



Network for Developers™

Oracle Delivery Format (ODF)

**Sample Data
Installation Guide
And
Release Notes**

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Revision History

Version	Date	Comments
0.1	1/6/2006	Revision 1
1.0	3/4/2008	Revision 2
2.0	8/14/2009	Revision 3
2.1	10/03/2009	Revision 4

1 Introduction

This document describes the installation process for the sample NAVTEQ data download.

The data is delivered preconfigured for use with Oracle Locator and Oracle Spatial. The sample includes mapping, geocoding, and routing data as well as additional data for displaying and analyzing data associated with zip code boundaries and US Census Bureau boundaries.

The data includes high-level boundaries for North America. Detailed information is only included in the San Francisco, California area.

In addition, this document contains the release notes associated with this sample data.

The installation is a zip file which contains a set of files:

- NAVTEQ_SF_Sample.dmp – Dump file containing the data
- setup.txt – File with examples of all commands required for installation
- SanFranciscoSampleODFInstallGuide.pdf

2 Prerequisites

- The Oracle database version must be at least **10.2**. For mapping applications Oracle Locator (included with the Oracle database in Oracle Express, Oracle Standard Edition One, Oracle Standard Edition, and Oracle Enterprise Edition) and Oracle Fusion Middleware 11g MapViewer are required. Geocoding and Routing applications require Oracle Enterprise Edition with the Spatial Option. To use routing with Oracle 11g release 11.1.0.6, then ARU patch 10144007 must be installed. This patch is downloadable from Oracle Metalink. Oracle 11.1.0.7 and higher include this patch.
- Space considerations:
The installation of this sample data requires 350Mb

If you encounter any issues with the following steps or data issues, please use the General NAVTEQ Forum on NAVTEQ Network for Developers (NN4D) at:

http://developer.navteq.com/show_forums.do

3 Installation

3.1 General Information

The dataset is delivered in a single dump file and will be imported into an Oracle database.

All of the commands shown in this document are in the file setup.txt included in the downloaded zip file.

3.2 *Extract the files from the zip file and work from that directory*

First, extract the files in the data set to a directory of your choosing. This directory is a temporary directory that can be deleted when the installation is done.

Set your default directory to that directory.

The setup.txt file has examples of all commands used in this document.

Note the information in the brackets <> will be replaced by your specific data file location.

3.3 *From an Oracle privileged account, create the NAVTEQ_SF user*

While still logged in as the SYS or SYSTEM user, create the NAVTEQ_SF user:

```
-- create the user

grant connect,resource to NAVTEQ_SF identified by <NAVTEQ_SF_PASSWORD>;
```

3.4 *Grant privileges to use the tablespace to the NAVTEQ_SF user*

The user's default table space is set to

```
-- set the NAVTEQ_SF user's default table space and allow
-- full use of the USERS tablespace

alter user NAVTEQ_SF default tablespace USERS
  quota unlimited on USERS;
```

3.5 *From the operating system command prompt, import the data*

From the command line interface or using your favorite tool for importing Oracle data, import the dump file:

```
imp NAVTEQ_SF/<NAVTEQ_SF_PASSWORD> file=NAVTEQ_SF_Sample.dmp
```

3.6 *Log in as NAVTEQ_SF and create map metadata*

The import procedure creates tables called MY_MAPS, MY_CACHED_MAPS, MY_THEMES, and MY_STYLES. This is the data that will be used to populate Oracle's mapping metadata views, which are USER_SDO_MAPS, USER_SDO_CACHED_MAPS, USER_SDO_THEMES, and USER_SDO_STYLES. These commands are also shown in the file setup.txt.

Connect to the database as the NAVTEQ_SF user, then move the data to Oracle's metadata tables:

```
sqlplus NAVTEQ_SF/<NAVTEQ_SF_PASSWORD>

insert into user_sdo_maps
  select * from my_maps;

insert into user_sdo_cached_maps
  select * from my_cached_maps;

insert into user_sdo_themes
```

```

select * from my_themes;

insert into user_sdo_styles
select * from my_styles;

commit;

```

Do not forget to type "commit;" at the end of the procedure.

4 Release Notes

Tables related to the following areas have been created: mapping, geocoding, routing, zip codes boundaries, and census boundaries.

4.1 Mapping Layers

The standard NAVTEQ mapping layers for this data set are shown below. To ensure the set of tables exist, type the following from the SQL prompt while logged in as user NAVTEQ_SF:

```

set pagesize 5000;

select table_name
from user_tables
where table_name like 'WOM%' or table_name like 'NTC_MAP%'
order by table_name;

```

-- The sql statement above should return:

```

TABLE_NAME
-----
NTC_MAP_ADMIN_AREA
NTC_MAP_ADMIN_BUILTUP_AREA
NTC_MAP_ADMIN_LINE
NTC_MAP_AREA_NAME
NTC_MAP_AREA_NAME_TRANS
NTC_MAP_BUILDING_AREA
NTC_MAP_FACILITY_AREA
NTC_MAP_GRADE_SEP_CARTO_XING
NTC_MAP_GRADE_SEP_ROAD_XING
NTC_MAP_ISLAND_AREA
NTC_MAP_LANDUSE_AREA
NTC_MAP_LAYER_BOUNDARY
NTC_MAP_LINE_NAME
NTC_MAP_LINE_NAME_TRANS
NTC_MAP_OCEAN_AREA
NTC_MAP_POI_ACTIVITY
NTC_MAP_POI_ATTRIBUTE
NTC_MAP_POI_AUTO
NTC_MAP_POI_BUSINESS
NTC_MAP_POI_CITY_CENTER
NTC_MAP_POI_CITY_GE_1000
NTC_MAP_POI_HOTEL
NTC_MAP_POI_NAME

```

NTC_MAP_POI_NAME_TRANS
 NTC_MAP_POI_PUBLIC_FACILITY
 NTC_MAP_POI_RESTAURANT
 NTC_MAP_POI_SERVICE
 NTC_MAP_POI_SHOP
 NTC_MAP_POI_TOURISTIC
 NTC_MAP_POI_TRANSPORTATION
 NTC_MAP_RAILROAD_LINE
 NTC_MAP_ROAD_FERRY
 NTC_MAP_ROAD_HIGHWAY
 NTC_MAP_ROAD_HIGHWAY_AGGR
 NTC_MAP_ROAD_LOCAL
 NTC_MAP_ROAD_NAME
 NTC_MAP_ROAD_NAME_TRANS
 NTC_MAP_ROAD_SECONDARY
 NTC_MAP_ROAD_SEC_AGGR
 NTC_MAP_WATER_AREA
 NTC_MAP_WATER_LINE
 NTC_MAP_ZONE_AREA
 WOM_ADMIN_LINE
 WOM_AREA
 WOM_AREA_BACKDROP
 WOM_AREA_COUNTRY_GEN
 WOM_POI
 WOM_POI_CITY_CENTER
 WOM_ROAD_HIGHWAYS
 WOM_ROAD_HIGHWAYS_GEN

4.2 Reference Metadata

NAVTEQ includes metadata which enables users to understand in which tables various types of data are stored. These tables are:

- NTC_META_FTYPE_REF
- NTC_META_POI_CAT_REF
- NTC_META_ROAD_FC_REF
- NTC_META_CHAIN
- NTC_META_CUISINE

NTC_META_FTYPE_REF – describes the features (NAME column), the tables which contain the features (TABLE_NAME), the value in the table that corresponds to the feature (FEATURE_TYPE), feature type (area or linear) and whether the feature is administrative in nature. For instance, to see all of the information associated with colleges and universities the following select statement would be used:

```
select * from NTC_META_FTYPE_REF where name like '%COLLEGE%';
```

FEATURE_TYPE	AREA	ADMIN	NAME	TABLE_NAME
2000403	A	N	UNIVERSITY/COLLEGE	NTC_MAP_FACILITY_AREA

NTC_META_POI_CAT_REF – describes the features associated with the POI tables. The NAME column describes the feature, the CAT_ID is the table value that corresponds to features of that type, and TABLE_NAME is the table containing features of that type. To find bank information a user would type the following:

```
select * from NTC_META_POI_CAT_REF where name like '%BANK%';
```

CAT_ID	NAME	TABLE_NAME
6000	BANK	NTC_MAP_POI_BUSINESS

NTC_META_ROAD_FC_REF – describes the tables associated the various function classes. This table contains:

```
select * from NTC_META_ROAD_FC_REF;
```

FUNCTIONAL_CLASS	TABLE_NAME
1	NTC_MAP_ROAD_HIGHWAY
2	NTC_MAP_ROAD_HIGHWAY
3	NTC_MAP_ROAD_SECONDARY
4	NTC_MAP_ROAD_SECONDARY
5	NTC_MAP_ROAD_LOCAL

NTC_META_CHAIN – maps the chain id (CHAIN_ID column) of Points of Interest to the name of the chain (NAME column).

NTC_META_CUISINE – maps the cuisine id (CUISINE_ID) of the NTC_MAP_POI_RESTAURANT table to the type of cuisine (NAME column).

4.3 Mapping Metadata and Maps

The map metadata was loaded in the [create map metadata](#) step. Oracle's mapping metadata views should now be populated. USER_SDO_MAPS, USER_SDO_CACHED_MAPS, USER_SDO_THEMES, and USER_SDO_STYLES all contain data associated with the pre-created maps. The choices of pre-created maps include:

WORLD_MAP
WORLD_MAP_CENSUS
WORLD_MAP_ZIPS
WORLD_MAP_IMG
WORLD_MAP_FAST

WORLD_MAP, WORLD_MAP_CENSUS, and WORLD_MAP_ZIPS maps start with a view of North America, with a highlight of the San Francisco area in California. The San Francisco area is highlighted because this is the only area in which this sample includes detailed information. The scale at which layers appear and disappear is controlled within each map definition.



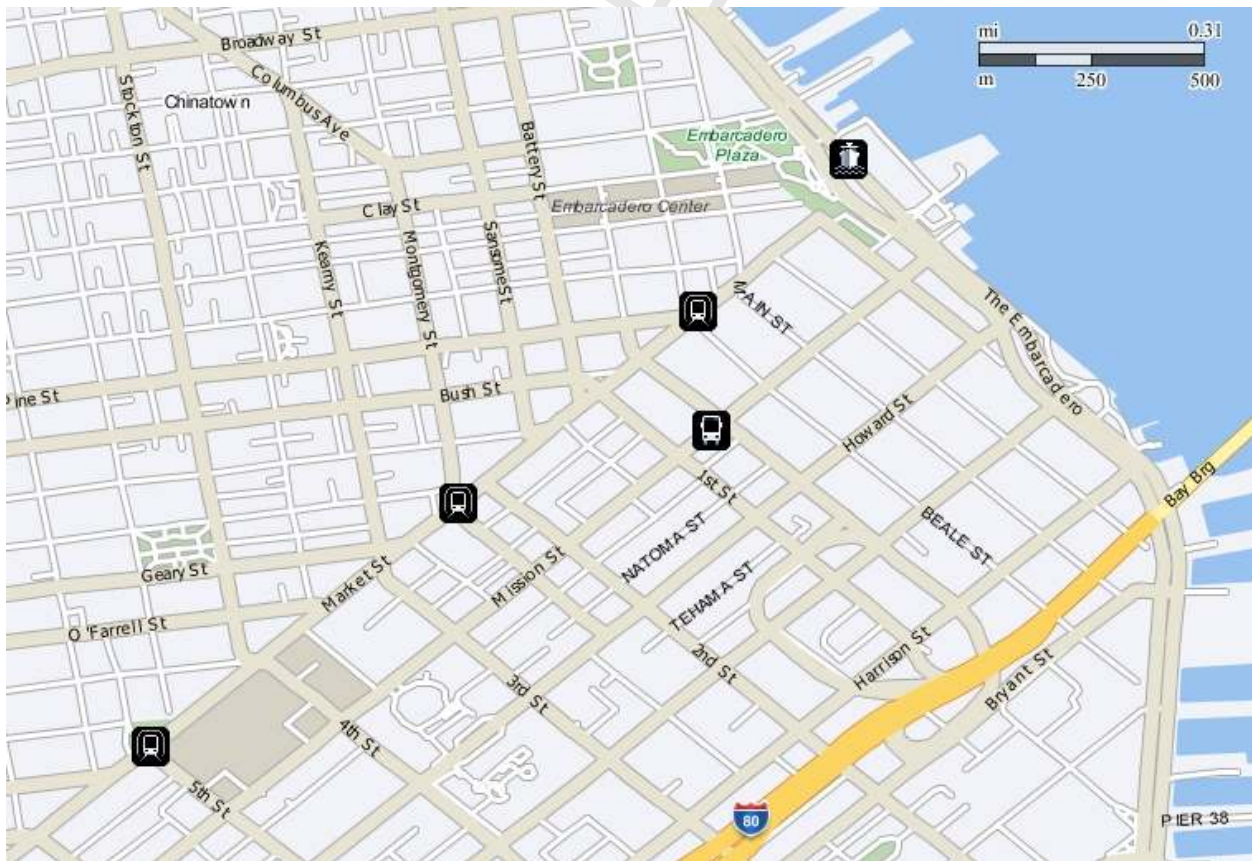
Startup Map Showing San Francisco Area with Transparent Highlight

WORLD_MAP is the map showing the base mapping information associated with the Oracle ODF Base product.

The next figures show progressive detail as you zoom into the map.



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WORLD_MAP_CENSUS include census boundaries (the additional tables `TRACT`, `BLOCK_GROUP` and `BLOCK` are displayed on these maps). Census tracts and block groups can be used to tie content such as demographic data to the NAVTEQ map. The `BLOCK_GROUP` table includes demographic information for the 2000 Census including population statistics, education statistics, and income statistics. In addition NAVTEQ provides a `STATE` table to use for thematic display purposes, and a `COUNTY` table with population statistics for the years 2000 to 2008 which is also useful for thematic mapping and analysis.

The **WORLD_MAP_ZIPS** map includes zip code polygon boundaries for the San Francisco area. Zip code boundaries are used in many applications including mailing/addressing and business intelligence applications. The table containing the zip code boundaries is `USA_ZIP5_POLYS`.

WORLD_MAP_IMG is a map suitable for overlaying on top of imagery.

WORLD_MAP_FAST is a slightly less detailed map for best interactive rendering performance.

To understand more about using Oracle Fusion Middleware MapViewer for mapping applications go to:

<http://www.oracle.com/technology/products/mapviewer/index.html>

4.4 Geocoding

In addition to the above content, a set of tables has been provided in the standard Oracle format for Geocoding. These tables are:

```
GC_ADDRESS_POINT_NVT
GC_AREA_NVT
GC_COUNTRY_PROFILE
GC_INTERSECTION_NVT
GC_M_ISO_COUNTRY_CODES
GC_PARSER_PROFILEAFS
GC_PARSER_PROFILES
GC_POI_NVT
GC_POSTAL_CODE_NVT
GC_ROAD_NVT
GC_ROAD_SEGMENT_NVT
```

These tables are included in this sample with select privileges granted to public, so every Oracle user may access these tables for geocoding in the San Francisco area.

To test the geocoder, from the SQL*Plus prompt try geocoding an address in the San Francisco area:

```
select sdo_gcdr.geocode('NAVTEQ_SF',sdo_keywordarray('33 New Montgomery St.',
    'San Francisco , CA 94105'), 'US','DEFAULT')
from dual;
```

Oracle 11g Release 2 has a new feature for geocoding to the exact point associated with the address. This “point Geocoding” feature is enabled by the GC_ADDRESS_POINT_NVT, which is new content available from NAVTEQ.

To learn more about the Oracle Geocoder, go to:

http://download.oracle.com/docs/cd/B28359_01/appdev.111/b28400/sdo_geocode_concepts.htm#CIHECECC

http://download.oracle.com/docs/cd/B28359_01/appdev.111/b28400/sdo_geocode_ref.htm#CACC HBGE

http://www.oracle.com/technology/products/spatial/pdf/11g_collateral/spatial11g_geocoder_twp.pdf

4.5 Routing

Another set of tables included in this sample are Oracle's standard routing tables. Routing data allows applications to generate driving directions and/or distances, and enables Oracle applications to include driving directions as a standard component of the application. The tables used for routing include:

- NODE
- EDGE
- PARTITION
- SIGN_POST

To learn more about Oracle's standard routing features go to:

http://download.oracle.com/docs/cd/B28359_01/appdev.111/b28400/sdo_route_server.htm#CCHGDJJD

4.6 Truck Routing (NAVTEQ Transport)

Available for users of Oracle 11g Release 2, truck routing creates routes which take advantage of encodings specific to trucking requirements. Length, height, width, and weight restriction can all be taken into account when generating truck routes, as well as legal restriction that specify whether trucks are allowed on specific roads. In addition, hazardous materials routes are encoded.

Trucking tables include:

ROUTER_TRANSPORT
TRUCKING_USER_DATA

4.7 Traffic Patterns

This sample also includes traffic patterns data for San Francisco. Traffic patterns are used to determine average travel speed along roads at particular times of the day. NAVTEQ has included sample traffic patterns content in 15 minute increments. See the tables:

NVT_TRAF_PATT_SUNDAY
NVT_TRAF_PATT_MON_THURS
NVT_TRAF_PATT_FRIDAY
NVT_TRAF_PATT_SATURDAY
RDF_LINK_TMC

The router `EDGE` table is joined to the tables above via an intermediate table named `RDF_LINK_TMC`. The `EDGE_ID` in the `EDGE` table may have a corresponding `LINK_ID` in the `RDF_LINK_TMC` table. This can then be associated with the `TMC` column in the above tables using the `LOCATION_CODE` and `LOCATION_TABLE_NR` fields in `RDF_LINK_TMC` joining to `SUBSTR(TMC, 5)` and `SUBSTR(TMC, 2, 2)` respectively.

From `EDGE` table:

```

SELECT H08_30 -- Average speed at 8:30 AM
FROM NVT_TRAF_PATT_FRIDAY,
      (SELECT LOCATION_CODE, LOCATION_TABLE_NR
       FROM RDF_LINK_TMC
       WHERE LINK_ID = :edge_id) A
WHERE A.LOCATION_CODE = SUBSTR(TMC,5)
      AND A.LOCATION_TABLE_NR = SUBSTR(TMC,2,2);

```

The data returned from this query may be data in two directions. In order to determine the correct speed value to use, an additional item is required. If the user is traveling along the direction of the EDGE, they are deemed to be going in the positive (P) direction. If the direction of travel is backwards along the edge, the use is in the negative (N) direction. The query can be modified to include P or N in the appropriate character position in the TMC field of the traffic pattern table:

```

SELECT H08_30 -- Average speed at 8:30 AM
FROM NVT_TRAF_PATT_FRIDAY,
      (SELECT LOCATION_CODE, LOCATION_TABLE_NR
       FROM RDF_LINK_TMC
       WHERE LINK_ID = :edge_id) A
WHERE A.LOCATION_CODE = SUBSTR(TMC,5)
      AND A.LOCATION_TABLE_NR = SUBSTR(TMC,2,2)
      AND SUBSTR(TMC,4,1) = 'P';

```

4.8 Postal Code Boundaries

NAVTEQ provides sample postal code boundaries in this data set. The table containing the postal code boundaries is called:

```
USA_ZIP5_POLYS
```

4.9 Census Boundaries

Census Boundaries are area features associated with boundaries defined by the US Census. NAVTEQ Census boundaries in this sample include the following tables:

```

BLOCK
BLOCK_GROUP
TRACT
COUNTY
STATE

```

4.10 Census IDs for Geocoding

Census IDs for Geocoding allows users to assign Census areas to the results of a geocode operation without requiring point in polygon geospatial analysis. The `EDGE_ID` associated with the results of a Geocoding operation is matched through a lookup table to the associated `LINK_ID` of the `CENSUS_IDS` table. Each `LINK_ID` has the associated Block, Block Group, Tract, Core Based Statistical Area (CBSA), and Metropolitan Statistical Area (MSA).

Tables required for Census IDs for Geocoding include:

```
CENSUS_IDS
ODF_META_FEATURE_PID
```

The following example shows how to use the results of a geocode operation to determine the Census boundaries associated with the geocoded location.

```
select a.addr.edgeid,a.addr.side,a.addr.matchcode
  from (select sdo_gcdr.geocode('NAVTEQ_SF',sdo_keywordarray('342 Grant Ave',
    'San Francisco , CA 94108'), 'US','DEFAULT') addr
    from dual) a;
ADDR.EDGEID A ADDR.MATCHCODE
-----
```

198723513 R	1
-------------	---

```
select a.*
from census_ids a,odf_meta_feature_pid b
where b.feature_id=198723513 -- EDGE ID returned from geocode operation
  and b.owner='LI' -- Always a LINK (LI)
  and a.link_id=b.permanent_id
  and a.side='R'; -- Side returned from geocode operation
```

LINK_ID MCD_ID			CBSA_ID
MCD_NAME			
CBSA_NAME			BLOCK_ID
BGP_ID	TRC_ID	S	
23605425	0607592790		41860
San Francisco			060750117002006
San Francisco-Oakland-Fremont, CA			
060750117002	06075011700	R	