

FURUNO

NavNet 3D Chart & Data Management v1.0

Furuno USA, Inc.



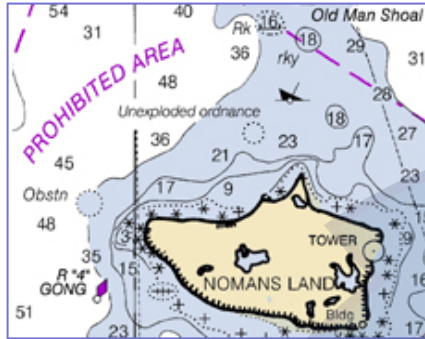
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1. Glossary

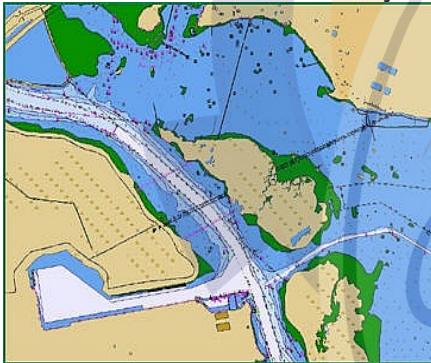
Raster Charts:

Raster Charts are basically electronic photographs (scans) of the original official paper charts which are stored in a TimeZero readable format. Raster charts offer a direct copy of a familiar paper chart, with the same accuracy and reliability.



Vector Charts:

Vector charts are computer-based digital files (databases) containing marine features suitable for marine navigation. All the data is described in digital form, for example, a buoy will be represented by a data item describing position, color, type, lights, etc. A contour will be described by a series of positions forming a polygon.



Satellite Photos:

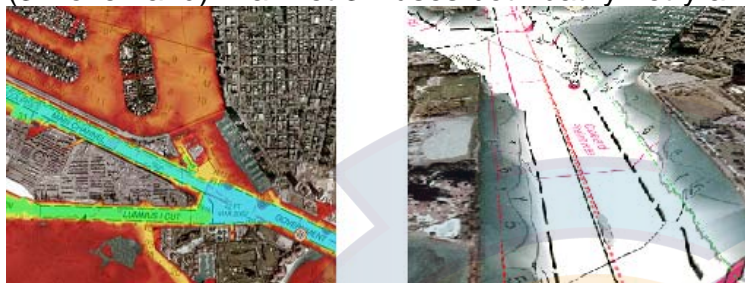
Satellite Photos (Sat Photo) are geo-referenced aerial pictures that can be overlaid on Raster or Vector charts using Furuno's exclusive PhotoFusion technology. Some areas, such as the USA, have high resolution Satellite Photos (as precise as 50cm per pixel). In areas where high resolution is not available, a lower 10m per pixel resolution will be offered (standard resolution).



3D Data:

3D Data is used in NavNet 3D to render charts in three-dimensional views (Vector, Raster, and Sat Photo). The 3D Data is also used with PhotoFusion (to adjust the transparency according to depth) and with Depth Shading (to display color according to depth).

The 3D database is subdivided into “bathymetry” (3D under water) and “topography” (3D over land). NavNet 3D uses both bathymetry and topography.



Memory Block:

Data (Charts, Satellite Photos, 3D) needs to be installed on the NavNet 3D MFD's internal memory before it can be used by the Plotter. The internal memory is divided into “Memory Blocks,” also referred to as “Memory Slots” in the system software. A memory block contains a minimum of 1 area of data. NavNet 3D has a total of 12 memory blocks: 8 are pre-loaded with US charts, bathymetric data and satellite photos, and 4 are available for additional data. Pre-loaded data may be removed to free memory blocks for installation of additional charts and satellite photos.

TimeZero:

TimeZero is the technology used for the Graphic Engine developed by MaxSea, which is used in NavNet 3D. This technology facilitates extremely fast chart redraw, allowing for seamless chart panning and zooming (in & out).

MM3D Charts:

NavNet 3D and MaxSea TimeZero use “MM3D” charts (and data) produced by MapMedia. Raster or Vector Chart Packs may be purchased and include:

- Raster or Vector charts
- 3D Data
- Satellite Photos

System:

A system is defined by all pieces of equipment on the boat that are networked together. A system can have multiple NavNet displays (ex: two MFD12s and one MFDBB)

SystemID:

The SystemID is a unique number assigned to each NavNet 3D system. All networked NavNet 3D displays on the same boat will have the same SystemID. This number will not change if a NavNet 3D MFD is added to or removed from the system (with the exception of the Master Display). The SystemID will be used to identify the customer when he purchases data or services. Note that the SystemID will only be available when the system is configured (when all MFDs are networked together) from the “My NavNet” menu of each display.

MFD:

MFD is any NavNet 3D Multi-Function Display or BB processor. These include the MFD8, MFD12 or MFDBB.

Master Display:

The Master Display is designated during the installation of the NavNet 3D system. This MFD is responsible for assigning the IP Addresses and the SystemID to the other networked MFDs.

Unlock Code:

Unlock Codes are used to unlock data (Chart Pack) or services that have been purchased. Unlock Codes are specific to the SystemID (the same Unlock Code cannot be used on two different systems).

My NavNet (on www.NavNet.com):

“My NavNet” is the customer section of www.NavNet.com. Customers can register their system(s), download updates and gain access to the latest news regarding NavNet by logging in. More services will be added to My NavNet in the future (online backup, etc...)

My NavNet (on the System Menu):

The NavNet 3D system menu offers a “My NavNet” section where users will be able to customize personal settings and view System information (such as the SystemID).

2. Online Tools – My NavNet

a. Introduction of My NavNet

When an end-user logs in to the “My NavNet” section of www.NavNet.com, they will be able to review their personal information, edit their profile, see the history of purchased charts (to retrieve Unlock Codes), and update charts (USA charts only). Additional services will be added in the future (for example saving WPT lists, unit settings, etc.)

b. Registering Your NavNet 3D System on My NavNet

Note: End-users are strongly encouraged to register online. After equipment installation and network configuration, the dealer should record the SystemID on the NavNet 3D Registration Card. The end-user will be required to enter their SystemID and Registration Number during the registration process.

You can register your NavNet 3D system in the My NavNet section of www.NavNet.com. In order to create an account, you will need to register your MFD(s) using the Registration Number that is available on the Registration Card that came with your NavNet 3D MFD (one Registration Card per MFD) See *Figure 1*:

Note to distributors:
Please make sure that the customer receives this important document.

NavNet 3D User Registration

— Please make sure to register as a user —

Congratulations on your choice of NavNet 3D as your onboard partner. In order for us to provide excellent customer service and support to our favored customers, please register with NavNet.com. Registration is free.

Here's what you get when you register your products.

- Access to a personalized web page.
- Access to the latest information about your NavNet 3D products.
- Access to the latest NavNet 3D software updates.

How to register with NavNet.com

Direct your internet browser to the following site.
<http://www.navnet.com>

In order for you to register with NavNet.com, you will need the below-imprinted "User Registration Number" and "Product Serial Number" together with the "User Permit ID", which can be obtained from the User Log-In page within NavNet.com.

User Registration Code

MULTI FUNCTION DISPLAY	
MODEL MFDBB	
SER.NO.	4050-0108
REGISTRATION NUMBER	A25H99Y101

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Figure 1

When you register your system, you will be asked to enter the SystemID of your NavNet 3D network. While the SystemID is not mandatory to finish the registration process, it is highly recommended you enter it at this time. The SystemID identifies your NavNet Installation and is required for purchasing additional Chart Packs.

The SystemID number can be found only when the NavNet 3D network is running. Simply press "MENU" on one of the MFDs, and select the "My NavNet" Menu page (see Figure 2).

My NavNet Reminder

RotoKey: Standard

Hotpage Number: Five

Boat Icon: Sport Fishing

Demo Mode: Off

Initial Speed: 08.0 kt

Initial Heading: 050 °

Reset Default Settings

Exit Menu

About

System ID: SI 981E 425E 560A 6613 BD

Version: 20080203.01

Figure 2

3. Information on Free Charts & Satellite Photos

a. Chart Data Sources

- Raster USA = NOAA Raster charts (RNC) reformatted into MM3D. More information is available at: <http://nauticalcharts.noaa.gov/mcd/Raster/Index.htm>
- Vector USA = NOAA S57 charts (ENC) reformatted into MM3D. More information is available at: <http://chartmaker.ncd.noaa.gov/mcd/enc/index.htm>

b. Satellite Photos

The USA is divided into 44 Satellite Photo areas (2GB each). These Satellite Photos need to be installed onto the NavNet 3D MFDs (by dealers or end-users), as they are not pre-loaded. There are four Satellite Photo areas (Cape Cod, Miami - Keys and two San Francisco areas) pre-loaded on each MFD for demonstration purposes. Dealers or end-users will be able to install up to 4 additional areas (other Satellite Photo areas or additional Raster or Vector charts) onto the internal memory using 2GB SD-Cards. If the dealer or end-user removes the Satellite Photo areas that are pre-loaded, they will be able to install an additional 4 chart or Satellite Photo areas.

Note: Raster Charts, Vector Charts and Satellite Photos each count for one memory block.

Furuno USA will offer additional Satellite Photo areas using the methods outlined below:

- Free Public Download from the Internet – Dealers or end-users will be able to download all USA Satellite Photo areas from the Internet at <http://tinyurl.com/3uyogg>. Navigate to this website manually by going to <http://www.furunousa.com/furuno> and selecting “Products > NavNet 3D > MapMedia Charts & Satellite Photos for NavNet 3D”. You will be able to copy the download file(s) onto SD-Cards (2GB SanDisk SD-Cards recommended) to be installed onto the NavNet 3D MFDs.

If using an FTP Client, all Satellite Photos and charts can be downloaded from the Furuno USA FTP Server at <ftp://charts.furunousa.com>.

Note: These charts can be accessed/downloaded at anytime from anywhere a high-speed Internet connection is available. Due to the large file size of these charts, the Furuno external USB hard-drive is the preferred method for creating SD-Cards. We recommend you use the Internet for downloading charts only for urgent and specific requirements.

Please refer to the “NavNet 3D Chart & Data Installation Guide” for step-by-step instructions on how to download these charts from the Internet, transfer them to an SD-Card and load them onto the NavNet 3D MFD(s).

- External USB Hard-Drive – Due to the large file size of each Satellite Photo area (2GB per area) the process of downloading the data from the Internet can be very slow. Furuno USA offers an external USB hard-drive (part number MM3-AME-RHD) with a List Price of \$200. The external USB hard-drive contains high

resolution Satellite Photos, Recovery Chart Data for the U.S. (includes U.S. Raster charts, Vector charts and 3D chart data originally loaded on the NavNet 3D MFD), and every Chart Pack for the Americas (Bahamas, Mexico, Canada...). You will be able to purchase SD-Cards (2GB SanDisk SD-Cards recommended) and copy the Satellite Photo(s) onto the SD-Card.

Furuno USA strongly recommends the use of the external USB hard-drive as the best method for loading chart data onto SD-Card(s).

Note: PC Required. The external USB hard-drive cannot be connected directly to NavNet 3D: SD-Cards are required to transfer the data.

A larger external USB hard-drive option will be available later in 2008 (320GB) that will contain the charts for the Rest of the World (ROW).

Please refer to the “NavNet 3D Chart & Data Installation Guide” for step-by-step instructions on how to locate these charts on the hard-drive, transfer them to an SD-Card and load them onto the NavNet 3D MFD(s).

- **Individual SD-Cards** – In addition to the above two options, Furuno USA will offer SD-Cards pre-loaded with specific Satellite Photo areas with a List Price of \$50 each. The dealer or end-user can go to <http://tinyurl.com/3uyogg> to view the Satellite Photo catalog and order individual areas on SD-Cards (one part number per Satellite Photo area). The \$50 fee for these pre-loaded Satellite Photos covers the cost of the SD-Card as well as the labor/processing time to load the Satellite Photo area onto the SD-Card – The Satellite Photo data is still provided at no charge.

Please refer to the “NavNet 3D Chart & Data Installation Guide” for step-by-step instructions on how to load these charts onto the NavNet 3D MFD(s).

c. Built-in Data & Recovery of Pre-Loaded Charts

All NavNet 3D MFDs are pre-loaded with all Raster, Vector and 3D chart data for the USA. The dealer or end-user has the ability to remove this data to create additional space for other data. Furuno USA can provide “recovery data” to recover the original data if needed (once deleted, this data must be re-loaded using SD-Cards). If purchased chart data is deleted by mistake, you can re-load the charts using SD-Cards and the original Unlock Code(s).

- USA Raster Charts (4 SD-Cards)
- USA Vector Charts (1 SD-Card)
- USA 3D Bathymetric (1 SD-Card)

This data will be distributed using the same method as the Satellite Photo areas as described above (Internet, external USB hard-drive, or individual SD-Cards).

d. Chart Updates

Online updates for the Raster and the Vector Charts (using www.NavNet.com) will be offered for free during the NavNet 3D MFD warranty period. This service will only be available for the USA NOAA Vector and Raster charts. You will be able to update your charts by following the steps below:

- Insert a blank SD-Card into the NavNet 3D MFD
- Access the NavNet 3D menu and select “Request Update File”. The NavNet 3D MFD will format the SD-Card and system information will be copied onto the SD-Card (Chart Catalog)
- Once complete, insert the SD-Card into a computer with Internet access
- Log on to the My NavNet section of www.NavNet.com and click on “Update NavNet 3D”.

Note: You must register your NavNet 3D system on My NavNet prior to accessing the My NavNet page for updates

- The My NavNet Web Service will compare the online chart catalog with the local chart catalog (from the SD-Card) and will download the required updates
- Once complete, return to the boat and insert the SD-Card into the NavNet 3D display
- Access the NavNet 3D menu and select “Import Update File”
- The updates are now installed

Note: This service is planned to be up and running in the near future.

4. ROW (Rest of the World) Charts

a. Introduction

Additional Chart Packs can be purchased for areas outside the USA such as Bahamas or Mexico. When placing an order for a Chart Pack, the SystemID must be provided. No Chart Pack order can be processed without the SystemID information. Furuno USA will issue individual part numbers for each Chart Pack provided for NavNet 3D. The chart “package” will consist of multiple SD-Cards (between 1 and 4 cards per regular chart area). Raster Chart Pack Unlock Codes are priced at \$350 each and Vector Chart Pack Unlock Codes are priced at \$400 each (with the exception of the Bahamas – see below). Raster or Vector areas are bundled with available 3D chart data and standard resolution Satellite Photos at no additional charge. Note that 3D bathy data and Satellite Photos are not available for all parts of the world.

Note: The Bahamas Chart Pack is a special package of data priced at \$550 and includes Vector navigation charts (converted from Navionics), bathymetric data as well as very high resolution Satellite Photos.

For International Chart Packs, a fee of \$150 will be charged in addition to the purchase price of the "Unlock Codes" listed above, if you request this data be provided on preloaded SD Cards. This fee covers the price of the SD-Card as well as the labor/processing time to load the data onto the SD-Card). The "SD-Card loading fee" will have its own part number, MM3-CHT-SD1. This is a "generic fee" and is the same for each area, regardless of the number of SD-Cards required for the Chart Pack.

Note: The ROW data will also be available using the Furuno USA FTP server located at <ftp://charts.furunousa.com>. Dealers can download the Data and install it onto SD-Cards themselves to avoid the "SD-Card loading fee".

b. Data sources

- Raster Charts: MapMedia Raster chart library reformatted into MM3D. More information is available at: <http://www.maxsea.fr/timezero/MapMedia/mm3dChartsCatalog/tabid/100/language/en-US/Default.aspx>
- Vector Charts: Navionics Gold data reformatted into MM3D. More information is available at: <http://www.navionics.com/>

c. Chart Ordering Process

The chart ordering process is based on the NavNet 3D SystemID and Unlock Codes provided after purchase. The chart data can be downloaded, copied onto SD-Cards and loaded onto a NavNet 3D MFD, but can only be used (viewed) after entering the Unlock Code into the NavNet 3D MFD. The Unlock Code only unlocks one specific area (one Unlock Code per area per type of chart). The Unlock Code is linked to a specific SystemID, meaning the same Unlock Code cannot be used to unlock the same area on different systems.

Note: This system will allow you to pre-load chart data onto the MFD. You will then be able to leave port with many chart areas that you can order (purchase) Unlock Codes for as you need them.

When you want to purchase charts for your customer, you will need to provide the part number(s) for the specific chart area(s) required. A list of these charts can be found at <http://tinyurl.com/3uyogg>. You will also need the customer's SystemID (available in the "My NavNet" menu of each MFD in the NavNet 3D system). Furuno USA will generate the Unlock Code(s) based on specific chart areas and the customer's SystemID. Once the Unlock Code has been generated, it will be transmitted to you (or directly to the end-user). Furuno USA can also provide the chart data on an SD-Card for a fee of \$150 if it has not already been downloaded or transferred from the external USB hard-drive.

Note: Every Chart Part Number contains the edition number. When you purchase charts, you are purchasing an area with the current edition number. The Unlock Code provided at this time will only work for this specific edition number (or earlier edition numbers). ROW charts will be updated approximately once per year; and the edition number will be incremented.

Furuno USA will keep an up-to-date set of chart data on the Furuno USA website so the latest edition of the chart(s) will always be available. Furuno USA can burn this data on media (either SD-Card or external USB hard-drive) to send to dealers.

Note:

- *Online updates will not be provided for chart areas outside the USA. Online updates are only available for the free NOAA USA chart data (Raster and Vector).*
- *Updates for purchased areas for the Rest of the World (ROW) will only be available if the same area with the latest edition number is purchased (new Unlock Code(s) may be issued at a discounted price).*
- *Charts cannot be purchased if the SystemID is not provided*

5. Summary

a. Installation

- Customer purchases system
- Dealer installs the system on the boat
- Dealer powers up the system, configures it and records the SystemID
- Dealer gives the registration card(s) to the customer with the SystemID
- Customer registers their system online "My NavNet"

b. Chart Ordering Process

- Customer orders chart(s) from a dealer using the Chart Part Number and their SystemID

Note: If the customer entered their SystemID during the registration process, the SystemID can be retrieved from the Online Database

- Dealer places order to Furuno USA
- Furuno USA transfers the Unlock Code(s) and the chart data to the Dealer

Note: The dealer can acquire the chart data from the Internet or from the external USB hard-drive (part number MM3-AME-RHD), available from Furuno, to create an SD-Card for the customer. The Unlock Code(s) can then be provided by e-mail, phone or fax, thus eliminating shipping charges and waiting time.

- The customer then inserts the SD-Card into their NavNet 3D MFD, copies the data onto the MFD's internal memory and enters the Unlock Code

Note: After the data has been installed, the end-user can remove the SD-Card from the slot and keep it safe for backup.