



IP Geolocation

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Tata Communications Limited

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Why IP Geolocation required ?

- ✓ **Providing Local Content** (Nearby Stores, Local News, Weather, Region specific info)
- ✓ **Security & Fraud Detection** (Identifying suspicious Logins from unusual Locations, Detecting potentially fraudulent transactions)
- ✓ **Regulatory Compliance** (Enforcing Country/ Region specific restrictions)
- ✓ **Language & regional settings** (Selecting likely Language, Currency, Time Zone)
- ✓ **Network Management** (Analyze & optimize Traffic Patterns)



Use of VPN/ Proxies/ Corp NW (CGNAT) affects IP Geolocation.

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Top IP Geolocation Providers

MaxMind: One of the longest-standing providers, famous for its GeoIP2 databases and the MMDB standard format. It is highly trusted for both precise location tracking and online fraud detection.

IPinfo: Known for offering comprehensive IP intelligence that covers geolocation, ISP details, and connection types (e.g., distinguishing mobile from broadband).

IP2Location: Offers both IP2Location.io cloud APIs and downloadable databases, with valuable built-in proxy and VPN fraud scoring capabilities.

BigDataCloud: Provides enterprise-grade geolocation APIs, offering a generous free tier for low-volume requests alongside flexible scaling.

IP-API.com: A highly popular, fast, and reliable solution that is free for non-commercial use with no API key required.

DB-IP: Provides comprehensive global IP intelligence and downloadable databases favored by network administrators and developers.

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Geofeed

Geo Feed (or Geofeed) is a standardized file that allows an organization (typically an ISP, Cloud Service Provider, or Enterprise) to publish the geographic locations associated with its IP address ranges. Geolocation providers can use this information to improve the accuracy of IP geolocation databases. ([RFC 8805](#)).

How a Geofeed works

An organization creates a geofeed file containing:

- [IP address prefixes \(IPv4/IPv6\)](#)
- [Country](#)
- [Region/State](#)
- [City](#)
- [Optional postal code](#)

The file is hosted on a publicly accessible web server.

The organization publishes the location of the geofeed in its routing registry (using the geofeed attribute in relevant records).

IP geolocation providers (such as MaxMind, IPinfo, and others) periodically retrieve the geofeed and update their databases. [#apnic62](#)

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Relationship with IP Geolocation

A Geofeed is **one of the inputs** used by IP geolocation providers. Other inputs include :

- ☐ Regional Internet Registry (RIR) records
- ☐ Network routing (BGP) data
- ☐ Reverse DNS
- ☐ Network latency and topology measurements
- ☐ User-contributed and partner data

For this reason, even if an ISP publishes a geofeed, IP geolocation remains a **best-effort service**. Accuracy depends on whether geolocation providers consume the geofeed, how frequently they update their databases, and the methods they use to validate location information.

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Our presence



TGN- Atlantic
TGN- Eurasia
TGN- Gulf
TGN- Intra Asia
TGN- Intra Asia2
TGN- Pacific

TGN-TIC
TGN-WER
TGN-India(Terrestrial)
TGN-India Bangladesh (#2 ITC Route)
TGN-India-Nepal (#3 ITC Route)
TGN-India-Bhutan
TGN-India-Bhutan (#2 ITC Route)

AAE-1
AAG
APCN-2
AJC
APG
ASE
B3JS

BBG
EIG
FASTER
IMEWE
Indigo-Central
Indigo-West
PEACE

SAFE/SAT3
SEA ME
WE4
SEA ME
WE5
SJC
SJC2
TEAMS
UAE

UNITY
AEC-1
ASC
BIFROST
C2C/EAC
DUNANT
Equiano

EXA
EXPRESS
EXA North

FNAL
GLOBENET
I2I
MAIN ONE
MAREA

PIPE(PPC-1)
SEABRAS-1
SEACOM
SOUTHER CROSS NEXT
PC-1



#1

Enterprise data services in India



100%

Cloud giants are connected to their businesses through us



#1

Wholesale voice provider submarine cable owner on-net mobile signaling (globally)

TATA COMMUNICATIONS



RECOGNISED FOR OUR EXCELLENCE

Leader in Gartner Magic Quadrant for network services

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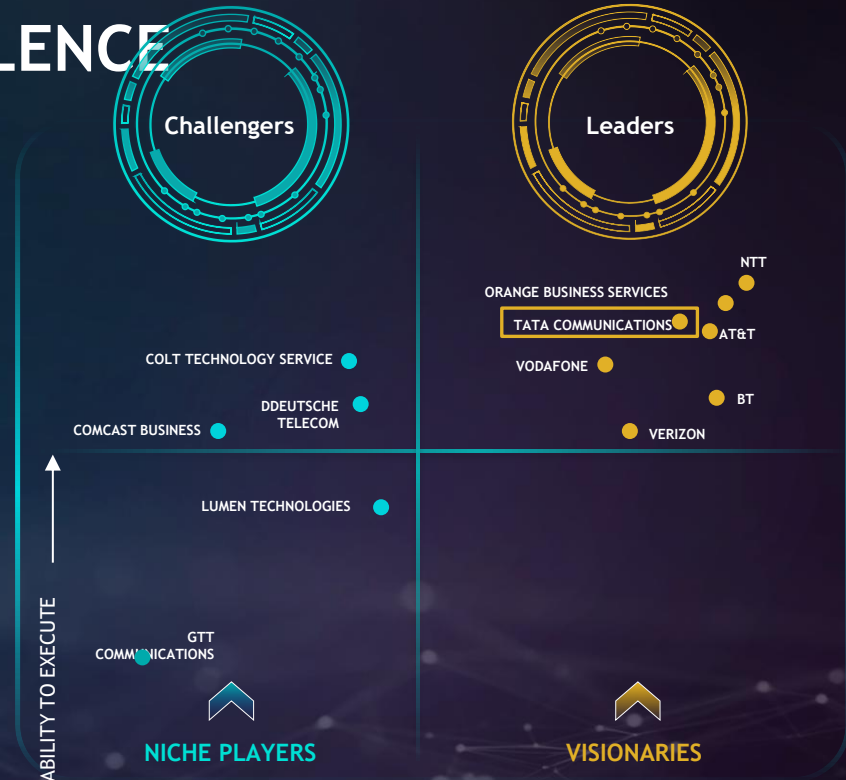
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A ROW

ANALYST TAKE ON TATA COMMUNICATIONS

IZO™ WAN offers deterministic routing, strong SLAs, and centralized global support in **190+ countries**

Enhanced Network on Demand for agile bandwidth scalability and **400G-readiness**

Unique Monitoring-as-a-Service across both **on-net and third-party** connections



COMPLETENESS OF VISION
SOURCE: GARTNER (FEBRUARY 2022)

As of AUGUST 2022

Analysts: Danellie Young, Karen Brown, Gaspar Valdivia
Publishing Date: Feb 2023

@ Gartner, Inc



IP subnet allocation list

Filters

[AFRINIC](#) [APNIC](#) [ARIN](#) [LACNIC](#) [RIPE](#) [Any](#)

[IPv4](#) [IPv6](#) [Any](#)

[Reset](#)

Network	Router	Description	Date changed	Owner	User	Action
80.231.14.246/31	IZO-RIPE-6453	RCUST:A01HQ_F2C_NP1:ROQUETTE FRERES::1034299	2019-06-21 06:44:31	Kunal.Ambavane@tatacommunications.com	smoon	▼

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IP Geofeed file (<https://lg.as6453.net/geo/geofeed.csv>)

Example Geo-feed

Prefix, Country, Region, City

203.0.113.0/24,IN,DL,New Delhi

198.51.100.0/24,IN,KA,Bengaluru

2001:db8:100::/48,IN,MH,Mumbai

5.23.22.8/31 AT AT-9 vienna

5.23.22.12/30 AT AT-9 vienna

195.219.197.96/32 AT AT-9 Wien

43.241.41.0/27 AU AU-NSW sydney



80.231.71.5

Products ▾

Data ▾

Why IPinfo? ▾

P

Summary >

Geolocation

Privacy

ASN

Company

Abuse

Privacy

✓ True

Need more data or want to access it via API or data downloads? Sign up

ASN type

Hosting

Abuse contact

6453abuse@tatacommunications.com

IP Geolocation

City Vienna

State Vienna

Country  Austria

Postal 1010

Local time 03:01 PM, Wednesday, March 04, 2026

Timezone Europe/Vienna

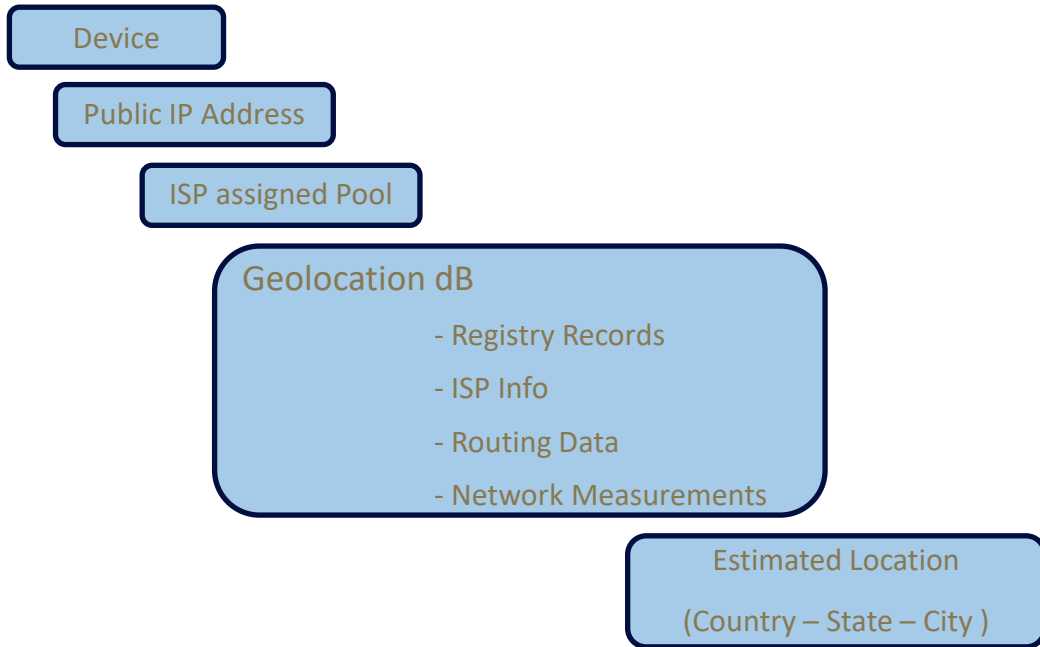
Coordinates 48.2085 N, 16.3721 E

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Simplified Flow



Level	Typical Accuracy
Country	95-99%
State/Region	70-95%
City	50-80%
Street Address	Generally, not possible from IP alone



Use case - IP Geolocation Issue

Problem Statement :

The customer reported an incorrect Geo-IP location, where users were being redirected to French web portals instead of the intended regional services.

Analysis :

The Regional Internet Registry (RIR) records were verified and updated with the correct registration details.

Validation across multiple industry-recognized Geo-IP reference databases confirmed that the IP addresses were correctly mapped to the intended geographic location.

However, the customer identified that one Geo-IP lookup portal ("[GEOLOCATION.com](#)") continued to display the IP location as France.

Investigation :

A detailed investigation revealed that the portal was not maintaining its own Geo-IP database but relied on a third-party Geo-IP data provider. As a result, the incorrect location information originated from the external database rather than Tata Communications' IP registration records.

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Use case ... Contd

Actions Taken :

Verified and confirmed the accuracy of the RIR registration data.

Cross-validated the IP location across multiple Geo-IP database providers.

Engaged with the third-party Geo-IP database maintainer and formally requested correction of the inaccurate location information.

Followed up regularly with the database maintainer over a period of approximately two months to expedite the update.

Outcome :

Despite repeated follow-ups, the third-party Geo-IP database provider had not updated its records. Since the Geo-IP mapping was controlled by an external provider, Tata Communications had no direct authority to modify the data.

Conclusion :

Geo-IP accuracy across third-party platforms depends on the individual update cycles and policies of each Geo-IP database provider. While Tata Communications ensures that RIR records and supported Geo-IP databases are updated accurately, corrections on independent third-party databases are outside its direct control. Accordingly, Geo-IP updates on such external platforms are provided on a best-effort basis due to this third-party dependency.

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Way forward ? - How RIR can play an active role in such cases ?

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Shailesh Gupta



Shailesh has 37+ years of global industry experience cutting across OEM, Telecom, ISP, MSP, Cloud & Security. He has graduated in [Computer Science & Engineering](#) (Hons, Silver Medalist) and holds PG Diploma in Operations Management.

He started his career with [ICL \(International Computers Limited\)/ ICIM](#) as Sr CS Executive. He has installed and maintained Mainframe (S-39) & Mini computers (ICL 101, Krypton 1025) at IITs, SCB, Grindlays, BOI, LIC, SBI etc.

Shailesh served [NIC \(National Informatics Center\)/ GOI](#) as Scientist "SD". He has deployed C-Band/ KU-Band based [NICNET](#) & digitized Treasuries, PIB, Passport 1.0, RBI, FCI and various other State & Central Government organizations.

He has served [VSNL/Tata Communications Limited](#) as Vice President (Global Service Operations). Shailesh has been instrumental in Internet re-launch, setting up IP based Call Center/ PABX, establishing [NOC & SOC](#) (Service Operations Center), integration of various acquired organizations like Dishnet, TISL, PrimeNet, Teleglobe etc. Shailesh has set up [MSD](#) (Multi Services Desk), which extends Day-2 support to Network, Ent-Voice, Security & Cloud services. [ACE](#) (Auto Config Engine)/ NetP has been deployed & started [24*7 SD Provisioning](#) under the leadership of Shailesh, which automates Service-Delivery/ Day-1 Process. Shailesh also deployed [RF Network](#) (MMDS, LMDS, Wi-Max, UBR). He has been responsible for setting up [Captive SOC](#) (Security Operations Center) for SEBI, UBI, IFTAS, HP, ITI and various Regulatory & BFSI clients.

In current role, Shailesh is responsible for transformation of Service Assurance & Service Delivery through setting up ["Dark-NOC"](#) & deployment of [Agentic-AI](#) in various Day-1 & Day-2 processes. Re-Org SD & SA and NetP replacement

Shailesh is a member of [ICANN RSSAC](#) Caucus Membership Committee & served Tata-Comm [IPAdmin](#) for various RIRs. He is also Task Force member for BIS/ GOI.

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