NavigateWorx

NR500 Series
Industrial Cellular VPN Router

Application Note 059

DNP3 to IEC104

Version: V1.0.0
Date: Aug 2021
Status: Confidential

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Directory

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1. Introduction

1.1 Overview

This document contains information regarding the configuration and use of DNP3 to IEC104.

This guide has been written for use by technically competent personnel with a good understanding of the communications technologies used in the product, and of the requirements for their specific application.

1.2 Compatibility

This application note applies to:
Models Shown: NR500 series.
Firmware Version: V1.1.6(0742bac) or newer
Other Compatible Models: None

1.3 Version

Updates between document versions are cumulative. Therefore, the latest document will include all the content of previous versions.

Release Date	Doc. Version	Firmware Version	Change Description
2021/08/10	V1.0.0	V1.1.6(0742bac)	First released

1.4 Corrections

Appreciate for corrections or rectifications to this application note, and if any request for new application notes please email to: **support@navigateworx.com**

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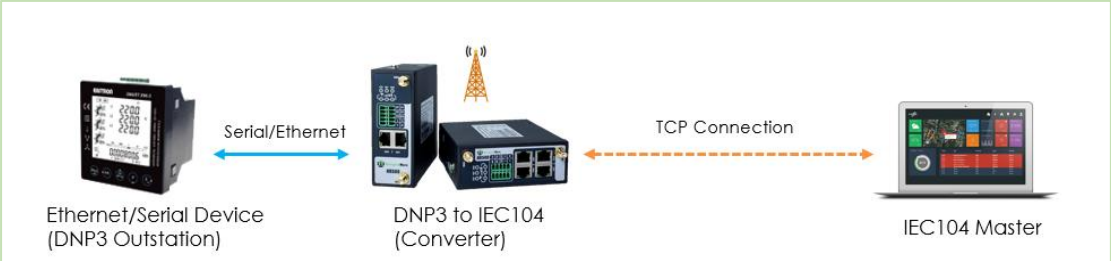
2. Topology



1. Navigateworx's Router runs as DNP3 to IEC104 converter, which act as DNP3 Master and IEC104 Slave.
2. A serial device or ethernet device support DNP3 protocol and acts as DNP3 Outstation. It connected to Navigateworx's router via serial port or Ethernet port.
3. Navigateworx's router poll the data from end device (DNP3 Outstation) and perform the data mapping, after that, the remote IEC104 Master start the TCP connection to the router (IEC104 Slave) and read the data.

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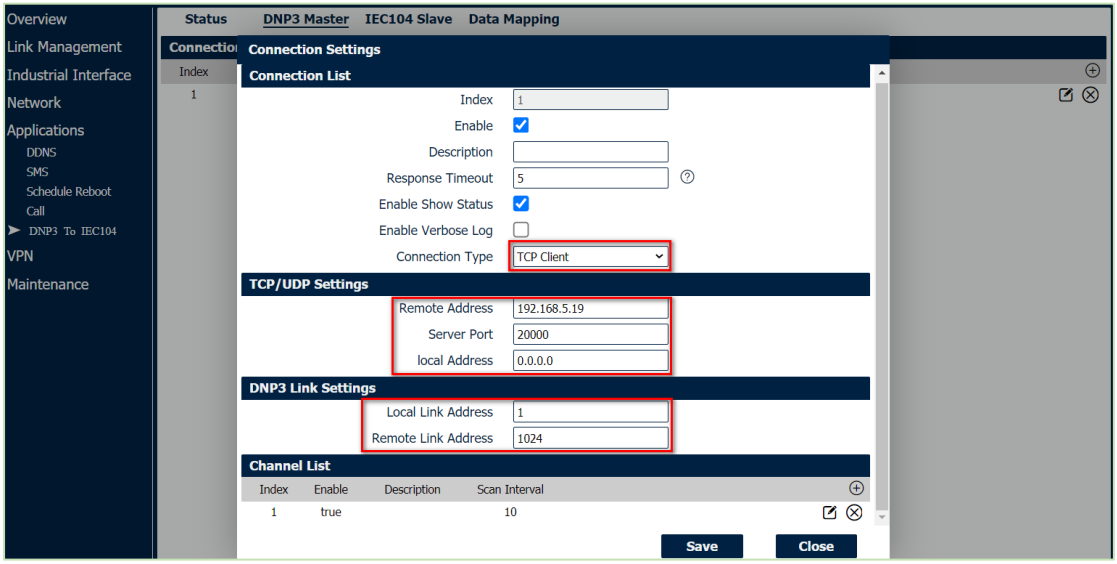
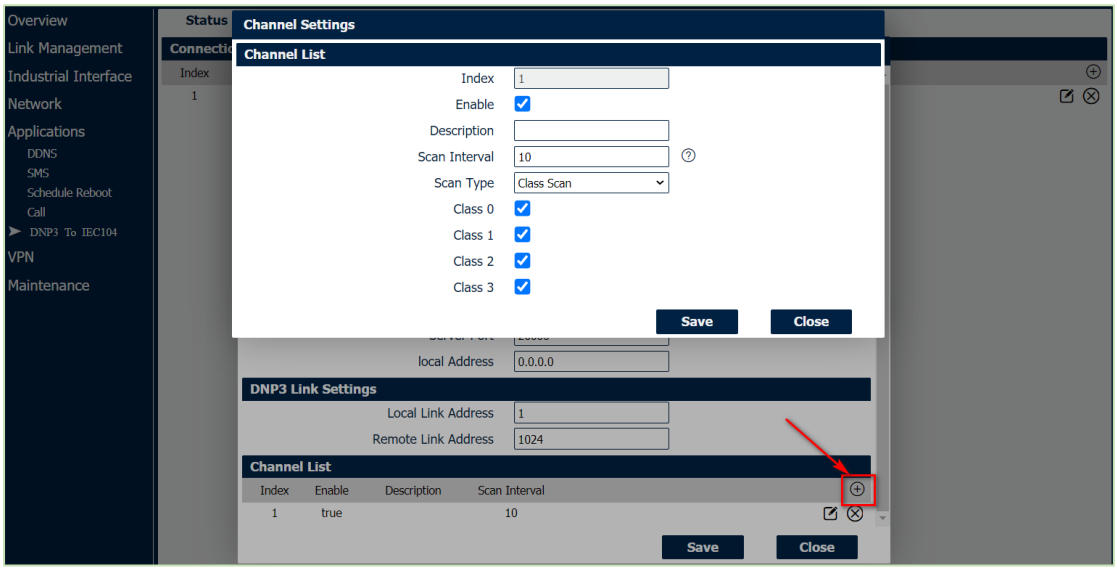
3. Configuration

3.1 Configuration on DNP3

1. Go to **Applications>DNP3 To IEC104 >DNP3 Master**, specify the DNP3 settings to make the router connect to DNP3 Outstation via ethernet interface:





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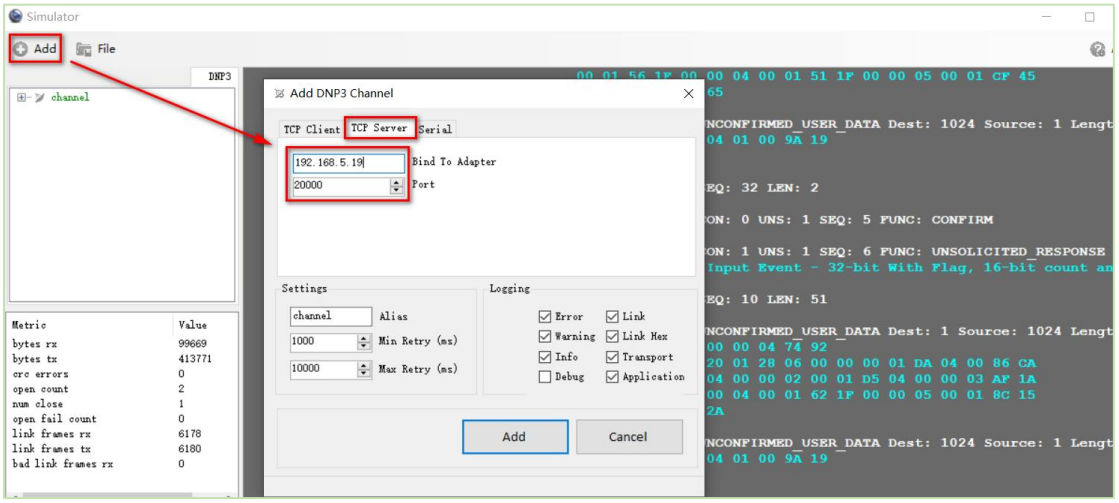
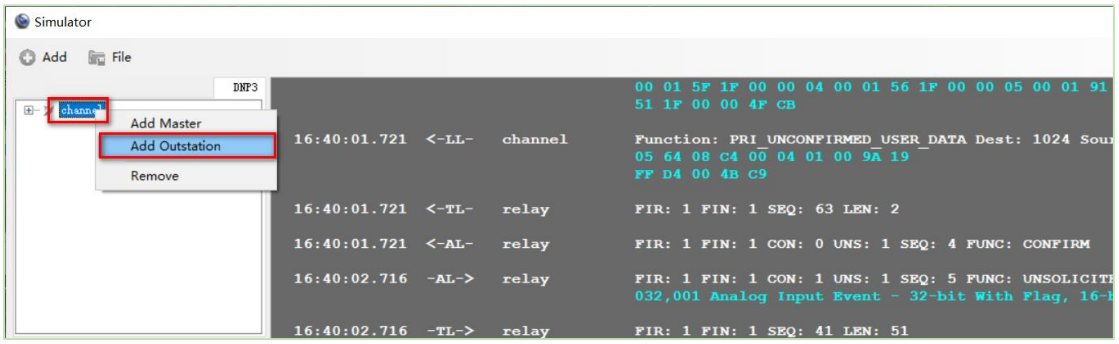
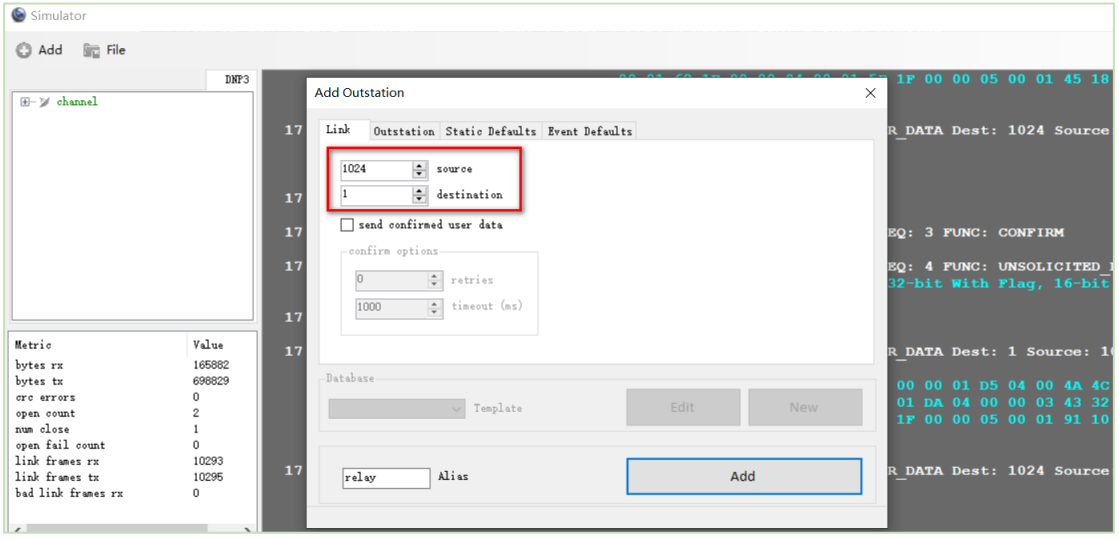
2. Run the DNP3 Simulator on PC and specify the IP Address and Port as below so that the router connect to the DNP3 Outstation:



3. Right Click "channel", and Add Master:



4. Specify the address on DNP3 Outstation, to make it match the settings on NR500(DNP3 Master):



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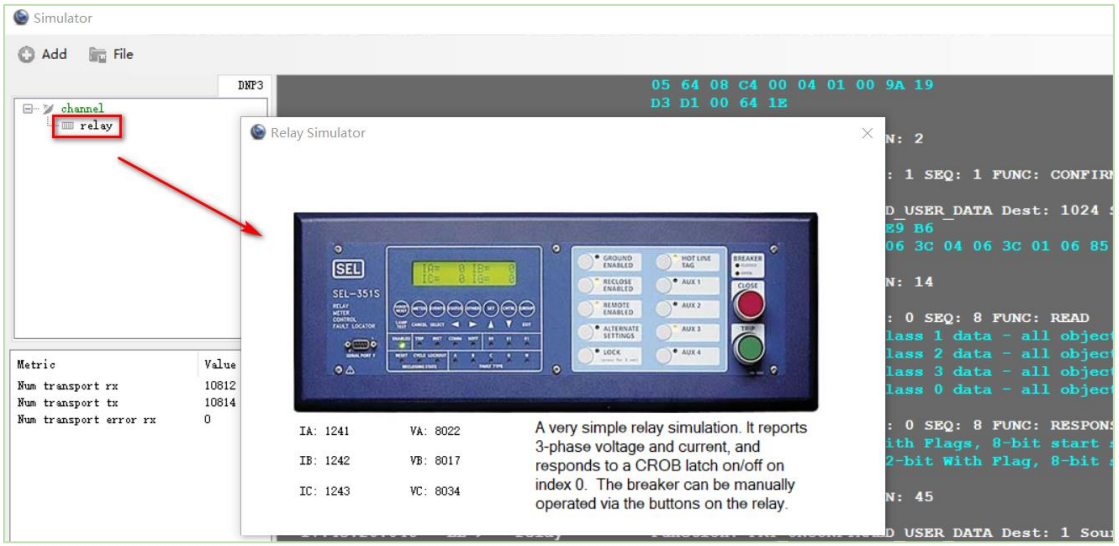
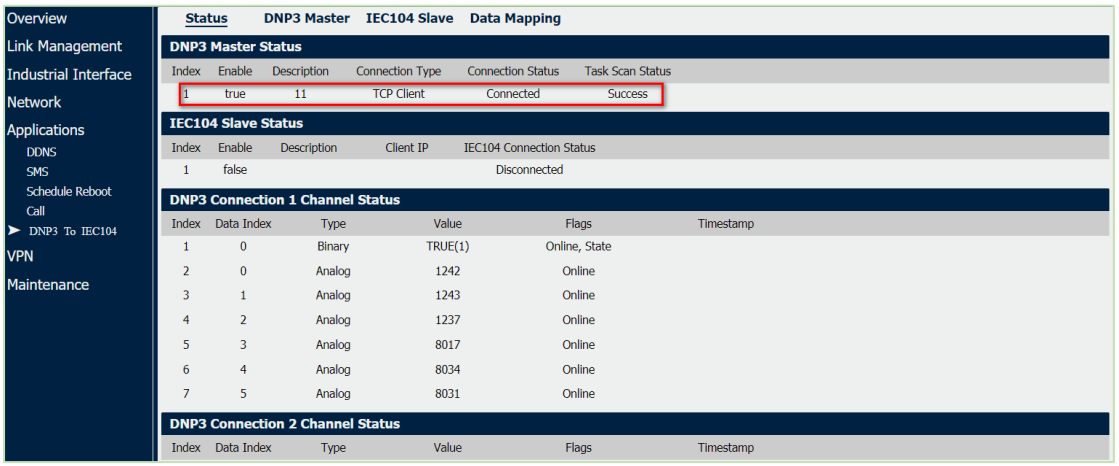
5. Right click "Relay", then we can see the simulator:



6. Router (DNP3 Master) has been connected to Outstation successfully:



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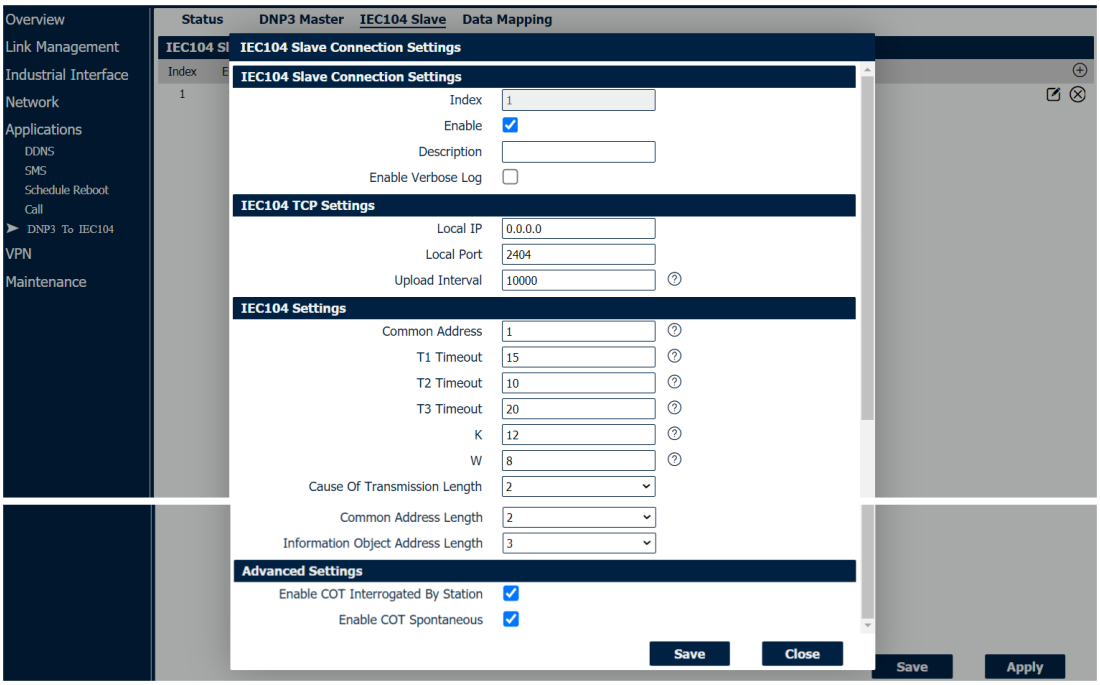
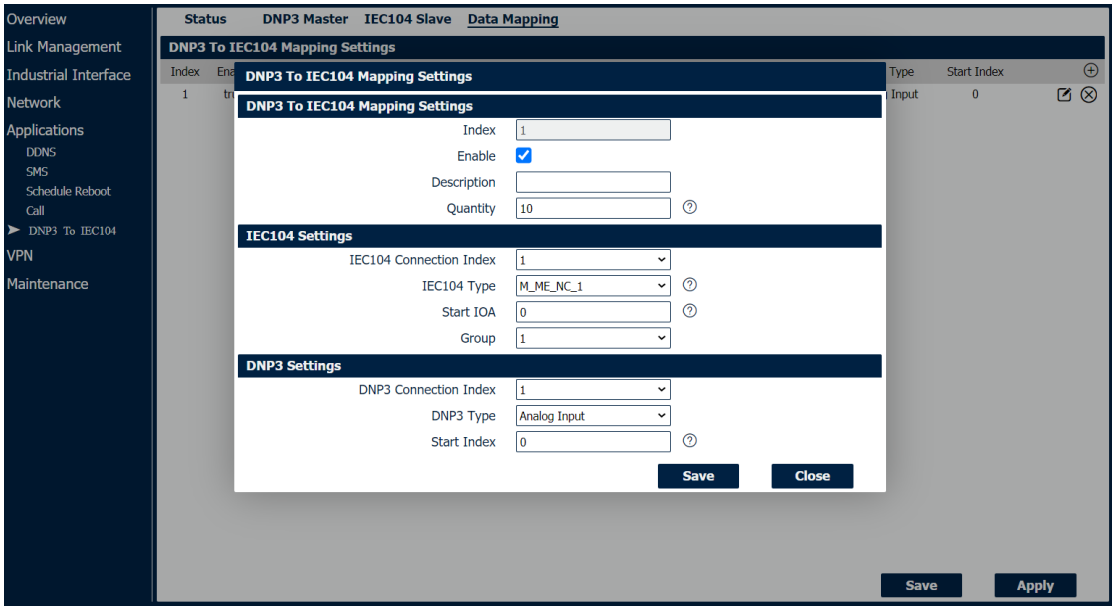
3.2 Configuration on IEC104 and Data Mapping

1. Go to **Applications>DNP3 To IEC104>IEC104 Slave**, specify the IEC104 slave setting as below:



2. Click Save>Apply.

3. Go to **Applications>DNP3 To IEC104>Data Mapping**, specify the Data Mapping settings as below:



4. Click Save>Apply.

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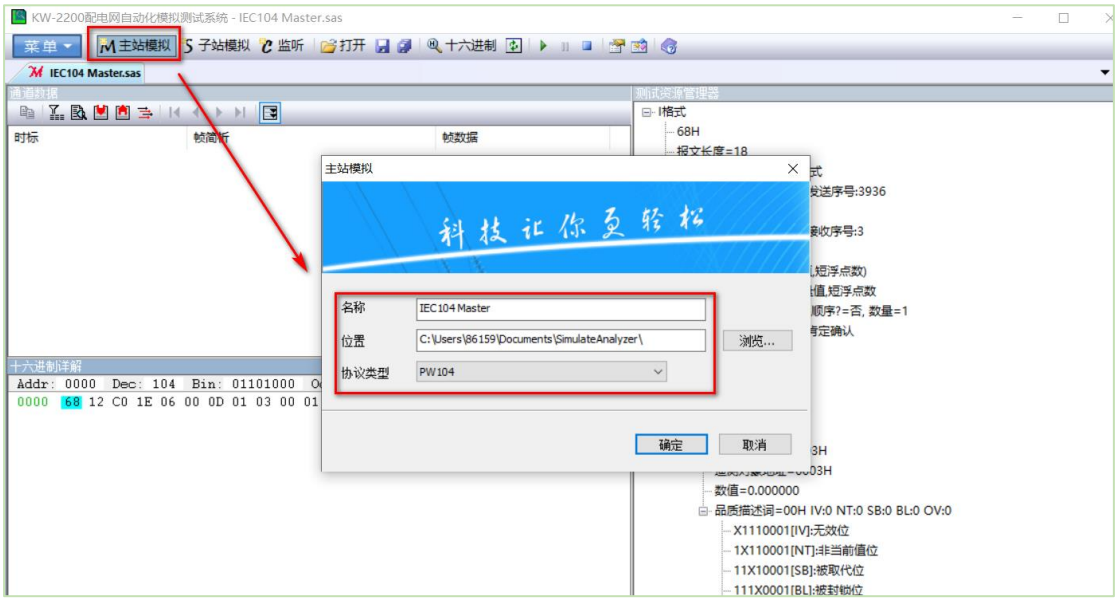
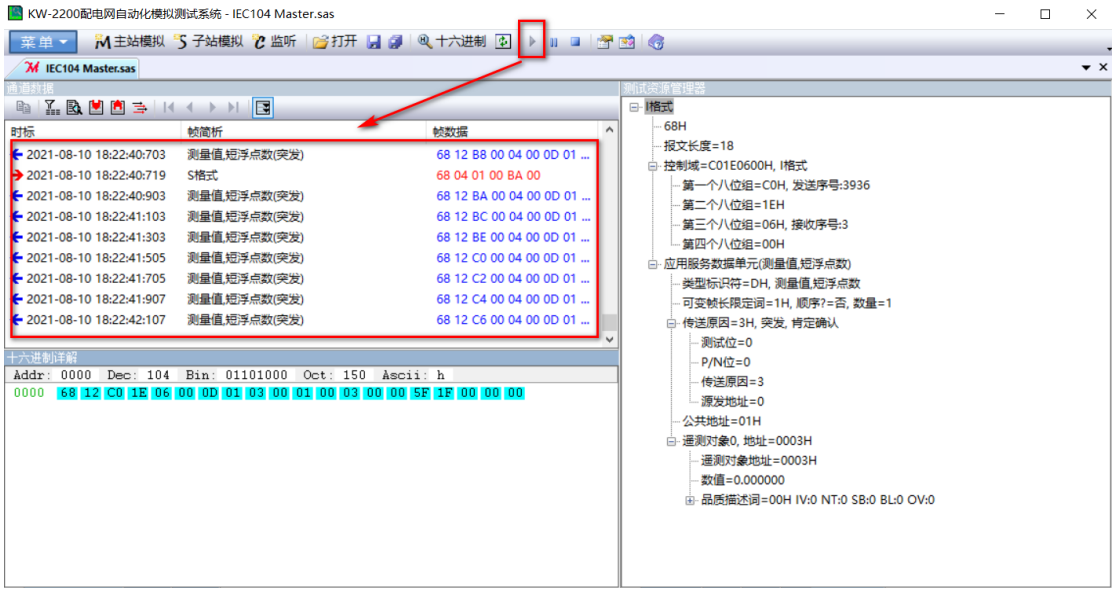
5. Run the IEC104 simulator and set the IEC104 Master as below:



6. Start the IEC104 Master, it connects to the router (IEC104 Slave) and read data successfully:



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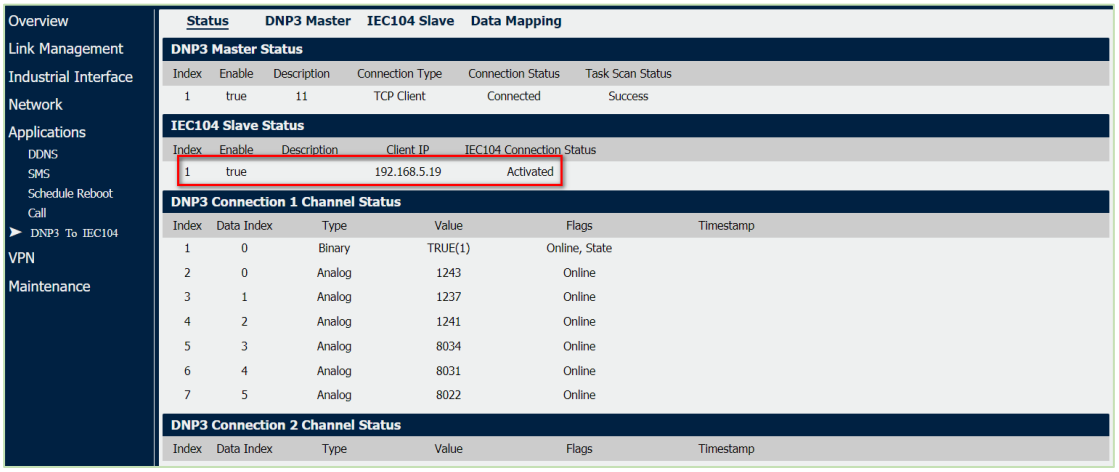
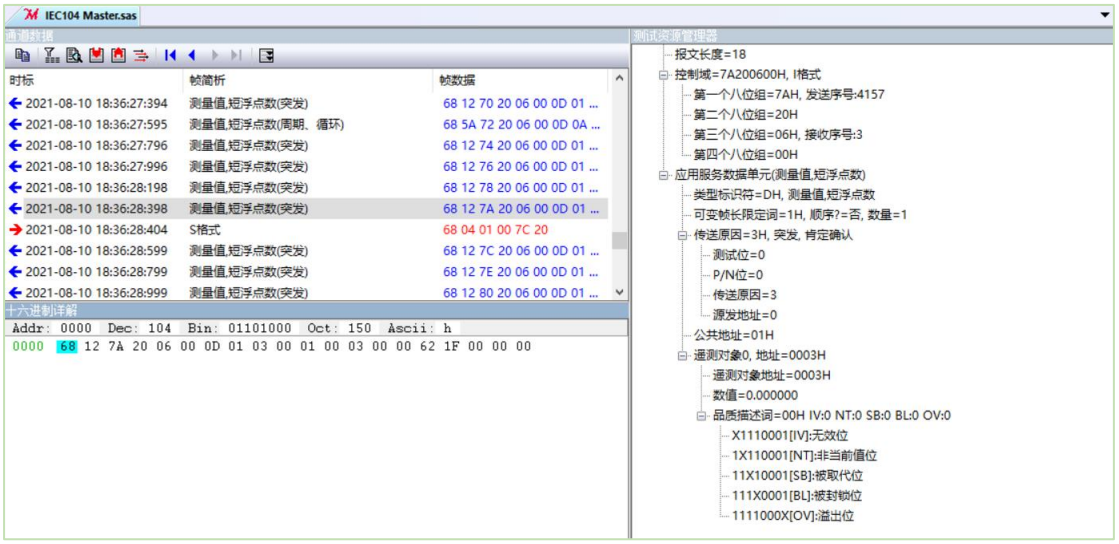


4. Testing

1. IEC104 Master is able to read the data successfully:



2. Test successfully.

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