DZ_LRS

- Build ID: 4
- TFS Change Set: 8319

Utilities for the creation and manipulation of Oracle Spatial LRS geometries.

Summary

FUNCTIONS

dz_lrs_main.round_measures

Function to round LRS measures within an Oracle Spatial geometry. Function can optionally push measures below a given value to zero and measures above a given value to 100.

Parameters

p_input	LRS geometry with measures to round
p_round	rounding value to implement, default is 5
p_below_to_zero	optional value below which all measures are set to 0
p_above_to_100	optional value above which all measures are set to 100

Returns

MDSYS.SDO_GEOMETRY LRS geometry

Notes

- The optional functionality top snap to 0 or 100 is highly tied to the 0 to 100 measure range used by the National Hydrography Dataset flowline system and may not be of much value to other users.

dz_lrs_main.get_lrs_point

Simple wrapper function around MDSYS.SDO_LRS.GEOM_SEGMENT_START_PT and MDSYS.SDO_LRS.GEOM_SEGMENT_END_PT to allow results to be returned as 2d rather than LRS points. This is useful in situation whereby you may wish to test endpoints with SDO_GEOM.RELATE and this function will not allow LRS measures as input.

Parameters

p_endpoint	keyword to implement, START or END
p_input	LRS geometry
p_2d_flag	optional TRUE/FALSE flag to remove LRS or 3D dimensions.

Returns

MDSYS.SDO_GEOMETRY LRS geometry

dz_lrs_main.get_lrs_measure

Simple wrapper function around MDSYS.SDO_LRS.GEOM_SEGMENT_START_MEASURE and MDSYS.SDO_LRS.GEOM_SEGMENT_END_MEASURE.

Parameters

p_endpoint	keyword to implement, START or END
p_input	LRS geometry

Returns

NUMBER measure value

dz_lrs_main.safe_lrs_intersection

Function designed to supplement the broken functionality of SDO_LRS.LRS_INTERSECTION. For more information see https://community.oracle.com/thread/2158723?tstart=0

Parameters

p_geometry_1	input geometry to intersect against geometry 2
p_geometry_2	geometry to be intersected against
p_sdo_tolerance	2d tolerance used in the intersecton, default is 0.05
p_lrs_tolerance	measure tolerance used in the intersection, default is 0.00000001

Returns

MDSYS.SDO_GEOMETRY LRS geometry

Notes

- Note that LRS_INTERSECTION conceptually confuses the tolerance for the 2D part of the intersection with the tolerance for the LRS part of the intersection. As this function first tries the intersection using LRS_INTERSECTION, it thus preserves the confusion. If this creates issues for users, then just roll your own version without the Oracle function.

dz_lrs_main.overlay_lrs_measures

Function which transfers measures from a base lrs geometry onto the input geometry. If the input geometry has preexisting measures, those are replaced. The two geometries are assume to overlay each other or be in very close proximity. Results will be nonsensical otherwise.

Parameters

p_input_geometry	input geometry to add or redefine measures from lrs geometry.
p_lrs_geometry	base LRS geometry from which to derive measures for input geometry.
p_lrs_tolerance	measure tolerance, default is 0.00000001.

Returns

MDSYS.SDO_GEOMETRY LRS geometry

dz_lrs_main.concatenate_no_remeasure

Function to concatenate two intersecting LRS linestrings without recalculating the LRS measures on either. In some scenarios, measures provided for a given dataset may not be mathematically correct. Using SDO_LRS.CONCATENATE_GEOM_SEGMENTS will recalibrate all measures on the second geometry. As this will then result in geometries with measure that no longer match the base dataset, you may wish to use this function instead to preserve the original measures.

Parameters

p_segment_one	input LRS segment one.
p_segment_two	input LRS segment two.
p_lrs_tolerance	2d intersection tolerance, default is 0.05.

Returns

MDSYS.SDO_GEOMETRY LRS geometry

dz_lrs_main.is_null_lrs

Function to examine an LRS geometry and report whether any vertice in the geometry has a null value.

Parameters

p_input	input LRS geometry to test.

Returns

VARCHAR2 TRUE/FALSE answer

dz_lrs_main.redefine_geom_segment

Simple wrapper function around MDSYS.SDO_LRS.REDEFINE_GEOM_SEGMENT.

Parameters

p_input	input LRS geometry to redefine.
p_start	start measure to use in redefinition.
p_end	end measure to use in redefinition.

Returns

MDSYS.SDO_GEOMETRY LRS geometry

dz_lrs_main.valid_lrs

SDO_LRS.VALIDATE_LRS_GEOMETRY is a somewhat useless function that does very little to tell users if the geometry is reasonable. This function tries somewhat to improve the situation by allowing the user to validate an array of geometries for both LRS problems and optionally 2d validation issues.

Parameters

p_input	MDSYS.SDO_GEOMETRY_ARRAY of LRS geometries to test.
p_validate_geometry	optional TRUE/FALSE flag to run VALIDATE_GEOMETRY_WITH_CONTEXT on the input geometries, default is FALSE.
p_validate_tolerance	optional tolerance to use when validating geometries from second parameter, default is 0.05.

Returns

VARCHAR2 TRUE or error message

dz_lrs_main.concatenate_lrs_mess

Procedure to take an unordered array of intersecting LRS geometries and tie them all together based on their measures and endpoints. If the geometries cannot be put together, then the status message will explain the problems.

Parameters

p_input	MDSYS.SDO_GEOMETRY_ARRAY of LRS geometries to concatenate.

Returns

p_output	output LRS geometry of concatenated input segments.
p_return_code	return code indicating any errors, success is zero.
p_status_message	detailed status message describing any errors encountered.

dz_lrs_main.safe_concatenate_geom_segments

Function to append together two LRS geometries that either touch or overlap preserving the original measure systems of both parts.

Parameters

p_geometry_1	LRS geometry one
p_geometry_2	LRS geometry two
p_sdo_tolerance	2d tolerance used in testing endpoints, default is 0.05
p_lrs_tolerance	measure tolerance used in concatenation, default is 0.00000001.

Returns

MDSYS.SDO_GEOMETRY LRS geometry

dz_lrs_main.safe_lrs_append

Simple wrapper to bypass bug 16223317 which does allow SDO_UTIL.APPEND to preserve measures in its output.

Parameters

| p_geometry_1 | LRS geometry one |
| p_geometry_2 | LRS geometry two |

Returns

MDSYS.SDO_GEOMETRY LRS geometry

dz_lrs_main.lrs_relate

As SDO_GEOM.RELATE does not work with LRS inputs, this function will test both 2D and LRS equality for LRS inputs. First the function removes LRS measures and tests against SDO_GEOM.RELATE. If results are equal, the measures are tested and if within the measure tolerance, reports EQUAL. If the measures are not equal, the function reports LRS DISJOINT.

Parameters

p_geometry_1	LRS geometry one
p_mask	SDO_GEOM.RELATE mask keyword, only DETERMINE is currently supported.
p_geometry_2	LRS geometry two
p_xy_tolerance	tolerance for SDO_GEOM.RELATE, default is 0.05
p_m_tolerance	tolerance for determining measures are equal

Returns

VARCHAR2 text result of relate