draft-ietf-opsawg-finding-geofeeds

OpsAreaWG

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IP GeoLocation

- To deal with country regulations
- To provide localized content
- Troubleshooting
- Research

Who is Doing It?

MaxMind: https://support.maxmind.com/geoip-data-correction-request/

dbip: https://db-ip.com/report/?addr=__YOUR_IP__

IP Info: https://ipinfo.io/contact?s=correction

RIPE IPmap: https://ipmap.ripe.net/api/v1/crowdsource/_IP_OR_PREFIX_

IPdata.co: support@ipdata.co

IP2Location: support@ip2location.com

IPhub: https://iphub.info/contact

IPIP: support@ipip.net

IPligence: https://www.ipligence.com/contact

Neustar's IP GeoPoint: N/A - try generic support

NetAcuity: N/A - try generic contact

And if Your Data
Are Incorrect
You Have to Contact
Every one of Them!

There is no There There

- No Central Repository
- No Common Strategy
- No Authoritative Data
- Many companies have their own dataset
- Or enrich datasets of geolocation providers

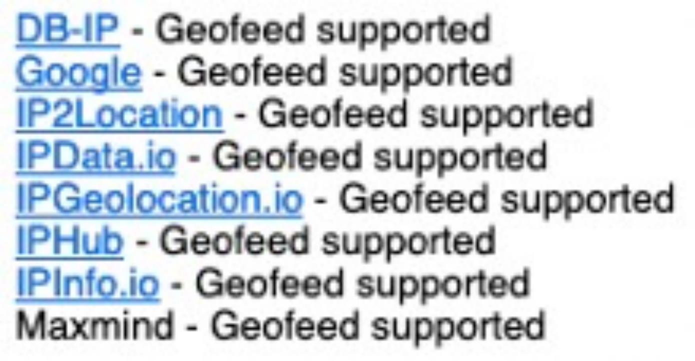
How Do They Do It?

- WhoIs Data
- DNS
- Lots of Strange Magic
- And now GeoFeeds (RFC 8805)!

```
# Geofeeds File for RGnet IP Address Space
# 2020.11.09
#
147.28.0.0/20,US,US-WA,Seattle,
192.83.230.0/24,US,US-WA,Seattle,
198.133.206.0/24,MK,,Skopje,
198.180.150.0/24,US,US-VA,Ashburn,
198.180.152.0/24,US,US-TX,Dallas,
```

GeoFeeds

- Format for self-published IP geolocation feeds RFC 8805
- Only if/what operator wants to publish
- Flexible
  - Geolocate single IPs or entire prefixes (longest prefix match)
  - Geolocate at whatever level you wish (from nothing to city)
- Adopted by Google and many geolocation providers



DB-IP - Geofeed supported
Google - Geofeed supported
IP2Location - Geofeed supported
IPData.io - Geofeed supported
IPGeolocation.io - Geofeed supported
IPHub - Geofeed supported
IPInfo.io - Geofeed supported
Maxmind - Geofeed supported

Discussion of the GeoFeeds File Format is in the GeoFeeds WG

(there isn't one)

But How Do You Find the GeoFeed Files?

IRR Whois

```
inetnum:        147.28.0.0 - 147.28.15.255
netname:        RGNET-RSCH-147-0
country:        EE
org:            ORG-RO47-RIPE
admin-c:        RB45695-RIPE
tech-c:         RB45695-RIPE
abuse-c:        AR52766-RIPE
status:         LEGACY
notify:         rw@rg.net
mnt-by:         MAINT-RGNET
remarks:        Geofeed https://rg.net/geofeed
source:         RIPE
```

remarks:
You Must Be Kidding!

IRRng Whois

```
inetnum:         147.28.0.0 - 147.28.15.255
netname:         RGNET-RSCH-147-0
country:         EE
org:             ORG-RO47-RIPE
admin-c:         RB45695-RIPE
tech-c:          RB45695-RIPE
abuse-c:         AR52766-RIPE
status:          LEGACY
notify:          rw@rg.net
mnt-by:          MAINT-RGNET
geofeed:         https://rg.net/geofeed
source:          RIPE
```

In the rpsl WG. Oh, there isn't one ☺

Finds Covering inetnum:

```
% whois -h whois.ripe.net 147.28.0.62
inetnum:        147.28.0.0 - 147.28.15.255
netname:        RGNET-RSCH-147-0
country:        EE
org:            ORG-RO47-RIPE
admin-c:        RB45695-RIPE
tech-c:         RB45695-RIPE
abuse-c:        AR52766-RIPE
status:         LEGACY
mnt-by:         MAINT-RGNET
remarks:        Geofeed https://rg.net/geofeed
source:         RIPE # Filtered
```

Scope!

```
# Geofeeds File for RGnet IP Address Space
# 2020.11.09
#
147.28.0.0/20,US,US-WA,Seattle,
#
192.83.230.0/24,US,US-WA,Seattle,
#
198.133.206.0/24,MK,,Skopje,
#
198.180.150.0/24,US,US-VA,Ashburn,
198.180.152.0/24,US,US-TX,Dallas,
```

Covered by Four inetnum:s

Use the Longest Match inetnum:

And only what is covered by it

A Bit of Detail

- inetnum: and inet6num:, of course
- Multiple inet[6]num: can refer to the same geofeed file iff the file is not signed!
- Serve GeoFeed data over HTTPS, please
- An optional authenticator MAY be appended
  - Is the Geofeed data authorized by the 'owner'? The inetnum: which points to the geofeed file provides some assurance
  - Additionally, a digest of the main body of the file signed by the private key of the relevant RPKI certificate for the covering prefix can be added
- ARIN uses NetRange, sigh

Strong Signature

```
# Geofeeds File for RGnet IP Address Space
# 2020.11.09
#
198.180.150.0/24,US,US-VA,Ashburn,
198.180.152.0/24,US,US-TX,Dallas,
#
# RPKI Signature: 198.180.150.0/22
# MIIGlwYJKoZIhvcNAQcCoIIGiDCCBoQCAQMxDTALBglghkgBZQMEAgEwDQYLKoZ
# IhvcNAQkQAS+gggSxMIIErTCCA5WgAwIBAgIUJ605QIPX8rW5m4Zwx3WyuW7hZu
...
# imwYkXpiMxw44EZqDjl36MiWsRDLdgoijBBcGbibwyAfGeR46k5raZCGvxG+4xa
# O8PDTxTfIYwAnBjRBKAqAZ7yX5xHfm58jUXsZJ7Ileq1S7G6Kk=
# End Signature: 198.180.150.0/22
```

Automation

- You can parse bulk whois data
- Publicly available over FTP for RIPE, LACNIC, AFRINIC, APNIC
- Partially available for ARIN, or
  - You ask bulk access (geo providers already use such data), or
  - You get the NetRanges from bulk and Comments from whois/rdap

There's an App for That!

https://github.com/massimocandela/geofeed-finder

Steps

Run the binary ./geofeed-finder-linux-x64

See the final geofeed file in result.csv