

## Moving a PictureBox With the Timer

Every control on your Form has a Location property. You can both get and set this value. The main idea here is to use a Timer to change the value of the x, y or both coordinates of a control. We will use a PictureBox in this example.

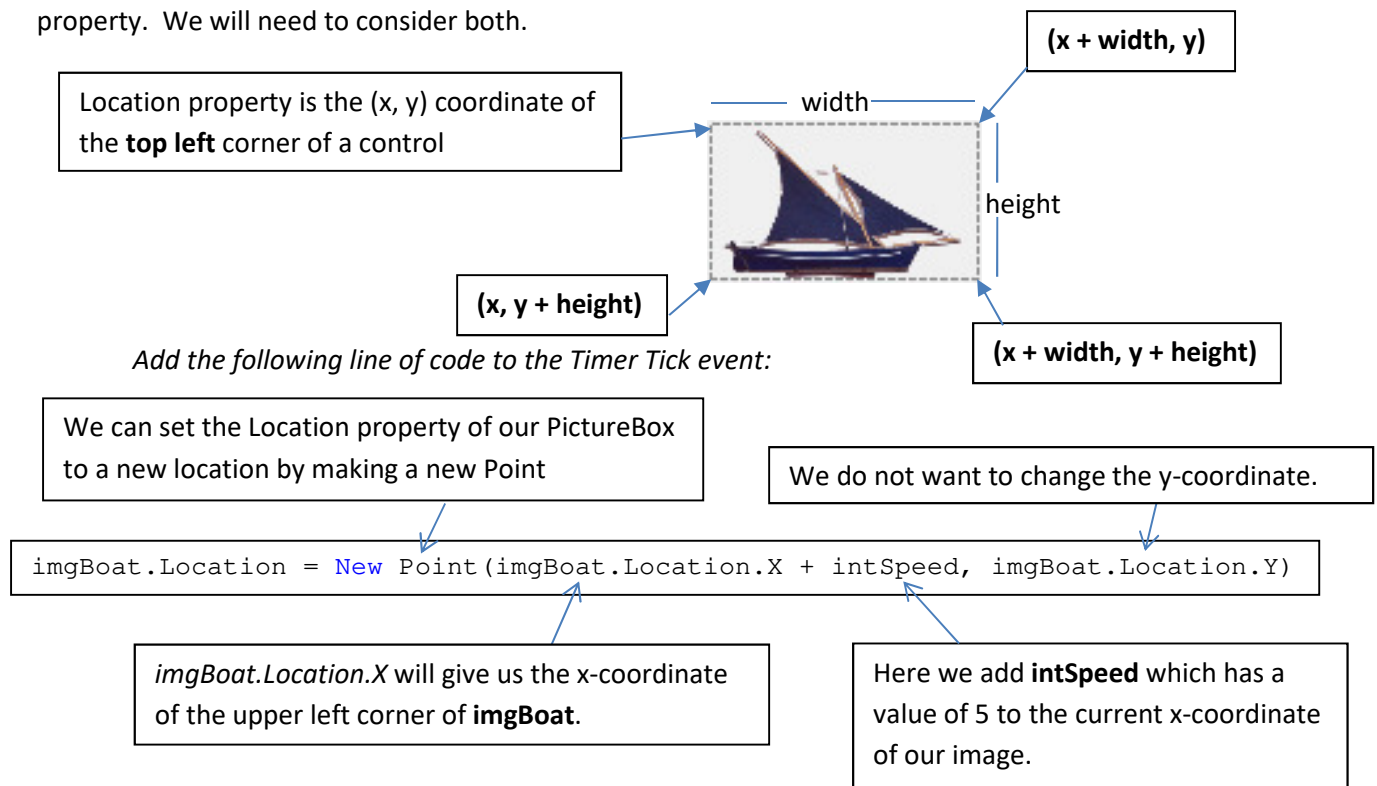
Start by creating a new project. You may name it whatever you like. Name your Form appropriately (mine will be called frmTestMove). Add a PictureBox named **imgBoat**, and add an image of a boat.

Make an integer variable called **intSpeed**. This is how we will control how far our image moves each time out timer is executed. Set its value to 5 in the Form\_Load event.

The Timer below will change the location property of the PictureBox at a regular interval.

Add a *Timer* to your form and name it **tmrMoveBoat**. Set the interval to 300 (or whatever you like). We will use this Timer to change the position of our PictureBox. Set the **enabled** property of the timer to *true*.

A PictureBox has a **Location** property that has an X and Y coordinate, and it has a **Height** and **Width** property. We will need to consider both.



Can you make the image move up/down instead? What about moving it diagonally?

You can change the speed of movement in one of two different ways. Can you identify both? What is the difference? Try each.

## How do I make my image change direction when it hits the right side of the screen?

Each time we change the location of our image we can test to see if its right side has hit the edge of our screen. Once we detect this we can just change **intSpeed** to be a negative value so that it moves in the other direction.

Update the Tick event of your Timer with this **'If'** statement to detect when the **right** side of the boat is past the right edge of the Form. When this happens, reverse the direction of movement.

Because the x-coordinate of the **Location** property of our PictureBox is the upper **left** hand corner, we need to add its width so we know the x coordinate of its right side.

**Me.ClientSize.Width** is the width of the Form body.

```
If imgBoat.Location.X + imgBoat.Width >= Me.ClientSize.Width Then
    intSpeed = intSpeed * -1
End If
```

By multiplying **intSpeed** by -1 we can reverse its direction.

### Things to try:

- change the image in the PictureBox when it hits the side
- have the PictureBox stop moving when it hits the side
- have the PictureBox move at a random speed
- when the PictureBox hits the side of the Form, restart it back in the middle
- have more than one PictureBox moving at the same time (you may use multiple Timers/speed variables)
- have the PictureBox bounce off the left side of the screen as well
- move the PictureBox up and down (hint: make another speed variable for the y direction)
- move the PictureBox diagonally
- try to have the PictureBox bounce diagonally off a wall (hint: multiply horizontal and vertical speed by '-1' when a wall is hit)
- move the PictureBox in a random direction when it hits the side/top/bottom
- add sounds, background images, etc.