

# Updating Controls from Non-GUI Thread

Here are a couple methods for how to update form controls from a non-GUI thread.

## Explicit Setter Method

The following is an example method that can be called by non-GUI thread.

It first checks if running on the GUI thread.

If not, it will invoke a delegate (onto the GUI thread) that calls the same method.

If on the GUI thread, execution drops to the method bottom that does the update, on the GUI thread.

```
private void Append_Update_Status(string msg)
{
    if (this.InvokeRequired)
    {
        this.Invoke((MethodInvoker)delegate
        {
            Append_Update_Status(msg);
        });
    }

    return;
}

this.txtUpdateStatus.Text = this.txtUpdateStatus.Text + msg + "" + "\r\n";
}
```

## Generic Property Helper

Here's a helper class that you can leverage, to update any Control property from a non-GUI thread.

It will perform the Invoke work for you.

```

private delegate void SetControlPropertyThreadSafeDelegate(Control control,
                    string propertyName,
                    object propertyValue);

public static void SetControlPropertyThreadSafe(Control control,
                    string propertyName,
                    object propertyValue)
{
    // See if we are not on the GUI thread.
    if (control.InvokeRequired)
    {
        // Passa message to the GUI thread to update the control.
        control.Invoke(new SetControlPropertyThreadSafeDelegate(SetControlPropertyThreadSafe),
                        new object[] { control, propertyName, propertyValue });
    }
    else
    {
        // We are on the GUI thread.

        // Update the control.
        control.GetType().InvokeMember(propertyName,
                    System.Reflection.BindingFlags.SetProperty,
                    null,
                    control,
                    new object[] { propertyValue });
    }
}

```

You can call it, like this:

```

static public void Update_Form_Status(string msg)
{
    FormHelpers.SetControlPropertyThreadSafe(formcontrol, nameof(Control.PropertyName), msg);
}

```

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