1. Namespace**: geoEngineOS**

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| **ENUMERATION** | **geOS\_Message** | |
| **DESCRIPTION** | MESSAGES SENT BY GEOENGINE | |
| **VALUES** | **msgBeforeMapDraw** | SENT BEFORE PAINTING THE MAP |
| **msgAfterMapDraw** | SENT AFTER THE MAP HAS BEEN PAINTED |
| **msgMapClick** | SENT WHEN THE USER MAKES CLICK IN THE MAP WINDOW |
| **msgCanceledMapDraw** | SENT WHEN THE USER CANCELS THE MAP REDRAW WITH <ESCAPE> |
| **msgInfoEntity** | SENT WHEN THE USER SELECTS AN ENTITY IN THE MAP |
| **msgOpenHyperlink** | SENT WHEN THE USER REQUEST TO OPEN AN HYPERLINK ASSOCIATED TO AN ENTITY |
| **msgChangeView** | SENT WHEN THE USER CHANGES A MAP VIEW |
| **msgPrintMGI** | SENT WHEN A PLOT TEMPLATE (MGI) IS GOING TO BE PRINTED |
| **OTHER VALUES: Edition related messages** | **msgNewEntity** | SENT WHEN THE USER HAS CREATED A NEW ENTITY |
| **msgDeleteEntity** | SENT WHEN THE USER HAS DELETED A NEW ENTITY |
| **msgModifyEntity** | SENT WHEN THE USER HAS MODIFIED A NEW ENTITY |
| **msgGetGeocode** | REQUEST THE USER TO FILL AN ENTITY GEOCODE |
| **msgUndo** | SENT WHEN THE USER HAS PERFORM AN UNDO |
| **msgEditionInit** | SENT WHEN THE EDITION HAS BEGUN |
| **msgEditionFinished** | SENT WHEN THE EDITION HAS FINISHED |
| **msgEditionSaved** | SENT WHEN THE EDITION HAS BEEN SAVED |

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| **ENUMERATION** | **geOS\_MapToolbar** | |
| **DESCRIPTION** | MAP TOOLBARS | |
| **VALUES** | **Screen** | TOOLBAR WITH SCREEN TOOLS (ZOOM, PANNING,...) |
| **Mesasures** | TOOLBAR WITH MEASURES TOOLS (AREA, LENGTH,...) |
| **Edition** | TOOLBAR WITH EDITION TOOLS |

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| **ENUMERATION** | **geOS\_EntityType** | |
| **DESCRIPTION** | ENTITY TYPES | |
| **VALUES** | **moPoint** | POINT TYPE ENTITY |
| **moLine** | LINE TYPE ENTITY (LINES Y POLYLINES) |
| **moPolygon** | POLYGON TYPE ENTITY |
| **MoRectangle** | RECTANGLE TYPE ENTITY |
| **moEllipse** | ELLIPSE TYPE ENTITY |

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| **ENUMERATION** | **geOS\_FillType** | |
| **DESCRIPTION** | POLYGON FILL STYLES | |
| **VALUES** | **moSolidFill** |  |
| **moTransparentFill** |  |
| **moHorizontalFill** |  |
| **moVerticalFill** |  |
| **MoUpwardDiagonalFill** |  |
| **MoDownwardDiagonalFill** |  |
| **MoCrossFill** |  |
| **MoDiagonalCrossFill** |  |
| **MoLightGrayFill** |  |
| **MoGrayFill** |  |
| **moDarkGrayFill** |  |

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| **ENUMERATION** | **geOS\_MarkerType** | |
| **DESCRIPTION** | POINT ENTITIES STYLES | |
| **VALUES** | **moCircleMarker** | CÍRCLE |
| **moSquareMarker** | SQUARE |
| **moTriangleMarker** | TRIÁNGLE |
| **moCrossMarker** | CROOS |
| **moTrueTypeMarker** | FONT TRUE TYPE |

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| **ENUMERATION** | **geOS\_LineType** | |
| **DESCRIPTION** | LINE ENTITIES STYLES | |
| **VALUES** | **moSolidLine** | SOLID |
| **moDashLine** | DASH |
| **moDotLine** | DOT |
| **moDashdDotLine** | DASH-DOT |
| **moDashdDotDotLine** | DASH-DOT-DOT |

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| **ENUMERATION** | **geOS\_SymbolType** | |
| **DESCRIPTION** | SYMBOL TYPES | |
| **VALUES** | **moPointSymbol** | POINT |
| **moLineSymbol** | LINE |
| **moFillSymbol** | POLYGON |

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| **ENUMERATION** | **geOS\_SpatialOperator** | |
| **DESCRIPTION** | SPATIAL QUERY OPERATORS | |
| **VALUES** | **moExtentOverlap** | RETURNS FEATURES WHOSE EXTENSION OVERLAPS THE EXTENT OF THE SEARCH FEATURE. (CAN BE USED WITH A 3D RECTANGLE FOR SEARCHING ON 3D FEATURES). |
| **moCommonPoint** | RETURNS FEATURES THAT SHARE AT LEAST ONE IDENTICAL COMMON POINT WITH THE SEARCH FEATURE. |
| **moLineCross** | RETURNS FEATURES THAT INTERSECT THE SEARCH FEATURE. |
| **moCommonLine** | RETURNED FEATURES MUST SHARE AT LEAST ONE IDENTICAL COMMON LINE SEGMENT WITH THE SEARCH FEATURE. |
| **moCommonPointOrLineCross** | RETURNS FEATURES THAT SHARE A COMMON POINT WITH THE SEARCH FEATURE OR INTERSECT IT. |
| **moEdgeTouchOrAreaIntersect** | RETURNS FEATURES THAT TOUCH THE SEARCH FEATURE, ARE WHOLLY OR PARTIALLY WITHIN THE SEARCH FEATURE, OR WHOLLY OR PARTIALLY CONTAIN THE SEARCH FEATURE(S). |
| **moAreaIntersect** | IF THE SEARCH FEATURE IS A POLYGON FEATURE, RETURNS FEATURES THAT ARE WHOLLY OR PARTIALLY CONTAINED WITHIN IT, BUT NOT ADJACENT TO IT. OTHERWISE, THE FEATURES THEMSELVES MUST BE POLYGON FEATURES, AND THE METHOD RETURNS FEATURES THAT WHOLLY OR PARTIALLY CONTAIN THE SEARCH FEATURE. THIS METHOD IS SIMILAR TO THE MOCONTAINEDBY SEARCH METHOD, WITH THE DIFFERENCE THAT THE FEATURE MAY CONTAIN THE SHAPE, OR THE SHAPE CONTAIN THE FEATURE. |
| **moAreaIntersectNoEdgeTouch** | SAME AS MOAREAINTERSECT, BUT THE BOUNDARIES OF THE SEARCH FEATURE AND THE FEATURE MAY NOT INTERSECT OR TOUCH. |
| **moContainedBy** | RETURNS FEATURES THAT WHOLLY CONTAIN THE SEARCH FEATURE. IF THE FEATURE IS A POLYGON FEATURE, THE SEARCH FEATURE MUST BE WHOLLY INSIDE IT, INCLUSIVE OF THE FEATURE’S BOUNDARY. IF THE FEATURE IS A LINE FEATURE, THE SEARCH FEATURE MUST LIE ALONG THE FEATURE'S PATH. IF THE FEATURE IS A POINT FEATURE, THE SEARCH FEATURE MUST BE ON ONE OF ITS VERTEXES. |
| **moContaining** | RETURNS FEATURES THAT ARE WHOLLY CONTAINED WITHIN THE SEARCH FEATURE. |
| **MoContainedByNoEdgeTouch** | RETURNS FEATURES THAT WHOLLY CONTAIN THE SEARCH FEATURE, NOT INCLUSIVE OF THE SEARCH FEATURE'S BOUNDARY. THE FEATURE MUST BE A POLYGON FEATURE, THE SEARCH FEATURE MUST BE WHOLLY INSIDE IT, AND THEIR BOUNDARIES MAY NOT INTERSECT OR TOUCH. |
| **MoContainingNoEdgeTouch** | RETURNS FEATURES THAT ARE WHOLLY WITHIN THE SEARCH FEATURE, NOT INCLUSIVE OF THE SEARCH FEATURE'S BOUNDARY. THE SEARCH FEATURE MUST BE A POLYGON FEATURE, THE FEATURE MUST BE WHOLLY INSIDE IT, AND THEIR BOUNDARIES MAY NOT INTERSECT OR TOUCH. |
| **MoPointInPolygon** | RETURNS POLYGON FEATURES THAT CONTAIN THE FIRST COORDINATE OF THE SEARCH FEATURE. |
| **MoCentroidInPolygon** | RETURNS POLYGON FEATURES WHOSE CENTROIDS ARE CONTAINED BY THE SHAPE |
| **moIdentical** | RETURNS FEATURES THAT ARE IDENTICAL TO THE SEARCH FEATURE. CONSIDERS FEATURE TYPE AND COORDINATE DESCRIPTION. TYPICALLY USED TO FIND DUPLICATE DATA. |

1. Namespace**: geoEngineOS.Connection**

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| **CLASS** | **geOS\_EtgConnection** | |
| **DESCRIPTION** | CLASS THAT MANAGES A GEOWORKSPACE CONNECTION (ETG) | |
| **PROPERTIES** | **ConnectionId** | CONNECTION ID |
| **ETG** | GEOWORKSPACE PATH |
| **User** | USER |
| **Password** | PASSWORD |
| **FUNCTIONS** | **Open** | OPENS A CONNECTION TO A GEOWORKSPACE (ETG)  **Parameters:**  **sETG** -- GEOWORKSPACE PATH  **sUser** -- USER  **sPassword** -- PASSWORD  **Returns:**  TRUE/FALSE |
| **Close** | CLOSES THE CONNECTION  **Parameters:** none  **Returns:** none |

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| **FUNCTIONS** | **PlotInit** | INITS A PLOT PROCESS  **Parameters:**  **sMgiTemplate** --TEMPLATE PATH  **Returns:**  TRUE/FALSE |
| **PlotDestroy** | DESTROY THE PLOT PROCESS. MUST BE INVOKED AFTER YOU HAVE INVOKED PlotPrint OR IF THE PLOT PROCESS HAVE BEEN CANCELLED  **Parameters:** none  **Returns:** none |
| **PlotDraw** | DRAWS THE PLOT ON A WINDOW  **Parameters:**  **hWnd** --WINDOWS HANDLE  **Returns:**  TRUE/FALSE |
| **PlotDrawDC** | DRAW THE PLOT ON A DEVICE CONTEXT  **Parameters:**  **hDc** -- DEVICE CONTEXT HANDLE  **Returns:**  TRUE/FALSE |

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| **FUNCTIONS** | **PlotPrint** | PRINTS THE PLOT SHOWING A PREVISUALIZE DIALOG  **Parameters:** none  **Returns:**  TRUE/FALSE |
| **PlotPrintDirect** | PRINTS THE PLOT DIRECTLY TO THE DEFAULT PRINTER  **Parameters:**  **hWnd** --PARENT WINDOW HANDLE (OPTIONAL, CAN BE NULL)  **Returns:**  TRUE/FALSE |
| **PlotGetMgiTitle** | RETURNS THE MGI TEMPLATE TITLE (SummaryInfo OF MGI FILE)  **Parameters:**  **sMgiTemplate** –MGI TEMPLATE PATH  **sTitle** --TITLE  **Returns:**  TRUE/FALSE |
| **PlotSetImage** | PRINTS AN IMAGE (BMP OR EMF FORMATS SUPPORTED) ON AN EXISTING FRAME IN THE MGI  **Parameters:**  sKey –KEY OF THE FRAME IN THE MGI  sPath –FILE PATH (MUST BE A BMP OR EMF FILE)  bAdjust -- TRUE/FALSE TO ADJUST THE IMAGE ASPECT TO THE FRAME ASPECT  **Returns:**  TRUE/FALSE |
| **FUNCTIONS** | **PlotSetText** | PRINTS A TEXT ON AN EXISTING TEXTBOX IN THE MGI  **Parameters:**  **sKey --** TEXTBOX KEY  **sText** ---TEXT  **Returns:**  TRUE/FALSE |
| **PlotSetMap** | PRINTS A MAP ON AN EXISTING FRAME IN THE MGI  **Parameters:**  **sKey** -- KEY OF THE FRAME IN THE MGI  **Map** -- MAP WINDOW  **X** -- X COORDINATE (CENTER OF THE MAP TO BE PRINTED)  **Y** -- Y COORDINATE (CENTER OF THE MAP TO BE PRINTED)  **Scale** -- MAP SCALE TO BE PRINTED  **Returns:**  TRUE/FALSE |
| **PlotSetMapWithRefScale** | PRINTS A MAP WITH A REFERENCE SCALE (DEFINES THE THEMES AND RASTER TO BE PRINTED) ON AN EXISTING FRAME IN THE MGI  **Parameters:**  **sKey** -- KEY OF THE FRAME IN THE MGI  **Map** -- MAP WINDOW  **X** -- X COORDINATE (CENTER OF THE MAP TO BE PRINTED)  **Y** -- Y COORDINATE (CENTER OF THE MAP TO BE PRINTED)  **Scale** -- MAP SCALE TO BE PRINTED  **nRefScale --** REFERENCE SCALE  **Returns:**  TRUE/FALSE |

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| **FUNCTIONS** | **PlotSetLegend** | PRINTS A MAP LEGEND ON AN EXISTING FRAME IN THE MGI  **Parameters:**  **sKey** -- KEY OF THE FRAME IN THE MGI  **Map** -- MAP WINDOW  **Returns:**  TRUE/FALSE |
| **PlotSetCoordsGrid** | PRINTS A COORDINATES GRID ON AN EXISTING FRAME IN THE MGI  **Parameters:**  **sKey** -- KEY OF THE FRAME IN THE MGI  **nDistance** -- GRID SIZE IN METERS  **Returns:**  TRUE/FALSE |
| **PlotDrawRect** | PRINTS A RECTANGLE ON AN EXISTING FRAME IN THE MGI  **Parameters:**  **sKey** -- KEY OF THE FRAME IN THE MGI  **Left --** LEFT COORDINATE OF THE RECTANGLE  **Bottom --** BOTTOM COORDINATE OF THE RECTANGLE  **Right --** RIGHT COORDINATE OF THE RECTANGLE  **Top --** TOP COORDINATE OF THE RECTANGLE  **BackColor --** BACK COLOR OF THE RECTANGLE  **FillStyle –** FILL STYLE OF THE RECTANGLE  **EdgeColor –** BORDER COLOR OF THE RECTANGLE  **Size --** SIZE IN PIXELS OF THE RECTANGLE BORDER  **Returns:**  TRUE/FALSE |

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| **FUNCTIONS** | **PlotDrawEntityText** | PRINTS A TEXT ON AN ENTITY  **Parameters:**  **sKey** -- KEY OF A MAP FRAME IN THE MGI  **Entity --** ENTITY  **sText --** TEXT STRING  **sFont --** FONT  **TextColor –** TEXT COLOR  **MMsSize –** TEXT SIZE IN MILIMETERS  **OffsetFactor –** USED WHEN YOU WANT TO PRINT A TEXT ON A POINT ENTITY DEFINES THE OFFSET FACTOR RESPECT TO THE POINT SIZE WHERE THE TEXT WILL BE PRINTED  **Returns:**  TRUE/FALSE |
| **PlotGetMinScale** | CALCULATES THE NECESSARY MINIMUM SCALE SO THAT THE RECTANGLE DEFINED BY THE COORDINATES MinX, MinY, MaxX y MaxY CAN BE REPRESENTED IN THE PLOT  **Parameters:**  **sKey** -- KEY OF A MAP FRAME IN THE MGI  **MinX --** LEFT COORDINATE OF THE RECTANGLE  **MinY --** BOTTOM COORDINATE OF THE RECTANGLE  **MaxX --** RIGHT COORDINATE OF THE RECTANGLE  **MaxY --** TOP COORDINATE OF THE RECTANGLE  **Returns:**  CALCULATED SCALE |

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| **FUNCTIONS** | **PlotGetMapExtent** | RETURNS THE REAL EXTENSIÓN THAT WILL BE PLOTTED. THIS FUNCTION MUST BE INVOKED AFTER A CALL TO PlotSetMap.  **Parameters:**  **sKey** -- KEY OF A MAP FRAME IN THE MGI  **MinX --** LEFT COORDINATE OF THE RECTANGLE (RECEIVE)  **MinY --** BOTTOM COORDINATE OF THE RECTANGLE (RECEIVE)  **MaxX --** RIGHT COORDINATE OF THE RECTANGLE (RECEIVE)  **MaxY --** TOP COORDINATE OF THE RECTANGLE (RECEIVE)  **Returns:**  TRUE / FALSE |
| **PlotSetOutputType** | ESTABLISH THE PLOT MODE  **Parameters:**  **Type –** PLOT TYPE  0: DIRECT 🡪 THE PLOT IS SENT DIRECTLY TO THE DEFAULT PRINTER  1: PREPROCESSED 🡪 THE PLOT IS PREPROCESSED IN THE USER MACHINE AND THE RESULTING BITMAP IT’S SENDED TO THE PRINTER  **Returns:**  TRUE / FALSE |

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| **FUNCTIONS** | **PlotDrawEntity** | DRAWS AN ENTITY IN THE PLOT FRAME  **Parameters:**  **sKey** -- KEY OF A MAP FRAME IN THE MGI  **Entity --** ENTITY TO BE DRAWN  **BackColor --** BACK COLOR  **FillStyle –** FILL STYLE (ONLY FOR A POLYGONAL ENTITY)  **EdgeColor –**EDGE BORDER (ONLY FOR A POLYGONAL ENTITY)  **Size –** SIZE IN PIXELS OF THE POLYGON BORDER OR LINE  **Returns:**  TRUE/FALSE |
| **PlotSetResolutionFactor** | ESTABLISH THE RESOLUTION FACTOR OF THE PLOT (ONLY FOR PREPROCESSED PLOT TYPE)  **Parameters:**  **Factor** – RESOLUTION FACTOR  **Returns:**  TRUE / FALSE |
| **PlotShowPrintDialog** | TO SHOW OR NOT THE PRINT DIALOG  **Parameters:**  **bShow**  **Returns:**  TRUE / FALSE |

1. Namespace**: geoEngineOS.Map**

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| **CLASS** | **geOS\_MapWindow** | |
| **DESCRIPTION** | CLASS THAT MANAGES A MAP WINDOW. IT USES A PictureBox AS DESIGN VISUAL COMPONENT | |
| **PROPERTIES** | **Connection** | CONNECTION TO THE ETG |
| **MapId** | MAP IDENTIFIER |
| **FUNCTIONS** | **Attach** | LOADS THE MAP IN THE WINDOW  **Parameters:**  **Connection** -- ETG CONNECTION  **bUserEnv**  -- TO LOAD OR NOT THE USER ENVIRONMENT  **Returns:**  TRUE/FALSE |
| **AttachView** | LOADS THE MAP IN THE WINDOW WITH THE SPECIFIED VIEW  **Parameters:**  **Connection** -- ETG CONNECTION  **bUserEnv**  -- TO LOAD OR NOT THE USER ENVIRONMENT  **sView –** VIEW CODE TO SHOW  **Returns:**  TRUE/FALSE |
| **Detach** | UNLOADS THE MAP FROM THE WINDOW  **Parameters:**  None  **Returns:**  None |

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| **FUNCTIONS** | **ShowToolbar** | SHOW/HIDE A MAP TOOLBAR  **Parameters:**  **toolbar** – TOOLBAR ID  **bShow --** TRUE: SHOW / FALSE: HIDE  **Returns:**  None |
| **ShowEntitiesWithoutGeocode** | SHOWS IN THE MAP THE THEME ENTITIES WITHOUT GEOCODE  **Parameters:**  **sTheme** -- THEME CODE  **bShow --** TRUE: SHOW, FALSE: HIDE  **Returns:**  None |
| **AddTheme** | ADDS A THEME TO THE MAP  **Parameters:**  **Theme --** THEME CODE TO ADD  **MinScale –** MIN VIEW SCALE  **MaxScale** – MAX VIEW SCALE  **Returns:**  None |
| **Remove** | REMOVES A THEME FROM MAP  **Parameters:**  **Theme --** THEME CODE TO REMOVE  **Returns:**  None |

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| **FUNCTIONS** | **AddThemes** | SHOWS THE ADD/REMOVE THEMES DIALOG  **Parameters:**  **AllowSimples** – TO SHOW OR NOT SIMPLE THEMES  **AllowThemathics –** TO SHOW OR NOT THEMATIC THEMES  **AllowQueries --** TO SHOW OR NOT QUERY THEMES  **Returns:**  none |
| **FilterTheme** | APPLIES AN ALPHANUMERIC FILTER TO A THEME  BY EXAMPLE: FilterTheme(‘Parcels’,’AREA > 100’)  **Parameters:**  **Theme** -- THEME CODE  **Filter --** FILTER EXPRESSION  **Returns:**  None |
| **Zoom** | ACTIVATES ZOOM TOOL  **Parameters:**  None  **Returns:**  None |
| **ZoomIn** | PERFOMS A ZOOM IN (NEW MAP SCALE = MAP SCALE / 2)  **Parameters:**  None  **Returns:**  None |

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| **FUNCTIONS** | **ZoomOut** | PERFOMS A ZOOM OUT (NEW MAP SCALE = MAP SCALE \* 2)  **Parameters:**  None  **Returns:**  None |
| **ZoomPrevious** | PERFORMS A ZOOM PREVIOUS  **Parameters:**  none  **Returns:**  None |
| **ZoomExtent** | PERFORMS A ZOOM TO MAP FULL EXTENT  **Parameters:**  None  **Returns:**  None |
| **Redraw** | PERFORMS A MAP REFRESH  **Parameters:**  None  **Returns:**  None |
| **Panning** | ACTIVATES THE PANNING TOOL  **Parameters:**  None  **Returns:**  None |
| **FUNCTIONS** | **PanningToPoint** | PERFORMS A PAN TO A POINT  **Parameters:**  None  **Returns:**  None |
| **Rotate** | ACTIVATES THE ROTATE MAP TOOL  **Parameters:**  None  **Returns:**  None |
| **GetRotation** | GETS THE ROTATION ANGLE OF THE MAP  **Parameters:**  **Angle** – ROTATION ANGLE IN DEGREES  **Returns:**  None |
| **GetCursorPos** | GETS THE CURRENT POSITION OF THE MAP CURSOR (IN MAP COORDINATES)  **Parameters:**  **X** – X COORDINATE  **Y** – Y COORDINATE  **Returns:**  None |

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| **FUNCTIONS** | **GetExtent** | GETS THE CURRENT MAP EXTENT  **Parameters:**  **MinX --** LEFT COORDINATE OF THE RECTANGLE  **MinY --** BOTTOM COORDINATE OF THE RECTANGLE  **MaxX --** RIGHT COORDINATE OF THE RECTANGLE  **MaxY --** TOP COORDINATE OF THE RECTANGLE  **Returns:**  None |
| **GetFullExtent** | GETS THE MAP FULL EXTENT  **Parameters:**  **MinX --** LEFT COORDINATE OF THE RECTANGLE  **MinY --** BOTTOM COORDINATE OF THE RECTANGLE  **MaxX --** RIGHT COORDINATE OF THE RECTANGLE  **MaxY --** TOP COORDINATE OF THE RECTANGLE  **Returns:**  None |
| **ZoomByCoordinates** | PERFORMS A ZOOM TO A RECTANGLE  **Parameters:**  **MinX --** LEFT COORDINATE OF THE RECTANGLE  **MinY --** BOTTOM COORDINATE OF THE RECTANGLE  **MaxX --** RIGHT COORDINATE OF THE RECTANGLE  **MaxY --** TOP COORDINATE OF THE RECTANGLE  **Returns:**  None |
| **FUNCTIONS** | **ZoomByScale** | PERFOMS A ZOOM CENTERED ON A POINT WITH A SCALE  **Parameters:**  **NScale --** ZOOM SCALE  **X** -- CENTER POINT X COORDINATE  **Y** -- CENTER POINT Y COORDINATE  **Returns:**  None |
| **GetNumThemes** | GETS THE NUMBER OF VECTOR THEMES IN THE MAP  **Parameters:**  None  **Returns:**  None |
| **GetThemeParams** | GETS THE PARAMETERS OF A THEME  **Parameters:**  **Index --** THEME INDEX (0 BASED)  **Theme --** THEME CODE (RECEIVE)  **Description --** THEME DESCRIPTION (RECEIVE)  **Returns:**  TRUE / FALSE |
| **GetSelectionTheme** | GETS THE CURRENT ACTIVE THEME  **Parameters:**  None  **Returns:**  THEME CODE (STRING) |
| **FUNCTIONS** | **SetSelectionTheme** | ACTIVATES A THEME AS SELECTION THEME  **Parameters:**  **Theme** – THEME CODE TO ACTIVATE  **Returns:**  TRUE / FALSE |
| **ChooseSelectionTheme** | SHOW THE ACTIVATE THEME DIALOG  **Parameters:**  **Theme** – DEVUELVE EL TEMA SELECCIONADO POR EL USUARIO  **Returns:**  TRUE / FALSE |
| **GetThemeEntitiesWithoutGeocode** | GETS THE ‘ENTITIES WITHOUT GEOCODE’ THEME  **Parameters:**  None  **Returns:**  THEME CODE |
| **GetThemeExtent** | GET A THEME EXTENSION  **Parameters:**  **Theme** – THEME CODE  **MinX --** LEFT COORDINATE OF THE RECTANGLE  **MinY --** BOTTOM COORDINATE OF THE RECTANGLE  **MaxX --** RIGHT COORDINATE OF THE RECTANGLE  **MaxY --** TOP COORDINATE OF THE RECTANGLE  **Returns:**  TRUE/FALSE |
| **FUNCTIONS** | **GetThemeStats** | GETS A THEME STATISTICS  **Parameters:**  **Theme** -- THEME CODE  **Filter –** ALPHANUMERIC FILTER (OPTIONAL)  **Field --** FIELD USED TO OBTAIN STATISTICS (MUST BE A NUMERIC FIELD)  **Count** -- COUNT  **Min** -- MIN FIELD VALUE  **Max** -- MAX FIELD VALUE  **Mean** -- MEAN OF THE FIELD VALUES  **Sum --** SUM OF THE FIELD VALUES  **DevStd --** STANDARD DEVIATION OF THE FIELD VALUES  **Returns:**  TRUE/FALSE |
| **SelecThemeEntity** | ENTERS IN SELECTION MODE ASKING THE USER TO SELECT AN ENTITY OF THE THEME  **Parameters:**  **sTheme** -- SELECTION THEME CODE  **Returns:**  ENTITY SELECTED (NULL ON ERROR OR USER CANCEL) |
| **SelecEntityByGeocode** | GETS AN ENTITY OF A THEME THROUGH A GEOCODE  **Parameters:**  **Theme** -- THEME CODE  **Geocode --** GEOCODE  **Returns:**  none |

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| **FUNCTIONS** | **ExistsEntityByGeocode** | RETURNS TRUE/FALSE TO KNOW IF AN ENTITY EXISTS BY A GEOCODE  **Parameters:**  **Theme** -- THEME CODE  **Geocode** -- GEOCODE  **Returns:**  TRUE / FALSE |
| **SelecEntities** | ASKS THE USER TO SELECT A SET OF ENTITIES ON CURRENT ACTIVE THEME  LEFT MOUSE BUTTON (SELECT/DESELECTS AN ENTITY)  RIGHT MOUSE BUTTON OR [ENTER] KEY FINISH  [ESC] KEY CANCELS  **Parameters:**  none  **Returns:**  A SET OF ENTITIES (NULL ON ERROR OR USER CANCEL) |
| **SelecThemeEntities** | ASKS THE USER TO SELECT A SET OF ENTITIES ON A THEME  LEFT MOUSE BUTTON (SELECT/DESELECTS AN ENTITY)  RIGHT MOUSE BUTTON OR [ENTER] KEY FINISH  [ESC] KEY CANCELS  **Parameters:**  **Theme** -- THEME CODE  **Returns:**  A SET OF ENTITIES (NULL ON ERROR OR USER CANCEL) |

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| **FUNCTIONS** | **SelecEntitiesByFilter** | SELECT A SET OF ENTITIES FROM A THEME BY A ALPHANUMERIC FILTER  **Parameters:**  **Theme** -- THEME CODE  **Filter --** SELECTION FILTER  **Returns:**  A SET OF ENTITIES (NULL ON ERROR) |
| **CreateEntitiesSet** | CREATES A SET OF ENTITIES.  TO ADD AN ENTITY INVOKE THE METHOD geOS\_MapEntities.AddEntity  **Parameters:**  **Type** -- ENTITIES TYPE  **Returns:**  none |
| **FUNCTIONS** | **GetLocation** | ASKS THE USER TO DIGITIZE A MAP LOCATION  **Parameters:**  **LocType** – LOCATION TYPE  **LocColor** -- LOCATION COLOR  **LocStyle** – LOCATION STYLE  POINT: USE THE ENUM geOS\_MarkerType EXCEPTS THE VALUE moTrueTypeMarker  LINE: USE THE ENUM geOS\_LineType  POLYGON: USE THE ENUM geOS\_FillType  **LocSize** – LOCATION SIZE  POINT: POINT SIZE IN METERS  LINE: THICKNESS OF THE LINE IN PIXELS  POLYGON: THICKNESS OF THE POLYGON BORDER IN PIXELS  **Returns:**  A LOCATION OR NULL ON ERROR OR USER CANCEL |
| **CreateBuffer** | CREATES A POLYGONAL LOCATION LIKE A BUFFER OVER A THEME AND A DISTANCE  **Parameters:**  **Theme --** THEME CODE  **Filter --**ALPHANUMERIC FILTER OVER THE THEME  **Distance --**BUFFER DISTANCE  **LocColor --** BACK COLOR OF THE LOCATION  **LocStyle --** LOCATION STYLE (USE THE ENUM geOS\_FillType)  **LocSize --** THICKNESS OF THE POLYGON BORDER IN PIXELS  **Returns:**  A LOCATION OR NULL ON ERROR |

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| **FUNCTIONS** | **CreategeOS\_Location** | CREATES AN EMPTY LOCATION  **Parameters:**  **LocType** – LOCATION TYPE  POINT: moPoint  LINE: moLine  POLYGON: moPolygon  **LocColor** -- LOCATION COLOR  **LocStyle** – LOCATION STYLE  POINT: USE THE ENUM geOS\_MarkerType EXCEPTS THE VALUE moTrueTypeMarker  LINE: USE THE ENUM geOS\_LineType  POLYGON: USE THE ENUM geOS\_FillType  **LocSize** – LOCATION SIZE  POINT: POINT SIZE IN METERS  LINE: THICKNESS OF THE LINE IN PIXELS  POLYGON: THICKNESS OF THE POLYGON BORDER IN PIXELS  **Returns:**  A LOCATION OR NULL ON ERROR |
| **GetNumLocations** | RETURNS THE NUMBER OF LOCATIONS IN THE MAP  **Parameters:**  none  **Returns:**  NUMBER |
| **GetLocation** | GETS A LOCATION IN THE MAP  **Parameters:**  **Index** -- LOCATION INDEX (0-BASED)  **Returns:**  A LOCATION OR NULL ON ERROR |
| **FreeLocations** | FREE ALL LOCATIONS IN THE MAP  **Parameters:**  none  **Returns:**  none |

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| F**UNCTIONS** | **CopyMap** | EXPORTS THE MAP  **Parameters:**  **CopyStyle** – EXPORT STYLE  0: EXPORTS TO AN EMF FILE  1: EXPORTS TO AN BMP FILE  2: COPY THE MAP TO THE CLIPBOARD IN EMF FORMAT  3: COPY THE MAP TO THE CLIPBOARD IN BMP FORMAT  4: EXPORTS TO AN JPG FILE  **FilePath** – FILE PATH (0,1,4)  **ScaleFactor**  **Returns:**  TRUE / FALSE |
| **EVENTS** | **OnBeforeMapDraw** | FIRED WHEN A MAP REFRESH IS ABOUT TO BEGIN  **Parameters**: None  **Returns:** void |
| **OnAfterMapDraw** | FIRED WHEN A MAP REFRESH HAS FINISHED  **Parameters**: None  **Returns:** void |
| **OnCancelledMapDraw** | FIRED WHEN A MAP REFRESH HAS BEEN CANCELLED  **Parameters**: None  **Returns:** void |
| **OnChangeView** | FIRED WHEN THE MAP VIEW HAS CHANGED  **Parameters**:  String: New Map View  **Returns:** void |
| **OnEntityInfo** | FIRED WHEN USER ASKS FOR ENTITY INFO  **Parameters**:  geOS\_MapEntity: Selected Entity  **Returns:** void |
| **OnMapClick** | FIRED WHEN USER CLICKS ON MAP  **Parameters**:  int: X Coordinate  int: Y Coordincate  **Returns:** void |

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| **EVENTS** | **OnEditionInit** | FIRED WHEN A MAP EDITION HAS BEGAN  **Parameters**: None  **Returns:** void |
| **OnEditionFinished** | FIRED WHEN A MAP EDITION HAS FINISHED  **Parameters**: None  **Returns:** void |
| **OnEditionSaved** | FIRED WHEN A MAP EDITION HAS BEEN SAVED  **Parameters**: None  **Returns:** void |
| **OnEditionUNDO** | FIRED WHEN AN EDITION OPERATION HAS BEEN UNDONE  **Parameters**:  int: Transaction identifier  **Returns:** void |
| **OnGetGeocode** | FIRED WHEN EDITION NEEDS TO GEOCODE AN ENTITY  **Parameters**:  geOS\_MapEntity: Selected Entity  ref String: Assigned geocode  **Returns:** void |

1. Namespace**: geoEngineOS.Entity**

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| **CLASS** | **geOS\_MapEntity** | |
| **DESCRIPTION** | SUPPORT CLASS FOR ENTITIES.  AN ENTITY IS ASSOCIATED TO A CONNECTION AND CAN BE USED ON ANY MAP WINDOW | |
| **PROPERTIES** | **Connection** | ENTITY CONNECTION |
| **Id** | ENTITY ID |
| **Theme** | ENTITY THEME |
| **GeoCode** | ENTITY GEOCODE |
| **FUNCTIONS** | **Free** | FREES THE ENTITY  **Parameters:**  none  **Returns:**  none |
| **Flash** | FLASH THE ENTITY ON A MAP WINDOW  **Parameters:**  **Mapa** -- MAP WINDOW  **nTimes** – NUMBER OF TIMES TO DO THE FLASH  **Returns:**  none |
| **ShowEntitySense** | SHOW THE ENTITY SENSE IN A MAP WINDOW  **Parameters:**  **Mapa** – MAP WINDOW  **Returns:**  none |

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| **FUNCTIONS** | **Zoom** | PERFORMS A ZOOM TO THE ENTITY  **Parameters:**  **Mapa** – MAP WINDOW  **Returns:**  none |
| **GetParams** | GETS THE ENTITY PARAMETERS  **Parameters:**  **sTheme** -- THEME CODE  **sGeocode** -- ENTITY GEOCODE  **Returns:**  TRUE / FALSE |
| **GetFeatureID** | GETS THE ENTITY FEATUREID (INTERNAL IDENTIFICATION FIELD)  **Parameters:**  none  **Returns:**  -1 ON ERROR |
| **SetGeocode** | UPDATES THE ENTITY GEOCODE  **Parameters:**  **sGeocode** -- NEW GEOCODE  **Returns:**  TRUE / FALSE |

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| **FUNCTIONS** | **GetArea** | GET THE ENTITY AREA (FOR A POLYGONAL ENTITY)  **Parameters:**  none  **Returns:**  AREA |
| **GetLength** | GET THE ENTITY LENGTH:  0 WITH A POINT ENTITY  PERIMETER IF THE ENTITY IS POLYGONAL  **Parameters:**  none  **Returns:**  LENGTH |
| **GetExtent** | GET THE ENTITY EXTENT  **Parameters:**  **MinX --** LEFT COORDINATE OF THE RECTANGLE  **MinY --** BOTTOM COORDINATE OF THE RECTANGLE  **MaxX --** RIGHT COORDINATE OF THE RECTANGLE  **MaxY --** TOP COORDINATE OF THE RECTANGLE  **Returns:**  TRUE / FALSE |

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| **FUNCTIONS** | **GetNumCoords** | GETS THE NUMBER OF ENTITY COORDINATES  **Parameters:**  **NNumParts**  -- OPTIONAL (CAN BE NULL) TO RETURN THE NUMBER OF PARTS  **Returns:**  NUMBER OF COORDINATES (-1 ON ERROR) |
| **GetCoordinate** | GET AN ENTITY COORDINATE  **Parameters:**  **nIndex** -- COORDINATE INDEX  **X** -- X VALUE  **Y** -- Y VALUE  **nPart** -- OPTIONAL (CAN BE NULL) PART INDEX  **Returns:**  TRUE / FALSE |
| **GetEntityType** | GET THE ENTITY TYPE  **Parameters:**  none  **Returns:**  ENTITY TYPE |
| **GetAtrib** | GETS AN ENTITY ATTRIBUTE  **Parameters:**  **sAtrib** – ATTRIBUTE NAME  **sValue** -- ATTRIBUTE VALUE  **Returns:**  none |

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| **FUNCTIONS** | **SetAtrib** | SETS AN ENTITY ATTRIBUTE  **Parameters:**  **sAtrib** – ATTRIBUTE NAME  **sValue** -- NEW ATTRIBUTE VALUE  **Returns:**  none |
| **DistanceToEntity** | GETS THE DISTANCE TO ANOTHER ENTITY  **Parameters:**  **Entity** -- ENTITY  **Returns:**  DISTANCE |
| **CreateLocation** | CREATES A LOCATION BASED ON THE ENTITY GEOMETRY  **Parameters:**  **Map** -- MAP WINDOW WHERE THE LOCATION WILL BE CREATED  **LocColor** -- LOCATION COLOR  **LocStyle** – LOCATION STYLE  POINT: USE THE ENUM geOS\_MarkerType EXCEPTS THE VALUE moTrueTypeMarker  LINE: USE THE ENUM geOS\_LineType  POLYGON: USE THE ENUM geOS\_FillType  **LocSize** – LOCATION SIZE  POINT: POINT SIZE IN METERS  LINE: THICKNESS OF THE LINE IN PIXELS  POLYGON: THICKNESS OF THE POLYGON BORDER IN PIXELS  **Returns:**  A LOCATION OR NULL ON ERROR |

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| **FUNCTIONS** | **GetClosestEntities** | GET THE N-ENTITIES CLOSEST TO THE ENTITY  **Parameters:**  **Map** -- MAP WINDOW  **Theme**  -- THEME CODE TO SELECT ENTITIES  **Filter** – ALPAHANUMERIC FILTER ON THE THEME (OPTIONAL CAN BE NULL)  **MaxEntities** -- MAX NUMBER OF ENTITIES TO LOOK UP  **Entities** -- ARRAY WITH THE N-ENTITIES FOUND  **Distances** -- ARRAY WITH THE DISTANCES TO EACH ENTITY FOUND  **Returns:**  TRUE / FALSE |

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| **CLASS** | **geOS\_MapEntities** | |
| **DESCRIPTION** | SUPPORT CLASS FOR A SET OF ENTITIES  A SET OF ENTITIES CAN BE OBTAINED TROUGH USER SELECTION, OR BY A FILTER SELECTION OVER A THEME  A SET OF ENTITIES IS LINKED TO A CONNECTION AND CAN BE USED IN ANY MAP WINDOW. | |
| **PROPERTIES** | **Connection** | ETG CONNECTION |
| **Id** | ID OF THE ENTITIES SET |
| **FUNCTIONS** | **Free** | FREE THE SET  **Parameters:** none  **Returns:** none |
| **GetNumEntities** | GETS THE NUMBER OF ENTITIES  **Parameters:** none  **Returns:**  NUMBER |
| **AddEntity** | ADDS AN ENTITY TO THE SET  **Parameters:**  **Entity**  -- ENTITY TO ADD  **Returns:**  TRUE/FALSE |
| **GetEntity** | GETS AN ENTITY OF THE SET  **Parameters:**  **Index** -- INDEX TO THE ENTITY (O-BASED)  **Returns:**  ENTITY OR NULL ON ERROR |

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| **FUNCTIONS** | **GetEntityGeocode** | GETS THE GEOCODE OF AN ENTITY IN THE SET  **Parameters:**  **Index** -- ENTITY INDEX (0-BASED)  **Geocode** -- GEOCODE    **Returns:**  TRUE / FALSE |
| **Zoom** | PERFORMS A ZOOM TO THE ENTITIES SET  **Parameters:**  **Map** -- MAP WINDOW  **Returns:**  None |
| **Flash** | PERFORMS A FLASH OF THE ENTITIES SET  **Parameters:**  **Map** -- MAP WINDOW  **Times** -- NUMBER OF TIMES TO DO THE FLASH  **Returns:**  none |
| **FUNCTIONS** | **ReturnLocation** | CREATES A LOCATION WITH THE ENTITIES SET  **Parameters:**  **Map** -- MAP WINDOW WHERE WHERE THE LOCATION WILL BE CREATED  **LocColor** -- LOCATION COLOR  **LocStyle** – LOCATION STYLE  POINT: USE THE ENUM geOS\_MarkerType EXCEPTS THE VALUE moTrueTypeMarker  LINE: USE THE ENUM geOS\_LineType  POLYGON: USE THE ENUM geOS\_FillType  **LocSize** – LOCATION SIZE  POINT: POINT SIZE IN METERS  LINE: THICKNESS OF THE LINE IN PIXELS  POLYGON: THICKNESS OF THE POLYGON BORDER IN PIXELS  **Returns:**  LOCATION OR NULL ON ERROR |

1. Namespace**: geoEngineOS.Locations**

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| **CLASS** | **geOS\_Location** | |
| **DESCRIPTION** | SUPPORT CLASS FOR A LOCATION  A LOCATION CAN BE OBTAINED TROUGH USER DIGITIZING, OR BY A ENTITY OR AN ENTITIES SET.  A LOCATION IS LINKED TO A MAP WINDOW | |
| **PROPERTIES** | **Map** | MAP WINDOW |
| **Id** | ID OF THE LOCATION |
| **FUNCTIONS** | **Free** | FREES THE LOCATION  **Parameters:** none  **Returns:** none |
| **Flash** | PERFORMS A FLASH OF THE LOCATION  **Parameters:**  **Times** -- NUMBER OF TIMES TO DO THE FLASH  **Returns:** none |
| **Zoom** | PERFORMS A ZOOM TO THE LOCATION  **Parameters:**  none  **Returns:**  TRUE / FALSE |

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| **FUNCTIONS** | **CreateBuffer** | CREATES A NEW LOCATION LIKE A BUFFER OVER THE LOCATION  **Parameters:**  **Distance** -- BUFFER SIZE IN METERS  **LocColor** -- LOCATION COLOR  **LocStyle** – LOCATION STYLE (geOS\_FillType)  **LocSize** – THICKNESS OF THE POLYGON BORDER IN PIXELS    **Returns:**  THE NEW LOCATION OR NULL ON ERROR |
| **AddCoordinate** | ADDS A NEW COORDINATE TO THE LOCATION  **Parameters:**  **X** -- X VALUE  **Y** -- Y VALUE  **Returns:**  none |
| **AddCoordinateX** | ADDS A NEW COORDINATE TO THE LOCATION  **Parameters:**  **X** -- X VALUE  **Y** -- Y VALUE  **bAddPart** – TRUE TO ADD A NEW PART  **Returns:**  none |

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| **FUNCTIONS** | **AddCoordinate2** | ADDS A NEW COORDINATE TO THE LOCATION  **Parameters:**  **X** -- X VALUE  **Y** -- Y VALUE  **bAddPart** – TRUE TO ADD A NEW PART  **bRefreshTLayer** -- TRUE TO REFRESH THE TRACKING LAYER  **Returns:**  None |
| **GetLocType** | GET THE LOCATION TYPE  **Parameters:**  none  **Returns:**  LOCATION TYPE |
| **GetParams** | GETS THE DESIGN PARAMETERS OF THE LOCATION  **Parameters:**  **LocColor** -- LOCATION COLOR  **Style** -- LOCATION STYLE  **Size** -- LOCATION SIZE  **Returns:**  TRUE / FALSE |

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| **FUNCTIONS** | **GetNumCoords** | GETS THE NUMBER OF COORDINATES  **Parameters:**  **NumCoords** -- NUMBER OF COORDINATES  **Returns:**  TRUE / FALSE |
| **GetCoordinate** | GET A LOCATION COORDINATE  **Parameters:**  **Index** -- COORDINATE INDEX (0-BASED)  **X** -- X VALUE  **Y** -- Y VALUE  **Part** – PART NUMBER  **Returns:**  TRUE / FALSE |
| **GetExtent** | GETS THE LOCATION EXTENT  **Parameters:**  **MinX --** LEFT COORDINATE OF THE RECTANGLE  **MinY --** BOTTOM COORDINATE OF THE RECTANGLE  **MaxX --** RIGHT COORDINATE OF THE RECTANGLE  **MaxY --** TOP COORDINATE OF THE RECTANGLE  **Returns:**  TRUE/FALSE |
| **DistanceToTheme** | GETS THE LOCATION DISTANCE TO A THEME  **Parameters:**  **Theme** -- THEME CODE  **Returns:**  DISTANCE |

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| **FUNCTIONS** | **GetClosestEntities** | GET THE CLOSEST ENTITIES TO THE LOCATION  **Parameters:**  **Theme**  -- THEME CODE TO SELECT ENTITIES  **Filter** – ALPAHANUMERIC FILTER ON THE THEME (OPTIONAL CAN BE NULL)  **MaxEntities** -- MAX NUMBER OF ENTITIES TO LOOK UP  **Entities** -- ARRAY WITH THE N-ENTITIES FOUND  **Distances** -- ARRAY WITH THE DISTANCES TO EACH ENTITY FOUND  **Returns:**  TRUE / FALSE |
| **SearchEntities** | SEARCH ENTITIES OVER A THEME  **Parameters:**  **SpatialOp** -- SPATIAL OPERATOR  **Theme** -- THEME CODE TO SEARCH  **Filter** -- ALPAHANUMERIC FILTER ON THE THEME (OPTIONAL CAN BE NULL)  **Returns:**  A SET OF ENTITIES OR NULL ON ERROR |
| **SearchByDistance** | SEARCH ENTITIES OVER A THEME BY A GIVEN DISTANCE  **Parameters:**  **Distance** -- DISTANCE TO LOOK UP  **Theme** -- THEME CODE TO SEARCH  **Filter** -- ALPAHANUMERIC FILTER ON THE THEME (OPTIONAL CAN BE NULL)  **Returns:**  A SET OF ENTITIES OR NULL ON ERROR |

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| **FUNCTIONS** | **DistanceToEntity** | GET THE DISTANCE OF THE LOCATION TO AN ENTITY  **Parameters:**  **Entity** -- ENTITY  **Returns:**  DISTANCE |
| **DistanceToLocation** | GET THE DISTANCE OF THE LOCATION TO ANOTHER LOCATION  **Parameters:**  **Loc** -- LOCATION  **Returns:**  DISTANCE |