Neustar® IP Intelligence

IP GeoPoint

This Data Glossary provides a definition of each field in IP GeoPoint, along with the possible response values and their meanings.

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Introduction

Neustar IP Intelligence is provided in IP GeoPoint data *fields* that describe each characteristic of an IP address, and those fields are grouped into three categories:

- Location and Network Connectivity Information
- Network Ownership data
- Proxy details

This Glossary provides a definition of each field in IP GeoPoint, along with the possible response values and their meanings.

Unless otherwise noted, all IP GeoPoint data is provided in lowercase ASCII format, without special characters.

When there is not enough information available to assign a value to a field, IP GeoPoint returns a null value, "".

Conventions

Data fields: For each IP GeoPoint data field, the name of the field is presented below the heading, in monospaced typeface.

Return values: For those fields that have specific return values (such as `ip_routing_type`, `connection_type`, and `line_speed`), the values are also in monospaced typeface.

Location and Network Connectivity Data Fields

IP GeoPoint's location data fields provide the specific details of the location of the IP address. Network fields describe how the IP address is connecting to the internet.

Field	Data Field	Description	Available for IPv6 Addresses
Continent	`continent`	The continent in which the IP address is located. IP GeoPoint recognizes eight continents: • `africa` • `antarctica` • `asia` • `australia` • `europe` • `north america` • `oceania` • `south america`	✓

Field	Data Field	Description	Available for IPv6 Addresses
Country Code	`country_code`	The International Standard Organization's two-letter code indicating the name of the country, as defined in ISO-3166.	✓
Country	`country`	The full country name. IP GeoPoint provides coverage for every country in the ISO-3166-Alpha-2 code system.	✓
Country Confidence Factor (CF)	`country_cf`	Because IP addresses are located with different levels of precision, IP GeoPoint provides a country confidence factor that reflects a relative measure of certainty that the user is in the location identified in the `country` field. The possible values range from `0` (null) to `99`. The higher the value, the greater the likelihood that the user is in the assigned country.	✓
Region	`region`	Specifies generic regional information (such as `northwest`) for some countries, and specific information (such as `northern_ireland`) for a few other countries. Region information is currently available for the US, UK, Brazil, Canada, France, and the Philippines. In addition: Belgium, Burkina Faso, Equatorial Guinea, Greece, Guinea, Indonesia, Ireland, Italy, Malawi, Marshall Islands, New Zealand, Occupied Palestinian Territory, Russian Federation, Slovenia, Spain, Sri Lanka, and Uganda.	✓
Region Identifier	`region_ref_id`	An integer value that uniquely identifies the region within the Neustar geography taxonomy.	NA
State Code	`state_code`	The International Standard Organization's code indicating the name of the state, as defined in ISO-3166. NOTE: State code information is currently available for 90 countries.	✓
State	`state`	IP GeoPoint provides information for states and provinces (that is, the first-level administrative division) in all countries where they exist. NOTE: In order to best serve our customers, many of whom operate in countries outside the US, IP GeoPoint uses the localized spelling for `state` values. For example, the state of Tuscany in Italy is identified as 'toscana' in IP GeoPoint data. This approach ensures the highest degree of system compatibility, as well as the ability to use localized state names for customer applications serving those countries.	✓

Field	Data Field	Description	Available for IPv6 Addresses
State Confidence Factor (CF)	state_cf	Because IP addresses are located with different levels of precision, IP GeoPoint provides a state confidence factor that reflects a relative measure of certainty that the user is in the location identified in the state field. The possible values range from 0 (null) to 99. The higher the value, the greater the likelihood that the user is in the assigned state.	NA
State Identifier	state_ref_id	An integer value that uniquely identifies the city within the Neustar geography taxonomy.	NA
City	city	IP GeoPoint locates users to their individual cites and recognizes over 270,000 distinct international locations. NOTE: In order to best serve our customers, many of whom operate in countries outside the US, IP GeoPoint uses the localized spelling for city values. For example, the city of Rome in Italy is identified as 'roma' in IP GeoPoint data. This approach ensures the highest degree of system compatibility, as well as the ability to use localized state names for customer applications serving those countries	✓
City Confidence Factor (CF)	city_cf	Because IP addresses are located with different levels of precision, IP GeoPoint provides a city confidence factor that reflects a relative measure of certainty that the user is in the location identified in the city field. The possible values range from 0 (null) to 99. The higher the value, the greater the likelihood that the user is in the assigned city.	✓
City Identifier	city_ref_id	An integer value that uniquely identifies the region within the Neustar geography taxonomy.	NA
Postal Code	postal_code	The postal code assigned to the corresponding city. Most of IP GeoPoint's postal code assignments are derived from the city field. Where we have sufficient evidence, the postal code is explicit. IP GeoPoint provides postal codes for most countries.	✓
Postal Code Confidence Factor (CF)	postal_code_cf	Because IP addresses are located with different levels of precision, IP GeoPoint provides a postal code confidence factor that reflects a relative measure of certainty that the user is in the location identified in the postalCode field. The possible values range from 1 to 5. The higher the value, the greater	NA

Field	Data Field	Description	Available for IPv6 Addresses
		the likelihood that the user is in the assigned postal code. NOTE: This field is only available for IP Addresses in Argentina, Australia, Austria, Belgium, Brazil, Canada, China, Denmark, France, Germany, India, Italy, Japan, Mexico, Netherlands, Russian Federation, Spain, Turkey, the UK, and the US.	
Area Code (Phone Number Prefix)	`area_code`	A phone number prefix assigned to the corresponding cityPrefixes are available in the US, Canada, and selectively in other countries. NOTE: `areaCode` does not include the telephone country code.	✓
Time Zone	`time_zone`	Time zone is provided as a +/- offset from Greenwich Mean Time (GMT), represented as a floating point number, so that you can calculate what time it is in the location provided. Values can be between -11 and 13. The time zone is derived from the `city` field if known, or from the `country` field if `city` is unknown. If `city` is unassigned and the country spans multiple time zones, a value of '999' is returned.	✓
Latitude	`latitude`	The latitude of the identified location, expressed as a floating point number with range of -90 to 90, with positive numbers representing North and negative numbers representing South. Latitude and longitude are derived from the city or postal code.	✓
Longitude	`longitude`	The longitude of the identified location, expressed as a floating point number with range of -180 to 180, with positive numbers representing East and negative numbers representing West. Latitude and longitude are derived from the city or postal code.	✓
Defined Market Areas (DMA)	`dma`	Defined Market Areas (DMAs) are codes assigned to geographical regions where the population typically receives similar media. Traditionally radio and television were the target media, but the regions are also applicable to newspapers and Internet. The code is based on Nielsen's market codes and also has parity with Google's metropolitan area codes. The geographical areas defined by the code can coincide and overlap with one or more metropolitan regions. For example, San Francisco, San Jose, and Oakland all fall into	✓

Field	Data Field	Description	Available for IPv6 Addresses
		the same DMA. The fields are defined in the US.	
Metropolitan Statistical Area (MSA)	`msa`	Metropolitan Statistical Areas (MSAs) are geographical boundaries of US counties or towns using the Core-Based Statistical Areas (CBSAs), as defined by the US Office of Management and Budget (OMB), from data gathered by the US Census Bureau. There is extensive demographic information available for these areas, and IP GeoPoint provides them to help our customers understand the demographics of their user populations. For more information on MSAs, see the US Census Bureau's MSA Overview and Definitions pages.	✓

Consistency Code	`consistency_code`	Describes the length of time of an IP-location linkage has existed for specified Country, State/Province, & City. Values provided will be 1, 2, 3 or 4:
		  1 = IP present in location only within last 30 days
		  2 = IP present in location for at least 30 days, but not more than 60 days
		  3 = IP present in location for at least 60 days, but not more than 90 days
		  4 = IP present in location for 90 days or more
			NA

Location Radius	`radius`	Describes the radius (in miles) around an IP-Geolocation assignment where the end-user is likely to be located: This would be based on all available information about an IP including Source data, ASN, Hostname, DMA, etc. as these factors tend to inform the proximity of an IP-Geolocation to the location assignment provided in our data.	NA
GeoNames Reference	`geonames_id`	Mapping of the Neustar location to the record in the GeoNames database when a corresponding record exists.	✓
IP Routing Type (IPRT)	`ip_routing_type`	The IP Routing Type (IPRT) specifies how the connection is routed through the Internet and can be used to determine how close the user is to the public IP address. For example, a user connecting through a fixed connection is likely very close to the connection. A user connecting through a regional proxy is probably in the same country as the connection, whereas a	✓

Field	Data Field	Description	Available for IPv6 Addresses
		user connecting through a satellite connection could be anywhere.	
		The possible IPRT values are bulleted below:	
		• `fixed`	
		The user is connecting through a fixed-line connection, such as cable, DSL, T1, and fiber. For a fixed IPRT, the user is likely to be at or near the location assigned to the IP.	
		• `aol`	
		• `aolpop`	
		• `aoldialup`	
		• `aolproxy`	
		The user is part of the AOL network. IP GeoPoint can identify the user country in most cases. However, establishing the user location below country is not possible. The specific values reflect specific functions within the AOL network. For most commercial applications, all these values indicate only that the IP address is part of the AOL network.	
		• `pop`	
		The user is dialing into a regional ISP (Internet Service Provider) and is likely to be near the IP location. Note, however, that the user might be dialing across geographical boundaries.	
		• `satellite`	
		The user is connecting to the Internet through a consumer satellite or a backbone satellite provider, where no information about the terrestrial connection is available. In both cases, the user can be anywhere within the beam pattern of the satellite, which can span a continent or more. By definition, the satellite IPRT does not by itself indicate that the end user is connected via satellite, rather that the user's traffic was routed through a satellite connection. To confirm that the end user is	

Field	Data Field	Description	Available for IPv6 Addresses
		connecting through a consumer satellite service, refer to connection_type field. • `cache proxy` The user is using a proxy connection, either through an Internet accelerator or a content distribution service. It is possible the user is located in a different country from the IP location. • `international proxy` The user is connecting through a proxy (not an anonymizer) that routes traffic from multiple countries. It is possible the user is located in a different country from the IP location. • `regional proxy` The user is connecting through a proxy (not an anonymizer) that routes traffic from multiple states within a single country. It is possible the user is located in a different state from the IP location. • `corp proxy` The user is connecting through a proxy (not an anonymizer) that routes traffic through edge nodes, or nexus points for traffic entering and exiting a corporate network. • `mobile gateway` The user is using a gateway to connect mobile devices to the public Internet. Many mobile operators, especially in Europe, serve more than one country and backhaul traffic through centralized network hubs. For example, Research in Motion, provider of the Blackberry service, backhauls US and Canadian traffic through Canada. Therefore, it is possible the user is located in a different country from the IP location.	
Connection Type	`connection_type`	Users can connect to the Internet in several different ways.	✓

Field	Data Field	Description	Available for IPv6 Addresses
		The possible connection types are bulleted below: • `ocx` Fiber optic connections (including OC-3, OC-48, OC-192, etc.), which are used primarily by large backbone carriers. • `tx` Leased line, that is, T1, T2, T3, or T4, circuits used by many small- and medium-sized companies. • `consumer satellite` High-speed or broadband links between a consumer and a geosynchronous or low earth orbiting satellite. By default, IP addresses with a consumer satellite Connection Type are assigned a satellite IP Routing Type as well. See the `satellite` IP Routing Type for more information. • `framerelay` Frame relay circuits, which can range from low- to high-speed and are used as a backup or alternative to T-1. Most often, they are high-speed links, so IP GeoPoint classifies them as such. • `dsl` Digital Subscriber Line broadband circuits, which include aDSL, iDSL, sDSL, etc. DSL ranges in speed from 256 Kbps (kilobits per second) to 20 Mbps (megabits per second). • `cable` Cable Modem broadband circuits offered by cable TV companies. Speeds range from 128 Kbps to 100 Mbps, and vary with the load placed on a given cable modem switch. • `isdn` Integrated Services Digital Network high-speed copper-wire technology, which provides 128 Kbps speed, with ISDN modems and switches offering 1 Mbps and greater speeds. Offered by some major telephony companies. • `dialup`	

Field	Data Field	Description	Available for IPv6 Addresses
		Consumer dial-up modem technology, which operates at 56 Kbps. Providers include Earthlink, AOL, and Netzero. • `fixed wireless` Fixed wireless connections, where the location of the receiver is fixed. This category includes WDSL providers such as Sprint Broadband Direct, as well as emerging WiMax providers. • `mobile wireless` Cellular network providers such as AT&T, Sprint, and Verizon Wireless who employ CDMA, EDGE, EV-DO, GPRS, 3G, and 4G technologies. Speeds vary from 19.2 Kbps to 12 Mbps. • `unknown low` Indicates that IP GeoPoint was unable to obtain the connection type. However, the estimated connection speed is low. • `unknown medium` Indicates that IP GeoPoint was unable to obtain the connection type. However, the estimated connection speed is medium. • `unknown high` Indicates that IP GeoPoint was unable to obtain the connection type. However, the estimated connection speed is high.	
Line Speed	`line_speed`	Indicates the speed of the connection to the Internet, divided into: `high`, `medium`, or `low`. This information is determined by the Connection Type as shown bulleted below: • `high` High speed connections include ocx, tx, and frame relay connection types. • `medium` Medium speed connections include consumer satellite, dsl, cable, fixed wireless, and isdn connection types. • `low` Low speed connections include dialup and mobile wireless connection types.	NA

Network Organization Data Fields

Neustar's network organization data fields can help customers parse incoming IP traffic not only by location but also by domain so that you can ensure your message or offer gets to the correct customer. With this data you can ensure an offer developed for a specific organization (e.g. university) is delivered to the students at that university. Conversely, you can block specific organizations or type of organization from accessing your sensitive data or proprietary resources.

Standard industry codes provide global ways to identify the industry associated with the IP address.

Field	Data Field	Description	Available for IPv6 Addresses
Autonomous System Number (ASN)	`asn`	The Autonomous System Number (ASN) is a globally unique number assigned to a group of networks administered by a single entity such as a Network Service Provider (NSP) or very large organization. ASNs are used to manage data routing via the Border Gateway Protocol (BGP). There are over 65,000 active ASNs. Using the ASN provides more consistency than using the `carrier` information, because ASNs remain static, while the specific names and ownerships of networks change. IP GeoPoint provides ASN information in 32-bit integer format.	✓
Second-Level Domain (SLD)	`sld`	The SLD is the part of the domain name that precedes the top-level domain. For example, in *www.home.neustar*, "home" is the second-level domain.	NA
Top-Level Domain (TLD)	`tld`	Identifies the most general part of the domain name in a Web address. Common top-level domains include *com*, *net*, *edu* (educational), *mil* (military), as well as country codes like *jp* (Japan) and *fr* (France).	NA
Registering Organization	`organization`	The Registering Organization is the entity responsible for the actions and content associated with a given block of IP addresses. This is in contrast to the carrier, which is responsible for the routing of traffic for network blocks. Registering Organizations include many types of entities, including corporate, government, or educational entities, and ISPs managing the allocation and use of network blocks.	✓
Carrier	`carrier`	Provides the name of the organization that owns the ASN. The carrier is responsible for the traffic carried on the network or set of networks designated as an Autonomous System (AS) and identified by the ASN. This field provides a more natural representation than the information provided in the `asn` field.	✓

		While there are more than 65,000 active ASNs, there are fewer carriers, because a single carrier often manages several ASNs.	
Home	`home`	Indicates whether the connection is made from a residential network. The home value is `true` if the connection is made from a residential or private network. Otherwise the value is false as the connection is considered to be made from a place of business, organization or public place. Mobile connections are considered private and have a true value.	✓
Organization Type	`organization_type`	Classification of the type of organization of the registering organization. This field provides heterogeneous categories that are useful for gaining more information about the user. Over 40 different categories for industries are provided, including Insurance, Banking, Lodging, Dining, Government, Education, Recreation, Advertising and Telecommunication, to name a handful. Services also include Internet Service Providers. For a complete list of classifications download the Organization Types Reference document from IP GeoPoint Resource Center.	✓
NAICS Code	`naics_code`	The associated North American Industry Classification System (NAICS) code, v2007, of the organization type.	✓
ISIC Code	`isic_code`	The associated International Standard Industrial Classification code, Rev. 4, of the organization type.	✓

Proxy Data Fields

Neustar IP GeoPoint developed a proprietary methodology for the identification of Internet proxies. This process provides a complete picture of an anonymized connection, giving you the tools you need for an intelligent assessment of risks and certainty when determining the location of a user as they visit your website.

Note: Currently for IPv6, proxy data fields are only available for IP Addresses when `anonymizerStatus = private`.

Data	Data Field	Description	Available for IPv6 Addresses
Anonymizer Status	`anonymizer_status`	A status is assigned to IP addresses that have been detected as a proxy. The status is an indicator that an IP address may be associated with an anonymizing proxy. It is a relative indicator of how recent the proxy was found to be active and the proxy's category. If there is no status designation, then there is no specific evidence that the IP address has been associated with an anonymous proxy.	✓

IP GeoPoint describes the anonymizer status by these types bulleted below:

- `active`

The anonymizer tested positive within the last month.

- `suspect`

The anonymizer tested positive within the last three months, but not the last month.

- `inactive`

The anonymizer tested positive within the last six months, but not in the last three months.

- `private`

IP addresses with this designation allegedly contain anonymous proxies that are not publicly accessible. As such, they cannot be routinely tested with automated tools. These addresses usually belong to commercial VPN ventures that sell anonymity services to the public (Hotspot Shield, CyberGhost, and others). Addresses with this designation are derived from ownership information or obtained from trusted, high-confidence sources.

Proxy Last Detected	`proxy_last_detected`	Provides the most recent date on which Neustar IP GeoPoint proxy detection technology confirmed the proxy was active or served as a private proxy. It provides a more granular indication that an IP addresses may be associated with an anonymizing proxy. Using the "last detected" date, you can decide how serious a threat the use of a proxy presents to your business. The format of the last detected date is yyyy-mm-dd.	✓
Proxy Level	`proxy_level`	The level describes the degree of concealment provided by the use of the proxy. While all proxies act as an intermediary between the user and requested website, proxies provide differing levels of obfuscation of the user's originating IP address. Levels of obfuscation include: transparent, anonymous, distorting and elite. IP GeoPoint describes the anonymizer level by these types bulleted below: • anonymous The proxy obscures the end user's IP address, but does not conceal that it is a proxy. The following information is provided in the HTTP header: REMOTE_ADDR = Proxy IP Address HTTP_VIA = Proxy IP Address HTTP_X_FORWARDED_FOR = Proxy IP Address	✓

		• distorting	
		The proxy obscures the end user's IP address and does not conceal that it is a proxy. However, the end user's IP address is replaced with a random IP address, thus there is a degree of subterfuge. The following information is provided in the HTTP header:	
		REMOTE_ADDR = Proxy IP Address HTTP_VIA = Proxy IP Address HTTP_X_FORWARDED_FOR = Random IP Address	
		• elite	
		The proxy obscures the end user's IP address and conceals that it is a proxy. The proxy appears to be an actual end user as all HTTP header fields are configured to appear as if a proxy is not in use:	
		REMOTE_ADDR = Proxy IP Address HTTP_VIA = Not Determined HTTP_X_FORWARDED_FOR = Not Determined	
		• transparent	
		The proxy does not obscure the end user's IP address, nor does it conceal that it is a proxy. These proxies are typically used for information caching and to provide joint access to the Internet for multiple computers. The following information is provided in the HTTP header:	
		REMOTE_ADDR = Proxy IP Address HTTP_VIA = Proxy IP Address HTTP_X_FORWARDED_FOR = End User IP Address	
Proxy Type	`proxy_type`	The network or protocol utilized by the server to proxy the user connection is identified. Proxy type classifications include the use of http, Tor, web and SOCKS.	✓
		IP GeoPoint describes the anonymizer type as listed below:	
		• http	
		The proxy uses the HTTP protocol and has open ports which are accessible by any Internet user.	
		• service	
		The proxy is operated by an organization (often for profit) that provides access to subscribers as a service. The proxy is one of an array of proxies (often internationally distributed) that are part of a Virtual Private Network (VPN) that subscribers connect to by installing an application. The network may have different proxy locations or bandwidth options depending on the user's membership level (paid or free).	
		• socks	

The proxy uses the SOCKet Secure (SOCKS) protocol and has open ports which are accessible by any Internet user.

- socks http

The proxy has both the HTTP and SOCKS protocols set up and has open ports which are accessible by any Internet user.

- tor

The proxy is part of The Onion Router (Tor) network. Encrypted user Internet traffic is routed through a regularly changing series of nodes operated by volunteers.

- unknown

The proxy's type could not be determined.

- web

The proxy operates through the use of an Internet web browser. Users navigate to the web proxy website, enter the URL of the site they actually wish to visit, and the contents of the requested URL are returned by the web proxy website within the browser.

- privacy proxy

The proxy is utilized by a Privacy Proxy Service Provider to provide additional privacy protections for end users. The end user traffic is proxied through additional IPs, masking the end user's IP. The end user does not have the ability to change the country for the IP, but the postal code, city, state, or region may be different from the end user's location.

VPN Service Name	vpn_service	For IPs with anonymizer_status 'private' and proxy_type 'service', indicating a VPN, this field indicates the name of the VPN service associated with the IP. NOTE: This field is currently available only through our datafile delivery method.	NA
Hosting Facility	hosting_facility	The hosting facility field is a quick determination of whether the connection originated at a facility that provides storage, computing or telecommunication services. A value of "true" indicates that the IP address is associated with a hosting facility; otherwise the value is "false". The designation of a hosting facility includes the following type of service providers: colocation, cloud computing, dedicated hosting, virtual private servers and web hosting.	✓