScript runtime for building server-side applications.
- Express :- A popular framework for building web applications and APIs with Node.js.

- Django :- A Python web framework for building web applications and APIs
- Flask :- A lightweight python web framework for building web applications and APIs.
- Spring :- A java framework for building enterprise-level web applications and APIs.
- Swagger Editor :- A tool for designing and documenting APIs using the OpenAPI Specification.
- Postman :- A tool for testing and debugging APIs.
- Insomnia :- A tool for designing, testing, and debugging APIs.
- Paw :- A tool for designing and testing APIs on Mac OS.
- API Blueprint :- A high-level API description language for building RESTful APIs.

API Implementation Platforms

- Firebase :- A mobile and web application development platform developed by Google.
- Backendless :- A mobile and web application development platform that allows developers to build and deploy applications without backend coding.
- Parse Server :- An open-source version of the Parse backend that can be deployed to any infrastructure.
- Amazon API Gateway :- A fully managed service that makes it easy for developers to create, publish, maintain, monitor, and secure APIs.
- Microsoft Azure API Management :- A Fully managed service that enables users to publish, secure, transform, maintain, and monitor APIs.

API Performance

- Caching :- A technique for improving API performance by storing responses in a cache.

- Throttling :- A technique for limiting the rate of requests to an API to prevent Overload.
- Load Balancing :- A technique for distributing traffic evenly across multiple servers to improve API performance .
- Content Delivery Network (CDN) :- A distributed system of servers that delivers content to users based on their geographic location to improve API Performance.
- Edge Computing :- A Computing Paradigm that brings computation and data storage closer to the location where it is needed to reduce latency and improve API performance .

API Monitoring

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- Pingdom :- A tool for monitoring the uptime and performance OF APIs .
- New Relic :- A tool for monitoring the performance OF APIs and other web applications .

- Datadog :- A monitoring and analytics platform for cloud - scale applications and APIs
 - Sumo Logic :- A cloud - based log management and analytics platform for APIs and other applications.
 - Loggly :- A cloud - based log management platform for monitoring APIs and other applications.
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API Standards

- JSON API :- A specification for building APIs that use JSON as the data format.
- HAL :- Hypertext Application Language , a standard for building hypermedia - driven APIs
- JSON-LD :- A format for representing linked data on the web.
- OData :- Open data Protocol , a standard for building and consuming RESTful APIs .
- AsyncAPI :- A Specification for building event - driven APIs .

API Standard Organizations

- W3C :- The World Wide Web Consortium , an international community that develops web standards.
- IETF :- The Internet Engineering Task force , an open standards Organization that develops and promotes Internet Standards .
- OASIS :- Organization for the advancement of Structured Information Standards , a nonprofit consortium that drives the development, convergence , and adoption of Open standards for the global information society.
- RESTful API Modeling Language (RAML) :- A YAML - based language for describing RESTful APIs developed by MuleSoft.
- JSON API :- A Specification for building APIs that use JSON as the data format.

API Infrastructure

- Kubernetes :- An Open - Source platform for managing containerized workloads and services.

- OpenShift :- A container application platform that builds on top of Kubernetes.
- Docker Swarm :- A native clustering and Orchestration solution for Docker.
- Consul :- A Service mesh solution that provides service discovery, Configuration, and segmentation Capabilities.
- Istio :- A Service mesh solution that provides traffic management, security, and observability capabilities.

API Governance

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- API Management :- The Process of creating, publishing , and monitoring APIs in a secure and scalable way.
- API Monetization :- The Process of generating revenue from APIs by charging developers for usage.
- API Versioning :- The Process of managing changes to APIs over time.

- API Analytics :- The Process of collecting and analyzing data on API usage and performance.
- API Gateway :- A Service that manages, protects, and scales APIs.

API Documentation

- OpenAPI :- A specification for building APIs in YAML or JSON format.
- API Blueprint :- A high-level API description language for building RESTful APIs.
- RAML :- A YAML-based language for describing RESTful APIs.
- Swagger UI :- A tool for visualizing and interacting with APIs that have been described using the OpenAI specification.
- Slate :- A tool for generating beautiful, responsive API documentation.

API Deployment

- Heroku :- A cloud Platform for deploying, and scaling web and managing applications and APIs.
- AWS Elastic Beanstalk :- A Service for deploying and scaling web applications and APIs on AWS.
- Azure APP Services :- A Service of deploying and scaling web applications and APIs on Azure.
- Google APP Engine :- A Service of deploying and scaling web applications and APIs on GCP .
- Docker :- A Containerization Platform used for Package and deploying applications.
- AWS Lambda :- A Serverless compute service for running code in response to events.
- Azure Functions :- A Serverless compute services for running code in response to events.

- Google Cloud Functions :- A Serverless Compute service for running code in response to events.
- Netlify :- A cloud platform for deploying and managing static websites and APIs.
- Vercel :- A cloud platform for deploying and managing static websites and APIs.

API Security

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- OAuth :- An open standard for authorization used by many social media platforms and APIs.
- OpenID Connect :- An authentication layer built on top of OAuth that allows users to be authenticated across multiple domains
- JSON Web Tokens (JWT) :- A method for representing claims securely between two parties.
- Cross-Origin Resource sharing (CORS) :- A mechanism that allows many resources (e.g., fonts, javascript, etc.) on a webpage to be requested from another domain outside the domain from which the resource originated.

- API Keys :- A secret token that identifies an API client to the server and allows the client to access resources.
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API Best Practices

- Versioning :- A technique for managing changes to APIs over time.
- Pagination :- A technique for breaking up large API responses into smaller, more manageable chunks.
- Caching :- A technique for improving API performance by storing responses in a cache.
- Error Handling :- A technique for returning meaningful error messages to API clients.
- HATEOAS :- Hypermedia as the Engine of Application State, a constraint of RESTful APIs that requires the API to provide links to related resources.

API Guides

- REST API Tutorial by Guru99
 - A Beginner's Guide to HTTP and REST by Linode.
 - REST API Design : Resource Modeling by Oracle.
 - API Security Best Practices by Google Cloud.
 - API Governance Handbook by WSO2.
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API Tools

- API Studio :- A web-based IDE designing and testing APIs.
- Stoplight :- A collaborative platform for designing, documenting, and testing APIs.
- Apigee :- A full lifecycle API management platform that allows developers to design, secure, deploy, and analyze APIs.

- Azure API Management :- A fully managed service that enables users to publish, secure, transform, maintain, and monitor APIs.
- Postman Learning Center :- A hub for learning how to use Postman to design, develop, and test APIs.

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