

An overview of PSIP Pro. NetVx Interface

The NetVX™ Video Networking System is a modular video networking device that connects to a wide variety of high speed data networks. The NetVX™ is designed for professional video transport using today's telecommunication infrastructure. The NetVX™'s modular architecture supports a variety of application modules to suit user requirements. These modules include an MPEG-2 encoder, an MPEG-2 decoder, and an SONET/PDH (dual interface) ATM module. The encoder multiplexes audio, video, and data input into MPEG-2-compliant transport streams. The decoder de-multiplexes and decodes MPEG-2 compliant transport streams. The ATM and IP modules link the NetVX™'s application modules to ATM and IP network. Inside, the NetVX™ can be configured to link signals between application modules. These links, called cross connections, facilitate the linking of signals between and among encoders, decoders, and ATM virtual channels (VC).

DTVi PSIP Pro. develops dedicated interface to the NetVX. This interface defines the process and common variables for constructing, sending, and synchronizing PSIP program data, as well as the virtual channels by proposed file data structure (Carousel). There are three separate communication links that are available in between PSIP Pro. and the NetVx: UDP over IP, SNMP (VideoRunner MIB), and FTP.



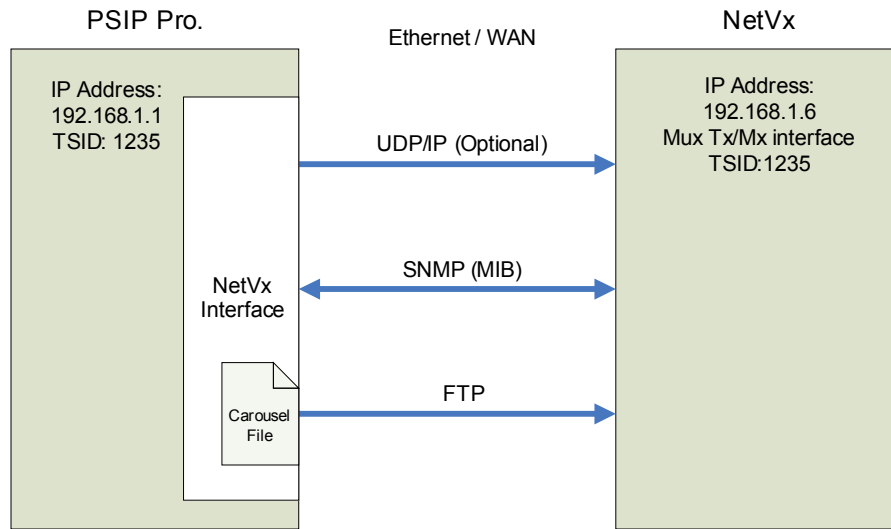


Fig 1. The Block Diagram

* UDP/IP is one-way and optional. PSIP Pro. can either send all the PSIP tables (MGT, STT, TVCT, RRT, EIT, and ETT) in UDP packets to NetVx, or only send the dynamic tables (EIT and ETT) and leave base tables (MGT, STT, and TVCT) for carousel, or choose not to utilize UDP/IP option.

* SNMP is a two-way communication channel. By sending and receiving SNMP messages, PSIP Pro. acquires the data from the NetVx, which includes video and audio PIDs, program number, station TSID, carousel parameters, as well as many other configuration data. Meanwhile, PSIP Pro. controls the NetVx remotely by sending SNMP commands back to the NetVx.

* FTP is utilized for carousel file transmission. PSIP Pro. uploads the carousel file to NetVx via FTP when a new carousel file has been generated.

DTV_i PSIP Pro. supports an easy way (wizard) to setup the interface to the NetVx. The wizard helps the setup of the NetVx interface by prompting device connection, reading system status, and checking Mux card and associated interfaces and their carousel configuration.

1. Connectivity



Fig 2. Check Connectivity

The connectivity between PSIP Pro. and NetVx shall be verified before a SNMP communication channel can be established (refer to Fig 2.). PSIP Pro and NetVx shall be within the same logical network where these two devices can send / receive IP packets (UDP, TCP) between each other.

2. System Information

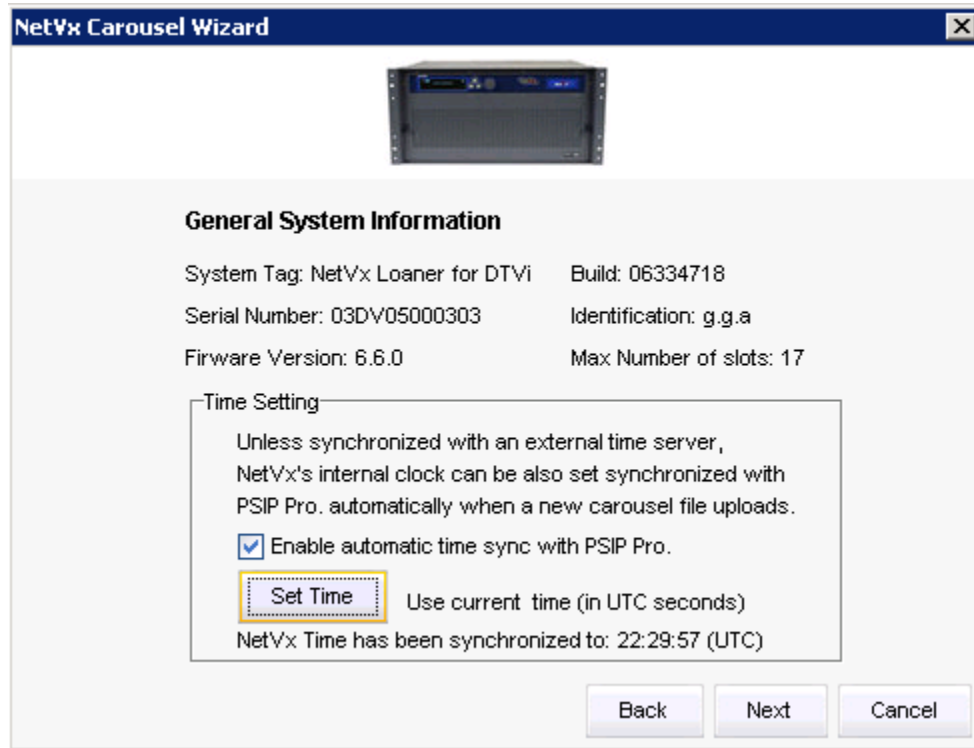


Fig 3. General System Information

This step of wizard requests generation information such as system tag, serial number, firmware version, build number, identification, and maximum number of slots from NetVx.

Similar to Flexicoder, NetVx also maintains an internal clock that time stamps the STT and other clock references. This internal clock can be set to be automatically synchronized with an external NTP time server. PSIP Pro. provides a feature that enables the time synchronization between NetVx and PSIP Pro. By enabling the automatic time sync with PSIP Pro, NetVx can be fully synchronized with PSIP Pro. PC time, and be regulated at least every three hours (EIT period).

3. Carousel File Destination

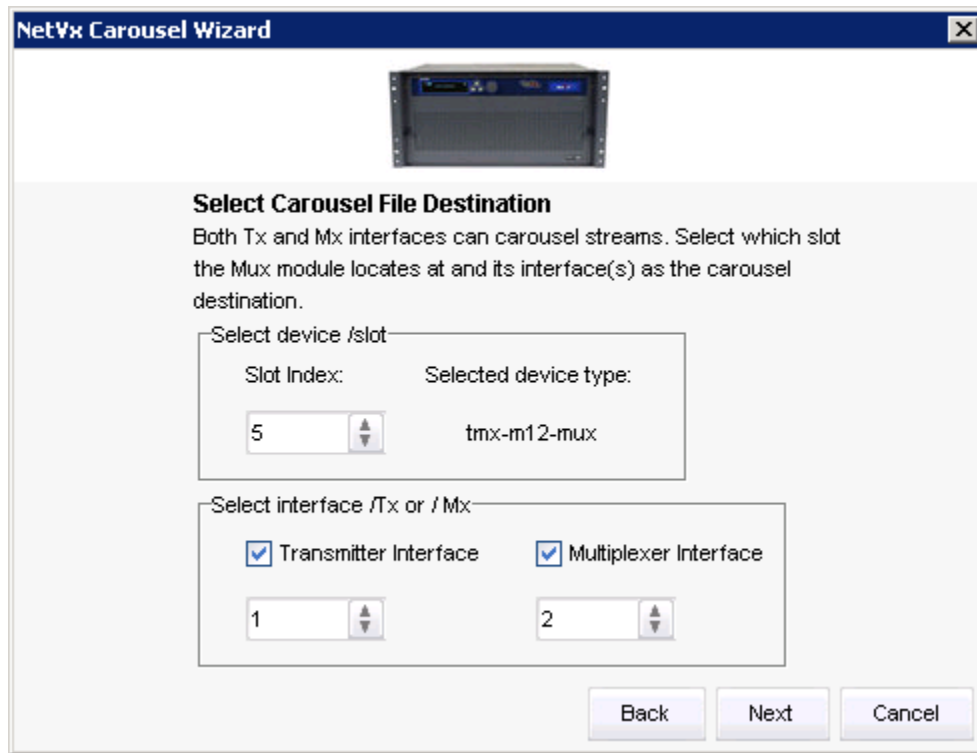


Fig 4. Select Carousel File Destination

The Mux module (e.g. tmx-m12-std) has four different interfaces, transmitter interface (Tx), multiplexer interface (Mx), de-multiplexer interface(Dx), and receiver interface (Rx). Only transmitter and multiplexer interfaces have the carouseling capability. This step of wizard records the slot index of the Mux card, and the index of the transmitter interface and / or the multiplexer interface where carousel streams from. Fig 4. shows an example of the configuration: the fifth slot contains the Mux card of device type “tmx-m12-mux”; there are two interfaces for Tx and eight interfaces for Mx for tmx-m12-mux; the 1st interface of Tx and the 2nd interface of Mx are selected for the carouseling interfaces in this example.

Note:

1. NetVx can integrate multiple Mux modules with different TSIDs. PSIP Pro. will send the carousel file to the module that matches the TSID in PSIP Pro.
2. PSIP Pro. has the ability to upload the carousel file to both Tx and Mx interfaces if they are both selected. However in real operation environment, only one interface will be usually doing carouseling. This interface is Tx.
3. If checkbox (es) is (are) selected, the next step of the wizard will retrieve the carousel configuration from NetVx, according to the selection.

4. Carousel Configuration



Fig 5. Carousel Configuration

This step of wizard displays the carousel configuration for the selected interface(s). The TSID of the interface shall match the TSID that has been setup in PSIP Pro. Each interface can enable / disable carouseling. The carousel bit rate shall be assigned. Click Next.

5. Setup Review

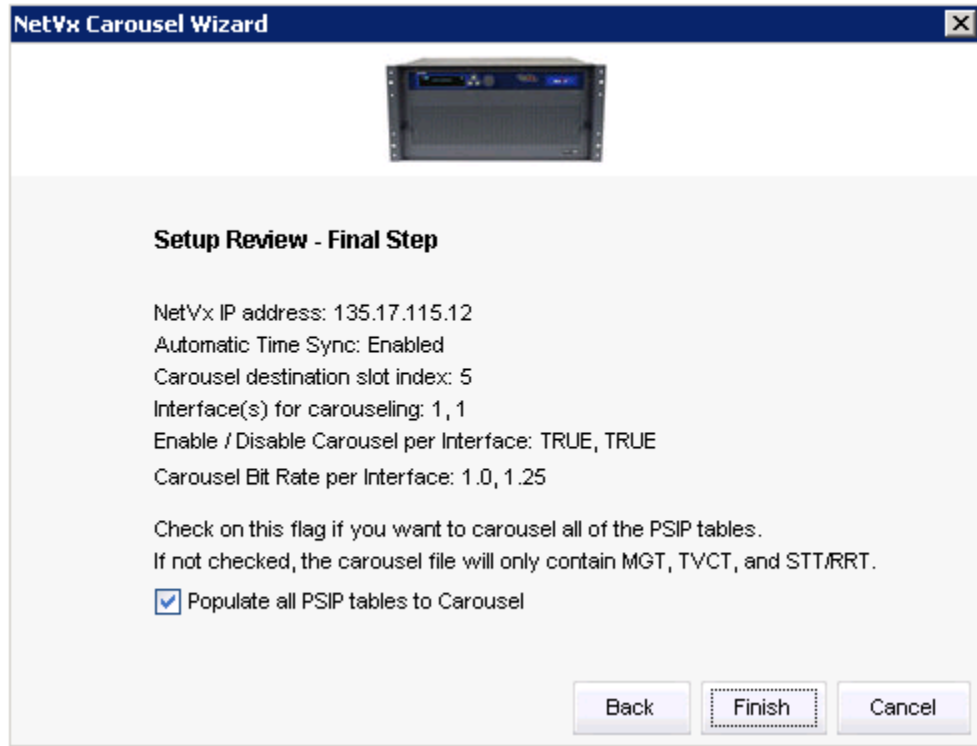


Fig 6. Setup Review

Last step. Review all the configuration setting. Once finish button is clicked, the setting will be recorded to NetVx.ini file.

By Ryan Gao
DTVInnovations LLC
www.dtvinnovations.com