



FMS Tutorial Series

Tutorial 1 - Database

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Database Basics:

The FMS database is sourced from Navigraph and is derived from the Jeppesen real world navigation database. As of the current cycle, there are 13,286 airports, 14,371 navaids, 22,319 airways, and 254,040 airspace fixes!

When the FMS starts and the user turns on the FMS via the ON/OFF DIM key, all of this data is loaded into the FMS memory. On some PCs, depending on specs, it may take up to 45 seconds to complete loading. While the database is loading, the following screen will be displayed:

```
      UNS - 1
LEARJET 45
CPU           PASS
RAM           PASS
DATABASE     LOADING
CONFIG MODULE PASS
AUXILIARY    PASS
ARINC        PASS
```

Once loading is complete, the FMS will display the initialization page.

```
      INIT 1/1
INITIAL POS      DATE
ID <GPS>         UTC
N 32 44.0       00:00:00
W 117 11.4
STANDARD/EXTENDED
NAV DATABASE EXPIRES
04-JAN-17
←ACCEPT FMC VER 1.0 B1
```

The current date, time, and position (if connected to FS) will be displayed. The current navigation database expiration will be displayed as well. Currently, there are no editable options on this page. The user should select line select 5L (lower left) to accept the position data and complete FMS initialization.

Database Query Function:

The UNS-1 FMS has a neat little feature that allows the user to find and query items in the database. This is particularly useful for finding navaid frequencies on the fly (pun intended). To navigate to the database query function, select the DATA key from any page. Then, select the NAV DATA option (Line Select 1L Key).



From here, you can perform a quick waypoint query by entering the navaid ICAO code at line select 1R. This option provides a quick view of airports, nav aids, and NDBs. If more detailed information is needed, the user can select any options on the left side to find details on departures, arrival procedures, runways or airways.



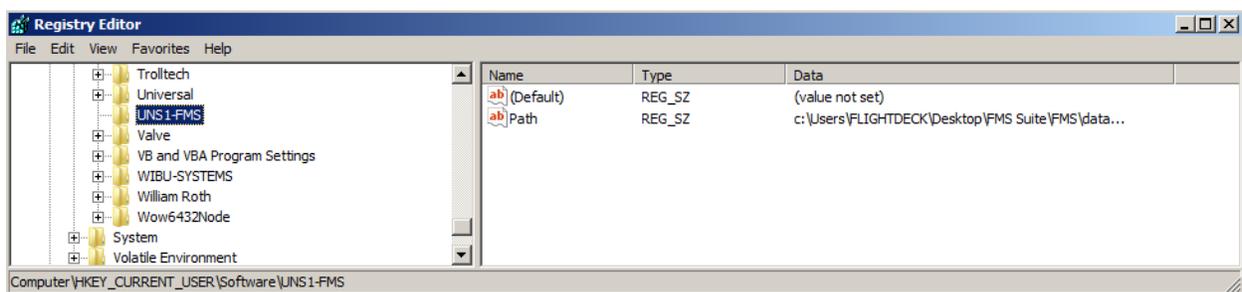
At this point, I'm not sure what should be displayed when the user queries a SID or STAR. Currently, the FMS will only display high level information, but I wonder if it should display all of the procedural waypoints. Looking for any real world pilots to provide some feedback on this.

Database Updating:

The database should be purchased and updated via the Navigraph FMS Data Manager. This software can be obtained directly from the Navigraph website. A subscription is required to use this service, but it is by far the easiest way to update the database.

In order for this service to work, the FMS on startup, will write its current path to the windows registry. If you would like to inspect this element, it's at the following location of the windows registry:

Computer\HKEY_CURRENT_USER\Software\UNS1-FMS



Upon startup of the Navigraph FMS Data Manager, the manager will find this path in the registry and automatically update the database located at the path specified.

For users with 2 FMS installed, the last FMS that was run will write its path to the registry. Therefore, to update the databases of both, you have 2 options.



Option 1: Run FMS1 then the Navigraph FMS Data Manager, then run FMS2 and run the Navigraph FMS Data Manager again.

Option 2: Run FMS1 then the Navigraph FMS Data Manager, then copy the data folder to the FMS2 installation.

I am considering relocating the database outside of the main FMS installation and setting a parameter in the ini file to point to the location. That way, all instances of the FMS will point to a single database and the Navigraph FMS Data Manager will only need to find a single directory. But alas I'm lazy and it works as-is with the above options. 😊