



STARGATE

AN INTERSTELLAR JOURNEY TO RESTFUL APIs



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mercap



HELLO!

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Smalltalker since 2004

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The background is a dark blue and purple space scene. It features a large, glowing nebula on the right side, a planet with rings in the top left, a moon-like sphere, and a rocket ship in the upper right. A dashed white line starts from the bottom left, curves upwards, and ends at the rocket ship. The text 'AGENDA' is written in a stylized white font with a star symbol to its left.

★ AGENDA

- ★ Intro
- ★ Features
- ★ Architecture
- ★ Live Demo
- ★ Conclusion
- ★ Future Work

The background is a dark blue and purple space scene. In the top left, there's a large planet with horizontal stripes. Below it is a smaller planet with a ring. In the top right, an astronaut in a white suit is floating, holding a long, thin, looping rope. In the bottom right, there's a large, cratered moon. The background is filled with numerous small white stars and larger, four-pointed starburst shapes. There are also some soft, glowing nebula-like shapes in shades of purple and blue.

INTRO

WHAT'S STARGATE?

It is a MIT-licensed library supporting the creation of HTTP based RESTful APIs...

WHAT'S STARGATE?

... built on top of Zinc HTTP components and Teapot

- ★ [Zinc](#) is used as HTTP Server
- ★ [Teapot](#) is used for routing

REST

Principles

- ★ Client-Server
- ★ Stateless
- ★ Cacheable
- ★ Uniform interface
- ★ Layered system



Richardson Maturity Model



FEATURES

FEATURES

Content Negotiation

HATEOAS

Hypertext as the Engine of
Application State

Caching control

Pagination

CORS

Cross Origin Resource Sharing

Error Handling

CONTENT NEGOTIATION

Supported media types

- ★ application/vnd.stargate.pet+json;version=1.0.0
- ★ application/vnd.stargate.pet+json;version=1.1.0
- ★ application/vnd.stargate.pet+json;version=2.0.0
- ★ application/vnd.stargate.pet.summary+json;version=1.0.0

✦ Accept:	Content Type:
application/vnd.stargate.pet+json;version=1.0.0	application/vnd.stargate.pet+json;version=1.0.0
/	application/vnd.stargate.pet+json;version=2.0.0
application/vnd.stargate.pet+json	application/vnd.stargate.pet+json;version=2.0.0
application/vnd.stargate.pet.summary+json	application/vnd.stargate.pet.summary+json;version=1.0.0
application/vnd.stargate.pet+json;version=2	application/vnd.stargate.pet+json;version=2.0.0
application/vnd.stargate.pet+json;version=1	application/vnd.stargate.pet+json;version=1.1.0
application/vnd.stargate.pet+json;version=1.0	application/vnd.stargate.pet+json;version=1.0.0
application/json;version=2	application/vnd.stargate.pet+json;version=2.0.0
application/xml	406/Not Acceptable

HATEOAS

```
{  
  "pet": "https://petstore.example.com/pets/1",  
  "date": "2018-10-24T18:05:46.418Z",  
  "status": "registered",  
  "links": {  
    "complete": "https://petstore.example.com/orders/1/complete",  
    "self": "https://petstore.example.com/orders/1",  
    "cancel": "https://petstore.example.com/orders/1/cancel"  
  }  
}
```

CACHING CONTROL

- ★ ETags are generated on **200/OK** **201/Created** responses
- ★ When **If-None-Match** header is present in a GET a **304/Not Modified** response is created
- ★ Updates/deletes automatically raise a **428/Precondition required** error when **If-Match** header is missing
- ★ When **If-Match** header is present a **412/Precondition Failed** error is raised if the ETag doesn't match



ERROR HANDLING

"STARGATE, WE HAVE A PROBLEM"

Stargate will handle common error situations and produce the corresponding responses:

- ★ **400/Bad Request** on invalid or missing query parameters or decoding errors
- ★ **404/Not Found** when the resource lookup fails
- ★ **409/Conflict** when the resource to update/create conflicts with another one
- ★ **415/Unsupported media type** when the Content Type cannot be handled



ARCHITECTURE

HTTPBasedRESTfulAPI

Teapot Server

ResourceRESTfulController

/pets

/pets/{id}

/orders

/orders/{id}/comments

/currencies

PetsRESTfulController

OrdersRESTfulController

CurrenciesRESTfulController

requestHandler

ordersRequestHandler

commentsRequestHandler

requestHandler

Zinc Server



HTTP
Requests

LIVE DEMO



CONCLUSIONS

STAR`GATE` is a good option if:

- ★ You want to implement an hypermedia driven API
- ★ You need advanced content negotiation
- ★ Or just need a way to structure your complex HTTP REST API

FUTURE WORK

- ★ Improve cache control support: cache-control directives, Last-Modified and Expires
- ★ Operational plugins
 - ★ Healthcheck
 - ★ Configuration
 - ★ Application Info
 - ★ Metrics
 - ★ Application control
 - ★ Loggers

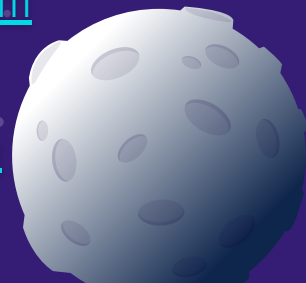


THANKS!

ANY QUESTIONS?

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Stargate is available on GitHub @ [ba-st/Stargate](#)



CREDITS

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