White House Web API Standards

Open Source, Open Data

Executive Office of the President

Leigh Heyman, Director of New Media Technologies
Bryan Hirsch, Tech Lead, New Media Technologies
“Among our commitments, we’re launching a new online tool – called ‘We the People’ -- to allow Americans to directly petition the White House, and we’ll share that technology so any government in the world can enable its citizens to do the same.”

-- President Barack Obama, September 20, 2011
Open Source at the White House

September 2011
We the People

Participation Growth

11,682,634 Total Signatures
7,262,523 Total Users

WH.GOV/PETITIONS

Thursday, May 2, 13
APIs at the White House??
APIs at the White House??
https://github.com/whitehouse/api-standards
• Approach
• API Standards
• How to use it
• How to contribute
• **Approach**
• API Standards
• How to use it
• How to contribute
• **Approach**
• API Standards
• How to use it
• How to contribute

Maintainability
• **Approach**
• **API Standards**
• **How to use it**
• **How to contribute**

**Maintainability**

- nodes
- entities
- taxonomy terms
- sites/default/files
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• How to contribute

**Maintainability**
- nodes
- entities
- taxonomy terms
- sites/default/files

Thursday, May 2, 13
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Maintainability

petitions/civil-rights/2011
petitions/economy/2013
petitions/environment/2012
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**Maintainability**

- petitions/civil-rights/2011
- petitions/economy/2013
- petitions/environment/2012
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Maintainability

petitions/civil-rights/2011
petitions/economy/2013
petitions/environment/2012
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**REST**

*Great. Now what do we do?*
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**Pragmatic REST**

http://api.example.gov/v1/magazines.json
http://example.gov/api/v1/magazines.xml
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**Versions**
- v1, v2, v3  **Good**
- v-1.1, v1.2, 1.3  **Bad**
• Approach
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RESTful URLs
• Approach
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• Approach
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• Approach
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/webAllLeashedDogs
/webVerifyVetrinarianLocation
/webFeedNeededFood
/webCreateRecurringMedication
/webDoDirectOwnerDiscipline
/webDoExpressCheckupWithVetrinarian
/webGetRecurringFeedingSchedule
/webGetHungerLevel
/webGetSquirrelsChasingPuppies
/webNewDogForOwner
/webGetNewDogsAtKennelSince
/webGetRedDogsWithoutSiblings
/webGetSittingDogsAtPark
/webGetLeashedDogsStateTo
/webReplaceParkSittingDogsWithRunningDogs

Web API Design, by Brian Mulloy
## HTTP verbs

<table>
<thead>
<tr>
<th>Resource</th>
<th>POST</th>
<th>GET</th>
<th>PUT</th>
<th>DELETE</th>
</tr>
</thead>
<tbody>
<tr>
<td>/dogs</td>
<td>create</td>
<td>read</td>
<td>update</td>
<td>delete all dogs</td>
</tr>
<tr>
<td>/dogs/1234</td>
<td>Error</td>
<td>Show Bo</td>
<td>If exists, update Bo; if not, error</td>
<td>Delete Bo</td>
</tr>
</tbody>
</table>

**Web API Design**, by Brian Mulloy
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http://api.example.gov/...
Approach

API Standards

How to use it

How to contribute

http://api.example.gov/...

GET
/v1/magazines.json
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Good

http://api.example.gov/...

GET
/v1/magazines.json
/v1/magazines.json?topic=economy
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http://api.example.gov/…

GET
/v1/magazines.json
/v1/magazines.json?topic=economy
/v1/magazines/1234.json
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http://api.example.gov/...

GET
/v1/magazines.json
/v1/magazines.json?topic=economy
/v1/magazines/1234.json
/v1/magazines/1234/articles.json
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Good

http://api.example.gov/...

GET
/v1/magazines.json
/v1/magazines.json?topic=economy
/v1/magazines/1234.json
/v1/magazines/1234/articles.json
/v1/magazines/1234.json?
    fields=title,subtitle,date
Approach

**API Standards**

How to use it

How to contribute

http://api.example.gov/...

GET
/v1/magazines.json
/v1/magazines.json?topic=economy
/v1/magazines/1234.json
/v1/magazines/1234/articles.json
/v1/magazines/1234/articles.json?
    fields=title,subtitle,date

POST
/v1/magazines/1234/articles
Bad

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http://api.example.gov/...
Bad

http://api.example.gov/...

GET
/magazine
/magazine/1234
/publisher/magazine/1234

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GET
/magazine
/magazine/1234
/publisher/magazine/1234

POST
/magazine/1234/create

http://api.example.gov/...
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Bad

http://api.example.gov/...

GET
/magazine
/magazine/1234
/publisher/magazine/1234
/magazine/2011/desc

POST
/magazine/1234/create
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Responses
• Approach
• **API Standards**
• How to use it
• How to contribute

Responses

"tags": [
  {"id": "125", "name": "Environment"},
  {"id": "834", "name": "Water Quality"}
],
• Approach
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**Responses**

```
"tags": [
  {"id": "125", "name": "Environment"},
  {"id": "834", "name": "Water Quality"}
]
```
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Responses

"tags": [
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  {"id": "834", "name": "Water Quality"}
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Responses

```
"tags": [
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  {"id": "834", "name": "Water Quality"}
],
```

```
"tags": [
  {"125": "Environment"},
  {"834": "Water Quality"}
],
```
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**Error handling**
• Approach
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**Error handling**

- 200 - OK
- 400 - Bad Request
- 500 - Internal Server Error
Error handling

{
  "status" : "400",
  "developerMessage" : "Verbose, plain language description of the problem. Provide developers suggestions about how to solve their problems here",
  "userMessage" : "This is a message that can be passed along to end-users, if needed.",
  "errorCode" : "444444",
  "moreInfo" : "http://www.example.gov/developer/path/to/help/for/444444,
           http://drupal.org/node/444444",
}
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Record limits
• Approach
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```json
{
    "metadata": {
        "resultset": {
            "count": 50,
            "offset": 25,
            "limit": 25
        }
    },
    "results": [ {...} ],
}
```
• Approach
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**Request & response examples**
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JSONP

Without JSONP:

http://api.example.gov/v1/foo

Returns

{ foo: 'bar' }

With JSONP

http://api.example.gov/v1/foo?callback=mycallback

Returns

mycallback({ foo: 'bar' });
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• Approach
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Requirements
Code review
QA
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Issues & Pull requests
https://api.whitehouse.gov

https://github.com/whitehouse/api-standards

http://www.whitehouse.gov/developers

http://petitions.whitehouse.gov/developers

http://www.whitehouse.gov/blog/issues/technology

@whweb

lheyman@oa.eop.gov

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Leigh Heyman,  Director of New Media Technologies

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