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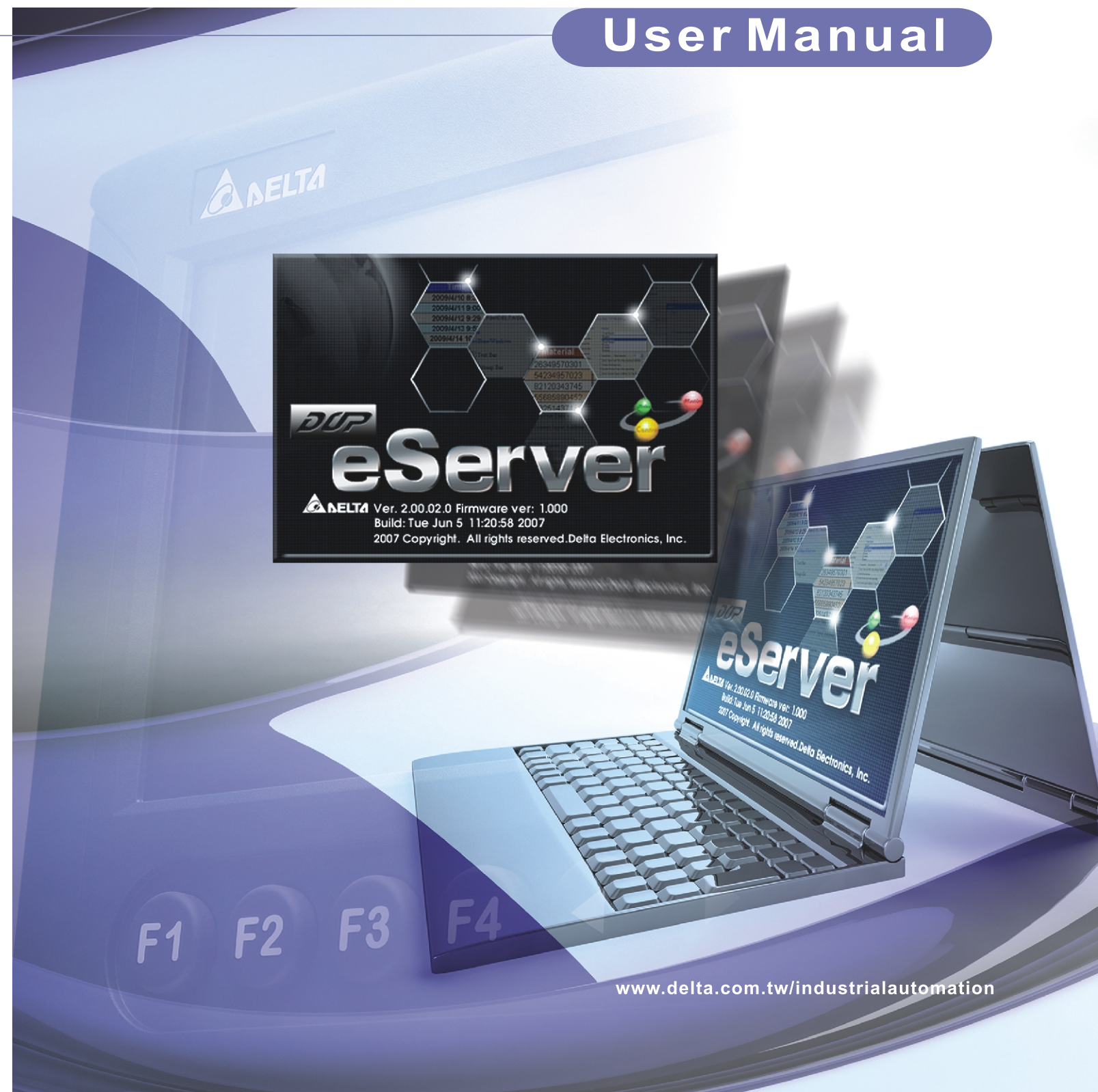
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# **DUP eServer**

## **User Manual**



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## About this Manual...

### User Information

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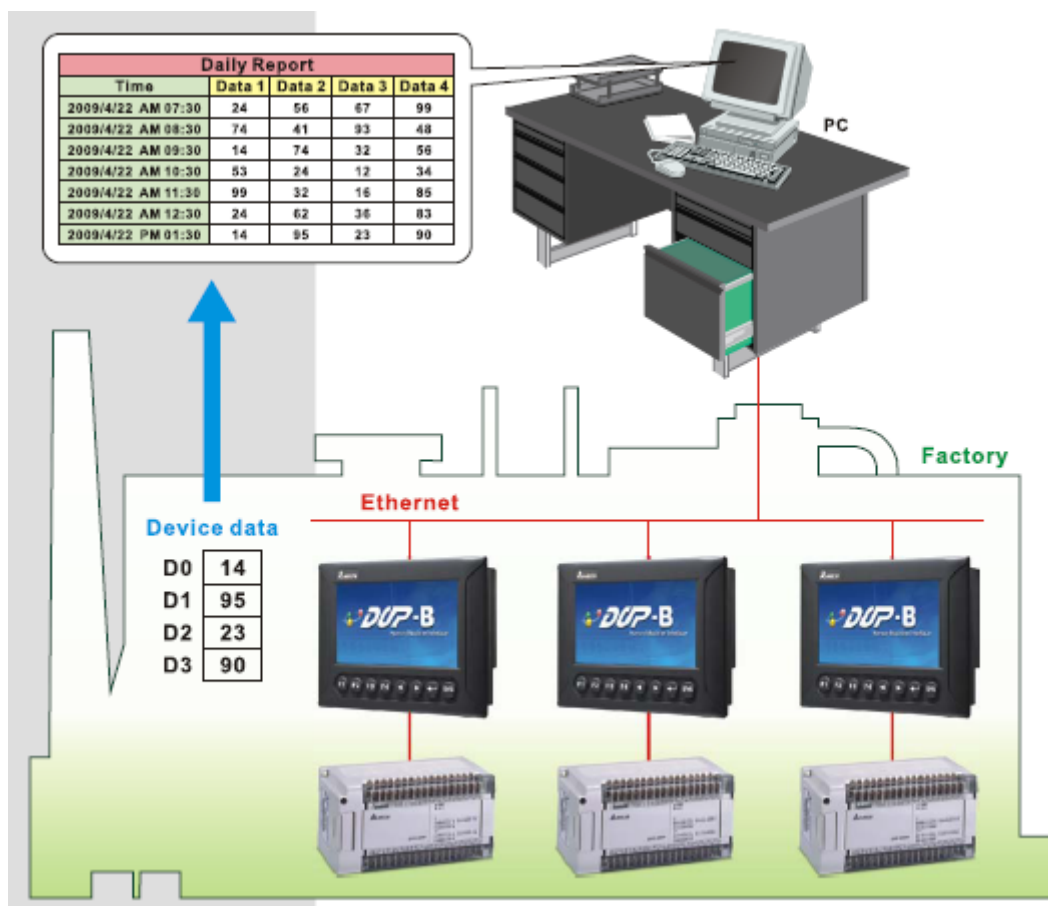
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# Chapter 1 Introduction

## 1.1 eServer Data Collection Software

eServer is a PC software used to help the customers collect and transfer production information and history data directly from production site to a PC in the office via Ethernet. eServer also supports Microsoft Excel (hereinafter “Excel”) software functions, such as formulas, tables and graphs. This allows that the collected data can be saved in user-defined Excel file according to various purposes for the customers to easily and quickly create required production reports. In addition, it also supports ODBC interface which is able to save the collected data to a database for the purpose of management and use in production sites.



## 1.2 Supported Models

The supported models for eServer Data Collection Software are listed in the table below.

Series	Model Name	Remark
DOP-AE Series	DOP-AE57BSTD	DOP series Extension Ethernet Module, DOP-EXLNHJ1AE is required when using eServer with DOP-AE series HMI product.
	DOP-AE57GSTD	
	DOP-AE57CSTD	
	DOP-AE80THTD1	
	DOP-AE10THTD1	

## 1.3 System Requirement

Below are the system requirements to comply with the operating environment of eServer:

Hardware / Software	System Requirement
CPU	Pentium 4, 1.6GHz or greater is recommended
Memory	1GB and above is recommended
Hard Disk	Capacity: 50MB and above
Monitor	Support resolution: 1024 × 768 or higher full-color display.
Printer	Printer compatible with Windows® 2000 & Windows® XP
Operation System	Windows® 2000 & Windows® XP
Supported Microsoft Office Software	Microsoft Office 2000 Microsoft Office 2003 Microsoft Office 2007

# Chapter 2 Software Installation

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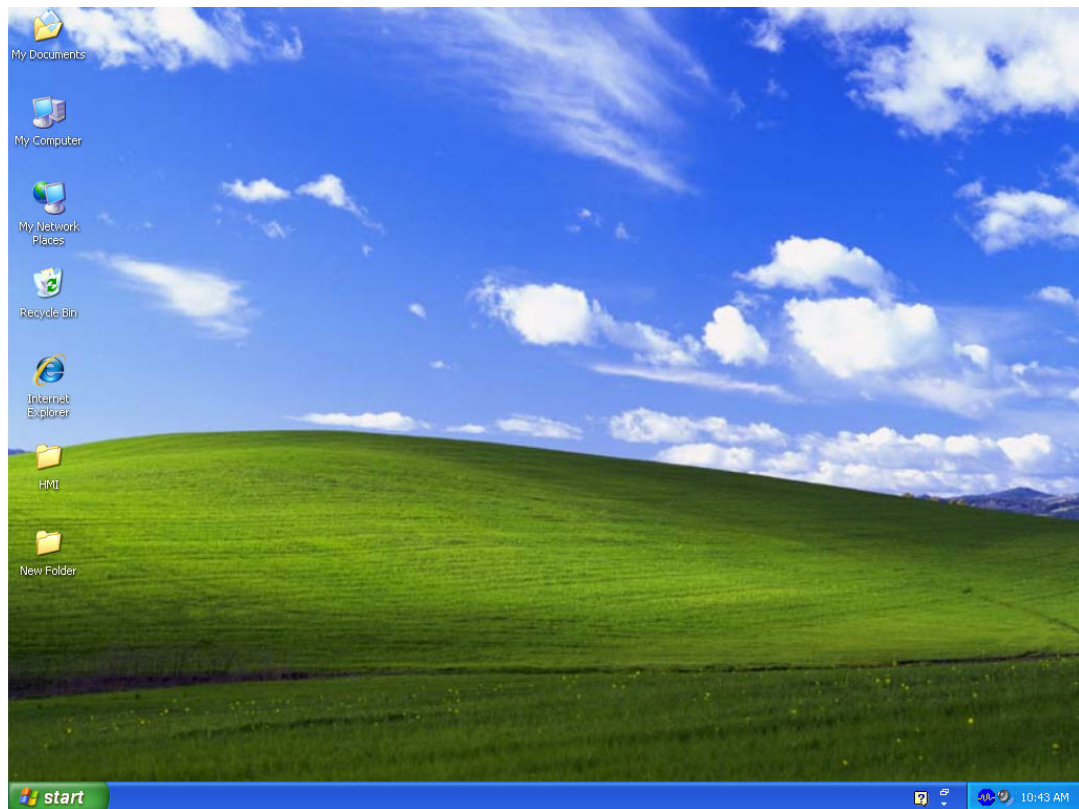
## 2.1 eServer Setup

In this chapter, it will introduce general functions of eServer with Windows. The users can use it to design what they want. Detail information for each function will be discussed in the following chapters.

### 2.1.1 Software Installation

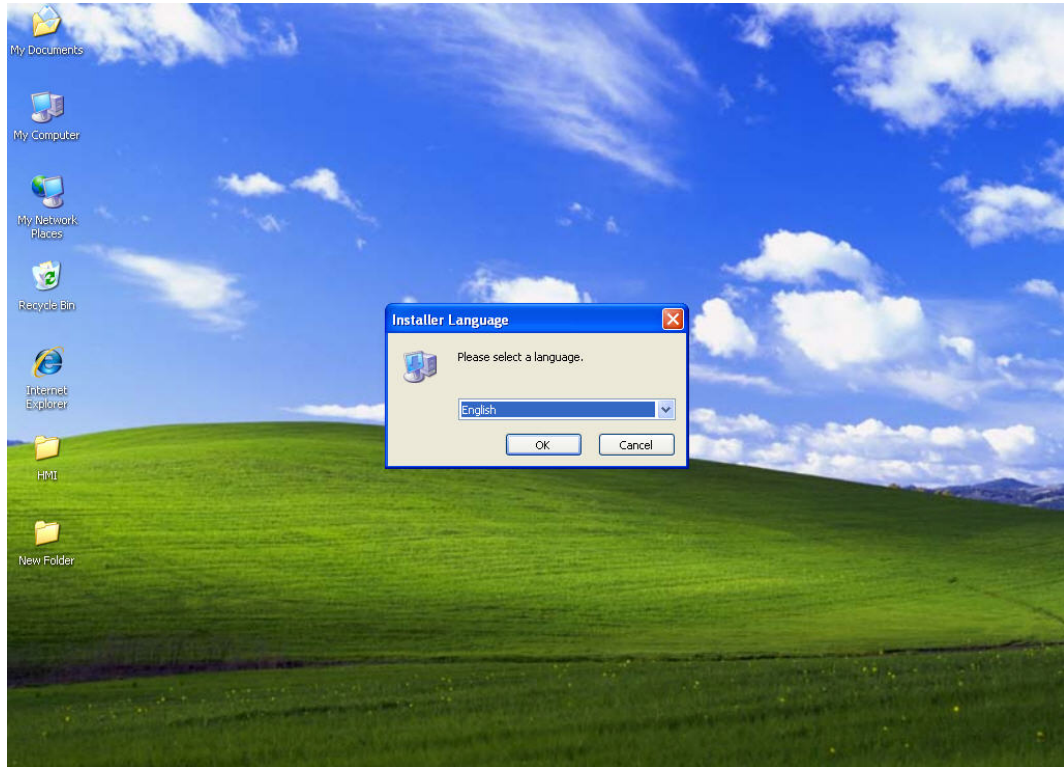
To start the eServer setup, please refer to the following steps:

Step 1. Please start-up your computer to Windows 2000/WindowsXP system.

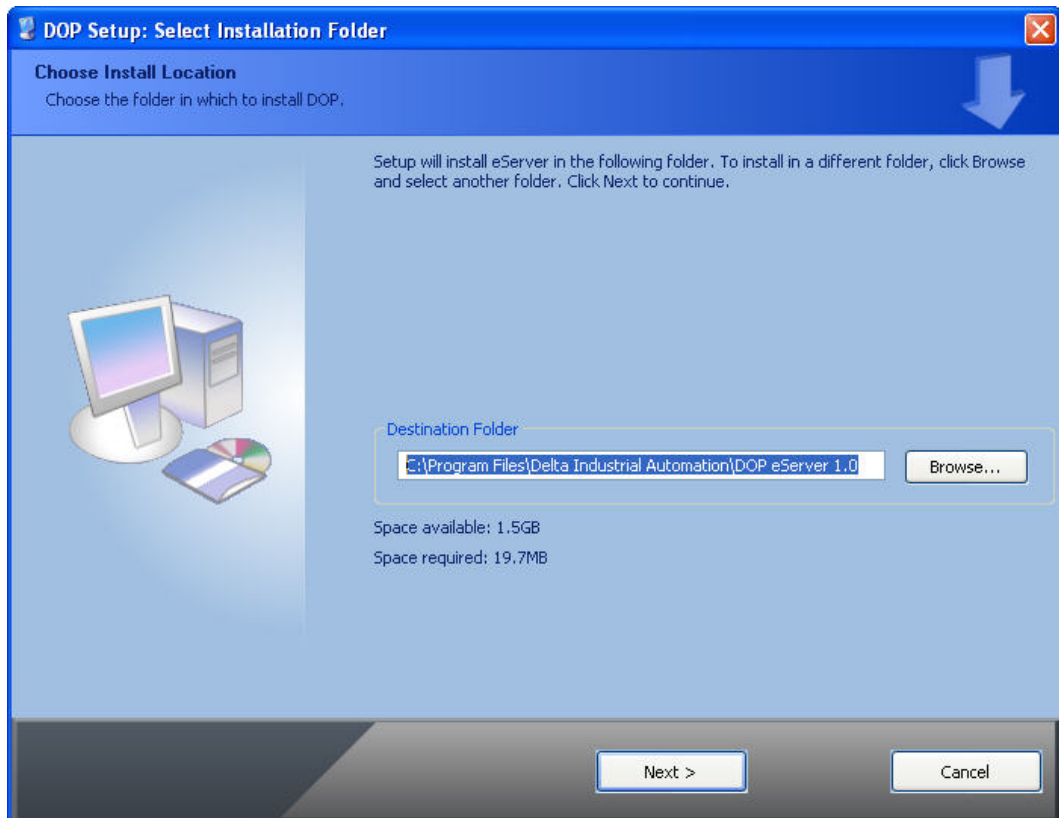




- Step 2. Execute **setup.exe** from Windows taskbar by clicking “Start” > “Run”. After pressing **OK**, the system will setup automatically and the following dialog box will appear for selecting the desired display language.



- Step 3. After pressing OK, the system will setup automatically and the users will get the following dialog box to choose destination location.

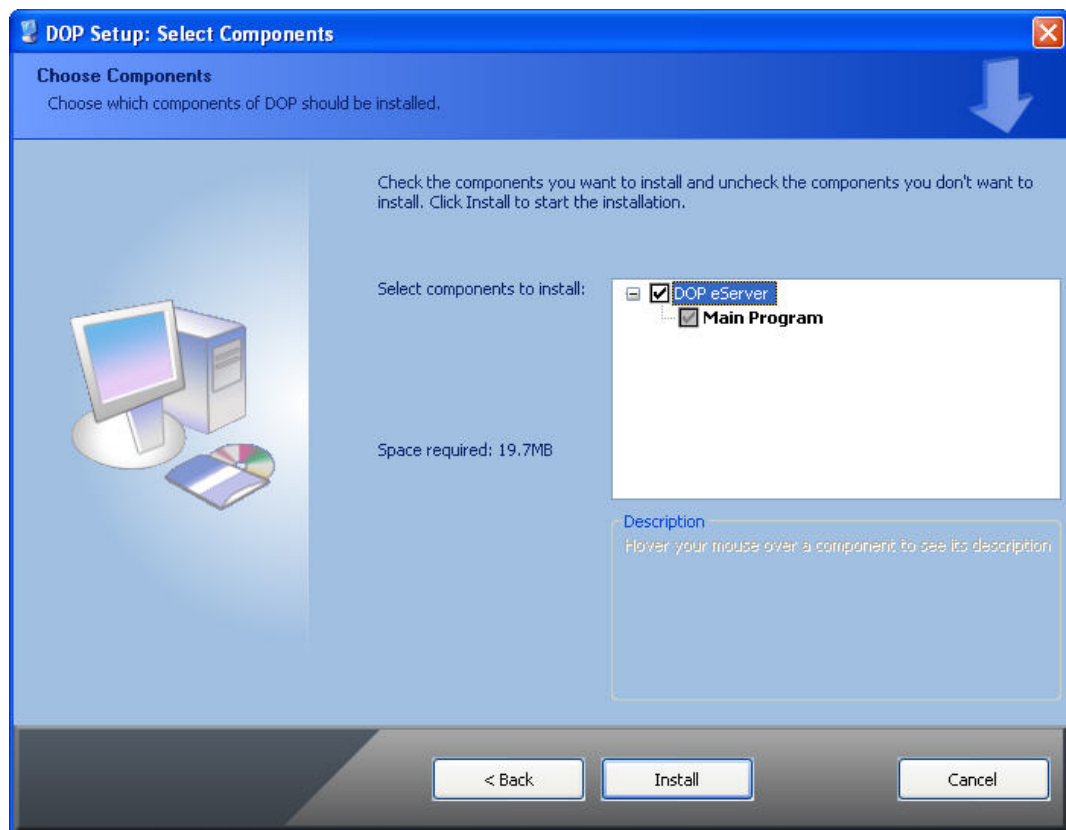


To select the default directory **C: \Program Files\Delta Industrial Automation\DOP eServer 1.0**, click **Next>** for the next step. Setup will install in the directory indicated in the Destination Directory box at the bottom of the dialog box.

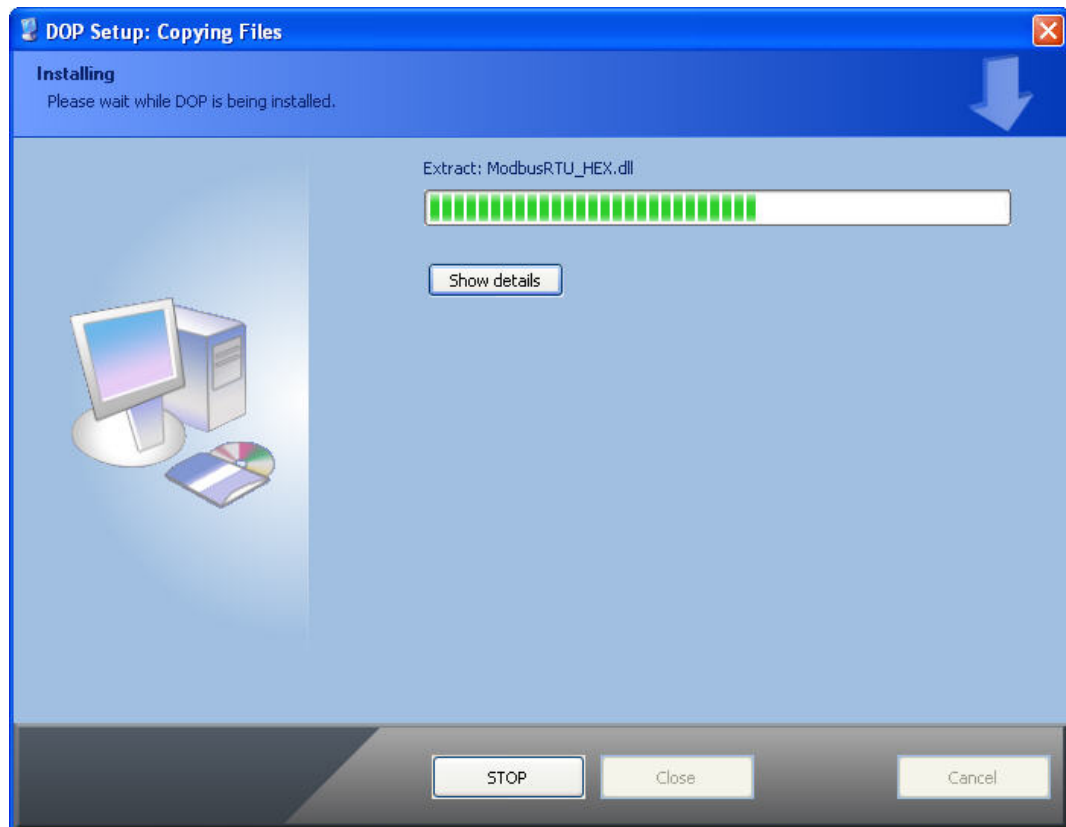
To select a directory other than the default directory, click **Browse**. A list of available directories appears. Highlight the desired directory for the Delta eServer and click **OK**, then **Next>** for the next step.

If necessary, click **< Back** button to take you back through Setup dialog boxes one by one.

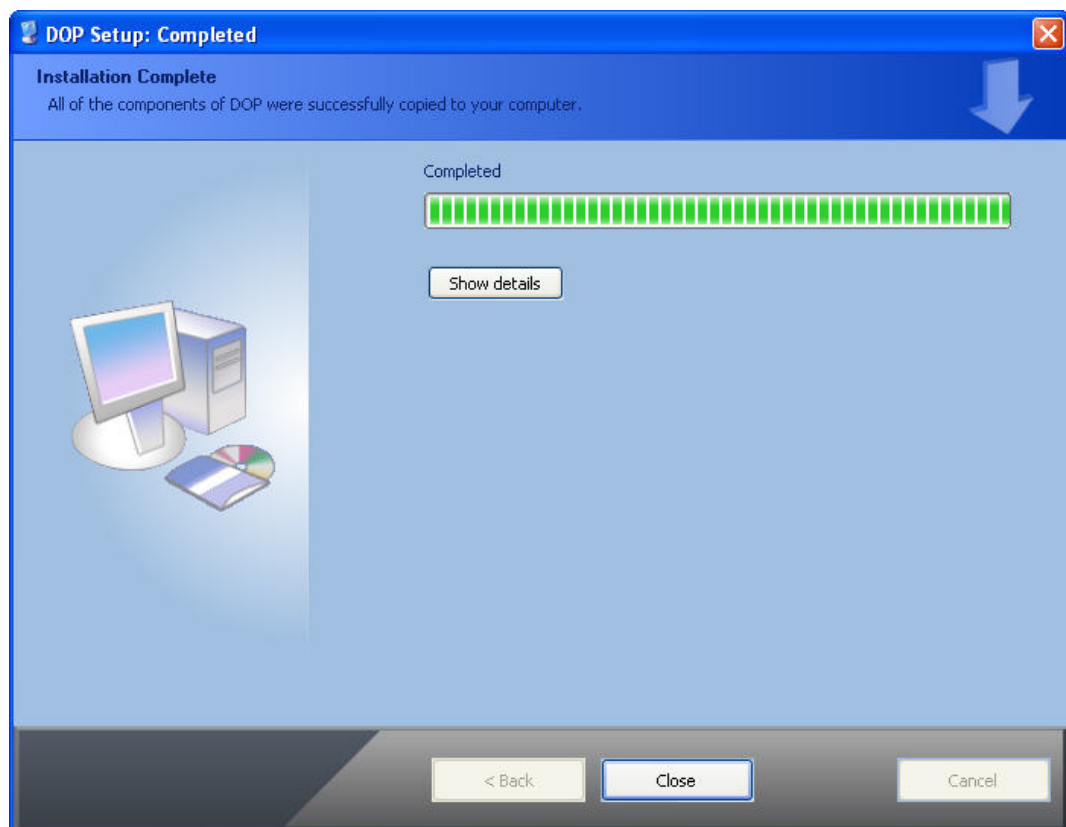
- Step 4. After pressing **Next**, the following dialog box will appear and ask the users to select the installation software, i.e. DOP eServer. Then click **Install** button to start DOP eServer installation.



Step 5. The system will start DOP eServer Installation.



Step 6. DOP eServer has been installed successfully. Press **Close** to finish the installation.

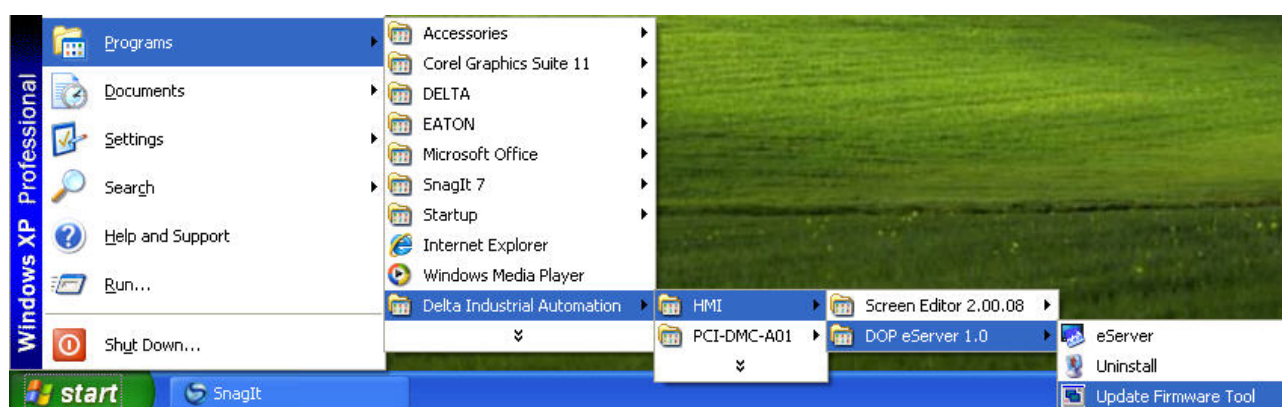


# Chapter 3 Before Using eServer

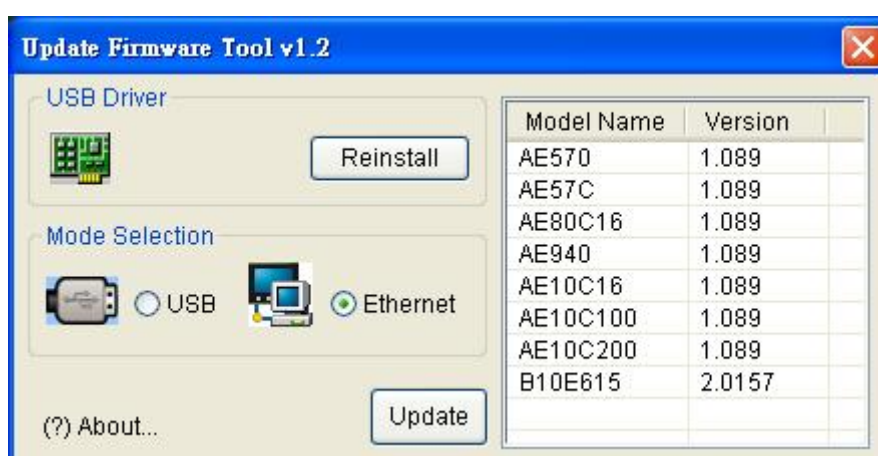
Before using eServer, the users need to update HMI firmware and complete PC and HMI network settings. Please ensure to read the following instructions fully so that the users could understand how to update HMI firmware and complete PC and HMI network settings correctly.

## 3.1 Update Firmware

Remember to update the firmware before using eServer. To select this function, click **Start > Programs > Delta Industrial Automation > HMI > DOP eServer 1.0 > Update Firmware Tool**.



After clicking **Update Firmware Tool**, the following dialog box will appear for the users to select the communication interface (the default setting is USB driver). Press **Update** button to update HMI firmware automatically.

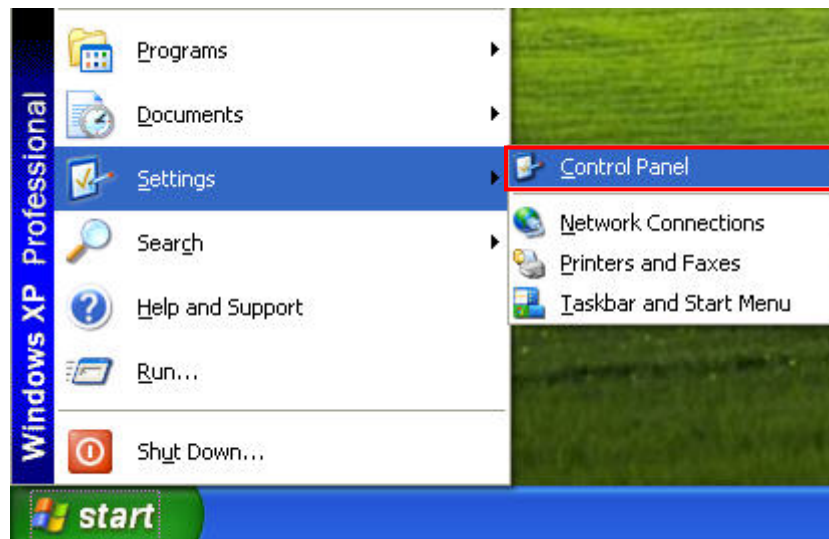




## 3.2 Networking Settings

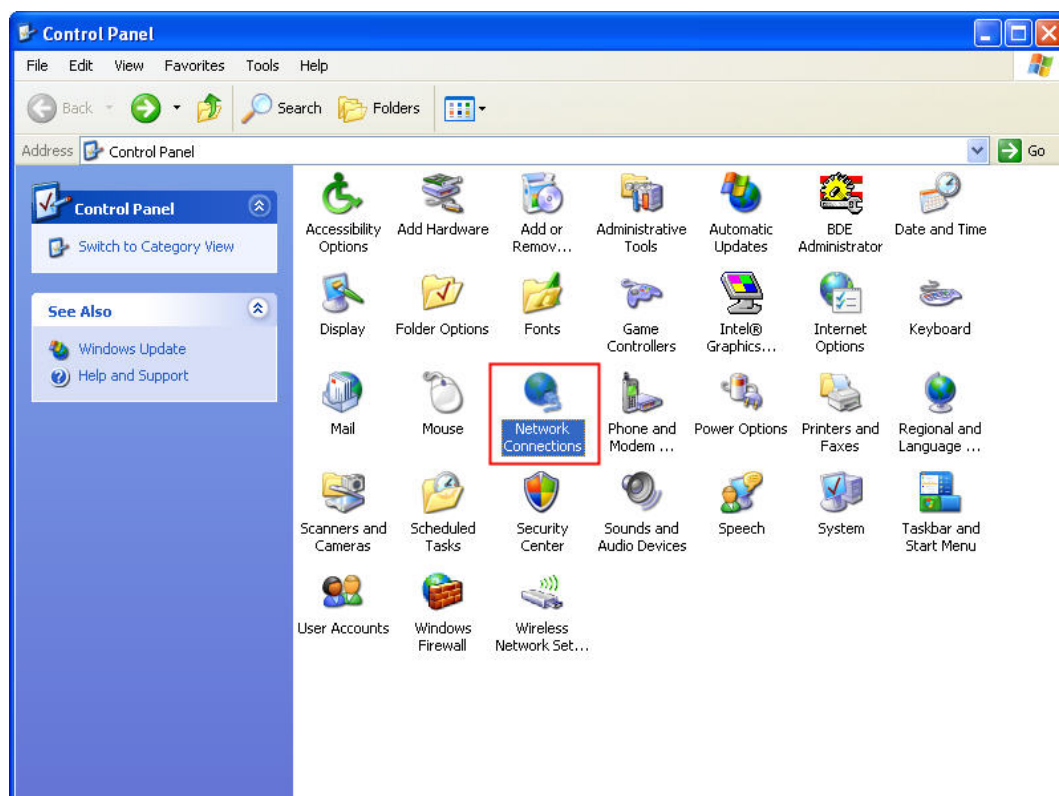
Ensure to observe the following instructions to complete PC networking settings before eServer operation.

### 3.2.1 Setting PC Network

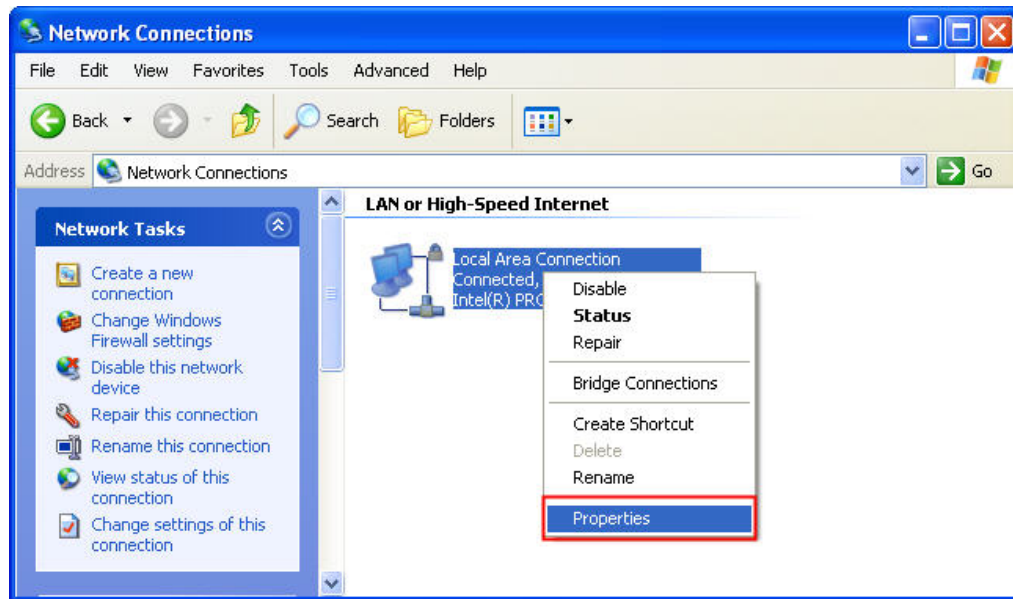


Power on PC and start Windows. Click **Start > Programs**, point to Control Panel, and then

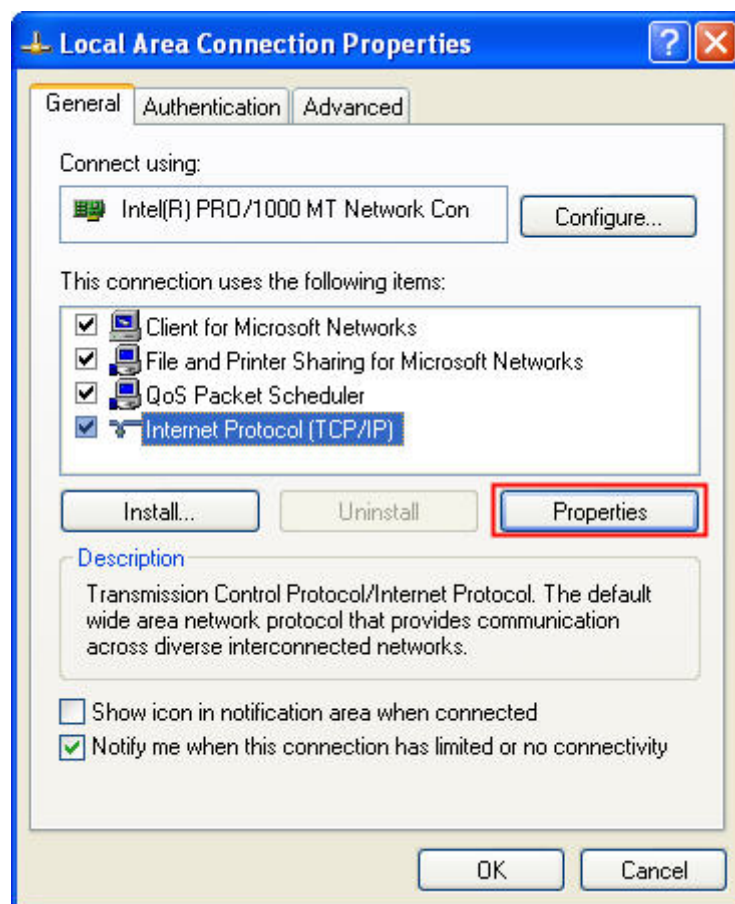
select Network Connections (  ).



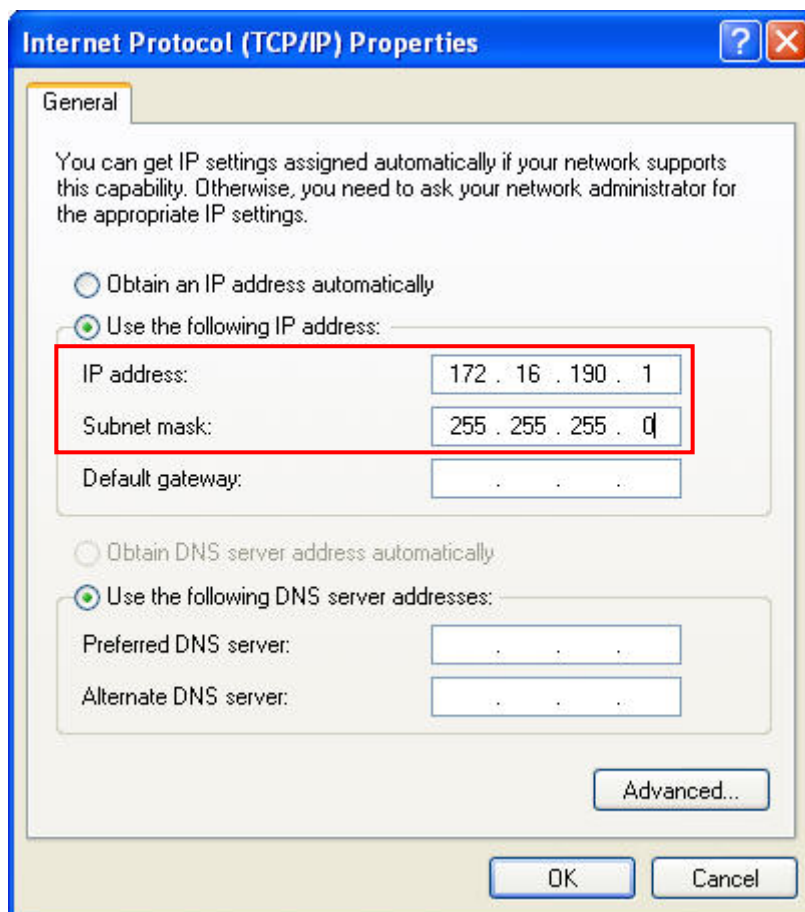
Double-click **Network Connections** icon, the following windows will appear. Right-click the **Local Area Connection** icon, and then select **Properties** from the pop-up menu.



The **Local Area Connection Properties** dialog box will open. Use **General** tab to select **Internet Protocol (TCP/IP)**. Then, press **Properties** button.



The **Internet Protocol (TCP/IP) Properties** dialog box will open. Choose **Use the following IP address** and enter the IP address numbers of the PC into the field of **IP address** and **Subnet mask**.

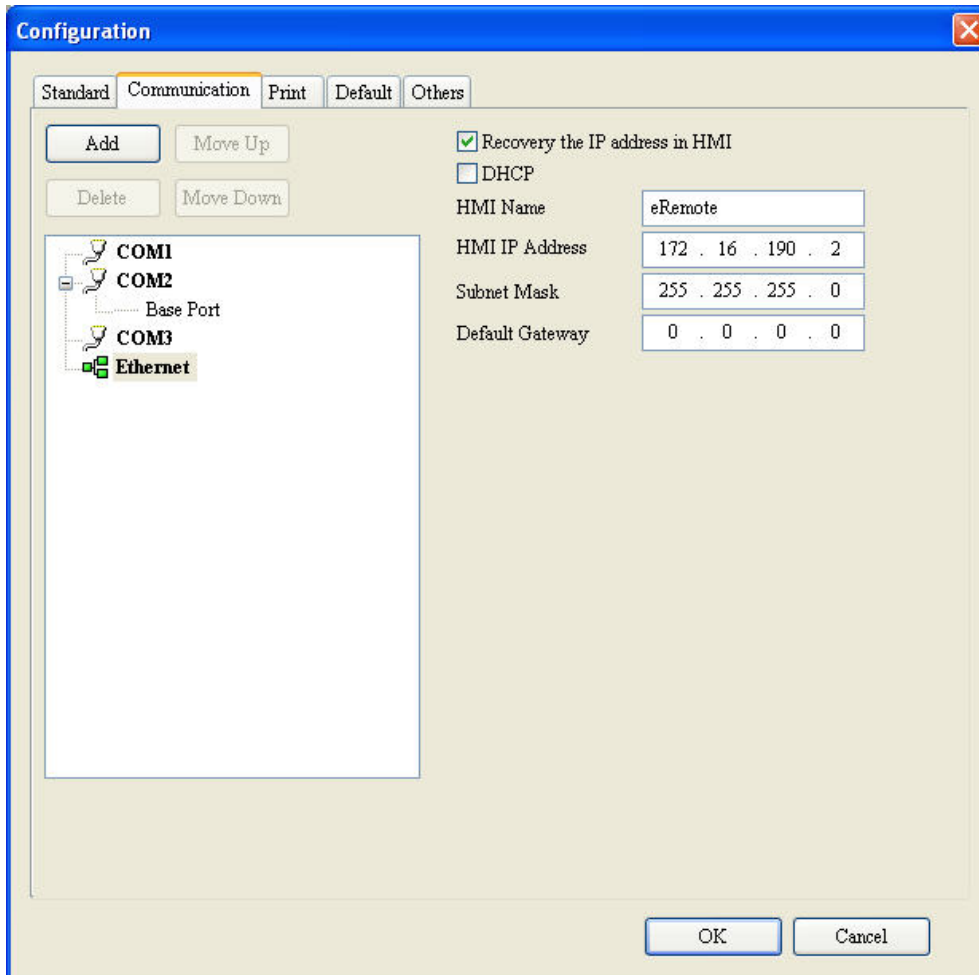


Then, press **OK** button to finish the settings.

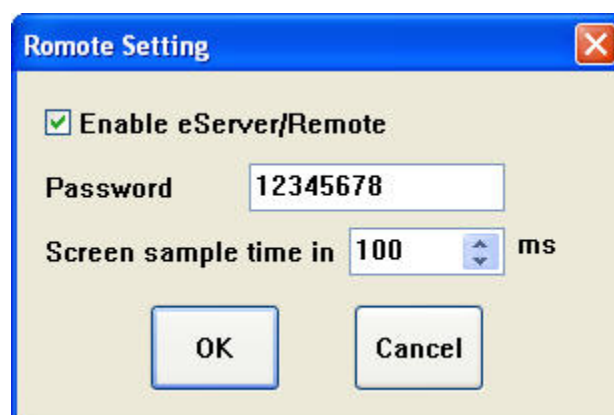
Please note that if the IP address numbers of subnet masks of the PC and HMI are different, HMI may not be displayed in the list when finding node.

### 3.2.2 Setting HMI Network

Start Screen Editor software program and click **Options > Configuration**. Use **Communication** tab to select **Ethernet** and complete HMI networking settings shown as the figure below. Then, press **OK** button to finish the settings.



Then, click **Options > Networking**. The following **Remote Setting** dialog box will appear. Check the check box before **Enable eServer/Remote** and set a password for network communication. After **OK** button is pressed, HMI networking is completed. Compile the edited project file at the end of the programming and the edited project file could be transferred to HMI.





### 3.3 Start eServer

To start eServer, click **Start > Programs > Delta Industrial Automation > HMI > DOP eServer 1.0 > eServer**.



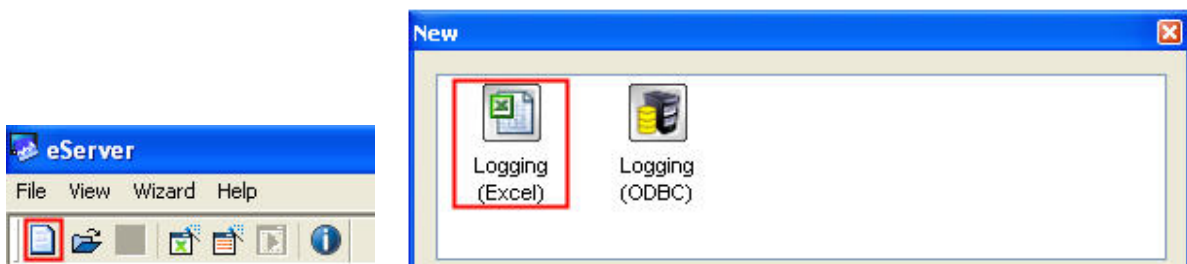
# Chapter 4 Excel Sampling Setting

## 4.1 Detailed Settings

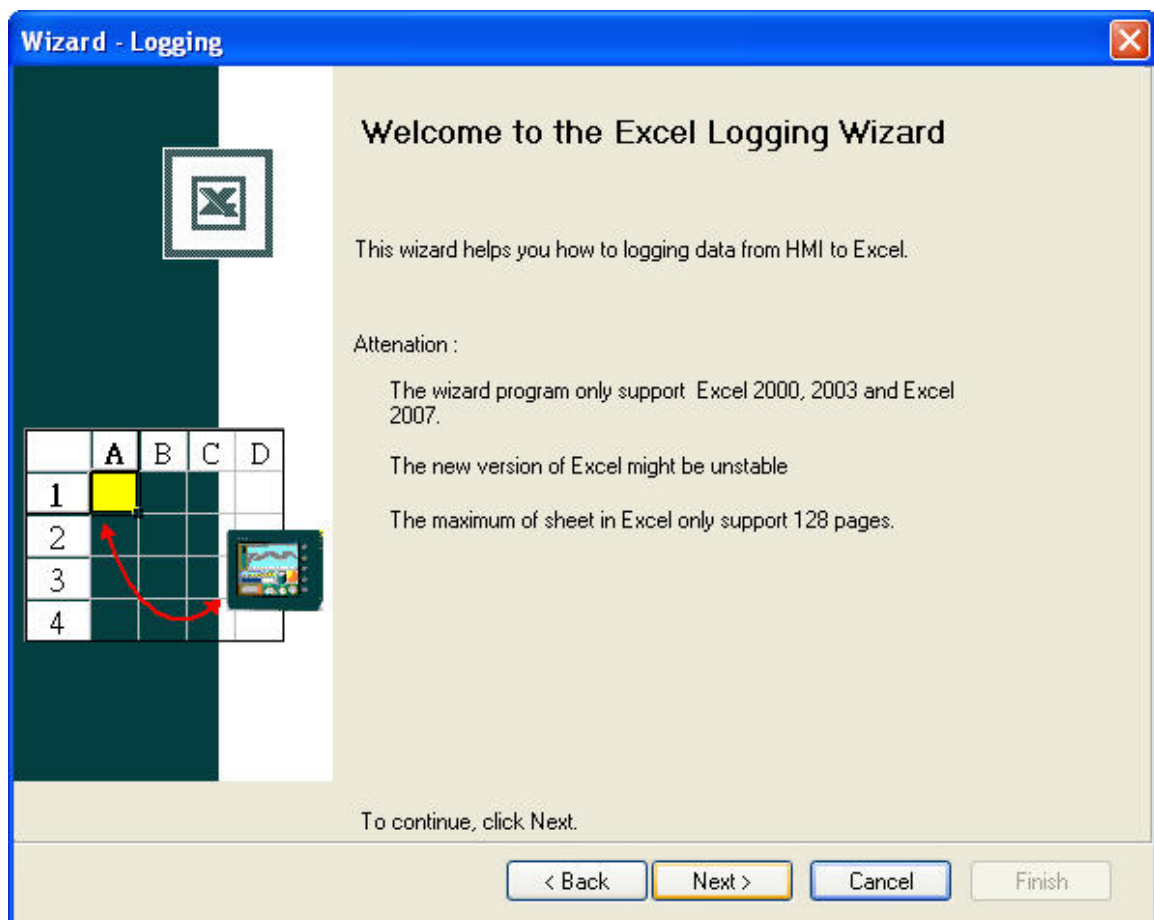
Please refer to the following steps to complete Excel sampling setting, i.e. how to log data from HMI to Excel.

### 4.1.1 Linkage

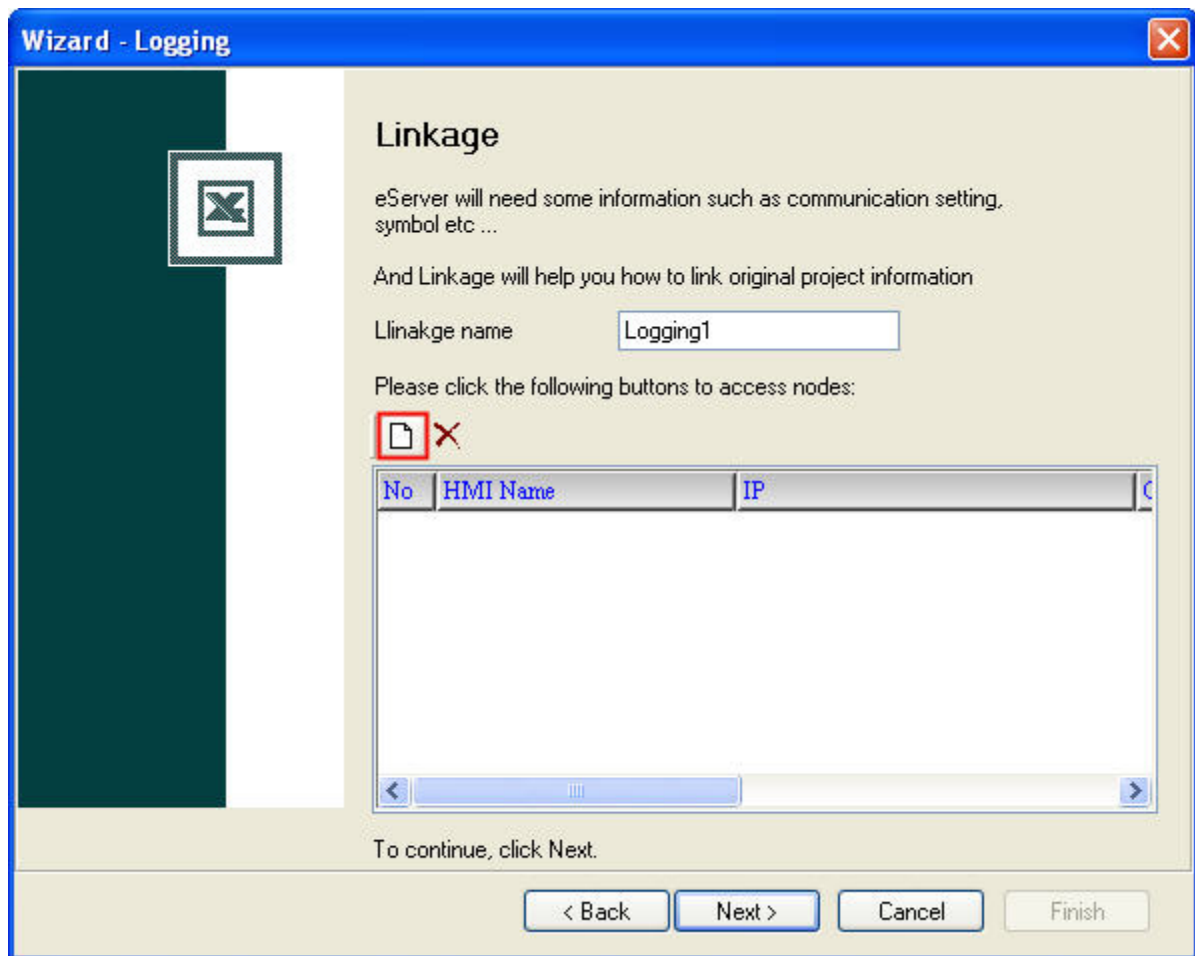
Start eServer, and click **File > New** or click **New** icon. After the **New** dialog box is opened, select **Logging (Excel)** icon and press **OK** button.




Then, the **Excel Logging Wizard** will be activated and the following dialog box will appear. Press **Next** button to continue.

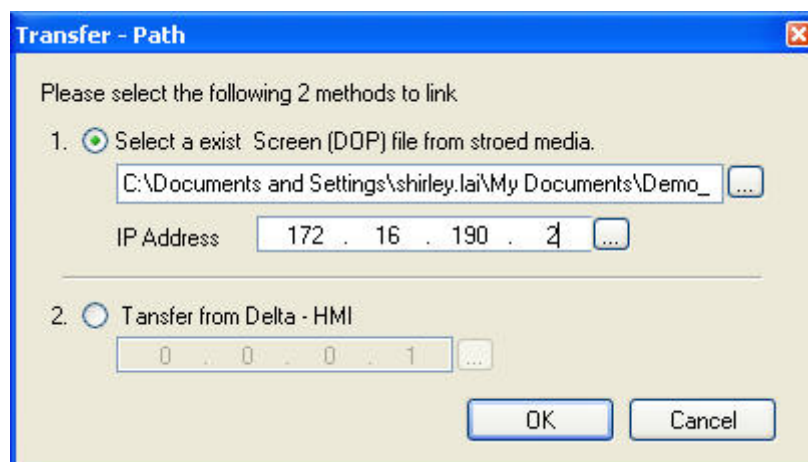


Click **New** icon to access nodes (link to HMI).

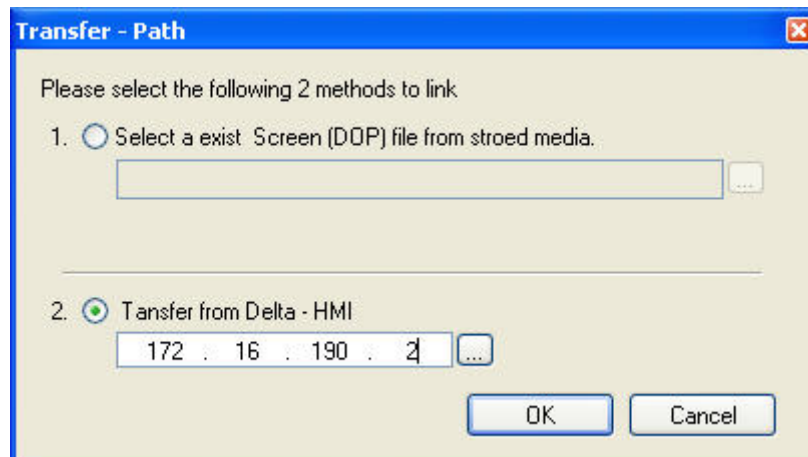


Click  icon to link HMI screen project file. There are two methods available for selection:

1. Select an existing Screen (DOP) file from stored media: Open an existing screen project file and set the IP address of the connecting HMI.



2. Transfer from Delta – HMI: Transfer the HMI screen project file via network communication directly.

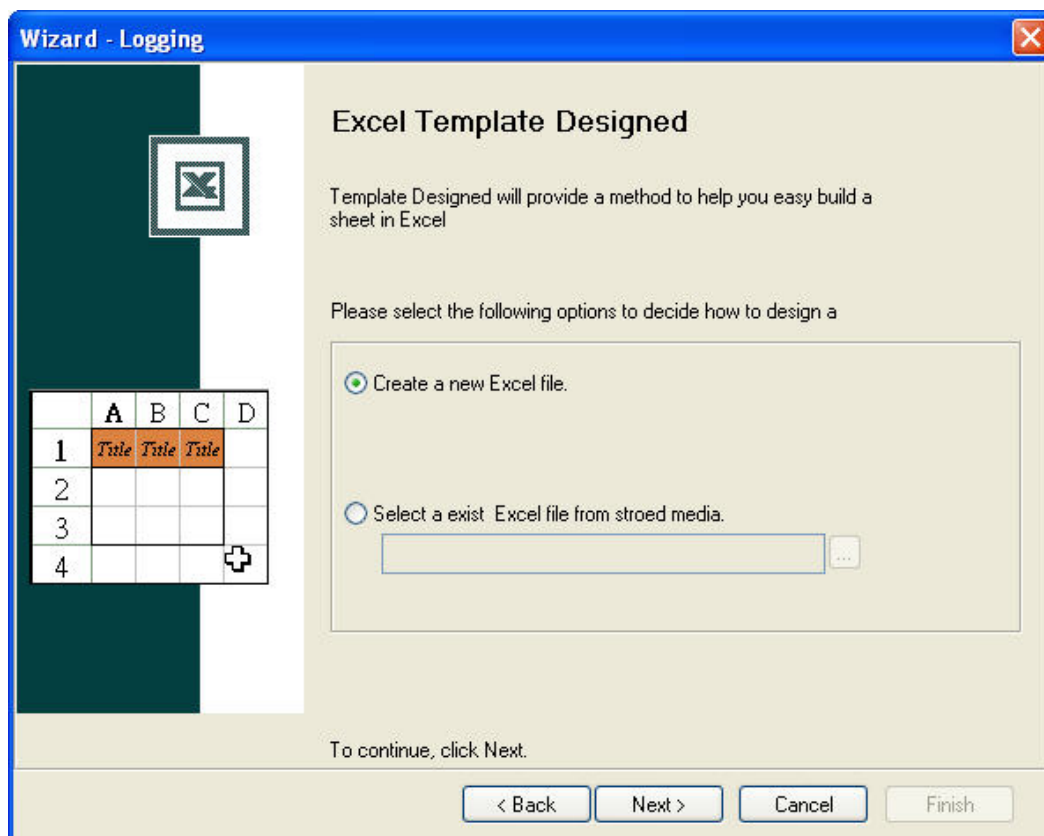


Press **OK** button to go to next step.

#### 4.1.2 Excel Template Sheet Design

This step is used to create the desired Excel template sheet. There are two methods available for selection:

1. Create a new Excel file: When this option is selected, the system will activate Excel automatically and allow the users to design the desired Excel template sheet.
2. Select an existing Excel file from stored media: When this option is selected, the system will allow the users to open an existing Excel file.



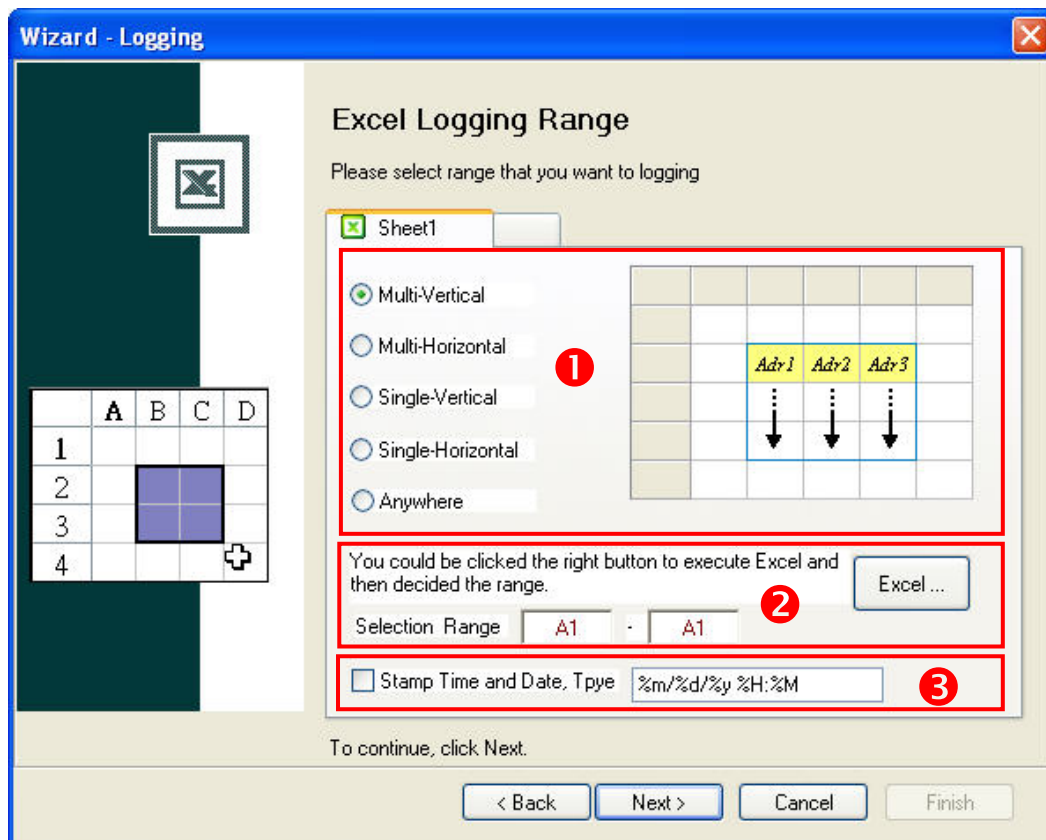


Press **Next** button to go to next step.

### 4.1.3 Excel Logging Range Setting

This step is used to specify the logging range to which the sampling data will be written.

There are three parts in this dialog box.



#### 1. Sampling Direction

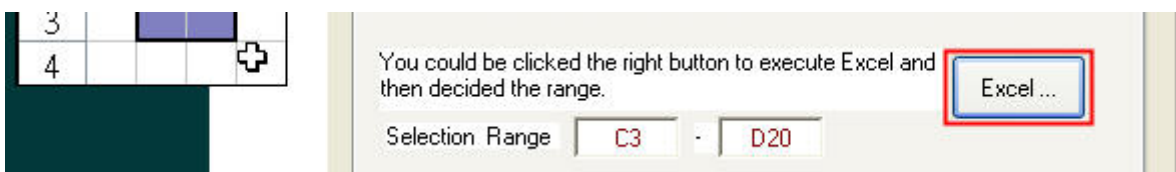
There are five different sampling directions could be selected. Please refer to the following table for explanation.

Sampling Direction	Diagram
<b>Multi-Vertical:</b> When this option is selected, multiple numbers of different register data could be logged into each vertical column in the selecting area simultaneously.	
<b>Multi-Horizontal:</b> When this option is selected, multiple numbers of different register data could be logged into each horizontal row in the selecting area simultaneously.	

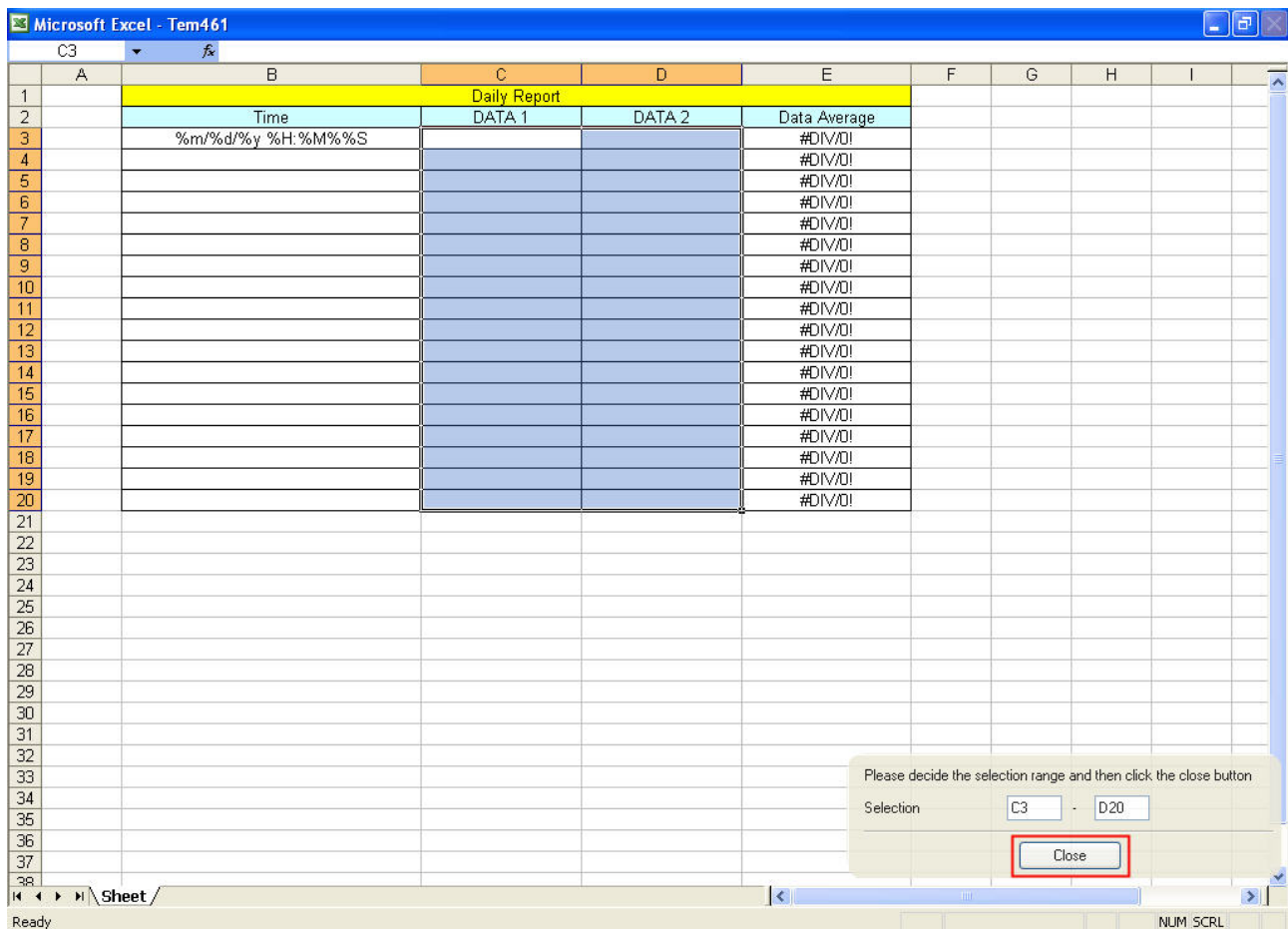
Sampling Direction	Diagram
<p>Single-Vertical:</p> <p>When this option is selected, only one number of register data could be logged into one cell for one time. The sampling operation is in vertical direction. The sampling operation of the second vertical column will not start unless the sampling operation of the first vertical column is done. Please refer to the right diagram.</p>	
<p>Single-Horizontal:</p> <p>When this option is selected, only one number of register data could be logged into one cell for one time. The sampling operation is in horizontal direction. The sampling operation of the second horizontal row will not start unless the sampling operation of the first horizontal row is done. Please refer to the right diagram.</p>	
<p>Anywhere:</p> <p>When this option is selected, the register data could be logged into any desired cell.</p>	

## 2. Selection Range

Press Excel button and the system will open the editing Excel template sheet immediately.



In Excel template sheet, use the mouse to decide the selection range. After the desired range is selected, press **Close** button to finish.



### 3. Stamp Time and Date

When this option is selected, the sampling time and date will be written as well automatically when the sampling data is recorded. The written position will be different depending on the setting sampling direction. Generally, the written position will be at the previous column or row before the selection range. However, if the following three conditions occur, the function of Stamp Time and Date will be disabled.

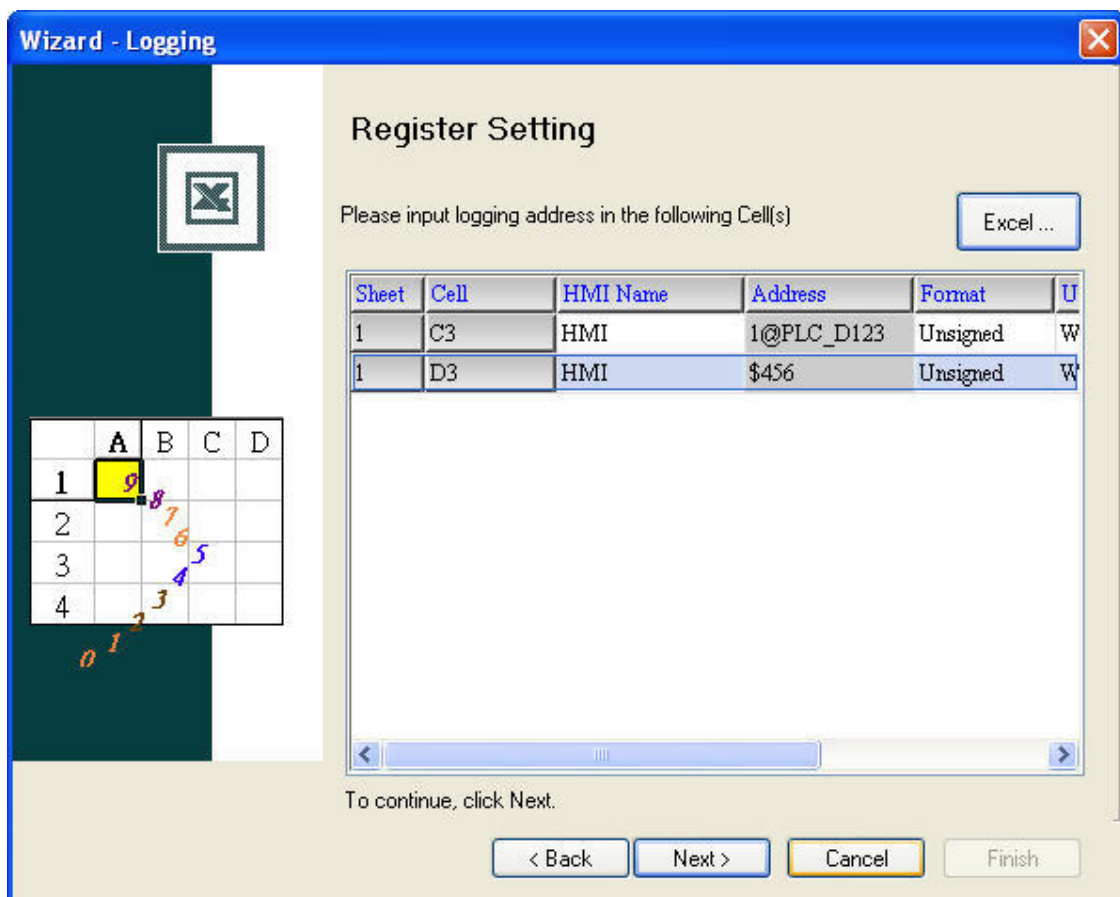
- When the sampling direction is vertical and the selection range includes column A (the first column).
- When the sampling direction is horizontal and the selection range includes row 1 (the first row).
- When the sampling direction is anywhere.

The format of the date and time is specified by a string of characters which can be user-defined and changed freely. Please refer to the table below for the string representation.

String Format	Representation
%m	Month
%d	Date
%y	Year
%H	Hour
%M	Minute
%S	Second

#### 4.1.4 Register Setting

This step is used to set the register address of the sampling data.



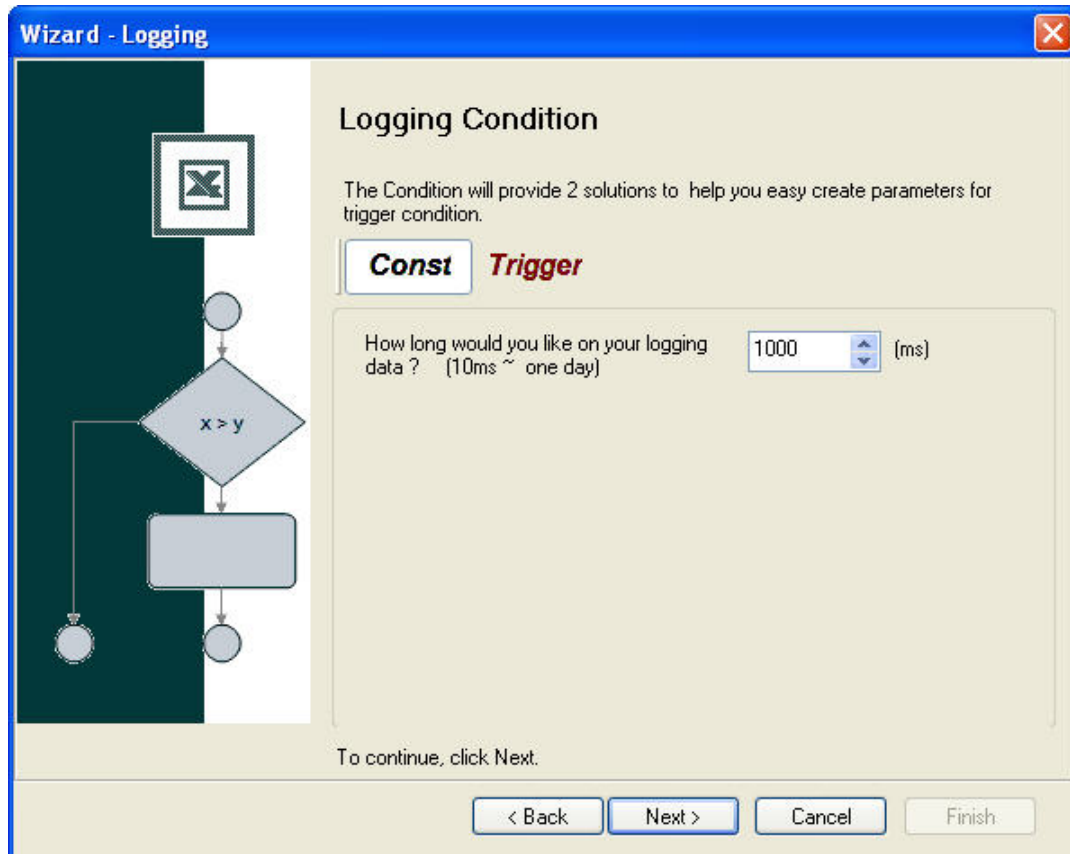
Setting Item	Description	Remark
Sheet	Excel Sheet index which the sampling data will be written	Unchangeable
Cell	Excel Cell which the sampling data will be written	Unchangeable
HMI Name	Name of connecting HMI	
Address	Register Address	
Format	<ol style="list-style-type: none"> <li>When the register address is set to Bit, this data format setting will be disabled.</li> <li>When the register address is set to Word, this data format setting will be enabled and the available settings include: BCD, Signed, Unsigned, Hex, Floating, Char (Character)</li> </ol>	
Unit	Unit of the data length of the register	Unchangeable
Read Count	<ol style="list-style-type: none"> <li>When the register address is set to Bit, this setting will be 1(one) always.</li> <li>When the register address is set to Word, the data format could be BCD, Signed, Unsigned, Hex, and Floating. But, note that the setting value of this field could not exceed 2(two).</li> <li>When the register address is set to Word, if the data format is set to Char (Character), the setting value of this field could be user-defined and the max. setting value could be set to 100(hundred).</li> </ol>	
Controller	Connecting controller	Unchangeable

#### 4.1.5 Sampling Conditions

This step is used to set the sampling conditions. There are two kinds of options for selection:

1. Const (execute sampling repeatedly in a certain span of time)

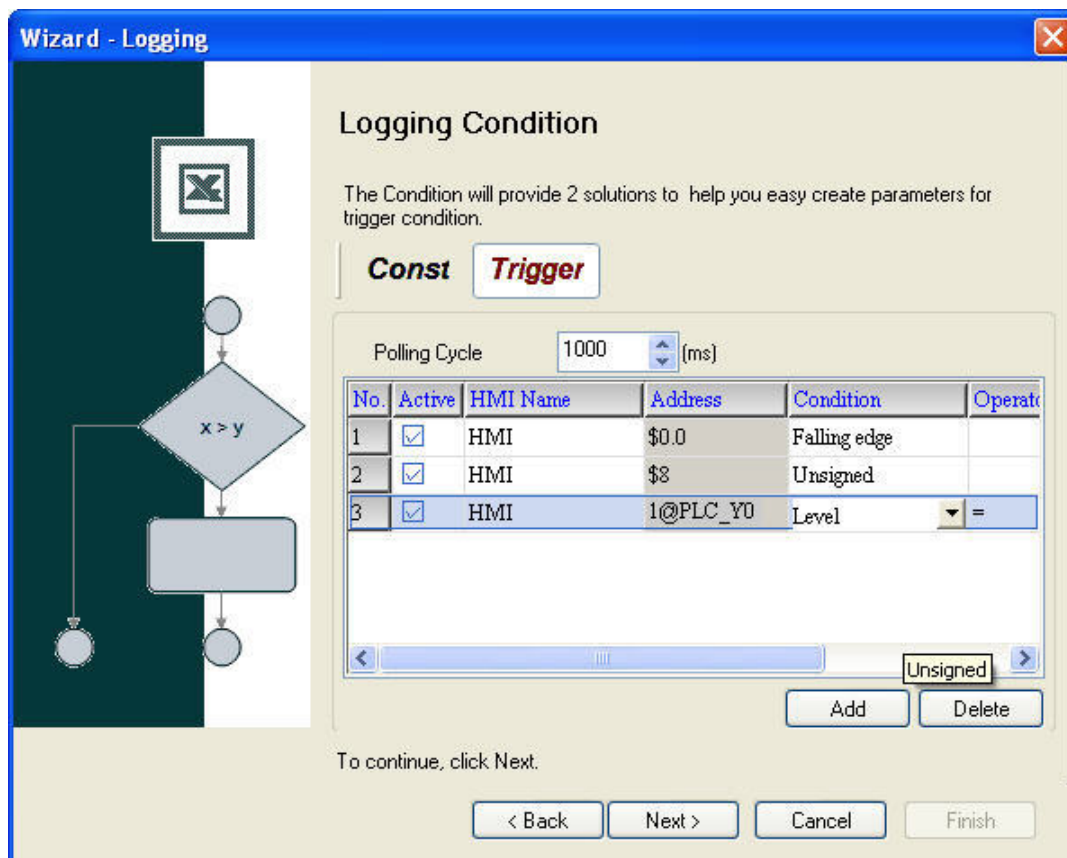
This option is used to determine how long the sampling process is repeated. The time unit is ms.





## 2. Trigger (Execute sampling when the trigger conditions are satisfied)

This option is used to determine how long the sampling process is repeated when the trigger conditions are met. The detailed settings are described as follows:



**Polling Cycle (Sampling Cycle):** It is used to determine how long the sampling process is repeated. The time unit is ms.

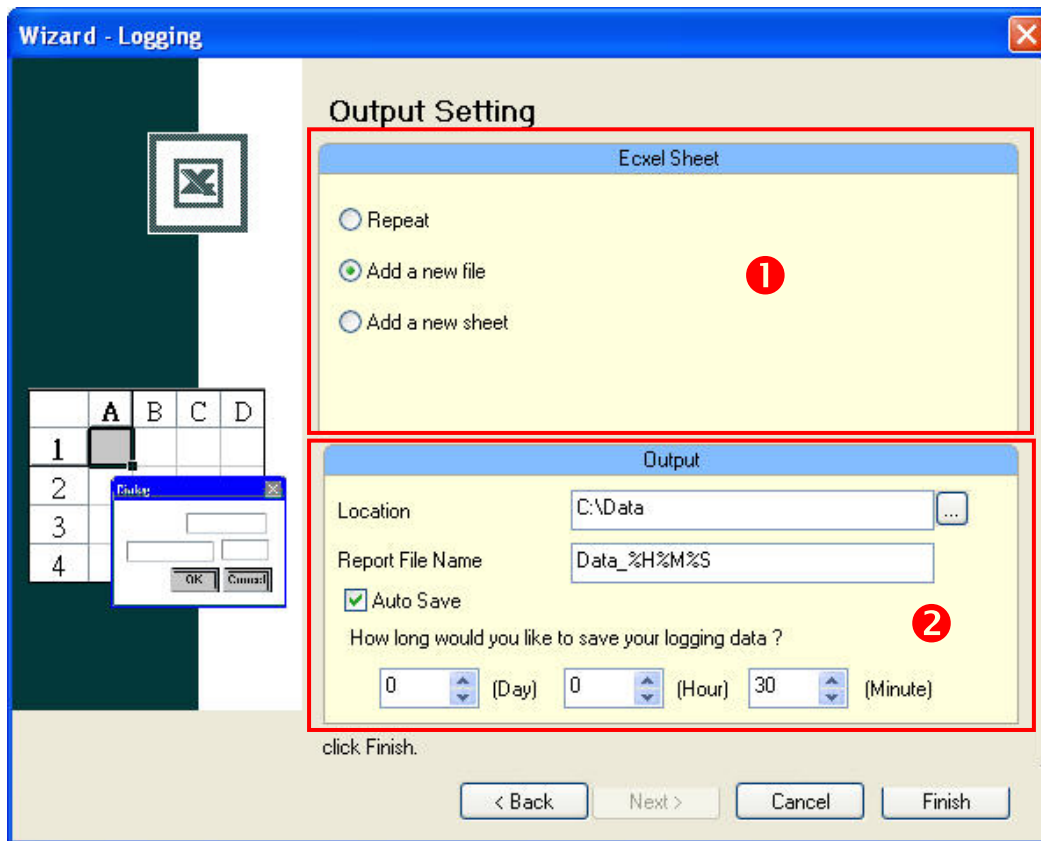
**Trigger Conditions:**

Setting Item	Description	Remark
No.	Condition number	Unchangeable
Active	<p>Choose to activate the trigger conditions. The users can add many trigger conditions freely. When all the selected trigger conditions are satisfied, the system will execute the sampling operation for one time.</p>	
HMI Name	Name of connecting HMI	
Address	Register Address	

Setting Item	Description	Remark
Format	<ol style="list-style-type: none"> <li>When the register address is set to Bit, the selectable options are: <ol style="list-style-type: none"> <li>Level: Current status</li> <li>Rising edge: Triggered by rising-edge. At this time, the functions of Operator and Value are disabled.</li> <li>Falling edge: Triggered by falling-edge. At this time, the functions of Operator and Value are disabled.</li> </ol> </li> <li>When the register address is set to Word, the selectable options are: <ol style="list-style-type: none"> <li>BCD: Setting range of trigger condition is 0 ~ 9999</li> <li>Signed: Setting range of trigger condition is -32768 ~ +32767</li> <li>Unsigned: Setting range of trigger condition is 0 ~ 65535</li> <li>Hex: Setting range of trigger condition is 0 ~ 65535</li> </ol> </li> </ol>	
Operator	<p>Operator settings:</p> <ol style="list-style-type: none"> <li>When the register address is set to Bit, the selectable operator are: <ol style="list-style-type: none"> <li>= : equal to</li> <li>!= : not equal to</li> </ol> </li> <li>When the register address is set to Word, the selectable operator are: <ol style="list-style-type: none"> <li>&gt;= : greater than or equal to</li> <li>&lt;= : smaller than or equal to</li> <li>&gt; : greater than</li> <li>= : equal to</li> <li>&lt; : smaller than</li> </ol> </li> </ol>	Unchangeable
Value	Setting value of trigger condition	
Controller	Connecting controller	Unchangeable

### 4.1.6 Output Setting

This step is used to set how to output and save the sampling data.



There are two parts in this dialog box:

#### 1. Excel Sheet

##### A. Repeat

When the sampling data has been filled in the selection range to the full, the system will write the data into the selection range from the first column or row repeatedly.

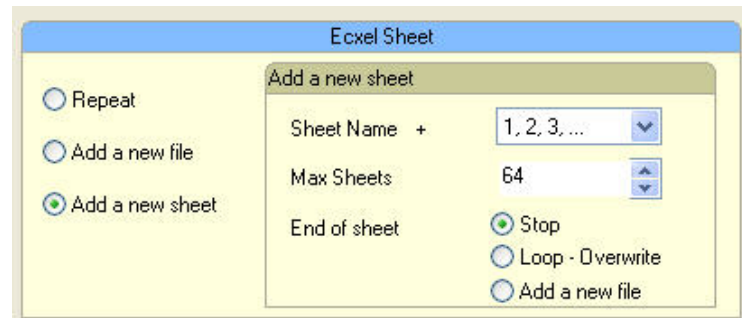
Microsoft Excel - Tem2E1					
	G10				
	A	B	C	D	E
1		Daily Report			
2		Time	DATA 1	DATA 2	Data Average
3		08/24/2009 17:18:16	35	35	35
4		08/24/2009 17:18:17	45	46	45.5
5		08/24/2009 17:18:18	54	54	54
6		08/24/2009 17:18:19	64	64	64
7		08/24/2009 17:18:20	74	74	74
8		08/24/2009 17:18:21	84	84	84
9		08/24/2009 17:18:22	93	93	93
10		08/24/2009 17:18:23	65439	3	32721
11		08/24/2009 17:18:24	65449	13	32731
12		08/24/2009 17:18:25	65459	23	32741
13		08/24/2009 17:18:26	65468	32	32750
14		08/24/2009 17:18:27	65478	42	32760
15		08/24/2009 17:18:28	65488	52	32770
16		08/24/2009 17:18:29	65498	62	32780
17		08/24/2009 17:18:30	65508	72	32790
18		08/24/2009 17:18:31	65517	81	32799
19		08/24/2009 17:18:32	65527	91	32809
20		08/24/2009 17:18:33	1	1	1
21					
22					
23					

B. Add a new file

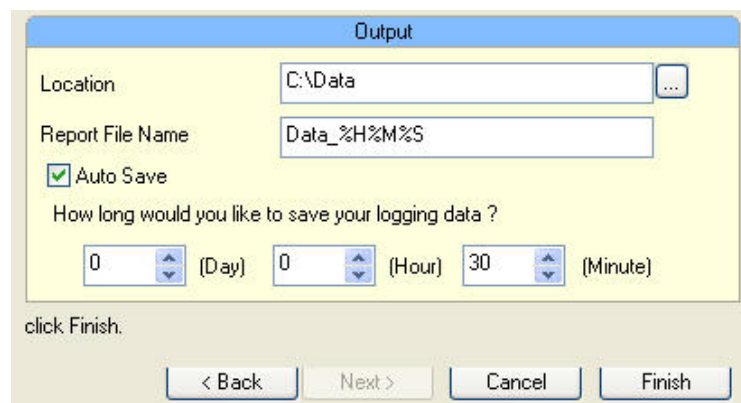
When the sampling data has been filled in the selection range to the full, the system will open a new Excel file automatically and write the data into the new Excel file.

C. Add a new sheet

When the sampling data has been filled in the selection range to the full, the system will open a new Excel sheet automatically and write the data into the new Excel sheet.



## 2. Output Setting



A. Location: Choose file destination location.

B. Report File Name: Specify the name of the report file. The users can add the date and time in the end of the file name. The format of the date and time is specified by a string of characters which can be user-defined and changed freely. Please refer to the table below for the string representation.

String Format	Representation
%m	Month
%d	Date
%y	Year
%H	Hour
%M	Minute
%S	Second

- C. Auto Save: When this option is enabled, the system will back up the data in a period of specified time automatically in case the data will be lost due to abnormal operation when the power source is cut off unexpectedly or other accident occurs.

# Chapter 5 Writing Data in Microsoft Excel

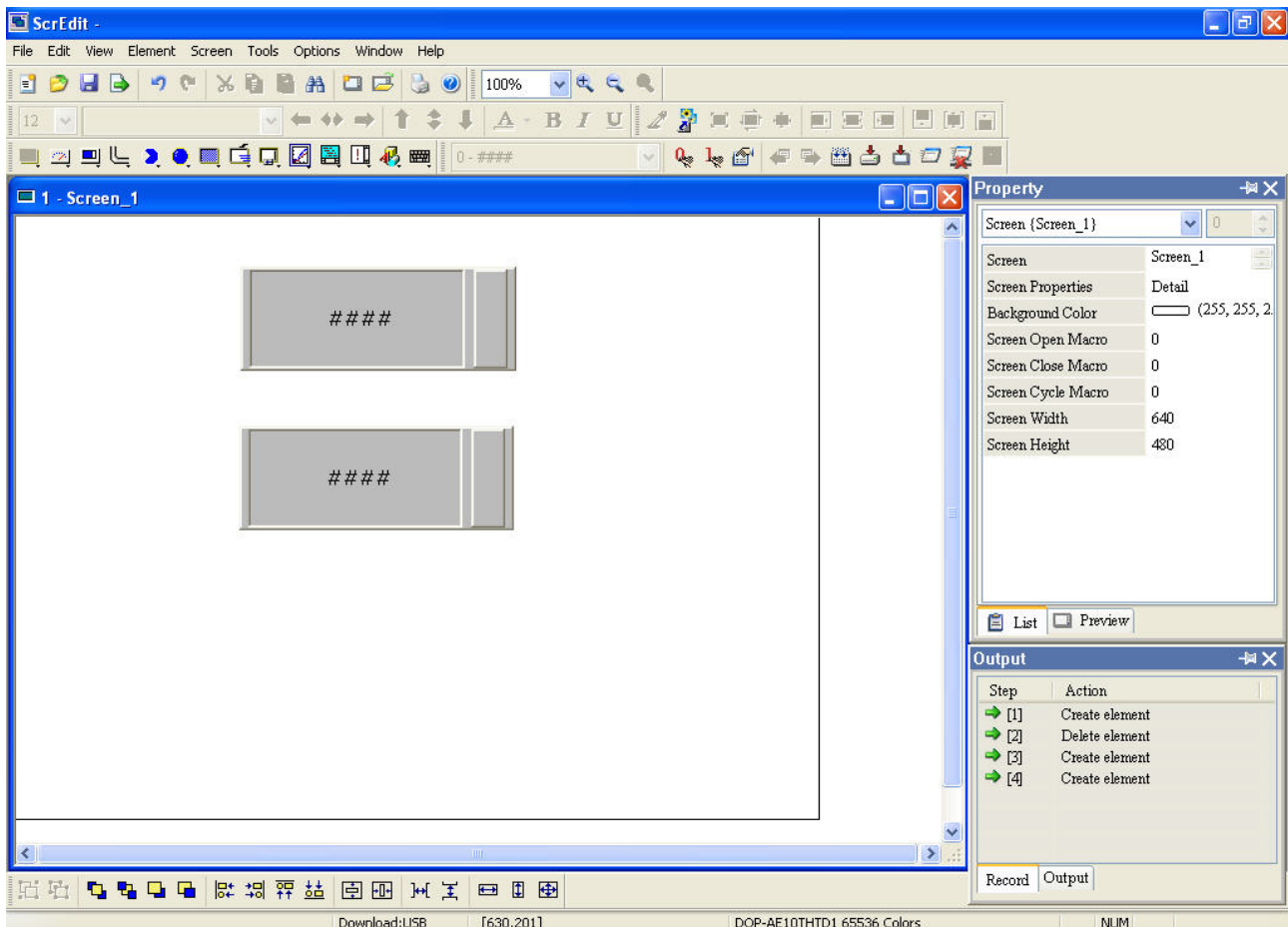
Before creating testing example, make sure to change the upload and download option (**Options > Configuration**) on Screen Editor first. The default setting of upload and download is via **USB**. If the users need to use **Ethernet**, please change the default setting by referring to **Appendix A**.

## 5.1 Example

This example is used to help the users to understand how to use eServer to read the data of the register addresses \$3 and \$6 every second, record the data in Excel report file; meanwhile, calculate the average value of the register addresses \$3 and \$6 by using Excel formula and save the collected data in the specified folder (C:\Data).

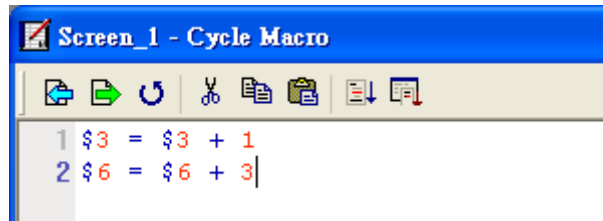
### 5.1.1 Create HMI Project File

Start Screen Editor software program and click **File > New** or click **New** icon to create a new project. Then, click **Element > Input > Numeric Entry** to create two numeric entry elements (\$3 and \$6) on the screen. In this case, 10 inches color AE type DOP series HMI is used.

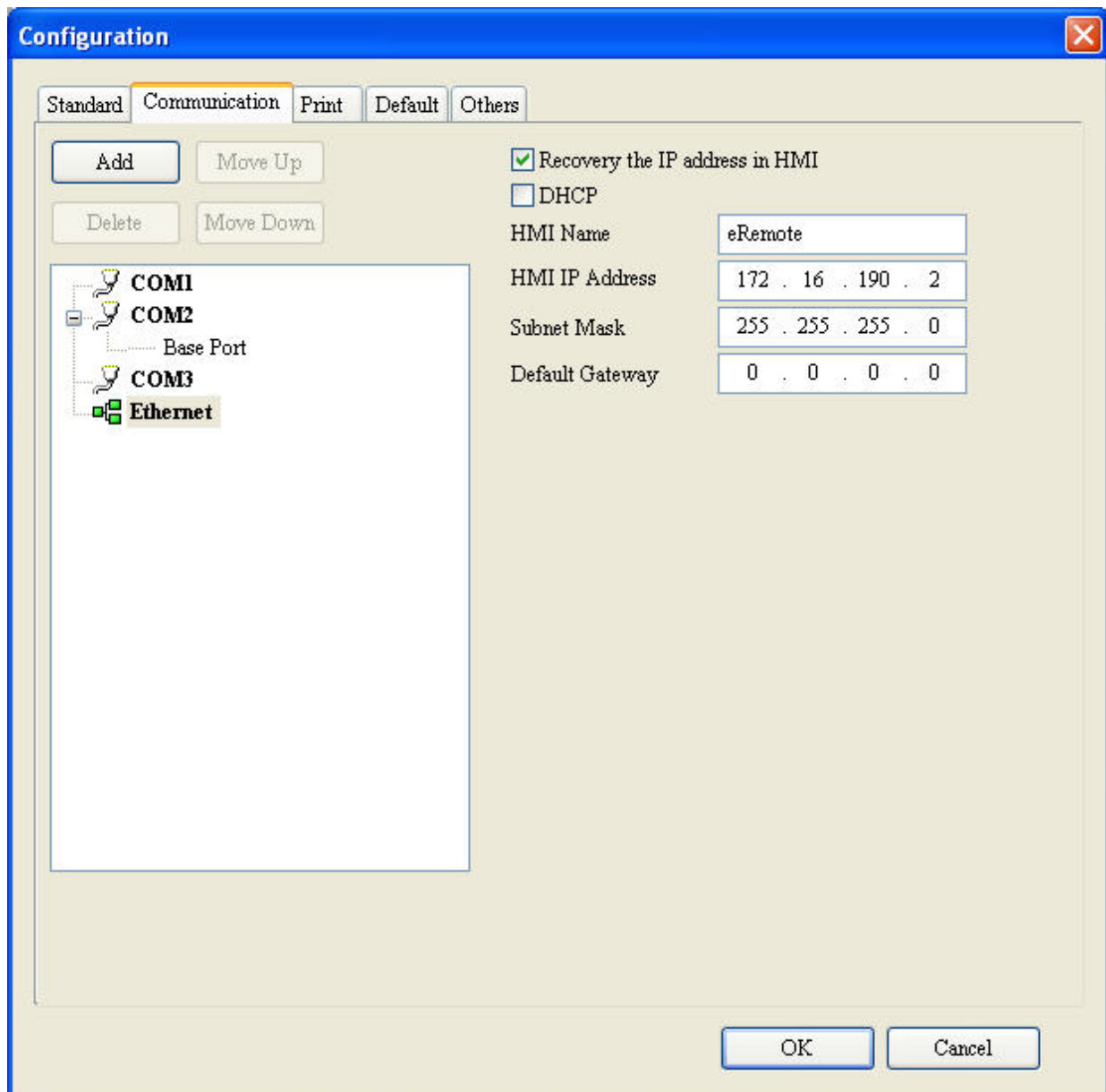




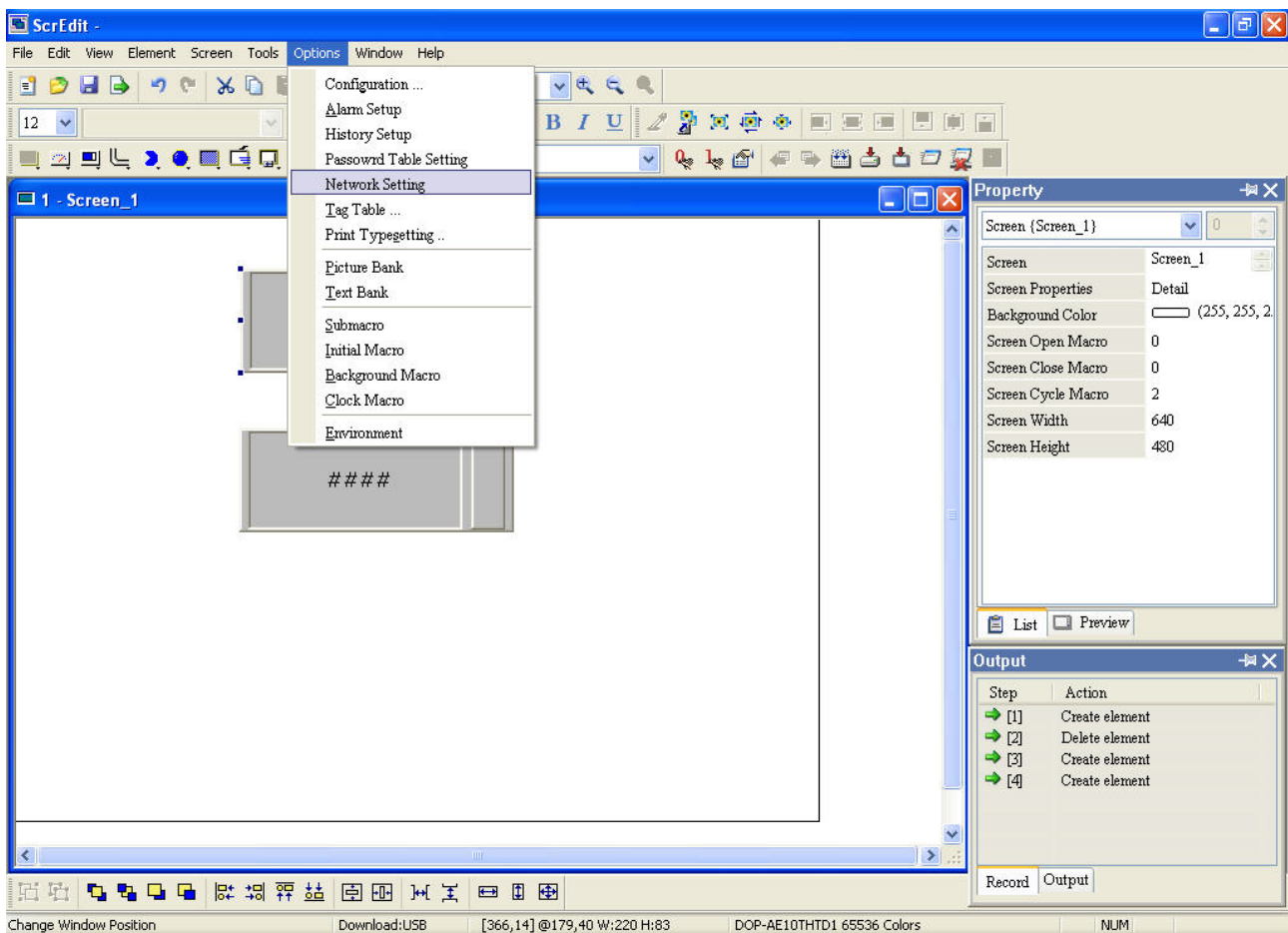
Use Screen Cycle Macro and enter the following commands in macro command window.



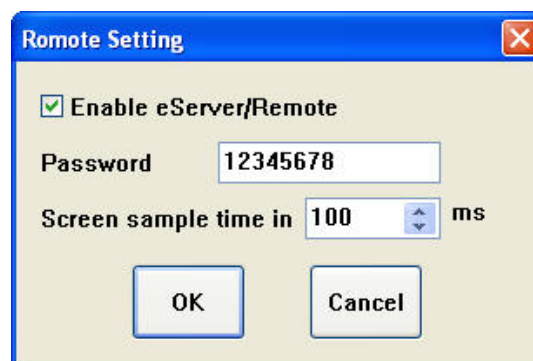
Click **Options > Configuration** and use **Communication** tab to select **Ethernet** and complete HMI networking settings shown as the figure below. Then, press **OK** button to finish the settings.




Next, click **Options > Network Setting**.



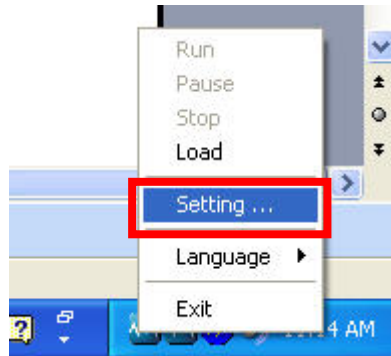
The following **Remote Setting** dialog box will appear. Check the check box before **Enable eServer/Remote** and set a password for network communication. After **OK** button is pressed, HMI networking is completed. Compile the edited project file at the end of the programming and the edited project file could be transferred to HMI.



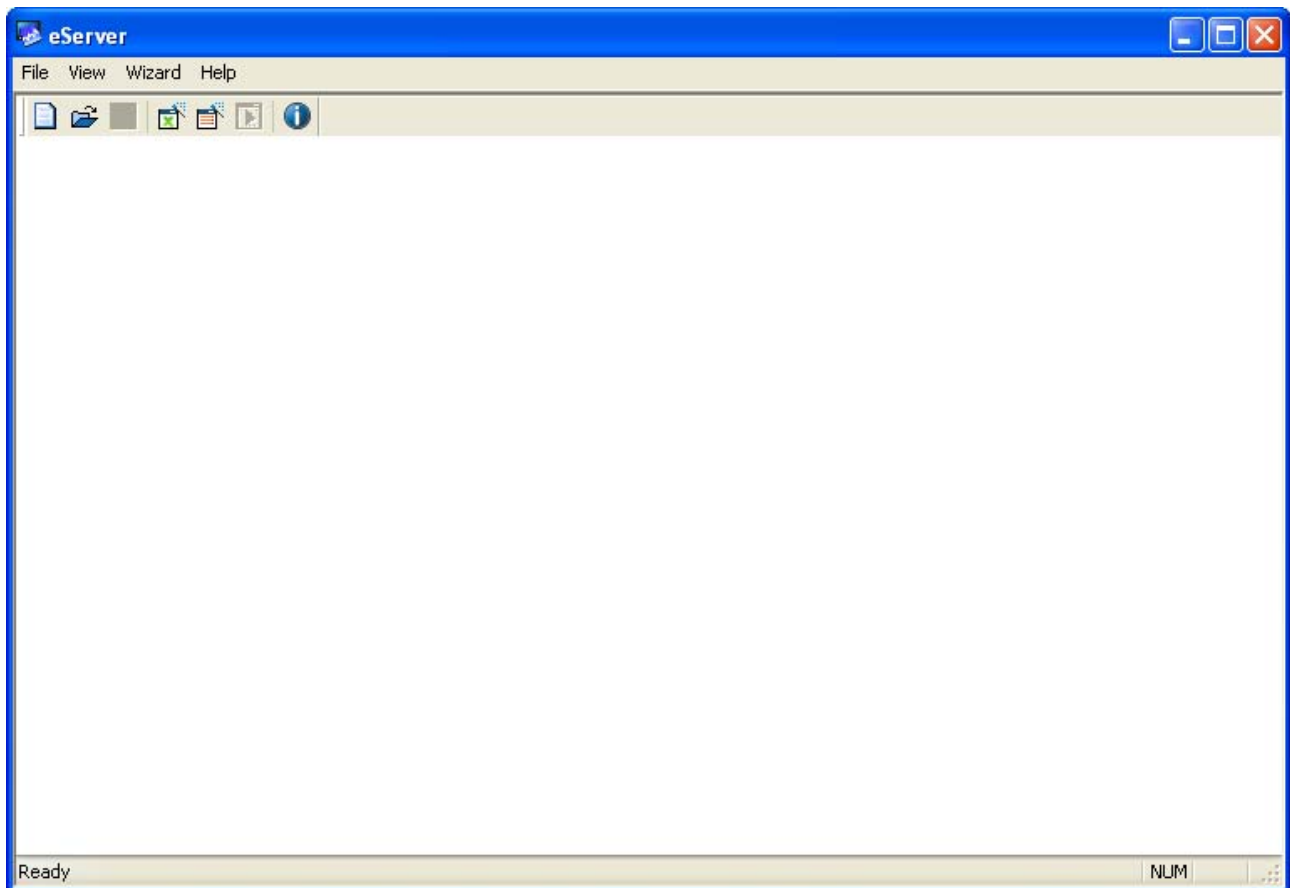
### 5.1.2 eServer Setting

1. After eServer is enabled, eServer  icon will appear at the bottom right of Windows screen.

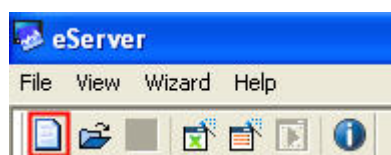
Right-click this icon and select **Setting** option from the pop-up menu.




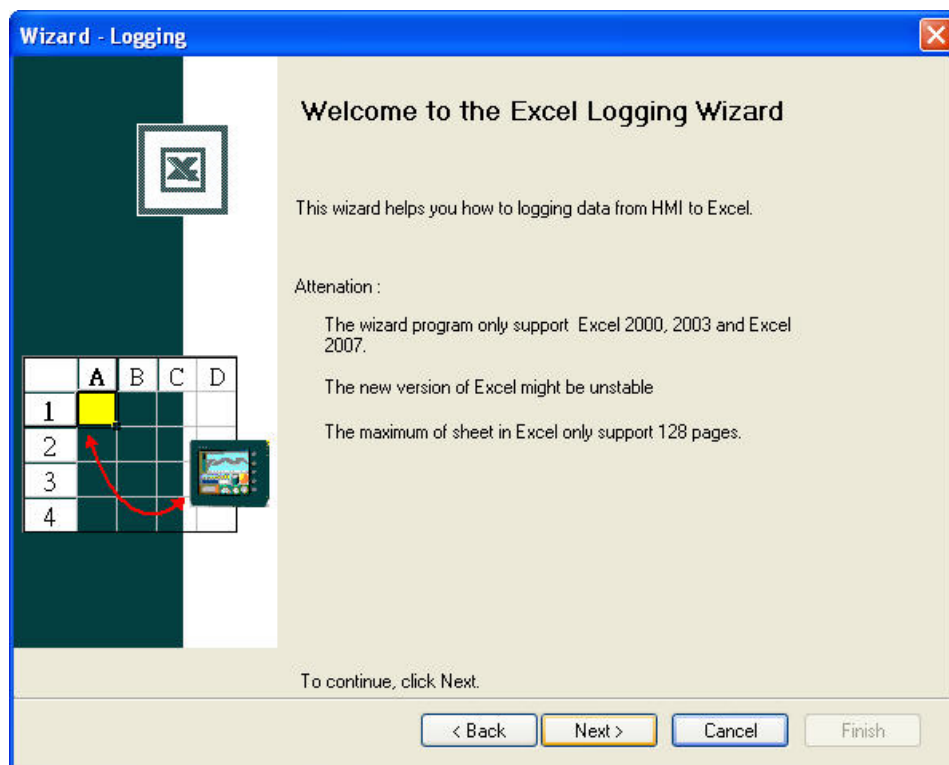
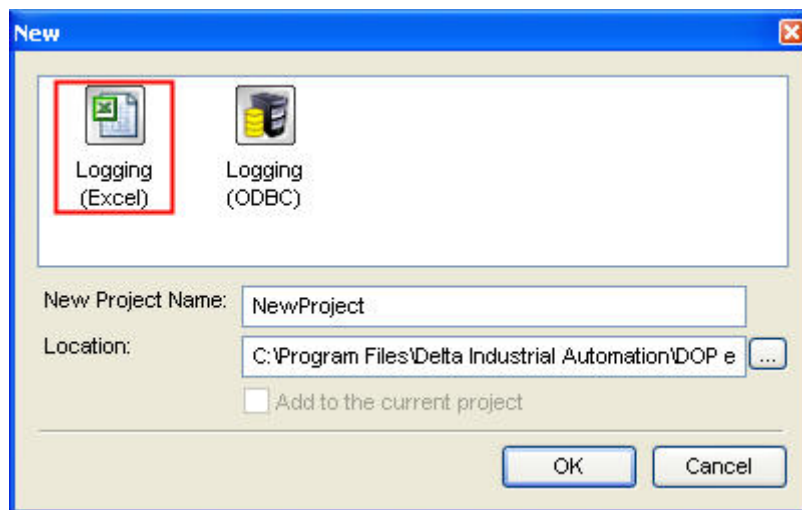
2. Then, eServer window will open.



3. Click **File > New** or click  icon to create a new project file.

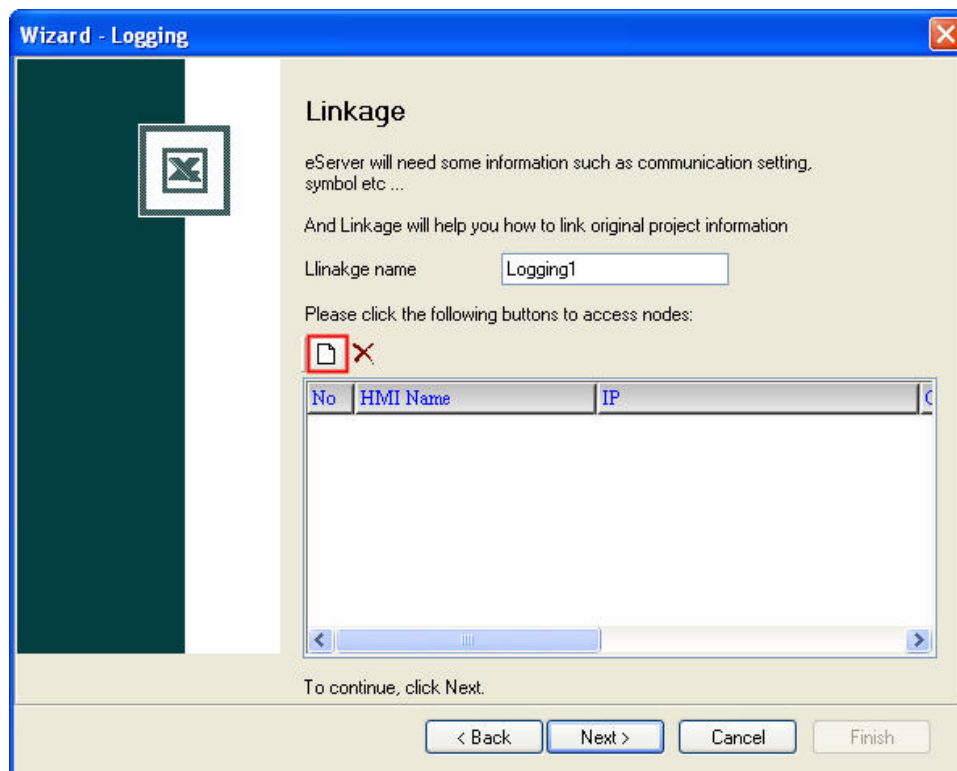


4. Select  icon to enable Excel Logging (Sampling) Wizard.

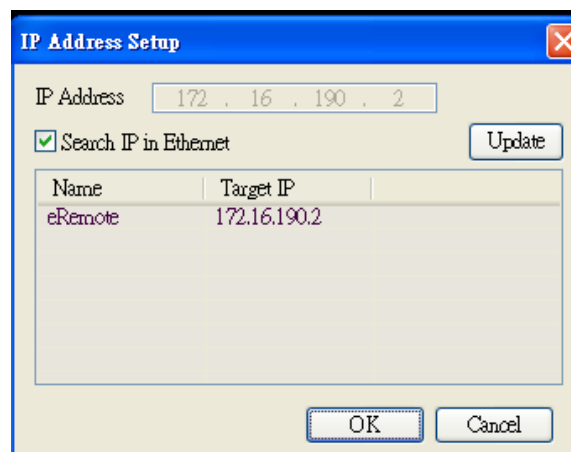
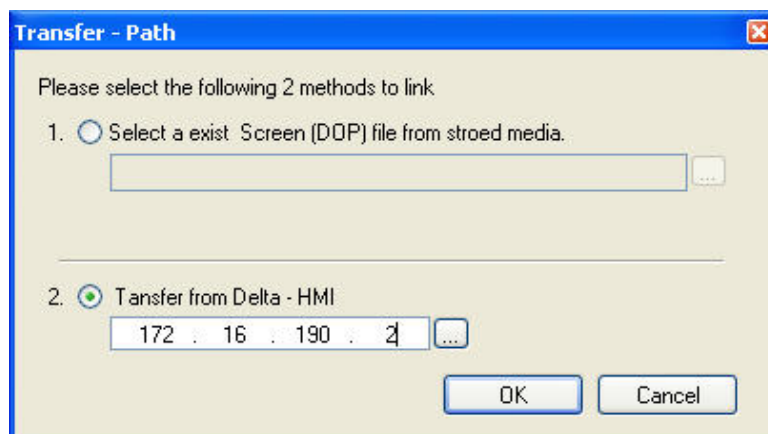


Press **Next** button to go to next step.

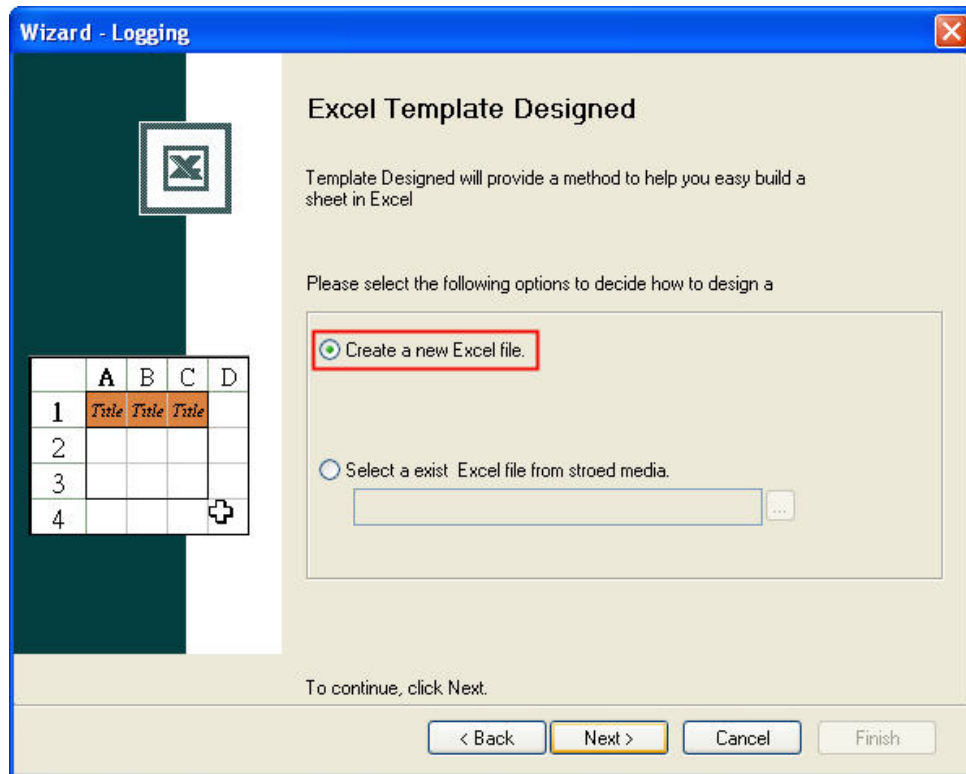
5. Click **New** icon to access nodes (link to HMI).



Choose **Transfer from Delta – HMI** option to transfer the HMI screen project file via network communication directly. Press **OK** button to go to next step.



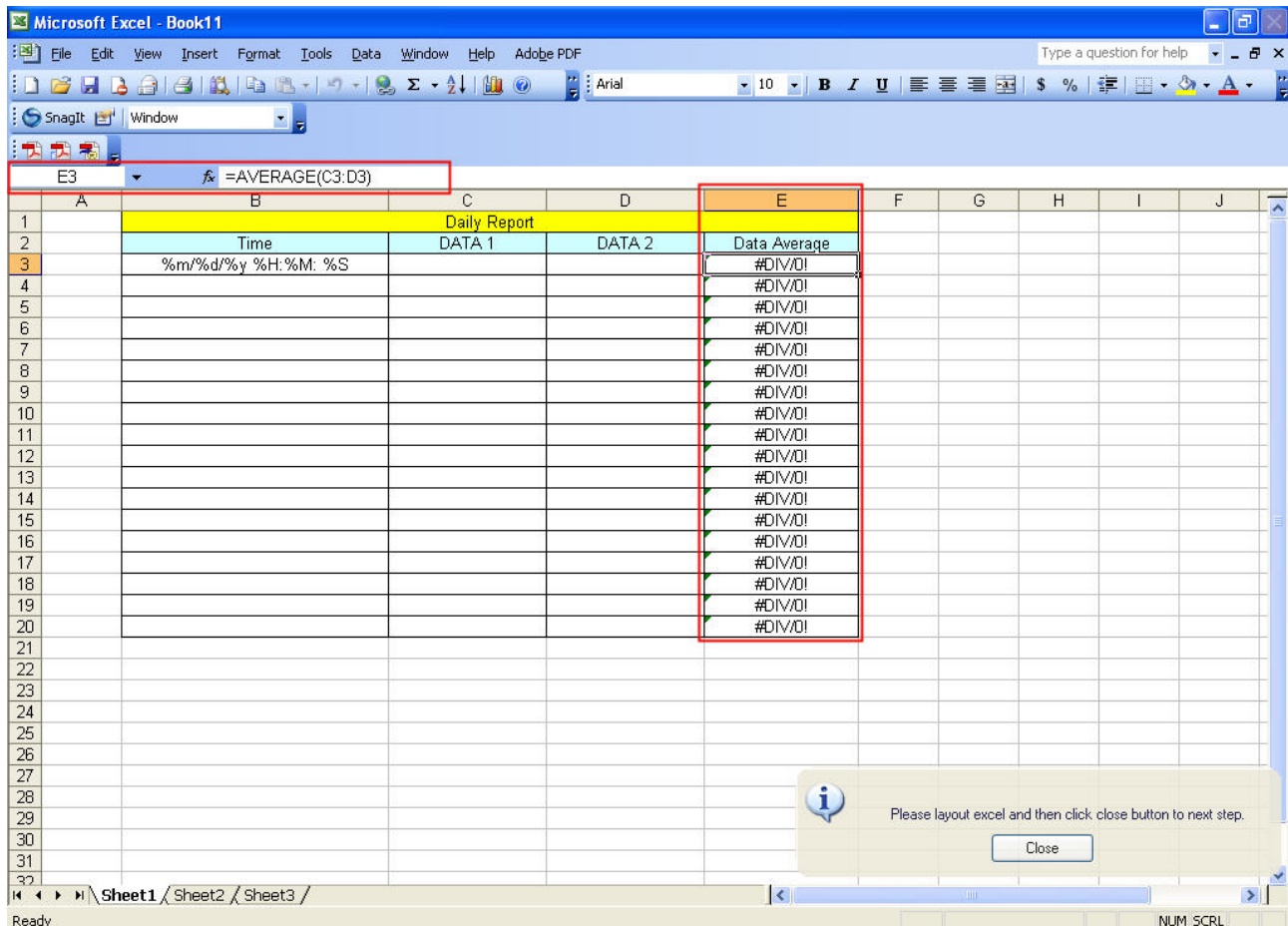
6. Design Excel template sheet. Select **Create a new Excel file** option and press **Next** button to go to next step.



The system will enable Excel automatically. Create a Excel template sheet as the figure below and enter the following formulas into the cells of E3 ~ E22 in order. Then, press Close button in the dialog box which appears at the bottom right of Windows screen to go to next step.

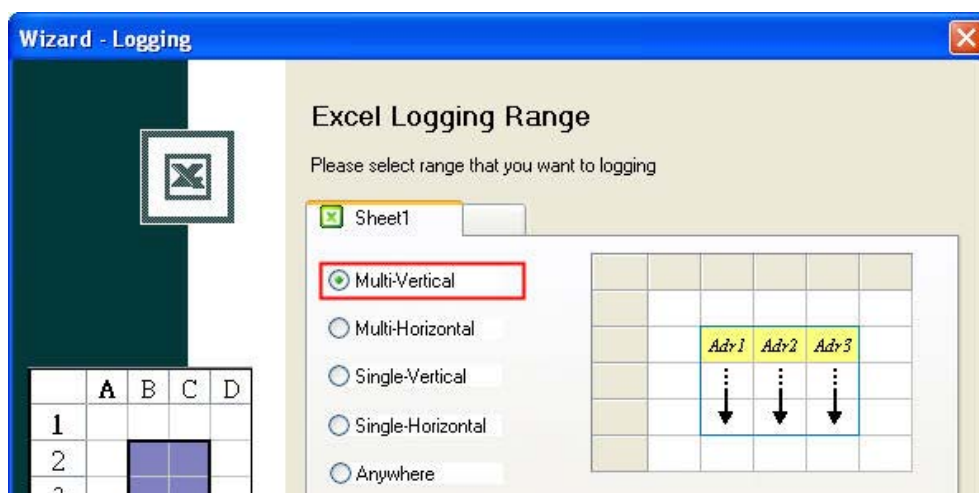
Column	Formula	Column	Formula
E3	=AVERAGE(C3:D3)	E12	=AVERAGE(C12:D12)
E4	=AVERAGE(C4:D4)	E13	=AVERAGE(C13:D13)
E5	=AVERAGE(C5:D5)	E14	=AVERAGE(C14:D14)
E6	=AVERAGE(C6:D6)	E15	=AVERAGE(C15:D15)
E7	=AVERAGE(C7:D7)	E16	=AVERAGE(C16:D16)
E8	=AVERAGE(C8:D8)	E17	=AVERAGE(C17:D17)
E9	=AVERAGE(C9:D9)	E18	=AVERAGE(C18:D18)
E10	=AVERAGE(C10:D10)	E19	=AVERAGE(C19:D19)
E11	=AVERAGE(C11:D11)	E20	=AVERAGE(C20:D20)





## 7. Excel Logging Range Setting

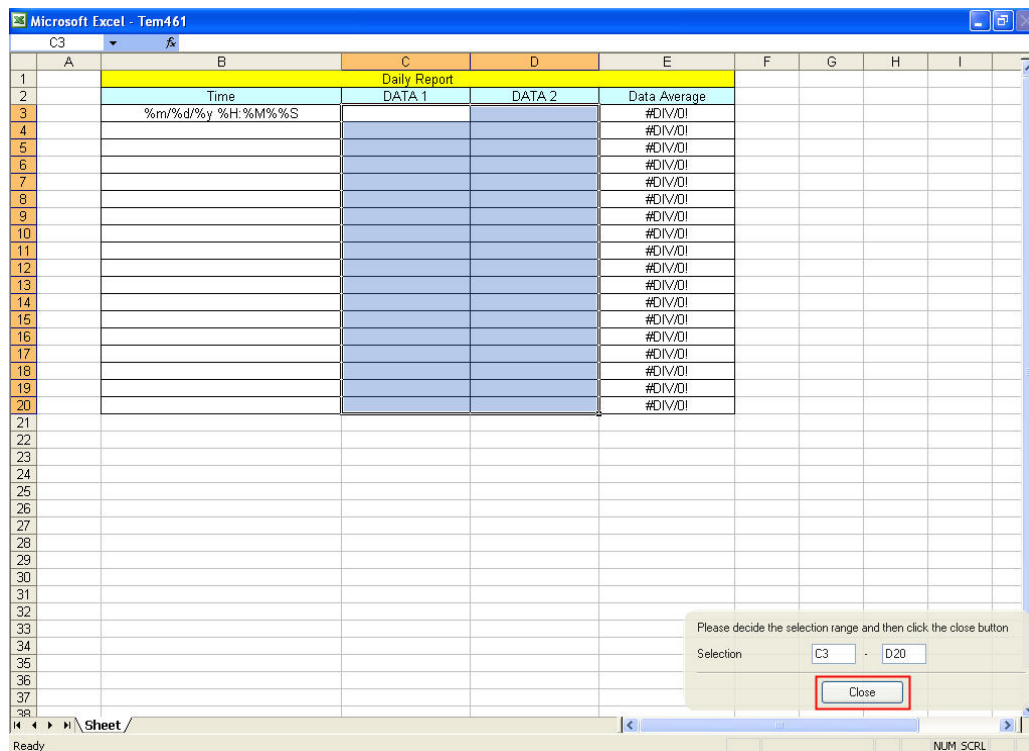
### 7.1 Set the sampling direction as **Multi-Vertical**.



### 7.2 Press **Excel** button and the system will open the editing Excel template sheet immediately.



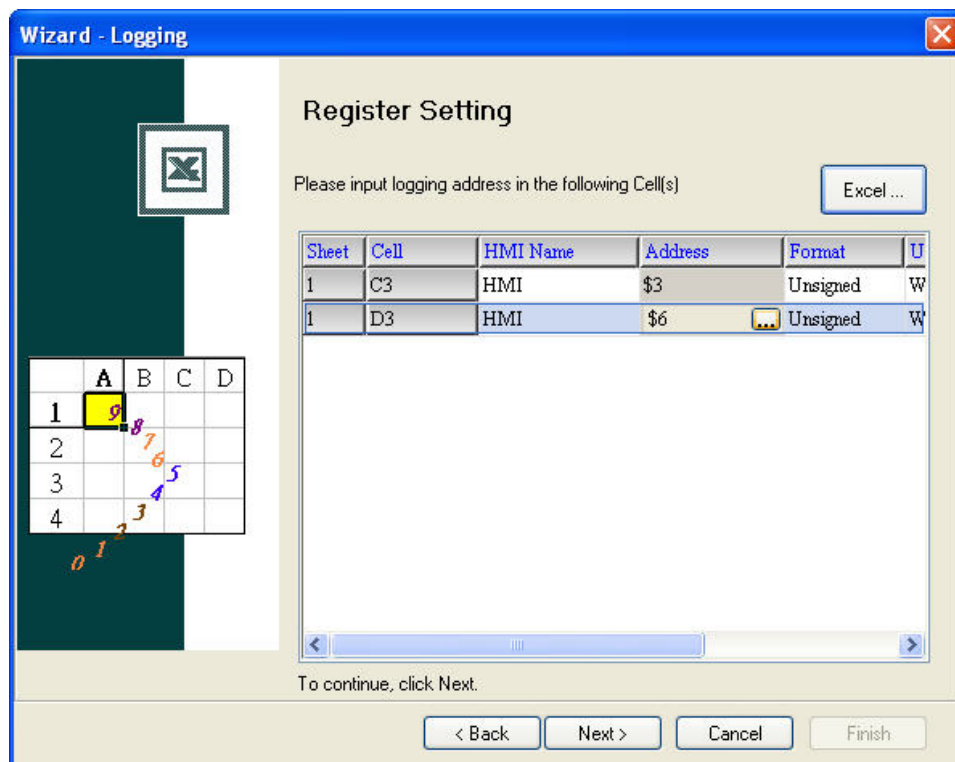
7.3 In Excel template sheet, the users can drag the mouse to select the selection range. In this case, C3 ~ D20 is selected. Then, press **Close** button to finish.



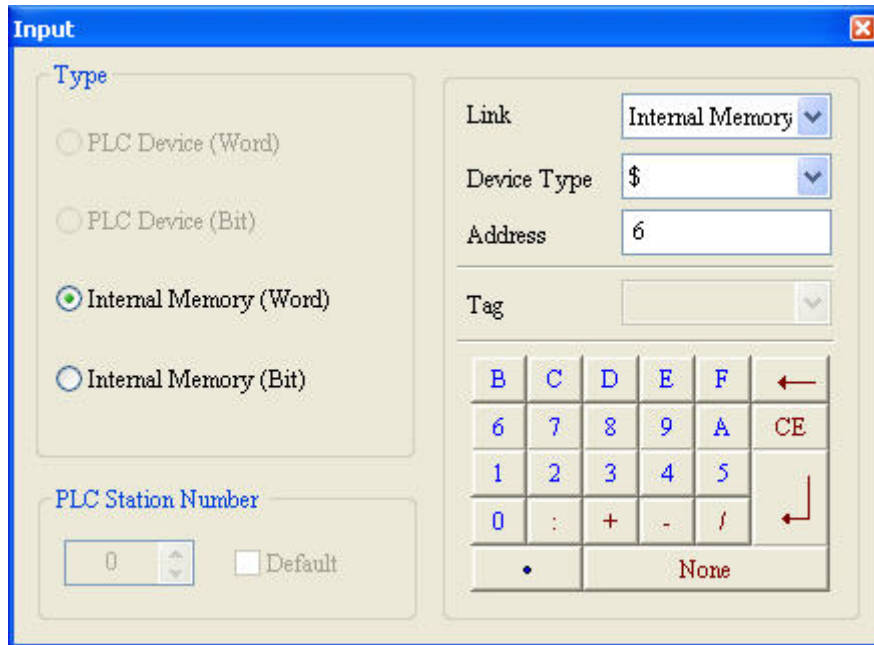
7.4 Check the check box before **Enable Stamp Time and Date** function and change the format to **%m/%d/%y %H:%M:%S**. Once the sampling operation is enabled, the sampling date and time will be recorded into the cells of B3 ~B20.



8. Set the register addresses.

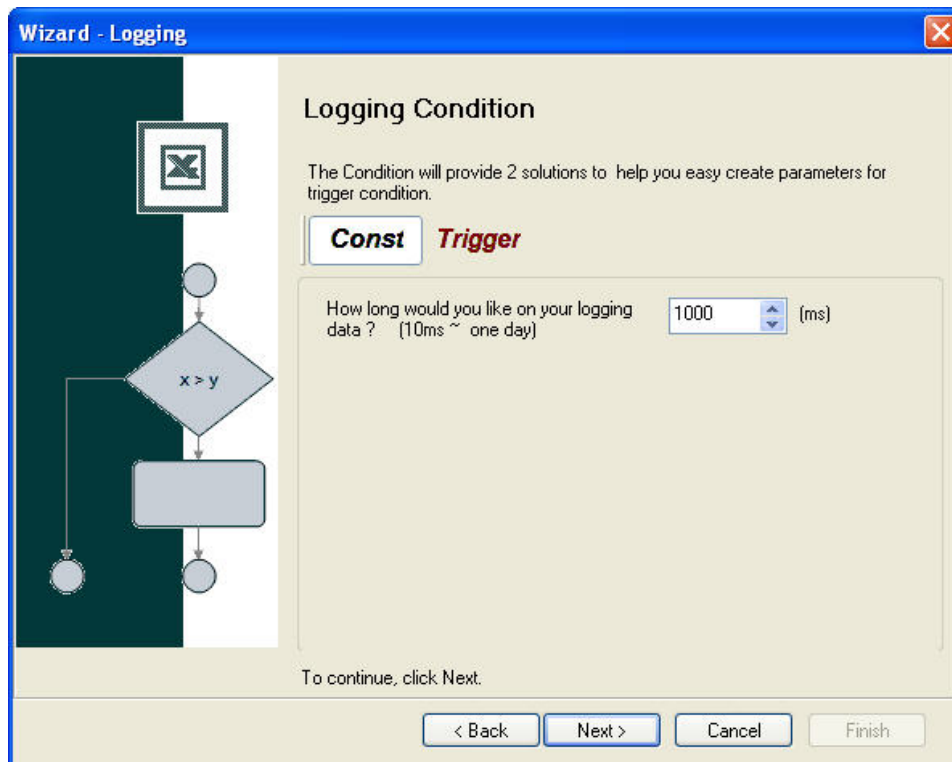


Use the following dialog box to set the sampling register addresses.



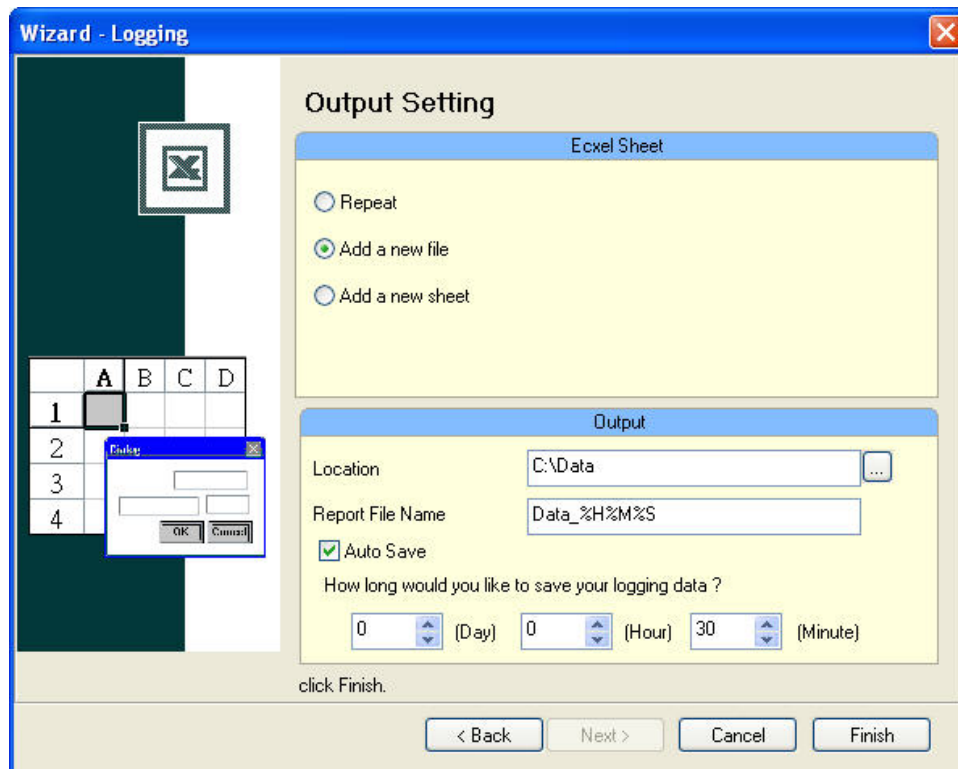
The **Input** dialog box is used to configure the sampling register. It features a **Type** section with four radio buttons: **PLC Device (Word)**, **PLC Device (Bit)**, **Internal Memory (Word)** (which is selected), and **Internal Memory (Bit)**. Below this is the **PLC Station Number** section, containing a numeric input field set to **0** and a **Default** checkbox. To the right, the **Link** is set to **Internal Memory**, **Device Type** is set to **\$**, and **Address** is set to **6**. A **Tag** dropdown menu is also present. At the bottom right is a numeric keypad with digits 0-9, function keys like **B**, **C**, **D**, **E**, **F**, **←**, **CE**, **1**, **2**, **3**, **4**, **5**, **:**, **+**, **-**, **/**, **\***, and a **None** button.


9. Set Logging Condition (Sampling Time) to **1000ms**.

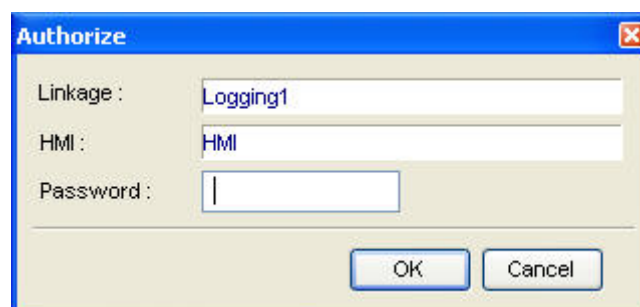
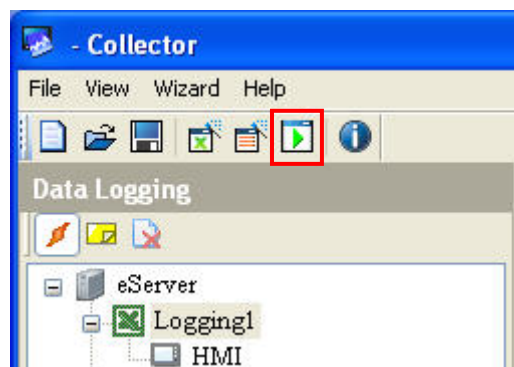


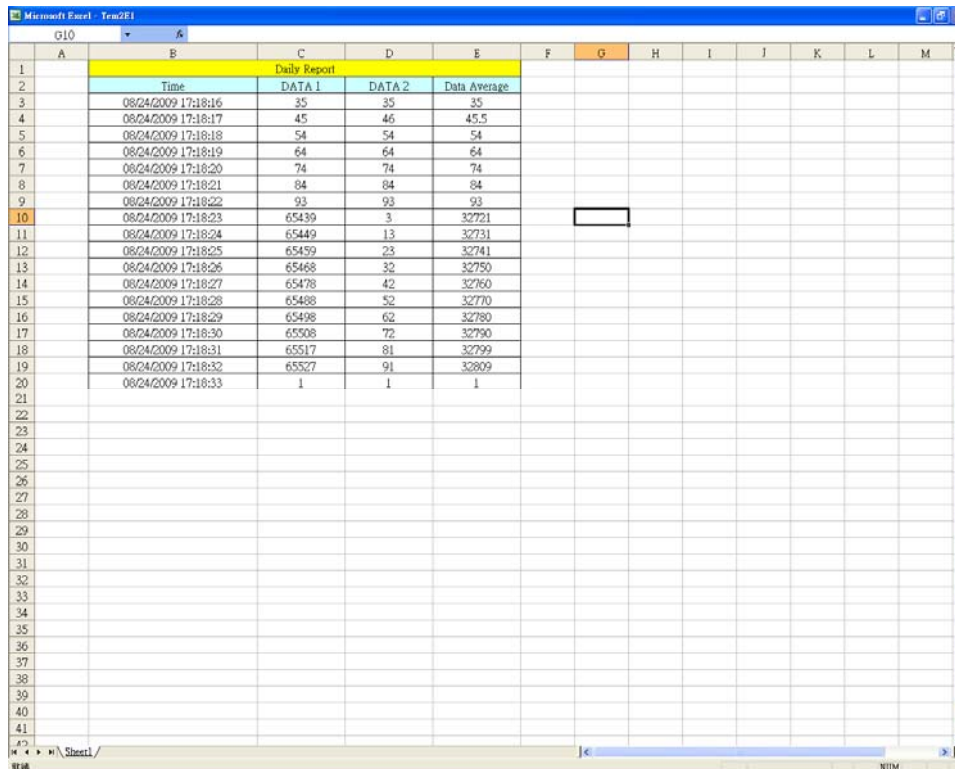
The **Wizard - Logging** dialog box shows a ladder logic diagram on the left with a decision diamond labeled **x > y**. The main area is titled **Logging Condition** and includes the text: "The Condition will provide 2 solutions to help you easy create parameters for trigger condition." Below this, there are two tabs: **Const** and **Trigger** (which is selected). The **Trigger** tab contains a question: "How long would you like on your logging data? (10ms ~ one day)" with a numeric input field set to **1000** and the unit **(ms)**. At the bottom, it says "To continue, click Next." and provides four buttons: **< Back**, **Next >**, **Cancel**, and **Finish**.

10. Choose **Add a new file** in Excel Sheet and define the file location and file name shown as the figure below. After enabling the function of **Auto Save**, press **Finish** button to complete the settings.




11. Press  icon and enter the password. Then, the system will start sampling operation, i.e. writing data in Excel file.





Daily Report				
Time	DATA 1	DATA 2	Data Average	
08/24/2009 17:18:16	35	35	35	
08/24/2009 17:18:17	45	46	45.5	
08/24/2009 17:18:18	54	54	54	
08/24/2009 17:18:19	64	64	64	
08/24/2009 17:18:20	74	74	74	
08/24/2009 17:18:21	84	84	84	
08/24/2009 17:18:22	93	93	93	
08/24/2009 17:18:23	65439	3	32721	
08/24/2009 17:18:24	65449	13	32731	
08/24/2009 17:18:25	65459	23	32741	
08/24/2009 17:18:26	65468	32	32750	
08/24/2009 17:18:27	65478	42	32760	
08/24/2009 17:18:28	65488	52	32770	
08/24/2009 17:18:29	65498	62	32780	
08/24/2009 17:18:30	65508	72	32790	
08/24/2009 17:18:31	65517	81	32799	
08/24/2009 17:18:32	65527	91	32809	
08/24/2009 17:18:33	1	1	1	

12. If the users want to pause or stop the sampling operation, only right-click eServer  icon at the bottom right of Windows screen and select **Pause** or **Stop** option from the pop-up menu, the sampling operation will pause and stop immediately. The users also can use **Excel Visible** option to decide whether the Excel window displays on the screen or not.

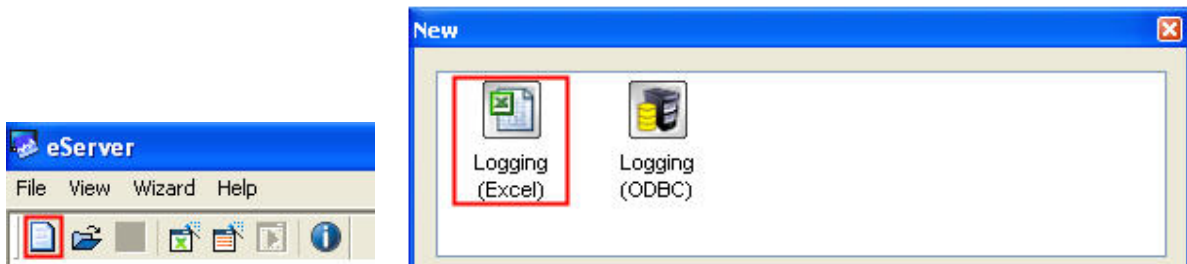


## 5.2 Detailed Settings

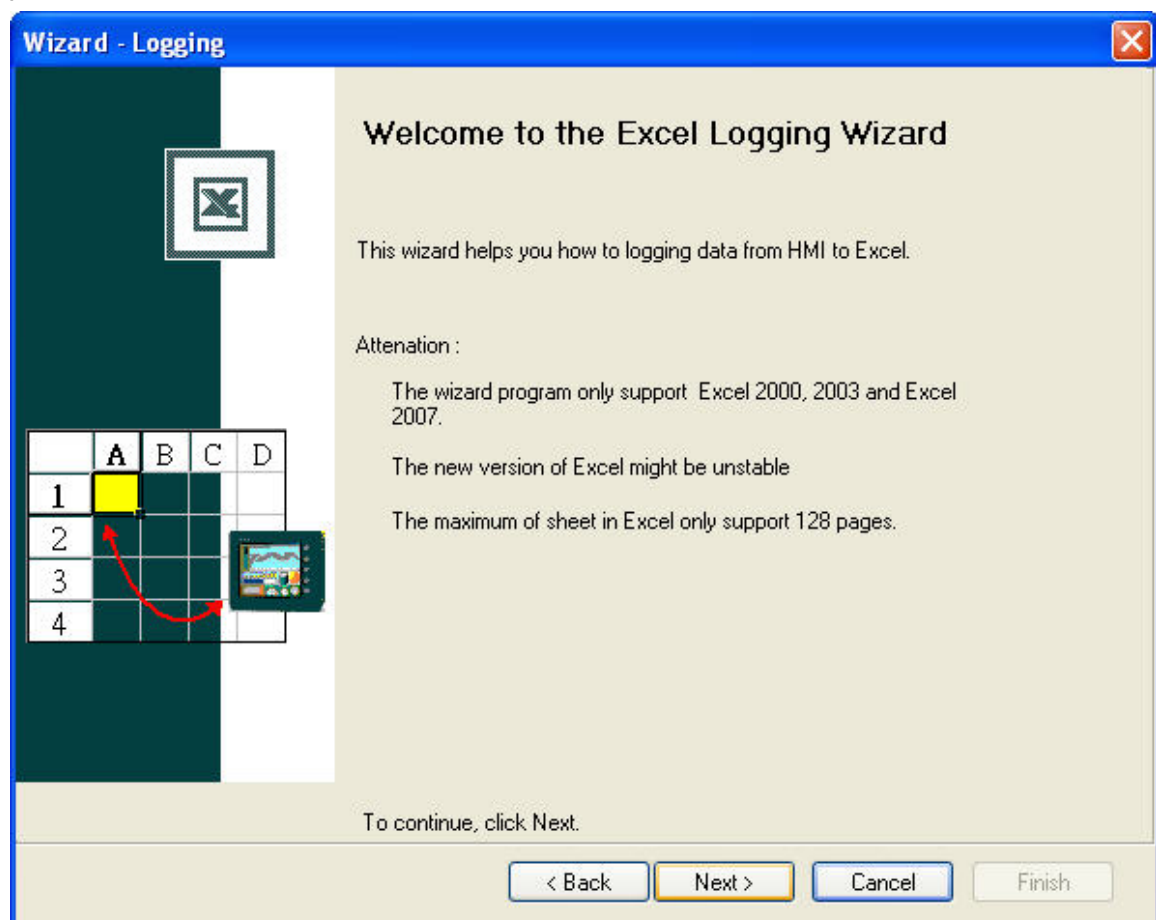
Please refer to the following steps to complete Excel sampling setting, i.e. how to log data from HMI to Excel.

### 5.2.1 Linkage

Start eServer, and click **File > New** or click **New** icon After the **New** dialog box is opened, select **Logging (Excel)** icon and press **OK** button.

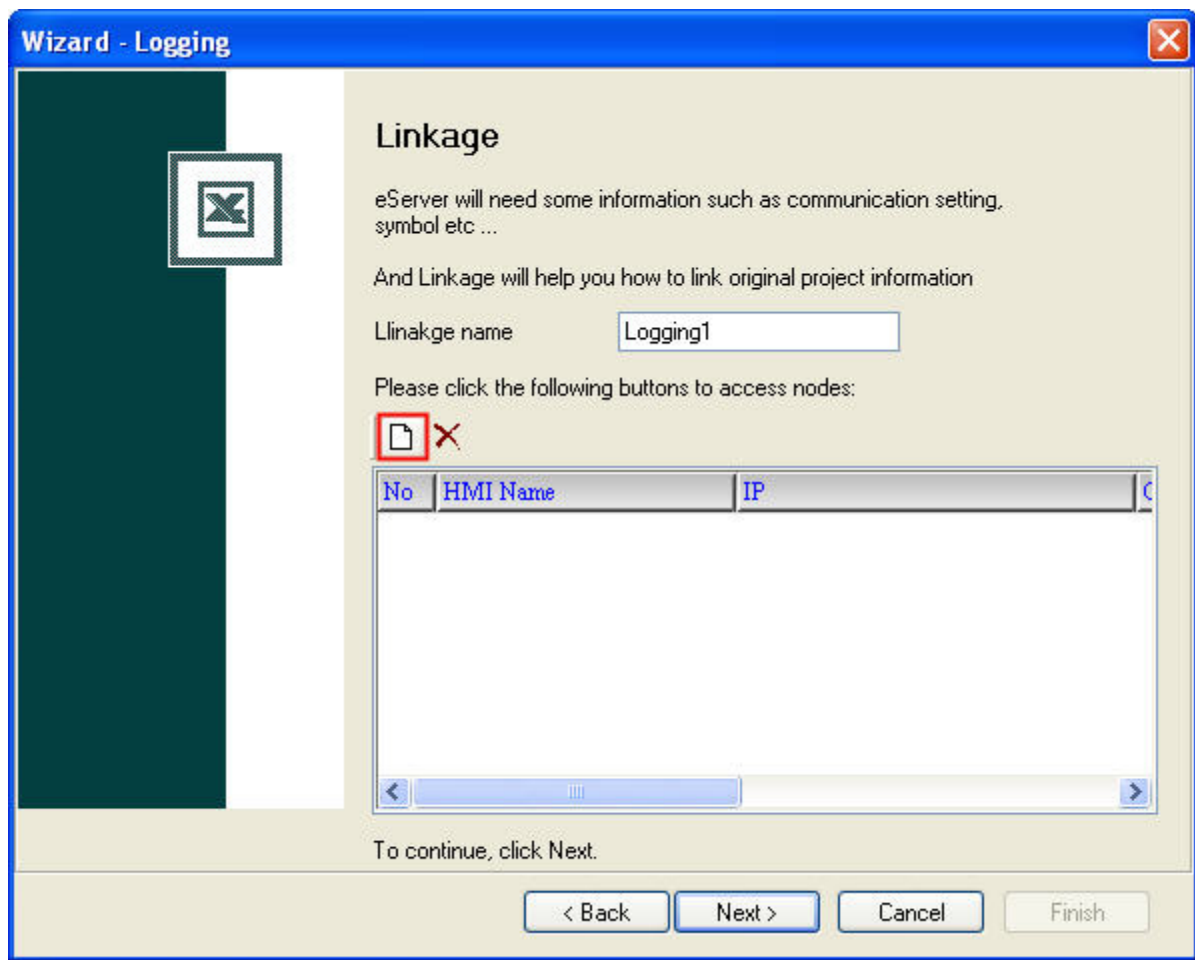



Then, the **Excel Logging Wizard** will be activated and the following dialog box will appear. Press **Next** button to continue.



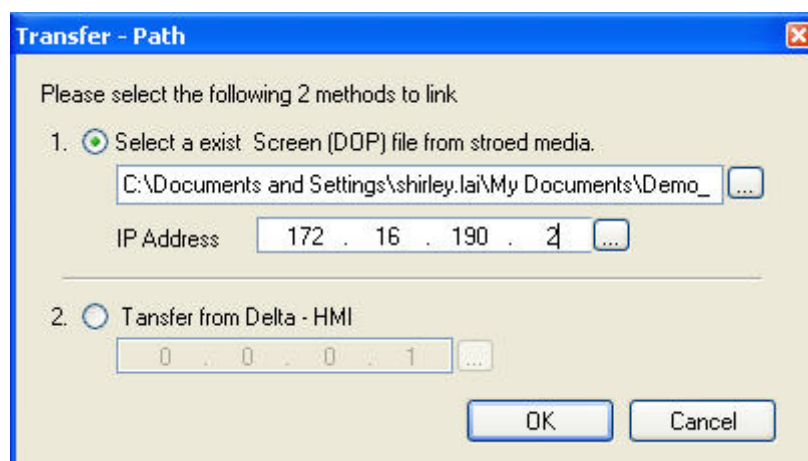
Click **New** icon to access nodes (link to HMI).



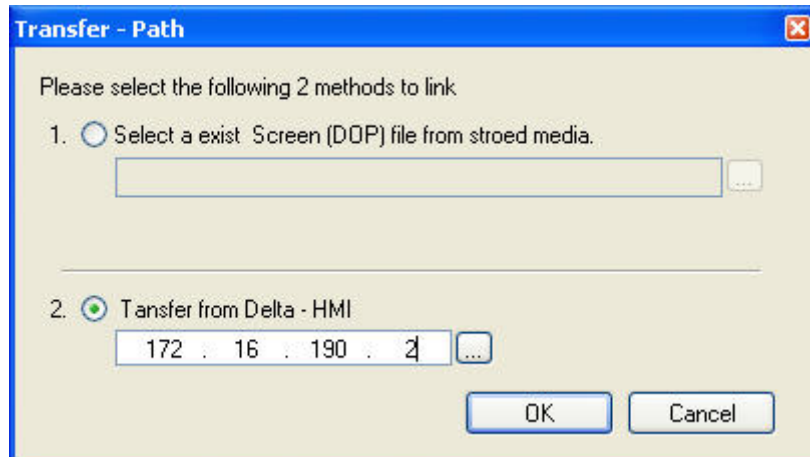


Click  icon to link HMI screen project file. There are two methods available for selection:

1. Select an existing Screen (DOP) file from stored media: Open an existing screen project file and set the IP address of the connecting HMI.



2. Transfer from Delta – HMI: Transfer the HMI screen project file via network communication directly.

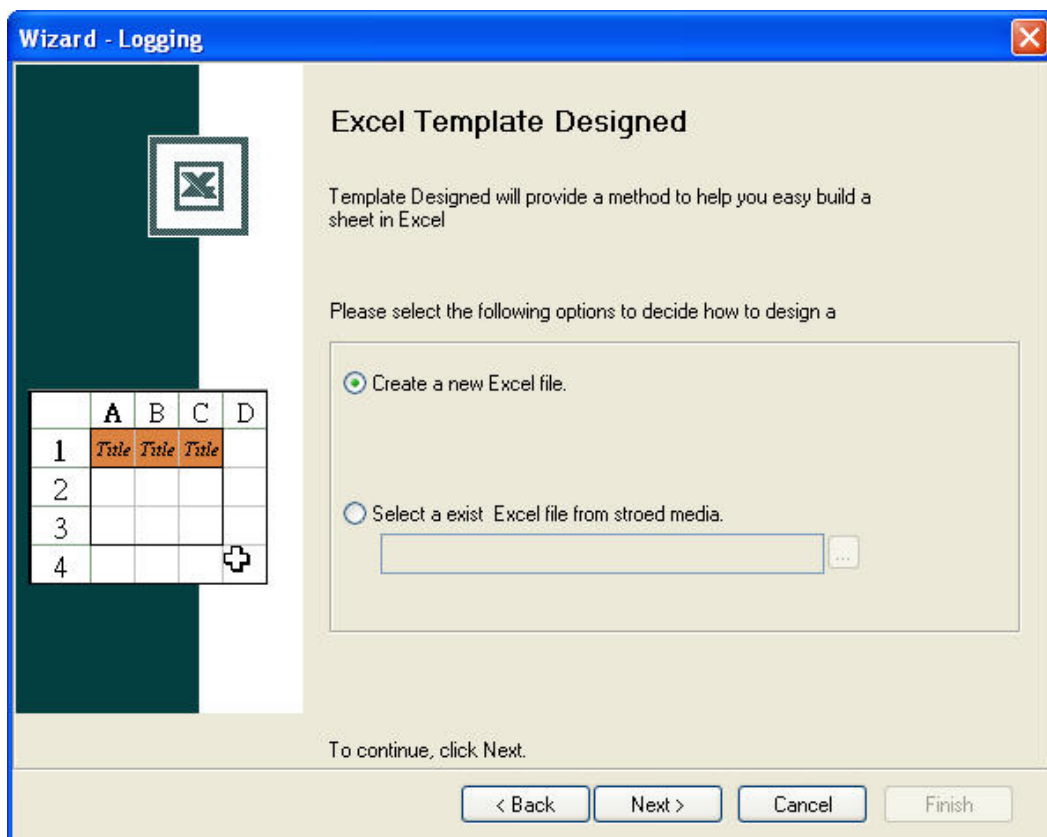


Press **OK** button to go to next step.

### 5.2.2 Excel Template Sheet Design

This step is used to create the desired Excel template sheet. There are two methods available for selection:

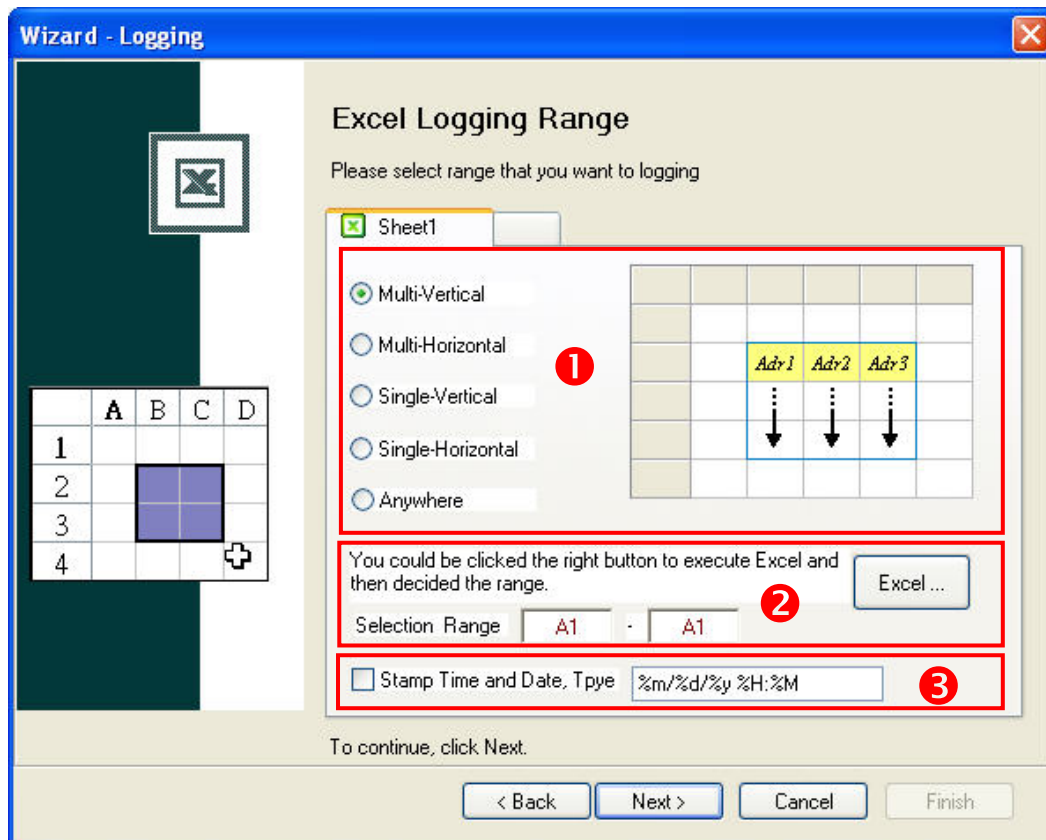
1. Create a new Excel file: When this option is selected, the system will activate Excel automatically and allow the users to design the desired Excel template sheet.
2. Select an existing Excel file from stored media: When this option is selected, the system will allow the users to open an existing Excel file.



Press **Next** button to go to next step.

### 5.2.3 Excel Logging Range Setting

This step is used to specify the logging range to which the sampling data will be written. There are three parts in this dialog box.



#### 1. Sampling Direction

There are five different sampling directions could be selected. Please refer to the following table for explanation.

Sampling Direction	Diagram
<b>Multi-Vertical:</b> When this option is selected, multiple numbers of different register data could be logged into each vertical column in the selecting area simultaneously.	
<b>Multi-Horizontal:</b> When this option is selected, multiple numbers of different register data could be logged into each horizontal row in the selecting area simultaneously.	

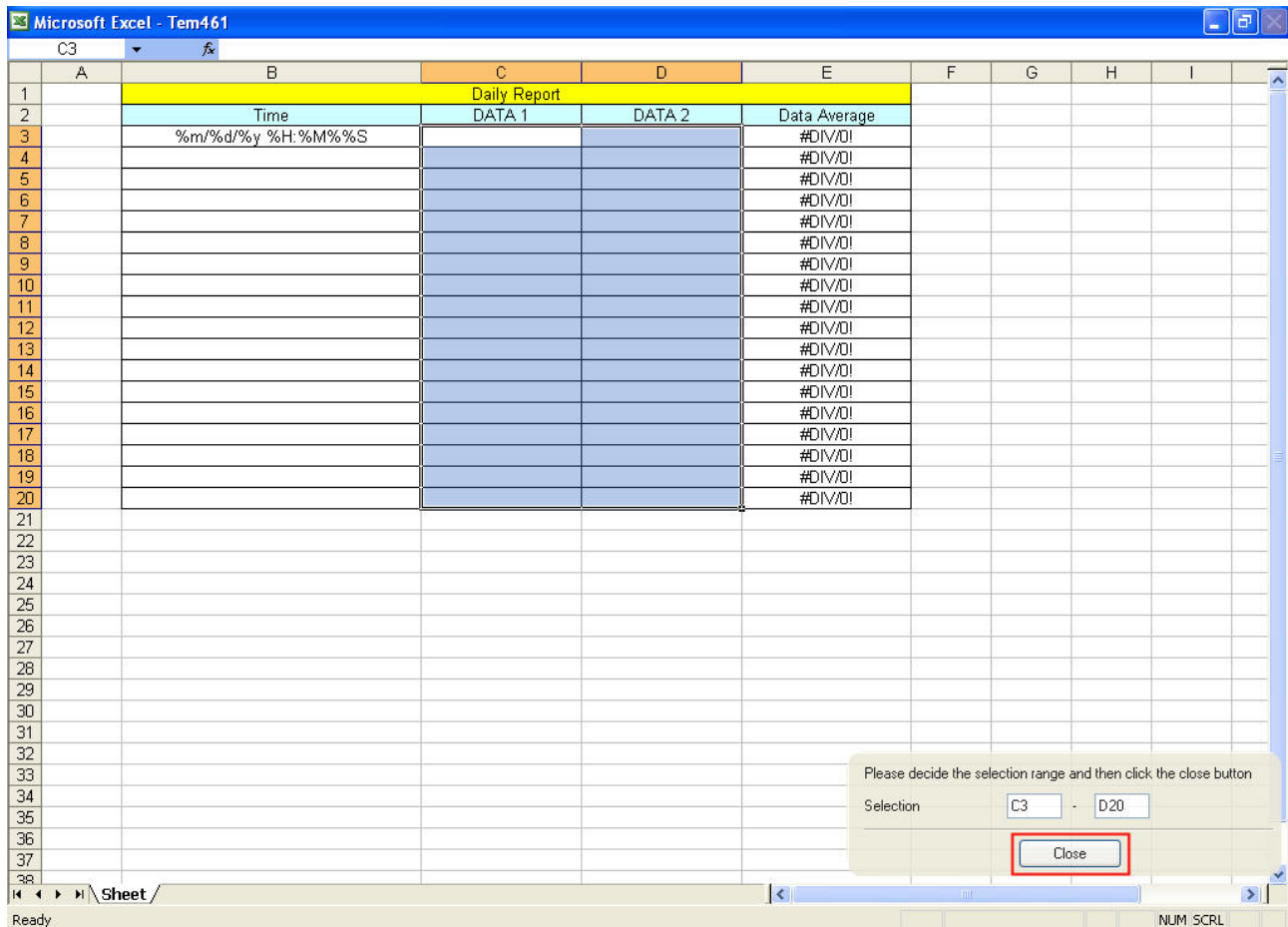
Sampling Direction	Diagram
<p>Single-Vertical:</p> <p>When this option is selected, only one number of register data could be logged into one cell for one time. The sampling operation is in vertical direction. The sampling operation of the second vertical column will not start unless the sampling operation of the first vertical column is done. Please refer to the right diagram.</p>	
<p>Single-Horizontal:</p> <p>When this option is selected, only one number of register data could be logged into one cell for one time. The sampling operation is in horizontal direction. The sampling operation of the second horizontal row will not start unless the sampling operation of the first horizontal row is done. Please refer to the right diagram.</p>	
<p>Anywhere:</p> <p>When this option is selected, the register data could be logged into any desired cell.</p>	

## 2. Selection Range

Press Excel button and the system will open the editing Excel template sheet immediately.



In Excel template sheet, use the mouse to decide the selection range. After the desired range is selected, press **Close** button to finish.



### 3. Stamp Time and Date

When this option is selected, the sampling time and date will be written as well automatically when the sampling data is recorded. The written position will be different depending on the setting sampling direction. Generally, the written position will be at the previous column or row before the selection range. However, if the following three conditions occur, the function of Stamp Time and Date will be disabled.

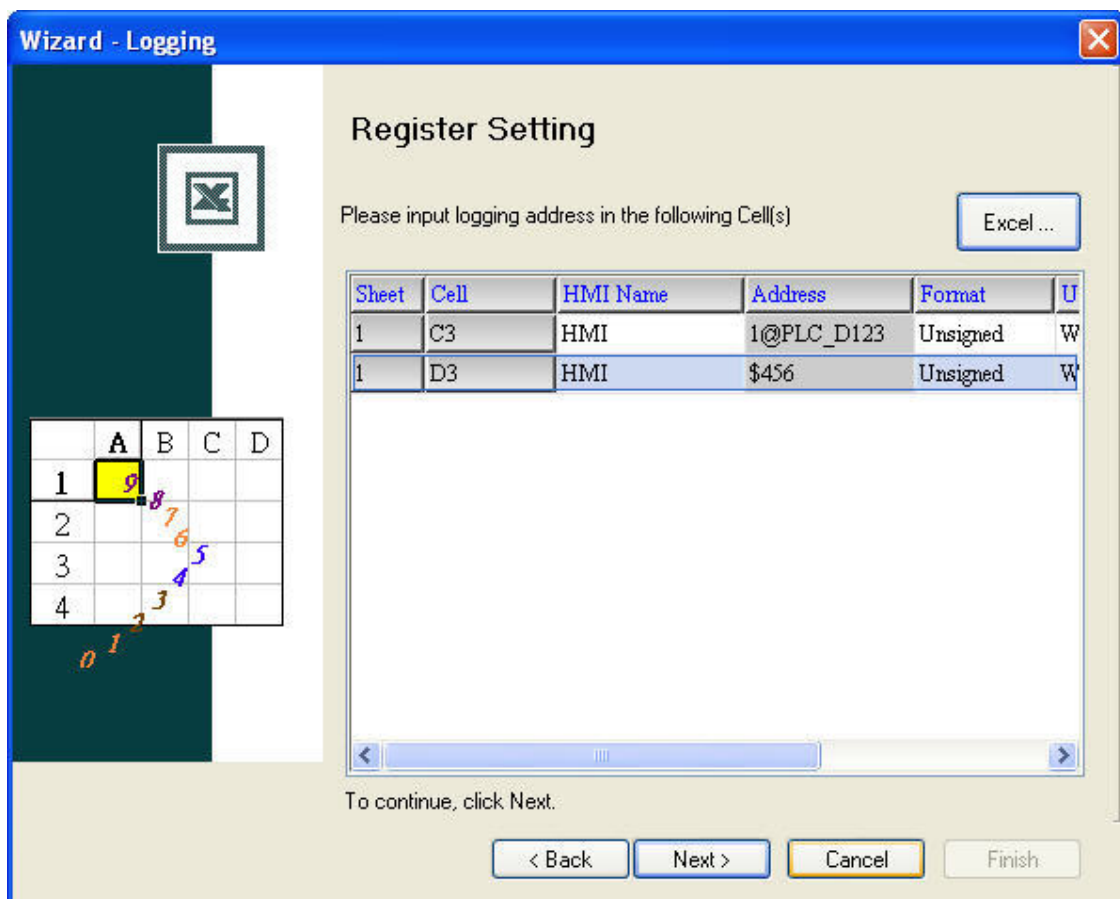
- When the sampling direction is vertical and the selection range includes column A (the first column).
- When the sampling direction is horizontal and the selection range includes row 1 (the first row).
- When the sampling direction is anywhere.

The format of the date and time is specified by a string of characters which can be user-defined and changed freely. Please refer to the table below for the string representation.

String Format	Representation
%m	Month
%d	Date
%y	Year
%H	Hour
%M	Minute
%S	Second

#### 5.2.4 Register Setting

This step is used to set the register address of the sampling data.



Setting Item	Description	Remark
Sheet	Excel Sheet index which the sampling data will be written	Unchangeable
Cell	Excel Cell which the sampling data will be written	Unchangeable
HMI Name	Name of connecting HMI	
Address	Register Address	
Format	<ol style="list-style-type: none"> <li>1. When the register address is set to Bit, this data format setting will be disabled.</li> <li>2. When the register address is set to Word, this data format setting will be enabled and the available settings include: BCD, Signed, Unsigned, Hex, Floating, Char (Character)</li> </ol>	
Unit	Unit of the data length of the register	Unchangeable
Read Count	<ol style="list-style-type: none"> <li>1. When the register address is set to Bit, this setting will be 1(one) always.</li> <li>2. When the register address is set to Word, the data format could be BCD, Signed, Unsigned, Hex, and Floating. But, note that the setting value of this field could not exceed 2(two).</li> <li>3. When the register address is set to Word, if the data format is set to Char (Character), the setting value of this field could be user-defined and the max. setting value could be set to 100(hundred).</li> </ol>	
Controller	Connecting controller	Unchangeable

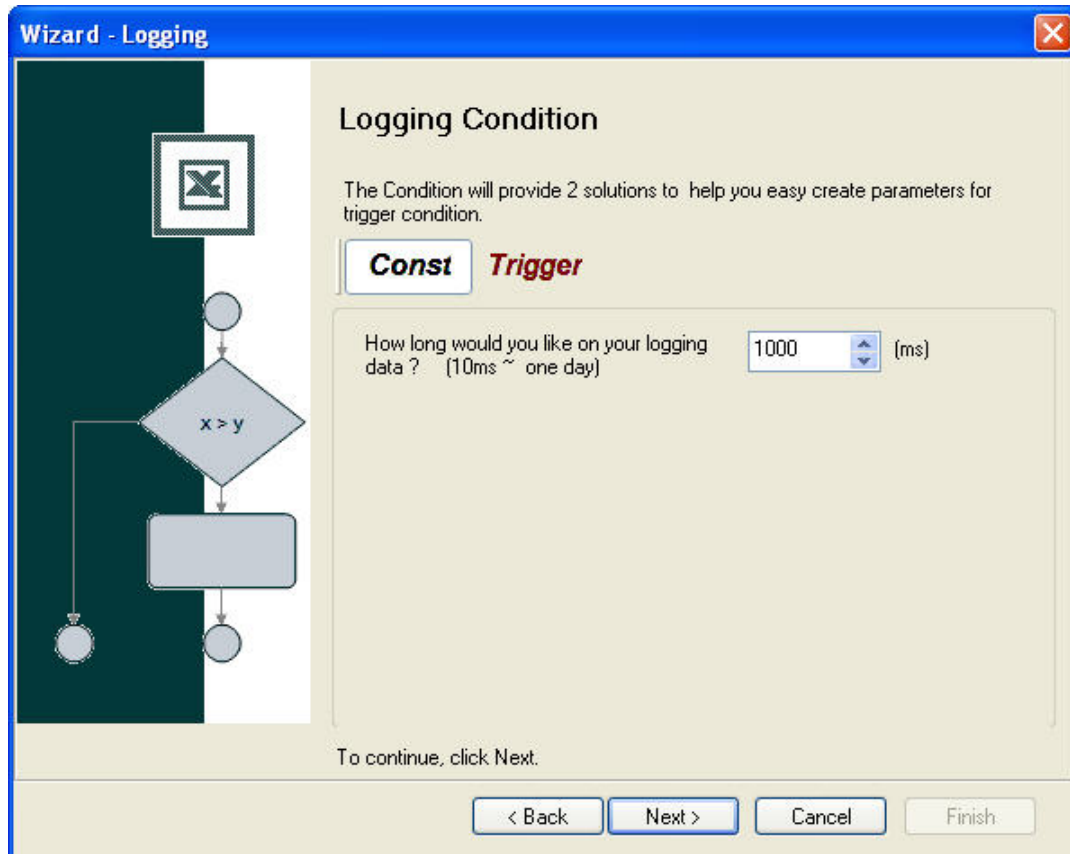


### 5.2.5 Sampling Conditions

This step is used to set the sampling conditions. There are two kinds of options for selection:

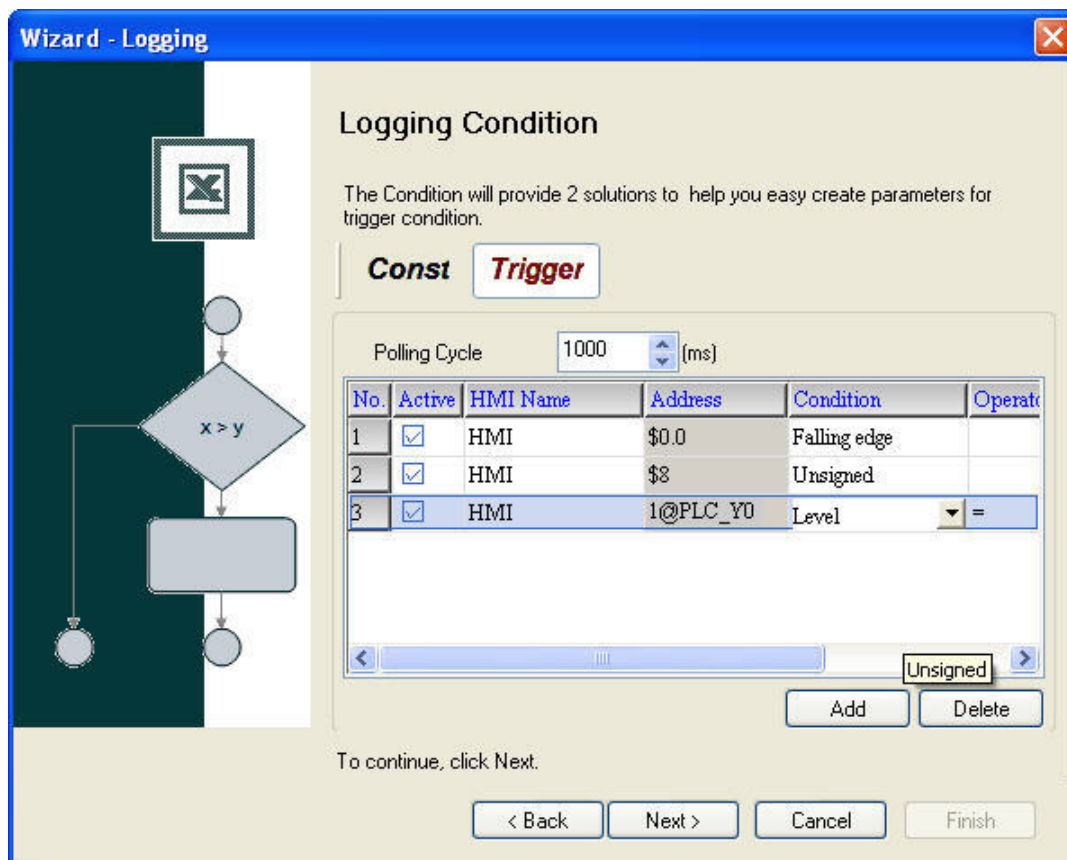
1. Const (execute sampling repeatedly in a certain span of time)

This option is used to determine how long the sampling process is repeated. The time unit is ms.



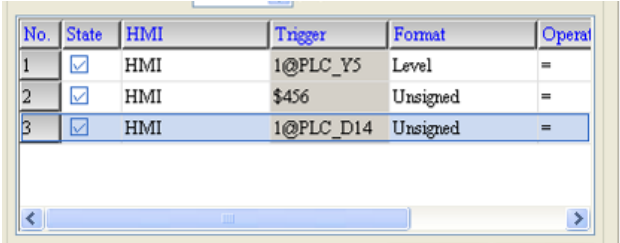
## 2. Trigger (Execute sampling when the trigger conditions are satisfied)

This option is used to determine how long the sampling process is repeated when the trigger conditions are met. The detailed settings are described as follows:



**Polling Cycle (Sampling Cycle):** It is used to determine how long the sampling process is repeated. The time unit is ms.

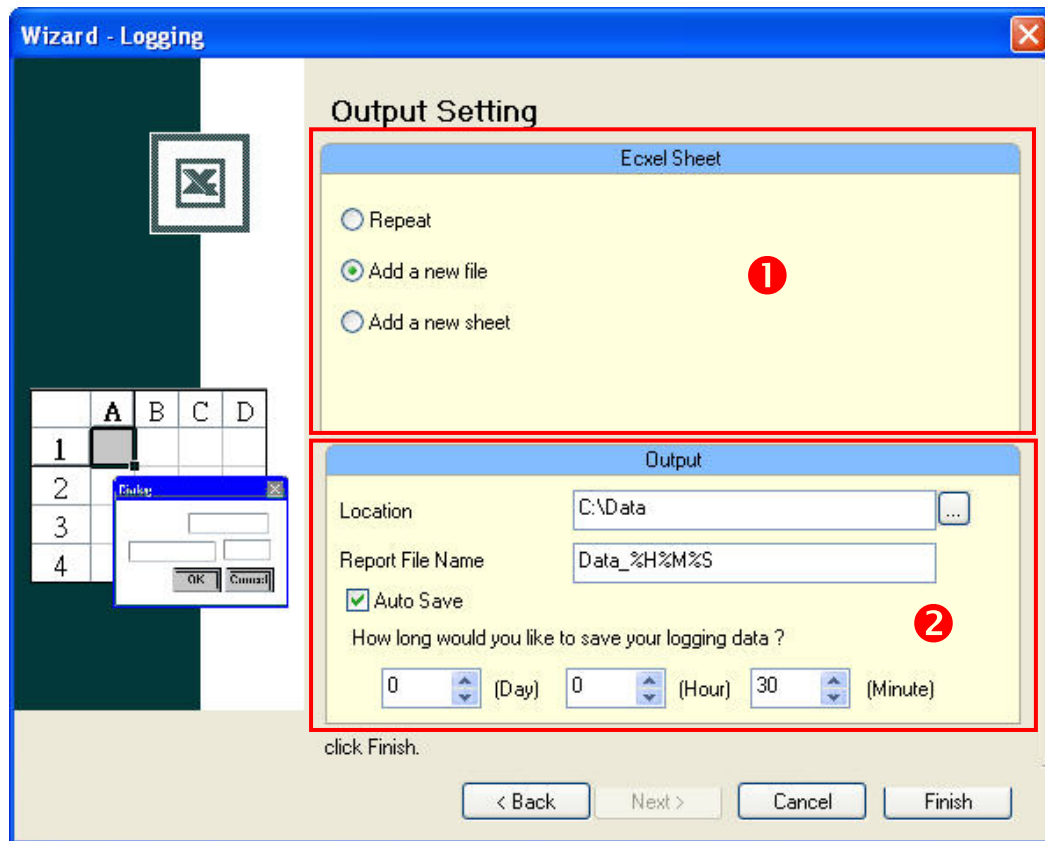
**Trigger Conditions:**

Setting Item	Description	Remark
No.	Condition number	Unchangeable
Active	<p>Choose to activate the trigger conditions. The users can add many trigger conditions freely. When all the selected trigger conditions are satisfied, the system will execute the sampling operation for one time.</p> 	
HMI Name	Name of connecting HMI	
Address	Register Address	

Setting Item	Description	Remark
Format	<ol style="list-style-type: none"> <li>When the register address is set to Bit, the selectable options are: <ol style="list-style-type: none"> <li>Level: Current status</li> <li>Rising edge: Triggered by rising-edge. At this time, the functions of Operator and Value are disabled.</li> <li>Falling edge: Triggered by falling-edge. At this time, the functions of Operator and Value are disabled.</li> </ol> </li> <li>When the register address is set to Word, the selectable options are: <ol style="list-style-type: none"> <li>BCD: Setting range of trigger condition is 0 ~ 9999</li> <li>Signed: Setting range of trigger condition is -32768 ~ +32767</li> <li>Unsigned: Setting range of trigger condition is 0 ~ 65535</li> <li>Hex: Setting range of trigger condition is 0 ~ 65535</li> </ol> </li> </ol>	
Operator	<p>Operator settings:</p> <ol style="list-style-type: none"> <li>When the register address is set to Bit, the selectable operator are: <ol style="list-style-type: none"> <li>= : equal to</li> <li>!= : not equal to</li> </ol> </li> <li>When the register address is set to Word, the selectable operator are: <ol style="list-style-type: none"> <li>&gt;= : greater than or equal to</li> <li>&lt;= : smaller than or equal to</li> <li>&gt; : greater than</li> <li>= : equal to</li> <li>&lt; : smaller than</li> </ol> </li> </ol>	Unchangeable
Value	Setting value of trigger condition	
Controller	Connecting controller	Unchangeable

### 5.2.6 Output Setting

This step is used to set how to output and save the sampling data.



There are two parts in this dialog box:

#### 1. Excel Sheet

##### A. Repeat

When the sampling data has been filled in the selection range to the full, the system will write the data into the selection range from the first column or row repeatedly.

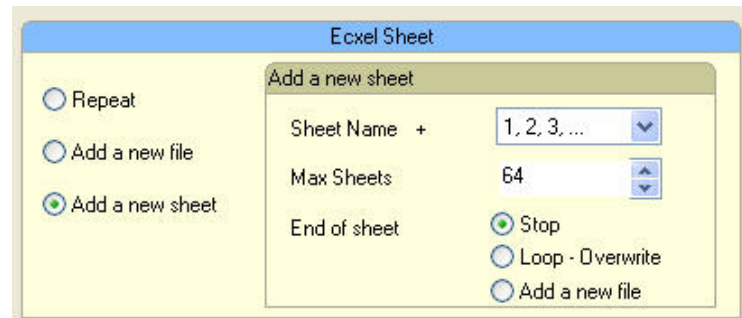
Microsoft Excel - Tem2E1					
	G10				
	A	B	C	D	E
1		Daily Report			
2		Time	DATA 1	DATA 2	Data Average
3		08/24/2009 17:18:16	35	35	35
4		08/24/2009 17:18:17	45	46	45.5
5		08/24/2009 17:18:18	54	54	54
6		08/24/2009 17:18:19	64	64	64
7		08/24/2009 17:18:20	74	74	74
8		08/24/2009 17:18:21	84	84	84
9		08/24/2009 17:18:22	93	93	93
10		08/24/2009 17:18:23	65439	3	32721
11		08/24/2009 17:18:24	65449	13	32731
12		08/24/2009 17:18:25	65459	23	32741
13		08/24/2009 17:18:26	65468	32	32750
14		08/24/2009 17:18:27	65478	42	32760
15		08/24/2009 17:18:28	65488	52	32770
16		08/24/2009 17:18:29	65498	62	32780
17		08/24/2009 17:18:30	65508	72	32790
18		08/24/2009 17:18:31	65517	81	32799
19		08/24/2009 17:18:32	65527	91	32809
20		08/24/2009 17:18:33	1	1	1
21					
22					
23					

B. Add a new file

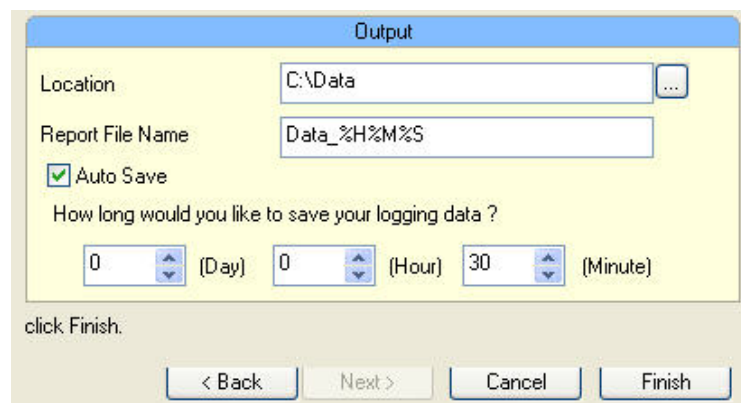
When the sampling data has been filled in the selection range to the full, the system will open a new Excel file automatically and write the data into the new Excel file.

C. Add a new sheet

When the sampling data has been filled in the selection range to the full, the system will open a new Excel sheet automatically and write the data into the new Excel sheet.



## 2. Output Setting



A. Location: Choose file destination location.

B. Report File Name: Specify the name of the report file. The users can add the date and time in the end of the file name. The format of the date and time is specified by a string of characters which can be user-defined and changed freely. Please refer to the table below for the string representation.

String Format	Representation
%m	Month
%d	Date
%y	Year
%H	Hour
%M	Minute
%S	Second

- C. Auto Save: When this option is enabled, the system will back up the data in a period of specified time automatically in case the data will be lost due to abnormal operation when the power source is cut off unexpectedly or other accident occurs.

# Chapter 6 Writing Data in Microsoft Access

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Before creating testing example, make sure to change the upload and download option (**Options > Configuration**) on Screen Editor first. The default setting of upload and download is via **USB**. If the users need to use **Ethernet**, please change the default setting by referring to **Appendix A**.

## 6.1 Example

This example is used to help the users to understand how to use eServer to read the data of the register addresses \$3 and \$6 every second, record the data in Microsoft Access database via ODBC interface, and save the collected data into the specified folder (C:\Data).

### 6.1.1 Database Setting

#### 1. Installing MSDE

First download the free software MSDE from the Microsoft web site. To download it, go to <http://www.asp.net/downloads/archived/msde/> and a download link will redirect the users to download it.

After running the self-extracting file, open **setup.ini** file within MSDE subdirectory for editing.

In the **setup.ini** file under the **[Options]** tag insert:


```
SAPWD="0000"
```

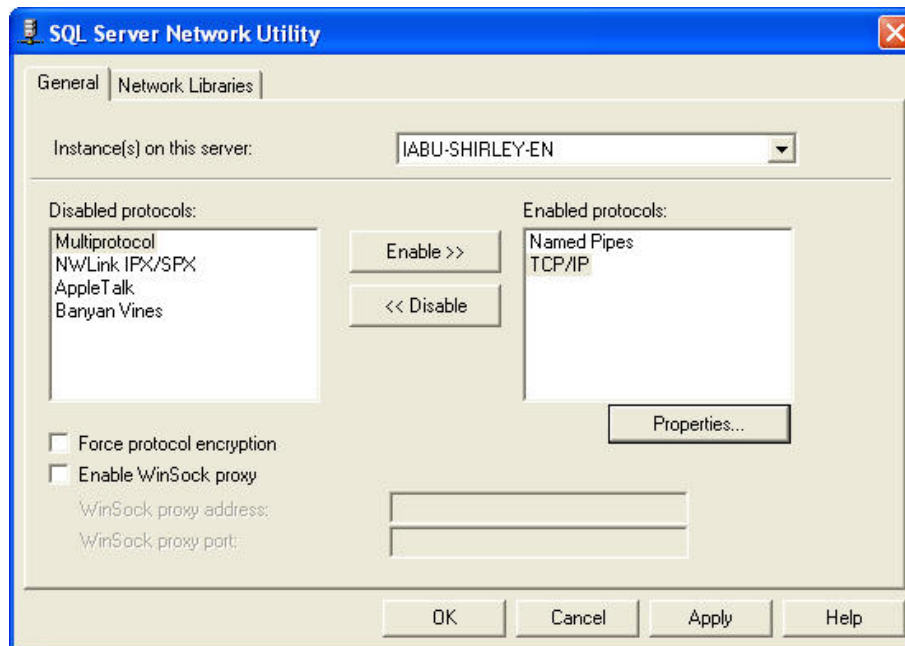
```
SECURITYMODE="SQL"
```

The SAPWD is the password required for the system administrator (SA) login account. In this case, the SA login password is set to **0000**. The users can set the desired password freely. Once the setup.ini file is saved, double-click setup.exe to complete MSDE installation.



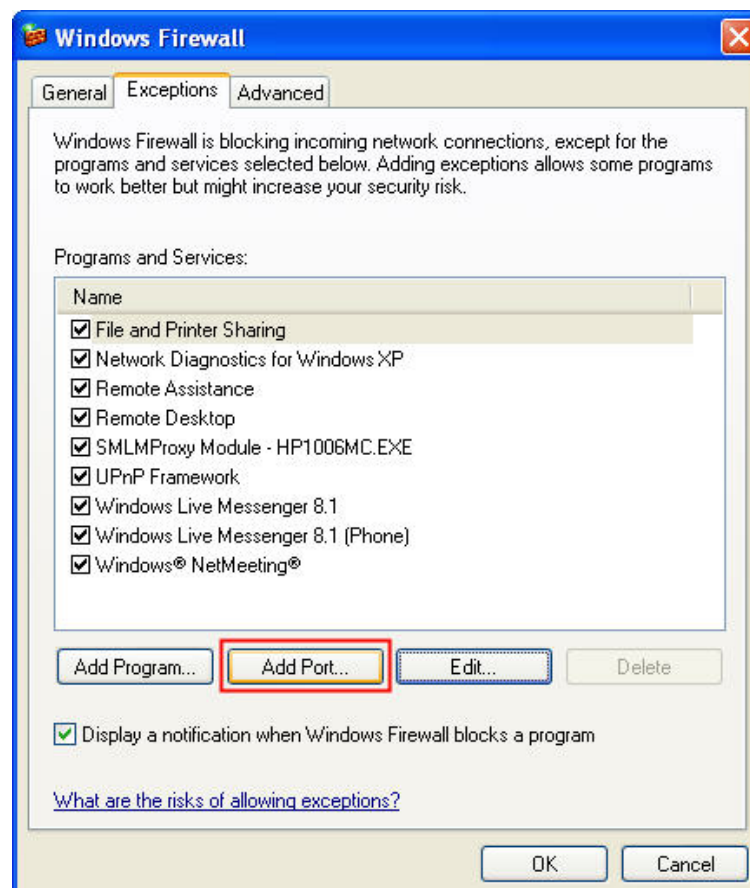
## 2. Enabling MSDE

Execute **SVRNETCN.exe** () within C:\Program Files\Microsoft SQL Server\80\Tools\Binn subdirectory and enable **Named Pipes** and **TCP/IP** options.

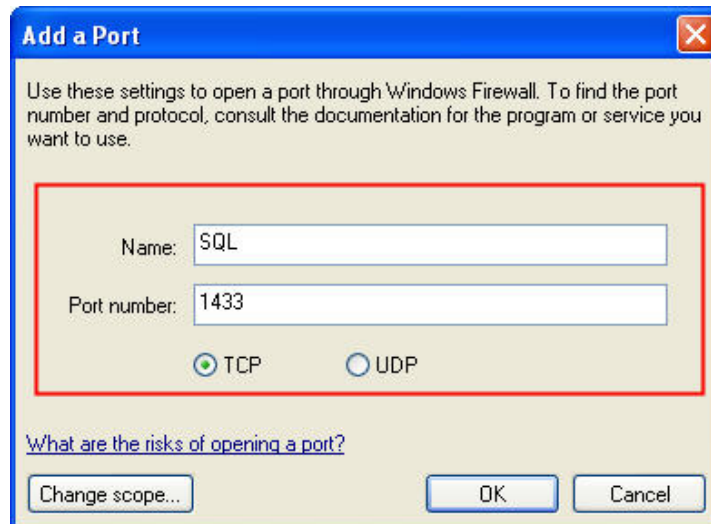


## 3. Setting Windows Firewall

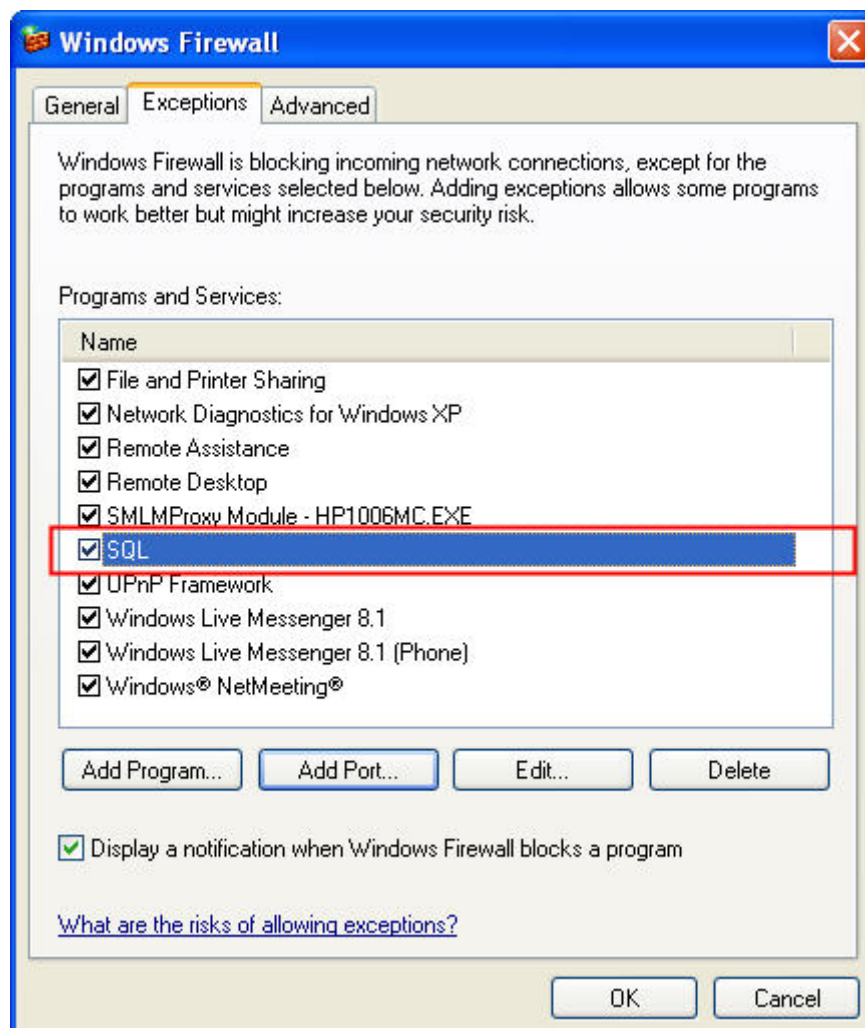
Click **Start** and then click **Control Panel**. In the **Control Panel**, click **Windows Security Center > Windows Firewall**. Then, click on the **Exceptions** tab.




Click **Add Port** button and the following **Add a Port** dialog box will appear.

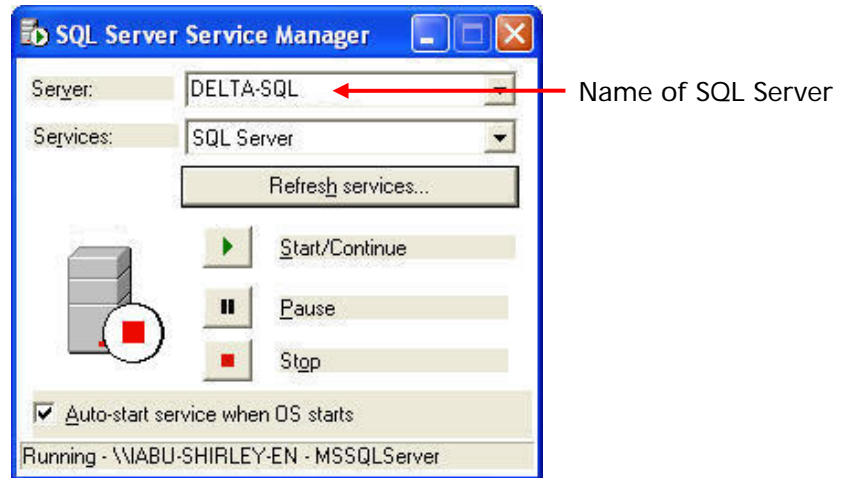


In the Add a Port dialog box, type SQL in the Name text field and type the port number of the instance of the Database Engine, such as 1433 for the default instance in the Port number text field. Ensure that TCP is selected and click OK to complete the settings. When SQL port is shown and selected in Windows Firewall dialog box, it indicates that SQL Server port will not be blocked and the incoming connections to SQL Server will be allowed.



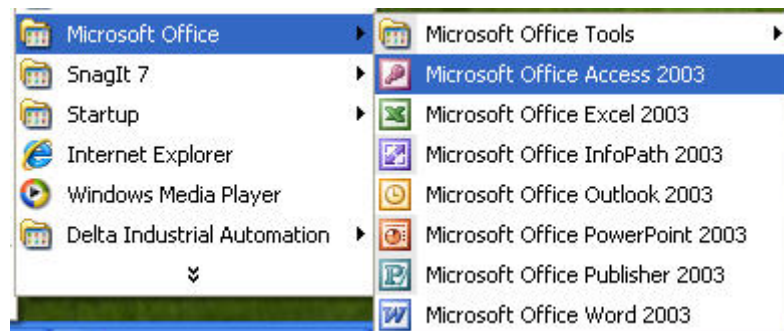
#### 4. Activating SQL Server

Double-click the  located at the bottom right of Windows screen to open the following **SQL Server Service Manager** dialog box and click **Start/Continue** button.

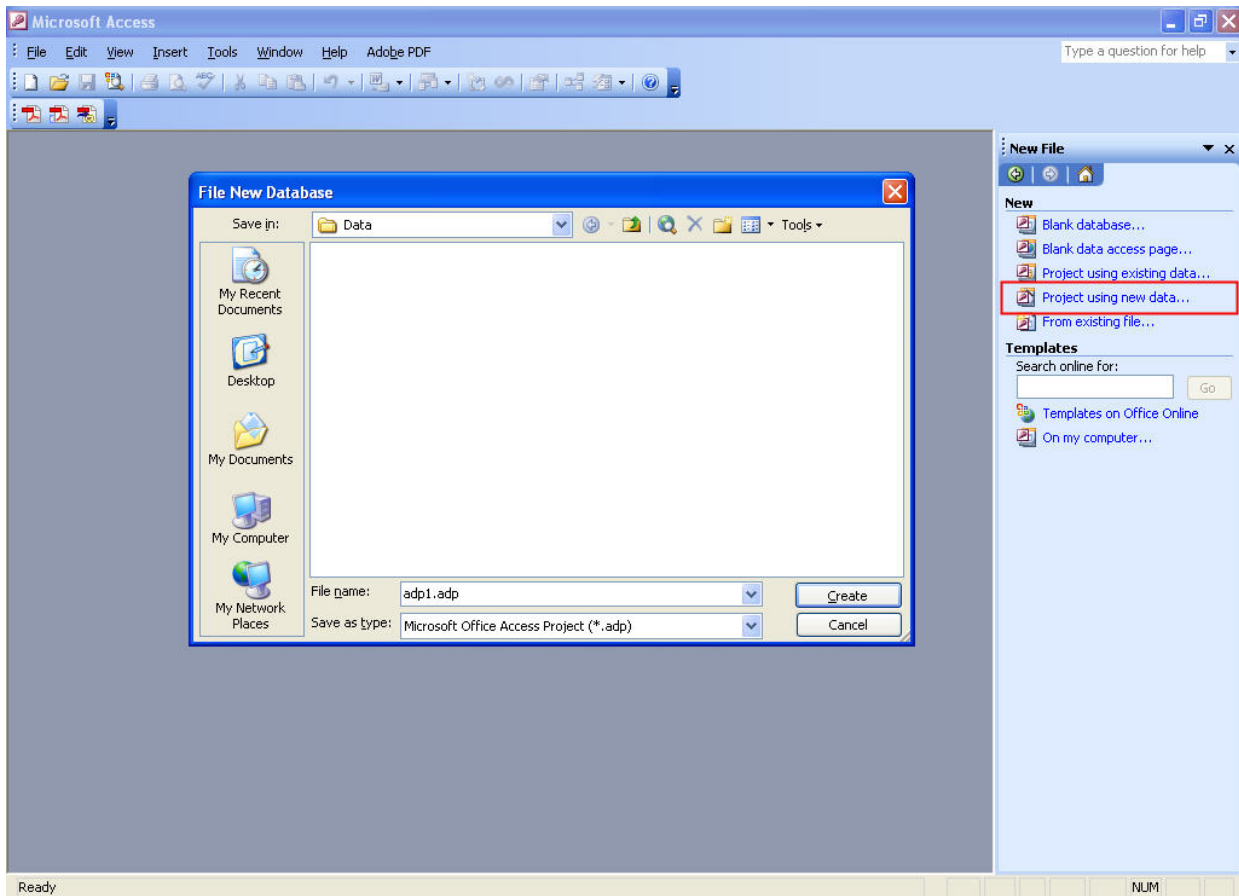


#### 5. Starting Microsoft Access

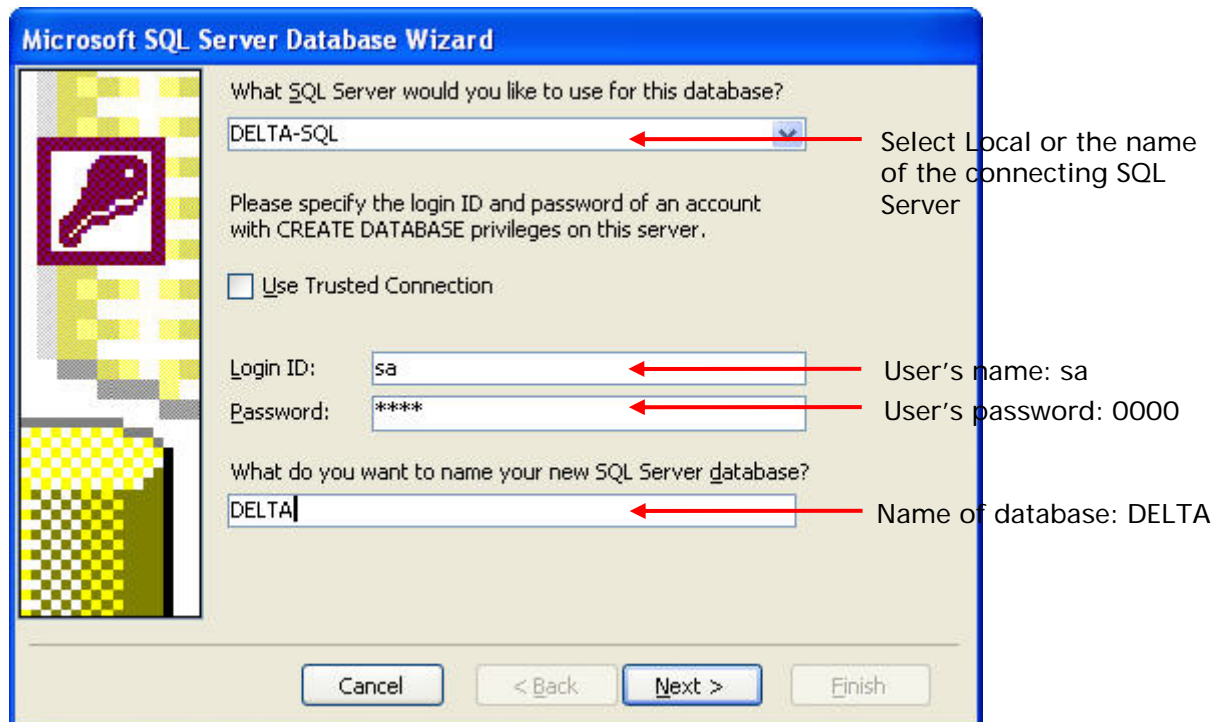
Start Microsoft Access by clicking **Start > Programs > Microsoft Office > Microsoft Office Access**.



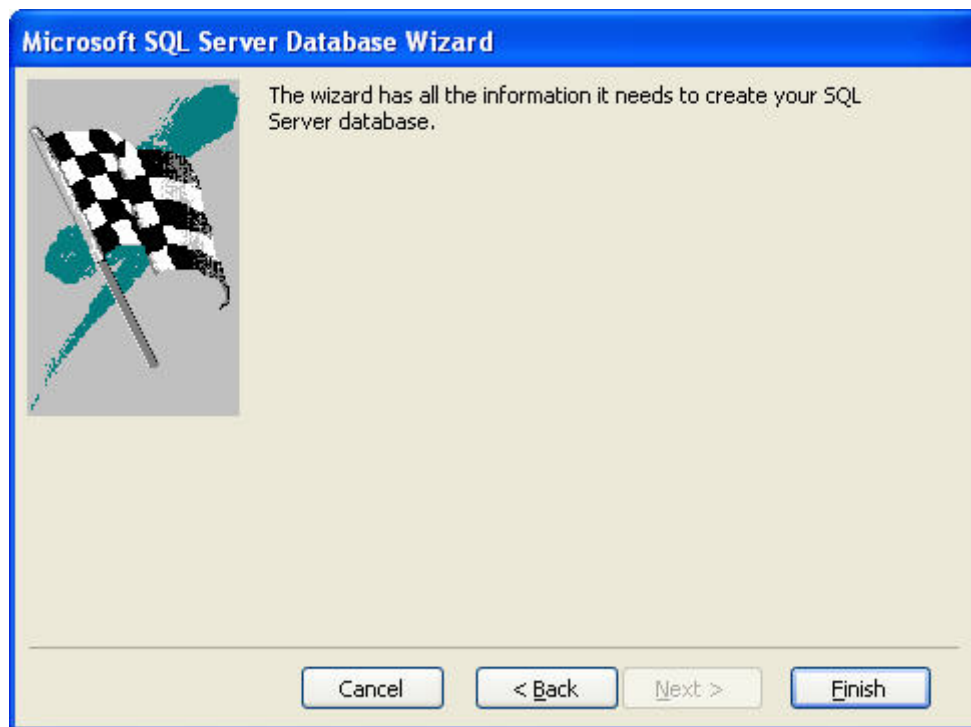
Then, click **New** icon and choose **Project using new data** to open a new database file and set the directory to C:\Data.



Press **Create** button to enable Microsoft SQL Server Database Wizard.

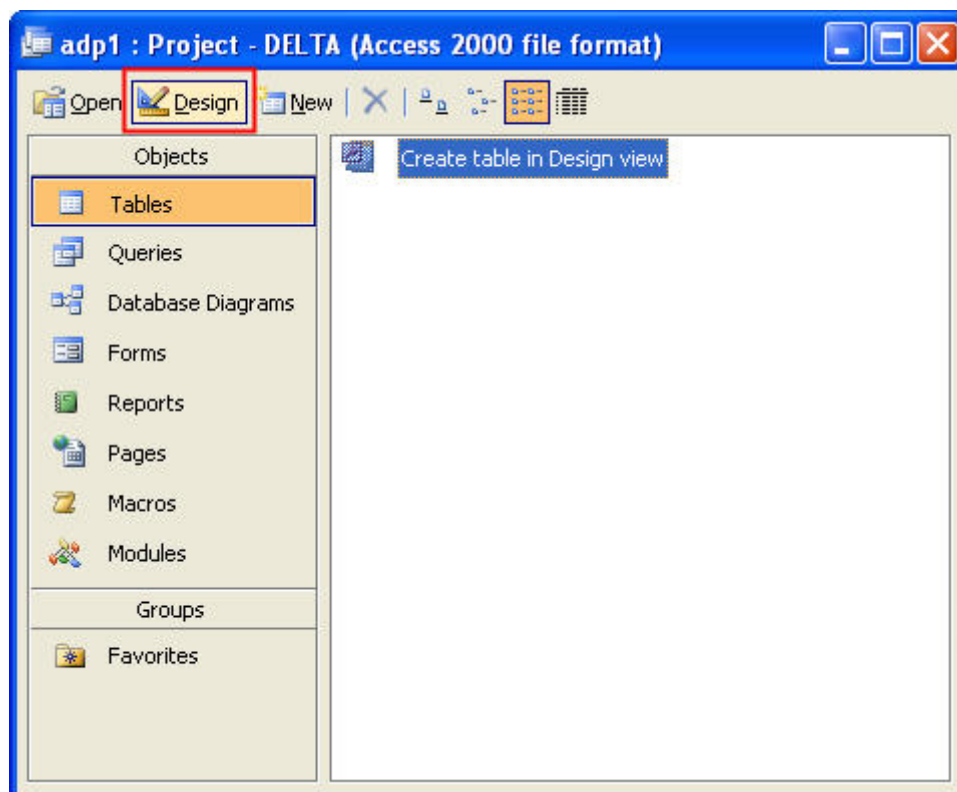


Press **Next** button to continue.



Press **Finish** button to complete the settings.

Then, click **Design** in the following pop-up window to create a database table in Design view.



In the Table dialog box, create a database like the following figure shown below.

Column Name	Data Type	Length	Allow Nulls	Description
Time	char	50	✓	
Data1	char	50	✓	
Data2	char	50	✓	

Columns | Lookup

Default Value: 0

Precision: 0

Scale: 0

Identity: No

Identity Seed: 0

Identity Increment: 0

Is RowGuid: No

Formula: <database default>

Collation: <database default>

Format: <database default>

Decimal Places: 0

Input Mask: <database default>

After editing the table, close the window to give a name for this table such as Table 1.

Table1 : Table

Choose Name

Enter a name for the table:

Table1

OK Cancel Help

Click **OK** button, and the following warning dialog will pop-up.

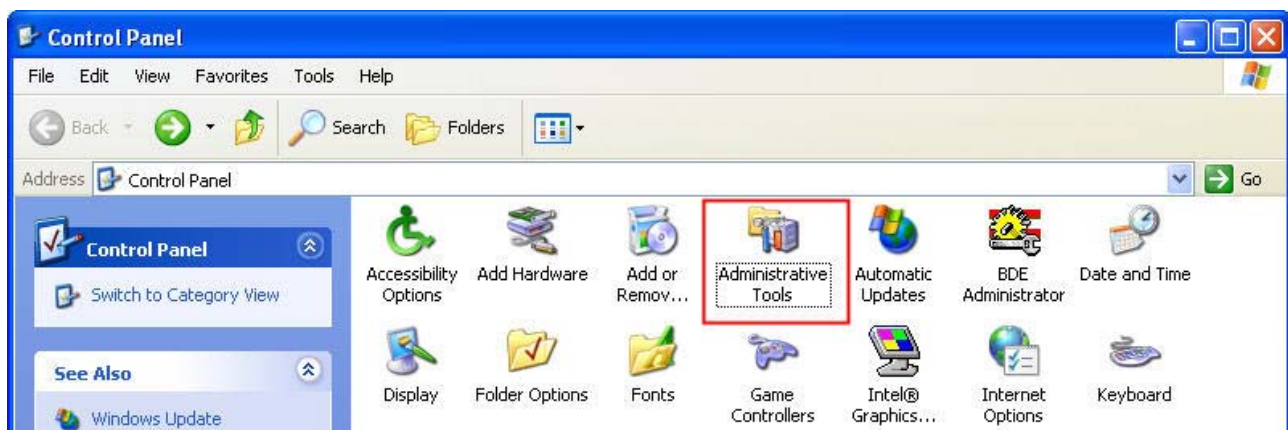


Please press **No** button to complete the settings.

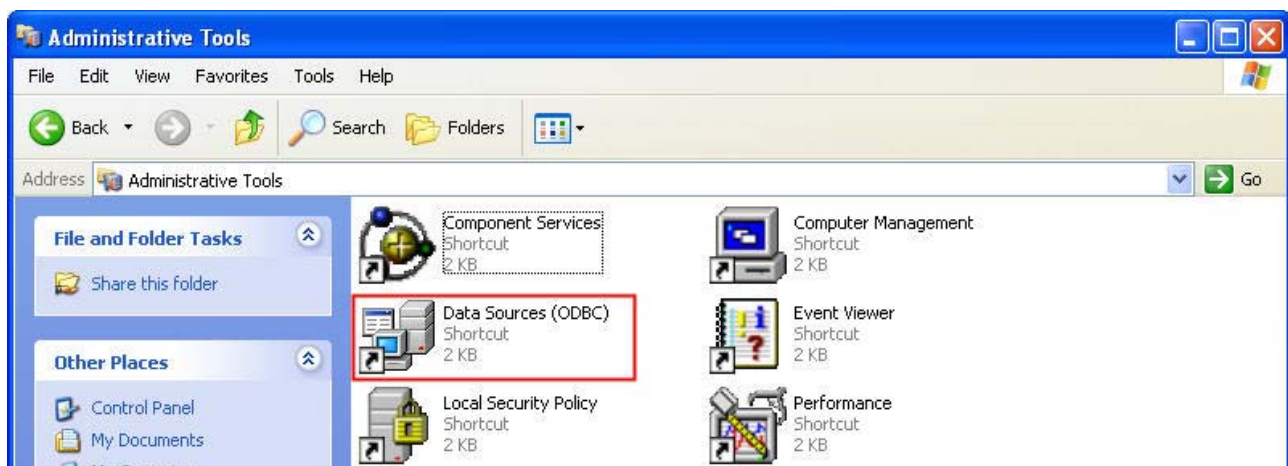


## 6. ODBC Setup

In the **Control Panel**, double-click **Administrative Tools**.

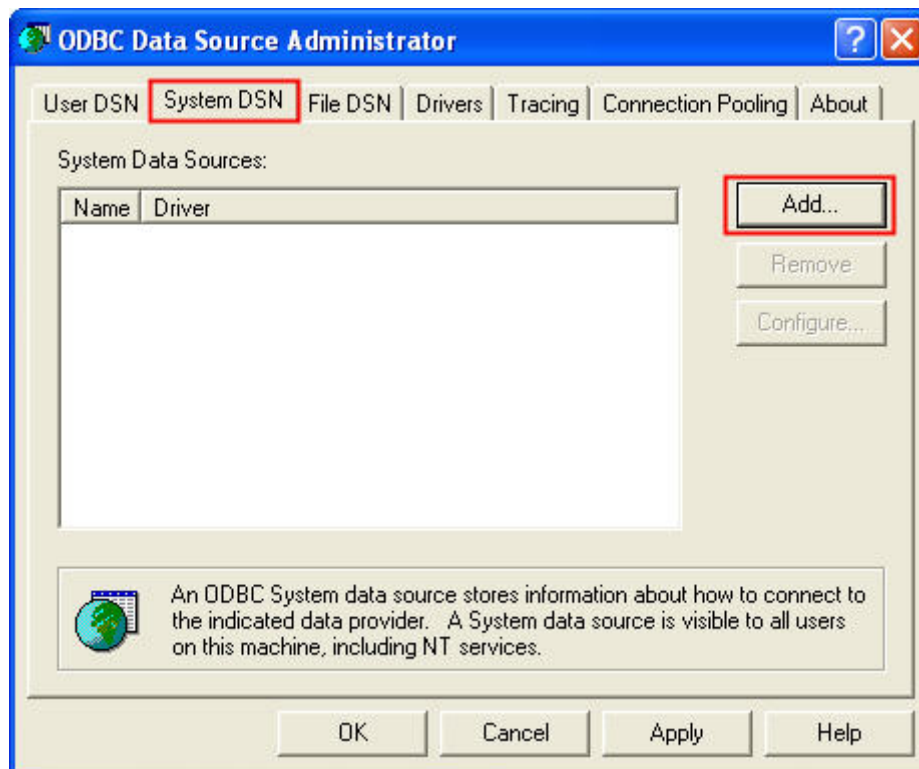


In the **Administrative Tools**, double-click **Data Sources (ODBC)**.

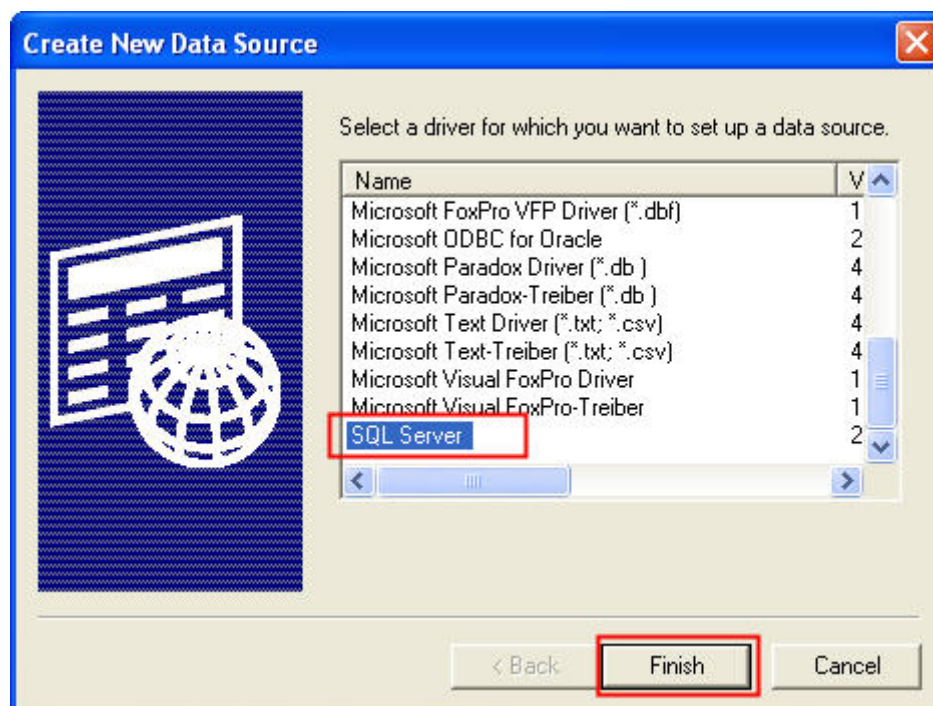




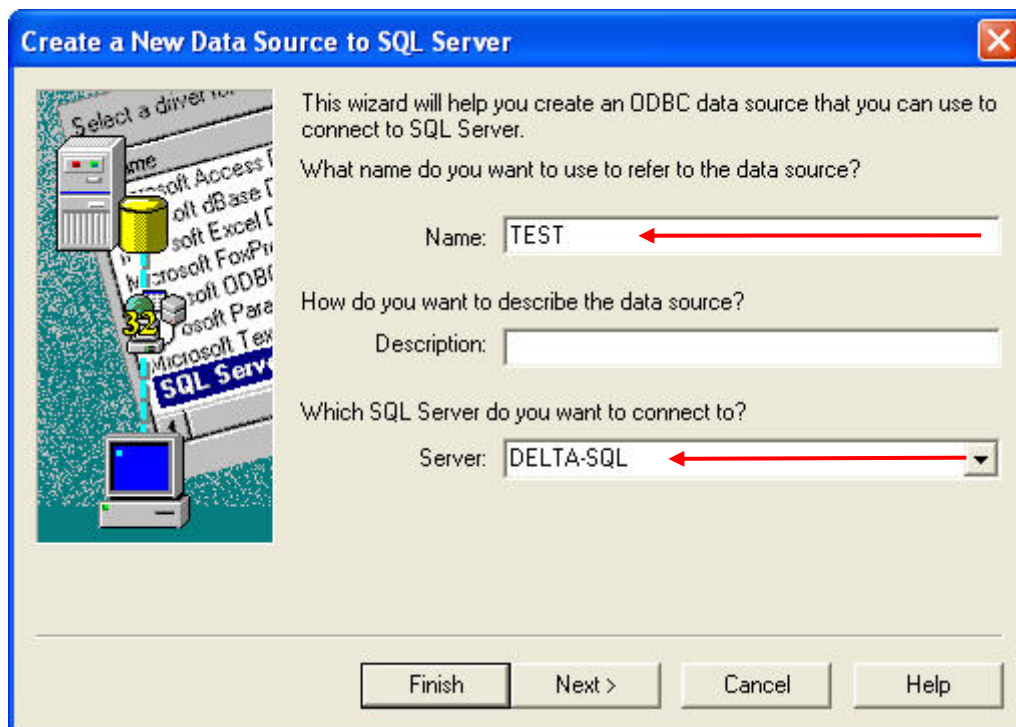
In the **ODBC Data Source Administrator** dialog box, select **System DSN** tab and click on **Add** button to add system data source.



Select **SQL Server** and then click on **Finish** button.



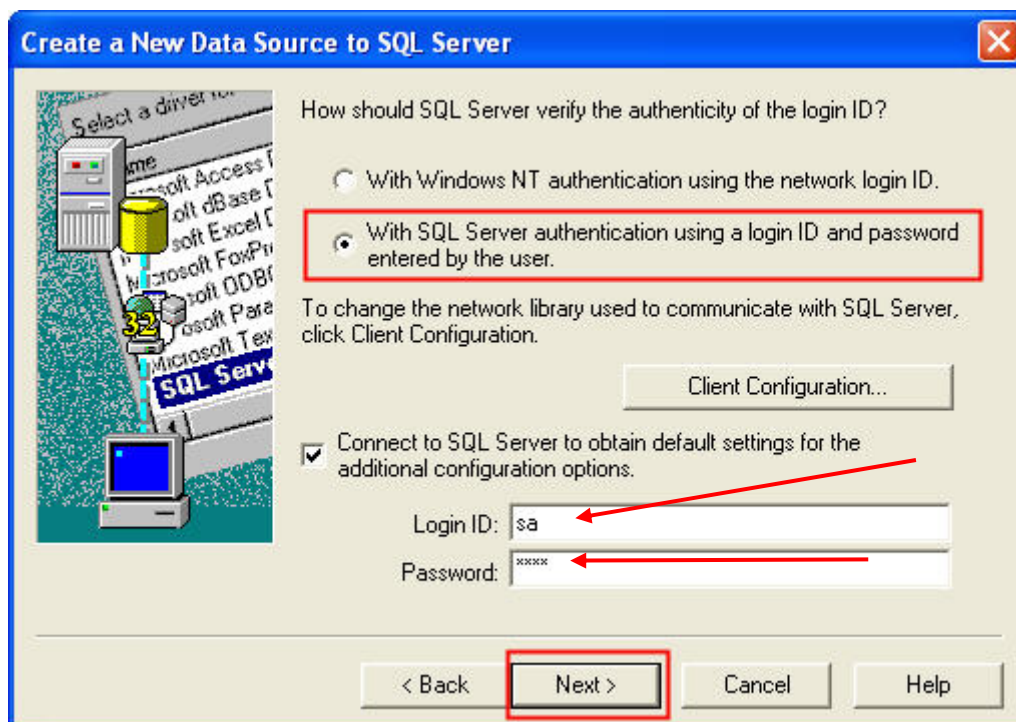
In the Create a New Data Source to SQL Server dialog box, do the following:  
Enter the name of the data source and select the SQL Server that the users want to access.



Press **Next** button to continue.

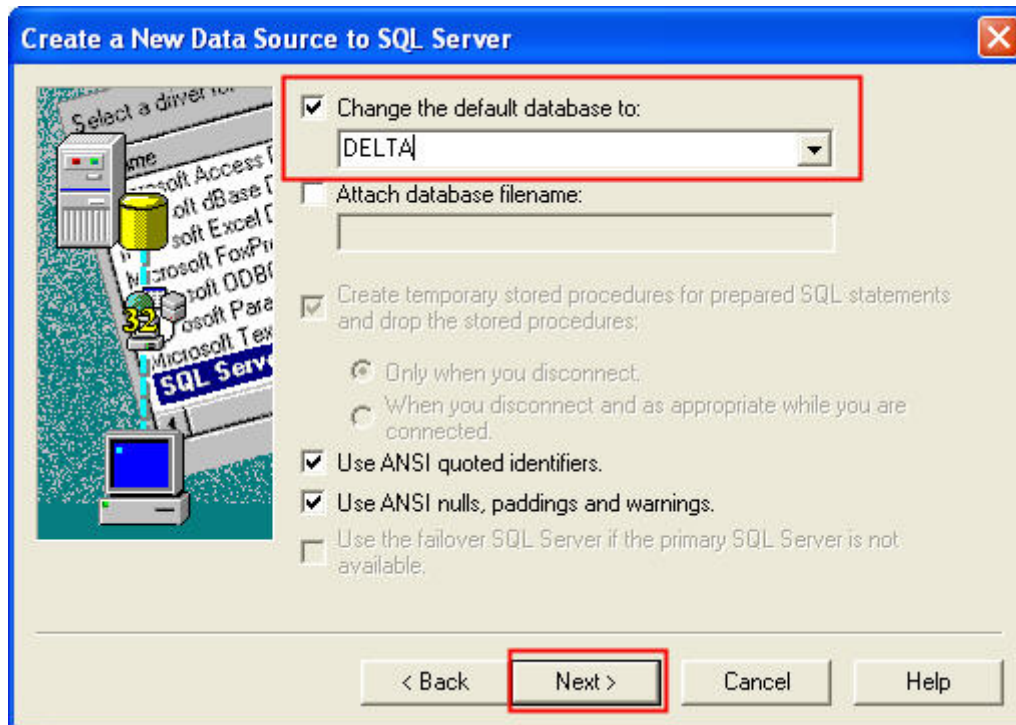
Choose how SQL Server should verify the authenticity of the login ID. Enter the user's name and the password. In this case, the user's name is **sa** and the password is **0000**.

Press **Next** button to continue.

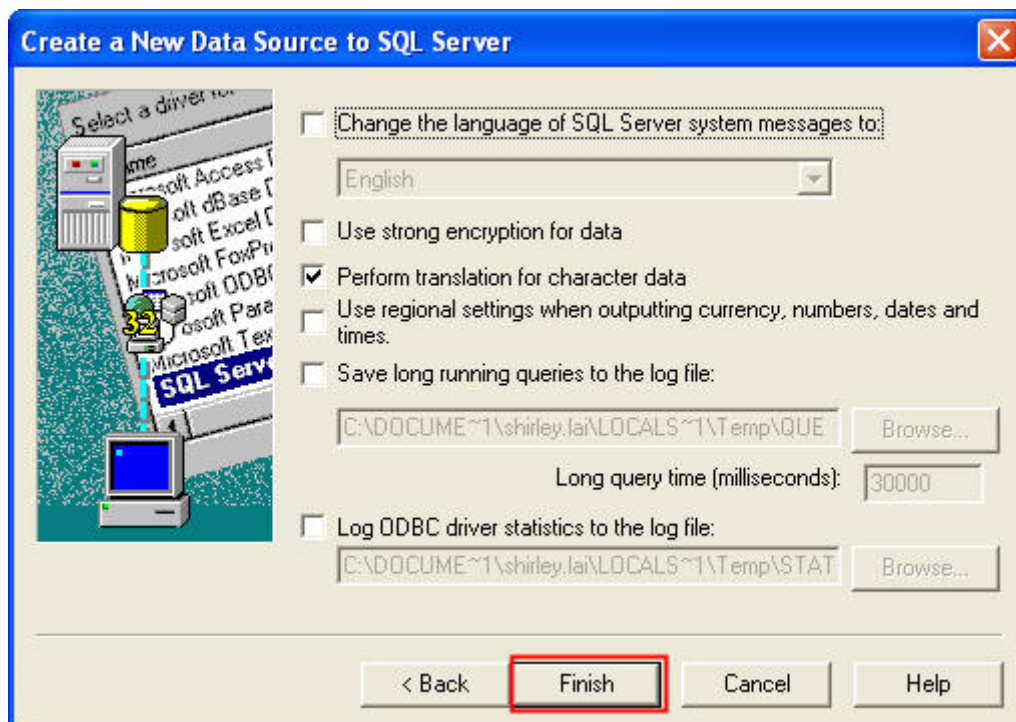


Change the default database to **DELTA**.

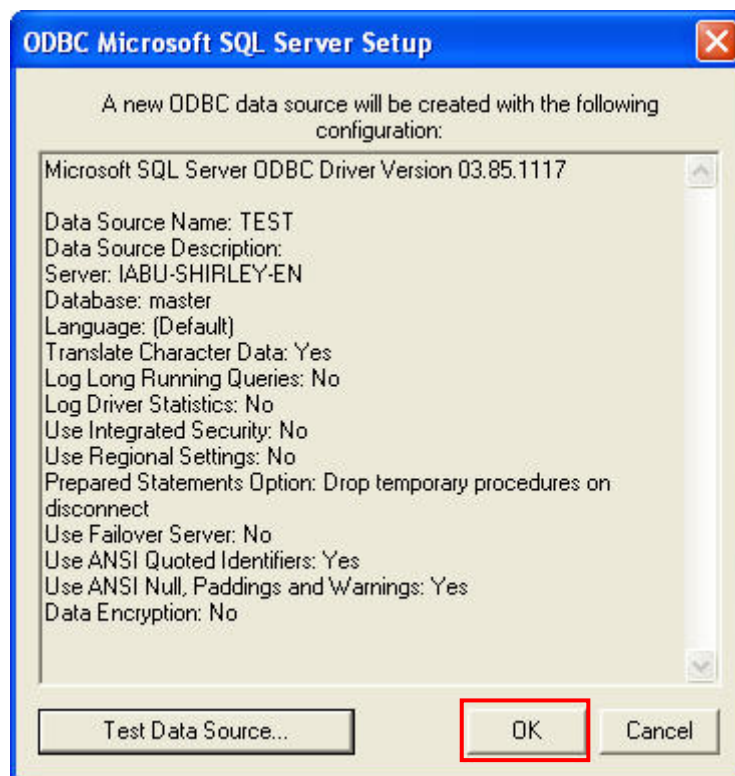
Press **Next** button to continue.



Press **Finish** button.



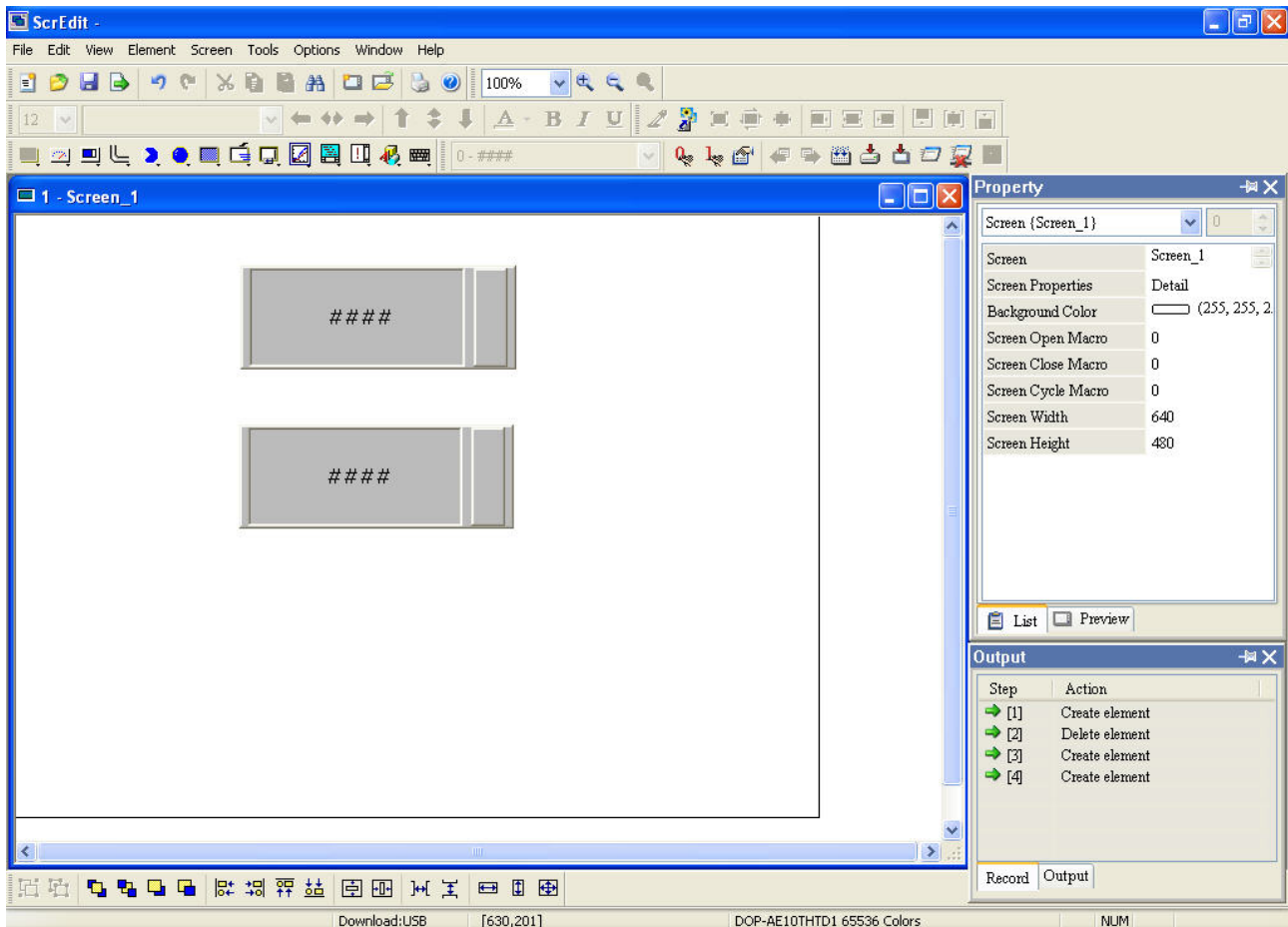
Press **OK** button to complete ODBC setup.



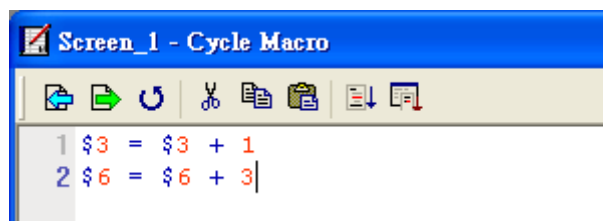


### 6.1.2 Create HMI Project File

Start Screen Editor software program and click **File > New** or click **New** icon to create a new project. Then, click **Element > Input > Numeric Entry** to create two numeric entry elements (\$3 and \$6) on the screen. In this case, 10 inches color AE type DOP series HMI is used.



Use Screen Cycle Macro and enter the following commands in macro command window.

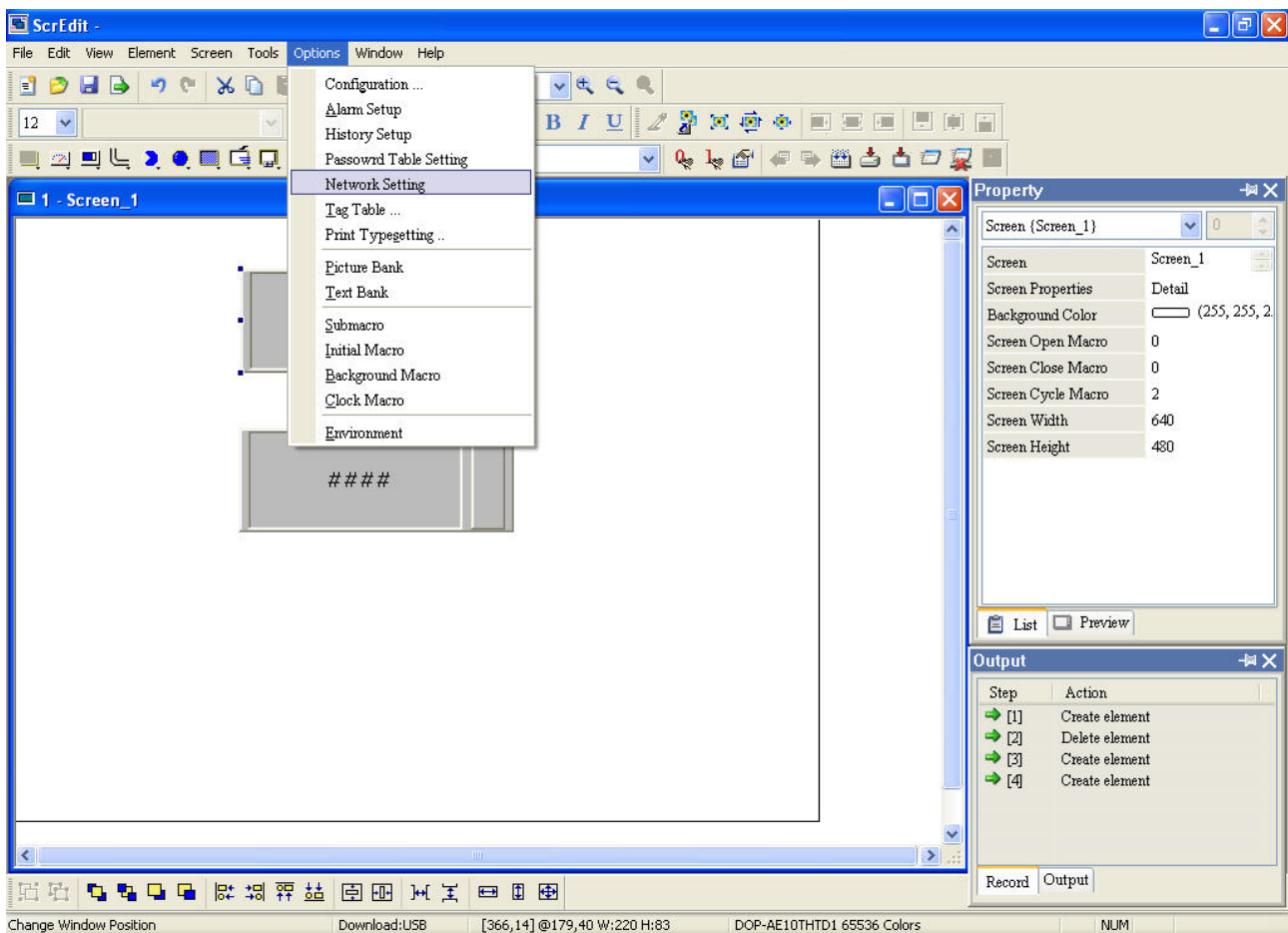


Click **Options > Configuration** and use **Communication** tab to select **Ethernet** and complete HMI networking settings shown as the figure below. Then, press **OK** button to finish the settings.

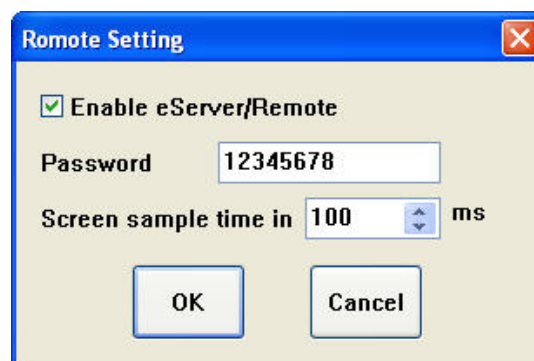
The screenshot shows the 'Configuration' dialog box with the 'Communication' tab selected. The dialog has a blue title bar and a close button (X) in the top right corner. Below the title bar are five tabs: 'Standard', 'Communication' (selected), 'Print', 'Default', and 'Others'. In the 'Communication' tab, there are four buttons on the left: 'Add', 'Move Up', 'Delete', and 'Move Down'. To the right of these buttons is a list of communication ports: 'COM1', 'COM2', 'COM3', and 'Ethernet'. 'Ethernet' is selected and highlighted. To the right of the list are four input fields: 'HMI Name' (containing 'eRemote'), 'HMI IP Address' (containing '172 . 16 . 190 . 2'), 'Subnet Mask' (containing '255 . 255 . 255 . 0'), and 'Default Gateway' (containing '0 . 0 . 0 . 0'). Above these fields are two checkboxes: 'Recovery the IP address in HMI' (checked) and 'DHCP' (unchecked). At the bottom right of the dialog are 'OK' and 'Cancel' buttons.

Tab	Buttons	Selected Item	Recovery the IP address in HMI	DHCP	HMI Name	HMI IP Address	Subnet Mask	Default Gateway
Standard								
Communication	Add, Move Up, Delete, Move Down	Ethernet	<input checked="" type="checkbox"/>	<input type="checkbox"/>	eRemote	172 . 16 . 190 . 2	255 . 255 . 255 . 0	0 . 0 . 0 . 0
Print								
Default								
Others								

Next, click **Options > Network Setting**.




The following **Remote Setting** dialog box will appear. Check the check box before **Enable eServer/Remote** and set a password for network communication. After **OK** button is pressed, HMI networking is completed. Compile the edited project file at the end of the programming and the edited project file could be transferred to HMI.

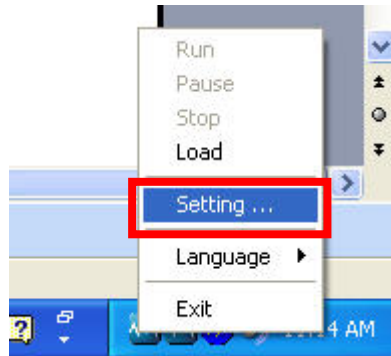




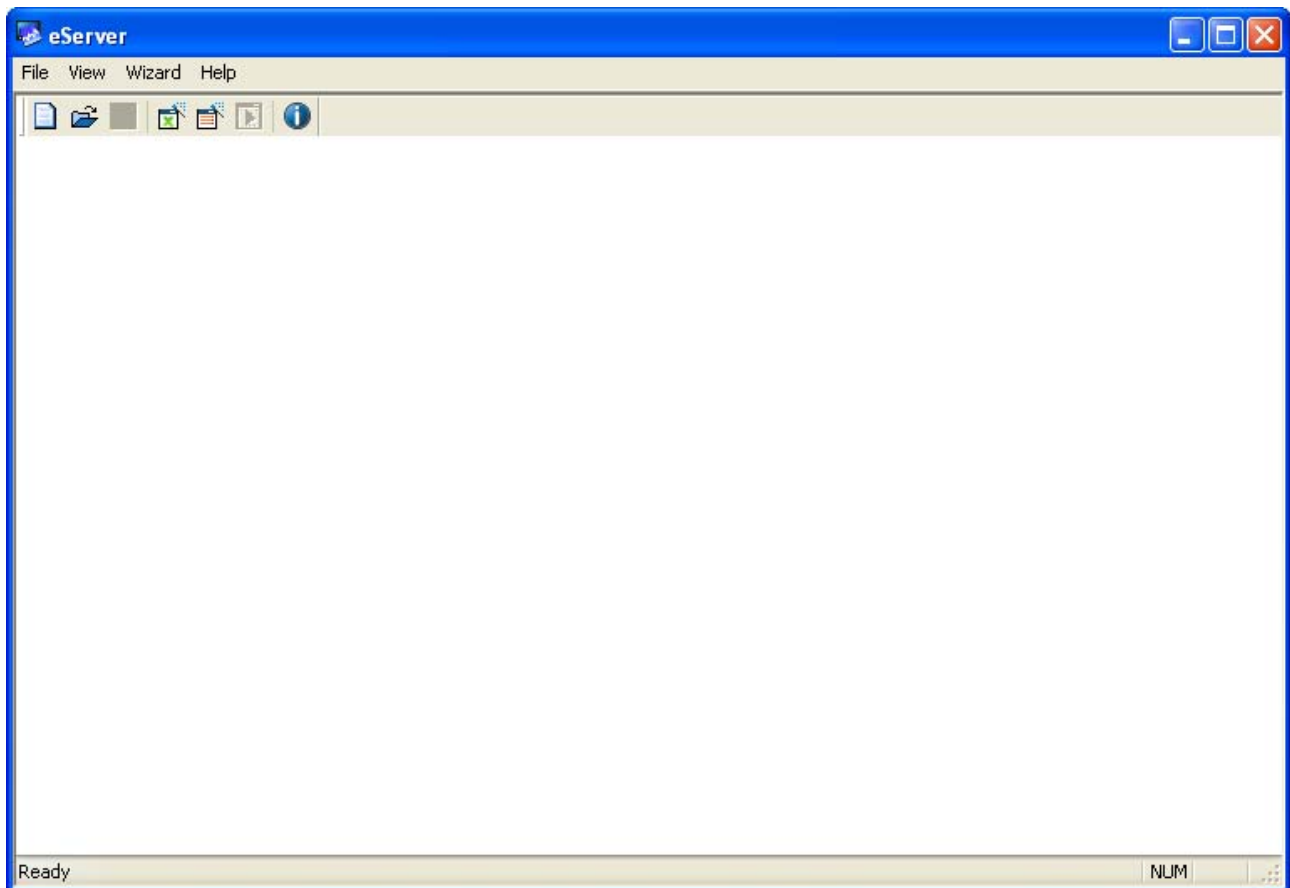
### 6.1.3 eServer Setting

1. After eServer is enabled, eServer  icon will appear at the bottom right of Windows screen.

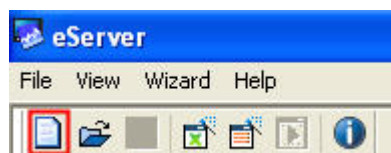
Right-click this icon and select **Setting** option from the pop-up menu.




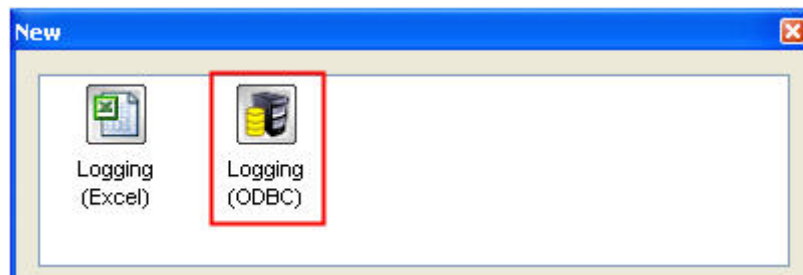
2. Then, eServer window will open.



3. Click **File > New** or click  icon to create a new project file.

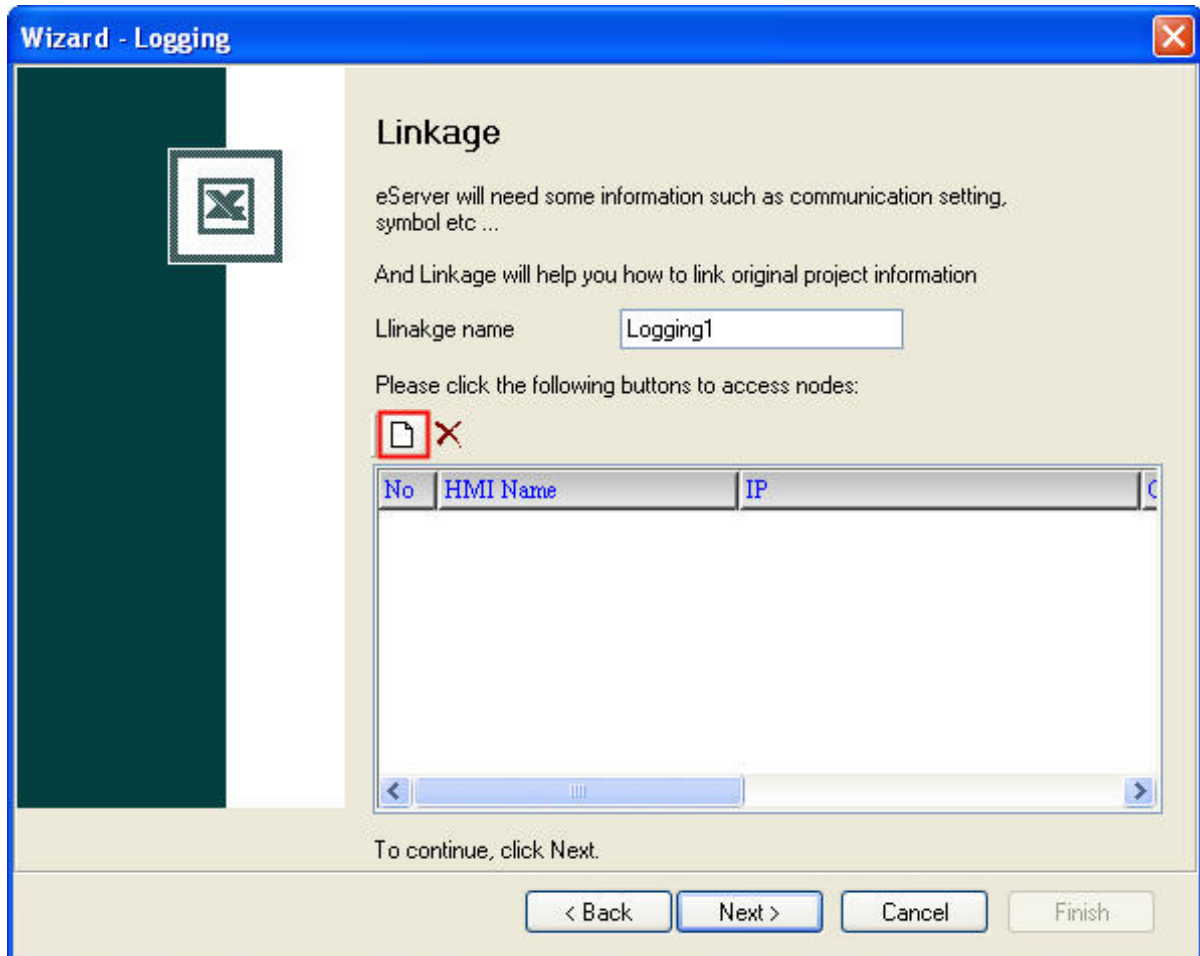


4. Select  icon to enable ODBC Logging Wizard.

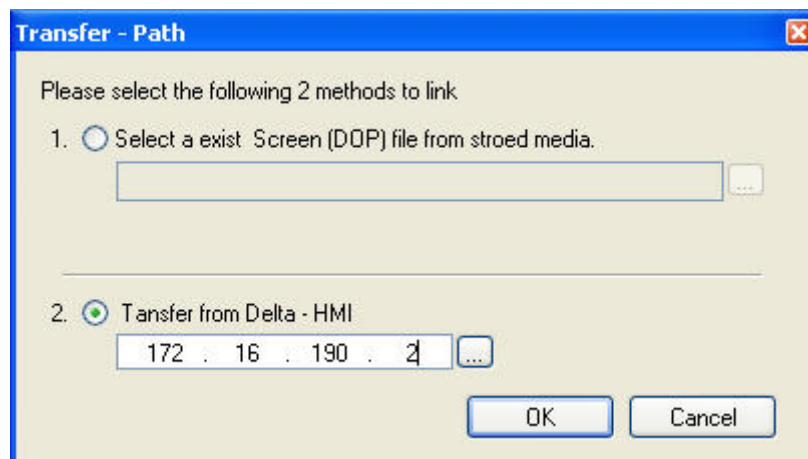


Press **Next** button to go to next step.

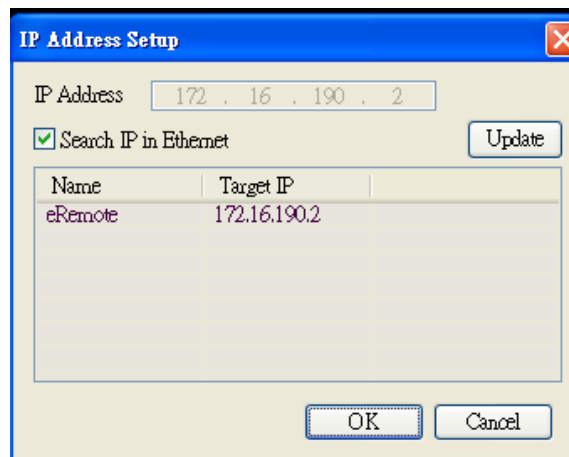
5. Click **New** icon to access nodes (link to HMI).



Choose **Transfer from Delta - HMI** option to transfer the HMI screen project file via network communication directly.

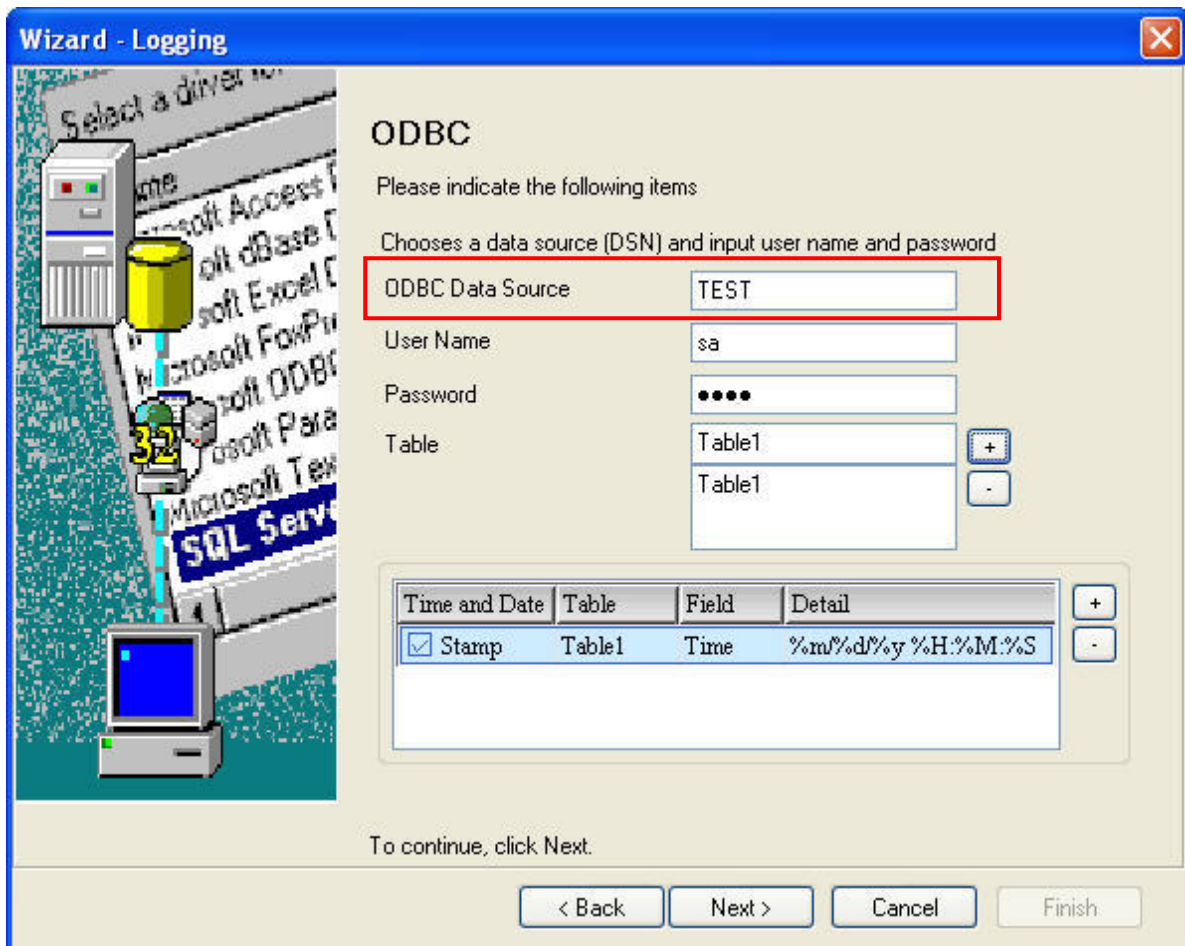


Press **OK** button to go to next step.



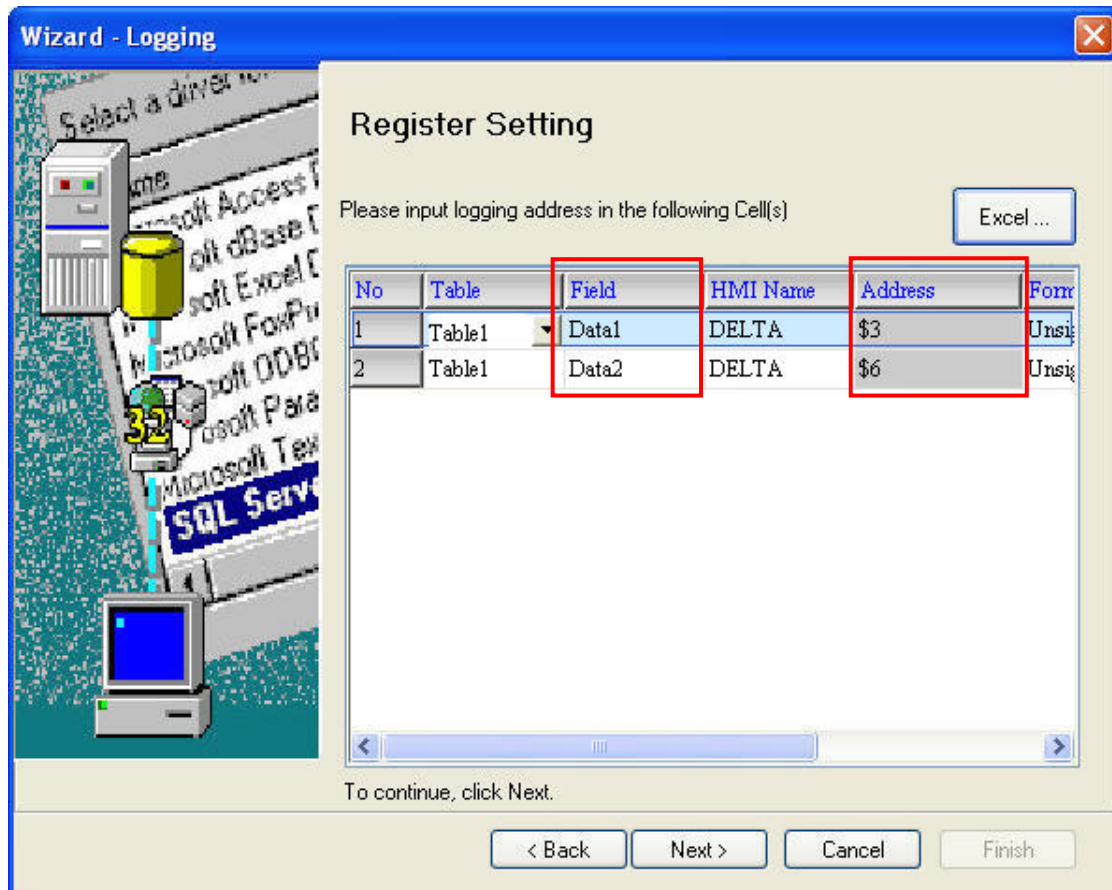
Press **OK** button to go to next step.

6. ODBC Data Source Setting: Create an ODBC Data Source pointing to your database. Please refer to the following settings.



Press **Next** button to go to next step.

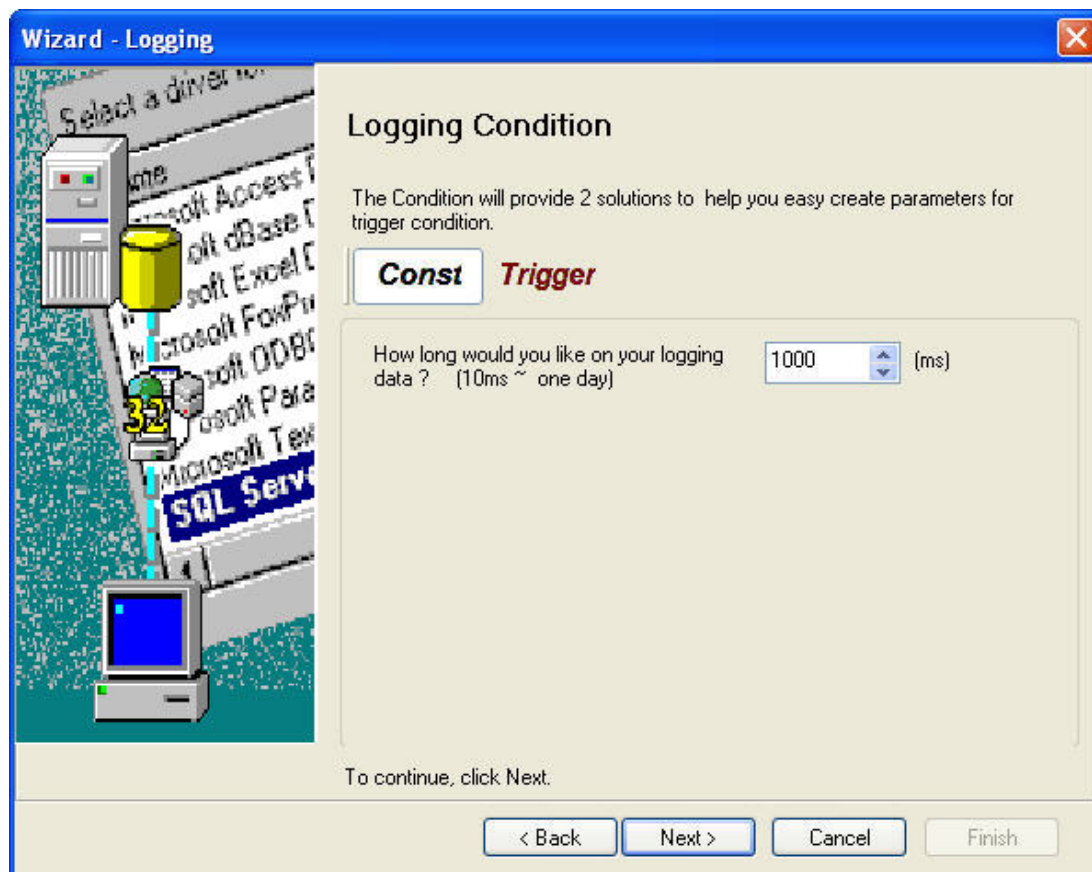
7. Register Setting: Set the register address of the sampling data.



The 'Wizard - Logging' dialog box is shown with the 'Register Setting' tab selected. It prompts the user to 'Please input logging address in the following Cell(s)'. A table lists two entries, both from 'Table1'. The first entry, 'Data1', has an 'HMI Name' of 'DELTA' and an 'Address' of '\$3'. The second entry, 'Data2', has an 'HMI Name' of 'DELTA' and an 'Address' of '\$6'. Red boxes highlight the 'Field' and 'Address' columns. An 'Excel ...' button is in the top right. Navigation buttons at the bottom include '< Back', 'Next >', 'Cancel', and 'Finish'.

No	Table	Field	HMI Name	Address	Form
1	Table1	Data1	DELTA	\$3	Unsig
2	Table1	Data2	DELTA	\$6	Unsig


8. Set the sampling conditions to constant 1000ms. Press **Next** button to continue.

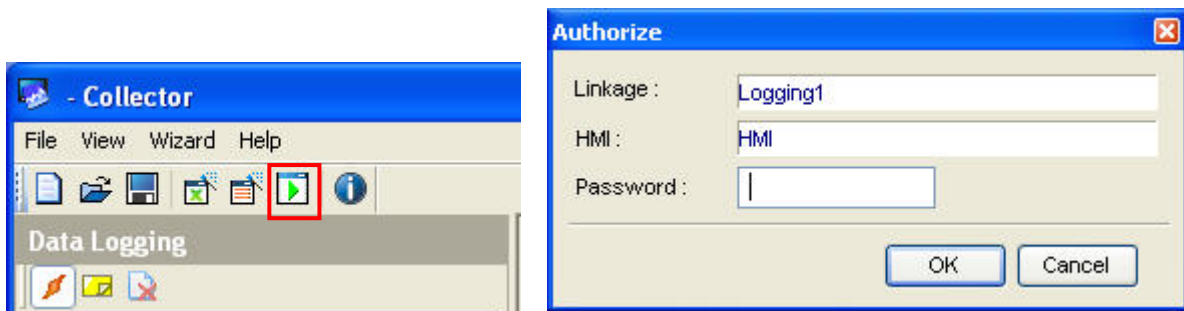
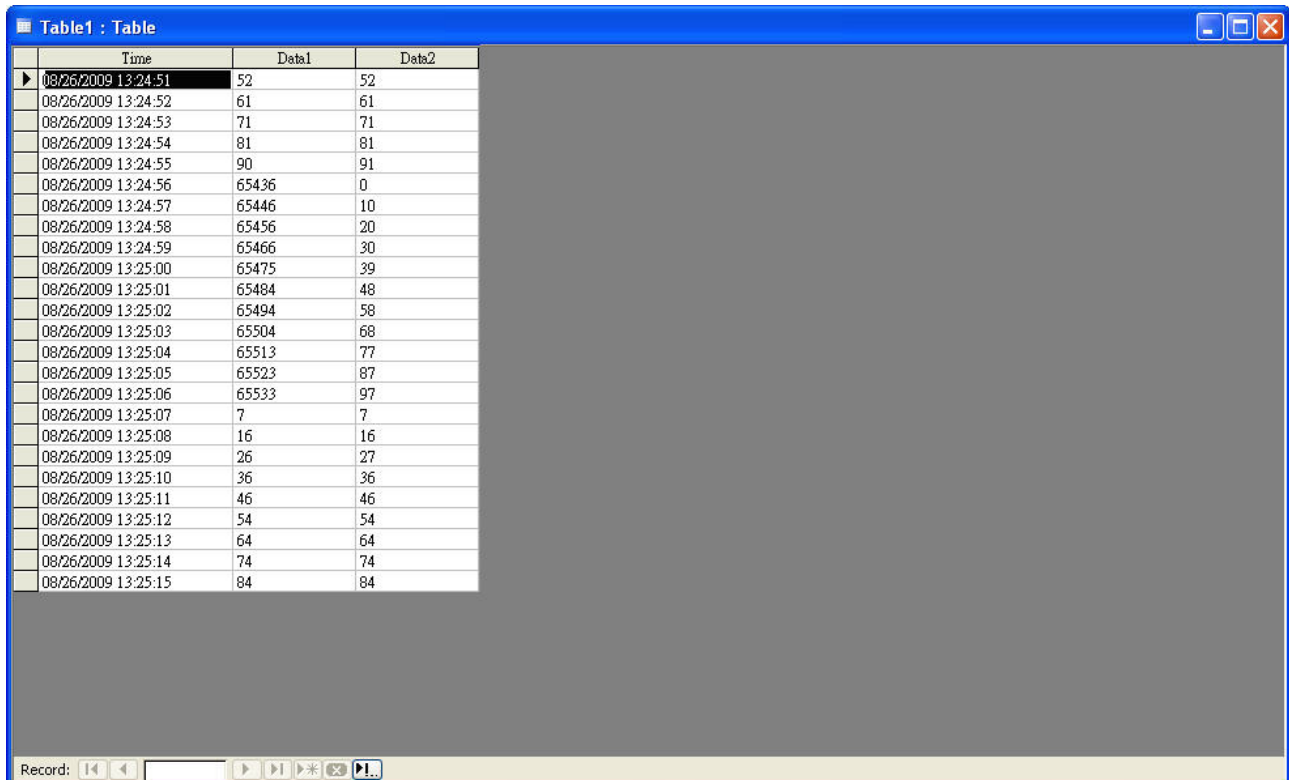


The 'Wizard - Logging' dialog box is shown with the 'Logging Condition' tab selected. It explains that the condition will provide two solutions to help create parameters for a trigger condition. Two buttons, 'Const' and 'Trigger', are present, with 'Trigger' highlighted in red. Below, a text prompt asks 'How long would you like on your logging data ? (10ms ~ one day)', followed by a numeric input field set to '1000' and a unit selector '(ms)'. Navigation buttons at the bottom include '< Back', 'Next >', 'Cancel', and 'Finish'.


**Const** **Trigger**

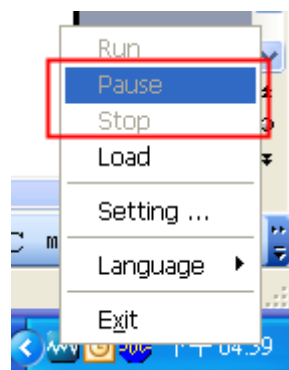
How long would you like on your logging data ? (10ms ~ one day)  (ms)

9. Press  icon. After the password is entered, the system will start sampling operation, i.e. writing data in Microsoft Access.

Time	Data1	Data2
08/26/2009 13:24:51	52	52
08/26/2009 13:24:52	61	61
08/26/2009 13:24:53	71	71
08/26/2009 13:24:54	81	81
08/26/2009 13:24:55	90	91
08/26/2009 13:24:56	65436	0
08/26/2009 13:24:57	65446	10
08/26/2009 13:24:58	65456	20
08/26/2009 13:24:59	65466	30
08/26/2009 13:25:00	65475	39
08/26/2009 13:25:01	65484	48
08/26/2009 13:25:02	65494	58
08/26/2009 13:25:03	65504	68
08/26/2009 13:25:04	65513	77
08/26/2009 13:25:05	65523	87
08/26/2009 13:25:06	65533	97
08/26/2009 13:25:07	7	7
08/26/2009 13:25:08	16	16
08/26/2009 13:25:09	26	27
08/26/2009 13:25:10	36	36
08/26/2009 13:25:11	46	46
08/26/2009 13:25:12	54	54
08/26/2009 13:25:13	64	64
08/26/2009 13:25:14	74	74
08/26/2009 13:25:15	84	84

10. If the users want to pause or stop the sampling operation, only right-click eServer  icon at the bottom right of Windows screen and select Pause or Stop option from the pop-up menu, the sampling operation will pause and stop immediately.



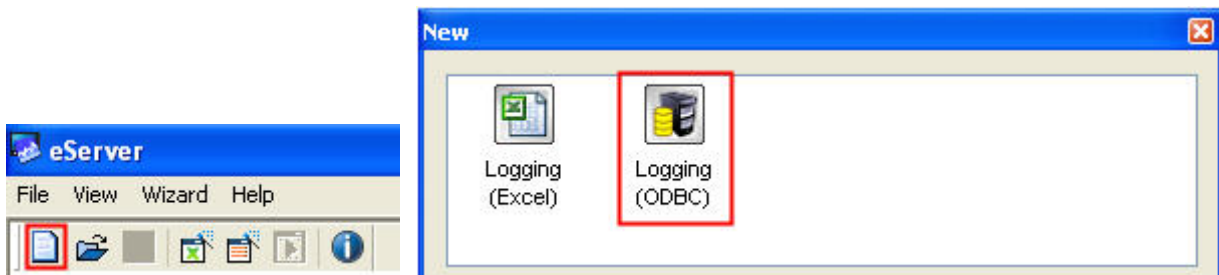


## 6.2 Detailed Settings

Please refer to the following steps to complete ODBC sampling setting, i.e. how to log data from HMI to a database.

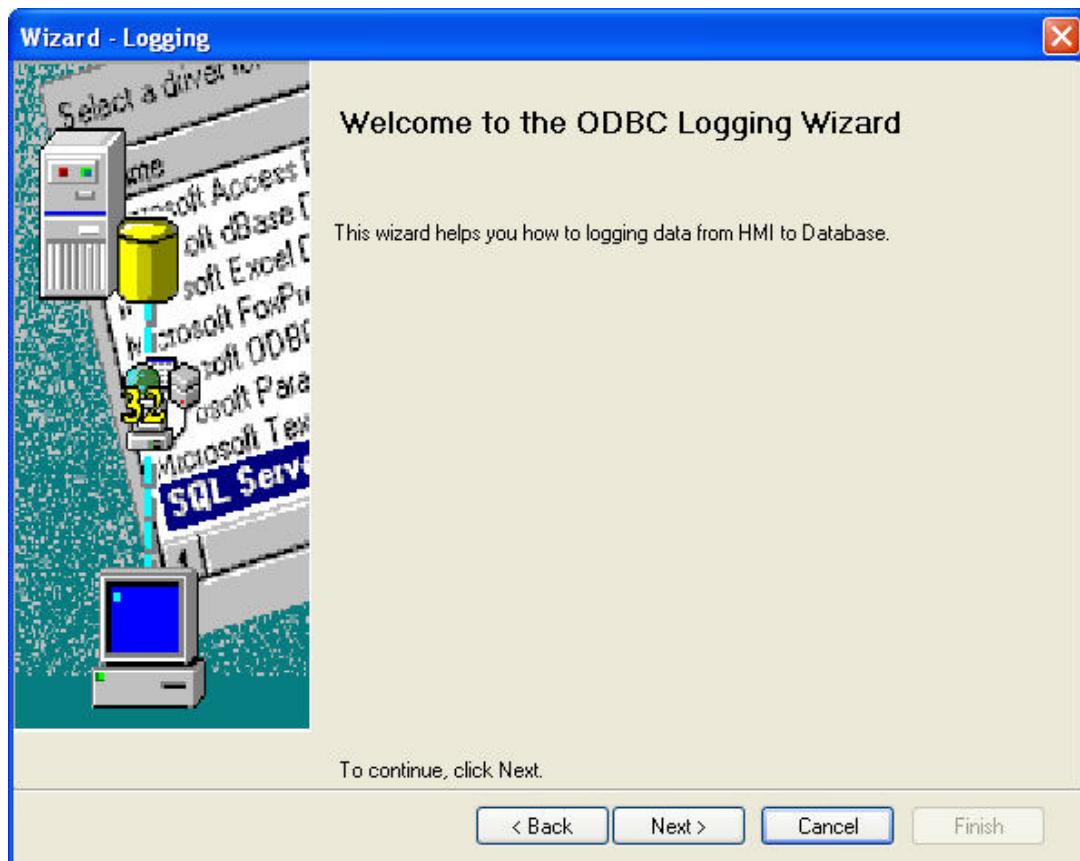
### 6.2.1 Linkage

Start eServer, and click **File > New** or click **New** icon. After the **New** dialog box is opened, select **Logging (ODBC)** icon and press **OK** button.



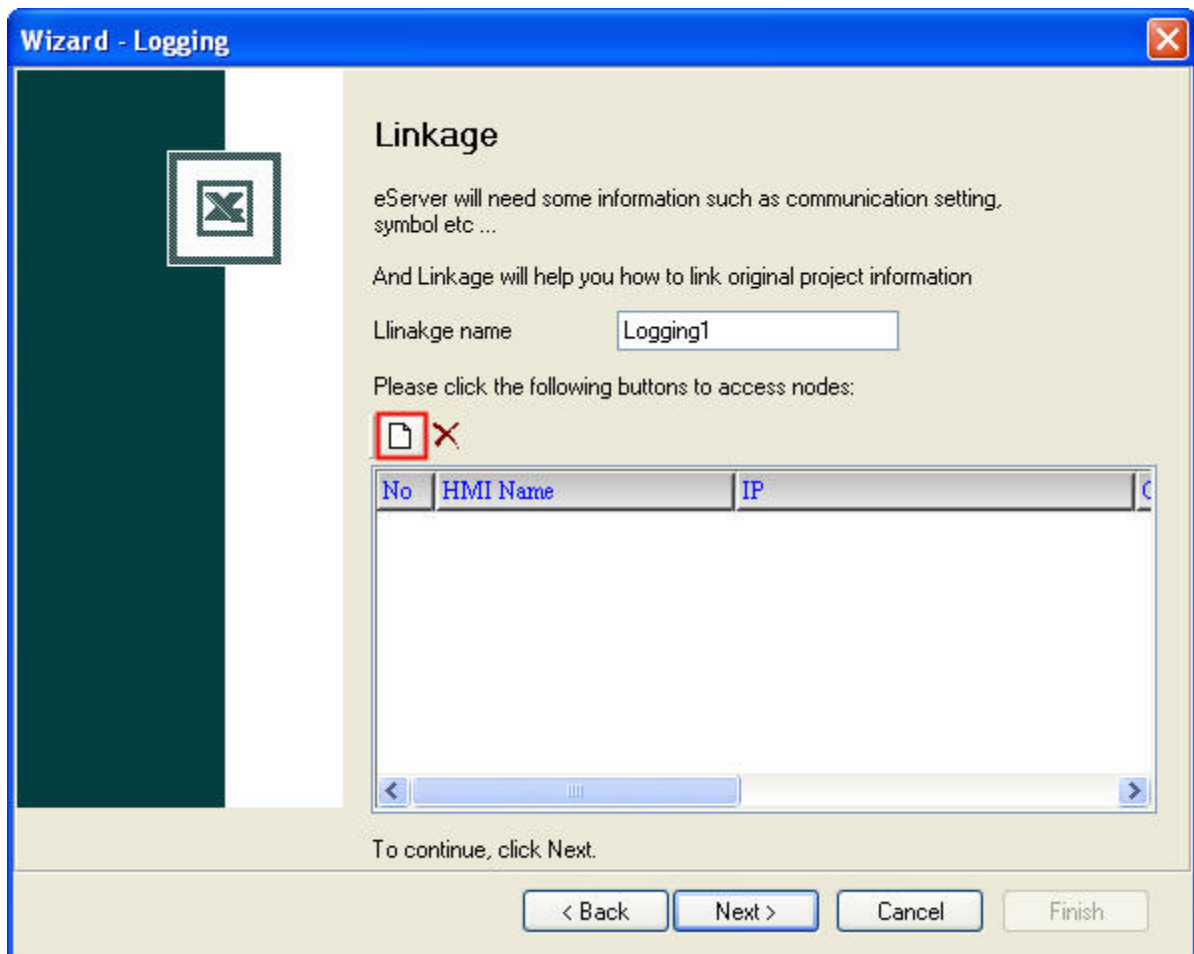
Then, the **ODBC Logging Wizard** will be activated and the following dialog box will appear.


Press **Next** button to continue.



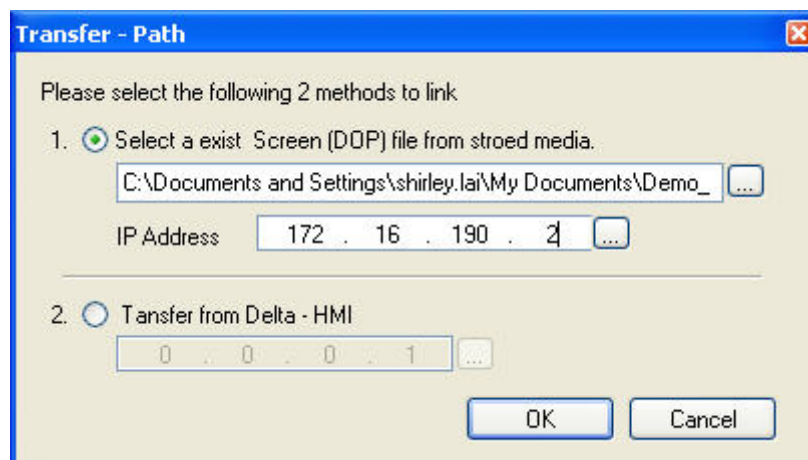


Click **New** icon to access nodes (link to HMI).

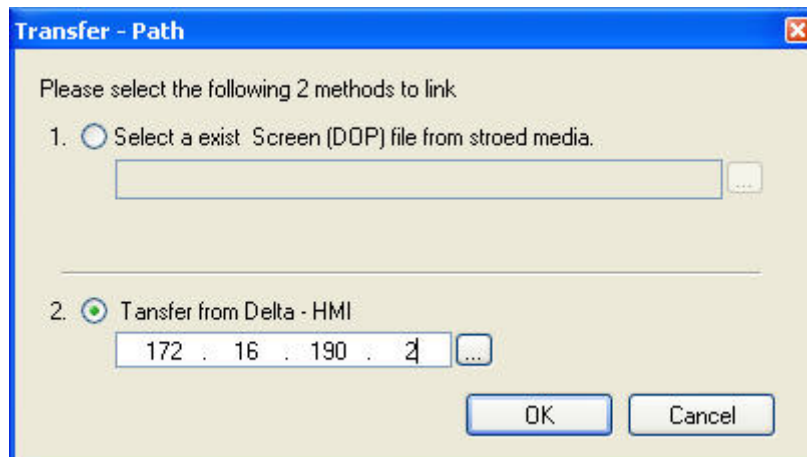


Click  icon to link HMI screen project file. There are two methods available for selection:

1. Select an existing Screen (DOP) file from stored media: Open an existing screen project file and set the IP address of the connecting HMI.



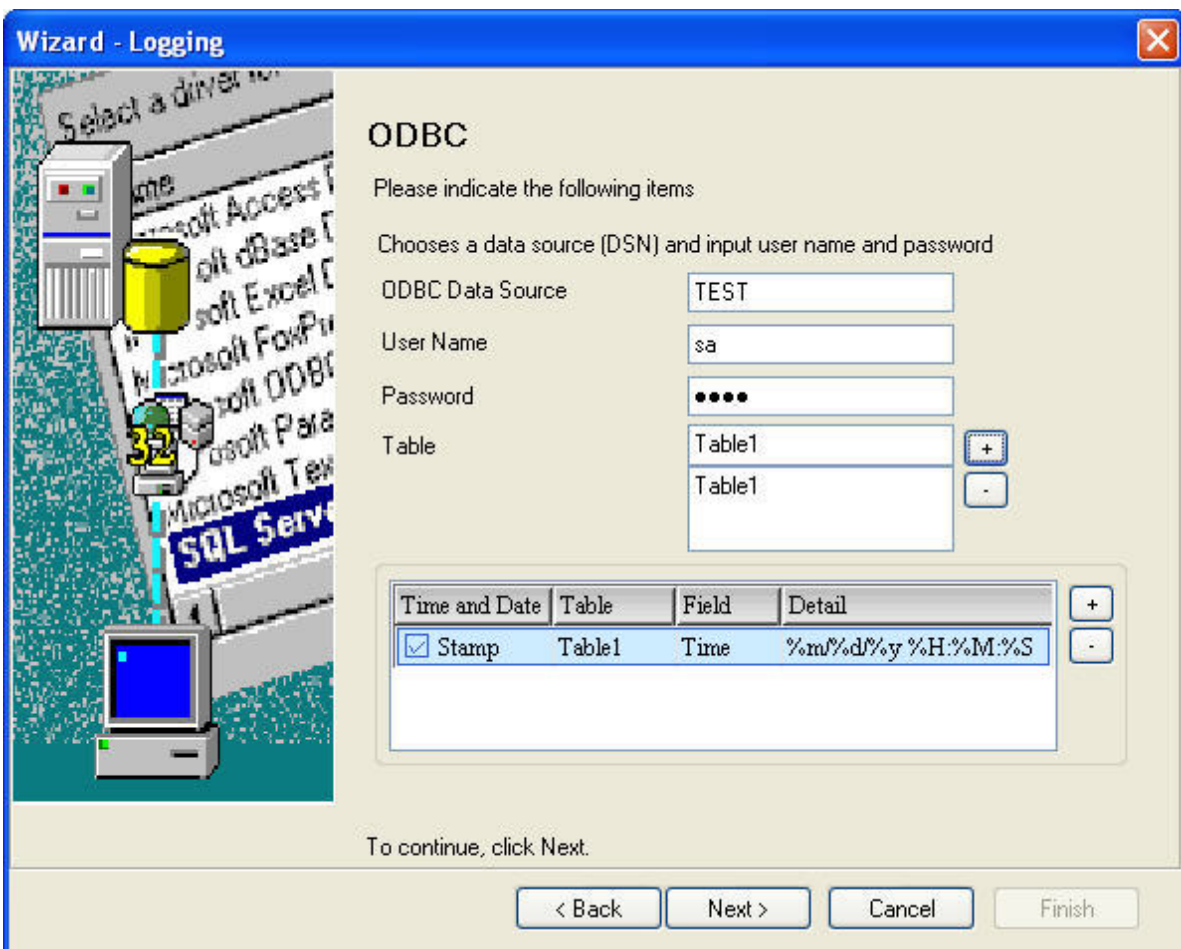
2. Transfer from Delta – HMI: Transfer the HMI screen project file via network communication directly.



Press **OK** button to go to next step.

### 6.2.2 ODBC (Open Data Base Connectivity)

This step is used to create an ODBC Data Source pointing to your database.



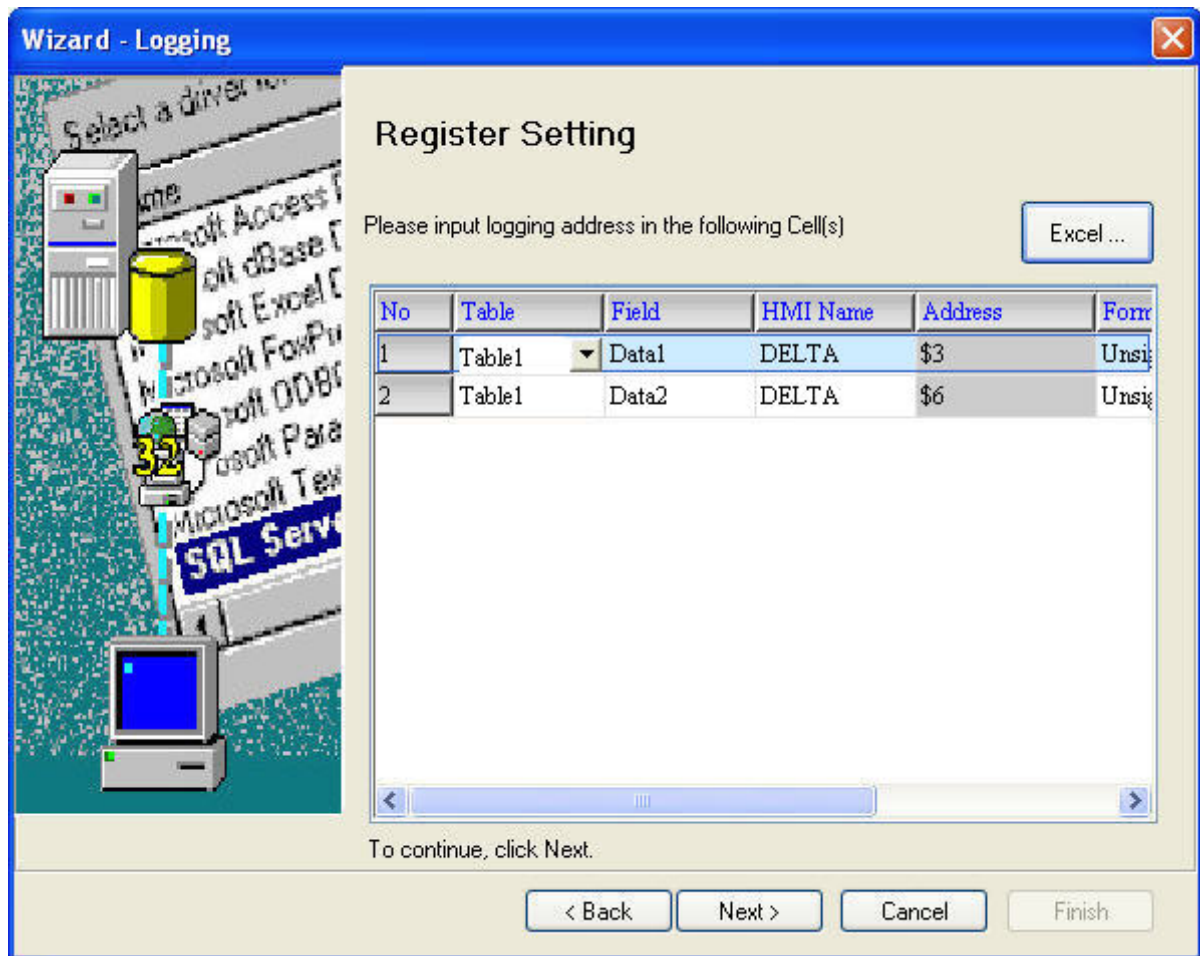
Item	Explanation
ODBC Data Source	Name of ODBC Data Source
User Name	Login Username
Password	Login Password
Table	Name of Sampling Data Table

Time and Data Stamp Function:

Item	Explanation														
Time and Date	Choose if Time and Date Stamp function is enabled.														
Table	Table which the time and date will be written.														
Field	Field which the time and date will be written.														
Detail	<p>The format of the date and time is specified by a string of characters which can be user-defined and changed freely. Please refer to the table below for the string representation.</p> <table> <tr> <th>String Format</th><th>Representation</th></tr> <tr> <td>%m</td><td>Month</td></tr> <tr> <td>%d</td><td>Date</td></tr> <tr> <td>%y</td><td>Year</td></tr> <tr> <td>%H</td><td>Hour</td></tr> <tr> <td>%M</td><td>Minute</td></tr> <tr> <td>%S</td><td>Second</td></tr> </table>	String Format	Representation	%m	Month	%d	Date	%y	Year	%H	Hour	%M	Minute	%S	Second
String Format	Representation														
%m	Month														
%d	Date														
%y	Year														
%H	Hour														
%M	Minute														
%S	Second														

### 6.2.3 Register Setting

This step is used to set the register address of the sampling data.



Setting Item	Description	Remark
Table	Table which the sampling data will be written	Unchangeable
Field	Field which the sampling data will be written	
HMI Name	Name of connecting HMI	
Address	Register Address	
Format	<ol style="list-style-type: none"> <li>When the register address is set to Bit, this data format setting will be disabled.</li> <li>When the register address is set to Word, this data format setting will be enabled and the available settings include: BCD, Signed, Unsigned, Hex, Floating, Char (Character)</li> </ol>	
Unit	Unit of the data length of the register	Unchangeable
Read Count	<ol style="list-style-type: none"> <li>When the register address is set to Bit, this setting will be 1(one) always.</li> <li>When the register address is set to Word, the data format could be BCD, Signed, Unsigned, Hex, and Floating. But, note that the setting value of this field could not exceed 2(two).</li> </ol>	

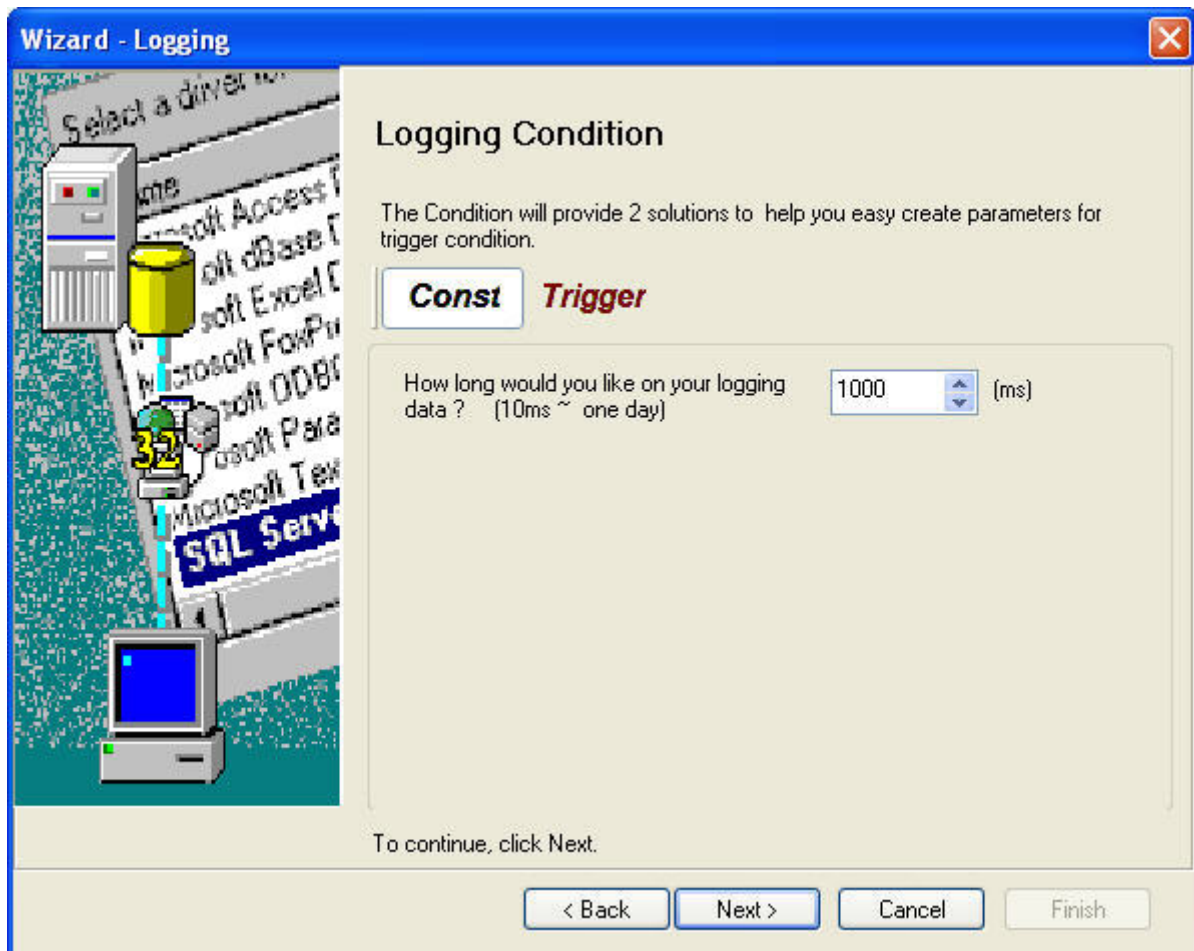
Setting Item	Description	Remark
Read Count	3. When the register address is set to Word, if the data format is set to Char (Character), the setting value of this field could be user-defined and the max. setting value could be set to 100(hundred).	
Controller	Connecting controller	Unchangeable

#### 6.2.4 Sampling Conditions

This step is used to set the sampling conditions. There are two kinds of options for selection:

1. Const (execute sampling repeatedly in a certain span of time)

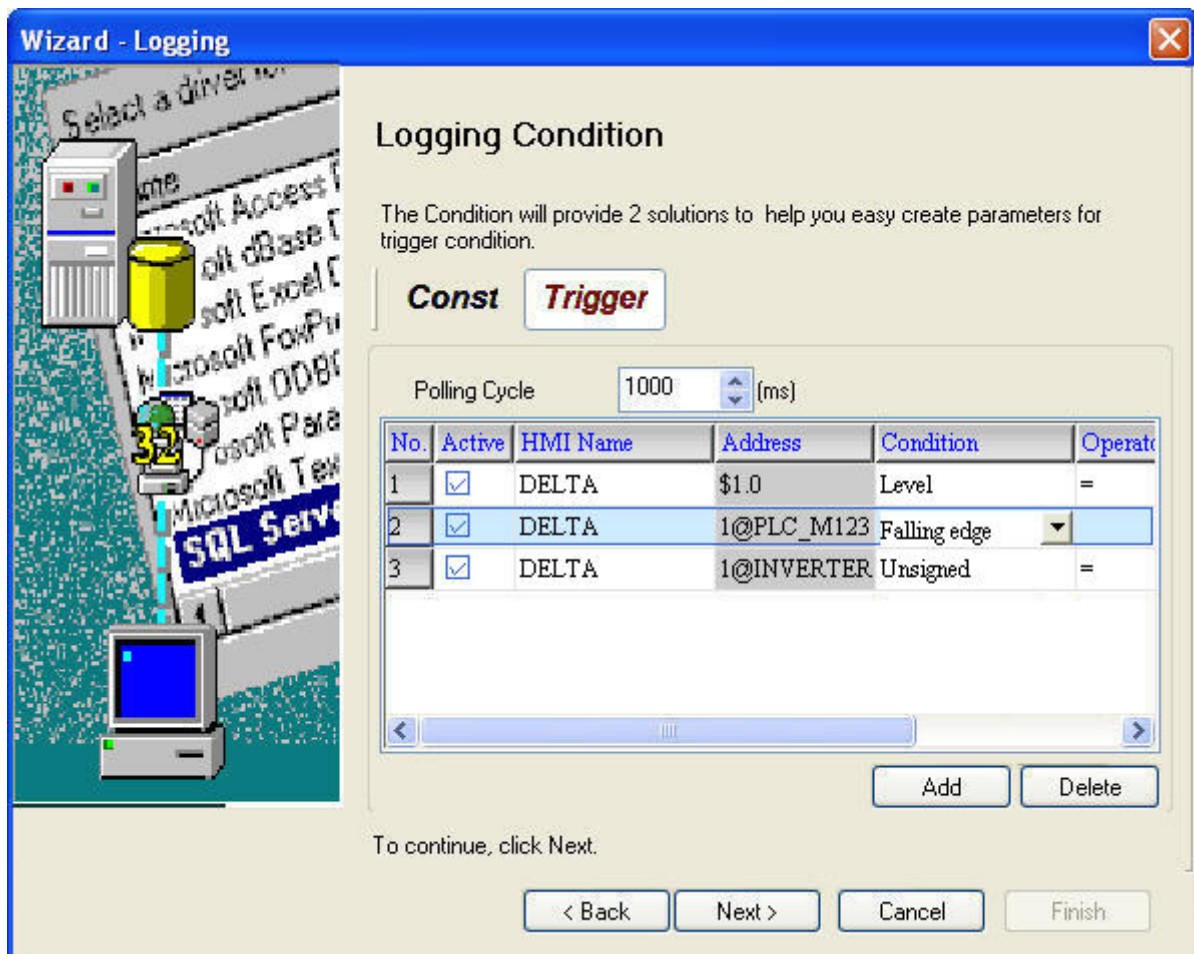
This option is used to determine how long the sampling process is repeated. The time unit is ms.





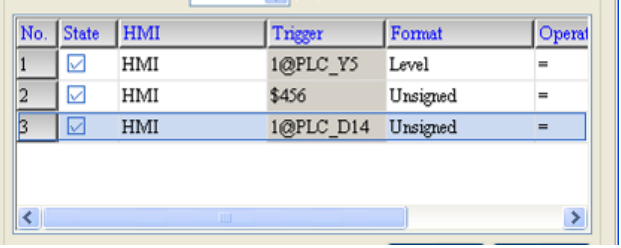
## 2. Trigger (Execute sampling when the trigger conditions are satisfied)

This option is used to determine how long the sampling process is repeated when the trigger conditions are met. The detailed settings are described as follows:



**Polling Cycle (Sampling Cycle):** It is used to determine how long the sampling process is repeated. The time unit is ms.

**Trigger Conditions:**

Setting Item	Description	Remark
No.	Condition number	Unchangeable
Active	<p>Choose to activate the trigger conditions. The users can add many trigger conditions freely. When all the selected trigger conditions are satisfied, the system will execute the sampling operation for one time.</p> 	
HMI Name	Name of connecting HMI	

Setting Item	Description	Remark
Address	Register Address	
Format	<ol style="list-style-type: none"> <li>When the register address is set to Bit, the selectable options are: <ol style="list-style-type: none"> <li>Level: Current status</li> <li>Rising edge: Triggered by rising-edge. At this time, the functions of Operator and Value are disabled.</li> <li>Falling edge: Triggered by falling-edge. At this time, the functions of Operator and Value are disabled.</li> </ol> </li> <li>When the register address is set to Word, the selectable options are: <ol style="list-style-type: none"> <li>BCD: Setting range of trigger condition is 0 ~ 9999</li> <li>Signed: Setting range of trigger condition is -32768 ~ +32767</li> <li>Unsigned: Setting range of trigger condition is 0 ~ 65535</li> <li>Hex: Setting range of trigger condition is 0 ~ 65535</li> </ol> </li> </ol>	
Operator	<p>Operator settings:</p> <ol style="list-style-type: none"> <li>When the register address is set to Bit, the selectable operator are: <ol style="list-style-type: none"> <li>= : equal to</li> <li>!= : not equal to</li> </ol> </li> <li>When the register address is set to Word, the selectable operator are: <ol style="list-style-type: none"> <li>&gt;= : greater than or equal to</li> <li>&lt;= : smaller than or equal to</li> <li>&gt; : greater than</li> <li>= : equal to</li> <li>&lt; : smaller than</li> </ol> </li> </ol>	Unchangeable
Value	Setting value of trigger condition	
Controller	Connecting controller	Unchangeable



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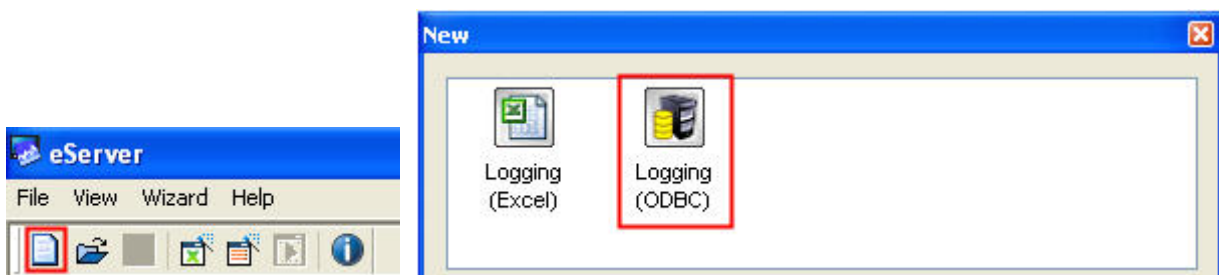
# Chapter 7 ODBC Sampling Setting

## 7.1 Detailed Settings

Please refer to the following steps to complete ODBC sampling setting, i.e. how to log data from HMI to a database.

### 7.1.1 Linkage

Start eServer, and click **File > New** or click **New** icon After the **New** dialog box is opened, select **Logging (ODBC)** icon and press **OK** button.

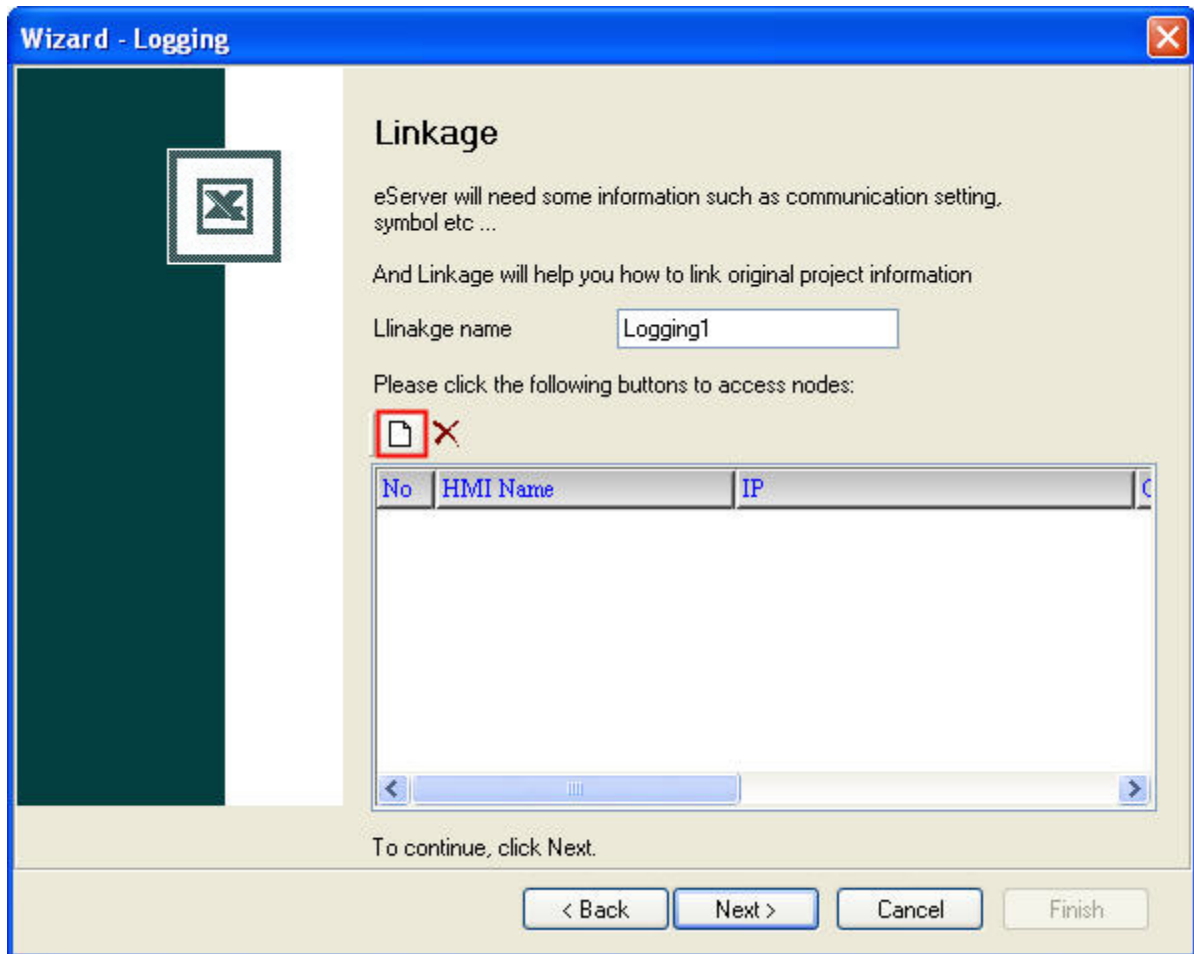



Then, the **ODBC Logging Wizard** will be activated and the following dialog box will appear.

Press **Next** button to continue.

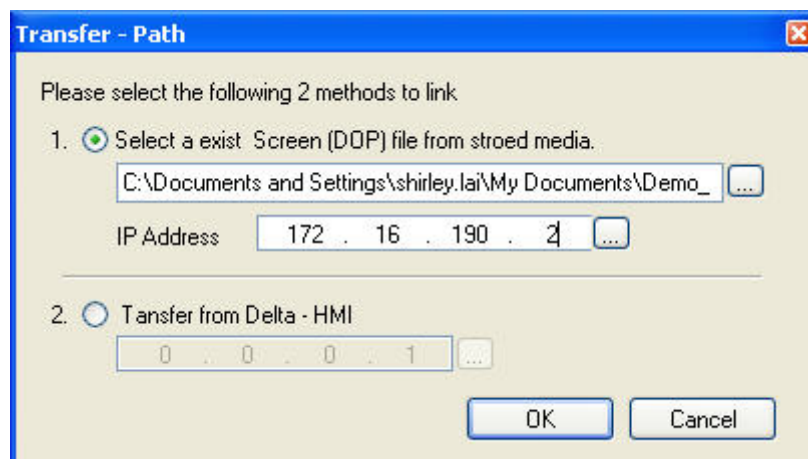


Click **New** icon to access nodes (link to HMI).

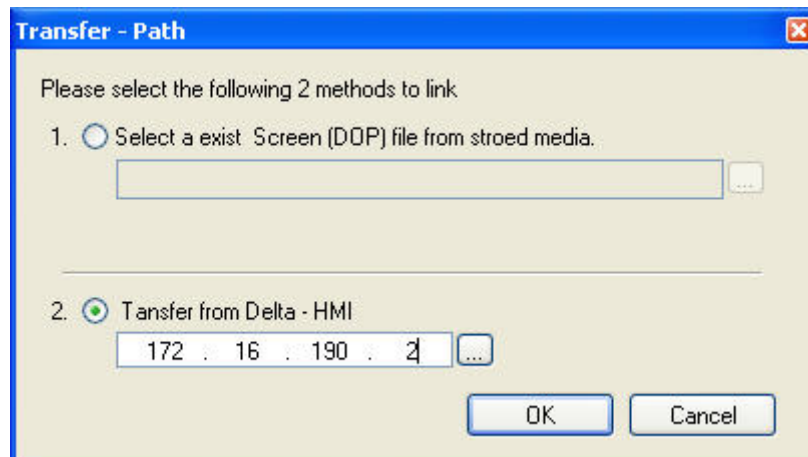


Click  icon to link HMI screen project file. There are two methods available for selection:

1. Select an existing Screen (DOP) file from stored media: Open an existing screen project file and set the IP address of the connecting HMI.



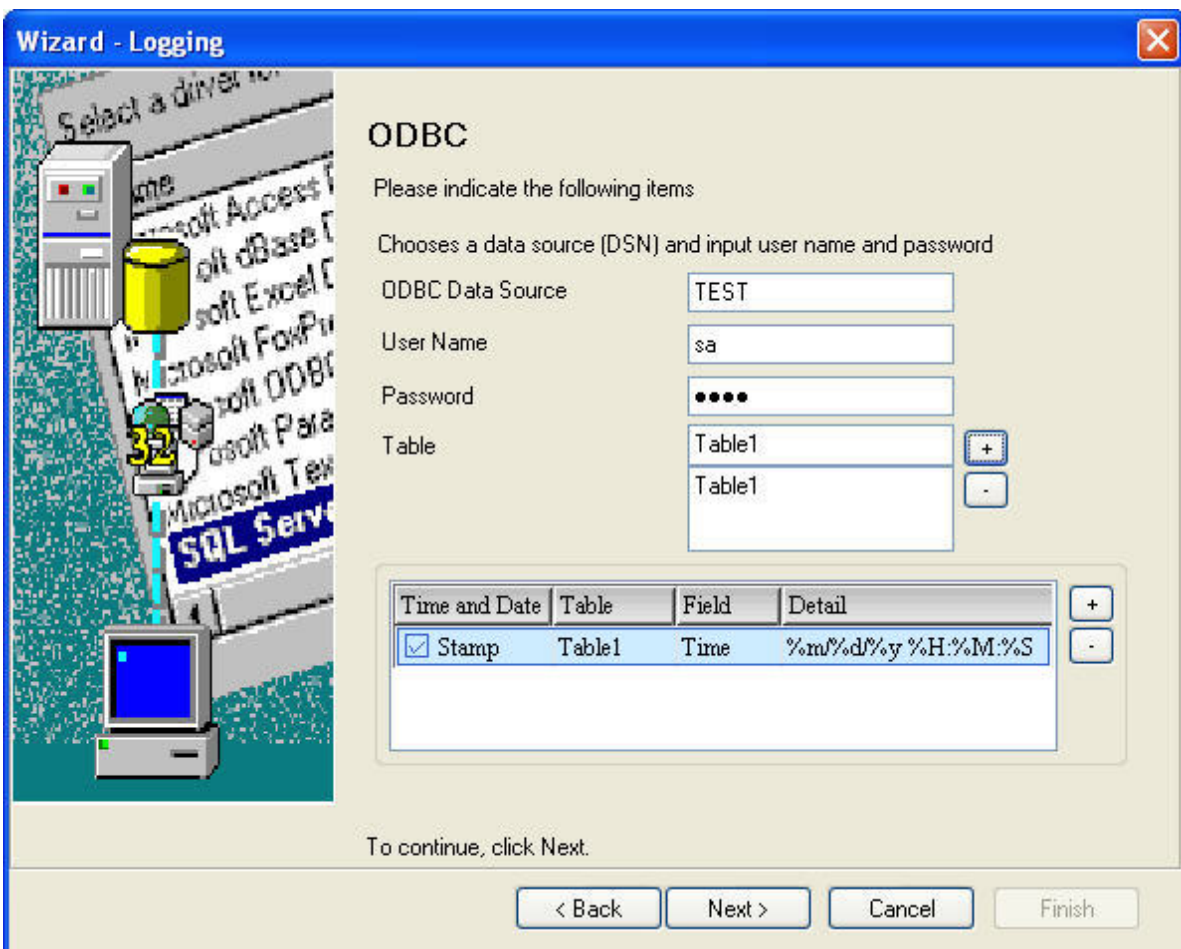
2. Transfer from Delta – HMI: Transfer the HMI screen project file via network communication directly.



Press **OK** button to go to next step.

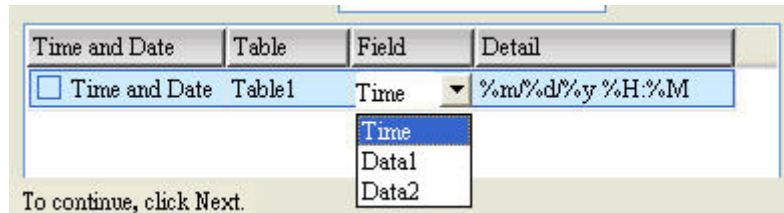
### 7.1.2 ODBC (Open Data Base Connectivity)

This step is used to create an ODBC Data Source pointing to your database.



Item	Explanation
ODBC Data Source	Name of ODBC Data Source
User Name	Login Username
Password	Login Password
Table	Name of Sampling Data Table

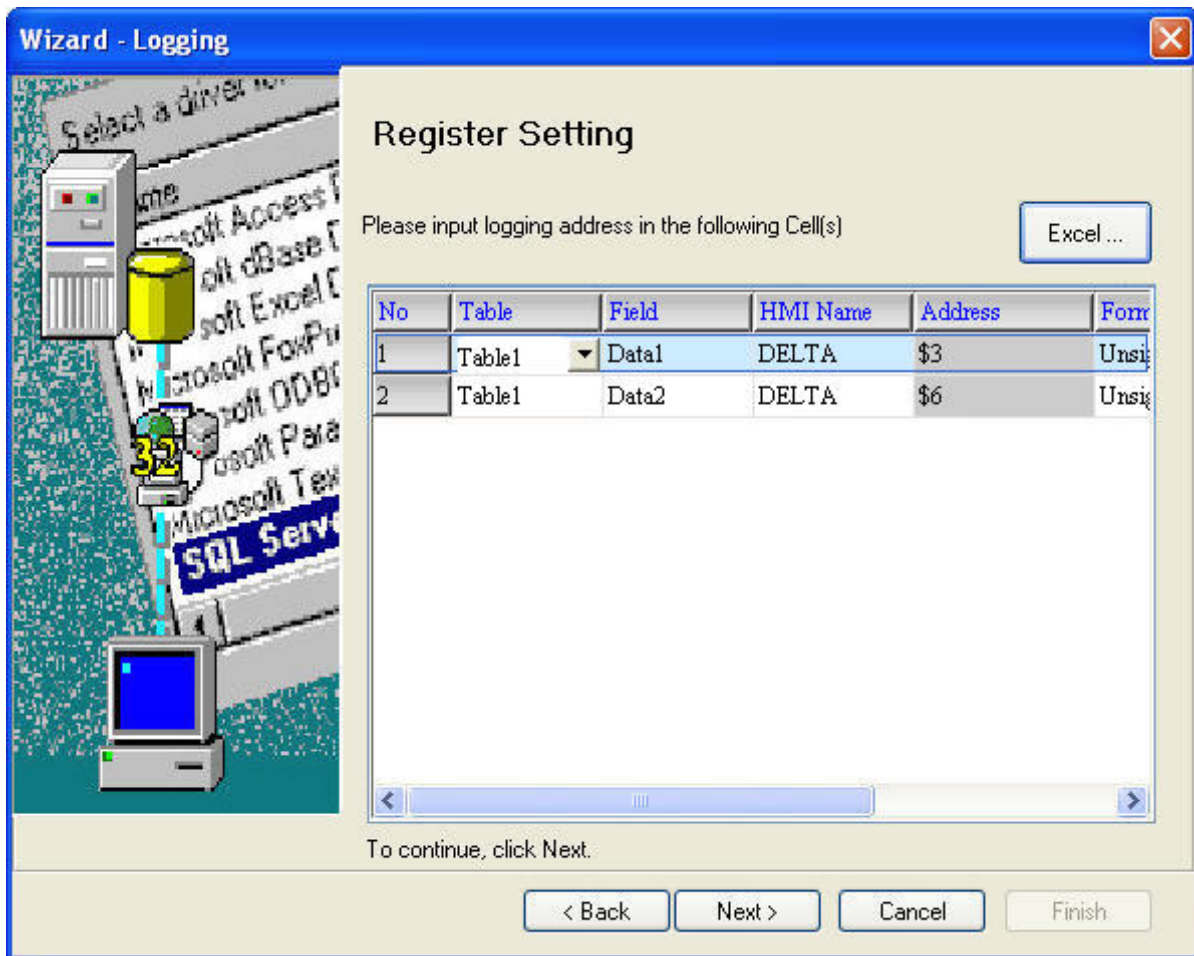
Time and Data Stamp Function:



Item	Explanation														
Time and Date	Choose if Time and Date Stamp function is enabled.														
Table	Table which the time and date will be written.														
Field	Field which the time and date will be written.														
Detail	<p>The format of the date and time is specified by a string of characters which can be user-defined and changed freely. Please refer to the table below for the string representation.</p> <table> <tr> <th>String Format</th><th>Representation</th></tr> <tr> <td>%m</td><td>Month</td></tr> <tr> <td>%d</td><td>Date</td></tr> <tr> <td>%y</td><td>Year</td></tr> <tr> <td>%H</td><td>Hour</td></tr> <tr> <td>%M</td><td>Minute</td></tr> <tr> <td>%S</td><td>Second</td></tr> </table>	String Format	Representation	%m	Month	%d	Date	%y	Year	%H	Hour	%M	Minute	%S	Second
String Format	Representation														
%m	Month														
%d	Date														
%y	Year														
%H	Hour														
%M	Minute														
%S	Second														

### 7.1.3 Register Setting

This step is used to set the register address of the sampling data.



Setting Item	Description	Remark
Table	Table which the sampling data will be written	Unchangeable
Field	Field which the sampling data will be written	
HMI Name	Name of connecting HMI	
Address	Register Address	
Format	<ol style="list-style-type: none"> <li>When the register address is set to Bit, this data format setting will be disabled.</li> <li>When the register address is set to Word, this data format setting will be enabled and the available settings include: BCD, Signed, Unsigned, Hex, Floating, Char (Character)</li> </ol>	
Unit	Unit of the data length of the register	Unchangeable
Read Count	<ol style="list-style-type: none"> <li>When the register address is set to Bit, this setting will be 1(one) always.</li> <li>When the register address is set to Word, the data format could be BCD, Signed, Unsigned, Hex, and Floating. But, note that the setting value of this field could not exceed 2(two).</li> </ol>	

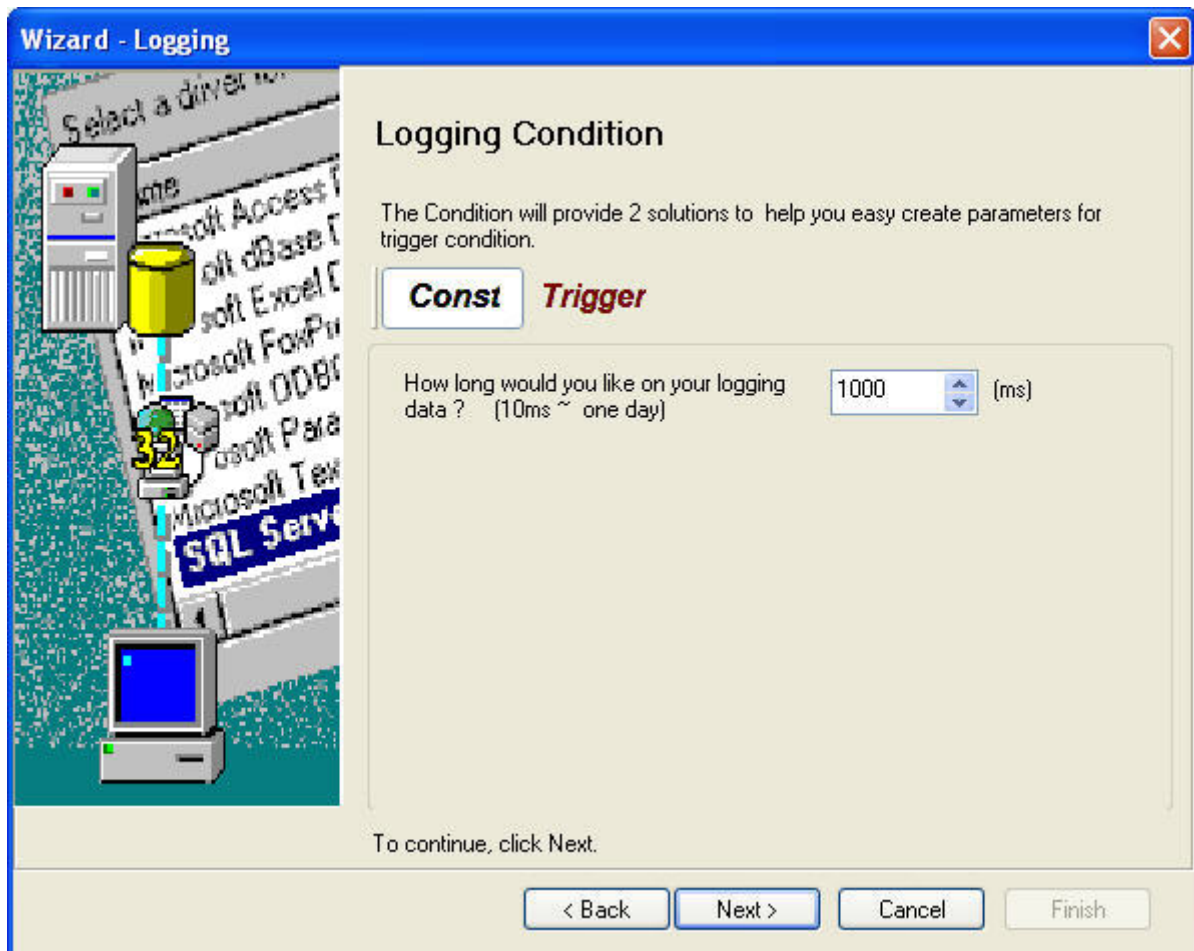
Setting Item	Description	Remark
Read Count	3. When the register address is set to Word, if the data format is set to Char (Character), the setting value of this field could be user-defined and the max. setting value could be set to 100(hundred).	
Controller	Connecting controller	Unchangeable

#### 7.1.4 Sampling Conditions

This step is used to set the sampling conditions. There are two kinds of options for selection:

1. Const (execute sampling repeatedly in a certain span of time)

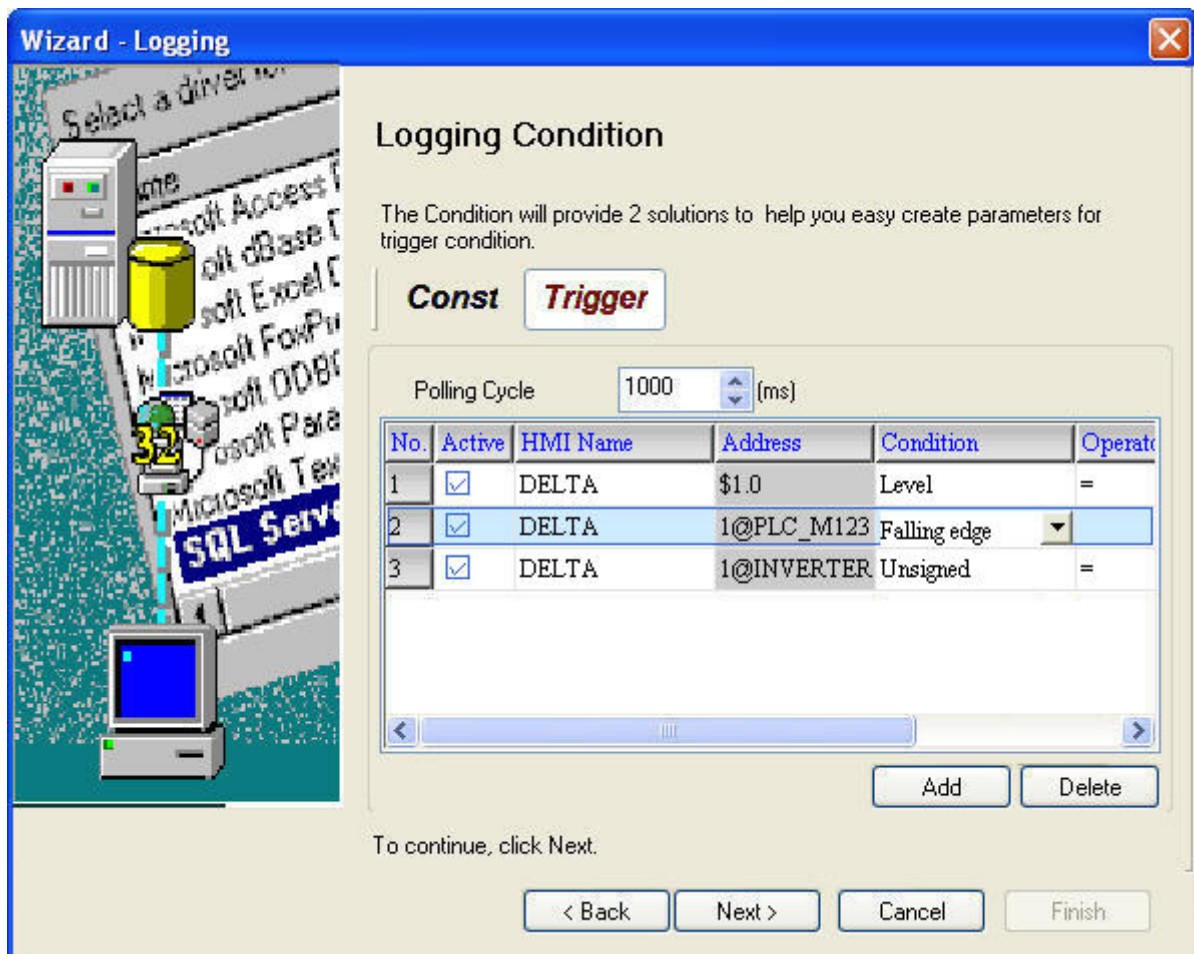
This option is used to determine how long the sampling process is repeated. The time unit is ms.





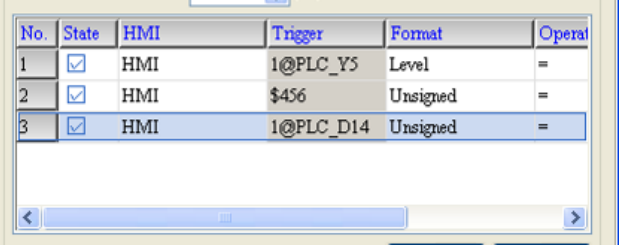
2. Trigger (Execute sampling when the trigger conditions are satisfied)

This option is used to determine how long the sampling process is repeated when the trigger conditions are met. The detailed settings are described as follows:



**Polling Cycle (Sampling Cycle):** It is used to determine how long the sampling process is repeated. The time unit is ms.

**Trigger Conditions:**

Setting Item	Description	Remark
No.	Condition number	Unchangeable
Active	<p>Choose to activate the trigger conditions. The users can add many trigger conditions freely. When all the selected trigger conditions are satisfied, the system will execute the sampling operation for one time.</p> 	
HMI Name	Name of connecting HMI	

Setting Item	Description	Remark
Address	Register Address	
Format	<ol style="list-style-type: none"> <li>When the register address is set to Bit, the selectable options are: <ol style="list-style-type: none"> <li>Level: Current status</li> <li>Rising edge: Triggered by rising-edge. At this time, the functions of Operator and Value are disabled.</li> <li>Falling edge: Triggered by falling-edge. At this time, the functions of Operator and Value are disabled.</li> </ol> </li> <li>When the register address is set to Word, the selectable options are: <ol style="list-style-type: none"> <li>BCD: Setting range of trigger condition is 0 ~ 9999</li> <li>Signed: Setting range of trigger condition is -32768 ~ +32767</li> <li>Unsigned: Setting range of trigger condition is 0 ~ 65535</li> <li>Hex: Setting range of trigger condition is 0 ~ 65535</li> </ol> </li> </ol>	
Operator	<p>Operator settings:</p> <ol style="list-style-type: none"> <li>When the register address is set to Bit, the selectable operator are: <ol style="list-style-type: none"> <li>= : equal to</li> <li>!= : not equal to</li> </ol> </li> <li>When the register address is set to Word, the selectable operator are: <ol style="list-style-type: none"> <li>&gt;= : greater than or equal to</li> <li>&lt;= : smaller than or equal to</li> <li>&gt; : greater than</li> <li>= : equal to</li> <li>&lt; : smaller than</li> </ol> </li> </ol>	Unchangeable
Value	Setting value of trigger condition	
Controller	Connecting controller	Unchangeable

# Chapter 8 Writing Data in MySQL

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Before creating testing example, make sure to change the upload and download option (**Options > Configuration**) on Screen Editor first. The default setting of upload and download is via **USB**. If the users need to use **Ethernet**, please change the default setting by referring to **Appendix A**.

## 8.1 Example

This example is used to help the users to understand how to use eServer to read the data of the register addresses \$3 and \$6 every second, record the data in MySQL via ODBC interface, and save the collected data into the specified folder (C:\Data).

### 8.1.1 Software Installation

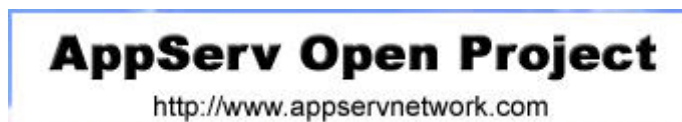
#### 1. AppServ Introduction

AppServ is a free and full-featured software of Apache HTTP Server, MySQL, PHP, and phpMyAdmin. To download it, go to <http://www.appservnetwork.com>.

Package of AppServ

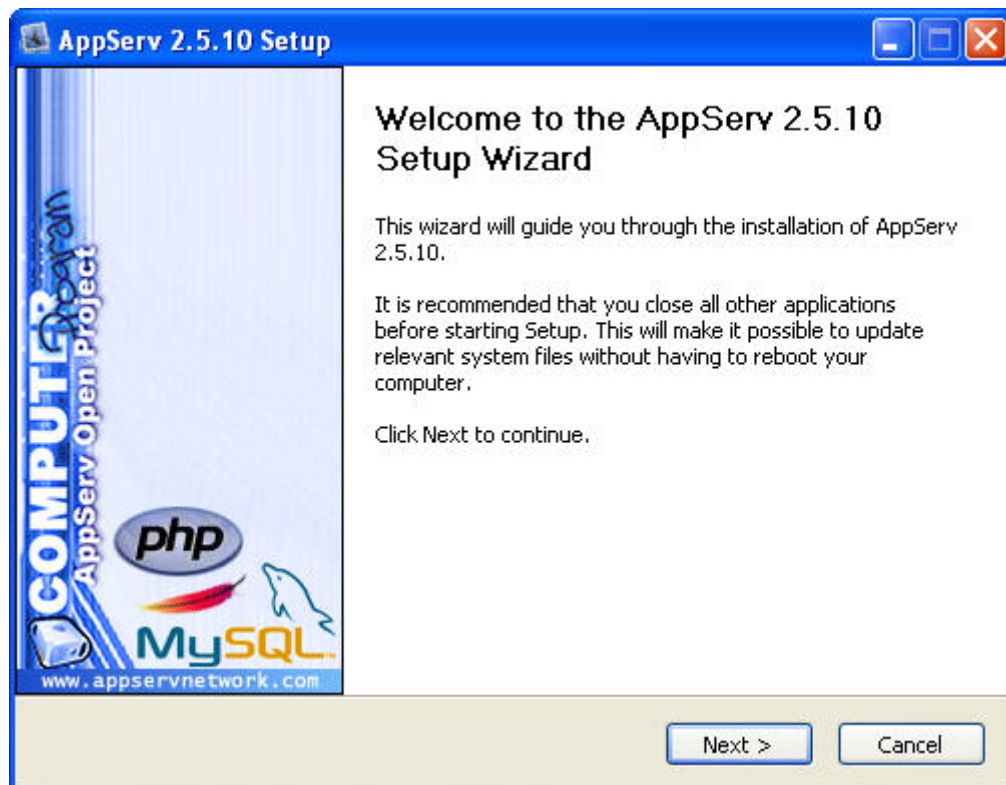
- Apache HTTP Server: It is a free and open source HTTP Server.
- MySQL: It is a relational database management system.
- PHP: It is a free and general-purpose scripting language designed for web development.
- phpMyAdmin: It is web-based open source tool written in PHP for MySQL database management.

After double clicking the appserv-win32-2.5.10.exe file downloaded from the website exe file, the following dialog box will appear.

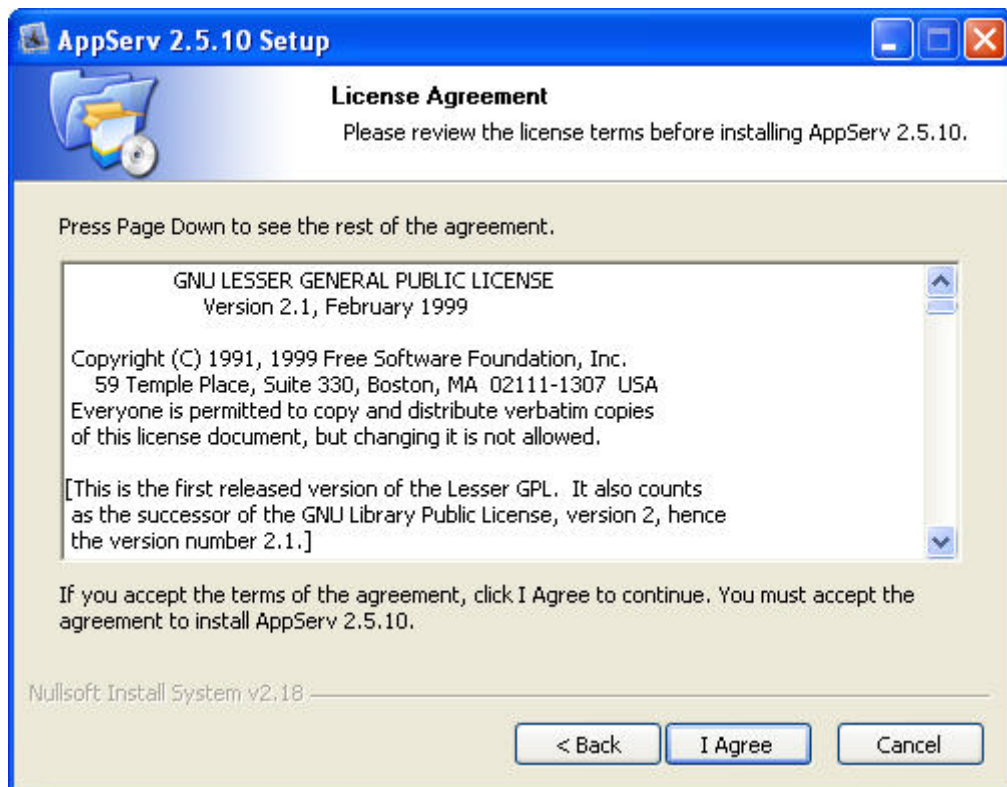




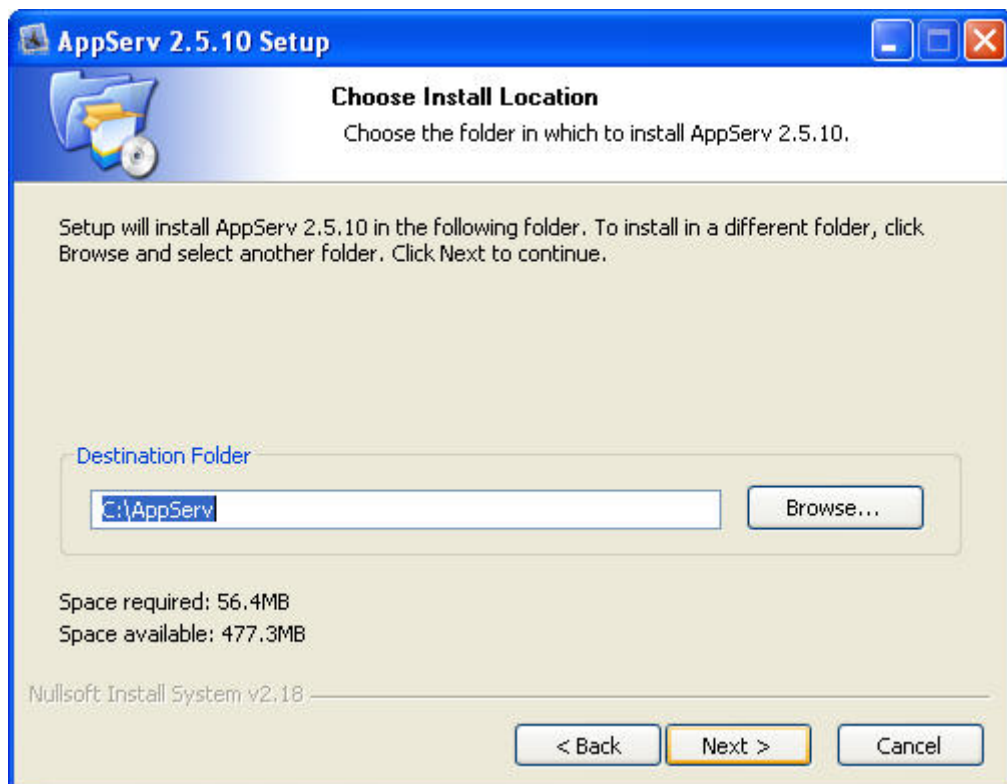
Click on **Run** button to install AppServ.



Click on **Next** button to go to the next step.

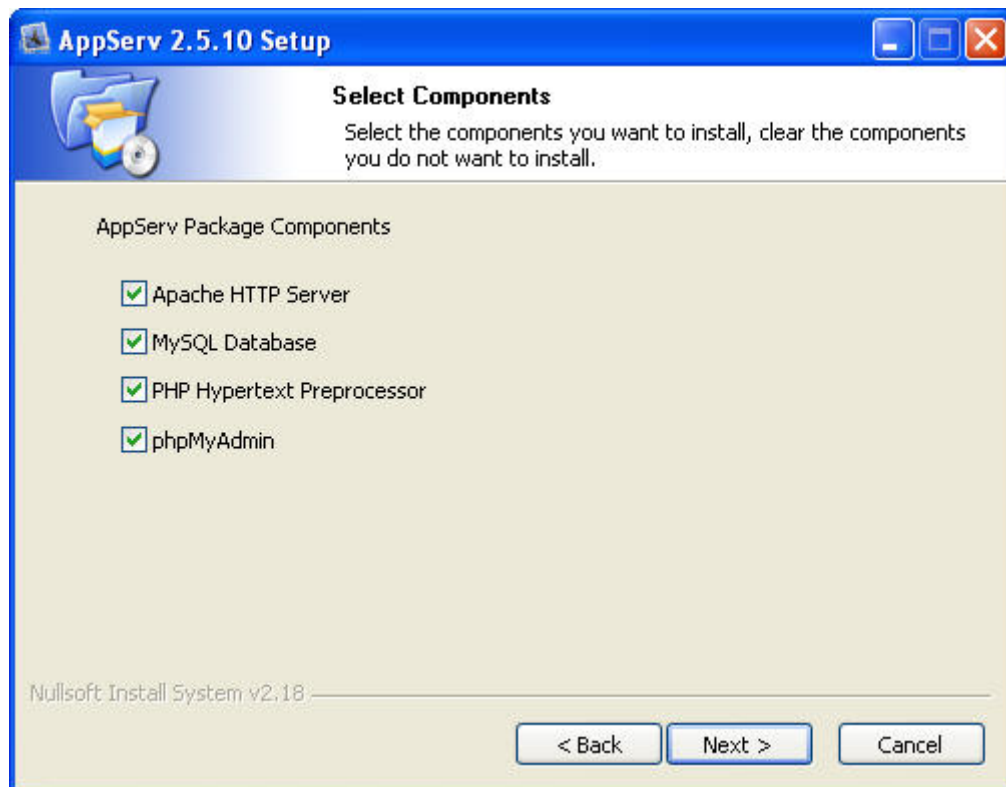


The users must read license agreement before installation. Click on **I Agree** button to continue.

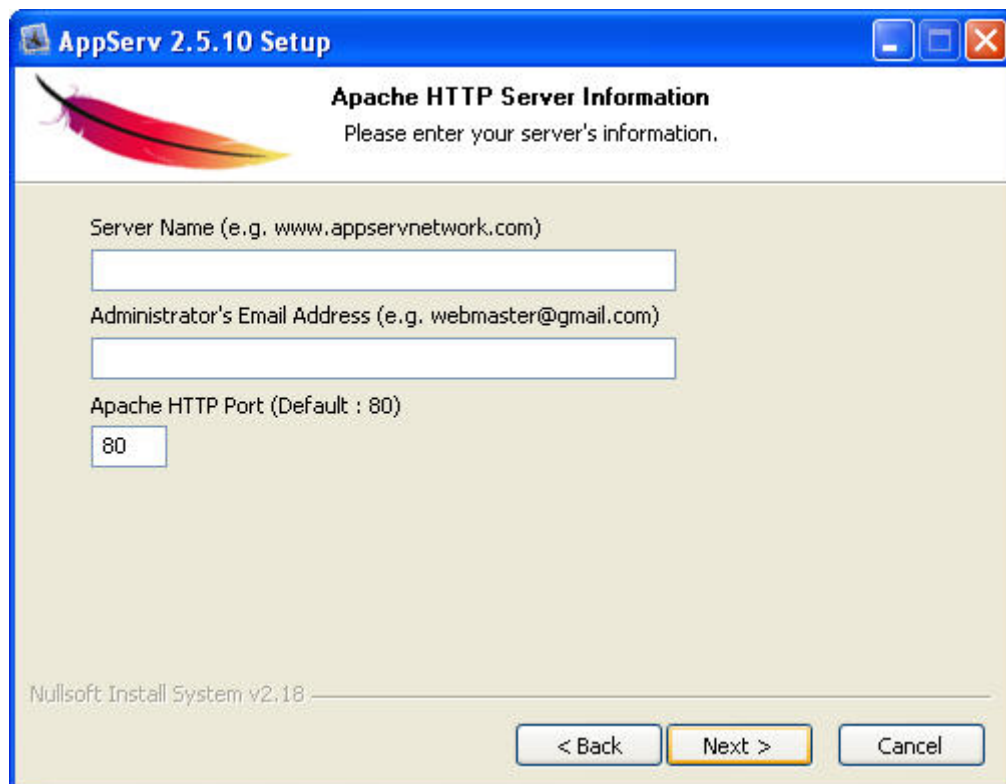


Select the default directory C:\AppServ, and click on **Next** button for the next step.

To select a directory other than the default directory, click **Browse**.

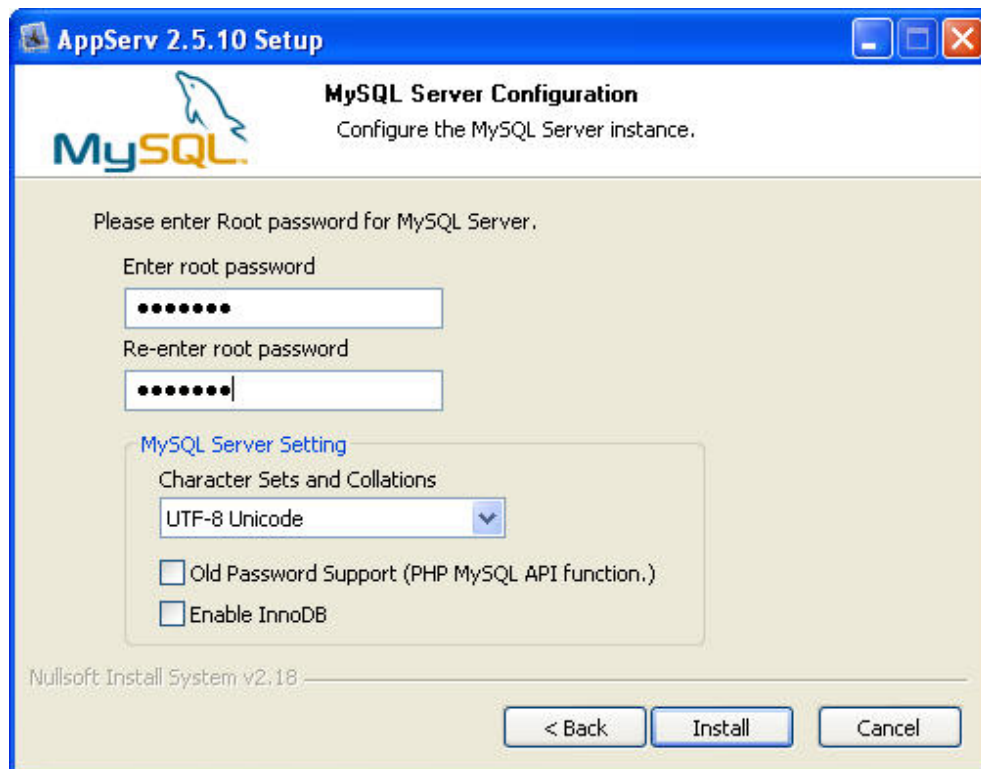


Then, select the AppServ Package Components to install, and click on **Next** button for the next step.



Specify Server Name, Administrator's Email Address and Apache HTTP port for Apache Web Server. When perform testing, the Servo Name can be specified as **localhost** directly. Click on **Next** button for MySQL Server Configuration settings





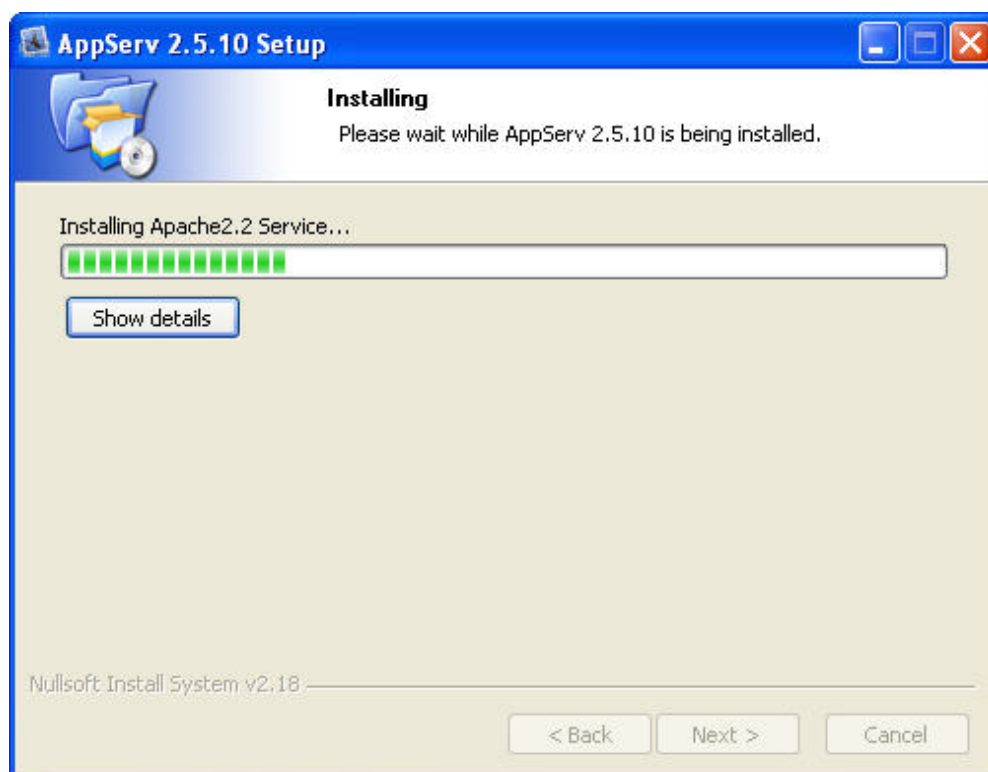
Enter root password for MySQL database and complete the settings for MySQL Server.

Character Sets and Collations: The users can select data storage language and collations from the drop-down menu.

Old Password Support (PHP MySQL API function): When this option is selected, the users can code PHP code with old MySQL API.

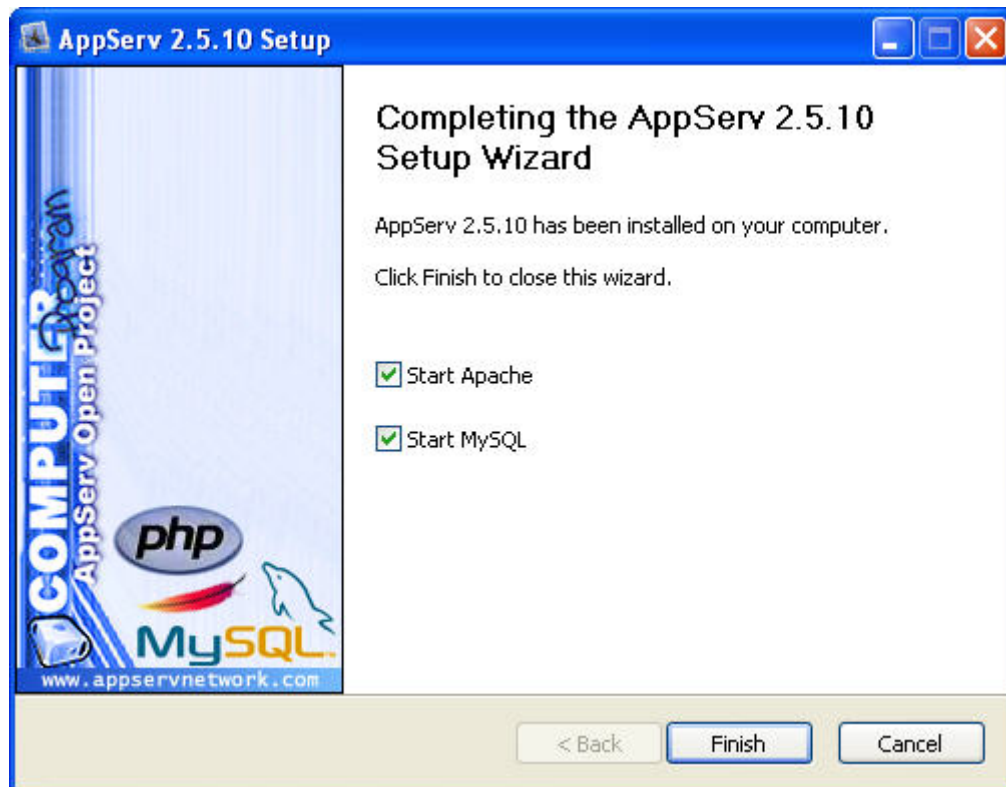
Enable InnoDB: When InnoDB is used, ensure to select this option.

Click on **Install** button to installing Apache.

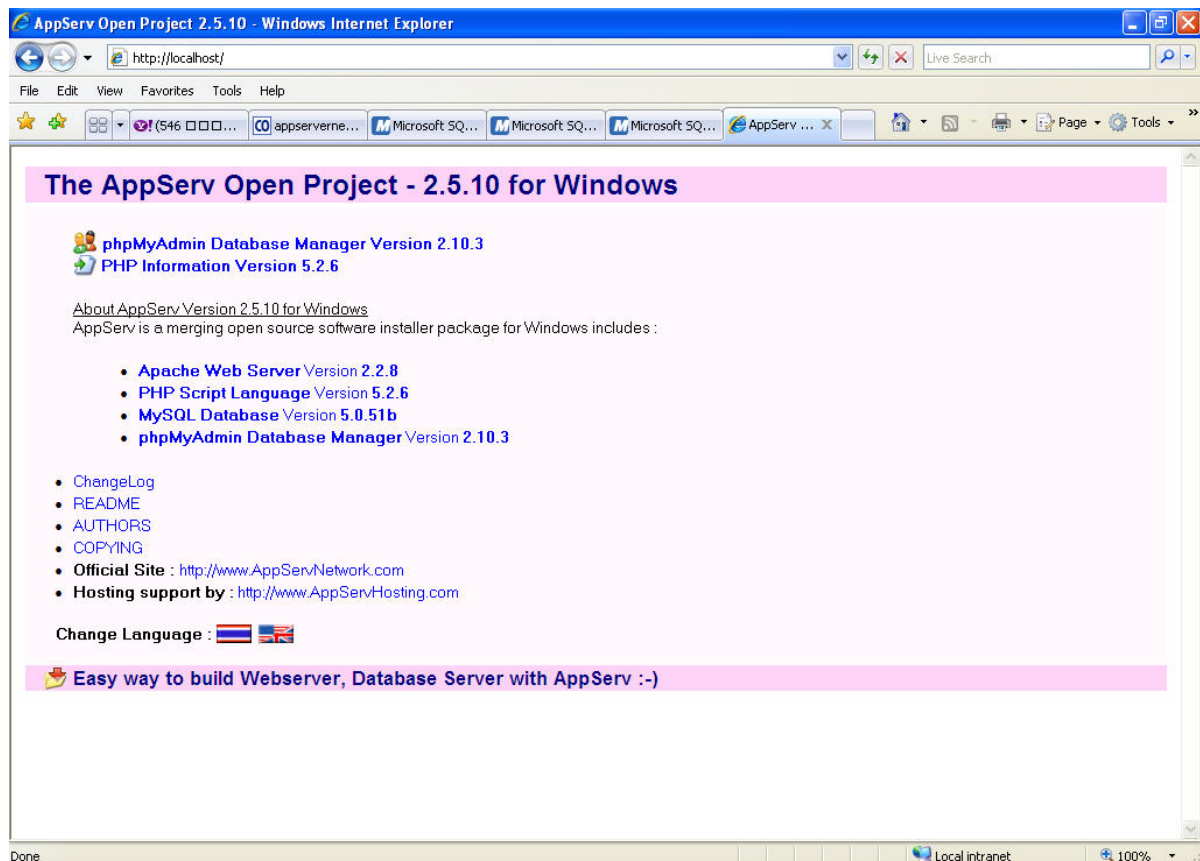




Click on **Finish** button to complete AppServ setup.

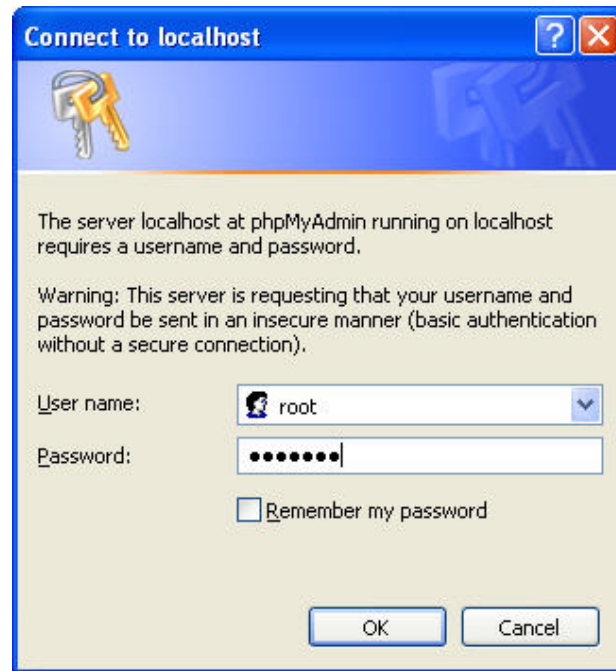


After installing AppServ, the users can view the web site by pointing a web browser to <http://localhost/>. If the following screen displays, it indicates that Apache has been installed successfully.

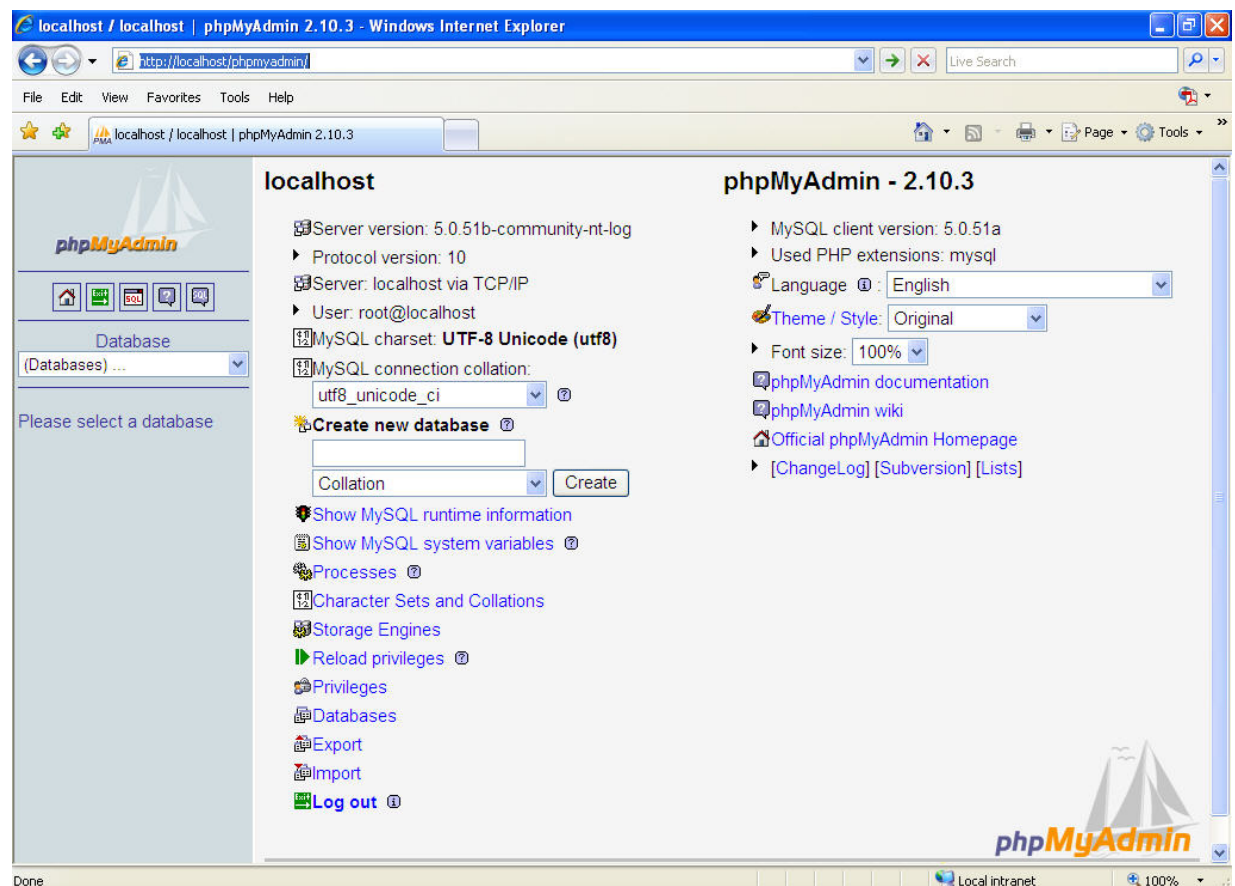


## 2. MySQL Settings

Use phpMyAdmin built-in AppServ to perform the relevant MySQL settings. Open the browser, type: <http://localhost/phpMyAdmin/>, a **Connect to localhost** dialog box will display. Enter **root** for username and your password for password (The default administrator account is root, but depending on your setup it may be a different user name.)

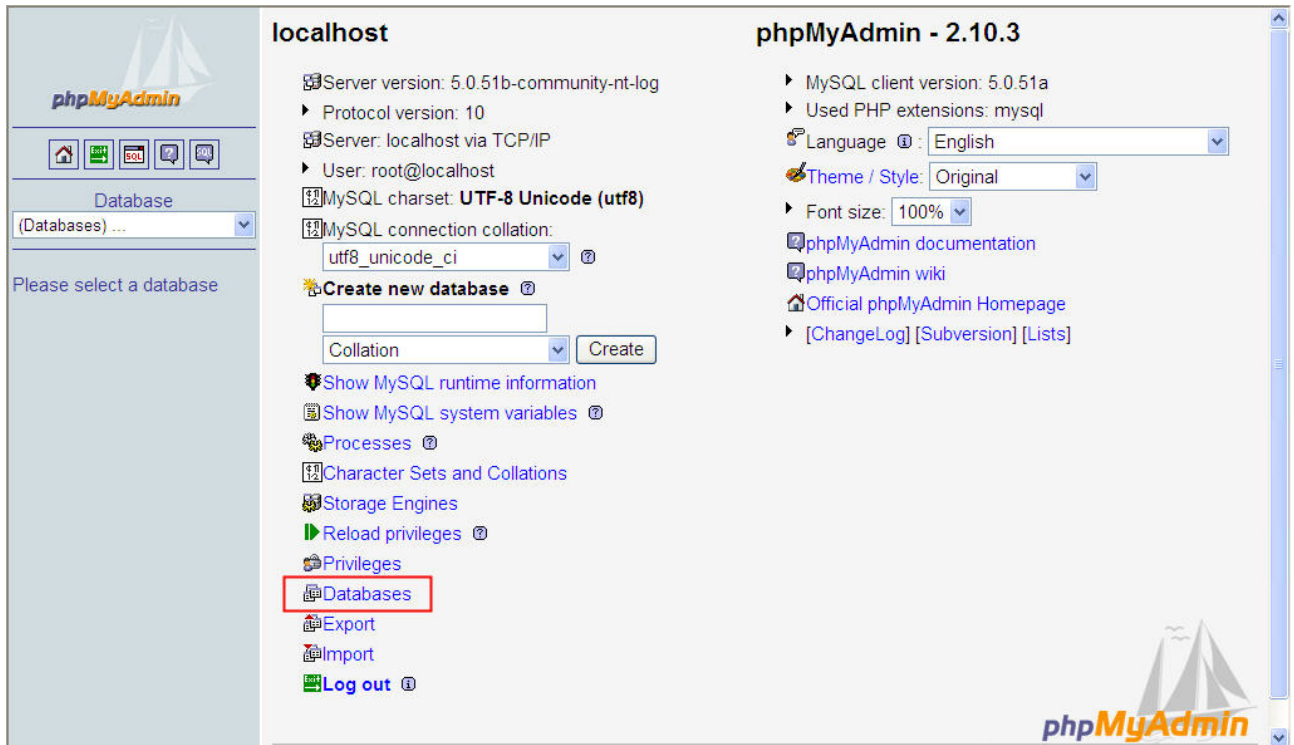


Then, it will connect to MySQL database.

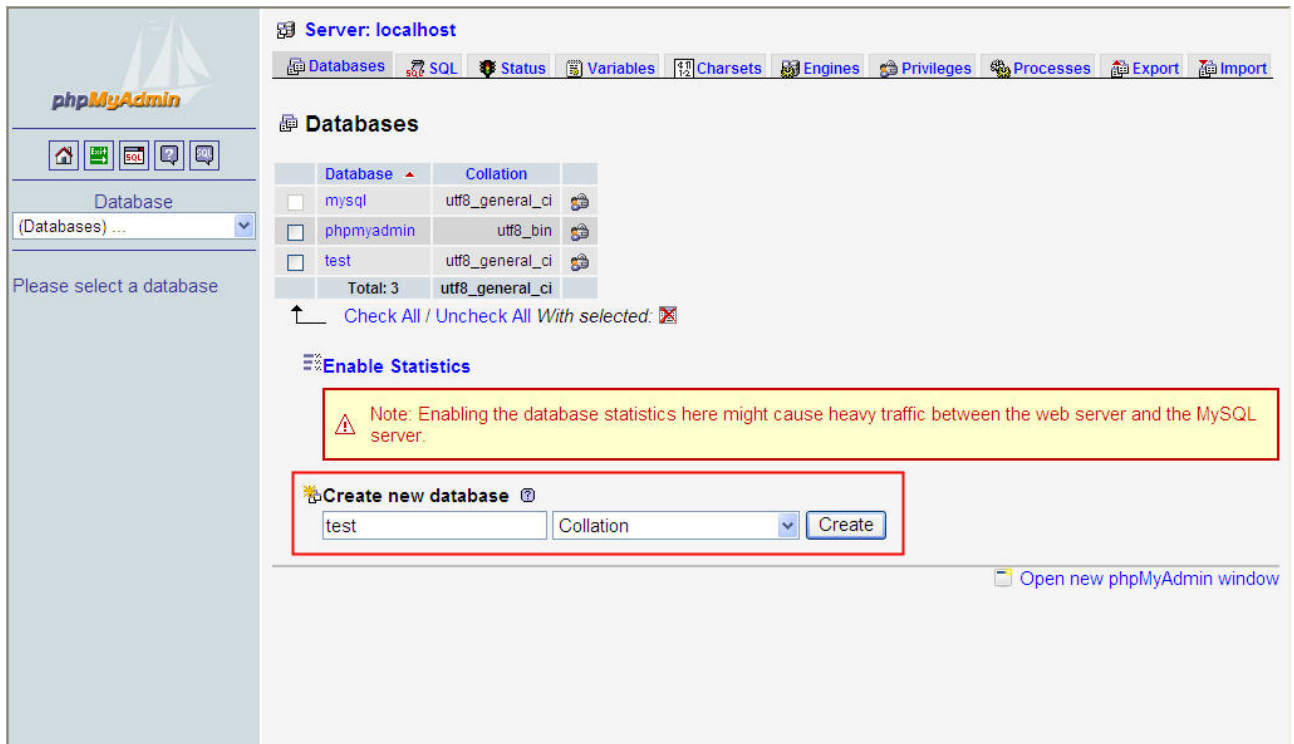


## A. Create New Database

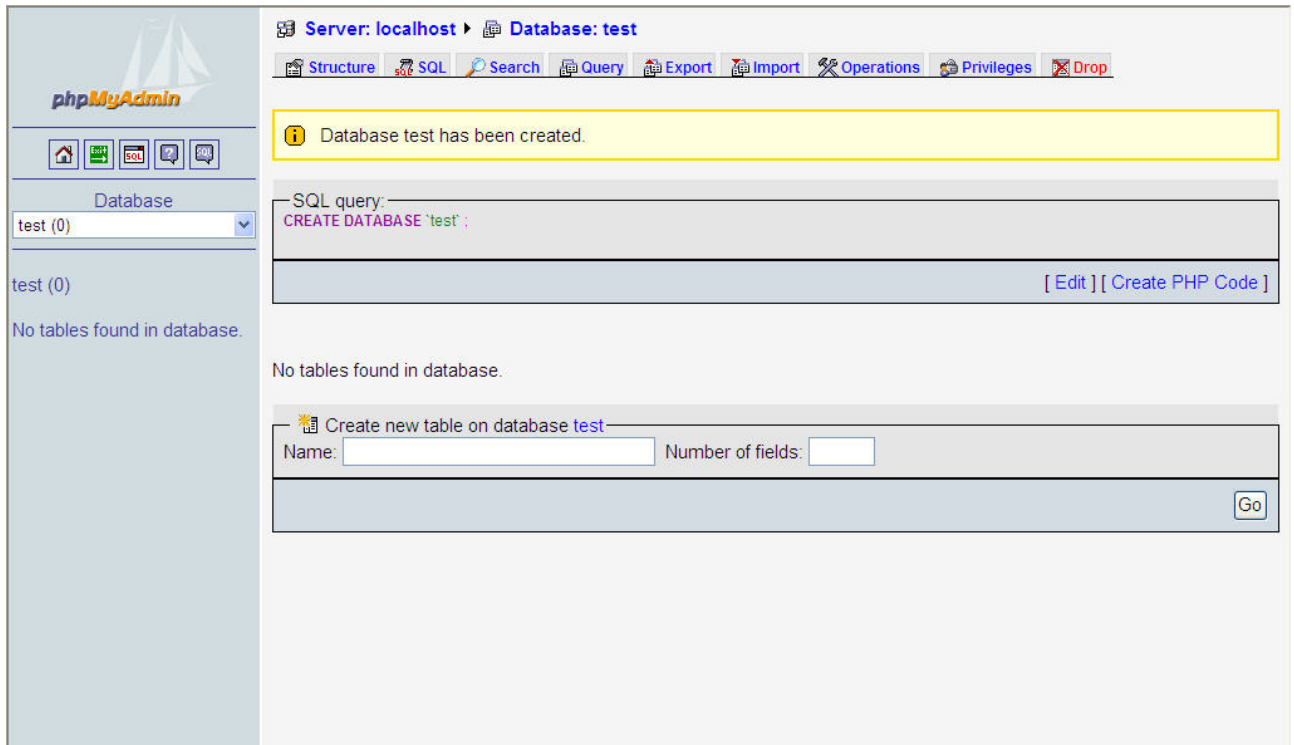
Click on **Databases** link.



Enter the name of the new database. In this case, the name of the new database is entered as **test**. Click on **Create** button for the next step.



A new database has been created.



## B. Create New Table

Click on **Structure** link to create new table on database. In this case, the new table is named as table1 and the number of fields is set to 3. After **Go** button is pressed, a new table on database will be created.





Complete the settings by referring to the figure below and press **Save** button to save changes.

Server: localhost ▶ Database: test ▶ Table: table1

Field	Type ?	Length/Values <sup>1</sup>	Collation	Attributes	Null	Def
Time	VARCHAR	50			not null	
Data1	VARCHAR	50			not null	
Data2	VARCHAR	50			not null	

Table comments:

Storage Engine: ? MyISAM

Collation:

**Save** Or Add  field(s) **Go**

<sup>1</sup> If field type is "enum" or "set", please enter the values using this format: 'a','b','c'...  
If you ever need to put a backslash ("\") or a single quote (") amongst those values, precede it with a backslash (for example '\xyz' or 'a\b').

<sup>2</sup> For default values, please enter just a single value, without backslash escaping or quotes, using this format: a

After the table1 has been created, the screen will be shown as follows.

Server: localhost ▶ Database: test ▶ Table: table1

[Browse](#)
[Structure](#)
[SQL](#)
[Search](#)
[Insert](#)
[Export](#)
[Import](#)
[Operations](#)
[Empty](#)
[Drop](#)

**Table 'test`.`table1` has been created.**

SQL query:

```
CREATE TABLE `table1` (
  `Time` VARCHAR( 50 ) NOT NULL ,
  `Data1` VARCHAR( 50 ) NOT NULL ,
  `Data2` VARCHAR( 50 ) NOT NULL
) ENGINE = MYISAM ;
```

[ Edit ] [ Create PHP Code ]

	Field	Type	Collation	Attributes	Null	Default	Extra	Action
<input type="checkbox"/>	Time	varchar(50)	utf8_general_ci		No			
<input type="checkbox"/>	Data1	varchar(50)	utf8_general_ci		No			
<input type="checkbox"/>	Data2	varchar(50)	utf8_general_ci		No			

☐ Check All / ☐ Uncheck All With selected:

[Print view](#)
[Propose table structure ?](#)

Add  field(s)
 ☒ At End of Table
 ☐ At Beginning of Table
 ☐ After  **Go**

Indexes: ?

**No index defined!**

Space usage		Row Statistics	
Type	Usage	Statements	Value
Data	0 B		
Index	0 B		

### C. Create New User

Click on **Privileges** link to open User overview page.

#### localhost

Server version: 5.0.51b-community-nt-log

Protocol version: 10

Server: localhost via TCP/IP

User: root@localhost

MySQL charset: **UTF-8 Unicode (utf8)**

MySQL connection collation: utf8\_unicode\_ci

Create new database

Collation: Create

Show MySQL runtime information

Show MySQL system variables

Processes

Character Sets and Collations

Storage Engines

Reload privileges

**Privileges**

Databases

Export

Import

Log out

#### phpMyAdmin - 2.10.3

MySQL client version: 5.0.51a

Used PHP extensions: mysql

Language: English

Theme / Style: Original


Font size: 100%

phpMyAdmin documentation

phpMyAdmin wiki

Official phpMyAdmin Homepage

[ChangeLog] [Subversion] [Lists]



Click on **Add a new User** link to display the add new user page

Server: localhost

Databases SQL Status Variables Charsets Engines Privileges Processes Export

Import

#### User overview

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z [Show all]

User	Host	Password	Global privileges	Grant
<input type="checkbox"/> Any	%	--	USAGE	No
<input type="checkbox"/> Any	localhost	No	USAGE	No
<input type="checkbox"/> Any	production.mysql.com	No	USAGE	No
<input type="checkbox"/> root	127.0.0.1	No	ALL PRIVILEGES	Yes
<input type="checkbox"/> root	localhost	Yes	ALL PRIVILEGES	Yes
<input type="checkbox"/> root	production.mysql.com	No	ALL PRIVILEGES	Yes

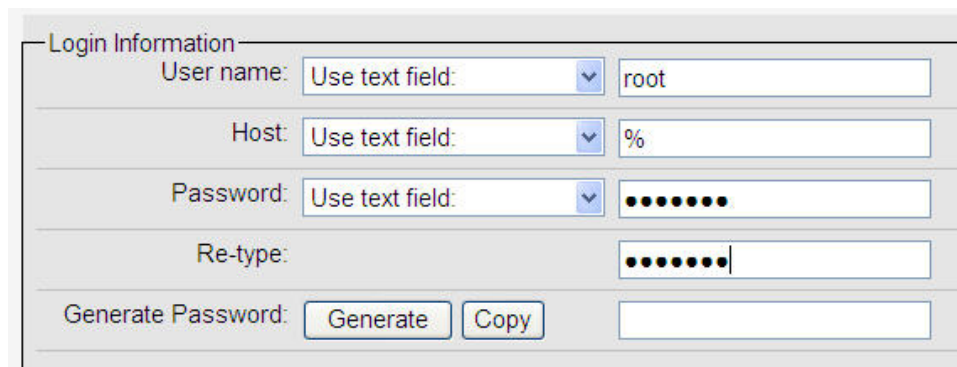
Check All / Uncheck All

**Add a new User**

Remove selected users  
( Revoke all active privileges from the users and delete them afterwards. )

☐ Drop the databases that have the same names as the users.

Go



**Login Information**

User name: Use text field:

Host: Use text field:

Password: Use text field:

Re-type:

Generate Password:

Login Information:

User name: Enter user name **root**

Host: Select **Any host** from the drop down menu and insert a % code.

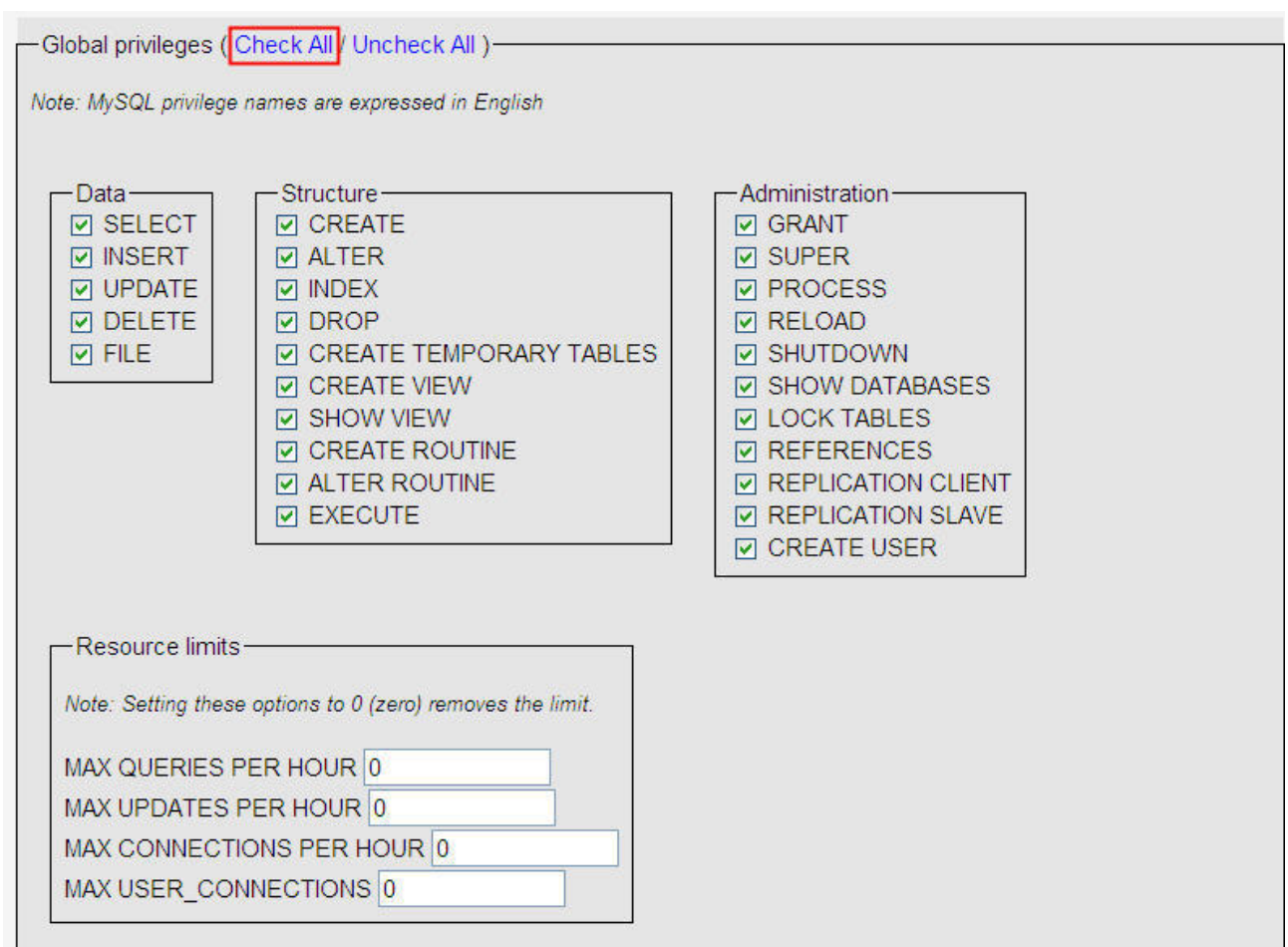
Password: Enter the desired password

Re-type: Re-enter the desired password

General Password:

- Click on **Generate** button to automatically generate a password.
- Click on **Copy** button to insert the password into the fields of Password and Re-type.

Scroll the screen down and click on **Check All** link to select all privileges. Then, click on **GO** button to create a new user.



Global privileges ( [Check All](#) / [Uncheck All](#) )

*Note: MySQL privilege names are expressed in English*

Data	Structure	Administration
<input checked="" type="checkbox"/> SELECT	<input checked="" type="checkbox"/> CREATE	<input checked="" type="checkbox"/> GRANT
<input checked="" type="checkbox"/> INSERT	<input checked="" type="checkbox"/> ALTER	<input checked="" type="checkbox"/> SUPER
<input checked="" type="checkbox"/> UPDATE	<input checked="" type="checkbox"/> INDEX	<input checked="" type="checkbox"/> PROCESS
<input checked="" type="checkbox"/> DELETE	<input checked="" type="checkbox"/> DROP	<input checked="" type="checkbox"/> RELOAD
<input checked="" type="checkbox"/> FILE	<input checked="" type="checkbox"/> CREATE TEMPORARY TABLES	<input checked="" type="checkbox"/> SHUTDOWN
	<input checked="" type="checkbox"/> CREATE VIEW	<input checked="" type="checkbox"/> SHOW DATABASES
	<input checked="" type="checkbox"/> SHOW VIEW	<input checked="" type="checkbox"/> LOCK TABLES
	<input checked="" type="checkbox"/> CREATE ROUTINE	<input checked="" type="checkbox"/> REFERENCES
	<input checked="" type="checkbox"/> ALTER ROUTINE	<input checked="" type="checkbox"/> REPLICATION CLIENT
	<input checked="" type="checkbox"/> EXECUTE	<input checked="" type="checkbox"/> REPLICATION SLAVE
		<input checked="" type="checkbox"/> CREATE USER

**Resource limits**

*Note: Setting these options to 0 (zero) removes the limit.*

MAX QUERIES PER HOUR

MAX UPDATES PER HOUR

MAX CONNECTIONS PER HOUR

MAX USER\_CONNECTIONS



A conformation message will be displayed as follows.

**Server: localhost**

Databases SQL Status Variables Charsets Engines Privileges Processes Export Import

**You have added a new user.**

SQL query:

```
CREATE USER 'root'@'%' IDENTIFIED BY '*****';

GRANT ALL PRIVILEGES ON *.* TO 'root'@'%' IDENTIFIED BY '*****' WITH GRANT OPTION MAX_QUERIES_PER_HOUR 0
MAX_CONNECTIONS_PER_HOUR 0 MAX_UPDATES_PER_HOUR 0 MAX_USER_CONNECTIONS 0;
```

[ Edit ] [ Create PHP Code ]

**User 'root'@'%' : Edit Privileges**

Global privileges ( [Check All](#) / [Uncheck All](#) )

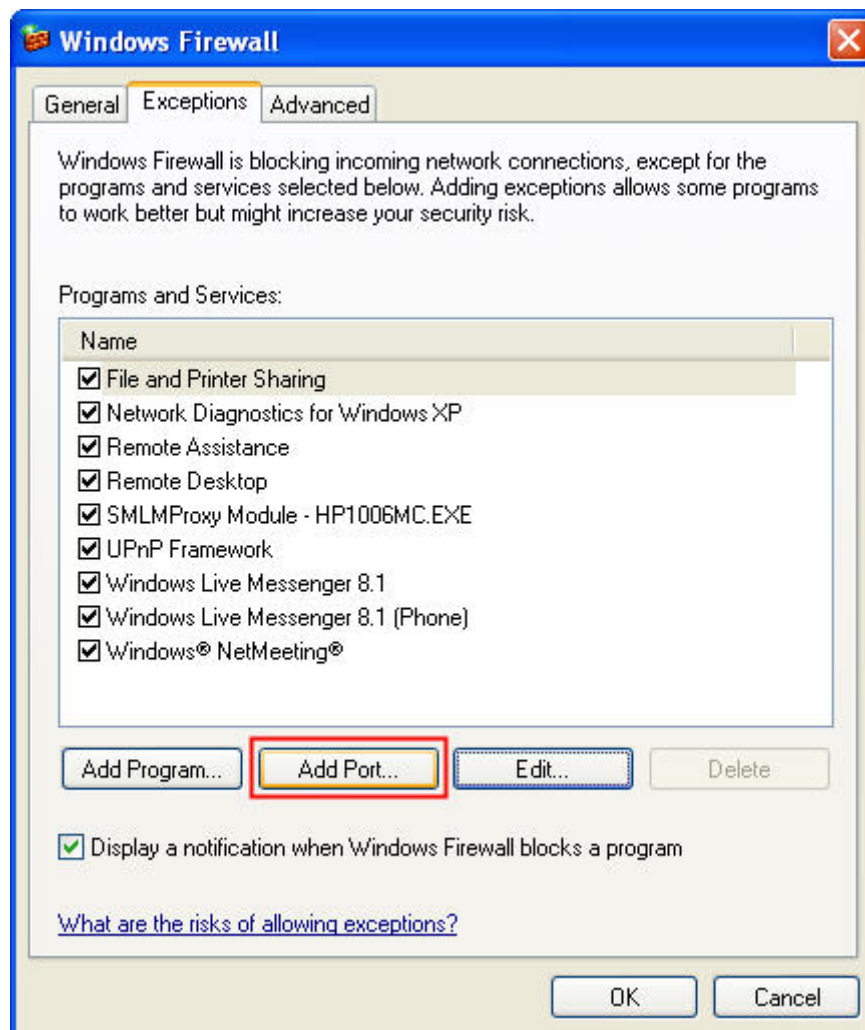
*Note: MySQL privilege names are expressed in English*

Data	Structure	Administration
<input checked="" type="checkbox"/> SELECT	<input checked="" type="checkbox"/> CREATE	<input checked="" type="checkbox"/> GRANT
<input checked="" type="checkbox"/> INSERT	<input checked="" type="checkbox"/> ALTER	<input checked="" type="checkbox"/> SUPER
<input checked="" type="checkbox"/> UPDATE	<input checked="" type="checkbox"/> INDEX	<input checked="" type="checkbox"/> PROCESS
<input checked="" type="checkbox"/> DELETE	<input checked="" type="checkbox"/> DROP	<input checked="" type="checkbox"/> RELOAD
<input checked="" type="checkbox"/> FILE	<input checked="" type="checkbox"/> CREATE TEMPORARY TABLES	<input checked="" type="checkbox"/> SHUTDOWN

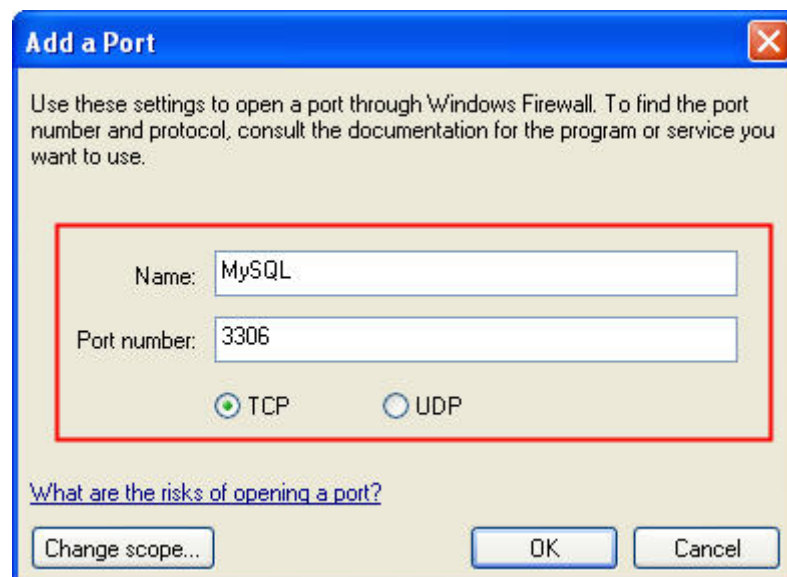
### 3. Setting Windows Firewall



Click **Start** and then click **Control Panel**. In the **Control Panel**, click **Windows Security Center > Windows Firewall**. Then, click on the **Exceptions** tab.



Click **Add Port** button and the following **Add a Port** dialog box will appear.



In the Add a Port dialog box, type MySQL in the Name text field and type the port number of the instance of the Database Engine, such as 3306 for the default instance in the Port number text field. Ensure that TCP is selected and click OK to complete the settings.

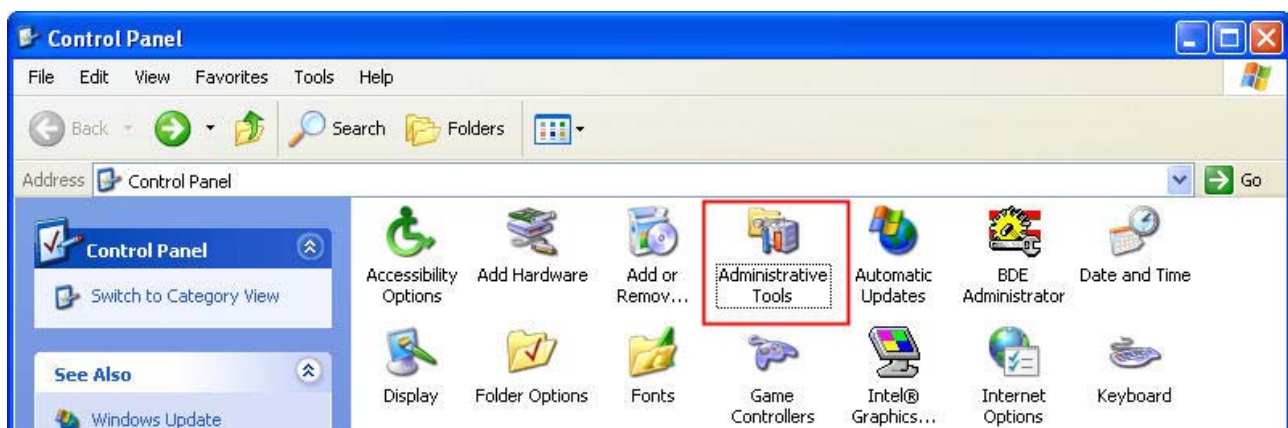
#### 4. Connector/ODBC Installation

Connector/ODBC is a standardized database driver which can be downloaded from MySQL website at <http://dev.mysql.com/downloads/connector/odbc/5.1.html>.

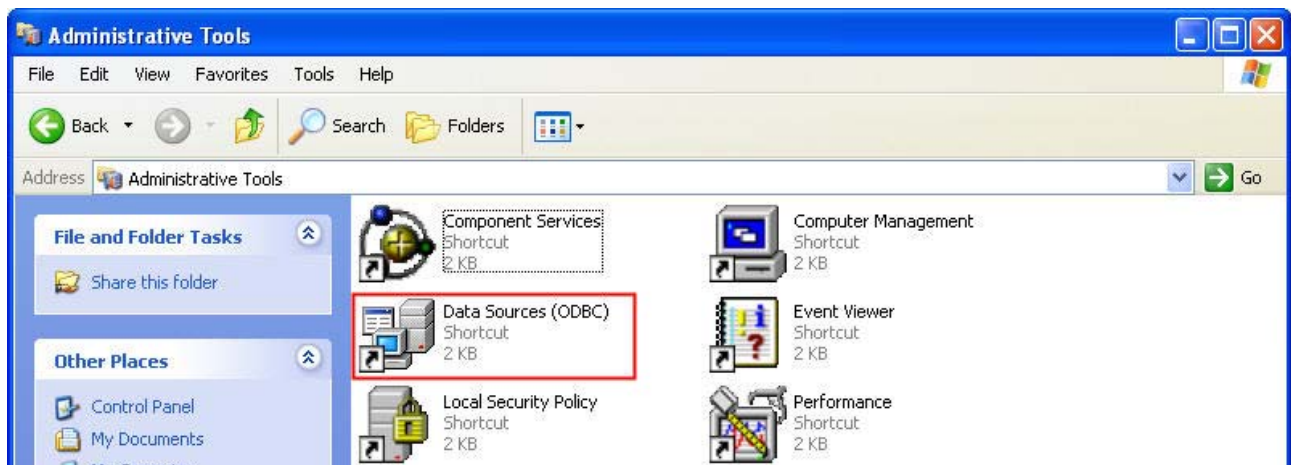


#### 5. ODBC Setup

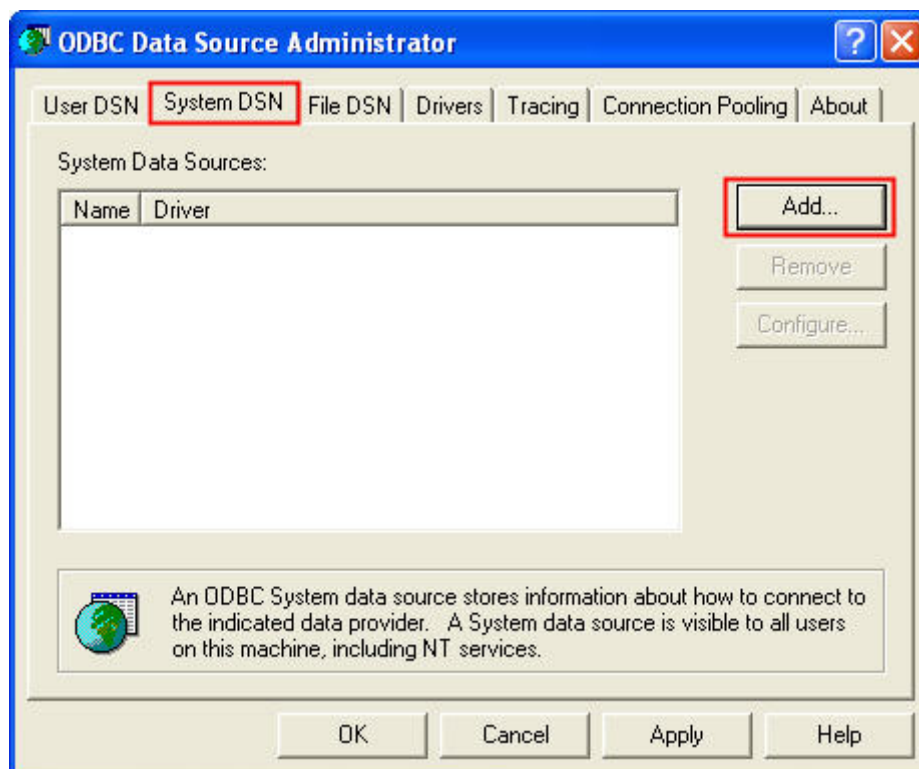
In the **Control Panel**, double-click **Administrative Tools**.



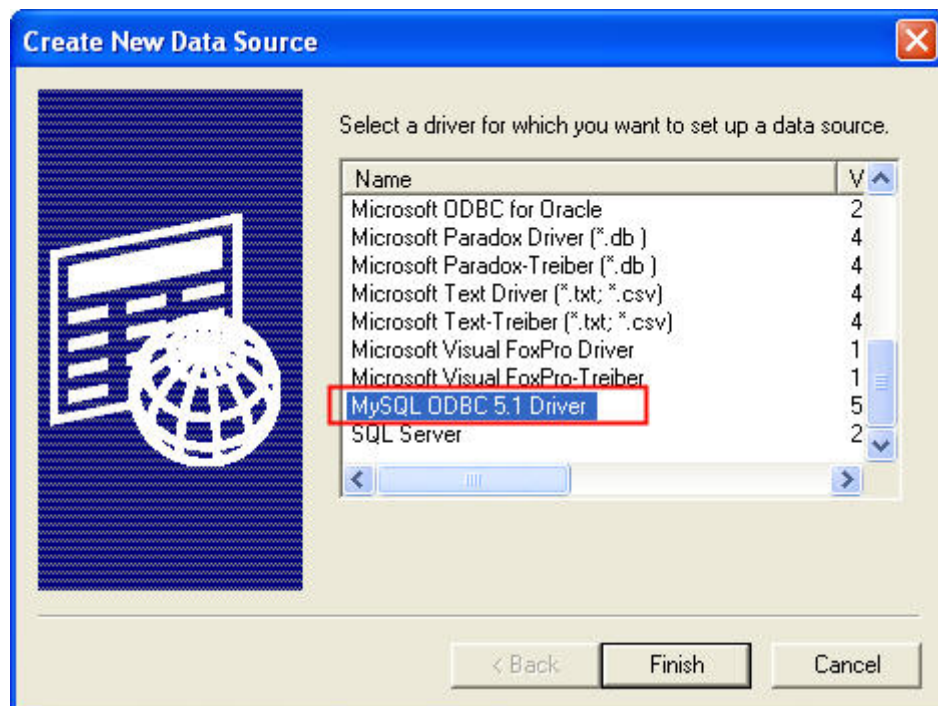
In the **Administrative Tools**, double-click **Data Sources (ODBC)**.



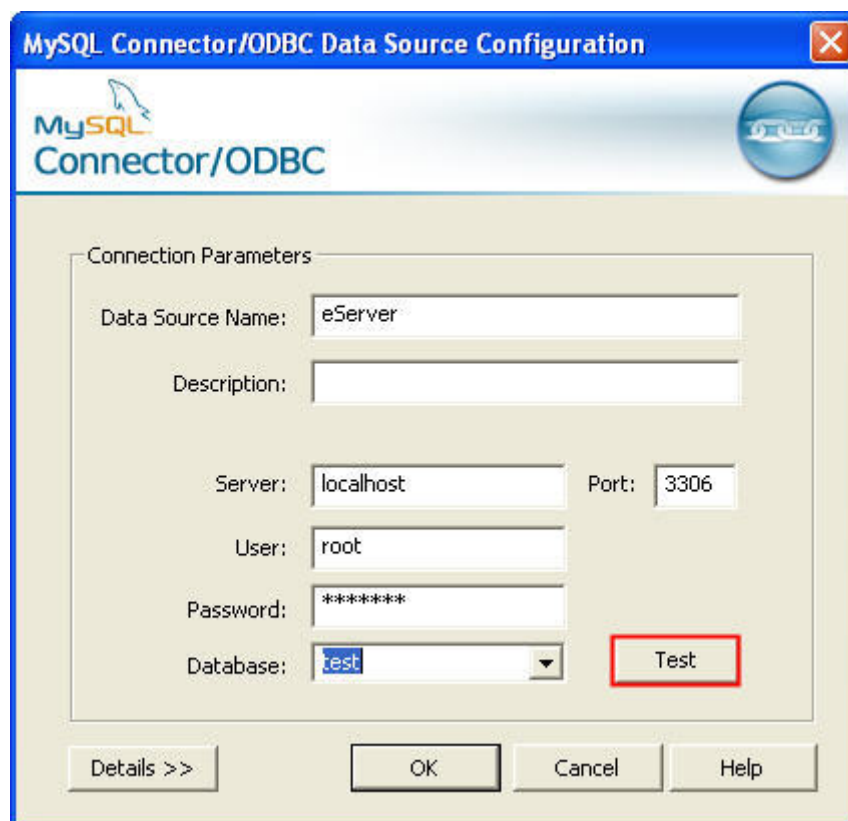
In the **ODBC Data Source Administrator** dialog box, select **System DSN** tab and click on **Add** button to add system data source.



Select **MySQL ODBC 5.1 Driver** and then click on **Finish** button.



Now specify the Connection Parameters as mentioned in the below dialog.



Connection Parameters:

Data Source Name: Enter ODBC data source name **eServer** or enter the name of the data source you want to access.

Description: Enter some text to identify the connection.

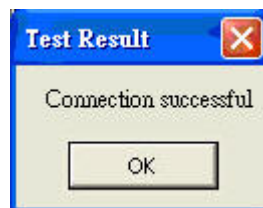
Server: Enter the default **localhost** or the name of MySQL server host that the users want to access.

User: Enter user name **root** to use for this connection.

Password: Enter the corresponding password for this connection.

Database: The list of databases that the user has permissions to access will be shown automatically.

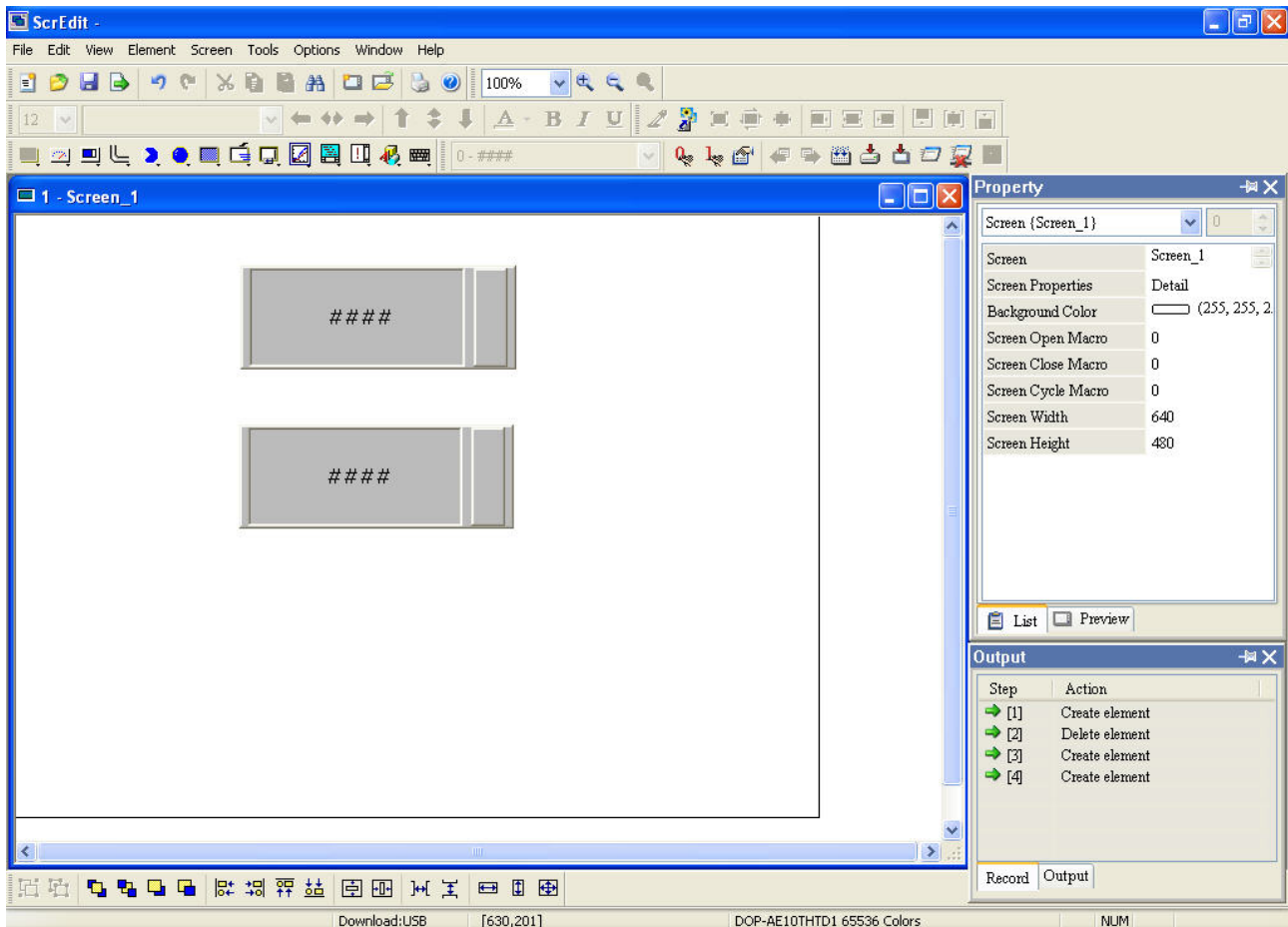
Click on **Test** button to verify the connection. If the test succeeds, the figure shown below will appear on the screen to indicate that MySQL connection is now available to use. At this time, click on **OK** button to complete the settings. If the test does not succeed, please review the settings.



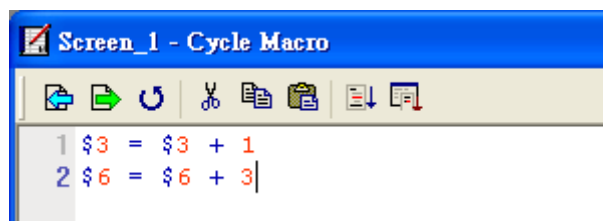


### 8.1.2 Create HMI Project File

Start Screen Editor software program and click **File > New** or click **New** icon to create a new project. Then, click **Element > Input > Numeric Entry** to create two numeric entry elements (\$3 and \$6) on the screen. In this case, 10 inches color AE type DOP series HMI is used.



Use Screen Cycle Macro and enter the following commands in macro command window.



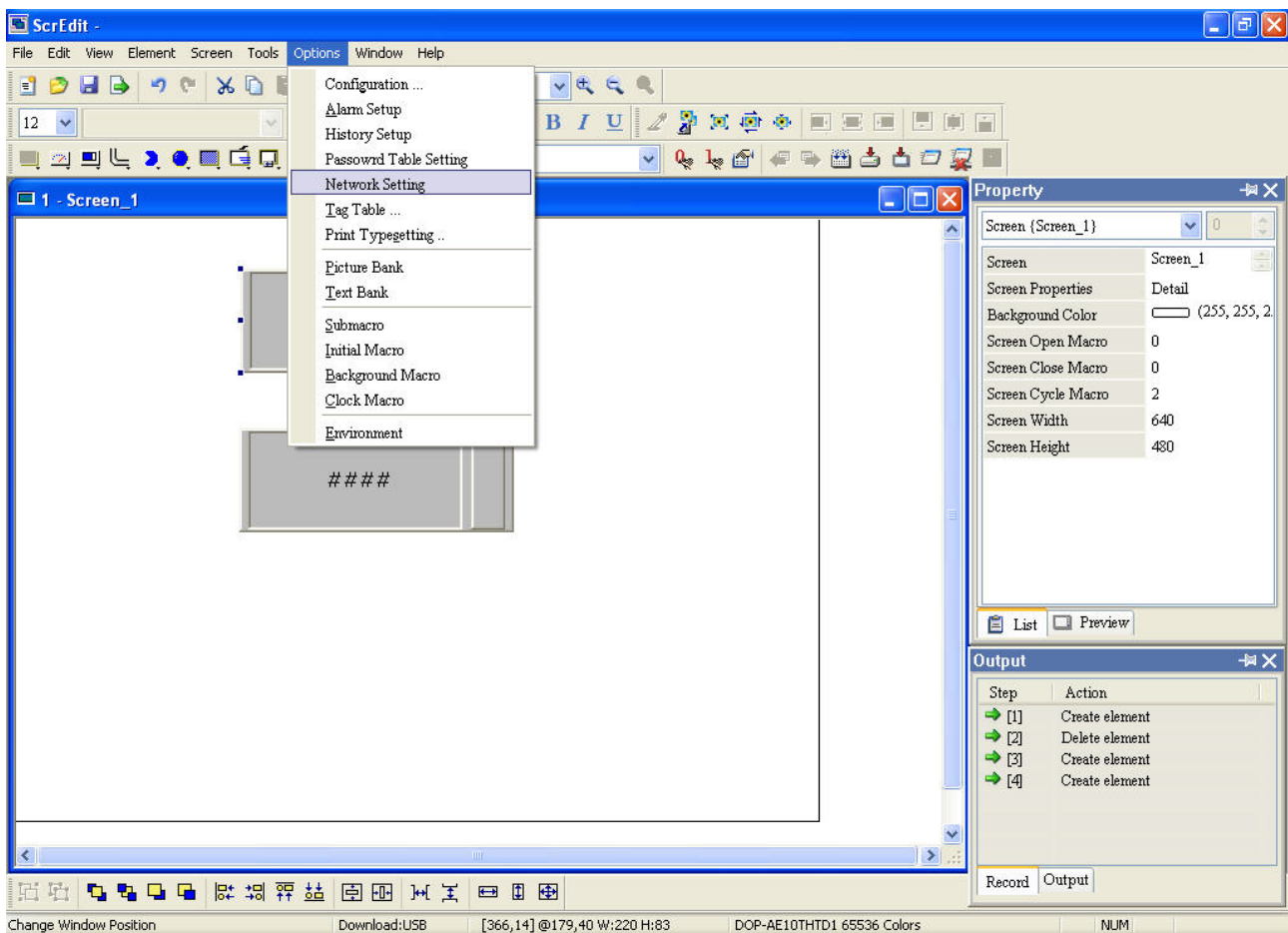


Click **Options > Configuration** and use **Communication** tab to select **Ethernet** and complete HMI networking settings shown as the figure below. Then, press **OK** button to finish the settings.

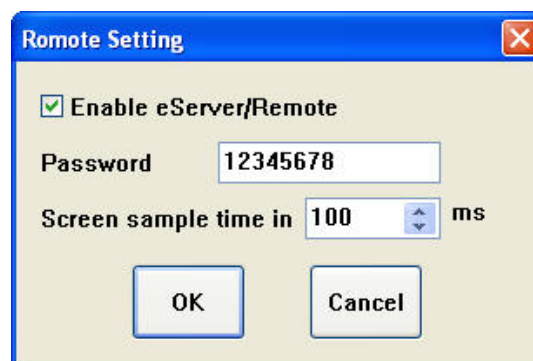
The screenshot shows a 'Configuration' dialog box with a blue title bar and a close button (X) in the top right corner. The dialog has five tabs: 'Standard', 'Communication' (selected), 'Print', 'Default', and 'Others'. In the 'Communication' tab, there are four buttons on the left: 'Add', 'Move Up', 'Delete', and 'Move Down'. Below these buttons is a tree view showing a hierarchy: 'COM1', 'COM2', 'Base Port', 'COM3', and 'Ethernet' (which is highlighted with a green background). To the right of the tree view, there are four checked checkboxes: 'Recovery the IP address in HMI' and 'DHCP'. Below these are four text input fields: 'HMI Name' (containing 'eRemote'), 'HMI IP Address' (containing '172 . 16 . 190 . 2'), 'Subnet Mask' (containing '255 . 255 . 255 . 0'), and 'Default Gateway' (containing '0 . 0 . 0 . 0'). At the bottom right of the dialog are 'OK' and 'Cancel' buttons.

Field	Value
HMI Name	eRemote
HMI IP Address	172 . 16 . 190 . 2
Subnet Mask	255 . 255 . 255 . 0
Default Gateway	0 . 0 . 0 . 0


Next, click **Options > Network Setting**.



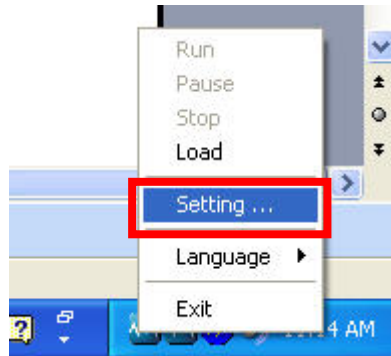
The following **Remote Setting** dialog box will appear. Check the check box before **Enable eServer/Remote** and set a password for network communication. After **OK** button is pressed, HMI networking is completed. Compile the edited project file at the end of the programming and the edited project file could be transferred to HMI.



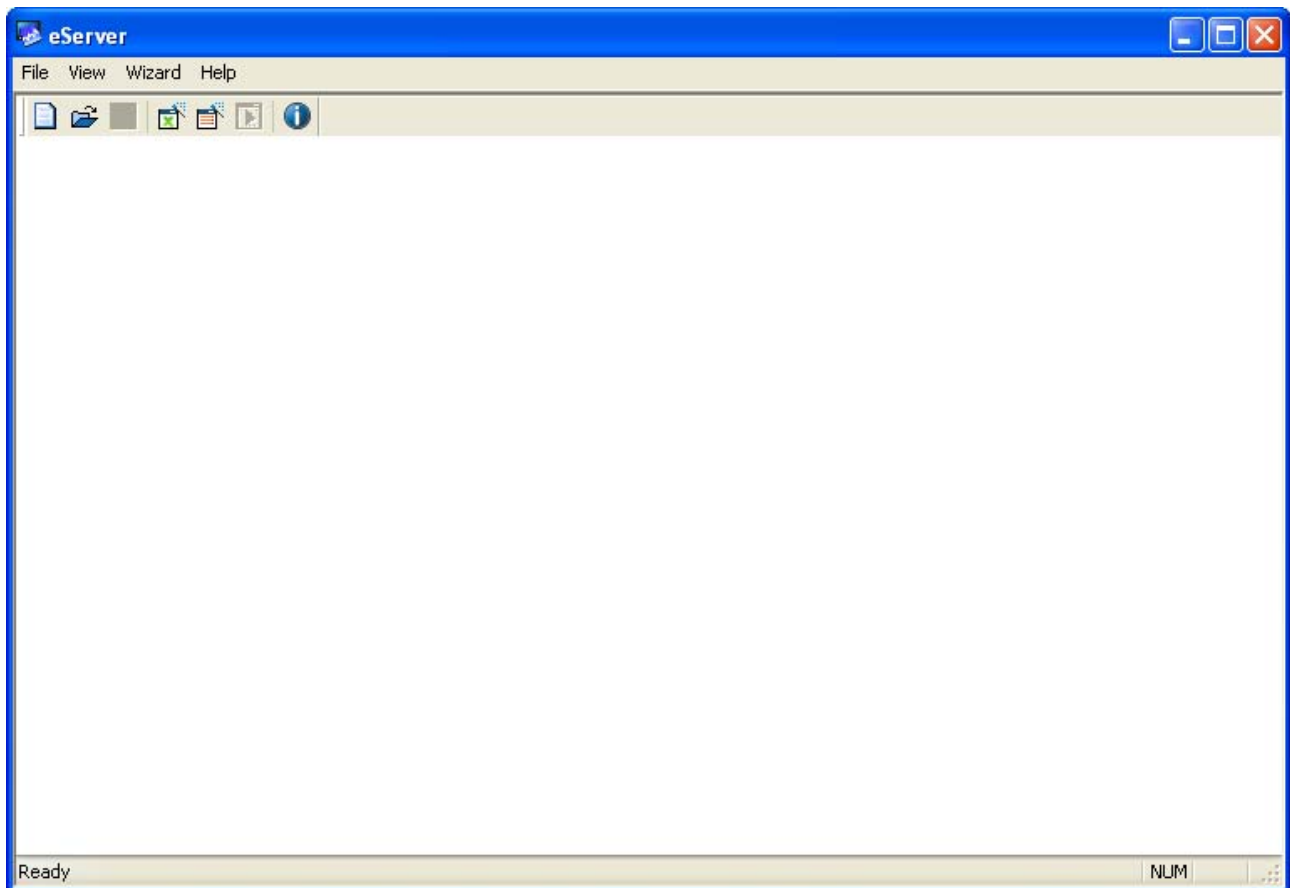
### 8.1.3 eServer Setting

1. After eServer is enabled, eServer  icon will appear at the bottom right of Windows screen.

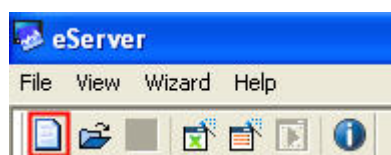
Right-click this icon and select **Setting** option from the pop-up menu.




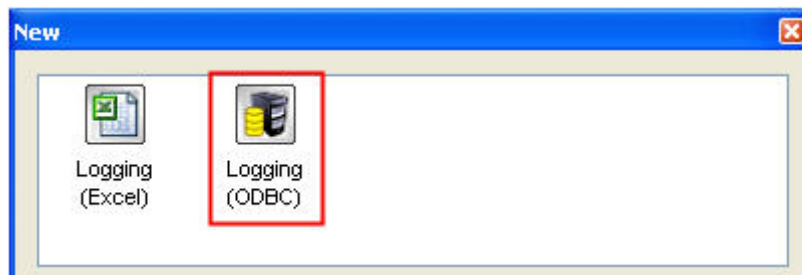
2. Then, open eServer window.



3. Click **File > New** or click  icon to create a new project file.

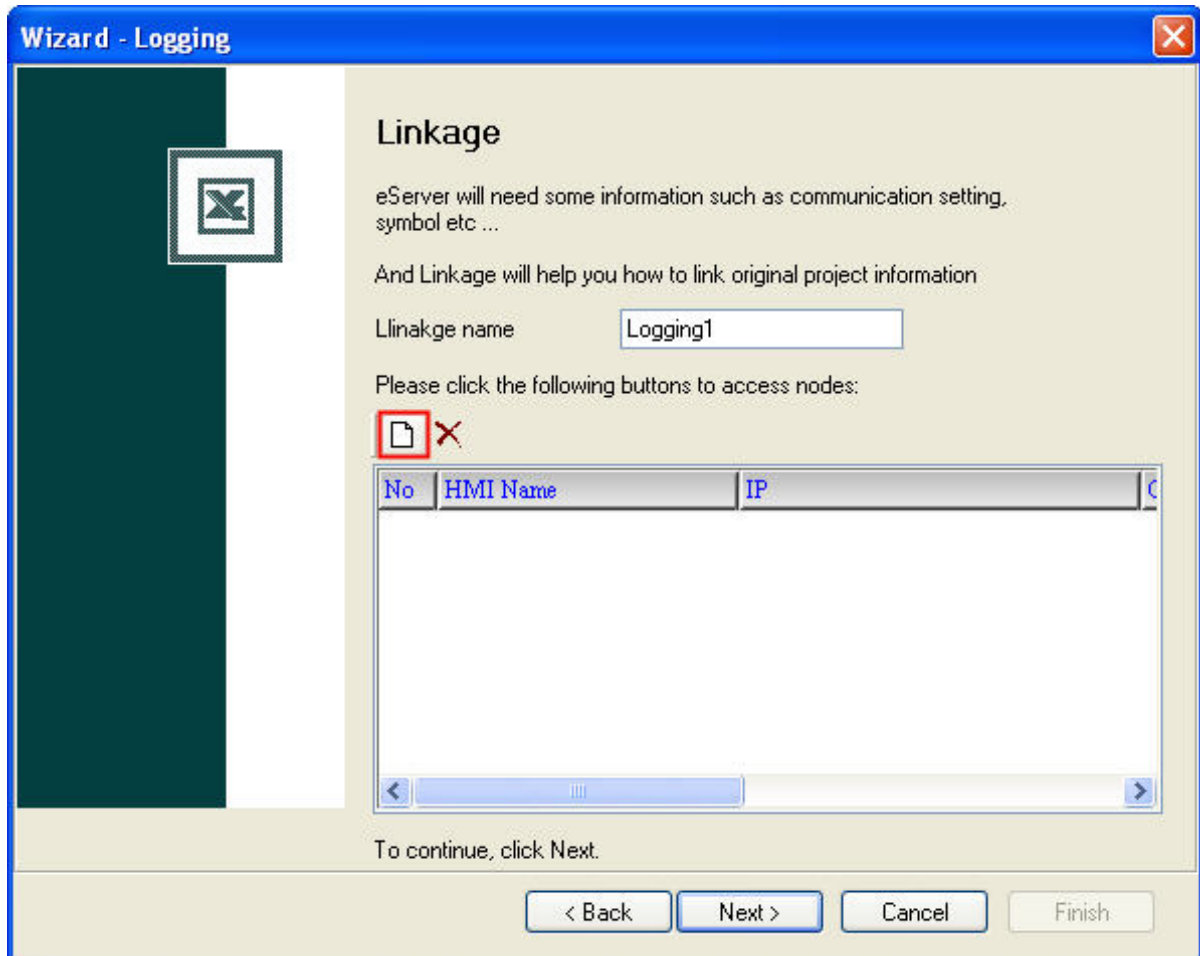


4. Select  icon to enable ODBC Logging Wizard.

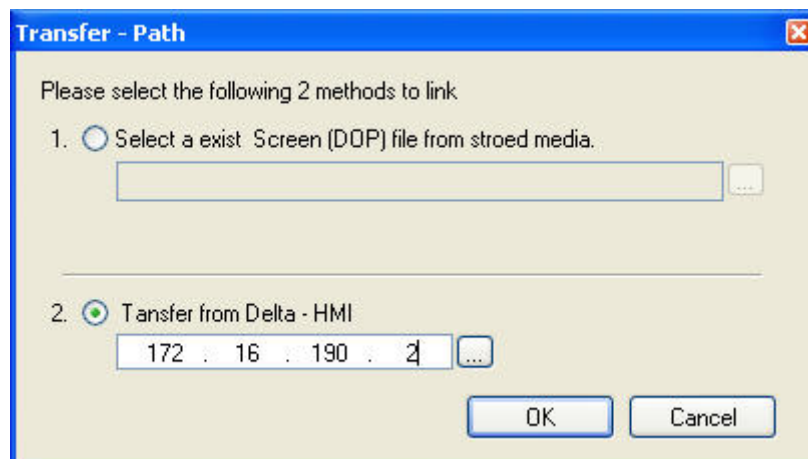


Press **Next** button to go to next step.

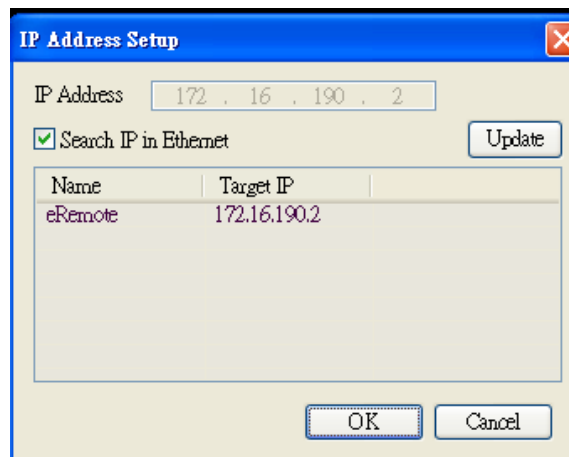
5. Click **New** icon to access nodes (link to HMI).



Choose **Transfer from Delta - HMI** option to transfer the HMI screen project file via network communication directly.

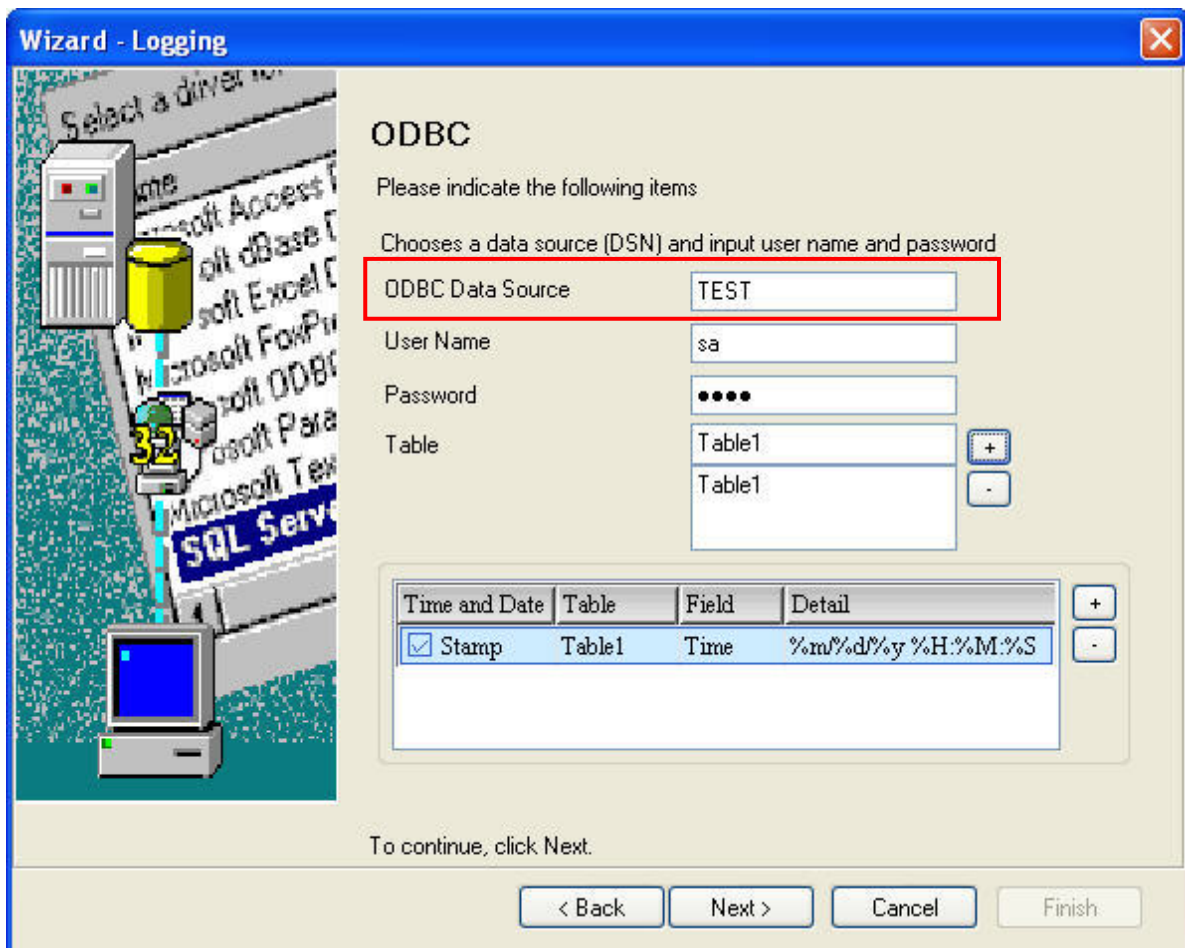


Press **OK** button to go to next step.



Press **OK** button to go to next step.

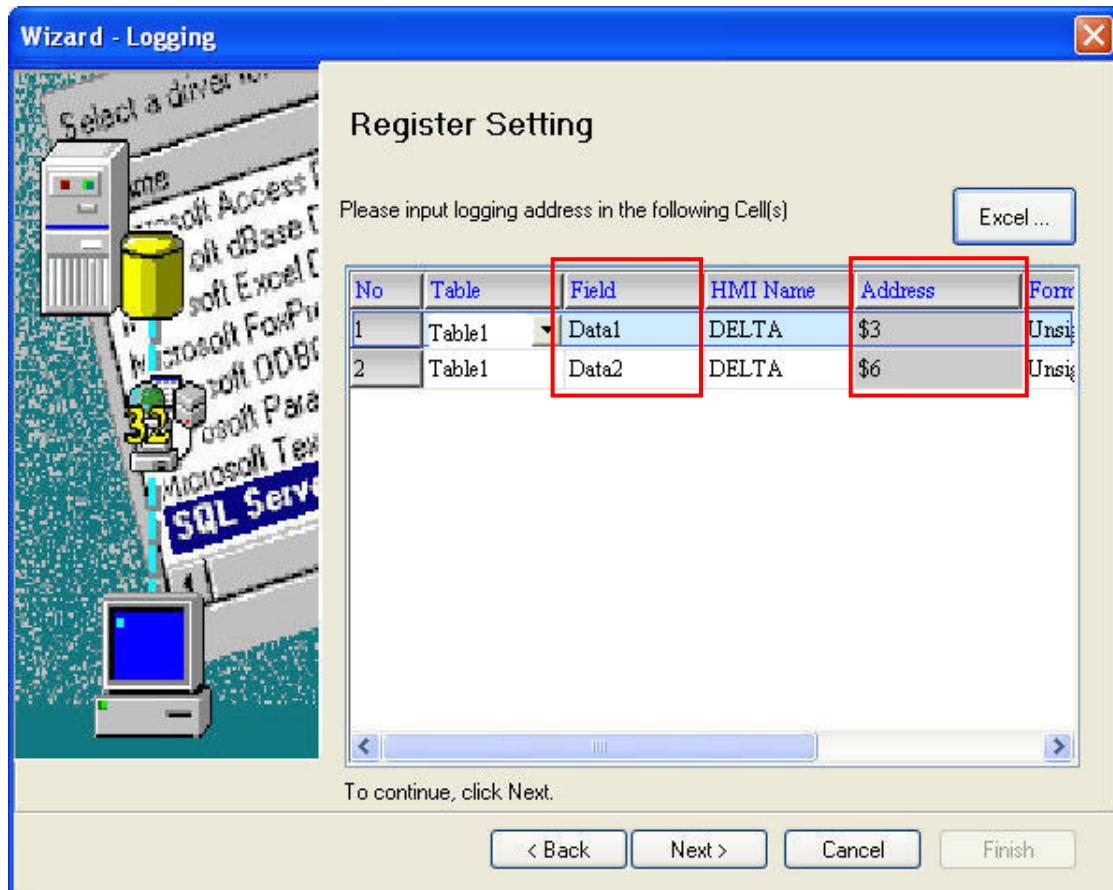
6. ODBC Data Source Setting: Create an ODBC Data Source pointing to your database.  
Please refer to the following settings.



Press **Next** button to go to next step.



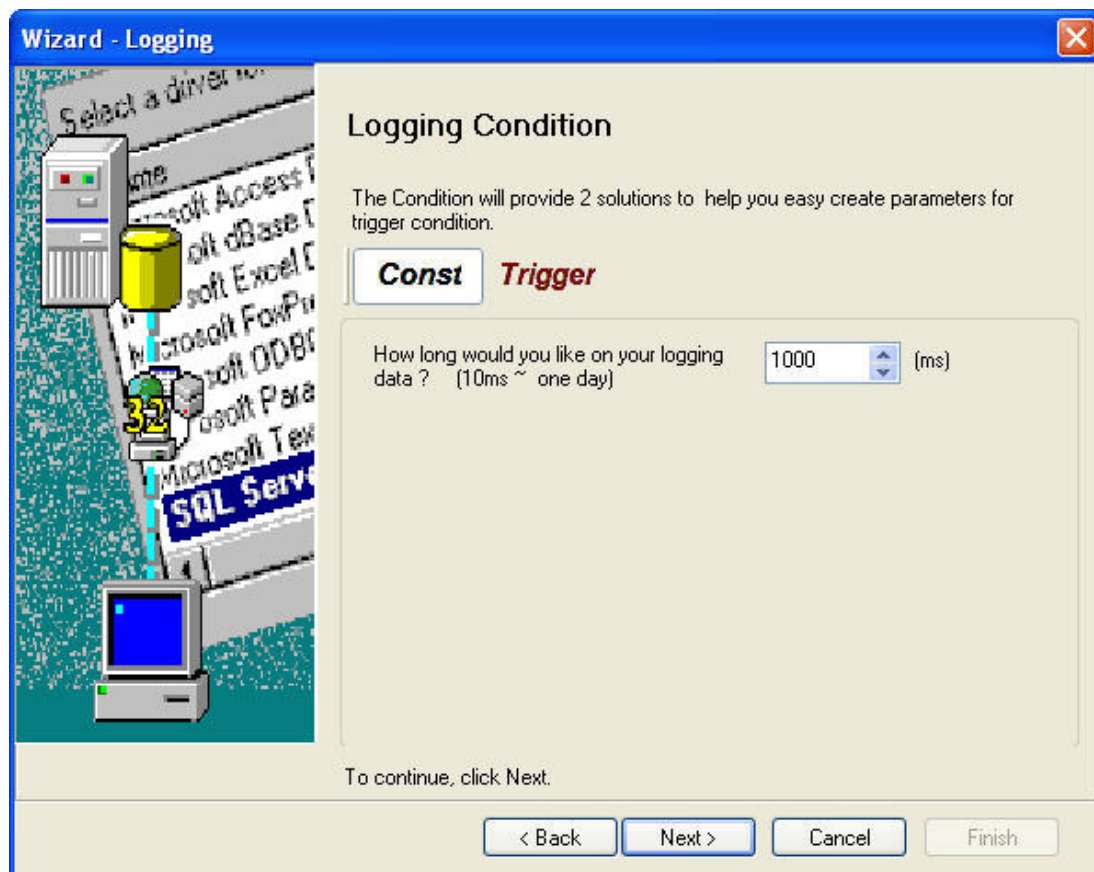
7. Register Setting: Set the register address of the sampling data.



The 'Wizard - Logging' dialog box is shown with the 'Register Setting' tab selected. It contains a table with columns: No, Table, Field, HMI Name, Address, and Form. Two rows are visible, both with 'Table1' in the 'Table' column. The 'Field' column has 'Data1' and 'Data2', and the 'Address' column has '\$3' and '\$6'. Red boxes highlight the 'Field' and 'Address' columns. An 'Excel ...' button is in the top right. Navigation buttons at the bottom include '< Back', 'Next >', 'Cancel', and 'Finish'.


No	Table	Field	HMI Name	Address	Form
1	Table1	Data1	DELTA	\$3	Unsig
2	Table1	Data2	DELTA	\$6	Unsig

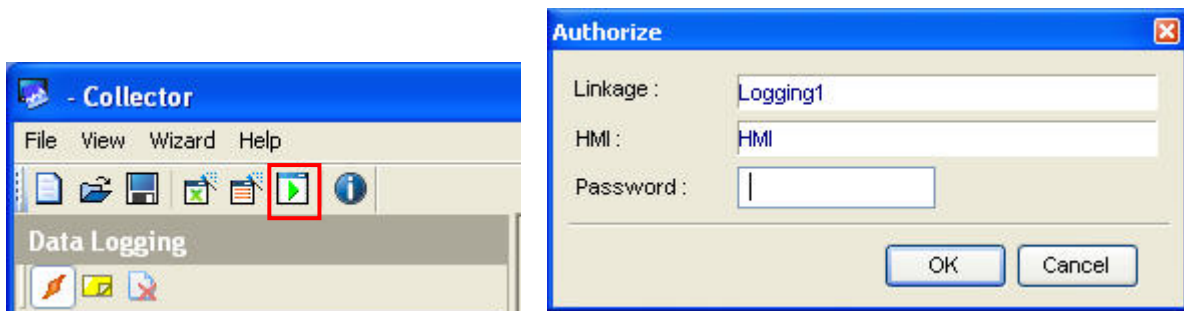
8. Set the sampling conditions to constant 1000ms. Press **Next** button to continue.




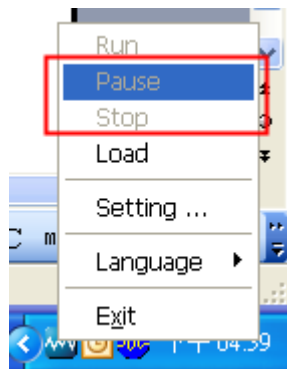
The 'Wizard - Logging' dialog box is shown with the 'Logging Condition' tab selected. It features two buttons: 'Const' (selected) and 'Trigger'. Below them, a text prompt asks 'How long would you like on your logging data ? (10ms ~ one day)' followed by a numeric input field set to '1000' and a '(ms)' unit label. Navigation buttons at the bottom include '< Back', 'Next >', 'Cancel', and 'Finish'.



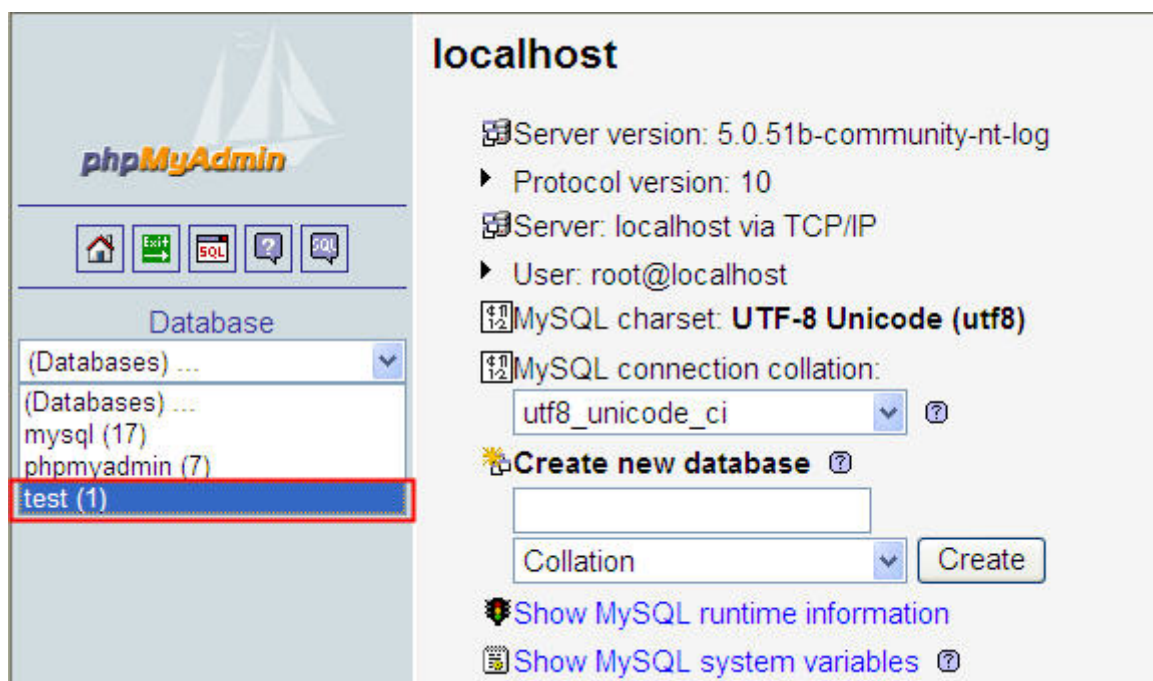
9. Press  icon. After the password is entered, the system will start sampling operation, i.e. writing data in MySQL Server.



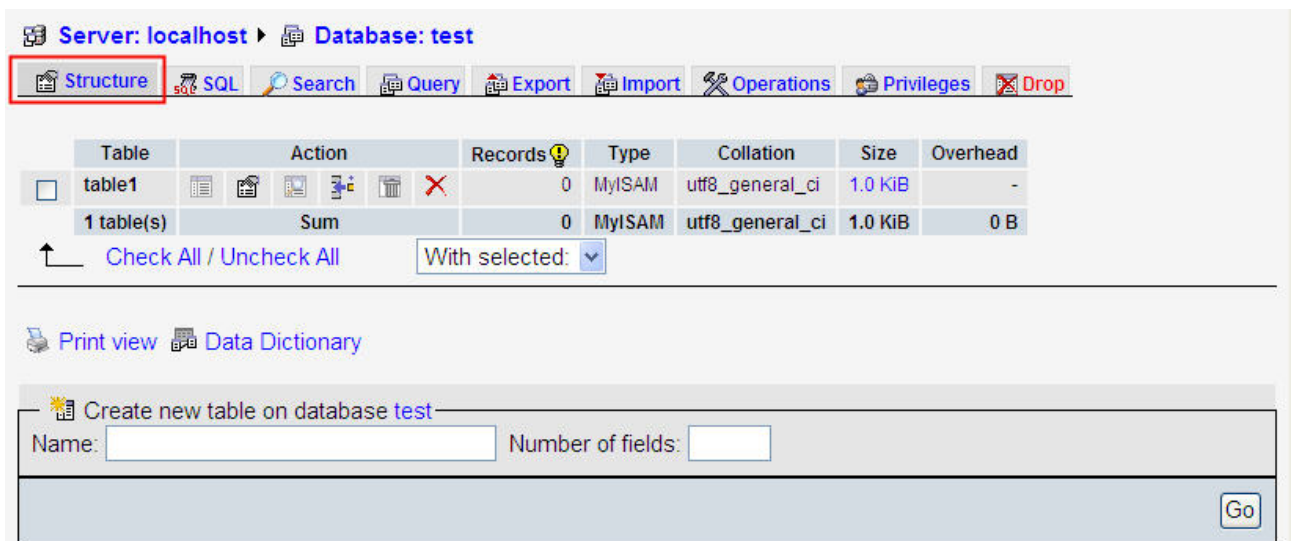
10. If the users want to pause or stop the sampling operation, only right-click eServer  icon at the bottom right of Windows screen and select Pause or Stop option from the pop-up menu, the sampling operation will pause and stop immediately.



11. Open the browser, type: <http://localhost/phpMyAdmin/>, and select the test database from the Database drop-down menu.



12. Click on **Structure** link.



Server: localhost ▶ Database: test

**Structure** SQL Search Query Export Import Operations Privileges Drop

Table	Action	Records	Type	Collation	Size	Overhead
<input type="checkbox"/> table1		0	MyISAM	utf8_general_ci	1.0 KiB	-
1 table(s)	Sum	0	MyISAM	utf8_general_ci	1.0 KiB	0 B

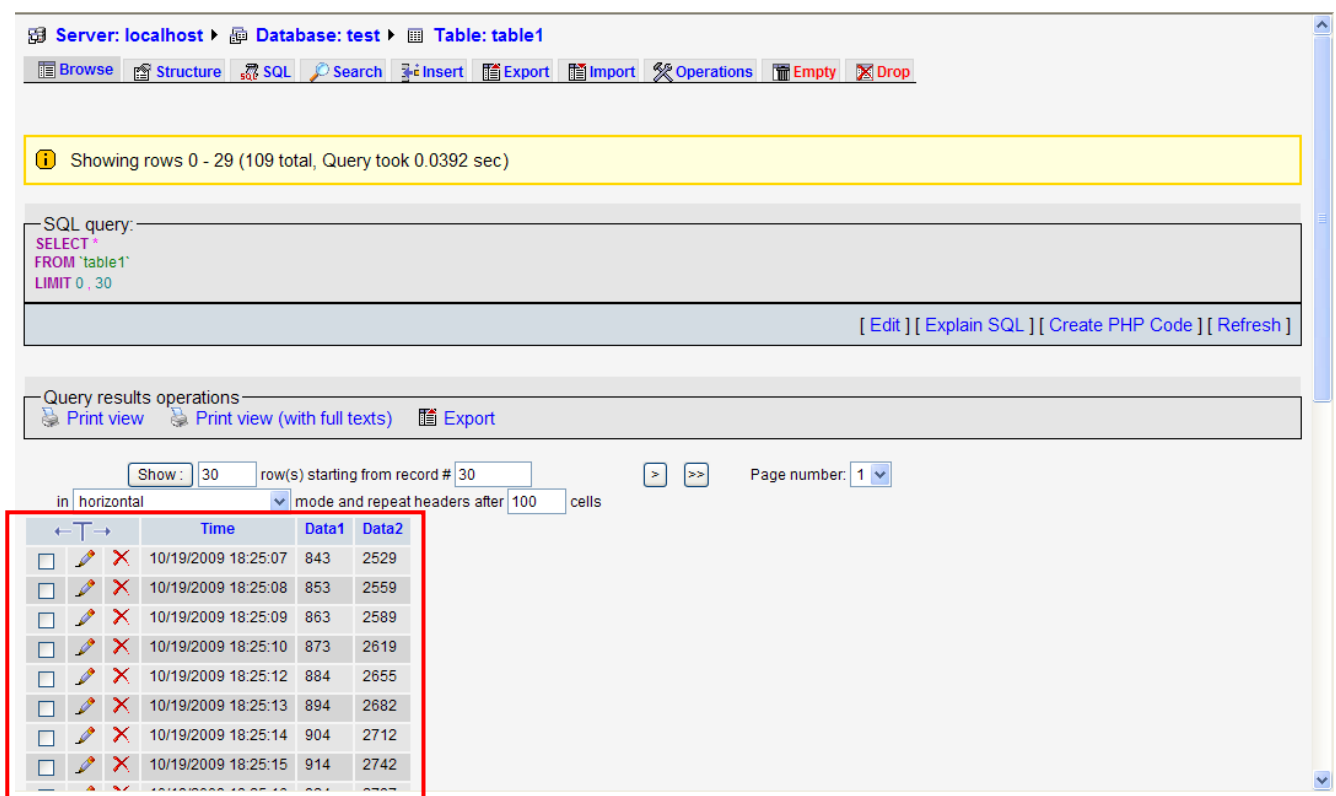
Check All / Uncheck All With selected:

Print view Data Dictionary

Create new table on database test

Name:  Number of fields:

13. The recorded data will be shown at the bottom of the window.



Server: localhost ▶ Database: test ▶ Table: table1

Browse Structure SQL Search Insert Export Import Operations Empty Drop

Showing rows 0 - 29 (109 total, Query took 0.0392 sec)

SQL query:

```
SELECT *
FROM `table1`
LIMIT 0, 30
```

[ Edit ] [ Explain SQL ] [ Create PHP Code ] [ Refresh ]

Query results operations

Print view Print view (with full texts) Export

Show: 30 row(s) starting from record # 30

in horizontal mode and repeat headers after 100 cells

	Time	Data1	Data2
<input type="checkbox"/>	10/19/2009 18:25:07	843	2529
<input type="checkbox"/>	10/19/2009 18:25:08	853	2559
<input type="checkbox"/>	10/19/2009 18:25:09	863	2589
<input type="checkbox"/>	10/19/2009 18:25:10	873	2619
<input type="checkbox"/>	10/19/2009 18:25:12	884	2655
<input type="checkbox"/>	10/19/2009 18:25:13	894	2682
<input type="checkbox"/>	10/19/2009 18:25:14	904	2712
<input type="checkbox"/>	10/19/2009 18:25:15	914	2742

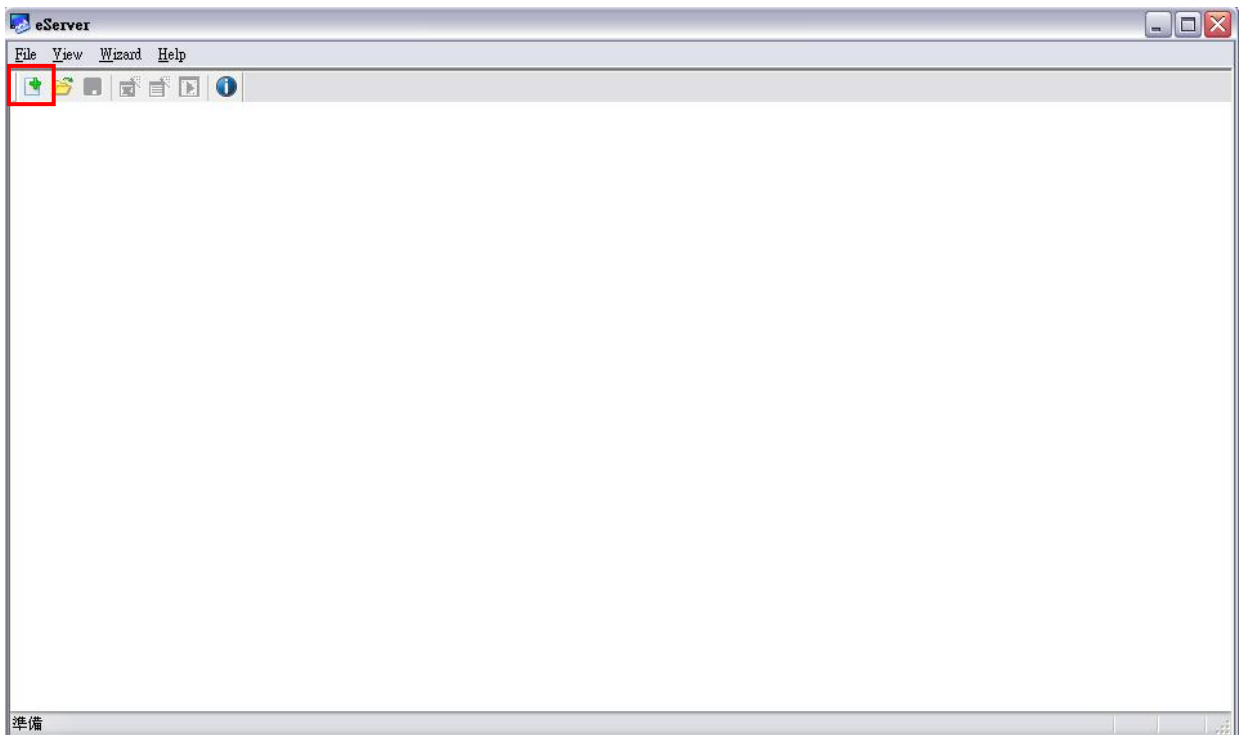
# Chapter 9 Recipe Access Setting

## 9.1 Detailed Settings

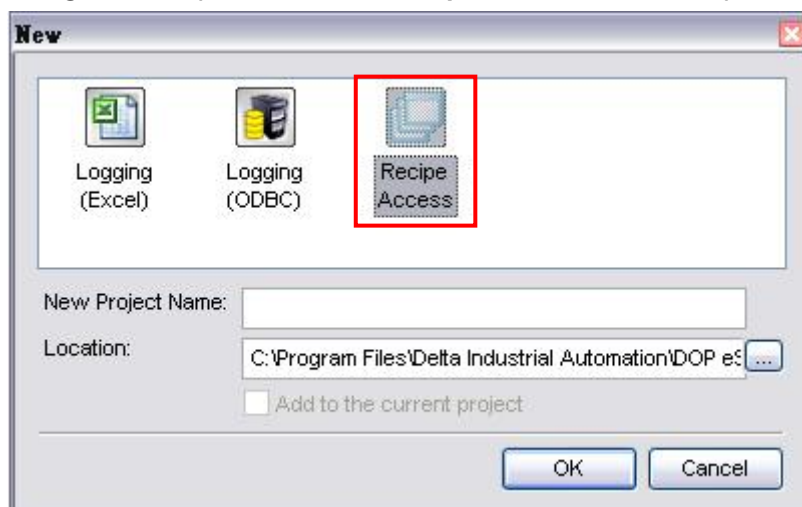
Please refer to the following steps to complete Excel sampling setting, i.e. how to log data from HMI to Excel.


### 9.1.1 New Project

Start eServer, and click **File > New** or click **New** icon

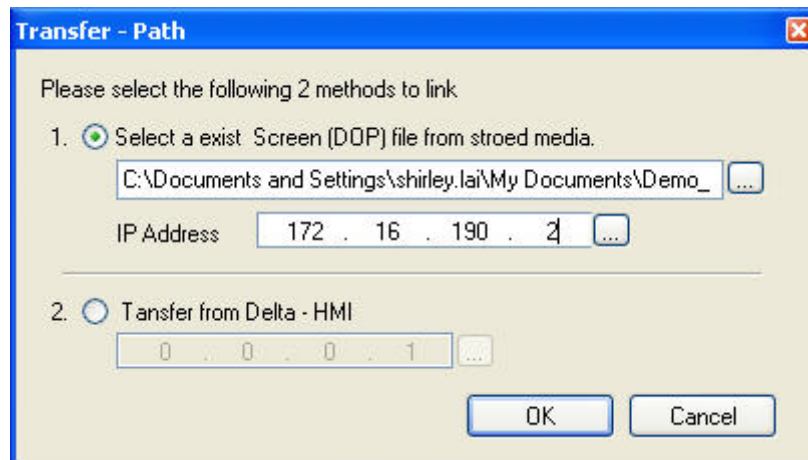


After the **New** dialog box is opened, select **Recipe Access** icon and press **OK** button.

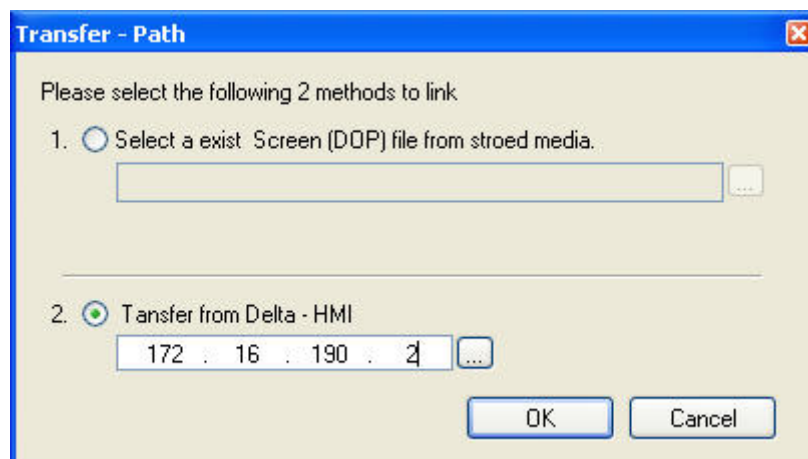


Click  icon to link HMI screen project file. There are two methods available for selection:

1. Select an existing Screen (DOP) file from stored media: Open an existing screen project file and set the IP address of the connecting HMI.



2. Transfer from Delta – HMI: Transfer the HMI screen project file via network communication directly.



Press **OK** button to go to next step.

### 9.1.2 Register Setting

This step is used to set the register addresses of the database. There are two modes, Import and Export available for selection. After selecting the desired mode, choose Fixed or Variance from the drop-down list and complete the settings.

#### Import - Fixed

Import

Mode: Fixed

No.	Usage	Name	Type	HMI Name	File Name	Destination Path
1	<input checked="" type="checkbox"/>	Import16(1)	16 bits	HMI	Import16_ %H%M	C:\Documents and Settings\TINA.Q LEE
2	<input type="checkbox"/>	Import32(1)	32 bits	HMI	Import32_ %H%M	

#### Import - Variance

Import

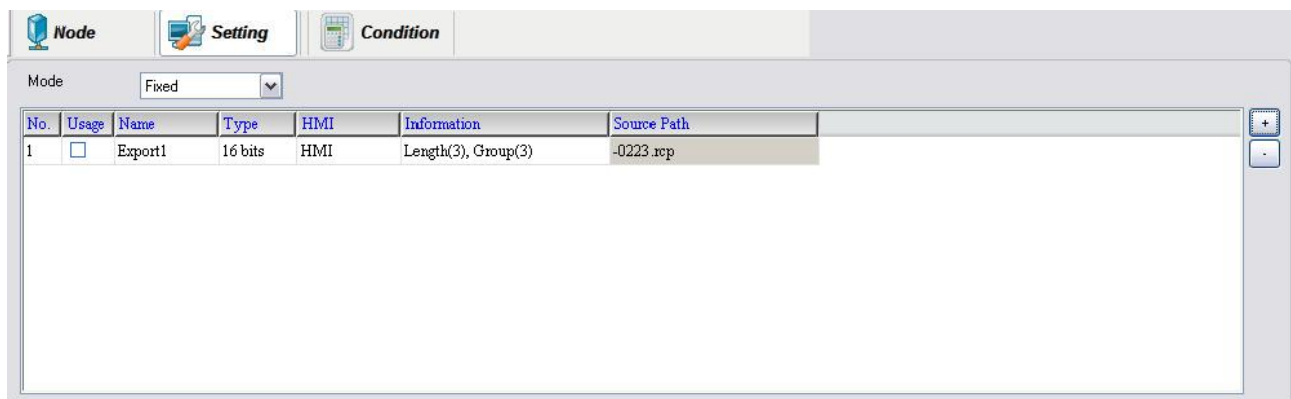
Mode: Variance

No.	Usage	Name	Type	HMI Name	File Name	File Name Length	Controller	Destination Path
1	<input checked="" type="checkbox"/>	Import16(1)	16 bits	HMI	\$100	4	Internal Memory	C:\Documents and Settings\TINA.Q LEE
2	<input type="checkbox"/>	Import32(1)	32 bits	HMI	None	1		

Setting Item	Description	Remark
No.	Excel Sheet index which the sampling data will be written.	Unchangeable
Usage	If the users want to select 16-bit recipe, enable this option by checking the check box.	
Name	Recipe display name	
Type	Recipe Bit type	Unchangeable
HMI Name	Name of connecting HMI	Unchangeable
File Name	1. When Fixed is selected: It is the file name of the imported file which could be changed and user-defined.	

Setting Item	Description	Remark
File Name	2. When Variance is selected: It is the register address of a certain trigger element. Please note: When the data format is set to Word, the data format of the sampling register address could be Unsigned only.	
File Name Length	Number of characters by referring the user-defined file name.	
Controller	Connecting controller	Unchangeable
Destination Path	Destination location where the imported file is located.	

### Export - Fixed



No.	Usage	Name	Type	HMI	Information	Source Path
1	<input type="checkbox"/>	Export1	16 bits	HMI	Length(3), Group(3)	-0223.rp

### Export - Variance



No.	Usage	Name	Type	HMI Name	File Name	File Name Length	Controller	Source Path
1	<input type="checkbox"/>	Export16(1)	16 bits	HMI	None	1		
2	<input type="checkbox"/>	Export32(1)	32 bits	HMI	None	1		

Setting Item	Description	Remark
No.	Excel Sheet index which the sampling data will be written.	Unchangeable
Usage	If the users want to select 16-bit recipe, enable this option by checking the check box.	
Name	Recipe display name	
Type	Recipe Bit type	Unchangeable
HMI Name	Name of connecting HMI	



Setting Item	Description	Remark
Information	Length and Group of the recipe.	Unchangeable
File Name	It is the register address of a certain trigger element. Please note: When the data format is set to Word, the data format of the sampling register address could be Unsigned only.	
File Name Length	Number of characters by referring the user-defined file name.	
Controller	Connecting controller	Unchangeable
Source Path	Destination location where the exported file is located.	

### 9.1.3 Sampling Conditions

This step is used to set the sampling conditions. There are two kinds of options for selection:




1. Const (execute sampling repeatedly in a certain span of time)

This option is used to determine how long the sampling process is repeated. The time unit is ms.

2. Trigger (Execute sampling when the trigger conditions are satisfied)

This option is used to determine how long the sampling process is repeated when the trigger conditions are met. The detailed settings are described as follows:

Name	HMI Name	Address	Condition	Operator	Value	Controller
Import16(1)	HMI	\$200	Unsigned	=	4	Internal Memory

 Node
  Setting
  Condition

**Const**
Trigger

Polling Cycle (10ms ~ one day)  (ms)

Name	HMI Name	Address	Condition	Operator	Value	Controller
Export16(1)	HMI	\$200	Unsigned	=	4	Internal Memory

Polling Cycle (Sampling Cycle): It is used to determine how long the sampling process is repeated. The time unit is ms.

Trigger Conditions:

Setting Item	Description	Remark
Name.	Condition number	Unchangeable
HMI Name	Name of connecting HMI	
Address	Register Address	
Condition	1. When the register address is set to Bit, the selectable options are: <ul style="list-style-type: none"> <li>A. Level: Current status</li> <li>B. Rising edge: Triggered by rising-edge. At this time, the functions of Operator and Value are disabled.</li> <li>C. Falling edge: Triggered by falling-edge. At this time, the functions of Operator and Value are disabled.</li> </ul> 2. When the register address is set to Word, the selectable options are: <ul style="list-style-type: none"> <li>A. BCD: Setting range of trigger condition is 0 ~ 9999</li> <li>B. Signed: Setting range of trigger condition is -32768 ~ +32767</li> <li>C. Unsigned: Setting range of trigger condition is 0 ~ 65535</li> <li>D. Hex: Setting range of trigger condition is 0 ~ 65535</li> </ul>	
Operator	Operator settings: <ul style="list-style-type: none"> <li>1. When the register address is set to Bit, the selectable operator are:               <ul style="list-style-type: none"> <li>A. = : equal to</li> <li>B. != : not equal to</li> </ul> </li> <li>2. When the register address is set to Word, the selectable operator are:               <ul style="list-style-type: none"> <li>A. &gt;= : greater than or equal to</li> <li>B. &lt;= : smaller than or equal to</li> <li>C. &gt; : greater than</li> <li>D. = : equal to</li> <li>E. &lt; : smaller than</li> </ul> </li> </ul>	Unchangeable

Setting Item	Description	Remark
Value	Setting value of trigger condition	
Controller	Connecting controller	Unchangeable

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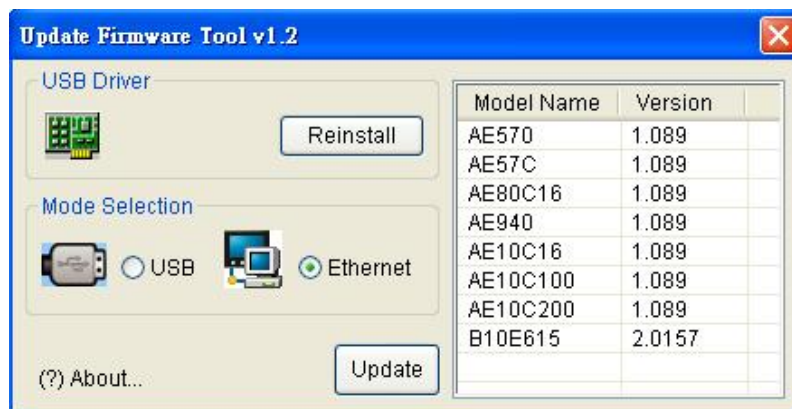
# Chapter 10 Recipe Access Example

Before creating testing example, make sure to change the upload and download option (**Options > Configuration**) on Screen Editor first. The default setting of upload and download is via **USB**. If the users need to use **Ethernet**, please change the default setting by referring to **Appendix A**.

## 10.1 Creating Example

### Update Firmware

Remember to update the firmware before using eServer. To select this function, click **Start > Programs > Delta Industrial Automation > HMI > DOP eServer 1.0 > Update Firmware Tool**. After clicking **Update Firmware Tool**, the following dialog box will appear for the users to select the communication interface (the default setting is USB driver). Press **Update** button to update HMI firmware automatically.



### Start eServer

To start eServer, click **Start > Programs > Delta Industrial Automation > HMI > DOP eServer 1.0 > eServer**.

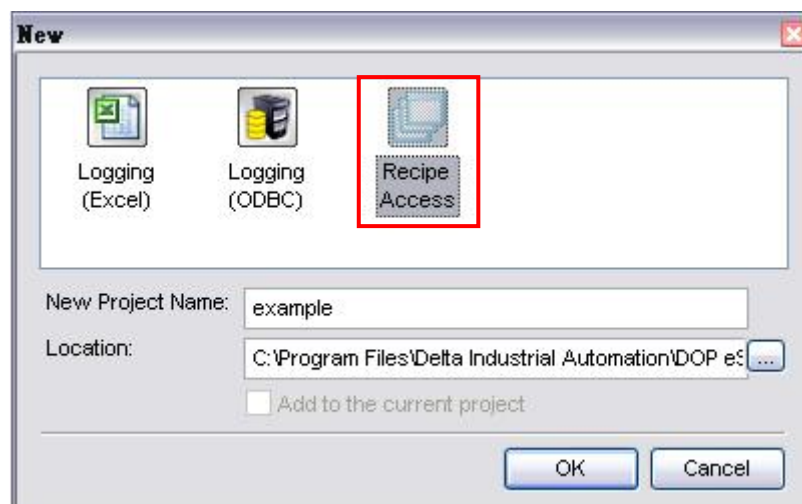


### 10.1.1 New Project

Start eServer, and click **File > New** or click **New** icon




After the **New** dialog box is opened, select **Recipe Access** icon and enter the file name **example** for the Recipe Access database. Then, press **OK** button.



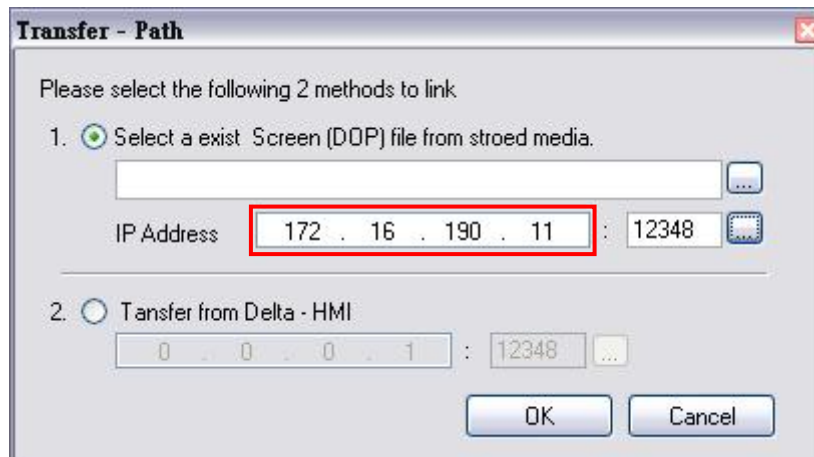


### 10.1.2 Node

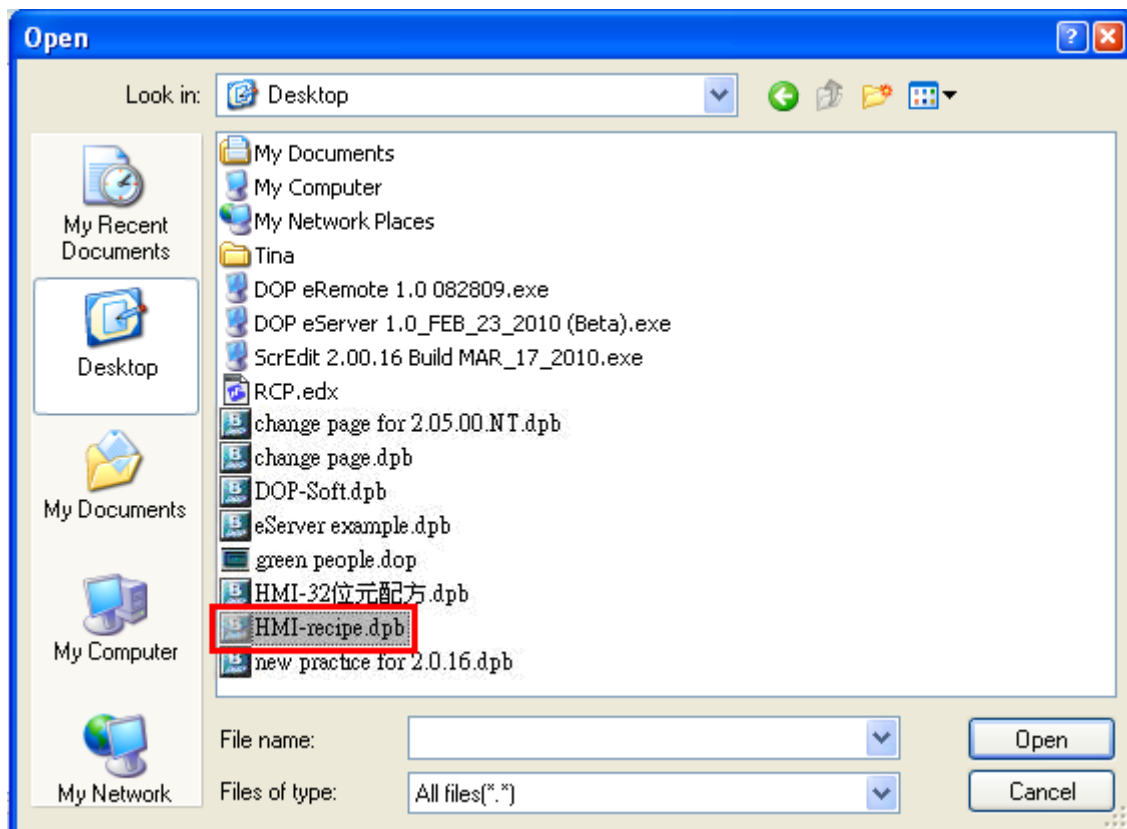
Click  icon to link HMI screen project file. There are two methods available for selection. Here choose **Select an existing Screen (DOP) file from stored media** option to create a new node.

#### Select an existing Screen (DOP) file from stored media

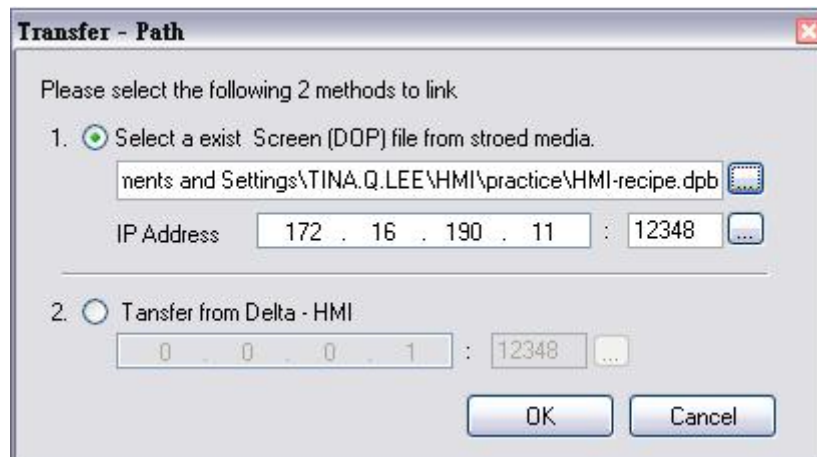
Open an existing screen project file (HMI-recipe.dpb) and set the IP address of the connecting HMI. The IP address is set to **172.16.190.11**



Press **OK** button to go to next step.



After selecting the recipe file and setting the IP address, press **OK** button to go to next step.



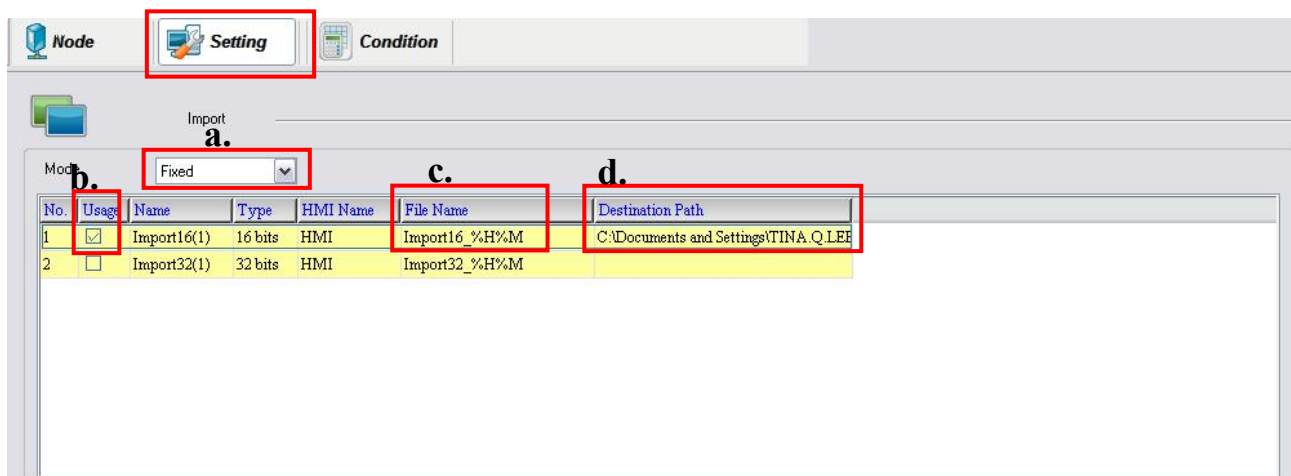
### 10.1.3 Setting and Condition - Import

When the node is set correctly, click **Setting** and complete the settings next. There are two modes, Import and Export available for selection. Each mode provides two options, Fixed or Variance from the drop-down list for use.

#### Import – Fixed

##### Setting :

- Select **Fixed**.
- Check the check box to use **16-bit recipe** as the example.
- User-define the **Name** (recipe display name) and **File Name** (file name of the imported file).
- Set **Destination Path** (destination location) where the imported file is located.



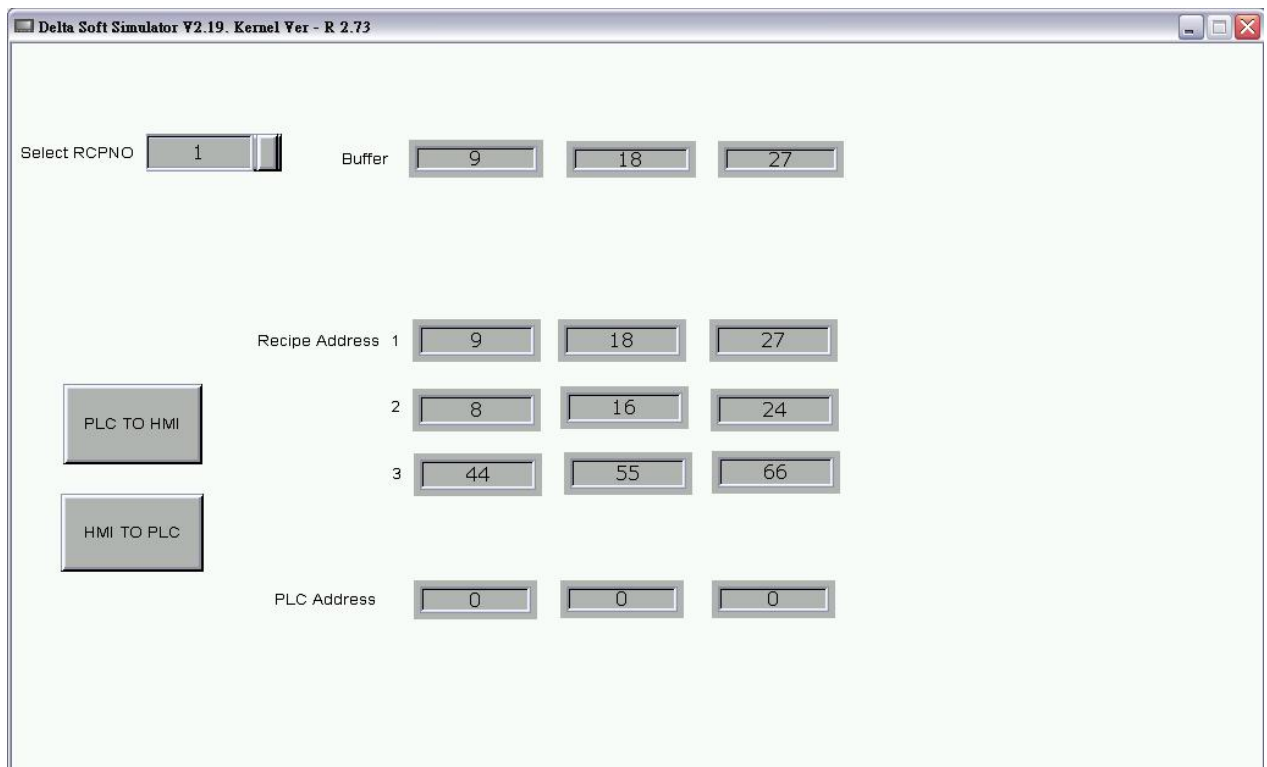
**Condition :**

As for the method of sampling condition, select **Const** (execute sampling repeatedly in a certain span of time).

- a. Select **Const**.
- b. Choose **Import**.
- c. Set **Polling Cycle** (sampling cycle) to 1000ms (default setting value).



After completing all the settings on eServer, use the most updated Screen Editor program editing software to open the selected .dpb file which just has been modified on eServer. Then, compile it and download the recipe data to HMI. The screen data will be shown as the figure below:

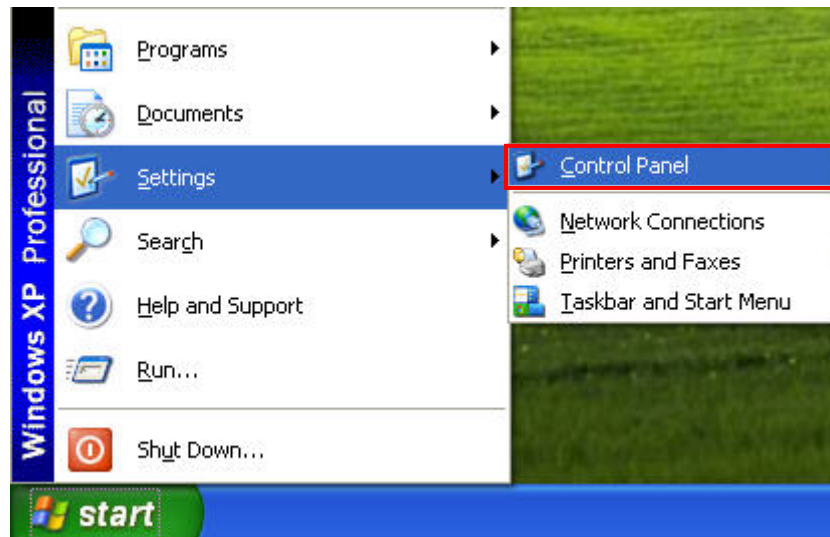


After downloading the recipe data, please make sure that the IP address numbers of subnet masks of the PC (172.16.190.1) and HMI (172.16.190.11) are the same; otherwise, HMI may not be displayed in the list when finding node.

## Networking Settings

Ensure to observe the following instructions to complete PC networking settings before eServer operation.

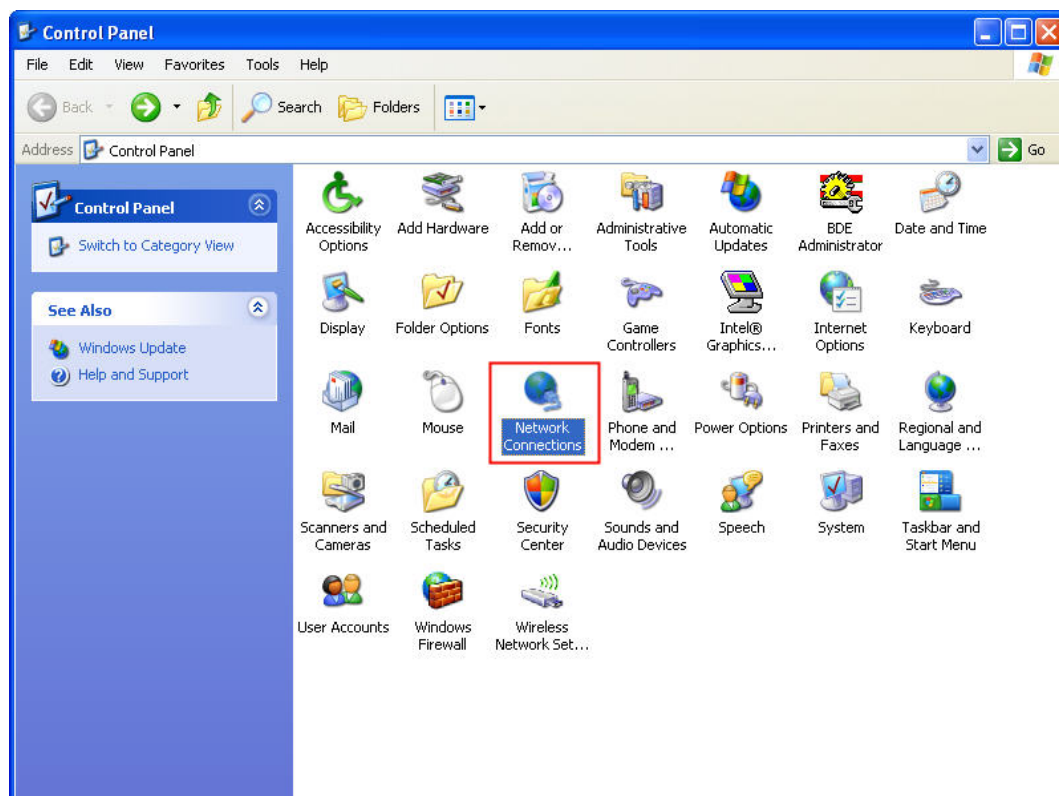
### Setting PC Network



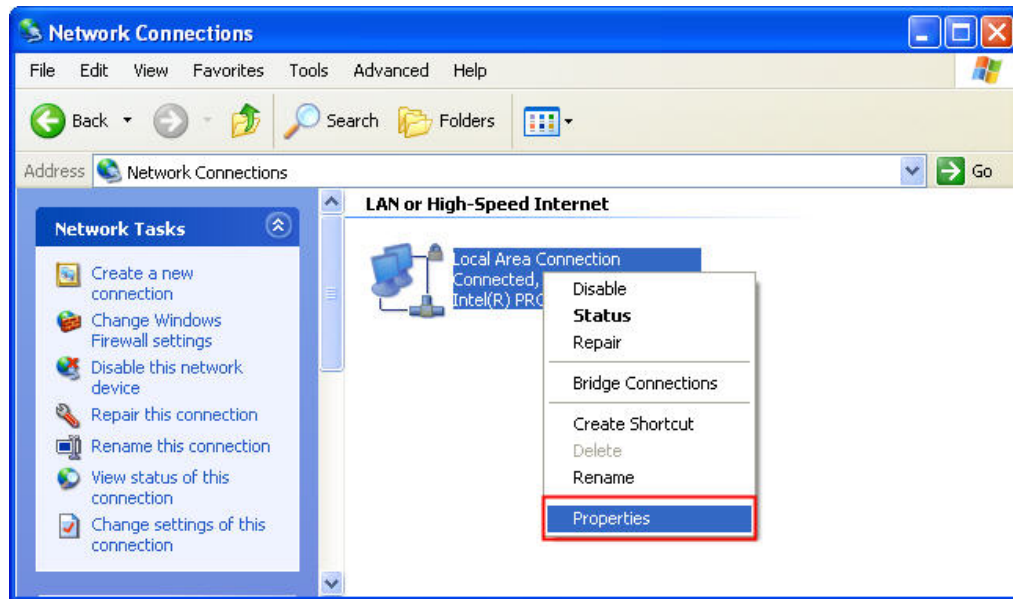
Power on PC and start Windows. Click **Start** > **Programs**, point to Control Panel, and then



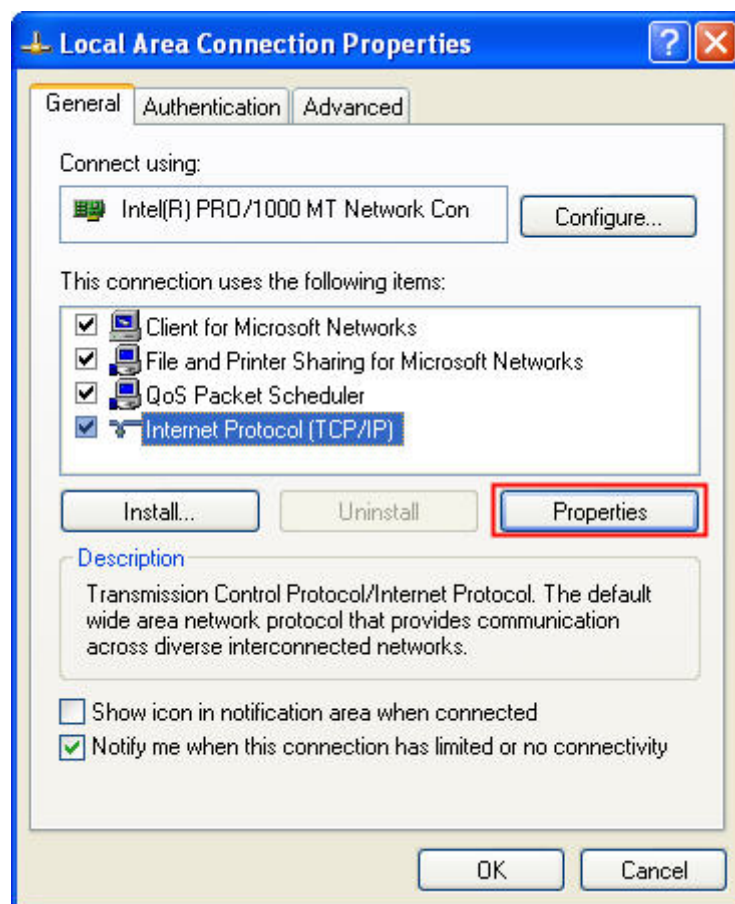
select Network Connections ( ).



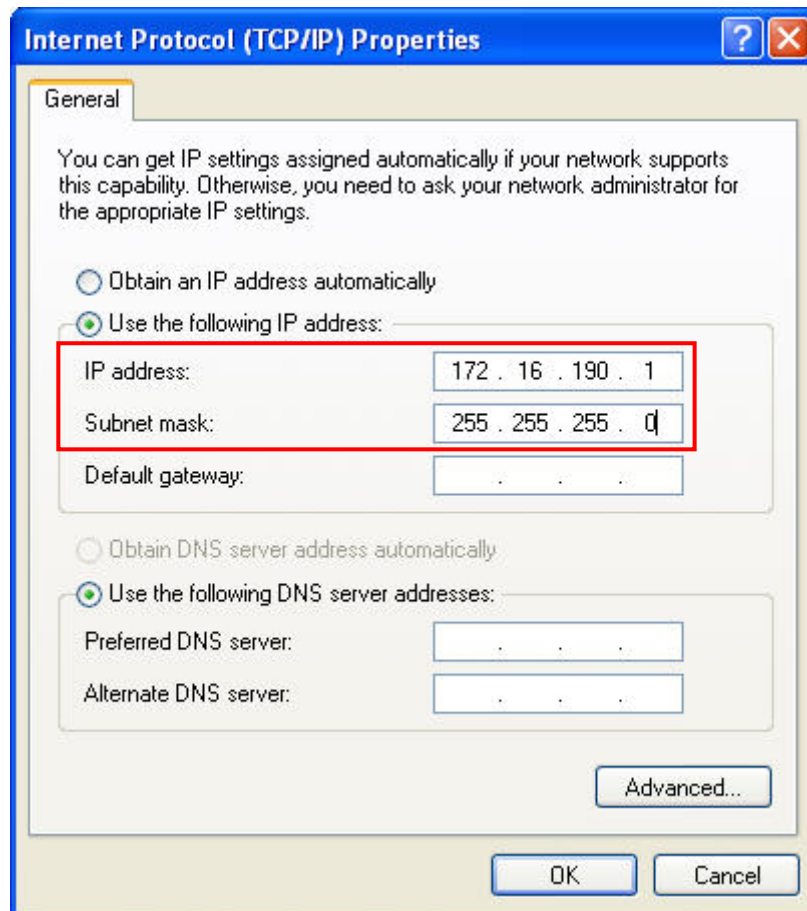
Double-click **Network Connections** icon, the following windows will appear. Right-click the **Local Area Connection** icon, and then select **Properties** from the pop-up menu.



The **Local Area Connection Properties** dialog box will open. Use **General** tab to select **Internet Protocol (TCP/IP)**. Then, press **Properties** button.



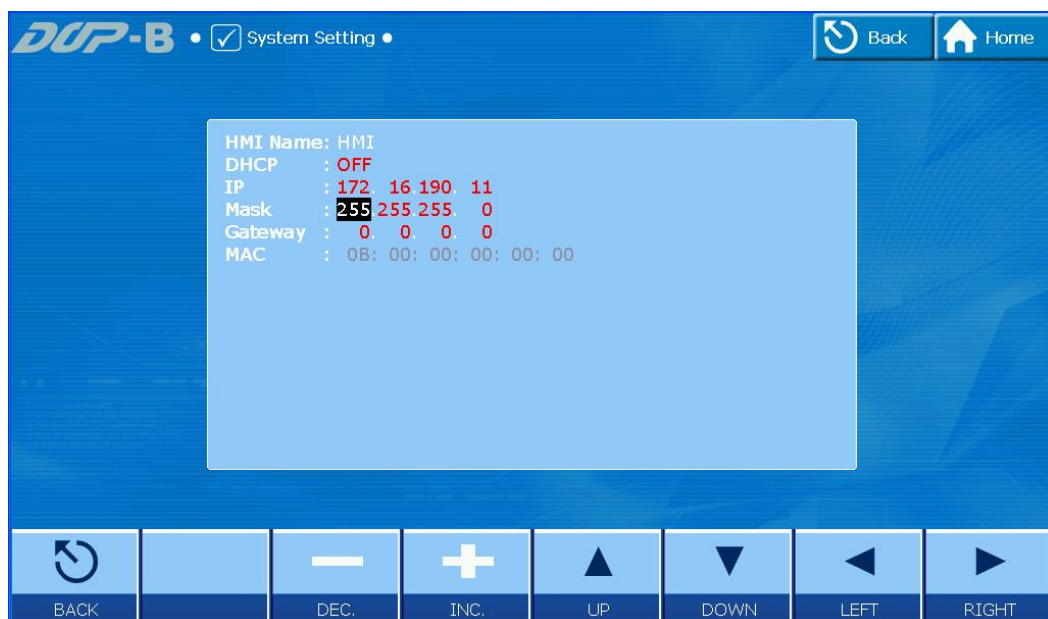
The **Internet Protocol (TCP/IP) Properties** dialog box will open. Choose **Use the following IP address** and enter the IP address numbers of the PC into the field of **IP address** and **Subnet mask**.



Then, press **OK** button to finish the settings.

### Setting IP Address in HMI


Enter into the system menu and set IP address to 172.16.190.11. Please see the figure below:

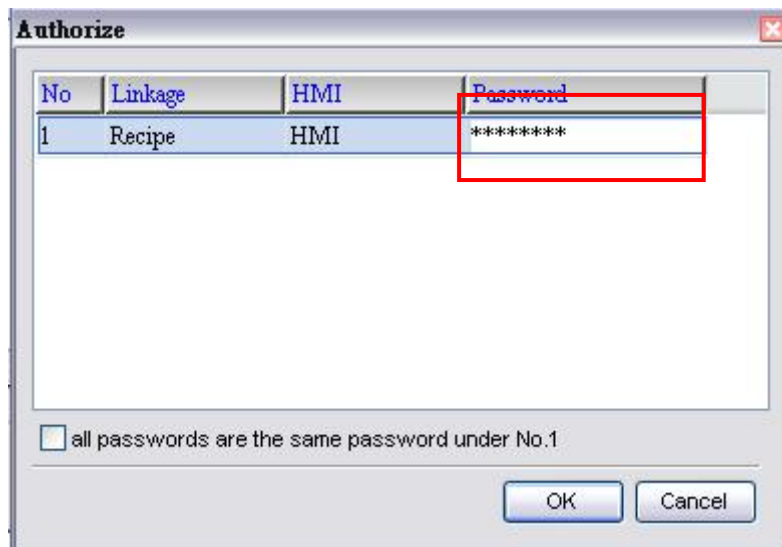





After networking settings are set correctly and successfully, return to eServer, save the file first and then run the recipe data. Please see the figure below:



Press  icon. The following dialog box will pop-up and ask the users to enter the password.



Please enter 12345678 in the field of the password at the first time (12345678 is the default setting value and the users can change it freely). After the correct password is entered, the  icon will display on the tool bar at the left-bottom corner.

When eServer performs reading, the system will examine and check if the saved file name



is saved in the destination path or not. Please refer to the figure such as

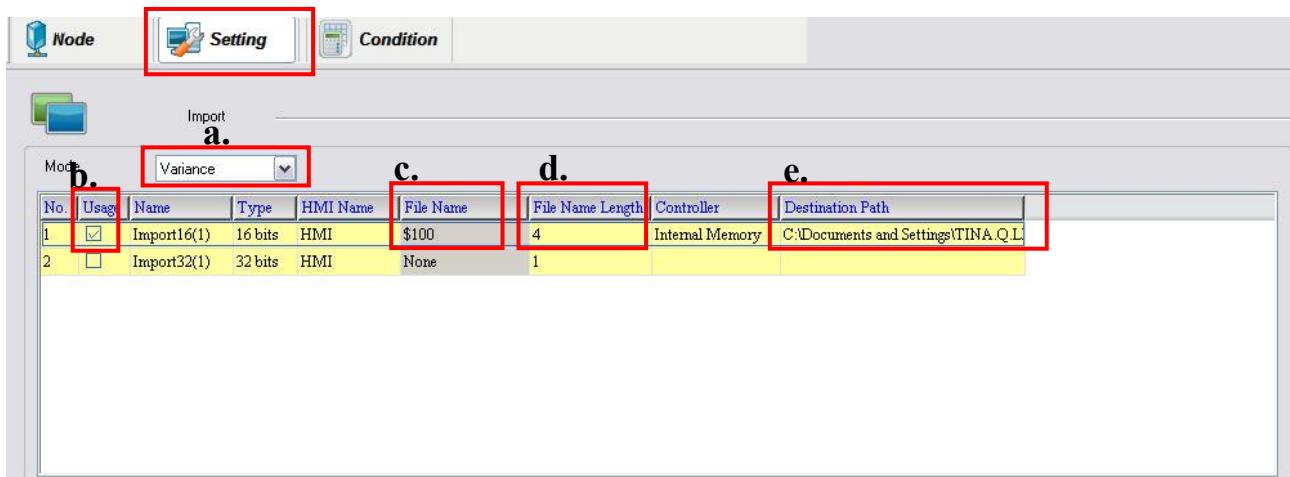
On the other hand, if incorrect or invalid password is entered, the following error message dialog box will appear to alert the users.





**Import - Variance****Setting :**

- Select **Variance**.
- Check the check box to use **16-bit recipe** as the example.
- Set the **File Name** (file name of the imported file) to be the same as the register address of HMI. (In this case \$100 character input element is used)
- Set **File Name Length** (number of the imported characters). (In this case the File Name Length is set to 4. This is because the name of the imported file is Tina.csv. The system will refer to "Tina" these four characters and convert the imported file to Tina.rcp and then save it to the destination path.
- Set **Destination Path** (destination location) where the imported file is located.

**Condition :**

As for the method of sampling condition, select **Const** (execute sampling repeatedly in a certain span of time).

- Select **Const**.
- Choose **Import**.
- Set **Polling Cycle** (sampling cycle) to 1000ms (default setting value).

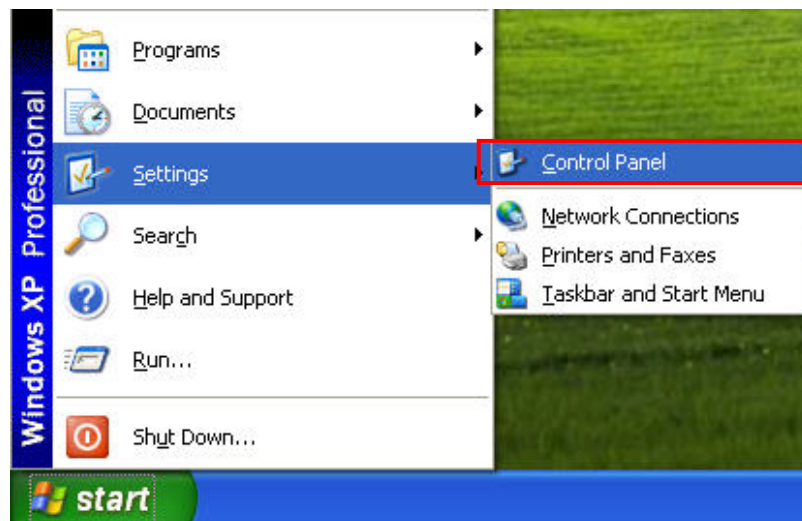


After completing all the settings, please make sure that the IP address numbers of subnet masks of the PC (172.16.190.1) and HMI (172.16.190.11) are the same; otherwise, HMI may not be displayed in the list when finding node.

## Networking Settings

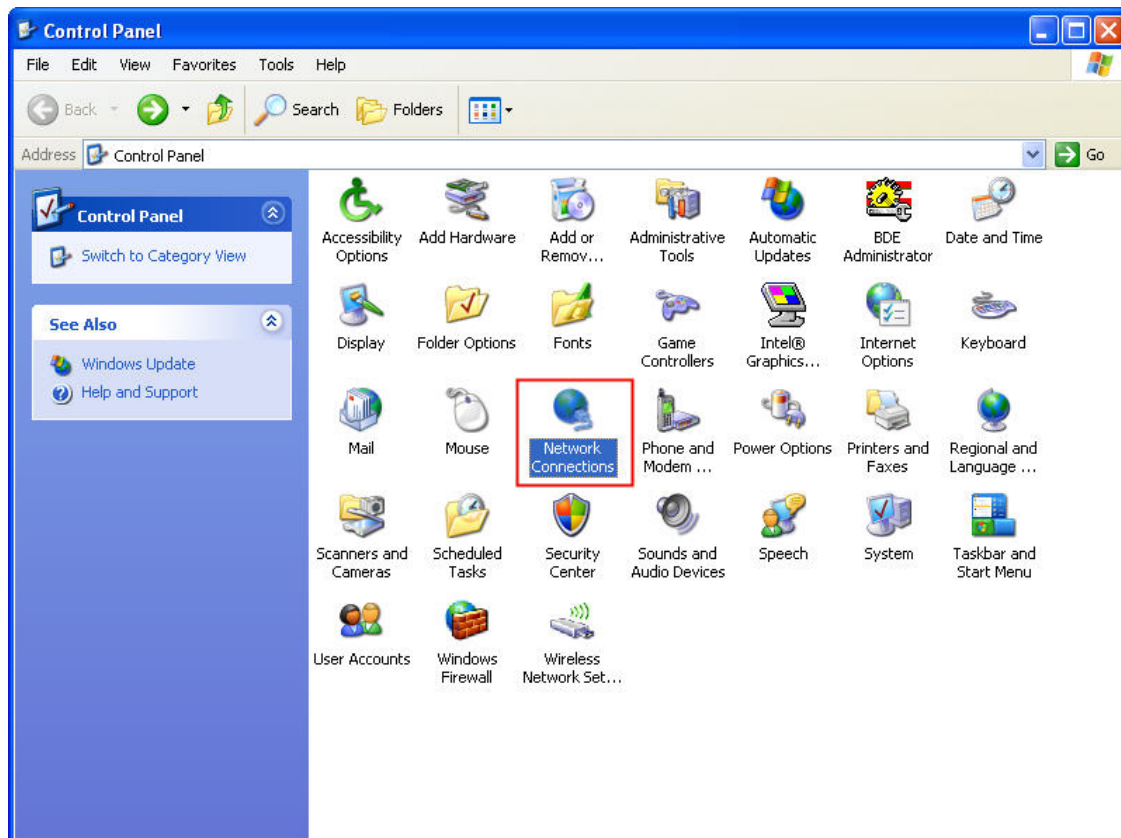
Ensure to observe the following instructions to complete PC networking settings before eServer operation.

### Setting PC Network

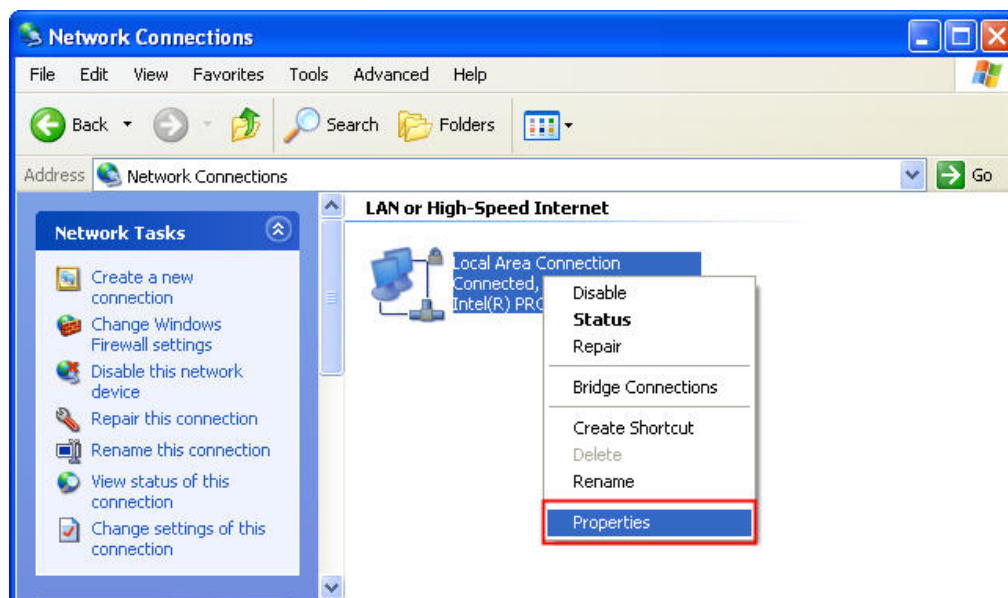


Power on PC and start Windows. Click **Start > Programs**, point to Control Panel, and then

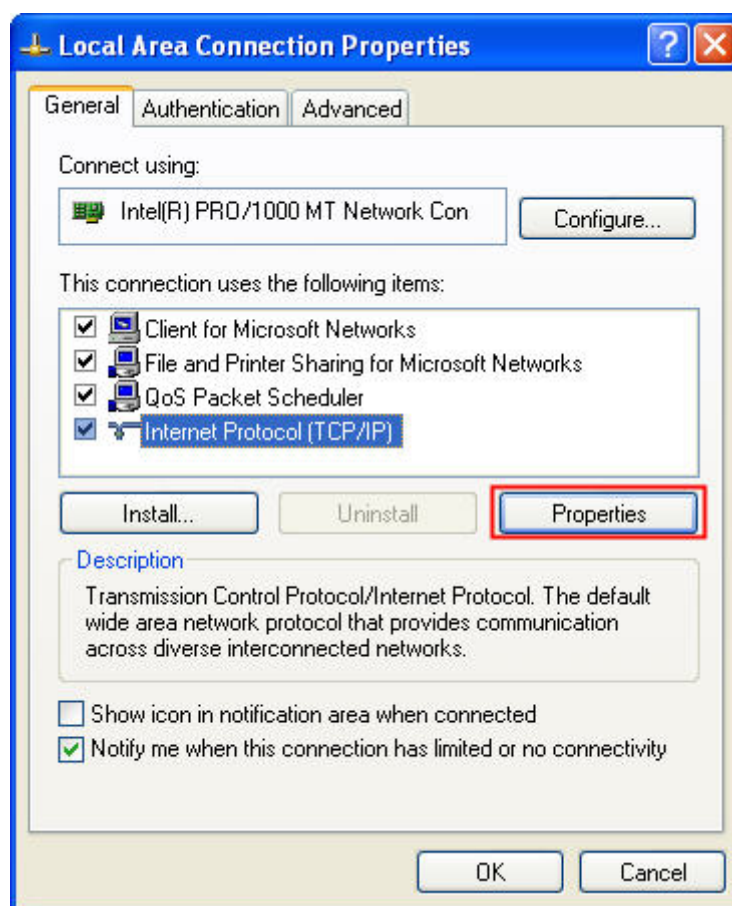
select Network Connections (  ).



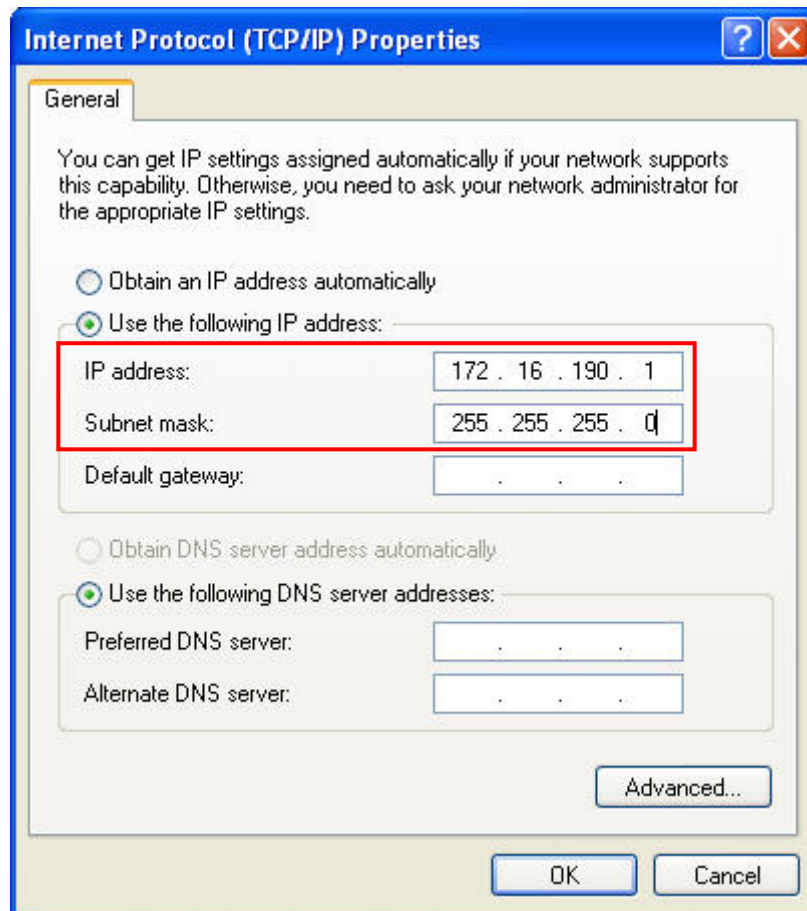
Double-click **Network Connections** icon, the following windows will appear. Right-click the **Local Area Connection** icon, and then select **Properties** from the pop-up menu.



The **Local Area Connection Properties** dialog box will open. Use **General** tab to select **Internet Protocol (TCP/IP)**. Then, press **Properties** button.



The **Internet Protocol (TCP/IP) Properties** dialog box will open. Choose **Use the following IP address** and enter the IP address numbers of the PC into the field of **IP address** and **Subnet mask**.



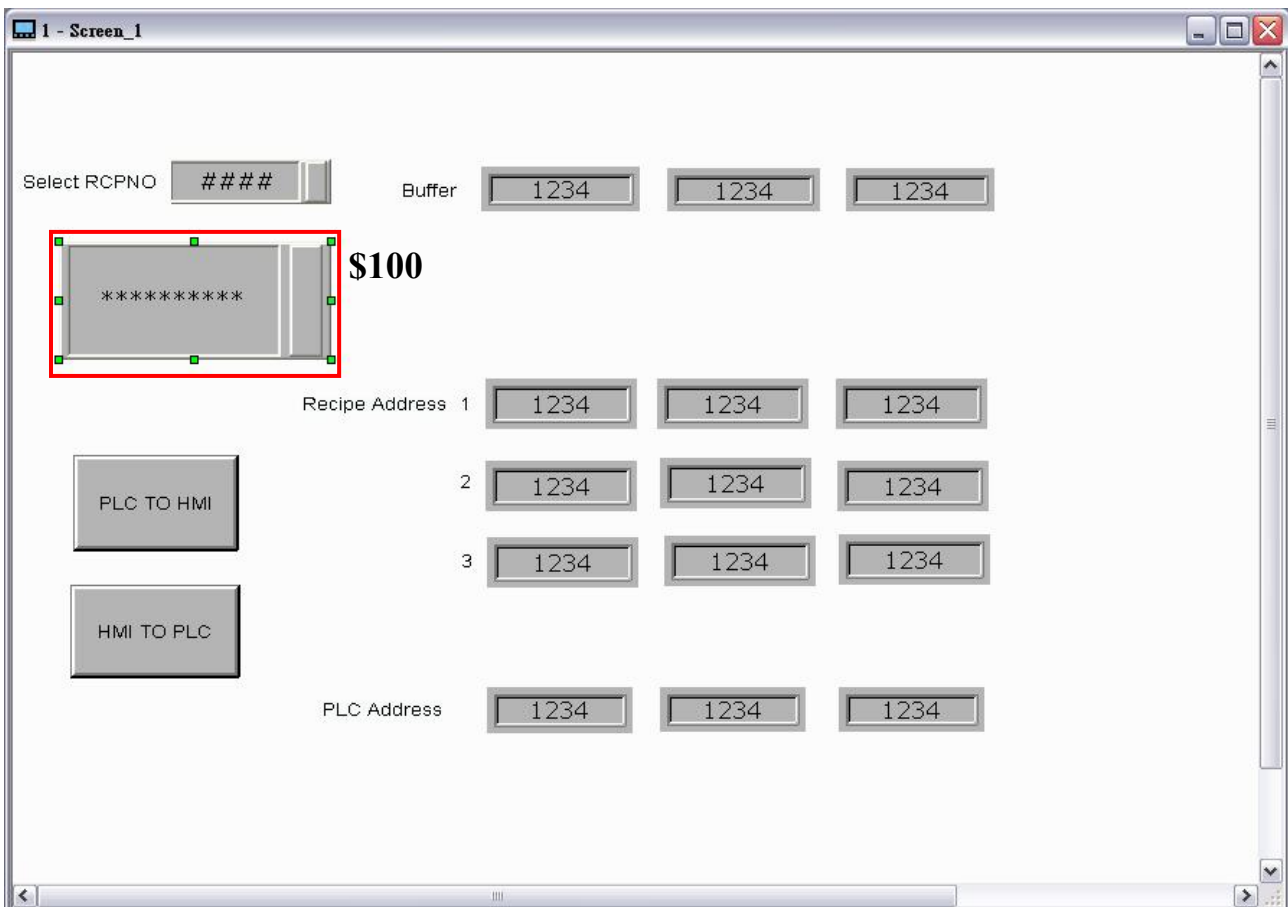
Then, press **OK** button to finish the settings.

### Setting IP Address in HMI

Enter into the system menu and set IP address to 172.16.190.11. Please see the figure below:




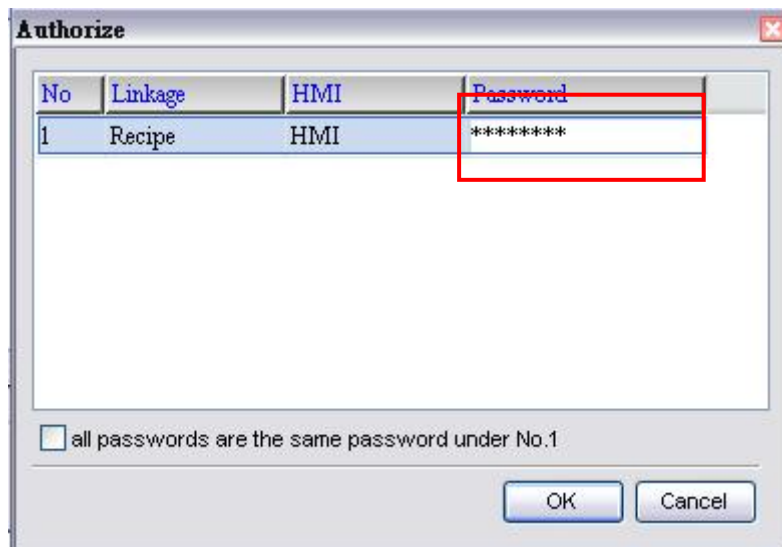
After completing all the settings and make sure that the communication is good, use the most updated Screen Editor program editing software to open the selected .dpb file which just has been modified on eServer. Create a character input element and set its address to \$100.




Then, compile it and download the recipe data to HMI. After recipe data is downloaded to HMI successfully, return to eServer, save the file first and then run the recipe data. Next, trigger the character input element on HMI, and the system will save the imported file to the destination path. Please see the figure below:

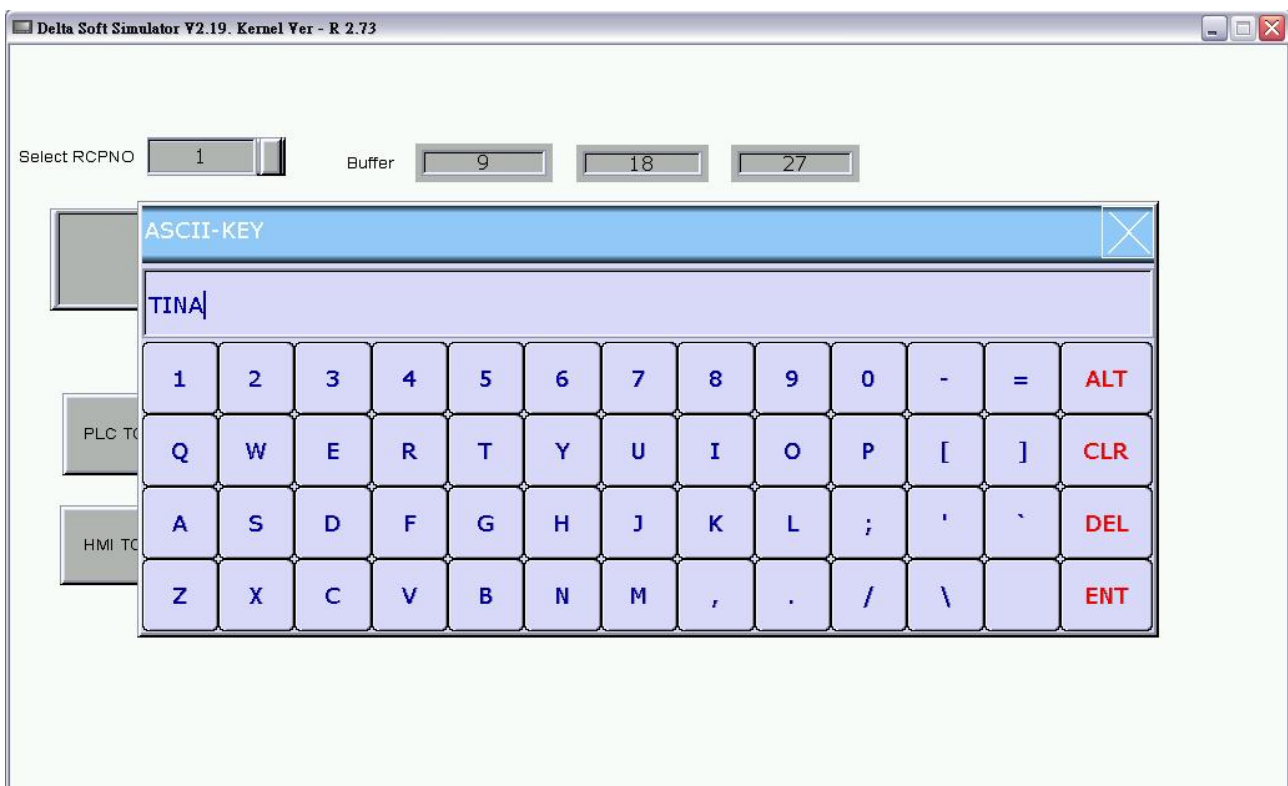


Press  icon. The following dialog box will pop-up and ask the users to enter the password.



Please enter 12345678 in the field of the password at the first time (12345678 is the default setting value and the users can change it freely). After the correct password is entered, the  icon will display on the tool bar at the left-bottom corner.

When eServer performs reading, please trigger the character input element on HMI and enter TINA these four characters. Please refer to the figure below:





Then, the system will examine and check if the saved file name is saved in the destination



path or not. Please refer to the figure such as

On the other hand, if incorrect or invalid password is entered, the following error message dialog box will appear to alert the users.



#### 10.1.4 Setting and Condition - Export

##### Export – Fixed

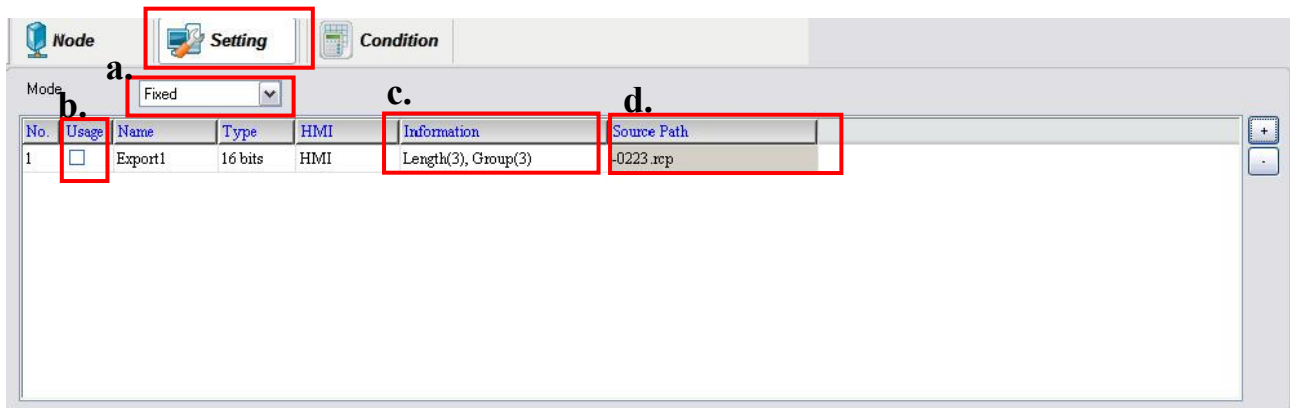
##### Setting :

- Select **Fixed**.
- Check the check box to use **16-bit recipe** as the example.
- Information** shows the length and the group of the recipe data.
- Set **Destination Path** (destination location) where the imported file is located.

Please note: the value of the selected -0223.rcp file (item d.) is the downloading value when the element is triggered on HMI.

	A	B	C
1	3	3	
2	111	222	333
3	444	555	666
4	777	888	999

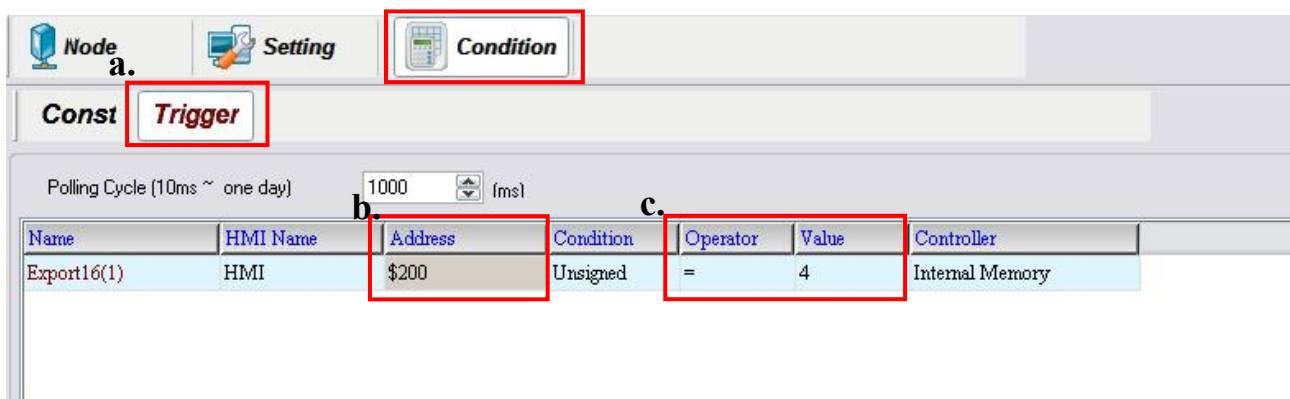




### Condition :

As for the method of sampling condition, select **Trigger (Execute sampling when the trigger conditions are satisfied)**.

- Select **Trigger**.
- Set **Address** to the register address of the trigger element. (In this case the trigger element is a numeric input element and its address is set to \$200)
- Set **Operator** and **Value** to = and 4. (In this case it indicates that when 4 is entered on HMI, the system will trigger the element and export the file)

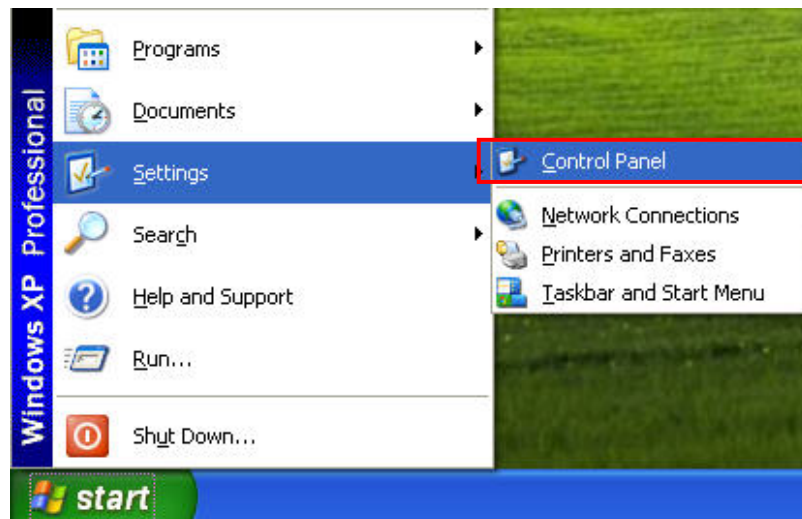


After completing all the settings, please make sure that the IP address numbers of subnet masks of the PC (172.16.190.1) and HMI (172.16.190.11) are the same; otherwise, HMI may not be displayed in the list when finding node.

### Networking Settings

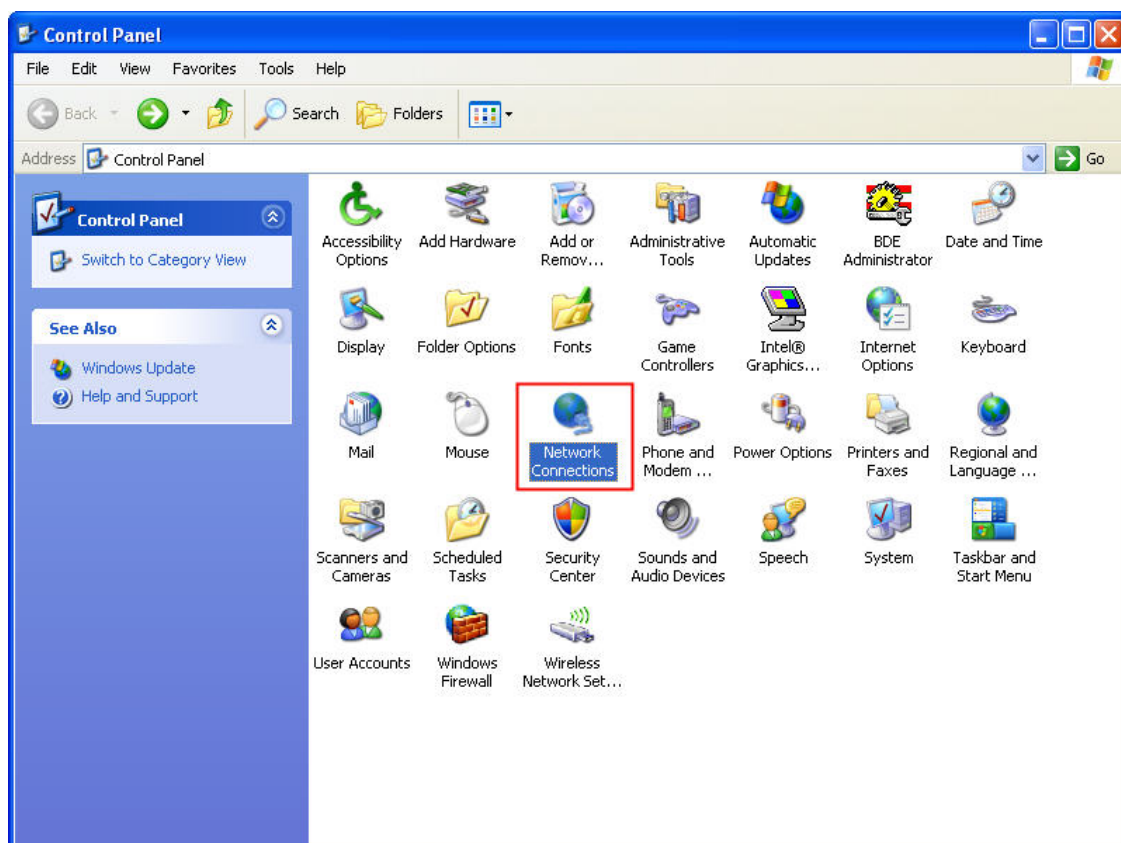
Ensure to observe the following instructions to complete PC networking settings before eServer operation.

## Setting PC Network

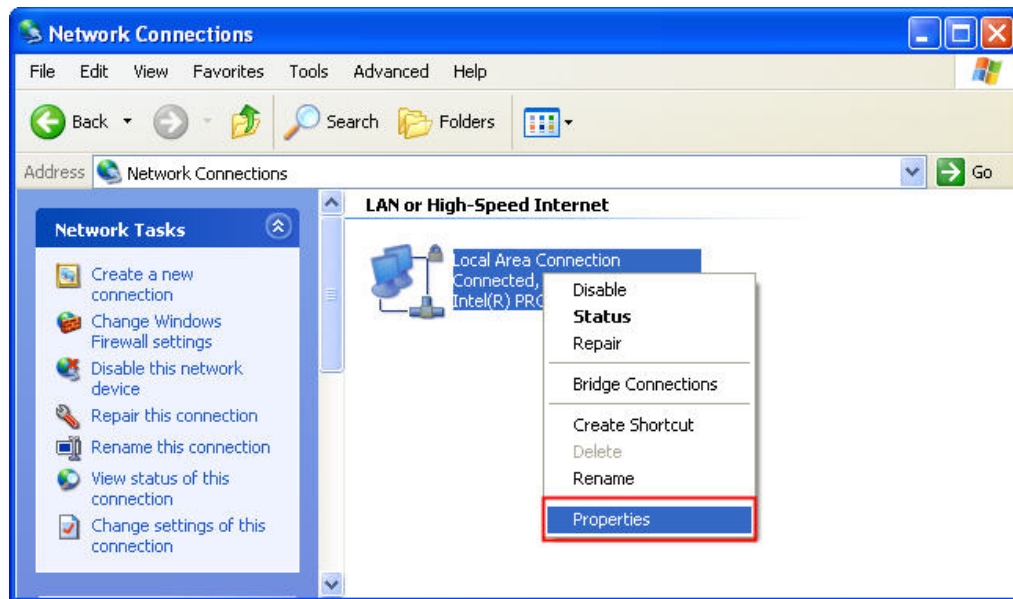


Power on PC and start Windows. Click **Start > Programs**, point to **Control Panel**, and then

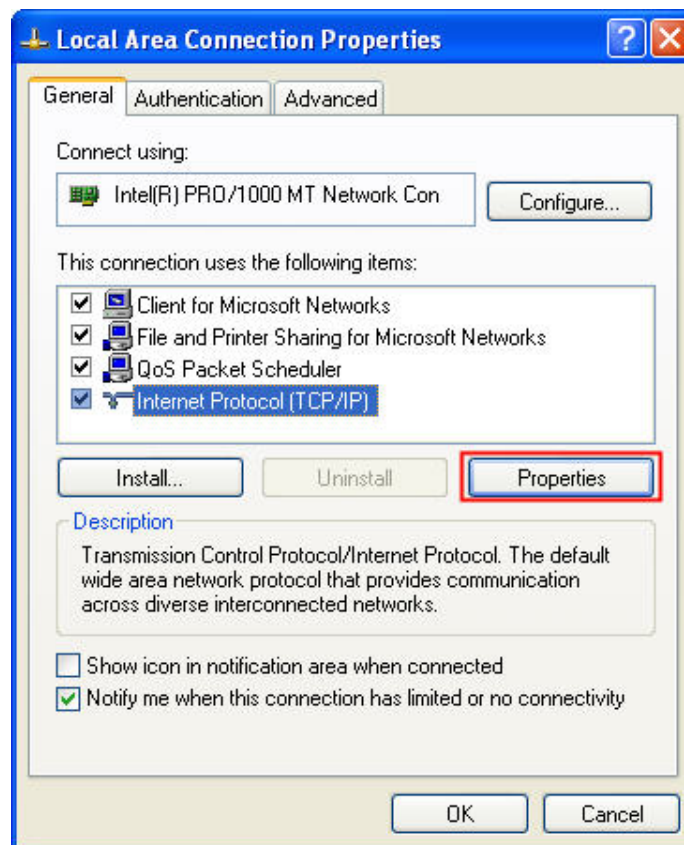
select **Network Connections** (  ).



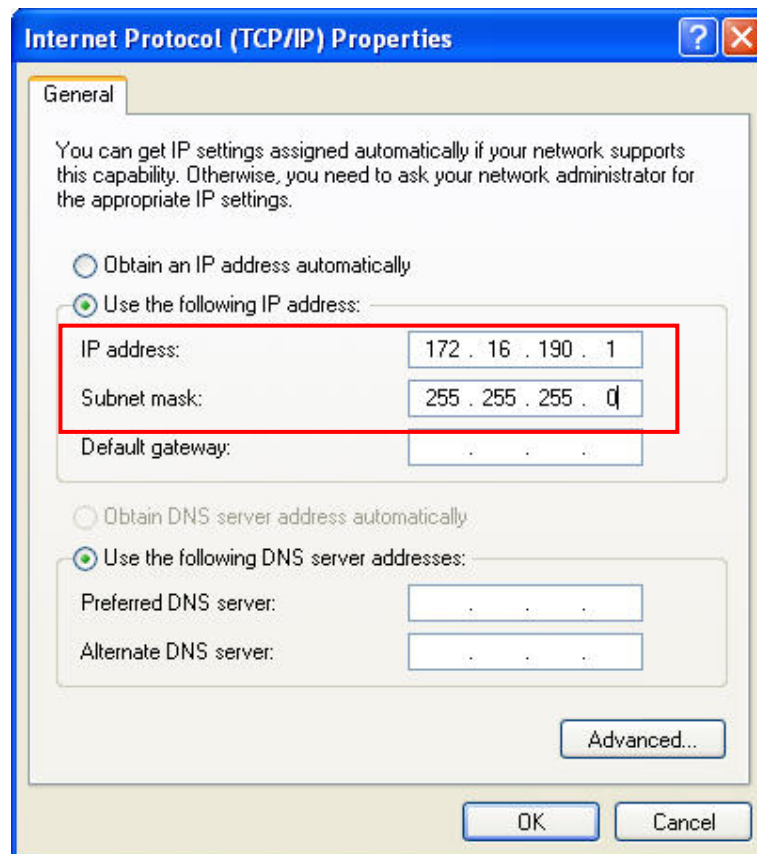
Double-click **Network Connections** icon, the following windows will appear. Right-click the **Local Area Connection** icon, and then select **Properties** from the pop-up menu.



The **Local Area Connection Properties** dialog box will open. Use **General** tab to select **Internet Protocol (TCP/IP)**. Then, press **Properties** button.



The **Internet Protocol (TCP/IP) Properties** dialog box will open. Choose **Use the following IP address** and enter the IP address numbers of the PC into the field of **IP address** and **Subnet mask**.



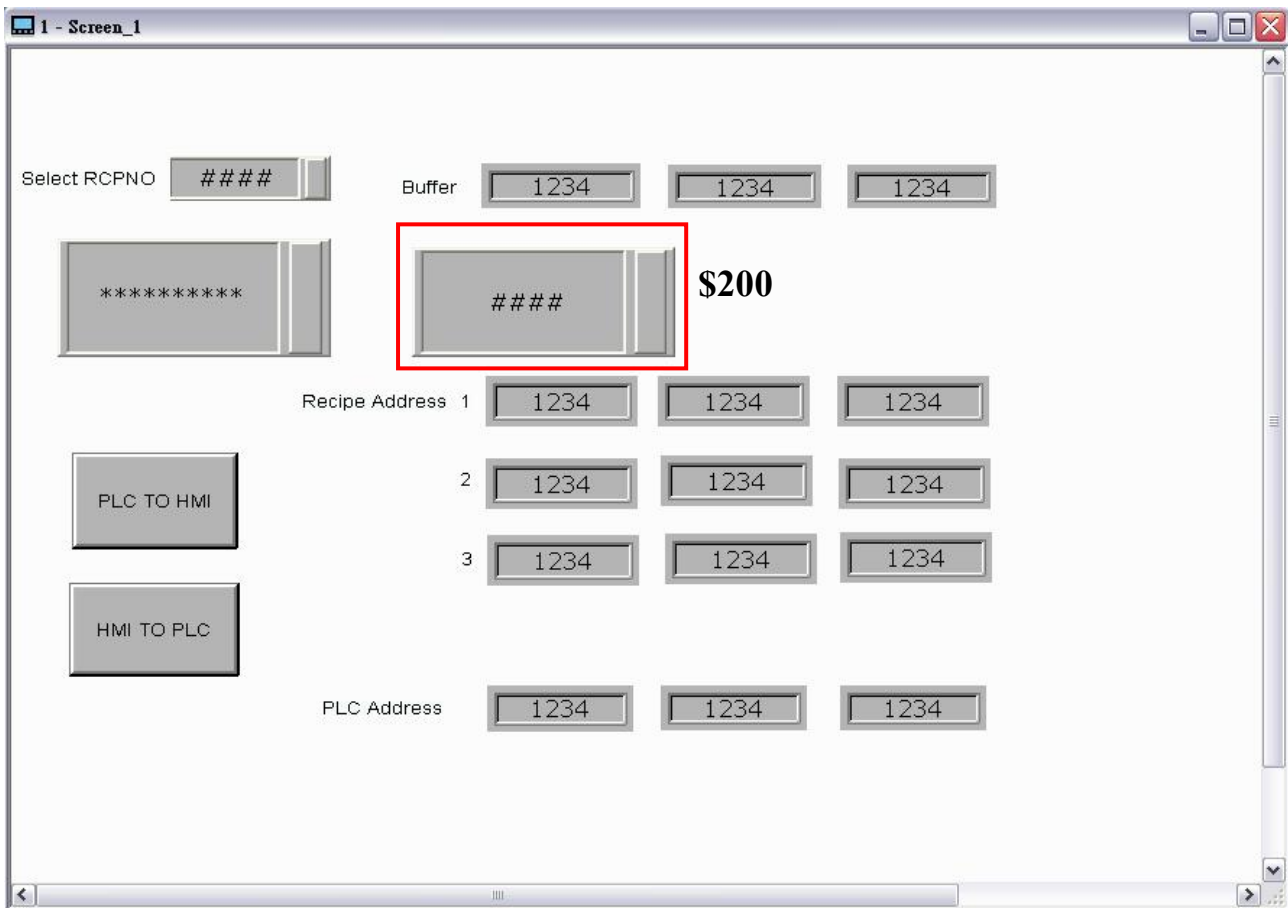
Then, press OK button to finish the settings.

### Setting IP Address in HMI

Enter into the system menu and set IP address to 172.16.190.11. Please see the figure below:




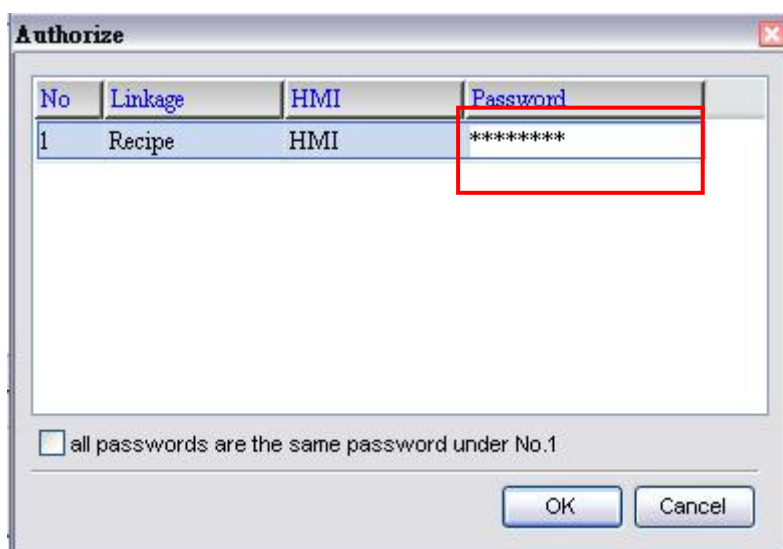
After completing all the settings and make sure that the communication is good, use the most updated Screen Editor program editing software to open the selected .dpb file which just has been modified on eServer. Create a numeric input element and set its address to \$200.




Then, compile it and download the recipe data to HMI. After recipe data is downloaded to HMI successfully, return to eServer, save the file first and then run the recipe data. Next, trigger the numeric input element on HMI, and the system will save the imported file to the destination path. Please see the figure below:



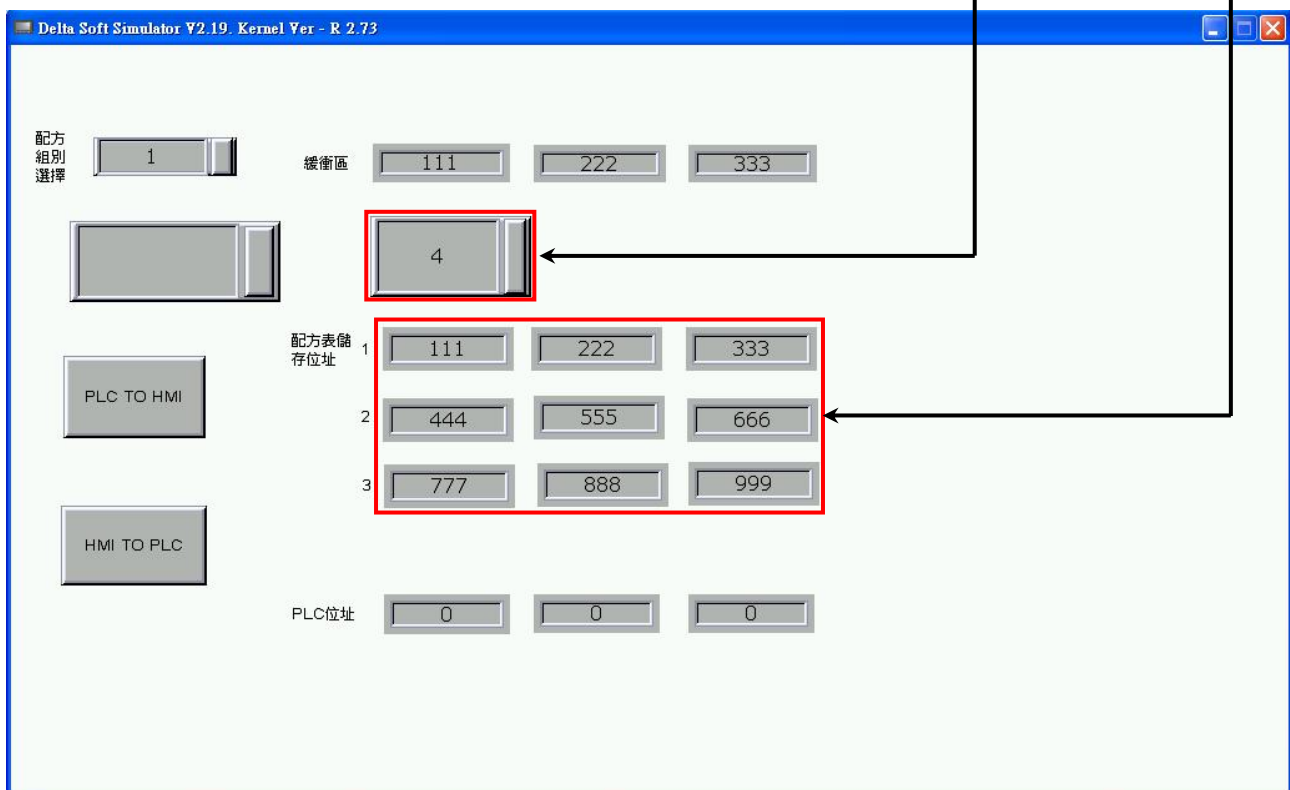
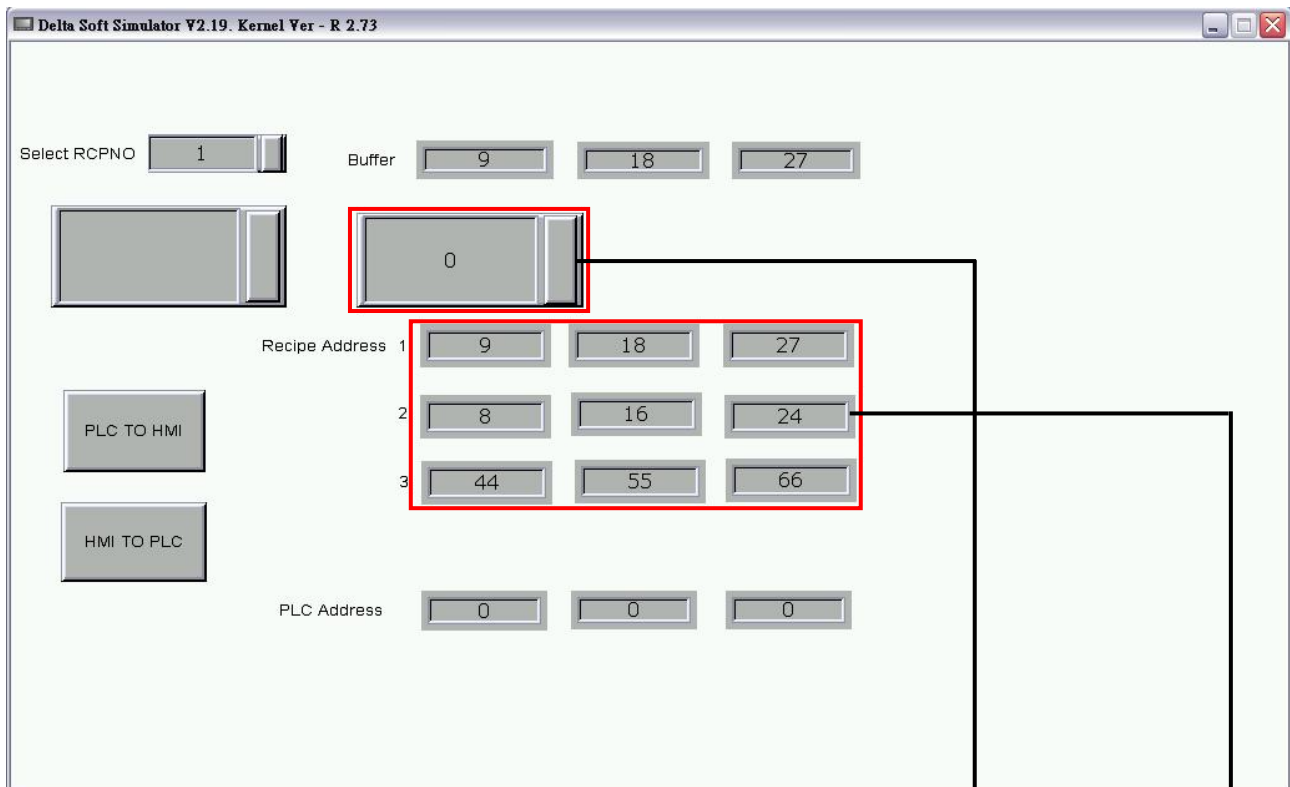
Press  icon. The following dialog box will pop-up and ask the users to enter the password.



Please enter 12345678 in the field of the password at the first time (12345678 is the default setting value and the users can change it freely). After the correct password is entered, the  icon will display on the tool bar at the left-bottom corner.

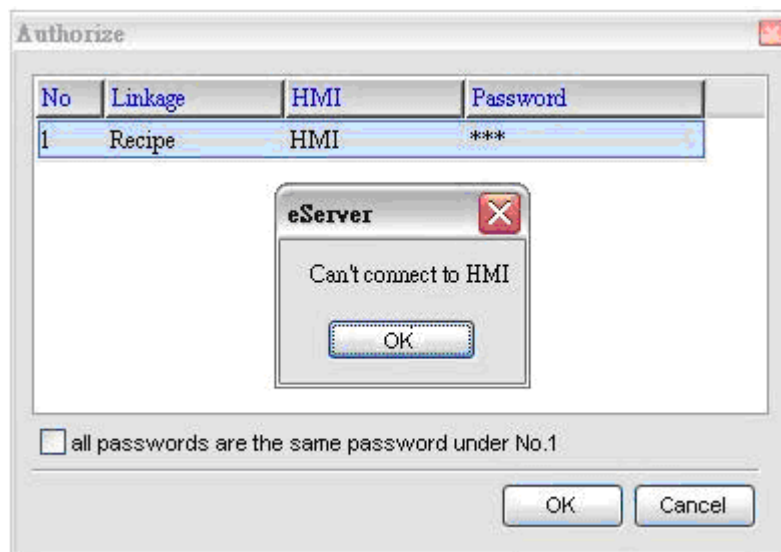
When eServer performs reading, please trigger the numeric input element on HMI and enter the value of 4. Then, the system will convert the recipe data to the data of -0223.rcp and show on HMI screen.

Please refer to the figure on next page:





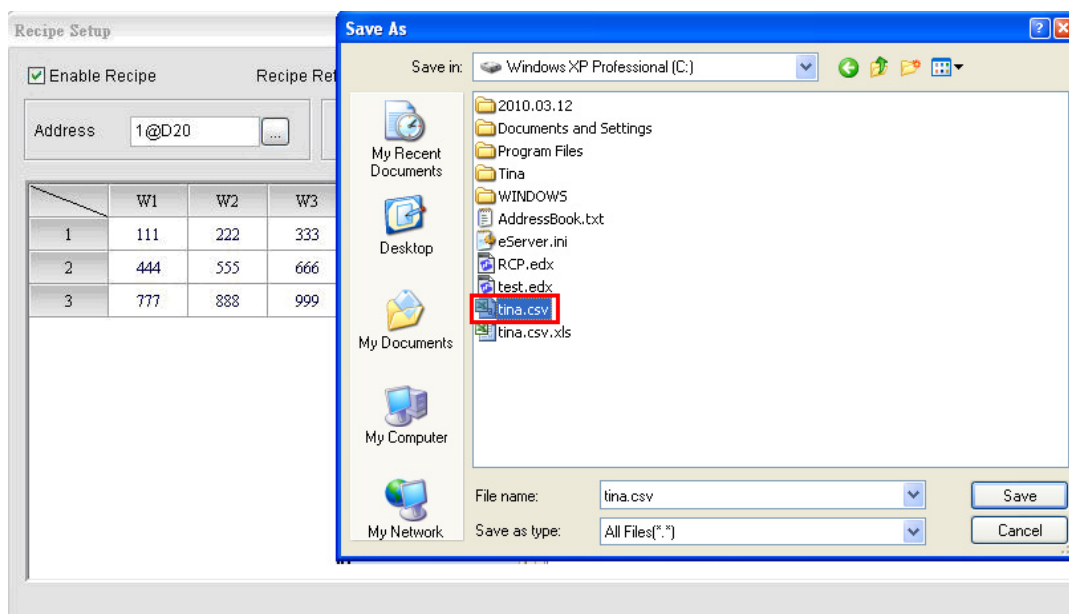
On the other hand, if incorrect or invalid password is entered, the following error message dialog box will appear to alert the users.

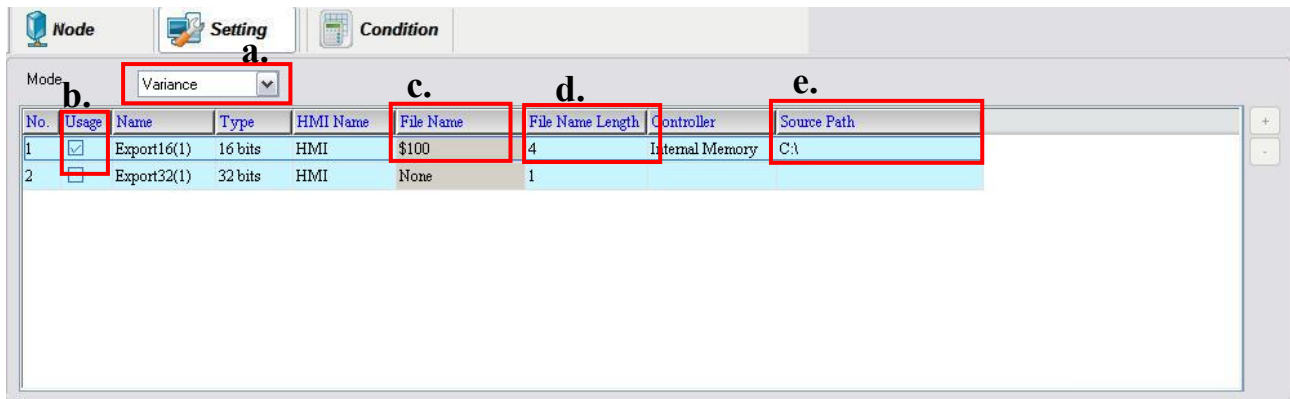


## Export - Variance

### Setting :

- Select **Variance**.
- Check the check box to use **16-bit recipe** as the example.
- Set the **File Name** (file name of the imported file) to be the same as the register address of HMI. (In this case \$100 character input element is used.)
- Set **File Name Length** (number of the imported characters). (In this case the File Name Length is set to 4. This is because the name of the exported file is Tina.csv. This file will be open in Screen Editor and save the value into .csv file.)
- Set **Source Path** (destination location) where the exported file is located (Tina.csv file is saved in C:\).

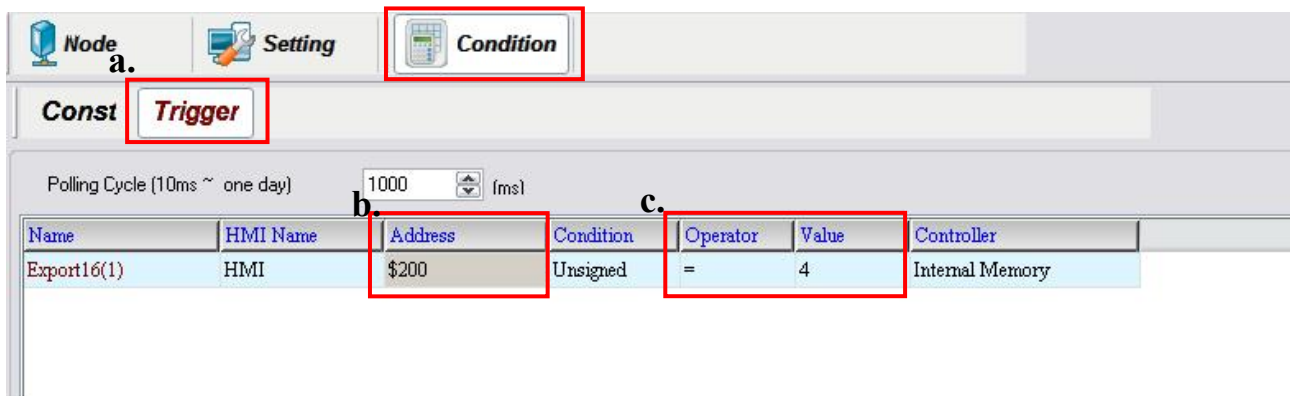




### Condition :

As for the method of sampling condition, select **Trigger (Execute sampling when the trigger conditions are satisfied)**.

- Select **Trigger**.
- Set **Address** to the register address of the trigger element. (In this case the trigger element is a numeric input element and its address is set to \$200)
- Set **Operator** and **Value** to = and 4. (In this case it indicates that when 4 is entered on HMI, the system will trigger the element and export the file)

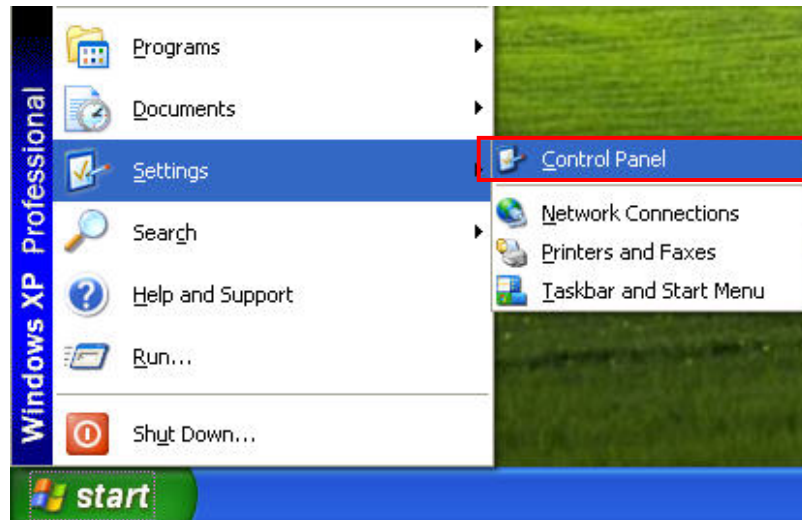


After completing all the settings, please make sure that the IP address numbers of subnet masks of the PC (172.16.190.1) and HMI (172.16.190.11) are the same; otherwise, HMI may not be displayed in the list when finding node.

## Networking Settings

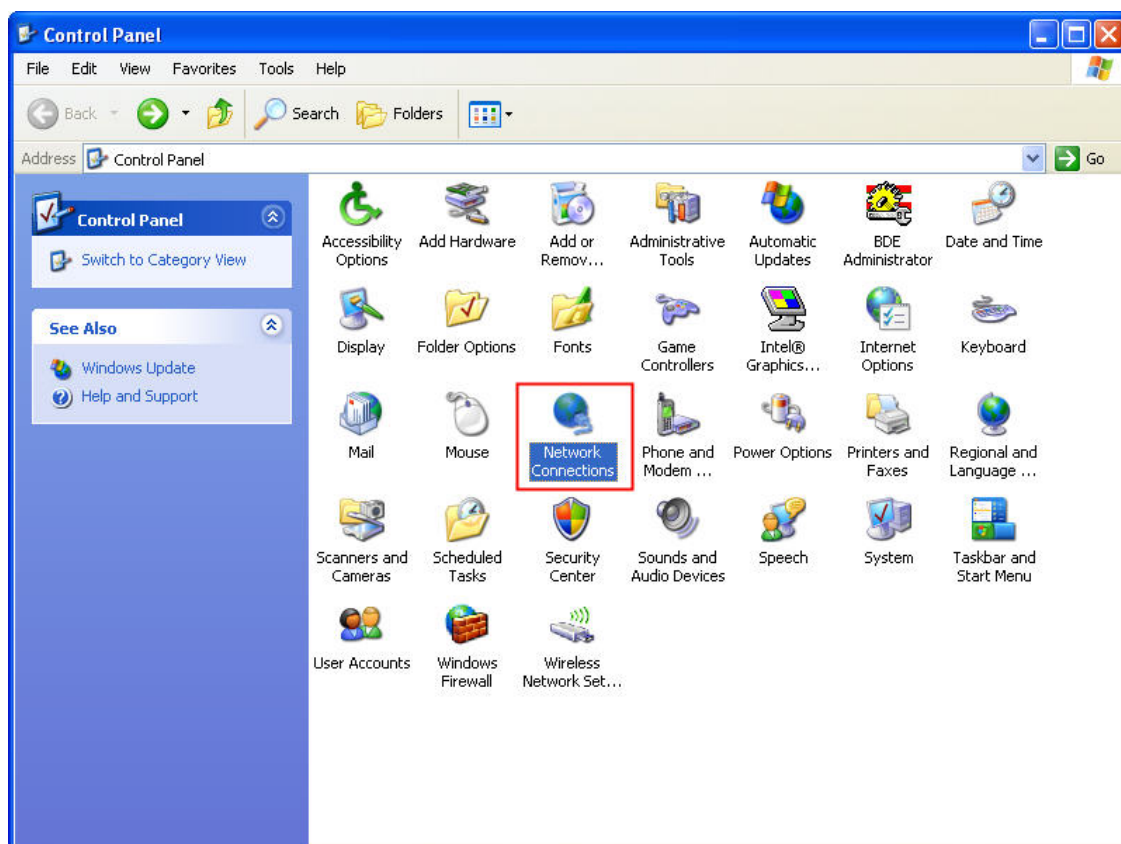
Ensure to observe the following instructions to complete PC networking settings before eServer operation.

### Setting PC Network

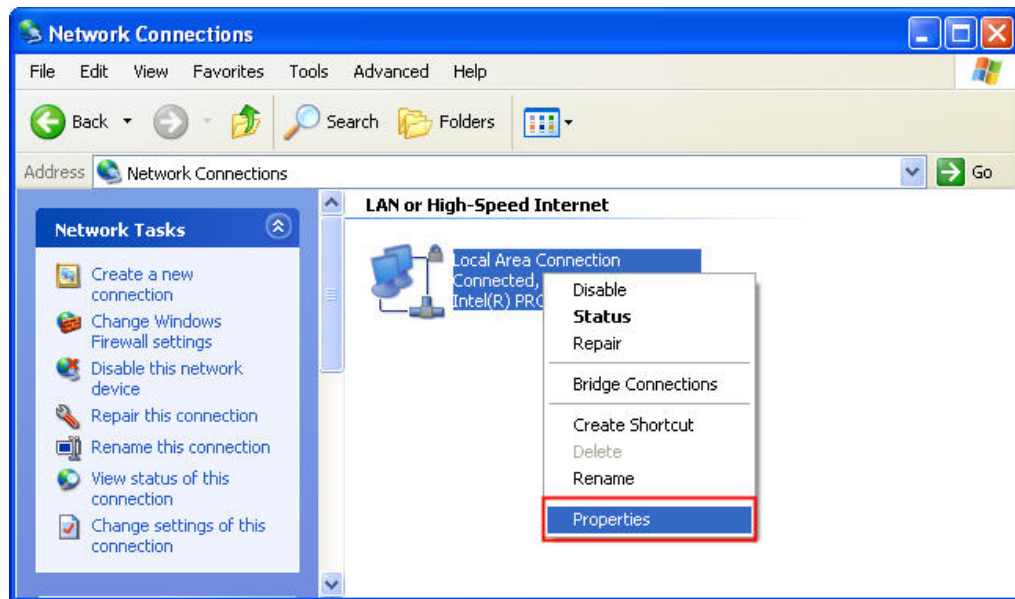


Power on PC and start Windows. Click **Start > Programs**, point to Control Panel, and then

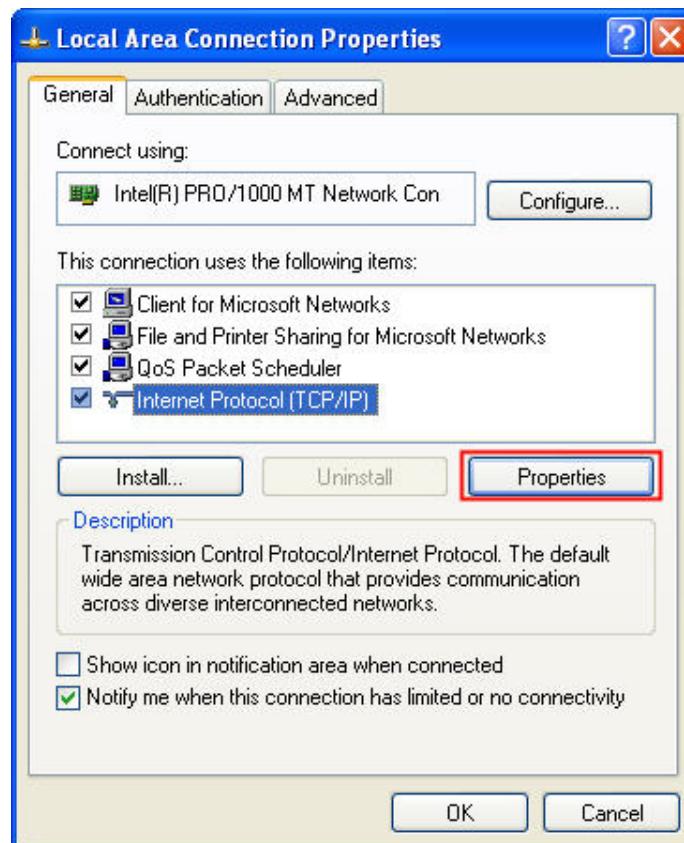
select Network Connections (  ).



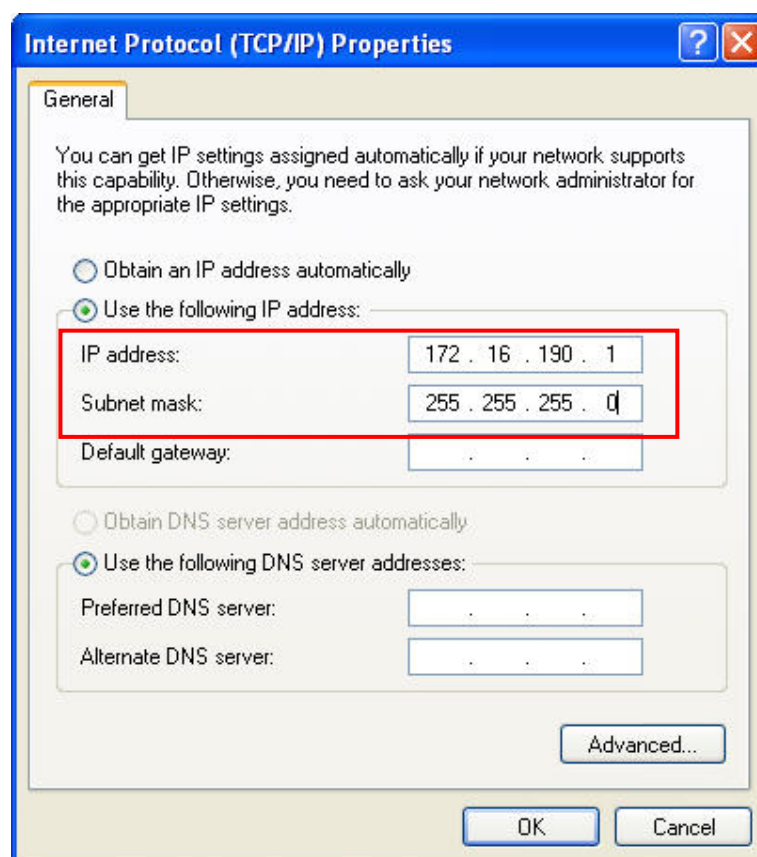
Double-click **Network Connections** icon, the following windows will appear. Right-click the **Local Area Connection** icon, and then select **Properties** from the pop-up menu.



The **Local Area Connection Properties** dialog box will open. Use **General** tab to select **Internet Protocol (TCP/IP)**. Then, press **Properties** button.



The **Internet Protocol (TCP/IP) Properties** dialog box will open. Choose **Use the following IP address** and enter the IP address numbers of the PC into the field of **IP address** and **Subnet mask**.



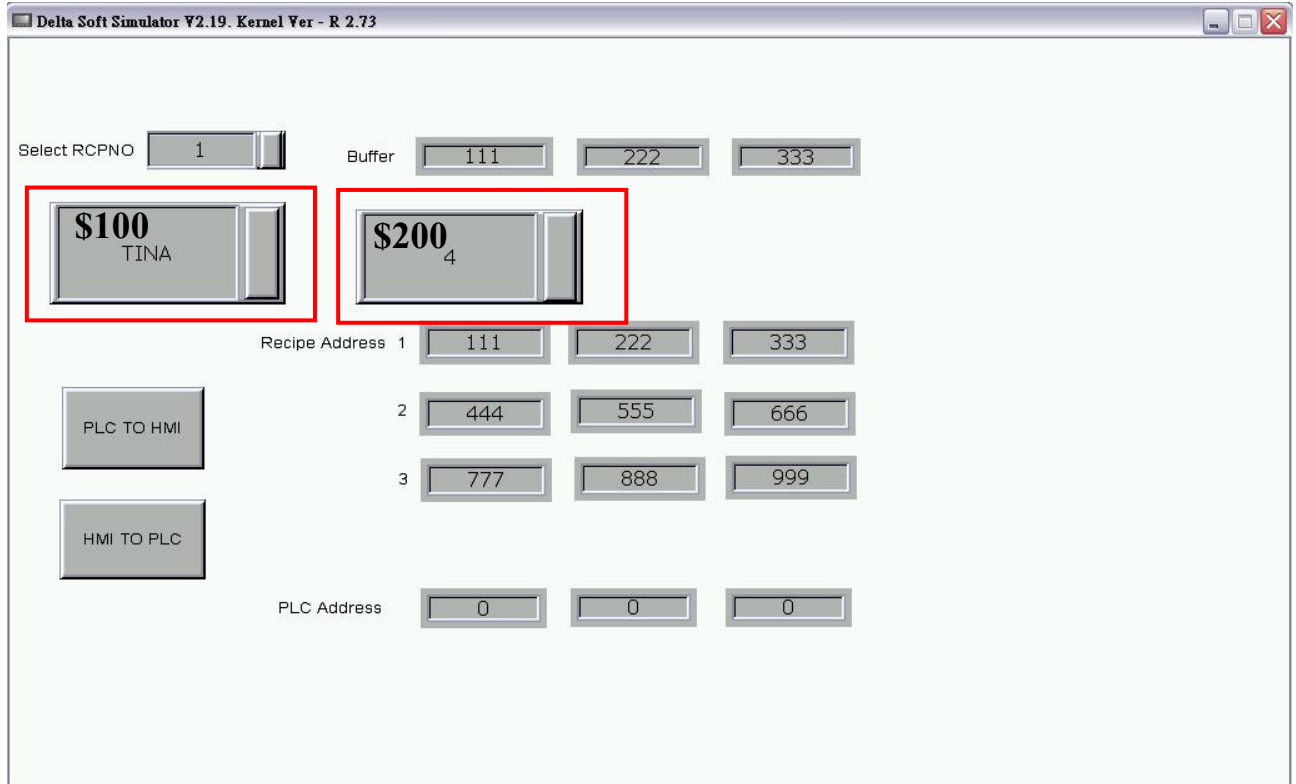
Then, press OK button to finish the settings.

### Setting IP Address in HMI

Enter into the system menu and set IP address to 172.16.190.11. Please see the figure below:




After completing all the settings and make sure that the communication is good, use the most updated Screen Editor program editing software to open the selected .dpb file which just has been modified on eServer. Then, create two elements. One is a character input element and its address is set to \$100. The other is a numeric input element and its address is set to \$200. Please refer to the figure below:

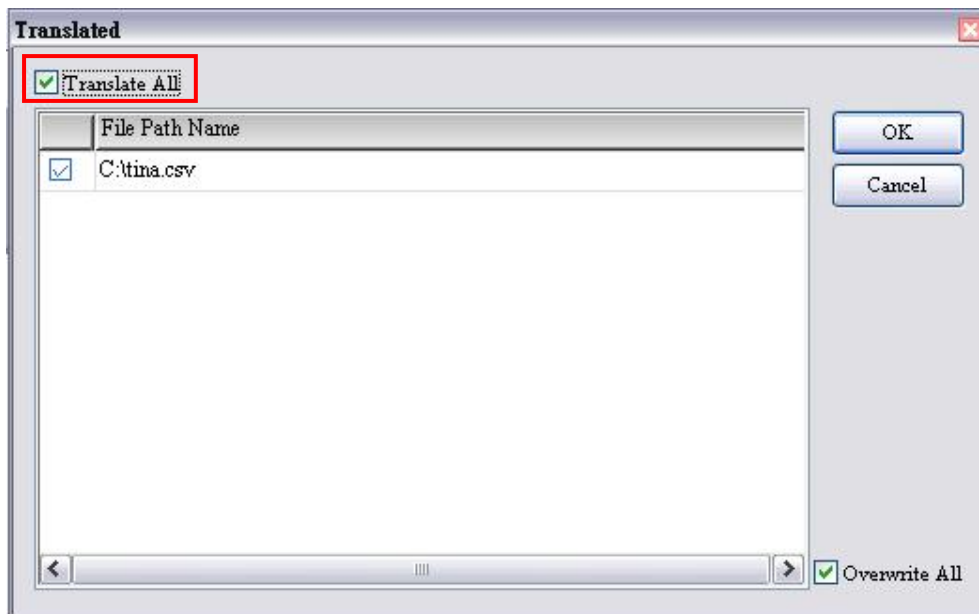


Then, compile it and download the recipe data to HMI. After recipe data is downloaded to HMI successfully, return to eServer, save the file first and then run the recipe data. Next, trigger the numeric input element on HMI, and the system will save the imported file to the destination path. Please see the figure below:

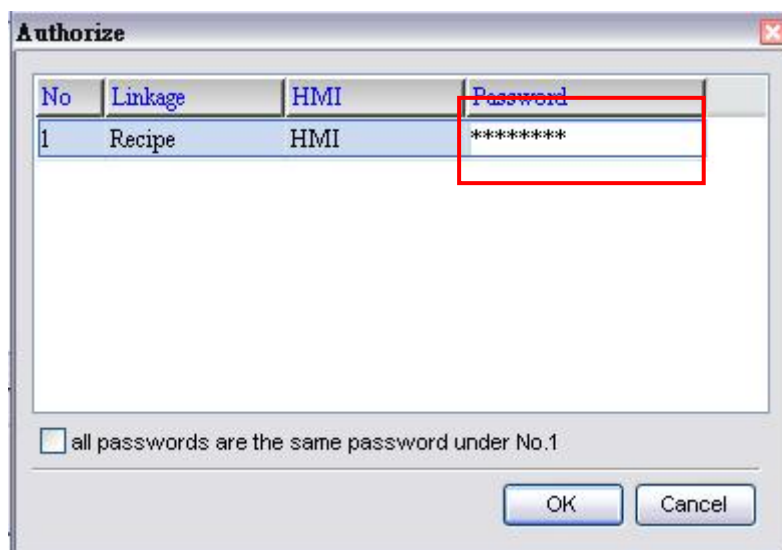



Press  icon. The following dialog box will pop-up and ask the users if it is necessary to convert the file of Tina.csv.





Check the box before **Translate All** and press **OK** button, the following dialog box will pop-up and ask the users to enter the password.

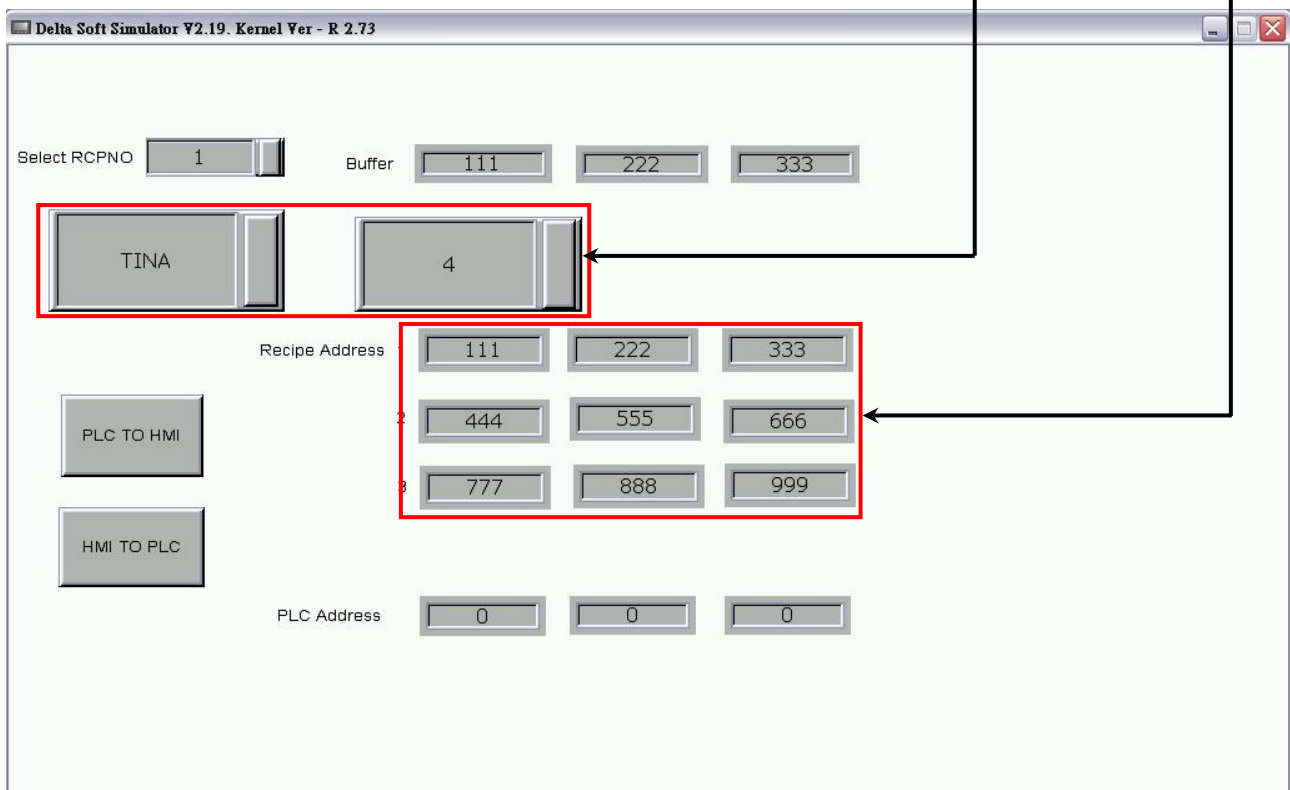
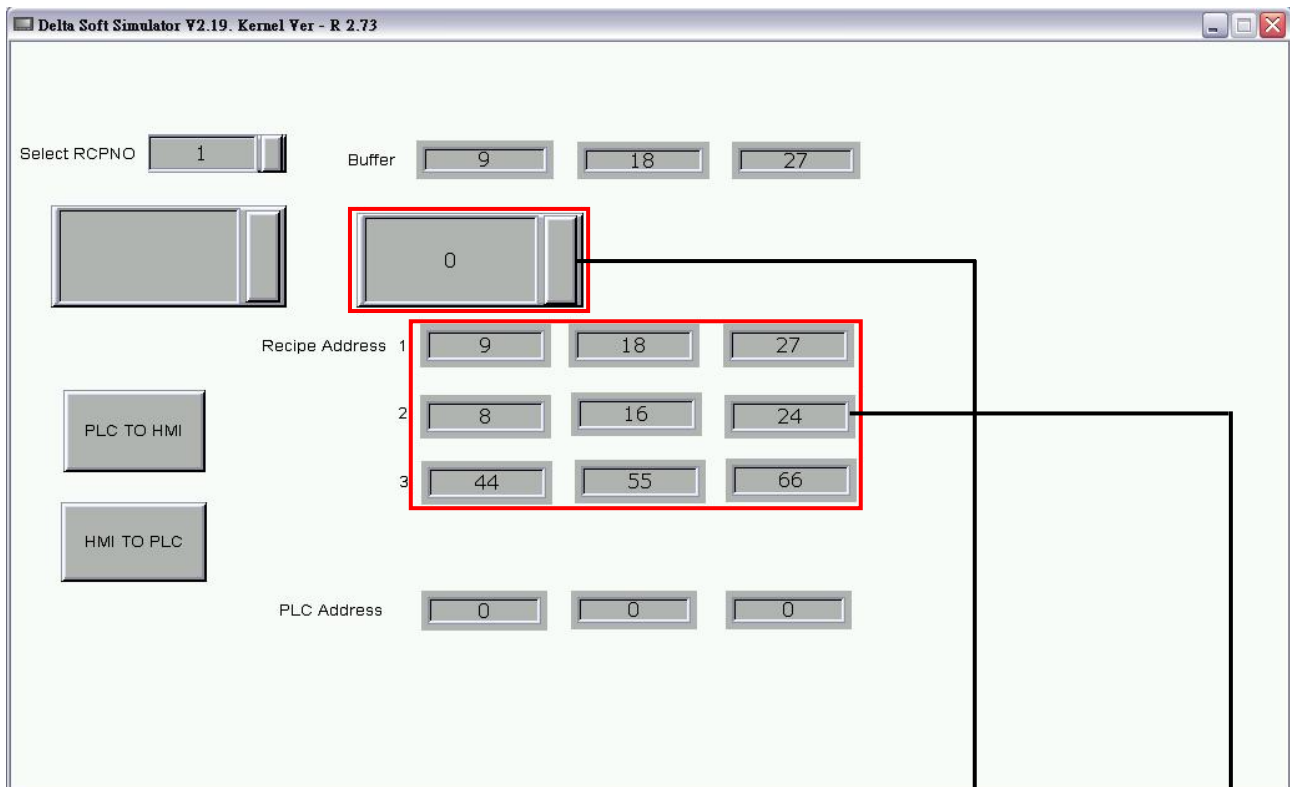


Please enter 12345678 in the field of the password at the first time (12345678 is the default setting value and the users can change it freely). After the correct password is entered, the  icon will display on the tool bar at the left-bottom corner.

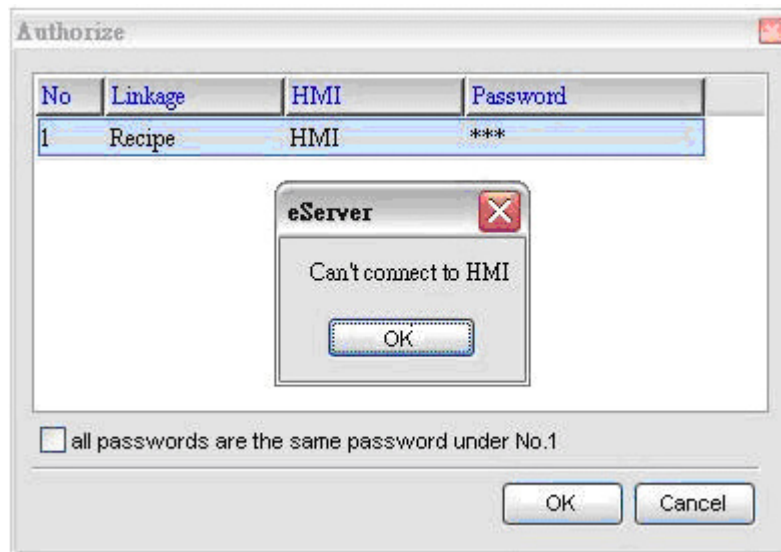
When eServer performs reading, please trigger the character input element (TINA) and the numeric input element (4) on HMI. Then, the system will convert the recipe data to the record data of Tina.csv file.

Please refer to the figure on next page:





On the other hand, if incorrect or invalid password is entered, the following error message dialog box will appear to alert the users.

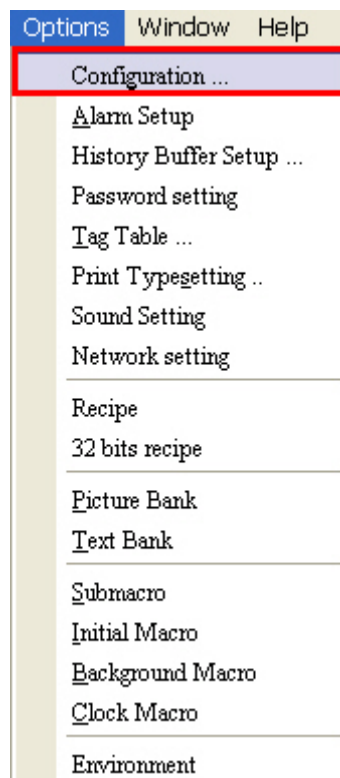


# Appendix A Upload/Download via Ethernet

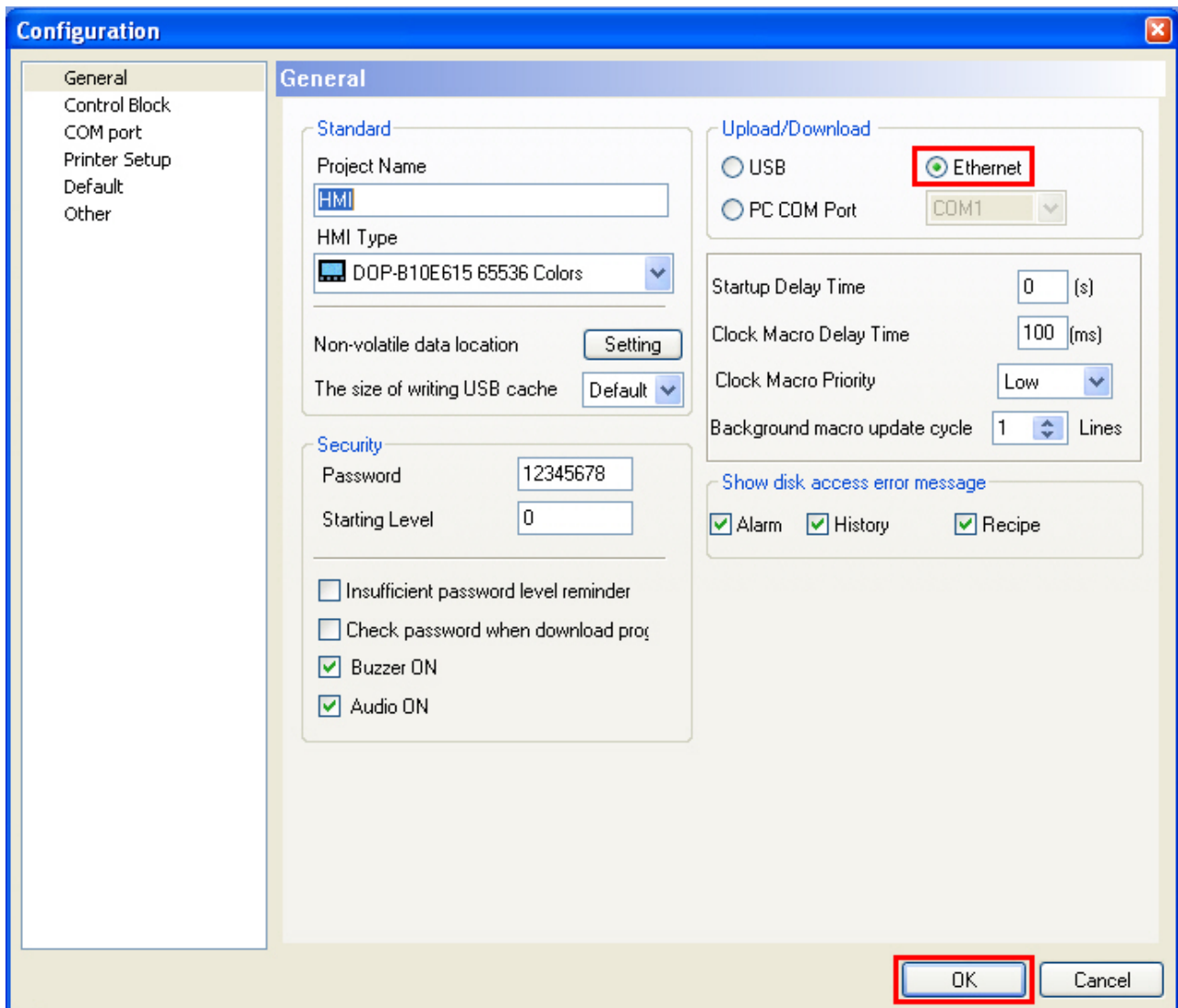
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## A.1 Configuration Settings

The default setting of upload and download on Screen Editor is via **USB**. If the users need to use **Ethernet**, please activate Screen Editor and select **Options > Configuration** to access the configuration options and change the upload and download setting.

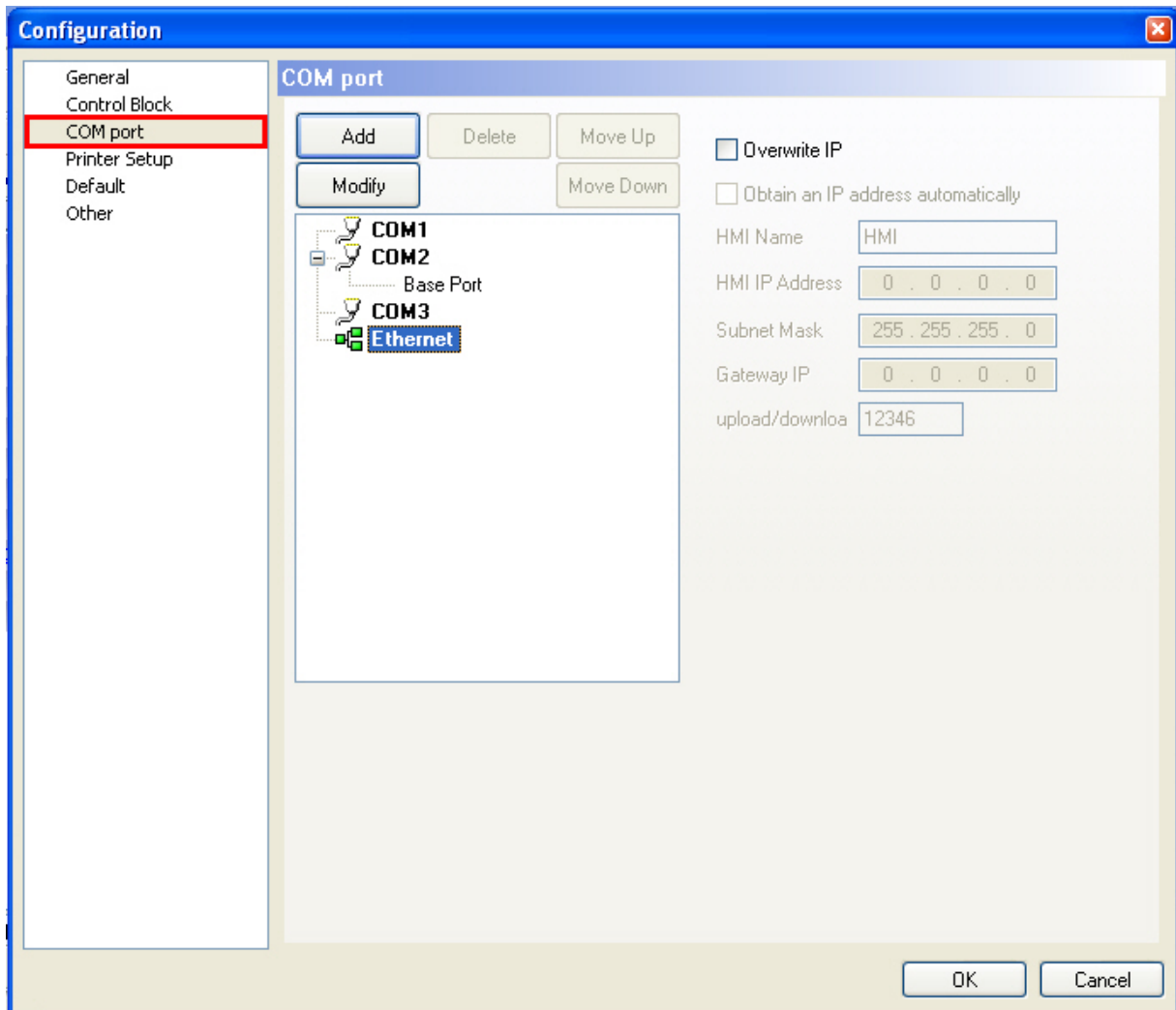


In **Configuration** dialog box, change the default setting of upload and download to **Ethernet**. Then, press **OK** to complete the setting.

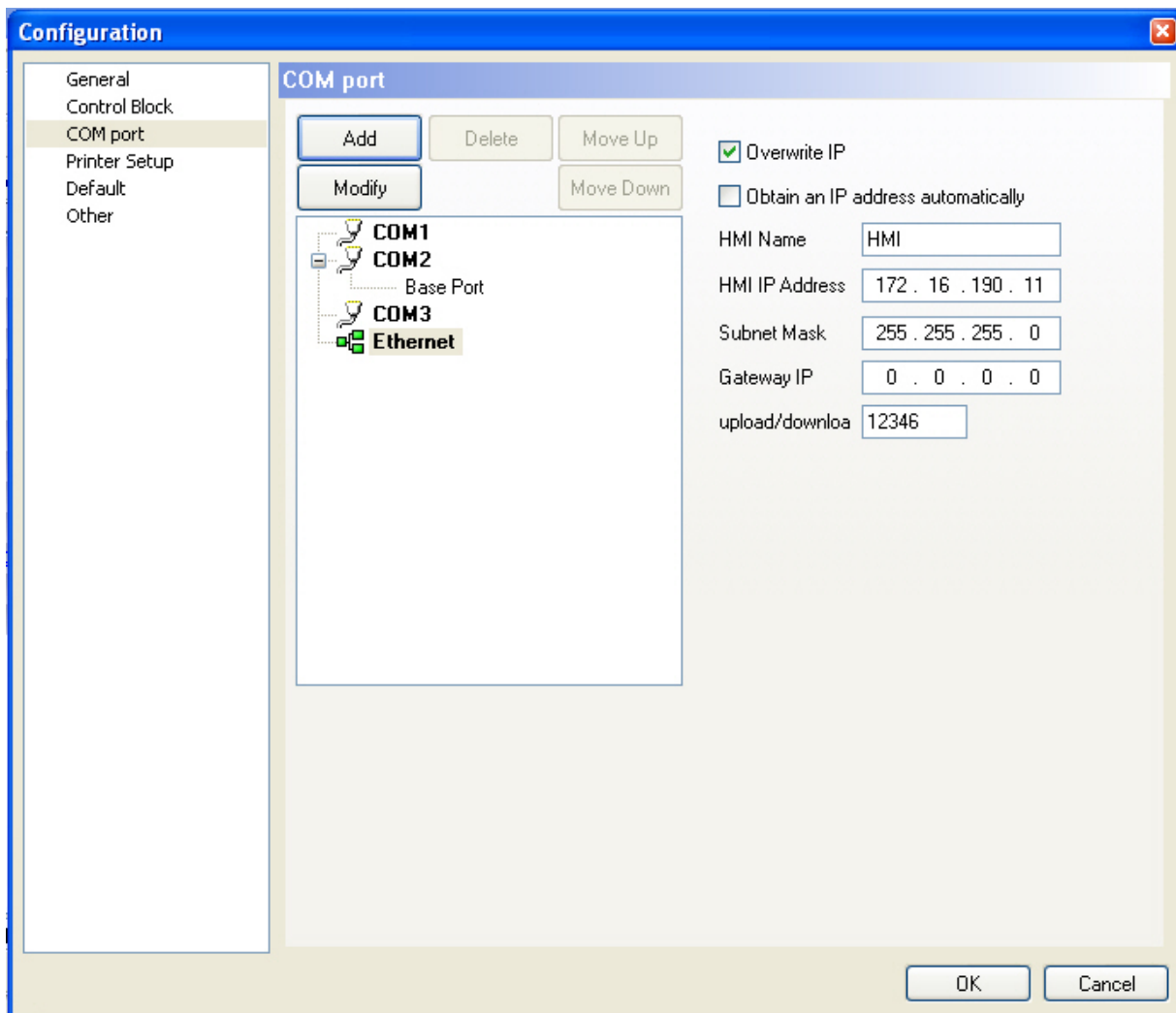


## A.2 COM Port Settings

If the users choose to use DHCP mode, it is not necessary to set Ethernet IP address in COM Port tab.



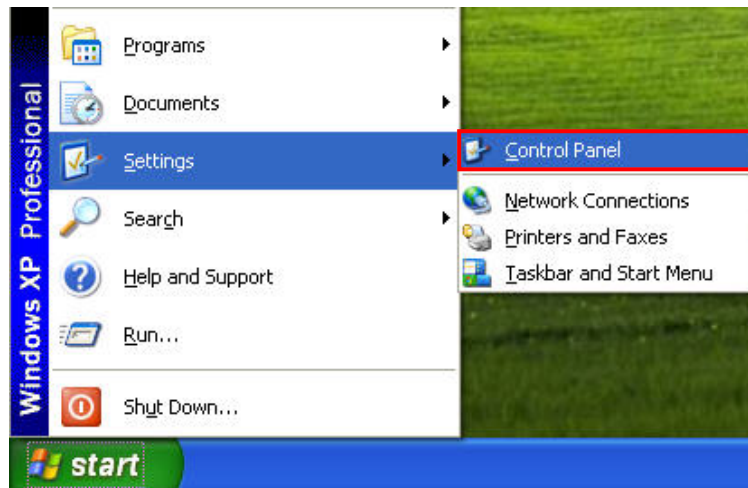
If the users choose to use user-defined IP address, please set Ethernet IP address in COM Port tab and ensure that the domain name is the same as the IP address of the personal computer.



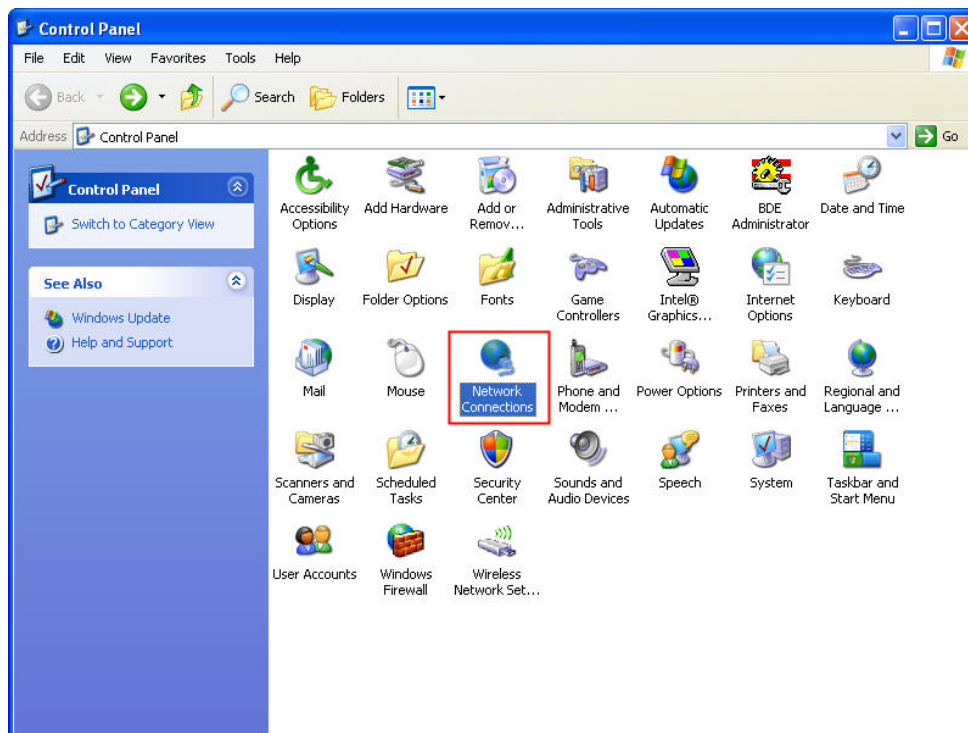
After Ethernet IP address is set, the users can enter into the system menu to verify if the IP address is written correctly or not.



Then, observe the following instructions to complete PC networking settings.

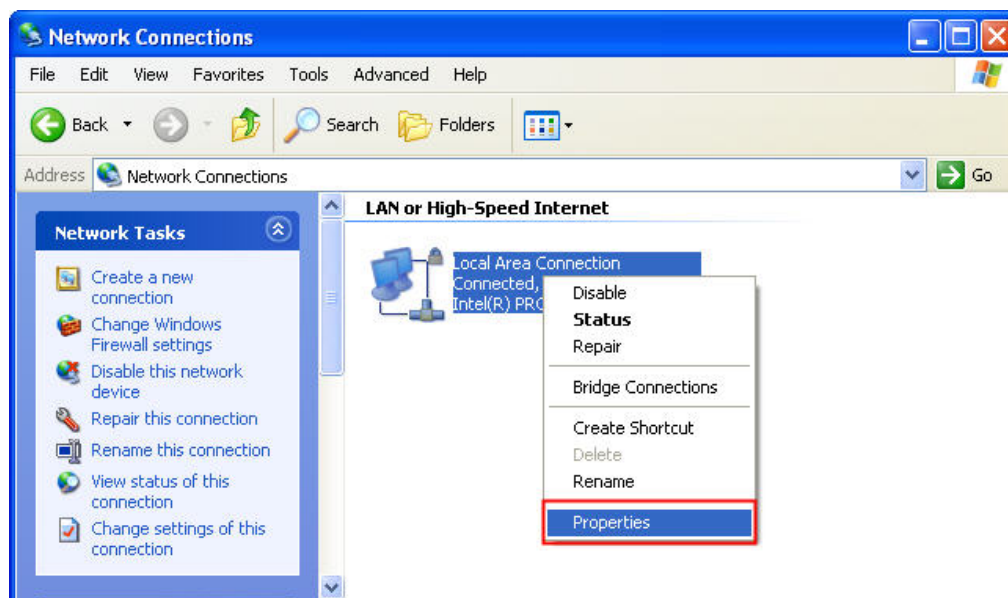


Power on PC and start Windows. Click **Start > Programs**, point to **Control Panel**, and then select **Network Connections**.

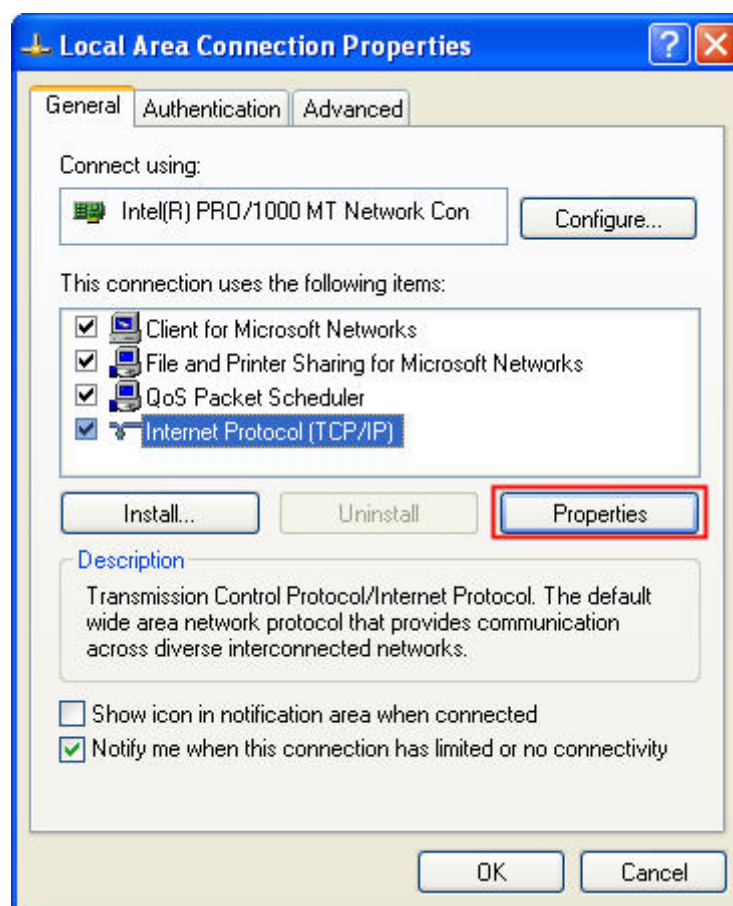




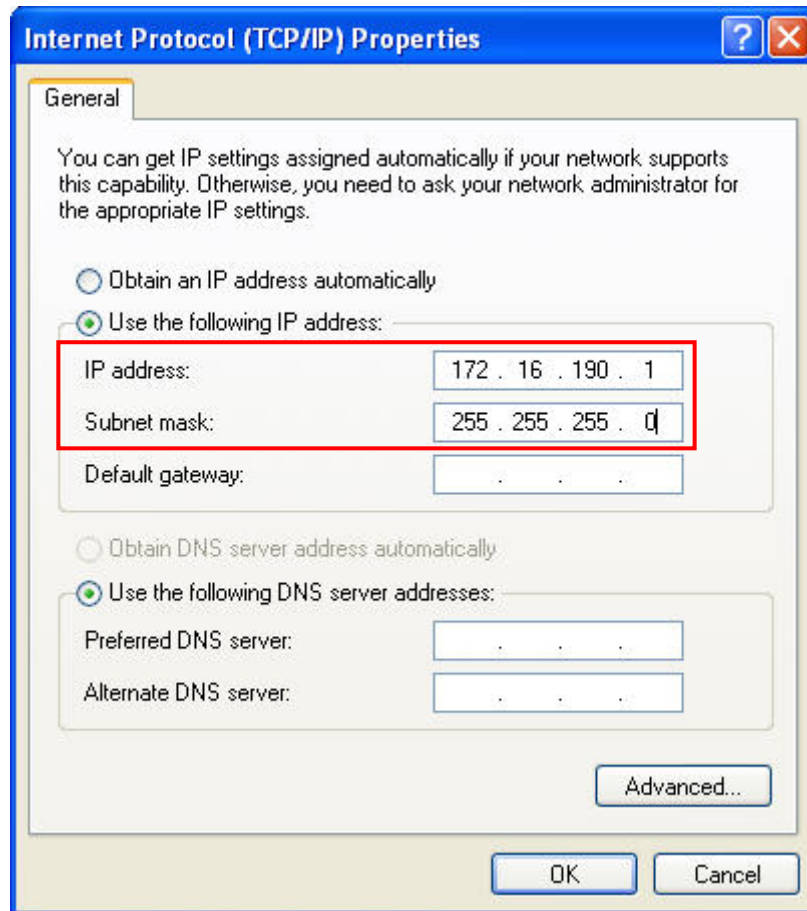
Double-click **Network Connections** icon, the following windows will appear. Right-click the **Local Area Connection** icon, and then select **Properties** from the pop-up menu.



The **Local Area Connection Properties** dialog box will open. Use **General** tab to select **Internet Protocol (TCP/IP)**. Then, press **Properties** button.



The **Internet Protocol (TCP/IP) Properties** dialog box will open. Choose **Use the following IP address** and enter the IP address numbers of the PC into the field of **IP address** and **Subnet mask**.

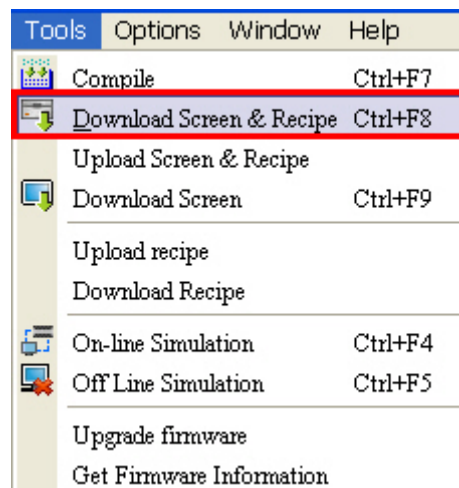
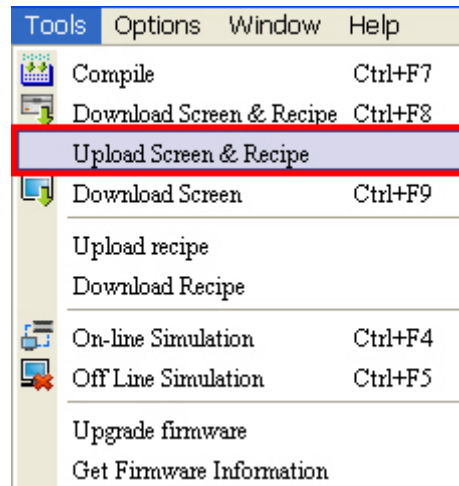


Then, press **OK** button to finish the settings.

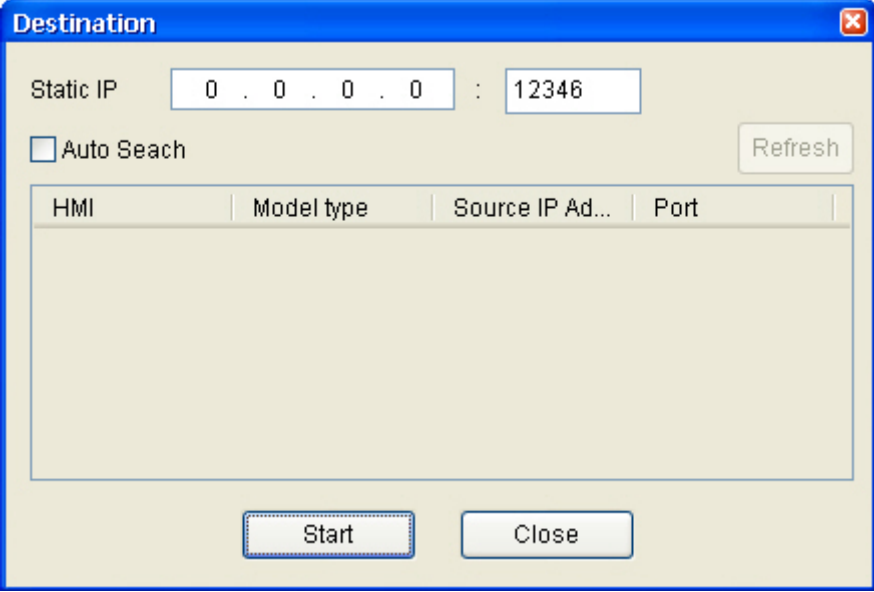
Please note that if the IP address numbers of subnet masks of the PC and HMI are different, HMI may not be displayed in the list when finding node.

### A.3 Compile and Upload / Download Screen & Recipe

After completing PC networking settings, compile the editing program immediately. When compile operation is performed successfully, choose **Upload Screen & Recipe** or **Download Screen & Recipe** next.



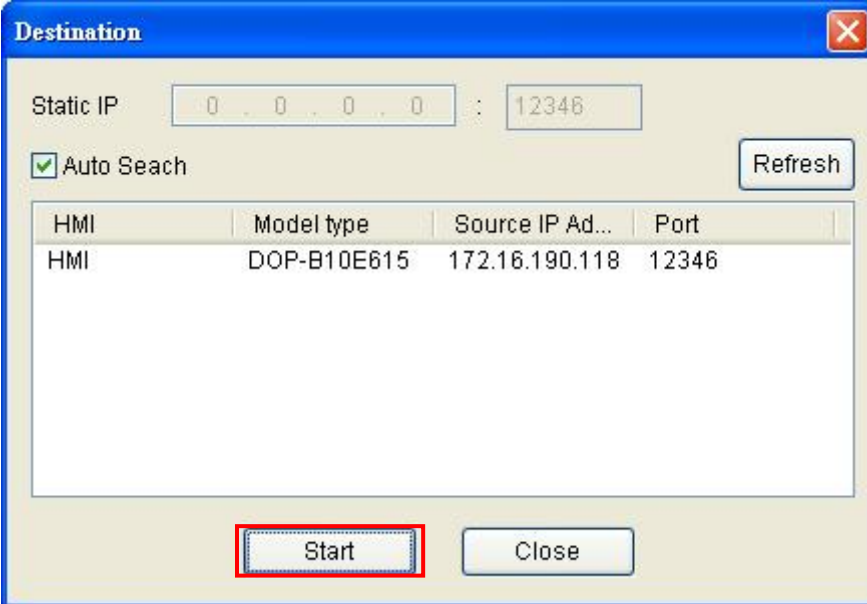
Then, the following dialog box will appear.



The dialog box titled "Destination" has a blue title bar with a close button. It contains a "Static IP" field with the value "0 . 0 . 0 . 0" and a "Port" field with the value "12346". Below these fields is an unchecked checkbox labeled "Auto Seach" and a "Refresh" button. A table with four columns: "HMI", "Model type", "Source IP Ad...", and "Port" is present. At the bottom are "Start" and "Close" buttons.

HMI	Model type	Source IP Ad...	Port
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The users can check the box before **Auto Search**, and the system will detect the connecting HMI automatically.



The dialog box titled "Destination" is shown with the "Auto Seach" checkbox now checked. The table below the checkbox contains one row of data. The "Start" button is highlighted with a red rectangle.

HMI	Model type	Source IP Ad...	Port
HMI	DOP-B10E615	172.16.190.118	12346

When the connecting HMI is found, press Start button, and the system will start to upload or download the screen data via Ethernet immediately.

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