

**IP2LOCATION™ IP-COUNTRY-REGION-CITY-LATITUDE-
LONGITUDE-ZIPCODE-TIMEZONE-AREACODE-ELEVATION
DATABASE**

DATA FILE SPECIFICATIONS

| | | | |
|------------------------|---|-----|--------------------------------|
| Product: | IP2Location™ IP-Country-Region-City-Latitude-Longitude-ZIPCode-Timezone-Areacode-Elevation Database [DB21] | | |
| File Name: | IP2Location_IP_Country_Region_City_Latitude_Longitude_ZIPCode_Timezone_Areacode_Elevation_Specification.PDF | | |
| Total Fields: | 13 | | |
| Data Format Available: | i. | CSV | [Comma-Delimited ASCII] |
| | ii. | BIN | [IP2Location™ Binary Format] |

| FIELD # | FIELD NAME | DATA TYPE | FIELD DESCRIPTION |
|---------|--------------|--|---|
| 1 | IP_FROM | <u>IPv4</u> DECIMAL(10) <u>IPv6</u> DECIMAL(39) | Beginning of IP address range. The data is represented in IP number ¹ format. |
| 2 | IP_TO | <u>IPv4</u> DECIMAL(10) <u>IPv6</u> DECIMAL(39) | Ending of IP address range. The data is represented in IP number ¹ format. |
| 3 | COUNTRY_CODE | CHAR(2) | Two-character country code based on ISO 3166. |
| 4 | COUNTRY_NAME | VARCHAR(64) | Country name based on ISO 3166. |
| 5 | REGION | VARCHAR(128) | Region name. |
| 6 | CITY | VARCHAR(128) | City name. |
| 7 | LATITUDE | NUMERICAL (DOUBLE) | City latitude. Default to capital city latitude if city is unknown. |
| 8 | LONGITUDE | NUMERICAL (DOUBLE) | City longitude. Default to capital city longitude if city is unknown. |
| 9 | ZIP_CODE | CHAR(30) | ZIP/Postal code. Please refer to http://www.ip2location.com/zip-code-coverage for the latest coverage. |
| 10 | TIME_ZONE | VARCHAR(7) | Time zone in UTC (Coordinated Universal Time) with daylight saving time (DST). |
| 11 | IDD_CODE | VARCHAR(5) | The IDD prefix to call the city from another country. |
| 12 | AREA_CODE | VARCHAR(30) | A varying length number assigned to geographic areas for call between cities. |
| 13 | ELEVATION | NUMERICAL (INTEGER) | Average height of city above sea level in meters (m). |

Note:**¹ IP Address to IP Number Conversion**

If the IP address 161.132.13.1, then the IP number is 2709785857.

$$\begin{aligned}\text{IP Number, X} &= 161 \times (256 \times 256 \times 256) + 132 \times (256 \times 256) + 13 \times (256) + 1 \\ &= 2709785857\end{aligned}$$

In general, this is the formula to convert an IP Address to IP Number.

Let assume the IP Address is A.B.C.D.

$$\text{IP Number, X} = A \times (256 \times 256 \times 256) + B \times (256 \times 256) + C \times 256 + D$$

² Record Matching

First, convert the search IP Address to IP Number, X. Search a record that matches the range condition. You will get only one match per query. The country, city and ISP information is attached to country fields of the record.

$$\text{IP_FROM} \leq X \leq \text{IP_TO}$$