

CX-Compolet

with SYSMAC Gateway Runtime

Installation Guide

1. Introduction

Thank you for purchasing the CX-Compolet with SYSMAC Gateway Runtime Edition. This guide gives a description of CX-Compolet and SYSMAC Gateway Runtime installation. SYSMAC Gateway Runtime is communications middleware for CX-Compolet. Read this guide thoroughly to understand the instruction before using the product.

CX-Compolet is a computer software component that provides easy operation of a SYSMAC C/CV/CS/CJ/NE1S/NJ/NX-series PLC (Programmable Logic Controller) from a computer. Using CX-Compolet enables the development of user applications to operate SYSMAC C/CV/CS/CJ/NE1S/NJ/NX-series PLCs connected to the computer.

This product provides SYSMAC Compolet, which enables an intuitive interface for operating the PLC from user applications; SYSMAC Gateway Compolet, which provides programming with tag name, and FinsGateway Compolet, which provides FinsGateway Event Memory access and flexible support for communications applications; and FinsGateway Class Library.

In this product SYSMAC Gateway Runtime is also included. So with CX-Compolet and SYSMAC Gateway Runtime you can develop your application and execute the application on the SYSMAC Gateway middleware environment.

In this manual, these products are collectively called "Compolet".

1.1. Components

This package includes the following components. Please confirm that all the components are included in the package. (This installation document is not included.)

- Product Guide
- Setup Disk
- Software License Agreement
- User Registration Card (Japanese)
- User Registration Card (English)
- Mailing Label

1.2. Conditions of Use

Read the Conditions of Use (separate document) thoroughly to confirm agreement before using the product.

You also need to agree the following Conditions of use.

- You must execute adequate test for your application to the start of operations
- The sample programs in this product only show how to use the function in your application. These sample programs are not guaranteed the application quality. When you have to design and include error handling for your application and execute adequate system testing.
- When you change the values of PLC/PC's memories and variables you must confirm that the change may not affect to the unexpected result.
- If the properties and settings are not correct or not enough then the application or equipment may not work correctly. You have to execute enough system testing for your system.
- Product is neither intended nor warranted for use in equipment or systems that require extraordinarily high levels of quality and/or reliability and/or a malfunction or failure of which may cause loss of human life, bodily injury, serious property damage or serious public impact ("Unintended Use"). Unintended Use includes, without limitation, equipment used in nuclear facilities, equipment used in the aerospace industry, medical equipment, equipment used for automobiles, trains, ships and other transportation, traffic signaling equipment, equipment used to control combustions or explosions, safety devices, elevators and escalators, devices related to electric power, and equipment used in finance-related fields. Do not use Product for Unintended Use unless specifically permitted in this document.

1.3. Precautions

- When you configure tag datalink, you need to use Network Configurator. Version V3.57 or higher of Network Configurator is required.
- Network Configurator can be installed even after installation of SYSMAC Gateway Runtime. When you need Network Configurator, execute the following program to install it.
 - Folder
CD-ROOT:\NetworkConfigurator
 - File Name:
NetworkConfigurator_for_EIP_v*.**.exe (*.** is the version.)
- Windows Vista or later does not allow building sample programs which belong to the Program Files. Please move the sample programs to a user folder when you rebuild the programs.
- In Windows Vista or later, if SYSMAC Gateway USB connection is opened, the other application cannot share the USB connection. If SYSMAC Gateway or PortCompolet has opened a USB port, other applications (such as CX-Programmer and Network Configurator) will fail to open the port. Also if

some other application has opened the USB port, then SYSMSC Gateway or PortCompolet cannot open the port.

- In Windows Vista or later, a windows service named “FgwGlobalFactory” should not be stopped. In case of using names, such as tag names and memory names, you cannot stop “NameSpaceServer” service. Don’t stop these services because the functions will not work properly if they are stopped.
- SYSMAC Gateway Runtime requires .Net Framework 3.5 SP1 for program execution. If .Net Framework 3.5 SP1 is not installed, please install it using the following procedure.
 - Windows7 or later
 - ✧ Refer to 5.1.3 Installing .NET Framework 3.5 SP1.
 - Windows Vista or earlier
 - ✧ Execute the \Microsoft Redist\DotnetFramework 3.5.1\dotnetfx35.exe stored in the installation media.
- If the latest .NET Framework in your CX-Compolet development environment is .NET Framework 4.5, .NET Framework 4.5.1 or higher is required. Install it by executing
"Microsoft Redist\DotnetFramework 4.5.2\NDP452-KB2901907-x86-x64-AllOS-ENU.exe " in the setup disk.
- When using SYSMAC Gateway, log into the computer as a user with administrator rights.
- The User Account Control (UAC) Dialog Box may be displayed. Click the Yes Button to execute the program. If the display (notification) is disabled, the function may fail without the notification due to lack of rights. Confirm that you have the administrator rights.
- Depending on the firewall or antivirus software settings, the communications may not be allowed. Confirm the settings in 5.1.2. Firewall Settings.
- SYSMAC Gateway is an application running on a computer. If you often have unexpected data link establishment failures or timeouts, re-confirm the following.
 - Computer performance, CPU load, network load, and other applications
 - ✧ Check that the CPU load or network load is not extremely heavy or whether another application is not running in parallel.
 - Network card (NIC) type or driver parameter settings
 - ✧ Check whether or not the phenomenon occurs even with another network card (NIC) or whether there is any change if the driver parameters of the network card (NIC) are changed.

2. Precautions for Version Upgrading from Old Version

2.1. Tag Datalink Setting

Network Configurator is used for tag datalink settings.

The EDS files of SYSMAC Gateway are divided into Rev1 to Rev3 from V1.6.

- Rev1 : SYSMAC Gateway V1.0 to V1.2
- Rev2 : SYSMAC Gateway V1.3 to V1.5
- Rev3 : SYSMAC Gateway V1.6 or higher

Major added items in Rev2

Item	Description
Support of multiple LAN cards	When more than one LAN card exists (up to 4 cards), the appropriate LAN card is automatically selected for the destination address. The network port ID for LAN cards is 2 to 5.
Application trigger (AperiodicTrigger)	The packets can be sent by a trigger from the application. This function is called "application trigger" (AperiodicTrigger).
Datalink status acquisition	You can make datalink settings and get the status of CIP communications service using Datalink Compolet.

Major added items in Rev3

Item	Description
Increase of the connections and tag sets	The numbers of the connections and tag sets were increased from 256 to 384. The connection counting rule was changed.

2.1.1. Precautions

- **If any of the following files is used, a message like below will be displayed when device parameters are downloaded:**

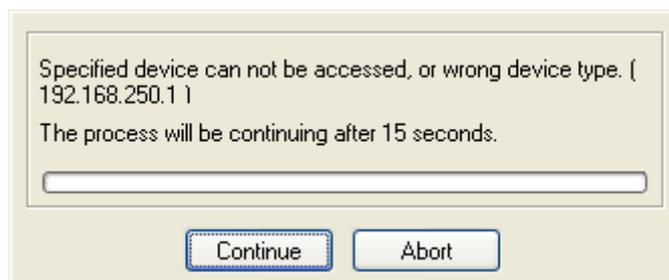
➤ File

Files created by Network Configurator lower than V3.5

Files created by Network Configurator V3.5 or higher, but using SYSMAC Gateway Rev1

Files created by Network Configurator V3.5 or higher, but using SYSMAC Gateway Rev2

➤ Message



When Rev1 or Rev2 is set, use Network Configurator V3.57 or higher and change it to Rev3 using the following procedure.

Important:

After changing the device versions registered in the Network Configurator projects from lower version to higher version, you cannot return it to the previous version. Please save the project file for back up before the change.

1. Select SYSMAC Gateway on the network window.
2. Select **Change Device** from the Device Menu. When a confirmation message is displayed, click the **Yes** Button.



3. Confirm that SYSMAC Gateway Rev3 is selected and click the **OK** Button.

2.2. Supported CPU Units

The following table shows the CX-Compolet version and Compolet type that can be used for each series of CPU Unit.

Series	CX-Compolet version	Compolet type
NX701*	Ver. 1.70 or higher	NXCompolet
NJ101	Ver. 1.70 or higher	NJCompolet
NJ301	Ver. 1.40 or higher	NJCompolet
NJ501	Ver. 1.31 or higher	NJCompolet
CJ2	Ver. 1.00 or higher	CJ2Compolet

*Supported NX controller version is 1.10.04 or later.

2.3. Addition of Functionality and API

When the Compolet version is upgraded, some functions, properties, and methods may be added. When a program is developed using the new version of Compolet, properties and methods that are not supported in the lower versions may be used in the program.

Check with the version information of each Compolet help for the properties and methods that can be used in your environment.

2.4. .NET Framework 2.0 Support of Compolet

All types of Compolet are now the components for .NET Framework 2.0.

(They were the components for .NET Framework 1.1 so far.)

Therefore, there is no need to install the .NET Framework 1.1 any longer, which improves the compatibility with your applications for .NET Framework 2.0 or higher.

2.4.1. Precautions

2.4.1.1. When Running the Existing Applications

2.4.1.1.1. When Using the Applications Developed with Visual Studio 2005 or Higher

When you use the applications developed with Visual Studio 2005 or higher (.NET Framework 2.0 or higher), you can run them without any problems.

2.4.1.1.2. When Using the Applications Developed with Visual Studio .NET 2003 (.NET Framework 1.1)

When you use the applications developed with Visual Studio .NET 2003 (.NET Framework 1.1), please consider upgrading the development environment to Visual Studio 2005 or higher and rebuilding the projects.

If you cannot upgrade the development environment to Visual Studio 2005 or rebuild the projects, please confirm the precautions in 2.2.1.2.2. When You Continue Using the Visual Studio .NET 2003.

2.4.1.2. When Using Visual Studio .NET 2003 for Development

Please consider upgrading the development environment to Visual Studio 2005 or higher.

2.4.1.2.1. How to Upgrade the Development Environment to Visual Studio 2005 or Higher

1. Read and convert the solution project of the application.
2. Rebuilt the project after the conversion.

* Refer to Microsoft help and documents for the details of Visual Studio functions such as conversion of solution projects.

2.4.1.2.2. When You Continue Using Visual Studio .NET 2003

- You cannot use the functions upgraded or added in the upgrades to V1.6 or higher. You can use the functions within the range up to CX-Compolet V1.5.
- Even for the functions supported in V1.5, you may need to apply a patch in relation to the functions modified by version upgrades.

➤ According to the increase of the connections in V1.6 or higher, you need to

apply a patch when you use the connection information read function of Datalink Compolet. Refer to the next section for the details of the changes in Datalink Compolet.

- How to apply the patch
 - ✧ After installing CX-Compolet, SYSMAC Gateway, and SYSMAC Gateway SDK, exit from all the applications. Execute the following command as the administrator or a user with administrator rights. Then, restart the service from SYSMAC Gateway Console.

In case of 32 bit operating system:

"%ProgramFiles%\OMRON\CX-Compolet\assembly\Setup.Net1.1\Setup_Net1.1Compolet.bat"

In case of 64 bit operating system:

"%ProgramFiles(x86)%\OMRON\CX-Compolet\assembly\Setup.Net1.1\Setup_Net1.1Compolet_x64.bat"

- ✧ When you upgrade the development environment to Visual Studio 2005 or higher after applying the above patch, uninstall CX-Compolet and SYSMAC Gateway Runtime, and then install them again.

2.5. When Using the Datalink Compolet GetConnectionList Method

- * The following describes the .NET2.0 or higher applications. If CX-Compolet V1.6 or higher has been installed, there is no problem.

This method was changed in V1.6 when the number of connections was increased.

If this method is called from the computer where .NET1.1 application or CX-Compolet V1.5 or lower is installed together with SYSMAC Gateway V1.6 or higher, the "Service not supported" error (exception) will occur.

In this case, please consider upgrading the .NET1.1 application to .NET2.0 or higher application or CX-Compolet V1.5 to CX-Compolet V1.6 or higher.

If you use .NET2.0 or higher applications, this problem will not occur because the latest version of Compolet will be automatically called.

The following table shows the operations in each combination. Refer to Section 2.2 for countermeasures.

.NET version of the application	CX-Compolet version	SYSMAC Gateway version	Success/Exception	Countermeasure
.Net2.0 or higher	V1.6 or higher	V1.6 or higher	Success	No action is required.
.Net2.0 or higher	V1.5 or lower	V1.6 or higher	Exception	Install and use the CX-Compolet with the same version as that of SYSMAC Gateway.
.Net1.1	V1.6 or higher	V1.6 or higher	Exception	Upgrade the application to .Net2.0 or higher or execute the setup for .Net1.1.
.Net1.1	V1.5 or lower	V1.6 or higher	Exception	<ul style="list-style-type: none"> • Install and use the CX-Compolet with the same version as that of SYSMAC Gateway. • Upgrade the application to .Net2.0 or higher or execute the setup for .Net1.1.

3. Software Configuration

3.1. SYSMAC Compolet

Using SYSMAC Compolet enables an intuitive interface for using the PLC from a user application on the computer. SYSMAC Compolet provides ready-made functionality for accessing and utilizing most of the PLC operations (especially data area manipulation) right from the computer.

In addition to the existing SYSMAC C/CV/CS/CJ, CJ2, NE1S, and CIPPLC Compolet, you can use NX, NJ, Common, and DataAccess Compolet. With NXComplet, user can access NX-series Controllers in the CIP communications. With Common and DataAccess Compolet, user can access any OMRON PLCs which support CIP protocol from the computer.

SYSMAC Compolet is also developed with the .NET Framework components making it easy to use in Microsoft Visual Basic. That provides high function, easy to learn development environment.

SYSMAC Compolet provides the following components:

Name	Description	
SysmacC component	SYSMAC C-series Compolet	FINS Protocol based component. Compatible with existing SYSMAC Compolet.
SysmacCV component	SYSMAC CV-series Compolet	
SysmacCS component	SYSMAC CS-series Compolet	
SysmacCJ component	SYSMAC CJ-series Compolet	
SysmacCJ2 component	SYSMAC CJ2-series Compolet	CIP Protocol based component.
SysmacNE1S component	SYSMAC NE1S-series Compolet	
SysmacNJ component	SYSMAC NJ-series Compolet	
SysmacNX component	SYSMAC NX-series Compolet	
SysmacCIPPLc component	Compolet for PLC which supports CIP	
SysmacDataAccess component	Provides a common interface that covers CIP Compolet types.	
SysmacCommon component	SYSMAC Common PLC Compolet	

3.2. SYSMAC Gateway Compolet

SYSMAC Gateway Compolet consists of Variable Compolet, Port Compolet, Datalink Compolet, and SYSMAC Gateway Service Compolet.

With Variable Compolet, user can access device memory by using name with Tag mechanism.

With Port Compolet, user can open/close communication port from the application without using SYSMAC Gateway console manually. This is equivalent to the existing FgwScm component. When you use SYSMAC CJ2 Compolet and other components, it is assumed that you open the USB port with Port Compolet before using them.

With Datalink Compolet, user can execute the connection, status, statistics, and other datalink information from the application.

With SYSMAC Gateway Service Compolet, user can execute the CIP communications service operations and get the status of the service from the application.

SYSMAC Gateway Compolet provides following components.

Name	Description
Variable Component	Compolet which can read/write the values of variables registered in SYSMAC Gateway.
Port Component	Compolet which can open/close communication port (Ethernet/USB). This is equivalent to the existing FgwScm component.
Datalink Component	Compolet which can make datalink settings and get the status.
SYSMAC Gateway Service Component	Compolet which can get the status and operate the functions of SYSMAC Gateway.

3.3. FinsGateway Compolet

FinsGateway Compolet provides the procedures for using FinsGateway in .NET Framework components. The main FinsGateway functions (FINS message communications, Event Memory read/write, etc.) can be used in the commercially available development environment such as Microsoft Visual Basic.

FinsGateway Compolet provides the following components:

Name	Description
FinsMsg component	FINS message communications
EmMemory component	Event Memory read/write
EmEvent component	Event Memory event send/receive
EmCondition component	Event Memory event condition operations
FgwScm component	Service control

3.4. FinsGateway/SYSMAC Gateway .NET Class Library

The FinsGateway /SYSMAC Gateway .NET class libraries provide the procedures for using FinsGateway/SYSMAC Gateway in .NET class libraries. That enables development in higher function environments, such as Microsoft Visual C#.

3.5. SYSMAC Gateway Runtime

SYSMAC Gateway Runtime is the communication middleware product which provides the FA network environments on personal computers. SYSMAC Gateway Runtime includes FinsGateway Middleware which supports OMRON communication protocol FINS as in the past and SYSMAC Gateway Middleware which supports EtherNet/IP™ building industrial multivendor network environment.

SYSMAC Gateway Middleware supports Tag Datalink (cyclic communication) function by EtherNet/IP™.

In the past, to support Datalink function, we need to have the special network card, like Controller Link. With SYSMAC Gateway and EtherNet/IP™, you can use the Datalink function on the de-facto standard, Ethernet. PLC memory data is reflected on the shared memory, called Event Memory, on the computer, which is same function as Controller Link provide. You can use this data just like the shared memory data from your application.

The way to access value of Event Memory is compatible with FinsGateway as in the past.

Furthermore, by using CX-Compolet, it is possible to do tag name based programming without regard for address.

FinsGateway Middleware provides FA network environment to communicate transparently without regard for many networks which OMRON provides. With FinsGateway, you can use FINS message communication function and shared memory function, called Event Memory, to share the data with PLC and other devices.

4. Operating Environment and Conditions of Use

4.1. Operating Environment

The following conditions must be met to use CX-Compolet.

Operating Environment

	Microsoft Windows XP SP3 (32-bit)	Microsoft Windows Server 2003 (32-bit)	Microsoft Windows Vista (32-bit)	Microsoft Windows7 (32-bit/64-bit)	Windows Server 2008 (32-bit/64-bit) or Windows Server 2008 R2 (64-bit)	Microsoft Windows 8, 8.1 (32bit/64bit)	Windows Server 2012(64bit) or Windows Server 2012 R2(64bit)
computer	DOS/V (IBM AT compatible) computer with an Intel x86 processor			Personal computer with an Intel 32-bit (x86) or 64-bit (x64) processor			
CPU Main memory	The system requirements recommended by Microsoft Corporation are applied.						
Hard disk	400 MB minimum of available space						
.NET Framework	.NET Framework 3.5 SP1 (3.5.1) * .NET Framework with the above version or higher is required. * If .NET Framework 3.5.1 is not installed, please install it manually. Refer to Section 5.1.3 Installing .NET Framework 3.5 SP1 for installation procedure.						
Network	FINS message communications must be available with at least one network supported by FinsGateway or CIP message communication must be available with at least one network supported by SYSMAC Gateway.						
Others	<ul style="list-style-type: none"> - To develop applications, there must be an application development environment supporting the Microsoft .NET Framework. - To run applications using CX-Compolet, the environment must support Microsoft .NET Framework execution. - HTML browser for displaying the online help. 						

Hardware, Limitations

(1) Use of FinsGateway

Network	Hardware Requirements
SysmacLink (PCI)	Requires an OMRON SYSMAC LINK Support Board (e.g.3G8F7-SLK21) Up to four SYSMAC LINK Support Boards can be installed in one computer Only supported in Windows Vista 32bit OS.
Controller Link (PCI)	Requires an OMRON Controller Link Support Board (e.g. 3G8F7-CLK21). Up to four Controller Link Support Boards can be installed in one computer. Only supported in Windows Vista /Windows7 32bit OS.
Ethernet	Requires an Ethernet board that can be used on the operating system supported by SYSMAC Gateway. TCP/IP must be installed. TCP/IP is included in Microsoft Windows.
SerialUnit-COMx	Requires a PC 95-compliant COM port that can be used on the operating system supported by SYSMAC Gateway. The above COM port must be available for exclusive use by SYSMAC Gateway. Other applications not using SYSMAC Gateway cannot use the COM port simultaneously.
USB	Only one port can be used simultaneously. USB port must be available for exclusive use by FinsGateway. It is not available for SYSMAC Gateway or other application.

(2) Use of SYSMAC Gateway

Network	Hardware Requirements
Ethernet	Requires an Ethernet board that can be used on the operating system supported by SYSMAC Gateway. TCP/IP must be installed. TCP/IP is included in Microsoft Windows. Direct Ethernet connection with NJ/NX-series Controllers is not supported.
USB	Only one port can be used simultaneously. USB port must be available for exclusive use by SYSMAC Gateway. It is not available for FinsGateway or other application. USB connection with NJ/NX-series Controllers is not supported.

4.2. Redistribution Prohibited

Redistribution of the software included with this product is not allowed. Redistribution is not allowed even for use exclusively with user-developed applications.

4.3. Development Environment Compatibility

The following are the development environments where operation has been confirmed, and is guaranteed:

- Development environment:

- Microsoft Visual Studio 2005

- Microsoft Visual Studio 2008

- Microsoft Visual Studio 2010

- Microsoft Visual Studio 2012

- Microsoft Visual Studio 2013

- .NET Framework used in the applications

All the components provided by CX-Compolet V1.6 or higher are built on .NET Framework 2.0. Therefore, .NET Framework 2.0 or higher can be used for your application development with CX-Compolet V1.6 or higher. If you use .NET Framework 1.1 in your application, the available functions are limited to within the range supported in CX-Compolet V1.5.

Refer to Section 2.2 for details.

- Development language:

- Visual Basic, C#

Operation has not been confirmed and is not guaranteed in any other environment. However, use of the product in other environments is left entirely to the discretion of the user.

- 64-bit operating system environment

In the case of 64-bit operating system, the applications basically need running as 32-bit process. To build your application using CX-Compolet, you need to set active solution platform as x86 in Configuration manager of Visual Studio.

When operating CX-Compolet from a 64-bit application, refer to *Section 7 Operation from 64-bit Applications*.

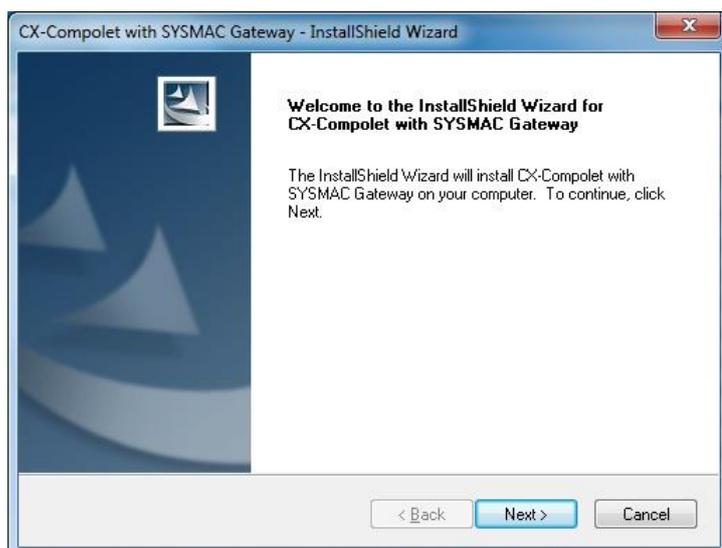
5. Installing CX-Compolet

5.1. Installation

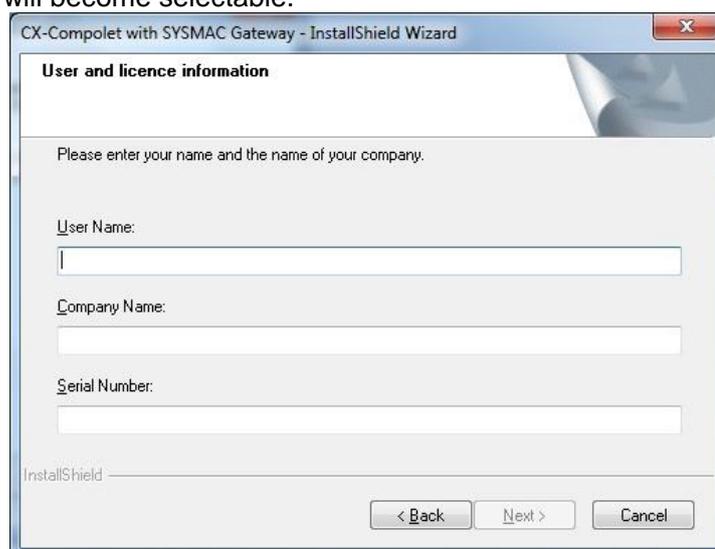
5.1.1. How to Install CX-Compolet

Install the CX-Compolet according to the following procedures.

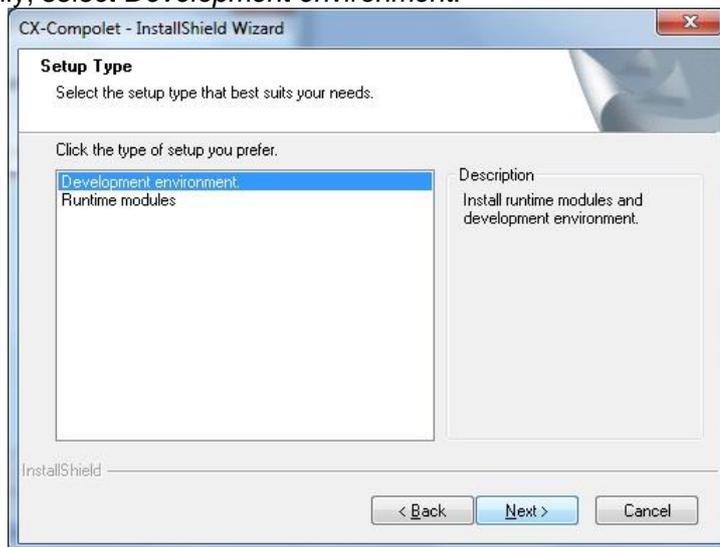
1. Apply power to the computer, and log in as an Admin user.
2. Insert the setup disk of CX-Compolet into the drive. The setup program will be started. If not, execute the setup.exe included in the setup disk.



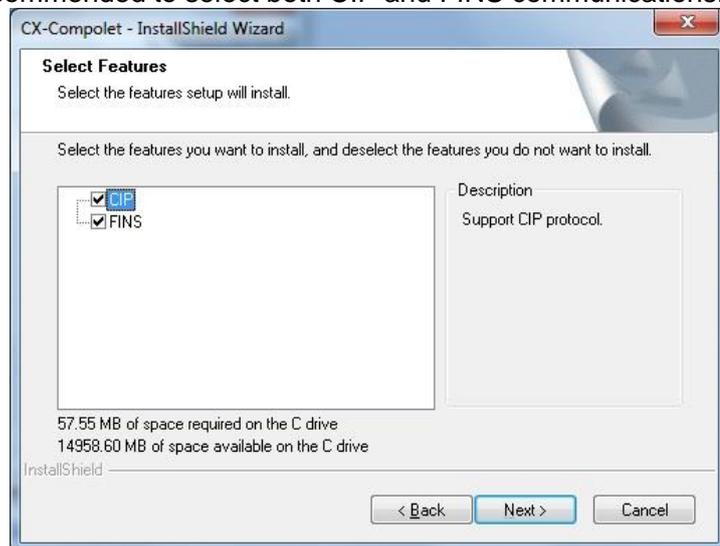
3. Click the **Next** Button. A dialog box to enter user information will be displayed.
4. Enter the user name, company name, and serial number. Then, the **Next** Button will become selectable.



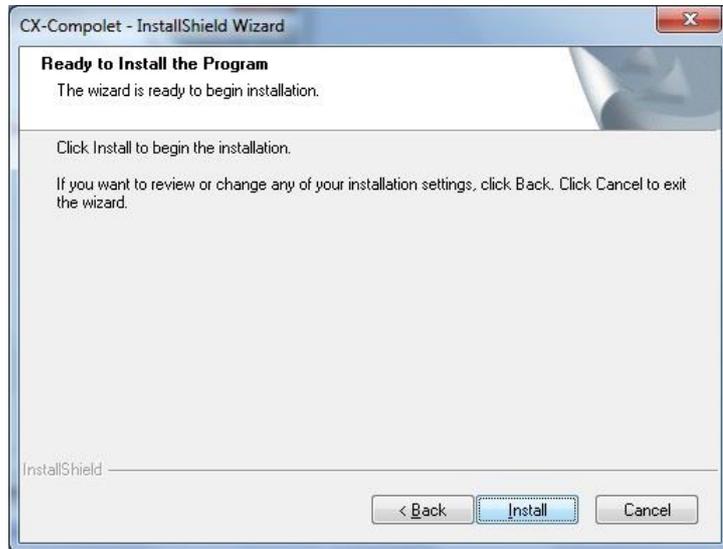
- Click the **Next** Button. You can select whether to install *Development environment* or *Runtime modules*. With the *Runtime modules*, you can use the applications that use the CX-Compolet. With the *Development environment*, you can develop and execute the applications that use the CX-Compolet. The difference between *Development environment* and *Runtime modules* is that help and other documents are not installed if you select *Runtime modules*. Normally, select *Development environment*.



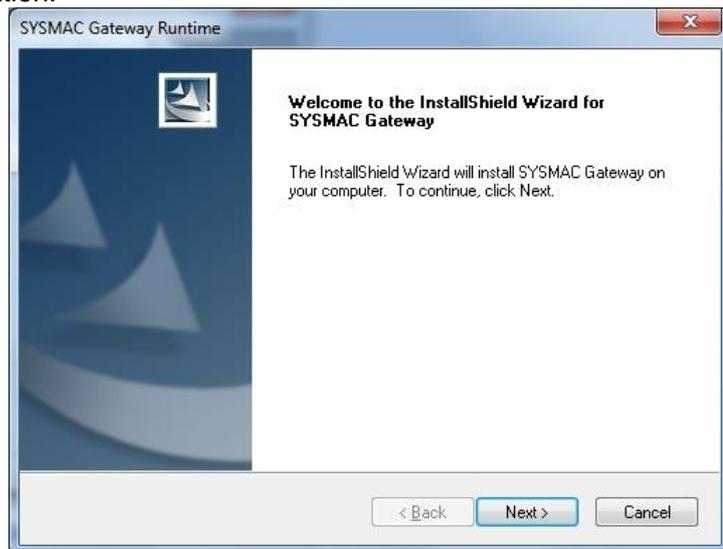
- Click the **Next** Button. You can select which types of communications are used for programs; CIP communications or FINS communications, or both. Normally, it is recommended to select both CIP and FINS communications.



- Click the **Next** Button. A dialog box to confirm that you want to begin the installation of CX-Compolet will be displayed. Click the **Install** Button to begin the installation.

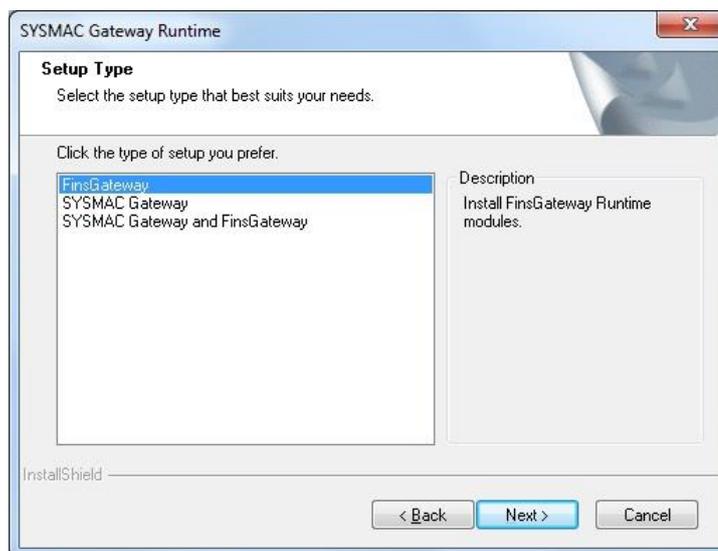


- The installation of SYSMAC Gateway will be started after the CX-Compolet installation.

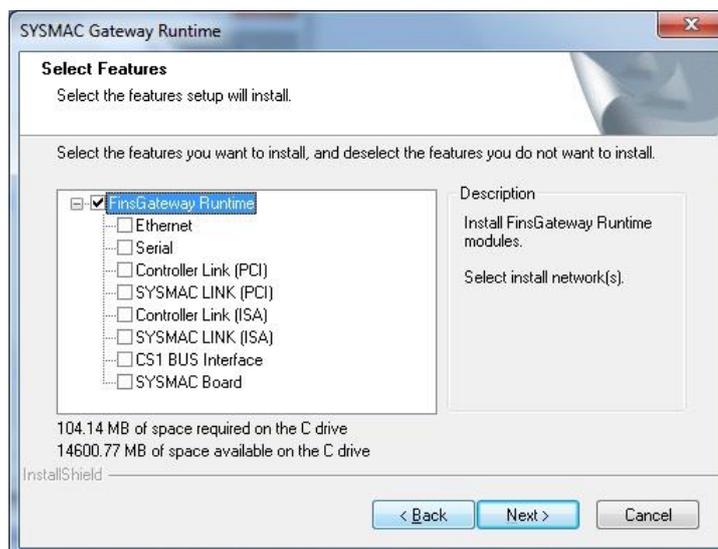


- Click the **Next** Button. Select the middleware to install. To install the FinsGateway, go to Step 10. To install the SYSMAC Gateway, go to Step 11. To install both SYSMAC Gateway and FinsGateway, go to Step 12.

10. When installing the FinsGateway
 - 10.1. Select *FinsGateway* for the setup type.

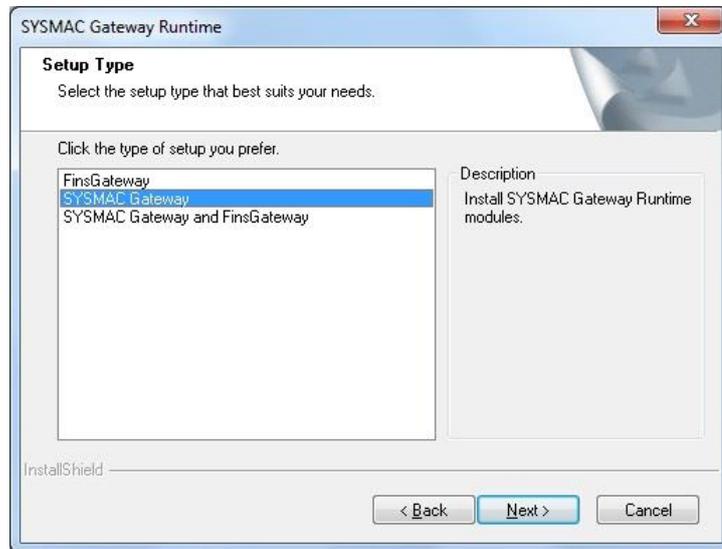


- 10.2. Click the **Next** Button. A dialog box to select networks will be displayed. (The following is a dialog box to install the FinsGateway in a 32-bit operating system. For 64-bit operating systems, only *Ethernet* and *Serial* will be displayed.)



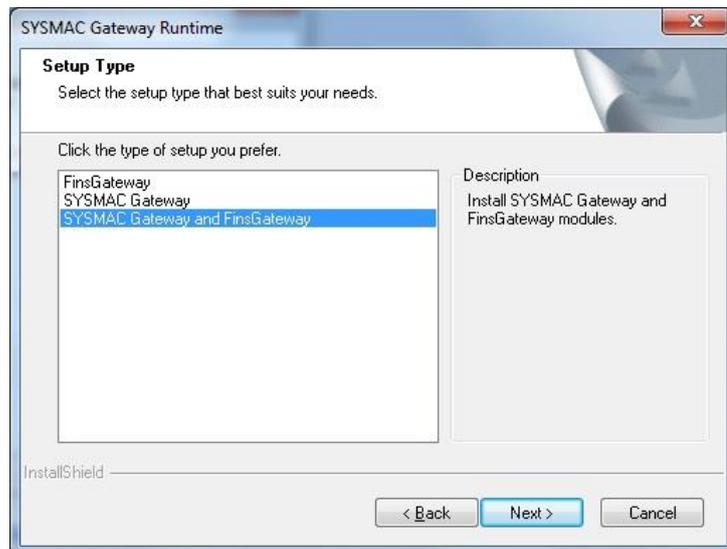
- 10.3. Select networks that you want to install.
- 10.4. Click the **Next** Button. Refer to the procedures in Step 13.

11. When installing the SYSMAC Gateway
 - 11.1. Select *SYSMAC Gateway* for the setup type.

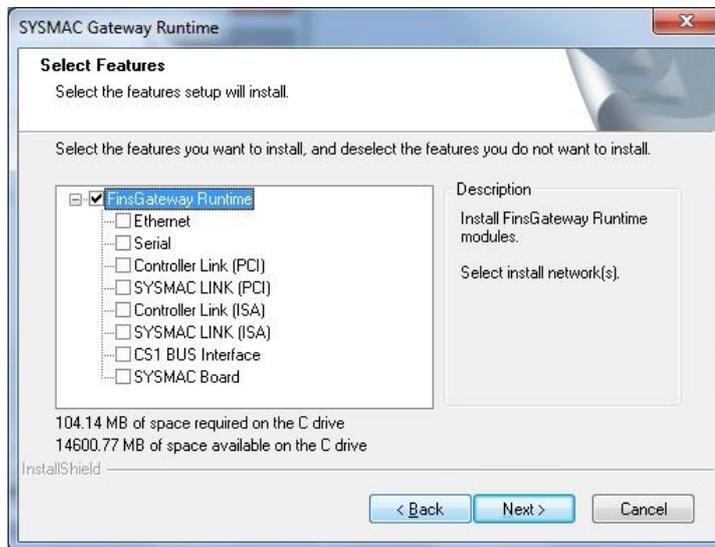


- 11.2. Click the **Next** Button. Refer to the procedures in Step 13.

12. When installing both SYSMAC Gateway and FinsGateway
 - 12.1. Select *Sysmac Gateway and FinsGateway* for the setup type.

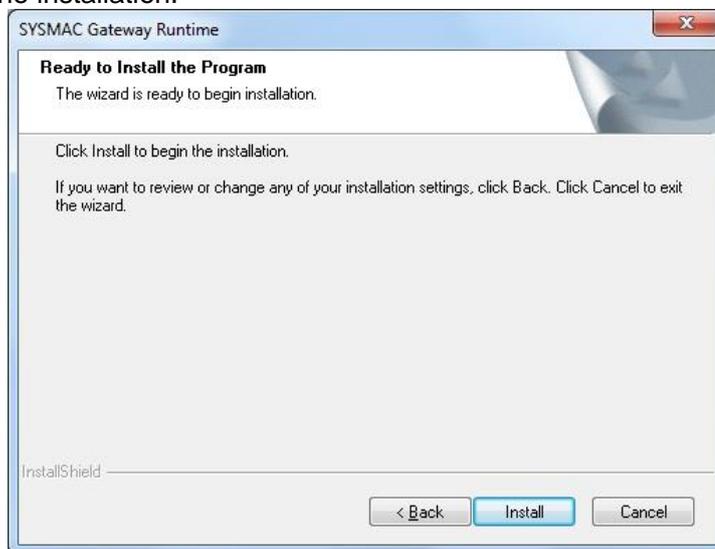


- 12.2. Set the installation options for FinsGateway. Select the networks that you want to install. (The following is a dialog box to install the FinsGateway in a 32-bit operating system. For 64-bit operating systems, only *Ethernet* and *Serial* will be displayed.)

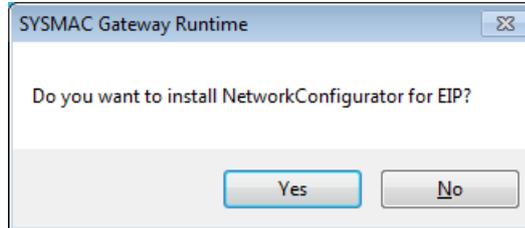


- 12.3. Click the **Next** Button. Refer to the procedures in Step 13.

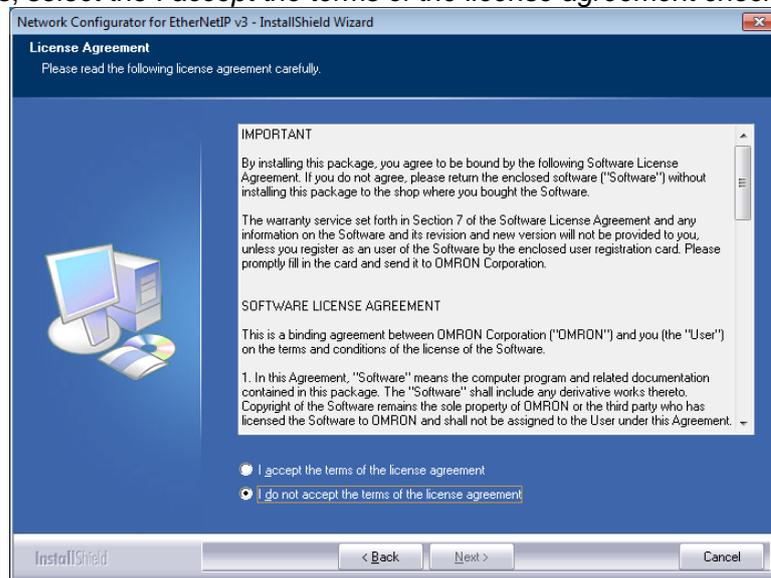
13. Click the **Next** Button. A dialog box to confirm that you want to begin the installation of SYSMAC Gateway will be displayed. Click the **Install** Button to begin the installation.



14. When the installation of SYSMACGateway is completed, a dialog box to confirm that you want to install Network Configurator will be displayed. Click the **Yes** Button to install Network Configurator. When you do not install Network Configurator, click the **No** Button and go to Step 19.



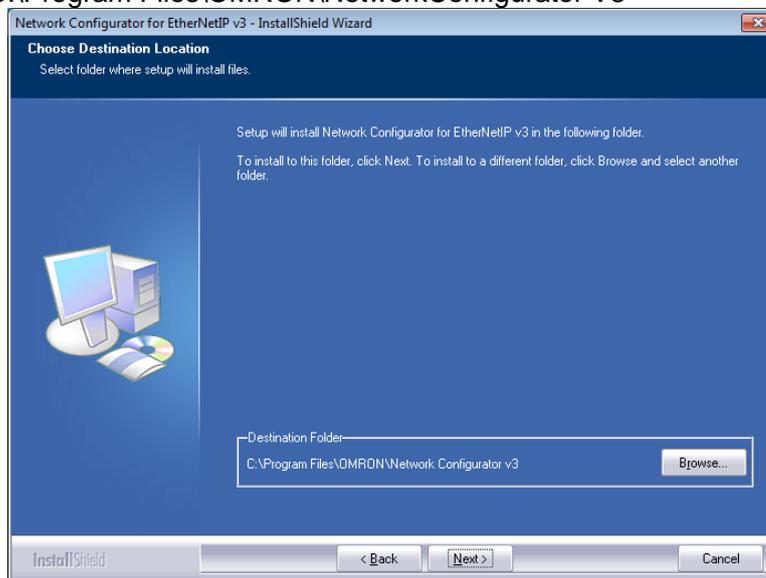
15. Click the **Next** Button. The following license agreement dialog box will be displayed. Please read the license agreement carefully. When you accept all terms, select the *I accept the terms of the license agreement* checkbox.



16. Click the **Next** Button. A dialog box to select the installation folder will be displayed.
- When Network Configurator has not been installed: Specify the destination folder and click the **Next** Button.

Default destination folder:

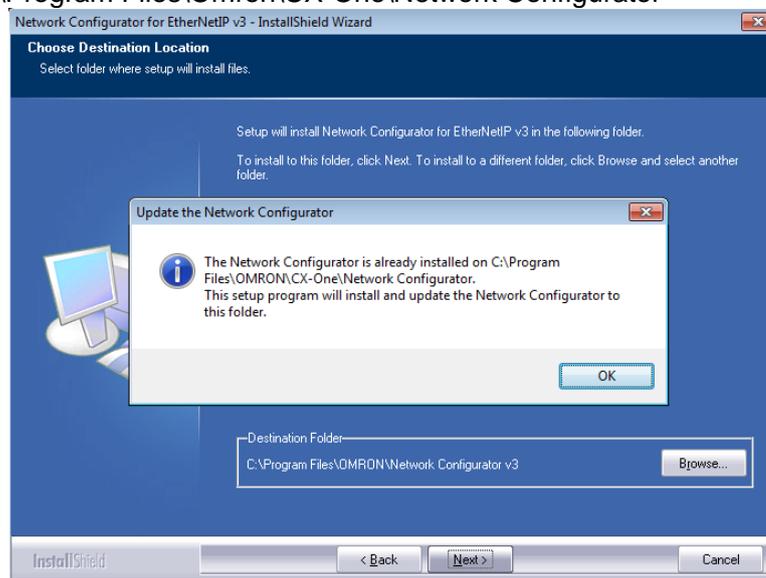
C:\Program Files\OMRON\NetworkConfigurator V3



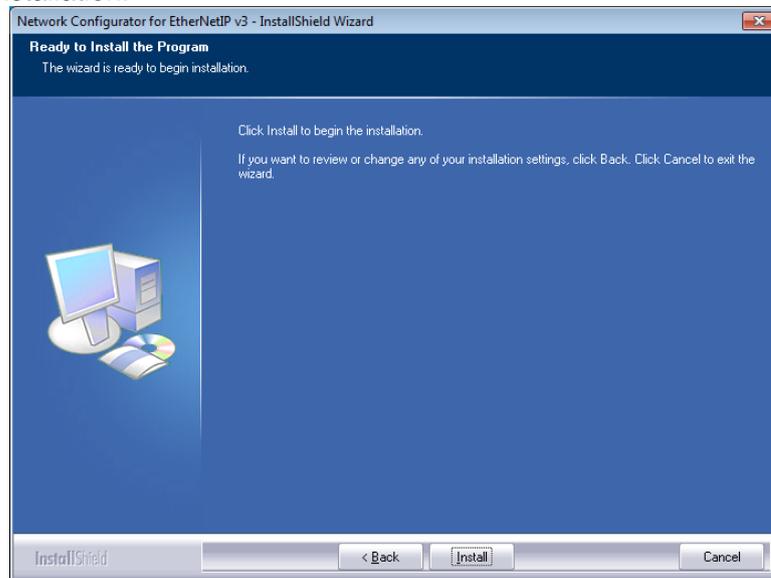
- When Network Configurator is already installed by CX-One: When the **Next** Button is clicked, a confirmation dialog box will be displayed. Click the **OK** Button.

Default destination folder:

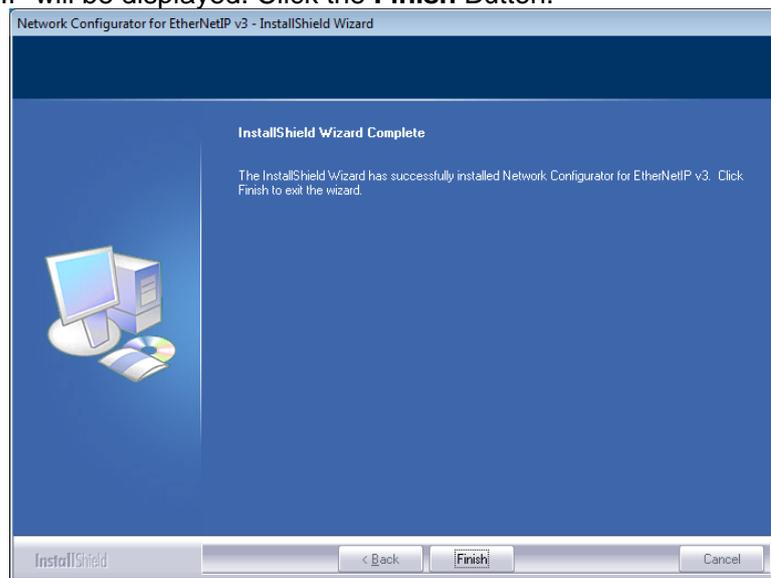
C:\Program Files\Omron\CX-One\Network Configurator



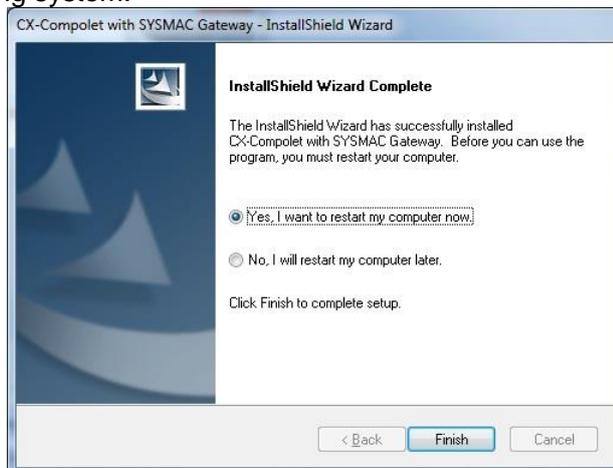
17. A dialog box to confirm that you want to begin the installation of NetworkConfigurator for EIP will be displayed. Click the **Install** Button to begin the installation.



18. A dialog box for informing the installation completion of Network Configurator for EIP will be displayed. Click the **Finish** Button.



19. When the installation is completed, a dialog box to ask you to restart the operating system will be displayed. According to the screen message, restart the operating system.



5.1.2. Firewall setting

The data links may not be correctly performed because of the Windows Firewall settings. Register the following file as program exceptions in the Windows Firewall settings.

- Folder

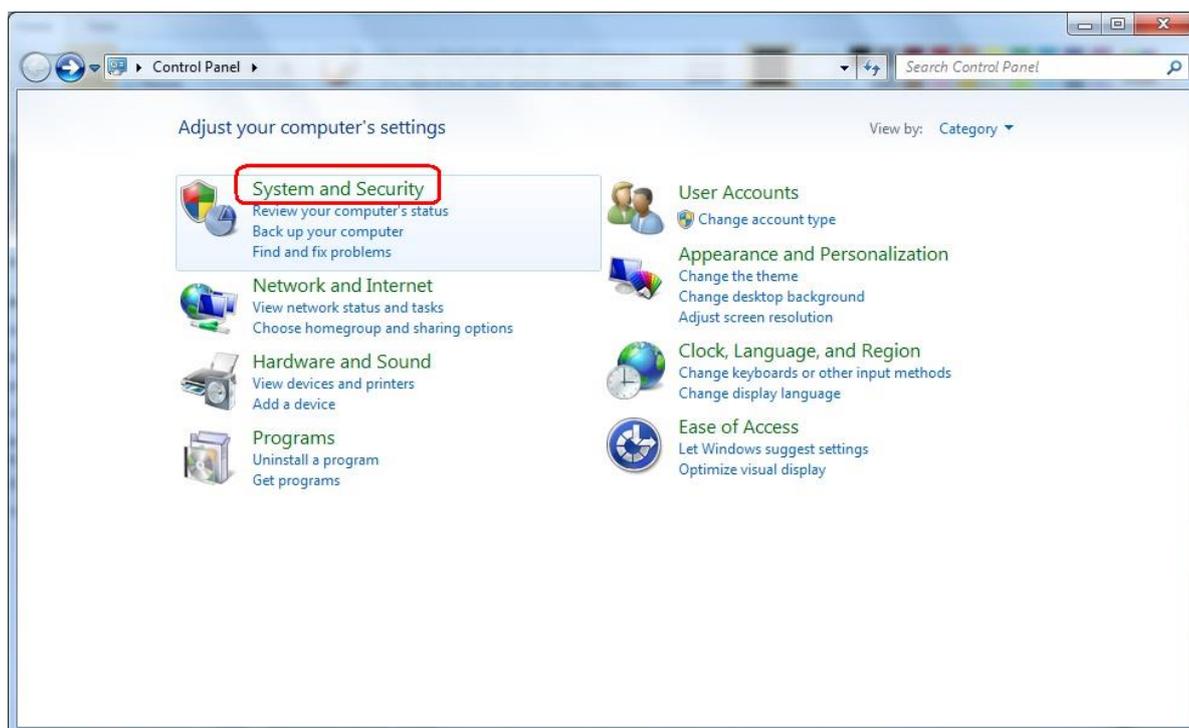
%ProgramFiles%\OMRON\SYSMAC Gateway\bin

- File Name

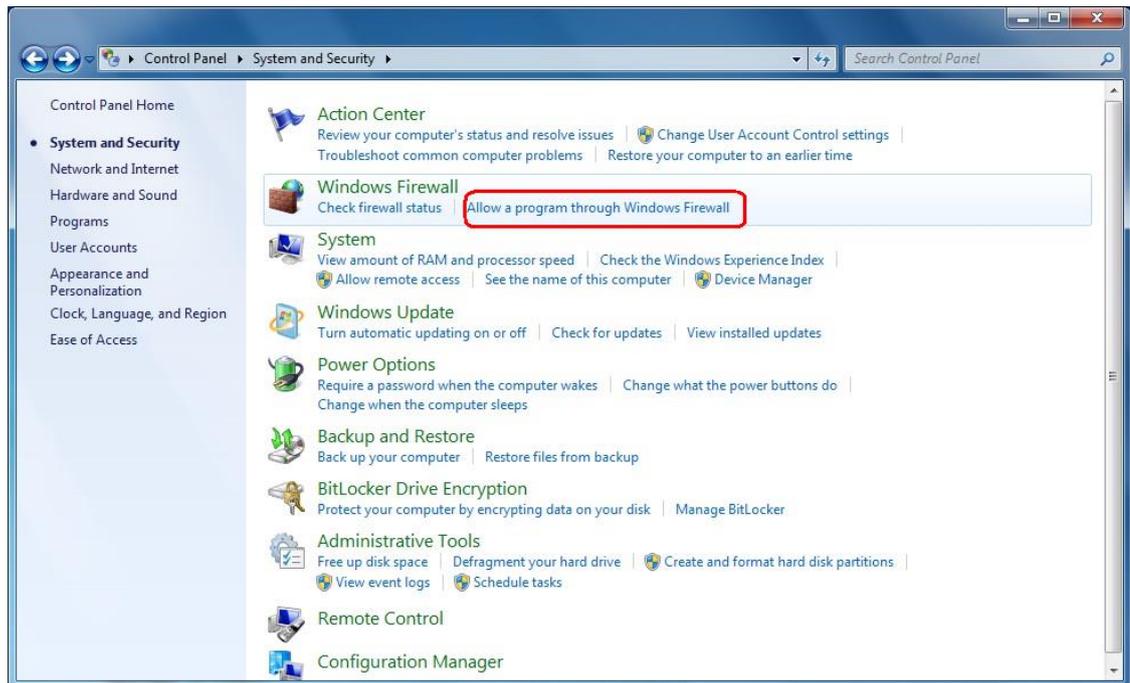
CIPCore.exe

- In the case of Windows 7

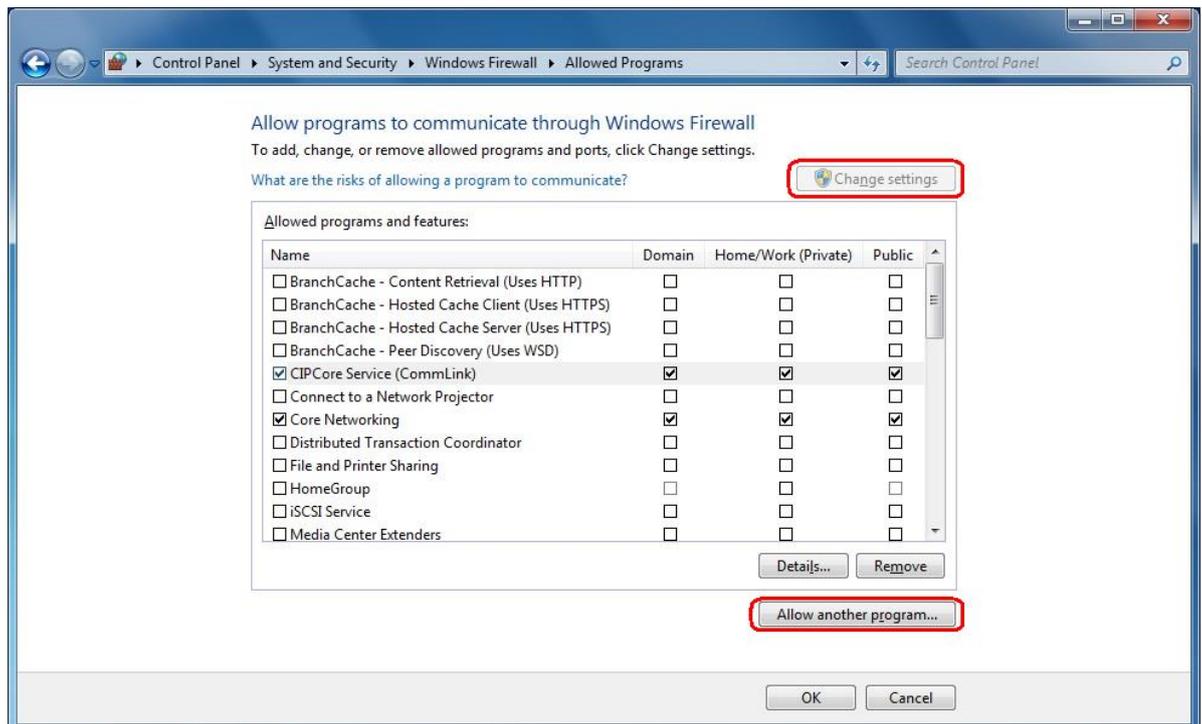
- 1) Select **System and Security** under the Control Panel.



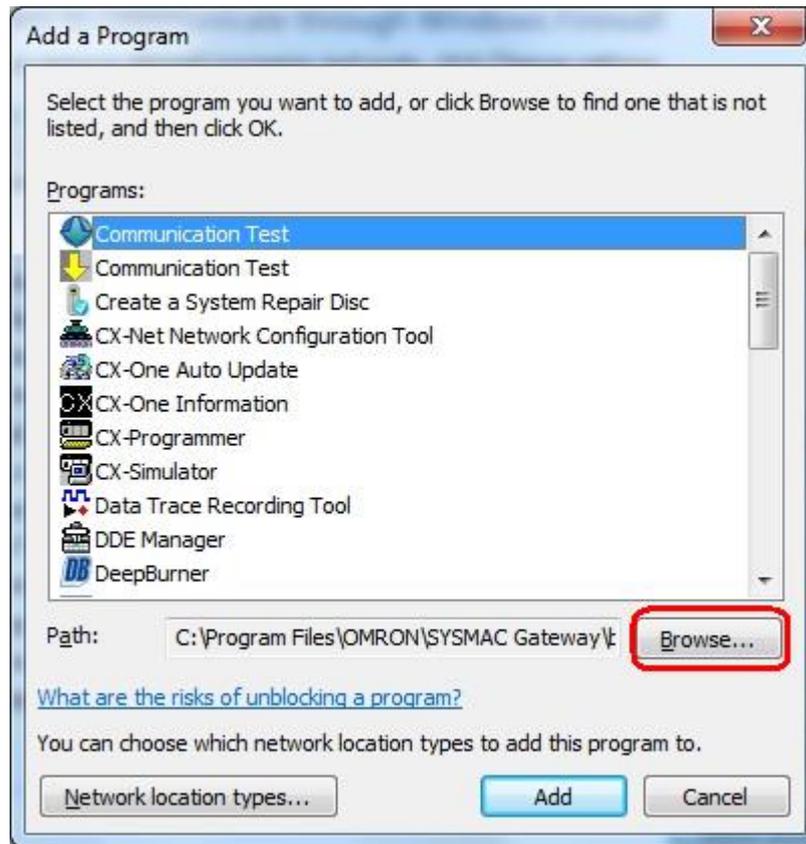
2) Click **Allow a program through Windows Firewall** in the Windows Firewall settings.



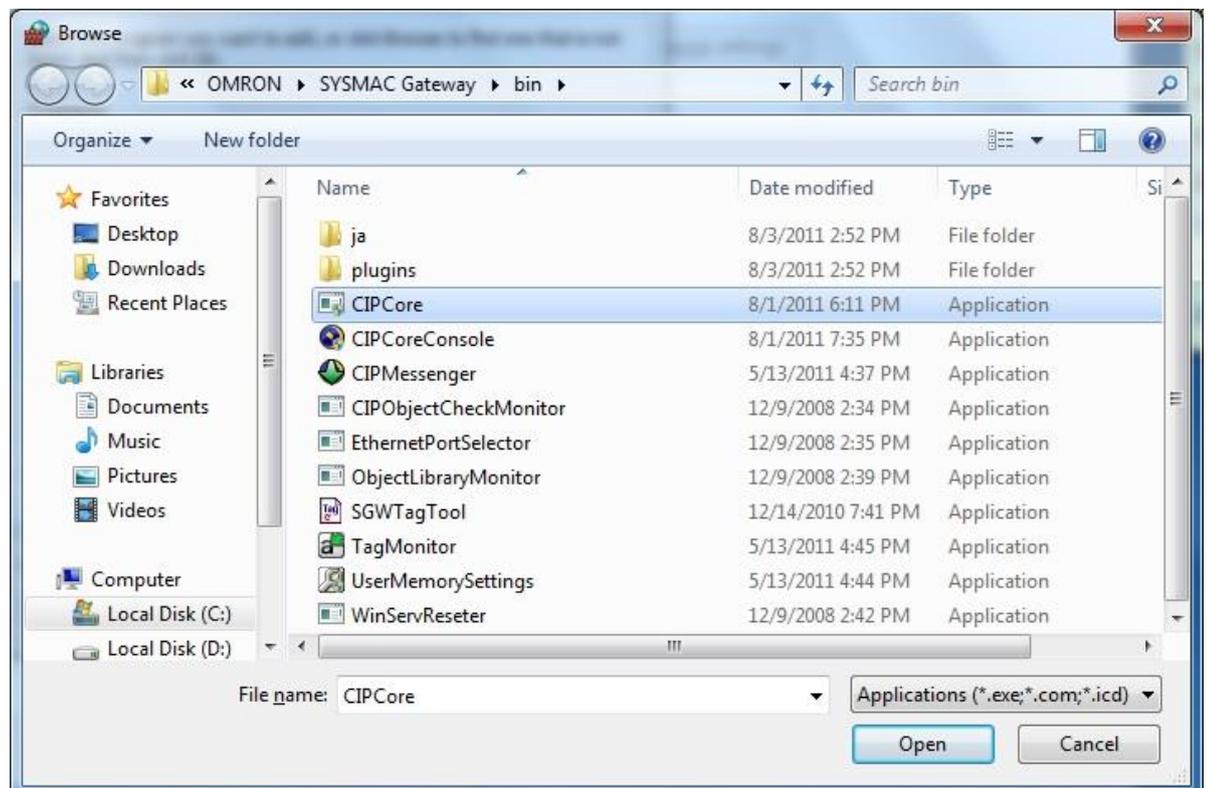
3) Click the **Change settings** Button, and then click the **Allow another program...** Button.



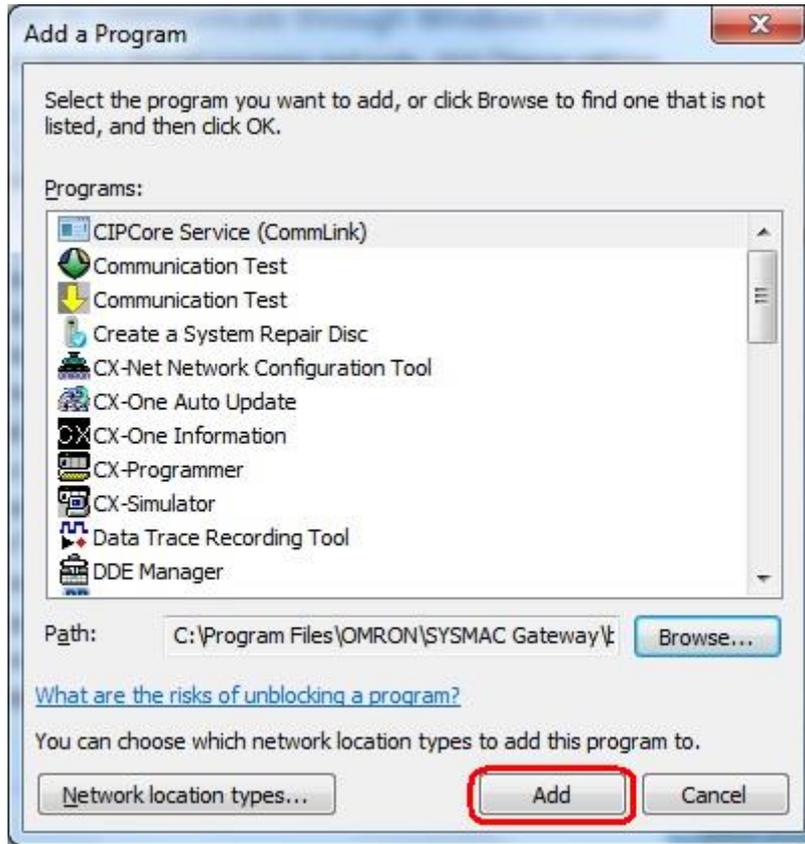
4) Click the **Browse...** Button in the Add a Program Dialog Box.



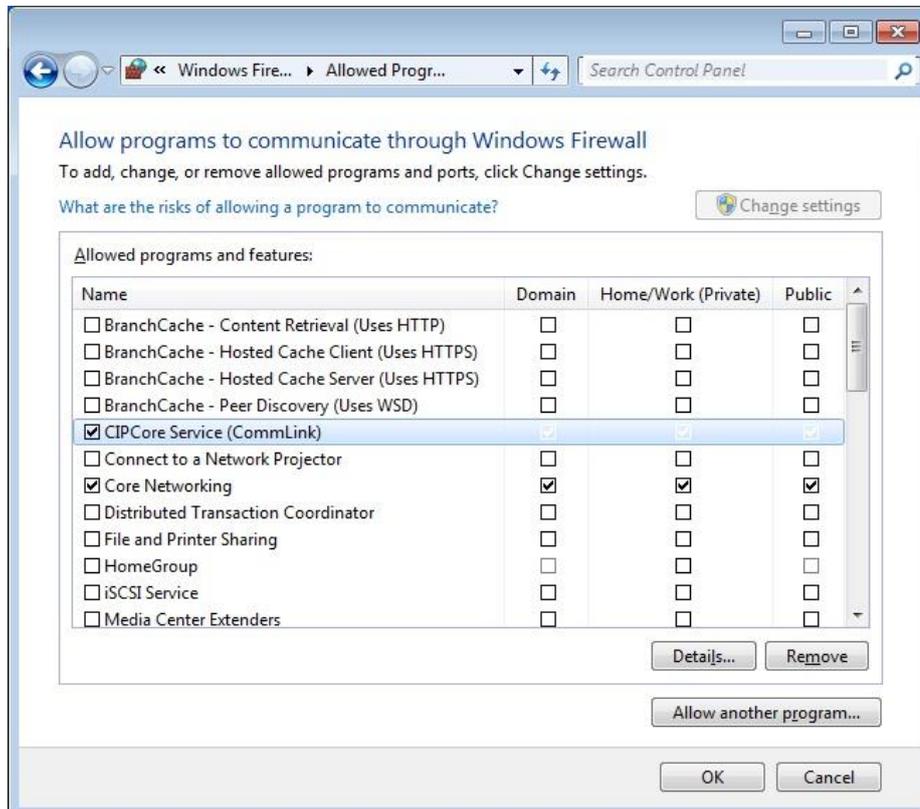
5) Select **CIPCore.exe** in the applicable folder and click the **Open** Button.



6) Select *CIPCore Service (CommLink)* and click the **Add** Button.



7) Confirm that *CIPCore Service (CommLink)* was added in the Programs area. Select the applicable network type checkboxes such as *Home* and *Public* and click the **OK** Button.



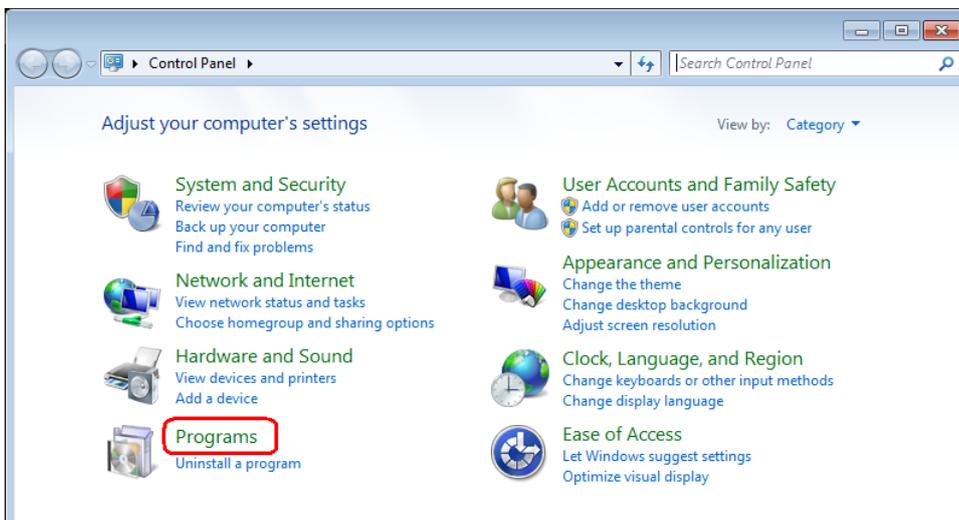
5.1.3. Installing .NET Framework 3.5 SP1

- CX-Compolet and SYSMAC Gateway Runtime require .Net Framework 3.5 SP1 for program execution. If .Net Framework 3.5 SP1 is not installed, please install it manually.

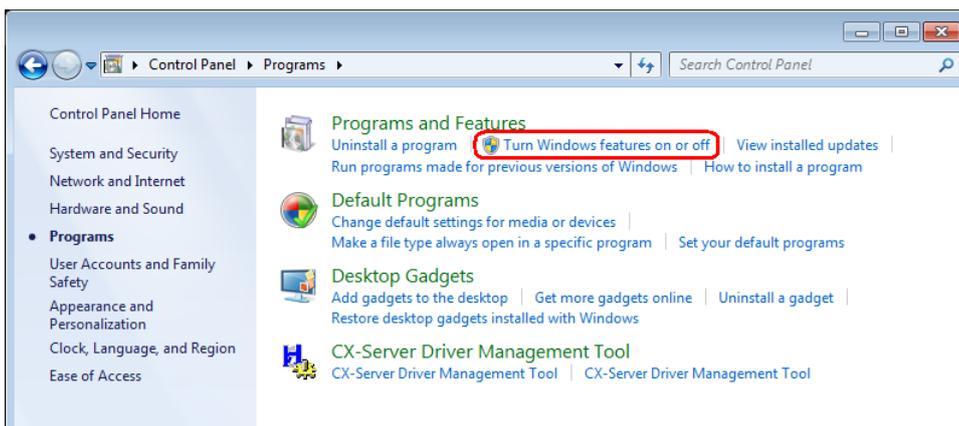
For the following OS:

Microsoft Windows 7
 Microsoft Windows Server 2008 R2
 Microsoft Windows 8, 8.1
 Microsoft Windows Server 2012 R2

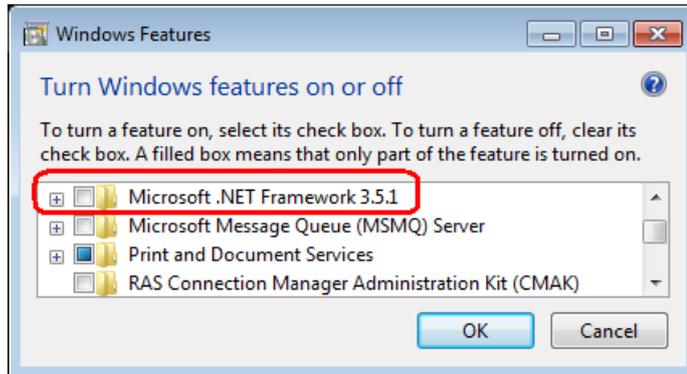
1) Select **Programs** from the Control Panel.



2) Select **Turn Windows features on or off**.



3) Select the *Microsoft .NET Framework 3.5.1* checkbox and click the **OK** Button.



For the following OS:
 Microsoft Windows XP
 Microsoft Windows Vista
 Microsoft Windows Server 2003

Execute the Microsoft Redist\DotnetFramework 3.5.1\dotnetfx35.exe stored in the installation media to install the software.

5.2. Removal

To remove CX-Compolet from the system, select the **Programs and Feature** icon in the Control Panel.

To remove CX-Compolet, select the **CX-Compolet** program and click the **Uninstall** Button.

To remove SYSMAC Gateway, select the **SYSMAC Gateway** program and click the **Uninstall** Button.

To remove Network Configurator, select the **Network Configurator for EtherNetIP v3** and click the **Uninstall** Button.

5.3. Upgrading installation

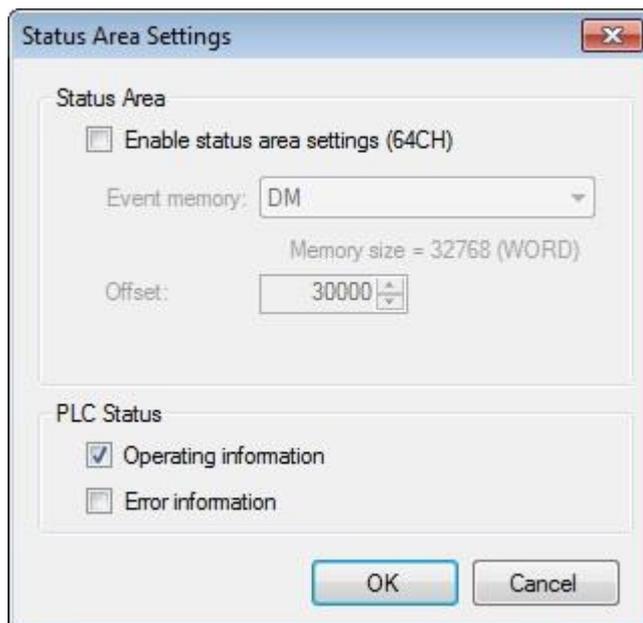
If you are using old version of FinsGateway, SYSMAC Gateway, SYSMAC Compolet, CX-Compolet, and/or Network Configurator installed, then use the following procedures.

5.3.1. CIP based SYSMAC Gateway case

1. Back up existing setting

- Store the datalink settings as backup-date from Network Configurator.
- If you use **Datalink Status Area setting** you need to remember the setting.

You can confirm the settings by executing the Status Area Settings from the Control Panel of SYSMAC Gateway Console

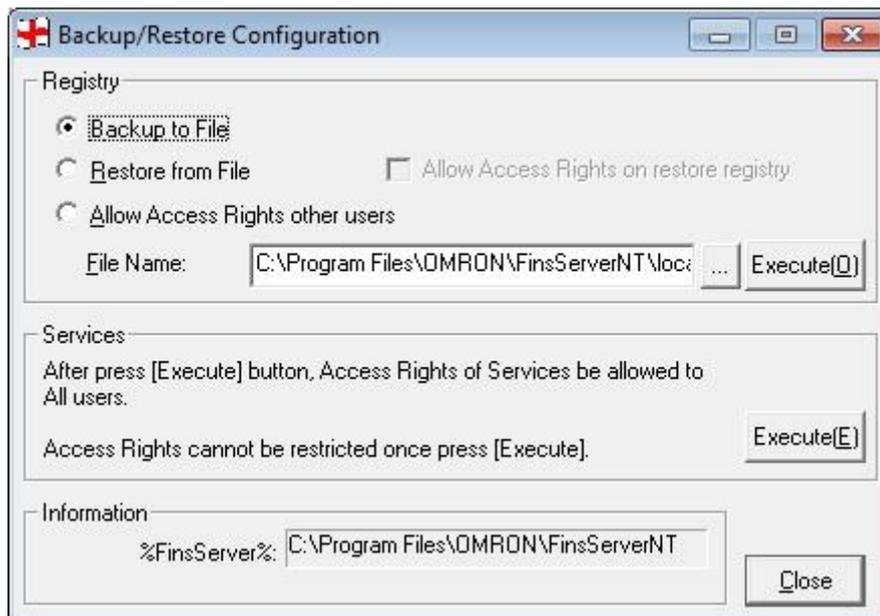
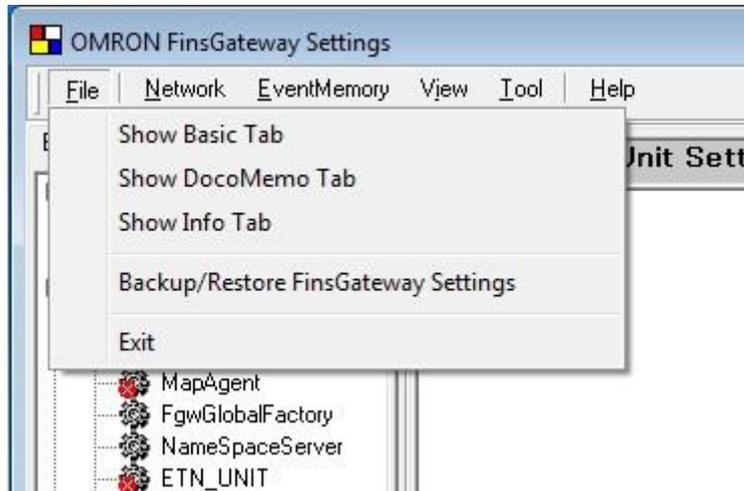


- If you add your own memory you can backup from FinsGateway console.
See **5.3.2 FINS based SYSMAC Gateway case / Backup existing settings.**

2. Uninstall the older version of the following programs in the same manner as uninstallation:
 - CX-Compolet
 - SYSMAC Gateway
 - Network Configurator for EtherNet/IP (only when installed)
 3. Install this software in the same manner as new installation.
 4. Restore settings
 - Setup network port from SYSMAC Gateway console.
 - Restart SYSMAC Gateway service from the console.
 - Download datalink settings from Network Configurator.
 - If you use **Datalink Status Area setting** you need to set the parameter again.
 - If you add your own memory you can restore from FinsGateway console.
- See **5.3.2 FINS based SYSMAC Gateway case / Backup settings.**

5.3.2.FINS based SYSMAC Gateway case

1. Back up existing settings
 - You can backup settings in the registry by using **Backup/Restore FinsGateway Settings** in the **File** menu of **FinsGateway Setting** utility.



2. Uninstall the older version of the following programs in the same manner as uninstallation:
 - CX-Compolet
 - SYSMAC Gateway
 - Network Configurator for EtherNet/IP (only when installed)
3. Install this software in the same manner as new installation.
4. Restore settings
 - You can restore settings by using **Backup/Restore Settings** in the **File** menu.

5.4. Repairing installation configurations

If you overwrite the new version on the existing version, the files will be overwritten by the latest ones while different versions of software will be installed at the same time. Then if you uninstall the old one, some common files/program short cuts may be deleted. You can repair the configuration. The following is the procedures for repairing the installation configuration of CX-Compolet and SYSMAC Gateway.

1. Apply power to the computer, and log in as an Admin user.
2. Stop all programs and services related to the CX-Compolet and SYSMAC Gateway.
3. Execute **Add or Remove Programs** from Windows control panel.
4. Select **CX-Compolet** and click the **Change** Button.
5. In the maintenance dialog box, select **Repair** and click the **Next** Button. Then, follow the instructions.
6. Repair SYSMAC Gateway in the same manner.

If you failed to repair the configuration, please uninstall the existing software and re-install it.

6. Registering Components

6.1. Global Assembly Cache Registration

The CX-Compolet setup program registers the assembly file to the global assembly cache at installation.

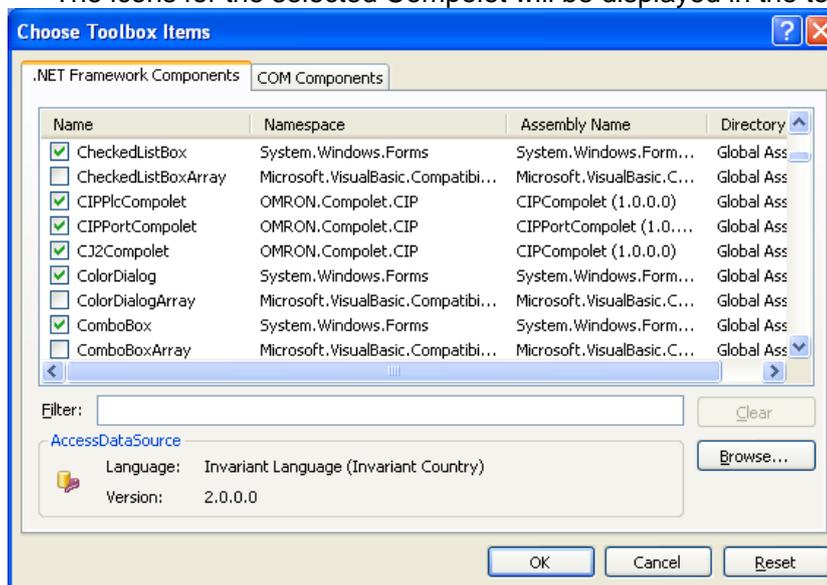
For details regarding the global assembly cache, refer to the Visual Studio online manual.

6.2. Pasting Compolet into Forms

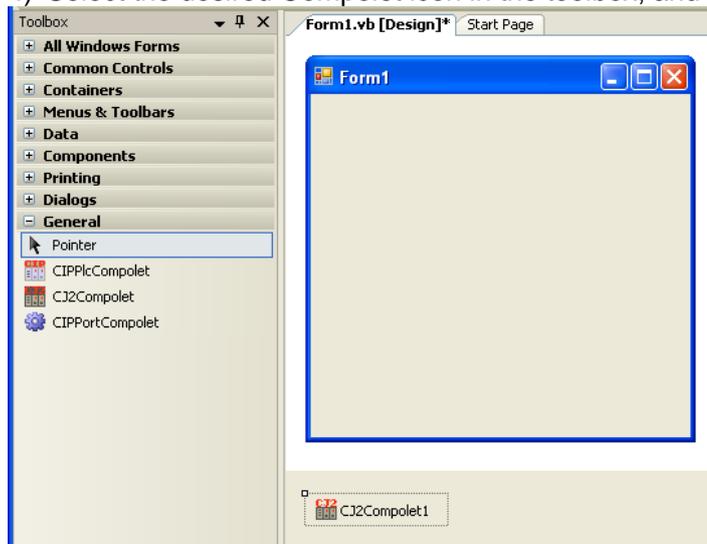
Follow the procedures below to add Compolet to the Visual Studio toolbox. The procedure for placing components in the Visual Basic form is also explained:

- 1) Select **Choose Toolbox Items...** from the **Tools** Menu.
- 2) Click the **.NET Framework Components** Tab of the Choose Toolbox Items Dialog Box.
- 3) Select the desired components, and click the **OK** Button.

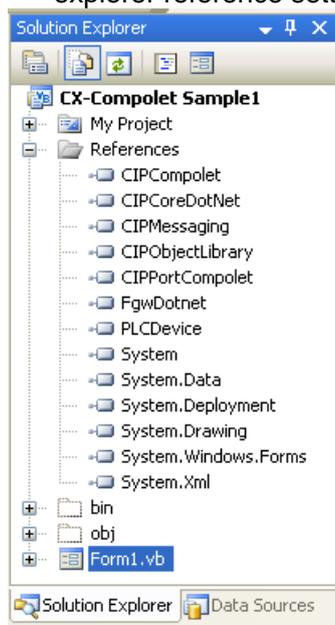
The icons for the selected Compolet will be displayed in the toolbox.



4) Select the desired Compolet icon in the toolbox, and place it in the form:



5) Pasting Compolet into the form adds the assembly references to the solution explorer reference settings:



7. Operation from 64-bit Applications

CX-Compolet is provided for 32-bit applications. Therefore, you need to run it as a 32-bit application even on 64-bit operation systems.

When you need to use CX-Compolet from a 64-bit application on a 64-bit OS, you need to prepare a virtual Compolet for the 64-bit application and perform the communications via the 32-bit CX-Compolet from the virtual Compolet.

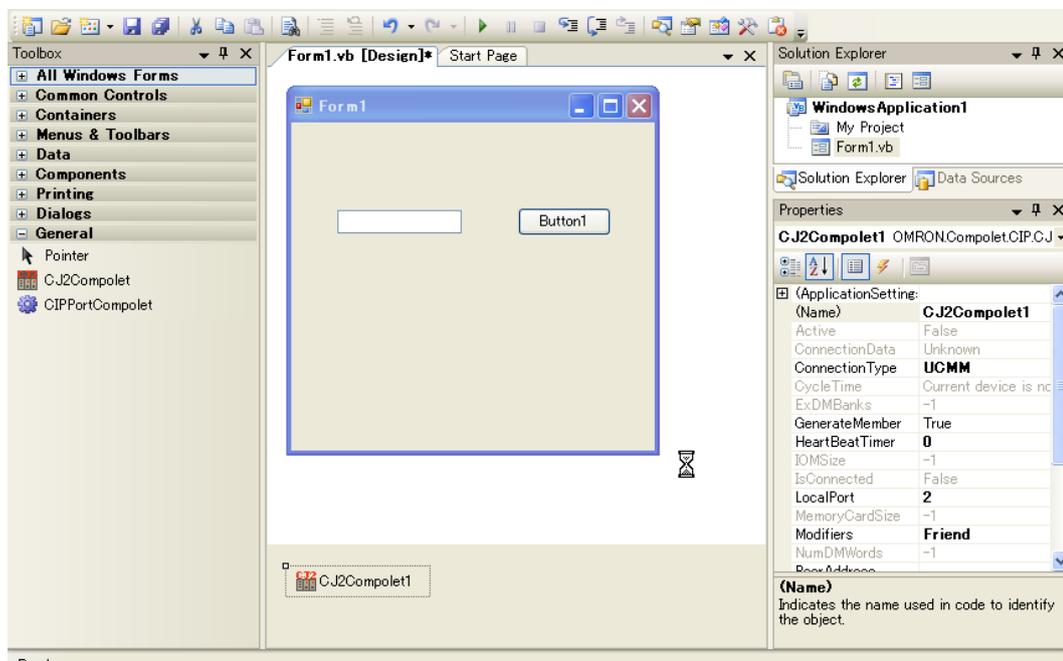
Please consider an appropriate measure on the application side in reference to the samples and "Application Guide.txt" in the following folder.

"%ProgramFiles%\OMRON\CX-Compolet\sample\Compolet\CIP\CIPCompolet\64bitSample"

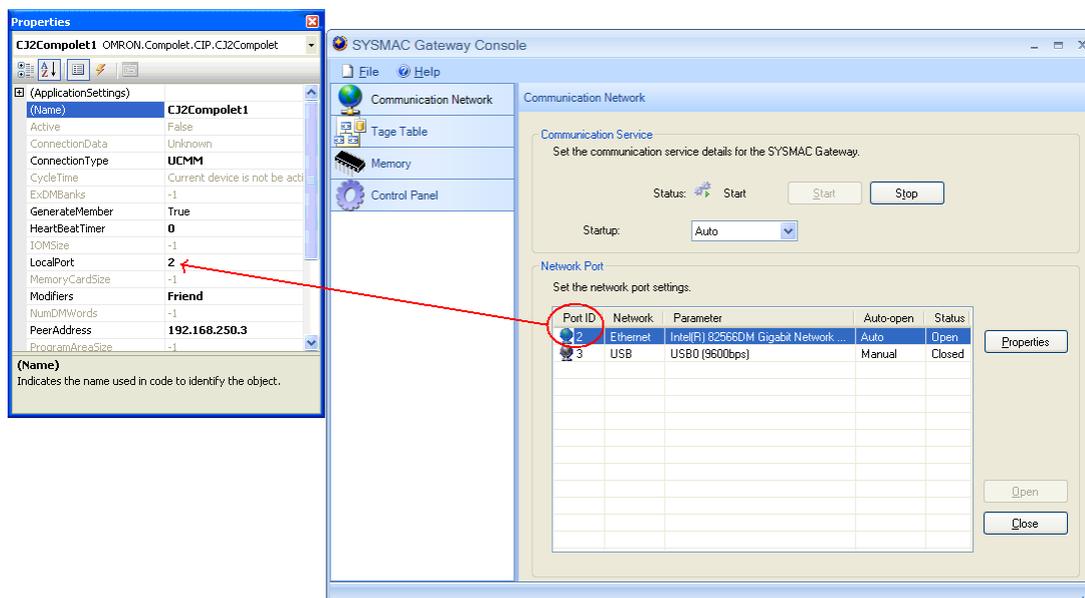
8. Tutorial

The following example shows how to use SYSMAC CJ2 Compolet to read data from the PLC DM area. This example demonstrates the development of a simple program:

- 1) Start Visual Studio.
- 2) Select **New - Project...** from the **File** Menu.
- 3) Select the **Visual Basic Projects** for project type, and **Windows Application** for template.
- 4) Enter the project name and location, and click the **OK** Button.
- 5) Paste a *TextBox* and a *Button* into the form from the toolbox.
- 6) Follow Section 6.2 Pasting Compolet into Forms to register Sysmac CJ2 Compolet to the toolbox and paste it into the form:



- 7) Set the property to specify the target PLC.
 Select **CJ2Compolet1**, and set the target PLC's IP address for *PeerAddress* in the Visual Studio Properties window. Set *LocalPort* to 2 (Ethernet port), by which you can select the Ethernet port set in the SYSMAC Gateway Console.



- 8) Double-click the form, and then enter the following code into the form-load event.

```
Private Sub Form1_Load(ByVal sender As System.Object, _
    ByVal e As System.EventArgs) Handles MyBase.Load
    Me.CJ2Compolet1.Active = True
End Sub
```

- 9) Double-click **Button1** in the form, and enter the following code into the Click event handler. In this example, you will read DM0, and display it as a hexadecimal character string in the text box.

```
Private Sub Button1_Click(ByVal sender As System.Object, _
    ByVal e As System.EventArgs) Handles Button1.Click
    Me.TextBox1.Text = Hex(Me.CJ2Compolet1.DM(0))
End Sub
```

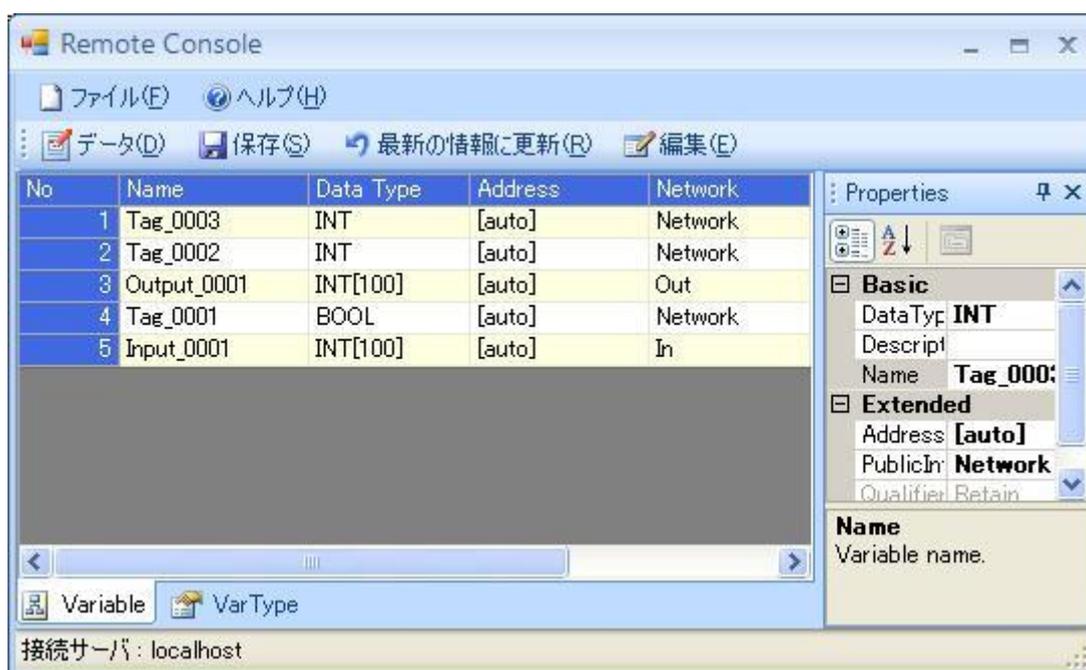
- 10) Select **Start** from the **Debug** Menu to execute the program.
 Click **Button1** to read the data from DM0, and display it in the text box.

9. Remote Console

9.1. What is Remote Console

SYSMAC Gateway Remote Console (hereinafter referred to as Remote Console) is a software package that enables you to edit SYSMAC Gateway tags remotely from a computer that does not have SYSMAC Gateway installed.

It is possible to install Network Configurator and Remote Console in a computer, read all of the SYSMAC Gateway tags (network variables) on the network, and import them to Network Configurator.



9.2. Installing Remote Console

Use the following procedures to install SYSMAC Gateway Remote Console.

1. Apply power to the computer, and log in as an Admin user.
2. Insert the SYSMAC Gateway Runtime media.
3. SYSMAC Gateway Runtime installer starts running. Cancel the installer.
4. Execute **SgwRemoteConsoleSetup.exe** on the root folder of the installation media.
5. The installation of SYSMAC Gateway Remote Console will be started. Follow the Wizard instruction to complete the installation.

Note: Remote Console does not require the license key. You can install it to any PCs.

9.3. Launching Remote Console

From the Windows Start menu, select **All Programs - OMRON - SYSMAC Gateway - SYSMAC Gateway Remote Console**.

Refer to the Remote Console help for the detailed usage.

9.4. Uninstalling Remote Console

Use the following procedures to uninstall SYSMAC Gateway Remote Console.

1. Apply power to the computer, and log in as an Admin user.
2. Execute **Programs and Feature** from Windows control panel.
3. Select **SYSMAC Gateway RemoteConsole** and click the **Uninstall** Button to start uninstallation.

10. Installation/Operation Precautions

10.1. Adding the Plug and Play USB driver

USB driver will be required when you connect to a PLC, like CJ2, CP or NSJ series, through USB. Use the following procedures to install the USB driver. The USB connection with NJ/NX-series Controllers is not supported.

- USB limitation.

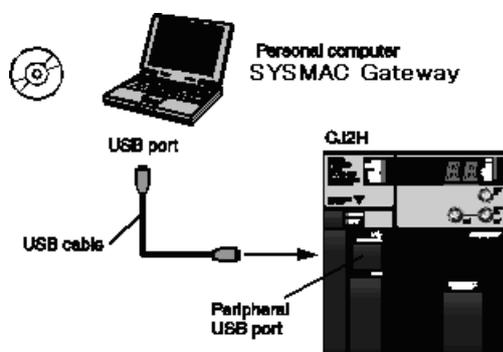
There are the following limitations for using USB connection.

- Only one device can be connected from a computer. We cannot connect to multiple PLCs from multiple USB ports in a computer.
- You should not plug off the USB cable when the port has been opened. When you plug off the USB cable, be sure to close the USB port of SYSMAC Gateway before disconnecting the cable.

If you plug off the USB cable while online, the online status may not be recovered only by reinserting the cable. Close the port first. Then, insert the USB cable and open the port again.

- During the USB port opened, Windows cannot become hibernation mode or stand by mode.

CJ-series CJ2 CPU Units



The peripheral USB port (conforming to USB 1.1, B connector) is a dedicated port for connecting programming device such as CX-One (including CX-Programmer) and SYSMAC Gateway application.

- Items Required for USB Connection

Operating system	Vista, Windows 7, Windows 8, 8.1
Support Application	SYSMAC Gateway or FinsGateway based application
USB driver	Included with SYSMAC Gateway product.
USB cable	USB 1.1 (or 2.0) cable (A connector-B connector), 5 m max.

- Installing the USB Driver

You need to install the USB driver for first connecting a computer to a PLC.

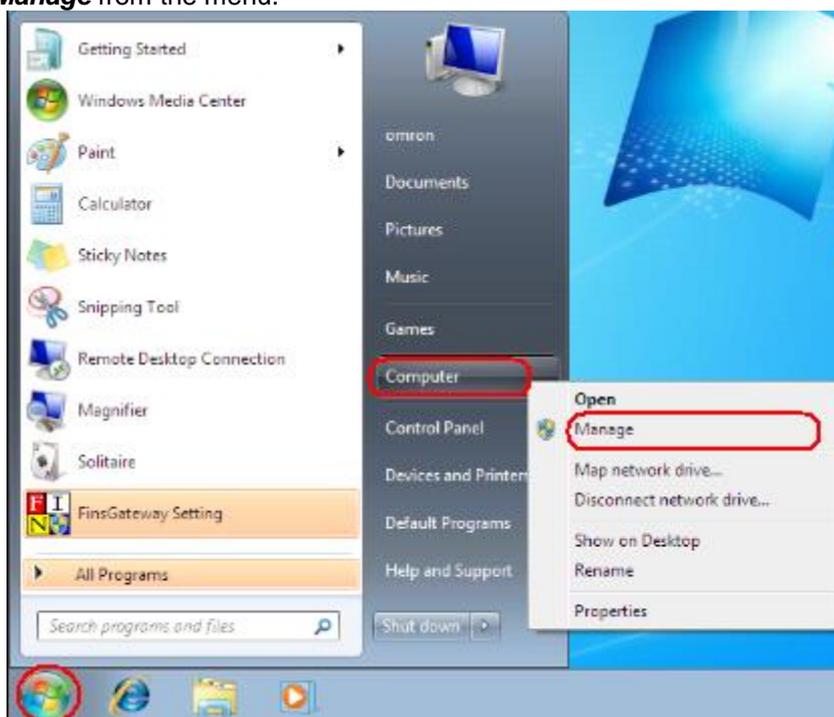
The procedure for connecting a computer to the CJ2 CPU Unit peripheral USB port is described below.

● Windows Vista / Windows 7 / Windows 8, 8.1

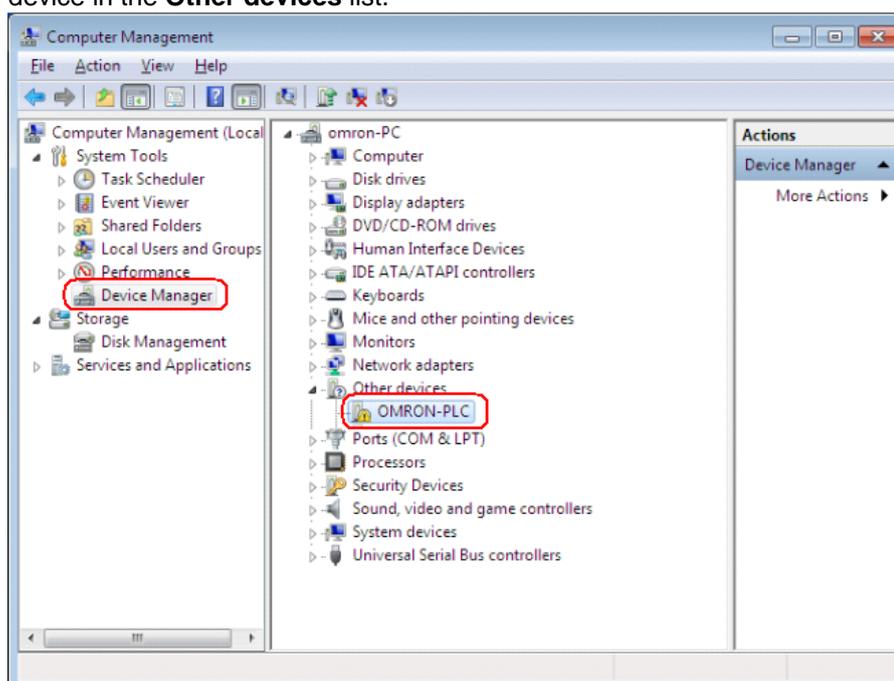
This section describes the installation procedures for Windows 7. The USB driver is common to Windows Vista, Windows 7, and Windows 8.1.

Turn ON the power supply to the CJ2 CPU Unit, and connect USB cable between the USB port of the computer and the peripheral (USB) port of the CJ2 CPU Unit.

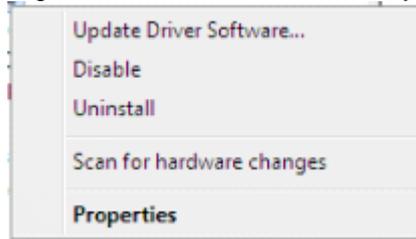
1. Click the **Windows Start** Button. Right-click the **Computer**. Then, select **Manage** from the menu.



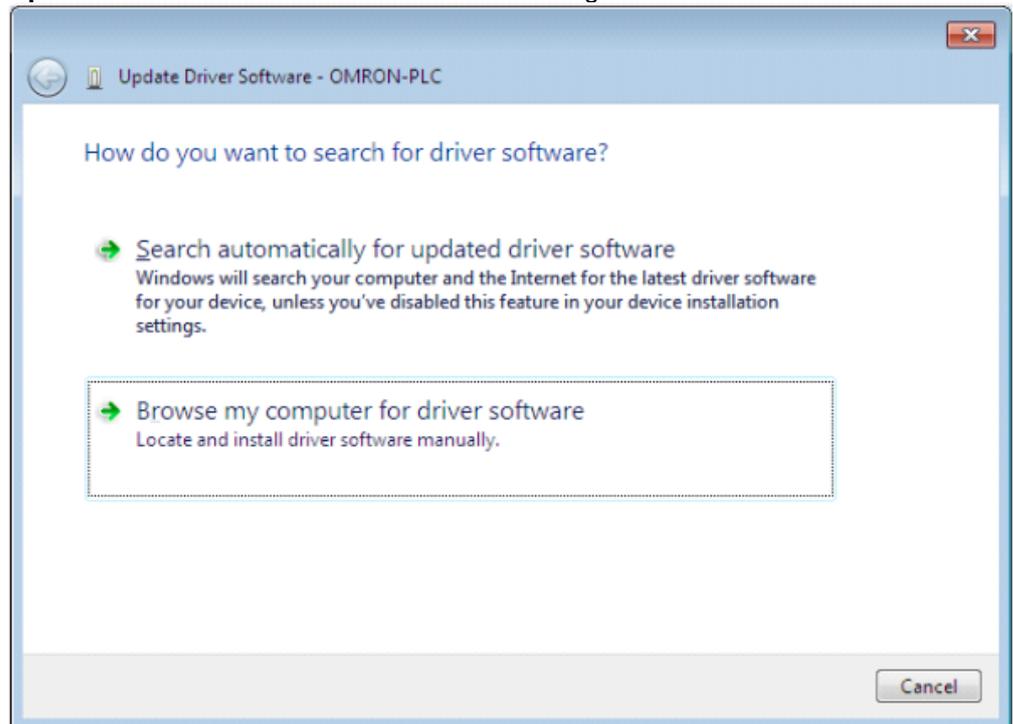
2. The following Computer Management Window will be displayed. Select **Device Manger** in the left tree view. Then you can see the **OMRON-PLC** device in the **Other devices** list.



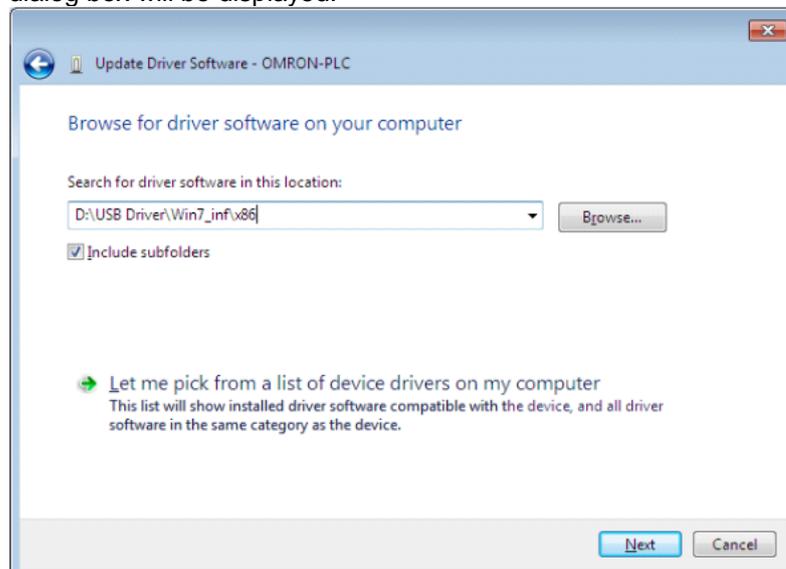
- Right-click the **OMRON-PLC** entry. The following menu will be displayed.



- Select **Update Driver Software** from the menu. This will show the following **Update Driver Software for OMRON-PLC** dialog box.



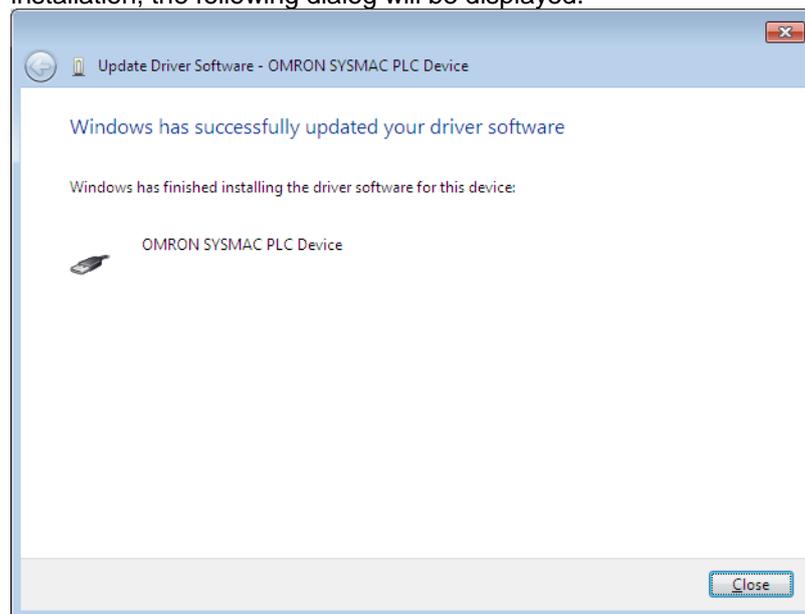
- Select the **Browse my computer for driver software** Option. The following dialog box will be displayed.



6. Click the **Browse** Button, specify the folder where the following driver is stored:
 32-bit version: /USB Driver/Win7_inf/x86
 64-bit version: /USB Driver/Win7_inf/amd64
7. Click the **Next** Button to show the following dialog.

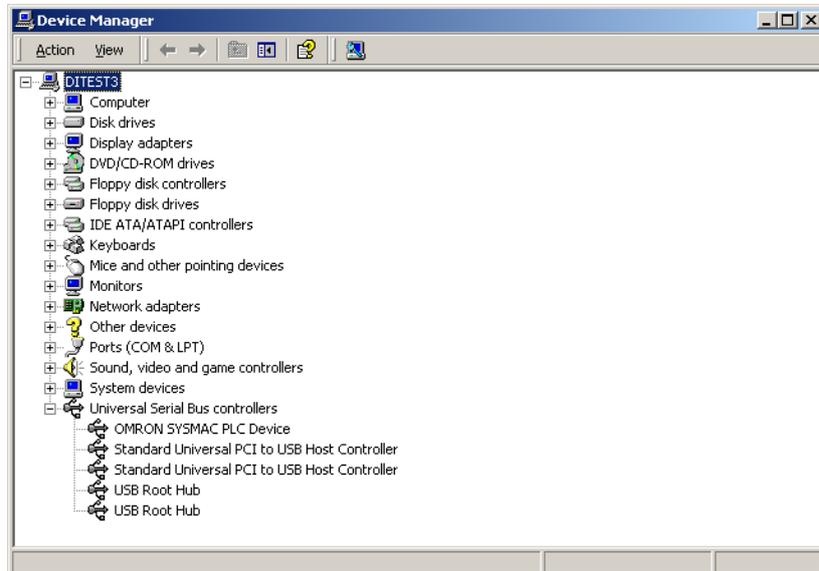


8. Click the **Install** Button to start driver installation. After finishing the installation, the following dialog will be displayed.



■ Checking after Installation

1. Display the Device Manager at the computer.
2. Click *USB (Universal Serial Bus) Controller*, and confirm that *OMRON SYSMAC PLC Device* is displayed.

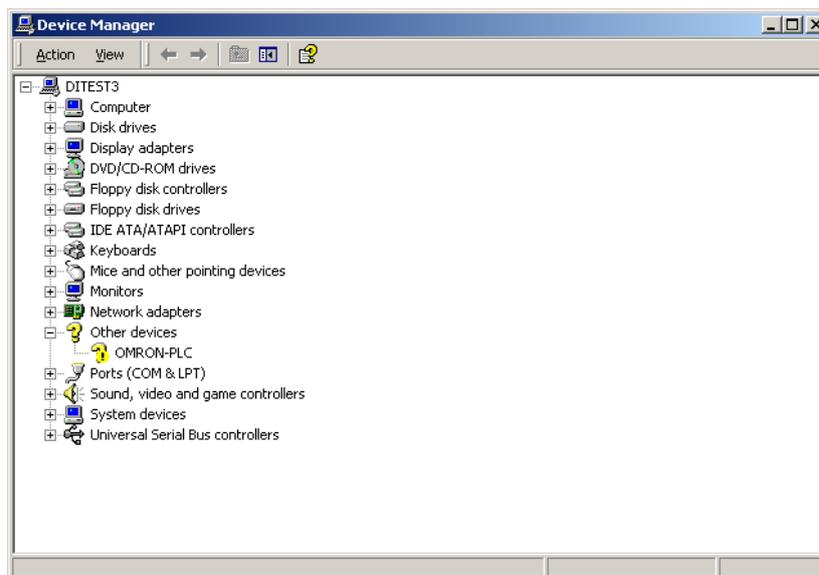


■ Re-installing the USB Driver

If the USB driver installation fails for some reason or is cancelled in progress, the USB driver must be reinstalled.

● Checking USB Driver Status

1. Display the Device Manager on the computer.
2. If *USB Device* is displayed for *Other devices*, it means that the USB driver installation has failed.



- Reinstalling the USB Driver
 1. Right-click **USB Device** and select **Delete** from the menu to delete the driver.
 2. Reconnect the USB cable. The USB Driver Installation Window will be displayed.
 3. Reinstall the USB driver.

10.2. Adding the Plug and Play Support Board driver

To use the PCI Controller Link Support Board or another Network Support Board that is Plug & Play, the device driver for the Board must be installed in addition to the SYSMAC Gateway setup. For details, refer to the manual included with the Board.

11. Copyrights

- I. CX-Compolet was developed using Microsoft Visual Studio 2013.
- II. All copyrights (such as for the manual, software, sample code, etc.) included in CX-Compolet belong to OMRON Corporation, except for the items described in III below:
- III. The CX-Compolet package includes the following products whose copyrights belong to Microsoft Corporation: .NET Framework.
- IV. The SYSMAC Gateway manual, and software copyrights are held exclusively by OMRON Corporation. The following are the only exceptions to this:
 - Microsoft MSVC runtime modules, MFC runtime modules, and Microsoft .NET Framework.
 - Borland Software Corporation C++ Builder runtime modules.
 - FlexGrid for .NET 4.0J
Copyright (C)2001-2007 ComponentOne LLC.
 - Crownwood Software Ltd DotNetMagic Version 5.3.0

These copyrights are held by Microsoft Corporation, Borland Software Corporation, ComponentOne LLC and Crownwood Software Ltd, respectively. Omron Corporation is redistributing these files with SYSMAC Gateway in accordance with the module redistribution conditions of Microsoft Corporation, Borland Software Corporation, ComponentOne LLC and Crownwood Software Ltd. According to this contract, Omron customers are not allowed to redistribute these files.

FINS, FinsGateway and SYSMAC are trademarks of OMRON Corporation.

Microsoft, Windows, Windows Vista, Visual Studio, Visual C#, Visual Basic and Visual C++ are registered trademarks of Microsoft Corporation.

Intel is registered trademarks of Intel Corporation.

ODVA™, CIP™, EtherNet/IP™ are a trademark of ODVA.

All other company names, product names, etc. are also the trademarks or registered trademarks of the respective companies.

The symbols ™ and ® are omitted in this guide.