

Tools & Strategies for Consuming APIs



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What this talk...

...IS

- 3rd Party Web APIs
- Types of APIs
- Tools for testing
- Coding strategies
- Communicating with owner

...ISN'T

- Building APIs
- Evaluating APIs
- Judgy

Oh... and beer

**IF YOU JUDGE SOMEONE
FOR BEING JUDGEMENTAL**



ARE YOU BEING JUDGEMENTAL ?

Application Programming Interface

“...a set of subroutine definitions, protocols, and tools for building application software. In general terms, it is a set of clearly defined methods of communication between various software components.”

- wikipedia

API types

RPC (remote procedure call)

REST (representational state transfer)

SOAP (simple object access protocol)



If we want beer...

	RPC	REST
Get all beers	GET /GetAllBeers	GET /beers
Get a single beer	GET /GetBeer?beerid=001	GET /beers/001
Add a beer	POST /AddBeer	POST /beers
Update a beer	POST /UpdateBeer?beerid=001	PUT /beers/001
Delete a beer	POST /DeleteBeer?beerid=001	DELETE /beers/001

Response types

JSON

```

"currentPage": 1,
"numberOfPages": 1313,
"totalResults": 65638,
"data": [
  {
    "id": "cBLTUw",
    "name": "\"18\" Imperial IPA 2",
    "nameDisplay": "\"18\" Imperial IPA 2",
    "description": "Hop Heads this one is made with 2 tons of US 2 Row Barley to get that perfect",
    "abv": "11.1",
    "glasswareId": 5,
    "srmId": 33,
    "styleId": 43,
    "isOrganic": "N",
    "status": "verified",
    "statusDisplay": "Verified",
    "createDate": "2013-01-20 21:38:10",
    "updateDate": "2016-08-17 16:05:50",
    "glass": {
      "id": 5,
      "name": "Pint",
      "createDate": "2012-01-03 02:10:10"
    },
    "srm": {
      "id": 33,

```

XML

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<root>
  <currentPage>1</currentPage>
  <numberOfPages>1313</numberOfPages>
  <totalResults>65638</totalResults>
  <data>
    <item>
      <id>cBLTUw</id>
      <name>&quot;18&quot; Imp</name>
      <nameDisplay>&quot;18&quot; Imp</nameDisplay>
      <description>Hop Heads this one&
        Made with tons of US 2 Row
      <abv>11.1</abv>
      <glasswareId>5</glasswareId>
      <srmId>33</srmId>
      <styleId>43</styleId>
      <isOrganic>N</isOrganic>
      <status>verified</status>
      <statusDisplay>Verified</statusDisplay>
      <createDate>2013-01-20 21:38:15</createDate>
      <updateDate>2016-08-17 16:05:54</updateDate>
      <glass>
        <id>5</id>
        <name>Pint</name>
        <createDate>2012-01-03 02:41</createDate>
      </glass>
      <srm>

```

PHP

```

:5:{s:11:"currentPage";i:1;s:13:"numberOfPages":
:"description";s:246:"Hop Heads this one'
US 2 Row Barley to get this to ABV 11.1%.
:"createDate";s:19:"2013-01-20 21:38:15";
:2:"33";s:3:"hex";s:6:"520907";};s:5:"styl
:"American-Style Imperial Stout";s:9:"sho
robust. The extremely rich malty flavor a
malt astringency and bitterness can be mo
should be absent.";s:6:"ibuMin";s:2:"50";
:"createDate";s:19:"2012-03-21 20:06:46";
:"description";s:479:"Our first beer has
t is a mildly hoppy pale ale using a 2 row,
addition of a roasted caramel malt gives
:"verified";s:13:"statusDisplay";s:8:"Ver
:"Available year round as a staple beer."
:"name";s:23:"American-Style Pale Ale";s:
American-variety hop character producing
sulfur-like American hop varieties. One o
medium body and low to medium maltness.
temperatures.";s:6:"ibuMin";s:2:"30";s:6:
:"createDate";s:19:"2012-03-21 20:06:45";
:"Milwaukee Brewing Co's take on a classi
porter, rich in roasted malt flavors and
Bourbon Barrels imparted a layer of vanil
e first developed this beer in 2007. Our fir

```

If we want beer with SOAP...

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:tem="http://tempuri.org/"
xmlns:beer="http://schemas.datacontract.org/2004/07/BeerWithSoapService">
  <soapenv:Header/>
  <soapenv:Body>
    <tem:GetAllBeers>
      <tem:getAllBeersRequest>
        <beer:BaseRequest>
          <beer:APIKey>ILoveBeer</beer:APIKey>
          <beer:ClientCode>TonyaZen</beer:ClientCode>
          <beer:RequestId>d6502749-e425-4c71-a79d-904792ac4733</beer:Reque
          <beer:Version>V1</beer:Version>
        </beer:BaseRequest>
      </tem:getAllBeersRequest>
    </tem:GetAllBeers>
  </soapenv:Body>
</soapenv:Envelope>
```

```
<s:Envelope xmlns:s="http://schemas.xmlsoap.org/soap/envelope/">
  <s:Body>
    <GetAllBeersResponse xmlns="http://tempuri.org/">
      <GetAllBeersResult xmlns:a="http://schemas.datacontract.org/2004/07/Be
        <a:BaseResponse>
          <a:DisplayErrorMessage i:nil="true"/>
          <a:RequestId>d6502749-e425-4c71-a79d-904792ac4733</a:RequestId>
          <a:RequestTimeStamp>2017-07-24T11:58:38.9420794-04:00</a:Request
          <a:ResponseStatus>Success</a:ResponseStatus>
          <a:TechnicalErrorMessage i:nil="true"/>
        </a:BaseResponse>
      <a:Beers>
        <a:Beer>
          <a:Abv>6.6%</a:Abv>
          <a:Brewery>Founder's Brewing Co.</a:Brewery>
          <a:Id>1</a:Id>
          <a:Name>Red's Rye</a:Name>
```



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Tools



Airborne

Postman

Apex Ping

Pyresttest

Apigee Api Studio

Rest-Assured

Assertible

Rest Console

Chakram

RestSharp

DreddHippie

RoboHydra Server

HttpMaster Express

SoapUI

Karate DSL

Swagger

Mockbin

WebInject

Demo!

Code Review

1. Separate your service layer
2. Consider implementing an interface for your service class
3. Set up your logging right away
4. Wrap your API calls in Try/Catches
5. Consider using a response object that includes a call status and message
6. Create your own objects

Cheers to Good Communication

1. First... consult the documentation
2. Utilize their ticketing system
3. Provide raw request and response
4. Be nice

Drink Responsibly!

Questions?

Demo: <https://github.com/tonyazen/OnTapNow>

