

PLC133 LAB 2.2: DOWNLOADING DEVICENET CONFIGURATION FILE

Student Name: _____

Student ID: _____

LAB OUTCOMES:

1. Explain how to download a DeviceNet configuration file to a DeviceNet Scanner
2. Demonstrate how to monitor a ladder logic project file controlling / monitoring DeviceNet network components

LAB PROCESS:

This lesson will cover downloading an RSNetWorx Configuration File to a 1756-DNB Scanner module.

Part 1

RSLink is used as the communication driver between RSNetWorx and the Devicenet network. This is similar to using RSLink as a communication driver between a PLC processor and the programming and monitoring software for a processor (i.e. a 1756-L55 ControlLogix 5550 processor and RSLogix 5000 software).

Equipment Required:

In Lab Exercise 1 an RSNetWorx Configuration File named PLC220_Module4.dnt was saved with RSNetWorx for DeviceNet.

The same ControlLogix Project File created for Lab Exercise 1 will be used for this Lab Exercise - PLC220_Module_4_Dnet.L5K

Completion of Module 4 Lab Exercise 1 is required before working on Lab Exercise 2.

Many of the Steps detailed in Lab Exercise 1, such as going online to a DeviceNet network, clearing the Network Configuring from a 1756-DNB, etc. will be required.

Using Lab Exercise 1 as a reference will be beneficial.

Equipment Required:

Computer with RSLogix 5000 / Studio 5000 software

 RSLinx software

 RSNetWorx for DeviceNet software

 Ethernet Port

ControlLogix Demo board with 1756-DNB module, 1756-processor

 1756-Ethernet Communication Module

 Discrete Input / Output Modules

DeviceNet Demo Board with 871TM Prox switch

 RightSight Standard Diffuse Photoelectric Sensor

 855T – Stack Light

 1791D 8B8P Compact Block I/O

 PowerFlex 4 VFD

Note: Other components are also installed on DeviceNet Demo Board

DeviceNet Configuration File required - PLC220_Module4.dnt

ControlLogix Project File - PLC220_Module_4_Dnet.L5K or the ACD version

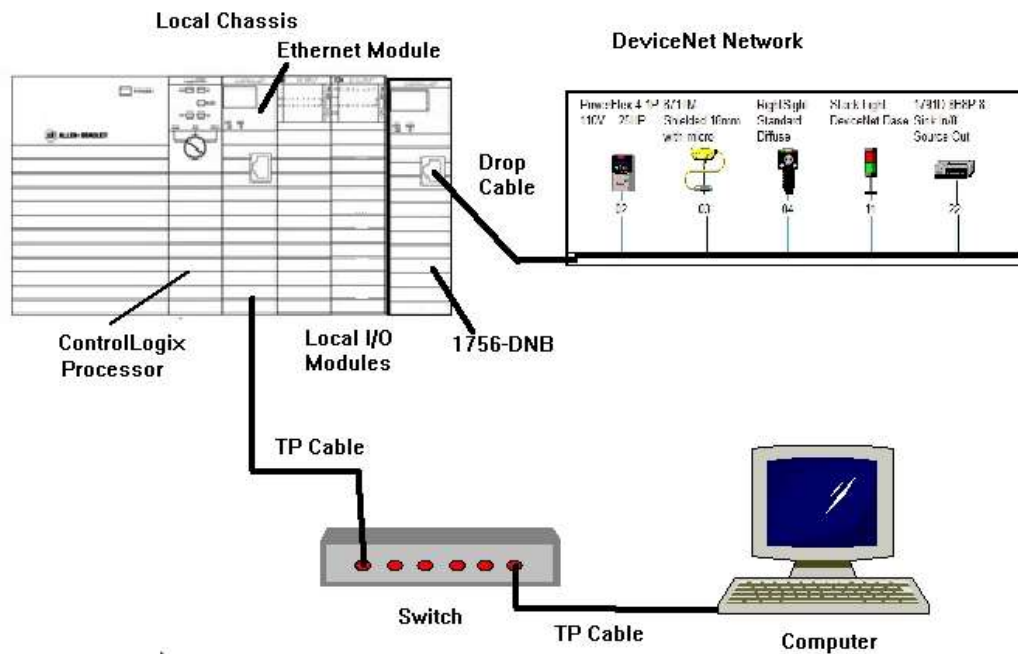


Figure 1-A

Ensure all the DeviceNet component's cables are connected to the IDC taps on the bottom of the DeviceNet Demo Board

Twisted pair Ethernet cables from Computer Ethernet Port to the 1756-EtherNet Module

Note: the cable may be directly connected - no Switch required

DeviceNet drop cable to connect the DeviceNet Demo Board to the front port on the 1756-DNB Module located on the ControlLogix Demo Board.

Power-up ControlLogix and DeviceNet Demo Boards

Note: If the display on the 1756-DNB Module shows - No Network Power – the 1756-DNB Module is not receiving power from the DeviceNet network (drop cable) cable.

In the Lab exercise a connection will be made from the computer's Ethernet Port to RSNetWorx for DeviceNet using RSLinx EtherNet/IP Driver to connect to the DeviceNet network

Ensure the Computer can connect to the ControlLogix Demo board using the 1756 – Ethernet Communication Module with an EtherNet/IP driver.

STUDIO 5000

- RSNETWORX

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- The diagram illustrates the communication architecture for a DeviceNet system. It features three main components arranged horizontally on a blue background:
- RSLogix 5000**: Represented by a 3D puzzle icon with various colored pieces (white, green, red, blue, yellow).
 - RSLinx**: Represented by a yellow crane icon lifting a computer monitor.
 - RSNetWorx for DeviceNet**: Represented by a network topology diagram showing a computer connected to a DeviceNet network, which in turn connects to a PLC.
- A black arrow originates from the top left and points directly to the RSLinx icon, indicating its role as the communication link between the RSLogix 5000 software and the RSNetWorx hardware.

The screenshot shows the Rockwell Automation Explorer application. The left-hand pane displays a hierarchical tree of project components. Under the 'Safety' folder, several modules are listed, including 'Safety Router', 'Safety Analog I/O Device', 'Safety Controller', and 'Safety Discrete I/O Device'. The right-hand pane is currently empty, showing a blank workspace for editing the selected component.

Window for New DeviceNet Configuration File

Go online to DeviceNet Demo Board.

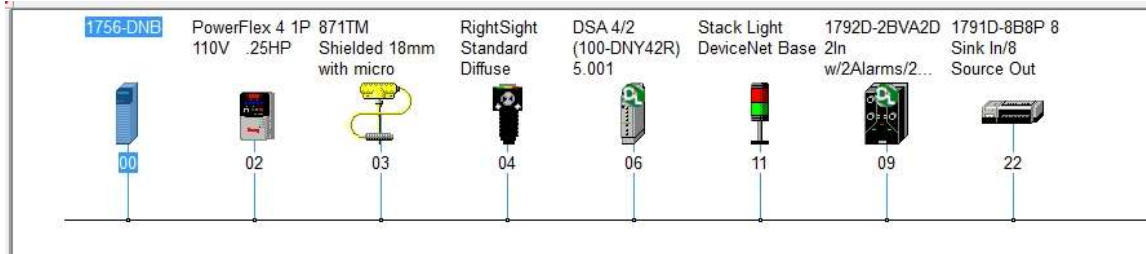


Figure 3-A (Online DeviceNet Demo Board)

3. Clear the Scanlist from the 1756-DNB Scanner Module.
 - Navigate to 1756-DNB Properties -> Scanlist tab.
 - Click the << button to remove components for the Scanlist box

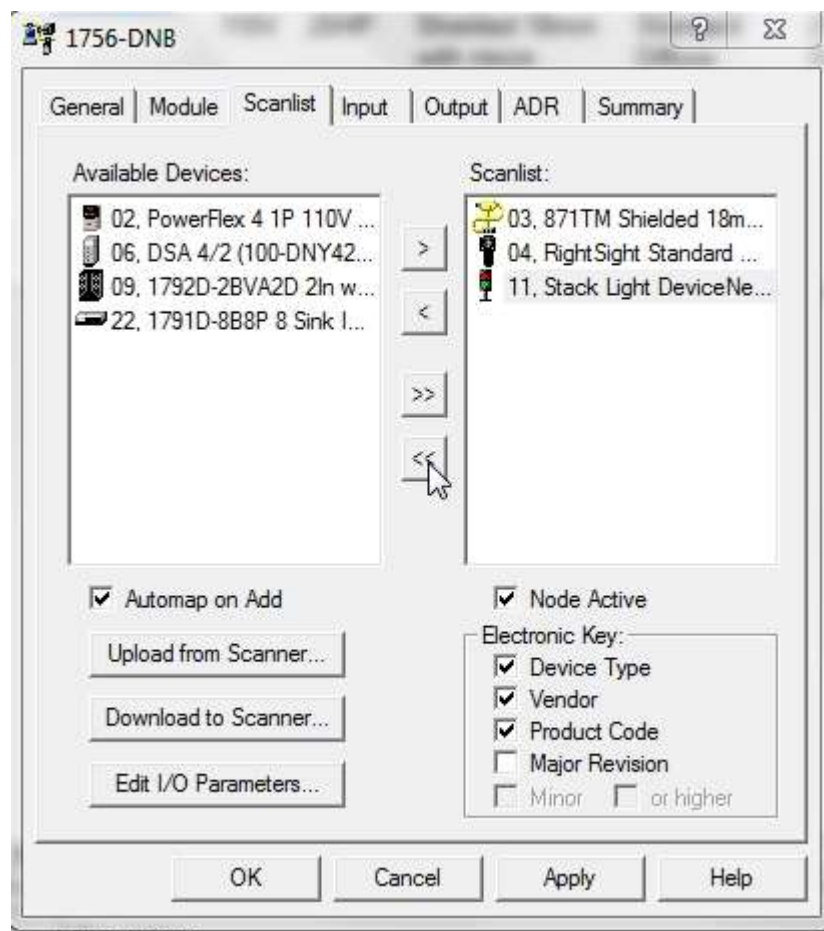


Figure 4-A
Clear Scanlist Box

The Scanlist tab window will appear as shown in Figure 5-A

Click the Apply button on the Scanlist tab window to download changes.

See Figure 5-A

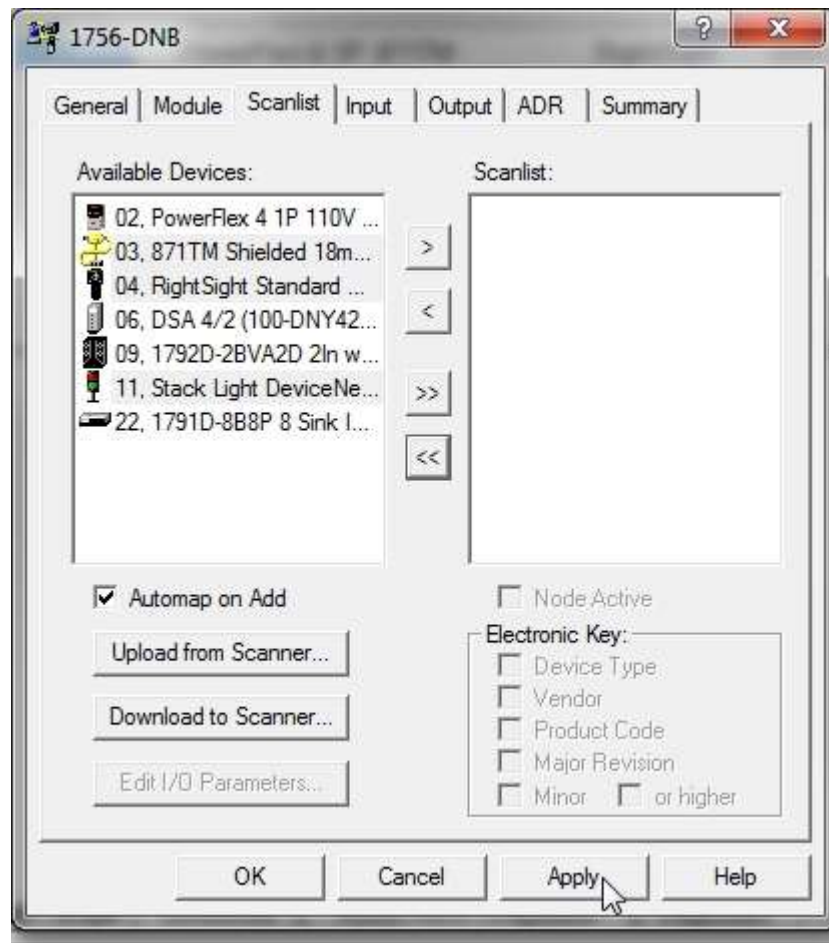


Figure 5-A
Cleared Scanlist Box

5. Click Yes button to confirm download changes to the 1756-DNB Module.

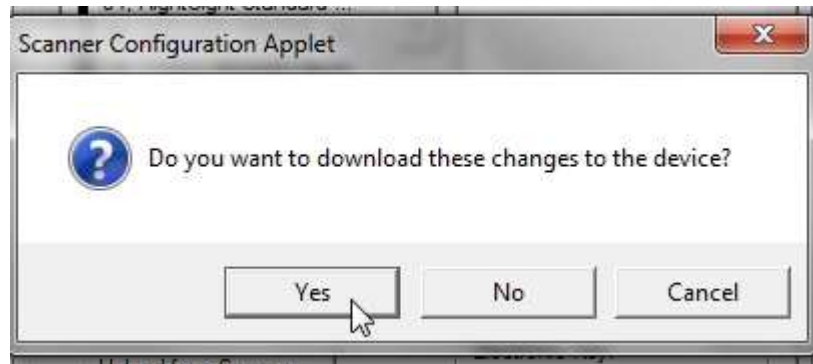


Figure 6-A

6. Place the ControlLogix processor in RUN Mode

- Verify Photoeye does not turn ON PL7
- Verify SS4 Switch does not turn ON Stack Light Module 2
- Verify 1756-DNB does not go into RUN Mode

Note: 1756-DNB will show NoRX and A#00

A#00 – 1756-DNB Node (MAC) Address

NoRX – no receive signals from any network devices

7. Place the ControlLogix processor in PROGRAM mode

8. Navigate to RSNetWorx for DeviceNet software

Open the PLC220_Module4.dnt DeviceNet Configuration File

- Click File -> Open from the Menu Toolbar

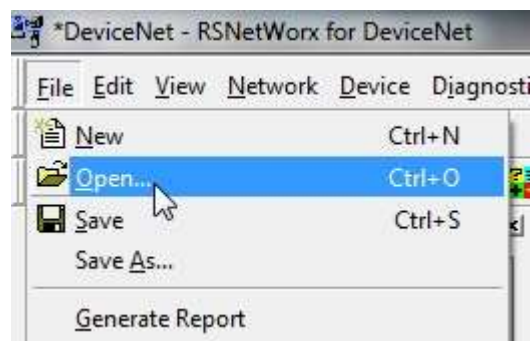


Figure 7-A

- Select PLC220_Module4.dnt Configuration file

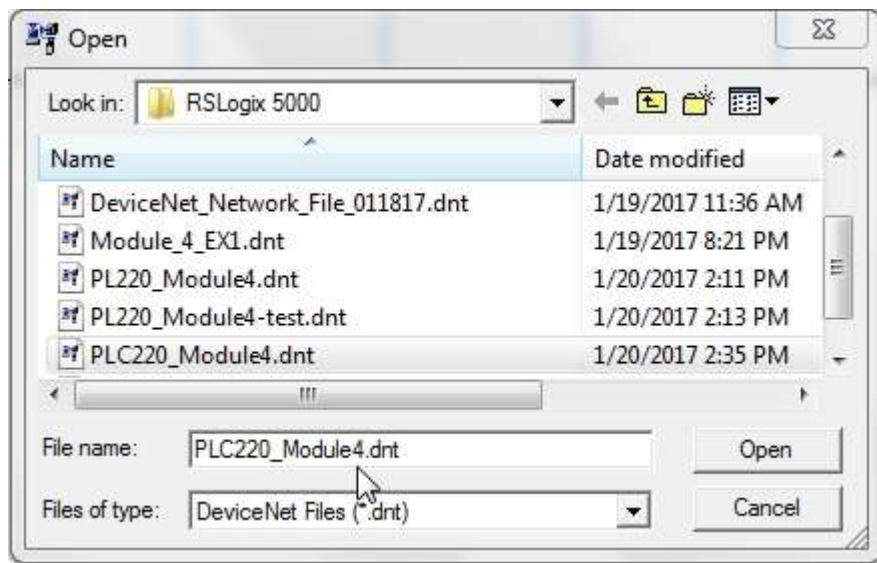


Figure 8-A

Do not save any changes.

Click No button on the RSNetWorx window

See Figure 9-A

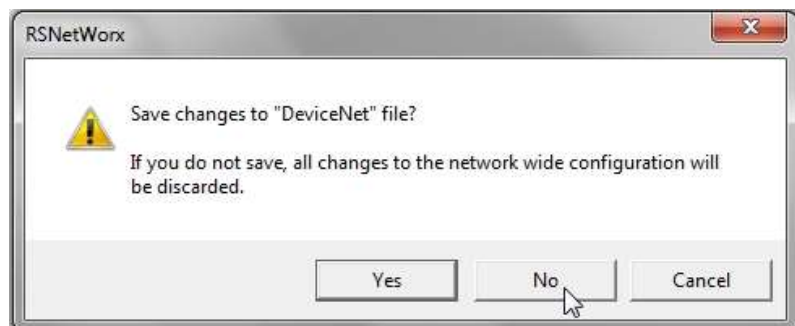


Figure 9-A

9. The RSNetWorx Configuration Files opens offline

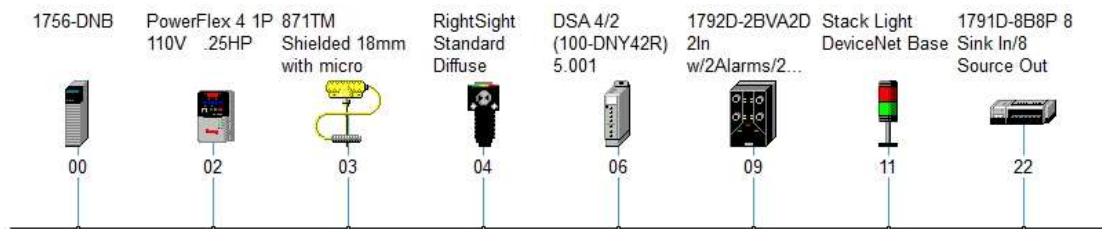


Figure 10-A
Offline Network Configuration File

RSNetWorx is Offline – View Mode in lower right corner of the RSNetWorx application



Figure 10-A
RSNetWorx Offline

10. Go Online

- Click Network on the Menu Toolbar
- Click Online



Figure 11-A
Go Online to DeviceNet Network

11. Click OK button on the RSNetWorx for DeviceNet window

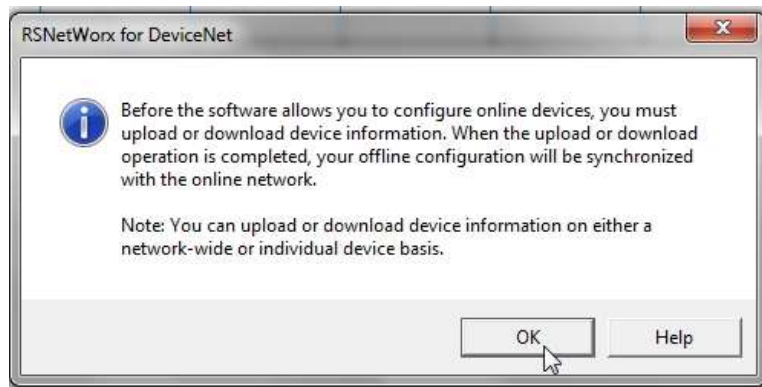


Figure 12-A

12. RSNetWorx browses the connect network

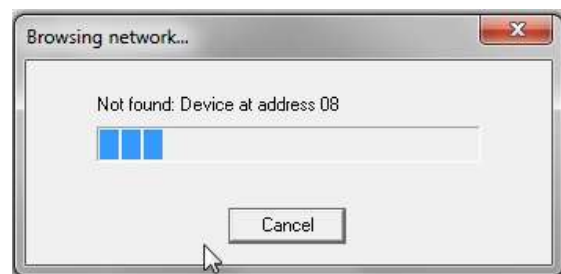


Figure 13-A

Browsing Online Network

13. When Browsing network window closes (Network Browse Completed) – Right click on the 1756-DNB Scanner module icon – Choose Download to Device

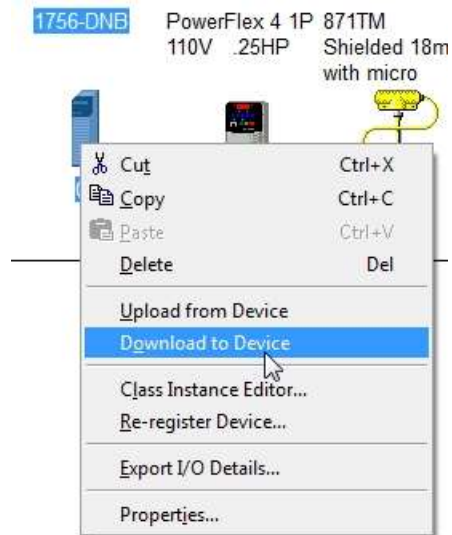


Figure 14 – A

14. Click Yes on RSNetWorx for DeviceNet window to confirm download

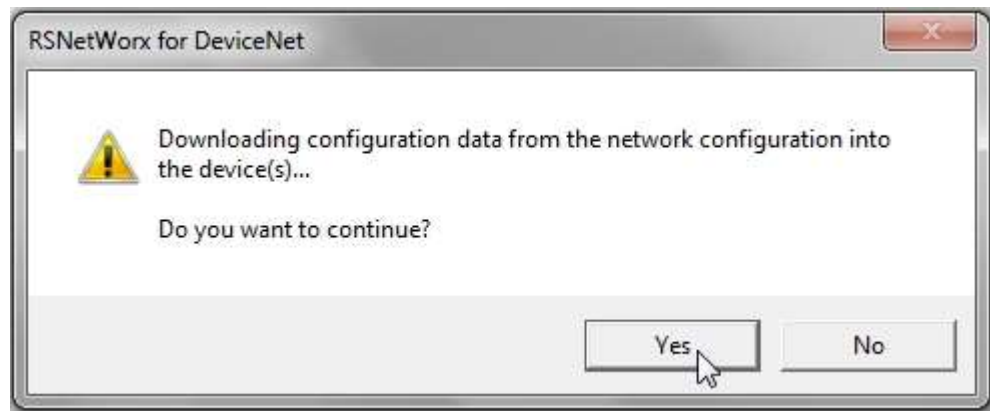


Figure 15 – A
Confirm Download

15. Downloading to Device(s) window monitors status of download.



Figure 16 – A
Download Progress Bar

16. Place the ControlLogix processor in RUN Mode

Verify Operation

- Does SS7 Switch change 1756-DNB from IDLE to RUN Mode?
- Does Photoeye turn ON PL7?
- Does Prox Switch turn ON Module 1 of Stack Light?
- Does SS4 Switch turn ON Module 2 of Stack Light?

Review Questions

1. True or False the 1756-DNB module has 124 Input Elements?
2. Which software is used to download DeviceNet Configuration Files to a DeviceNet Scanner Module:
 - a) RSLogix 5000
 - b) Studio 5000
 - c) RSLinx
 - d) RSNetWorx
3. A# 00 is shown on the DNB display. This represents:
 - a) Error Codes
 - b) Node Address.
 - c) Module mode
 - d) Baud Rate

4. True or False RSLinx can be used to view DeviceNet nodes?
5. The software application that allows the ControlLogix processor to control / monitor devices on DeviceNet is stored in:
 - a) Studio 5000
 - b) 1756-DNB
 - c) RSLogix 5000 software
 - d) RSLinx software
 - e) RSNetWorx software
6. True or False DeviceNet configurations can be accessed through RSLinx software?

The outcomes of this exercise (listed on page 1) specifies the skills that the Student must demonstrate to the Instructor. Once the Instructor is satisfied with the demonstration of Knowledge & Skills by the individual student, they will sign this document (for the student), then enter a 100% into the Hands-On Lab grade in Sakai.

I verify that this student has completed all of the requirements of this Hands-On Assessment:

Student Name: _____

Faculty Signature: _____ Date: _____

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