

Special Topic: Priority: Mail!



**Validate and autocomplete mailing addresses using
the Google Maps API, 4D HTTP Client commands
and 4D Objects**

Special Topic: Priority: Mail!



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Summary

- **Why validate?**
- **Alternate methods**
- **Google Geocoding**
- **4D Objects**
- **Google Place Autocomplete**
- **I can do that!**
- **Conclusion**
- **Questions**



Disclaimer



What I am showing you may well be illegal/ violate usage agreement.

**See the Maps API terms of use for specific details:
<https://developers.google.com/maps/terms>**

If you follow any of my example and get into trouble... it was all your idea :)

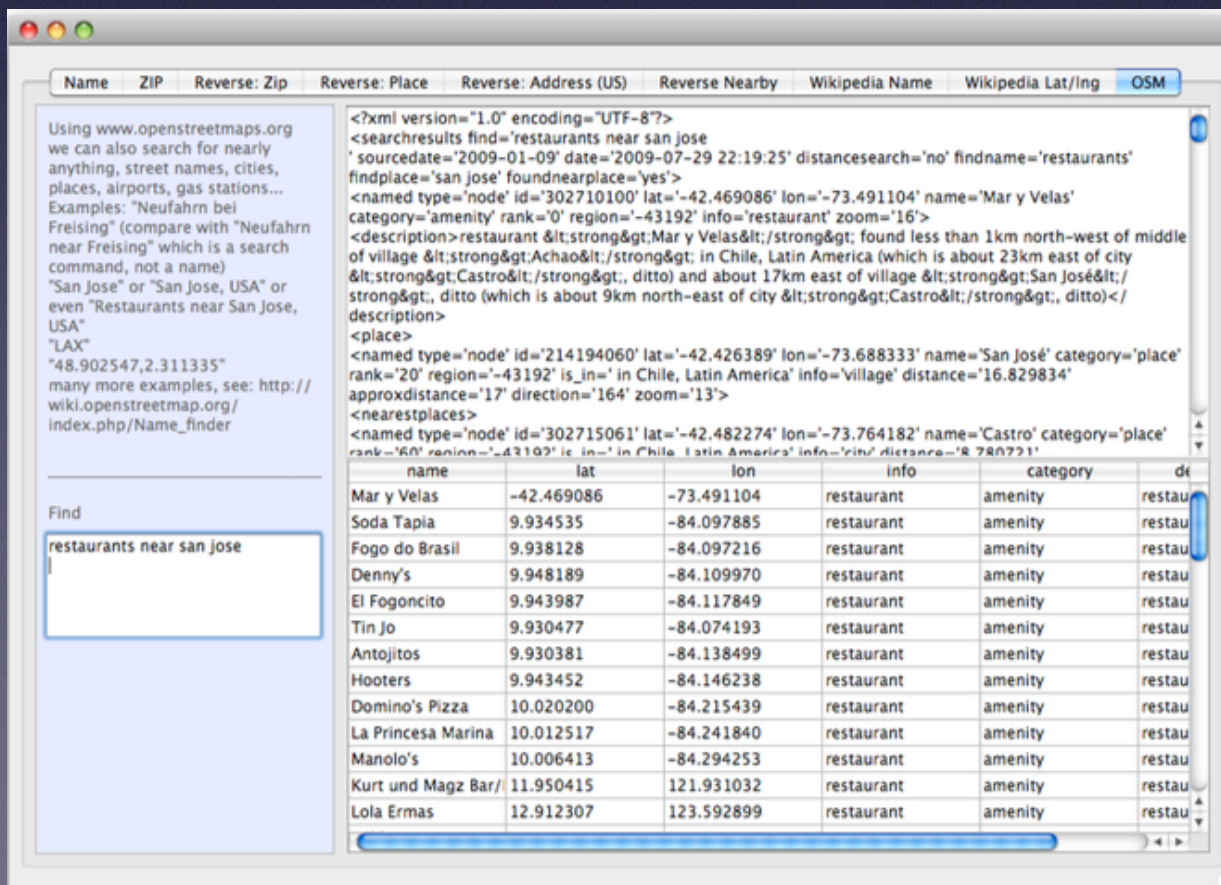
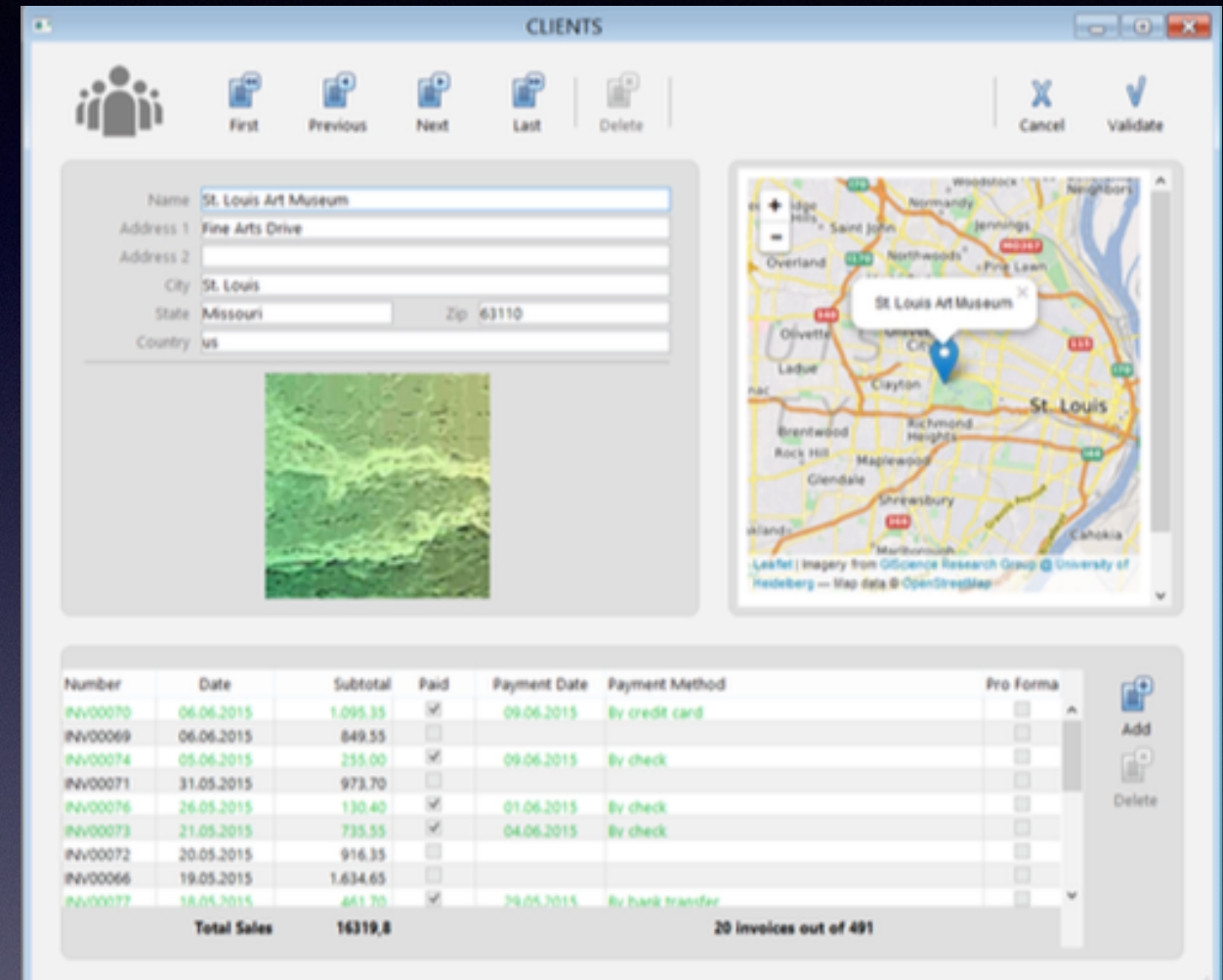
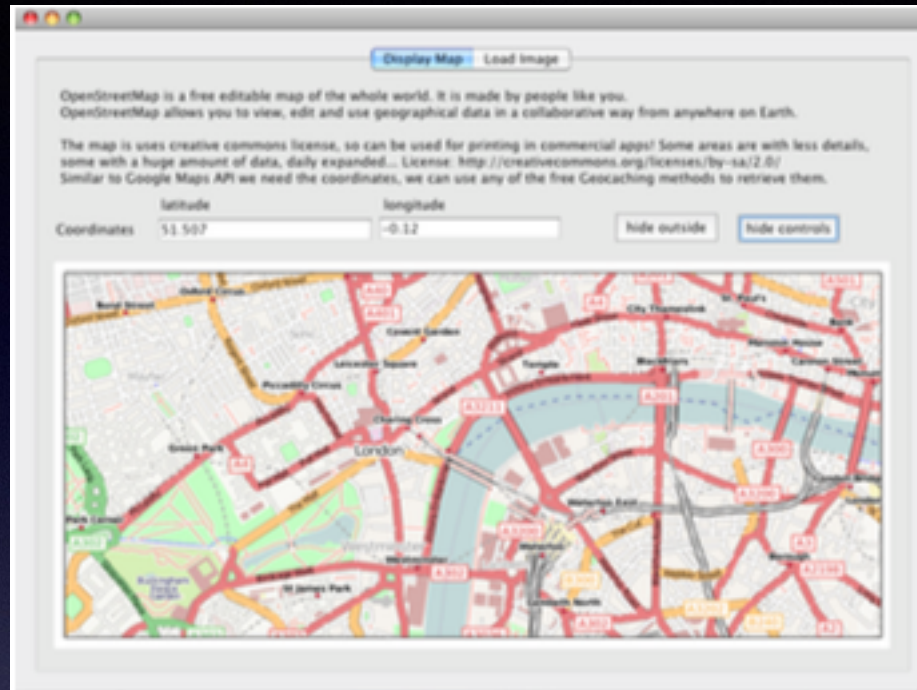
Why validate?

- Mailing addresses, so passé, but still vital/ valuable data!
- Prospective/ current customers, invoicing, shipping, process control
- Is there anybody out there?
- For some companies, addresses are closely related to their business model (real estate, advertising...)
- Data mining for business intelligence. Location based performance measures/ correlations

Alternate methods

- This demo focuses on Google but...
 - OpenStreetMap
 - Mapquest API
 - US Postal Service API for US addresses
 - SmartyStreets
 - Strikelron
 - Lob
 - Cdyne
 - ...

Previous Tech Notes



Previous Tech Notes

- **Map Integration with Data Cluster Display**
<http://kb.4d.com/assetid=77329>
- **Embedding Maps in 4D using Open Layers**
<http://kb.4d.com/assetid=75908>
- **Geocoding Using Public Data**
<http://kb.4d.com/assetid=75857>
- **Embedding Maps in 4D using Google Maps**
<http://kb.4d.com/assetid=75854>

Thomas Maul, come see us at 4DMethod!

Google Geocoding

- Google Maps in 4D, been done before. Possible since v2004 using 4D Live Window, now web areas
- Google Maps also has a web API
- JSON list of potentially matching addresses
- Broken down into address components
- Does good job handling misspelling and variable format of input addresses to find match
- Effectively corrects the input = validating address

Google Geocoding

- **Returns:**
 - **Address in standardized formatted string following postal regulations**
 - **Also broken down into base elements such as:**
 - **House number**
 - **Street/ Street Direction**
 - **City**
 - **County, neighborhood**
 - **Latitude, longitude**
 - **Very important...Google Place UID**

Google Geocoding

- **Able to cleanse new address input and historical address data of errant or malformed values**
- **Break apart addresses into base elements for further leveraging of data in statistical analysis**
- **Combine that with displaying addresses on a google map... it is very powerful**

Google Geocoding

See example calls and responses here:

[https://developers.google.com/maps/documentation/geocoding/
intro](https://developers.google.com/maps/documentation/geocoding/intro)

Monitor usage:

<https://console.developers.google.com>

Access in 4D

- **HTTP Client commands**
 - **HTTP Get**
- **4D Object variables and now fields**
 - **C_OBJECT**
 - **ARRAY OBJECT**
 - **JSON Parse**
 - **OB Get**
 - **OB GET ARRAY**

**Put it all together and Google address validation is quite
easy!**

Demo tips

- **Tech Tip: Generating Test Data Easily and Quickly**
<http://kb.4d.com/assetid=77042>
- **IRS sample data**
Tax Exempt Organizations & Business
<http://www.irs.gov/Charities-&-Non-Profits/Exempt-Organizations-Business-Master-File-Extract-EO-BMF>
- **Tech Tip: URL Encoding and Decoding in 4D**
<http://kb.4d.com/assetid=76959>

Demo

Google Place Autocomplete

- **Google Places API Web Service**
<https://developers.google.com/places/webservice/>
- Returns place predictions
- Request specifies a textual search string and optional geographic bounds
- Places such as businesses, addresses and points of interest

Demo

I can do that!

- **A smarter and more handsome man than myself once told me that the best way to get your software to be used by a client for a very long time is to create an API for other applications to access your data.**
- **Cool thing is that you can make your own RESTful web service with 4D by using 4D Mobile and Wakanda or the 4D Web Server and JSON Objects**
- **Best current format for mobile/ web app integration**

Conclusion

Groovy, I can validate my data and autocomplete input.

“Sometimes fun costs ya.”

Just one example of how to use these powerful commands. Very interesting APIs out there!

Questions?

