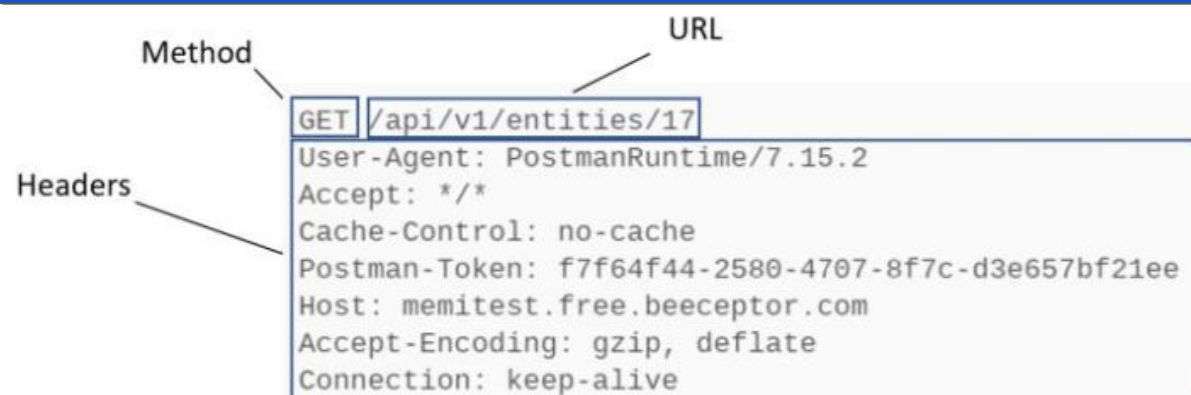


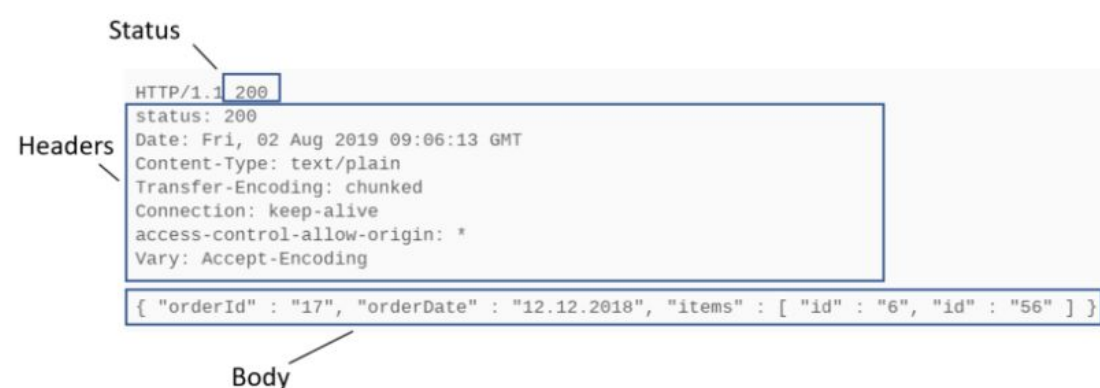
# { REST }

REST API Cheat Sheet  
V2021.03.09  
(Source: <https://memilavi.com/>)  
(Dr Yan Xu)

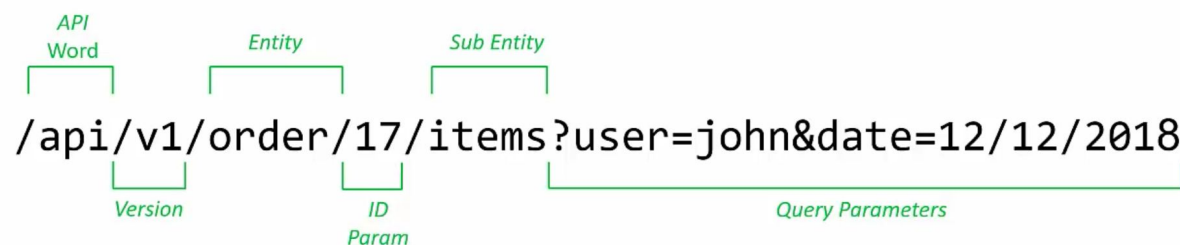
## General HTTP Request



## General HTTP Request



## REST API URL Structure



- **URL** defines the **entity** to operate on, while **HTTP Verbs** define the operation.
- API Domain, e.g. api.ebay.com/, or API Prefix, e.g. ebay.com/api
- Entity, must be noun, Singular [unique ,e.g. by ID] VS Plural [by range search]
- Consistency > Correctness
- Some examples:
  - /user/{id}/phone-number
  - /users?location=USA

# HTTP Verbs

Verb	Role	Body?	Params In...
GET	Retrieve resource(s)	No	URL
POST	Add resource(s)	Yes	Body
PUT	Modify resource(s)	Yes	Body
DELETE	Delete resource(s)	No	URL

*note: there is a length limit for GET, so POST is also used for complex queries or complicated parameters*

## REST Response Code (Common)

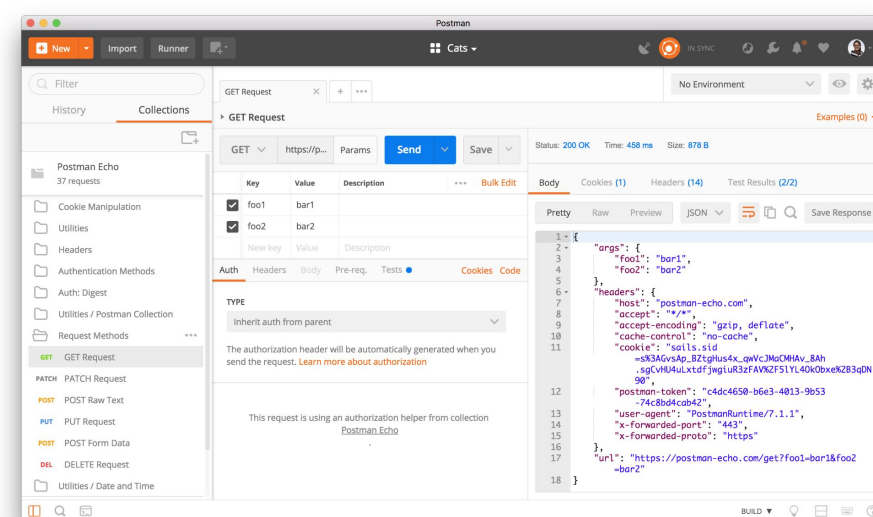
STATUS CODE	EXPLANATION
200 - OK	The request succeeded.
204 - No Content	The document contains no data.
301 - Moved Permanently	The resource has permanently moved to a different URI.
401 - Not Authorized	The request needs user authentication.
403 - Forbidden	The server has refused to fulfill the request.
404 - Not Found	The requested resource does not exist on the server.
408 - Request Timeout	The client failed to send a request in the time allowed by the server.
500 - Server Error	Due to a malfunctioning script, server configuration error or similar.

*note: 200 is the default status code, if not defined*

## Other Web API Alternatives

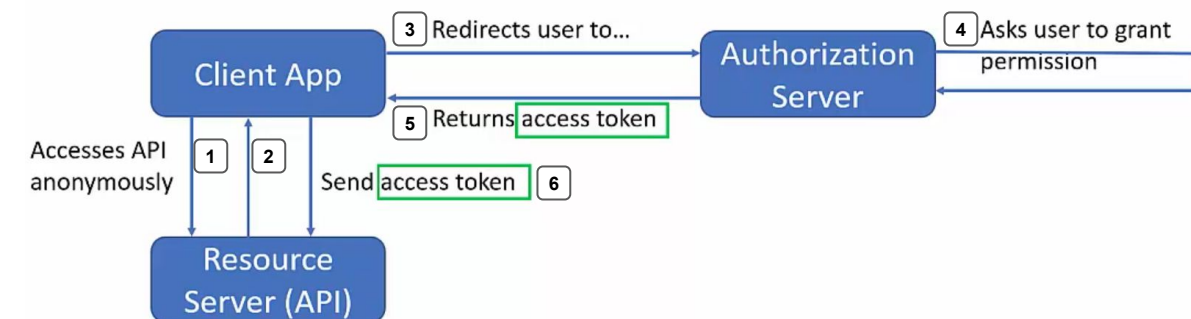
- SOAP (XML format, not used anymore)
- **GraphQL** (fine-granularity querying)
- **gRPC**
  - HTTP 2.0 (faster and more secure)
  - Protobuf (language independent and fast)

# REST API Test Tool - Postman

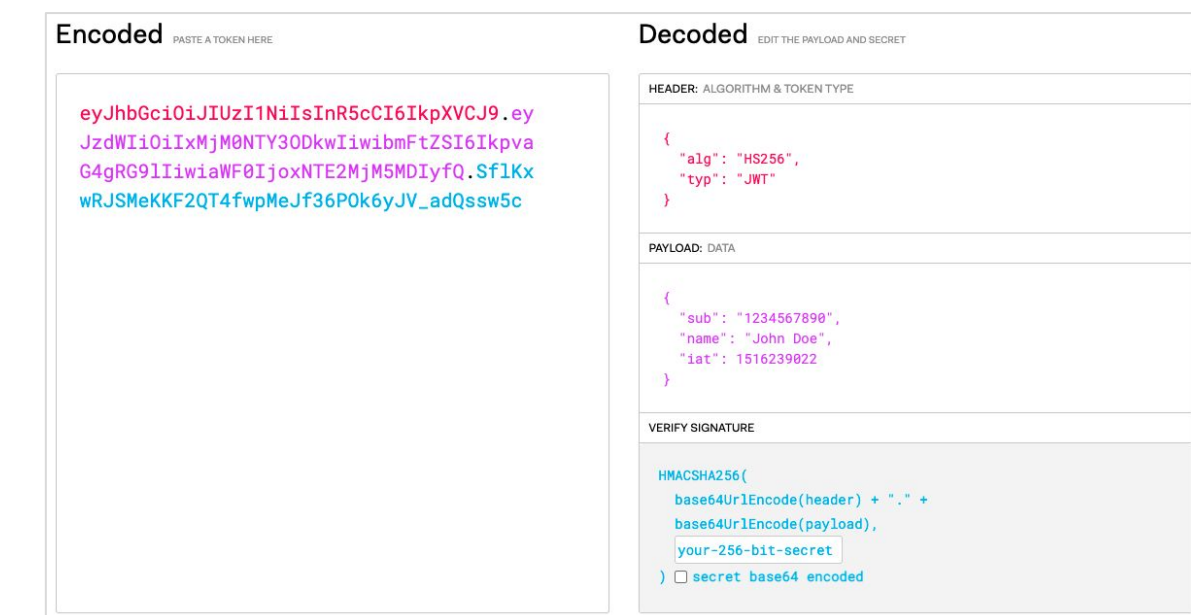


## Authentication & Authorization

- ➔ Authentication: Account Check
- ➔ Authorization: Permission Check
- ➔ Standard: OAuth 2



- JSW - JSON Web Token



- JSW in REST API (http header)

Authorization: Bearer <token>

## Performance

- Async operations
- Rate Limit per Server
- Query Quota per IP address

## Monitoring

- Request / sec
- # of Errors / Exceptions / Warnings
- API Latency/ End-2-end Latency
- CPU, Memory, Disk
- Geographic/Temporal Request Distribution
- # of Users
- # of Instances