Demo 4: How to use the VPD-130 to read the uPAC-7186EG's system date and time via RS-485?

In this demo, we will guide you to use the VPD-130 to read the uPAC-7186EG's system date and time. Before starting, make sure you have downloaded the "ISaGRAF demo (get_time.pia)" into the uPAC-7186EG and installed the HMIWorks software. (HMIWorks, the free development software for TouchPAD).

This paper is the ISaGRAF FAQ-147. User can download the document and demo programs from https://www.icpdas.com/en/faq/index.php?kind=280#751 > 147.

718xEG/XG Getting Started:
http://www.icpdas.com/en/download/show.php?num=327&nation=US&kind1=&model=&kw=isagraf
If you do not know how to restore and download the demo, please refer to section 3.15 to restore the ISaGRAF demo, and then refer to section 2.4 & 2.5 to download the demo to the ISaGRAF PAC.

VPD-130:
http://www.icpdas.com/en/product/VPD-130-H
In the VPD-130 Web Page, you can look for the product specification, download the HMIWorks software and related user manuals.

HMIWorks:
http://www.icpdas.com/en/download/show.php?num=944&nation=US&kind1=6&kind2=17&model=&kw=HMIWorks
You can just click the link to download the latest version of HMIWorks.

TPD/VPD User Manual:
http://www.icpdas.com/en/download/show.php?num=958&model=VPD-130-H
You can learn the software installation and other demos in this manual.

More TouchPAD Products:
http://www.icpdas.com/en/product/p02.php?root=519&kind=522

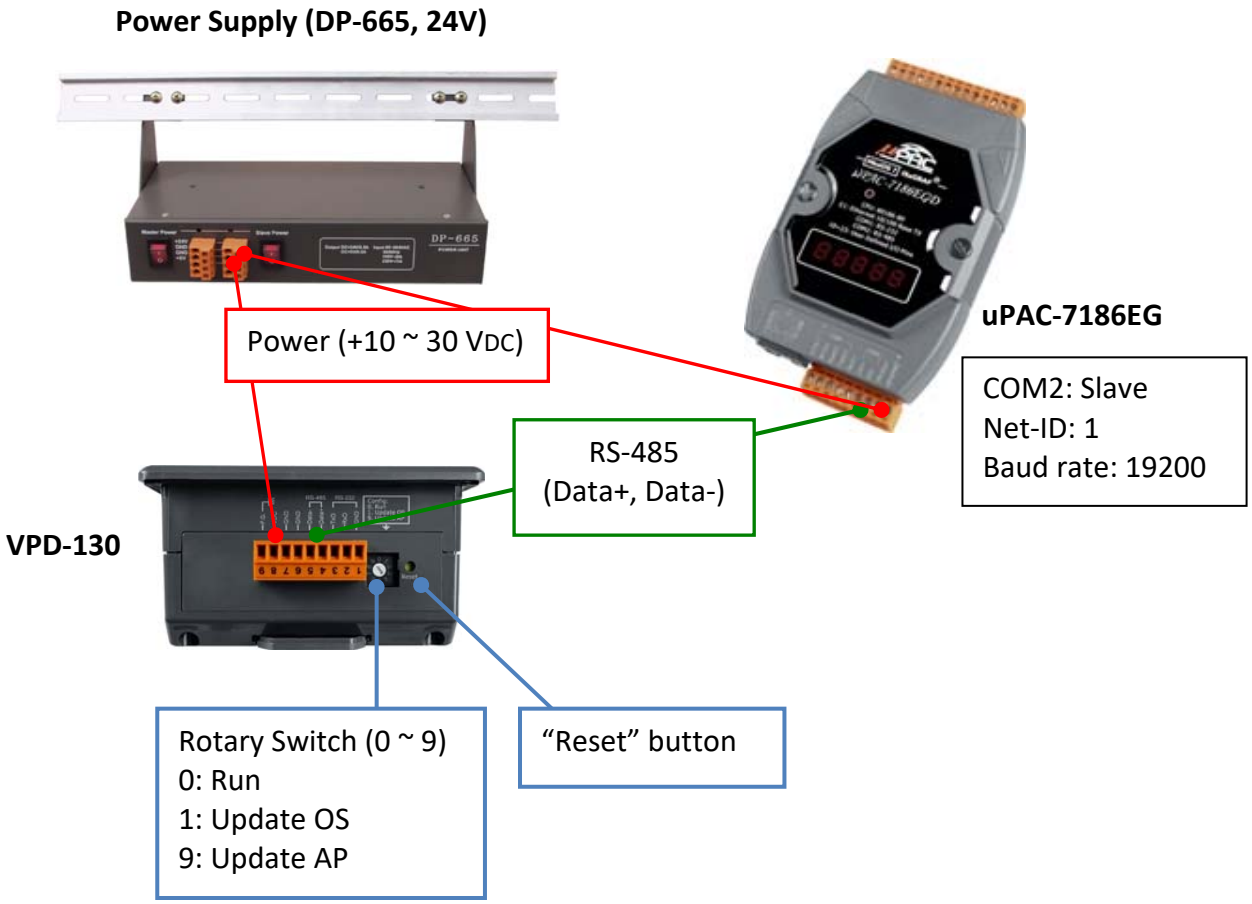
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1.1. Demo Description

In this demo, we will use the TouchPAD (VPD-130) to read the ISaGRAF PAC's (uPAC-7186EG) system date and time via RS-485.

Hardware Devices：

The VPD-130 and uPAC-7186EG are used in demo4.

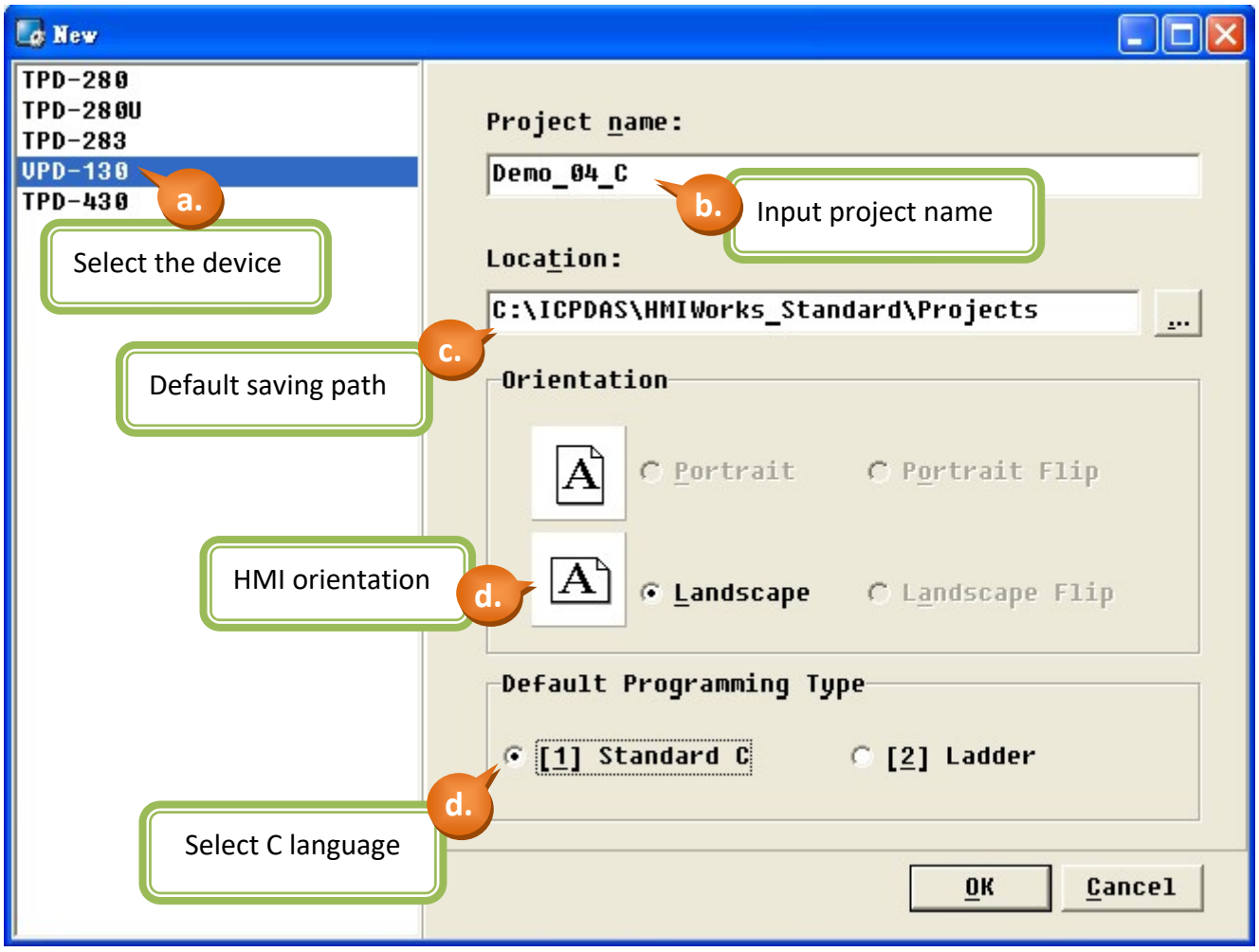


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1.2. HMI Page Design

Step 1. Open "HMIWorks"
http://www.icpdas.com/en/download/show.php?num=944&nation=US&kind1=6&kind2=17&model=&kw=HMIWorks **and create a new VPD-130 project using C language.**

Mouse click on "File > New…" in the menu-bar to create a new project, and then the "New" window will show as below.

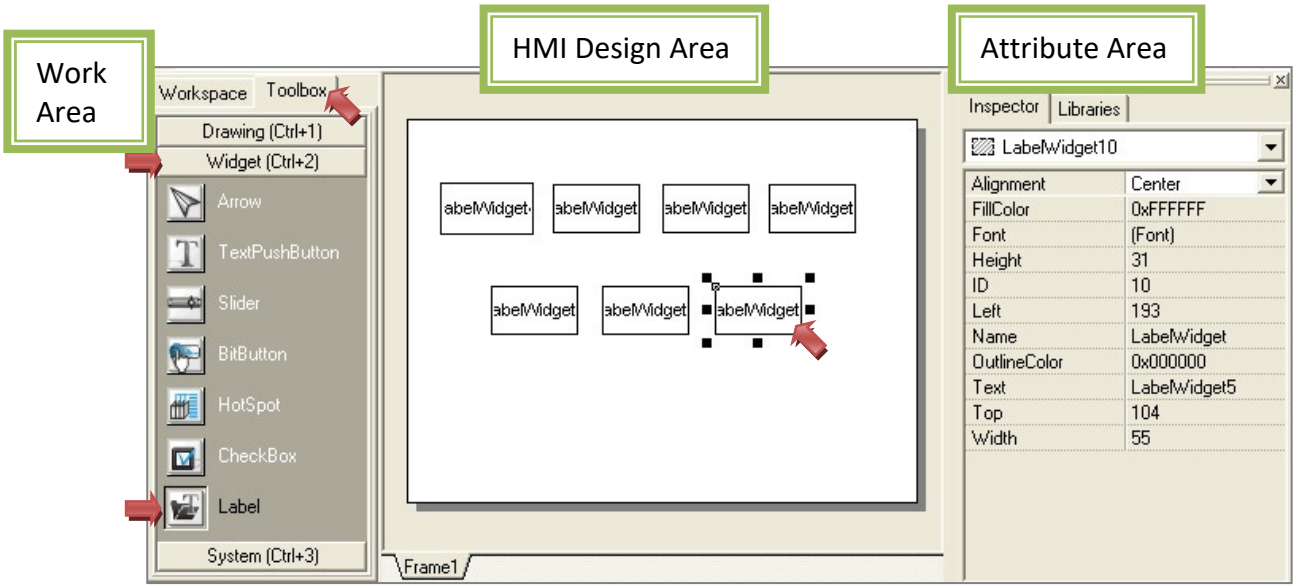


Step 2. Create a "Label".

In this demo, we required seven labels used to show – the year, month, day, week, hours, minutes and seconds.

a. (As figure below) In the left side of Work Area – "Toolbox - Widget (Ctrl+2)", click the "Label" and then drag the mouse to draw a rectangle into the HMI Design Area.
b. You can repeat this step to draw seven rectangles or use the Copy (Ctrl+c) & Paste (Ctrl+v) way.

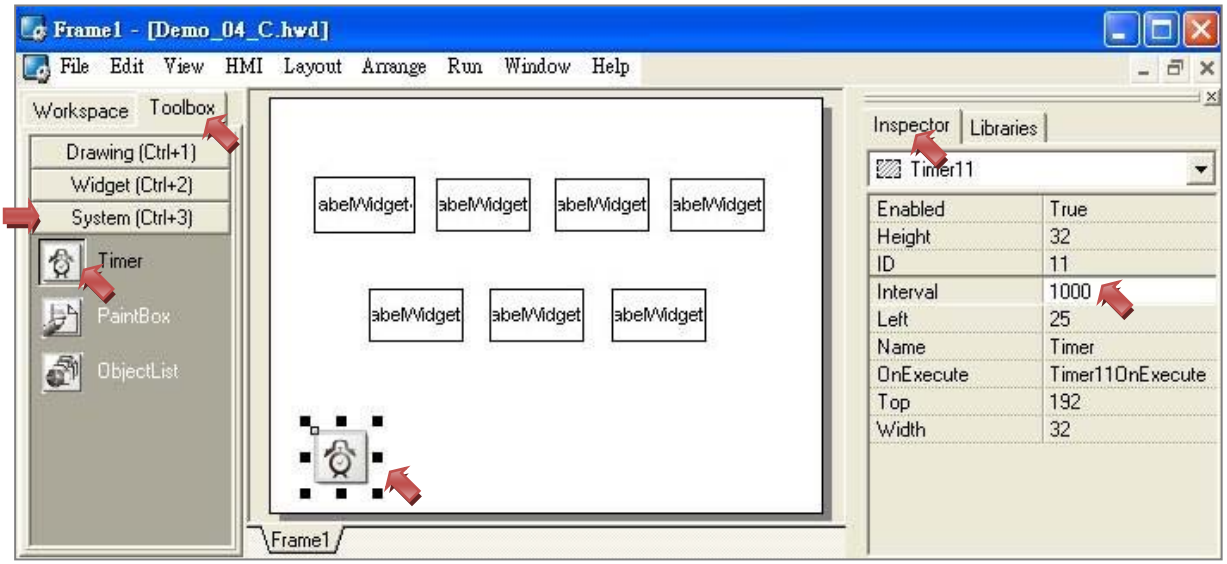
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Step 3. Create a "Timer".

The component, Timer, is used to read system date and time once per second.

a. In the left side of Work Area – "Toolbox - System (Ctrl+3)", click the "Timer" and then click on the HMI Design Area; it will generate a "Timer" icon automatically. (After you have downloaded the program to the VPD-130, this icon is invisible).
b. In the right side of Attribute Area – "Inspector – Interval", you can set up the Timer interval (1000 = 1 s).



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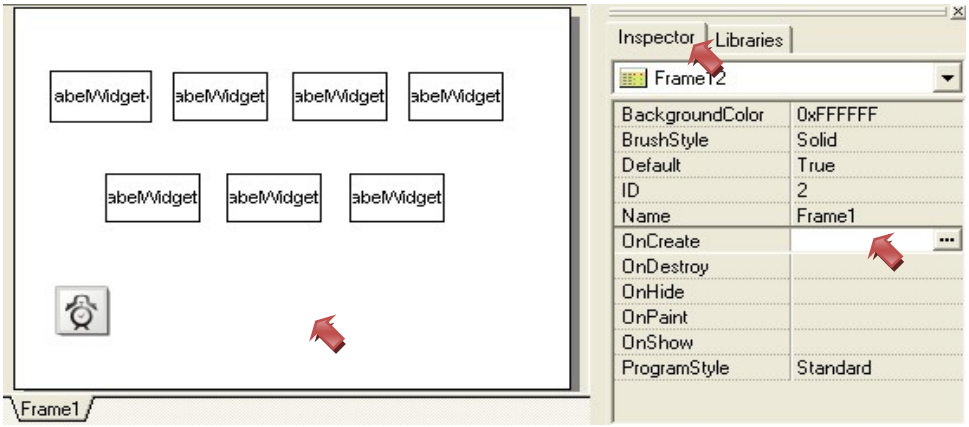
1.3. Programing C program

In the previous section, we have created the required component. Now, we will start programming with C language to achieve the function for reading system date and time. In this demo, you can refer the http://www.icpdas.com/en/product/VPD-130-H to look for related

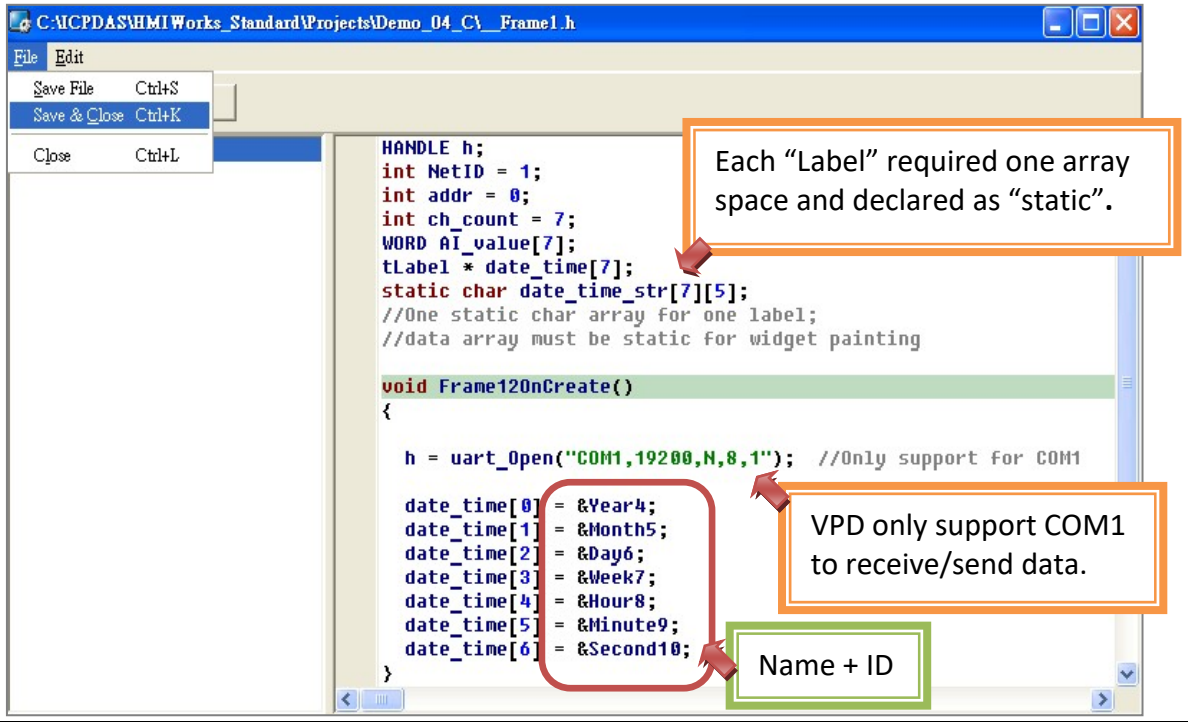
http://www.icpdas.com/web/product/download/software/development_tool/hmiworks/document/manual/HMIWorks_API_Reference_en.pdf

Step 1. Create "OnCreate" program.

a. Click on the blank space in the HMI Design Area and then click "Inspector > OnCreate" in the right side of Attribute Area, then double-click on the blank field to open the editing window.

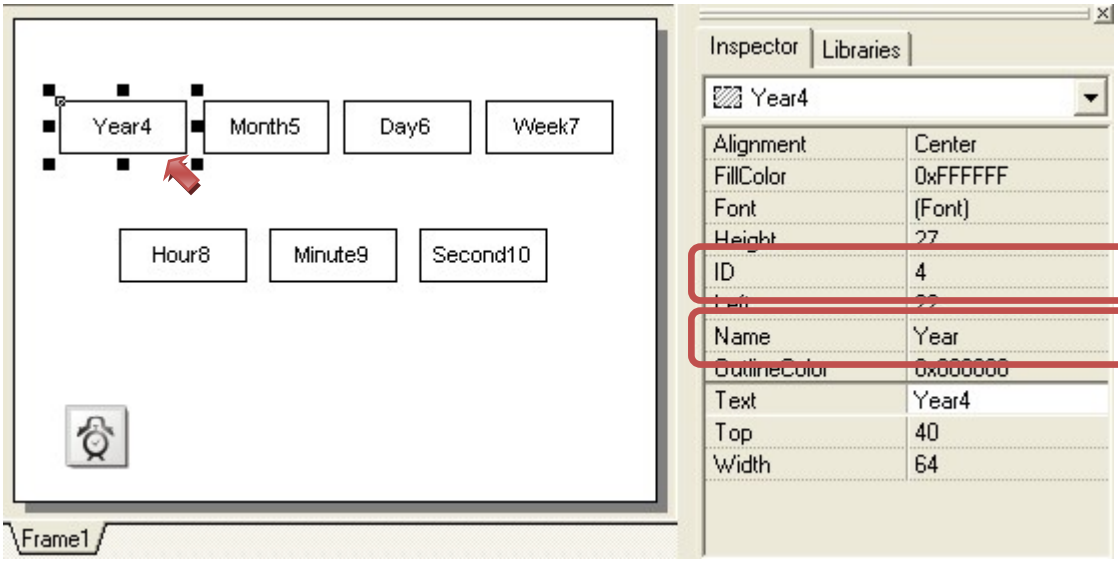


b. In the Program Editing Window, you can start to edit the program. Afterward, click on the menu-bar "File > Save & Close" to save it if the program has been completed.
Important Note: The variable name (selected as figure below) must be the same as the "Name + ID"property of the label (e.g. "Name + ID": Year4).



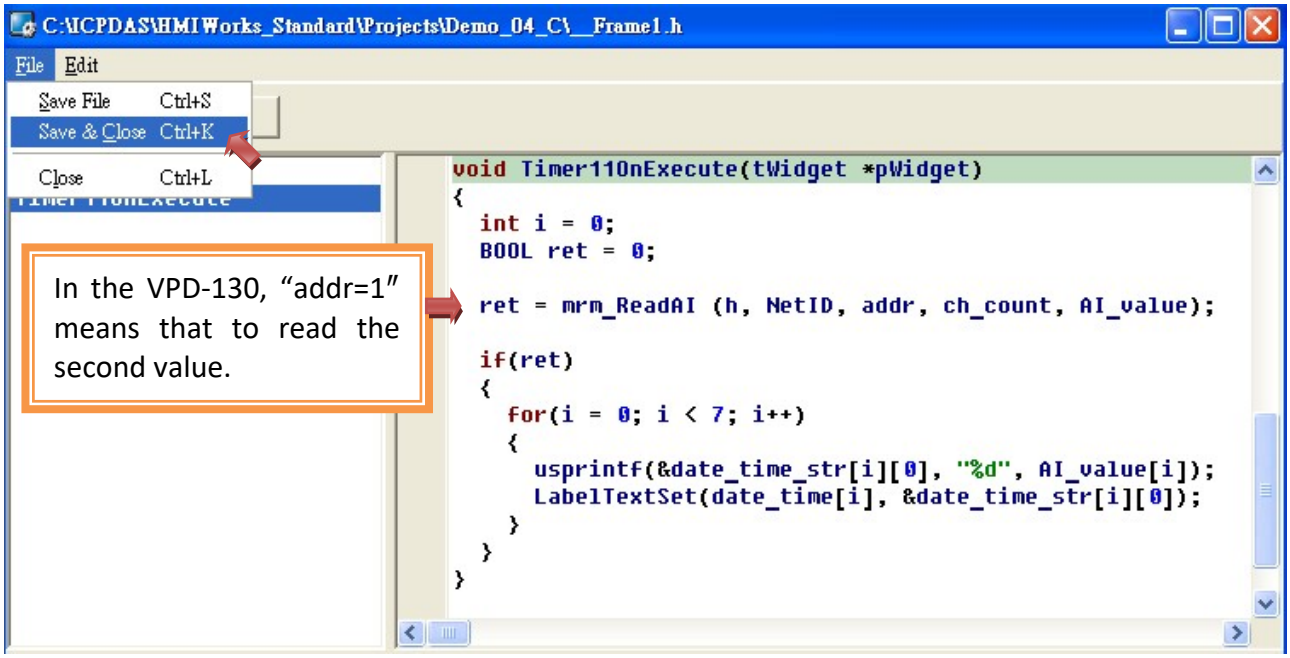
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c. **Thus**, modify the property name of Label in the "Name" and "ID" field. (e.g. Year4).



Step 2. Create "Timer" program.

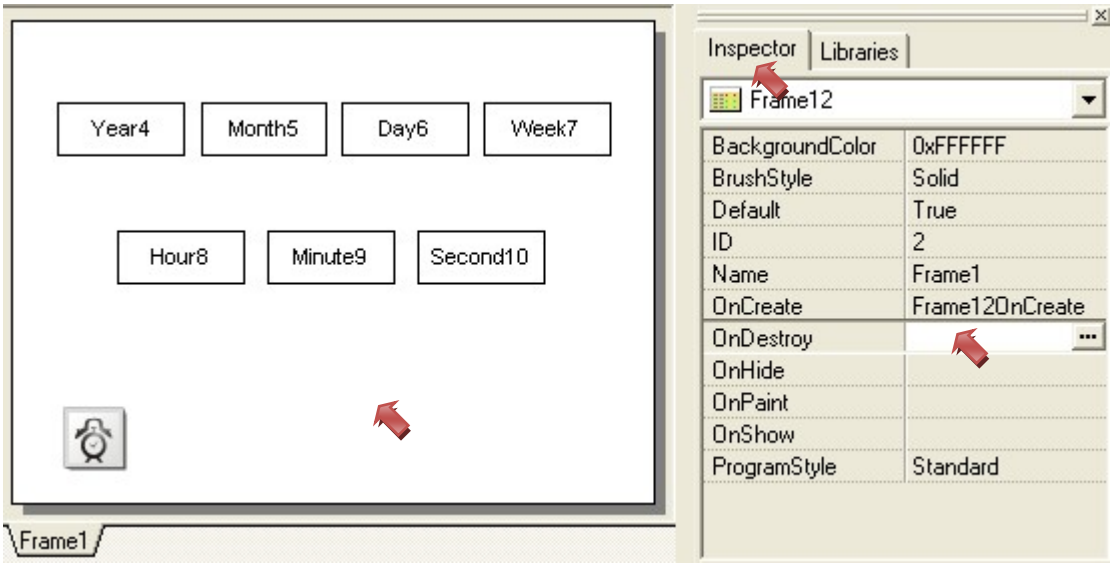
a. In the HMI Design Area, double-click the "Timer"  to open the program editing window.
b. In the Program Editing Window, start to programming and then click "File > Save & Close" in the menu-bar if you have completed the program.



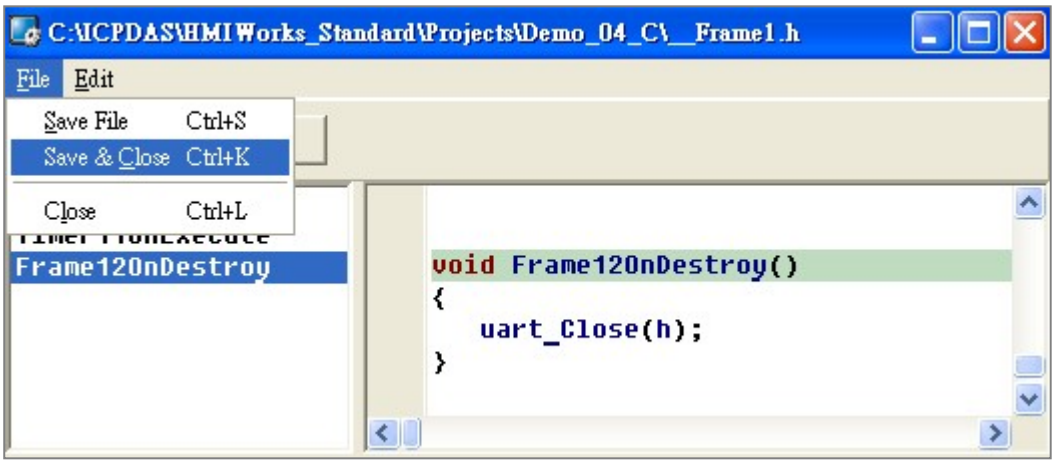
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Step 3. Create "OnDestroy" Program.

a. Click on the white space in HMI Design Area and click "Inspector > OnDestroy" in the right of the Attribute Area then double-click the blank field to open the Program Editing Window.



b. In the Program Editing Window, start to programming and then click "File > Save & Close" in the menu-bar if you have completed the program.



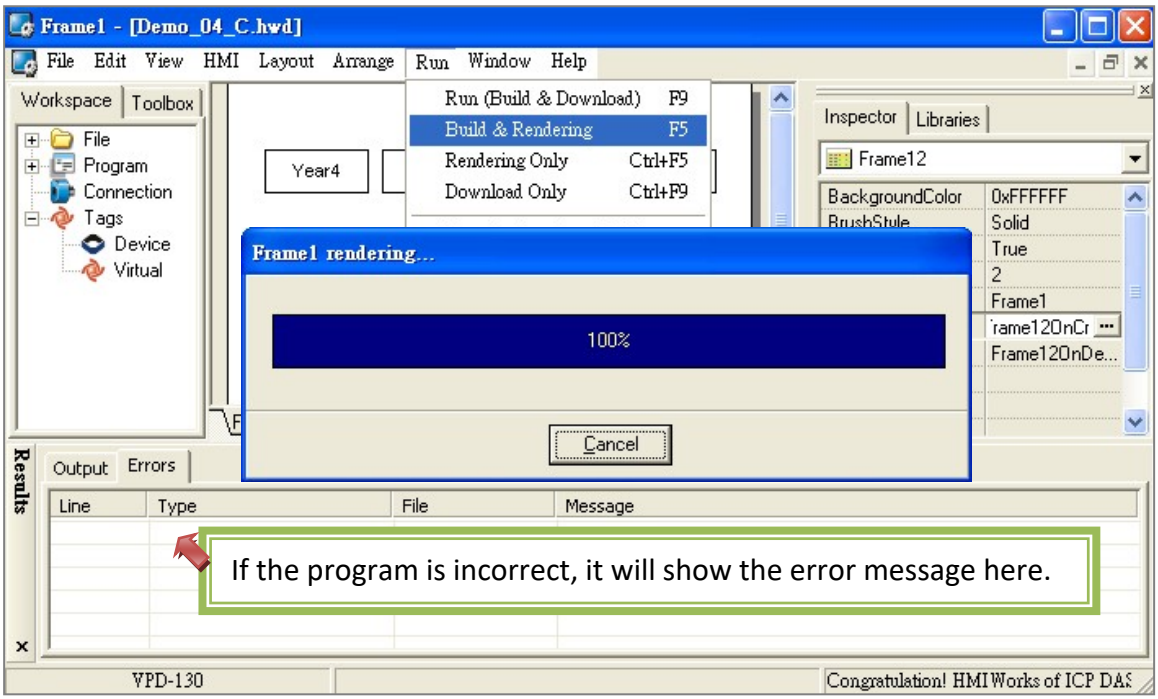
Now, you have finished the programming. In next section, we will introduce how to compile and download the demo into VPD-130.

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1.4. Compile and Download a Program

Step 1. Click "Run > Build & Rendering" to compile the program.

At the first compile, please run "Build & Rendering" to make sure the program is correct and then download it. (Next time, you can just click "Run (Build & Download)" to compile and download it).

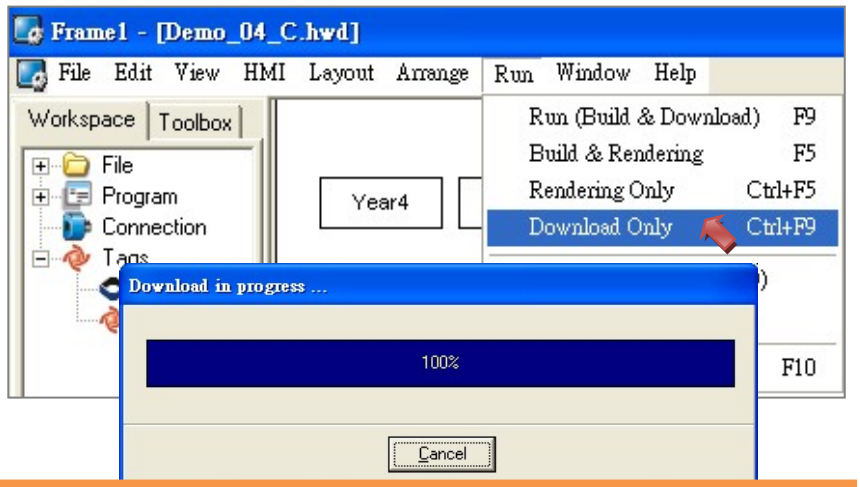


Step 2. Click "Run" > "Download Only" to download the program.

Before downloading, please connect the USB download cable to your PC and VPD-130, then turn the rotary switch (on the bottom of VPD-130) to "9" and then press "Reset" button to restart the VPD-130. **(Important Note: The VPD-130 only supports for USB download. Please refer to** http://www.icpdas.com/en/download/show.php?num=2272&nation=US&kind1=6&kind2=8&model=&kw=VPD **to install the USB driver)**



(VPD-130's screen)



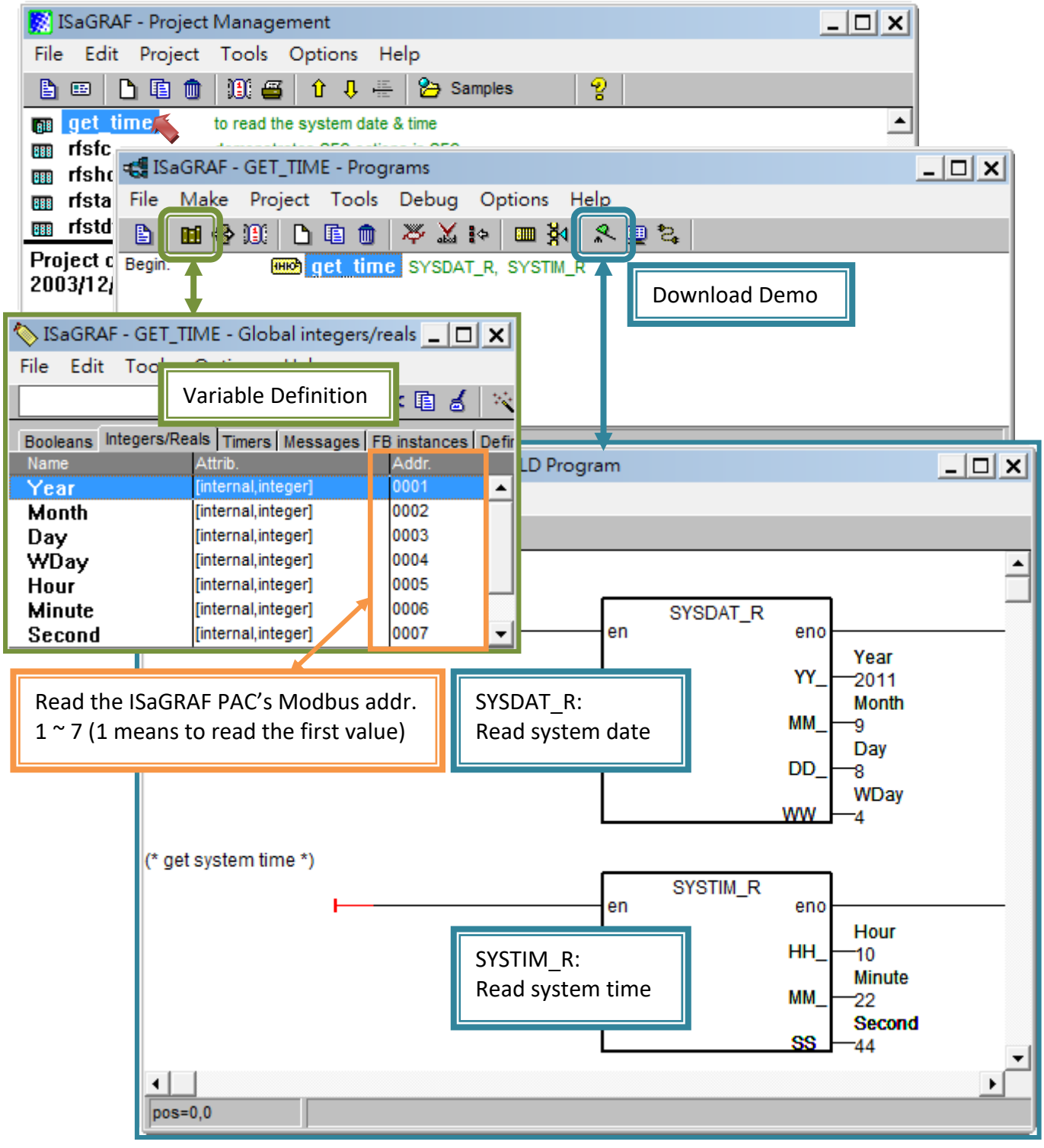
** (After downloading, turn the rotary switch to 0 and restart the VPD-130)

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1.5. ISaGRAF Demo

In the previous section, we have downloaded the Demo4 successfully and you can see the ISaGRAF PAC's system date and time showing on the VPD-130. Now, we will briefly introduce the ISaGRAF demo.

If you already restored the ISaGRAF demo, you can see "get_time" in "Project Management".



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