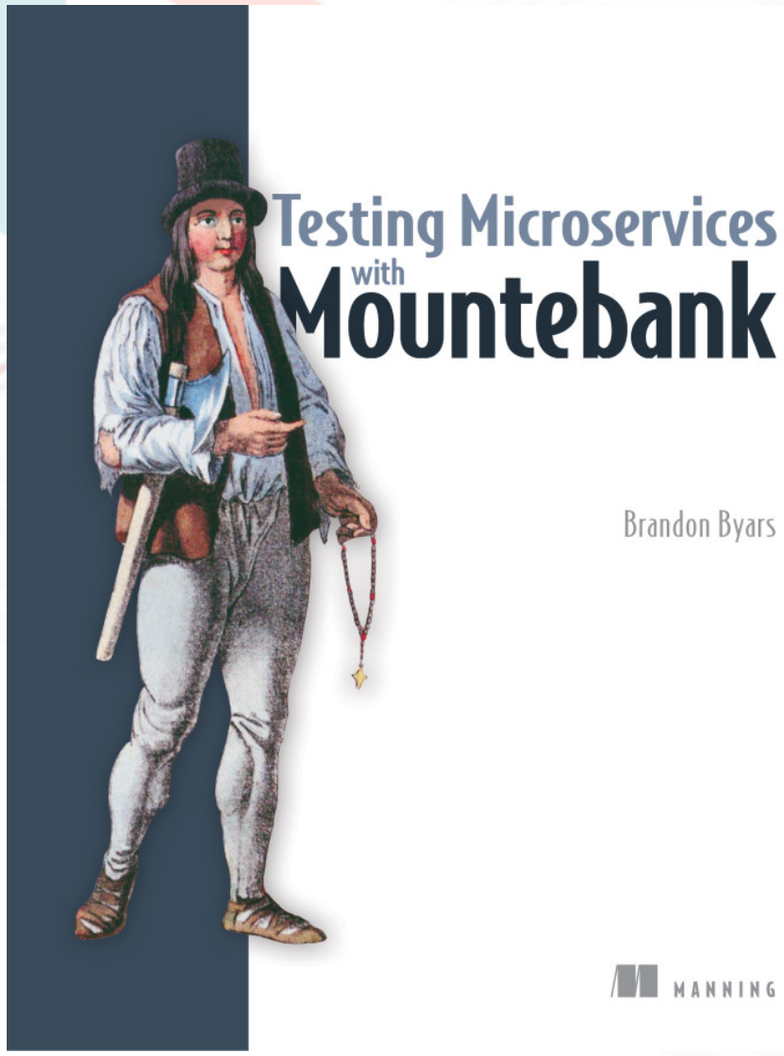
จำลองระบบเพื่อใช้ในการทดสอบ ด้วย

Mountebank 101



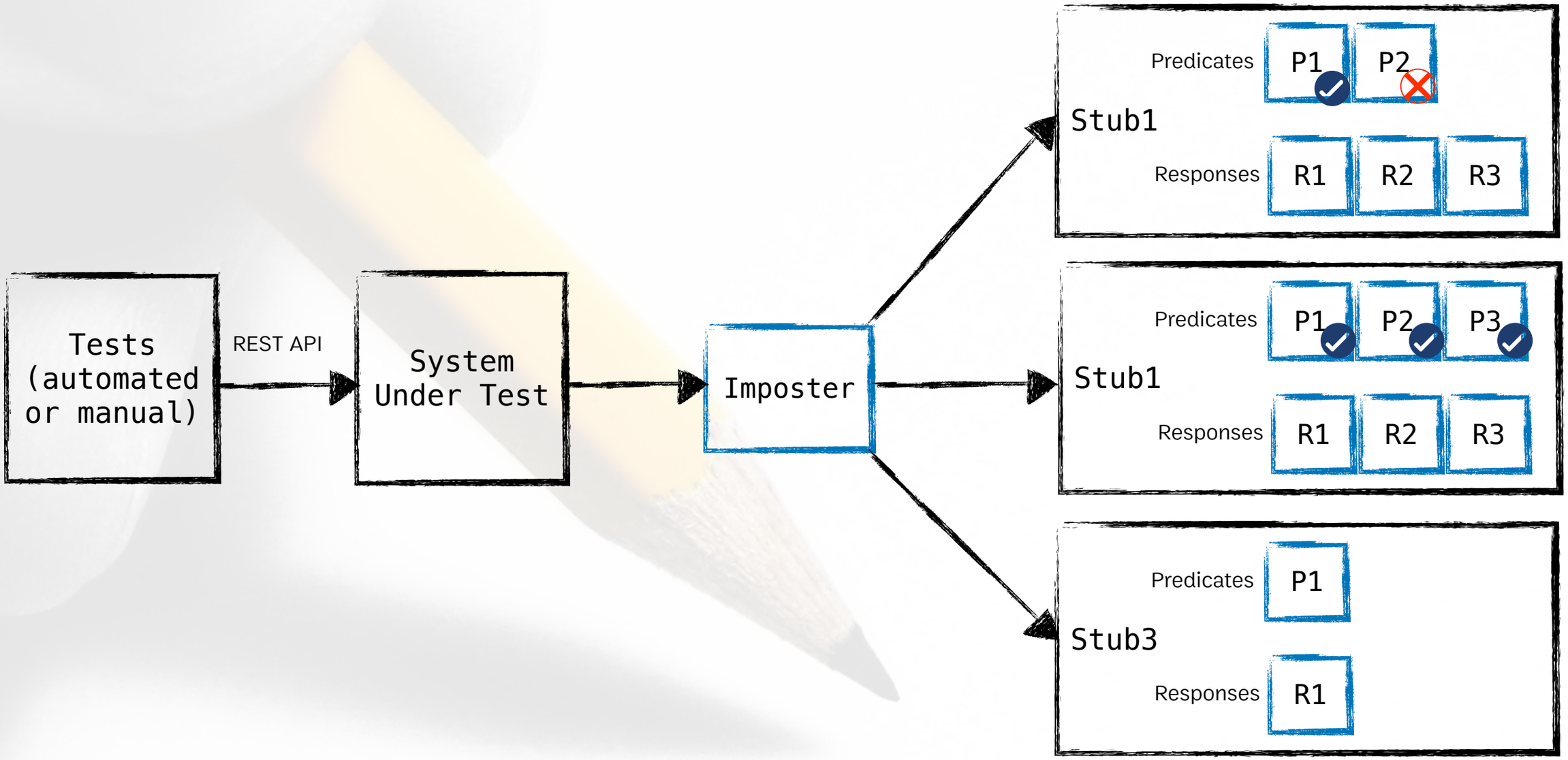
- Hello, World! Mountebank
- Predicates
- Record/Replay
- Behavior and Programming mountebank
- Adding Behaviors

Day2: Predicates

The Basic of Predicates

- Using predicates to send different responses for different requests
- Simplifying predicates on JSON request bodies
- Using XPath to simplify predicates on XML request bodies

How Mountebank matches the request against each stub's predicates?

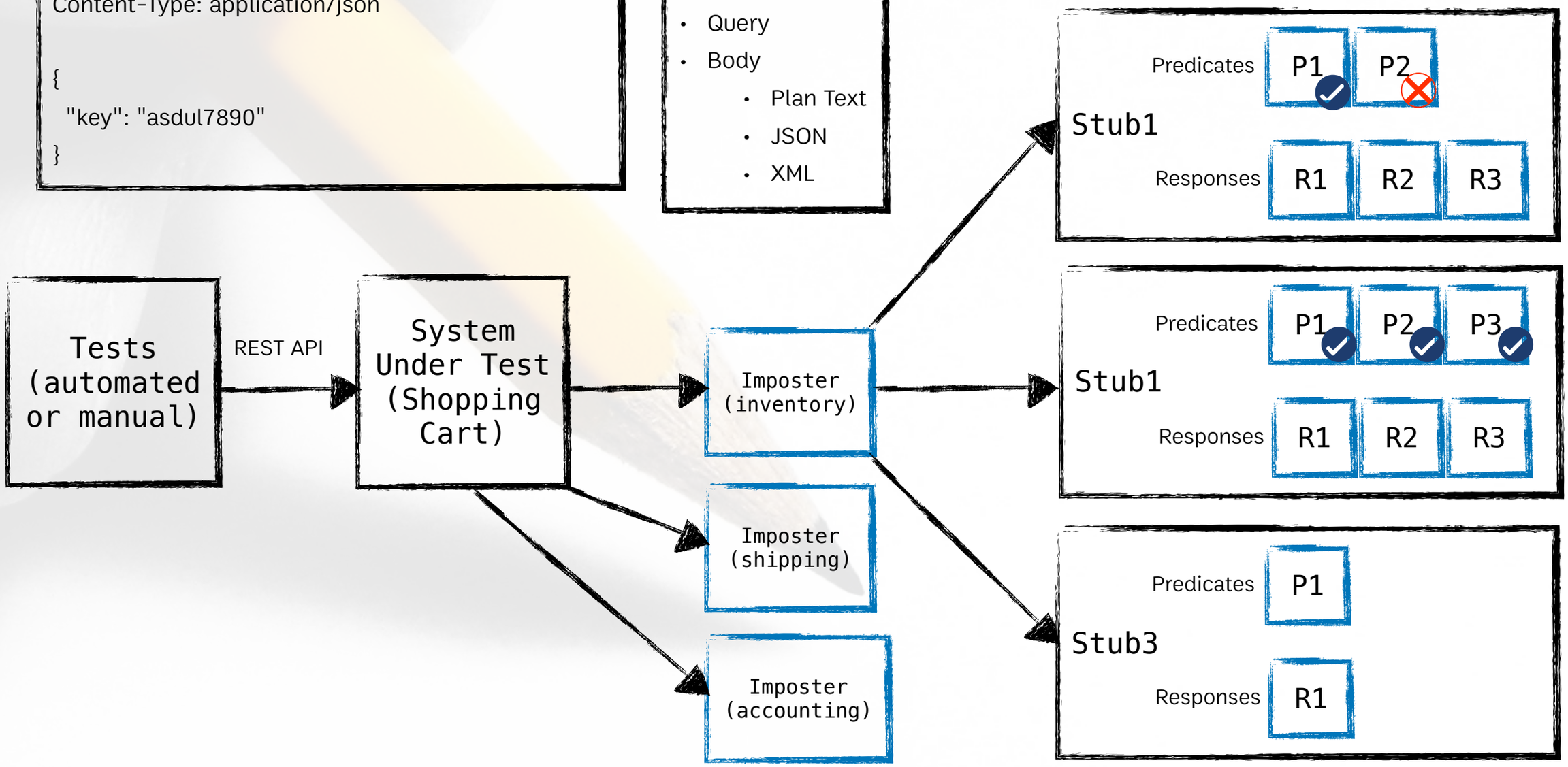


The HTTP Shopping Cart

```
POST /items?page=2&itemsPerPage=2 HTTP/1.1
Host: api.shopping-cart.com
Content-Type: application/json

{
  "key": "asdul7890"
}
```

- Path
- HTTP Method
- HTTP Header
- Query
- Body
  - Plan Text
  - JSON
  - XML



Type of Predicates

The Matches Predicates

Imposter: matches-predicate.json

```
{
  "protocol": "http",
  "port": 3000,
  "stubs": [{
     "predicates": [
        { "equals": { "method": "POST" }},
        { "startsWith": { "body": "smart" }},
        { "endsWith": { "body": "robot" }}
     ],
     "responses": [
      {
        "is": {
          "body": "Hello, smart robot"
        }
      }
     ]
   }]
}
```

HTTP Method

POST

URL

http://localhost:3000/items

Body

smart alpha3 robot

```
{
  "predicates": [
    { "matches": { "body": "^text to match" } },
    { "matches": { "body": ".*text to match.*" } },
    { "matches": { "body": "text to match$" } }
  ]
}
```

start Mountebank: unix/windows

```
mb start --configfile matches-predicate.json
```

Matching any identifier on the path

Imposter: path-identifier-predicate.json

```
{
  "protocol": "http",
  "port": 3000,
  "stubs": [{
     "predicates": [{
          "matches": { "path": "/items/\\d+" }
        }
     ],
     "responses": [{
        "is": {
          "statusCode": 200,
          "headers": { "Content-Type": "text/plain" },
          "body": {
             "name": "43 Piece Dinner Set",
             "price": 12.95,
             "quantity": 10
          }
        }
     }]
  }]
}
```

Postman: request with

HTTP Method

GET

URL

http://localhost:3000/items/1

The metacharacters used here, \d+, represent one or more digits, so the pattern will match /items/123 and /items/2 but not items/robot.

start Mountebank: unix/windows

```
mb start --configfile path-identifier-predicate.json
```

Matching object request fields

Imposter: request-fields-predicate.json

```
{
    "predicates": [{
        "equals": {
            "query": { "q": "robot" }
        }
    }],
    "responses": [{
        "is": {
            "statusCode": 200,
            "headers": { "Content-Type": "text/plain" },
            "body": {
                "items": [
                    {
                        "name": "TA Robot",
                        "price": 109.99,
                        "quantity": 50
                    },
                    {
                        "name": "AlphaBot2",
                        "price": 71.0,
                        "quantity": 73
                    }
                ]
            }
        }
    }]
}
```

Postman: request with

HTTP Method

GET

URL

http://localhost:3000/items?q=robot

start Mountebank: unix/windows

```
mb start --configfile rquest-fields-predicate.json
```

The Deep Equals Predicate

Imposter: deep-equals-predicate.json

```
{
    "predicates": [{
        "deepEquals": {
            "query": { "q": "robot", "page": 1 }
        }
    }
    ],
    "responses": [{
        "is": {
        "statusCode": 200,
        "headers": { "Content-Type": "text/plain" },
        "body": {
            "items": [
                {
                    "name": "TA Robot",
                    "price": 109.99,
                    "quantity": 50
                },
                {
                    "name": "AlphaBot2",
                    "price": 71.0,
                    "quantity": 73
                }
            ]
        }
        }
    }]
}
```

Postman: request with

HTTP Method

GET

URL

http://localhost:3000/items?q=robot&page=1

With this predicate, a query string of ?q=robot&page=1 would match, but a query string of ?q=robot&page=1&sort=desc wouldn’t.

start Mountebank: unix/windows

```
mb start --configfile deep-equals-predicate.json
```

Matching Multivalued Fields

Imposter: multivalued-field-predicate.json

```
{
    "predicates": [{
        "deepEquals": {
            "query": { "q": ["smart", "robot"] }
        }
    }
    ]
}
```

Requires exact match

```
{
    "predicates": [{
        "equals": {
            "query": { "q": ["smart", "robot"] }
        }
    }
    ]
}
```

Requires these elements to be present

Postman: request with

HTTP Method

GET

URL

http://localhost:3000/items?q=smart&q=robot

start Mountebank: unix/windows

```
mb start --configfile multivalued-field-predicate-01.json
```

start Mountebank: unix/windows

```
mb start --configfile multivalued-field-predicate-02.json
```

The Exists Predicate

Imposter: exists-predicate.json

```
{
  "predicates": [
  {
    "exists": {
      "headers": { "Authorization": false }
    }
  }
 ],
 "responses": [
  {
    "is": { "statusCode": 401 }
  }
 ]
}
```

Postman: request with

HTTP Method

GET

URL

http://localhost:3000/items

start Mountebank: unix/windows

```
mb start --configfile exists-predicate.json
```

Conjunction Junction

Imposter: conjunction-without-and-predicate.json

```
{
    "predicates": [
      { "startsWith": { "body": "smart" }},
      { "endsWith": { "body": "robot" }}
    ]
}
```

without conjunction

Imposter: conjunction-with-and-predicate.json

```
{
    "predicates": [
      {
        "and": [
          { "startsWith": { "body": "smart" }},
          { "endsWith": { "body": "robot" }}
        ]
      }
    ]
}
```

with conjunction

HTTP Method

```
POST
```

URL

```
http://localhost:3000/items
```

Body

```
smart alpha3 robot
```

start Mountebank: unix/windows

```
mb start --configfile conjunction-without-and-predicate.json
```

start Mountebank: unix/windows

```
mb start --configfile conjunction-with-and-predicate.json
```

A Complete List of Predicate Types

OPERATOR	DESCRIPTION
equals	Requires the request field to equal the predicate value
deepEquals	Performs nested set equality on object request fields
contains	Requires the request field to contain the predicate value
startsWith	Requires the request field to start with the predicate value
endsWith	Requires the request field to end with the predicate value
Matches	Requires the request field to match the regular expression provided as the predicate value
exists	Requires the request field to exist as a nonempty value (if true) or not (if false)
not	Inverts the subpredicate
or	Requires any of the subpredicates to be satisfied
and	Requires all of the subpredicates to be satisfied

Parameterizing Predicates

Making Case-Sensitive Predicates

Imposter: case-sensitive-predicate.json

```
{
    "predicates": [{
        "equals": {
            "query": { "q": "robot" }
        },
        "caseSensitive": true
    }],
    "responses": [{
        "is": {
            "statusCode": 200,
            "headers": { "Content-Type": "text/plain" },
            "body": {
                "items": [
                    {
                        "name": "TA Robot",
                        "price": 109.99,
                        "quantity": 50
                    },
                    {
                        "name": "AlphaBot2",
                        "price": 71.0,
                        "quantity": 73
                    }
                ]
            }
        }
    }]
}
```

Predicates are case-insensitive by default.

Postman: request with

HTTP Method

GET

URL

http://localhost:3000/items?q=robot

start Mountebank: unix/windows

```
mb start --configfile case-sensitive-predicate.json
```

Using Predicates on JSON Values

Using Direct JSON Predicates

Imposter: direct-json-predicate.json

```
{
  "predicates": [
    {
      "equals": {
        "body": {
          "name": "riderX"
        }
      }
    }
  ],
  "responses": [
    {
      "is": {
        "statusCode": 201,
        "headers": { "Location": "/items/123" }
      }
    }
  ]
}
```

Postman: request with

HTTP Method

POST

URL

http://localhost:3000/items

HEADER

```
"Content-Type": "application/json"
```

Body

```
{
  "name": "riderX",
  "price": 100,
  "quantity": 50
}
```

start Mountebank: unix/windows

```
mb start --configfile direct-json-predicate.json
```

Selecting a JSON Value with JSONPath

Imposter: select-a-json-value-with-jsonpath-predicate.json

```
{
  "predicates": [
    { "equals": { "method": "POST" } },
    { "equals": { "path": "/shipping" } },
    {
      "jsonpath": {
        "selector": "$.items[(@.length-1)].location"
      },
      "equals": { "body": "Covid-19 Zone" }
    }
  ],
  "responses": [{ "is": { "statusCode": 400 } }]
}
```

ref: JSONPath syntax

Postman: request with

HTTP Method

POST

URL

http://localhost:3000/shipping

HEADER

"Content-Type": "application/json"

Body

```
{
  "items": [
    {
      "name": "TA Robot",
      "price": 109.99,
      "quantity": 50,
      "location": "Bangkok"
    },
    {
      "name": "AlphaBot2",
      "price": 71.0,
      "quantity": 73,
      "location": "Covid-19 Zone"
    }
  ]
}
```

start Mountebank: unix/windows

```
mb start --configfile select-a-json-value-with-jsonpath-predicate.json
```

Using Predicates on XML Values

Selecting a XML Value with XPath

Imposter: select-a-xml-value-with-xpath-predicate.json

```
{
  "predicates": [
    { "equals": { "method": "POST" } },
    { "equals": { "path": "/shipping" } },
    {
      "xpath": {
        "selector": "//item[@name='AlphaBot2']/location"
      },
      "equals": { "body": "Covid-19 Zone" }
    }
  ],
  "responses": [{ "is": { "statusCode": 400 } }]
}
```

Postman: request with

HTTP Method

POST

URL

http://localhost:3000/shipping

HEADER

"Content-Type": "application/xml"

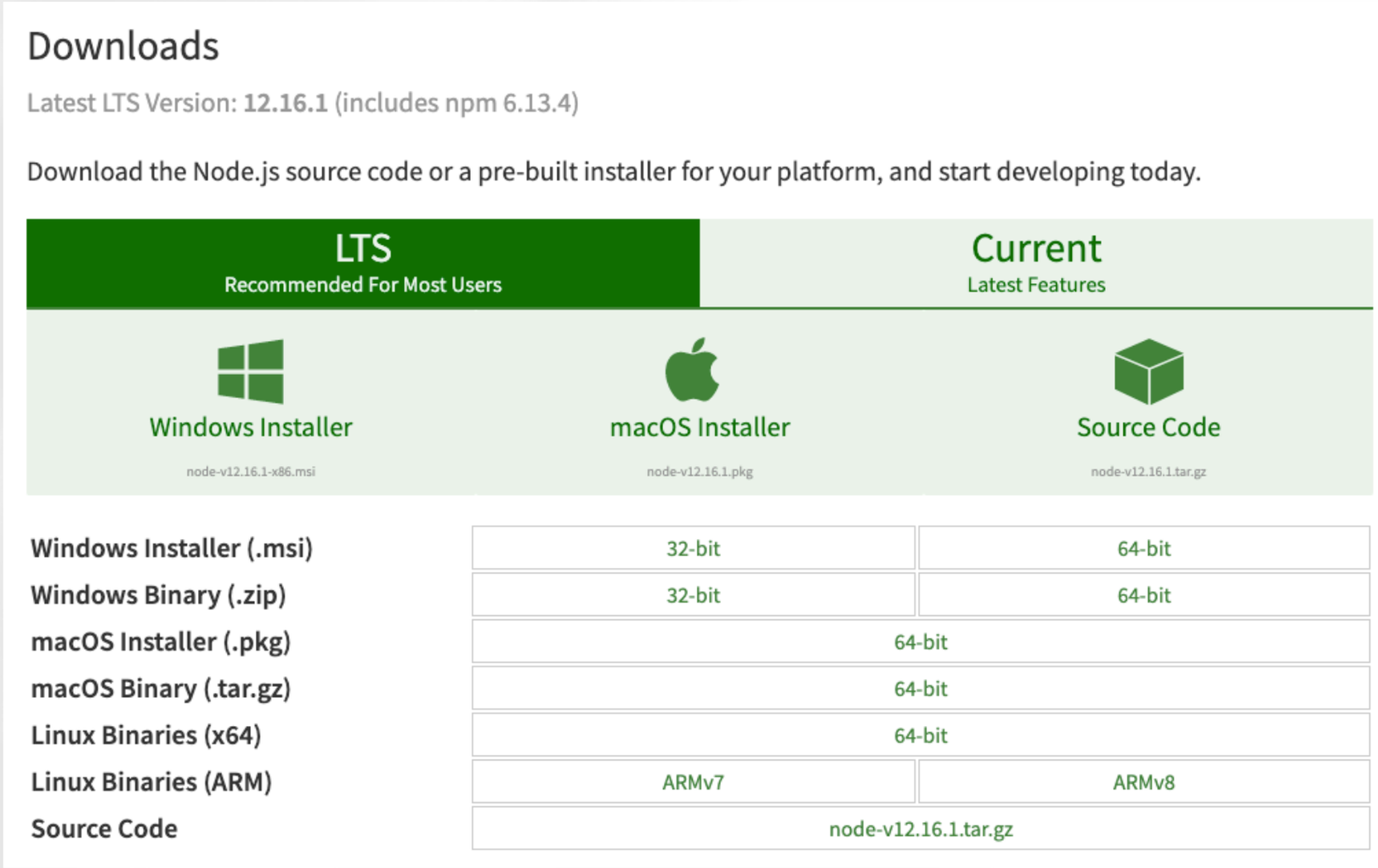
Body

```
<items>
    <item name="TA Robot">
        <price>109.99</price>
        <location>Bangkok</location>
    </item>
    <item name="AlphaBot2">
        <price>71.50</price>
        <location>Covid-19 Zone</location>
    </item>
</items>
```

start Mountebank: unix/windows

```
mb start --configfile select-a-xml-value-with-xpath-predicate.json
```

Setup Node.js(Windows)



Downloads

Latest LTS Version: **12.16.1** (includes npm 6.13.4)

Download the Node.js source code or a pre-built installer for your platform, and start developing today.

LTS Recommended For Most Users		Current Latest Features
Windows Installer	macOS Installer	Source Code
node-v12.16.1-x86.msi	node-v12.16.1.pkg	node-v12.16.1.tar.gz

Windows Installer (.msi)	32-bit	64-bit
Windows Binary (.zip)	32-bit	64-bit
macOS Installer (.pkg)	64-bit	
macOS Binary (.tar.gz)	64-bit	
Linux Binaries (x64)	64-bit	
Linux Binaries (ARM)	ARMv7	ARMv8
Source Code	node-v12.16.1.tar.gz	

- Goto Node.js downloads and download Node.js for Windows
  - LTS
  - Current

Run the Node.js Installer(Windows)

- Welcome to the Node.js setup wizard
  - Select **Next**
- End-User License Agreement (EULA)
  - Check **I accept the terms in the License Agreement**
  - Select **Next**
- Destination Folder
  - Select **Next**
- Custom Setup
  - Select **Next**
- Ready to install Node.js
  - Select **Install**
  - *Note*: This step requires Administrator privileges.
  - If prompted, authenticate as an Administrator.
- Installing Node.js
  - Let the installer run to completion.
- Completed the Node.js Setup Wizard
  - Click **Finish**

Setup Node.js(Mac)

Install Homebrew

```
/bin/bash -c "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/master/install.sh)"
```

Install Node.js

```
brew install node
```

Verify That Node.js was Properly Installed and Install Mountebank

Run command

```
node -v
```

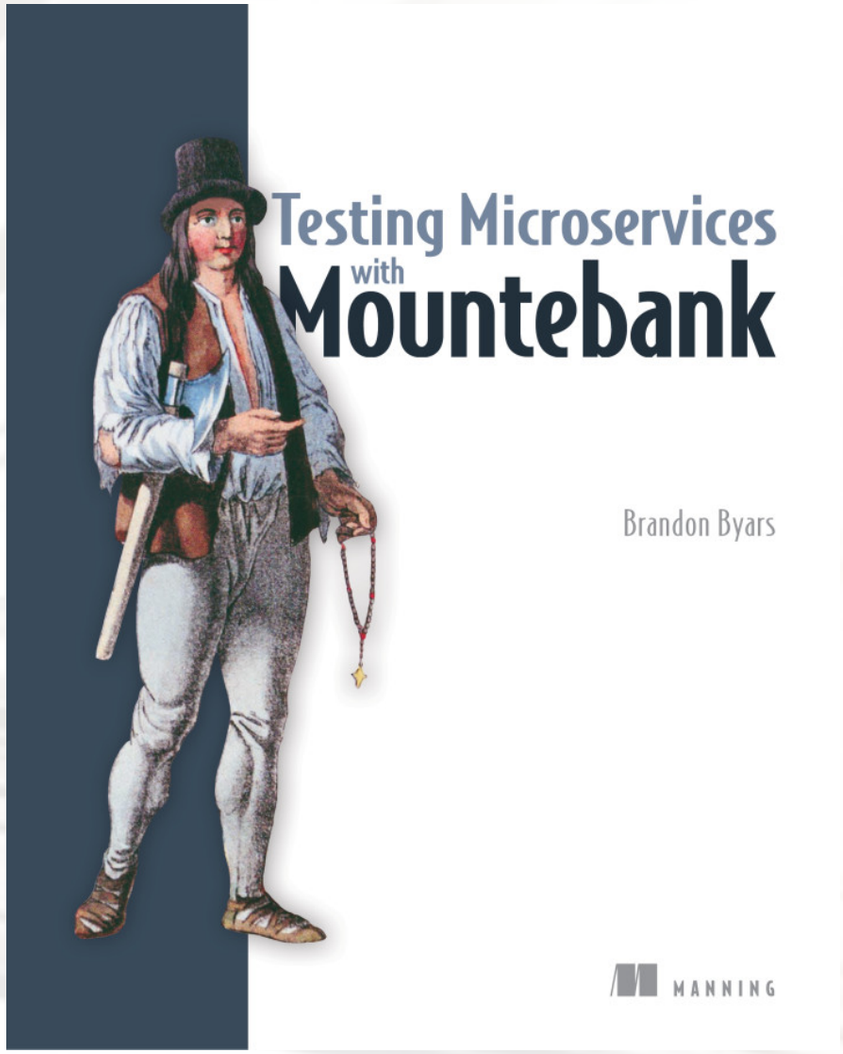
Update npm

```
npm install npm -g
```

Install mountebank

```
npm install mountebank -g
```

Books to Read and Practice



https://www.manning.com/books/testing-microservices-with-mountebank