

EXPLANATION OF MGRS USED IN DCS WORLD GZD EXTRACTED FROM DCS MISSION EDITOR

Military Grid Reference Systems (MGRS)

MGRS is an alpha-numeric system for expressing UTM/UPS coordinates. A single alpha-numeric value references a position that is unique for the entire earth.

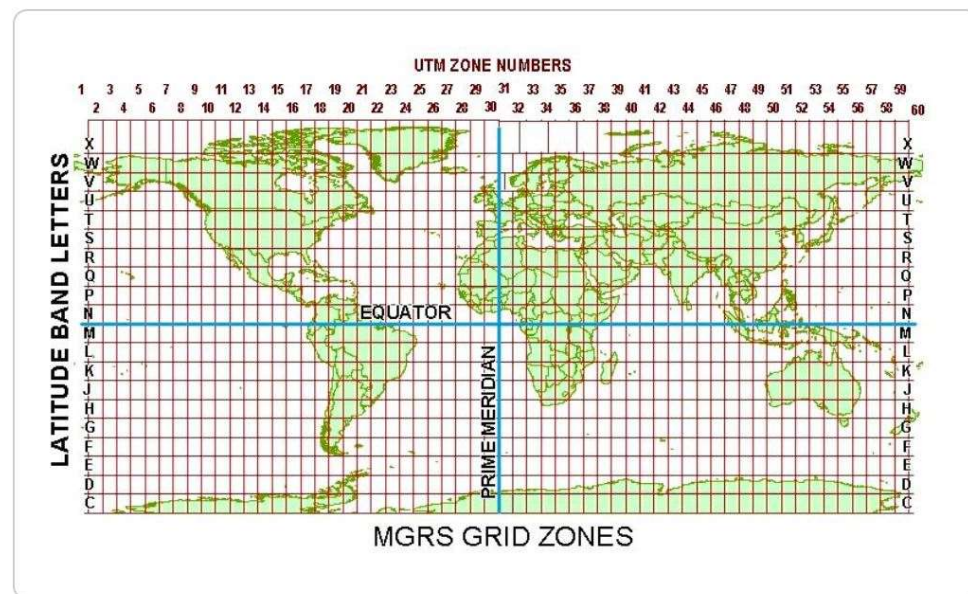
Using "15SWC8081751205" as an example, the components of MGRS values are as follows:

The **first two characters** represent the 6° wide UTM zone:

- Leading zeros are included so that Zone 9 is "09".
- For polar areas outside the UTM area, these characters are omitted.

The **third character** is a letter designating a band of latitude:

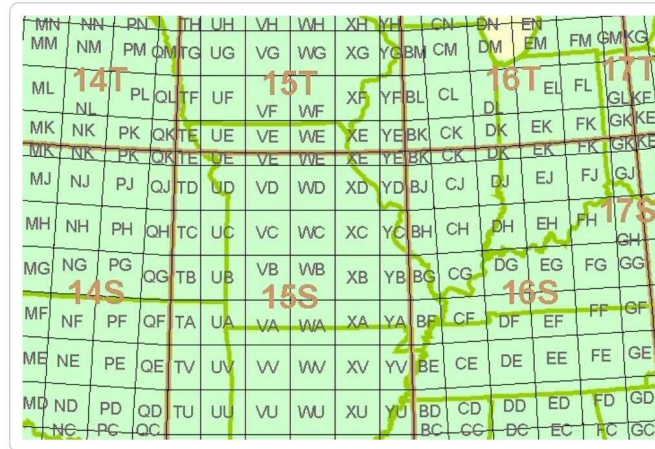
- Beginning at 80°S and preceding northward, the 20 bands are lettered C through X, omitting I and O.
- The bands are all 8° high except band X, which is 12° high.
- Outside the UTM area, and in lieu of UTM zone numbers, A and B are used near the South Pole, Y and Z near the North Pole.
- The vertical UTM boundaries and horizontal latitude band boundaries form (generally) 6° X 8° Grid Zones. Hence, the first three letters of the MGRS value, e.g. "15S", are referred to as the Grid Zone Designator (GZD).



The **fourth and fifth characters** are a pair of letters identifying one of the **100,000-meter grid squares within the grid zone (or UPS area)**. See figure to the right.

- In the figure sample area, the Grid Zone Designators are shown in brown. The smaller gray letters are the 100,000-meter grid square identifiers. The example point "15SWC8081751205" is located in the square "WC" near the center of the figure.

Warning! For MGRS, the letter after the UTM zone designates a latitude band. UTM has two widely used coordinate formats; one incorporates the MGRS latitude band letters, the other uses "N" and "S" to denote hemisphere. Caution must be used to not confuse the letter "S" band letter for a hemisphere designation and vice versa.



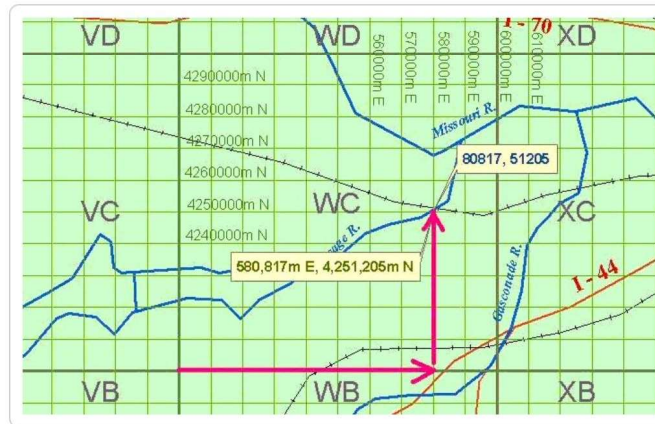
The **remaining characters** within the MGRS coordinate correspond to the UTM values starting with the numbers in the ten-thousands place in the Easting and Northing, and including more numbers depending on desired precision level. See figure to right. MGRS coordinates may be rounded to reflect lesser refinement. For example:

- 15SWC8081751205 is at 1-meter refinement
- 15SWC80825121 is at 10-meter refinement
- 15SWC808512 is at 100-meter refinement
- 15SWC8151 is at 1000-meter refinement

There are two lettering schemes for the 100,000-meter grid square identifiers. Generally, one scheme is used for WGS-84, and the other is used for older ellipsoids associated with the local datums:

- Example: 15SWC8081751205 is on WGS-84. When converted to NAD-27 datum, Clarke 1866 ellipsoid, its value is: 15SWN8083350993
- The 100,000-meter grid square "WC" for WGS-84 generally coincides with the grid square "WN" for Clarke 1866.

The magenta arrows show how MGRS Easting and Northing values are determined from within the 100,000-meter grid square. The MGRS value of this position is 15SWC8081751205. See figure to the right.



DCS GRID ZONE DESIGNATORS (GZD) EXTRACTED FROM DCS MISSION EDITOR

