



Python and REST

Kevin Hibma

What is REST? Why REST?

- **REST** stands for Representational State Transfer. (It is sometimes spelled "**ReST**".) It relies on a stateless, client-server, cacheable communications protocol -- and in virtually all cases, the HTTP protocol is used. **REST** is an architecture style for designing networked applications.
 - > rest.elkstein.org/2008/02/what-is-rest.html
- *Ummm what?* (search has a lot of similar definitions)
- For this session we'll use the term REST to loosely describe how we (python scripts) connect and talk to a server / web service end point.
- and Why? Because its easier (and nicer) than SOAP!

What can I do?

- **ArcGIS Server**
 - Consume, create, update, administer
- **ArcGIS Online (arcgis.com)**
 - Consume, create, update, configure
- **Web services (both ArcGIS and not-ArcGIS)**
 - Consume, update (with permission)

Development pattern

- **Authenticate (get a token) depending on operation**
- **Build URLs to hit different end points**
 - `http://server/arcgis/rest/service/QUERY`
- **Most requests are POST (vs. GET)**
- **Send and receive a JSON payload**
 - A REST service could send data back in another format

What to put where?

(how do I know what a request needs and what a response gives)

- Read API help doc
 - <http://esriurl.com/restapi>
- Use Fiddler2
 - With fiddler running, perform actions in a browser or other client inspect requests / response

The screenshot shows the Fiddler2 interface with a REST API request and response. A green box labeled "URL" points to the request URL in the browser's address bar. Another green box labeled "Query parameters" points to the query string table. A third green box labeled "Response" points to the JSON response body.

Host: services5.arcgis.com
URL: /fef1QOfOwB7ly9yl/arcgis/rest/services/ChiptolePlaces/FeatureServer/0/query

Name	Value
inSR	
spatialRel	esriSpatialRelIntersects
distance	
units	esriSRUnit_Meter
outFields	City, Sales
returnGeometry	false

```
{
  "type": "Feature",
  "properties": {
    "City": "Chipotle-Boynton Beach,FL ",
    "Sales": 86240.8657061199
  }
},
{
  "type": "Feature",
  "properties": {
    "City": "Chipotle-Bradenton,FL ",
    "Sales": 294935.765580972
  }
}
```

The background features a vibrant blue gradient. On the left side, there are several overlapping geometric shapes in shades of purple and yellow. One prominent yellow shape contains a faint, grid-like pattern, possibly representing a map or data visualization. The overall aesthetic is modern and tech-oriented.

Time for some code

Links

- **Documentation and examples**
 - <http://esriurl.com/scriptRESTAPI>
- **Ready to go tools, scripts and command line**
 - <http://esriurl.com/AGStools>
- **Code as iPython notebook**
 - <coming soon>



Understanding our world.