

**IP2LOCATION™ IP-COUNTRY-REGION-CITY-LATITUDE-  
LONGITUDE-ISP-DOMAIN DATABASE**

**DATA FILE SPECIFICATIONS**

Product:	IP2Location™ IP-Country-Region-City-Latitude-Longitude-ISP-Domain-Mobile Database [DB19]	
File Name:	IP2Location_IP_Country_Region_City_Latitude_Longitude_ISP_Domain_Mobile_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 <sup>1</sup> 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 <sup>1</sup> 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	ISP_NAME	VARCHAR(256)	Network provider managing the network routing policy within this network range.
10	DOMAIN_NAME	VARCHAR(128)	Domain name assigned to Internet network.
11	MCC	VARCHAR(256)	Mobile Country Codes (MCC) as defined in ITU E.212 for use in identifying mobile stations in wireless telephone networks, particularly GSM and UMTS networks.

FIELD #	FIELD NAME	DATA TYPE	FIELD DESCRIPTION
12	MNC	VARCHAR(256)	Mobile Network Code (MNC) is used in combination with a Mobile Country Code (MCC) to uniquely identify a mobile phone operator or carrier.
13	MOBILE_BRAND	VARCHAR(128)	Commercial brand associated with the mobile carrier.

**Note:****<sup>1</sup> 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.

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

**<sup>2</sup> 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.

$$\text{IP\_FROM} \leq X \leq \text{IP\_TO}$$