



neptronic[®]

BACnet MS/TP

Network Analysis Using Wireshark



Overview

Wireshark is a free and open-source packet analyzer. It is used for network troubleshooting, analysis, software and communications protocol development, and education. This troubleshooting and analysis tool can be used with any BACnet device connected over MS/TP to a gateway or router which connects back to the BMS server. Valid data request from the BMS server is required to allow data transfer over the network.

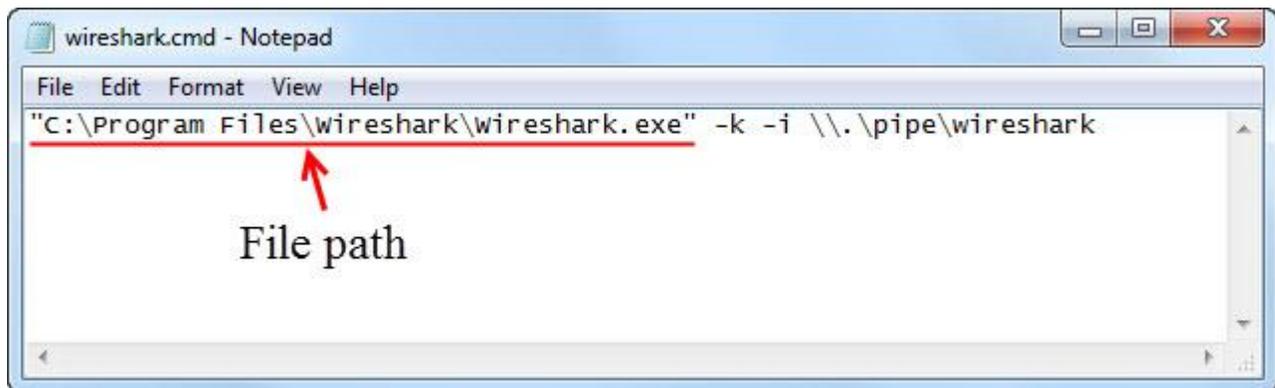
Wireshark is particularly useful as a network analysis tool for Neptronic BACnet devices, as it allows system integrators and the Neptronic technical support team to provide a more accurate means of problem resolution when troubleshooting any issue that has been encountered.

Required Tools/Software

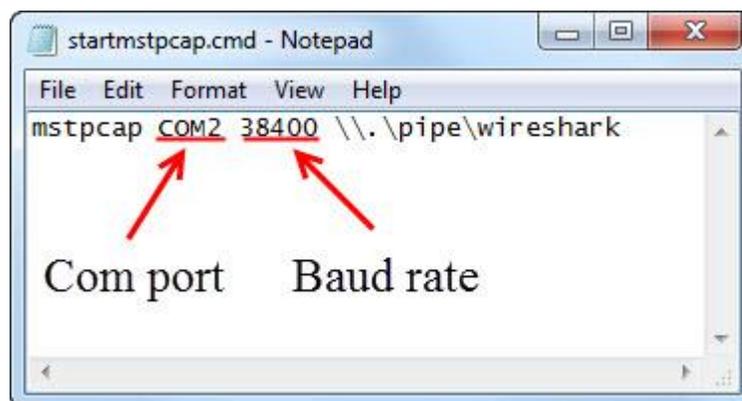
1. USB to RS485 converter to connect the computer or digital device to the network
2. Wireshark software (<https://www.wireshark.org/download.html>)
3. Neptronic Wireshark zip file (<http://www.neptronic.com/controls/NeptronicDocumentation.aspx>), containing the following four files:
 - a. mstpcap.exe
 - b. msvcr100d.dll
 - c. startmstpcap.cmd
 - d. wireshark.cmd

Installation Steps

1. Plug in the USB to RS485 converter between the Neptronic BACnet device and the computer. Ensure that the BACnet device and the computer are turned on and are connected properly (see Architecture and Wiring section).
2. Download and install the latest version of Wireshark (<https://www.wireshark.org/download.html>). Note down the file path to where the software was installed and the executable file (.exe) is located.
3. Download the Neptronic Wireshark zip file found in the Controls Documentation section on the Neptronic website (<http://www.neptronic.com/controls/NeptronicDocumentation.aspx>).
4. From the downloaded zip file, right click on the “wireshark.cmd” file and click on “Edit”. Modify the file path displayed in quotation marks in the text file (“C:\Program Files\Wireshark\Wireshark.exe”) to the correct file path noted in step 2.



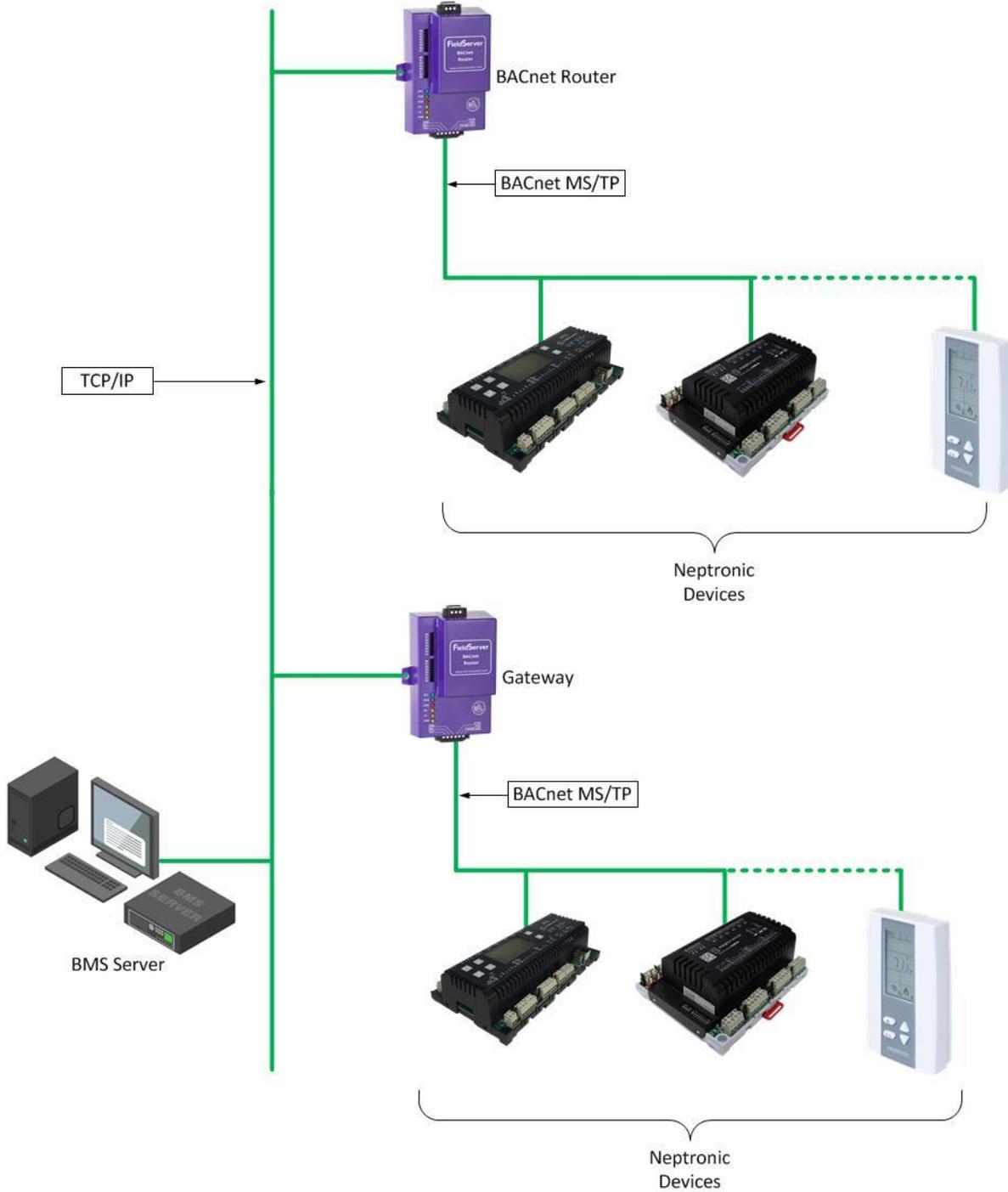
5. Right click on the “startmstpcap.cmd” file and click on “Edit”. Modify the text file by changing the communication port number and the baud rate to the correct values used on the BACnet MS/TP network.



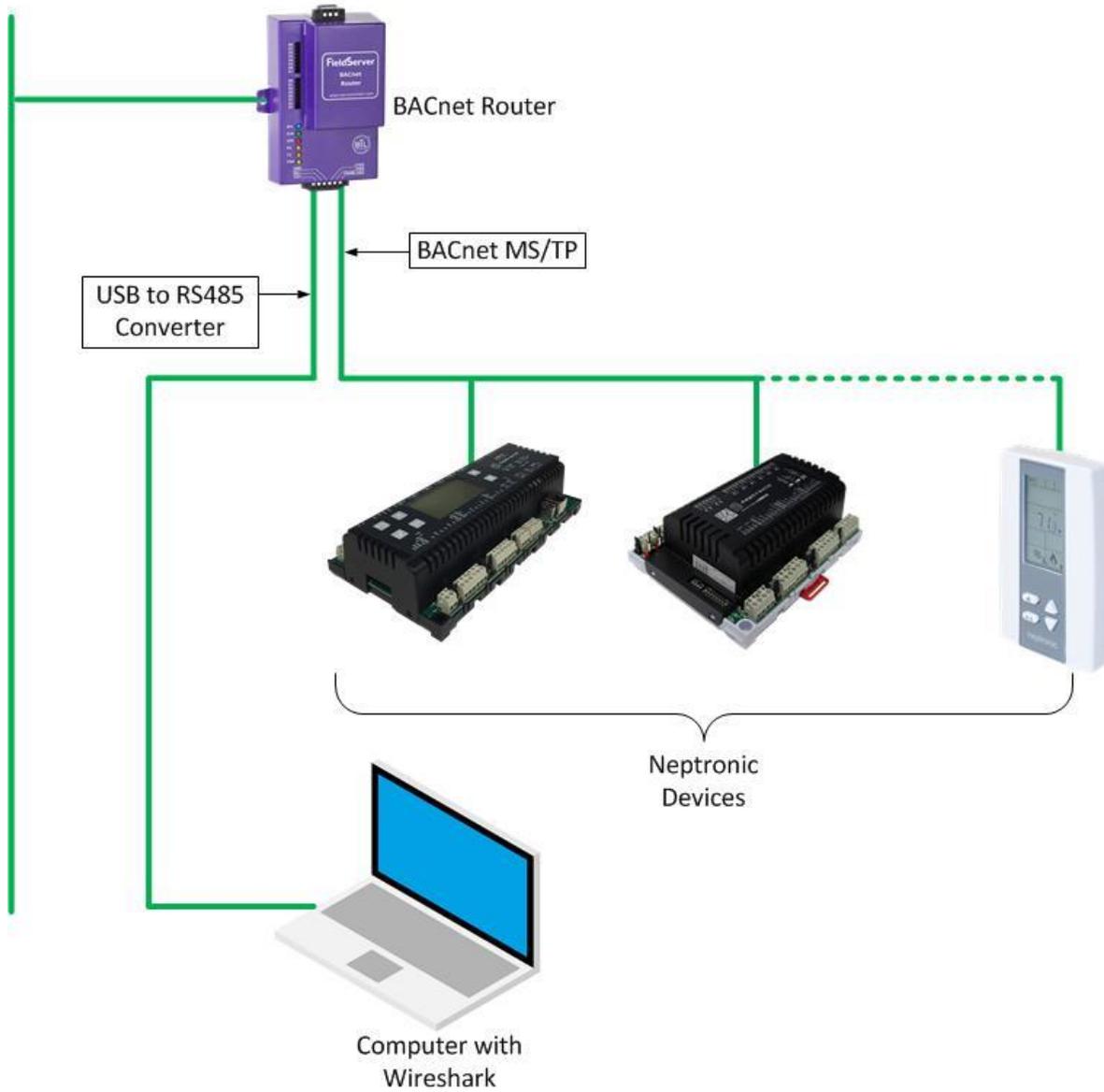
6. Open the “mstpcap.exe” and “startmstpcap.cmd” files and run the applications, in order to start the capturing the MS/TP packets on the network.
7. In order to monitor the MS/TP data, open the “wireshark.cmd” file and run the application to launch the Wireshark interface.
8. Once the MS/TP packets have been captured, close the software, save the file as a “.pcap” extension and send the data to the Neptronic technical support team for analysis and problem resolution.

Architecture and Wiring

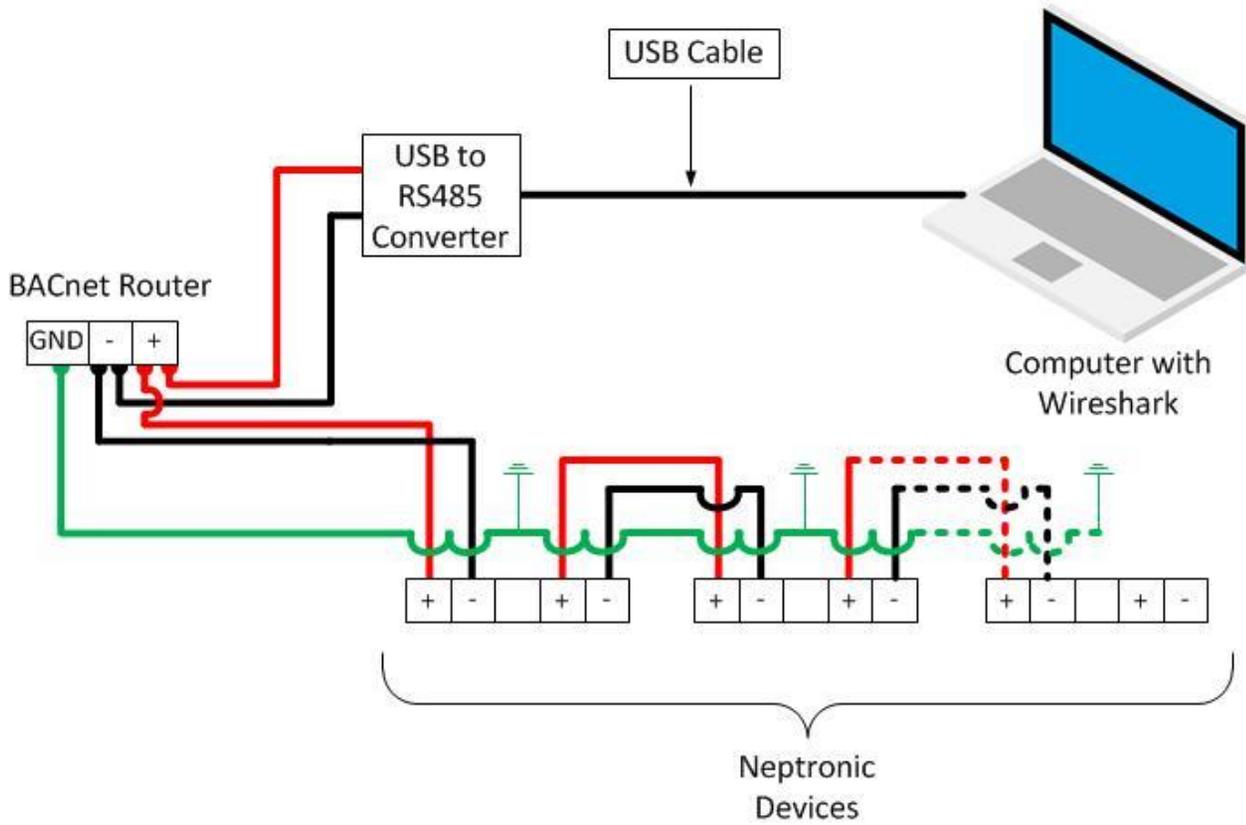
Typical Architecture



Architecture with MS/TP Network Analyzer



Wireshark Wiring





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