



# Working with Data

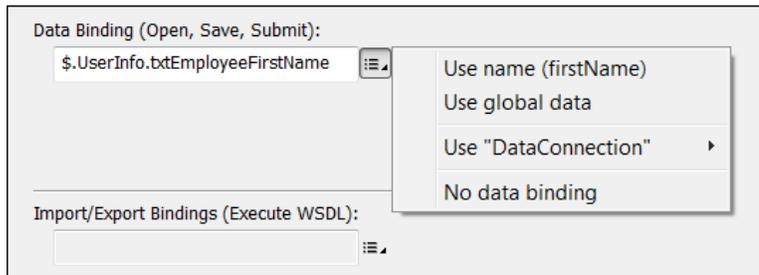
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## Working with Data

Designer enables you to integrate your forms with data by binding your form objects to a data source or schema, formatting your data fields with patterns, and validating your user's data directly in the form.

### Data binding

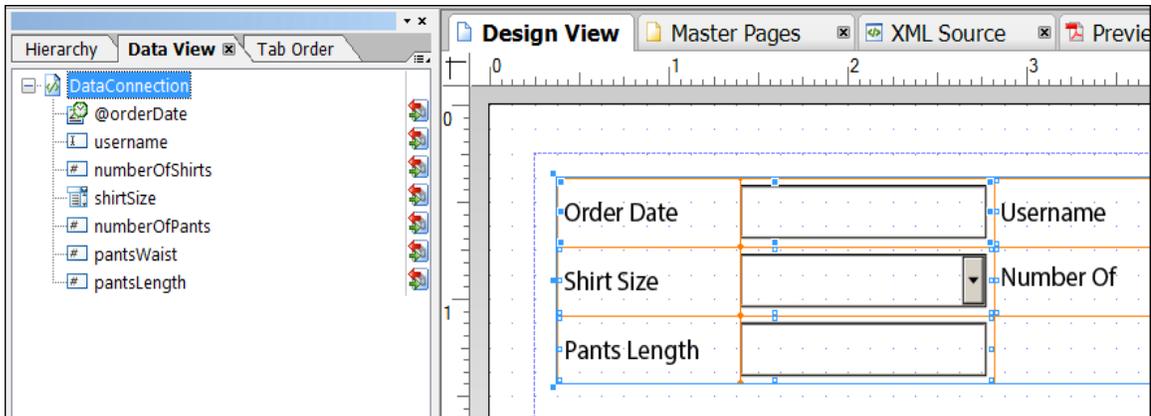
*Data binding* is the process of mapping your form objects to elements in a data file. Typically, you'll bind your form objects to elements in an XML schema or an XML data file. You can see a field's data binding with the Binding tab of the Object palette (*shown here*). The Binding tab is one way to set a form field's data binding.



Here are the options for data binding.

- **Use name:** When you drag and drop form objects onto a blank form; Designer will create an implicit data binding, and the XML data associated with your form will use the form structure and field names in your form. Designer refers to implicit binding as *Use name* which means you are using the names of your form fields for the names of the data elements.
- **Use global data:** If you set a form object's binding property to *Use global data*, all other form objects with the same name will have the same data value. For example, if you have four Text Field objects with identical names and one of the objects is set to *Use global data*, they'll all be set to *Use global data*. This is referred to as global binding. If a form filler changes the data in any one of these fields, the data in all the others will be replicated to match.
- **Use DataConnection:** Data Connection is the process of binding your form fields directly to a data connection like an XML schema or other data source. The exported data from this type of form will have the same structure as the data source. This type of binding is often called *explicit binding* because you're explicitly connecting a field to an external data source.
- **No data binding:** When a field is set to *No data binding*, it doesn't participate in the data binding; data will not flow into the field, and data will not flow out. All fields and subforms that don't need to have data imported or exported should be set to *No data binding* to improve the performance of importing and exporting data.

This illustration shows an example of DataConnection binding. The icons to the right of each data node indicate that the node is bound to a form field.



There are two ways to set a form field's binding to a data connection.

- You can use the Binding tab of the Object palette as shown previously.
- You can drag and drop data elements from the DataConnection to your form fields (as shown above).

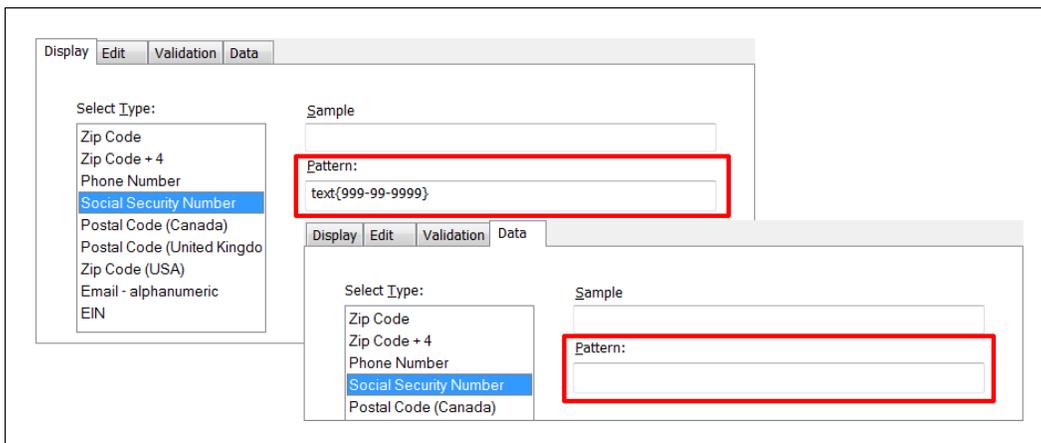
**Note:** In addition to these typical binding methods, you can also use JavaScript to import data and bind it to your form objects. This is helpful when you need to perform some scripting logic on the data in addition to binding it to the form objects.

## Data formatting

Designer enables you to control how data is displayed in your form and how it's formatted when it's exported from your form.

- You can add a Display Pattern to a form field to format the display of the data for the form filler.
- You can also add a Data Pattern to format the exported data that comes from the form.

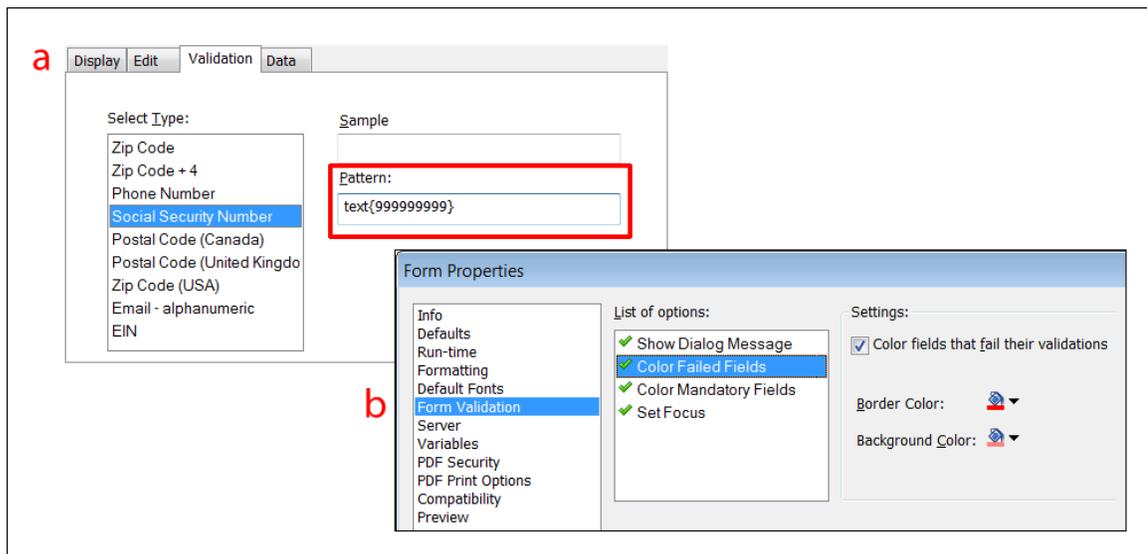
As shown here, the US Social Security number has a Display Pattern but not a Data Pattern. So, the form filler will see a social security number with the dashes but the exported data will just be the numbers.



## Data validation

Data binding and data formatting are closely related to data validation in Designer. Data validation is the process of checking the data on an interactive form, and Designer provides many methods and tools. You can validate data with patterns and with JavaScript. Designer also includes powerful visual tools to help you with form validation and you will use these tools in the exercises. There are two primary strategies for data validation.

- **Field validation:** You can validate data as a user fills in each field. You can do this with Validation patterns (*a in the illustration below*) or with JavaScript.
- **Form validation:** You can also validate the entire form when a user submits the form. In this case, you are typically validating that the user has completed all required fields. You can create form validation with Designer's *Form Validation* tool in the *Form Properties* dialog box (*b in the illustration below*).



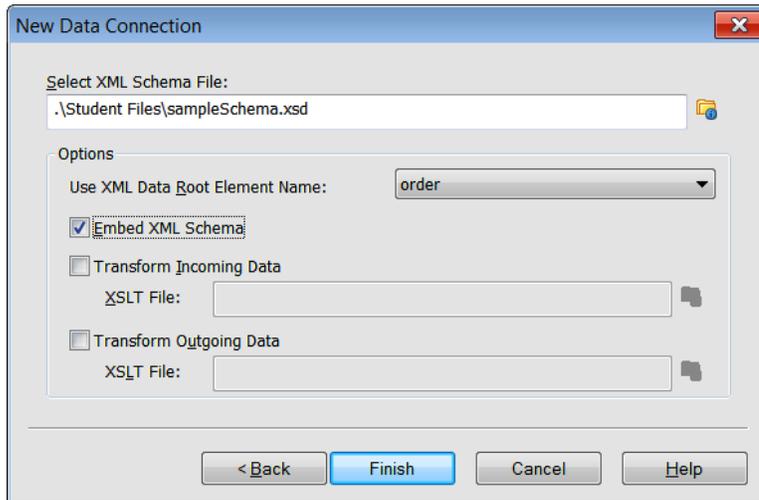
## Exercises

### Binding to an XML schema

If you're new to Designer, this is a simple but effective demonstration of the remarkable integration that Designer has with data files. In a corporate environment, this is important because your forms will produce data that meets all the stringent requirements of your enterprise systems and databases. Follow these steps to bind a new blank form to an XML schema:

1. Create a new blank form by choosing **File – New**. Designer opens the New Form Assistant.
2. Select **Use A Blank Form**, and click **Next** to continue.
3. Keep the defaults on all subsequent screens, and keep clicking **Next** until you get to the **Finish** button.
4. Click **Finish** to create your new form.
5. Switch from the Hierarchy palette to the **Data View** palette on the left side of your workspace. If you don't see the Data View tab, choose **Window - Data View**. The Data View palette should be empty.
6. **Right-click** on the empty Data View palette, and choose **New Data Connection**. Designer launches the New Data Connection wizard.

- Enter **sampleSchema** as the name of your connection.
- Select **XML Schema** and click **Next**.
- Click **Browse** and select the **sampleSchema.xsd** file in the Student Files.
- Click **Open**.
- Select **Embed XML Schema**. This will include the schema in your form file.

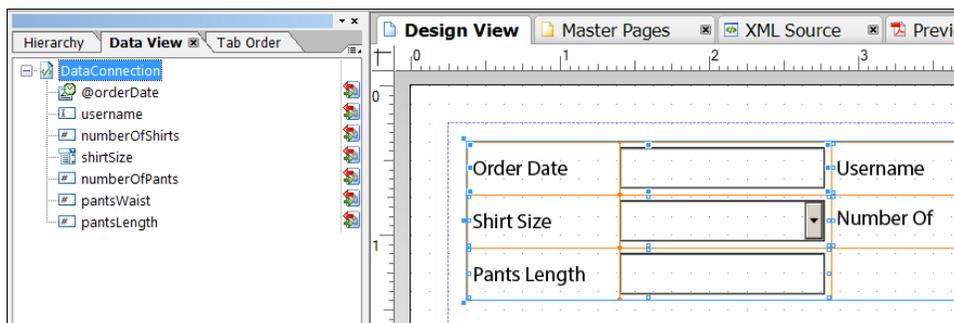


**Note:** Although you won't use these options in this exercise, you can transform the XML data your Designer forms use at runtime with an XSLT file.

- Click **Finish** to create your connection.

Your Data View palette will be populated with the data objects illustrated below.

- Drag and drop** the data connection onto the upper-left corner of your form. Designer automatically creates the data-bound form fields for you.



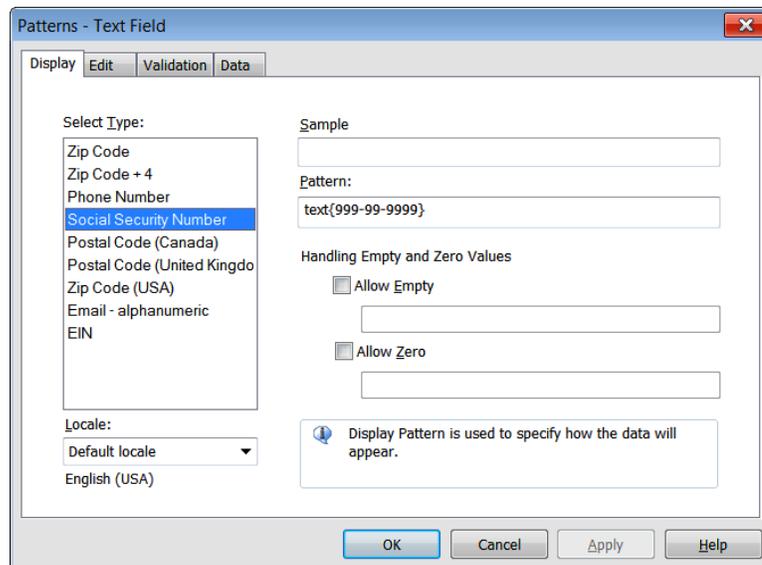
- Save your file as **mySampleSchemaForm.xdp**.
- Select **Preview PDF** in the Layout Editor to see that attributes from the schema are now in your form.
- Click the **Shirt Size** drop-down list. The three available choices—*Small*, *Medium*, and *Large*—came directly from the XML schema file. These values are an enumeration in the schema, and this example shows you one way your forms can benefit from explicit data binding.

17. Enter a length of **27** in the Pants Length Text Field and press Enter. You'll receive a *"The value you entered for pants length is invalid."* message. This data validation JavaScript was automatically generated by Designer based on a restriction in the schema file.
18. Switch back to **Design View** and select the Order Date field. This is an example of a Designer Date field, and it contains a data pattern.
19. Click the Pattern button on the Field tab of the Object palette to bring up the Patterns dialog box.
20. Select the Data tab to see the data pattern **date{YYYY-MM-DD}**. The XML data that's output from this field will correspond to this pattern.

## Data Formatting

Follow these steps to learn more about data formatting in Designer:

1. Create a new blank form by choosing **File – New**. Designer launches the New Form Assistant.
2. Select **Use A Blank Form**, and click **Next** to continue.
3. Keep the defaults, and click the **Finish** button to create your new form.
4. Drag and drop the **U.S. Social Security Number** object from the Custom tab of the Object Library palette to the Design View.
5. With the U.S. Social Security Number (SSN) object selected, select the Field tab of the Object palette.
6. Click the **Patterns** button. The Patterns dialog box appears. The Display tab shows the pattern that will be assigned to the nine digits that are entered into this field at runtime.



7. Selection the **Validation** tab.
8. The pattern indicates that the field requires 9 digits.
9. Click **OK** to close this dialog box.
10. Click **Preview PDF** and enter nine digits into the SSN field. Upon field exit, the display of your nine digits will match the data format that was set in the Patterns dialog box.

11. Return to Design View.
12. Save your file as <yourname> **Validation.xdp**.

**Note:** The built-in Designer patterns work fine in PDF forms and documents, but not all of them work when you render your form as HTML.

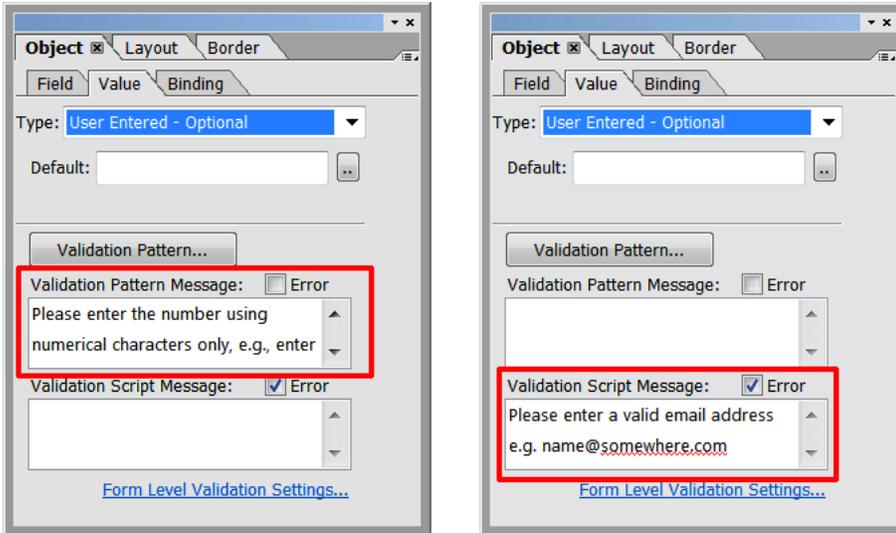
## Data Validation

13. Expand the **Custom** tab of your Object Library.
14. Drag and drop the **Email Address** object to your form and put it below your SSN field.
15. With the Email Address selected, open or expand the **Script Editor**.
16. Select the **validate** event.
17. You will see a script that is more complicated than it needs to be. The same functionality can be found with this much simpler script.

```
var r = new RegExp("^([a-z0-9_\\-\\.]+\\@[a-z0-9_\\-\\.]+\\.([a-z]{2,3})$");  
var result = r.test(this.rawValue);  
result;
```

18. Click **Preview PDF**.
19. Enter eight digits into the SSN field and hit Tab or Enter.
20. Notice the message.
21. Click **Ignore** to close the message box.
22. Enter **NotAnEmailAddress** in the email address field and hit Enter.
23. Notice the message.
24. Click **OK** to close the message box and switch back to **Design View**.
25. Select the **U.S. Social Security Number (SSN)** object.
26. Select the **Value** tab of the **Object** palette.
27. Notice the **Validation Pattern Message** (see illustration).
28. Select the **Email Address** object.
29. Select the **Value** tab of the Object palette.
30. Notice the **Validation Script Message** (see illustration).

You can customize these messages.

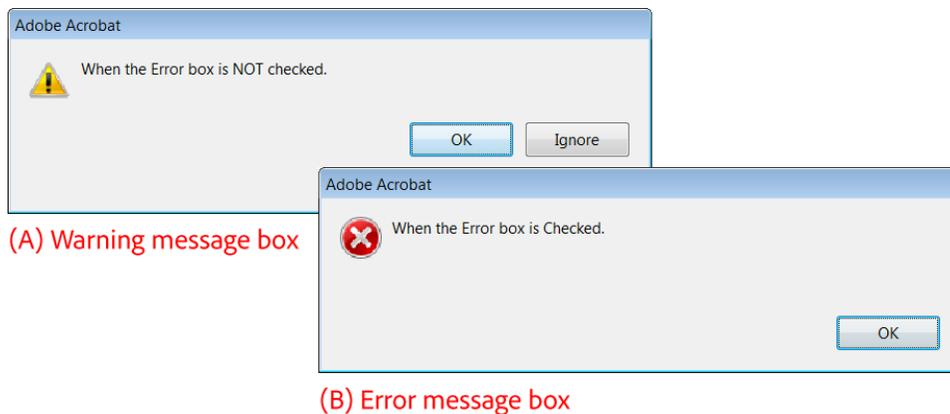


**Note:** To start a new line in a message, press **Ctrl+Enter**.

## Error or Suggestion

These next few steps will show you the difference between checking and not checking the Error checkbox. When Error is checked, the user will see an Error icon appear instead of a Warning icon.

1. Open **Form Validation.xdp** from your Student Files.
2. Click the first SSN field and select the *Value* tab in the *Object* palette. Notice that the Error is NOT checked. This is also true for the first email field.
3. Click the second SSN field and select the *Value* tab in the *Object* palette. Notice that the Error is checked. This is also true for the second email field.
4. Select **Preview PDF**.
5. When you fail a validation for the first two fields, you will see the **Warning message box (A)**. You can choose to ignore the warning.
6. When you fail a validation for the second two fields, you will see the **Error message box (B)**.

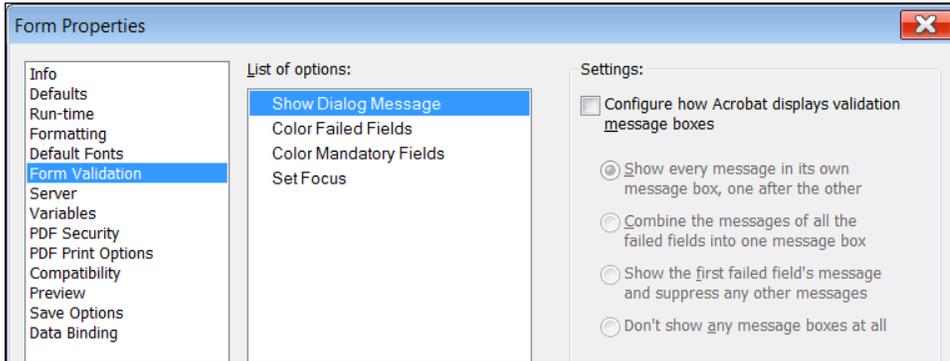


7. Go back to **Design View**.

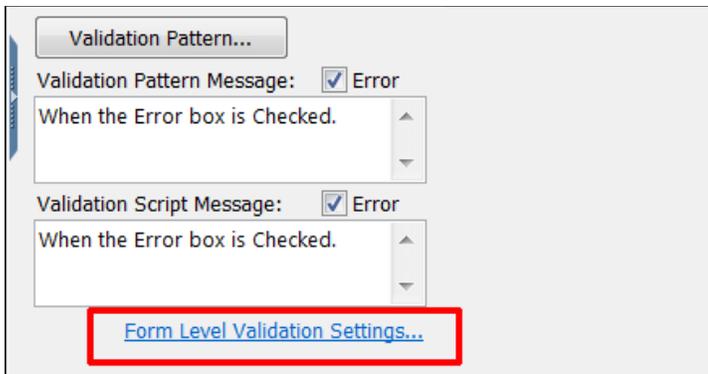
**Note:** The Form Level Validation Settings (**File – Form Properties – Form Validation**) can override the Field Level Settings. For instance, if you select **Combine the messages of all the failed fields into one message box** in your Form Level Validation Settings, all the message boxes will default to the Error icon.

## Form Level Validation Settings

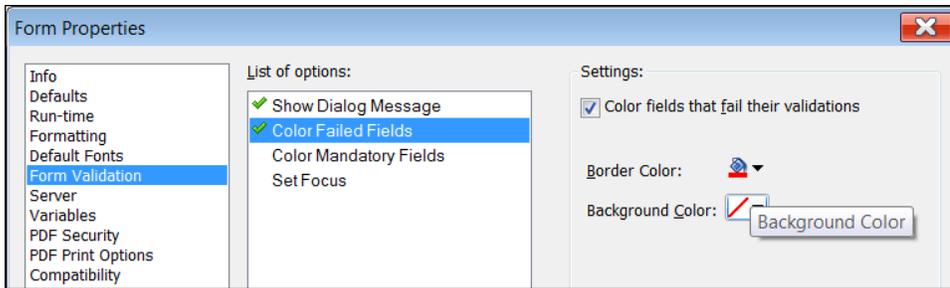
8. Select **File – Form Properties – Form Validation** to open the Form Level Validation settings.



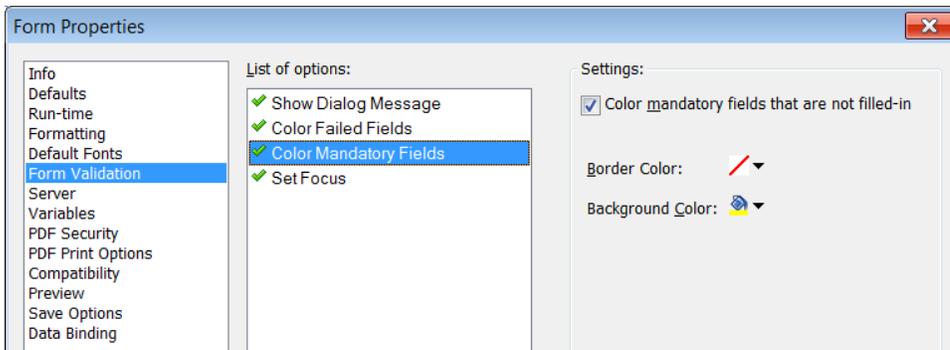
**Note:** You can also open these settings by clicking the blue link at the bottom of the Value tab in the Object palette.



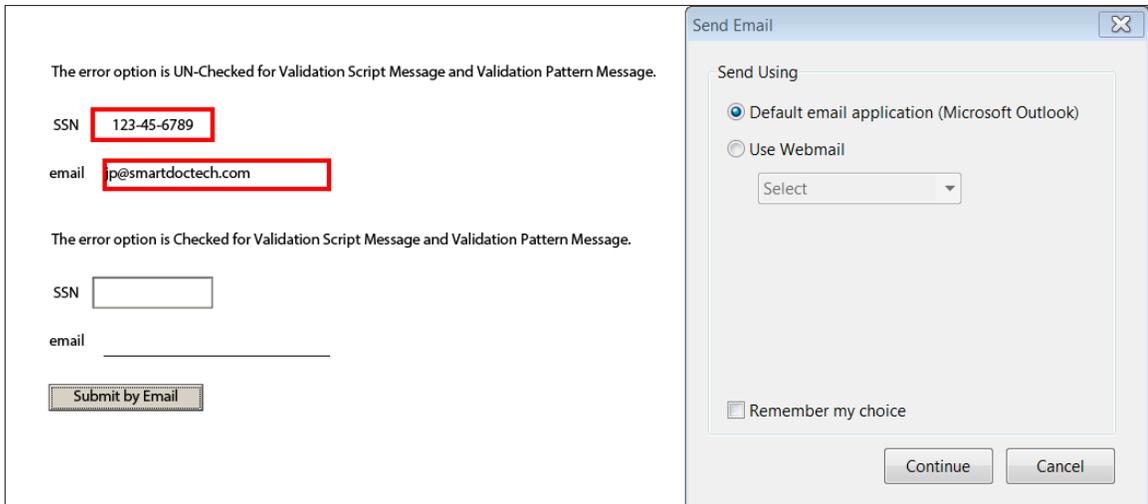
9. Select **Show Dialog Message** in the *List of options*.
10. Select **Configure how Acrobat displays validation message boxes**.
11. Select **Show every message in its own message box, one after the other**.
12. Select **Color Failed Fields** in the *List of options*.
13. Select **Color fields that fail the validations**.
14. Set the Border Color to **red**.
15. Set the Background Color to **None**.



16. Select **Color Mandatory Fields** in the *List of options*.
17. Select **Color mandatory fields that are not filled-in**.
18. Set the Border Color to **None**.
19. Set the Background Color to **yellow**.



20. Click **Set Focus** in the *List of options*.
21. Select **Set Focus to the first field that fails to validate**.
22. Click **OK** in the *Form Properties* dialog.
23. Select **Preview PDF** to see how your form validation performs.
24. Click the **Submit by Email** button. You should see a message box and your required fields should be highlighted.
25. Click **OK** in the message box.
26. Enter **123456789** for the SSN and your email for the email. As you enter these values, the yellow background will disappear. This is an indication that your mandatory fields have met the validation.
27. Enter a valid email address and tab away from the field.
28. When your required fields are completed, you can click the **Submit by Email** button again. You should see the *Send Email* Dialog. You do not need to submit the form. The purpose is to show you how the form validation is invoked and how it is satisfied.



With the fundamental Designer concepts under your belt, you're ready to learn how to customize your environment to make it easier to create consistent and professional forms and documents.