

**FASTECH**

Fast, Accurate, Smooth Motion Control

# Ezi-SERVOII-EC Operation Manual < Parker 'PAC' Controller >



**Ezi-SERVO**<sup>®</sup>  
Closed Loop Stepping System

# ■ Ezi-SERVOII-EC Data Download [Manual]

- **Manual** : Download the EtherCAT manual on FASTECH website ([www.fastech.co.kr](http://www.fastech.co.kr))

**FASTeCH**  
Fast, Accurate, Smooth Motion

View Full menu

HOME KOREAN

Company Introduction Product Information Product Video Clips Exhibition Information Global Sales Network Fastech Archive FAQ On-Line Contact

Fast, Accurate and Smooth Motion Control Technology together with always constant mind

FASTeCH products can be found driving applications such as LCD/LED Manufacturing Semi-conductor fabrication, Assembly machines, Packaging machines, Medical diagnostic equipment, Laboratory apparatus, Vision Inspection systems and many other applications that require precise...

SEARCH [ ] GO

**Ezi-Servo II EtherCAT series**  
품부한 기술력과 경쟁력을 가진 파스텍(주)를 소개합니다

Ezi-SERVO II EtherCAT series  
HOME > Production Info >

**Product Information**

- Fastech Product Specifications
- Ezi-SERVO series
- Ezi-SERVO II EtherCAT series
  - MC4N
- Ezi-STEP series
- Ezi-LinearStep series
- Ezi-Robo series
- S-SERVO series
- Ezi-MOTIONGATE series
- Ezi-Motionlink series

**Ezi-SERVO II EtherCAT**  
Closed Loop Stepping System

EtherCAT<sup>®</sup> CE  
Conformance tested

Ezi-SERVO II EtherCAT Series is combination package between Fastech's Closed Loop Stepping Motor Drive/Controller system and Ethernet based Fieldbus EtherCAT. Ezi-SERVO II EtherCAT supports CiA402 Drive Profile.

**Click**

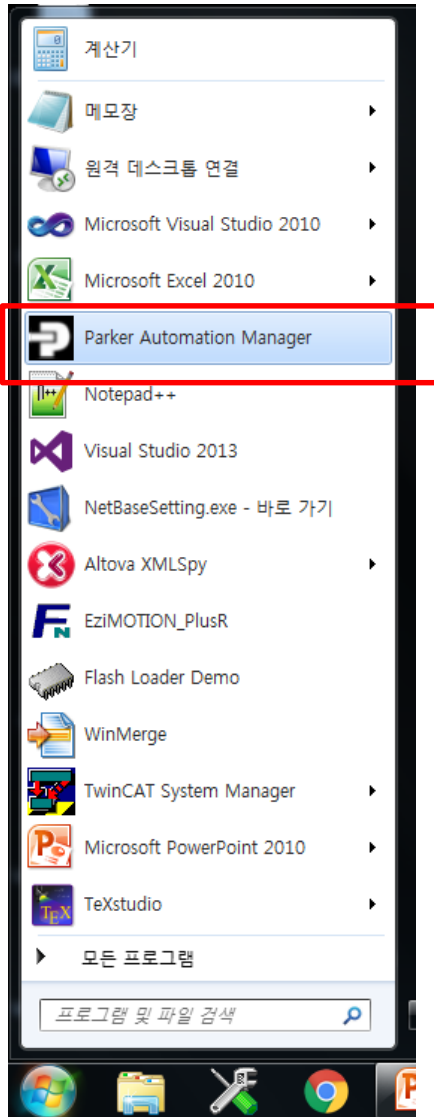
- CiA 402 Drive Profile Support
- Closed Loop Stepping System
- No Gain Tuning / No Hunting
- Torque Improvement by Boost Current Control

SPEC PART NUMBERING & DRAWING CATALOGUE **MANUAL**

**SERVO**  
Closed Loop Stepping System

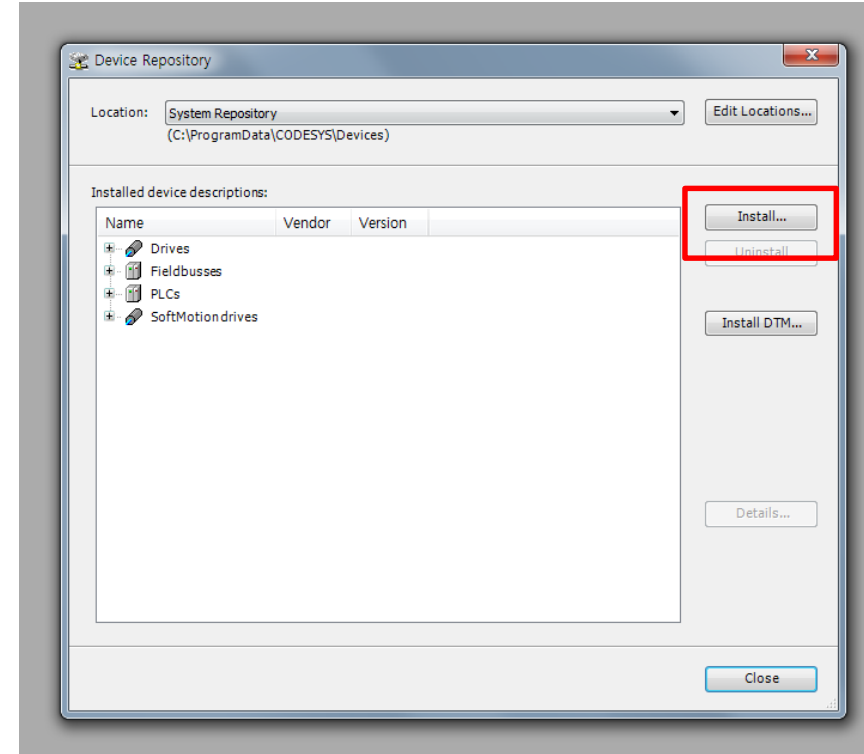
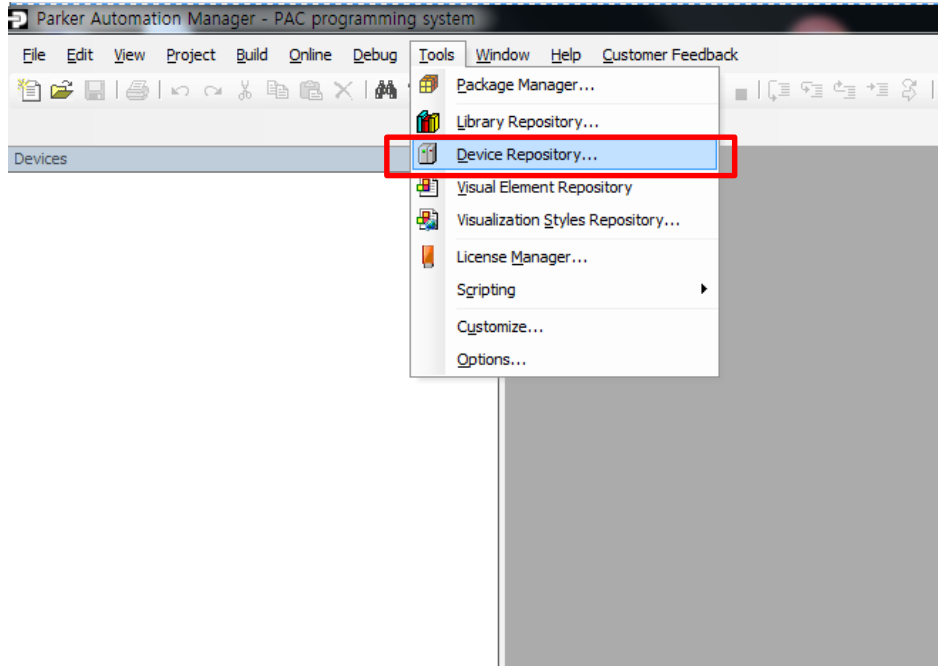
# Save ESI(XML) file

## Launch the Parker Automation Manager Software



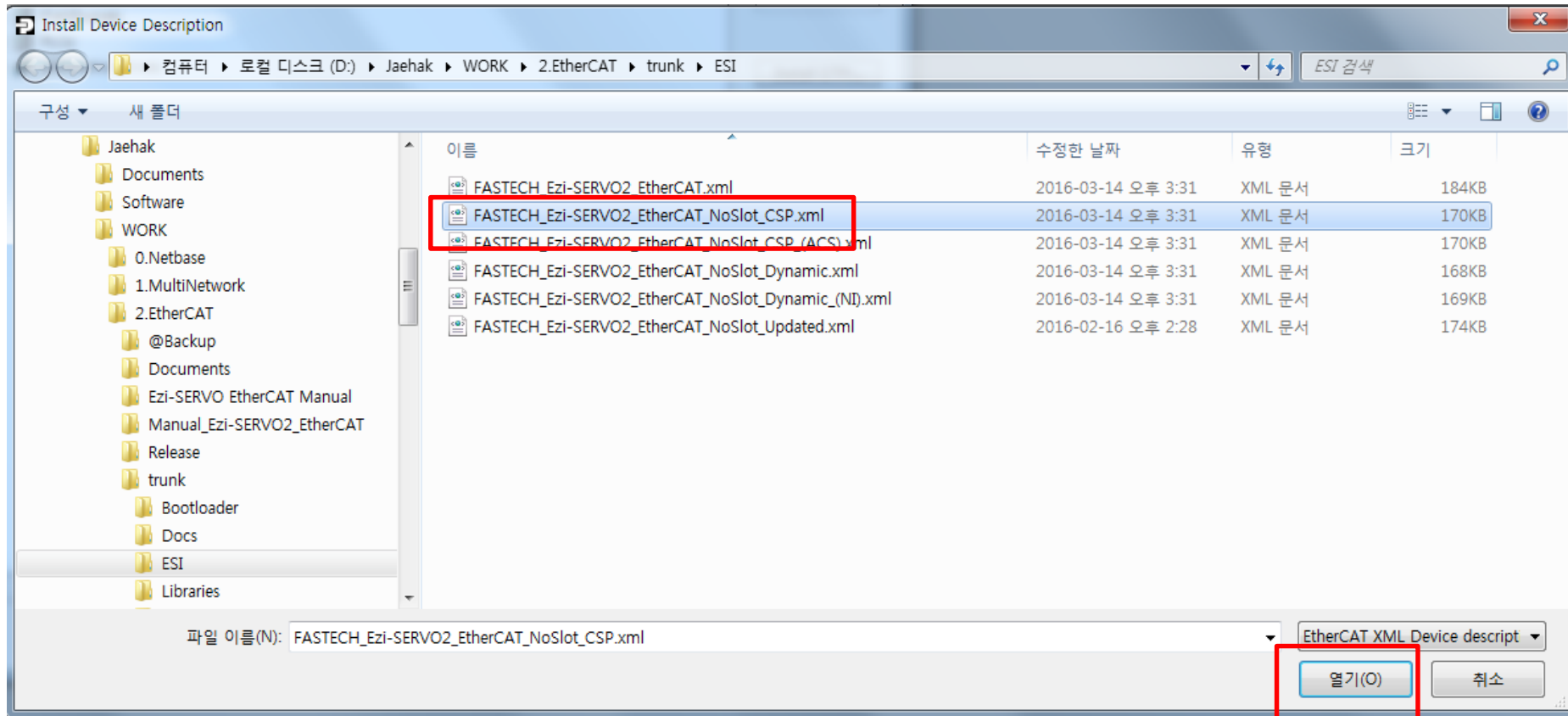
# Save ESI(XML) file

Click "Tools" and "Device Repository" and click Install



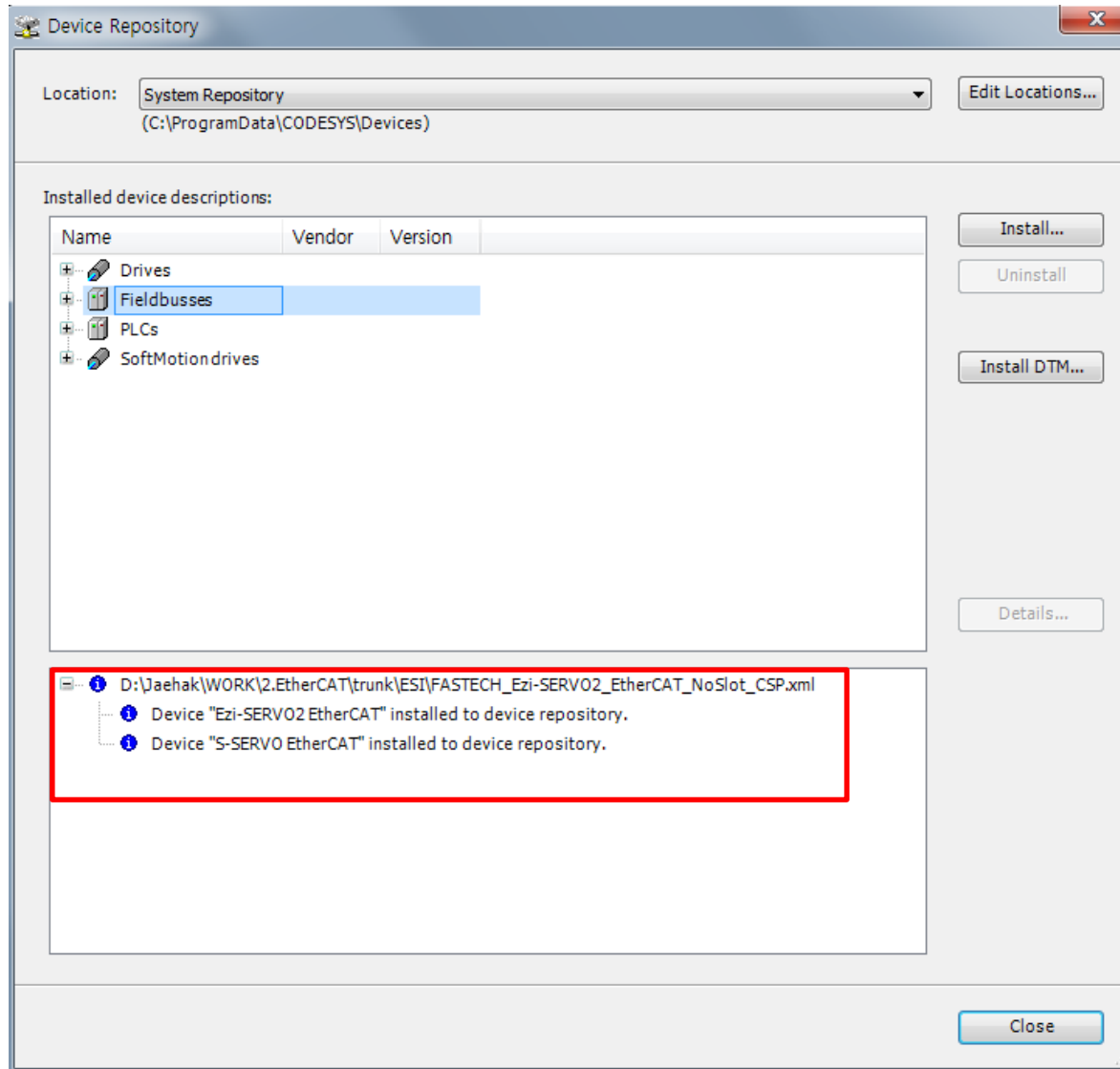
# Save ESI(XML) file

Click "FASTECH\_Ezi-SERVO2\_EtherCAT\_NoSlot\_CSP.xml" and click "열기"



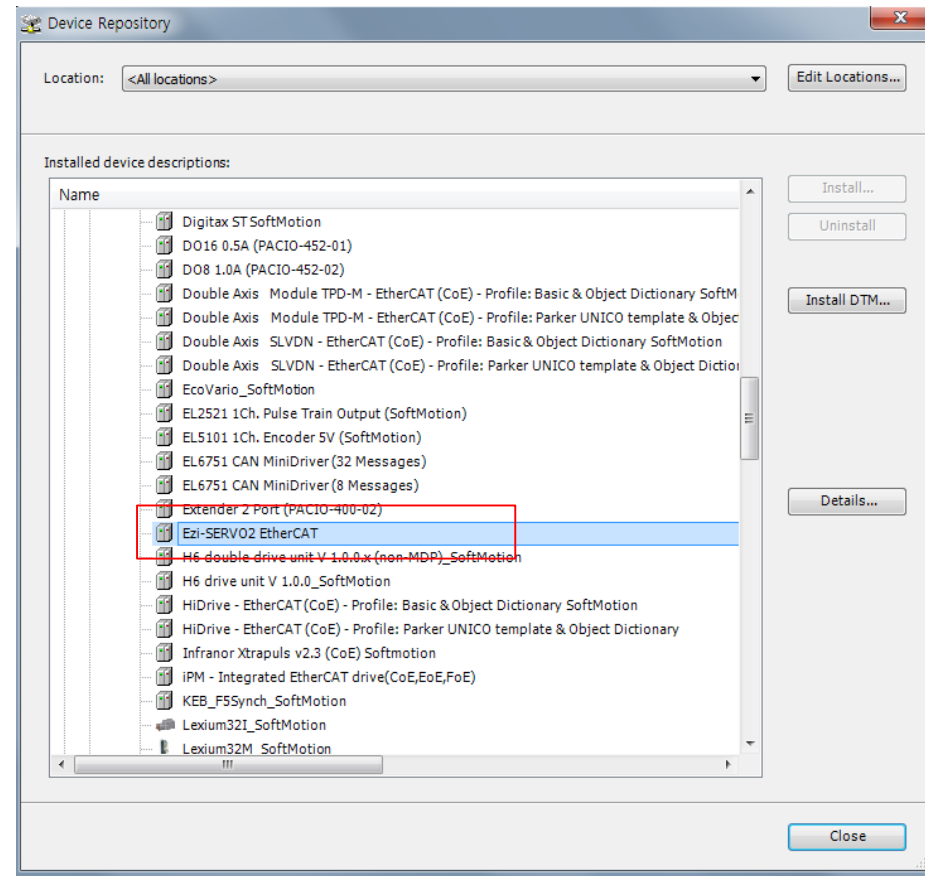
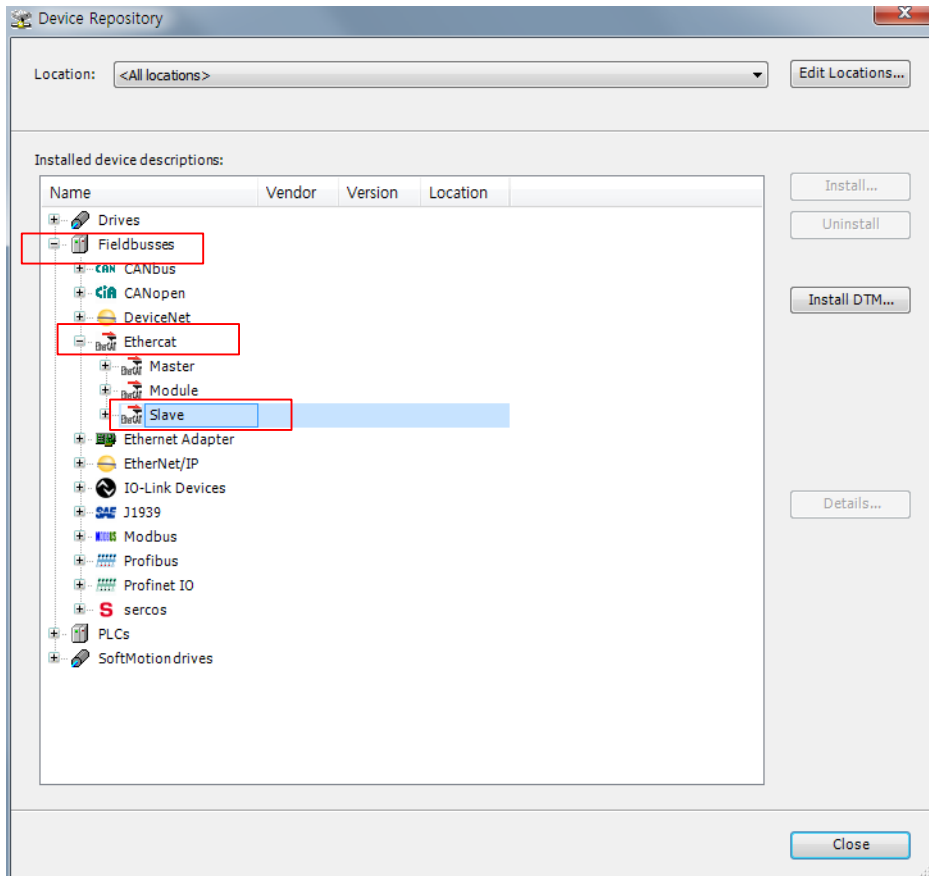
# Save ESI(XML) file

- Then you can see XML file is saved as below



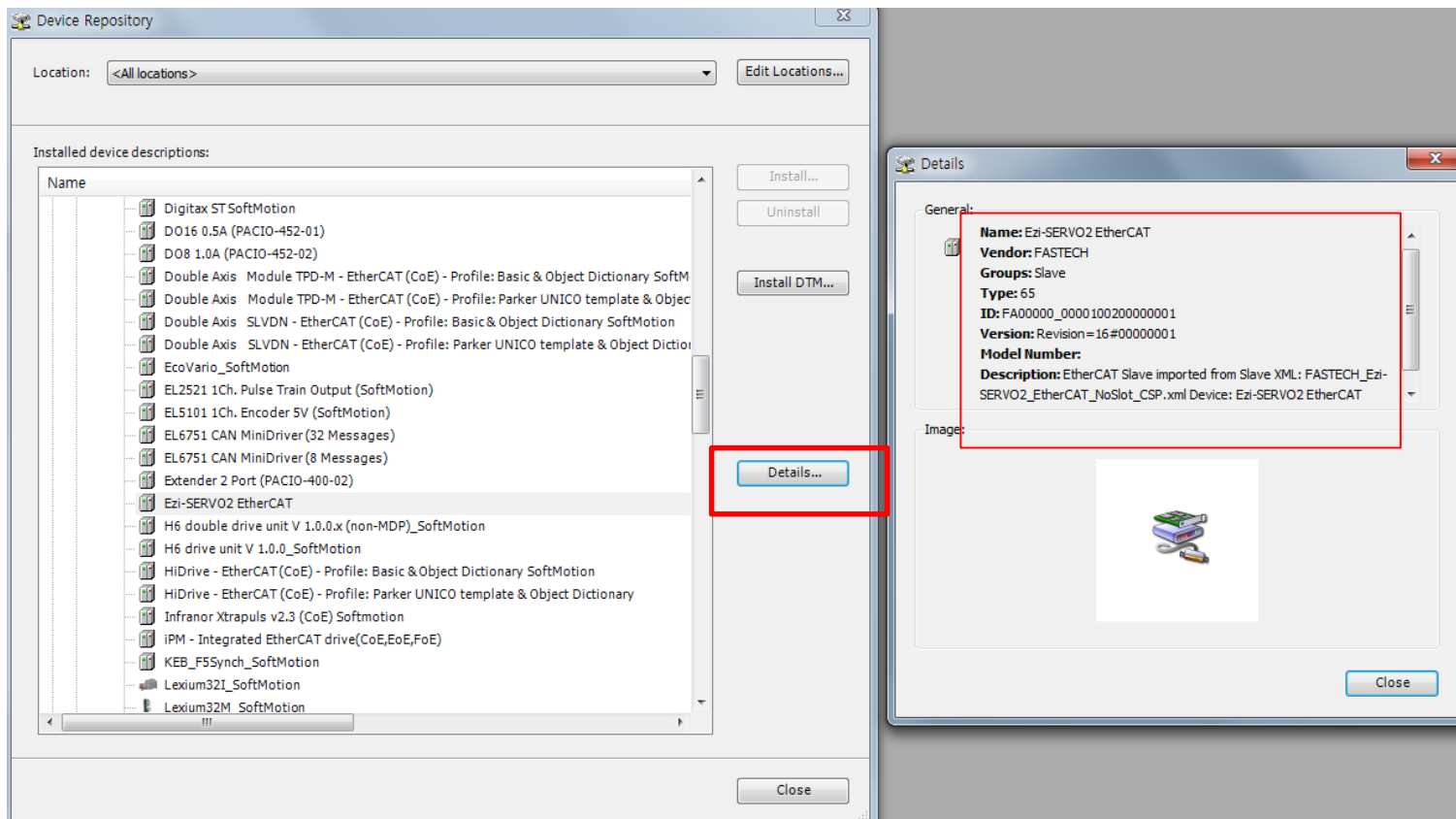
# Save ESI(XML) file

- You can check XML file path as below  
Fieldbusses – EtherCAT – Slave – Ezi-SERVO II EtherCAT



# Save ESI(XML) file

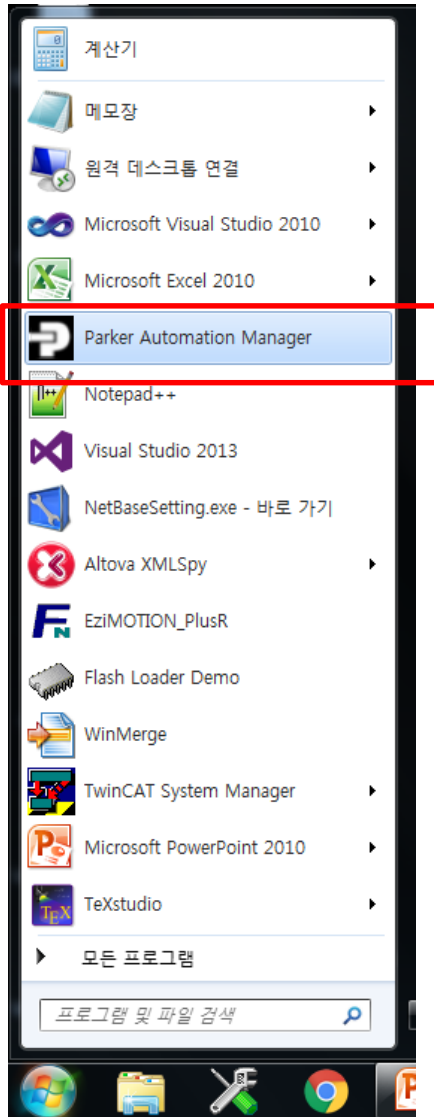
- You can see the detailed information of file when click “Details” as below





# Creating a new PAC project

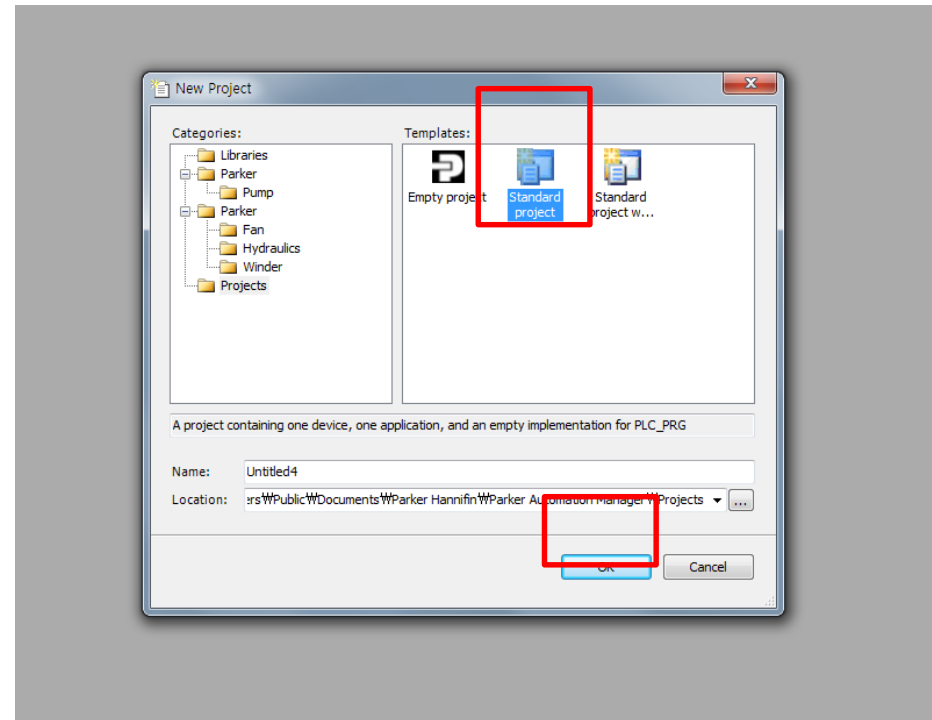
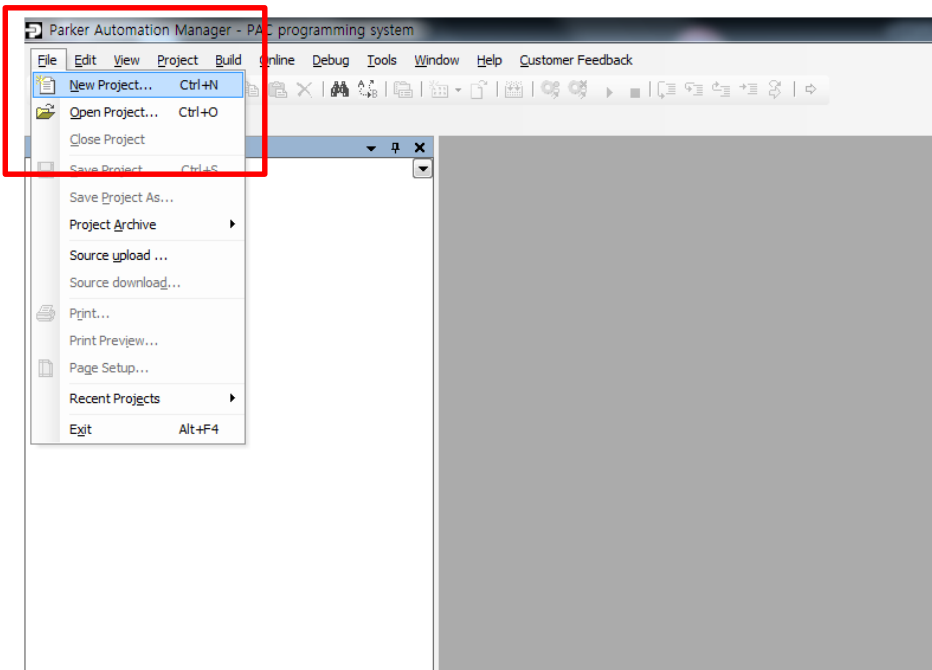
## Launch the Parker Automation Manager Software



# Creating a new PAC project

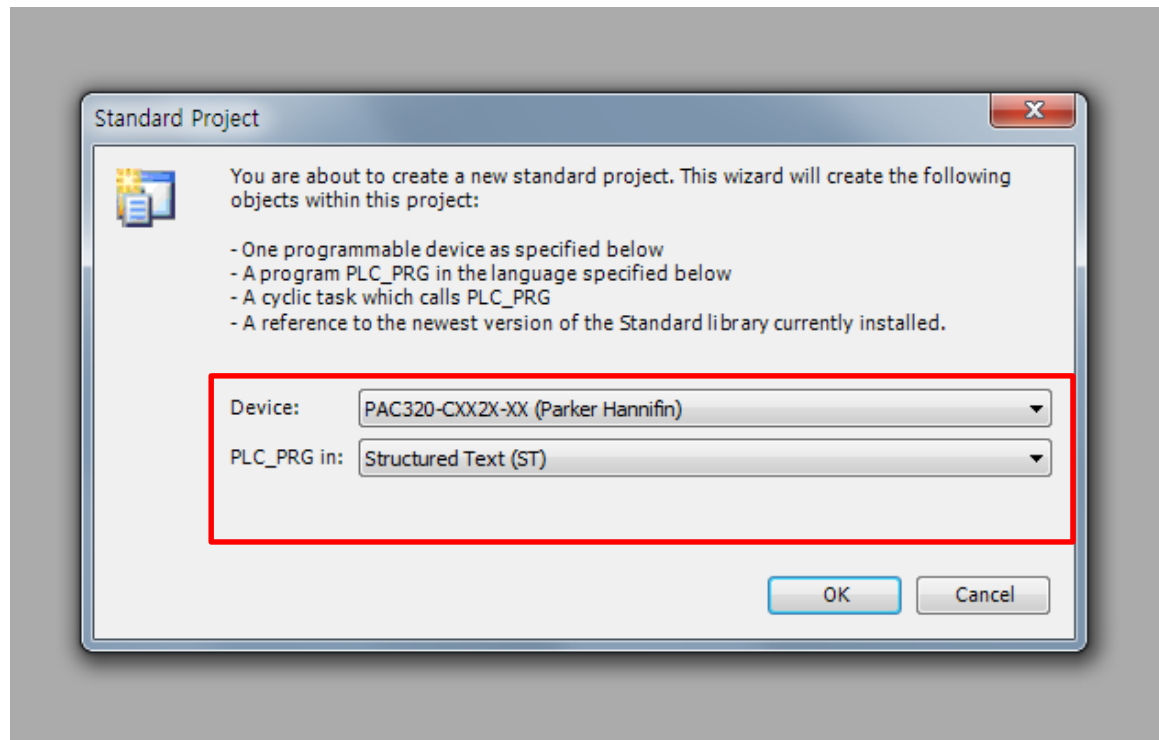
Choose File – “New Project”

Choose “Standard project” and name your project. Click OK.



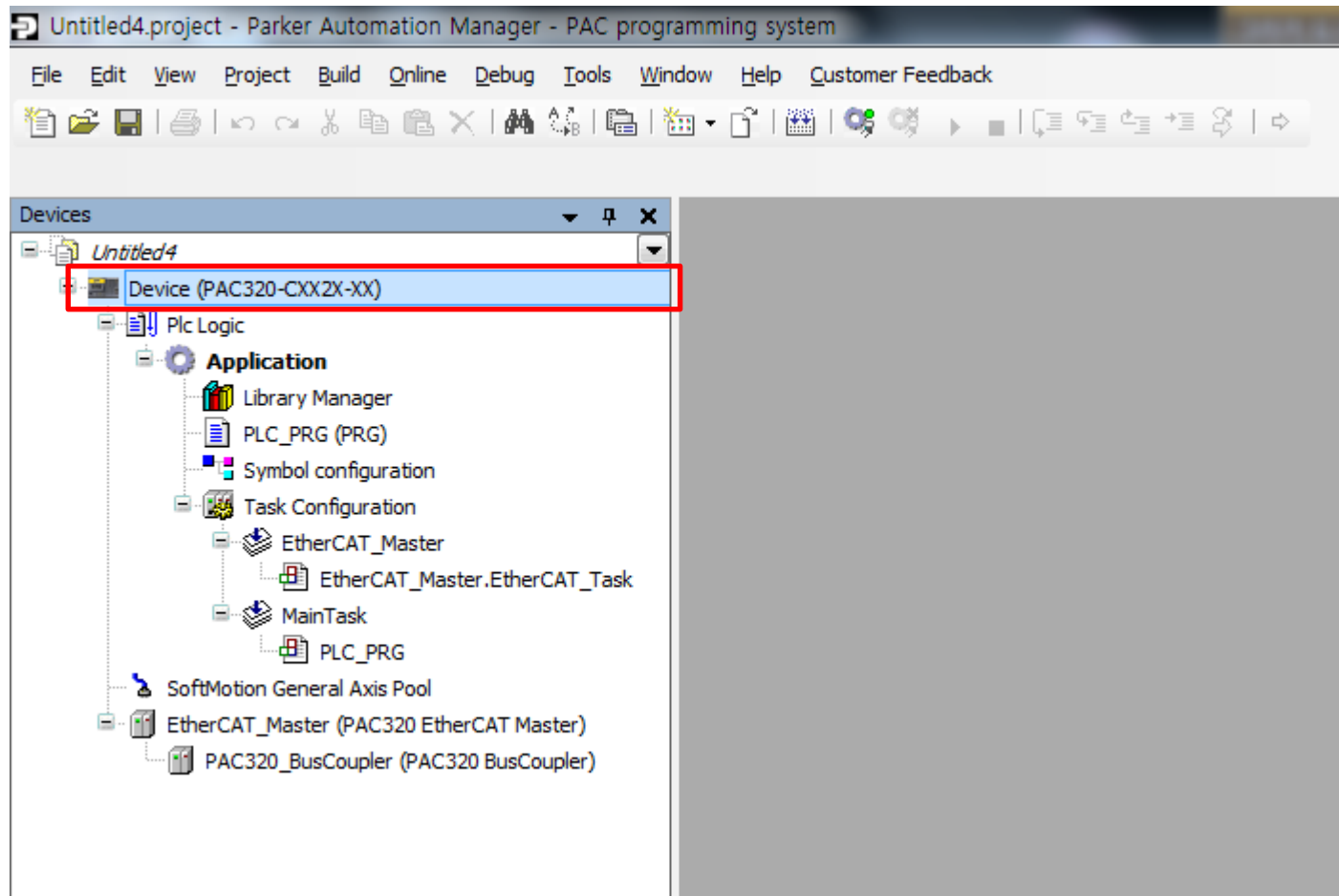
# Creating a new PAC project

Choose the appropriate PAC320 device as below. Choose OK.



# Connection to the PAC

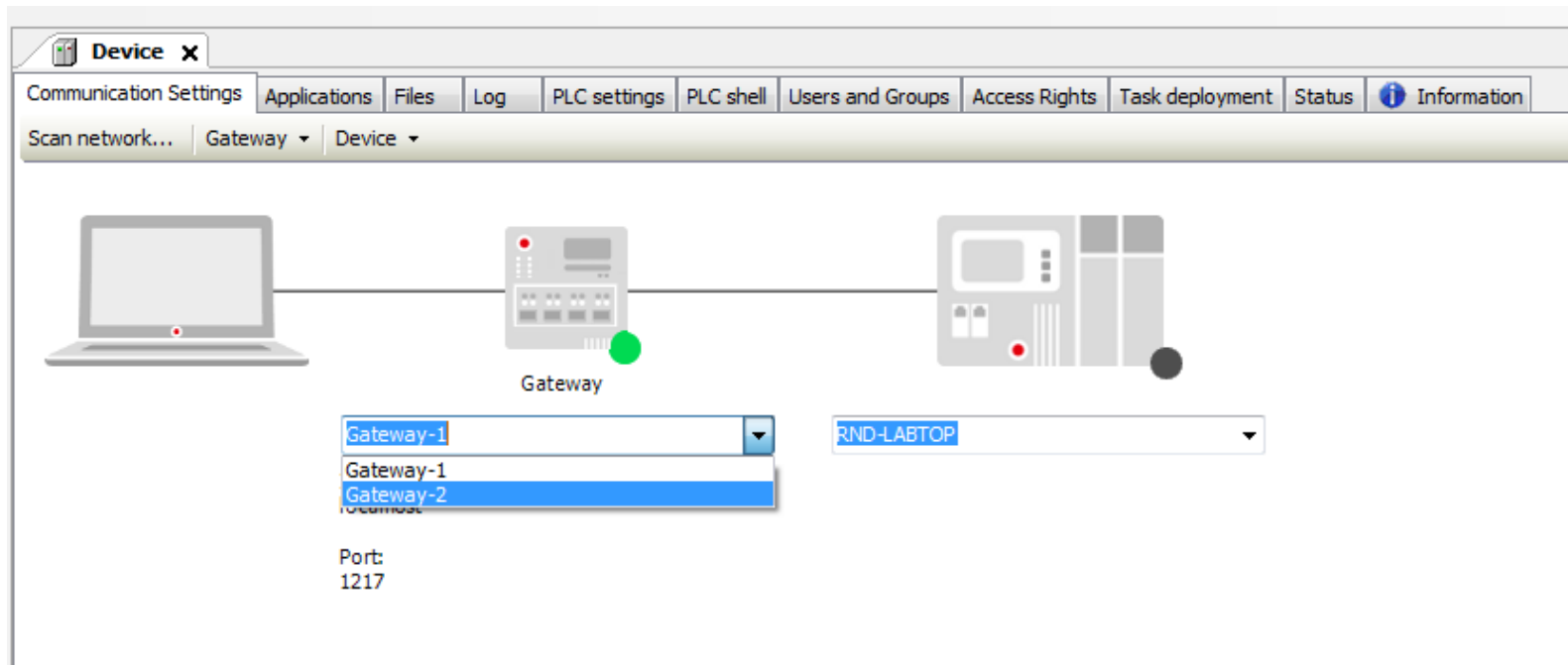
Double click on "Device (PAC320-CXX2X-XX). "



# Connection to the PAC

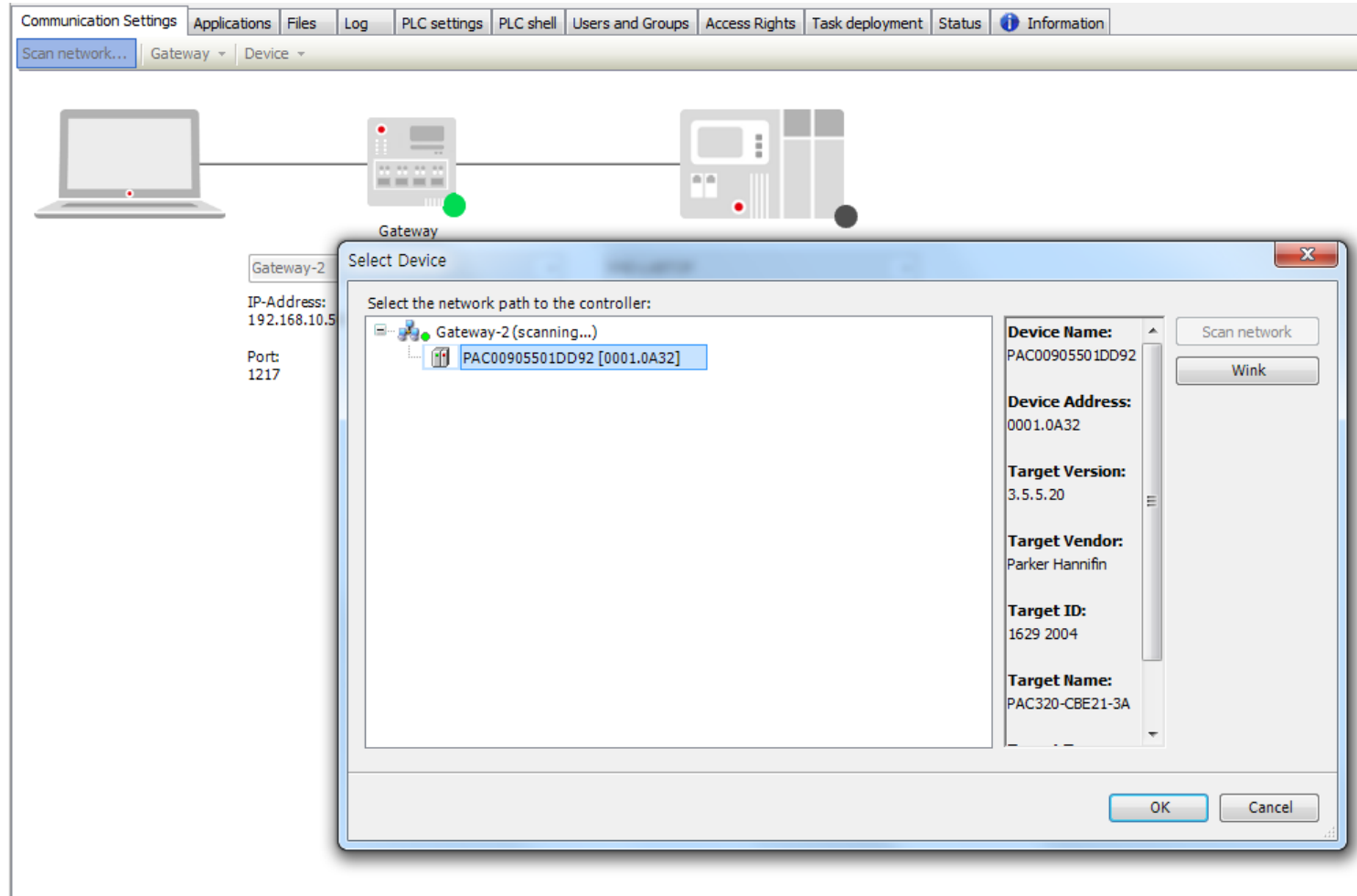
## Choose Gateway-2 as below

(You can see the green dot if connection is OK. If not, please check the cable is connected well. )



# Connection to the PAC

Select "Scan network". After scanning process finds the PAC, select the PAC and click OK.



# Connection to the PAC

- The Green dot on the device indicates that the device was found and you are now connected to the PAC.

The screenshot displays the 'Device' window in the EZI-SERVO software. The window has a menu bar with options: Communication Settings, Applications, Files, Log, PLC settings, PLC shell, Users and Groups, Access Rights, Task deployment, Status, and Information. Below the menu bar is a toolbar with 'Scan network...', 'Gateway', and 'Device' buttons. The main area shows a network diagram with a laptop on the left, a 'Gateway' device in the middle, and a PAC device on the right. Both the Gateway and PAC device have a green dot, indicating they are connected. Below the diagram, the 'Gateway' dropdown is set to 'Gateway-2' with an IP-Address of 192.168.10.50 and Port 1217. The 'Device' dropdown is set to '[0001.0A32] (active)'. The device details are as follows:

IP-Address:	192.168.10.50	Device Name:	PAC00905501DD92
Port:	1217	Device Address:	0001.0A32
		Target ID:	1629 2004
		Target Type:	4102
		Target Vendor:	Parker Hannifin
		Target Version:	3.5.5.20

# Configure EtherCAT\_Master Node

Double click the EtherCAT\_Master node (PAC320 EtherCAT Master)

The screenshot displays the software interface for configuring an EtherCAT Master node. On the left, the 'Devices' pane shows a project tree for 'Untitled4'. The tree includes a 'Device (PAC320-CXX2X-XX)' containing 'Plc Logic', an 'Application' folder, and 'EtherCAT\_Master (PAC320 EtherCAT Master)'. The 'EtherCAT\_Master' node is highlighted with a blue selection bar, and a red box highlights the 'PLC\_PRG' node under the 'Application' folder.

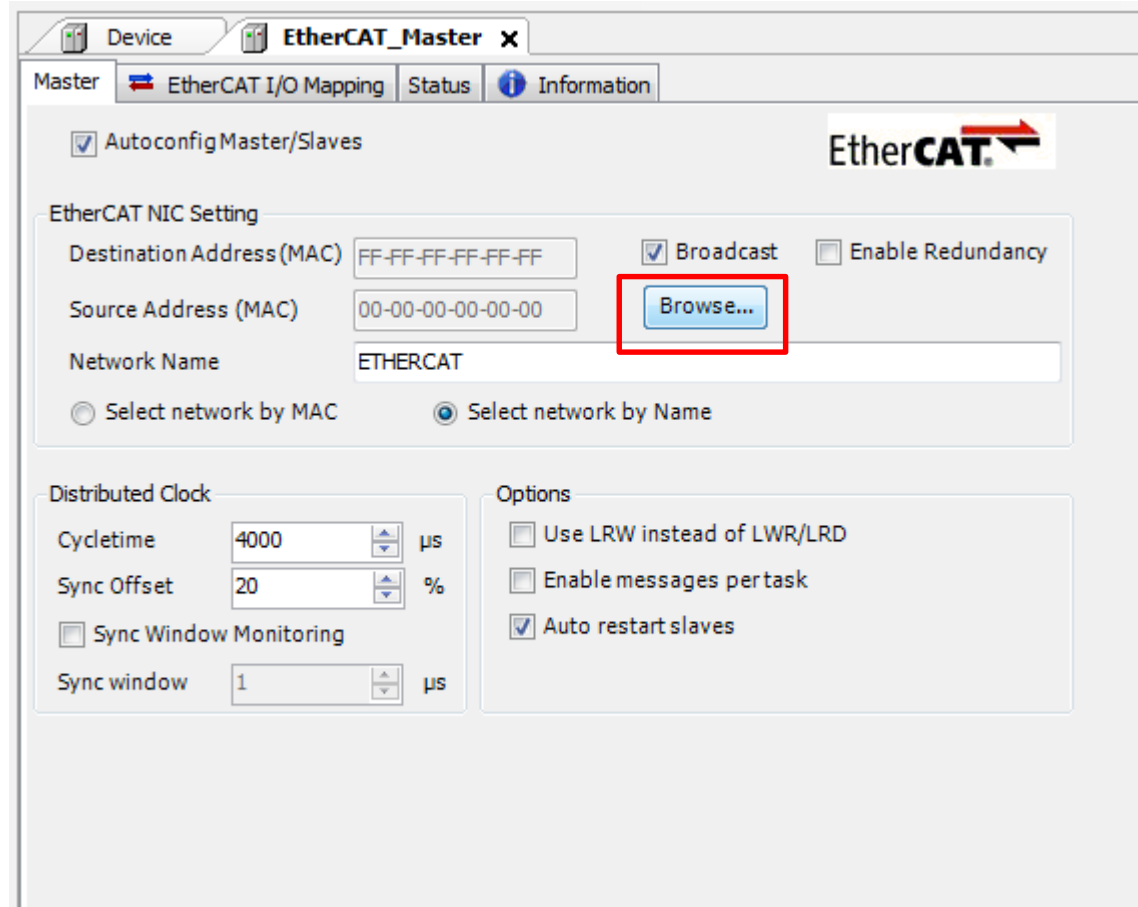
The right pane, titled 'Device X', shows a network diagram with a laptop connected to a 'Gateway' (PAC320 BusCoupler), which is connected to an EtherCAT Master node. Below the diagram, the configuration details for 'Gateway-2' are displayed:

Gateway-2	[0001.0A32] (active)
IP-Address: 192.168.10.50	Device Name: PAC00905501DD92
Port: 1217	Device Address: 0001.0A32
	Target ID: 1629 2004
	Target Type: 4102
	Target Vendor: Parker Hannifin
	Target Version: 3.5.5.20



# Configure EtherCAT\_Master Node


Choose "Browser"



Device EtherCAT\_Master x

Master EtherCAT I/O Mapping Status Information

Autoconfig Master/Slaves

EtherCAT 

EtherCAT NIC Setting

Destination Address (MAC) FF-FF-FF-FF-FF-FF  Broadcast  Enable Redundancy

Source Address (MAC) 00-00-00-00-00-00 **Browse...**

Network Name ETHERCAT

Select network by MAC  Select network by Name

Distributed Clock

Cycletime 4000  $\mu$ s

Sync Offset 20 %

Sync Window Monitoring

Sync window 1  $\mu$ s

Options

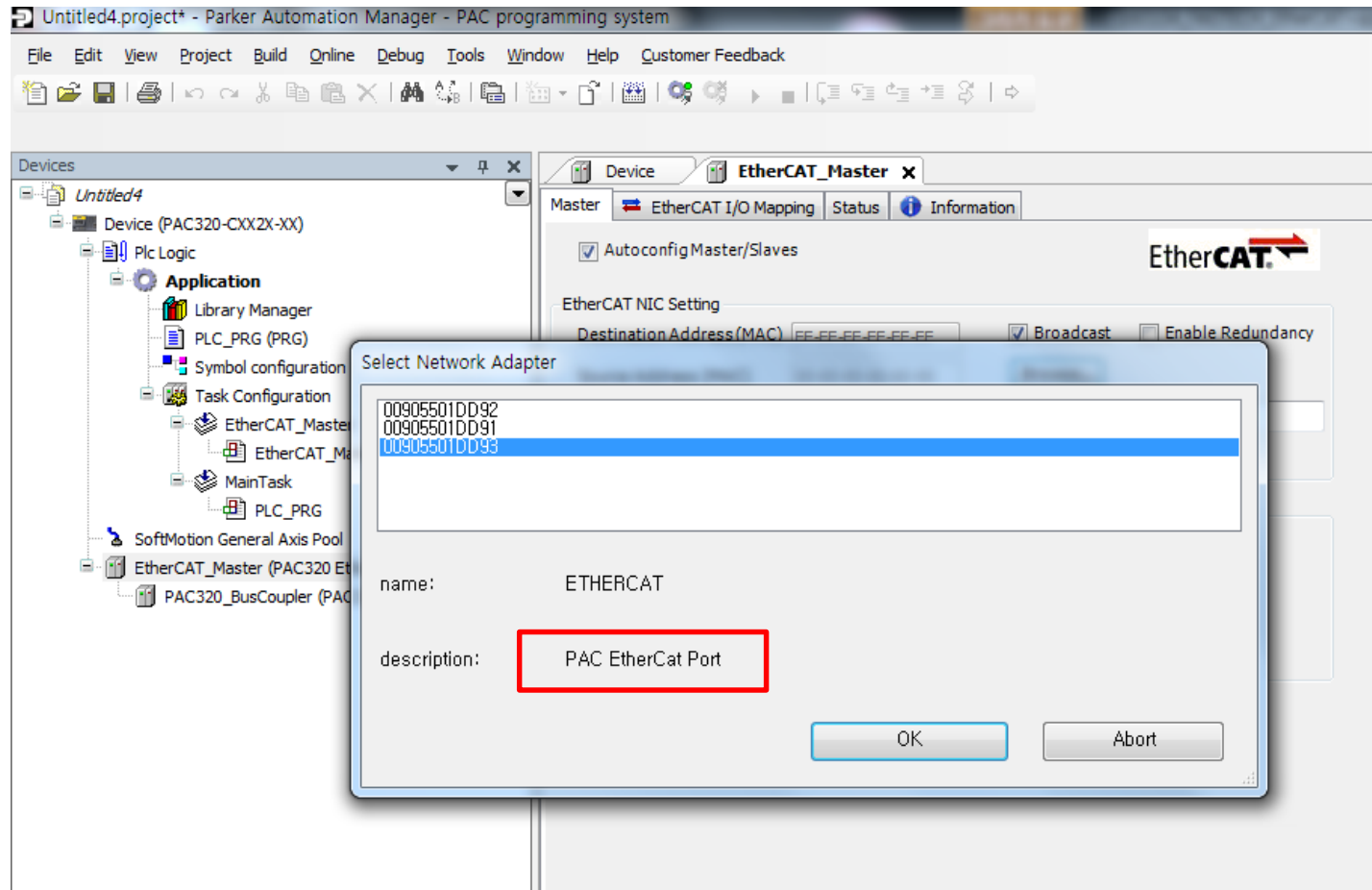
Use LRW instead of LWR/LRD

Enable messages per task

Auto restart slaves

# Configure EtherCAT\_Master Node

Choose 00905501DD93 (PAC EtherCAT Port). Click OK



# Configure EtherCAT\_Master Node

- Change the Distributed Clock Cycle time to 1000 (1000 usec is a reasonable starting point.)

The screenshot shows the configuration window for an EtherCAT Master node. The 'Distributed Clock' section has the 'Cycletime' dropdown menu set to 4000  $\mu\text{s}$ . Other settings include 'Sync Offset' at 20% and 'Sync window' at 1  $\mu\text{s}$ . The 'Options' section has 'Auto restart slaves' checked.

This screenshot shows the same configuration window as the previous one, but with the 'Cycletime' dropdown menu in the 'Distributed Clock' section changed to 1000  $\mu\text{s}$ . This change is highlighted with a red rectangular box. All other settings remain the same.

# Configure the EtherCAT\_Master Task

Double click on "EtherCAT\_Master"

The screenshot displays the Parker Automation Manager interface. On the left, the 'Devices' tree shows a project named 'Untitled4'. Under 'Device (PAC320-CXX2X-XX)', there is a folder for 'Plc Logic' containing an 'Application' folder. Inside 'Application', the 'Task Configuration' folder is expanded, and the 'EtherCAT\_Master' task is highlighted with a red rectangle. Below it, 'EtherCAT\_Master.EtherCAT\_Task' is also visible. The main window shows the configuration for the 'EtherCAT\_Master' task. The 'EtherCAT I/O Mapping' tab is active. The 'AutoconfigMaster/Slaves' checkbox is checked. The 'EtherCAT NIC Setting' section includes: 'Destination Address (MAC)' set to 'FF-FF-FF-FF-FF-FF', 'Source Address (MAC)' set to '00-90-55-01-DD-93', and 'Network Name' set to 'ETHERCAT'. The 'Broadcast' checkbox is checked, and 'Enable Redundancy' is unchecked. The 'Select network by Name' radio button is selected. The 'Distributed Clock' section shows 'Cycletime' at 1000 µs, 'Sync Offset' at 20 %, and 'Sync window' at 1 µs. The 'Options' section has 'Auto restart slaves' checked, while 'Use LRW instead of LWR/LRD' and 'Enable messages per task' are unchecked.

# Configure the EtherCAT\_Master Task

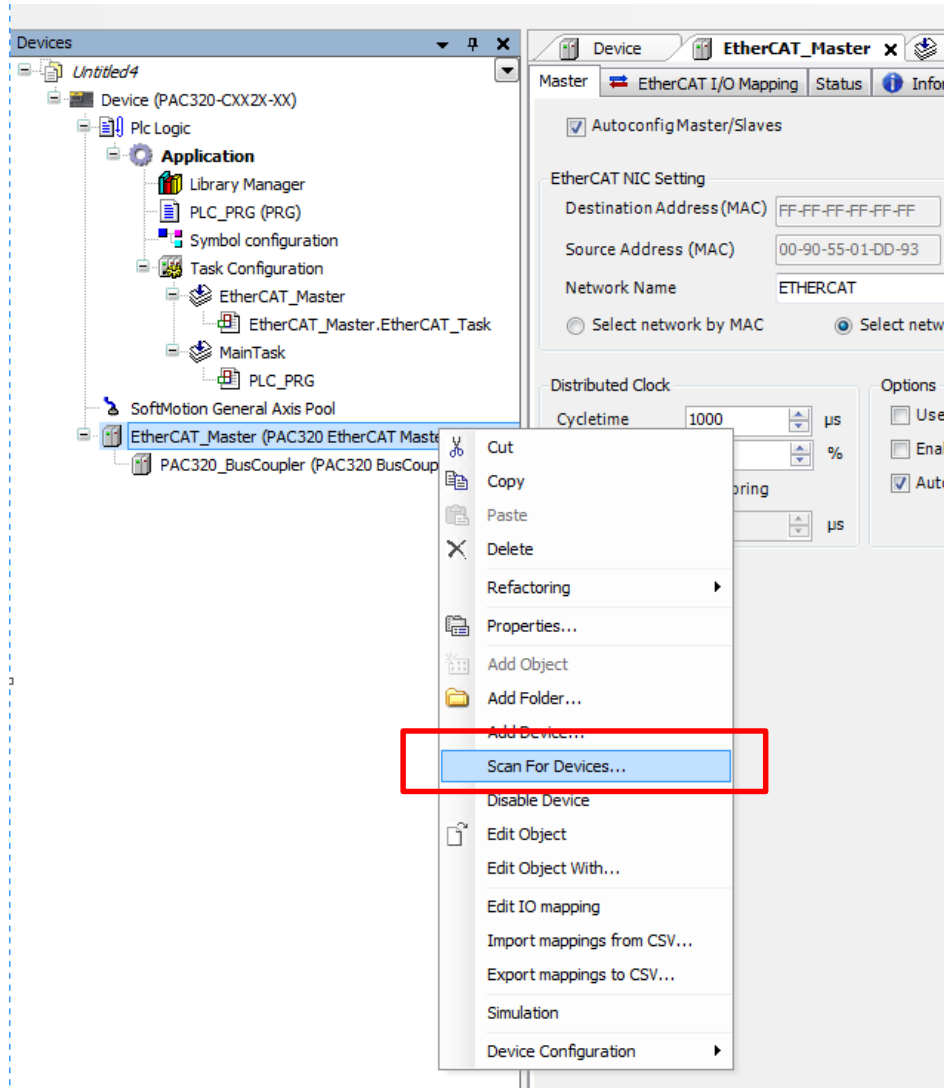
## Set the Type to External

The screenshot displays the Parker Automation Manager software interface. The title bar reads "Untitled4.project\* - Parker Automation Manager - PAC programming system". The menu bar includes "File", "Edit", "View", "Project", "Build", "Online", "Debug", "Tools", "Window", "Help", and "Customer Feedback". The toolbar contains various icons for file operations and execution. The "Devices" tree on the left shows a project structure with "EtherCAT\_Master" selected. The main configuration area shows the "EtherCAT\_Master" configuration page. The "Type" dropdown menu is open, with "External" highlighted and enclosed in a red box. Other configuration fields include "Priority ( 0..31 )" set to 0, "Interval (e.g. t#200ms)" set to 1000, "Time (e.g. t#200ms)", and "Sensitivity". At the bottom, there are buttons for "Add Call", "Remove Call", "Change Call", "Move Up", "Move Down", and "Open POU". A table below shows the POU configuration:

POU	Comment
EtherCAT_Master.EtherCAT_Task	EtherCAT_Master.EtherCAT_Task

# Scan for Devices

- Right-click on “EtherCAT\_Master [PAC320 EtherCAT Master] and select “Scan for Devices...”



# Scan for Devices

A list of connected EtherCAT slaves will be displayed and then click the "Copy all devices to project"

Scan Devices

Scanned devices

Devicename	Devicetype	Alias Address
Attention! The device was not found in the repository	Vendorcode: 0xFA00000, Productcode: 0x119800, Revision: ...	
Attention! The device was not found in the repository	Vendorcode: 0xFA00000, Productcode: 0x119800, Revision: ...	
PAC320_BusCoupler	PAC320 BusCoupler	0
Ezi_SERVO2_EtherCAT	Ezi-SERVO2 EtherCAT	0
Attention! The device was not found in the repository	Vendorcode: 0xFA00000, Productcode: 0x119800, Revision: ...	
Ezi_SERVO2_EtherCAT	Ezi-SERVO2 EtherCAT	0
Attention! The device was not found in the repository	Vendorcode: 0xFA00000, Productcode: 0x119800, Revision: ...	

Assign Address

show differences to project

Scan Devices

Copy all devices to project

Close

# Scan for Devices

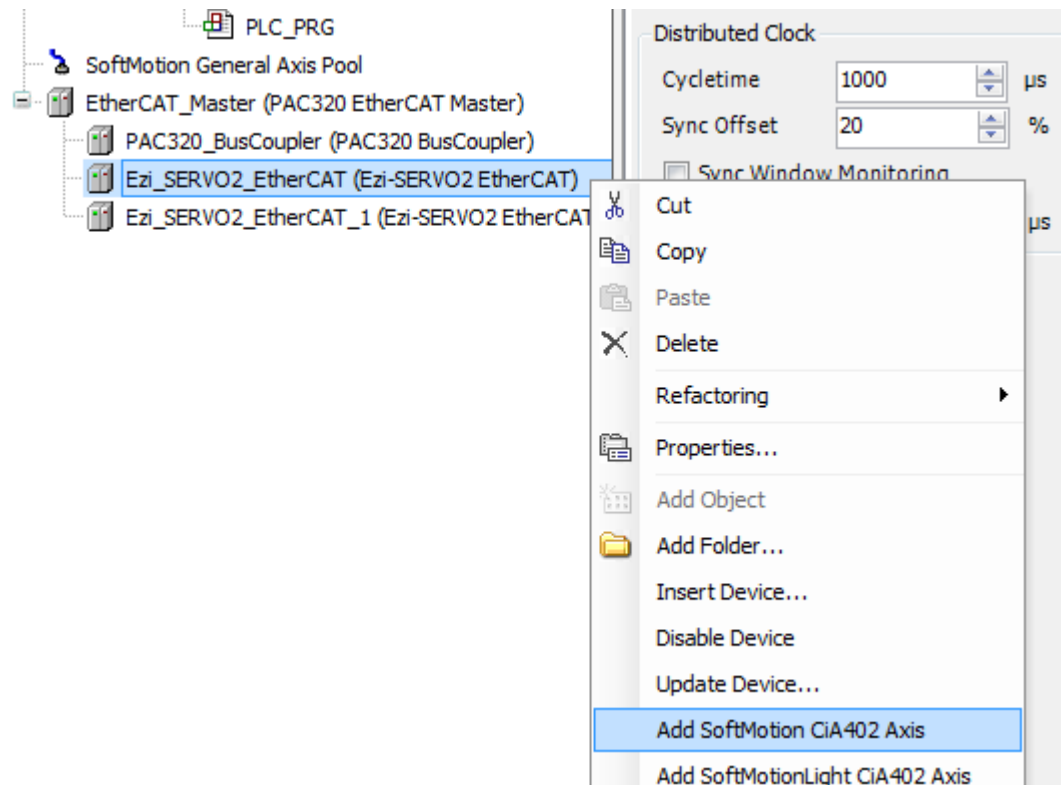
Right click on the PAC320\_BusCoupler\_1 (PAC320 BusCoupler) and choose the Delete

The screenshot displays the Parker Automation Manager interface. On the left, the 'Devices' tree shows a project named 'Untitled4' containing a 'Device (PAC320-CXX2X-XX)'. Underneath, there is 'Plc Logic' and an 'Application' folder. The 'Application' folder contains 'Library Manager', 'PLC\_PRG (PRG)', 'Symbol configuration', 'Task Configuration', 'EtherCAT\_Master', 'EtherCAT\_Master.EtherCAT\_Task', and 'MainTask'. Below the application is a 'SoftMotion General Axis Pool' containing 'EtherCAT\_Master (PAC320 EtherCAT Master)', 'PAC320\_BusCoupler (PAC320 BusCoupler)', 'PAC320\_BusCoupler\_1 (PAC320 BusCoupler)', 'Ezi\_SERVO2\_EtherCAT (Ezi-SERVO2 EtherCAT)', and 'Ezi\_SERVO2\_EtherCAT\_1 (Ezi-SERVO2 EtherCAT)'. The 'PAC320\_BusCoupler\_1' device is highlighted with a red box. On the right, the 'EtherCAT\_Master' configuration panel is visible, showing settings for 'EtherCAT I/O Mapping', 'Autoconfig Master/Slaves', 'EtherCAT NIC Setting' (Destination Address: FF-FF-FF-FF, Source Address: 00-90-55-01, Network Name: ETHERCAT), and 'Distributed Clock' (Cycletime: 1000 µs, Sync Offset: 20%). A context menu is open over the 'PAC320\_BusCoupler\_1' device, with the 'Delete' option highlighted by a red box.



# Add device

Right-click on the Ezi\_SERVO2\_EtherCAT and choose Add Softmotion CiA 402 Axis



# Add device

Then SM\_Drive\_Generic axis is created.

The screenshot displays the Parker Automation Manager interface for configuring an EtherCAT Master. The left-hand 'Devices' tree shows a project structure with an 'EtherCAT\_Master' task. A red box highlights the 'SM\_Drive\_GenericDSP402 (SM\_Drive\_Generic)' device being added to the 'EtherCAT\_Master.EtherCAT\_Task'.

The right-hand pane shows the configuration for the 'EtherCAT\_Master' task, with the 'EtherCAT I/O Mapping' tab selected. The 'AutoconfigMaster/Slaves' checkbox is checked. The 'EtherCAT NIC Setting' section includes:

- Destination Address (MAC): FF-FF-FF-FF-FF-FF
- Source Address (MAC): 00-90-55-01-DD-93
- Network Name: ETHERCAT
- Options:  Broadcast,  Enable Redundancy
- Network Selection:  Select network by MAC,  Select network by Name

The 'Distributed Clock' section includes:

- Cycletime: 1000  $\mu$ s
- Sync Offset: 20 %
- Sync Window Monitoring:
- Sync window: 1  $\mu$ s

The 'Options' section includes:

- Use LRW instead of LWR/LRD
- Enable messages per task
- Auto restart slaves

# Add device

Right-click on Ezi-SERVO2\_EtherCAT\_1 and choose Add Softmotion CiA 402 Axis then SM\_Drive\_Generic axis is created same as before.

The screenshot displays the Parker Automation Manager interface. On the left, the 'Devices' tree shows a project structure with 'Ezi\_SERVO2\_EtherCAT\_1' selected and highlighted in blue. A red box highlights the 'SM\_Drive\_GenericDSP402\_1' device being added to the project. The right pane shows the configuration for the selected 'EtherCAT\_Master' device, including 'EtherCAT I/O Mapping', 'Status', and 'Information' tabs. The 'EtherCAT I/O Mapping' tab is active, showing settings for 'Autoconfig Master/Slaves', 'EtherCAT NIC Setting', 'Distributed Clock', and 'Options'. The 'EtherCAT NIC Setting' section includes fields for 'Destination Address (MAC)', 'Source Address (MAC)', and 'Network Name'. The 'Distributed Clock' section includes 'Cycletime', 'Sync Offset', and 'Sync window'. The 'Options' section includes 'Use LRW instead of LWR/LRD', 'Enable messages per task', and 'Auto restart slaves'.

Untitled4.project\* - Parker Automation Manager - PAC programming system

File Edit View Project Build Online Debug Tools Window Help Customer Feedback

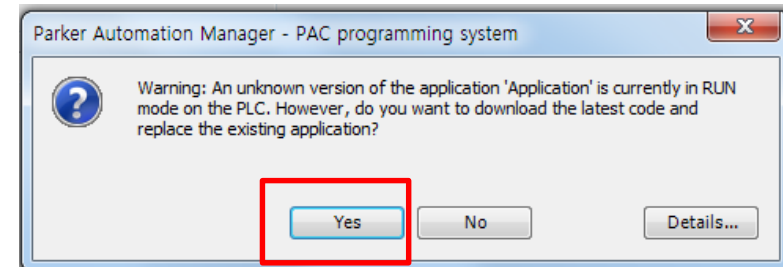
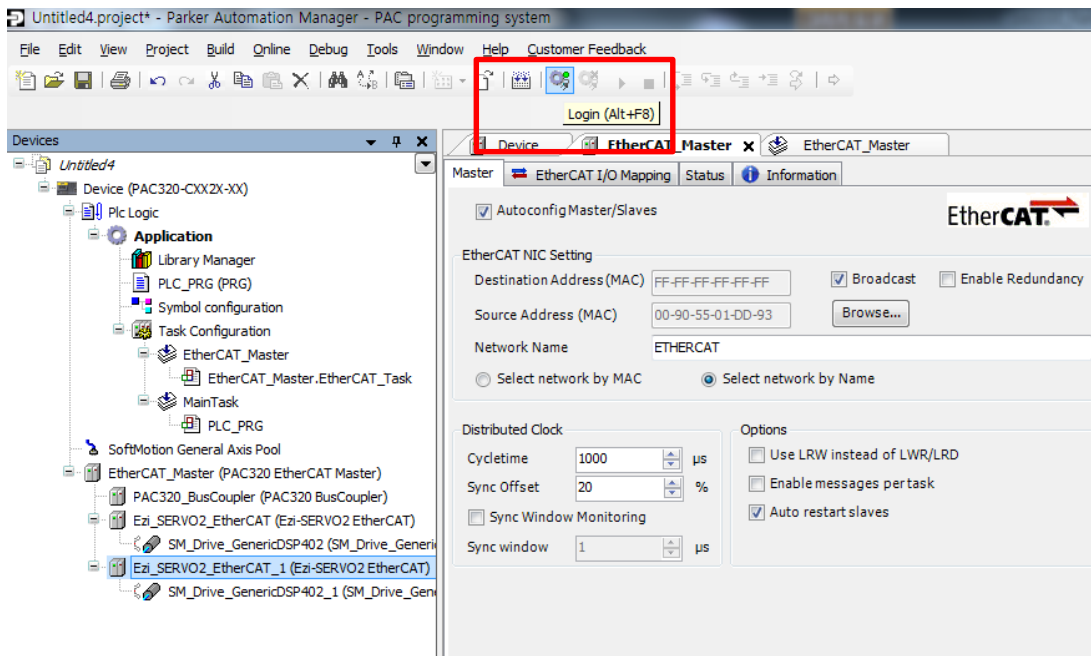
Devices

Untitled4

- Device (PAC320-CXX2X-XX)
  - Plc Logic
    - Application
      - Library Manager
      - PLC\_PRG (PRG)
      - Symbol configuration
      - Task Configuration
        - EtherCAT\_Master
          - EtherCAT\_Master.EtherCAT\_Task
        - MainTask
          - PLC\_PRG
- SoftMotion General Axis Pool
  - EtherCAT\_Master (PAC320 EtherCAT Master)
    - PAC320\_BusCoupler (PAC320 BusCoupler)
      - Ezi\_SERVO2\_EtherCAT (Ezi-SERVO2 EtherCAT)
        - SM\_Drive\_GenericDSP402 (SM\_Drive\_Generic)
        - Ezi\_SERVO2\_EtherCAT\_1 (Ezi-SERVO2 EtherCAT)**
          - SM\_Drive\_GenericDSP402\_1 (SM\_Drive\_Generic)**

# Login

Select the Login Icon on the Toolbar and click Yes



# Login

You can see the below will show up on your device tree

The screenshot displays the Parker Automation Manager software interface. The main window is titled "EtherCAT\_Master" and shows the configuration for an EtherCAT network. The left pane shows the "Devices" tree, with a red box highlighting the "EtherCAT\_Master" node and its sub-nodes: "EtherCAT\_Master (PAC320 EtherCAT Master)", "PAC320\_BusCoupler (PAC320 BusCoupler)", "Ezi\_SERVO2\_EtherCAT (Ezi-SERVO2 EtherCAT)", "SM\_Drive\_GeneriDSP402 (SM\_Drive\_Ge)", and "Ezi\_SERVO2\_EtherCAT\_1 (Ezi-SERVO2 EtherC)".

The right pane shows the "EtherCAT" configuration settings:

- EtherCAT NIC Setting:** Destination Address (MAC) FF-FF-FF-FF-FF-FF, Source Address (MAC) 00-90-55-01-DD-93, Network Name ETHERCAT.
- Distributed Clock:** Cycletime 1000 µs, Sync Offset 20 %, Sync window 1 µs.
- Options:** Use LRW instead of LWR/LRD, Enable messages per task, Auto restart slaves.
- Diagnostics Message:** Bus load: 0 %.

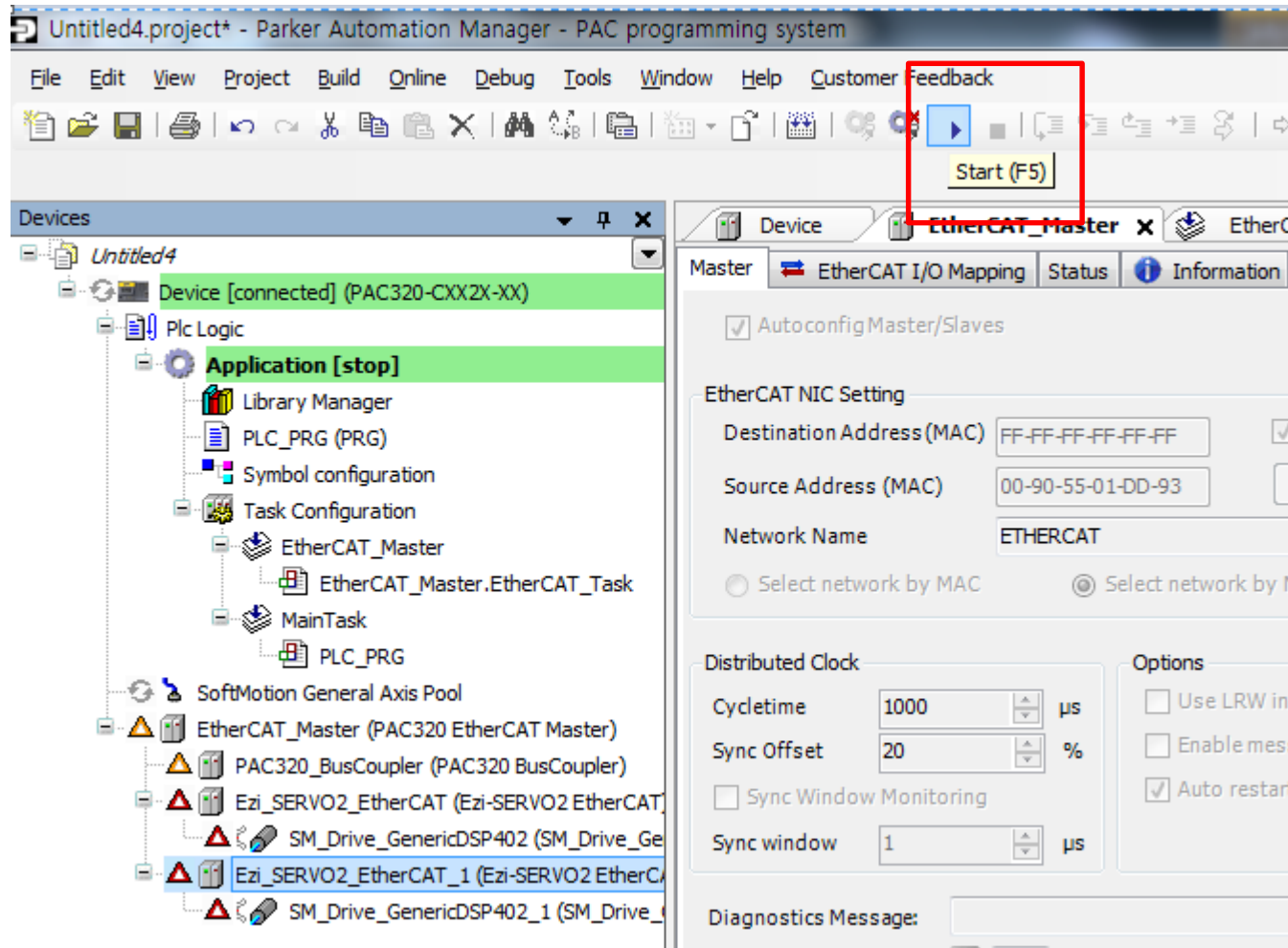
The bottom pane shows the "Messages" window with a summary of build results:

- Build: 0 error(s), 0 warning(s), 5 message(s)
- Description: generate code..., generate global initializations ..., generate code initialization ..., generate relocations ...
- Size of generated code: 558710 bytes
- Size of global data: 177890 bytes
- Total allocated memory size for code and data: 721536 bytes
- Memory area 0 contains Data, Input, Output, Memory and Code:...
- Memory area 1 contains Retain Data and Persistent Data: largest...
- Build complete -- 0 errors, 0 warnings : ready for download!

The status bar at the bottom indicates: Last build: 0 errors, 0 warnings, Precompile: ✓, STOP, Program loaded, Program unchanged, Current user: (nobody).

# Start

- Select the Start Icon on the Toolbar



# Start

The Green dot on the device indicates that you are now ready to run EtherCAT slave.

The screenshot displays the Parker Automation Manager interface. On the left, the 'Devices' tree shows a project named 'Untitled4' with a 'Device [connected] (PAC320-CXX2X-XX)' highlighted in green. Below it, the 'Application [run]' is expanded, showing various components like 'Library Manager', 'PLC\_PRG (PRG)', 'Symbol configuration', 'Task Configuration', 'EtherCAT\_Master', 'MainTask', 'PLC\_PRG', 'SoftMotion General Axis Pool', 'EtherCAT\_Master (PAC320 EtherCAT Master)', 'PAC320\_BusCoupler (PAC320 BusCoupler)', 'Ezi\_SERVO2\_EtherCAT (Ezi-SERVO2 EtherCAT)', 'SM\_Drive\_GenericDSP402 (SM\_Drive\_Ge', and 'Ezi\_SERVO2\_EtherCAT\_1 (Ezi-SERVO2 EtherC'. A red box highlights the 'Device [connected]' and its sub-tree.

The right pane shows the 'EtherCAT\_Master' configuration window. The 'EtherCAT I/O Mapping' tab is active. The 'Autoconfig Master/Slaves' checkbox is checked. The 'EtherCAT NIC Setting' section includes: Destination Address (MAC) FF-FF-FF-FF-FF-FF, Source Address (MAC) 00-90-55-01-DD-93, and Network Name ETHERCAT. The 'Distributed Clock' section shows Cycletime 1000 µs, Sync Offset 20 %, and Sync window 1 µs. The 'Options' section has 'Auto restart slaves' checked. The 'Diagnostics Message' field displays 'All slaves done !' and the 'Bus load' is 1 %.

**We are a pioneer changing  
the history of step motor !!**



*Fast, Accurate, Smooth Motion Control*