NAVDATA Data Dictionary

From PMDG Ops

Contents

NAVIGATION Data Dictionary

SUMMARY

There are two types of data used for navigation. This article is about the AIRAC data stored in the /NAVDATA location and consists of six files. One of the files, fmc_ident.txt, is a short file that simply provides the data dates. The other files provide airport, runway, navaid, fixes and route definition used by the PMDG FMC. The other type of data, SIDSTARS, is not discussed in this article.

The location of the files varies with version of MSFS. FS9 uses %/FMCWP/NAVDATA and FSX uses %/PMDG/NAVDATA where % is the root directory for the flight simulator.

The text files containing data used by the PMDG FMC for navigation are defined in the following sections. Please note that column position is significant, white space must be space chars (no tab chars)

AIRPORT DATA

```
Filename: airports.dat
```

List of airports and airport coordinates listed by ascending latitude.

```
....,....1....,....2....,
KCRP 27.770361 -97.501222
IIII dd.dddddd ddd.dddddd
 IIII         COL 1-4 ICAO code for airport
 dd.dddddd    COL 5-14 Latitude degrees (-Lat for South)
 ddd.dddddd   COL 15-25 Longitude degrees (-Lon for West)
              (Note: FAA defines airport location as the centroid of the area defined
              by the runway edges, and calls it the Airport Reference Point)
```

NAVAID DATA

Filename: wpNavAID.txt

List of radio navigation aids containing name, id, type, location and frequency listed by ascending latitude.

```
....,....1....,....2....,....3....,....4....,....5....,....6..
CORPUS CHRISTI          CRP  VORD 27.903764 -97.444881115.50H
CORPUS CHRISTI          ICRP ILSD 27.759597 -97.495508110.30T
ROCKPORT                RKP  NDB  28.090569 -97.045544391.00N
NNNNNNNNNNNNNNNNNNNNNNNNIIII TTTT dd.dddddd ddd.ddddddfff.ffC
 NNNN        COL 1-24 Facility Name
 IIII        COL 25-28 ID
 TTTT        COL 30-33 Type
              ILS  Insturment Landing System (Localizer)
              ILSD ILS/DME
              NDB  Nondirectional Beacon
              NDBM NDB/Locator Middle Marker (LMM)
              NDBO NDB/Locator Outer Marker (LOM)
              MARI Unknown - seems to be same as MHW class NDB
              VOR  VHF Omnidirectional Radio
              VORD VOR/DME (no separate code for VORTAC)
 dd.dddddd   COL 34-43 Latitude (-Lat for South)
 ddd.dddddd COL 44-54 Longitude ( -Lon for West)
 fff.ff      COL 55-60 Frequency (MHz for ILS/VOR KHz for NDB) See Note Below
 C           Col 61 Class
              H High Altitude/Long Range
              N NDB
              T Terminal/Short Range
Note: If NDB frequency is above 999.99 KHz then the
frequecy field still starts in col 55 and C is col 62, for example:
....,....1....,....2....,....3....,....4....,....5....,....6..
EREBUNI                 Y    NDBM 40.104053  44.4505831180.00N
Where the frequency above is 1180.00 KHz (1.180 MHz)
```

RUNWAY DATA

Filename: wpNavAPT.txt

List of runways and instrument approach data containing runway location, lenght, width, elevation and ILS/LDA course/frequency.

```
....,....1....,....2....,....3....,....4....,....5....,....6....,....7....,....8
CORPUS CHRISTI INTL     KCRP13 07508130 27.776997 -97.513328110.3012900043
CORPUS CHRISTI INTL     KCRP17 06080173 27.779472 -97.496106000.0017300041
CORPUS CHRISTI INTL     KCRP31 07508310 27.762189 -97.497206110.3030900044
CORPUS CHRISTI INTL     KCRP35 06080353 27.762925 -97.496031109.5035200040
LAMBERT-ST LOUIS INTERNAKSTL12L09003121 38.751781 -90.366294108.9012200528
LAMBERT-ST LOUIS INTERNAKSTL12L09003121 38.751781 -90.366294110.1012200528
NNNNNNNNNNNNNNNNNNNNNNNNIIIIrrOllllllbbb dd.dddddd ddd.ddddddfff.ffcccceeeee
      NNNN  Col 1-24 Airport Name
      IIII  Col 25-28 ICAO-code for airport
        rr  Col 29-30 Runway Number (01-36)
         O  Col 31 Runway Order (L C R)
    llllll  Col 32-36 Runway Length (ft)
       bbb  Col 37-39 Runway Bearing (mag)
 dd.dddddd  Col 41-49 Latitude degrees (-Lat for South Col 40)
ddd.dddddd  Col 50-60 Longitude degrees (-Lon for West) Decimal at Col 64
    fff.ff  Col 61-66 ILS/LDA frequency (LOC MHz)
       ccc  Col 67-69 LOC course (mag)
     eeeee  Col 70-74 Runway Elevation (ft MSL)
         Note: The PMDG FMC will select the first record only if there is
          more than one record for the runway. This is a problem at locations
          where there is both an ILS and LDA at same runway, if you want the ILS
          but the LDA is first (Navigraph is aware of this and usually sorts the
          ILS first). See KSTL 12L above for example (108.90 MHz is the ILS)
         Note: The PMDG FMC uses the above information to setup the display,
          not the MSFS data. This results in variations between scenery and
          panel displayed information for runway elevation and LOC course.
```

FIX DATA

Filename: wpNavFIX.txt

List of navigation fixes/waypoints sorted by ascending latitude.

```
....,....1....,....2....,...3....,....4....,....5.
8750W                   8750W-87.000000 -50.000000
55S11                   55S11-55.000000 111.000000
0538E                   0538E  5.000000  38.000000
3883N                   3883N 38.000000 -83.000000
38N30                   38N30 38.000000-130.000000
DOWNS                   DOWNS 38.053928 -86.251583
NNNNN                   NNNNN dd.dddddd  dd.dddddd
     NNNNN  Col 1-5 & 25-30 Fix Name
 dd.dddddd  Col 32-40 Latitude degrees (-Lat for South, sign Col 31)
ddd.dddddd  Col 41-51 Longitude degrees (-Lon for West, decimal always Col 45)
          Note: The duplicate name fields may be the result how the FAA
          provides data, where there are many more fixes defined than provide
          in the airac data. For example, most terminal data is not included.
          This data includes airway crossing, radar service boundaries, etc.
```

ROUTE DATA

Filename: wpNavRTE.txt List of airways by sequential fixes sorted alphanumerically.

```
....,....1....,....2....,....3....,....4....,....5....,....6....,....7....,....8
A602G 001 MOGSA 14.688333 -20.211389
A602G 002 TITOR 13.000000 -18.000000
A602G 003 LUSTI 12.318333 -16.483333
J239 001 ATL 33.629069 -84.435069
J239 002 WEONE 33.525689 -85.122247
J239 003 JAMMR 33.232136 -86.942319
Q10 001 ENM 62.784583 -164.487558
Q10 002 ULL 63.692311 -170.470025
Q10 003 JED 50.647319 20.251206
V11 100 ASI -12.760556 -76.606389
V11 101 AND -13.714167 -73.377778
V11 102 DABUL -13.697778 -72.886667
Column position is not significant. Data is provided in the following
sequence separated by one space character:
      AAAA  Airway Name (alphanumeric)
       nnn  Sequence Number (001 - nnn)
      NNNN  Fix Name
 dd.dddddd  Latitude degrees (-Lat for South)
ddd.dddddd  Longitude degrees (-Lon for West)
          Note: The FMC uses the wpNavFIX data when you enter a fix name,
           it uses the wpNavRTE data when you enter a route and checks that
           the fix from where you start the route is included in the route
           definition. It then populates the legs information from the route
           data up to then next fix you enter.
```