

## BZ10M: Bolzano Buses Network - Network Data Model

### Import

```
imp user/pass file=/bz10m/bus_network-1.1.dmp full=y
```

Create network (needs to be done once for each bus):

```
INSERT INTO USER_SDO_NETWORK_METADATA(
    network, network_category, geometry_type,
    node_table_name, node_geom_column,
    link_table_name, link_geom_column, link_direction)
VALUES(
    'BZ_BUS_L1_NET', 'SPATIAL', 'SDO_GEOMETRY',
    'BZ_BUS_L1_NODE$', 'GEOMETRY',
    'BZ_BUS_L1_LINK$', 'GEOMETRY', 'DIRECTED');
INSERT INTO USER_SDO_NETWORK_METADATA(
    network, network_category, geometry_type,
    node_table_name, node_geom_column,
    link_table_name, link_geom_column, link_direction)
VALUES(
    'BZ_BUS_L1_HOLIDAYS_NET', 'SPATIAL', 'SDO_GEOMETRY',
    'BZ_BUS_L1_HOLIDAYS_NODE$', 'GEOMETRY',
    'BZ_BUS_L1_HOLIDAYS_LINK$', 'GEOMETRY', 'DIRECTED');
INSERT INTO USER_SDO_NETWORK_METADATA(
    network, network_category, geometry_type,
    node_table_name, node_geom_column,
    link_table_name, link_geom_column, link_direction)
VALUES(
    'BZ_BUS_L2_NET', 'SPATIAL', 'SDO_GEOMETRY',
    'BZ_BUS_L2_NODE$', 'GEOMETRY',
    'BZ_BUS_L2_LINK$', 'GEOMETRY', 'DIRECTED');
INSERT INTO USER_SDO_NETWORK_METADATA(
    network, network_category, geometry_type,
    node_table_name, node_geom_column,
    link_table_name, link_geom_column, link_direction)
VALUES(
    'BZ_BUS_L10A_NET', 'SPATIAL', 'SDO_GEOMETRY',
    'BZ_BUS_L10A_NODE$', 'GEOMETRY',
    'BZ_BUS_L10A_LINK$', 'GEOMETRY', 'DIRECTED');
```

Current version: 1.1 (10/25/2007) (bus lines 1, 1\_HOLIDAYS, 2, 10A)

Previous versions: 1.0 (9/26/2007) (bus lines 2, 10A)

The imported network data model will contain two tables per bus line BZ\_BUS\_L\*\_LINK\$ and BZ\_BUS\_L\*\_NODE\$; and the table BZ\_BUS\_STOPS\_ON\_LINK to connect bus network with the roads network.

The links are taken from a bus network provided long time ago by Municipality, thus it does not exactly map on the corresponding links (streets) of the [BZ\\_ROADS\\_LINK\\$](#). The nodes are the bus

stations. The link directions corresponds to the direction of a bus.

To transfer oneself from a bus network to a roads network and vice versa, use the BZ\_BUS\_STOPS\_ON\_LINK table. Look at the column descriptions below.

## Columns

### BZ\_BUS\_L\*\_LINK\$:

LINK_ID	ID of the link
START_NODE_ID	ID of the starting node (bus station) of the link in the BZ_BUS_L*_NODE\$
END_NODE_ID	ID of the ending node (bus station) of the link in the BZ_BUS_L*_NODE\$
COST	NUMBER value created for your needs. Now it is entirely set to NULL
GEOMETRY	Geometry column to specify link appearance

### BZ\_BUS\_L\*\_NODE\$:

NODE_ID	ID of the node
NAME	Name of the bus station
GEOMETRY	Geometry column to indicate node coordinates

### BZ\_BUS\_STOPS\_ON\_LINK:

STOP_NODE_ID	ID of the bus stop in the BZ_BUS_L*_NODE\$ table
LINE	Name of the bus line (e.g. '1', '1_HOLIDAYS', '10A')
LINK_ID	ID of the link of the <a href="#">BZ_ROADS_LINK\$</a> table It indicates the link, on which the current bus stop (STOP_NODE_ID) of the bus line (LINE) resides
DISTANCE_RATIO	A value between 0 and 1, indicating on which part of the link (LINK_ID) the bus stop (STOP_NODE_ID) is (WRT to link start)

## Creating index

If you want to use any spatial operators (such as finding all segments within distance, retrieving bounding rectangle etc.) you need to create an index for any table of the bus line. How to do this for the LINK table (same for NODE, just substitute LINK\$ with NODE\$):

```
INSERT INTO USER_SDO_GEOM_METADATA(TABLE_NAME, COLUMN_NAME, DIMINFO)
VALUES ('BZ_BUS_L*_LINK$', 'GEOMETRY',
       SDO_DIM_ARRAY(SDO_DIM_ELEMENT('X', -180, 180, 0.05),
                     SDO_DIM_ELEMENT('Y', -90, 90, 0.05))
);
CREATE INDEX BZ_BUS_L*_LINK$_INDEX ON BZ_BUS_L*_LINK$(GEOMETRY) INDEXTYPE IS
MDSYS.SPATIAL_INDEX;
```

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