Northwest State
Community College

PLC 220 Hands-On Assessment
Module 3

Student Name: _____ N# _____ Date: _____

This hands-on assessment requires that each student successfully demonstrates each of these tasks to the instructor's satisfaction. There is no grade for this assessment.

Prior to taking this assessment, the student must pass (minimum of 80%) the Knowledge and Application Assessment.

The student cannot proceed to the HOA for the next module without completing this HOA

Equipment Required:
- ControlLogix Demo with processor – Source / Produced Chassis
- ControlLogix Demo with processor-Destination / Consumed Chassis
- Twisted pair cables
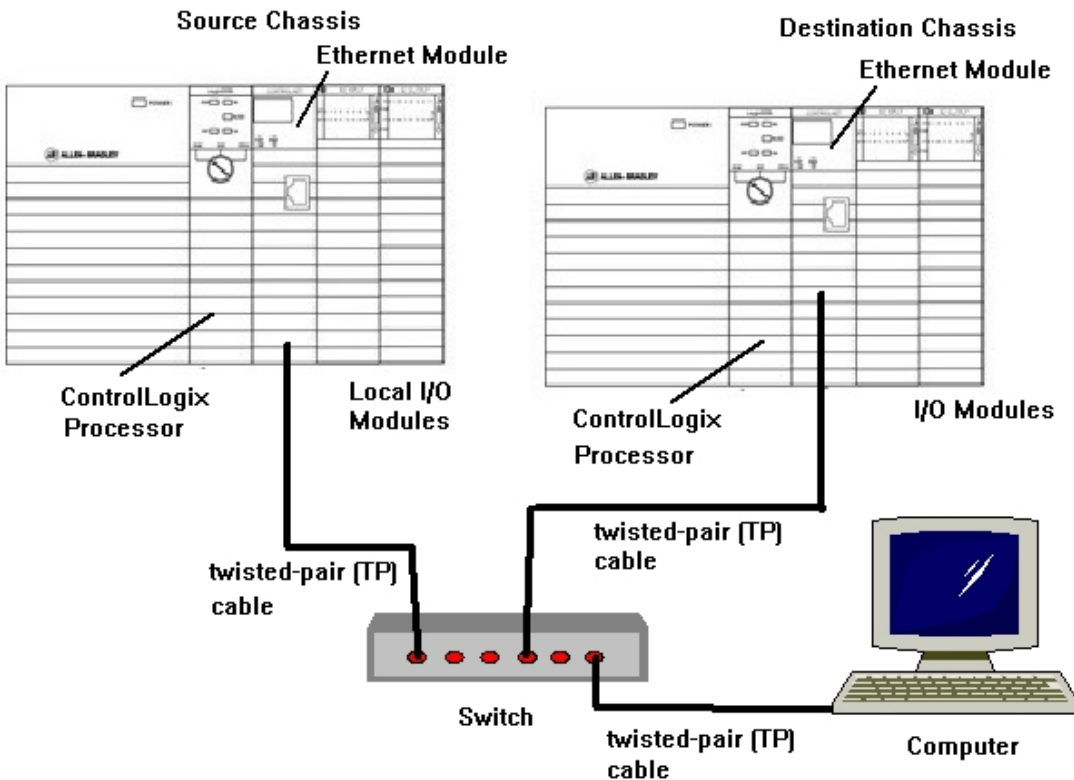- Computer with Studio 5000, BOOTP/DHCP Server and RSLinx software
- Ethernet Switch

Figure 1 – A. Source and destination controller connected by Ethernet.

Set-up hardware as shown in Figure 1 - A

_____   1. Determine the following computer information
IP Address:_____
Subnet Mask:_____
Ethernet Address:_____

_____   2. Set the Ethernet module in the Source / Produced Chassis to default setting.
Using the BOOTP/DHCP Server assign an IP Address and Subnet Mask
that will work on the same network as the computer to the Ethernet Module.

Record the following Ethernet Module information
IP Address:_____
Subnet Mask:_____
Ethernet Address:_____

Configure the Ethernet Module to Static Set-up

_____   3. Set the Ethernet module in the Destination / Consumed Chassis to default setting.
Using the BOOTP/DHCP Chassis Server assign an IP Address and Subnet
Mask that will work on the same network as the computer to the Ethernet Module.

Record the following Ethernet Module information
IP Address:_____
Subnet Mask:_____
Ethernet Address:_____

Configure the Ethernet Module to Static Set-up

_____   4. Verify connections using PING utility

_____   5. Using Studio 5000 software develop a Project Files for the processor in the Source /
Produced Chassis that will:

- Name the Processor in the Source / Produced Chassis as ONE
- Name the Processor in the Destination / Consumed Chassis as TWO

- Name the Ethernet Module in the Source / Produced Chassis as ONE_Enet
- Name the Ethernet Module in the Destination / Consumed Chassis as TWO_Enet
- Name the I/O Modules based on their slot location, i.e. Slot_2, etc.
- Configure a recycling 10 second Timer in Processor ONE that will RUN when the SS7 is TRUE / ON
- Create a tag – Recycle_Timer for the Timer instruction
- Create a DINT tag named ONE_Tag1
- Move the ACC value of Recycle_Timer to ONE_Tag1 tag – MOV Instruction
- Configure a MESSAGE Instruction to will send the value of ONE_Tag1 to a tag called TWO_Tag1 located in Processor TWO.
- Create Mess1 for MESAAGE Instruction control tag
- The MESSAGE instruction will continually send the ONE_Tag1value to Processor TWO when SS4 switch on Processor ONE board is TRUE / ON
- Create a second MOV instruction that will move the ACC value of Recycle_Timer to a tag named Produced_Tag1
- Create a DINT tag named Produced_Tag1
- Configure Produced_Tag1 as a Produced Tag with 5 connections
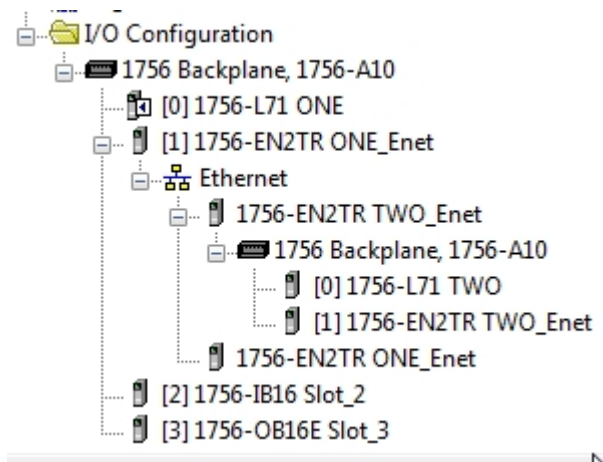- Save the Project File as Processor_ONE.ACD
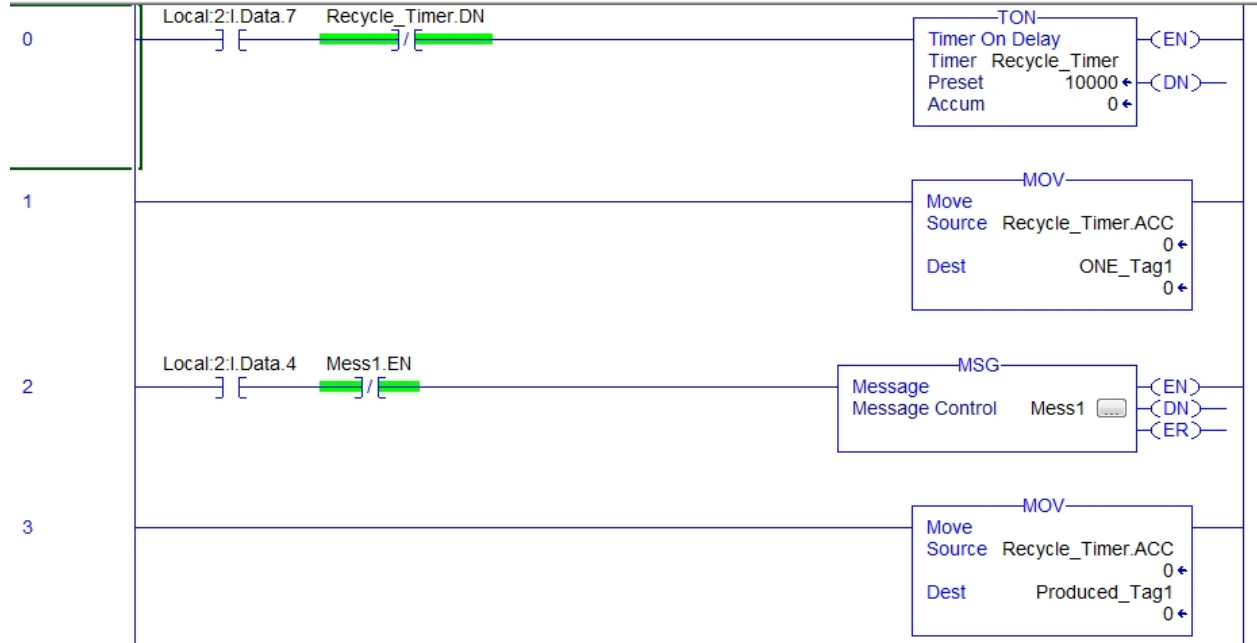

Figure 2 – A
I/O Configuration Processor ONE

Figure 3 – A
Ladder Logic Processor ONE

_____ 6. Using Studio 5000 software develop a Project Files for the processor in the Destination / Consumed Chassis that will:

- Name the Processor in the Destination / Consumed Chassis as TWO
- Name the Processor in the Source / Produced Chassis as ONE
- Name the Ethernet Module in the Source / Produced Chassis as ONE_Enet
- Name the Ethernet Module in the Destination / Consumed Chassis as TWO_Enet
- Name the I/O Modules based on their slot location, i.e. Slot_2, etc.
- Create a tag named TWO_Tag1 that will show the value of ONE_Tag1 from processor ONE
- Create a Consumed tag named Consumed_Tag1 that will get its value from the Produced_Tag1 tag in Processor ONE
- Save the Project File as Processor_TWO.ACD

_____ 7. Download Project File to Processors
- Download Processor_ONE.ACD file to the processor in the Source / Produced Chassis

- Download Processor_TWO.ACD file to the processor in the Destination / Consumed Chassis as TWO
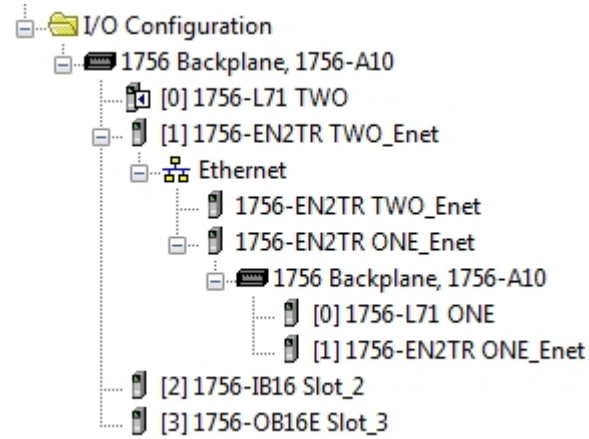- Put Processors in RUN Mode
- Verify operation
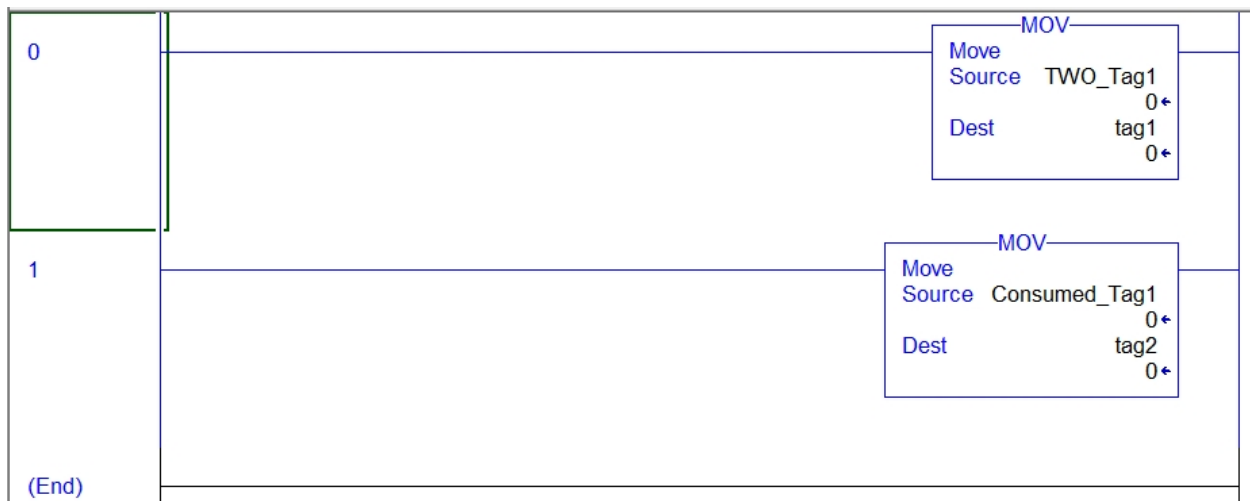

Figure 4 – A
I/O Configuration Processor TWO

Figure 5 – A
Ladder Logic Processor TWO

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