TN EPC Utility
for the N-GXE-POE-xx-01 NIC
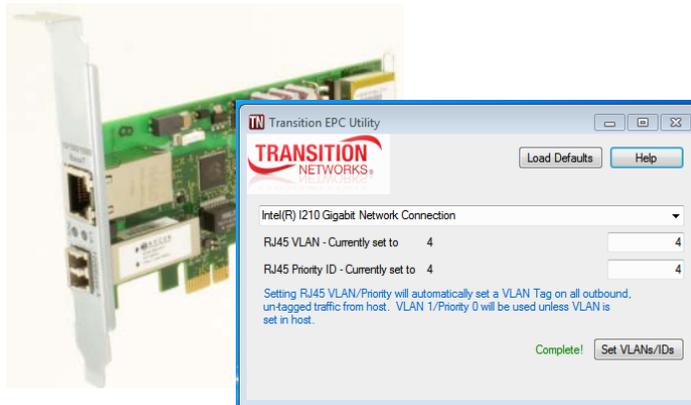
User Guide

33657 Rev. A

TN EPC (Ethernet Packet Controller) Utility User Guide, TN PN 33657 Rev. A

Contents

Record of Revisions

Rev	Date	Description of Changes
A	11/11/15	Initial release for optional Transition EPC Utility v1.0.5.

Safety Warnings and Cautions

These products are not intended for use in life support products where failure of a product could reasonably be expected to result in death or personal injury. Anyone using a this product in such an application without express written consent of an officer of Transition Networks does so at their own risk, and agrees to fully indemnify Transition Networks for any damages that may result from such use or sale. See the *N-GXE-POE-xx-01 NIC User Guide* for N-GXE-POE-xx-01 hardware details.

Product Description

The N-GXE-POE-xx-01 Network Interface Card (NIC) provides connectivity to a secure fiber network while also delivering power to a PoE Powerd Device (PD), such as a VoIP phone with a copper UTP interface. It fully complies with all IEEE 802.3z and 1000Base-SX standards, providing up to 1000 Mbps full-duplex bandwidth capacity per port.

The combined functions of PC connectivity and VoIP phone connectivity in one device saves installation time, expense, and the space of having two devices at the desktop. When VoIP traffic is filtered and prioritized by third-party devices like an Ethernet switch and IP phone, the N-GXE-POE-xx-01 will pass all tagged traffic, ensuring a high level of quality of service.

VLANs and Prioritization can be configured at the NIC using the Transition EPC (Ethernet Packet Controller) Utility as described in this manual. See the N-GXE-POE-xx-01 User Guide for NIC hardware details.
This manual assumes that the NIC is successfully installed in a qualified PC and the NIC fiber port is connected to the network.

Basic Application
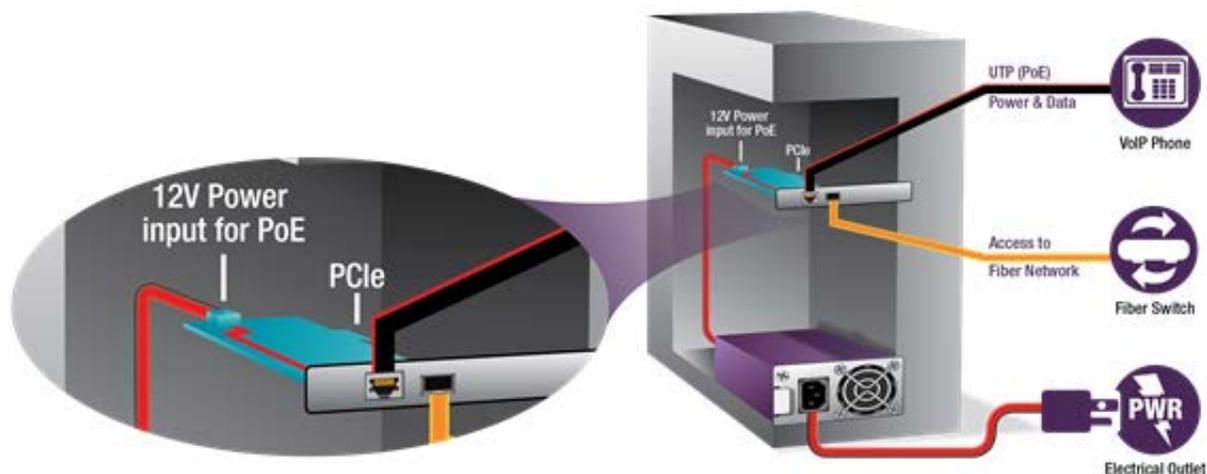
Application Scenarios

The N-GXE-POE-xx-01 is installed in a PC to connect the PC to the Ethernet network through the fiber port, and connects a PD through the PoE copper (RJ-45) port. This turns a PC with the N-GXE-POE-xx-01 installed into a PSE device.

When you connect VoIP phones to your network PCs, you may separate Voice traffic from Data traffic using a VLAN, to ensure voice traffic has sufficient priority over data traffic. The Transition EPC Utility lets you assign a VLAN ID and Priority to the copper port. The default setting is no VLANs – pass frames as they are.

Note that the IP Phone system should be able to accept VLAN tagged packets.

Also note that you can use Windows' Device Manager to access the Intel utility to set the VLAN ID for the PC; this will forward traffic to any port with the same VLAN ID.

Transition EPC (Ethernet Packet Controller) Utility

The optional Transition Networks EPC (Ethernet Packet Controller) Utility sends Ethernet frames from the NIC PC Port to the NIC external port controls. It is a separate utility that sends configuration data, allowing the external facing copper port to add a C-Tag with VLAN ID and Priority.

The TN EPC Utility can be used with the N-GXE-POE-xx-01 to manually insert C-Tags for improved priority of voice traffic leaving the outbound fiber port. If the device attached to the PoE port does not automatically establish a unique VLAN in your network, this utility lets you set that VLAN ID and Priority. Be sure to verify with your Network Administrator what settings should be used. Valid **VLAN ID**s are 0-4095. Valid **Priority** settings are 0-7.

In the TN EPC Utility, "Load Defaults" means reset to original settings. Setting a VLAN ID or Priority will tag the phone with whatever is selected.

- Untagged frames from the host will have a VLAN tag inserted (VLAN 0 / Prio 1).
- Tagged frames from the host are sent unmodified.

When the TN EPC Utility is Required

The TN EPC Utility is required if the phone needs a VLAN tag to be added. The TN EPC Utility sets the desired VLAN/Priority. The N-GXE-POE-xx-01 will add a tag as a frame leaves the NIC. The tag is stripped on return back to the VoIP phone. Tagged host packets are transmitted unaltered. Untagged host packets are assigned VID=1, Pri=0.

See the *N-GXE-POE-xx-01 NIC User Guide*, 33599, for scenarios that do not require the TN EPC Utility.

Application Example

The figure below shows a VoIP environment, with possible VLAN configurations (using the optional TN EPC Utility to send Ethernet frames to the switch).
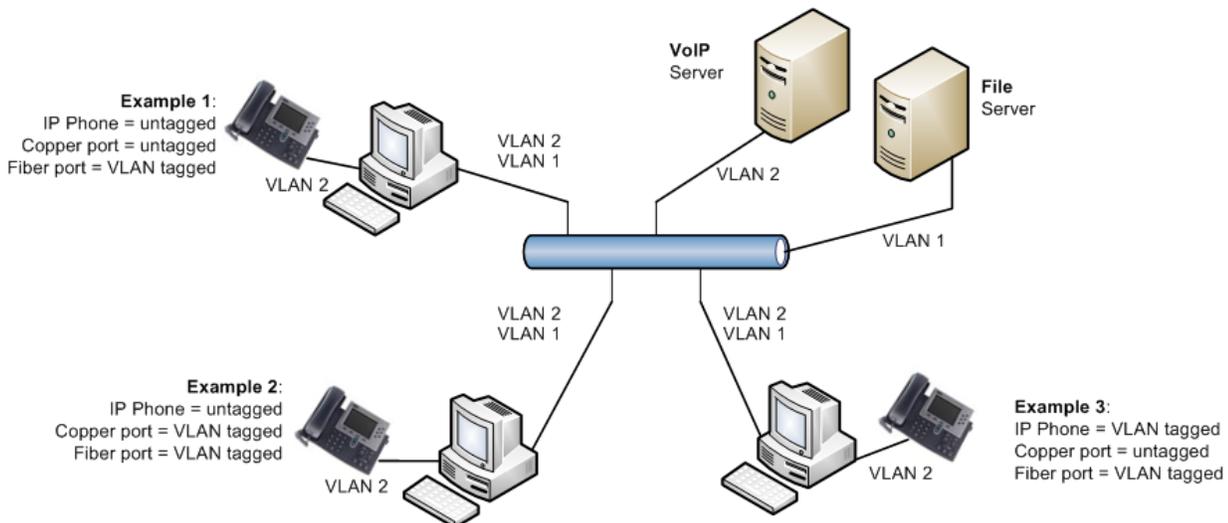
Installation

Install the WinPcap Library

WinPcap must be installed in order for the TN EPC Utility to operate. The current WinPcap version is 4.1.3 and is available from http://www.winpcap.org/install/default.htm. The executable file installs WinPcap on your machine.

WinPcap can be installed before or after the TN EPC Utility, but the Utility will not run until WinPcap is installed. Without the WinPcap driver running, the TN EPC Utility cannot communicate with the N-GXE-POE-xx-01 NIC.

During the WinPcap install, the checkbox (*Automatically start the WinPcap driver at boot time*) in the screen below must be checked.
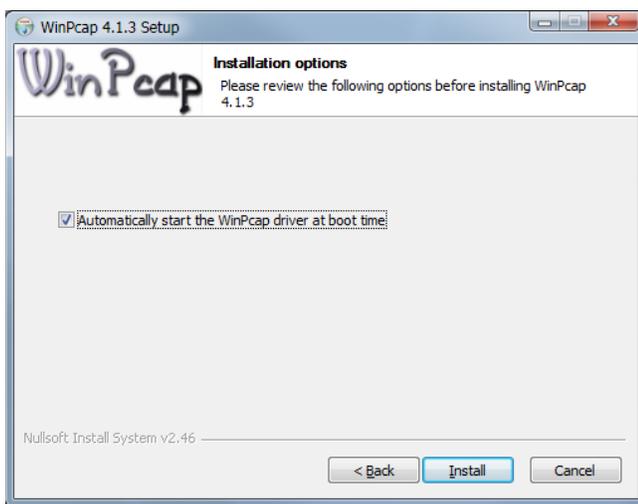
1. Download and run the WinPcap executable.
2. Follow the instructions on the screen. The installation applet will automatically detect the operating system and install the correct drivers.
3. The WinPcap-based applications are now ready to work.
4. To remove WinPcap from the system, go to the Control Panel, click on "Add/Remove programs" and then select "WinPcap".

Messages: *WinPcap 4.1.3 is already installed on this machine. Press OK if you want to force the installation, or cancel if you want to abort the installation.*
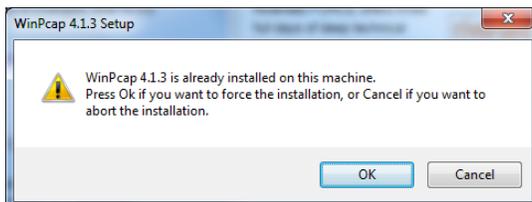
Action: If WinPcap was already successfully installed, click **Cancel** to quit the WinPcap install. Make sure that the installed WinPcap is running. If the TN EPC Utility install fails, then try re-installing WinPcap on your machine and click **OK** when this message displays.

For WinPcap documentation see www.winpcap.org/docs/docs_412/html/main.html.

Install the Transition EPC Utility

1. Download and save the executable file.
2. At the saved location, double-click the *Transition EPC Utility Installer.msi* file or right-click and select **Install**.
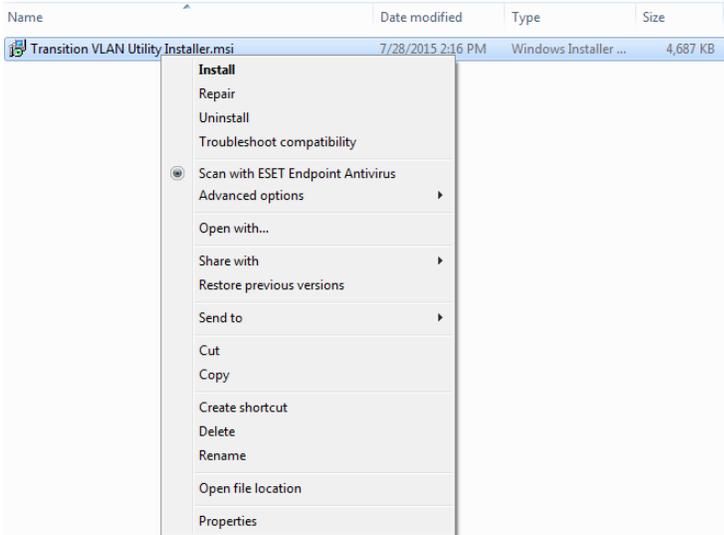
3. Select Install to display the *Welcome ...* screen.
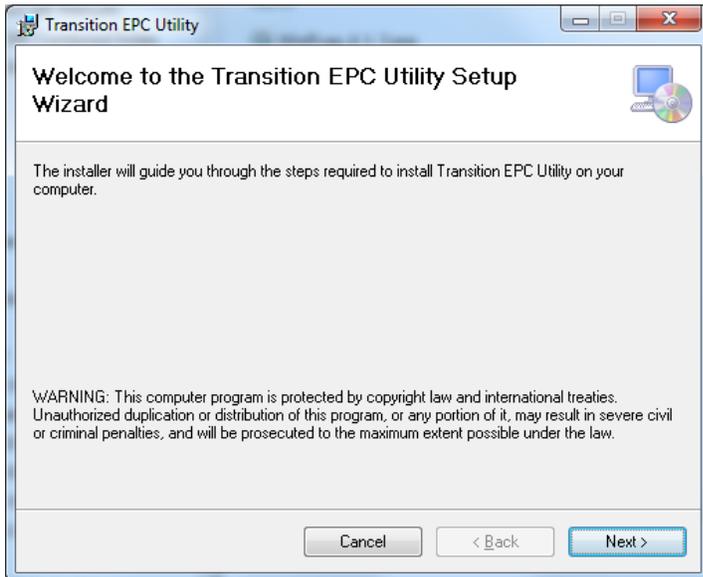
4. Click the **Next** button.
5. At the *Select Installation Folder* screen, browse to and/or select the install folder location.
   The default is *C:\Program Files (x86)\Transition Networks\Transition EPC Utility*.
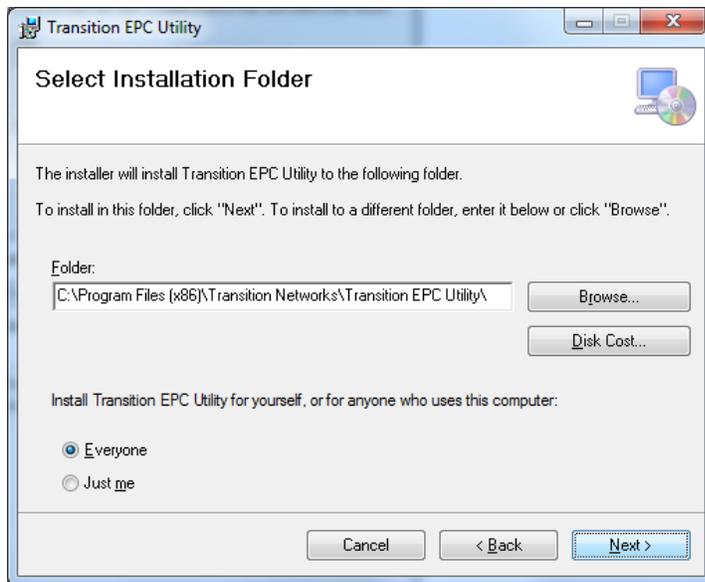
6. Click the **Next** button to display the Confirm Installation screen.
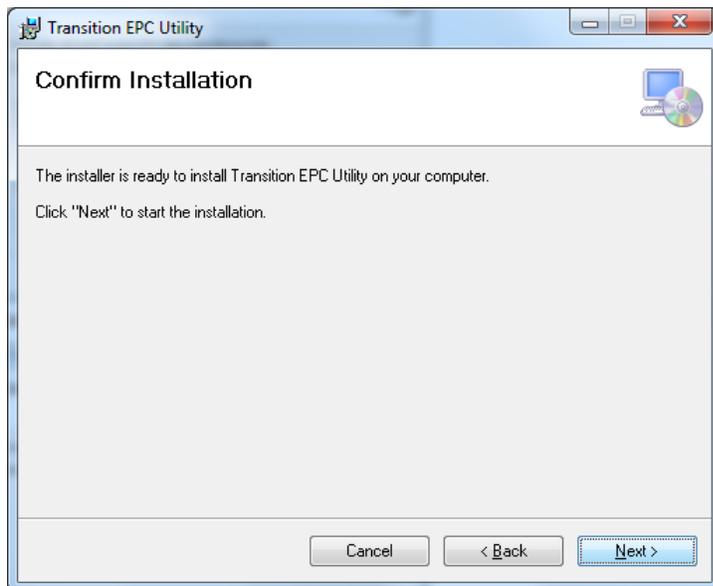
7. Click the **Next** button; if a UAC screen displays, click the **Yes** button to continue. When the install process is complete, the *Installation Complete* screen displays.
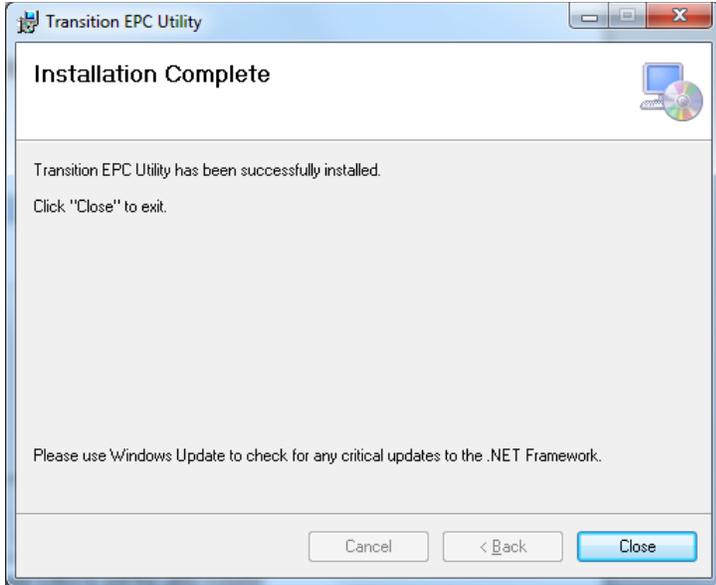
8. When successfully installed, click the **Close** button to exit the utility installer.

Install Messages

Message: *Transition EPC Utility in Use*
The following applications are using files which the installer must update. You can either close the applications and click "Try Again", or click "Continue" so that the installer continues the installation, and replaces these files when your system restarts.
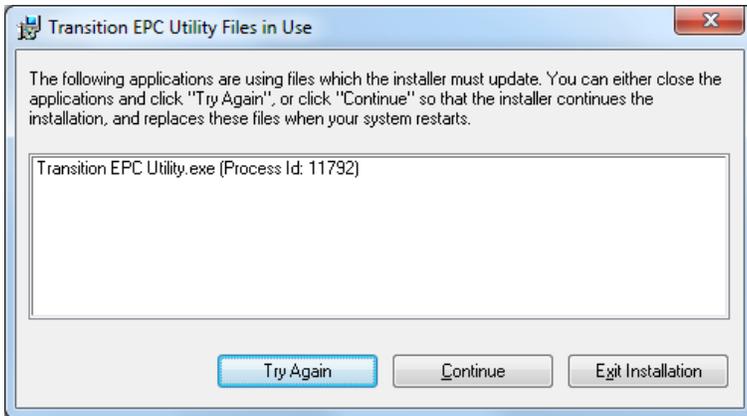
Message: *You must restart your system for the configuration changes to be made to Transition EPC Utility to take effect. Click Yes to restart now or No if you plan to manually restart later.*
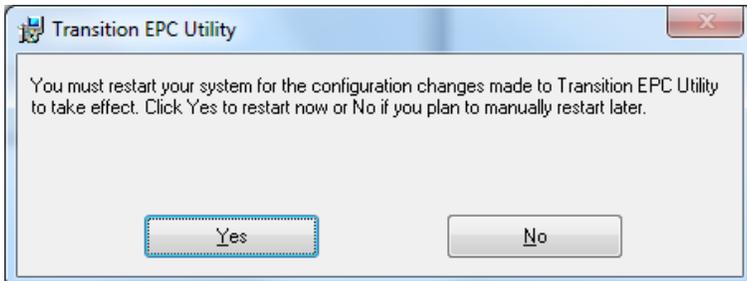
Operation

You can click the **Help** button at any time to display online Help. You can also click the **Load Defaults** button to re-load the default settings (VID 1 and Priority 0). **Note**: the EPC utility requires a fiber port network connection in order to work.

1. To launch the utility, at the install location, double-click the "*Transition EPC Utility.exe*" file to display the *Select Device* screen (or navigate to Windows Start > All Programs > Transition Networks > Transition EPC Utility).
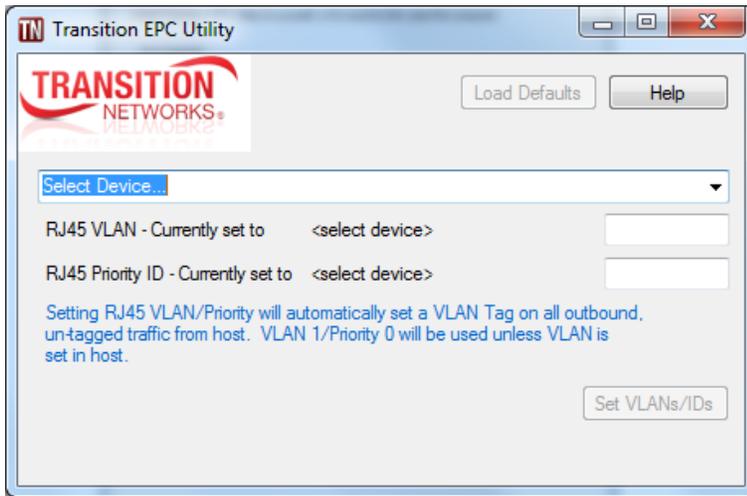
2. At the dropdown, select a discovered device. The N-GXE-POE-LC-01 displays as "*Intel® I210 Gigabit Network Connection #x*".
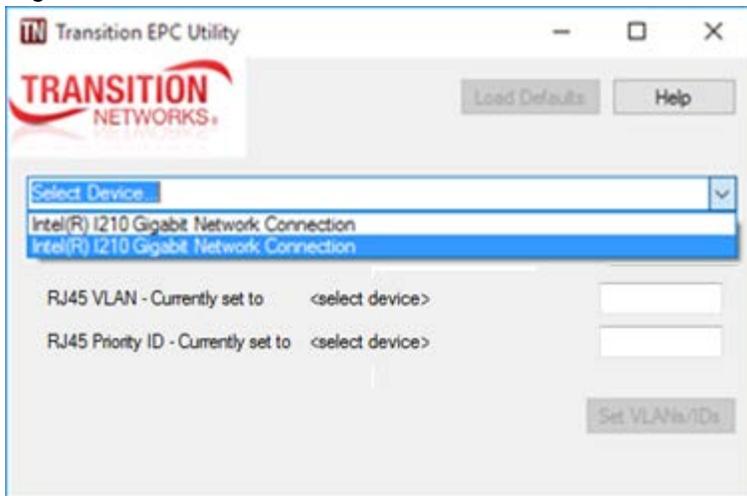
3. Position the cursor in the entry field and enter a valid value in each of the two fields:

   RJ45 VLAN – Currently set to <select device>: enter a valid (defined) VLAN ID from **0-4095**.
   RJ45 Priority ID – Currently set to <select device>: enter a valid (defined) Priority ID from **0-7**.

   Setting a VLAN ID or Priority will tag the phone with whatever is selected.
   Untagged frames from the host will have a VLAN tag inserted (VLAN 0 / Prio 1).
   Tagged frames from the host are sent unmodified.

4. Click the **Set VLANs/IDs** button. Current status displays momentarily, and **Complete!** displays when the install is done. This will take about ten seconds.
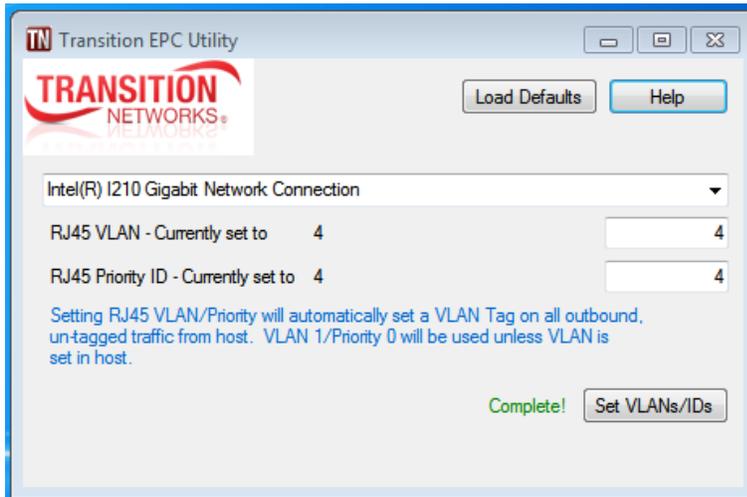
5. Reboot (or power off for a bit) and verify the settings. The settings will be applied immediately upon completion. It takes a complete power removal to verify that the settings are correctly stored to the NIC's EEPROM.

Notes on Operation

- The **Load Defaults** button just reloads the original factory defaults into the text box; it does not apply the default settings. The factory default settings are restored if/when you click the **Set VLANs/IDs** button.
- The **RJ45** settings cause the NIC to just tag the packets coming from the phone. Setting a VLAN ID or Priority will tag the phone with whatever is selected. Untagged frames from the host will have a VLAN tag inserted (VLAN 0 / Prio 1). Tagged frames from the host are sent unmodified. In other words: Setting RJ45 VLAN/Priority will automatically set a VLAN Tag on all outbound traffic from the fiber port. Untagged traffic from the host PC will also be assigned a Default VLAN tag with VLAN 1 and Priority 0. If packets are tagged by the PC they will override the default VLAN 1/ Priority 0.

Uninstall the Transition EPC Utility

1. At the saved location, right-click the *Transition EPS Installer.msi* file and select **Uninstall**.
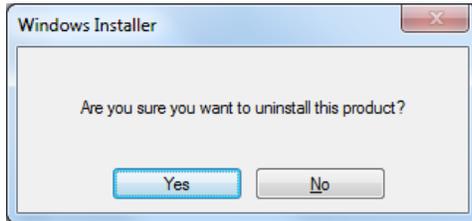
2. At the confirmation prompt, click the **Yes** button if you are sure you want to uninstall the utility; otherwise click the **No** button and continue.

Repair the Transition EPS

1. At the saved location, double-click the *Transition EPS Installer.msi* file.
2. At the Welcome ... screen, select *Repair* and click the **Finish** button.
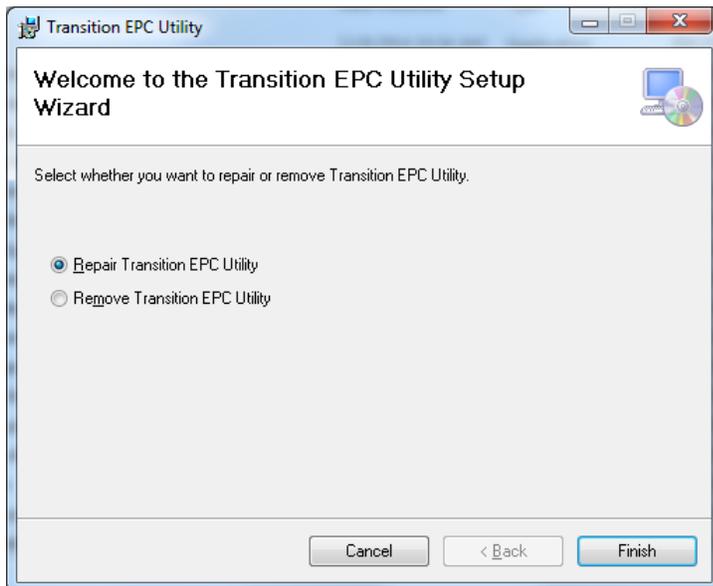
3. At the *Installation Complete* screen, click the **Close** button to exit.

Remove the Transition EPC Utility

1. At the saved location, double-click the *Transition EPS Installer.msi* file.
2. At the Welcome ... screen, select *Remove* and click the **Finish** button.
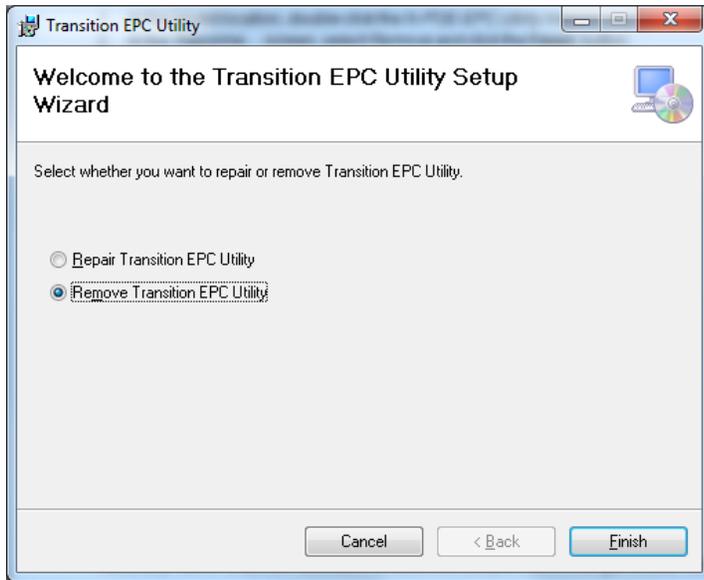
3. At the *Installation Complete* screen, click the **Close** button to exit.

Operation Messages

Message: *User Account Control Do you want to allow ...*
Meaning: Windows UAC message.
Recovery: None. Click the **Yes** button to allow the utility to make changes to your computer.

Message: *The installation is not yet complete. Are you sure you want to continue?*
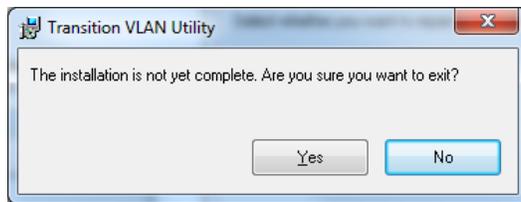
Meaning: You clicked the **Cancel** button during the install process.
Recovery: Click the **Yes** button only if you are sure you want to exit the install; otherwise click the **No** button and continue.

Message: *Another version of this product is already installed.*
Meaning: Installation of this version cannot continue.
Recovery: To configure or remove the existing version of this product, use Add/Remove Programs on the Control panel.
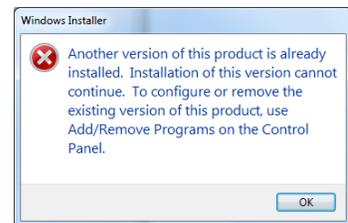
Message: *Installation Interrupted   The installation was interrupted before Transition EPS could be installed. You need to restart the installer to try again.*
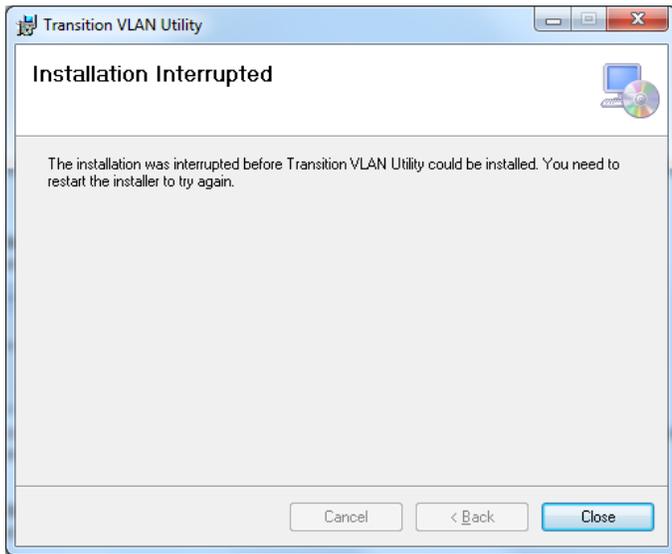
Meaning: You clicked the **No** button at the Windows UAC message during the install process.
Recovery: Click the **Close** button and start the Transition EPC Utility install process again.

Message: *Failed to communicate with device, please verify the correct device is selected!*
Meaning: An error occurred during Transition EPSUtility operation.
Recovery: Make sure the fiber port is connected to a link partner.

Message: *Invalid Priority ID!* displays in red text if you entered a Priority ID other than 0-7. Re-enter a valid entry.
Message: Invalid VLAN! displays in red text if you entered a VLAN ID other than 0-4095. Re-enter a valid entry.
Message: Valid Device not selected! displays in red text if you did not select a device at the **Select Device ...** dropdown. Select a discovered device from the dropdown. If no device was discovered, refer to the Troubleshooting section of this manual.

Message: *Transition EPC Utility (Not Responding)!* Displays if the attempted process halts. Verify the related procedure, re-try the previous step, and continue operation.

Message: *Device not found, please verify winpcap is installed and restart!* displays in red text if WinPcap is not yet installed.

Message: *Failed to store RJ45 settings...* displays if the RJ-45 setting were incorrec, or if the host lost connection to the NICt. Try rebooting the PC once or twice.

Troubleshooting

Troubleshooting Checklist

This section provides basic TN EPC Utility troubleshooting procedures. See the *N-GXE-POE-xx-01 User* Guide for N-GXE-POE-xx-01 NIC troubleshooting.

1. Verify that the link partner is active and can send/receive traffic; make sure partner settings match; verify that the port is enabled; try connecting to another port or link partner.
2. Run the PC diagnostics (e.g., i210 driver diagnostics).
3. Try the troubleshooting procedures in the NIC User Guide.
4. Record any specific error condition. See "Recording Model and System Information" in the NIC User Guide.
5. During PC boot up, if an error displays indicating a problem with the LAN adapter's NVM configuration, ignore it. This is related to the PXE option ROM not being implemented and will not cause functional issues.
6. Contact TN Tech Support. See Contact Us below.

Contact Us

Direct Contact Numbers

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      Fax: +1 952-941-2322

      E-mail our technical support staff at techsupport@transition.com

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      Technical support is available 24-hours a day

      US and Canada: 1-800-260-1312

      International: 00-1-952-941-7600

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