

IPFROMINT Function

Computes a four-octet internet protocol (IP) address from a 32-bit integer input.

Source value must be a valid integer within the range specified by the formula below. A valid IPv4 address is in the following format:

```
aaa.bbb.ccc.ddd
```

NOTE: IPv6 addresses are not supported.

The formula used to compute the integer equivalent of an IP address is the following:

$$(aaa * 256^3) + (bbb * 256^2) + (ccc * 256) + (ddd)$$

So, the formula to compute this IP address is the following:

| Input | aaa | bbb | ccc | ddd |
|-------|--|--|--|---------------------------|
| X | $aaa = \text{floor}(\text{Input} / (256^3))$ $\text{remainderA} = \text{Input} - aaa$ | $bbb = \text{floor}(\text{remainderA} / (256^2))$ $\text{remainderB} = \text{remainderA} - bbb$ | $ccc = \text{floor}(\text{remainderB} / 256)$ $\text{remainderC} = \text{remainderB} - ccc$ | $ddd = \text{remainderC}$ |

Output value:

$$\text{Output} = aaa + '.' + bbb + '.' + ccc + '.' + ddd$$

Wrangle vs. SQL: This function is part of Wrangle, a proprietary data transformation language. Wrangle is not SQL. For more information, see *Wrangle Language*.

Basic Usage

Numeric literal example:

```
ipfromint('16909060')
```

Output: Returns the IP address 1.2.3.4.

Column reference example:

```
ipfromint(IpInt)
```

Output: Returns the values of the `IpInt` column converted to an IP address value.

Syntax and Arguments

```
ipfromint(column_int)
```

| Argument | Required? | Data Type | Description |
|------------|-----------|-------------------|--|
| column_int | Y | string or integer | Name of column or integer literal that is to be converted to an IP address value |

For more information on syntax standards, see *Language Documentation Syntax Notes*.

column_int

Name of the column or integer literal whose values are used to compute the equivalent IP address value.

- Missing input values generate missing results.
- Multiple columns and wildcards are not supported.

Usage Notes:

| Required? | Data Type | Example Value |
|-----------|-------------------------------------|---------------|
| Yes | Integer literal or column reference | 16909060 |

Examples

Tip: For additional examples, see *Common Tasks*.

Example - Convert IP addresses to integers

This examples illustrates how you can convert IP addresses to numeric values for purposes of comparison and sorting.

Functions:

| Item | Description |
|-----------------------|---|
| IPTOINT Function | Computes an integer value for a four-octet internet protocol (IP) address. Source value must be a valid IP address or a column reference to IP addresses. |
| IPFROMINT Function | Computes a four-octet internet protocol (IP) address from a 32-bit integer input. |

Source:

Your dataset includes the following values for IP addresses:

| IpAddr |
|---------------------|
| 192.0.0.1 |
| 10.10.10.10 |
| 1.2.3.4 |
| 1.2.3 |
| http://12.13.14.15 |
| https://16.17.18.19 |

Transformation:

When the above data is imported, the application initially types the column as URL values, due to the presence of the `http://` and `https://` protocol identifiers. Select the IP Address data type for the column. The last three values are listed as mismatched values. You can fix the issues with the last two entries by applying the following transform, which matches on both `http://` and `https://` strings:

| | |
|--------------------------------|-------------------------|
| Transformation Name | Replace text or pattern |
| Parameter: Column | IpAddr |
| Parameter: Find | `http%?://` |
| Parameter: Replace with | ' ' |

NOTE: The `%?` Pattern matches zero or one time on any character, which enables the matching on both variants of the protocol identifier.

Now, only the `1.2.3` value is mismatched. Perhaps you know that there is a missing zero at the end of it. To add it back, you can do the following:

| | |
|---|-------------------------|
| Transformation Name | Replace text or pattern |
| Parameter: Column | IpAddr |
| Parameter: Find | `1.2.3[end]` |
| Parameter: Replace with | '1.2.3.0' |
| Parameter: Match all occurrences | true |

All values in the column should be valid for the IP Address data type. To convert these values to their integer equivalents:

| | |
|-----------------------------------|------------------------------|
| Transformation Name | New formula |
| Parameter: Formula type | Single row formula |
| Parameter: Formula | <code>IPTOINT(IpAddr)</code> |
| Parameter: New column name | 'ip_as_int' |

You can now manipulate the data based on this numeric key. To convert the integer values back to IP addresses for checking purposes, use the following:

| | |
|-----------------------------------|-----------------------------------|
| Transformation Name | New formula |
| Parameter: Formula type | Single row formula |
| Parameter: Formula | <code>IPFROMINT(ip_as_int)</code> |
| Parameter: New column name | 'ip_check' |

Results:

| | | |
|---|-----------|----------|
| X | ip_as_int | ip_check |
|---|-----------|----------|

| | | |
|-------------|------------|-------------|
| 192.0.0.1 | 3221225473 | 192.0.0.1 |
| 10.10.10.10 | 168430090 | 10.10.10.10 |
| 1.2.3.4 | 16909060 | 1.2.3.4 |
| 1.2.3.0 | 16909056 | 1.2.3.0 |
| 12.13.14.15 | 202182159 | 12.13.14.15 |
| 16.17.18.19 | 269554195 | 16.17.18.19 |