NavView User Guide – 23 Network Services

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4D Nav, LLC

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01	A	Initial release	SW	GAW	GAW	May 24, 2024

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23. NETWORK SERVICES

This section provides an overview of NavView's Network Services configuration and monitoring.

23.1 OVERVIEW

NavView can be operated as part of a network where multiple NavView clients run as standalone positioning and navigation and/or remote monitoring systems. Communications between these are handled by NavView Network Services over a Local Area Network (LAN), or a Wide Area Network (WAN). Each NavView client updates the data under its control, e.g., vehicle configuration and positions, and receives data provided by other clients for display and monitoring. Configurations are stored in a database and accessed by connected clients. Transient real-time data such as vehicle positions are published to connected subscribers.

Network Services are required for installations where multiple NavView clients on a network will need to share data, e.g. one with an online master NavView, ROV NavView, DP desk NavView, etc.

23.2 SOFTWARE

Network Services require the following 3rd party software to be installed, they are not installed with the base package.

- MongoDB
  - Supports NavView Network Services (configurations, files, etc.)
  - Required if NavView remote clients are to be used
- Redis
  - Supports NavView Network Services (transient real-time data)
  - Required if NavView remote clients are to be used

MongoDB and Redis are two separate software packages. When installed, they create services that are automatically started when Windows launches. These can be downloaded directly from the respective web sites. Alternatively, contact 4D Nav for an installation package.

Note: MongoDB and Redis are only to be installed on the computer being used as the server for the NavView network. Refer to the NavView Introduction section for the details regarding the installation and configuring of MongoDB and Redis.

23.3 CONFIGURING NETWORK SERVICES (NETWORK SERVER)

The network server would typically reside in the online PC. Configuration of the Network Services on the online PC is as follows.

1. Select **Network Services** from the Configure section of the Setup ribbon, see Figure 23-1, this opens the Configure Network Services window, see Figure 23-2.
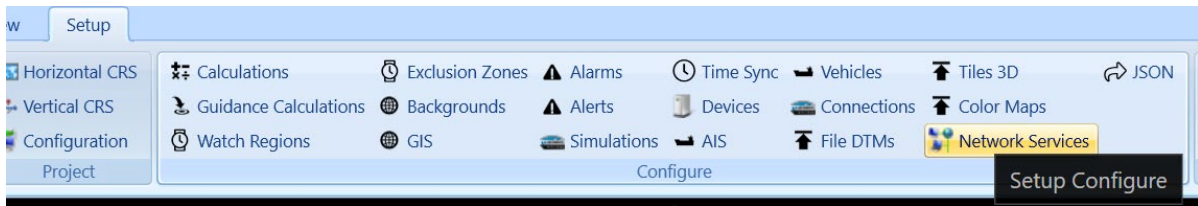
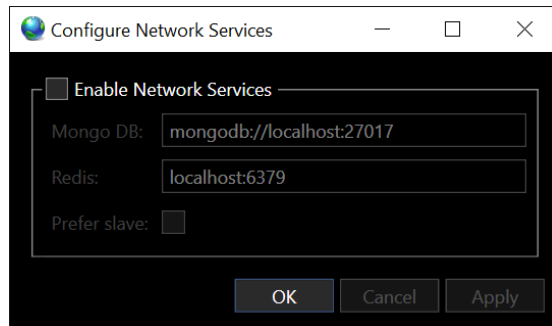FIGURE 23-1 NETWORK SERVICES - SETUP RIBBON

FIGURE 23-2 CONFIGURE NETWORK SERVICES WINDOW

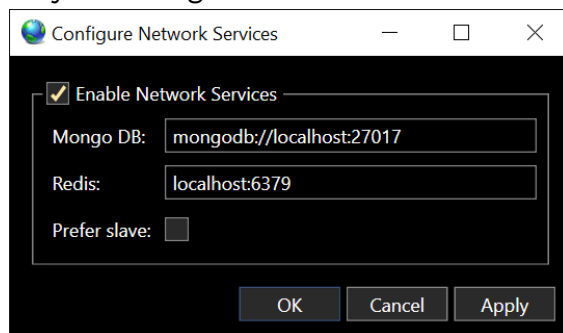2. Enable Network Services by checking the box.

FIGURE 23-3 NETWORK SERVICES ENABLED

- **Mongo DB:** Displays the default server location (localhost) and default port number (27017) assigned during installation. Leave as default, refer to *Introduction* section for MongoDB installation and configuration
- **Redis:** Displays the default server location (localhost) and default port number (6379) assigned during installation. Leave as default, refer to *Introduction* section for Redis installation and configuration

3. Click **Okay** to start NavView Network Services.

23.4 CONFIGURING NETWORK SERVICES (REMOTES)

Configuration of Network Services on the NavView remotes is as follows.

1. Select **Network Services** from the Configure section of the Setup ribbon, this opens the Configure Network Services window, see Figure 23-1.
2. Enable Network Services by checking the box, see Figure 23-4.
   - **Mongo DB:** Replace *localhost* with the IP address of the network server PC (Online). Leave port number as 27017

- **Redis:** Replace *localhost* with the IP address of the network server PC (Online). Leave port number as 6379
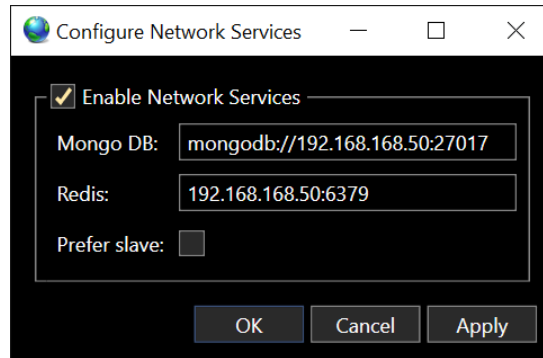

FIGURE 23-4 NETWORK SERVICES CONFIGURATION – REMOTE EXAMPLE

3. Click **Okay** to connect to the NavView Network Services and close the dialog or **Apply** to connect and leave the dialog open.

23.5 MONITORING NETWORK SERVICES

The Network Services status can be viewed and configured on the server PC (online) and on the Remotes, access is the same for both. The information displayed is the same on both with the exception that the server PC shows transient real-time data being published and on the Remote shows transient real-time data being subscribed.

1. Select **Network Services** from the Windows section of the View ribbon, this opens the Web Network Services window, see Figure 23-6.

FIGURE 23-5 NETWORK SERVICES – VIEW RIBBON
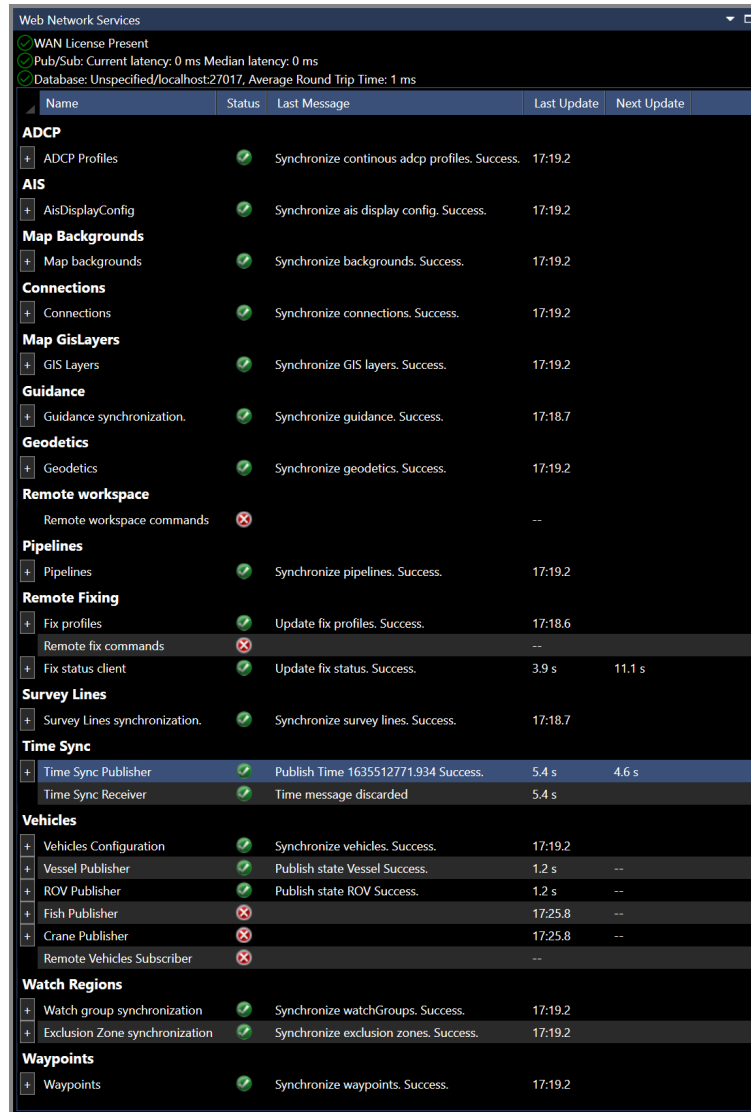
FIGURE 23-6 WEB NETWORK SERVICES WINDOW - ONLINE NAVVIEW

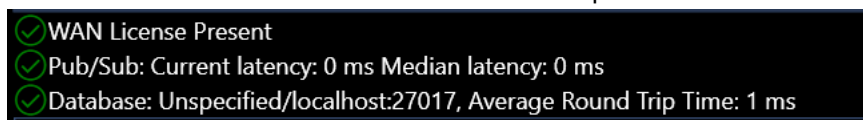2. The Web Network Services window contains at the top the network status.

FIGURE 23-7 NETWORK STATUS

- **WAN License Present:** If Network Services detects a WAN license, a ☑ is displayed. WAN is typically used for Remote NavView access using the internet or satellite (VSAT).

- **Pub/Sub:** If Network Services detects a connection to Redis, a ☑ is displayed and the connection latency is displayed

- **Database:** If Network Services detects a connection to MongoDB, a ☑ is displayed and the connection latency is displayed

3. The window displays the NavView modules that are accessed in Network Services in a grid format, see Figure 23-6.

  - **Name:** Module name
  - **Status:** ⊘ displayed for a successful connection
  - **Last Message:** Displays last status message
  - **Last Update:** Displays the elapsed time since last update to/from the database
  - **Next Update:** Displays the time remaining for next update to/from database

4. Each module can be expanded by clicking on the ⊞ expand button below the module name to open Update Options and Retry Options.
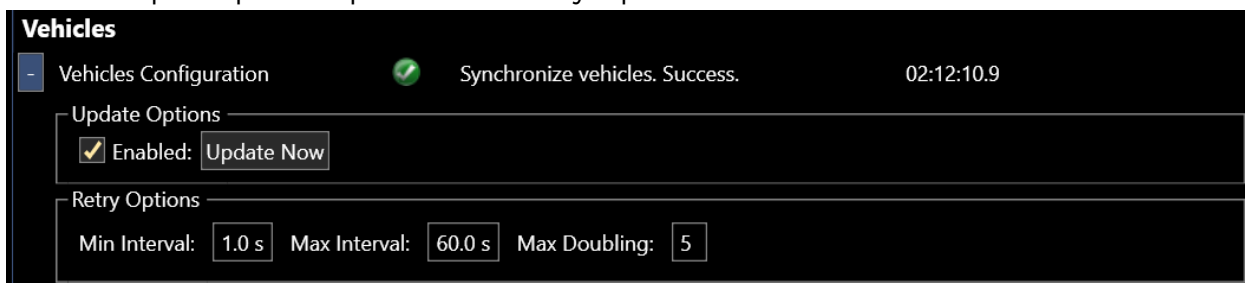

FIGURE 23-8 TYPICAL UPDATE/RETRY OPTIONS

  - **Update Options**
    - To enable update for a module, check the **Enabled** box. Whenever a change is made to the module, update will be automatic. This will be reflected in the **Last Update** column and the elapsed time will reset to 0:00:00
    - An update can be forced by clicking the **Update Now** button
  - **Retry Options:** If network Services loses a sync to the database, a retry will commence using the settings below
    - **Min Interval:** The time in seconds to start the retry connection
    - **Max Interval:** The maximum time in seconds to attempt connection
    - **Max Doubling:** The connection retry commences using the minimum interval set then doubles at each retry using the value set here, i.e., 1,2,4,8,16 (seconds) or until it reaches the maximum interval setting

5. Network Services on the server PC (Online) publishes transient real-time data that remotes can access (subscribe to), see Figure 23-11.

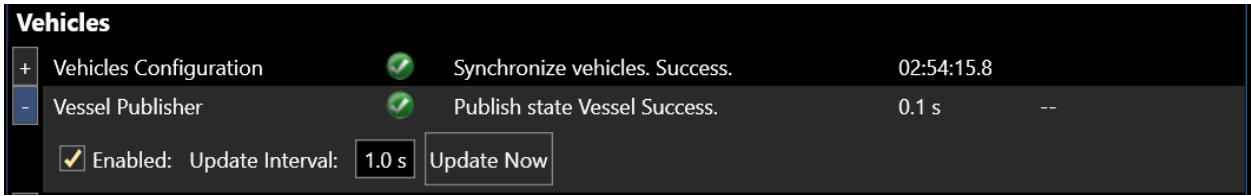FIGURE 23-9 NETWORK SERVICES - TRANSIENT DATA PUBLISHER

FIGURE 23-10 PUBLISHER CONFIGURATION - SERVER PC

6. To configure the publisher update settings, click the ⊞ expand button to open the update configuration, see Figure 23-10.
    a. Check the **Enabled** box to publish real-time data to be used by the remotes
    b. Updates will be published at the **Update Interval** value entered
    c. Clicking **Update Now** forces an update
7. Network Services on the remotes subscribes to data that is published by the server PC, see Figure 23-11.
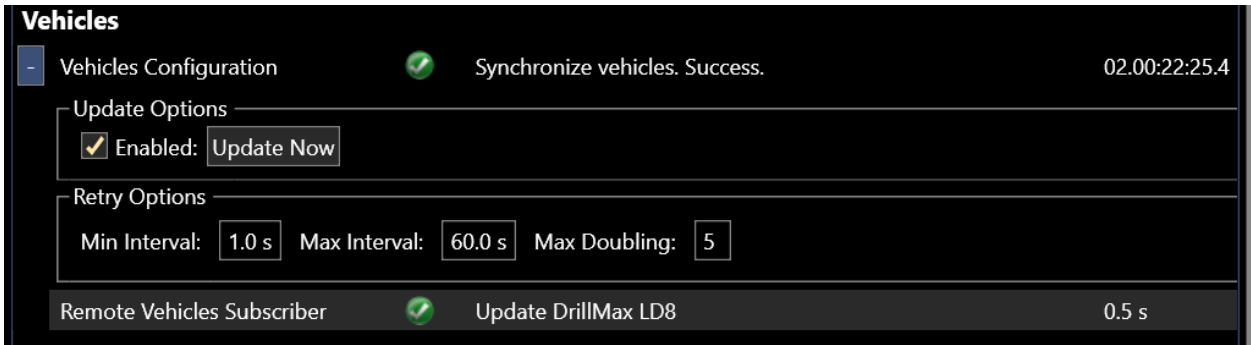8. The **Remote Vehicles Subscriber** displays the published vehicle being received by the remote.

FIGURE 23-11 SUBSCRIBER CONFIGURATION - REMOTE PC

23.6   TIME SYNC

A Time Sync can be published from the NavView server PC (Online) to the remote NavView clients using Network Services.

1. In the Web Network Services window, expand **Time Sync** and enable Time Sync.
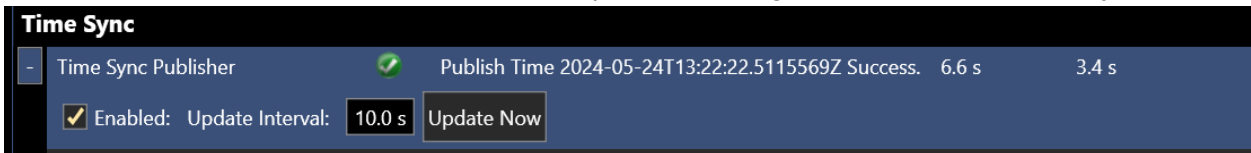

FIGURE 23-12 TIME SYNC – NAVVIEW SERVER

2. On the remote NavView client select Time Sync from the Setup ribbon.
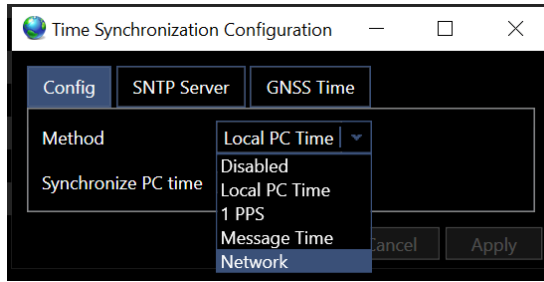3. From the Method drop-down, select Network.

FIGURE 23-13 TIME SYNC – REMOTE NAVVIEW CLIENT