

## IP2LOCATION™ IP-COUNTRY-REGION-CITY DATABASE

### DATA FILE SPECIFICATIONS

|                        |  |
|------------------------|--|
| Product:               | IP2Location™ IP-Country-Region-City Database [DB3]                         |
| File Name:             | IP2Location_IP_Country_Region_City_Specification.PDF                       |
| Total Fields:          | 6  |
| Data Format Available: | i. CSV [ Comma-Delimited ASCII ]<br>ii. BIN [ IP2Location™ Binary Format ] |

| FIELD # | FIELD NAME   | DATA TYPE  | FIELD DESCRIPTION  |
|---------|--------------|--|--|
| 1       | IP_FROM      | <u>IPv4</u><br>DECIMAL(10)<br><u>IPv6</u><br>DECIMAL(39) | Beginning of IP address range. The data is represented in IP number <sup>1</sup> format. |
| 2       | IP_TO        | <u>IPv4</u><br>DECIMAL(10)<br><u>IPv6</u><br>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.   |

**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 and city information is attached to country fields of the record.

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