# DZ_SDO

- Build ID: 3
- TFS Change Set: 8194

Utilities for the creation and manipulation of Oracle Spatial geometries.

### Summary

**DZ_SDO**

FUNCTIONS

| | |
|---|---|
| update_metadata_envelope | Procedure to update user_sdo_geom_metadata table with extents of the current set of geometry. |
| morton | Morton Key generator function by Simon Greener http://www.spatialdbadvisor.com/oracle_spatial_tips_tricks/138/spatial-sorting-of-data-via-morton-key |
| morton_key | Wrapper function to handle the conversion of geometry types into points before generating the morton key. |
| morton_update | Function to generate the morton key update clause. |
| morton_visualize | Function to visualize the results of a morton key spatial clustering. |

## FUNCTIONS

### update_metadata_envelope

```
PROCEDURE update_metadata_envelope(p_table_name  IN VARCHAR2 ,
                                   p_column_name IN VARCHAR2 DEFAULT 'SHAPE')
```

Procedure to update user_sdo_geom_metadata table with extents of the current set of geometry.

**Parameters**

| | |
|---|---|
| p_table_name | the table to examine |
| p_column_name | the spatial column in the table to examine |

**Returns**

NA

**Notes**

- To avoid tracking dimension name, SRIDs and dimensions beyond X and Y this procedure requires the metadata record to already exist.
- Any M or Z dimensions are ignored and will remain as is.

### morton

```
FUNCTION morton(p_column IN NATURAL ,
                p_row    IN NATURAL  ) RETURN INTEGER DETERMINISTIC
```

Morton Key generator function by Simon Greener http://www.spatialdbadvisor.com/oracle_spatial_tips_tricks/138/spatial-sorting-of-data-via-morton-key

**Parameters**

| | |
|---|---|
| p_column | the morton grid column number |
| p_row | the morton grid row number |

**Returns**

INTEGER

## morton_key

```
FUNCTION morton_key(
  p_input          IN MDSYS.SDO_GEOMETRY ,
  p_x_offset       IN NUMBER ,
  p_y_offset       IN NUMBER ,
  p_x_divisor      IN NUMBER ,
  p_y_divisor      IN NUMBER ,
  p_geom_devolve IN VARCHAR2 DEFAULT 'ACCURATE' ,
  p_tolerance      IN NUMBER DEFAULT 0.05
) RETURN INTEGER DETERMINISTIC
```

Wrapper function to handle the conversion of geometry types into points before generating the morton key.

**Parameters**

| | |
|---|---|
| p_input | input geometry to generate a morton key for. |
| p_x_offset | the offset to move x coordinates to be zero-based |
| p_y_offset | the offset to move y coordinates to be zero-based |
| p_x_divisor | the grid divisor for the x axis |
| p_y_divisor | the grid divisor for the y axis |
| p_geom_devolve | either ACCURATE or FAST to control how points are generated. |
| p_tolerance | tolerance value to use when generating centroids and such. |

**Returns**

INTEGER

**Notes**

- for p_geom_devolve with polygon input, ACCURATE uses SDO_CENTROID while FAST uses SDO_POINTONSURFACE.
- for p_geom_devolve with linear or multipoint input, ACCURATE uses the SDO_CENTROID of the geometry MBR while FAST uses the first point in the geometry.

## morton_update

```
FUNCTION morton_update(
  p_owner              IN VARCHAR2 DEFAULT NULL ,
  p_table_name         IN VARCHAR2 ,
  p_column_name        IN VARCHAR2 DEFAULT 'SHAPE' ,
  p_use_metadata_env IN VARCHAR2 DEFAULT 'FALSE' ,
  p_grid_size          IN NUMBER
) RETURN VARCHAR2
```

Function to generate the morton key update clause.

**Parameters**

| | |
|---|---|
| p_owner | the owner of the table to examine |
| p_table_name | the table to examine |
| p_column_name | the spatial column in the table to examine |
| p_use_metadata_env | TRUE/FALSE whether to obtain envelope from metadata |
| p_grid_size | the desired morton grid size |

**Returns**

VARCHAR2

**Notes**

- p_use_metadata_env value of TRUE will obtains envelope size from metadata. FALSE will calculate the values from the table via SDO_AGGR_MBR (and may take a long time).
- Probably the most important value here is the grid size. You should use a reasonable grid size.

## morton_visualize

```
FUNCTION morton_visualize(
  p_owner           IN VARCHAR2 DEFAULT NULL,
  p_table_name      IN VARCHAR2,
  p_column_name     IN VARCHAR2 DEFAULT 'SHAPE',
  p_key_field       IN VARCHAR2 DEFAULT 'OBJECTID',
  p_key_start       IN VARCHAR2,
  p_morton_key_range IN NUMBER,
  p_morton_key_field IN VARCHAR2 DEFAULT 'MORTON_KEY'
) RETURN MDSYS.SDO_GEOMETRY
```

Function to visualize the results of a morton key spatial clustering. Intended for use with mapviewer or other sdo_geometry viewers that can directly display the result of a query.

**Parameters**

| | |
|---|---|
| p_owner | the owner of the table to examine |
| p_table_name | the table to examine |
| p_column_name | the spatial column in the table to examine |
| p_key_field | the field name used to obtain the start record |
| p_key_start | the field value used to obtain the start record |
| p_morton_key_range | the range of morton values to fetch results for |
| p_morton_key_field | the name of the field holding the morton key |

**Returns**

MDSYS.SDO_GEOMETRY

**Notes**

- Use a modest morton key range to avoid an overly large return geometry.
- You may wish to index the morton key field for performance when running this function.