

IPWorks 3GPP AAA Server Geography Data Description

INTERWORK DESCRIPTION

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1 Introduction

This document describes IPWorks AAA Server Geography data. The data are contained in two Comma-Separated Values (CSV) files:

- <Geography_IP>.csv: It contains the Geography IP data.
- <Anonymous_Proxy>.csv: It contains the Anonymous proxy data.

The CSV format follows the definition in [RFC 4180 Common Format and MIME Type for CSV Files](#) with the following restrictions:

- Header line is mandatory, where the first line of the CSV file contains the name of fields.
- Each field cannot be enclosed in double quotes.

IPWorks AAA Server does not provide Geography data. The customer can acquire data from third-party Geography data provider and translate the data as specific format defined in this document. Then, the Geography data is imported into the Internal Geography DB of IPWorks AAA Server.

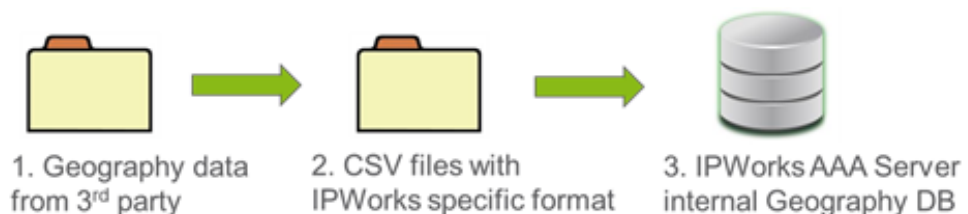


Figure 1 Geography Data Processing

This document only describes the CSV files with IPWorks specific format.

1.1 Prerequisites

Not Applicable.

1.2 Related Information

Trademark information, typographic conventions, definition, and explanation of acronyms and terminology can be found in the following documents:

- *Trademark Information*
- *Glossary of Terms and Acronyms*



- *Typographic Conventions*

2 Concept

The Geography IP is the mapping from IP address to physical address of registrant in form of ISO 3166-1 alpha-2 Country Code.

The Anonymous proxy is a tool that attempts to make activity on the network untraceable. It is a proxy server computer that acts as an intermediary between a client device and the rest of the network. Anonymous proxy accesses the target network on behalf of user and hides the identifying information of the client computer, for example, the user IP address.

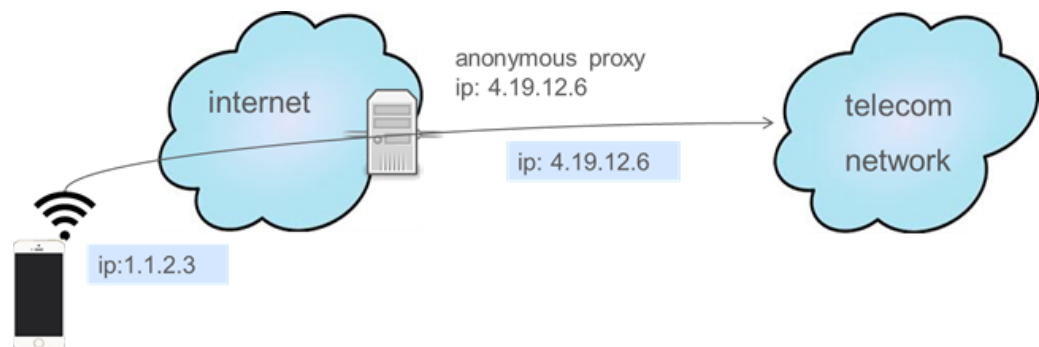


Figure 2 Anonymous Proxy in Network





3 IPWorks AAA Server Geography Data

3.1 Geography IP CSV File

Header line of Geography IP CSV File has two fields. The first field is `subnet` and the second field is `iso_cc`. The detail is defined in Table 1.

Table 1 Geography IP CSV File

Field Number	Field Name	Description	Example
1	<code>subnet</code>	<p>All IPv4 addresses in a subnetwork belong to the same country.</p> <p>It is written as the first address of a network, followed by a slash character (/), and ended with the bit-length of the prefix.</p> <p>No network overlap is allowed for any 2 subnets.</p>	<p><code>1.0.1.0/24</code></p> <p>The first IP is <code>1.0.1.0</code>.</p> <p>The last IP is <code>1.0.1.255</code>.</p>
2	<code>iso_cc</code>	Country Code in format of ISO 3166-1 alpha-2 standard.	CN

For example:

```
# cat ./aaageoipv4.csv
subnet,      iso_cc
1.0.0.0/24,  AU
1.0.1.0/24,  CN
...
```

3.2 Anonymous Proxy CSV File

Header line of Anonymous Proxy CSV File has one field `subnet`. The detail is defined in Table 2.

*Table 2 Anonymous Proxy Table*

Field Name	Description	Example
subnet	<p>All IP addresses in a subnetwork are anonymous proxies.</p> <p>It is written as the first address of a network, followed by a slash character (/), and ended with the bit-length of the prefix.</p> <p>No network overlap is allowed for any 2 subnets.</p>	<p>1.169.65.4/32</p> <p>The first IP is 1.169.65.4.</p> <p>The last IP is 1.169.65.4.</p>

For example:

```
# cat ./aaaanonproxyipv4.csv
subnet
1.9.21.21/32
1.169.65.4/32
...
```



4 Appendix

4.1 Tool to Import IPWorks AAA Server Geography Data

Usage: `/opt/ipworks/IPWss/db/geoip/load_geoip_data.py -f <CSV_FILENAME> -t <AAA_DB_TABLENAME>`

With:

CSV_FILENAME	The filename of IPWorks 3GPP AAA Geography data, for example, <code>/tmp/aaageoipv4.csv</code>
AAA_DB_TABLENAME	The table name must be <code>aaageoipv4</code> for IPWorks AAA Server Geography IP data.
	The table name must be <code>aaaanonproxyipv4</code> for IPWorks AAA Server Anonymous Proxy data.

4.2 Example Code

4.2.1 Convert MaxMind GeoIP2 DB to IPWorks Specific Format

```
#!/usr/bin/python
```

```
import csv
```

```
output_ipworks_geoipv4_filename = "./aaageoipv4.csv"
input_maxmind_geoip_cc_filename= "./Geo-Country-Locations-en.csv"
input_maxmind_geoip_cb_filename= "./Geo-Country-Blocks-IPv4.csv"
```

```
file_out = open(output_ipworks_geoipv4_filename,"w")
dic_isocc={}
```

```
with open(input_maxmind_geoip_cc_filename) as fi_isocc:
    for each_isocc in csv.DictReader(fi_isocc):
        if each_isocc['geoname_id'] == "":
            raise csv.Error("The value of 'geoname_id' is empty, it's invalid")
        dic_isocc[each_isocc['geoname_id']] = each_isocc['country_iso_code']
```

```
file_out.write("subnet,iso_cc\n")
```

```
with open(input_maxmind_geoip_cb_filename) as fi_network:
    for each_network in csv.DictReader(fi_network):
        try:
            if each_network['geoname_id'] == "":continue
            file_out.write(each_network['network']+','+dic_isocc[each_network['geoname_id']]+'\n')
        except KeyError as e:
            raise csv.Error('Key: %s is not exist in file %s' % (e, input_maxmind_geoip_cc_filename))
file_out.close()
```



4.2.2 Convert MaxMind Anonymous IP DB to IPWorks Specific Format

```
#!/usr/bin/python
```

```
output_ipworks_anonproxy_filename = "./aaaaanonproxyipv4.csv"
input_maxmind_anonproxy_filename= "./GeoIP2-Anonymous-IP-Blocks-IPv4.csv"

file_in = open(input_maxmind_anonproxy_filename)
file_out = open(output_ipworks_anonproxy_filename, "w")

file_out.write("subnet\n")
for each in file_in.readlines()[1:]:
    fields = map(str.strip, each.split(","))
    # field[0]:network
    # field[1]:is_anonymous
    if (fields[1] == '1'):
        file_out.write(fields[0]+'\\n')
```