

Lesson 1. Hello World

1.1 [Create a program](#)

1.2 [Draw text on a page](#)

1.2.-1 [Create a draw text action](#)

1.2.-2 [Assign the action to an event](#)

1.2.-3 [Visually assign the action to an event](#)

1.3 [Run the program](#)

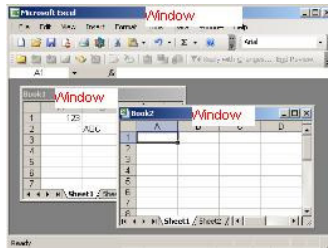
1.4 [What we learnt in this lesson](#)

1.5 [Exercises](#)

Some terminologies:

Application - A computer program is also called an “application”. A program created using Limnor System is called a “Limnor application”.

Window/Page – An application’s graphical user interface consists of one or more square blocks called windows or pages as shown below:



Excel application showing 3 windows

When you are doing programming to create your own applications, you will be creating windows and doing screen layout:



In this lesson, we are going to make a program to show a sentence “Hello World” on a window.

Action – An action is one thing you want your computer to do. To play music is an action; to show text on the screen is an action; to show a web site is an action, etc. Our every day life is full of actions: having lunch is an action; doing home work is an action; go shopping is an action; etc.


Event – An event is a specific moment. It is about a specific time, but it does not have to be the clock time. For example when a button is clicked that is a “Click” event occurs for the button. When a page closes that is a “Close” event occurs for the page. Our every day life is also full of events. For example, the time when an airplane is taking off is an event. Suppose a flight is scheduled to take off at 10:00 AM every day. If today the flight is on time then the event happens at 10:00 AM today. If tomorrow the flight is delayed to 11:00 AM then the event happens at 11:00 AM tomorrow.

Event-Action programming – Let an action to be performed at a specific event; that is doing programming. In this first lesson, we will make a program. The program has a button on a page. Click the button, text “Hello World!” is displayed on the page. Displaying “Hello World!” is an action. It is performed at the “Click” event of the button. Our every day life is full of such programming. For example, “when you come back, we go shopping together”. Here “go shopping together” is an action. This action is performed at the event of “when you come back”.

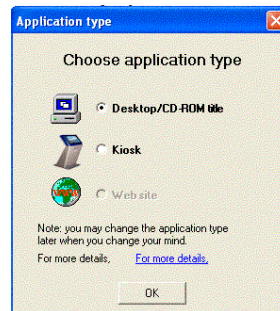
1.1 Create a program:



You may name your application. Limnor will create a new file for your application. The new file is named after the application name you chose. For example, if your application name is “App1”, then the file name is “App1.ezp”. If you give an application name “Vancouver”, then the file name will be “Vancouver.ezp”.

You need to specify a folder to save this new file. You may click button  to browse to a folder or to create a new folder.

After specifying your application name and folder, click the OK button. You will be asked to select the application type:



A Kiosk application will lock the computer so that no other programs can be launched by the user. The users can only use the kiosk application.

A Desktop application is a normal program. It will not lock the computer when it runs.

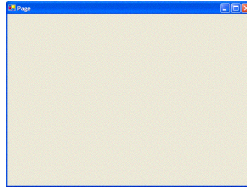
For this lesson, we select Desktop/CD-ROM title.

A file will be created using the file name you gave and using “.ezp” as the file name extension. In our case, a file named Lesson1.ezp is created. This file is the executable file of your program. You may double-click this file to run your program later. Let’s call this file a program file. While you are developing your program, Limnor automatically makes daily and hourly backups of this file. Daily backup files are named by appending a “_D” to your program files. For this example, it will be Lesson1.ezp_D. Hourly backup files are named by appending a “_H” to your program files. For this example, it will be Lesson1.ezp_H. These two files will be automatically generated and updated by Limnor system while you are developing your application. These two files will be in the same folder as where the program file is. If your program file is damaged somehow, you may try to use the backup file by renaming Lesson1.ezp_H (or Lesson1.ezp_D) to Lesson1.ezp.

It is highly recommended that you make your own backup plans to copy your program files periodically to somewhere else.

1.2 Draw text on a page

An empty page is created and displayed whenever a new application is created after selecting the application type:



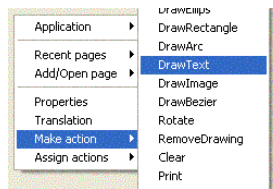
We will work on this first page. Note that this first page is automatically created by Linnor for new applications. You may create more pages. Many pages can be opened at the same time.

1.2.-1 Create a draw text action

Remember to have the computer do something we need to create an action for doing this “something”. We want to draw text on the first page. So we need to first create an action that draws text on the page. To create such an action, move your mouse pointer over this first page, then click the right mouse button. This operation is called “Right-click on this first page”. A context menu will pop up. When you select “Make action” from the menu, a set of sub-menus appears. These sub-menus are the “**Methods**” of the page. Each **method** represents one thing that the page can do. To actually ask the page to do something, we need to create an **action** using the appropriate **method**.

Note that a method of the page defines something the page can do. An action made by a method is actually something can be done. For example, suppose a performer is a singer. Then “sing song” is a method of the singer. “Sing Jingle Bells” is an action made from the “sing song” method.

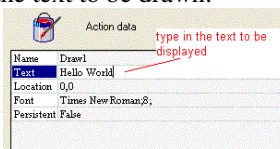
For this example, we select the “Draw Text” method from the sub menus:



You will be asked to give an action name. You need to give a name so that you can remember what this action will do. Let’s call this action “Page1.DrawHelloWorld”:



A dialog-box appears to let you type in the text to be drawn:



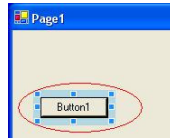
1.2.-2 Assign the action to an event

We have created an action named “Page1.DrawHelloWorld” which will draw a text on the page. The question is that when this action should be performed. In this lesson, we want this action to be performed when the user clicks a button. So, let’s add a button to the page.

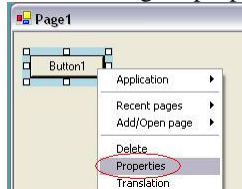
Click Performers menu, select “Basic”, drag and drop Button to the page:



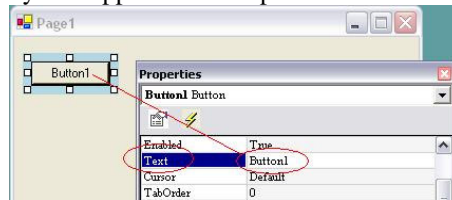
A button appears on the page:



To change the caption of the button, you may set its “Text” **property**. Right-click on the button, choose “Properties” to bring up a “Properties” window showing all properties of the button:



What you type in the Text property will appear as the caption of the button:



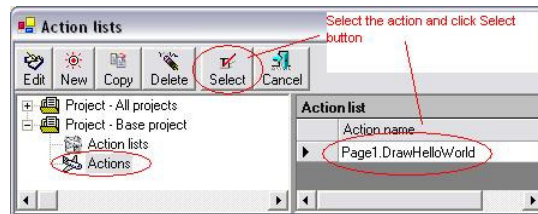
From the Properties window you can see a button has many properties. Each property indicates an attribute or state of the button. In this lesson we do not need to change any properties. We only deal with the events of the button.

Right-click on the button (move mouse pointer over the button and click the right mouse button); a context menu pops up. At this point we need to choose from the selection of possible “events” that can take place with a button and assign our “Page1.DrawHelloWorld” action to it. Select “Assign actions”, and select “Click”:

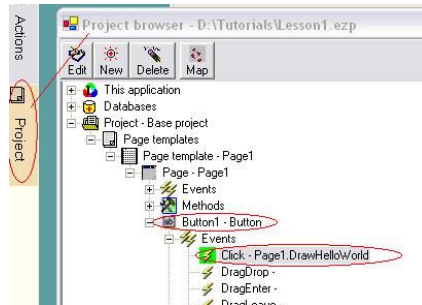


“Click” is an event which occurs when the user clicks on the button.

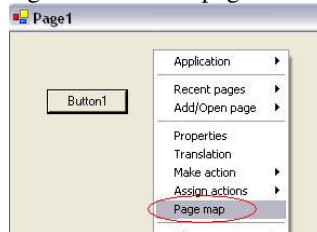
A dialog box appears to let you select an action or an action list (multiple actions in sequence) to be carried out at this event. Let’s select the action, “Page1.DrawHelloWorld” we have just created:



You can see this action assignment in the Project Explorer window. Click “Project” to open the Project Explorer window. Expand Events node under Button1. You will see action “Page1.DrawHelloWorld” is assigned to the “Click” event.

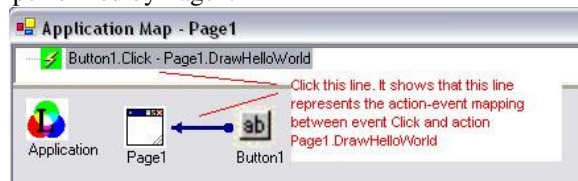


You may also see the program flow by right-click on the page and choose “Page map”:



1.2.-3 Visually assign the action to an event

The programming task of the lesson is done. You can see a line drawn from the Button to the Page. The line represents a mapping between the event “Click” of the Button1 and the action “Page1.DrawHelloWorld” performed by Page1.



In this section we show you that you can do the programming visually from the “Page Map”. For example, we may remove the action-assignment we just did and re-do it, all visually from this Page Map. Right-click on the line linking the button and the page, choose “Remove Event Handler (Click – Page1.DrawHelloWorld)”:





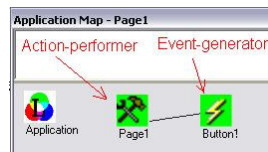
You will see the line is removed (Think about it. What does this mean?):




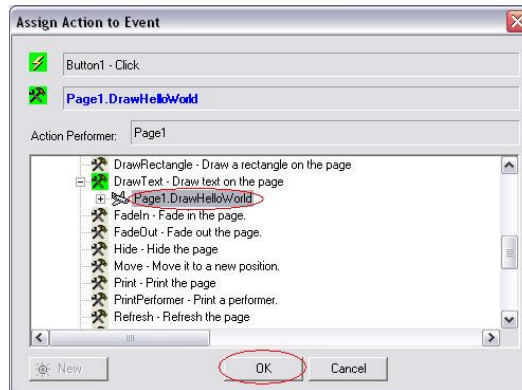
Now let’s re-make the link. Right-click on the button, choose “Link Event to Action” and choose “Click”:



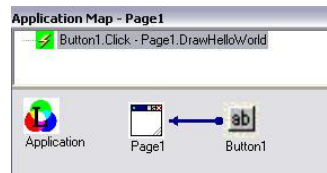
Once you choose “Click” event, you will see the button icon changed to an event-icon , indicating that the button is used as the event-generator, and a line is drawn from the button to the mouse pointer. When you move the mouse pointer over an icon, that icon changes to an action-icon , indicating that the icon will be used as the action-performer:



If you click on  to confirm the link then a dialogue box will appear showing all the methods of the action-performer and all the actions under each method. We may find the action “Page1.DrawHelloWorld” under method “DrawText”:



Click “OK”, the action is assigned to the Click event, and you will see a line is drawn from the button to the page:



You can see that we have done the same task accomplished in section 1.2.-2 again, using a different way. The visual way presented in this section helps you to understand the programming components and logic.

1.3 Run the program

Now let’s run the program we just created. Click the Run button:



, or press the F2 key to run your program.

The program runs and Page1 appears:



Click the button, and “Hello World” appears on the page:



Congratulations! Your first Limnorr application is running as programmed. At this time the application is at run mode or say runtime.

Press the F2 key again, it will return to design mode, and you can keep developing the program.

Now we need to explain the terms “**design mode**” and “**run mode**”. They are also mentioned as “**design time**” and “**runtime**”. If you never developed computer programs before then these terms probably are new to you.

If you never developed computer programs before then you only used computer programs in “run mode” or “runtime”. You were an “**end user**” of the computer programs, like most people in the world are. It is like you drive your car on the streets, you are the driver and the car is always in “run mode” at your hands. Your role changes when you use Limnorr to develop programs. You are a **developer** now, not an end-user. It is like you are in a garage fixing cars. You are not a driver but a car repairer, and the cars are in “design mode”, not “run mode”.

It is very important that you understand your role change. Keep it in mind that you are a program maker (developer) not a program user now. The Limnorr system is to enable you to become a program maker.

	Your role related to program	Program mode	Your role related to car	Car mode
Using it	End User	Run mode	driver	Car on street
Making it	Developer	Design mode	repairer	Car in garage

1.4 What we learnt in this lesson

- We learnt following terms, make sure you understand every one of them:
 - **Application**
 - **Window/Page**
 - **Method**
 - **Action**
 - **Event**
 - **Property**
 - **Page Map**
 - **design mode/ design time**
 - **run mode/ runtime**
 - **developer**
 - **end user**
- To do Limnorr programming is to make actions and assign actions to events.
- Right-clicking on a page or button brings up the context menu belonging to the page or button.
- The “Make action” menu is used to create actions.
- The “Assign actions” menu is used to assign actions to events.

1.5 Exercises

Exercise1.

Make a program to display “Hello World” when the user clicks on the page.

Hint: Make a draw text action and assign it to the “Click” event of the page (right-click on the page and select “Assign actions”).

Exercise2.

Make a program to display a picture when the user clicks on the page.

Hint: A page has a DrawImage method, which you can use to create an action to draw a picture with a picture file.