

How to calculate the Grid Square Locator

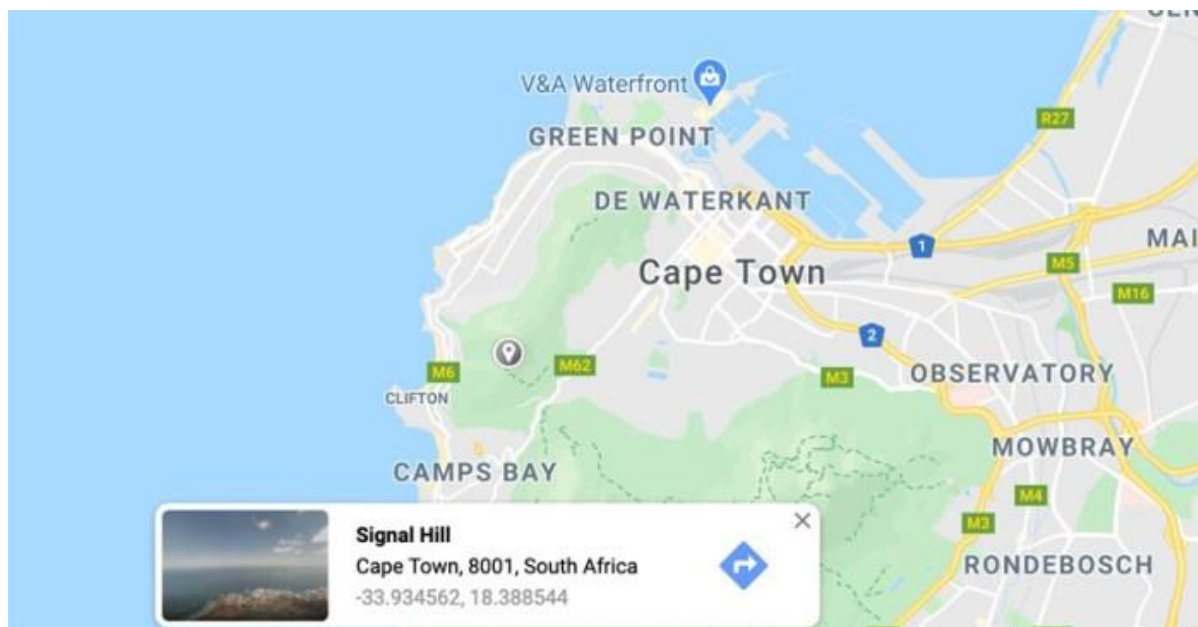
Here we want to try to demonstrate how to determine the classic six-digit grid square locator, converting latitude and longitude coordinates into the WW QTH Locator.

Calculations will determine at first the Field, the Square, and the Sub-Square.

In this calculation, we will need to determine the integer digit corresponding to each value, and it is important to consider the remainder of each division, used in the subsequent calculation.

Let us take an example, we need to determine the Grid Square Locator of Signal Hill in Cape Town South Africa, and from google maps we learn that is located at:

-33.934562 Latitude / 18.388544 Longitude



Field Calculation

The world is divided into a 18×18 fields, measuring 20°x10°.

The first operation is to add to longitude, 180° in order to work with positive numbers, since we need to determine a non-negative number. Afterward we will divide the result by 20 (degrees) and we will consider the integer number obtained and its remainder.

The letter, will correspond to the obtained number. Same calculation but adding 90 (degrees) and dividing by 10 times for Latitude.

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|---|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|
| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |

Longitude: 18.388544 degrees

= 18.388 + 180

= 198.388

= 198.388 / 20

= 9 + remainder 18.388
= **J** (location in 10th zone)

Latitude: -33.931833 degrees
= -33.931833 + 90
= 56.068167
= 56.068167 / 10
= 5 remainder 6.068167
= **F** (location in 6th zone)

Resulting Field is: JF

Square Calculation

We know that each Field is divided into 10×10 squares, measuring 2° x 1° each.
We will consider the remainders of previous Field calculation.

Longitude = 18.388
= 18.388 / 2
= 9 remainder (0.388)
= **9** (location in 9th zone)

Latitude = 6.068167
= 6.068167 / 1
= 6 remainder (0.68167)
= **6** location (location in 6th zone)

Resulting Square is: 96

Sub-Square calculation

Each sub-square is divided into 24×24 sub-squares, measuring 5 minutes (0.083333 degrees)
x2.5 minute (0.0416665 degrees).

The letter, will be the corresponding number.

| | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |

Longitude = 0.388
= 0.388 : 0.083333
= 4 remainder 0,097
= **E** (location in 5th zone)

Latitude = 0.68167
= 0.68167 / 0.0416
= 1 remainder 0.638
= **B** (location in 2nd zone)

Resulting Sub-Square: EB

