SharePoint 2016 Power User Training

with examples and
hands-on exercises

WEBUCATOR

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Class Files

Download the class files used in this manual at https://static.webucator.com/media/public/materials/classfiles/SHP2016.2-1.1.1.zip.

Errata

Corrections to errors in the manual can be found at https://www.webucator.com/books/errata/.

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☑ Assigning out-of-box workflows to a list or library.

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☑ Approving an item using a task created by the out-of-box Approval workflow.

Introduction

Content approval can be used on both lists and libraries in a SharePoint site. With content approval enabled, you have additional options to control the visibility of items. Content approval is enabled through the list/library settings page.

Content can be approved manually through the context menu and toolbar of an item or it can be automated with workflows. SharePoint includes a workflow specifically for approving content.

1.1. Enabling Content Approval

The following walk-through will show you how to create a custom list and enable content approval for it.

1. Create a new custom list in your site named “Approval Items”.
    A. Click the **Settings** icon and choose the **Add an app** item.

B. Select **Custom List** from the template choices and type “Approval Items” in the **Name** field.

C. Click the **Create** button to complete creating the list.

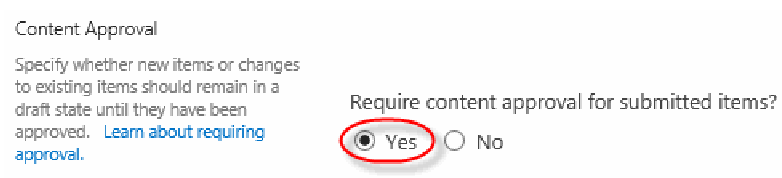
2. Enable content approval on the **Approval Items** list.

   A. Click the **Approval Items** link in the **Quick Launch** to navigate to the new list.

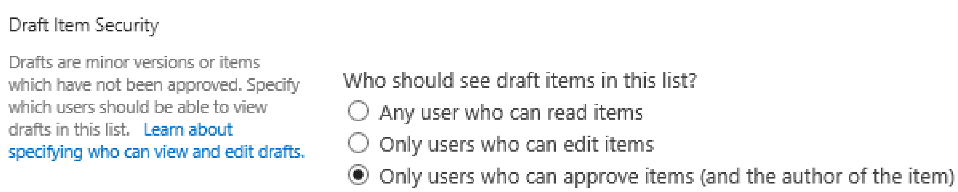
   B. Click the **List Settings** button on the **LIST** tab toolbar of the **Approval Items** list.

   C. Click the **Versioning settings** link under the **General Settings** group of the **Settings** page.

   D. Click the **Yes** radio button option for the **Content Approval** setting.



   E. Verify the **Draft Item Security** setting is set to **Only users who can approve items (and the author of the item)**.



   F. Click the **OK** button to save the version settings change.

3. Create a new item in the **Approval Items** list and approve it.

   A. Click the **Approval Items** link in the site’s **Quick Launch**.

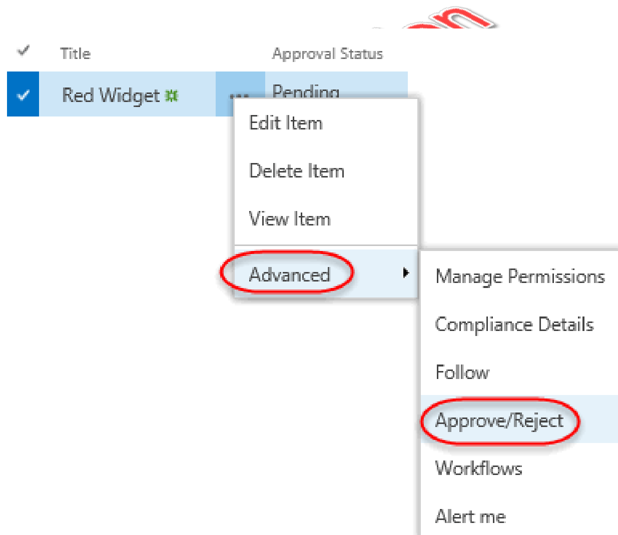
   B. Click the **new item** link.

   C. Type “Red Widget” in the **Title** field of the **New Item** form and click the **Save** button.

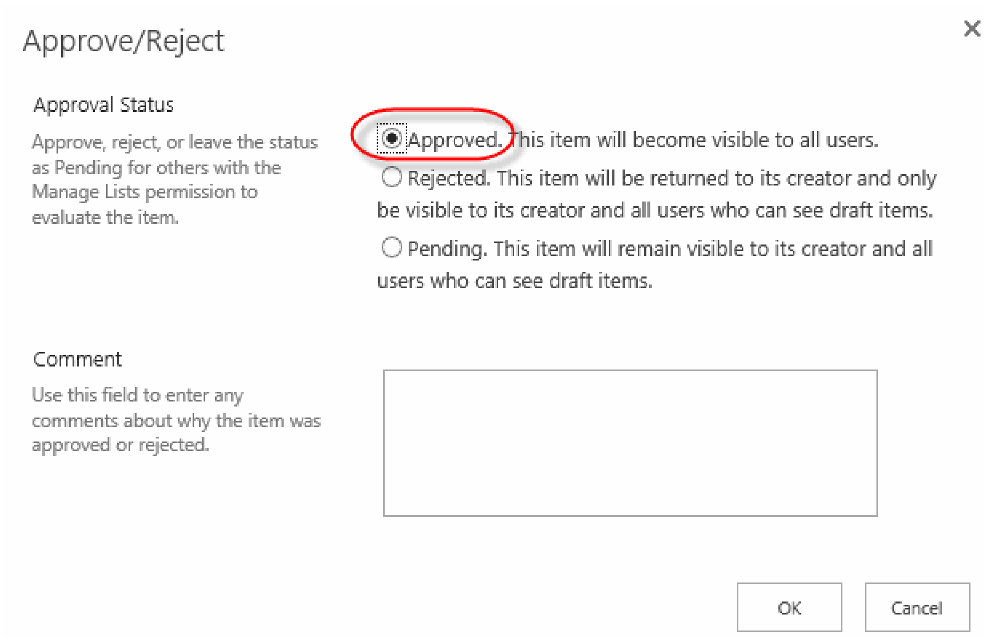
   D. Verify the **Approval Status** column is set to **Pending** for the new item.

Note
The lists **Draft Item Security** setting determines who can view items that have not been approved. Since you left the setting at the default, only users who have the right to approve items and the creator of the item can see it.

E. Click the ellipsis button to open the drop-down context menu for the **Red Widget** item and click the **Advanced** link than select the **Approve/Reject** option.



F. Select **Approved** from the **Approve/Reject** dialog and click the **OK** button.



G. Verify the **Approval Status** column is now set to **Approved**.

Note
Approved items are visible to all users with at least read permissions to the list.

1.2. Content Approval Workflows

In addition to manually setting content approval for items, SharePoint supports using workflows to approve items. For custom workflows, SharePoint provides the action **Set Content Approval Status** (custom workflows and actions are covered in the next lesson in this course). For SharePoint 2016 there is an out-of-box workflow for approving content.

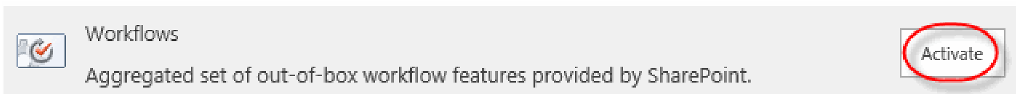
The following walk-through will show you how to activate the **Workflows** site collection feature and assign an instance of the **Approval - SharePoint 2010** workflow to the **Approval Items** list.

1. Activate the **Workflows** feature to enable the out-of-box workflows that come with the standard installation of SharePoint 2016.

   A. Click the **Settings** menu and choose the **Site settings** option.

   B. Click the **Site collection features** link in the **Site Collection Administration** group on the **Site Settings** page.

   C. Click the **Activate** button for the **Workflows** feature.



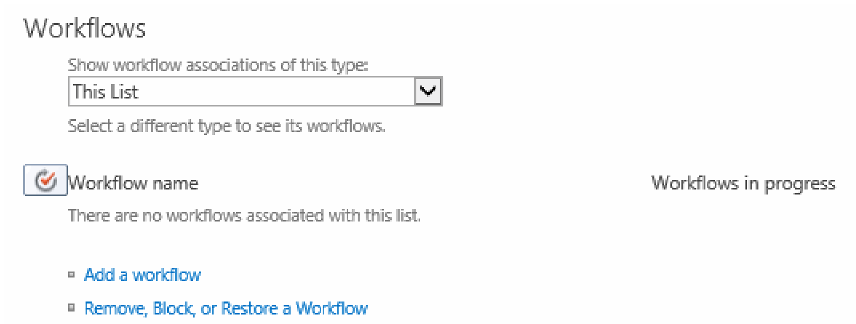
2. Assign an instance of the **Approval - SharePoint 2010** workflow to the **Approval Items** list.

   A. Click the **Approval Items** link in the sites **Quick Launch** menu.

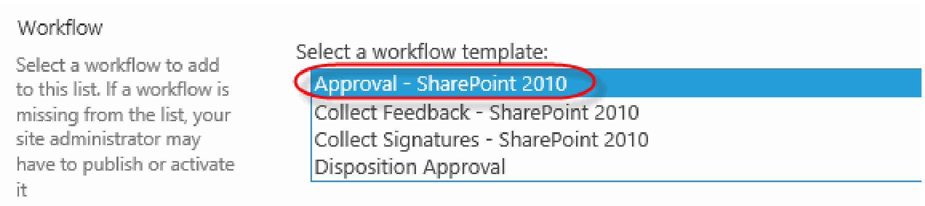
   B. Click the **List Settings** button on the **LIST** tab toolbar of the **Approval Items** list.

   C. Click the **Workflow Settings** link in the **Permissions and Management** group.

   D. Click the **Add a workflow** link on the **Workflow Settings** page.



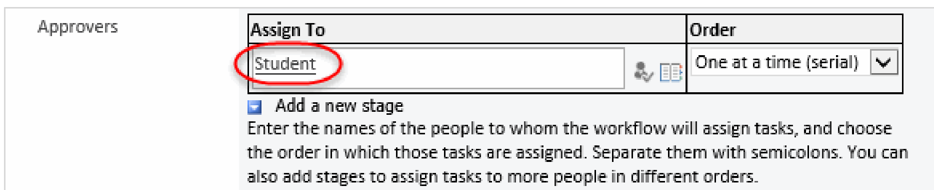
   E. Select the **Approval - SharePoint 2010** workflow from the **Select a workflow template** list.



F. Type “Approval-Demo” in the **Name** field of the workflow.

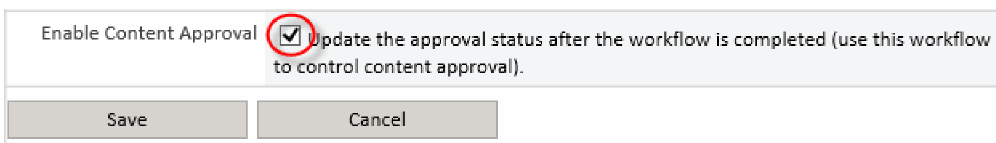
G. Leave the rest of the workflow settings at their default values and click the **Next** button.

H. Type your account name “Student” in the **Assigned To** field and click the **Check Names** icon.



I. Type “This task was created by the Approval-Demo workflow” in the **Request** field.

J. Check the check box at the bottom of the form in the **Enable Content Approval** section labeled **Update the approval status after the workflow is completed (use this workflow to control content approval)**.



K. Click the **Save** button.

3. Create a new item in the **Approval Items** list to use with the assigned workflow.

   A. Click the **Approval Items** link in the sites **Quick Launch** menu.

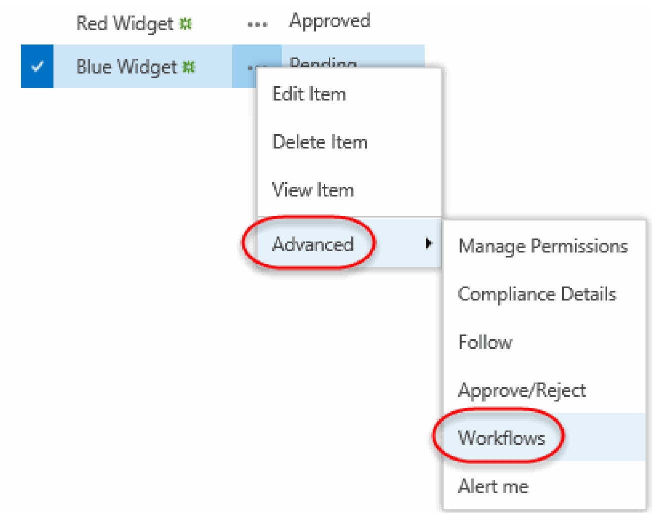
   B. Click the **new item** link.

   C. Type “Blue Widget” in the **Title** field and click the **Save** button.

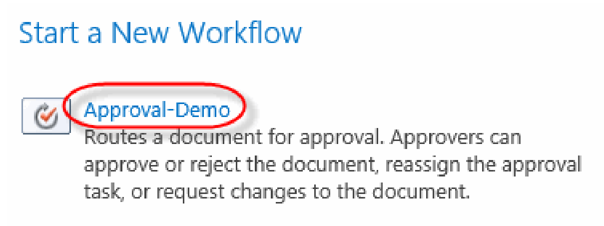
   D. Verify the **Approval Status** column for the **Blue Widget** item is set to **Pending**.

4. Start the **Approval-Demo** workflow for the **Blue Widget** item.

A. Click the ellipsis button next to the **Blue Widget** item and then click the **Advanced** item and then select **Workflows** from the menu.



B. Click the **Approval-Demo** link under the **Start a New Workflow** heading.



C. Click the **Start** button to start the workflow.

D. Verify the new column **Approval-Demo** has been added to the list and its value is **In Progress** for the **Blue Widget** item.

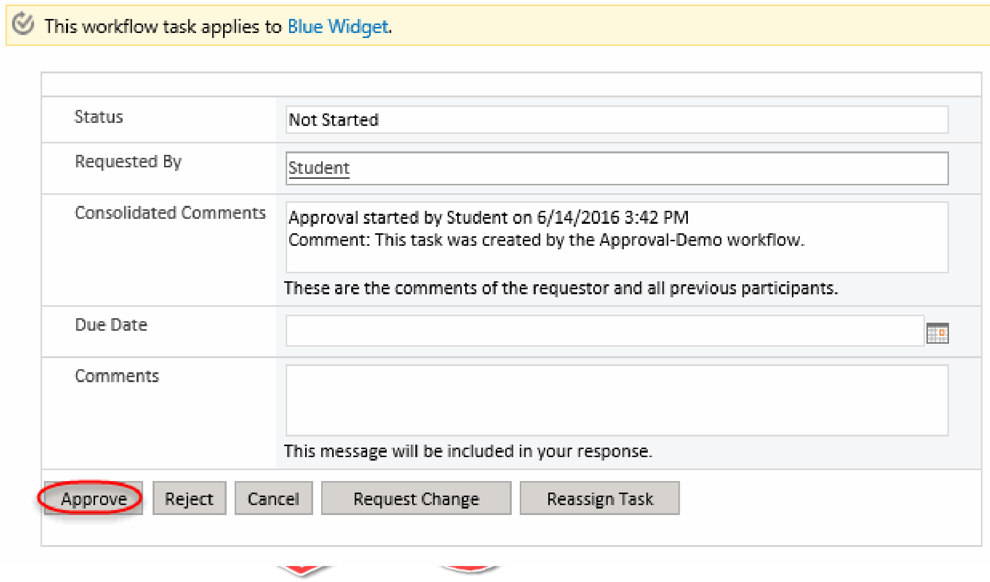
5. Use the workflow created task to approve the **Blue Widget** item.

A. Click the **Site Contents** link in the sites **Quick Launch** menu.

B. Click the **Approval-Demo Tasks** link on the **Site Contents** page.

C. Click the **Please approve Blue Widget** task link.

D. Click the **Approve** button at the bottom of the **Workflow Task** dialog.



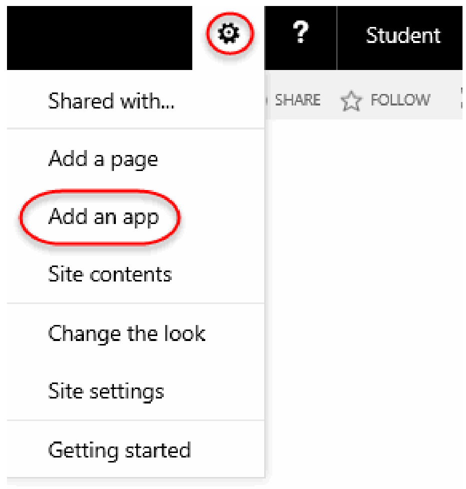
E. Click the **Approval Items** link in the sites **Quick Launch** menu.

F. Verify that both the **Approval Status** and **Approval-Demo** columns have the value **Approved** for the **Blue Widget** item.

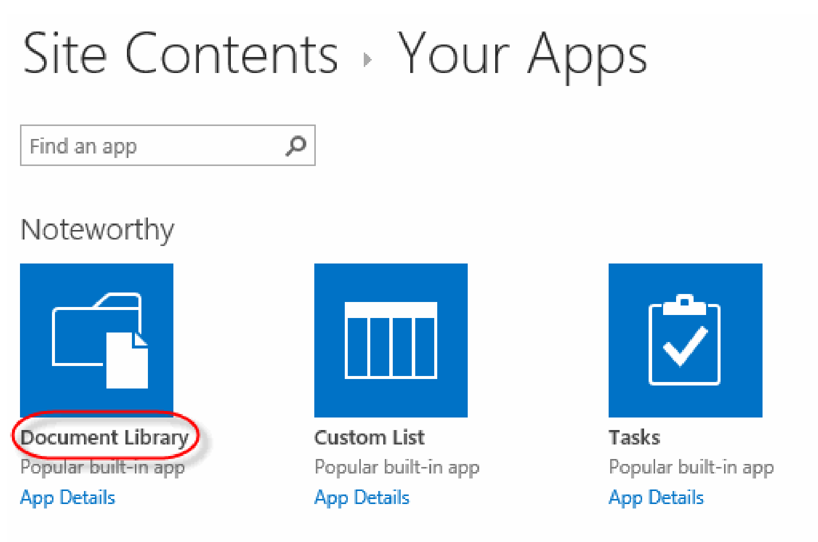
Exercise 1: Enabling and Using SharePoint Content Approval

10 to 15 minutes

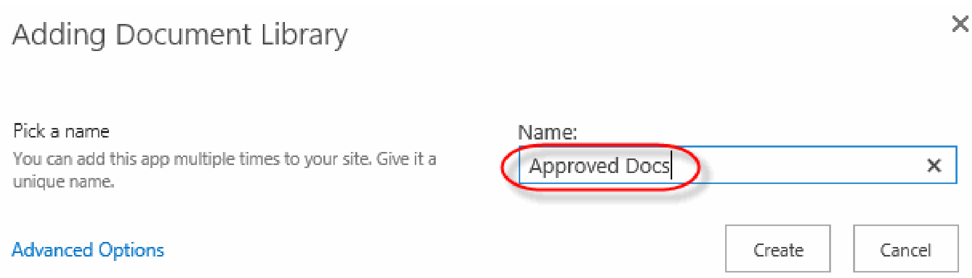
1. Navigate to your team site.
2. Create a new document library named "Approved Docs" to use for this exercise.
   A. Click the **Settings** menu and select the **Add an app** link from the drop-down of choices.



   B. Select the **Document Library** template.



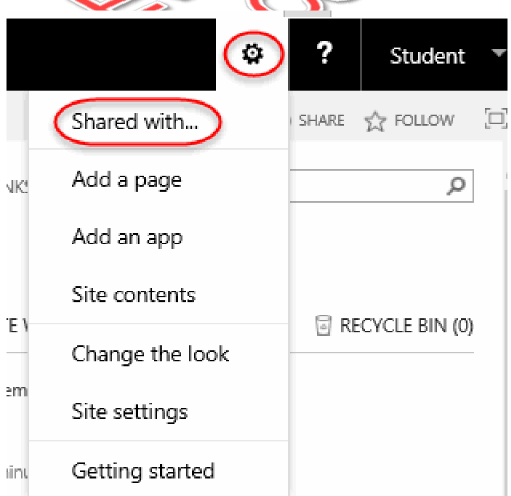
C. In the **Adding Document Library** dialog form that opens, type “Approved Docs” in the **Name** field.



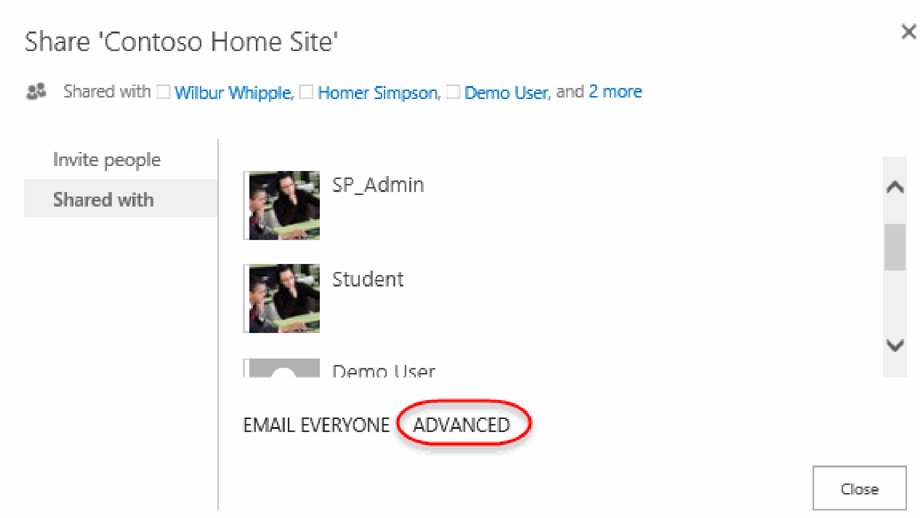
D. Click the **Create** button to complete creation of the new document library.

3. Grant or verify a user account other than your own is a member of the Contoso Home Site Members SharePoint group so that he can read and create new items.

   A. Click the **Settings** menu and select the **Shared with…** link from the drop-down of choices.

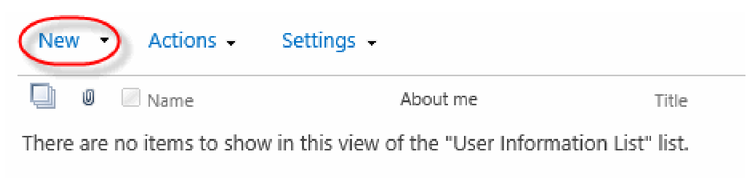


   B. Click the **ADVANCED** link on the **Shared With** dialog form.

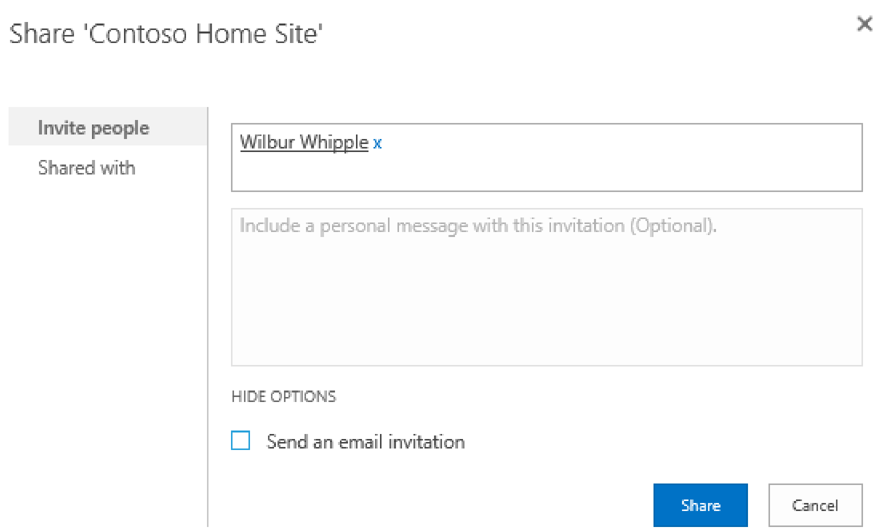


C. Click the **Contoso Home Site Members** (your site's **Members** group will be prefixed with your site's title) link to view the list of current members.

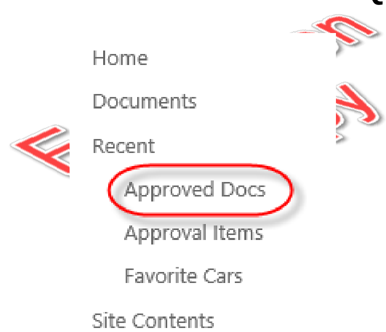
D. If you are going to test approval with a user that is not in the list of members, click the **New** link to open the **Grant Permissions** dialog.



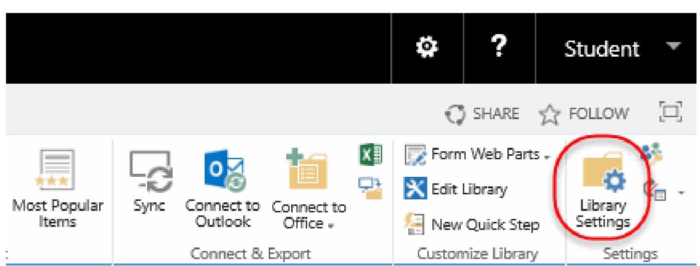
E. Type the account name you are using to test approval within the field, Click the **SHOW OPTIONS** link and un-check the **Send an email invitation** option and click the **Share** button.



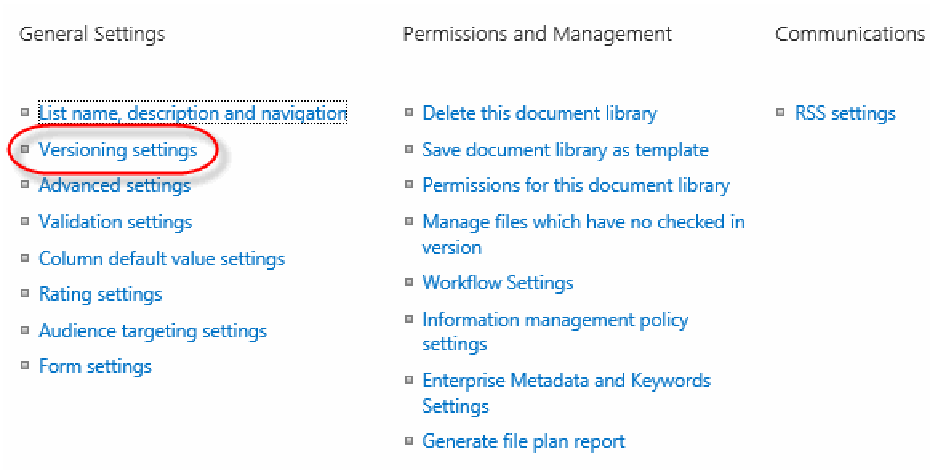
4. Enable the **Content Approval** setting on the **Approved Docs** document library.
   A. Click the **Approved Docs** link from the **Quick Launch** menu.



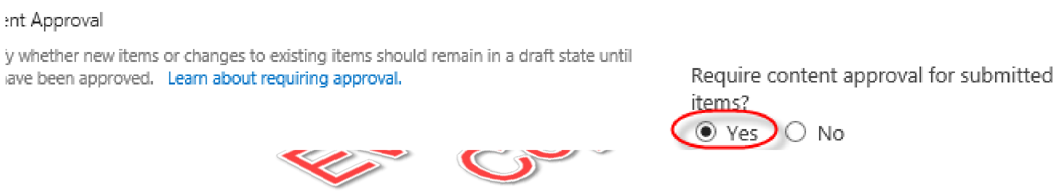
   B. Click the **LIBRARY** tab on to open the toolbar.
   C. Click the **Library Settings** link on the **LIBRARY** tab toolbar to open the settings page.



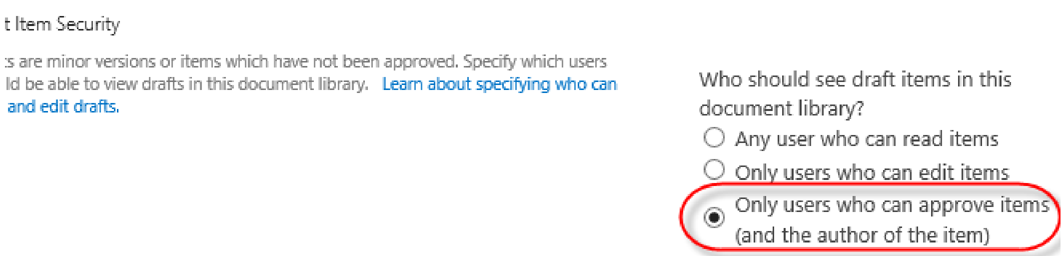
   D. Click the **Versioning settings** link on the **Library Settings** page.



E. Click the **Yes** radio button in the **Content Approval** area to enable **Require content approval for submitted items** for the library.



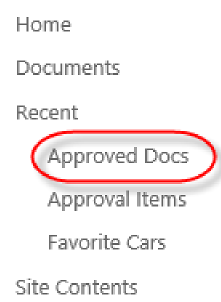
F. Verify that the **Draft Item Security** settings area is set to the **Only users who can approve items (and the author of the item)** radio-button option.



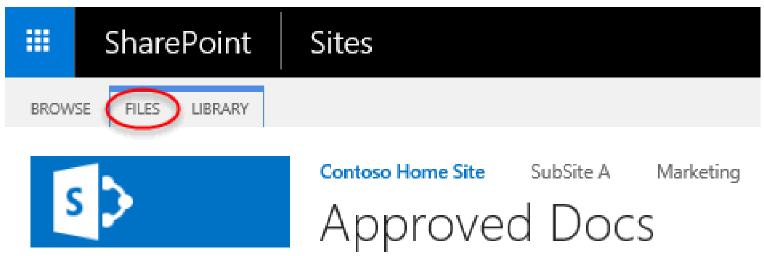
G. Click the **OK** button at the bottom of the **Version Settings** page to save your changes.

5. Create a new document in the **Approved Docs** library and verify content approval setting is working.

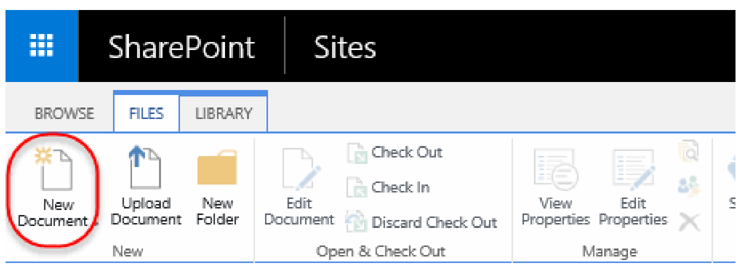
   A. Click the **Approved Docs** link from the **Quick Launch** menu.



B. Click the **FILES** tab to open the toolbar.



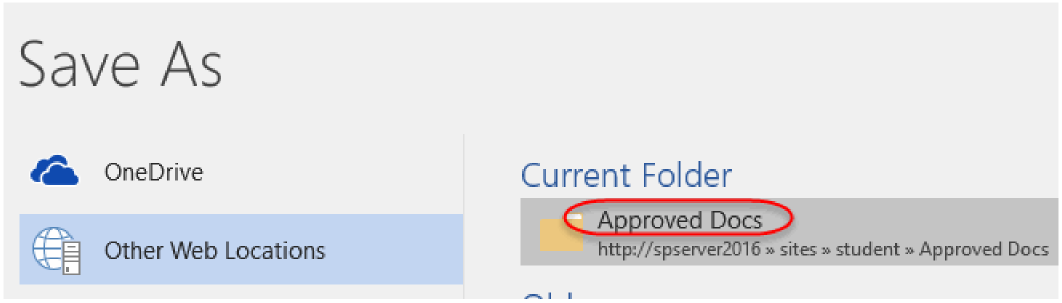
C. Click the **New Document** link on the **FILES** tab to open a new document in Microsoft Word.



D. Enter the following text in the new document: “This is some sample text to test content approval.”

E. Click the **Save** icon in the upper left of the Microsoft Word window.

F. Click to select **Other Web Locations** and then click the **Approved Docs** link on the **Save As** page in Microsoft Word.



G. Enter “Content Approval Test” in the **File** name field and click the **Save** button to complete saving the new document.

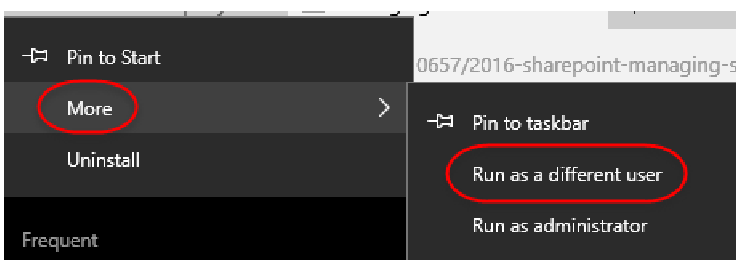
H. Close Microsoft Word.

I. Click the **Approved Docs** link to refresh the view of the library.

6. Verify the new **Approval Status** column that shows the current state of the new document is “Pending”.

7. Test the visibility of the new “Pending” document by opening a second browser window and logging in with an account that belongs to someone who is not the owner of the document and does not have **Approve Items** permissions.

A. From the Windows Start menu right-click your browser icon and choose **More** and then choose the **Run as different user** option.



B. In the **Windows Security** dialog window, enter “Wilbur” for the account name and “Pa$$w0rd” for the password. Click the **OK** button to complete the logon.

C. Try to navigate to root of your team site.

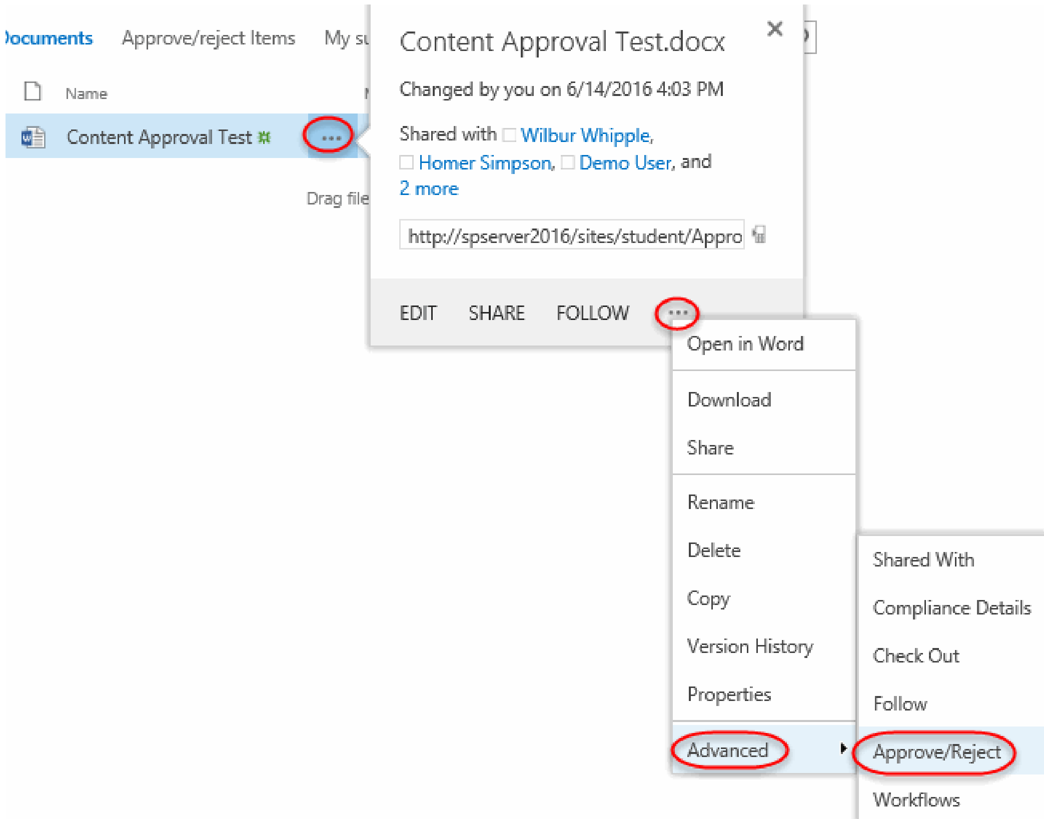
D. Verify that this account cannot see the new document "Content Approval Test" in the Approved Docs library.

Note
If you are able to see the document as this user, then either the user has more permissions than he or she should or the **Draft Item Security** setting is not set to **Only users who can approve items**. You can check the setting by revisiting the earlier step in this lab where you enabled Content Approval.

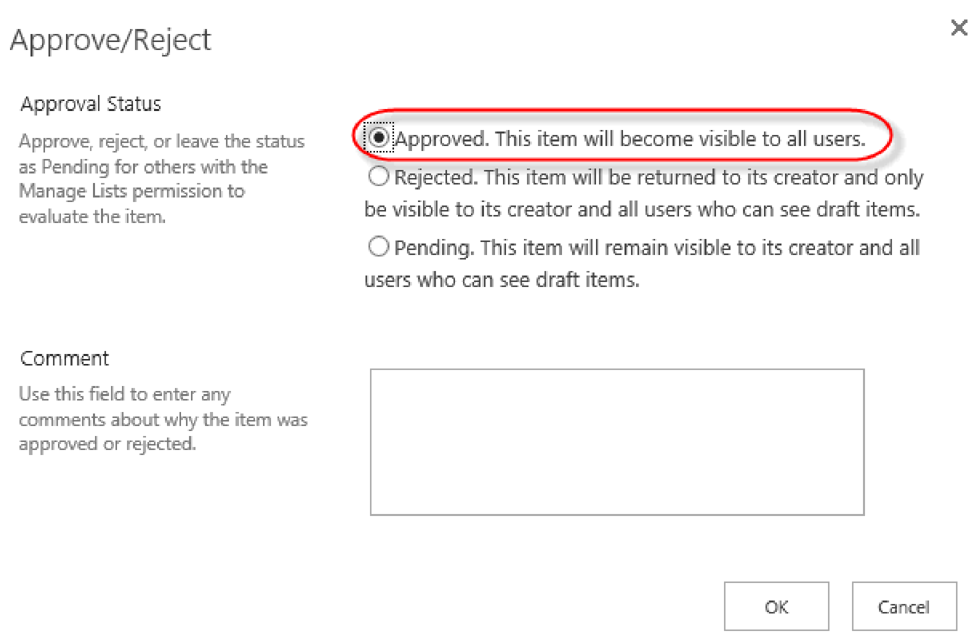
E. Switch back the browser window running under your main student account but keep the second browser window open for a later part of the exercise.

8. Approve the "Content Approval Test" document.

   A. Switch back to the browser window logged in as the site administrator (Student), click the ellipsis button next to the "Content Approval Test" document in the **Approved Docs** library and then click the second ellipsis button on the balloon pop-up and then select **Advanced** and then the **Approve/Reject** option.



B. Select the **Approved** radio-button option in the **Approve/Reject** dialog to approve the document and click the **OK** button to save the change.



C. Verify the new **Approval Status** column that shows the current state of the document is now "Approved".

9. Test the visibility of the new "Approved" document logged in with the account that was unable to view the **Pending** document in the earlier steps.

   A. Switch back to the browser window running under Wilbur that only have edit permissions to **Approved Docs**.

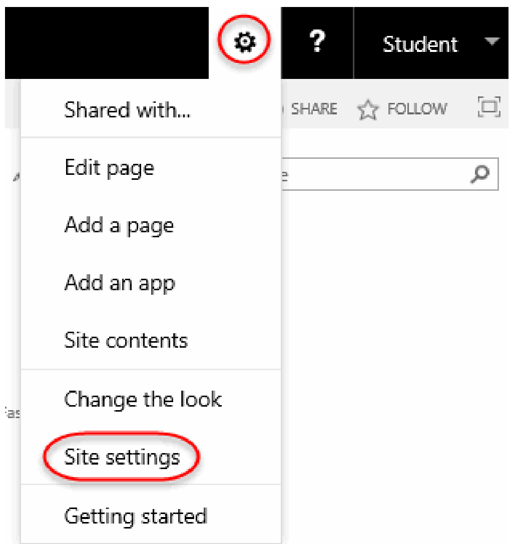
   B. Refresh the view of **Approved Docs** and verify the account can now see the new document "Content Approval Test".

   C. Close the second browser window and switch back the browser window running under your main student account.

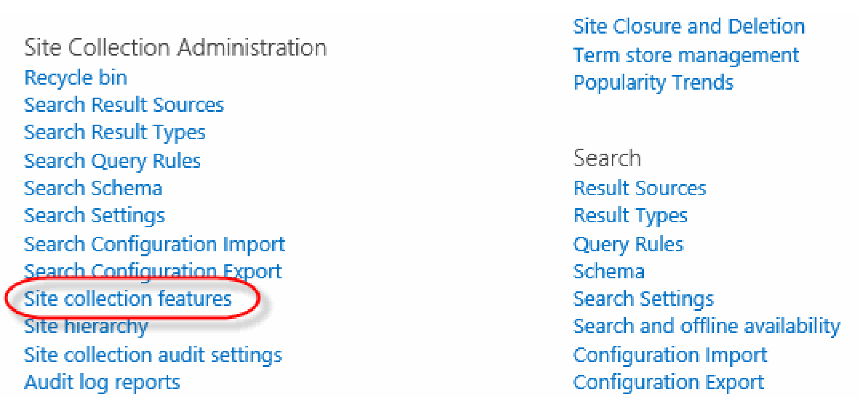
Exercise 2: Enabling and Using SharePoint Approval Workflow

10 to 15 minutes

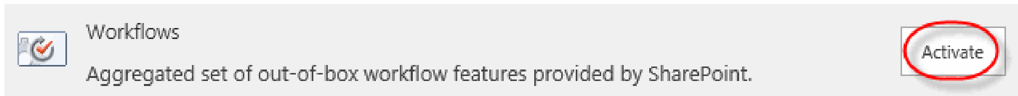
1. Navigate to your team site.
2. Activate the **Workflows** feature for the site collection to enable the out-of-the-box SharePoint workflows to be used.
   A. Click the **Settings** icon and select the **Site Settings** link from the drop-down of choices.



   B. Click the **Site collection features** link on the **Site Settings** page in the **Site Collection Administration** group.

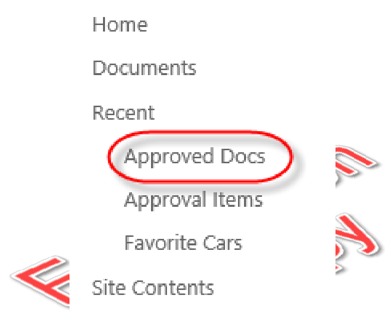


C. Scroll to the bottom of the features list and click the **Activate** button next to the **Workflows** feature.



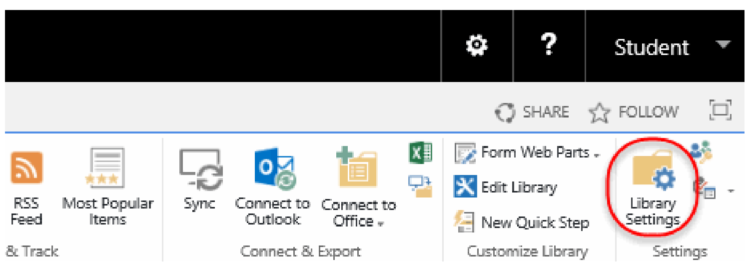
3. Add the **Approval** workflow to the **Approved Docs** document library.

   A. Click the **Approved Docs** link in the **Quick Launch** menu to navigate to the library.

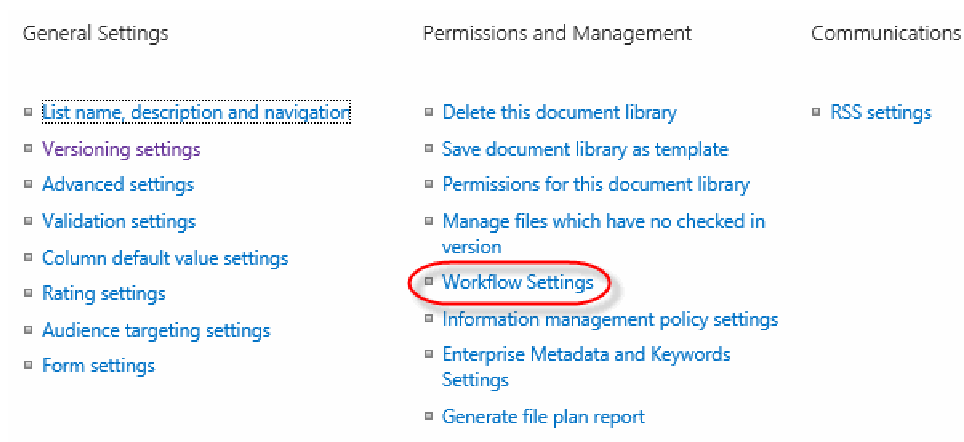


   B. Click the **LIBRARY** tab to open the toolbar.

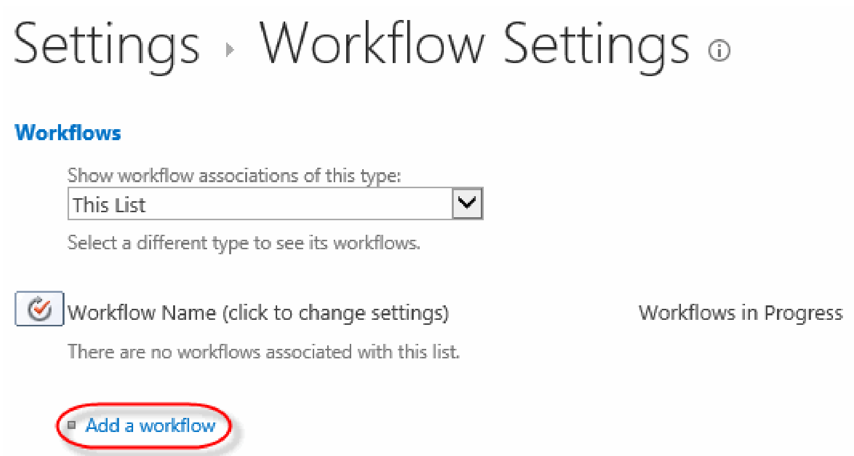
   C. Click the **Library Settings** link on the **LIBRARY** tab toolbar to open the settings page.



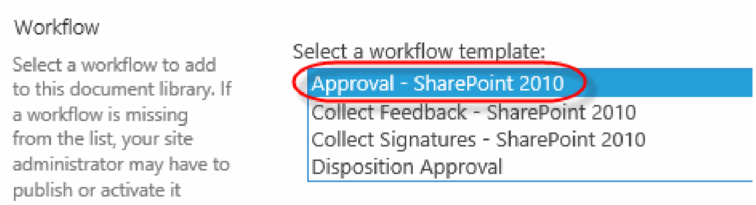
   D. Click the **Workflow Settings** link on the **Settings** page within the **Permissions and Management** group.



E. Click the **Add a workflow** link on the **Workflow Settings** page.



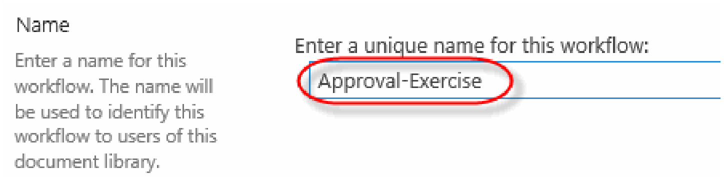
F. Select the **Approval - SharePoint 2010** item from the **Select a workflow template** list box.



Note

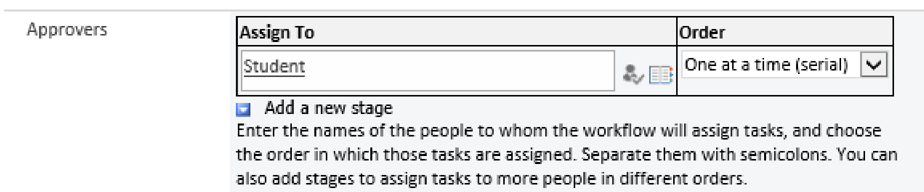
Activating the **Workflows** feature made the **Approval - SharePoint 2010** workflow and the others you see in the list above available to be used with lists and libraries. If the Approval workflow does not appear in the list, then the **Workflows** feature has not been activated for the site collection.

G. Type “Approval-Exercise” in the **Enter a unique name for this workflow:** field.

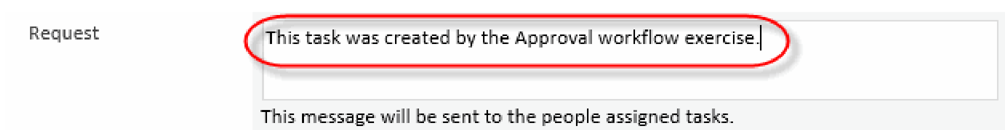


H. Leave the rest of the workflow settings at their default values and click the **Next** button.

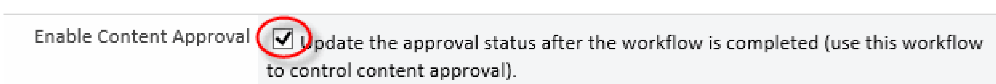
I. Type your account name “Student” in the **Assigned To** field and click the **Check Names** to verify the account name.



J. Type “This task was created by the Approval workflow exercise.” in the **Request field** text box.



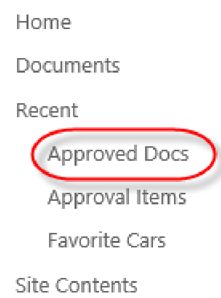
K. Click the check box at the bottom of the form in the **Enable Content Approval** section labeled **Update the approval status after the workflow is completed (use this workflow to control content approval)**.



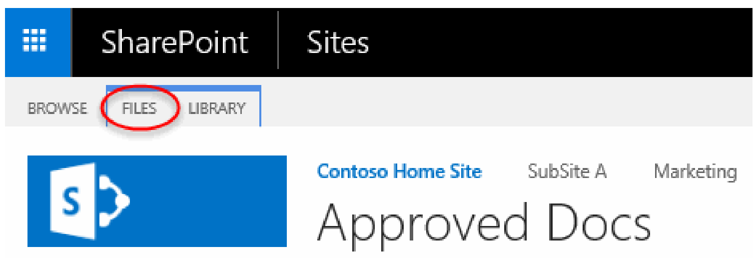
L. Take a minute or two to read the rest of the Approval workflow options, but leave everything else at their default values and click the **Save** button to save the changes.

4. Create a new document in the **Approved Docs** document library to use with the Approval workflow.

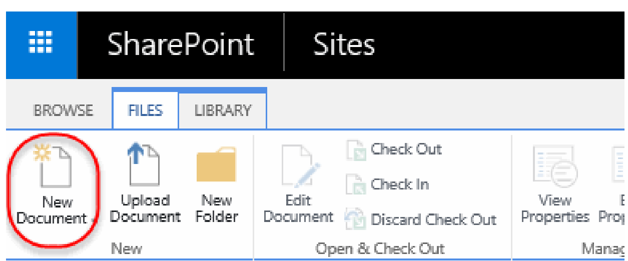
   A. Click the **Approved Docs** link from the **Quick Launch** menu.



   B. Click the **FILES** tab to open the toolbar.



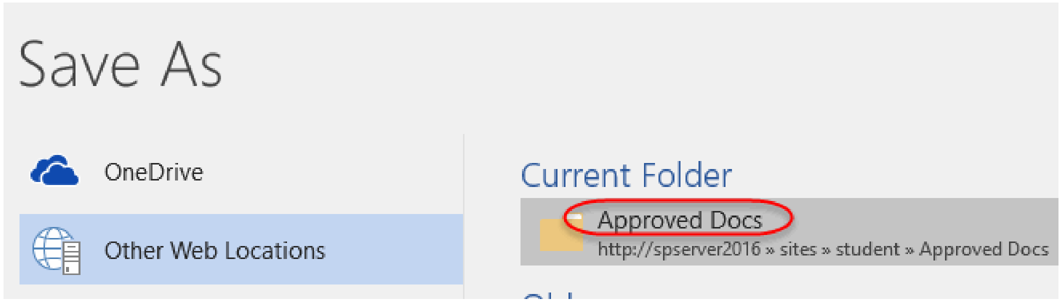
   C. Click the **New Document** link on the **FILES** tab to open a new document in Microsoft Word.



   D. Enter the following text in the new document: "This is some sample text to test the Approval workflow and content approval."

   E. Click the **Save** icon in the upper left of the Microsoft Word window.

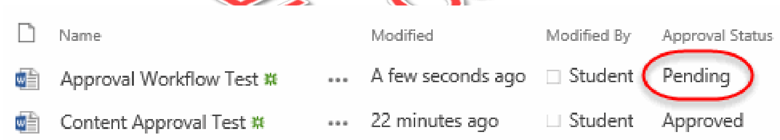
   F. Click the **Other Web Locations** link and then select the **Approved Docs** link on the **Save As** page in Microsoft Word.



G. Enter “Approval Workflow Test” in the **File name** field and click the **Save** button to complete saving the new document.

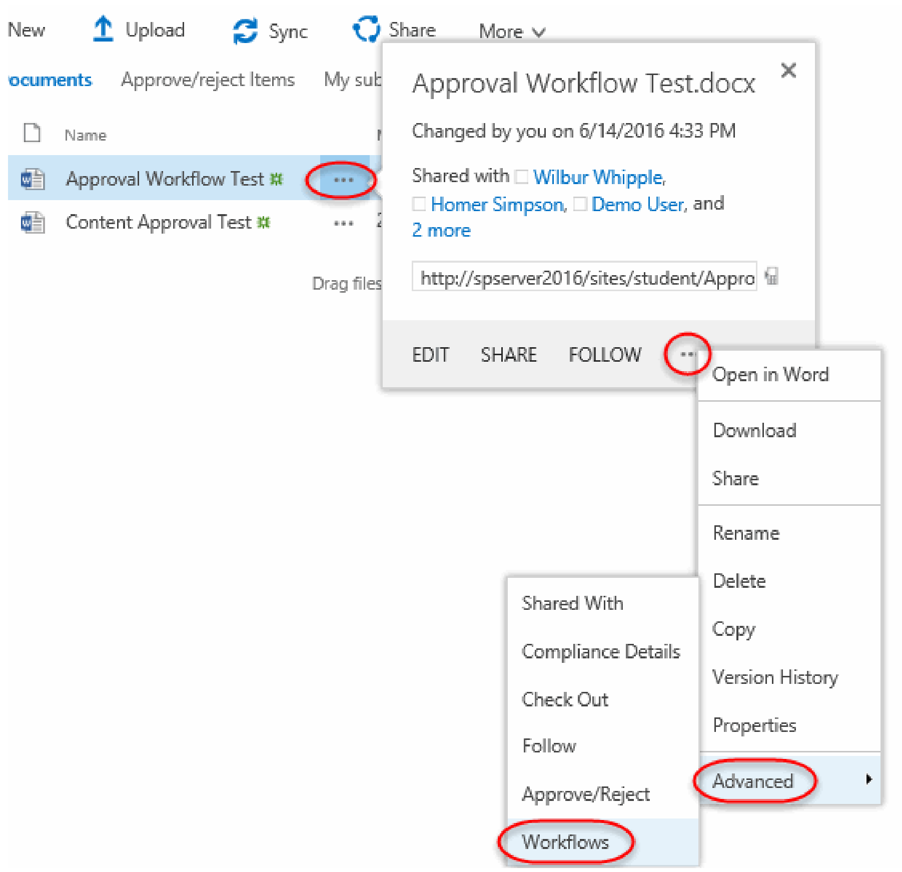
H. Close Microsoft Word.

I. Refresh **Approved Docs** and verify the new **Approval Status** column that shows the current state of the new document is “Pending”.

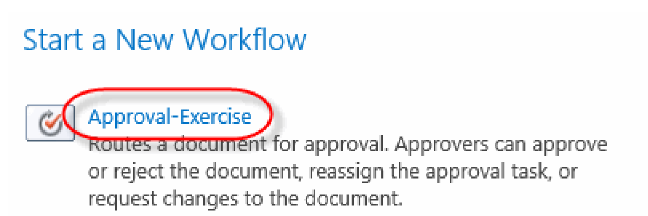


5. Use the Approval workflow to set the **Approval Status** of the new **Approval Workflow Test** Word document to **Approved**.

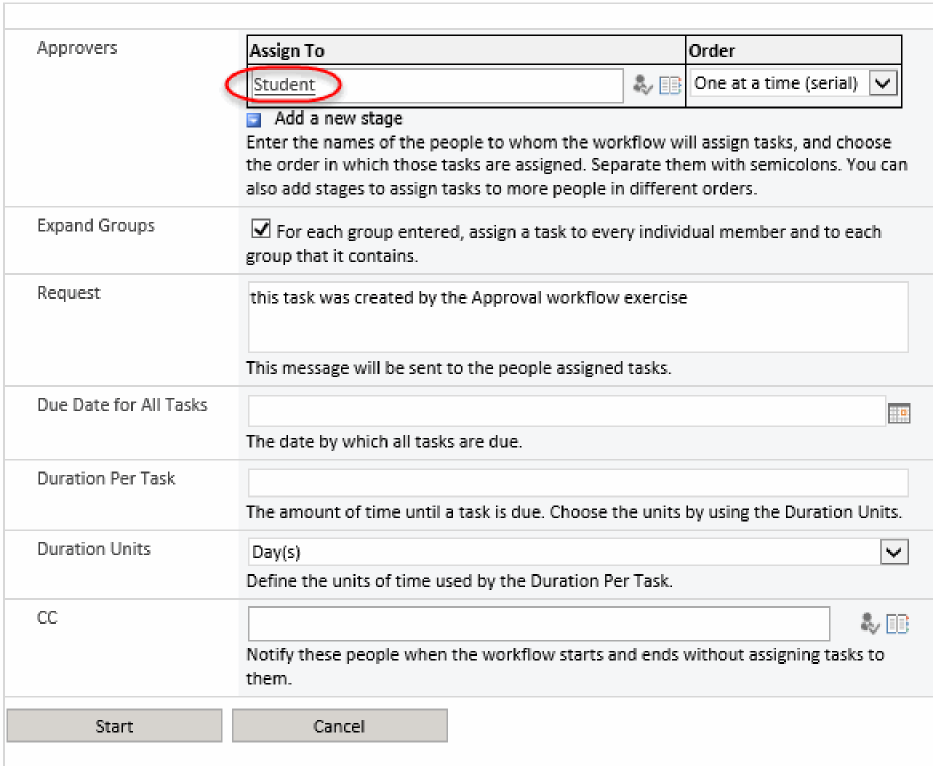
   A. Click the ellipsis button next to the “Approval Workflow Test” document in the **Approved Docs** library and then click the second ellipsis button on the balloon pop-up to view the context drop-down menu and then select **Advanced** and then the **Workflows** option.



B. Click the **Approval - Exercise** link in the **Start a New Workflow** area to start the Approval workflow.



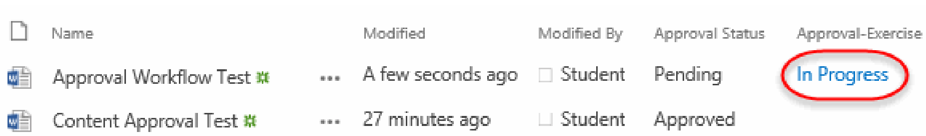
C. Verify that your account is in the **Assigned To** field and click the **Start** button to start the workflow.



Note

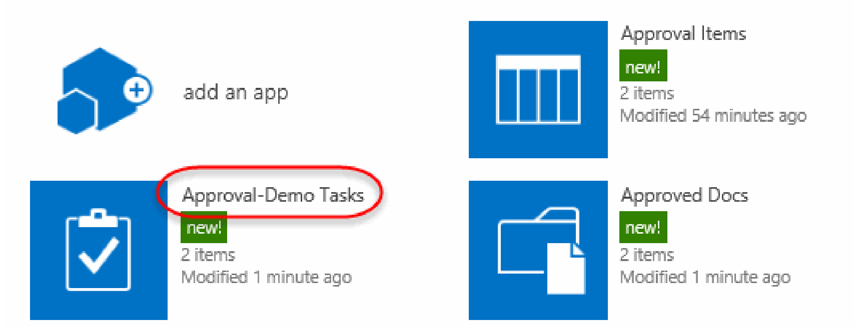
Note that you can change the workflow settings before starting it, including who the task is assigned to as well as adding additional users or groups. These settings are the same as the ones you can configure when you add the workflow to the library. The setting you choose when you add it to the list or library become the default settings when you start the workflow.

D. Verify there is a new column in the **Approved Docs** library titled **Approval - Exercise** and that it is set to **In Progress** for the **Approval Workflow Test** document.



E. Click the **Site Contents** link in the sites **Quick Launch** menu.

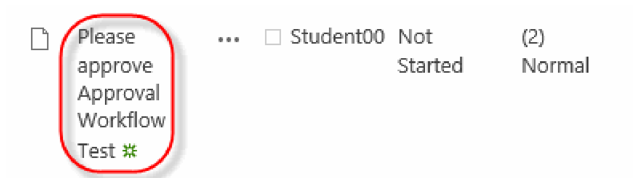
F. Click the **Approved-Docs Tasks** or **Approval-Demo Tasks** link on the **Site Contents** page.



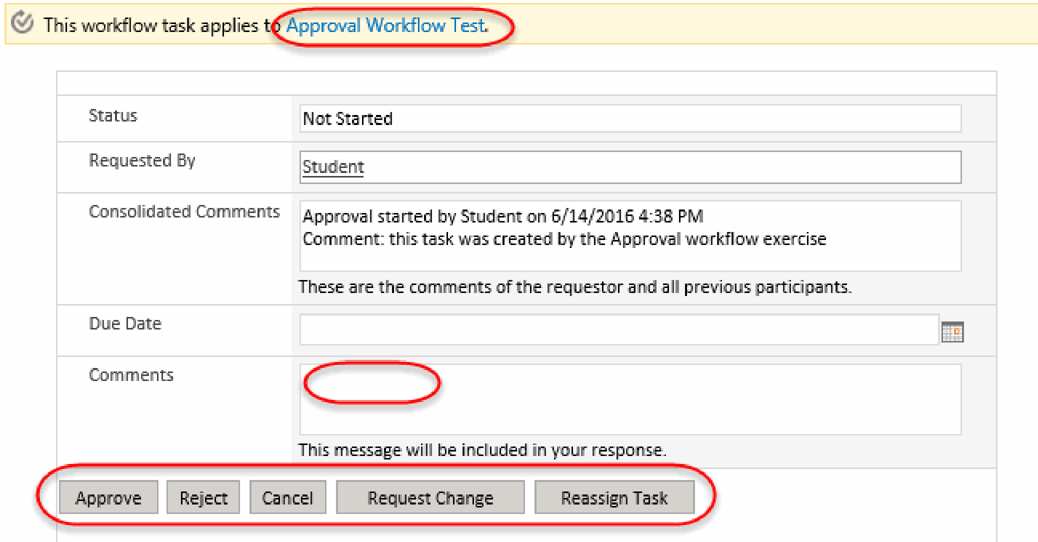
Note

When the workflow is first associated with a SharePoint list or library it looks for a suitable Tasks list to use and if it cannot find one it creates a new one. If you did the earlier walk-through than a tasks list would already exist and be used by this approval workflow. Note that when the workflow creates a new Tasks list it appends the name of the list or library to the word "Tasks".

G. Click the task link **Please approve Approval Workflow Test** to open the task.



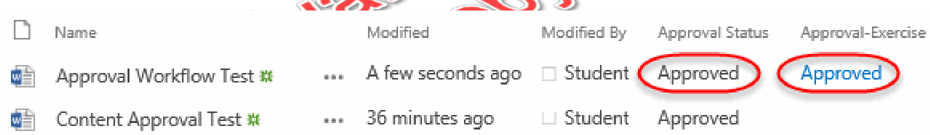
H. Verify that the **Workflow Task** dialog has a link to the item needing approval as well as a field to enter comments and buttons to **Approve**, **Reject**, **Request Change**, or **Reassign Task**.



I. Click the **Approve** button to approve the document and close the **Workflow Task** dialog.

J. Click the **Approved Docs** link in the **Quick Launch** menu.

K. Verify that both columns **Approval Status** and **Approval - Exercise** have been set to **Approved**.



Conclusion

In this lesson, you learned:

- How to enable content approval.
- How to set the visibility of items that have not been approved.
- How to approve items.
- How to enable out-of-box workflows.
- How to assign out-of-box workflows to a list or library.
- How to start the out-of-box Approval workflow for a list/library item.
- How to approve an item using a task created by the out-of-box Approval workflow.

LESSON 2

Creating Custom Workflows with SharePoint Designer 2013

Topics Covered

☑ Workflow basics.

☑ List Workflow using SharePoint Designer 2013.

☑ Running a workflow.

☑ Viewing a workflow's history.

☑ Adding Actions to a workflow.

☑ Adding Conditions to a workflow.

☑ Adding parameters to a workflow initiation form.

☑ Creating a Site workflow.

☑ Using a Looping container in a Workflow.

☑ Using an Call HTTP Web Service Action.

Introduction

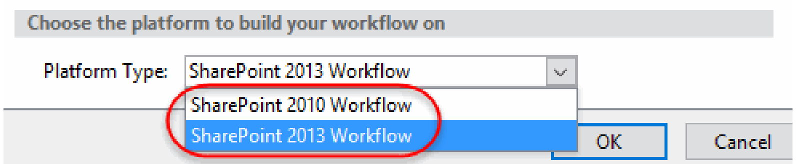
In this lesson, you will learn about workflow basics, how to create a List Workflow using SharePoint Designer 2013, how to run a workflow, how to view a workflow's history, how to add Actions to a workflow, how to add Conditions to a workflow, how to add parameters to a workflow initiation form, how to create a Site workflow, how to use a Looping container in a Workflow, and how to use an Call HTTP Web Service Action.

2.1. Workflow Basics

Workflows are a popular way to perform automated work in SharePoint. Any type of automation you require from SharePoint, whether it be approving items or notifications with email, a workflow is the most common way to get it done. SharePoint 2016 comes with extra out-of-box workflows that can be associated and configured with lists and libraries using just the browser. Custom workflows can be created with software applications such as SharePoint Designer 2013 or Visual Studio.

SharePoint Designer is a powerful and fairly easy-to-use tool for creating custom workflows and does not require any formal developer skills. Visual Studio, although extremely powerful in creating custom workflows, requires developer skills to use.

SharePoint 2016 supports two different processing engines for workflows. There is the SharePoint 2010 workflow engine that runs in-process on SharePoint servers and is supported mainly for backward compatibility with earlier versions. The second workflow engine runs outside the SharePoint processes in a separate Workflow Manager process. Workflow Manager has to be installed and configured separate from the SharePoint installation and then connected to SharePoint. These newer workflows are referred to as “SharePoint 2013 Workflows”. When using SharePoint Designer 2013, if the Workflow Manager has been provisioned, you will see two choices when creating a new workflow that represent the two different engines.



The walk-throughs and exercises in this course will focus on using SharePoint Designer 2013 to create SharePoint 2013 Workflows. Microsoft did not create a 2016 version of SharePoint Designer but they fully support using SharePoint Designer 2013 to work with SharePoint 2016.

Note

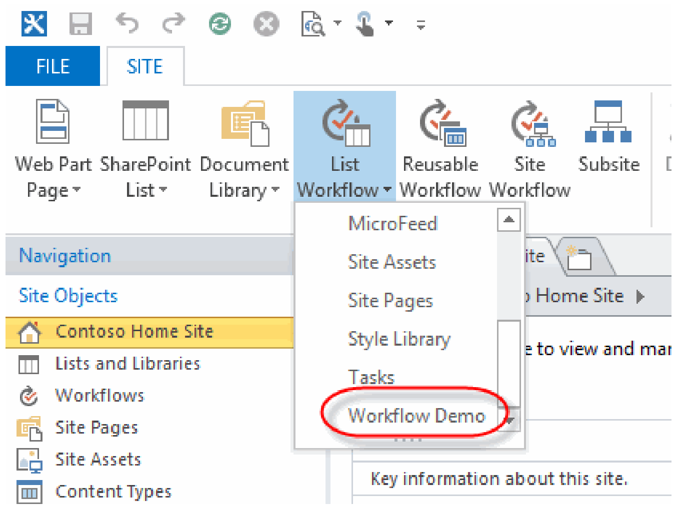
Creating custom workflows is a deep topic with lots of options. The intent of this chapter is to introduce the basics and is not intended as a thorough deep dive into the subject.

2.2. Custom List Workflows

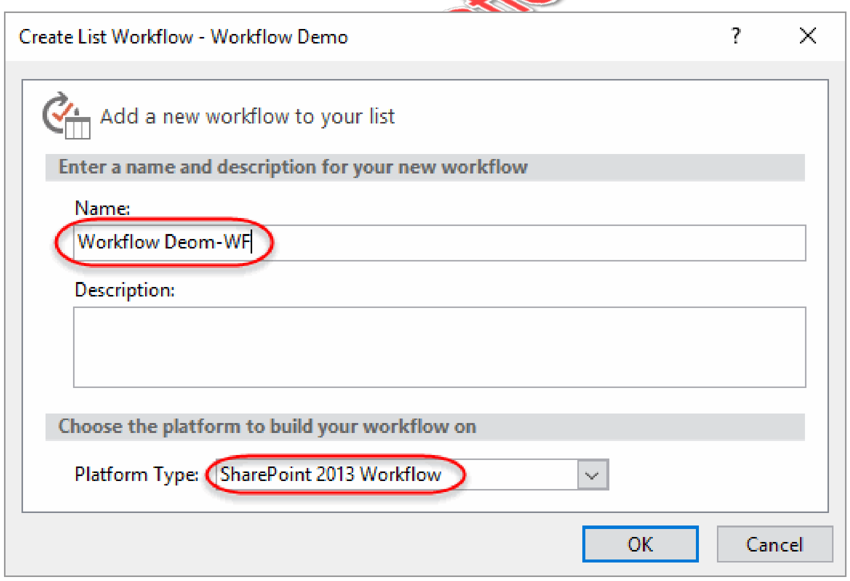
SharePoint Designer 2013 is a perfect tool for creating custom workflows for lists and libraries. When you create a list workflow, it is associated with a specific list or library at creation time and has access to any metadata of the item the workflow is run against.

The following walk-through will show you how to create a very basic custom list with a couple of custom columns. Once the list is created the walk-through shows how to use SharePoint Designer 2013 to create an associated custom workflow with the list. Later walk-throughs will build upon the workflow created in this walk-through.

1. Create a new custom list in your site named “Workflow Demo”.
    - A. Click the **Settings** menu and choose the **Add an app** item.
    - B. Select **Custom List** from the template choices and type “Workflow Demo” in the **Name** field.
    - C. Click the **Create** button to complete creating the list.
2. Add a choice column named “Colors” and a text column named “Workflow Output” to **Workflow Demo** list.
    - A. Click the **Create Column** link on the **LIST** tab toolbar.
    - B. Type “Colors” in the **Column name** field and select **Choice** for the data type option.
    - C. Enter “Red”, “Blue”, and “Green” on separate lines in the choices field within the **Additional Column Settings** area.
    - D. Click the **OK** button to complete creating the column.
    - E. Click the **Create Column** link on the **LIST** tab toolbar.
    - F. Type “Workflow Output” in the **Column name** text-box field.
    - G. Click the **OK** button to create the column.
3. Launch SharePoint Designer 2013 and create a **List Workflow** associated with the **Workflow Demo** list.
    - A. Open SharePoint Designer 2013 and then open your team site in Designer.
    - B. On the **Site** tab toolbar, click the **List Workflow** drop-down button and choose the **Workflow Demo** list.



C. Type “Workflow Demo-WF” in the **Name** field and make sure **SharePoint 2013 Workflow** is selected in the **Platform Type** drop-down list of the **Create List Workflow** dialog and click the **OK** button.

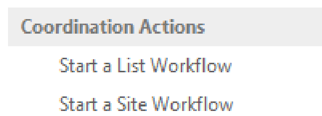


4. Leave the workflow open in SharePoint Designer for the next walk-through.

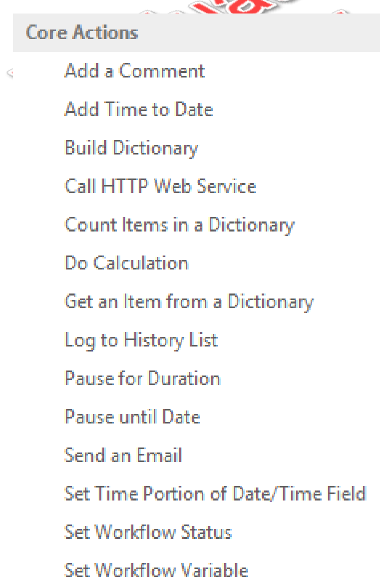
2.3. Workflow Actions

Workflow Actions are the main working component in a SharePoint Designer workflow. SharePoint Designer is limited to being able only to do things that are defined in an Action. However, SharePoint comes with a wide range of Actions out-of-box. The following is a grouped list of Actions available in a default installation of SharePoint Server 2016 for the SharePoint 2013 Workflow platform (The SharePoint 2010 Workflow platform has similar but different list of actions):

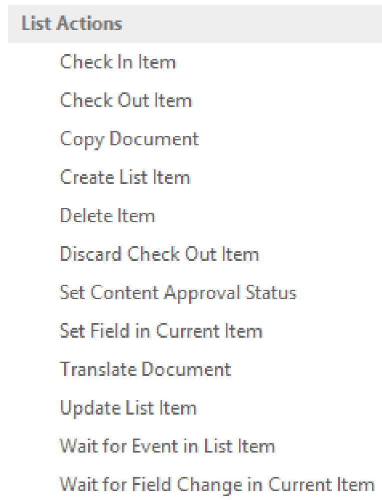
- **Coordination Actions**



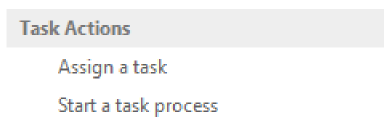
- **Core Actions**



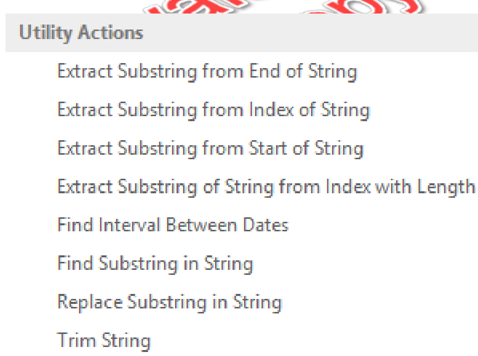
- **List Actions**



- **Task Actions**



- **Utility Actions**



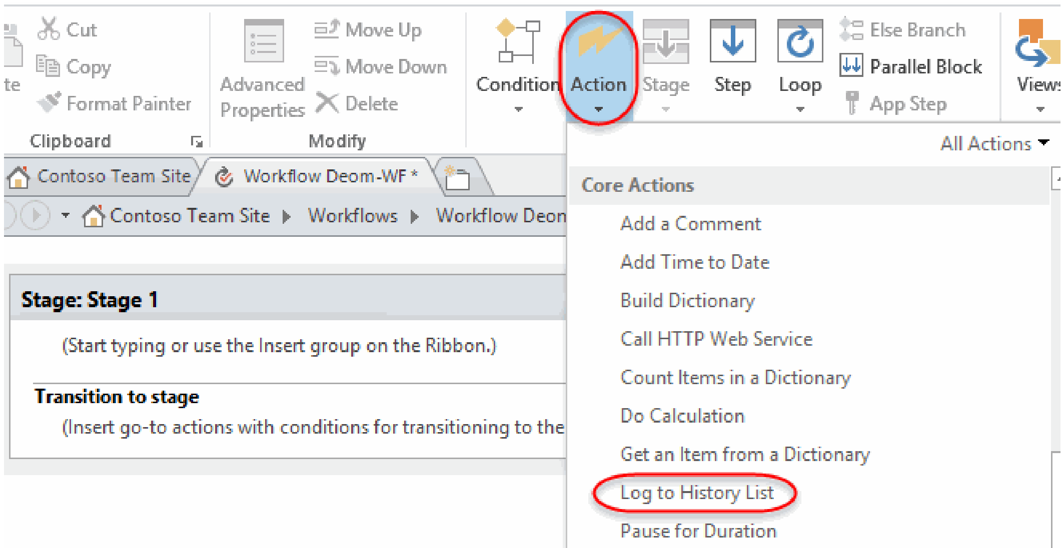
Additional Actions can be purchased, downloaded for free, or created by in-house developers and installed in SharePoint and then configured with SharePoint Designer just like out-of-the-box actions.

SharePoint Designer workflows are created by combining as many Actions as necessary to get the job done.

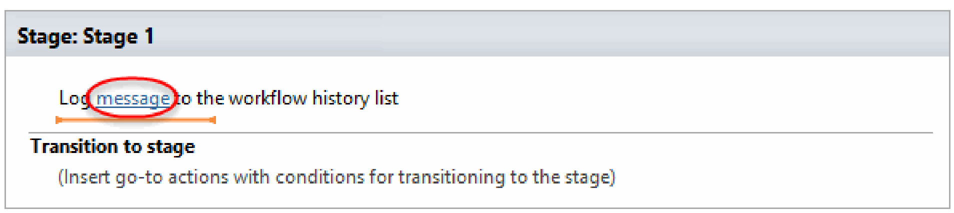
The following walk-through will show you how to add and configure a couple of actions to the workflow that was created in the previous walk-through.

1. Add a **Log to History List** action to the **Workflow Demo-WF**.

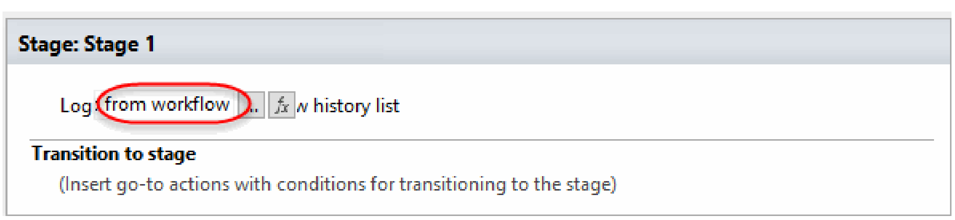
   A. Click the **Action** drop-down button from the **Workflow** tab toolbar and select the **Log to History List** action.



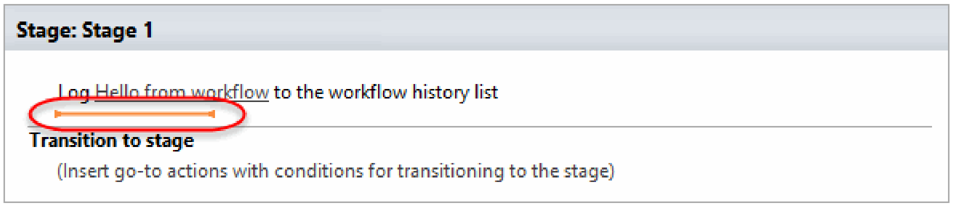
   B. Click the **message** link inside the **Log to History List** action added from the previous step.



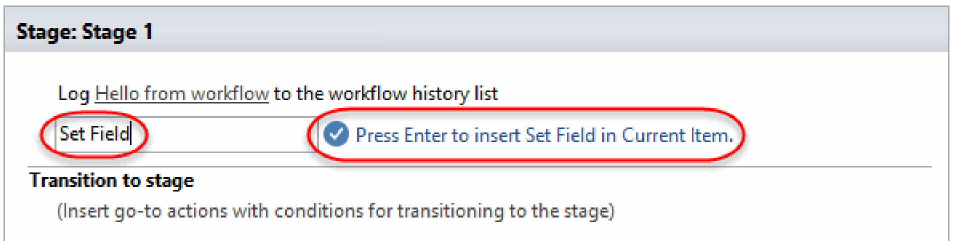
   C. Type “Hello from workflow” inside the text box field.



   D. Hover and click the orange bar below the **Log to History List** action.



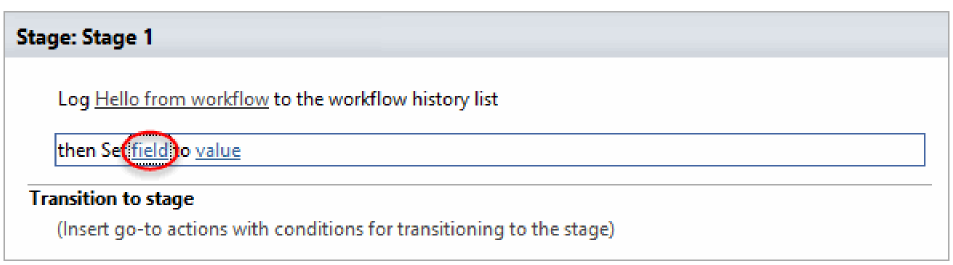
E. Type “Set Field” in the text box that appears when you start typing and press the **Enter** key to have SharePoint Designer insert the **Set Field in Current Item** action.



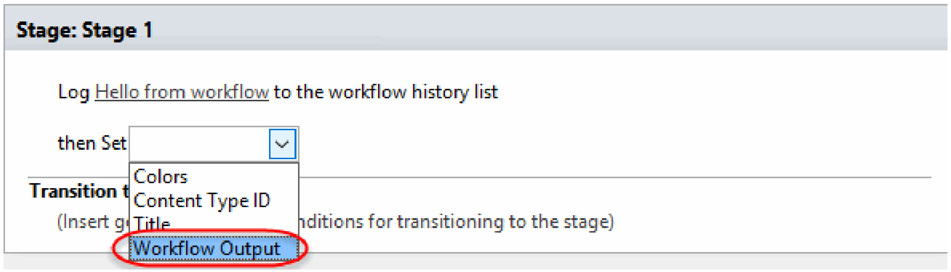
Note

This is just another way to add an action to a workflow. You could also use the **Workflow** tab’s **Action** drop-down button like you did with the **Log to History List** action.

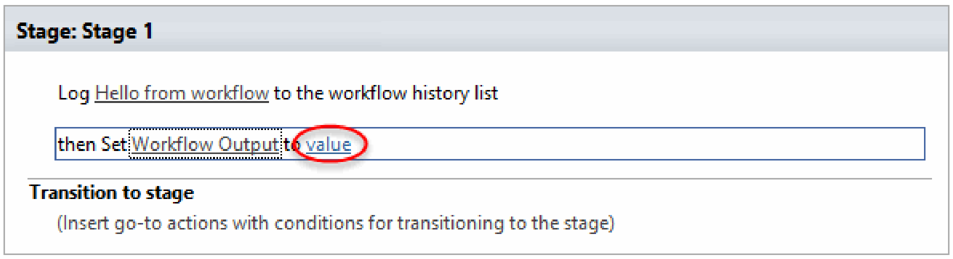
F. Click the **field** link inside the **Set Field in Current Item** action.



G. Choose the **Workflow Output** field from the drop-down list.

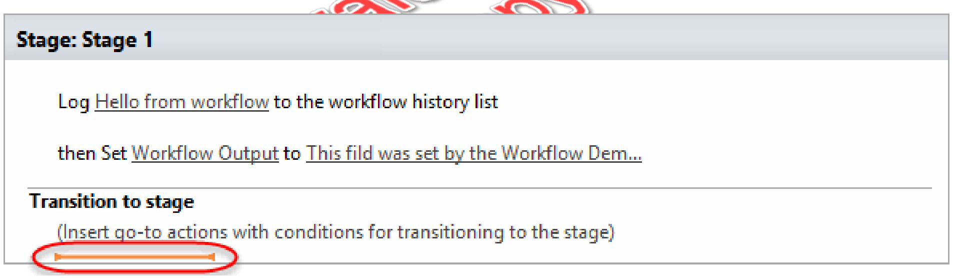


H. Click the **value** link inside the **Set Field in Current Item** action.

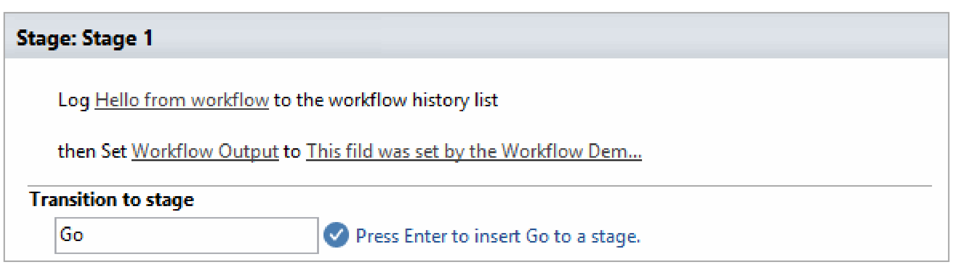


I. Type "This field was set by the Workflow Demo-WF" in the **value** text box.

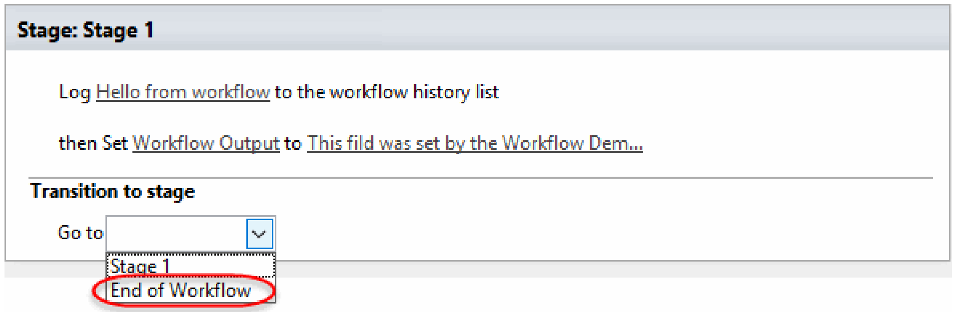
J. Hover and click the orange bar below the **Transition to stage** section of the Workflow Stage container.



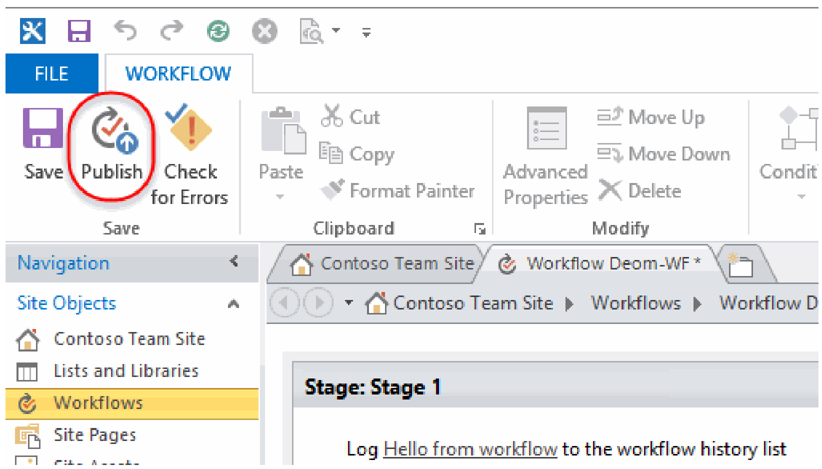
K. Type "Go" in the text box that appears when you start typing and press the **Enter** key to have SharePoint Designer insert the **Go to a stage** action.



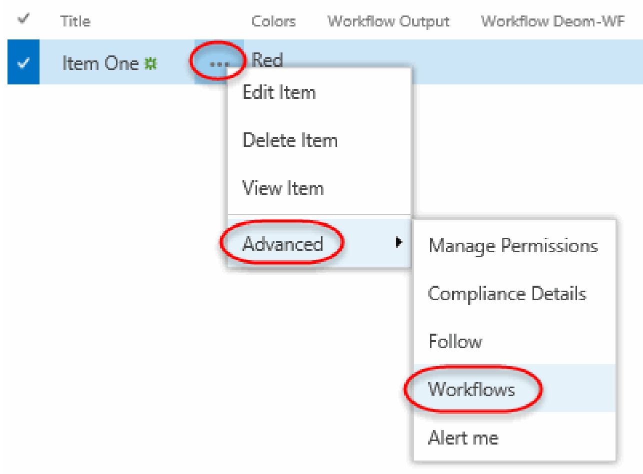
L. Click the **stage** link and choose **End of Workflow** from the drop-down of the **Go to a stage** action.



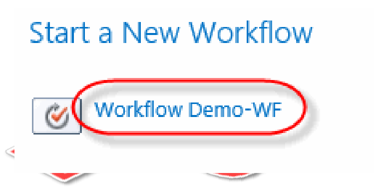
2. Click the **Publish** button in the **Workflows** tab toolbar to publish the workflow to our SharePoint site.



3. Create a new item in the **Workflow Demo** list and start an instance of the **Workflow Demo-WF** on it.
   A. Switch back to the browser window and click the **Workflow Demo** link in the sites **Quick Launch** menu.
   B. Click the **new item** link inside the list.
   C. Type “Item One” for the **Title** field and click the **Save** button.
   D. Click the ellipsis button to the right of **Item One** and select **Advanced** and then **Workflows** from the drop-down.



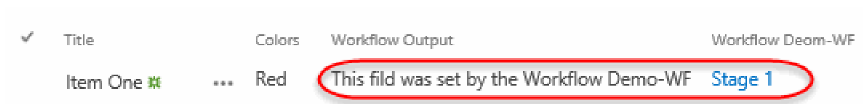
E. Click the **Workflow Demo-WF** link on the **Workflows** page.



4. Verify the workflow actions outcome.

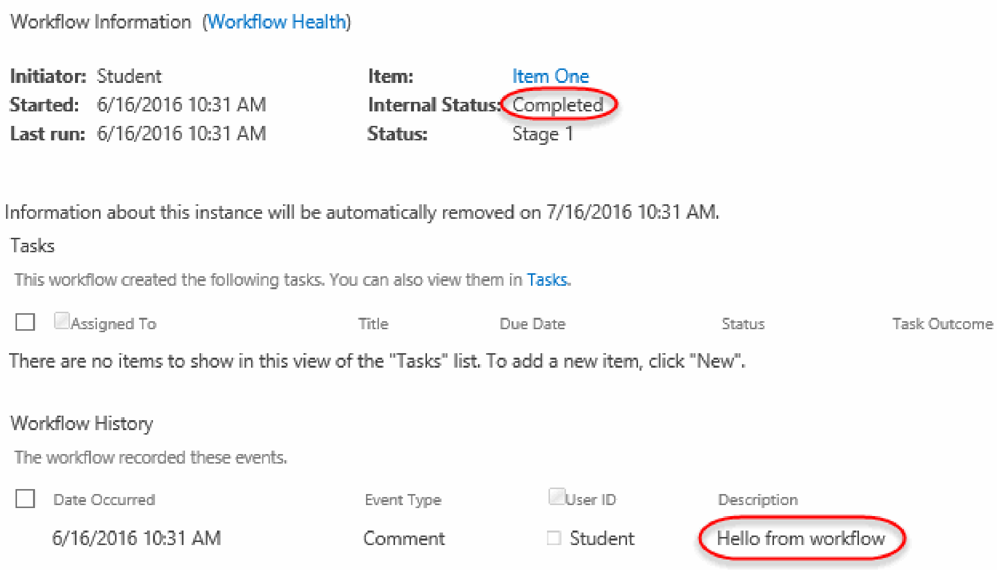
   A. Verify the list now has a column titled **Workflow Demo-WF** and the **Item One** item's value for the column is **Stage 1**. Note the value here is the default title of the stage which can be changed.

   B. Verify the **Workflow Output** column has the text we wrote to it through the workflow.



   C. Click the **Stage 1** link in the **Workflow Demo-WF** column.

   D. Verify the **Workflow History** area has the output from our workflow action and the **Internal Status** field shows **Completed**.

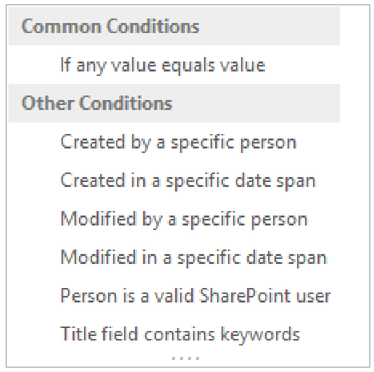


2.4. Workflow Stages and Conditions

The SharePoint 2013 Workflow platform uses stages to group and run actions. SharePoint Designer creates a single stage by default but you can add as many stages to a workflow as necessary. Each stage has a single entry and exit point and can be grouped into a flowchart style design. Condition statements can be used to control the flow from one stage to the next in a workflow.

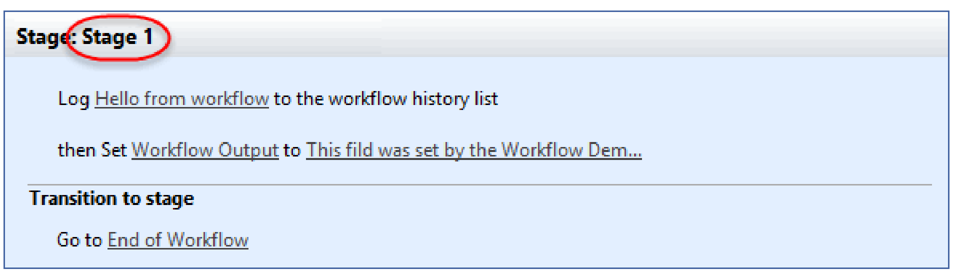
In addition to conditions that control stage transitions there are additional conditions to control which Actions run or don't run within a workflow stage. Conditions provide workflows with If-Then and Else-If blocks to wrap Actions. SharePoint Designer provides the following conditions for use within custom workflows:

- **Workflow Conditions**

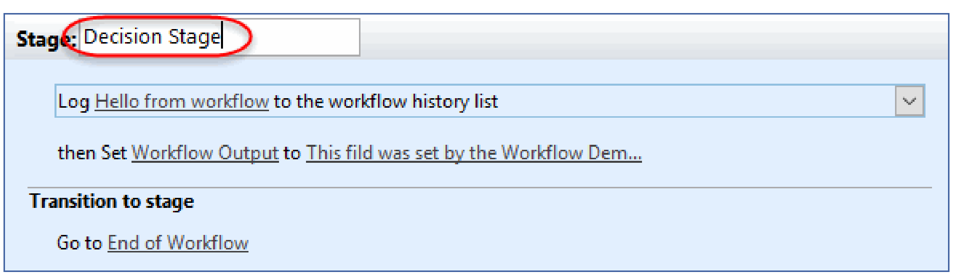


The following walk-through will show you how add stages to a workflow and use **Transition to stage** conditions based on the list items color value. Each stage will have a simple **Log to History List** actions with a different message to identify which stage was processed. The stages will be added into the **Workflow Demo-WF** that was created in the previous walk-through.

1. Rename the existing stage to "Decision Stage" and create 3 new stages, one for each color choice in the Workflow-Demo's Colors field, and name them accordingly.
   A. Switch back to SharePoint designer and editing view of the Workflow Demo-WF.
   B. Click the **Stage 1** text in the top bar of the existing stage in the workflow. This should change the field into an editable field.



   C. Type **Decision Stage** in the editable field and press the **Enter** key.

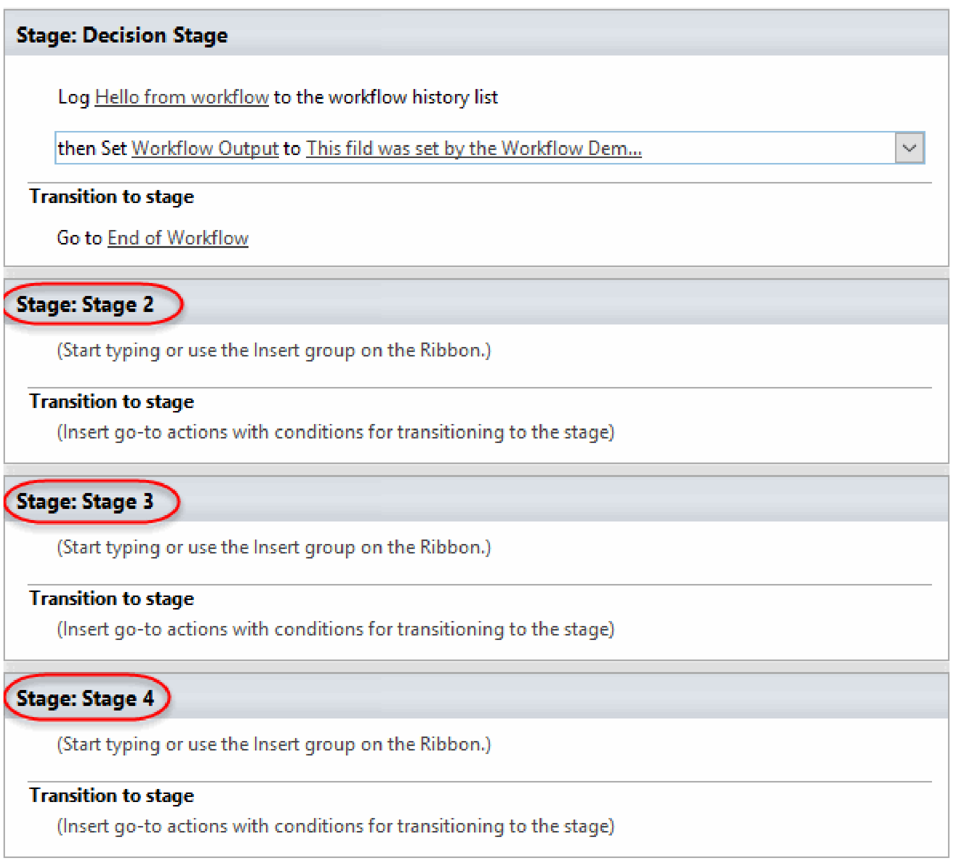


   D. Click the **Insert Stage** icon in the SharePoint Designer toolbar.

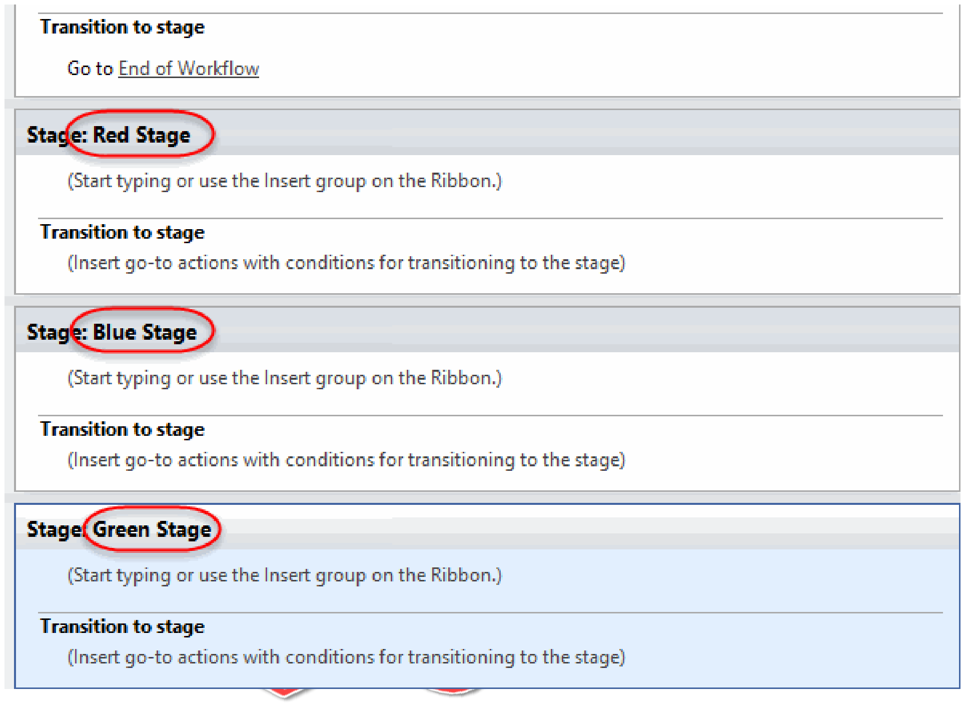
Note

If the **Insert Stage** button is greyed out, click the title bar of the existing stage to select the whole stage container or click the background behind the stage. If the focus is on something inside an existing stage the **Insert Stage** option is not available.

E. Repeat the previous step twice more until you have 3 additional stages to the one you started with. The new stages should have default names **Stage 2**, **Stage 3** and **Stage 4**.

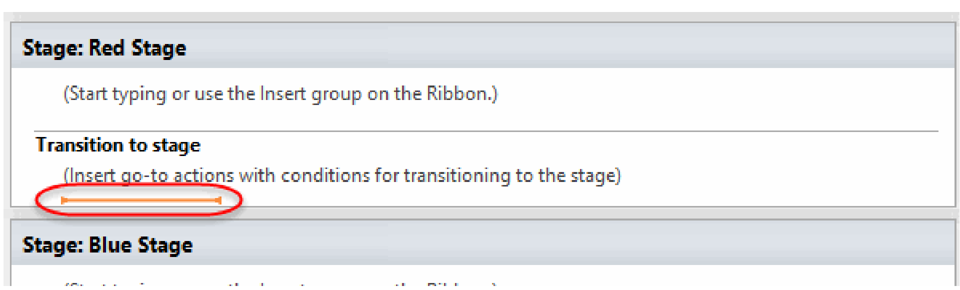


F. Rename the default stage names to **Red Stage**, **Blue Stage** and **Green Stage**.

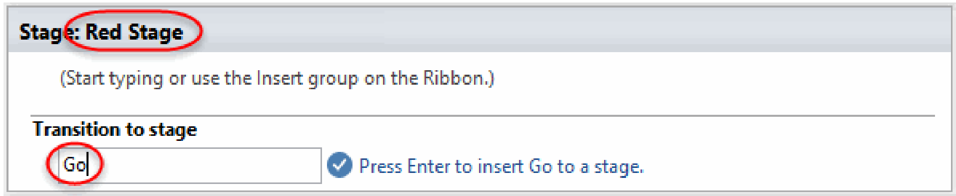


2. Add a **Go to stage** action to the **Transition to stage** areas of the newly added stages.

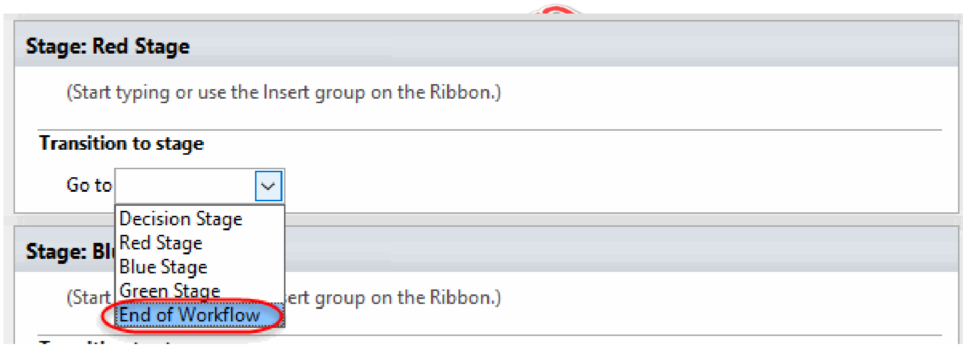
   A. Hover and click the orange bar below the **Transition to stage** section of the **Red Stage** container.



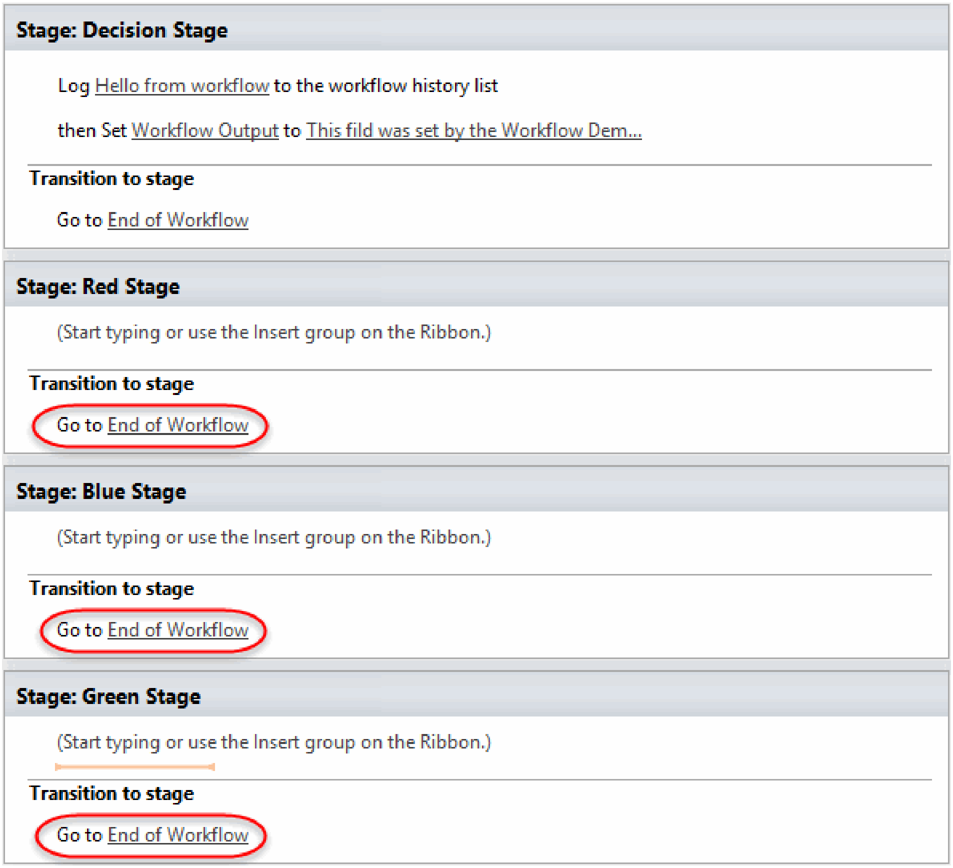
   B. Type "Go" in the text box that appears when you start typing and press the **Enter** key to have SharePoint Designer insert the **Go to a stage** action.



C. Click the **stage** link and choose **End of Workflow** from the drop-down of the **Go to a stage** action.

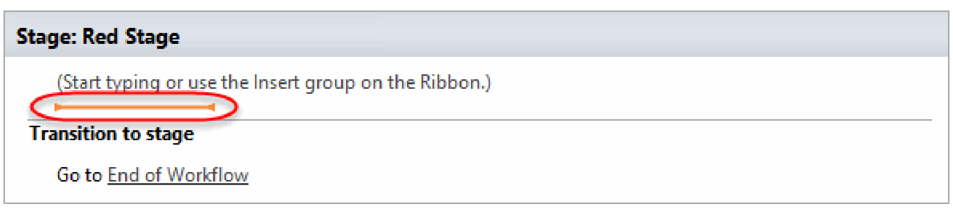


D. Repeat the previous steps to add a **End of Workflow** action to both the **Blue Stage** and **Green Stage**. The design view of the workflow should look similar to the following image at this point.

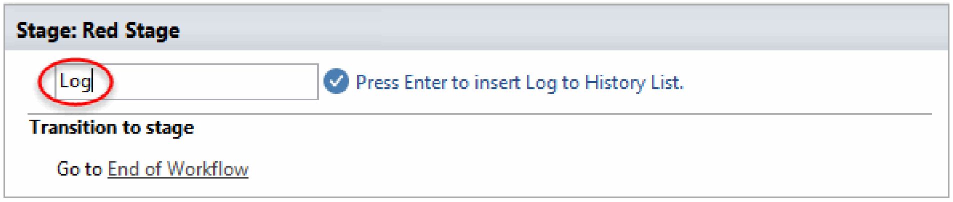


3. Add a **Log to History List** action inside each of the color named stages.

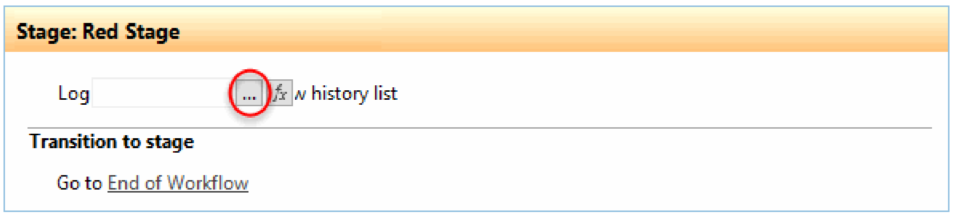
   A. Hover and click the orange bar **above** the **Transition to stage** section of the **Red Stage** container.



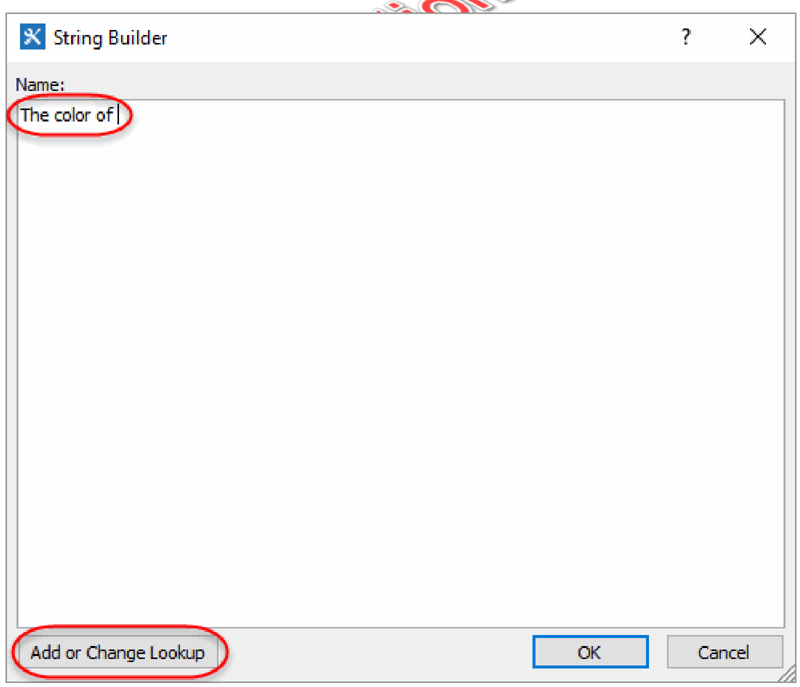
   B. Type “Log” in the text box that appears when you start typing and press the **Enter** key to have SharePoint Designer insert the **Log to History List** action.



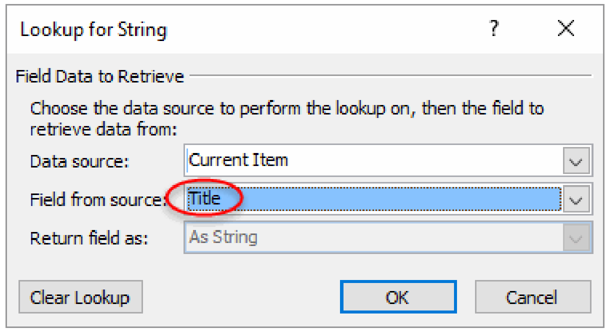
C. Click the **message** link and then click the **ellipsis** button next to the editable field to open a string builder dialog.



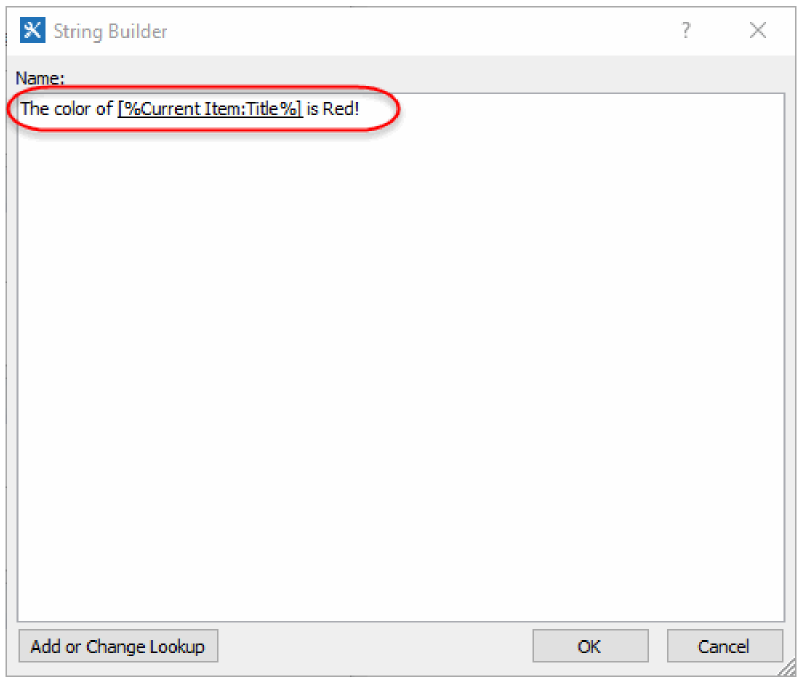
D. Type “The color of” including a **Space** after “of” and then click the **Add or Change Lookup** button below the field.



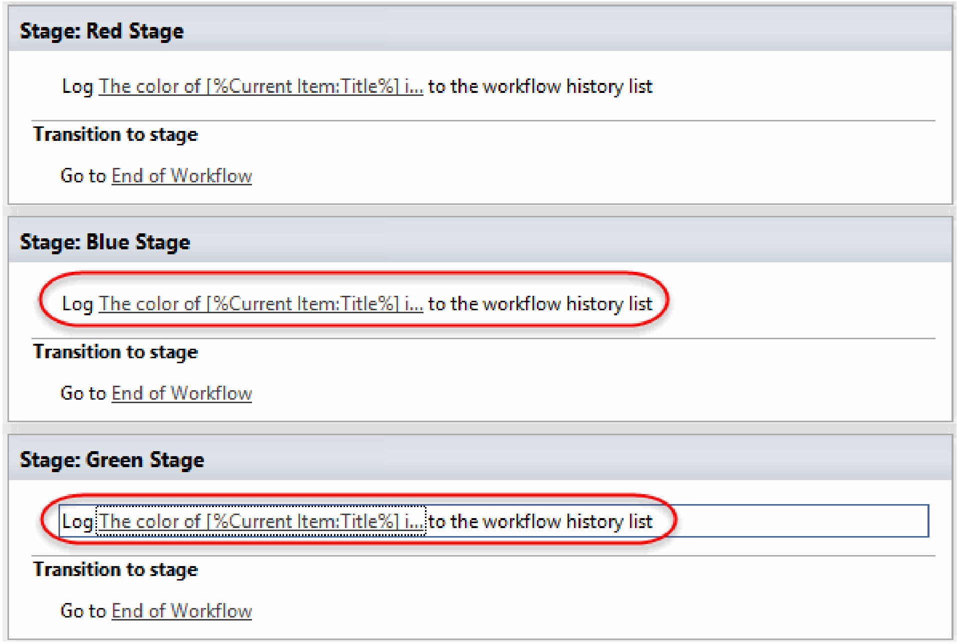
E. Leave the default **Data Source** set to **Current Item** and change the **Field from source** drop-down to **Title** and click the **OK** button.



F. Type “is Red!” to the end of the string including a **Space** before “is” and click the **OK** button.

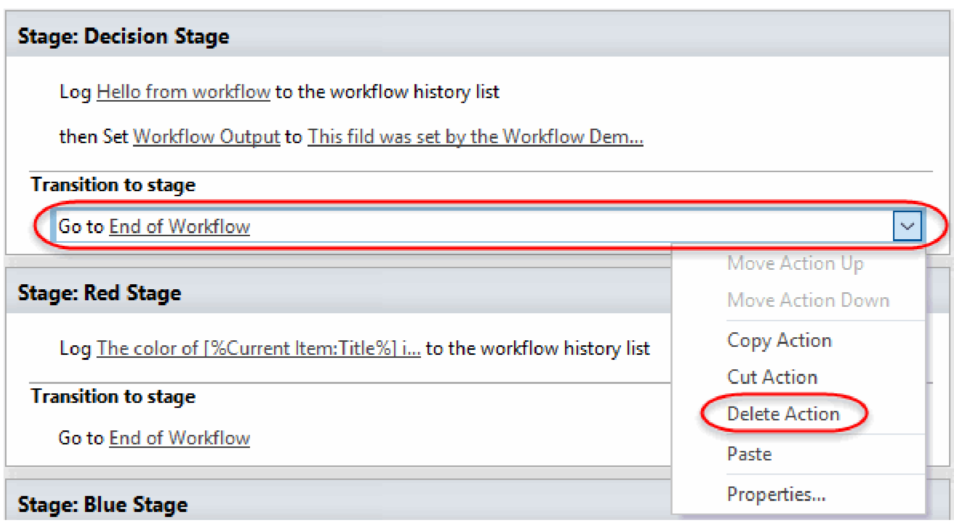


G. Repeat the previous steps to add a **Log to History List** message to the **Blue Stage** and **Green Stage** changing to message to reflect the color of the stage.

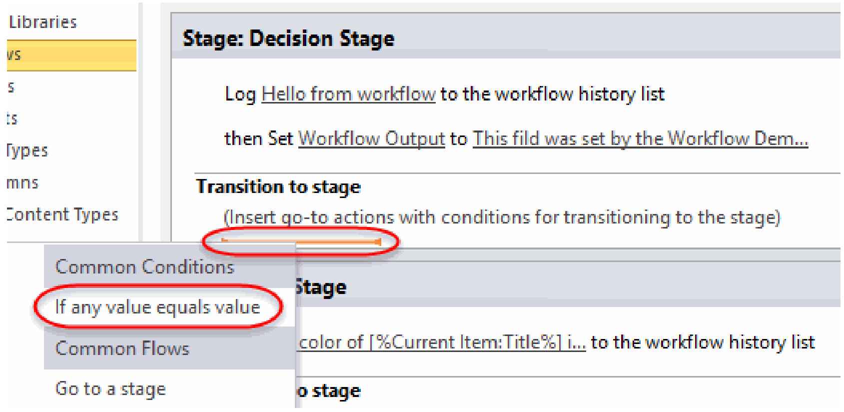


4. Add conditions to the **Transition to stage** area if the **Decision Stage** that route the workflow to the appropriate stage based on the items color value.

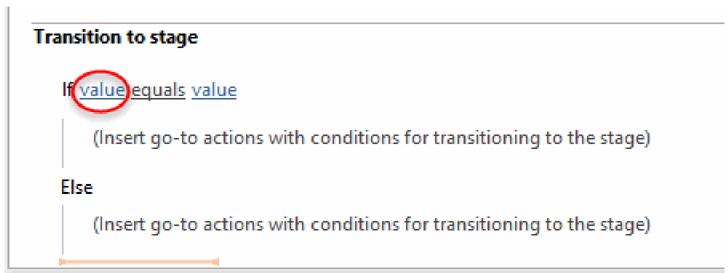
   A. Hover over the **Go to End of Workflow** in the **Decision Stage** and click the **down arrow** icon that appears and choose **Delete Action** from the menu list.



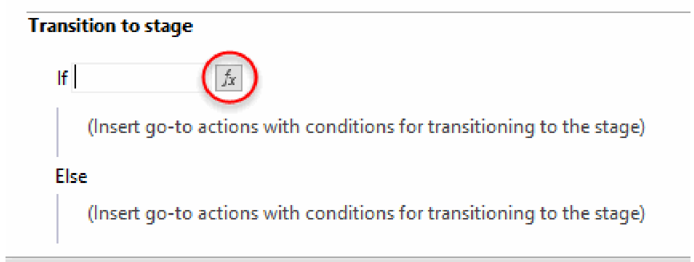
   B. Right-click the orange bar that appears when you hover over the now empty **Transition to stage** area of the **Decision Stage** and click the **if any value equals value** option from the menu.



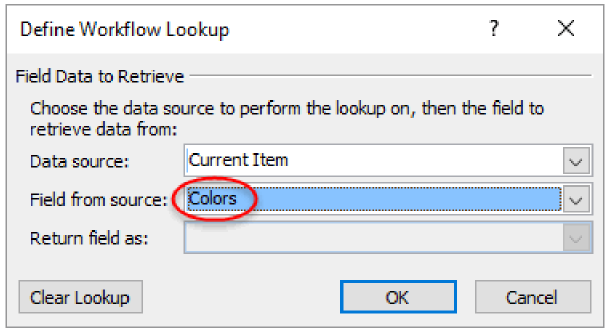
C. Click the first **value** link in the new **If value equals value** condition.



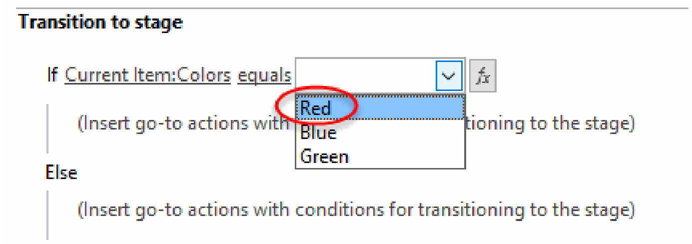
D. Click the **fx** button that appears next to the text field to perform a lookup.



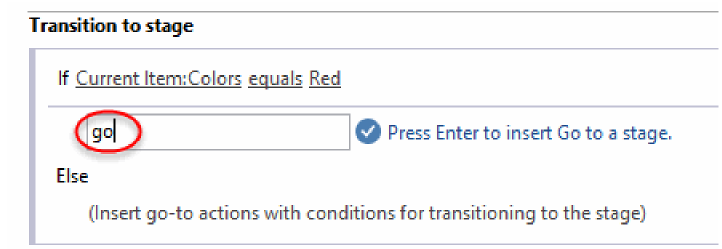
E. Select **Colors** in the drop-down **Field from source** field and click the **OK** button.



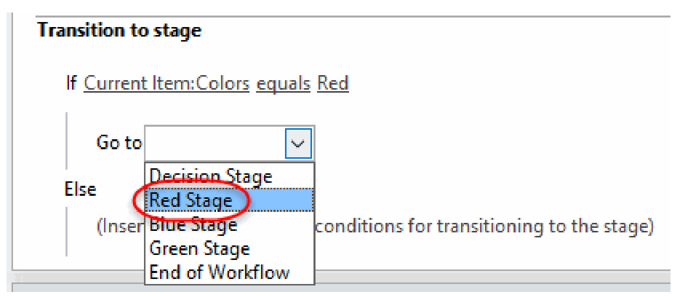
F. Click the second **value** link in the **If value equals value** condition and choose **Red** from the drop-down choice list.



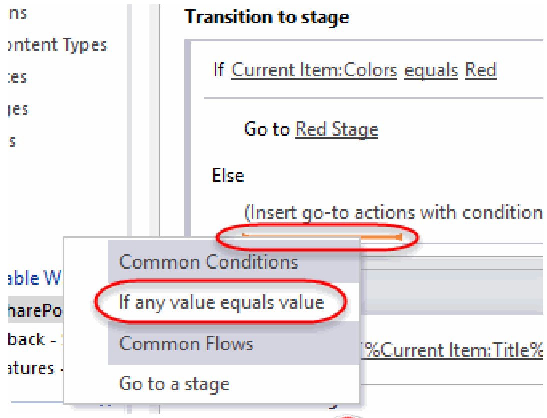
G. Click the orange bar inside the **If** part of the condition and type "Go" in the text box that appears when you start typing and press the **Enter** key to have SharePoint Designer insert the **Go to a stage** action.



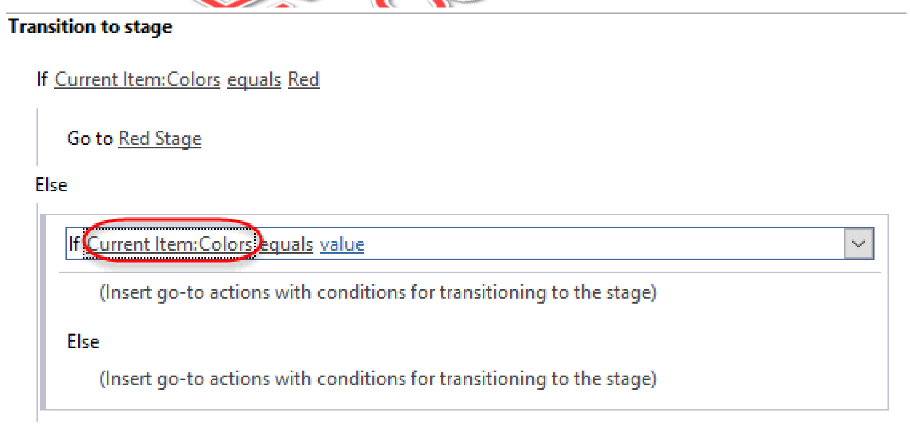
H. Click the **a stage** link and then choose **Red Stage** in the drop-down list of the **Go to a stage** action.



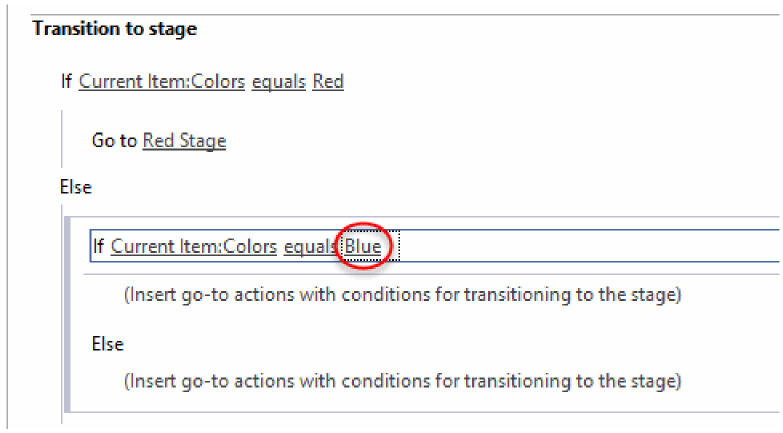
I. Right-click the orange bar inside the **Else** branch of the condition statement and choose **If any value equals value** from the menu.



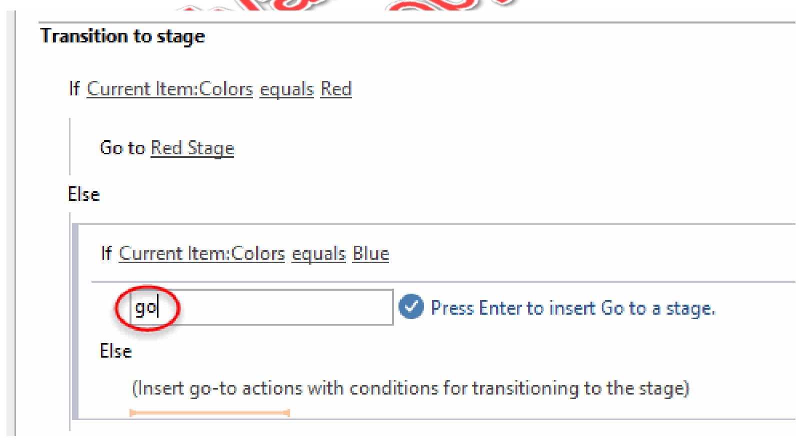
J. Set the first **value** field of the new **If current value equals value** to the lookup value of **Colors**.



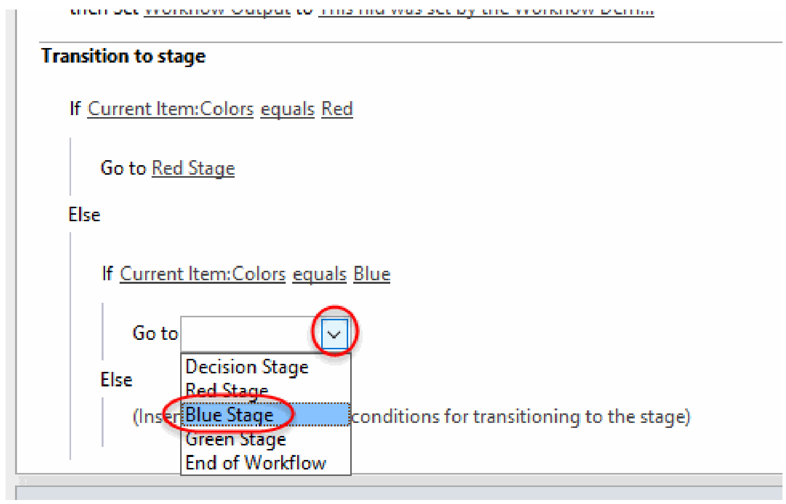
K. Set the second **value** field of the new **If current value equals value** to the drop-down choice of **Blue**.



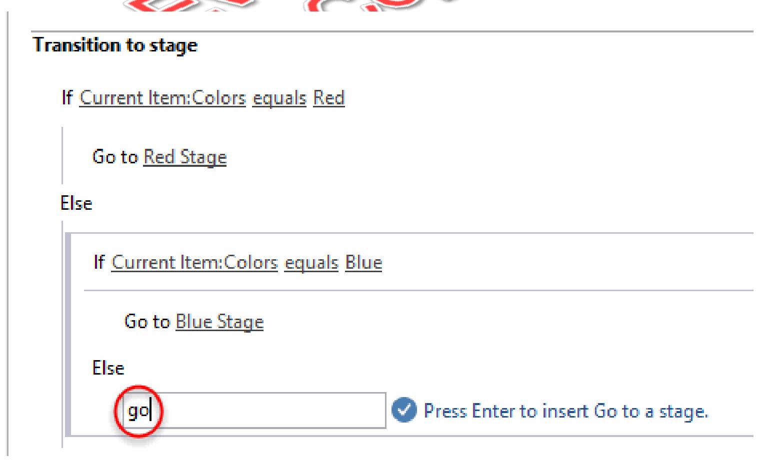
L. Click the orange bar inside the **If** part of the second new condition and type "Go" in the text box that appears when you start typing and press the **Enter** key to have SharePoint Designer insert the **Go to a stage** action.



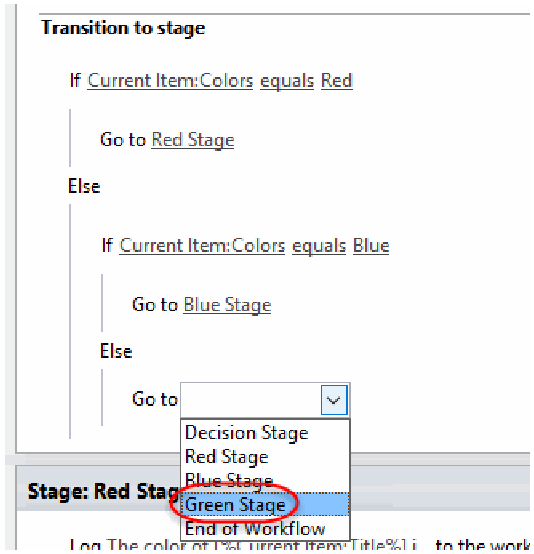
M. Click the **a stage** link and then choose **Blue Stage** in the drop-down list of the new **Go to a stage** action.



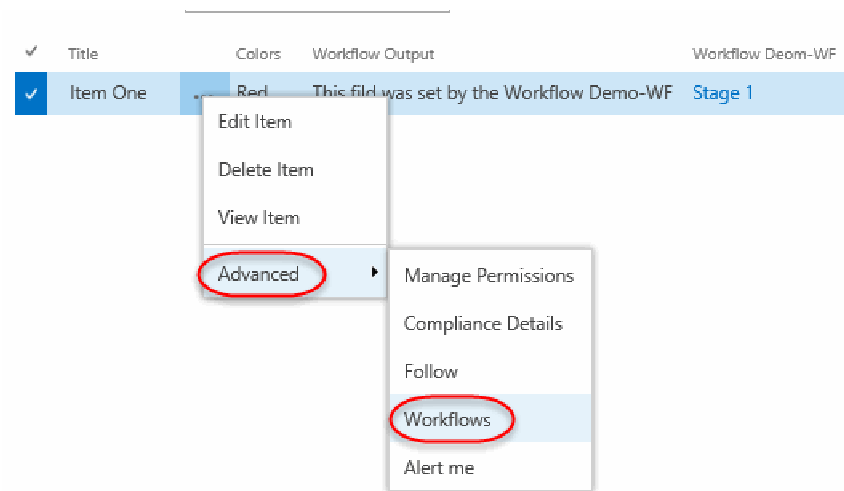
N. Click the orange bar inside the **Else part** of the second new condition and type “Go” in the text box that appears when you start typing and press the **Enter** key to have SharePoint Designer insert the **Go to a stage** action.



O. Click the **a stage** link and then choose **Green Stage** in the drop-down list of the new **Go to a stage** action.



5. Click the **Publish** link in the **Workflow** tab toolbar to update the SharePoint site with the current changes.
6. Test the condition branches in the **Workflow Demo** list.
   A. Switch back to the browser window and click the **Workflow Demo** link in the sites **Quick Launch** menu.
   B. Click the **Workflows** link from the item menu **Advanced** sub-menu of **Item One**.

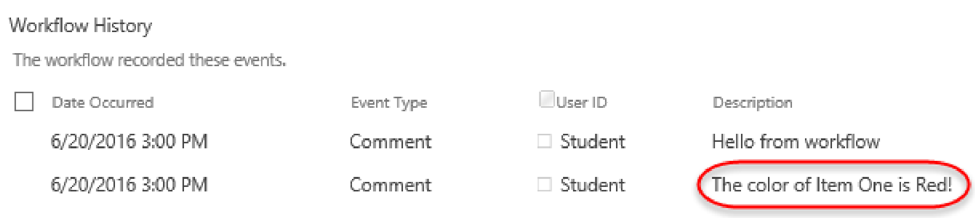


   C. Click the **Workflow Demo-WF** link under the **Start a New Workflow** heading.

D. Refresh the **Workflow Demo** list and click the **Red Stage** link in the **Workflow Demo-WF** column for **Item One**.

Note
You might have to refresh the list a couple of times before the workflow column shows a link to **Red Stage**. SharePoint 2013 Workflows use a timer job to keep in-sync with the Workflow Manager service and it sometimes takes a few minutes for even a simple workflow to complete

E. Verify the **Workflow History** has an entry with a message appropriate for the items **Colors** field.


Workflow History

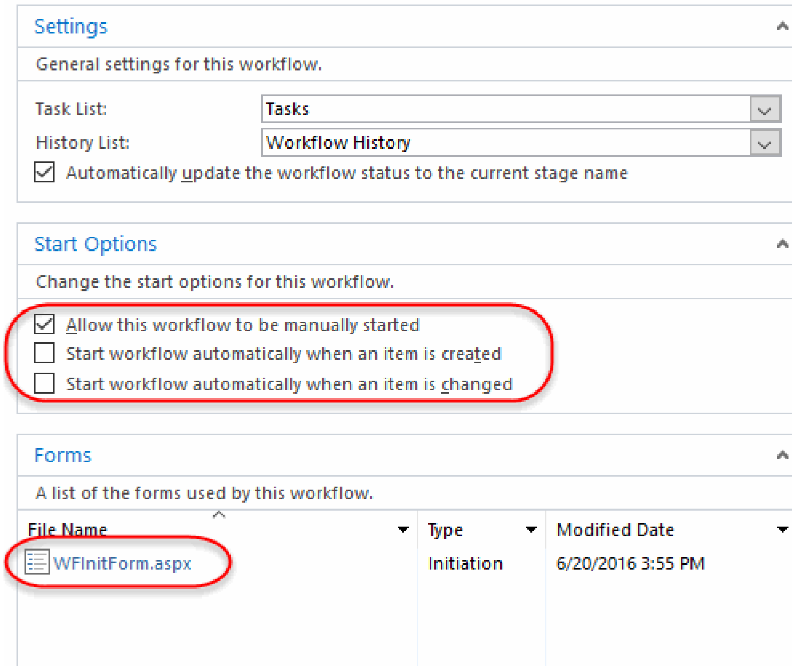
The workflow recorded these events.

Date Occurred	Event Type	User ID	Description
6/20/2016 3:00 PM	Comment	Student	Hello from workflow
6/20/2016 3:00 PM	Comment	Student	The color of Item One is Red!

2.5. Workflow Initiation Form

Initiation forms can be used with a SharePoint workflow to pass additional information into the workflow from the user who starts it. SharePoint Designer 2013 offers a wizard-driven interface for creating parameters and generating the Initiation form. The web form that SharePoint Designer creates can be further customized.

One drawback to using Initiation form parameters is that they work only if the workflow is manually started on an item. If a workflow is set to automatically start when an item is modified or created, then there is no opportunity for the user to interact with the Initiation form. The following shows the workflow settings and configuration tab in SharePoint designer with the Start Options and Initiation form outlined:



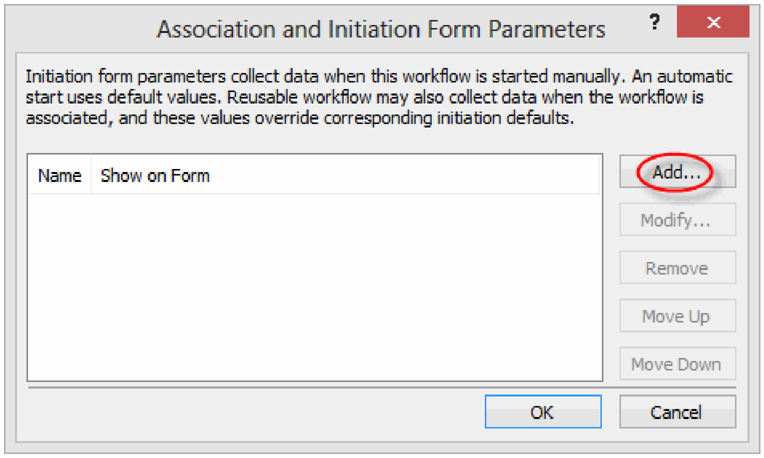
The following walk-through will show you how to add an Initiation parameter to the Workflow Demo-WF created in the previous walk-throughs in this lesson.

1. Add **Single line of text** parameter named "Input Data" to the **Workflow Demo-WF** using SharePoint Designer.

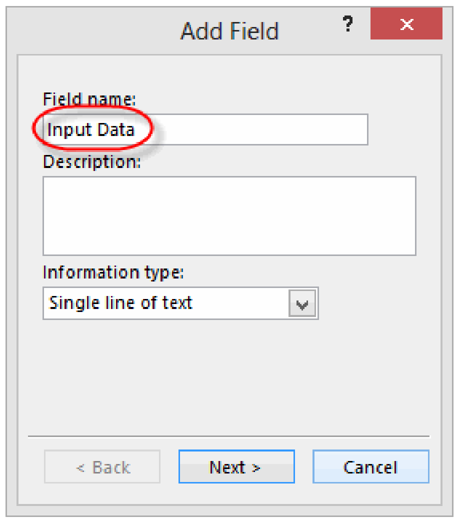
   A. Switch back to SharePoint Designer and the editor view of our **Workflow Demo-WF** workflow.

   B. Click the **Initiation Form Parameters** button on the **Workflow** tab toolbar.

   C. Click the **Add…** button on the **Association and Initiation Form Parameters** dialog window.



D. Type "Input Data" in the **Field name** field of the **Add Field** dialog window.



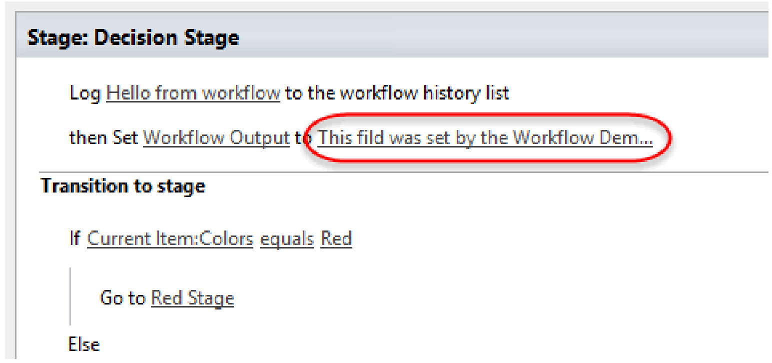
E. Click the **Next** button.

F. Click the **Finish** button.

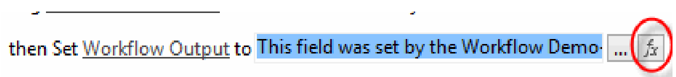
G. Click the **OK** button on the **Association and Initiation Form Parameters** dialog window.

2. Modify the **Set Field in Current Item** workflow action to write the parameter information from the Initiation form into the **Workflow Output** field of the list item.

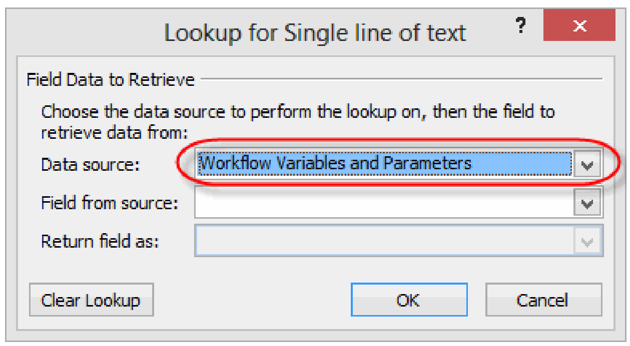
   A. Click the **This field was set by the Workflow De…** link of the **Set Field in Current Item** action.



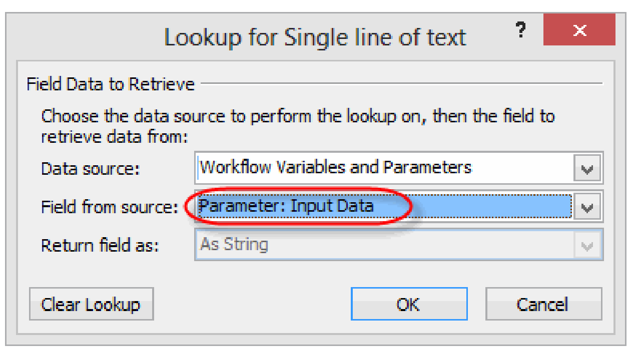
B. Click the ***fx*** button next to the text box to open the **Lookup for Single line of text** dialog window.



C. Click the **Data source** drop-down and select the **Workflow Variables and Parameters** option.



D. Click the **Field from source** drop-down and select **Parameter: Input Data** option.



E. Click the **OK** button to save the settings.

3. Click the **Publish** button to save the workflow changes back to the SharePoint server.

4. Run the **Workflow Demo-WF** to test the Initiation form parameter.

   A. Switch back to the browser window and click the **Workflow Demo** link in the site's **Quick Launch** menu.

   B. Click the **Workflows** link under the **Advanced** sub-menu of the item menu of **Item One**.

   C. Click the **Workflow Demo-WF** link under the **Start a New Workflow** heading.

   D. Type "Hello from the initiation form!" in the **Input Data** field of the Initiation form.

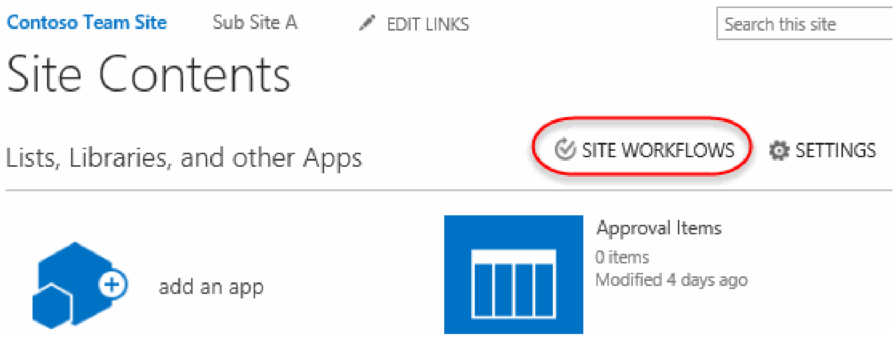
   E. Click the **Start** button to start the workflow.

   F. Click the **Workflow Demo** link in the **Quick Launch** to refresh the view of the list.

   G. Verify the **Workflow Output** field for **Item One** has the text from the Initiation form.

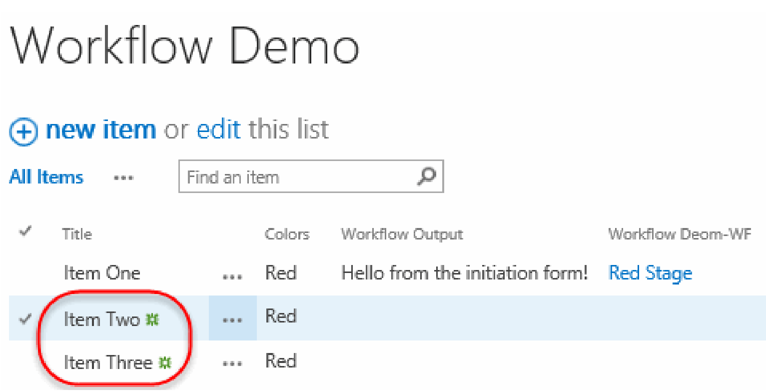
2.6. Site Workflows

Site Workflows are not associated with any particular list or library but are associated with the whole site. These type of workflows can be useful if you want to perform actions across multiple lists or libraries. To access a Site Workflow associated with a site you do so through the **SITE WORKFLOWS** link on the **Site Contents** page.

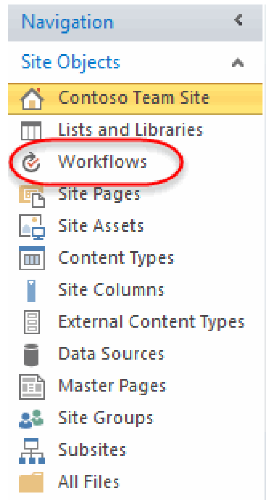


The following walk-through shows how to use SharePoint Designer to create a Site Workflow for the **Contoso Team Site**. In addition to showcasing a Site Workflow this walk-through will also show how to use looping container as well as a Call to HTTP Web Service action. The Call to HTTP Web Service action is very useful and can be used in any workflow where you want to access SharePoint items other than the one the workflow was started from. Since this example uses a Site Workflow we'll be making a call to an existing SharePoint list to enumerate the items within it.

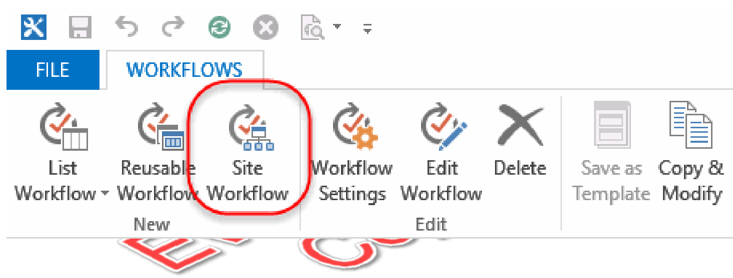
1. Add two new items to the **Workflow Demo** list so that we'll have multiple items to loop through.
   A. Click the **Workflow Demo** link in the site's Quick Launch menu.
   B. Click the **new item** link in the **Workflow Demo** list.
   C. Enter "Item Two" in the **Title** field and click the **Save** button.
   D. Repeat the previous steps to add an "Item Three", the list should look similar to the following image:



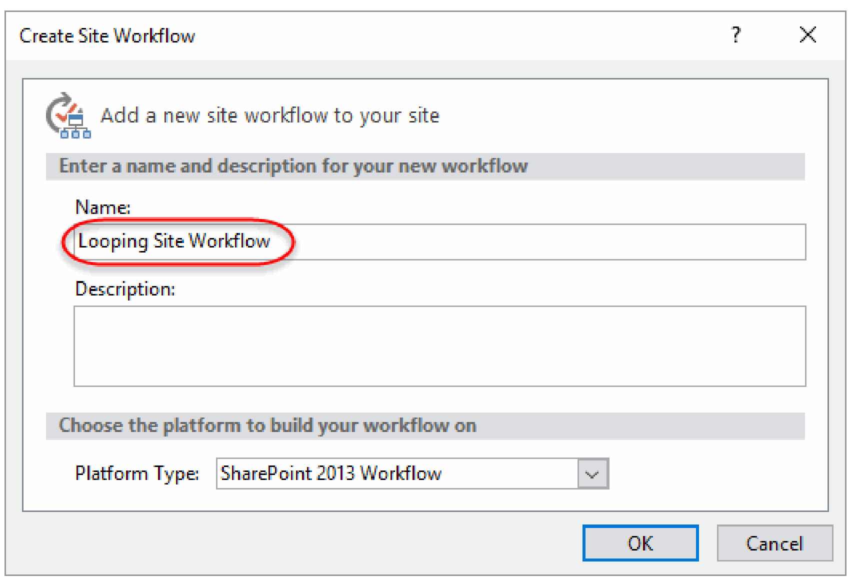
2. Create a new Site Workflow for the Contoso Home Site..
   A. In SharePoint Designer 2013 click the **Workflows** link in the **Navigation** panel.



B. Click the **Site Workflow** button in the toolbar.

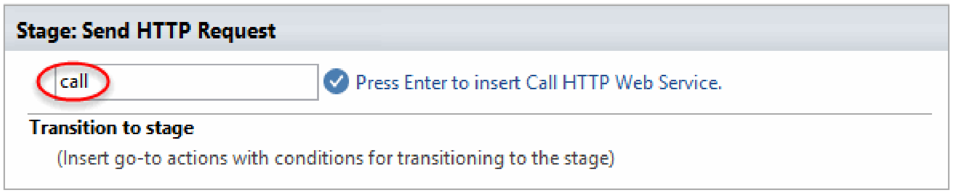


C. Enter **Looping Site Workflow** for the **Name** field, leave the **Platform Type** set to **SharePoint 2013 Workflow** and click the **OK** button.

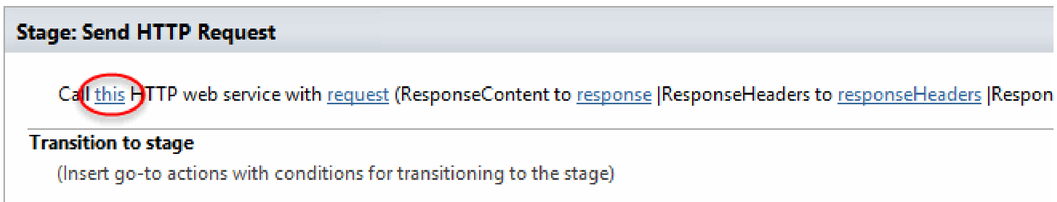


3. Create a **Call HTTP Service** action that connects to the **Contoso Home Site** and the **Workflow Demo** list.

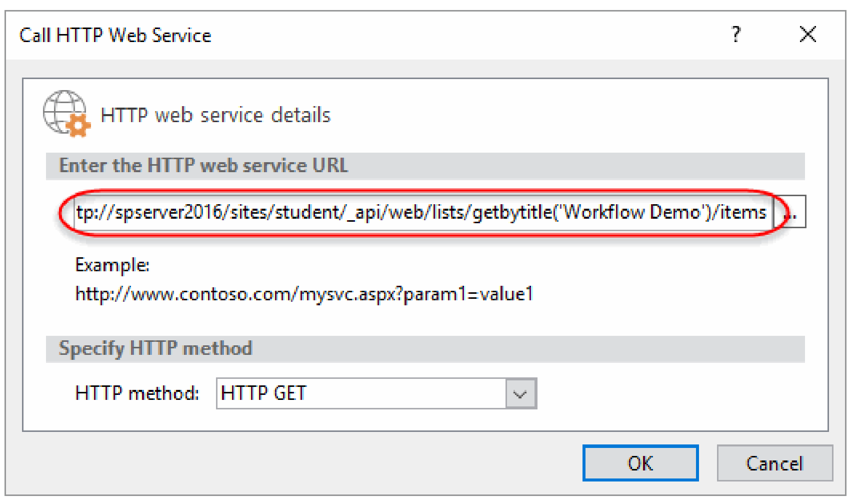
   A. Click the orange bar inside the stage, above the **Transition to stage**, and type the word “call” and then press **Enter** to insert a **Call HTTP Web Service** action.



   B. Click the **this** link at the beginning of the new **Call HTTP Service** action.



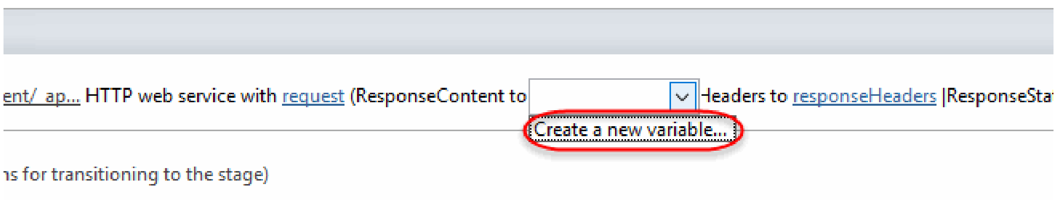
   C. Enter `http://spserver2016/sites/student/_api/web/lists/getbytitle('Workflow Demo')/items` in the **Enter the HTTP web service URL** field of the dialog and click the **OK** button.



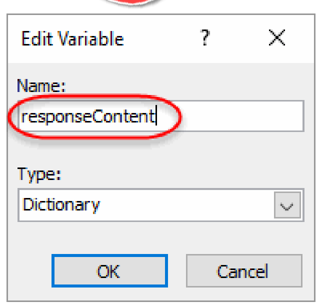
Note

The URL entered in this step is using the REST interface provided with SharePoint. Through the SharePoint REST interface you can access any list or library and access the items within. Additional REST commands can be used to filter, sort or even update items. This example simply retrieves all of the items in the **Workflow Demo** list. Full coverage of the REST based interface is outside the scope of this course.

D. Click the **response** link within the **Call HTTP Web Service** action and choose **Create a new variable…** from the drop-down.



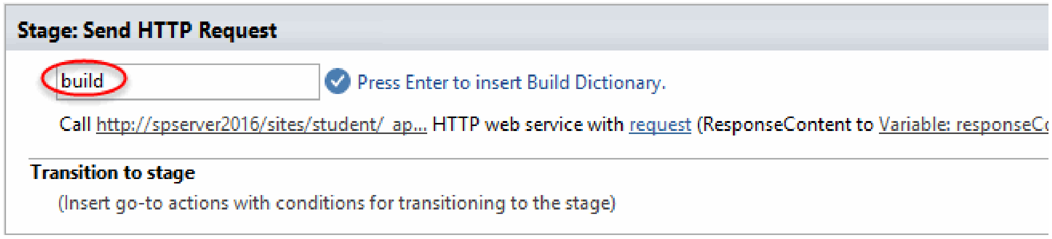
E. Type "responseContent" the **Name** field of the **Edit Variable** dialog, leave the **Type** set to the default of **Dictionary** and click the **OK** button.



Note

Variables are used inside of SharePoint Workflows to store information that can be retrieved later in the workflow. In this case the **responseContent** variable will hold the list items retrieved from the REST call to SharePoint. The **Dictionary** type allows the variable to store multiple items that can be retrieved through an index or a key.

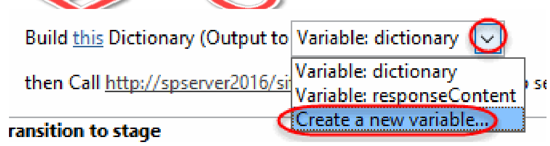
F. Click the orange bar **above** the **Call HTTP Web Service** action and type the word “build” and press **Enter** to insert a **Build Dictionary** action.



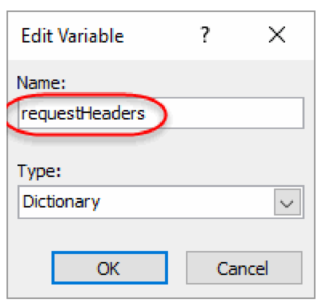
Note

You are adding this dictionary variable to pass needed formatting information into the **Call HTTP Web Server** action. That is the reason it is being added before the **Call HTTP Web Service** action.

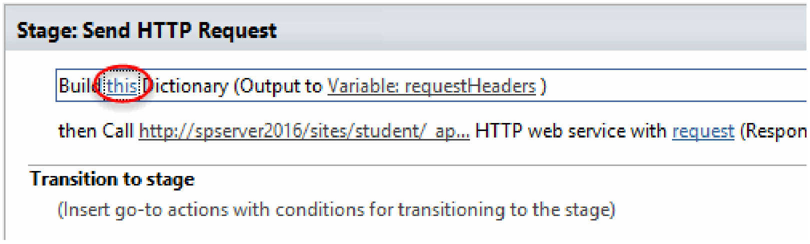
G. Click the **Variable:dictionary** drop-down and choose **Create a new variable…** from the options.



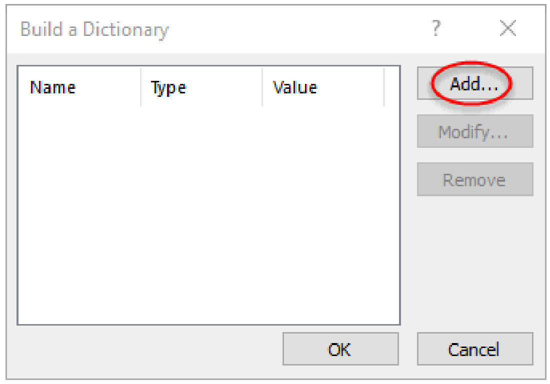
H. Type “requestHeaders” in the **Name** field of the **Edit Variable** dialog and click the **OK** button.



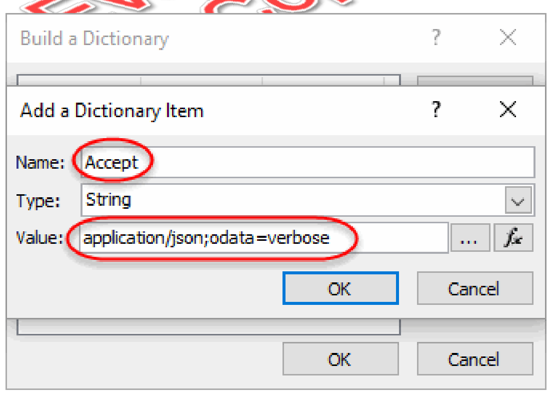
I. Click the **this** link in the **Build Dictionary** action.



J. Click the **Add…** button in the **Build a Dictionary** dialog.



K. Type `Accept` in the **Name** field and `application/json;odata=verbose` in the **Value** field and click the **OK** button.

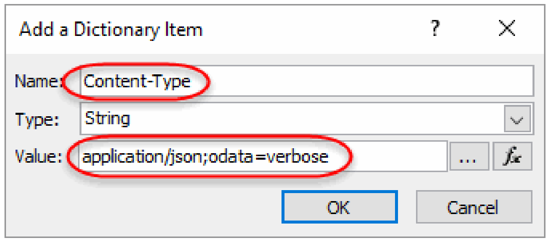


Note

This is one of two parameters that will be passed into the **Call HTTP Web Service** to configure the REST call to respond with a JSON formatted response. This will make it easier to get to the results in a later stage of the workflow.

L. Click the **Add…** button again to add a second item to the dictionary variable.

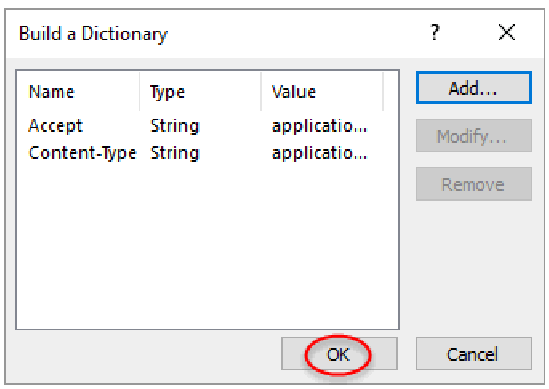
M. Type `Content-Type` in the **Name** field and `application/json;odata=verbose` in the **Value** field and click the **OK** button.



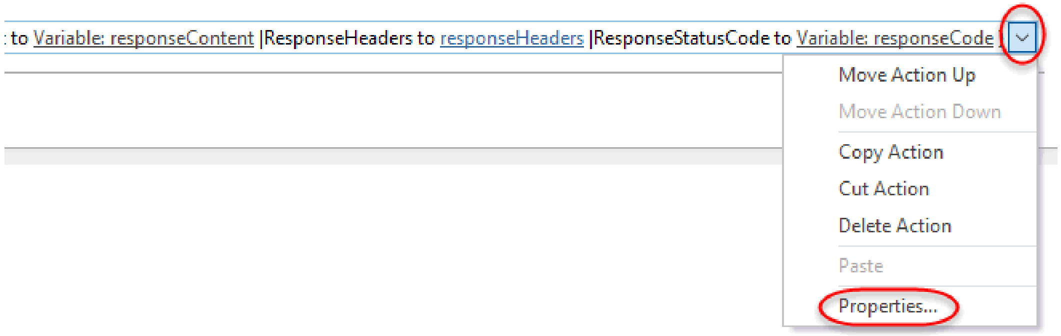
Note

This is the second parameter that will be passed into the **Call HTTP Web Service** to configure the REST call to respond with a JSON formatted response. This will make it easier to get to the results in a later stage of the workflow.

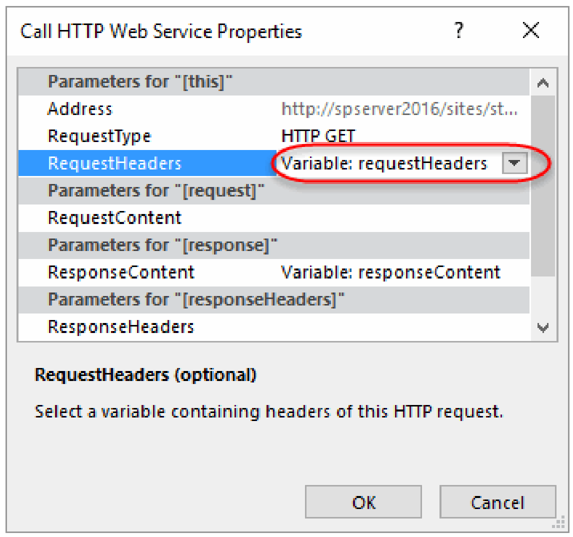
N. Click the **OK** button to save and close the **Build a Dictionary** dialog.



O. Hover over the right-hand edge of the **Call HTTP Web Service** action and click the **down arrow** button and choose **Properties…** from the drop-down menu.

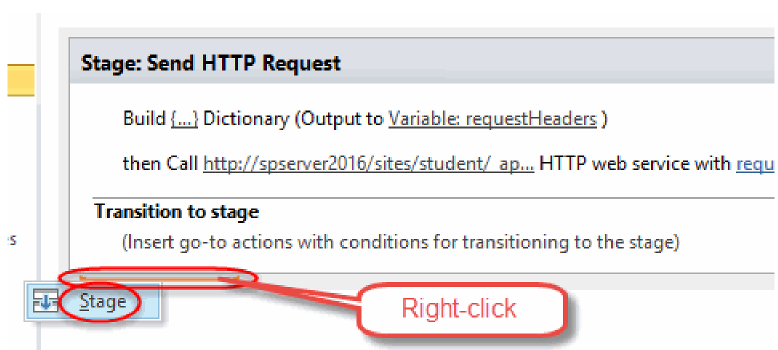


P. Set the **RequestHeaders** fields drop-down value to the **Variable: requestHeaders** variable created in the previous steps and click the **OK** button.

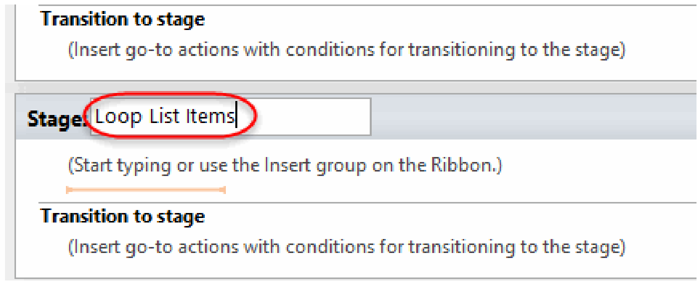


4. Add a new stage named **Loop List Items** to the workflow.

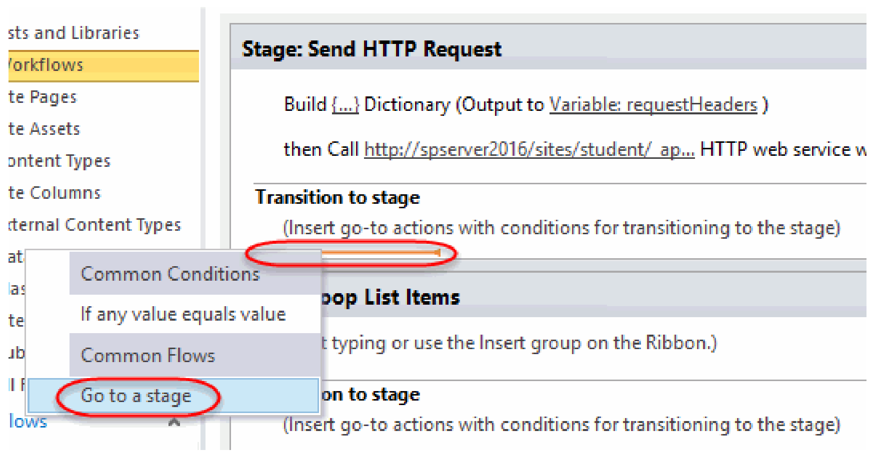
A. Right-click the orange bar below the current **Send HTTP Request** stage and click the **Stage** option from the menu.



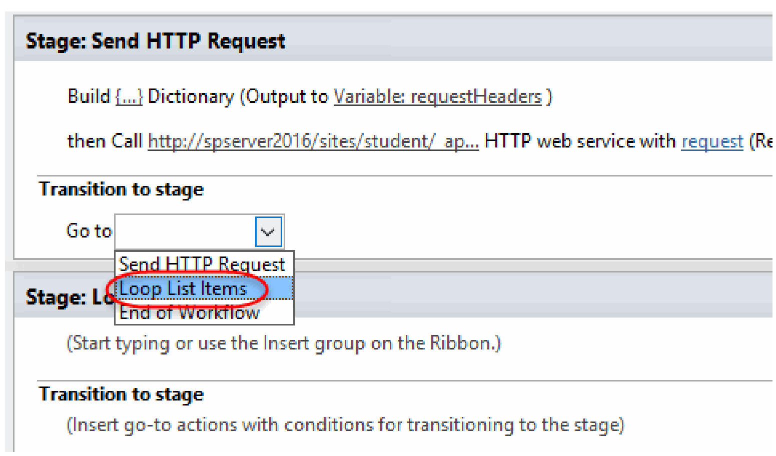
B. Click the **Stage 2** title and type “Loop List Items” in the editable text box to appears and press **Enter**.



C. Right-click the orange bar in the **Transition to stage** area of the original **Send HTTP Request** stage and choose the **Go to a stage** option from the drop-down.

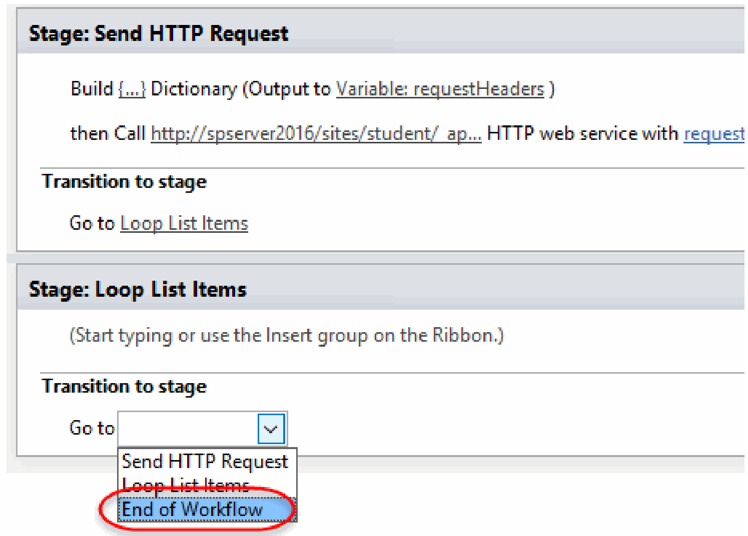


D. Click the **a stage** link in the new **Go to a stage** action and choose **Loop List Items** from the drop-down menu.



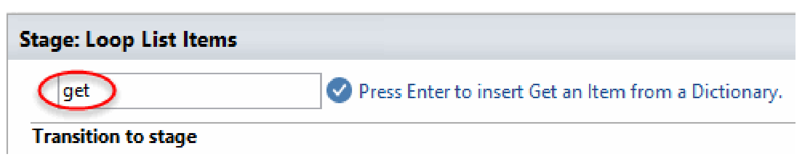
E. Right-click the orange bar in the **Transition to stage** area of the new **Loop List Items** stage and choose the **Go to a stage** option from the drop-down.

F. Click the **a stage** link in the new **Go to a stage** action and choose **End of Workflow** from the drop-down menu.

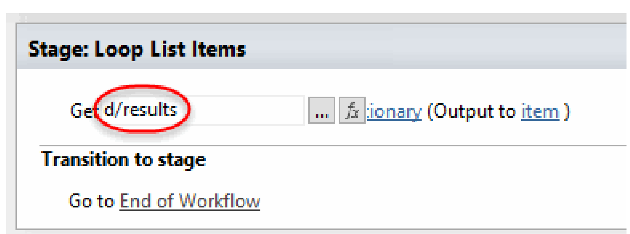


5. Add a **Get an Item from a Dictionary** action to retrieve the results of the **Call HTTP Web Service** action and create variables that will be used for looping.

A. Click the orange bar inside the **Loop List Items** stage and type “get” and press **Enter** to add the **Get an Item from a Dictionary** Action.

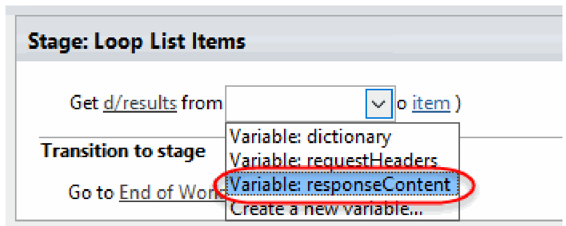


B. Click the **item by name or path** link in the new **Get an Item from a Dictionary** action and type `d/results` in the text box.

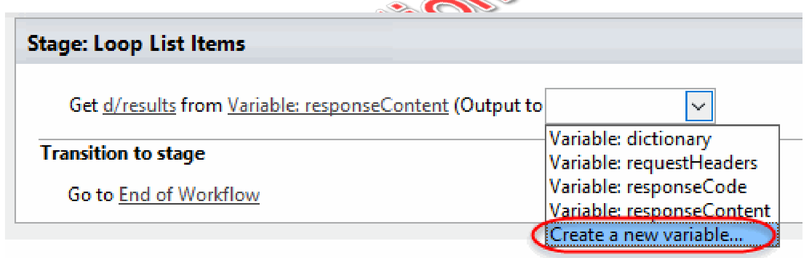


Note
The string `d/results` is the path to the list items returned in JSON format from the REST call of the **Call HTTP Web Service** action.

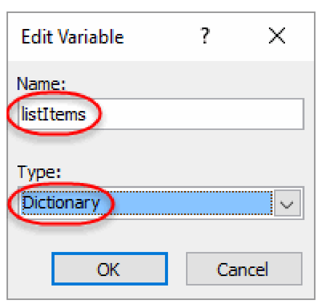
C. Click the **dictionary** link in the **Get an Item from a Dictionary** action and choose the **Variable: responseContent** from the drop-down list.



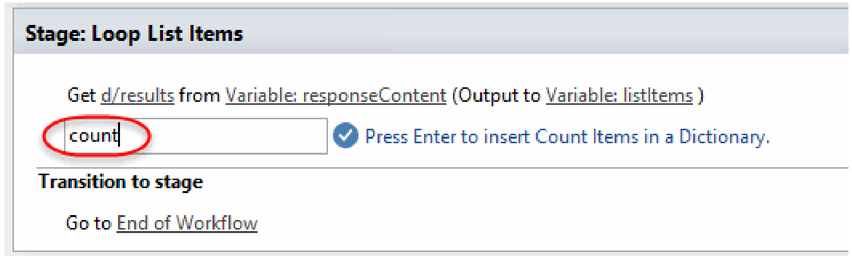
D. Click the **item** link in the **Get an Item from a Dictionary** action and choose **Create a new variable…** from the drop-down list.



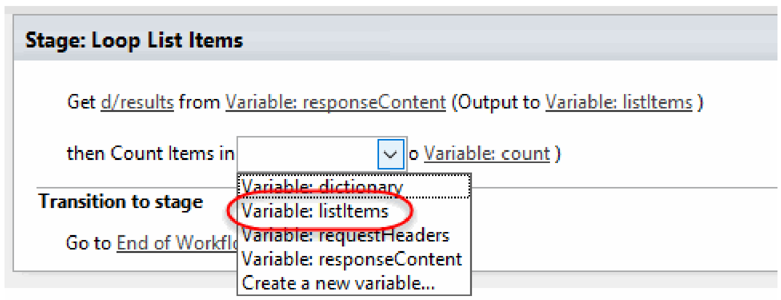
E. Set the **Name** field to “listItems” and the **Type** field drop-down to **Dictionary** and click the **OK** button.



F. Click the orange bar below the **Get an Item from a Dictionary** action and type “count” and press **Enter** to insert a **Count Items in a Dictionary** action into the workflow.



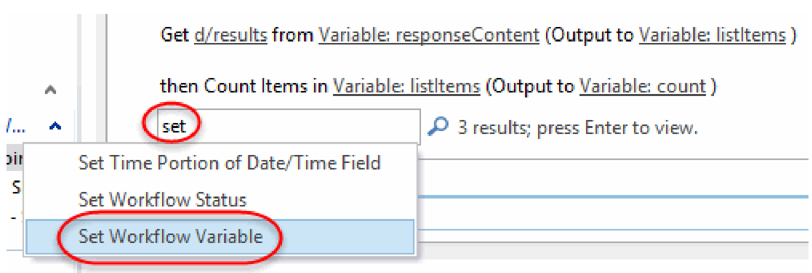
G. Click the **dictionary** link in the new **Count Items in a Dictionary** link and choose **Variable: listItems** from the drop-down.



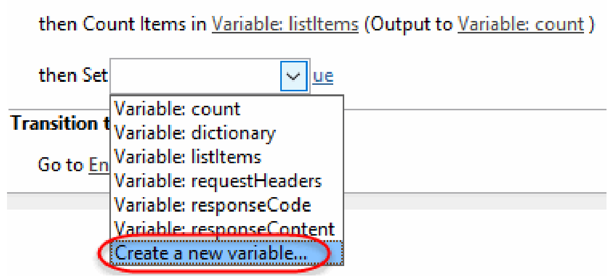
Note

The variable **listItems** is a dictionary type variable that, at this point in the workflow, should contain the items retrieved from the SharePoint list. Note that the **Count Items in a Dictionary** action creates an output integer type variable named **count**. We'll use the **count** variable to limit the iterations in a looping action that will be added in a later step.

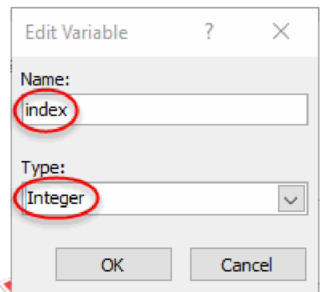
H. Click the orange bar below the **Count Items in a Dictionary** action and type "set" and press **Enter**, choose **Set Workflow Variable** from the list of choices.



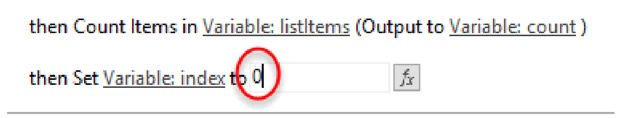
I. Click the **workflow variable** link in the new **Set Workflow Variable** action and choose **Create a new variable…** from the list of options.



J. Type “index” in the **Name** field and choose **Integer** in the **Type** drop-down and click the **OK** button.



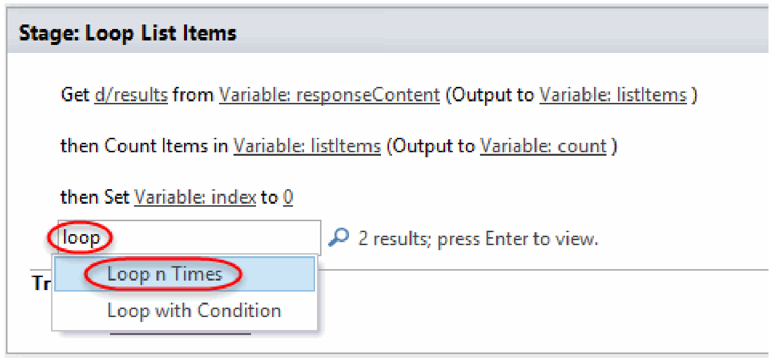
K. Click the **value** link in the **Set Workflow Variable** action and type the number “0” in the text field and press **Enter**.



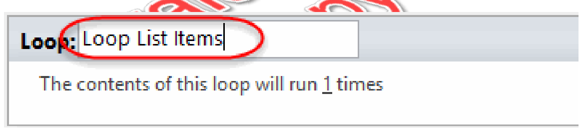
Note
The **index** variable will be used to access the individual items in the **listItems** dictionary during the loop. A separate action will be added later in the workflow to increment the **index** variable so that it can point to the next item in the dictionary. SharePoint dictionary items start with an index of 0 so by setting the variable to 0 you can access the first item with the variable.

6. Add a **Loop n Times** container to the workflow that loops through the **Workflow Demo** list items and uses a **Log to History List** action to write the **Title** field of the list item as output.

   A. Click the orange bar below the **Set Workflow Variable** action and type "loop" and press **Enter**, then choose the **Loop n Times** option from the drop-down.



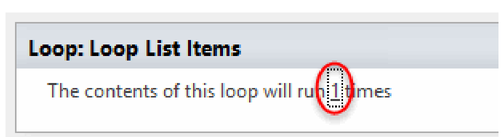
   B. Click the title bar of the new **Loop n Times** container and type "Loop List Items" and press **Enter** to rename it.



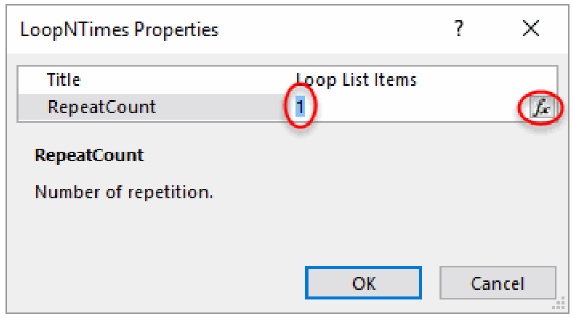
Note

Renaming the Loop container is optional but it does make the workflow more readable.

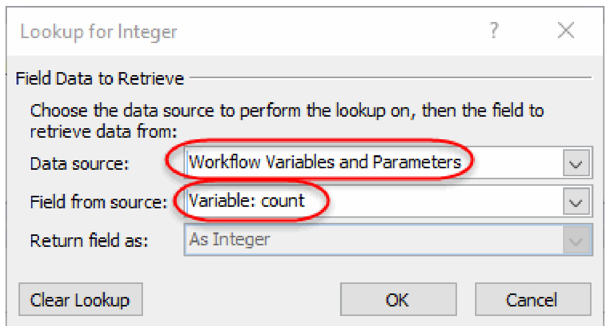
   C. Click the **1** link inside the **Loop n Times** container.



   D. Click the **1** link and then click the **fx** link inside the **LoopNTime Properties** dialog.



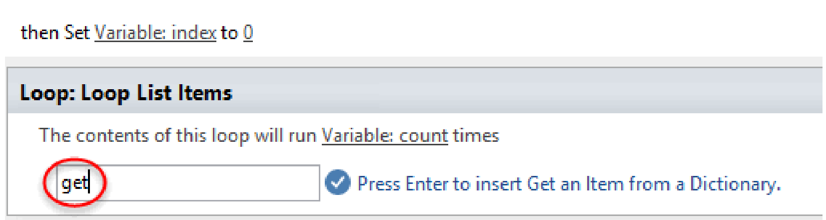
E. Select **Workflow Variables and Parameters** in the **Data source** field and select **Variable: count** in the **Field from source** field and click the **OK** button on the **Lookup for Integer** dialog.



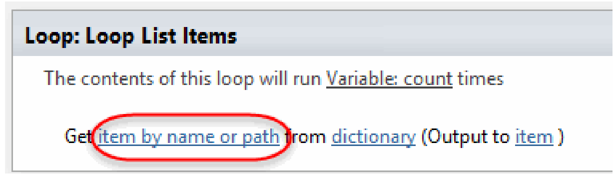
F. Click the **OK** button on the **LoopNTimes Properties** dialog.

Note
This sets the iterations of the loop to the number of items in the list.

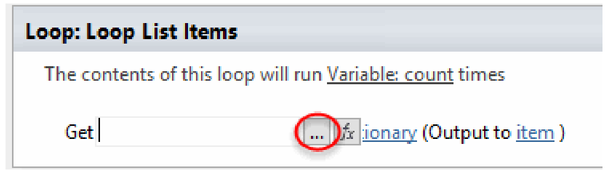
G. Click the orange bar below the line you set in the previous step and type the word “get” and press **Enter** to insert a new **Get an Item from a Dictionary** action.



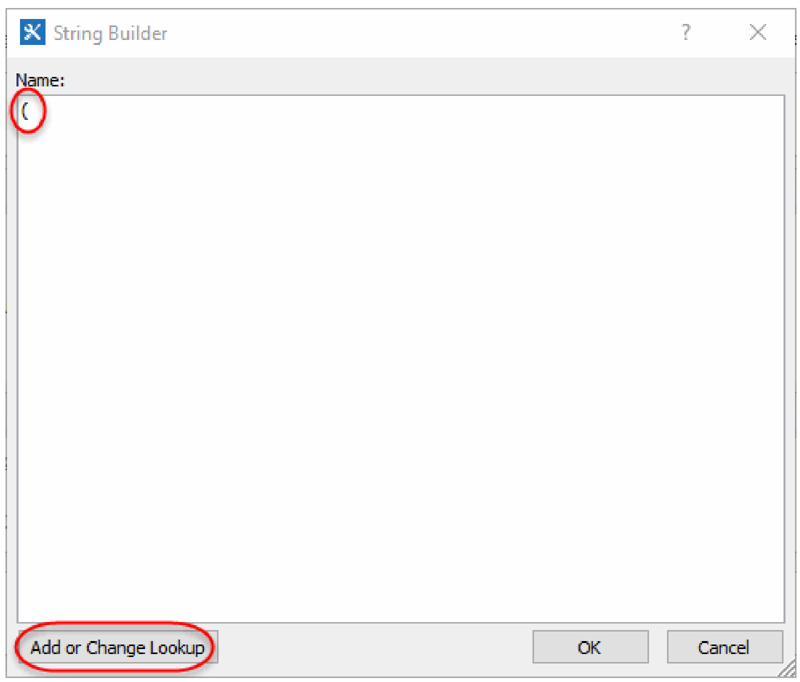
H. Click the **item by name or path** link in the new **Get an Item from a Dictionary** action.



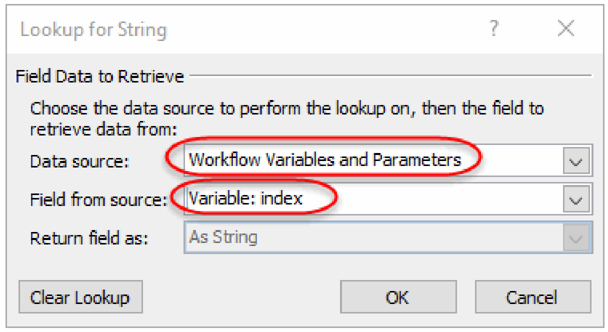
I. Click the **ellipsis** button next to the **item by name or path** text field to open a string builder dialog.



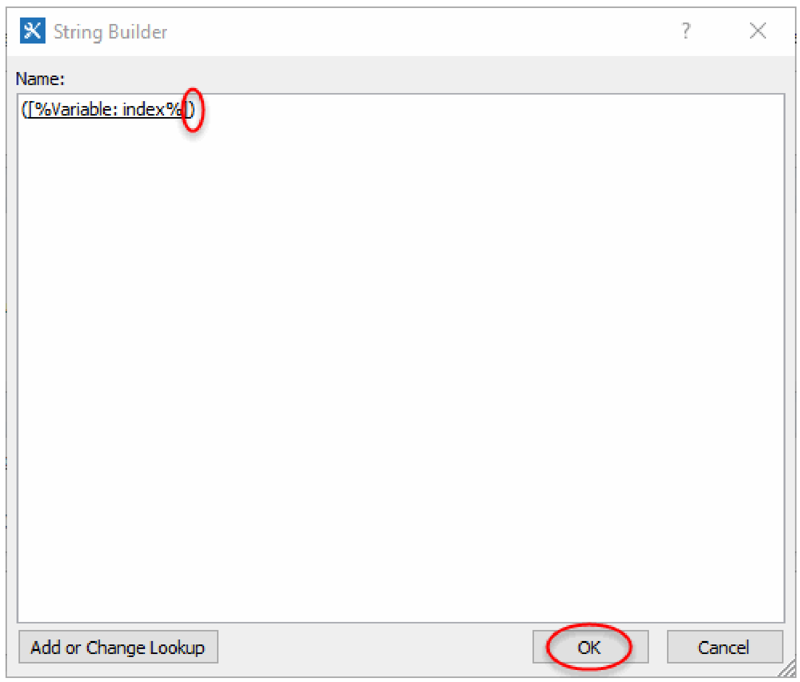
J. In the **String Builder** dialog type a left (and then click the **Add or Change Lookup** button.



K. In the **Lookup for String** dialog set the **Data source** field to **Workflow Variables and Parameters** and the **Field from source** field to **Variable: index** and click the **OK** button.



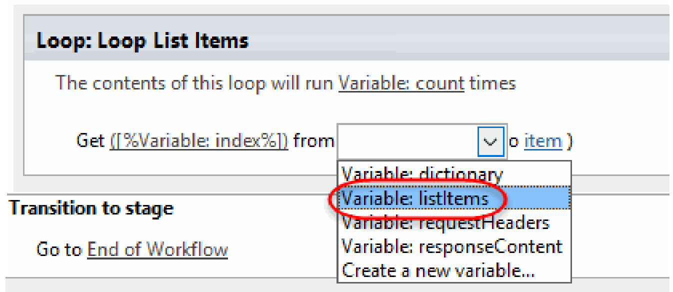
L. Type a right) after the newly inserted variable lookup and click the **OK** button to save the string and close the **String Builder** dialog.



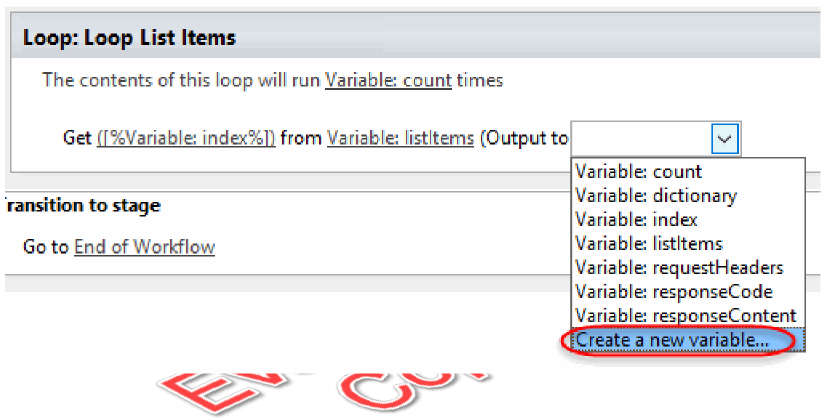
Note

You have to have parentheses around the index number that will be used to select a specific list item from the list. Later steps will increment the index for the next iteration of the loop.

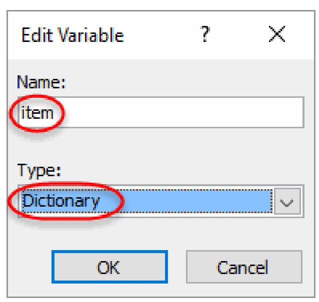
M. Click the **dictionary** link in the **Get an Item from a Dictionary** action and select **Variable: listItems** from the drop-down list.



N. Click the **variable** link at the end of the **Get an Item from a Dictionary** action and choose **Create a new variable…** from the drop-down list.

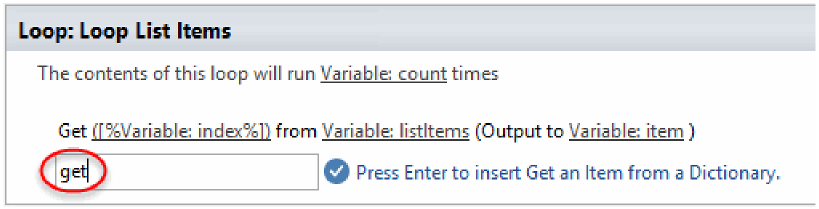


O. In the **Edit Variable** dialog type `item` in the **Name** field and select **Dictionary** in the **Type** field and click the **OK** button.

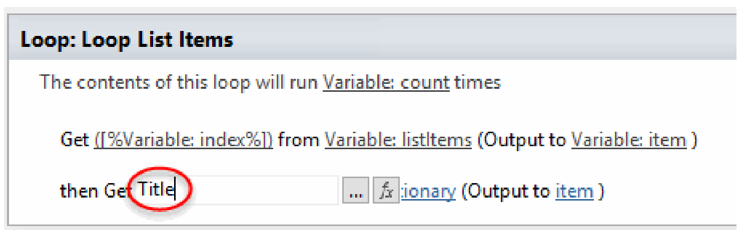


Note
The **item** variable will store the current list item during each iteration of the loop.

P. Click the orange bar below the last **Get an Item from a Dictionary** action and type “get” and press **Enter** to add another **Get an Item from a Dictionary** action.



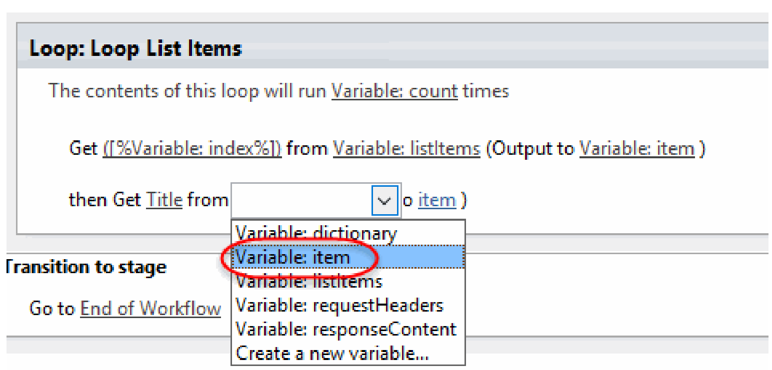
Q. Click the **item by name or path** link in the new **Get an Item from a Dictionary** action and type `Title` in the text box and press **Enter**.



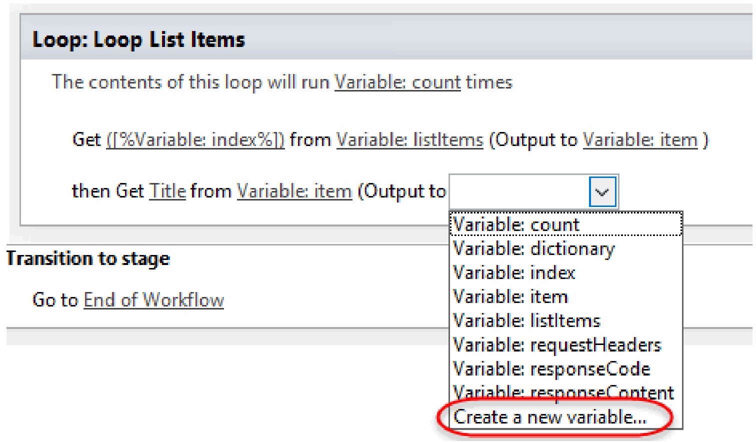
Note

For the lookup field we are entering the SharePoint column name that has the data you want in the list item. For this example we are using the **Title** column but we could replace that with any column we want from the list or library.

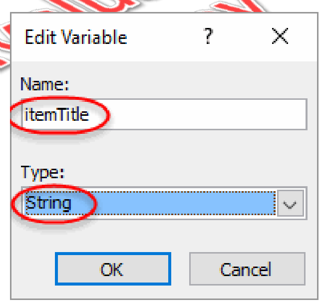
R. Click the **dictionary** link in the **Get an Item from a Dictionary** action and select **Variable: Item** from the drop-down list.



S. Click the **variable** link at the end of the **Get an Item from a Dictionary** action and choose **Create a new variable…** from the drop-down list.

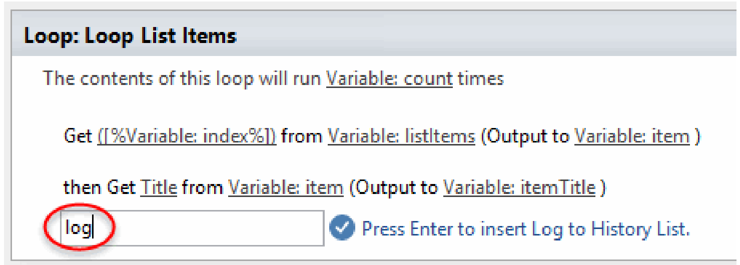


T. In the **Edit Variable** dialog type `itemTitle` in the **Name** field and select **String** in the **Type** field and click the **OK** button.

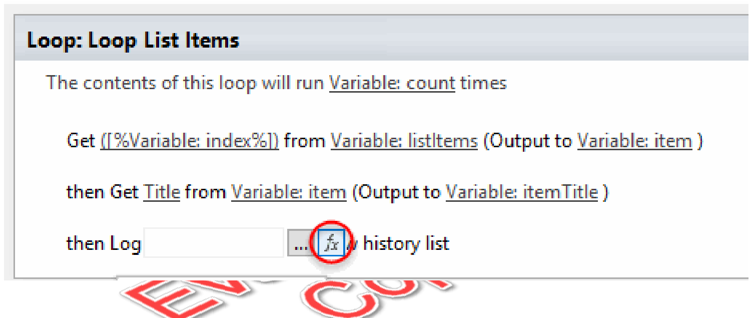


Note
The **itemTitle** variable will store the current list item's Title that we will write to the Workflow History List in next action.

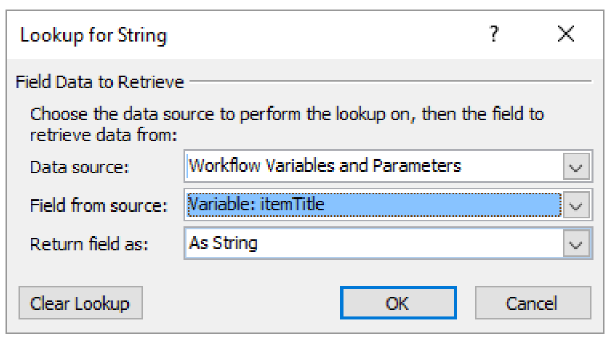
U. Click the orange bar below the last **Get an Item from a Dictionary** action and type "log" and press **Enter** to insert a **Log to History List** action.



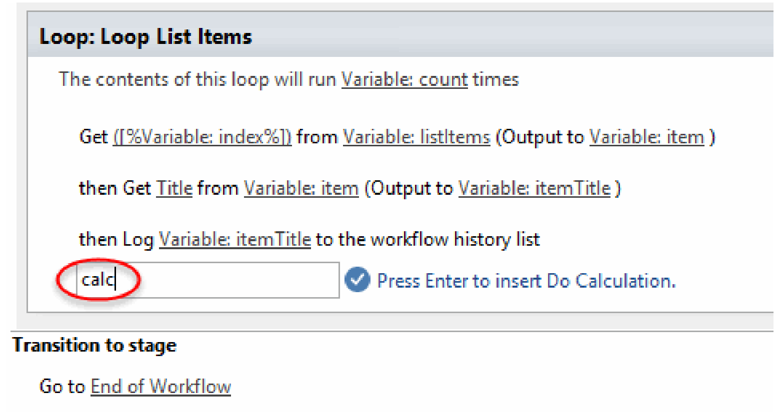
V. Click the **message** link in the new **Log to History List** action and then click the **fx** button that appears.



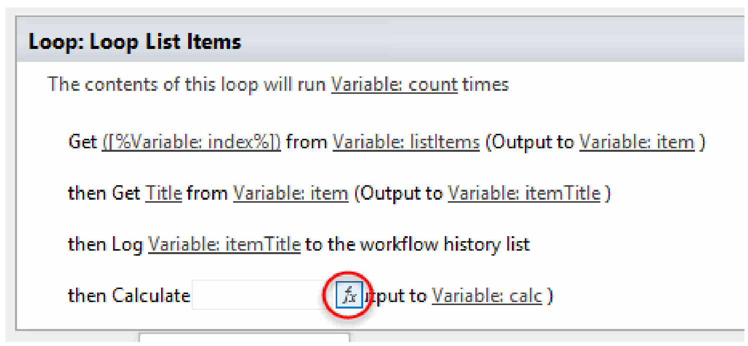
W. In the **Lookup for String** dialog set the **Data source** field to **Workflow Variables and Parameters** and the **Field from source** field to **Variable: itemTitle** and click the **OK** button.



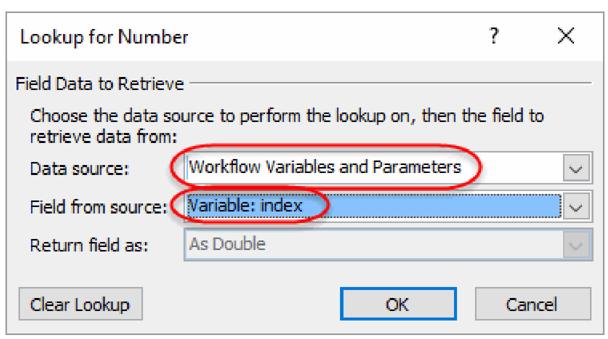
X. Click the orange bar below the last **Log to History List** action and type “calc” and press **Enter** to insert a **Do Calculation** action.



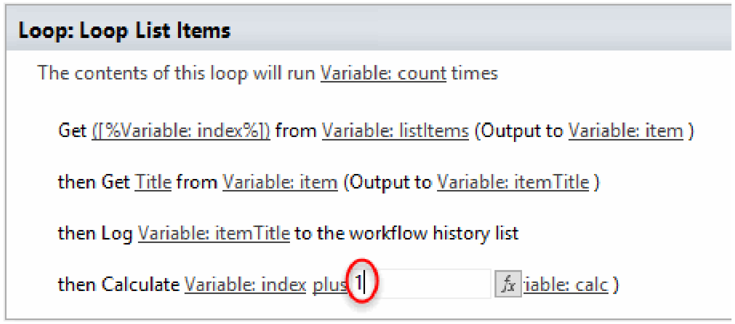
Y. Click the **value** link in the new **Do Calculation** action and then click the **fx** button that appears.



Z. In the **Lookup for Number** dialog set the **Data source** field to **Workflow Variables and Parameters** and the **Field from source** field to **Variable: index** and click the **OK** button.

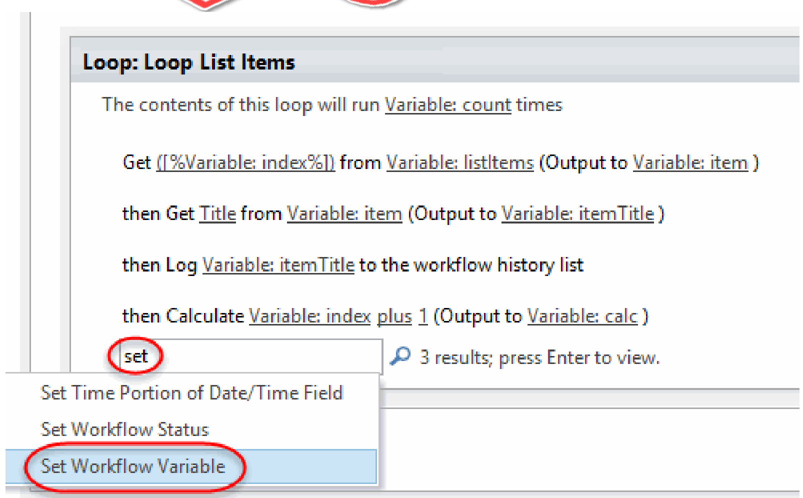


AA. Click the **value** link in the **Do Calculation** action and enter the number **1** in the field.

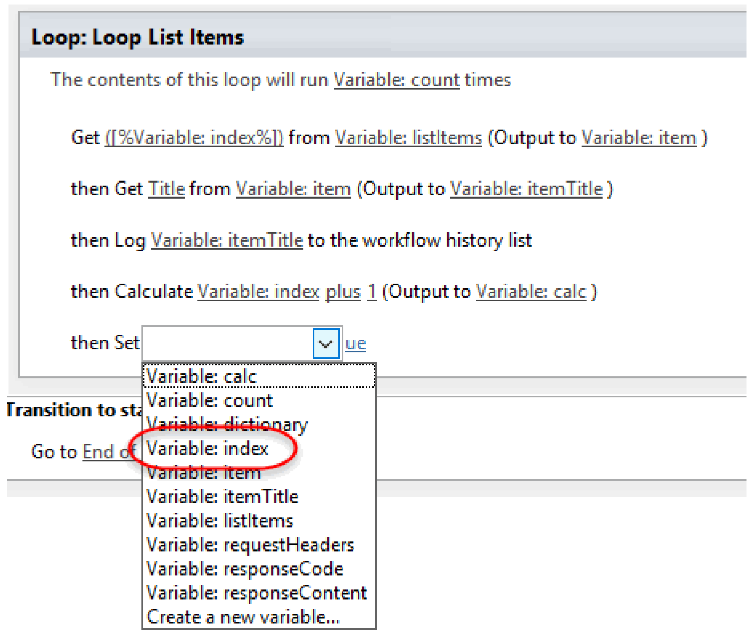


Note
The output variable from this action will be used in the next action to increment the index for the next iteration in the loop.

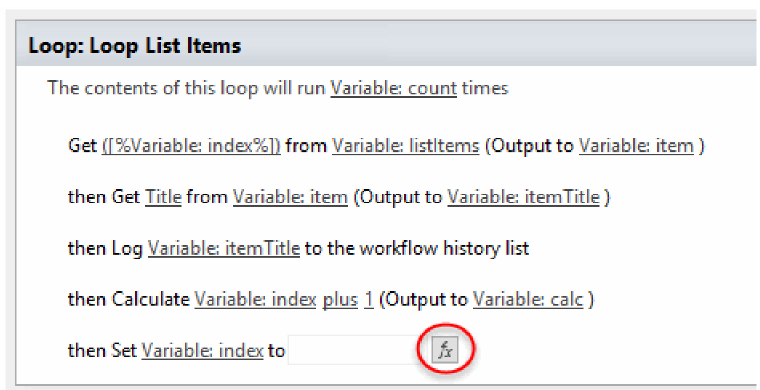
AB. Click the orange bar below the last **Do Calculation** action and type "set" and press **Enter** and then choose **Set Workflow Variable** from the drop-down list to insert a **Set Workflow Variable** action.



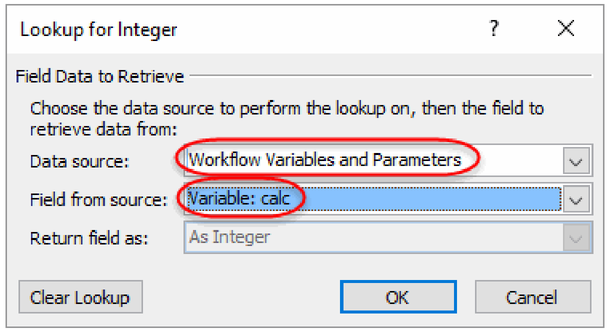
AC. Click the **workflow variable** link in the **Do Calculation** action and choose **Variable: index** from the drop-down list.



AD. Click the **value** link in the **Do Calculation** action and then click the **fx** button that appears.

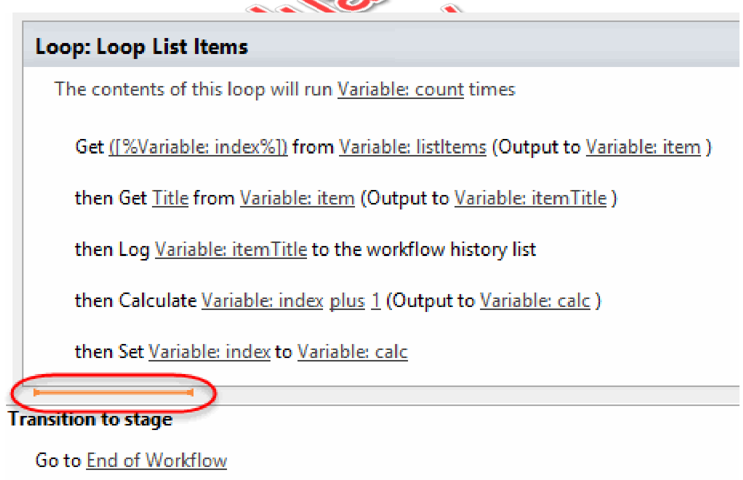


AE. In the **Lookup for Integer** dialog set the **Data source** field to **Workflow Variables and Parameters** and the **Field from source** field to **Variable: calc** and click the **OK** button.

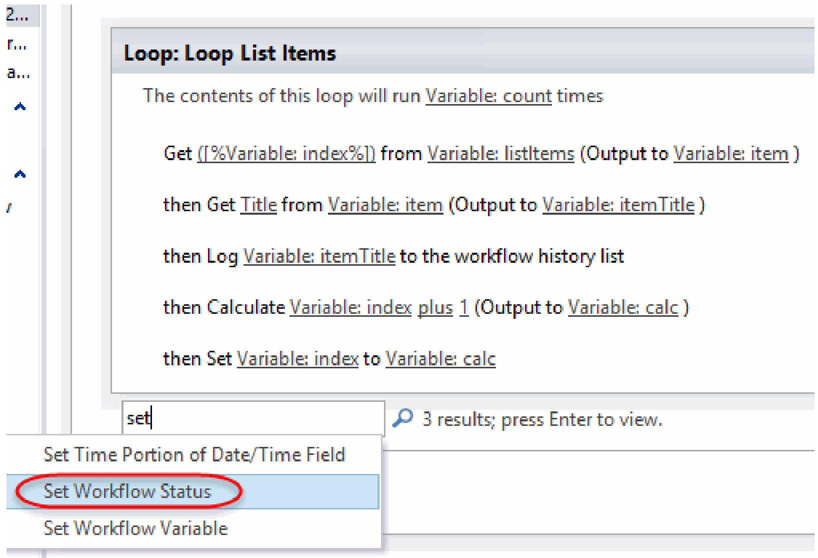


7. Insert a **Set Workflow Status** status action after the loop container to notify when the workflow is done with the loop.

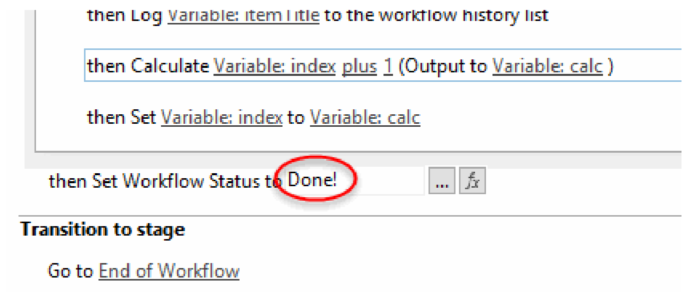
   A. Click the orange bar directly below but outside the **Loop List Items** container.



   B. Type "set" and press **Enter** then choose **Set Workflow Status** from the drop-down list.



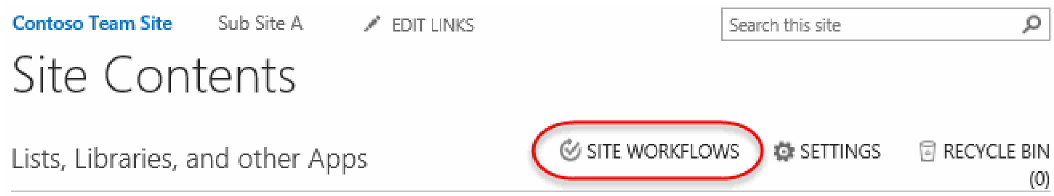
C. Click the **this message** link and type `Done!` in the text box field and press **Enter**.



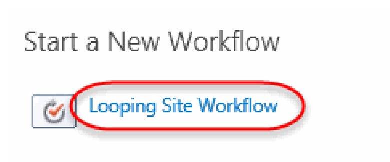
Note
Setting the Workflow status is optional but it is a useful way to output where the Workflow is in processing actions.

8. Click the **Publish** button in the **Workflow** tab toolbar to save and publish the new workflow to SharePoint.
9. Run the **Looping Site Workflow** from the **Contoso Home Site** and verify that it loops and records the list items correctly.
   A. Switch to the browser window and click the **Site Contents** link in the **Quick Launch** menu.

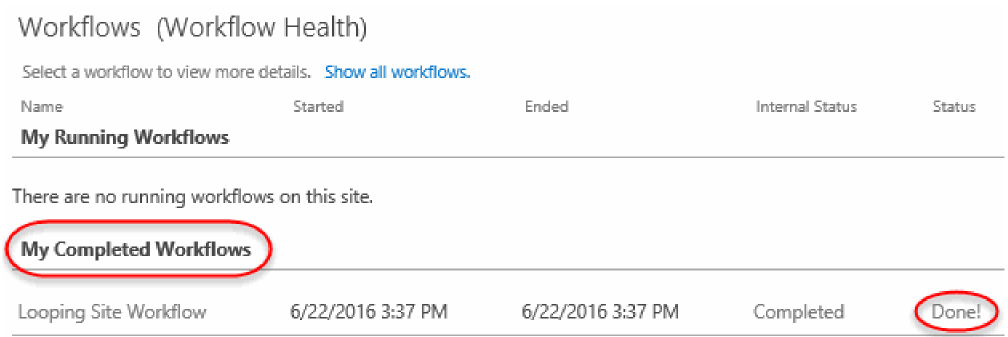
B. Click the **SITE WORKFLOWS** link at the top of the page.



C. Click the **Looping Site Workflow** link under the **Start a New Workflow** heading.

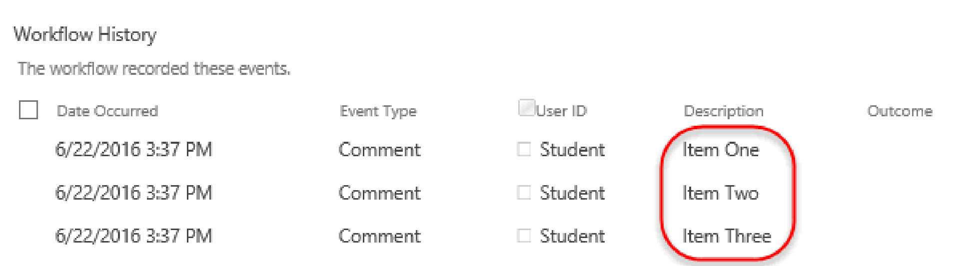


D. Keep refreshing the page until the workflow shows under **My Completed Workflows** with a **Status** column reading **Done!**.



E. Click the **Done!** link to navigate to the page that displays the **Workflow History**.

F. Verify the **Workflow History** has an entry for each item in the **Workflow Demo** list displaying the **Title** field value.



10. Close SharePoint Designer 2013.

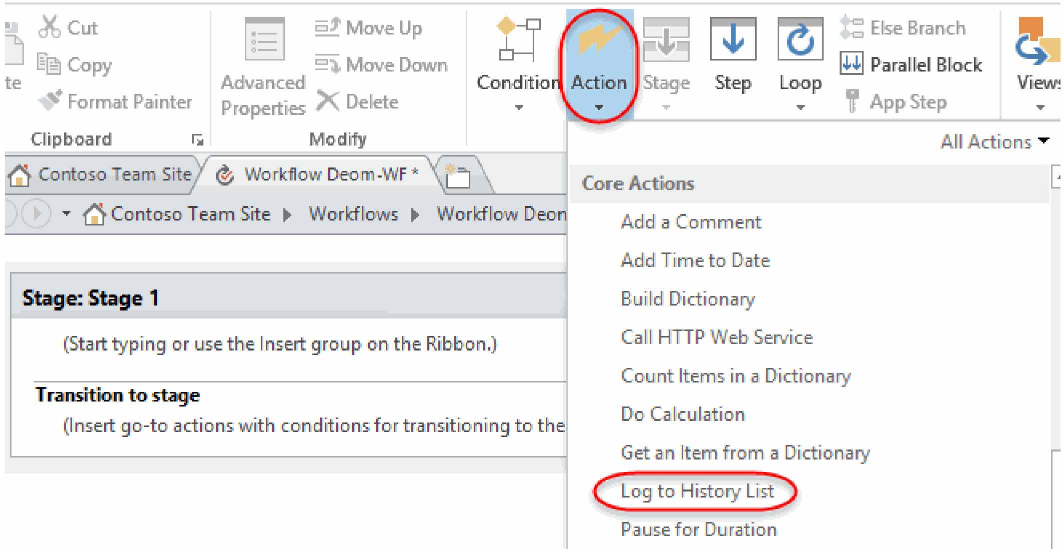
Exercise 3: Creating Custom List Workflows

45 to 60 minutes

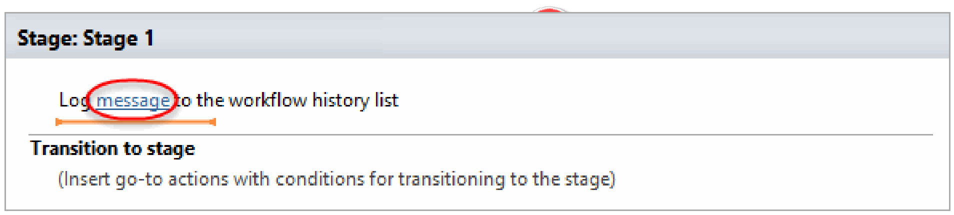
1. Create a new custom list in your site named “Workflow Demo”.
    A. Click the **Settings** menu and choose the **Add an app** item.
    B. Select **Custom List** from the template choices and type “Workflow Demo” in the **Name** field.
    C. Click the **Create** button to complete creating the list.

2. Add a choice column named “Colors” and a text column named “Workflow Output” to **Workflow Demo** list.
    A. Click the **Create Column** link on the **LIST** tab toolbar.
    B. Type “Colors” in the **Column name** field and select **Choice** for the data type option.
    C. Enter “Red”, “Blue”, and “Green” on separate lines in the choices field within the **Additional Column Settings** area.
    D. Click the **OK** button to complete creating the column.
    E. Click the **Create Column** link on the **LIST** tab toolbar.
    F. Type “Workflow Output” in the **Column name** text-box field.
    G. Click the **OK** button to create the column.

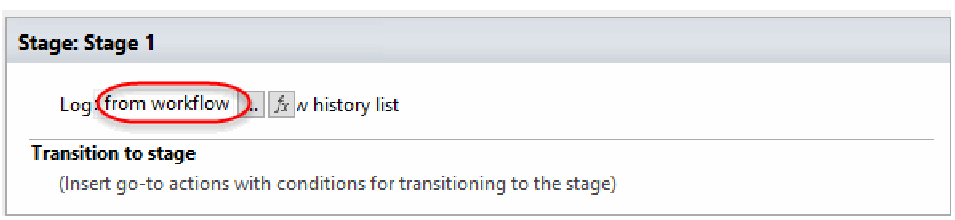
3. Add a **Log to History List** action to the **Workflow Demo-WF**.
    A. Click the **Action** drop-down button from the **Workflow** tab toolbar and select the **Log to History List** action.



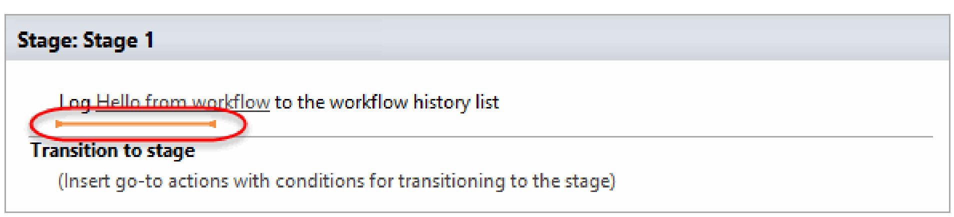
B. Click the **message** link inside the **Log to History List** action added from the previous step.



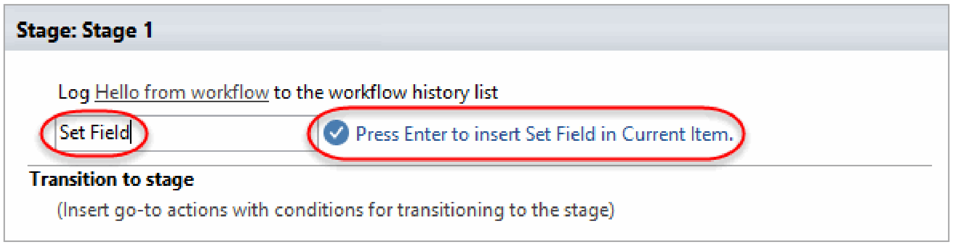
C. Type “Hello from workflow” inside the text box field.



D. Hover and click the orange bar below the **Log to History List** action.



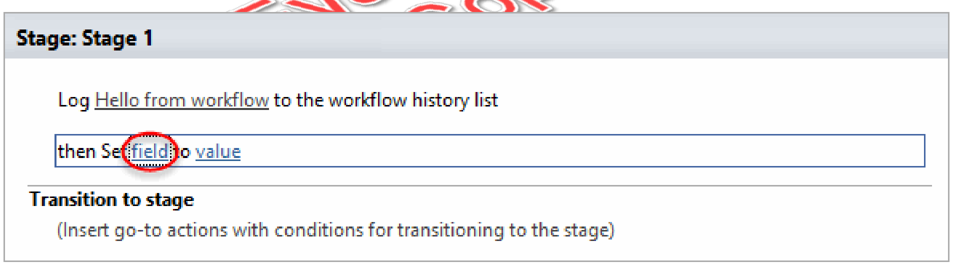
E. Type “Set Field” in the text box that appears when you start typing and press the **Enter** key to have SharePoint Designer insert the **Set Field in Current Item** action.



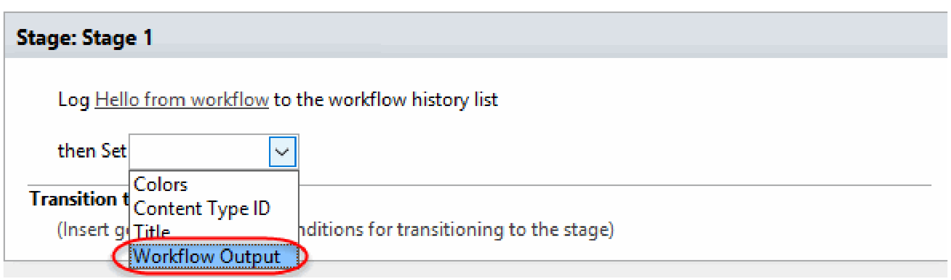
Note

This is just another way to add an action to a workflow. You could also use the **Workflow** tab’s **Action** drop-down button like you did with the **Log to History List** action.

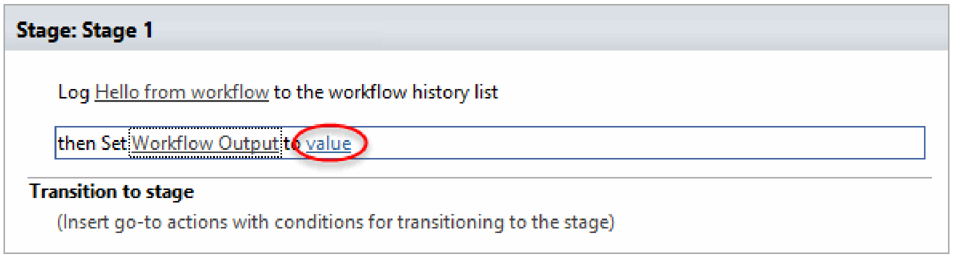
F. Click the **field** link inside the **Set Field in Current Item** action.



G. Choose the **Workflow Output** field from the drop-down list.

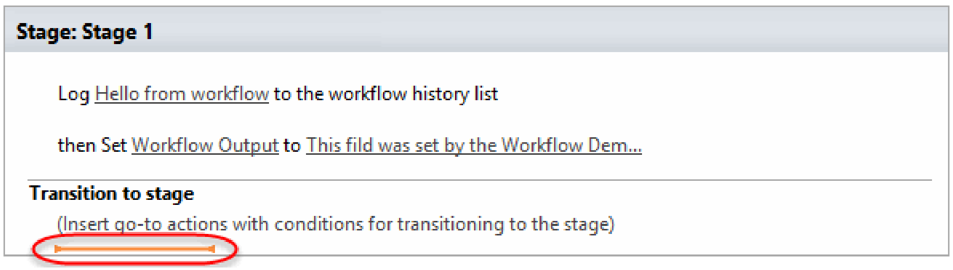


H. Click the **value** link inside the **Set Field in Current Item** action.

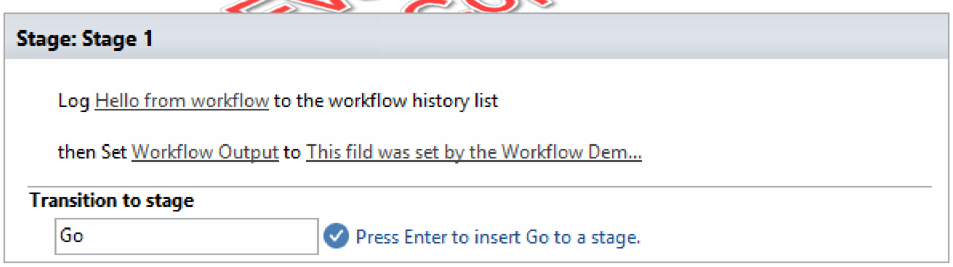


I. Type “This field was set by the Workflow Demo-WF” in the **value** text box.

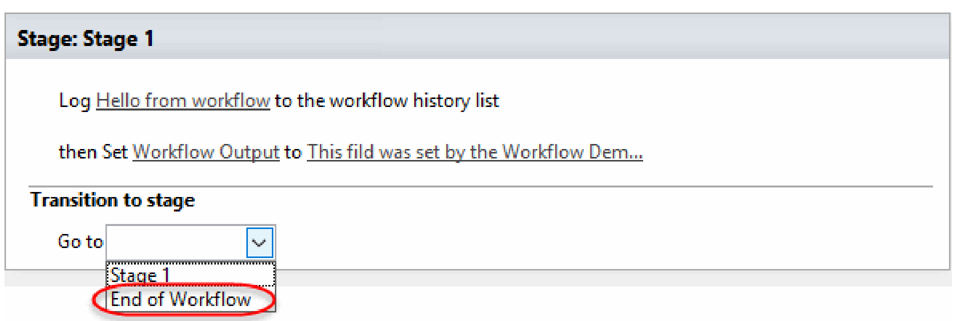
J. Hover and click the orange bar below the **Transition to stage** section of the Workflow Stage container.



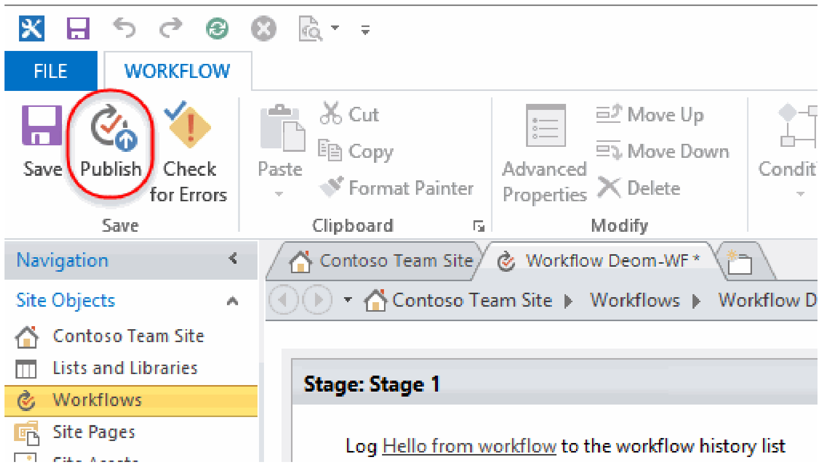
K. Type “Go” in the text box that appears when you start typing and press the **Enter** key to have SharePoint Designer insert the **Go to a stage** action.



L. Click the **stage** link and choose **End of Workflow** from the drop-down of the **Go to a stage** action.



4. Click the **Publish** button in the **Workflows** tab toolbar to publish the workflow to our SharePoint site.



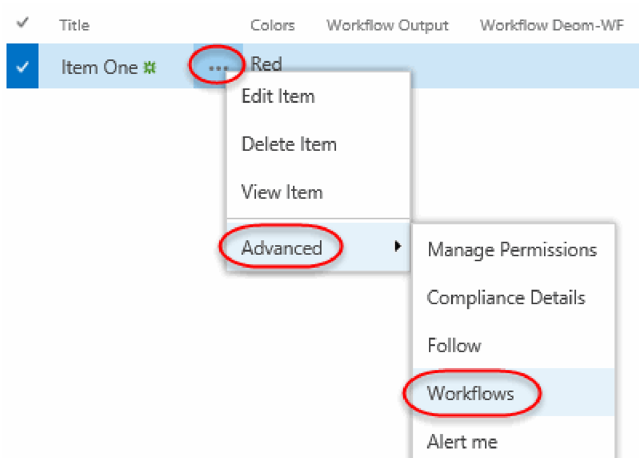
5. Create a new item in the **Workflow Demo** list and start an instance of the **Workflow Demo-WF** on it.

   A. Switch back to the browser window and click the **Workflow Demo** link in the sites **Quick Launch** menu.

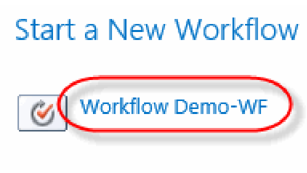
   B. Click the **new item** link inside the list.

   C. Type "Item One" for the **Title** field and click the **Save** button.

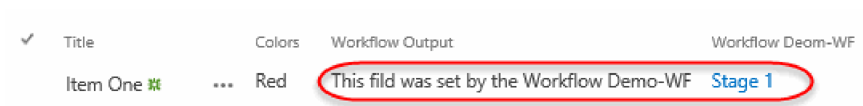
   D. Click the ellipsis button to the right of **Item One** and select **Advanced** and then **Workflows** from the drop-down.



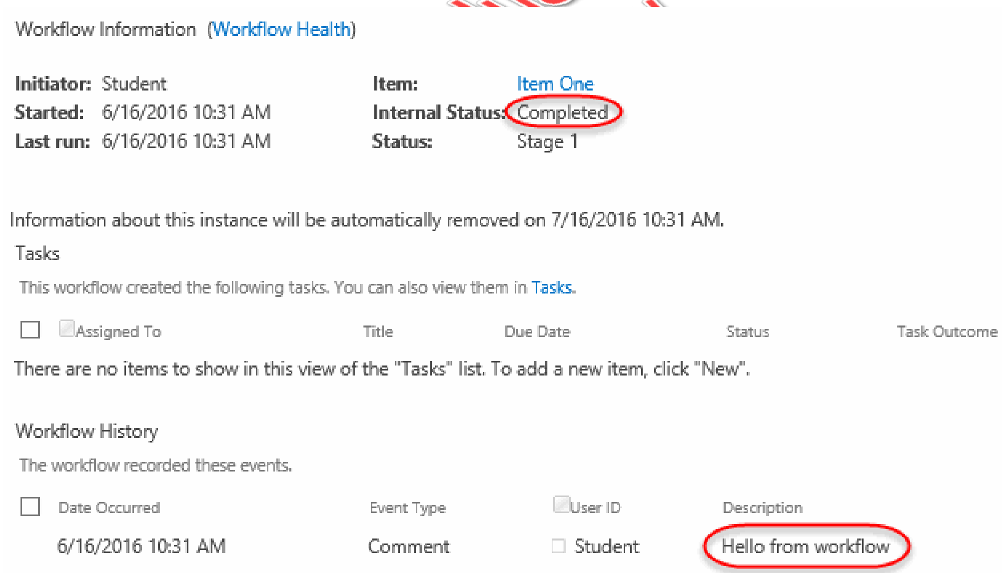
   E. Click the **Workflow Demo-WF** link on the **Workflows** page.



6. Verify the workflow actions outcome.
   A. Verify the list now has a column titled **Workflow Demo-WF** and the **Item One** item's value for the column is **Stage 1**. Note the value here is the default title of the stage which can be changed.
   B. Verify the **Workflow Output** column has the text we wrote to it through the workflow.

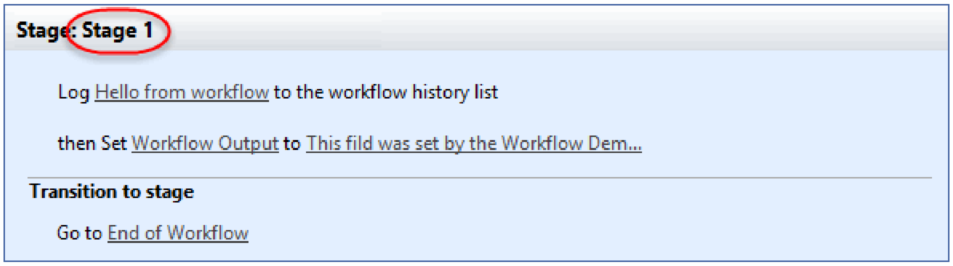


   C. Click the **Stage 1** link in the **Workflow Demo-WF** column.
   D. Verify the **Workflow History** area has the output from our workflow action and the **Internal Status** field shows **Completed**.

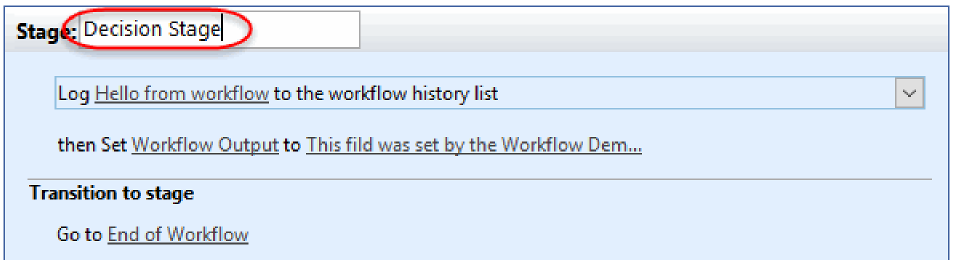


7. Rename the existing stage to "Decision Stage" and create 3 new stages, one for each color choice in the Workflow-Demo's Colors field, and name them accordingly.
   A. Switch back to SharePoint designer and editing view of the Workflow Demo-WF.

B. Click the **Stage 1** text in the top bar of the existing stage in the workflow. This should change the field into an editable field.



C. Type **Decision Stage** in the editable field and press the **Enter** key.

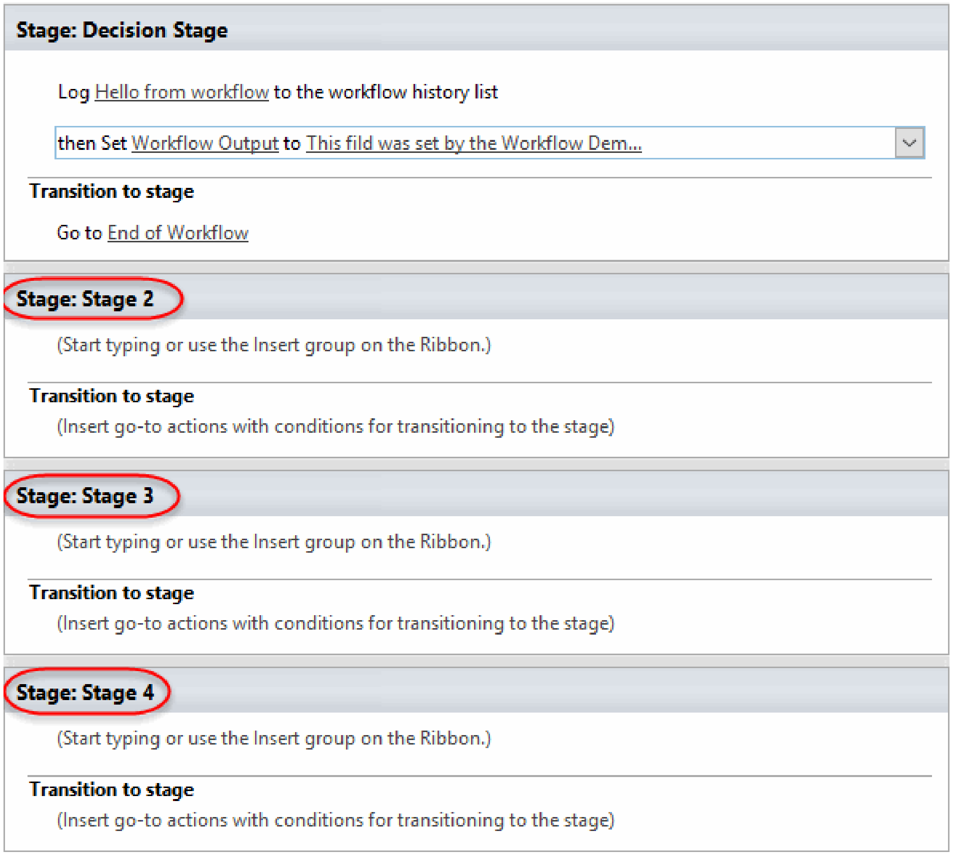


D. Click the **Insert Stage** icon in the SharePoint Designer toolbar.

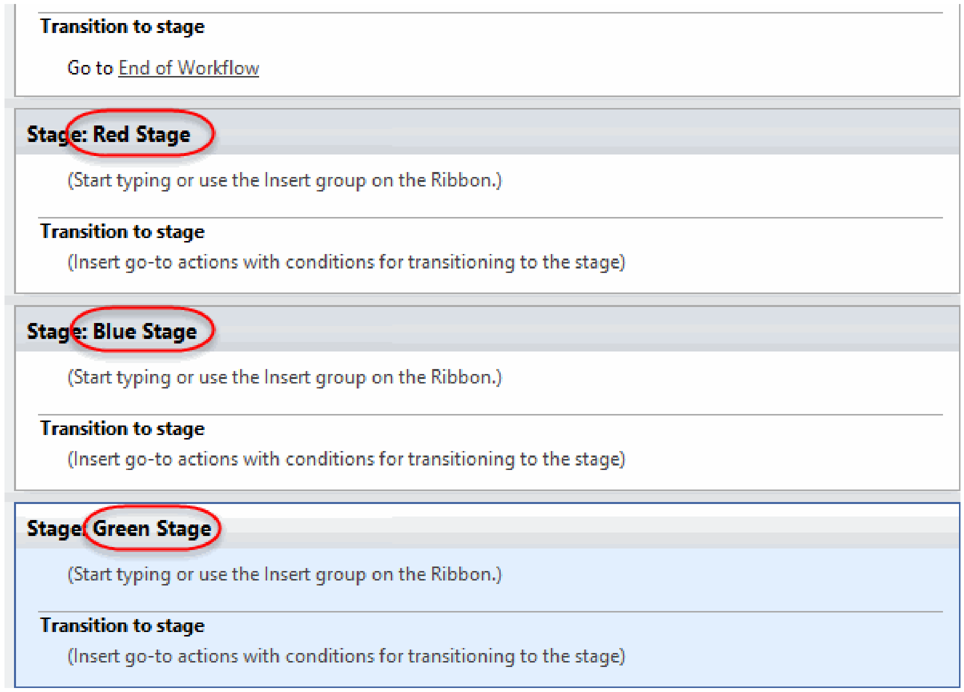
Note

If the **Insert Stage** button is greyed out, click the title bar of the existing stage to select the whole stage container or click the background behind the stage. If the focus is on something inside an existing stage the **Insert Stage** option is not available.

E. Repeat the previous step twice more until you have 3 additional stages to the one you started with. The new stages should have default names **Stage 2**, **Stage 3** and **Stage 4**.

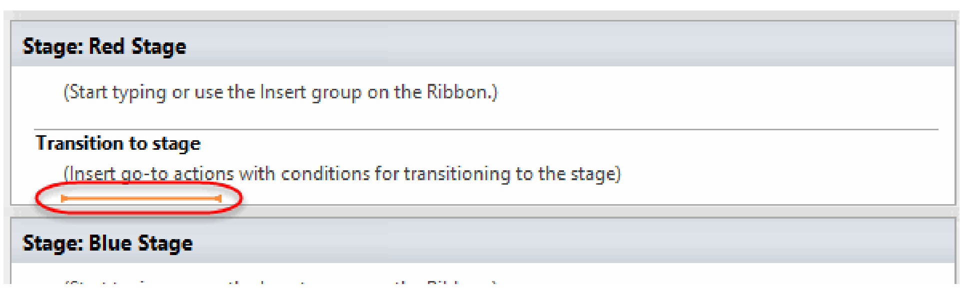


F. Rename the default stage names to **Red Stage**, **Blue Stage** and **Green Stage**.

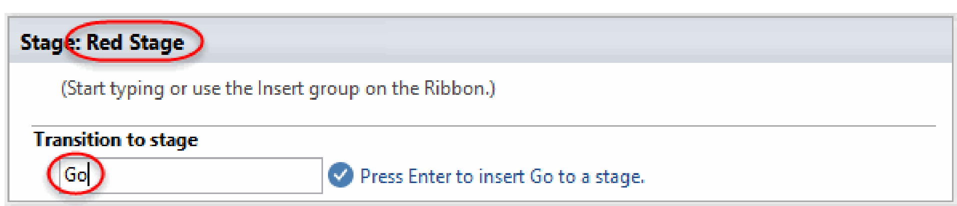


8. Add a **Go to stage** action to the **Transition to stage** areas of the newly added stages.

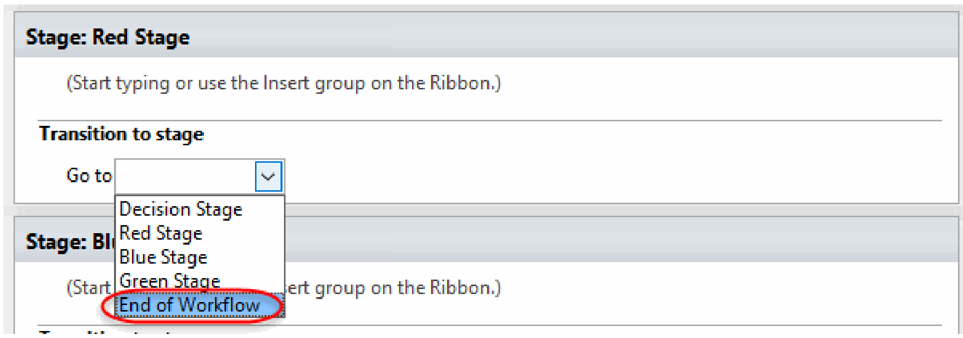
   A. Hover and click the orange bar below the **Transition to stage** section of the **Red Stage** container.



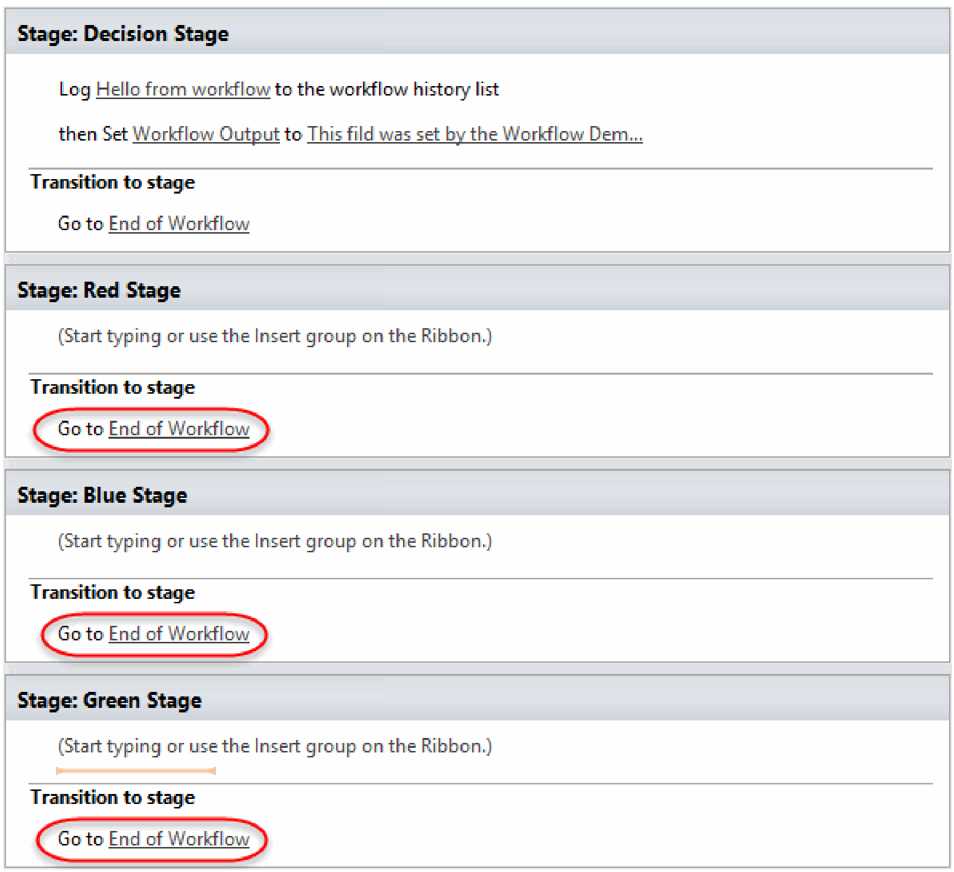
   B. Type “Go” in the text box that appears when you start typing and press the **Enter** key to have SharePoint Designer insert the **Go to a stage** action.



C. Click the **stage** link and choose **End of Workflow** from the drop-down of the **Go to a stage** action.

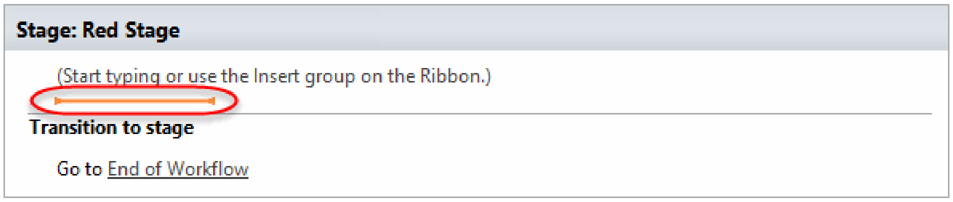


D. Repeat the previous steps to add a **End of Workflow** action to both the **Blue Stage** and **Green Stage**. The design view of the workflow should look similar to the following image at this point.

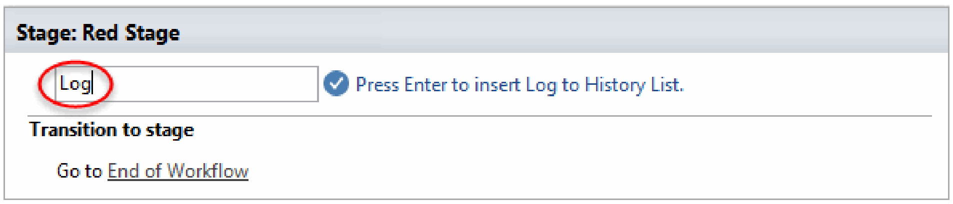


9. Add a **Log to History List** action inside each of the color named stages.

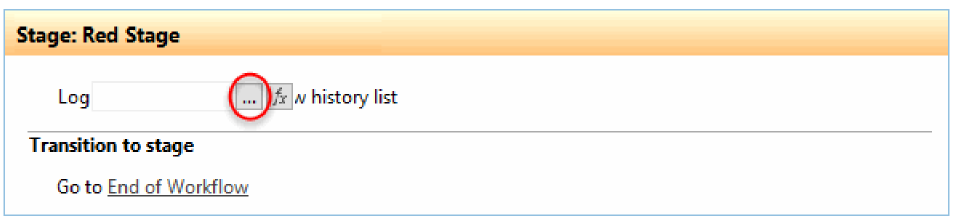
A. Hover and click the orange bar **above** the **Transition to stage** section of the **Red Stage** container.



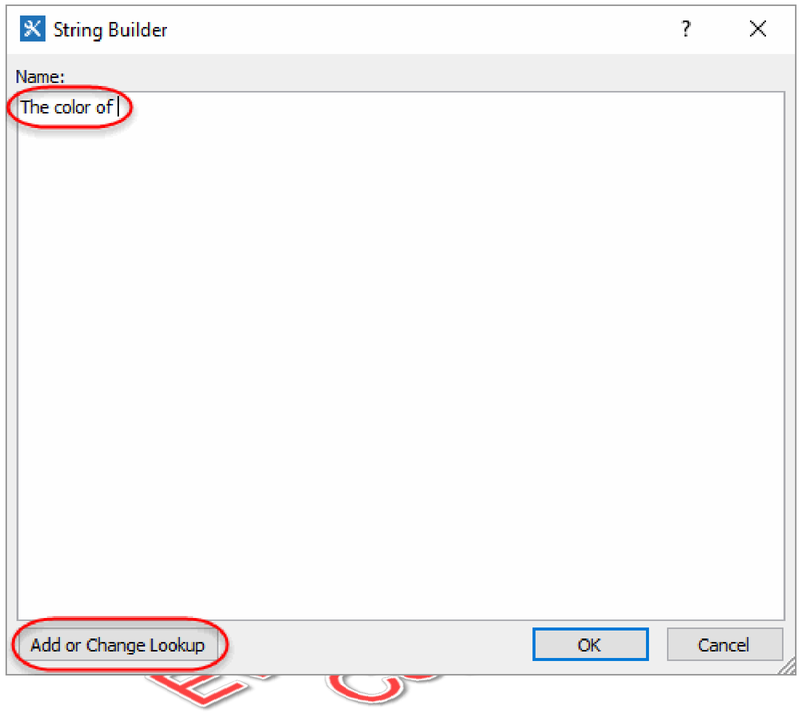
B. Type "Log" in the text box that appears when you start typing and press the **Enter** key to have SharePoint Designer insert the **Log to History List** action.



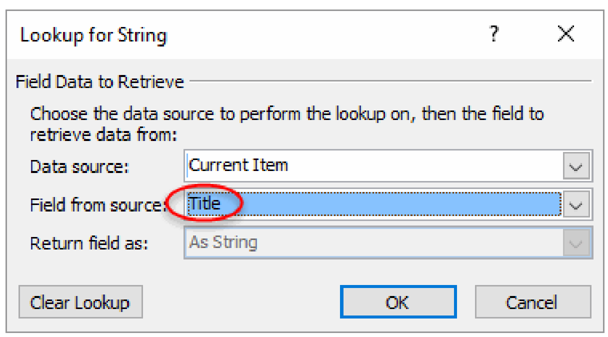
C. Click the **message** link and then click the **ellipsis** button next to the editable field to open a string builder dialog.



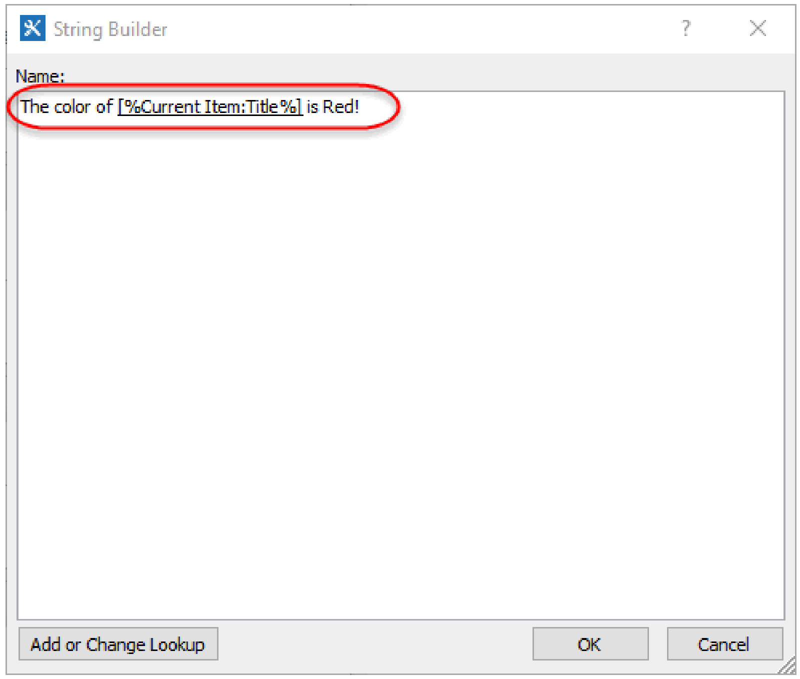
D. Type "The color of" including a **Space** after "of" and then click the **Add or Change Lookup** button below the field.



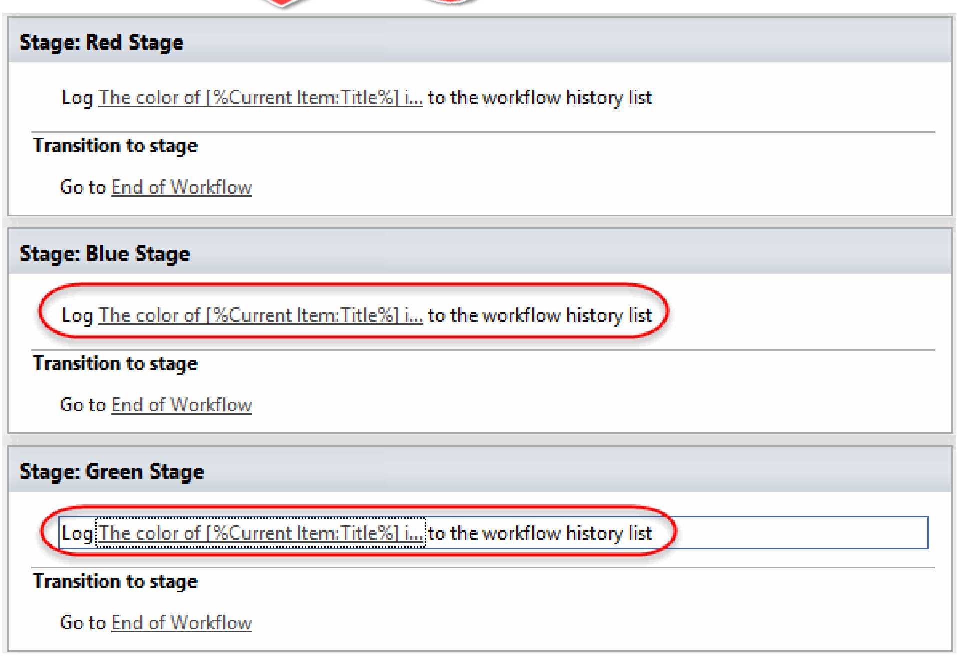
E. Leave the default **Data Source** set to **Current Item** and change the **Field from source** drop-down to **Title** and click the **OK** button.



F. Type "is Red!" to the end of the string including a **Space** before "is" and click the **OK** button.

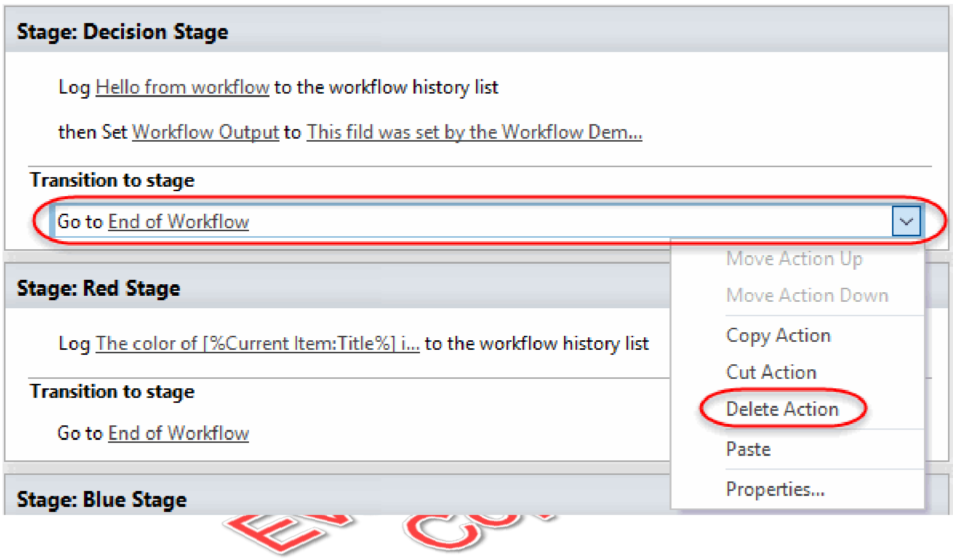


G. Repeat the previous steps to add a **Log to History List** message to the **Blue Stage** and **Green Stage** changing to message to reflect the color of the stage.

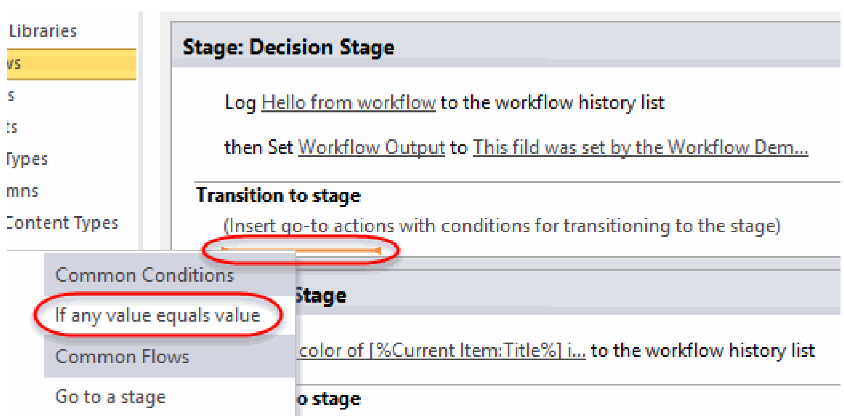


10. Add conditions to the **Transition to stage** area if the **Decision Stage** that route the workflow to the appropriate stage based on the items color value.

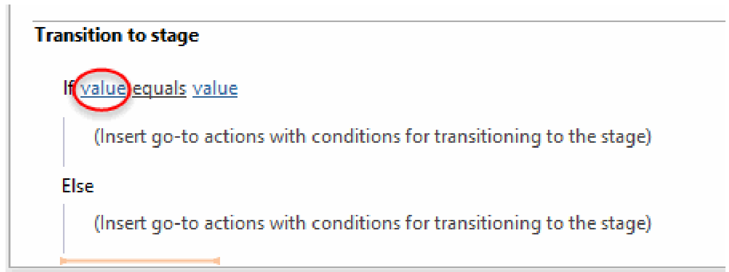
    A. Hover over the **Go to End of Workflow** in the **Decision Stage** and click the **down arrow** icon that appears and choose **Delete Action** from the menu list.

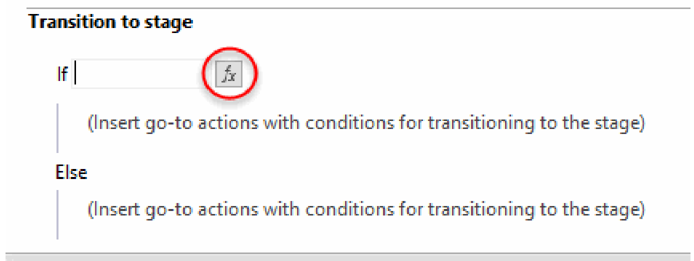
    B. Right-click the orange bar that appears when you hover over the now empty **Transition to stage** area of the **Decision Stage** and click the **if any value equals value** option from the menu.

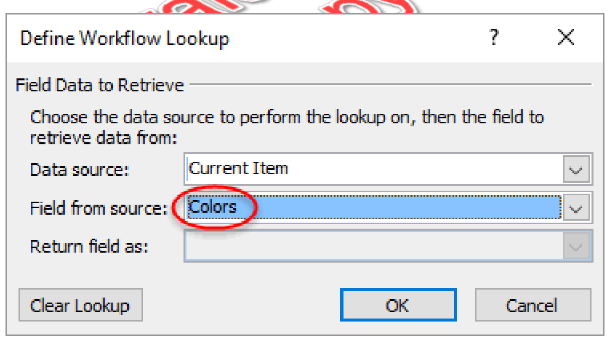
    C. Click the first **value** link in the new **If value equals value** condition.



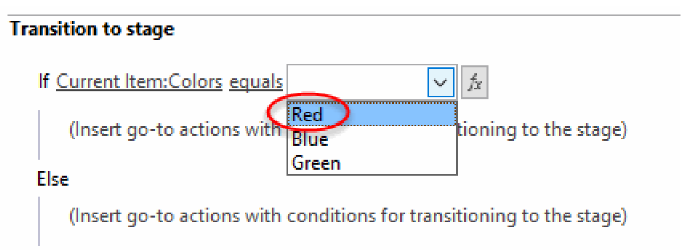
D. Click the **fx** button that appears next to the text field to perform a lookup.



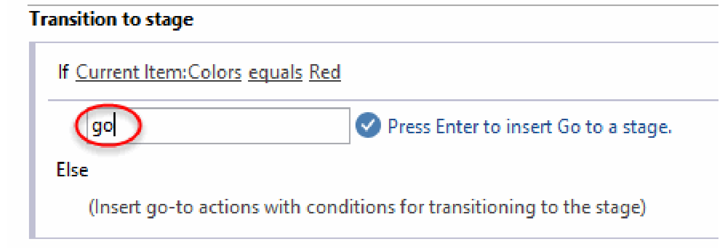
E. Select **Colors** in the drop-down **Field from source** field and click the **OK** button.



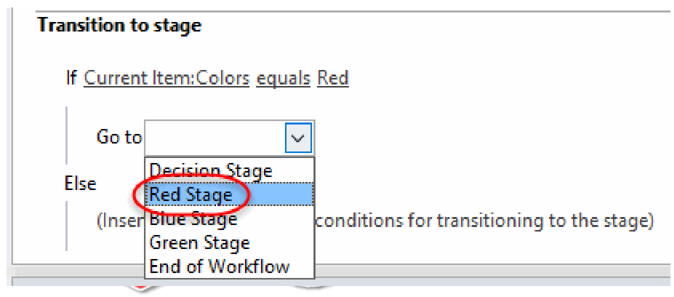
F. Click the second **value** link in the **If value equals value** condition and choose **Red** from the drop-down choice list.



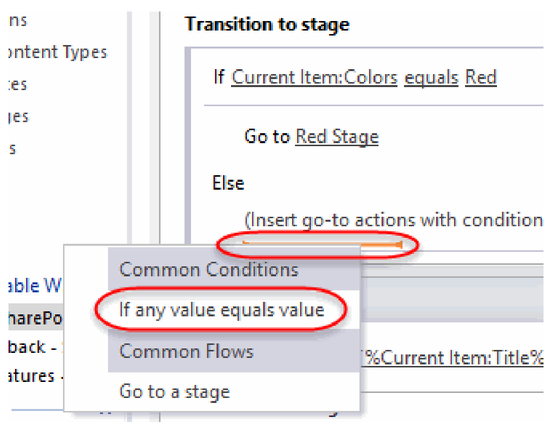
G. Click the orange bar inside the **If** part of the condition and type "Go" in the text box that appears when you start typing and press the **Enter** key to have SharePoint Designer insert the **Go to a stage** action.



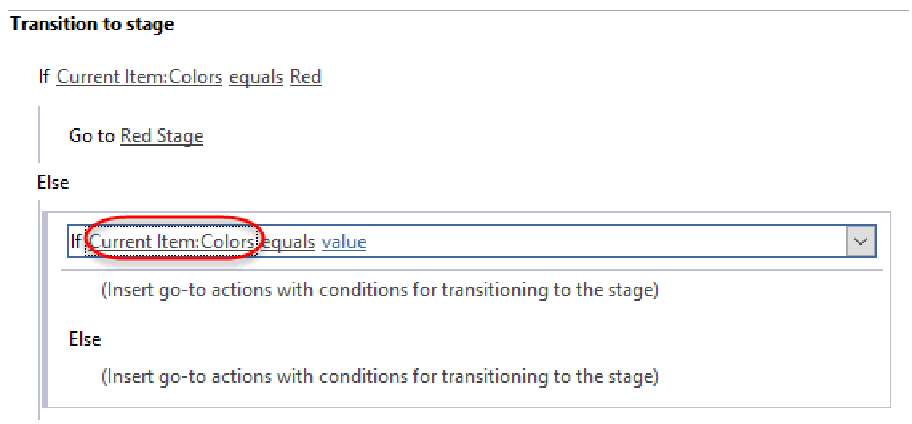
H. Click the **a stage** link and then choose **Red Stage** in the drop-down list of the **Go to a stage** action.



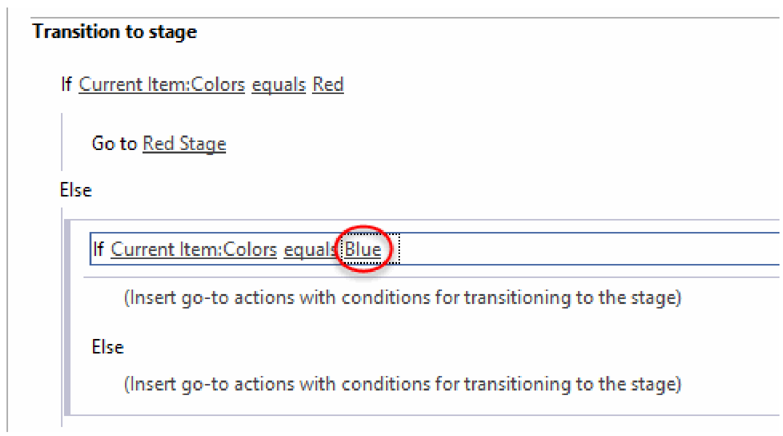
I. Right-click the orange bar inside the **Else** branch of the condition statement and choose **If any value equals value** from the menu.



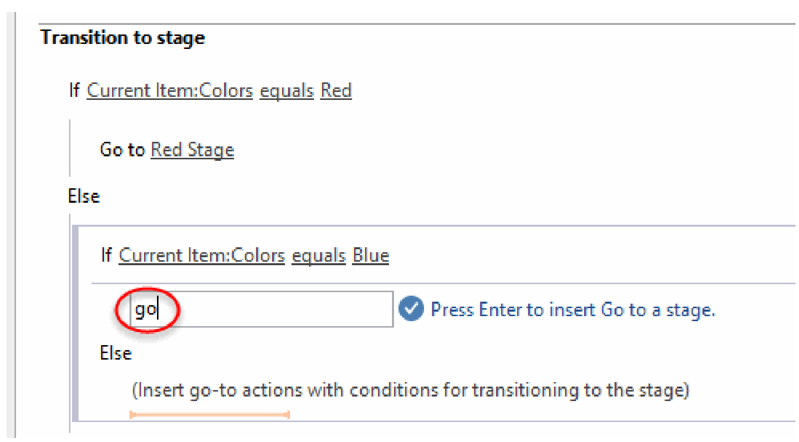
J. Set the first **value** field of the new **If current value equals value** to the lookup value of **Colors**.



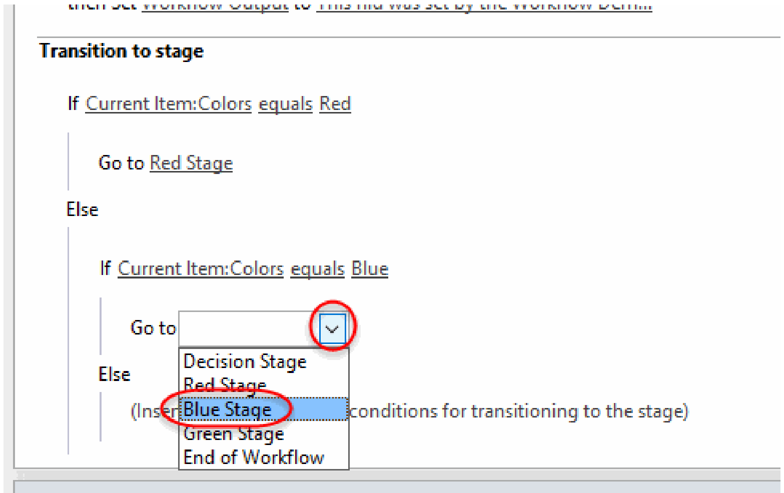
K. Set the second **value** field of the new **If current value equals value** to the drop-down choice of **Blue**.



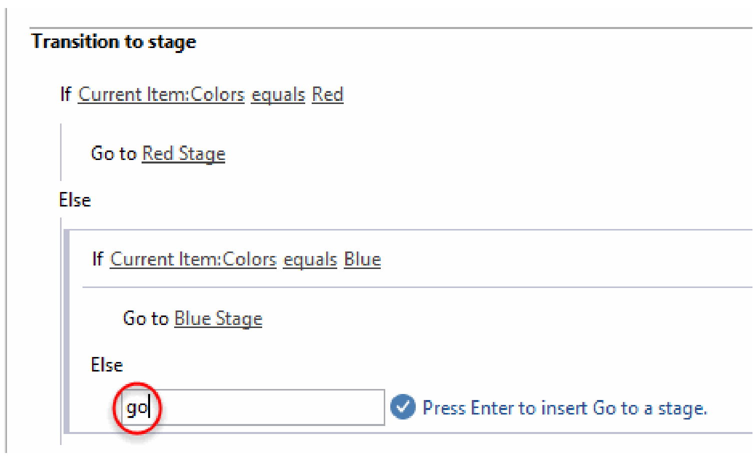
L. Click the orange bar inside the **If** part of the second new condition and type "Go" in the text box that appears when you start typing and press the **Enter** key to have SharePoint Designer insert the **Go to a stage** action.



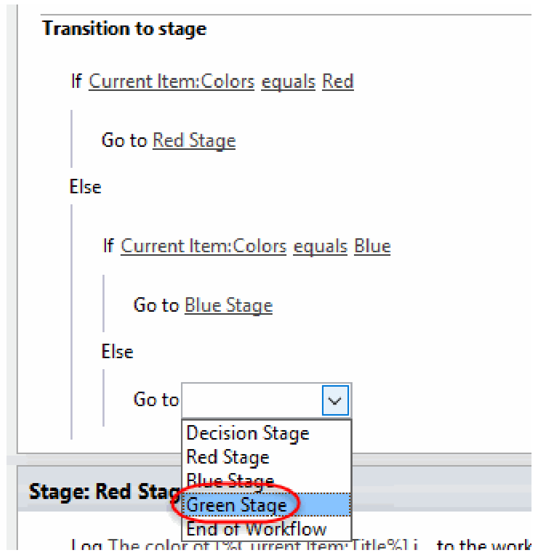
M. Click the **a stage** link and then choose **Blue Stage** in the drop-down list of the new **Go to a stage** action.



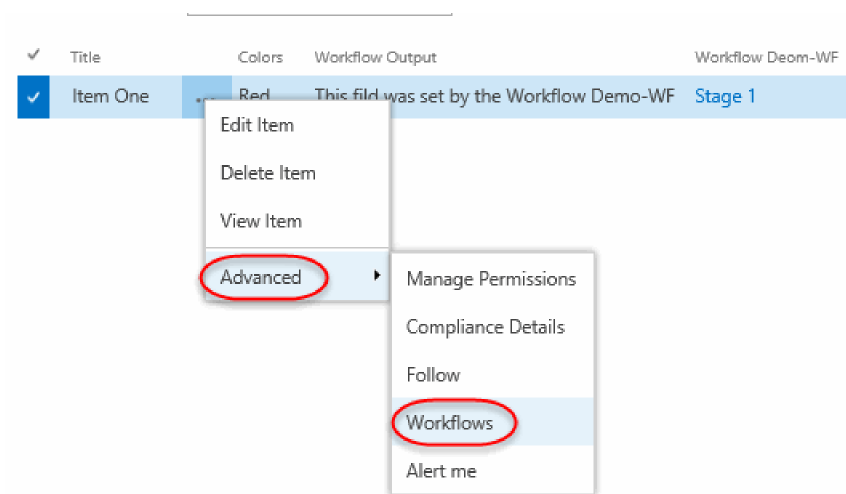
N. Click the orange bar inside the **Else** part of the second new condition and type "Go" in the text box that appears when you start typing and press the **Enter** key to have SharePoint Designer insert the **Go to a stage** action.



O. Click the **a stage** link and then choose **Green Stage** in the drop-down list of the new **Go to a stage** action.



11. Click the **Publish** link in the **Workflow** tab toolbar to update the SharePoint site with the current changes.
12. Test the condition branches in the **Workflow Demo** list.
    A. Switch back to the browser window and click the **Workflow Demo** link in the sites **Quick Launch** menu.
    B. Click the **Workflows** link from the item menu **Advanced** sub-menu of **Item One**.

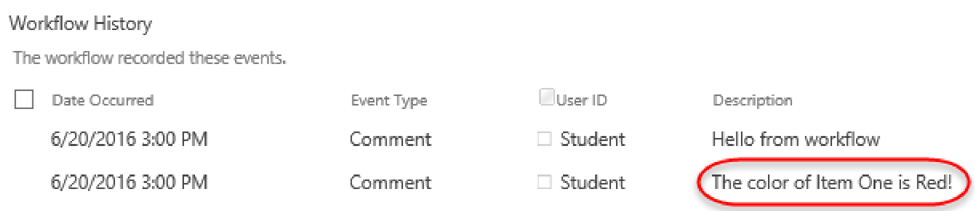


    C. Click the **Workflow Demo-WF** link under the **Start a New Workflow** heading.

D. Refresh the **Workflow Demo** list and click the **Red Stage** link in the **Workflow Demo-WF** column for **Item One**.

Note
You might have to refresh the list a couple of times before the workflow column shows a link to **Red Stage**. SharePoint 2013 Workflows use a timer job to keep in-sync with the Workflow Manager service and it sometimes takes a few minutes for even a simple workflow to complete

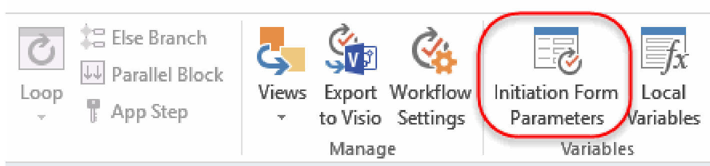
E. Verify the **Workflow History** has an entry with a message appropriate for the items **Colors** field.



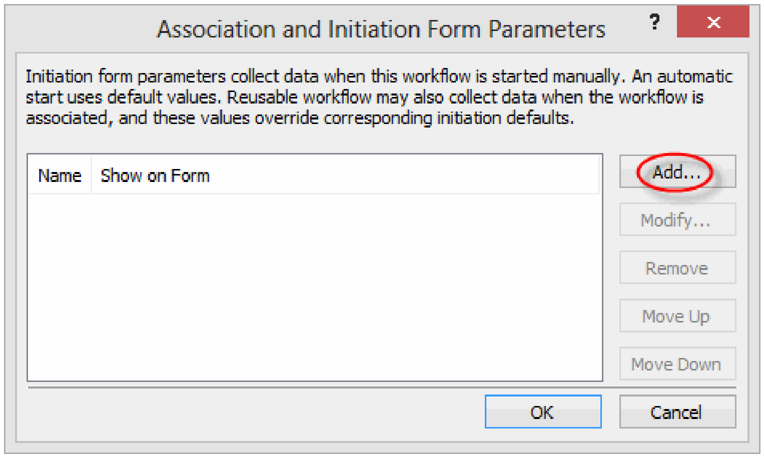
13. Add **Single line of text** parameter named "Input Data" to the **Workflow Demo-WF** using SharePoint Designer.

A. Switch back to SharePoint Designer and the editor view of our **Workflow Demo-WF** workflow.

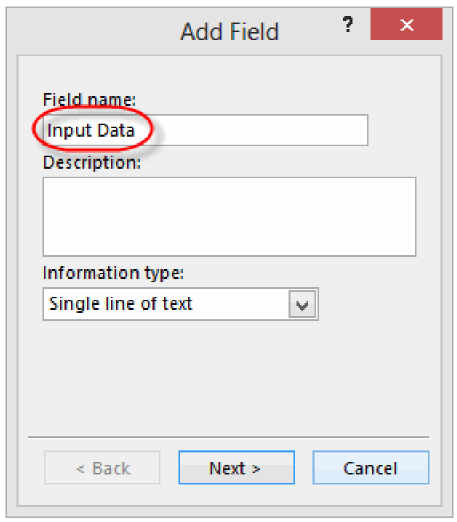
B. Click the **Initiation Form Parameters** button on the **Workflow** tab toolbar.



C. Click the **Add…** button on the **Association and Initiation Form Parameters** dialog window.



D. Type “Input Data” in the **Field name** field of the **Add Field** dialog window.



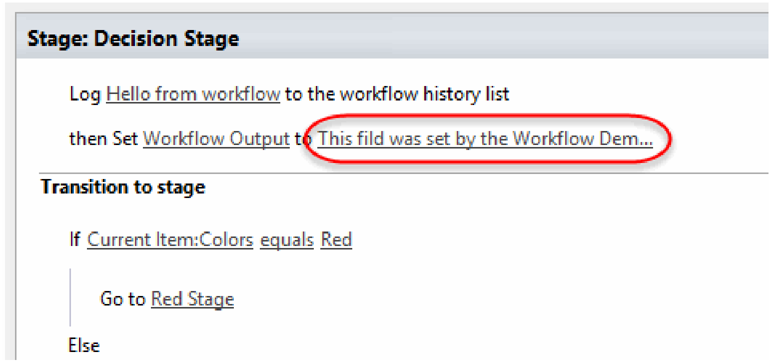
E. Click the **Next** button.

F. Click the **Finish** button.

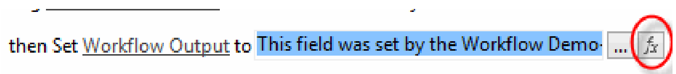
G. Click the **OK** button on the **Association and Initiation Form Parameters** dialog window.

14. Modify the **Set Field in Current Item** workflow action to write the parameter information from the Initiation form into the **Workflow Output** field of the list item.

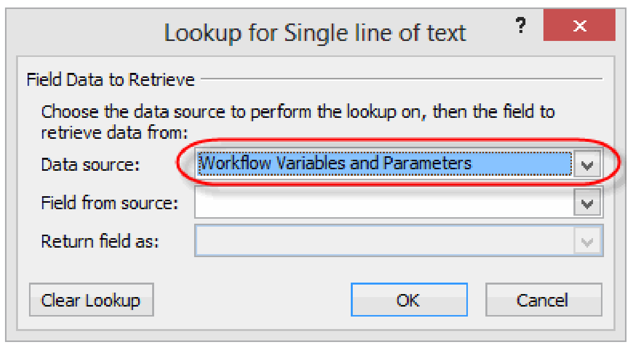
    A. Click the **This field was set by the Workflow De…** link of the **Set Field in Current Item** action.



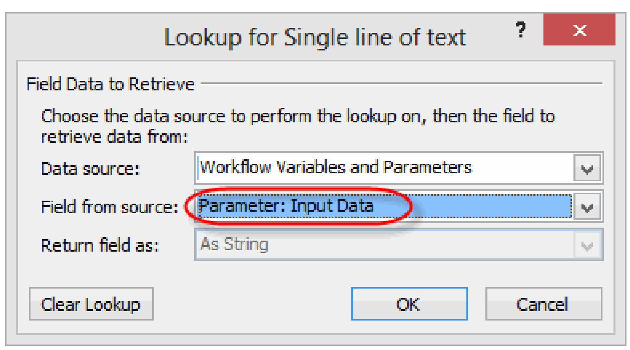
B. Click the ***fx*** button next to the text box to open the **Lookup for Single line of text** dialog window.



C. Click the **Data source** drop-down and select the **Workflow Variables and Parameters** option.



D. Click the **Field from source** drop-down and select **Parameter: Input Data** option.



E. Click the **OK** button to save the settings.

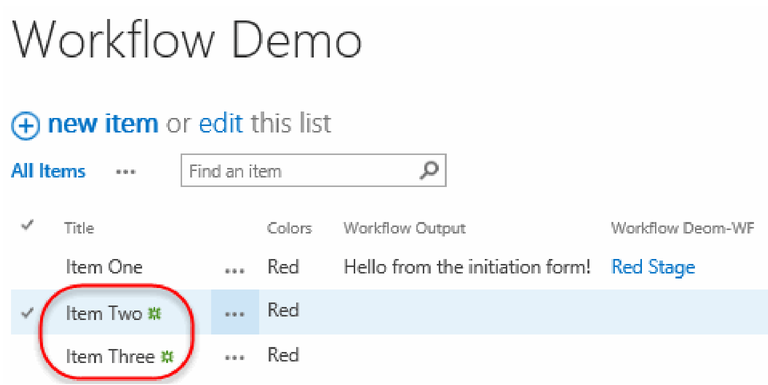
15. Click the **Publish** button to save the workflow changes back to the SharePoint server.
16. Run the **Workflow Demo-WF** to test the Initiation form parameter.
    A. Switch back to the browser window and click the **Workflow Demo** link in the site's **Quick Launch** menu.
    B. Click the **Workflows** link under the **Advanced** sub-menu of the item menu of **Item One**.
    C. Click the **Workflow Demo-WF** link under the **Start a New Workflow** heading.
    D. Type "Hello from the initiation form!" in the **Input Data** field of the Initiation form.

    E. Click the **Start** button to start the workflow.
    F. Click the **Workflow Demo** link in the **Quick Launch** to refresh the view of the list.
    G. Verify the **Workflow Output** field for **Item One** has the text from the Initiation form.

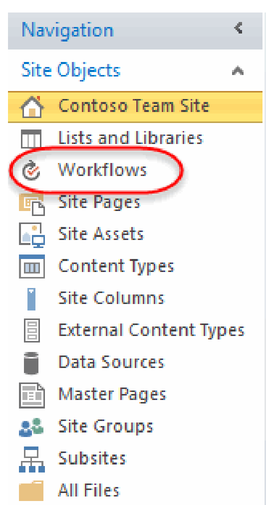
Exercise 4: Site Workflow with Looping

45 to 60 minutes

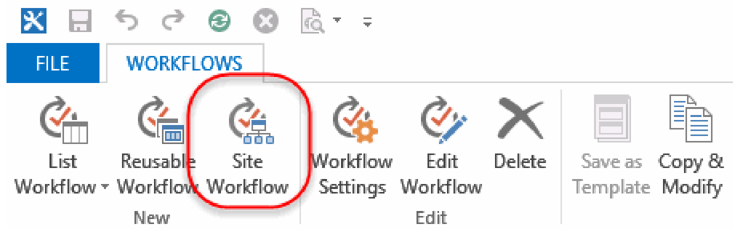
1. Add two new items to the **Workflow Demo** list so that we'll have multiple items to loop through.
   A. Click the **Workflow Demo** link in the site's Quick Launch menu.
   B. Click the **new item** link in the **Workflow Demo** list.
   C. Enter "Item Two" in the **Title** field and click the **Save** button.
   D. Repeat the previous steps to add an "Item Three", the list should look similar to the following image:



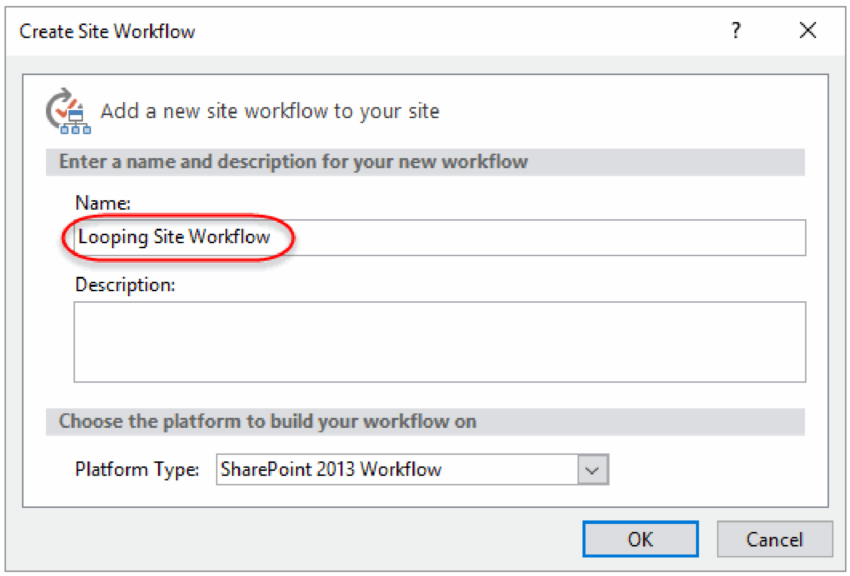
2. Create a new Site Workflow for the Contoso Home Site..
   A. In SharePoint Designer 2013 click the **Workflows** link in the **Navigation** panel.



B. Click the **Site Workflow** button in the toolbar.

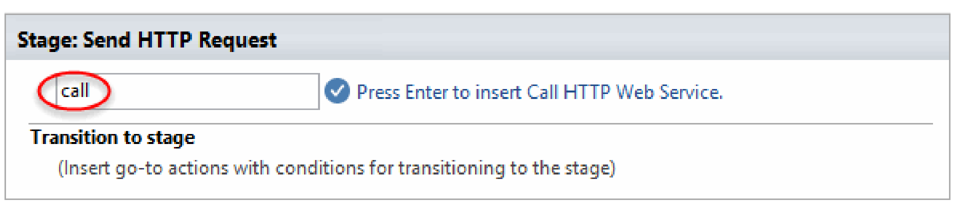


C. Enter **Looping Site Workflow** for the **Name** field, leave the **Platform Type** set to **SharePoint 2013 Workflow** and click the **OK** button.

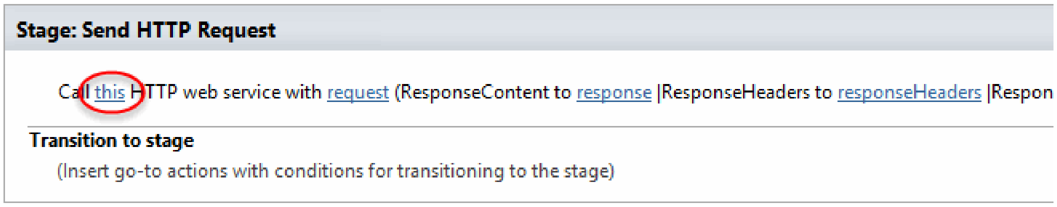


3. Create a **Call HTTP Service** action that connects to the **Contoso Home Site** and the **Workflow Demo** list.

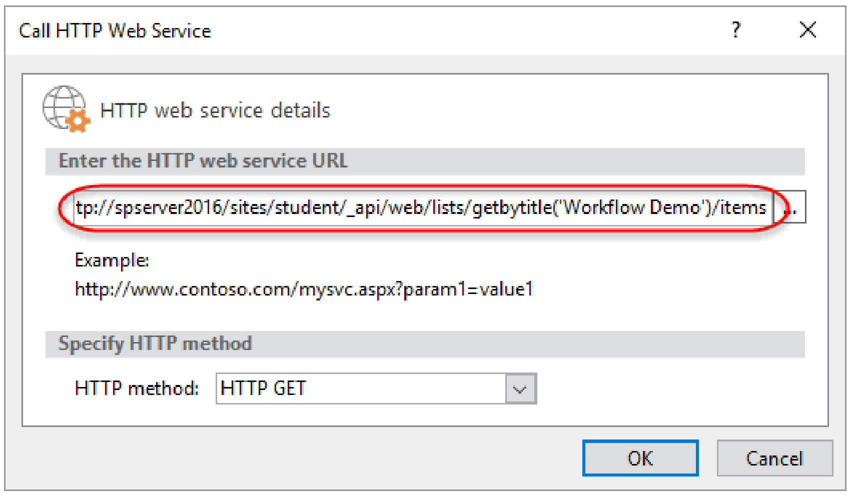
A. Click the orange bar inside the stage, above the **Transition to stage**, and type the word "call" and then press **Enter** to insert a **Call HTTP Web Service** action.



B. Click the **this** link at the beginning of the new **Call HTTP Service** action.



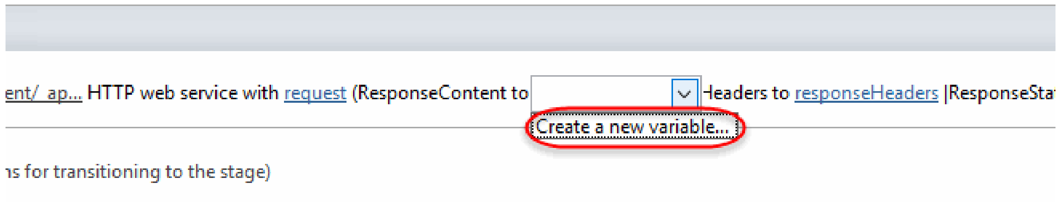
C. Enter `http://spserver2016/sites/student/_api/web/lists/getbytitle('Workflow Demo')/items` in the **Enter the HTTP web service URL** field of the dialog and click the **OK** button.



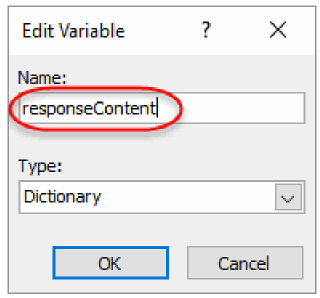
Note

The URL entered in this step is using the REST interface provided with SharePoint. Through the SharePoint REST interface you can access any list or library and access the items within. Additional REST commands can be used to filter, sort or even update items. This example simply retrieves all of the items in the **Workflow Demo** list. Full coverage of the REST based interface is outside the scope of this course.

D. Click the **response** link within the **Call HTTP Web Service** action and choose **Create a new variable…** from the drop-down.



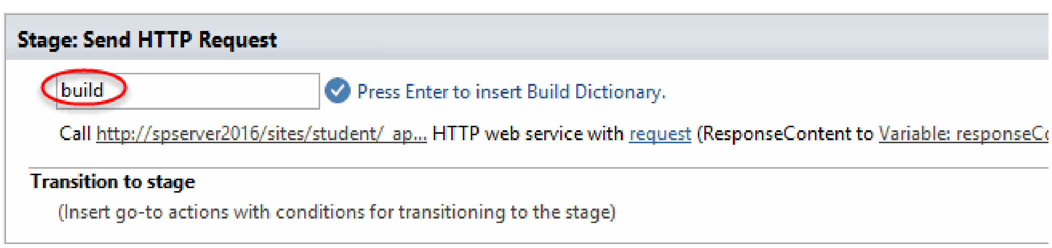
E. Type "responseContent" the **Name** field of the **Edit Variable** dialog, leave the **Type** set to the default of **Dictionary** and click the **OK** button.



Note

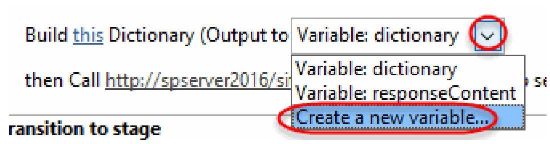
Variables are used inside of SharePoint Workflows to store information that can be retrieved later in the workflow. In this case the **responseContent** variable will hold the list items retrieved from the REST call to SharePoint. The **Dictionary** type allows the variable to store multiple items that can be retrieved through an index or a key.

F. Click the orange bar **above** the **Call HTTP Web Service** action and type the word "build" and press **Enter** to insert a **Build Dictionary** action.

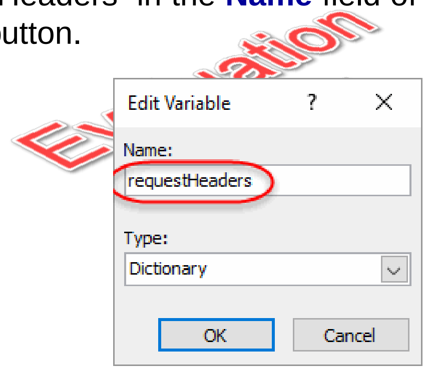


Note
You are adding this dictionary variable to pass needed formatting information into the **Call HTTP Web Server** action. That is the reason it is being added before the **Call HTTP Web Service** action.

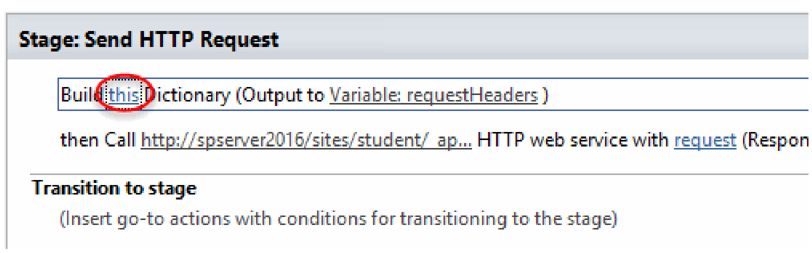
G. Click the **Variable:dictionary** drop-down and choose **Create a new variable…** from the options.



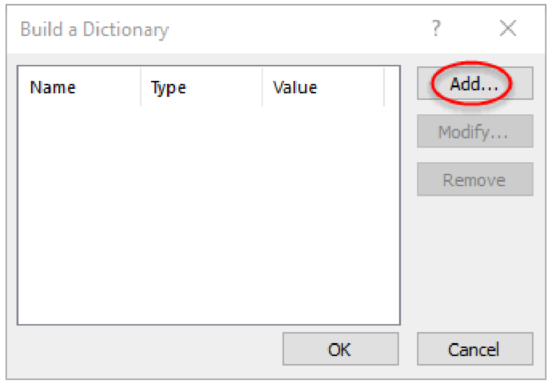
H. Type “requestHeaders” in the **Name** field of the **Edit Variable** dialog and click the **OK** button.



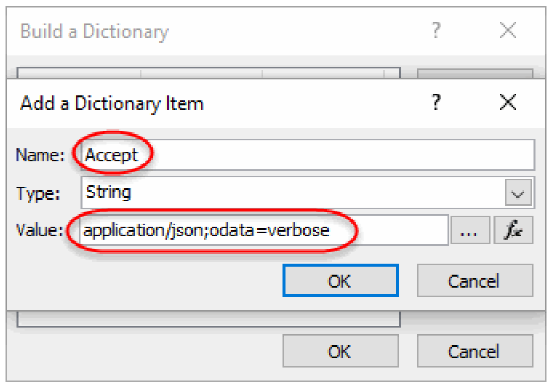
I. Click the **this** link in the **Build Dictionary** action.



J. Click the **Add…** button in the **Build a Dictionary** dialog.



K. Type `Accept` in the **Name** field and `application/json;odata=verbose` in the **Value** field and click the **OK** button.

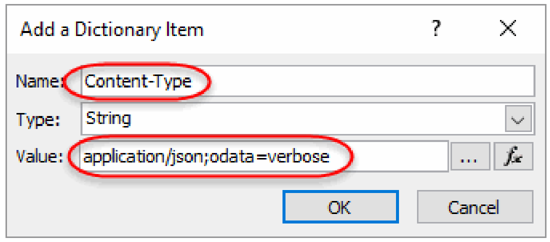


Note

This is one of two parameters that will be passed into the **Call HTTP Web Service** to configure the REST call to respond with a JSON formatted response. This will make it easier to get to the results in a later stage of the workflow.

L. Click the **Add...** button again to add a second item to the dictionary variable.

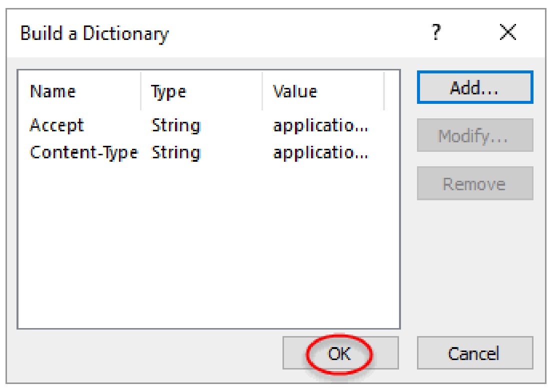
M. Type `Content-Type` in the **Name** field and `application/json;odata=verbose` in the **Value** field and click the **OK** button.



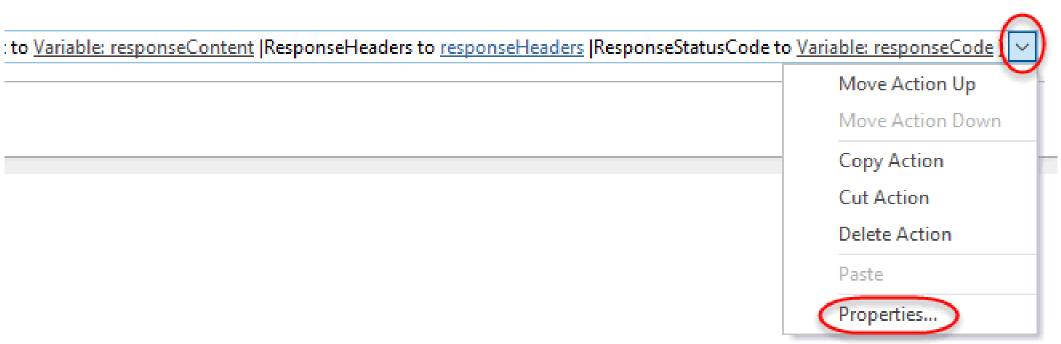
Note

This is the second parameter that will be passed into the **Call HTTP Web Service** to configure the REST call to respond with a JSON formatted response. This will make it easier to get to the results in a later stage of the workflow.

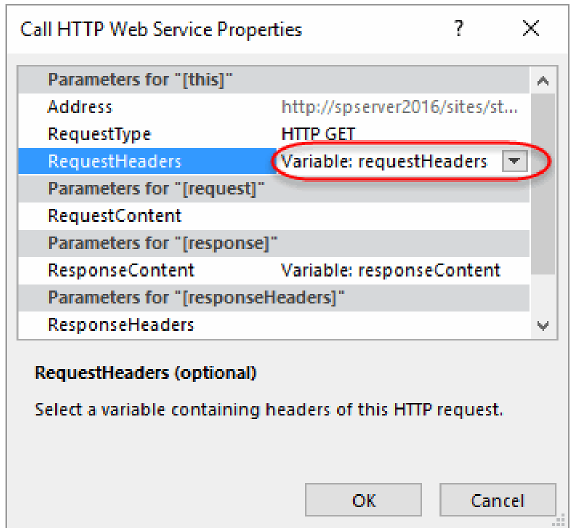
N. Click the **OK** button to save and close the **Build a Dictionary** dialog.



O. Hover over the right-hand edge of the **Call HTTP Web Service** action and click the **down arrow** button and choose **Properties…** from the drop-down menu.

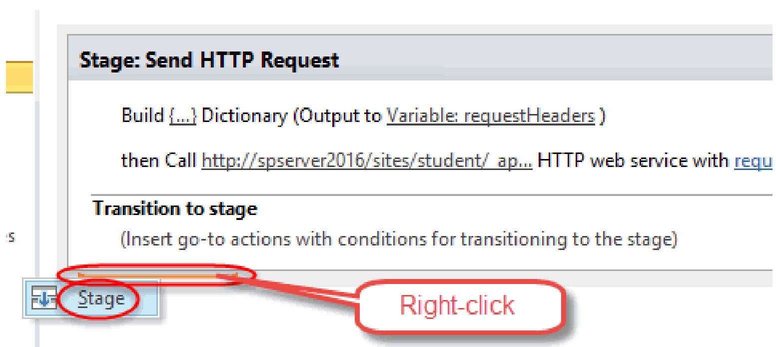


P. Set the **RequestHeaders** fields drop-down value to the **Variable: requestHeaders** variable created in the previous steps and click the **OK** button.

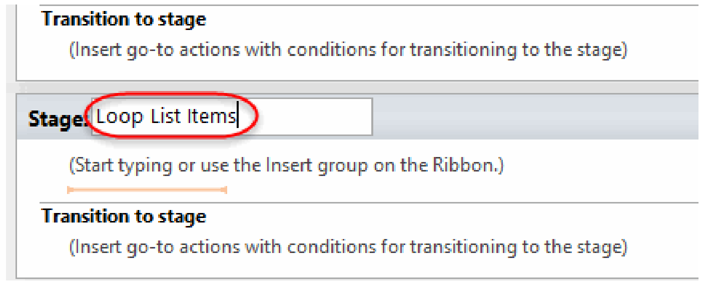


4. Add a new stage named **Loop List Items** to the workflow.

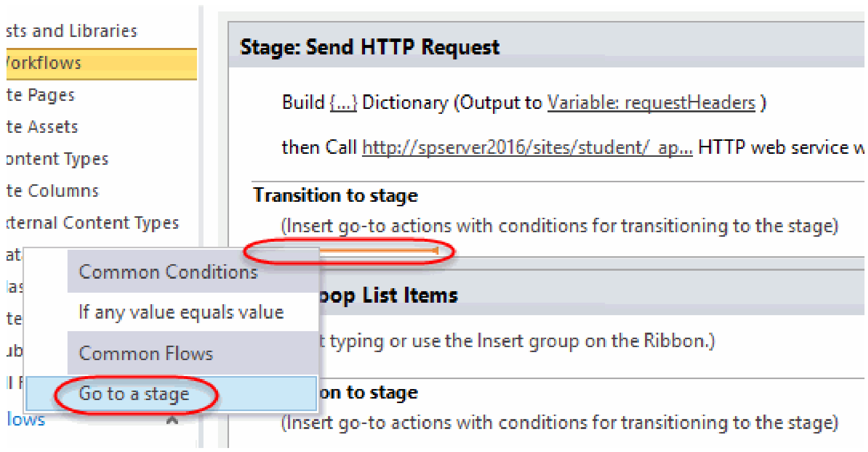
   A. Right-click the orange bar below the current **Send HTTP Request** stage and click the **Stage** option from the menu.



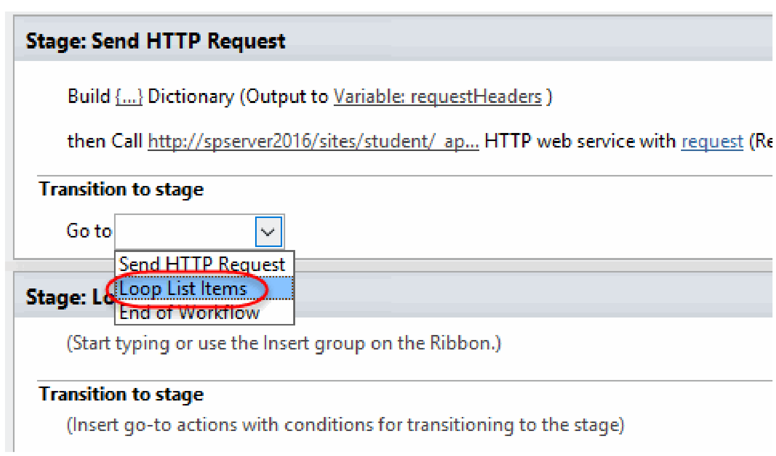
   B. Click the **Stage 2** title and type “Loop List Items” in the editable text box to appears and press **Enter**.



C. Right-click the orange bar in the **Transition to stage** area of the original **Send HTTP Request** stage and choose the **Go to a stage** option from the drop-down.

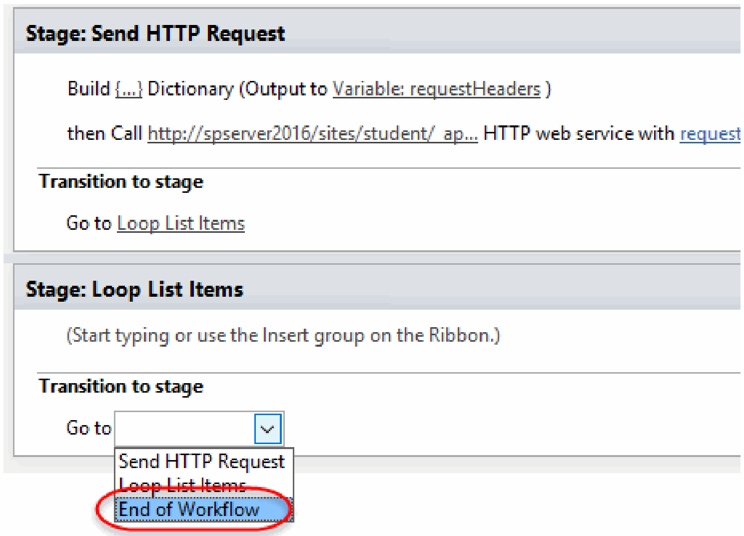


D. Click the **a stage** link in the new **Go to a stage** action and choose **Loop List Items** from the drop-down menu.



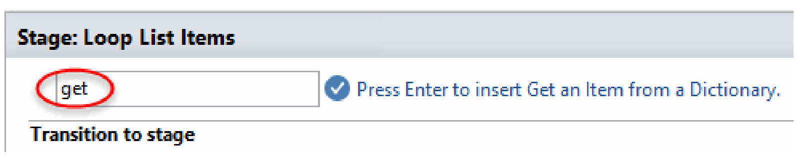
E. Right-click the orange bar in the **Transition to stage** area of the new **Loop List Items** stage and choose the **Go to a stage** option from the drop-down.

F. Click the **a stage** link in the new **Go to a stage** action and choose **End of Workflow** from the drop-down menu.

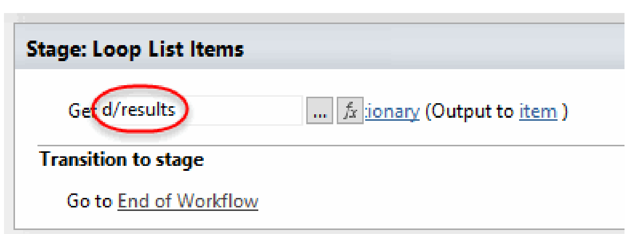


5. Add a **Get an Item from a Dictionary** action to retrieve the results of the **Call HTTP Web Service** action and create variables that will be used for looping.

A. Click the orange bar inside the **Loop List Items** stage and type "get" and press **Enter** to add the **Get an Item from a Dictionary** Action.



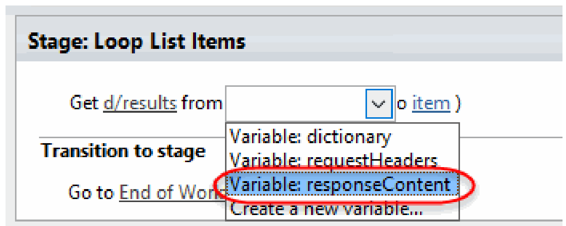
B. Click the **item by name or path** link in the new **Get an Item from a Dictionary** action and type `d/results` in the text box.



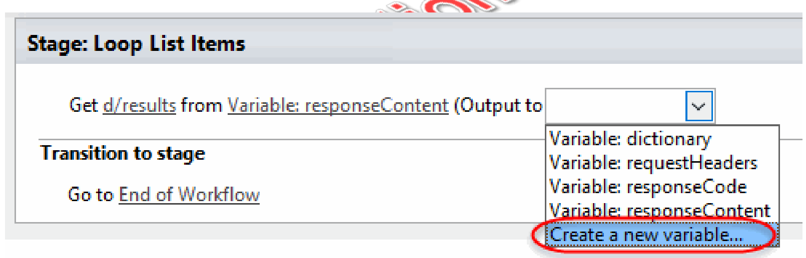
Note

The string `d/results` is the path to the list items returned in JSON format from the REST call of the **Call HTTP Web Service** action.

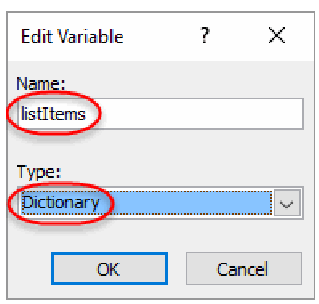
C. Click the **dictionary** link in the **Get an Item from a Dictionary** action and choose the **Variable: responseContent** from the drop-down list.



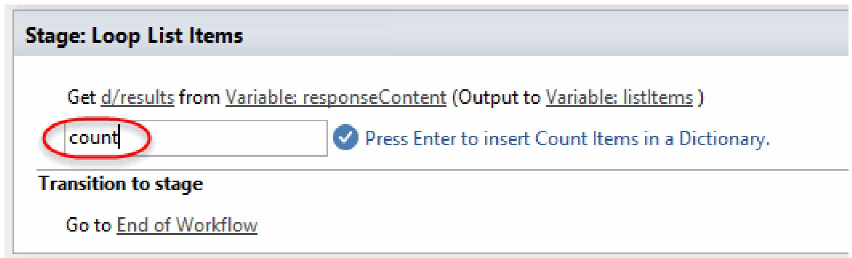
D. Click the **item** link in the **Get an Item from a Dictionary** action and choose **Create a new variable…** from the drop-down list.



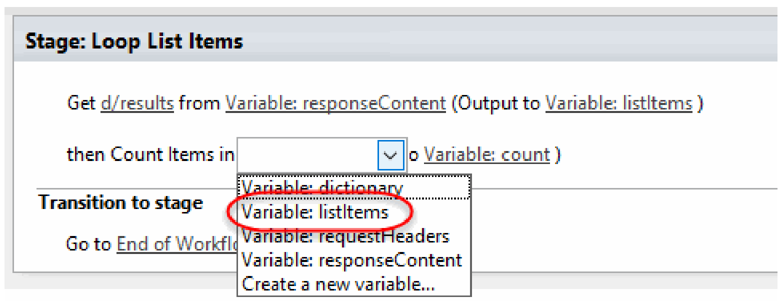
E. Set the **Name** field to "listItems" and the **Type** field drop-down to **Dictionary** and click the **OK** button.



F. Click the orange bar below the **Get an Item from a Dictionary** action and type "count" and press **Enter** to insert a **Count Items in a Dictionary** action into the workflow.



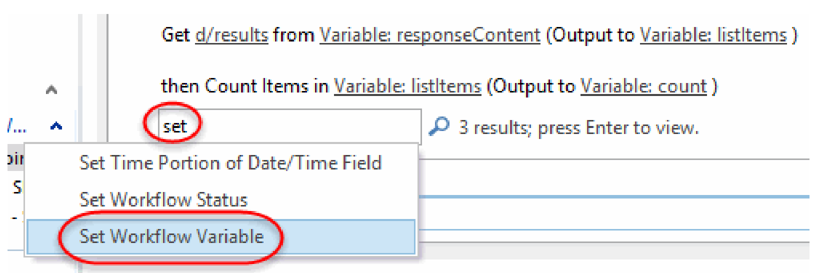
G. Click the **dictionary** link in the new **Count Items in a Dictionary** link and choose **Variable: listItems** from the drop-down.



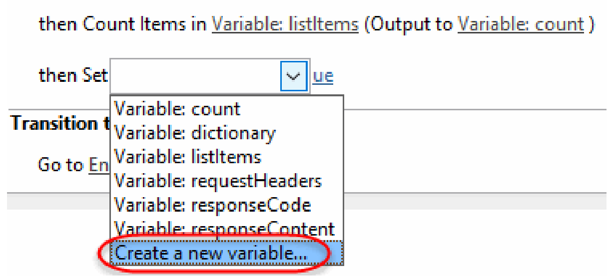
Note

The variable **listItems** is a dictionary type variable that, at this point in the workflow, should contain the items retrieved from the SharePoint list. Note that the **Count Items in a Dictionary** action creates an output integer type variable named **count**. We'll use the **count** variable to limit the iterations in a looping action that will be added in a later step.

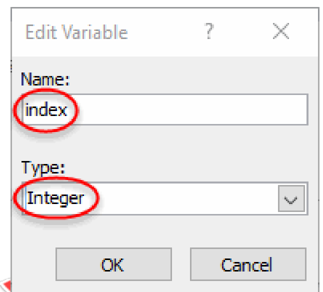
H. Click the orange bar below the **Count Items in a Dictionary** action and type "set" and press **Enter**, choose **Set Workflow Variable** from the list of choices.



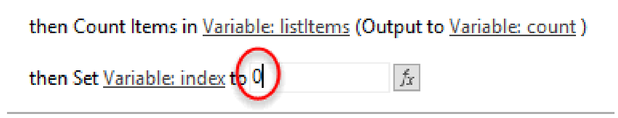
I. Click the **workflow variable** link in the new **Set Workflow Variable** action and choose **Create a new variable…** from the list of options.



J. Type “index” in the **Name** field and choose **Integer** in the **Type** drop-down and click the **OK** button.



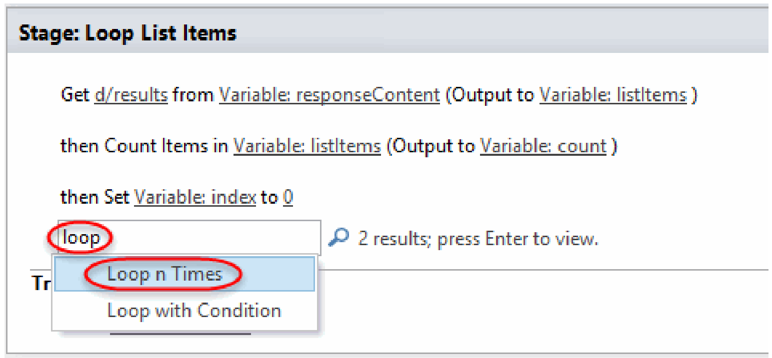
K. Click the **value** link in the **Set Workflow Variable** action and type the number “0” in the text field and press **Enter**.



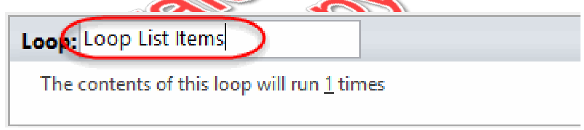
Note
The **index** variable will be used to access the individual items in the **listItems** dictionary during the loop. A separate action will be added later in the workflow to increment the **index** variable so that it can point to the next item in the dictionary. SharePoint dictionary items start with an index of 0 so by setting the variable to 0 you can access the first item with the variable.

6. Add a **Loop n Times** container to the workflow that loops through the **Workflow Demo** list items and uses a **Log to History List** action to write the **Title** field of the list item as output.

   A. Click the orange bar below the **Set Workflow Variable** action and type "loop" and press **Enter**, then choose the **Loop n Times** option from the drop-down.

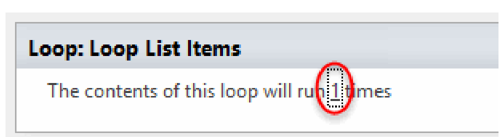


   B. Click the title bar of the new **Loop n Times** container and type "Loop List Items" and press **Enter** to rename it.

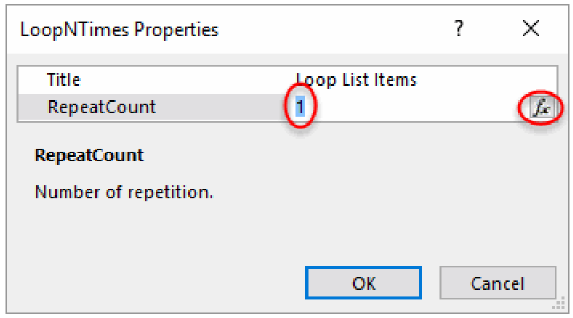


Note
Renaming the Loop container is optional but it does make the workflow more readable.

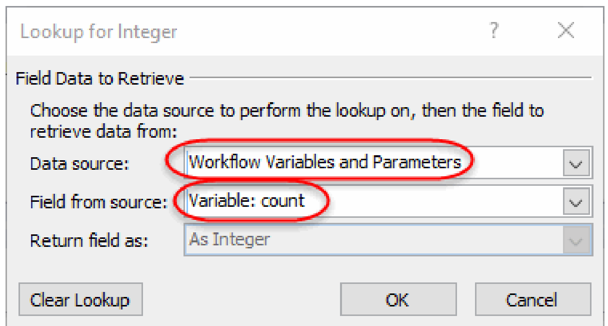
   C. Click the **1** link inside the **Loop n Times** container.



   D. Click the **1** link and then click the **fx** link inside the **LoopNTime Properties** dialog.



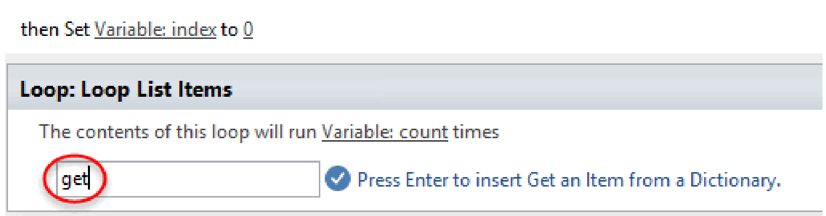
E. Select **Workflow Variables and Parameters** in the **Data source** field and select **Variable: count** in the **Field from source** field and click the **OK** button on the **Lookup for Integer** dialog.



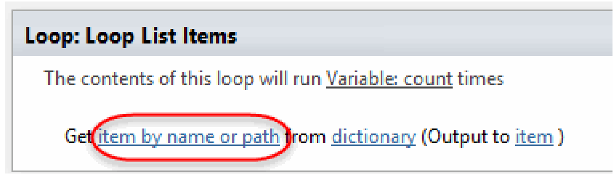
F. Click the **OK** button on the **LoopNTimes Properties** dialog.

Note
This sets the iterations of the loop to the number of items in the list.

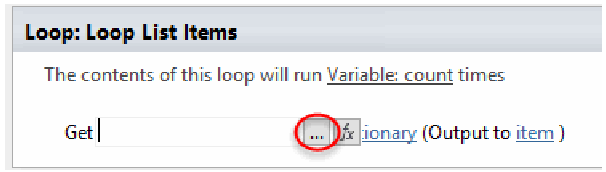
G. Click the orange bar below the line you set in the previous step and type the word “get” and press **Enter** to insert a new **Get an Item from a Dictionary** action.



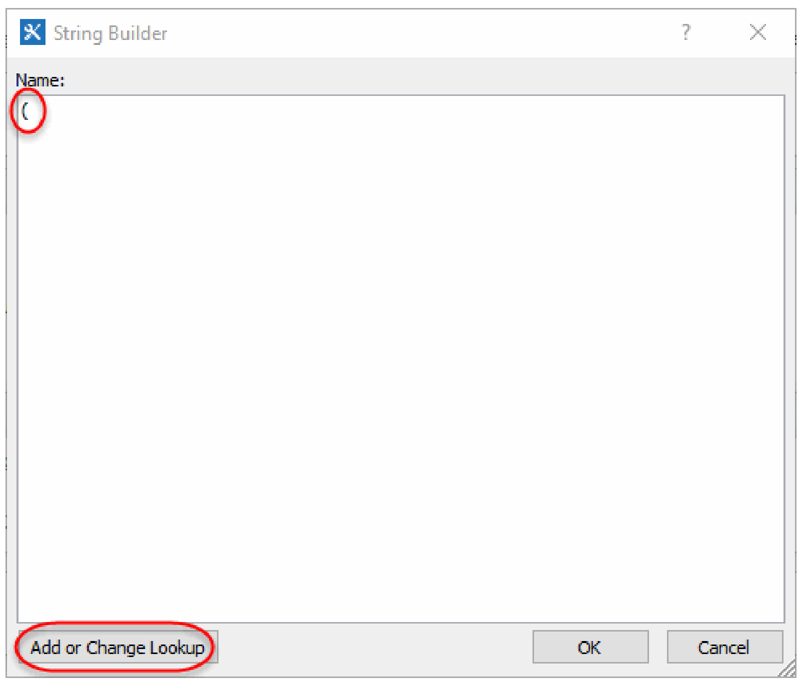
H. Click the **item by name or path** link in the new **Get an Item from a Dictionary** action.



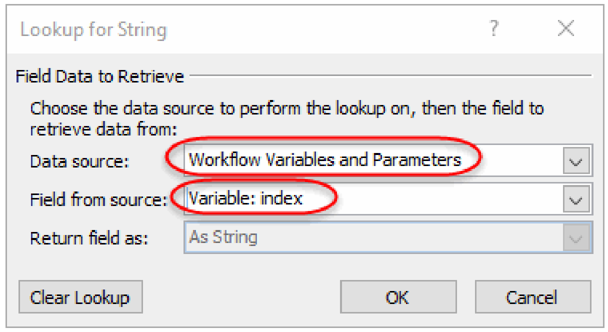
I. Click the **ellipsis** button next to the **item by name or path** text field to open a string builder dialog.



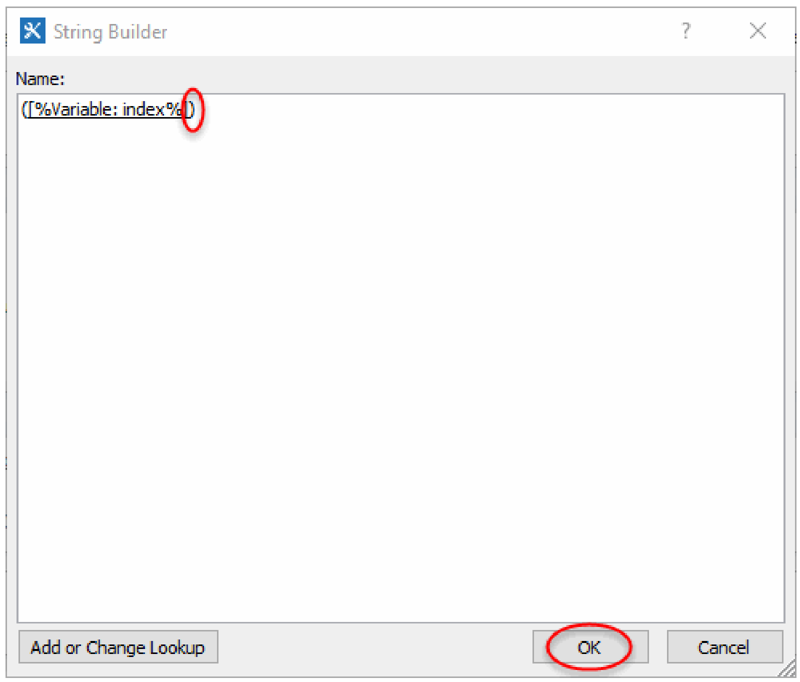
J. In the **String Builder** dialog type a left (and then click the **Add or Change Lookup** button.



K. In the **Lookup for String** dialog set the **Data source** field to **Workflow Variables and Parameters** and the **Field from source** field to **Variable: index** and click the **OK** button.



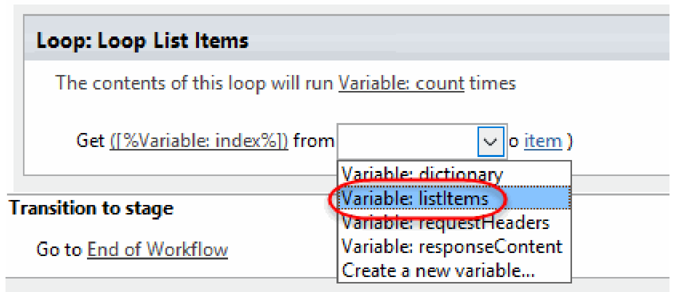
L. Type a right) after the newly inserted variable lookup and click the **OK** button to save the string and close the **String Builder** dialog.



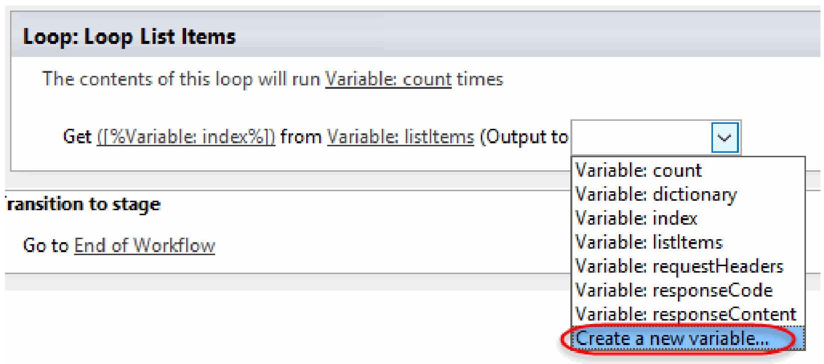
Note

You have to have parentheses around the index number that will be used to select a specific list item from the list. Later steps will increment the index for the next iteration of the loop.

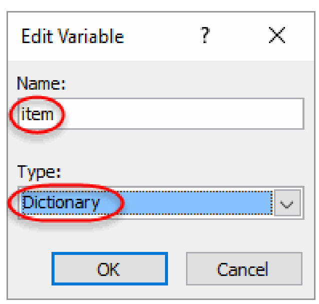
M. Click the **dictionary** link in the **Get an Item from a Dictionary** action and select **Variable: listItems** from the drop-down list.



N. Click the **variable** link at the end of the **Get an Item from a Dictionary** action and choose **Create a new variable…** from the drop-down list.

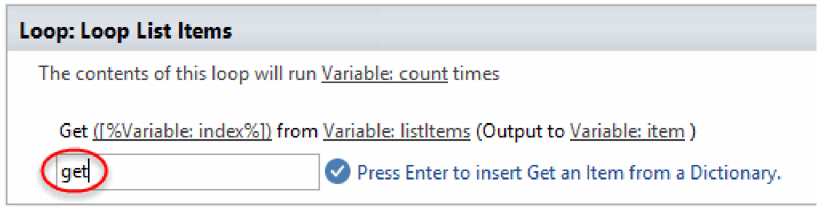


O. In the **Edit Variable** dialog type `item` in the **Name** field and select **Dictionary** in the **Type** field and click the **OK** button.

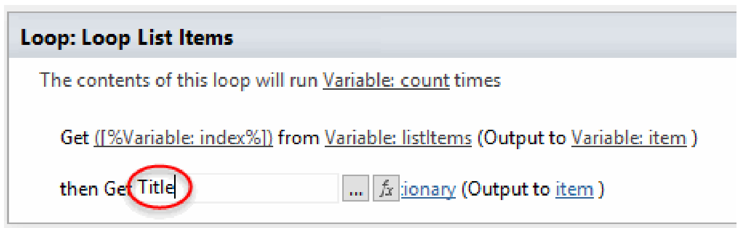


Note
The **item** variable will store the current list item during each iteration of the loop.

P. Click the orange bar below the last **Get an Item from a Dictionary** action and type “get” and press **Enter** to add another **Get an Item from a Dictionary** action.



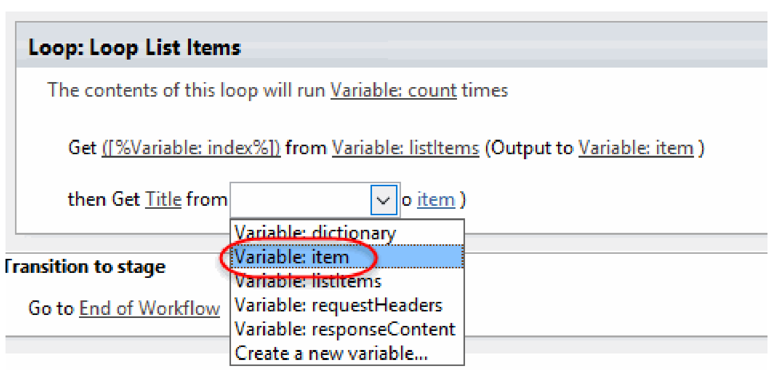
Q. Click the **item by name or path** link in the new **Get an Item from a Dictionary** action and type `Title` in the text box and press **Enter**.



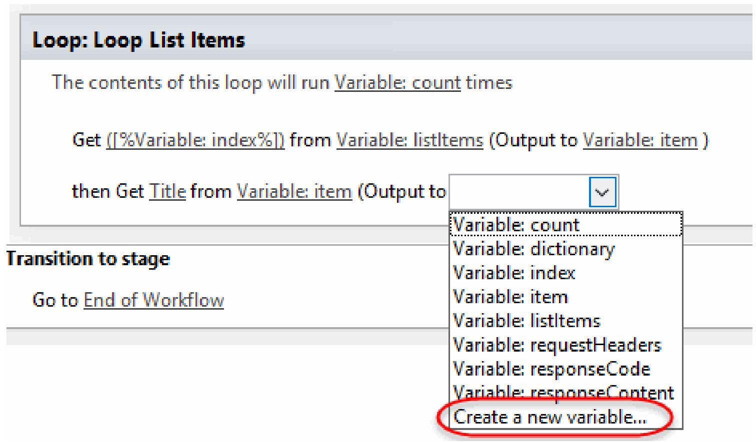
Note

For the lookup field we are entering the SharePoint column name that has the data you want in the list item. For this example we are using the **Title** column but we could replace that with any column we want from the list or library.

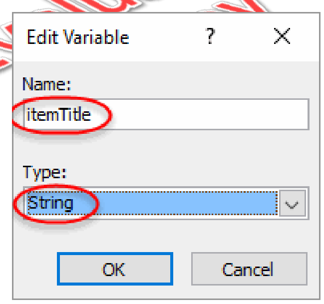
R. Click the **dictionary** link in the **Get an Item from a Dictionary** action and select **Variable: Item** from the drop-down list.



S. Click the **variable** link at the end of the **Get an Item from a Dictionary** action and choose **Create a new variable…** from the drop-down list.

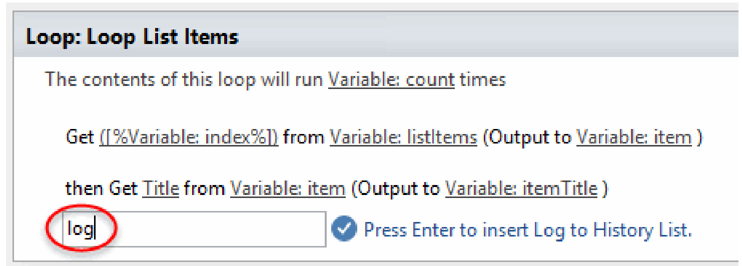


T. In the **Edit Variable** dialog type `itemTitle` in the **Name** field and select **String** in the **Type** field and click the **OK** button.

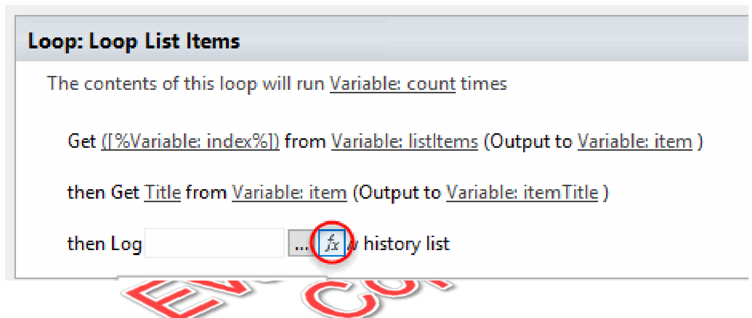


Note
The **itemTitle** variable will store the current list item's Title that we will write to the Workflow History List in next action.

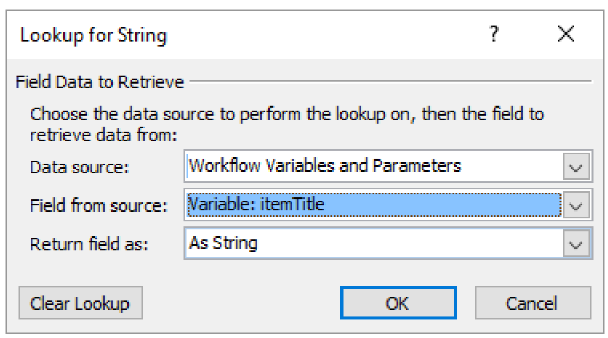
U. Click the orange bar below the last **Get an Item from a Dictionary** action and type "log" and press **Enter** to insert a **Log to History List** action.



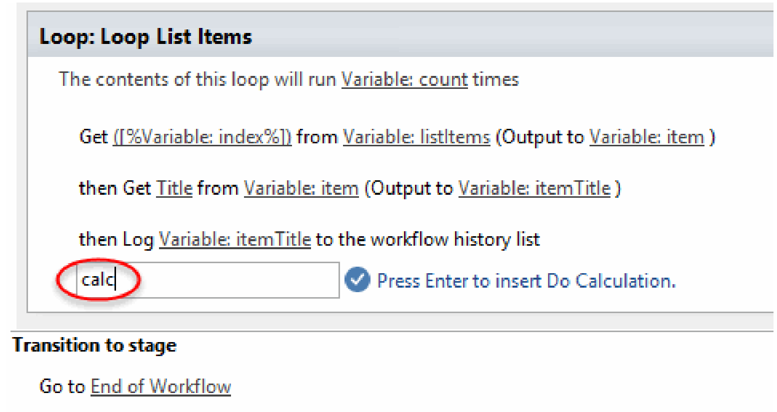
V. Click the **message** link in the new **Log to History List** action and then click the **fx** button that appears.



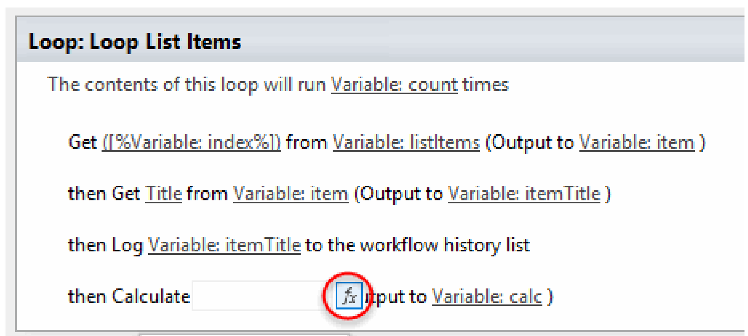
W. In the **Lookup for String** dialog set the **Data source** field to **Workflow Variables and Parameters** and the **Field from source** field to **Variable: itemTitle** and click the **OK** button.



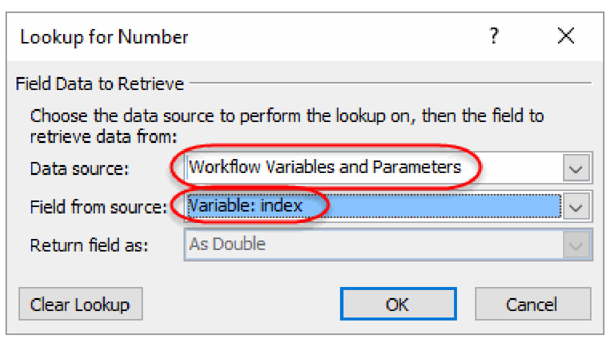
X. Click the orange bar below the last **Log to History List** action and type “calc” and press **Enter** to insert a **Do Calculation** action.



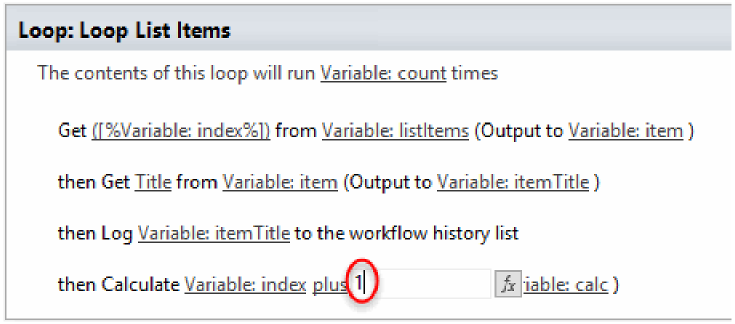
Y. Click the **value** link in the new **Do Calculation** action and then click the **fx** button that appears.



Z. In the **Lookup for Number** dialog set the **Data source** field to **Workflow Variables and Parameters** and the **Field from source** field to **Variable: index** and click the **OK** button.



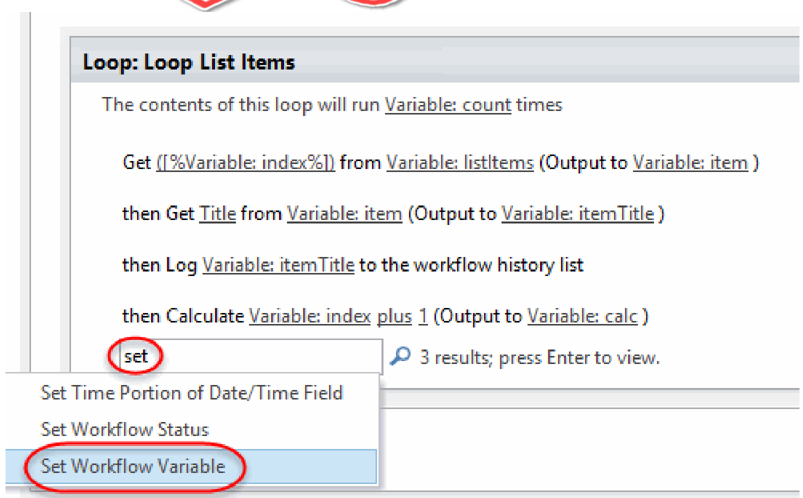
AA. Click the **value** link in the **Do Calculation** action and enter the number **1** in the field.



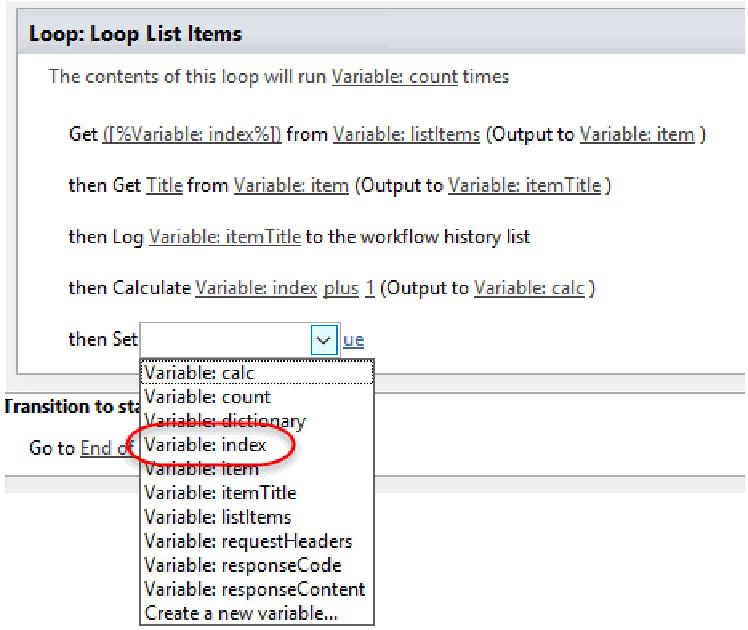
Note

The output variable from this action will be used in the next action to increment the index for the next iteration in the loop.

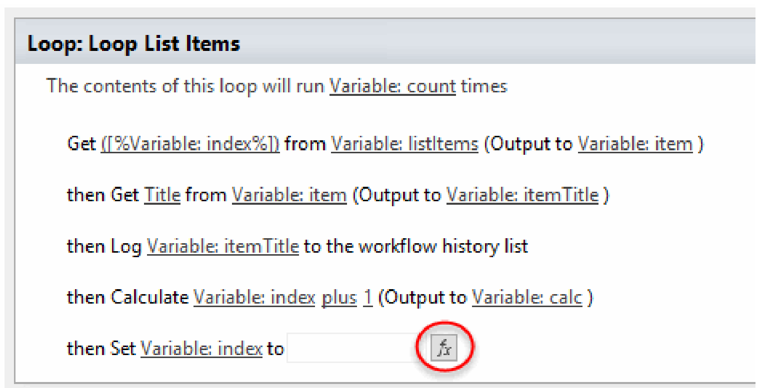
AB. Click the orange bar below the last **Do Calculation** action and type "set" and press **Enter** and then choose **Set Workflow Variable** from the drop-down list to insert a **Set Workflow Variable** action.



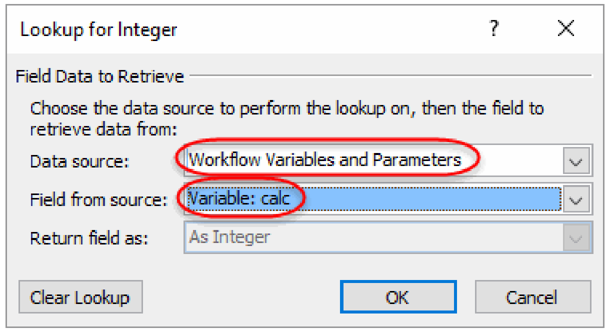
AC. Click the **workflow variable** link in the **Do Calculation** action and choose **Variable: index** from the drop-down list.



AD. Click the **value** link in the **Do Calculation** action and then click the **fx** button that appears.

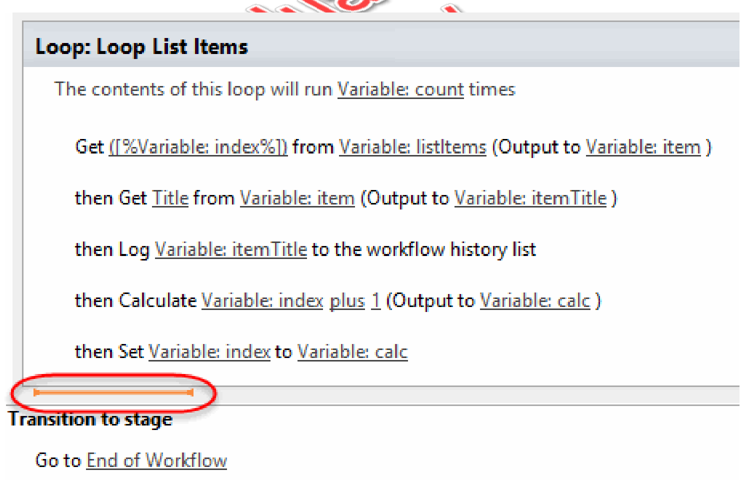


AE. In the **Lookup for Integer** dialog set the **Data source** field to **Workflow Variables and Parameters** and the **Field from source** field to **Variable: calc** and click the **OK** button.

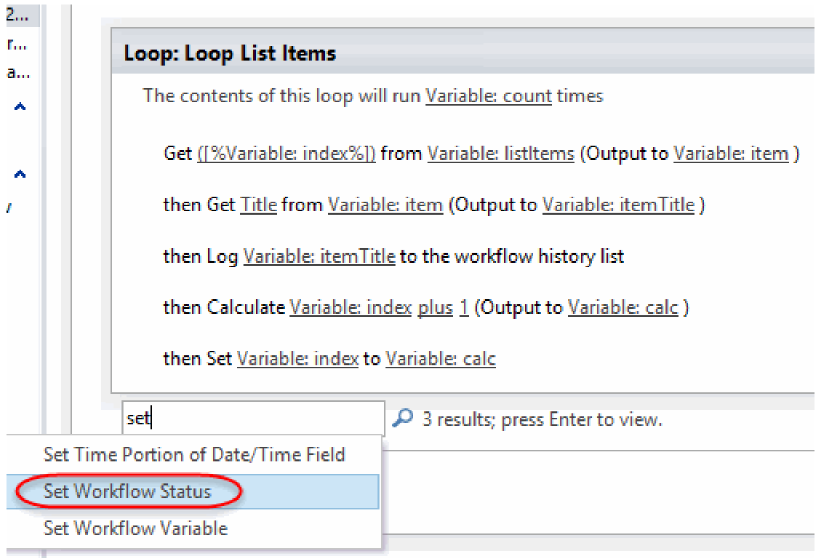


7. Insert a **Set Workflow Status** status action after the loop container to notify when the workflow is done with the loop.

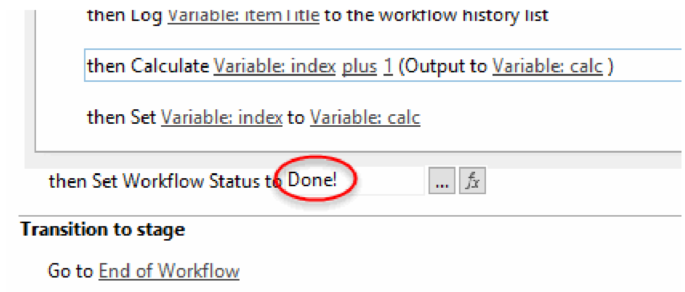
   A. Click the orange bar directly below but outside the **Loop List Items** container.



   B. Type “set” and press **Enter** then choose **Set Workflow Status** from the drop-down list.



C. Click the **this message** link and type `Done!` in the text box field and press **Enter**.

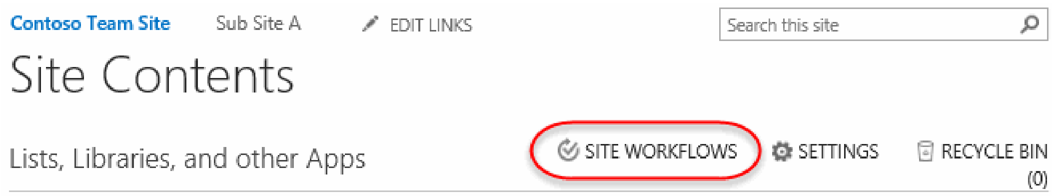


Note
Setting the Workflow status is optional but it is a useful way to output where the Workflow is in processing actions.

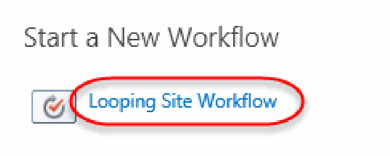
8. Click the **Publish** button in the **Workflow** tab toolbar to save and publish the new workflow to SharePoint.
9. Run the **Looping Site Workflow** from the **Contoso Home Site** and verify that it loops and records the list items correctly.

   A. Switch to the browser window and click the **Site Contents** link in the **Quick Launch** menu.

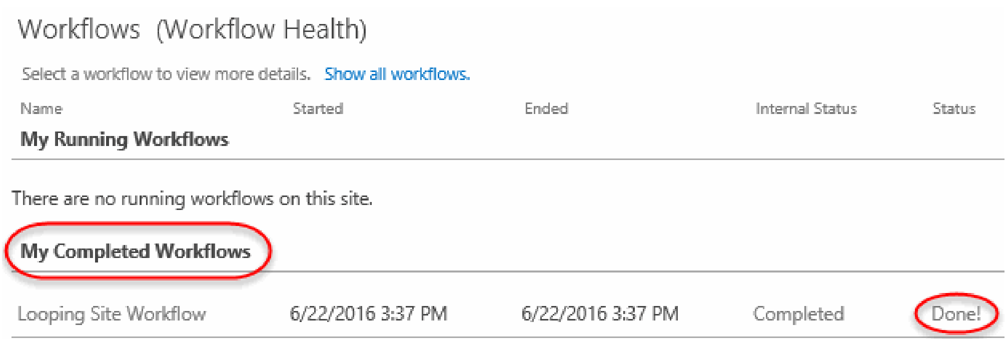
B. Click the **SITE WORKFLOWS** link at the top of the page.



C. Click the **Looping Site Workflow** link under the **Start a New Workflow** heading.

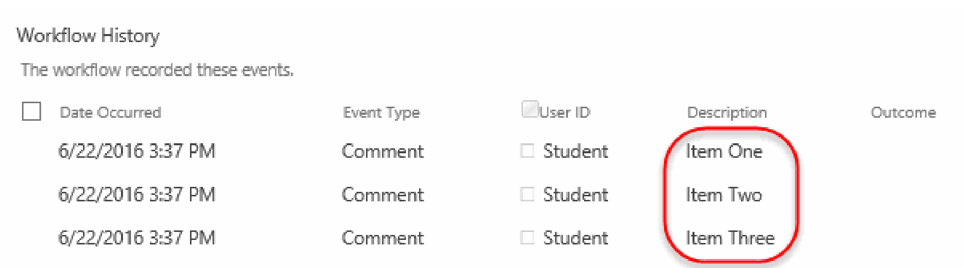


D. Keep refreshing the page until the workflow shows under **My Completed Workflows** with a **Status** column reading **Done!**.



E. Click the **Done!** link to navigate to the page that displays the **Workflow History**.

F. Verify the **Workflow History** has an entry for each item in the **Workflow Demo** list displaying the **Title** field value.



10. Close SharePoint Designer 2013.

Conclusion

In this lesson, you learned:

- About workflow basics.
- How to create a List Workflow using SharePoint Designer 2013.
- How to run a workflow.
- How to view a workflows history.
- How to add Actions to a workflow.
- How to add Conditions to a workflow.
- How to add parameters to a workflow initiation form.
- How to create a Site workflow.
- How to use Loop containers in a workflow.
- How to use an Call HTTP Web Service Action

LESSON 3
Working with Managed Metadata

Topics Covered

☑ Managed Metadata Service basics.

☑ Creating Term Store groups.

☑ Creating Term Store sets.

☑ Creating Term Store terms.

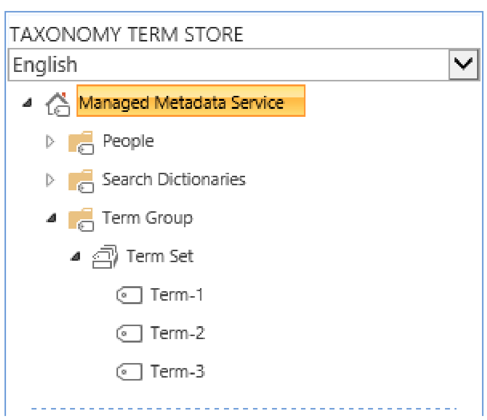
☑ Creating Managed Metadata columns in a list or library.

☑ The basics of content type publishing.

Introduction

The Managed Metadata service in SharePoint Server 2016 provides central term storage and management. The Term Store is what allows you to have common sets of terms that can be shared across all sites and site collections within a farm.

Term Store terms are organized within a Term Set, which is created within a Term Group forming a hierarchy nested within the Managed Metadata Service. The parent service defines Term Store Administrators that are responsible for creating the Term Groups. The Term Groups define the Group Managers and Contributors.



Once Term Sets have been defined within the Managed Metadata Service, they can be linked to lists and libraries through a Managed Metadata column type. Managed Metadata columns create fields on the SharePoint forms that are linked to the Term Sets and provide IntelliSense that provide users with choices of terms based on what they type.

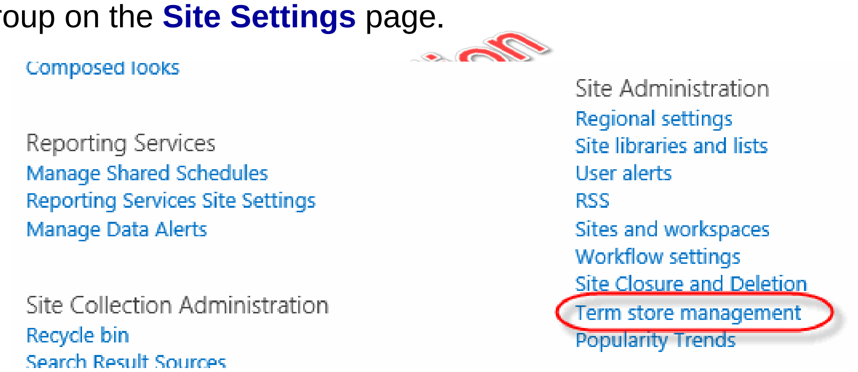
3.1. Creating a Term Store Group and Term Set

The following walk-through will show you how to create a new Term Group, Term Set, and Terms hierarchy. Because the Managed Metadata Service is shared by the entire Farm it is important to use a Term Group name that will not conflict with others.

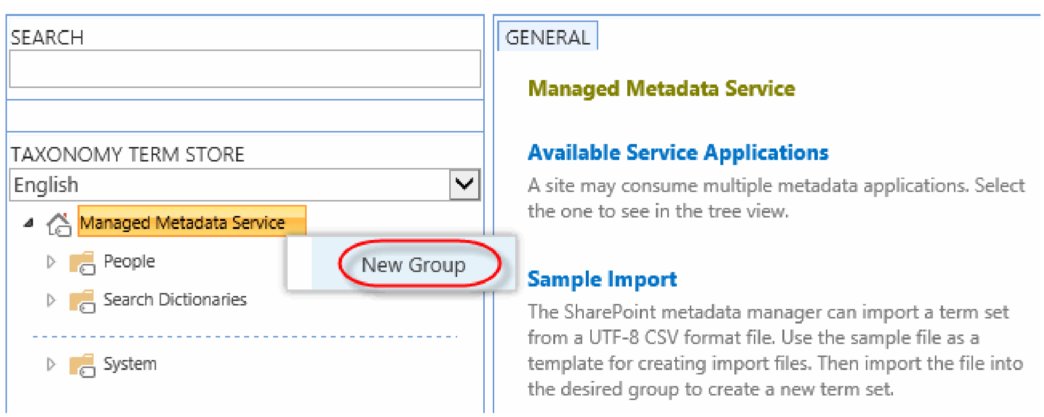
1. Create a new Term Group within the **Managed Metadata Service** named "Demo Group".

   A. Click the **Settings** menu button and select the **Site settings** options.

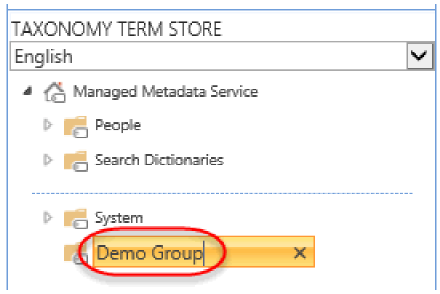
   B. Click the **Term store management** link from the **Site Administration** group on the **Site Settings** page.



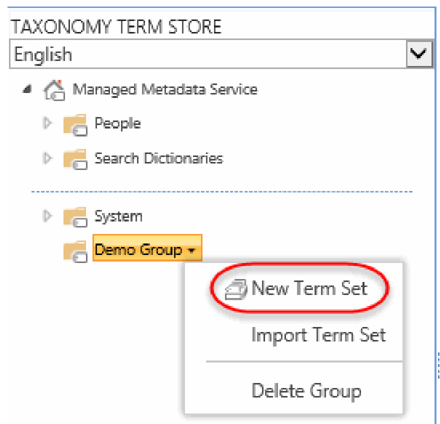
   C. Right-click the **Managed Metadata Service** and choose **New Group** from the menu.



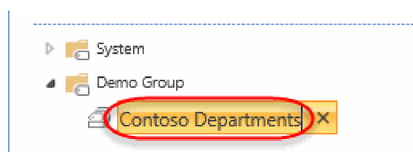
D. Type `Demo Group` in the field.



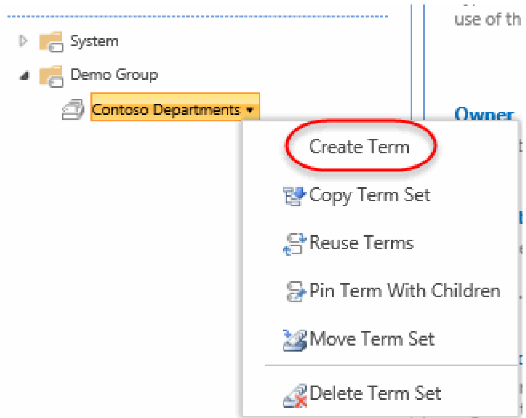
E. Right-click the **Demo Group** and select the **New Term Set** option.



F. Type `Contoso Departments` in the field provided.

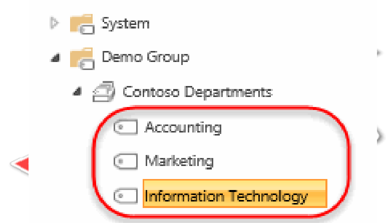


G. Right-click **Contoso Departments** and select the **Create Term** option.



H. Type `Accounting` in the field provided and press the **Enter** key.

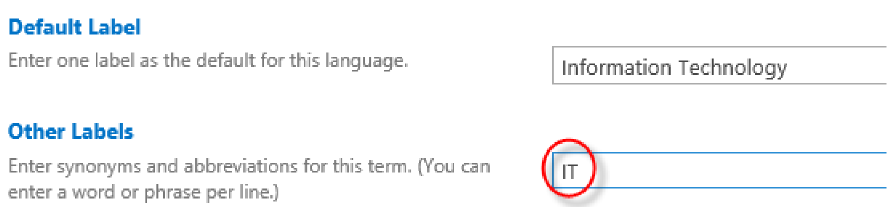
I. Repeat the previous step and add `Marketing` and `Information Technology` to the Term Set.



2. Add an abbreviation for the **Information Technology** term.

   A. Click to select the **Information Technology** term.

   B. In the term properties area, type `IT` in the **Other Labels** field.



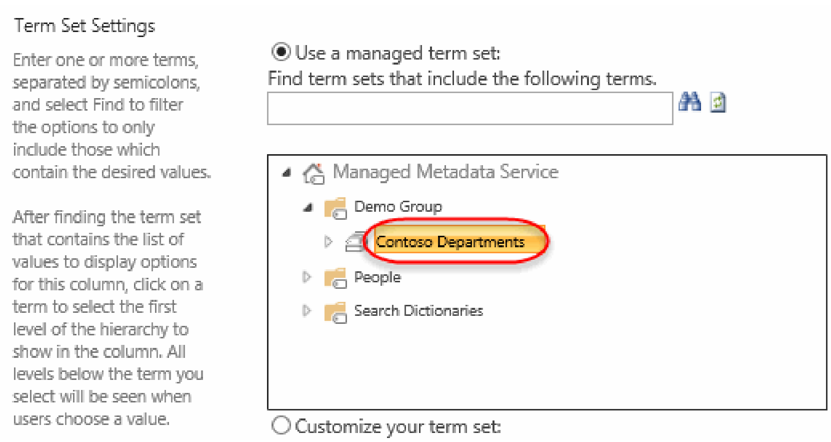
   C. Click the **Save** button at the bottom of the Term's property page.

3.2. Creating Metadata Columns in Lists and Libraries

This walk-through will show you how to create a new custom list and add a new column that is linked to the **Contoso Departments** Term Set created in the previous walk-through.

1. Create a new list named "Metadata Demo" from the **Custom List** template.
    - A. Click the **Settings** menu and choose the **Add an app** option.
    - B. Select the **Custom List** template from the template choices.
    - C. Type "Metadata Demo" in the **Name** field text box.
    - D. Click the **Create** button to complete creating the list.

2. Add a Managed Metadata column, linked to the **Contoso Departments** Term Set, to the **Metadata Demo** list.
    - A. Click the **Metadata Demo** link in the **Quick Launch** menu to navigate to the new list.
    - B. Click the **Create Column** link on the **LIST** tab toolbar.
    - C. Type `Department` in the **Column** name field.
    - D. Choose the **Managed Metadata** radio-button option for the columns data type.
    - E. Expand the **Managed Metadata Service -> Demo Group** and choose **Contoso Departments** Term Set in the **Term Set Settings** area.

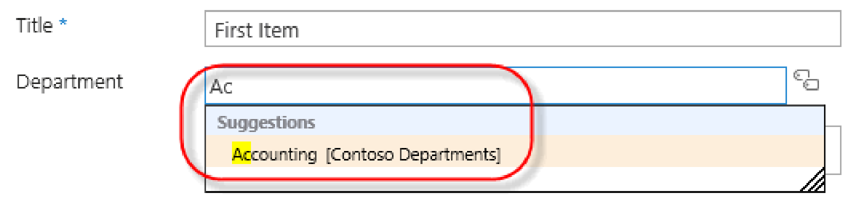


    - F. Click the **OK** button to complete creating the column.

3. Add a new item to the **Metadata Demo** list and test the **Managed Metadata** column.
    - A. Click the **new item** link.

B. Type `First Item` in the **Title** field text box.

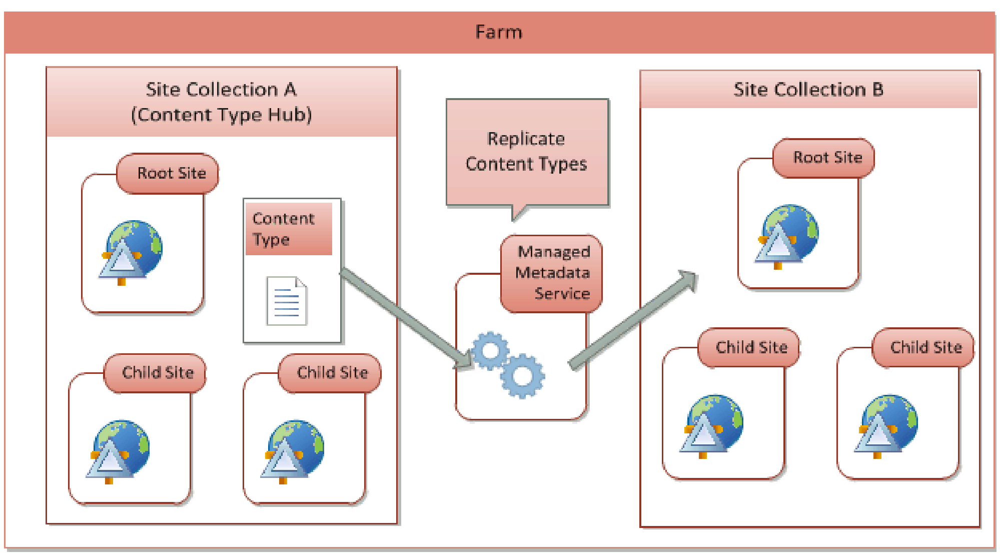
C. Type "Ac" in the **Department** field and click to choose the **Accounting [Contoso Departments]** choice that appears below.



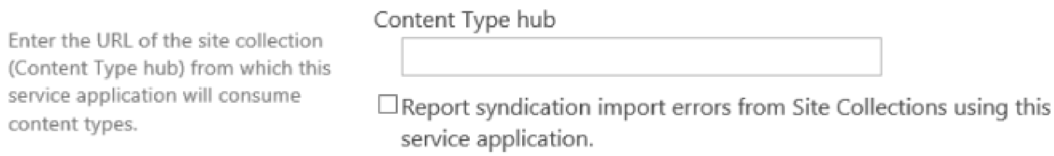
D. Click the **Save** button to save the new item.

3.3. Publishing Content Types

Another feature of the Managed Metadata service is to replicate Content Types from a designated site collection hub to all other site collections sharing the Managed Metadata service. This allows Farm administrators to define a Content Type in one time in one place and have it available to use throughout the Farm. This feature would only be beneficial to Farms that have multiple site collections.

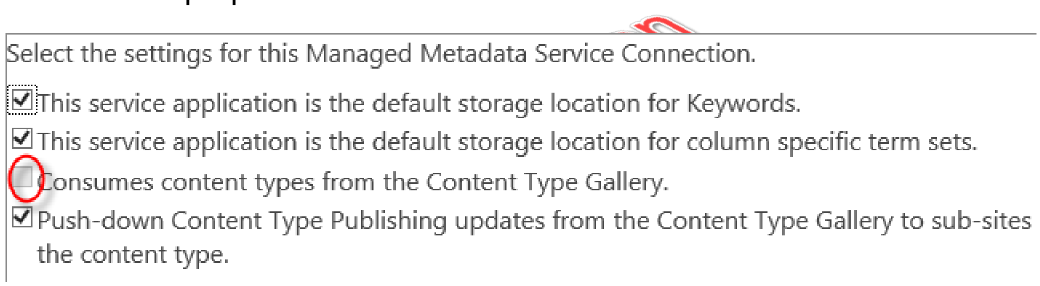


To facilitate content type replication, the Farm administrator must first configure the Managed Metadata service to point to a specific site collection as the content type hub. The following image comes from the Central Administration website properties page of the Managed Metadata service:

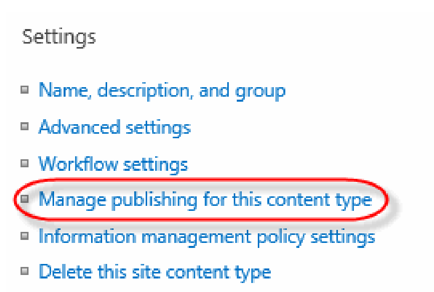


The first time the Farm administrator visits this page, the **Content Type hub** is an empty text box that the Farm administrator types in whatever site collection path they want to use. To change it after it has been set the first time, you must use PowerShell commands.

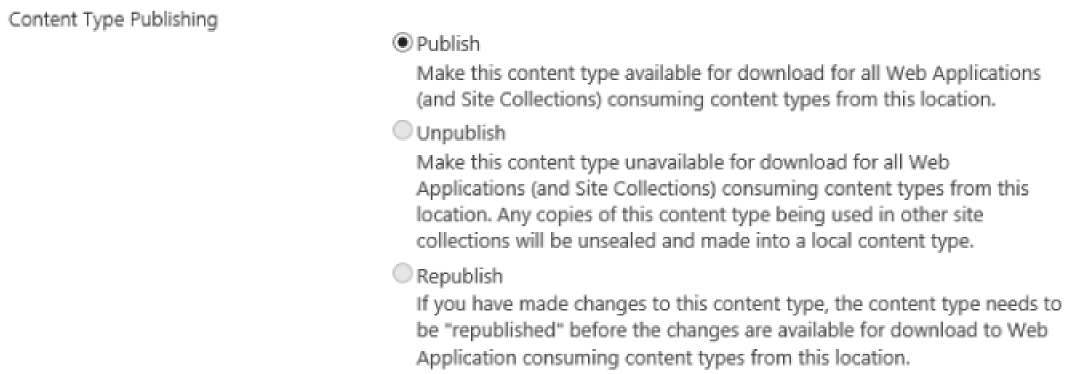
Once the hub has been defined, the Farm administrator can then configure the Managed Metadata Service Connection to consume content types from the Content Type Gallery of the hub site collection. The following image is a screenshot of the Managed Metadata Service Connection properties:



Content types created in the site collection defined as the hub will have an extra link, **Manage publishing for this content type**, in the **Settings** group of the content type configuration page.



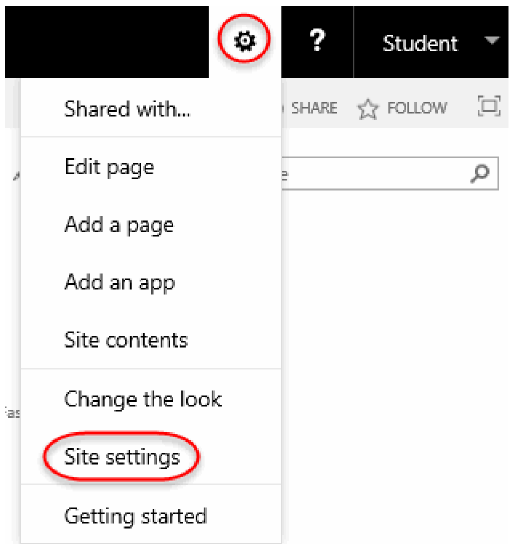
This link will take site collection administrators to a page where they can control publishing for that specific content type.


Content Type Publishing
Publish
Make this content type available for download for all Web Applications (and Site Collections) consuming content types from this location.
Unpublish
Make this content type unavailable for download for all Web Applications (and Site Collections) consuming content types from this location. Any copies of this content type being used in other site collections will be unsealed and made into a local content type.
Republish
If you have made changes to this content type, the content type needs to be "republished" before the changes are available for download to Web Application consuming content types from this location.

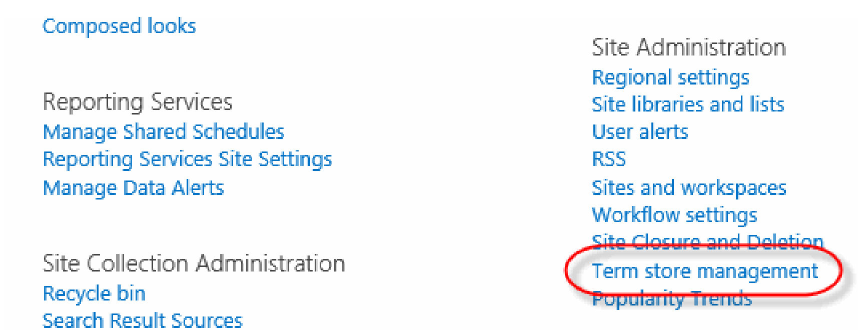
Exercise 5: Creating a Term Store Group and Term Set

10 to 15 minutes

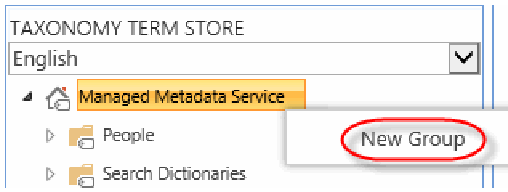
1. Navigate to your team site.
2. Create a new Group, Term Set, and Terms.
   A. Click the **Settings** icon and choose the **Site Settings** option.



   B. Click the **Term store management** link listed under the **Site Administration** heading.

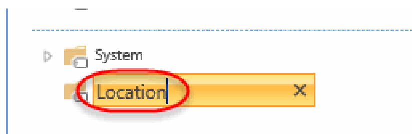


   C. Right-click the **Managed Metadata Service** and choose **New Group** from the menu.

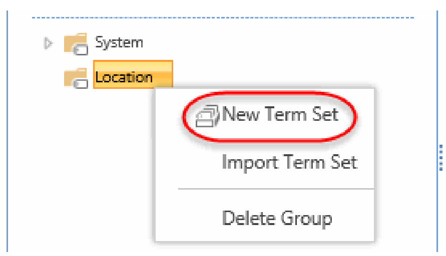


Note
If you do not see the **New Group** option, it is most likely because your account has not been added to the **Term Store Administrators** list. You will need to contact your farm administrator to perform that task.

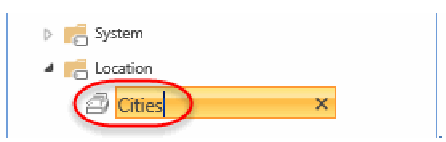
D. Type `Location` in the new group field.



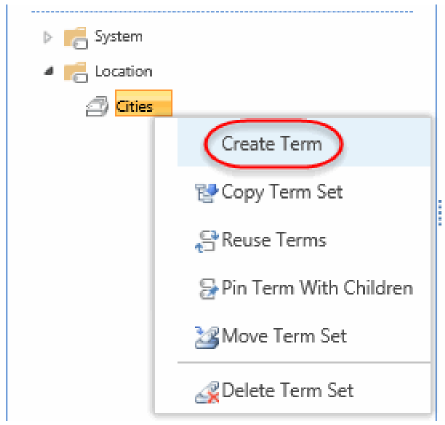
E. Right-click the new **Location** group and choose **New Term Set** from the drop-down menu.



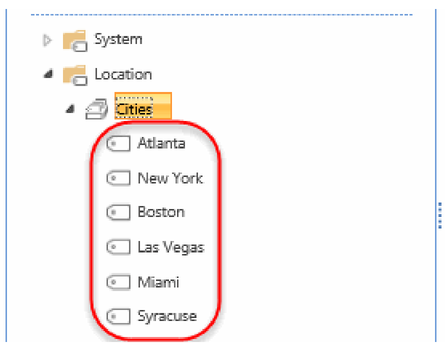
F. Type `Cities` in the new Term Set field.



G. Right-click the new **Cities** Term Set and choose **Create Term** from the menu.

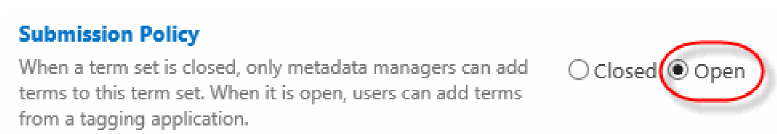


H. Type `Atlanta` in the new Term field and press **Enter** (the system will automatically create a new empty term for you to type something into when you press **Enter**). Keep typing cities until you have a list that looks similar to the following image:



I. Click the **Cities** term set to view the **Properties** page of the term set.

J. Click the **Open** radio button in the **Submission Policy** settings of the **Cities** term set.



Note

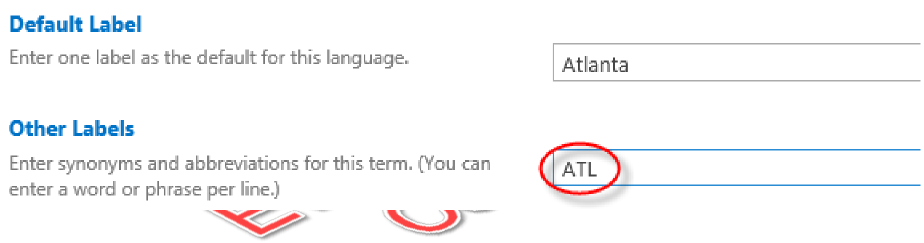
This option will allow new entries to be made at the list and library level where they are linked. A later part of this exercise will demonstrate adding a new entry through a list column linked to the term set.

K. Click the **Save** button to save the changes to the term set.

Note
If you get an error message refresh the web page and retry setting the option.

3. Add **Other Labels** for some of the city terms.

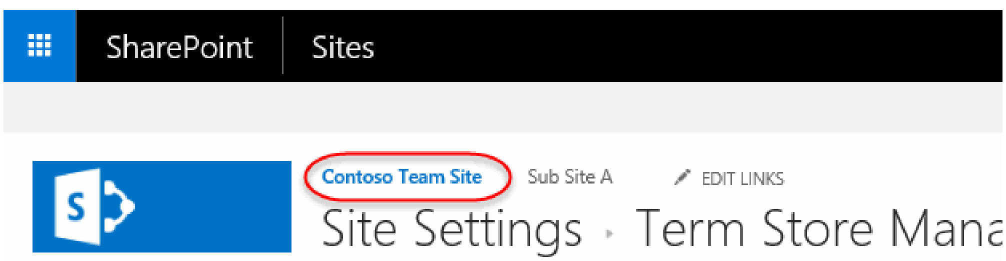
   A. Click the **Atlanta** term and type `ATL` in the **Other Labels** field.



   B. Click the **Save** button to save the new abbreviation.

   C. Add additional abbreviations to some of the cities in the Term Set.

4. Click your site's title link in the **Top Link** menu to navigate back to the home page of the site.

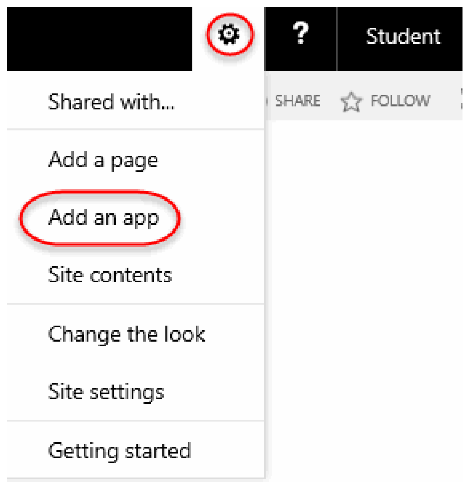


Exercise 6: Creating Managed Metadata Columns

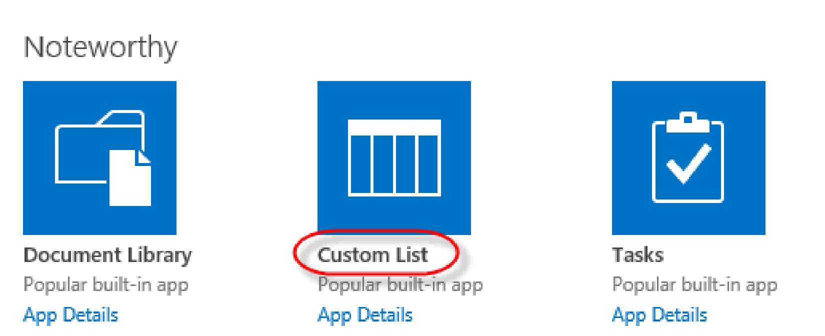
10 to 15 minutes

1. Create a new custom list named “Metadata Test” for testing managed metadata columns.

   A. Click the **Settings** menu and choose **Add an app** from the drop-down list.

   B. Click the **Custom List** template from the template choices.

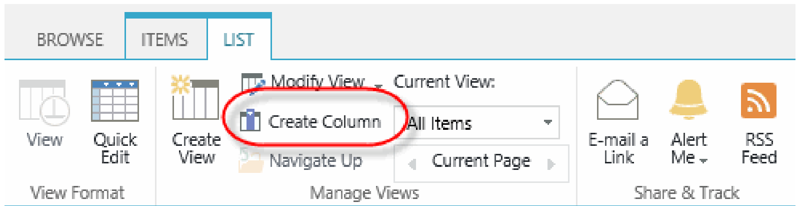
   

   C. Type `Metadata Test` in the **Name** field and click the **Create** button to create the new list.

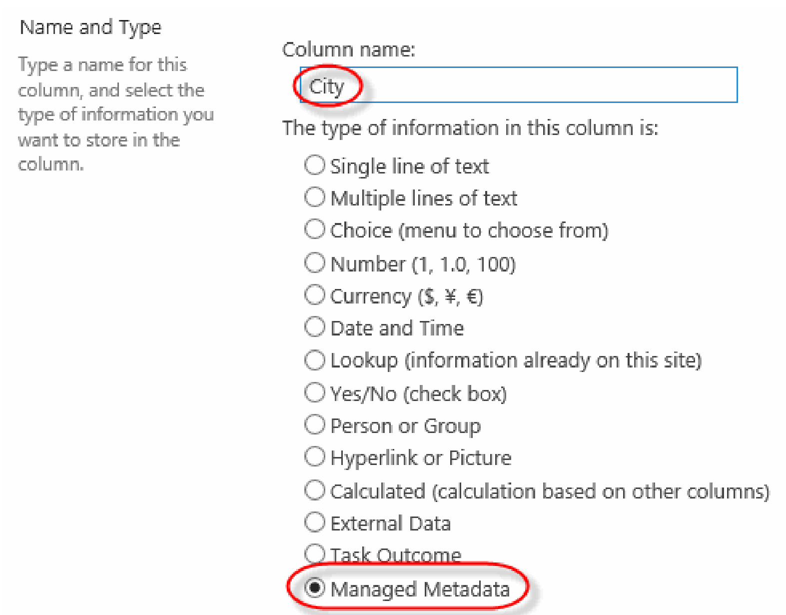
2. Add a **Managed Metadata** column to the **Metadata Test** list and link it to the **Cities** term set.

A. Click the **Metadata Test** link in the **Quick Launch** menu to navigate to the new list.

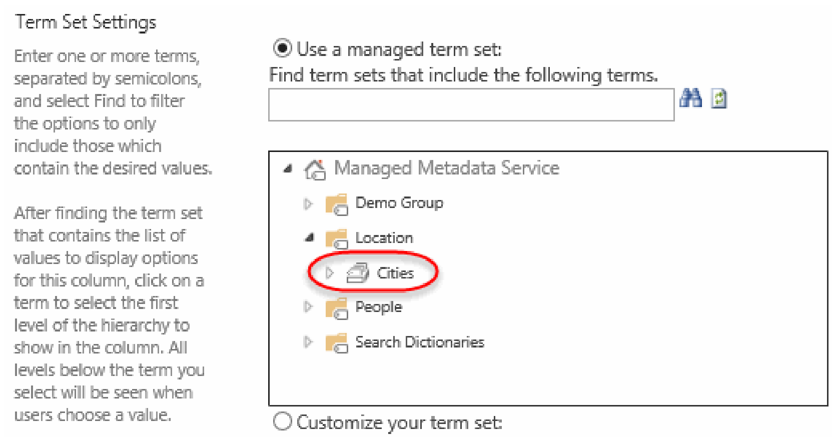
B. Click the **Create Column** link on the **LIST** tab toolbar.



C. Type `City` in the **Column name** field and click the **Managed Metadata** option radio button to set the data type of the column.



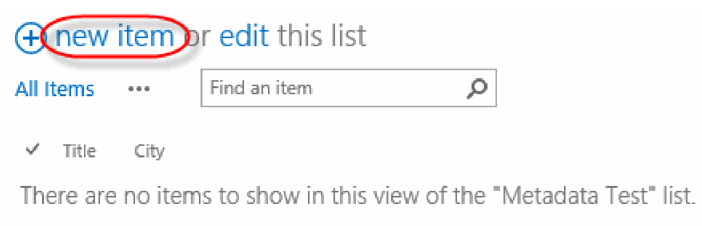
D. Scroll down to the **Term Set Settings** area, click the arrow next to **Managed Metadata Service** to expand it, expand **Location**, and then click to select **Cities**.



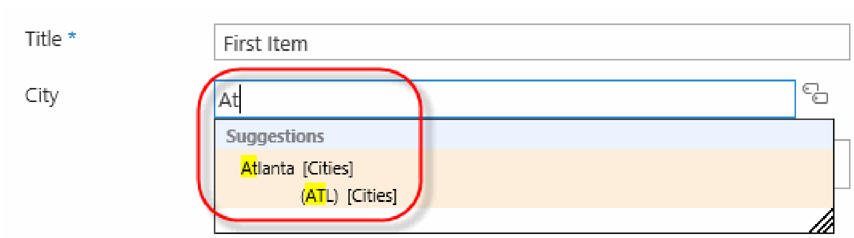
E. Click the **OK** button at the bottom of the **Create Column** dialog to add the new column to the list.

3. Add a new item to the **Metadata Test** list and test the metadata field.

   A. Click the **new item** link in the **Metadata** test list.



   B. Type `First Item` in the **Title** field and then type `At` in the **City** field and verify an IntelliSense list opens below your typing with a suggestion of **Atlanta**.



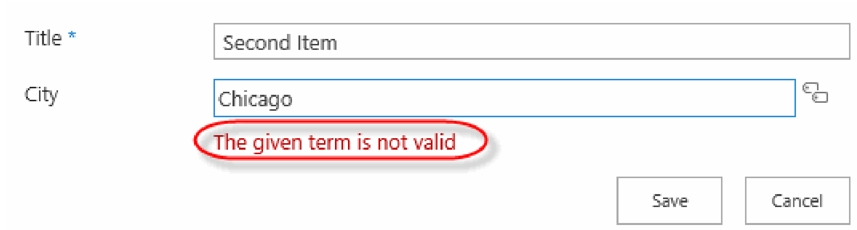
   C. Click **Atlanta** in the suggestion list and click the **Save** button to save the item.

4. Add a new fill-in entry to the **Cities** term set.

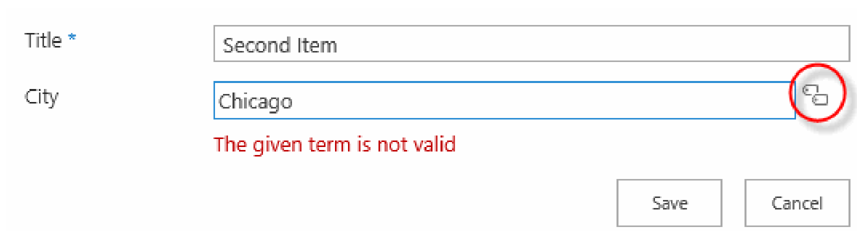
   A. Click the **new item** link in the **Metadata** test list.

B. Type `Second Item` in the **Title** field and then type `Chicago` in the **City** field. Verify that no suggestions display for that city.

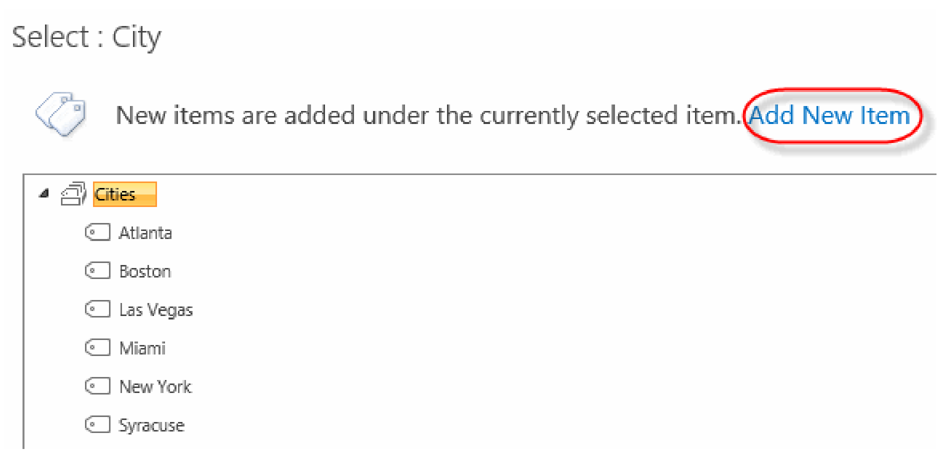
C. Click the **Save** button and verify that you get the error **The given term is not valid**.



D. Click the **Browse for a valid choice** icon to the right of the **City** field text box.



E. Click the **Add New Item** link in the **Select: City** dialog.



F. Type `Chicago` in the new item field and then press **Enter**.

G. Click the **OK** button to close the **Select: City** dialog.

H. Click the **Save** button to save the new item.

Conclusion

In this lesson, you learned:

- About Managed Metadata Service basics.
- How to create Term Store groups.
- How to create Term Store sets.
- How to create Term Store terms.
- How to create Managed Metadata columns in a list or library.
- The basics of content type publishing.

LESSON 4
Business Connectivity Services

Topics Covered

☑ The basics of Business Connectivity Services.

☑ Creating an External Connection using SharePoint Designer.

☑ Creating an External Content Type using SharePoint Designer.

☑ Defining database operations using SharePoint Designer.

☑ Creating a list using the External List template.

☑ Creating an External List using SharePoint Designer.

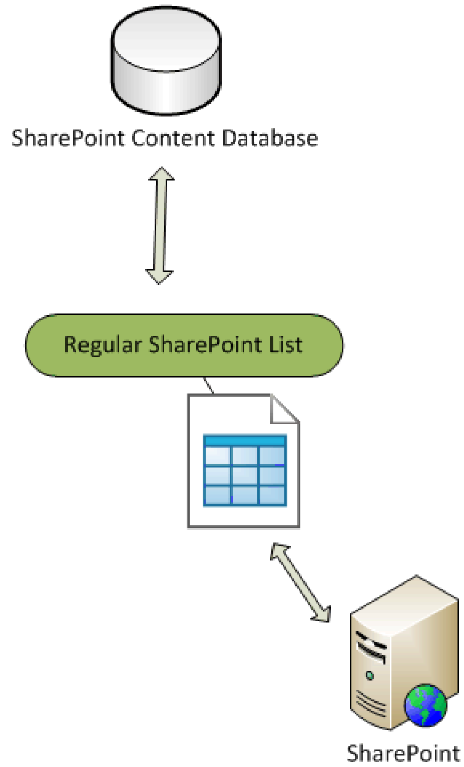
Introduction

In this lesson, you will learn the basics of Business Connectivity Services, how to create an External Connection using SharePoint Designer, how to create an External Content Type using SharePoint Designer, how to define database operations using SharePoint Designer, how to create a list using the External List template, and how to create an External List using SharePoint Designer.

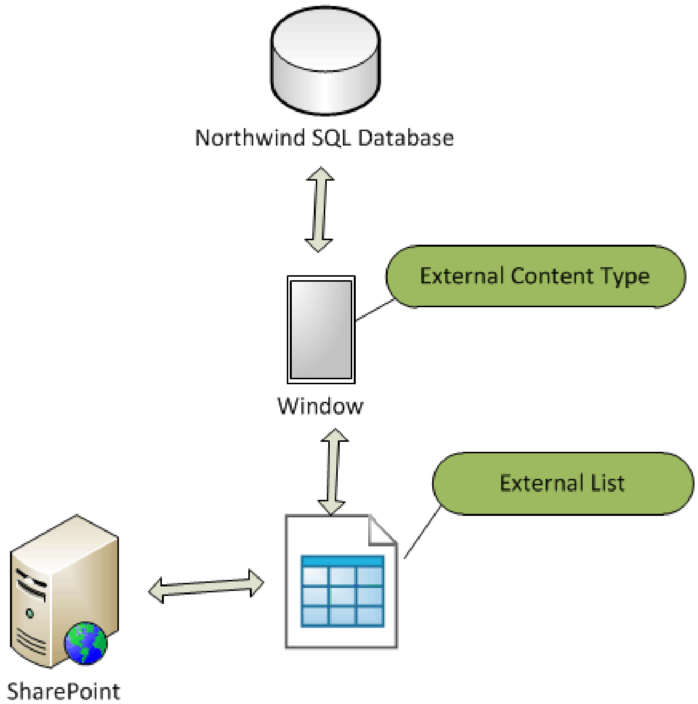
4.1. Business Connectivity Services Basics

Business Connectivity Services is a free service that comes with the Foundation version of SharePoint. The service enables administrators to create external lists linked to data outside of SharePoint.

Normal SharePoint lists expose data that is stored inside of a SQL content database that SharePoint creates and maintains.



Business Connectivity Services can expose data that is external to SharePoint, i.e., stored in a database separate from the SharePoint content database. An External Content Type is used to define the external data to the SharePoint system, kind of like a window.



Once the External Content Type is defined, you can create an External List using a special list template that comes with SharePoint and Business Connectivity Services. The External List works through the "window" the External Content Type provides to expose the data as if it were a normal list. The user is usually not even aware the data is really from outside the SharePoint site's normal content.

4.2. Creating an External Content Type with SharePoint Designer

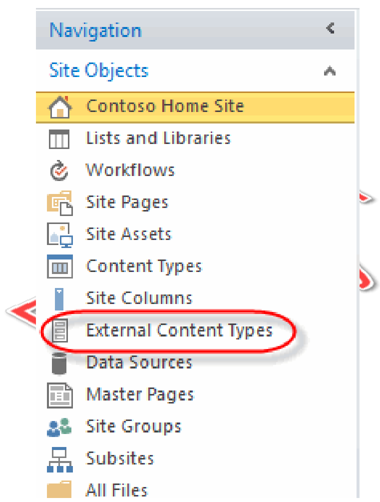
SharePoint Designer 2013 is a great tool for defining External Content Types (at the time of this writing, Microsoft was not planning on releasing a newer version of SharePoint Designer for 2016 but fully supports using the 2013 version of SharePoint Designer). Its graphical driven no-code approach makes if fairly easy to expose external data. Visual Studio is another tool that can be used to define External Content Types and has an advantage with more complex data configurations but it requires developer skills to create.

The following walk-through will show you how to use SharePoint Designer 2013 to create an External Content Type mapped to the **Employees** table from the **Northwind** SQL database.

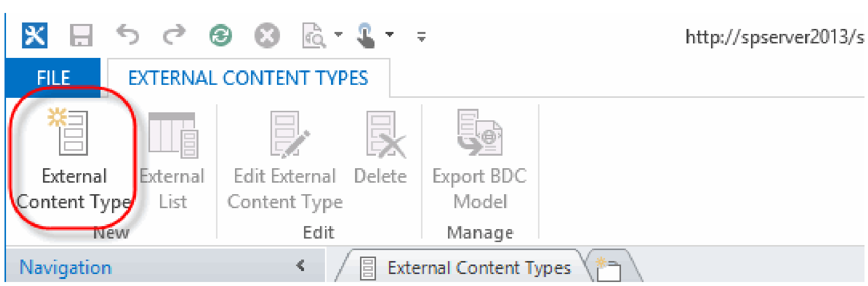
1. Open your site in SharePoint Designer.
2. Create a new External Content Type mapped to the Northwind database Employees table.

The Northwind Database
You will need access to the **Northwind** database stored on a Microsoft SQL server for this walk-through. Additionally, you will need metadata store permissions to the Business Connectivity service in your farm.

A. Click the **External Content Types** link in the **Navigation** pane of SharePoint Designer.

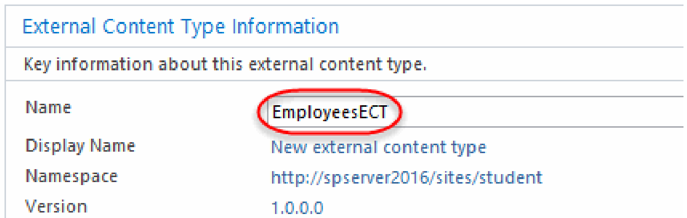


B. Click the **External Content Type** button in the **External Content Types** tab toolbar inside the **New** group.



C. Click the **New external content type** link next to the **Name** label in the **External Content Type Information** area of the **New External Content Type** tab editor.

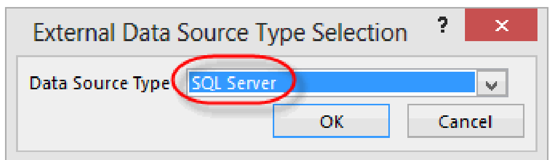
D. Type `EmployeesECT` in the **Name** field.



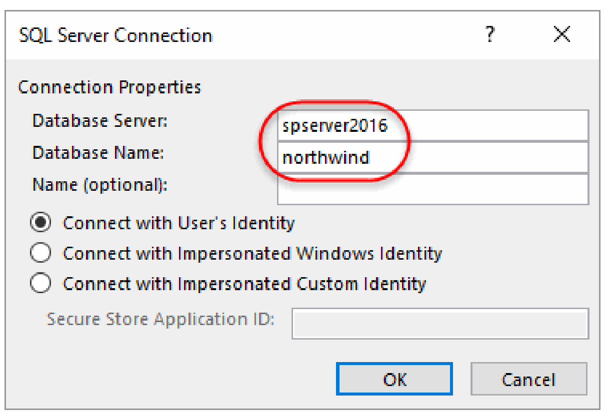
E. Click the **Click here to discover external data sources and define operations** link next to the **External System** label.

F. Click the **Add Connection** button on the **Operation Designer** editor.

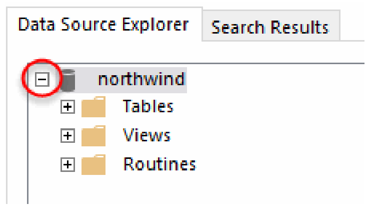
G. Select **SQL Server** in the **Data Source Type** and click the **OK** button on the **External Data Source Type Selection** dialog.



H. Type `SPServer2016` in the **Database Server** field, `northwind` in the **Database Name** field and click the **OK** button to save and close the **SQL Server Connection** dialog.

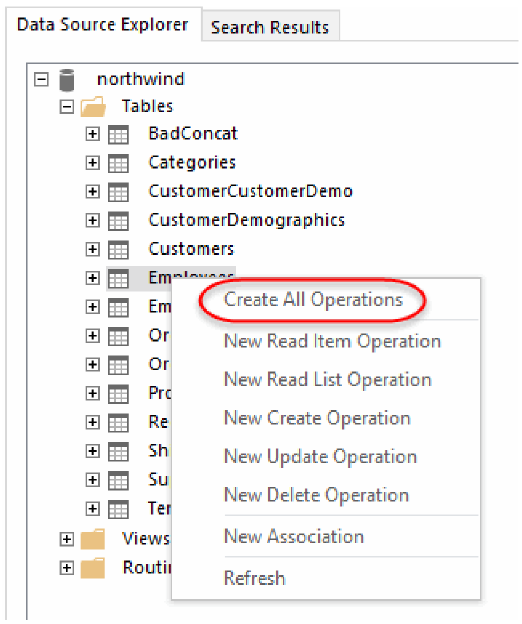


I. Expand the **northwind** database by clicking the "+" icon in the **Data Source Explorer** tab.

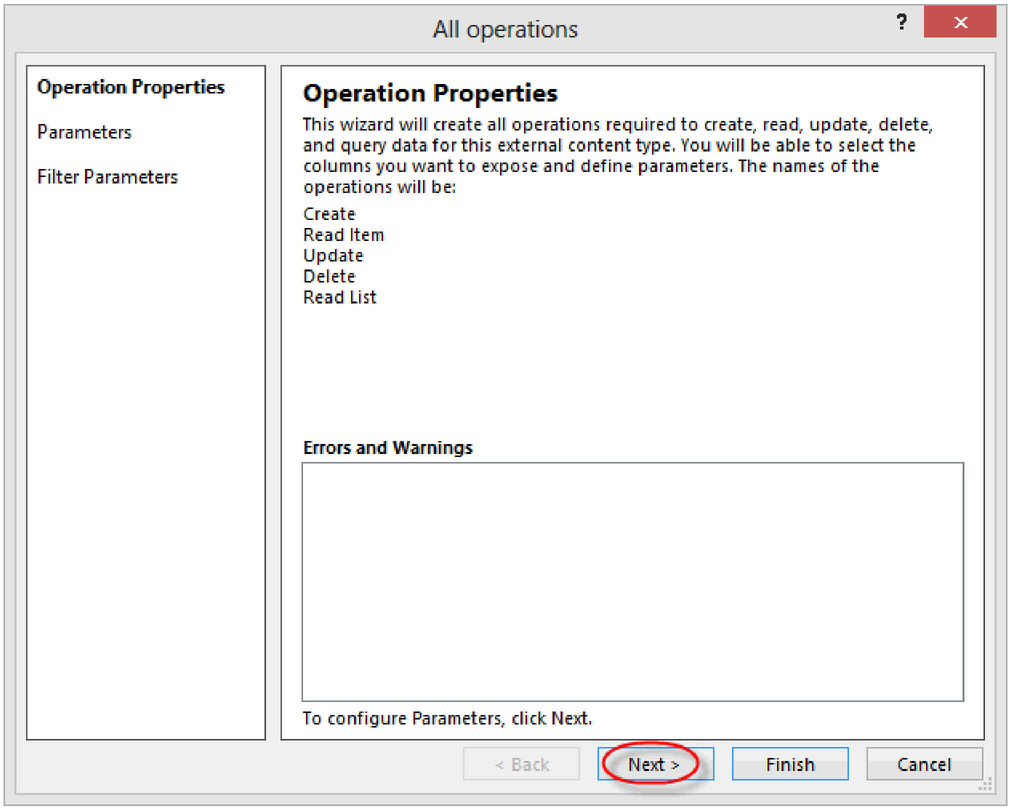


J. Click the “+” icon next to the **Tables** item in the **Data Source Explorer** tab to expand the tables list.

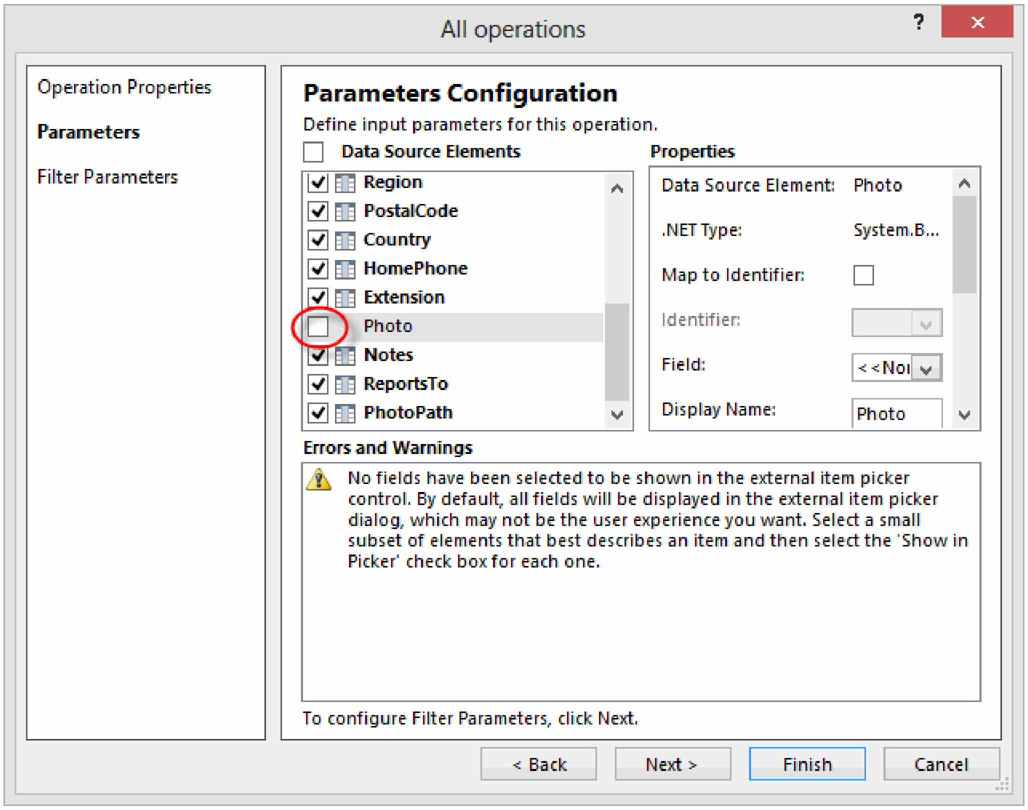
K. Right-click the **Employees** table and choose the **Create All Operations** option.



L. Click the **Next** button on the first page of the **All Operations** dialog.

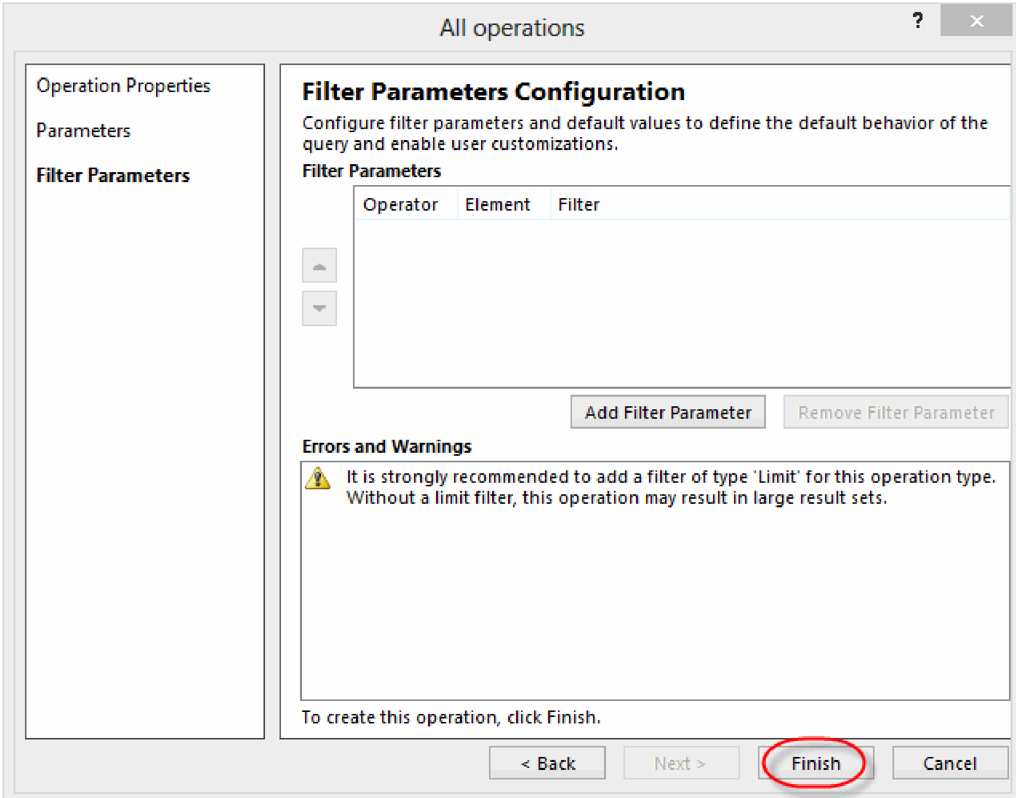


M. Uncheck the check box next to the **Photo** field in the list of the Employees table fields.

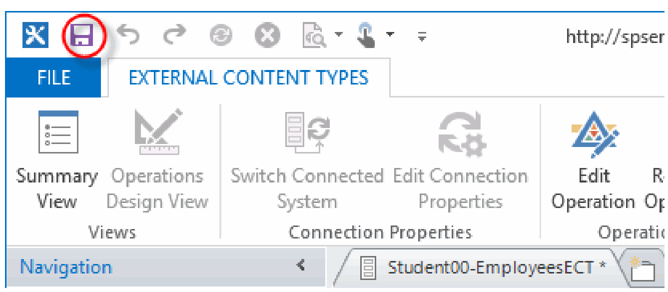


N. Click the **Next** button on the second page of the **All operations** dialog.

O. Click the **Finish** button on the last page of the **All operations** dialog.



P. Click the **Save** icon in the upper-left corner of SharePoint Designer's window to save the External Content Type to the Business Connectivity Service of the SharePoint farm.

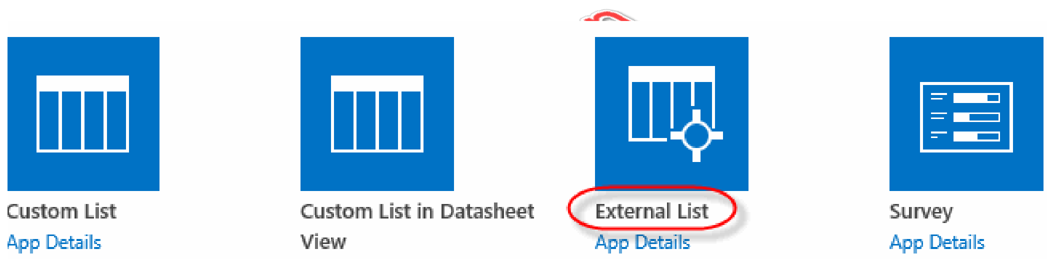


4.3. Creating a List from an External Content Type

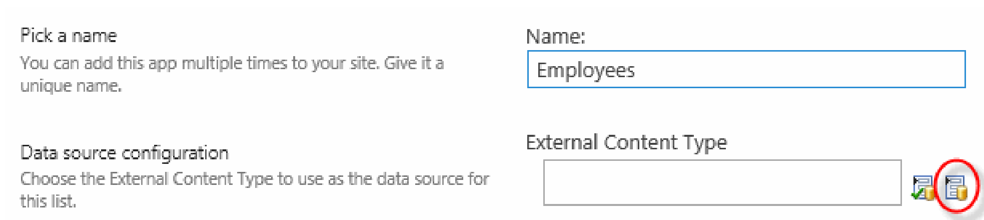
Once the External Content Type is defined the next step would be to create an External List that links to the data through the External Content Type. This can be done on any site in the Farm.

The following walk-through will show you how to create an external list named “Employees” that is linked to the External Content Type defined in the previous walk-through.

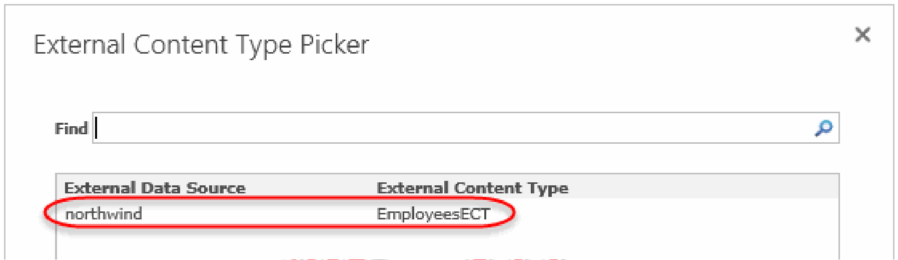
1. Switch back the browser window with your site open.
2. Create a new list named “Employees” using the **External List** template that is linked to the **EmployeesECT** External Content Type.
    A. Click the **Settings** menu link and choose the **Add an app** option.
    B. Select the **External List** template.



    C. Type `Employees` in the **Name** field.
    D. Click the **Select External Content Type** icon in the **Data source configuration** area.



    E. Choose the **EmployeesECT** and click the **OK** button.



F. Click the **Create** button to finish creating the new external list.

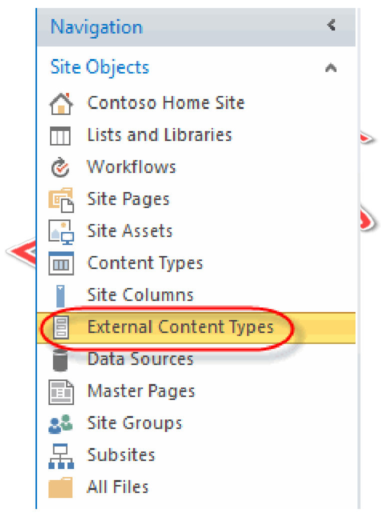
3. Click the new **Employees** link in the **Quick Launch** and verify it shows data from the Northwind database Employees table.

Exercise 7: Working with External Content Types and Lists

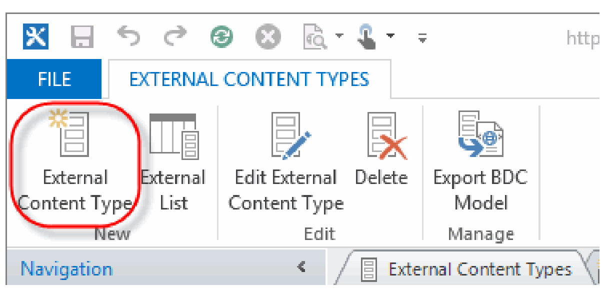
15 to 25 minutes

1. Navigate to your team site.
2. Open your site in SharePoint Designer.
3. Create a new External Content Type mapped to the Northwind database Products table.

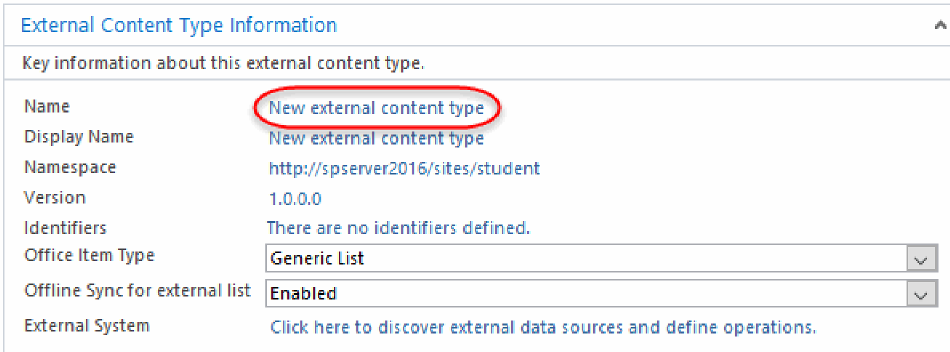
   A. Click the **External Content Types** link in the **Navigation** pane of SharePoint Designer.



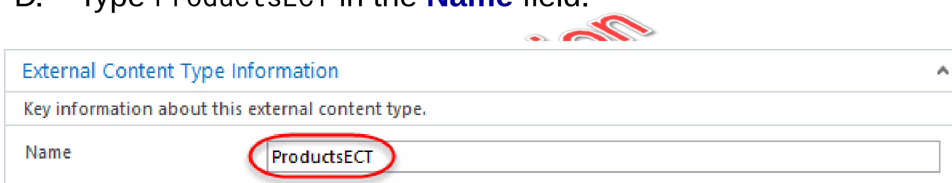
   B. Click the **External Content Type** button in the **External Content Types** tab toolbar inside the **New** group.



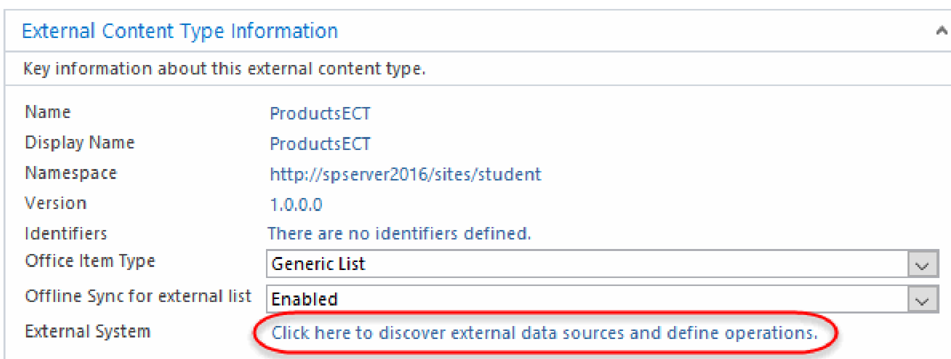
C. Click the **New external content type** link next to the **Name** label in the **External Content Type Information** area of the **New External Content Type** tab editor.



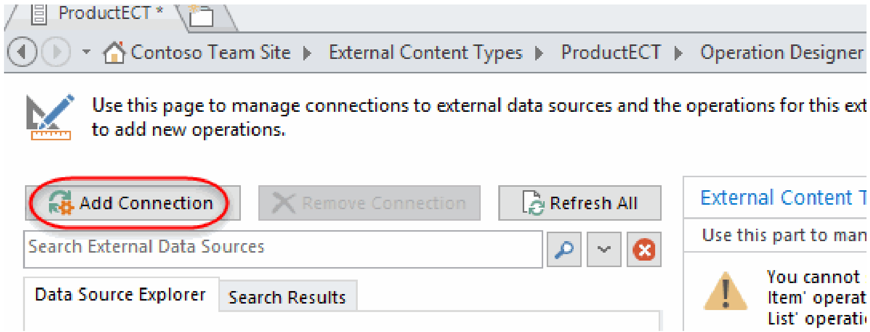
D. Type `ProductsECT` in the **Name** field.



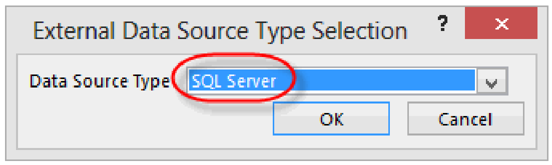
E. Click the **Click here to discover external data sources and define operations** link next to the **External System** label.



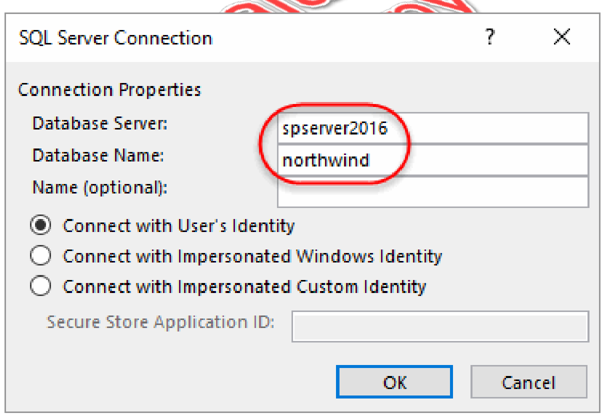
F. Click the **Add Connection** button on the **Operation Designer** editor.



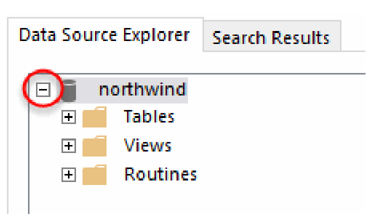
G. Select **SQL Server** in the **Data Source Type** and click the **OK** button on the **External Data Source Type Selection** dialog.



H. Type `SPServer2016` in the **Database Server** field and `Northwind` in the **Database Name** field and click the **OK** button to save and close the **SQL Server Connection** dialog.

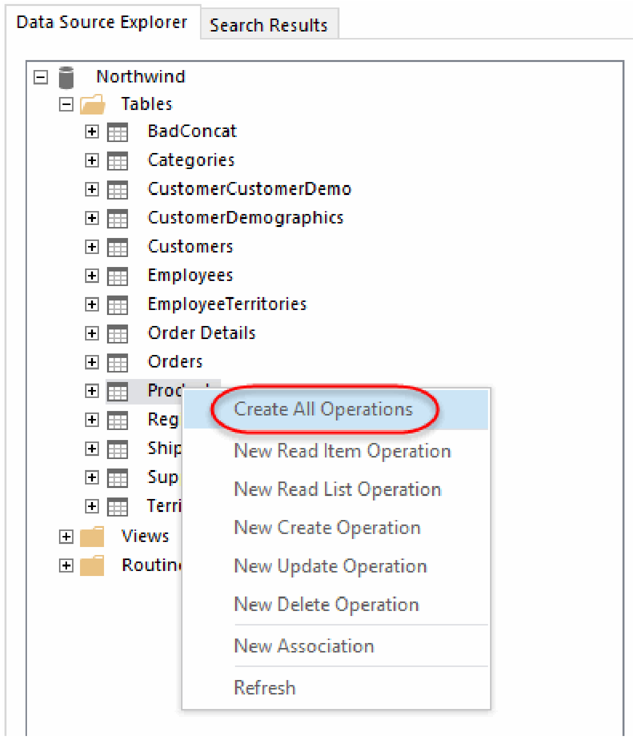


I. Expand the **northwind** database by clicking the "+" icon in the **Data Source Explorer** tab.

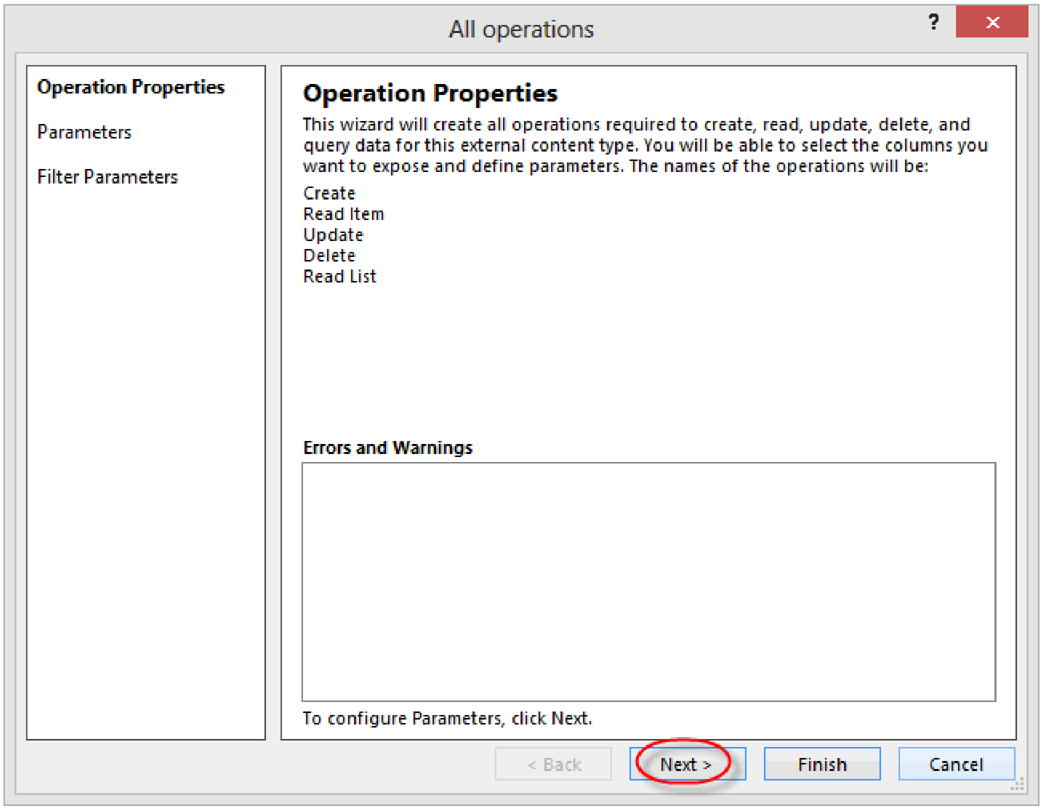


J. Click the “+” icon next to the **Tables** item in the **Data Source Explorer** tab to expand the tables list.

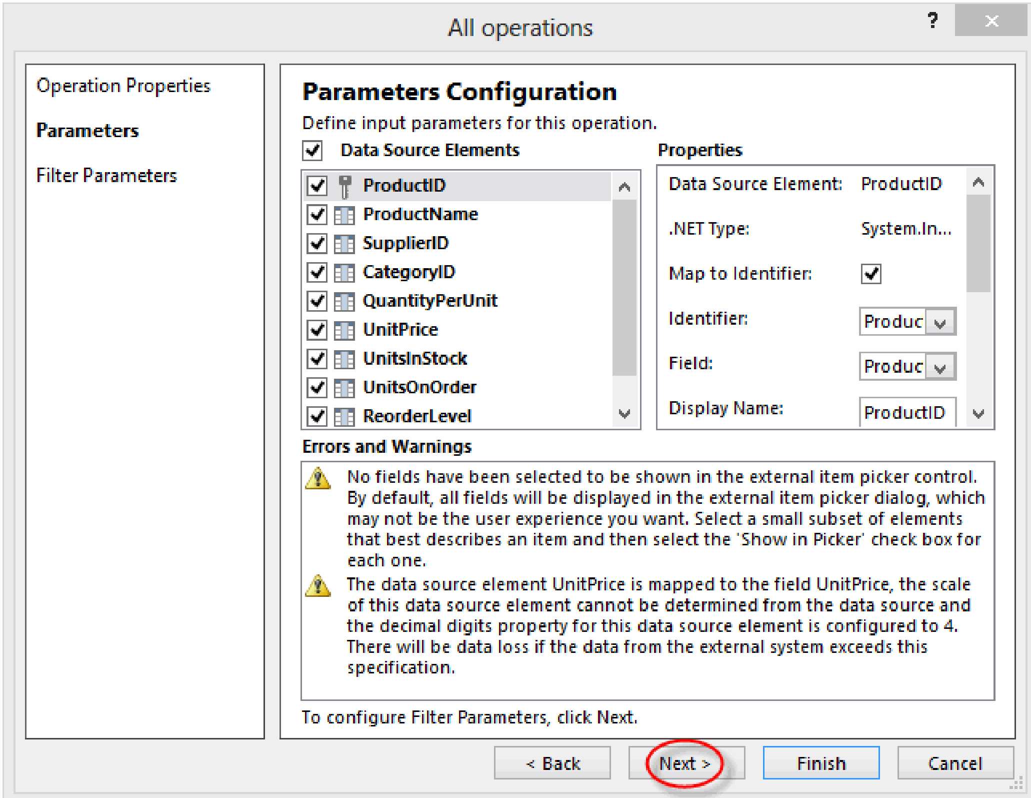
K. Right-click the **Products** table and choose the **Create All Operations** option.



L. Click the **Next** button on the first page of the **All operations** dialog.

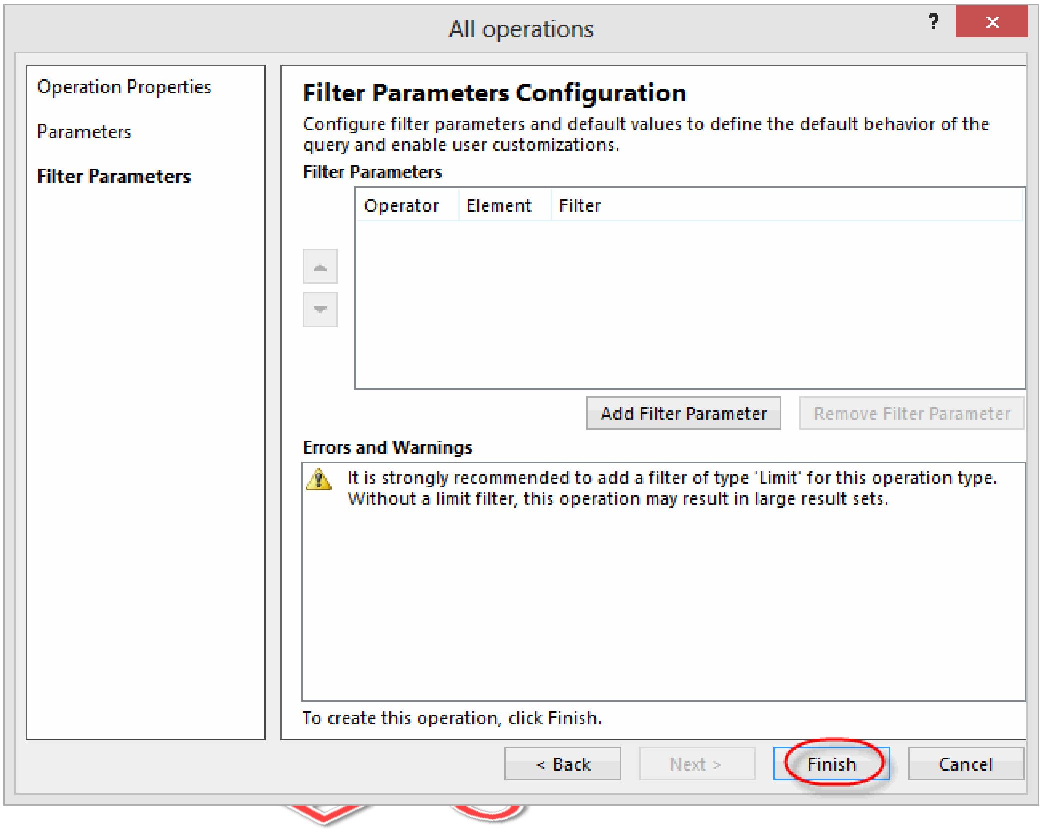


M. Click the **Next** button on the second page of the **All operations** dialog.

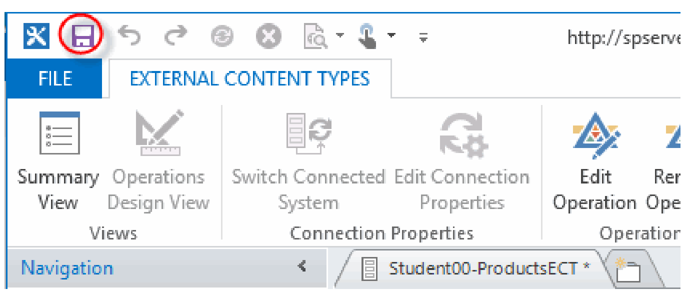


You can use this page to remove fields you don't want to expose through SharePoint. Additionally, you can set properties of each field such as the **Display Name**, which is used to create labels for displaying the data.

N. Click the **Finish** button on the last page of the **All operations** dialog.

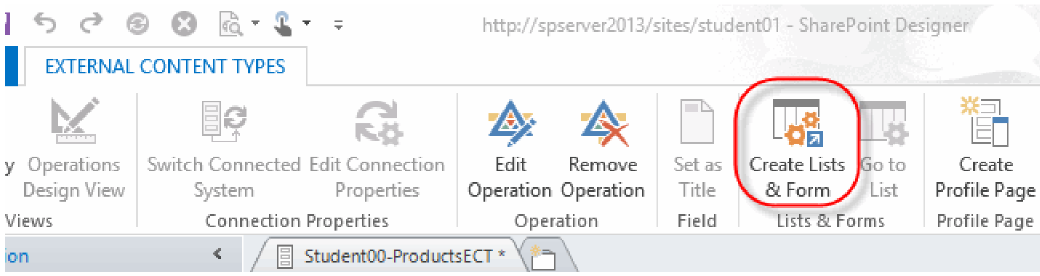


O. Click the **Save** icon in the upper-left corner of SharePoint Designer's window to save the External Content Type to the Business Connectivity Service of the SharePoint farm.



4. Create a new SharePoint list from the **<<your name goes here>>-ProductECT** content type.

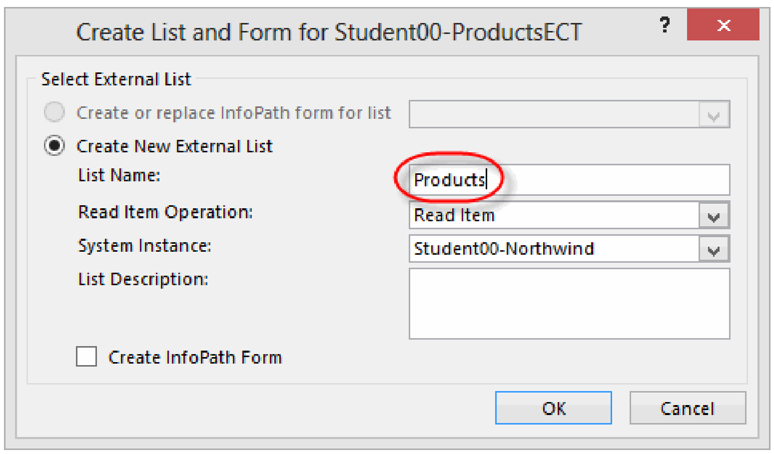
   A. Click the **Create Lists & Form** button on the **External Content Types** tab toolbar.



Note

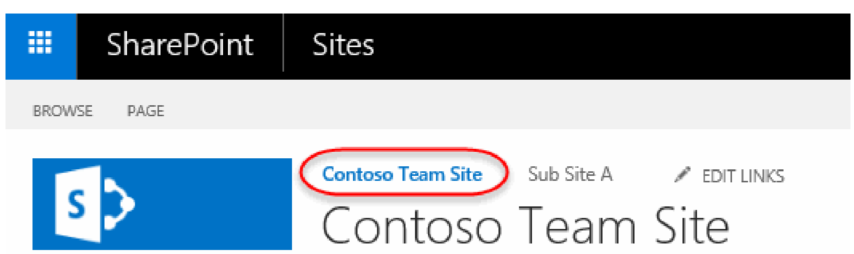
You can also create the **External List** using the browser as was done in the walk-though earlier in this lesson.

B. Type `Products` in the **List Name** field and click the **OK** button.

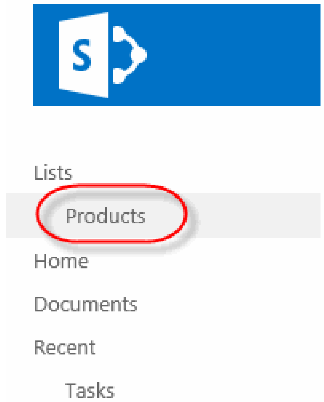


5. Open the **Products** list in the browser and edit an item.

   A. Switch back to your browser window and click the **Contoso Home Site** link to refresh the page so the **Products** link will show in the **Quick Launch**.



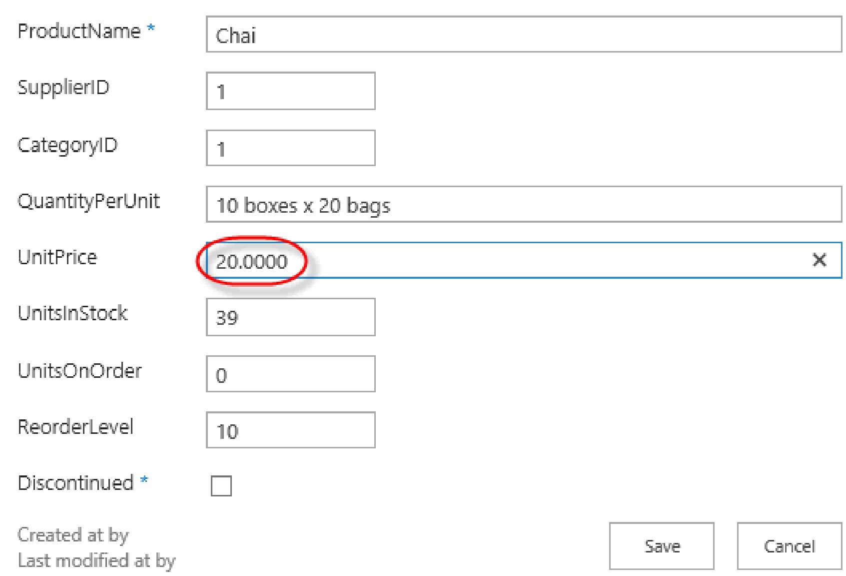
B. Click the **Products** link in the site's **Quick Launch** menu.



C. Verify the **Products** list shows the data from the Northwind database Products table.

D. Click the ellipsis link to the right of the first **Products** item with the **ProductID** of "1" and choose **Edit Item** from the drop-down options.

E. Change the **UnitPrice** field to "20.0000" and click the **Save** button.



F. Verify the **Products** item shows “20.0000” for the **UnitPrice** field back in the main view of all items.

ProductID		ProductName	SupplierID	CategoryID	QuantityPerUnit	UnitPrice
1	•••	Chai	1	1	10 boxes x 20 bags	20.0000
2	•••	Chang	1	1	24 - 12 oz bottles	19.0000

6. Close SharePoint Designer.

Conclusion

In this lesson, you learned:

- The basics of Business Connectivity Services.
- How to create an External Connection using SharePoint Designer.
- How to create an External Content Type using SharePoint Designer.
- How to define database operations using SharePoint Designer.
- How to create a list using the External List template.
- How to create an External List using SharePoint Designer.

LESSON 5
Information Management Policy

Topics Covered

☑ The basics of Information Management Policy.

☑ Configuring an Information Management Policy for a Content Type.

☑ Defining Information Management Policy stages.

☑ Configuring an Information Management Policy for a list/library.

Introduction

In this lesson, you will learn the basics of Information Management Policy, how to configure an Information Management Policy for a Content Type, how to define Information Management Policy stages, and how to configure an Information Management Policy for a list/library.

5.1. Information Management Policy Basics

SharePoint's Information Management Policies are used to perform various automated actions on list and library items based on date properties. The built-in time formula can be based on either the date the item was created, modified, or declared record. The following is a list of actions that can be launched when the chosen time period elapses:

- Move to Recycle Bin
- Permanently Delete
- Transfer to another location (only works if a "send to" location has been defined for the web application in Central Administration)
- Start a workflow
- Skip to next stage
- Declare record
- Delete previous drafts

- Delete all previous versions

The same action can be set to reoccur at a set interval and/or multiple stages can be created to perform different actions for the created, modified, or declared record states of an item.

If you have developers in your organization, the Information Management Policy system supports custom retention formulas to go beyond the created, modified, and declared record date properties.

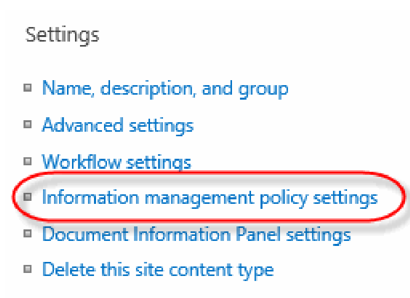
Information Management Policies can be defined with a content type. The content type policy can be overridden with a policy defined in a list/library.

5.2. Define and Information Policy for a Content Type

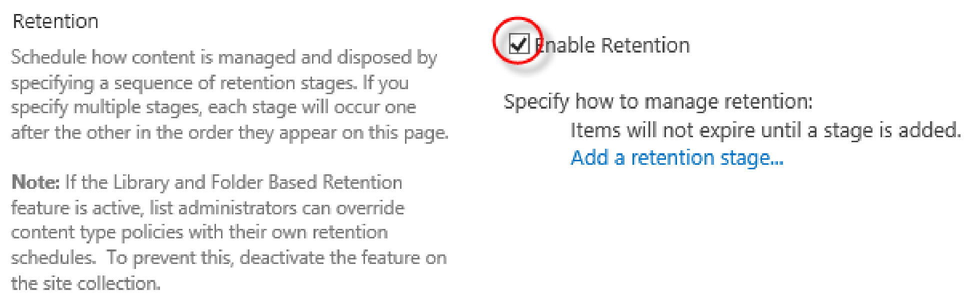
Defining an Information Management Policy for a content type enables the policy to be applied to items based on the content type no matter what list or library they exist in.

The following walk-through will show you how to create a new content type and define an Information Management Policy for it.

1. Open our browser and navigate to your team site.
2. Create a new content type named “Policy Demo” based on the **Document** type.
   A. Click the **Settings** menu drop-down and choose the **Site Settings** option.
   B. Click the **Site content types** link under the **Web Designer Galleries** group.
   C. Click the **Create** link at the top of the **Site Content Types** gallery page.
   D. Type `Policy Demo` in the **Name** field.
   E. Select **Document Content Types** in the **Select parent content type** from drop-down field.
   F. Select **Document** in the **Parent Content Type** drop-down field.
   G. Click the **OK** button to complete creating the new content type.
3. Define a Document Information Policy that removes old versions of documents one day after the document has been modified.
   A. Click the **Information management policy settings** link in the **Settings** area.

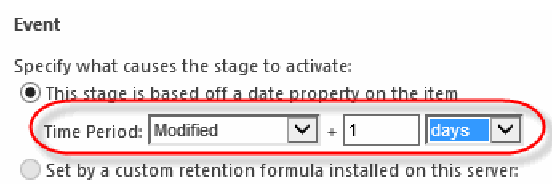


B. Check the **Enable Retention** check box.



C. Click the **Add a retention stage…** link under the **Enable Retention** check box.

D. Select **Modified + 1 days** for the **Time Period** fields.



E. Select **Delete all previous versions** in the **Action** drop-down field.

F. Click the **OK** button to save the **Stage properties**.

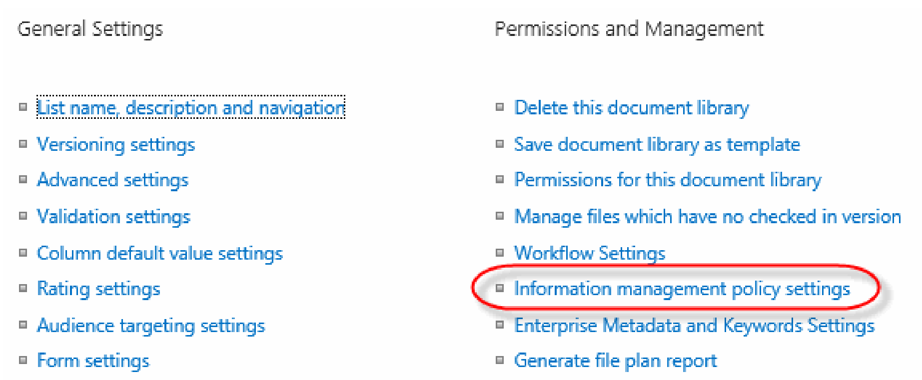
G. Click the **OK** button to save the policy setting to the content type.

5.3. Defining Information Policy for a List

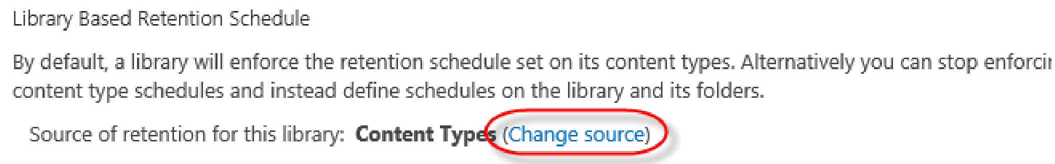
By default, SharePoint lists and libraries will use the Information Management Policy defined in the content type of an item. Optionally, you can set a list or library to have its own Information Management Policy that will override any policies defined by a content type.

The following walk-through will show you how to create a new document library and define an Information Management Policy for it.

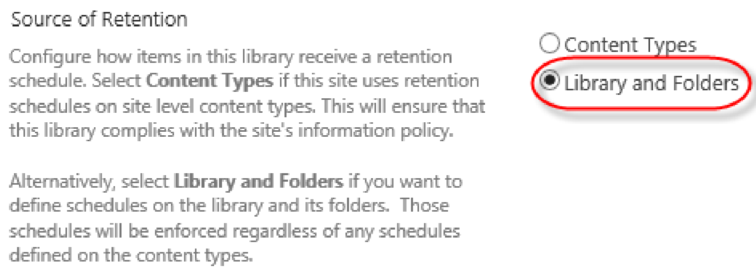
1. Create a new document library named “Managed Docs Demo”.
   A. Click the **Settings** menu and choose the **Add an app** option.
   B. Click the **Document Library** link in the list of templates.
   C. Type `Managed Docs Demo` in the **Name** field.
   D. Click the **Create** button to finish creating the new document library.
2. Define an Information Management Policy for the **Managed Docs Demo** library.
   A. Click the new **Managed Docs Demo** library link in the **Quick Launch** menu.
   B. Click the **Library Settings** button on the **LIBRARY** tab toolbar.
   C. Click the **Information management policy settings** link under the **Permissions and Management** group.



   D. Click the **Change Source** link on the **Information Management Policy Settings** page.

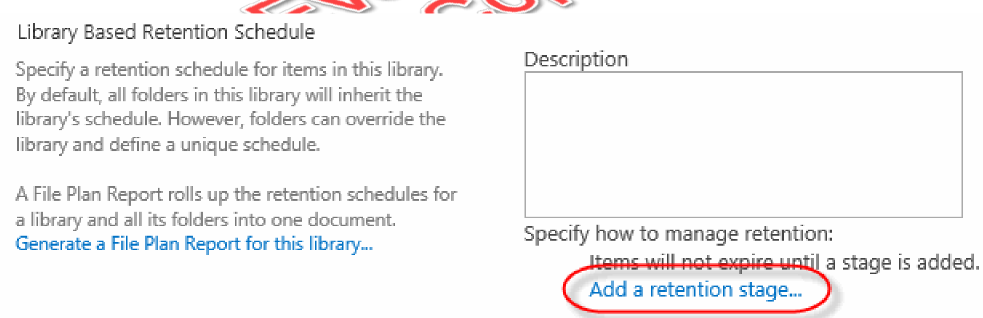


E. Click the **Library and Folders** radio button to change the **Source of Retention**.

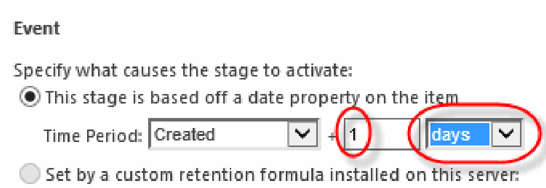


F. Click the **OK** button on the **Message from web page** dialog warning you about content type retention schedules being ignored.

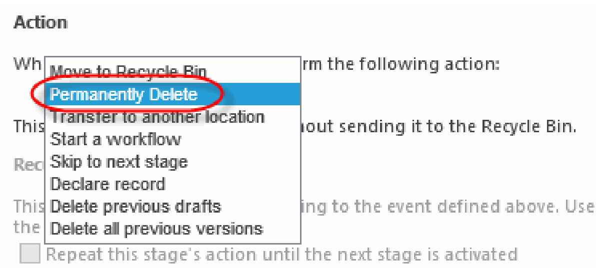
G. Click the **Add a retention stage...** link in the **Library Based Retention Schedule** area.



H. Type “1” in the **Amount of time** field and change the **Unit of time** field to **days**.



I. Change the **Retention Action** field to **Permanently Delete**.



J. Click the **OK** button to save the stage property settings.

K. Click the **OK** button to save the retention schedule for the library.

Note
Due to the shortest duration being one day, you cannot verify the Information Management Policy works as part of the walk-through. If you will have access to a SharePoint server for at least the next 24 hours, you can create or upload a new document into the library and verify it is deleted after the duration period has elapsed.

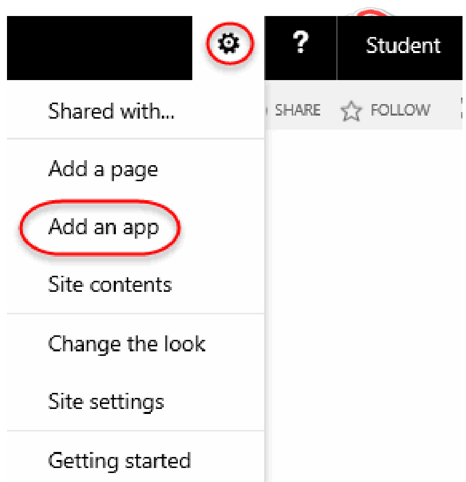
Exercise 8: Create an Information Management Policy for a List

10 to 15 minutes

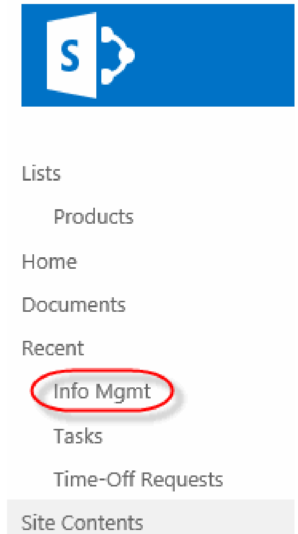
Note

The Information Management policy settings only come with the pay versions of SharePoint so this exercise will not work with SharePoint Foundation.

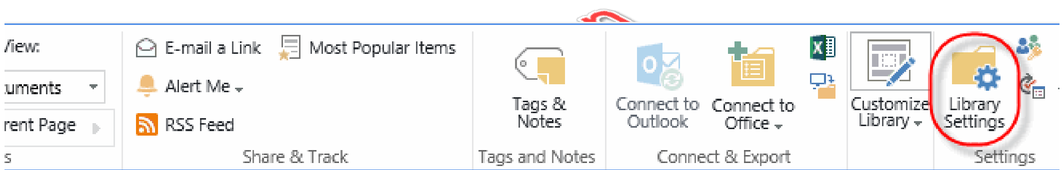
1. Navigate to your team site.
2. Create a new document library named "Info Mgmt" to use for this exercise.
   A. Click the **Settings** menu and select the **Add an app** link from the drop-down of choices.



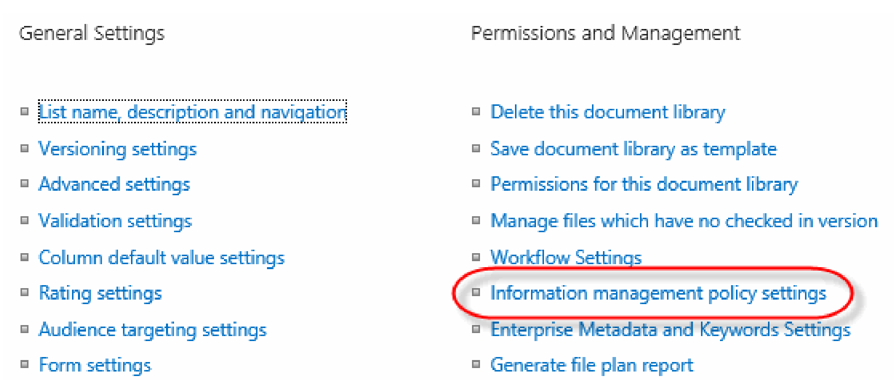
   B. Click the **Document Library** link in the list of templates.
   C. In the **Adding Document Library** dialog form that opens, type "Info Mgmt" in the **Name** field.
   D. Click the **Create** button to complete creating the library.
3. Create an Information Management Policy setting for the **Info Mgmt** library that permanently deletes documents after one day.
   A. Click the new **Info Mgmt** library link in the **Quick Launch** menu.



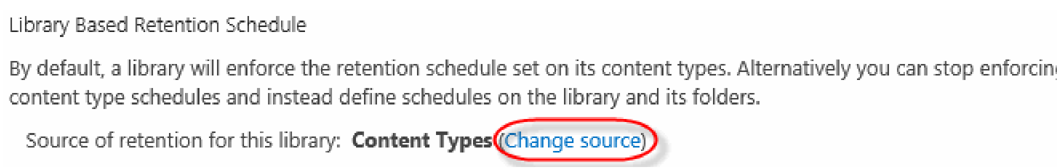
B. Click the **Library Settings** button on the **LIBRARY** tab toolbar.



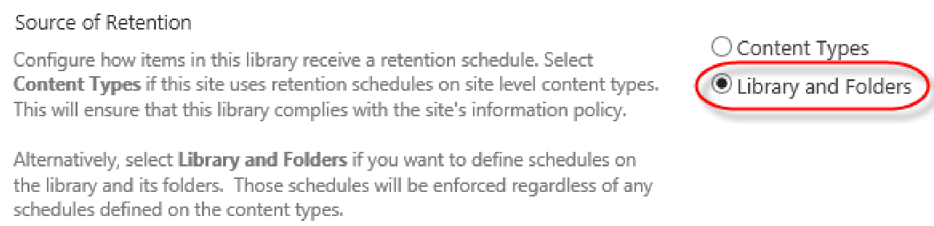
C. Click the **Information management policy settings** link under the **Permissions and Management** group of the **Settings** page.



D. Click the **Change Source** link on the **Information Management Policy Settings** page.

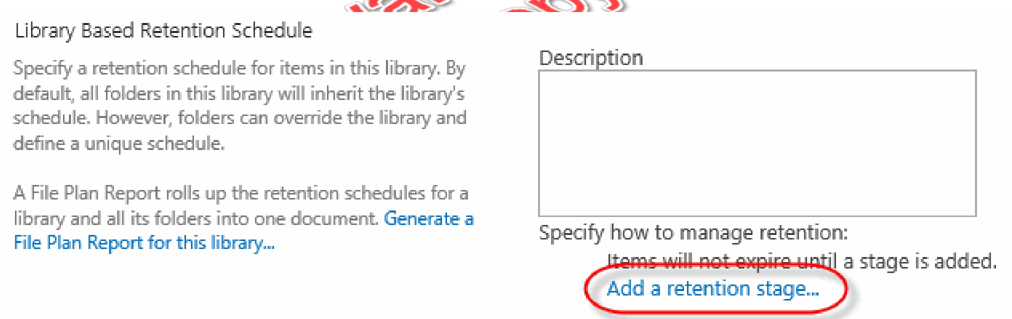


E. Click the **Library and Folders** radio button to change the **Source of Retention**.

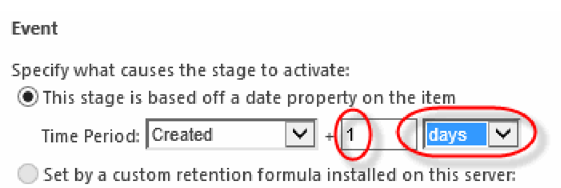


F. Click the **OK** button on the **Message from web page** dialog warning you about content type retention schedules being ignored.

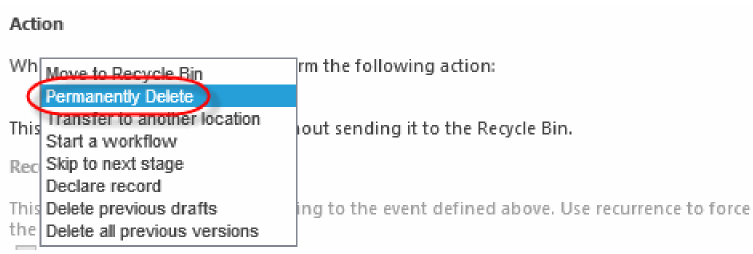
G. Click the **Add a retention stage...** link in the **Library Based Retention Schedule** area.



H. Type "1" in the **Amount of time** field and change the **Unit of time** field to **days**.



I. Change the **Retention Action** field to **Permanently Delete**.



J. Click the **OK** button to save the stage property settings.

K. Click the **OK** button to save the retention schedule for the library.

Note
Due to the shortest duration being one day, you cannot verify the Information Management Policy works as part of the lab. If you will have access to your SharePoint server for at least the next 24 hours, you can create or upload a new document into the library and verify it is deleted after the duration period has elapsed.

Conclusion

In this lesson, you learned:

- The basics of Information Management Policy.
- How to configure an Information Management Policy for a Content Type.
- How to define Information Management Policy stages.
- How to configure an Information Management Policy for a list/library.

LESSON 6
Content Organizer

Topics Covered

☑ Activating the Content Organizer site feature.

☑ Modifying the Content Organizer Settings.

☑ Creating the Content Organizer rules.

Introduction

Content organizer is a SharePoint feature, which only comes with the pay versions of SharePoint, that provides document routing from a drop-off library. The feature is enabled at the site level and the drop-off library is created as part of the feature activation. Once the drop-off library is created, you can define rules that route documents placed in the drop-off library to their final destination.

6.1. Activating the Content Organizer Feature

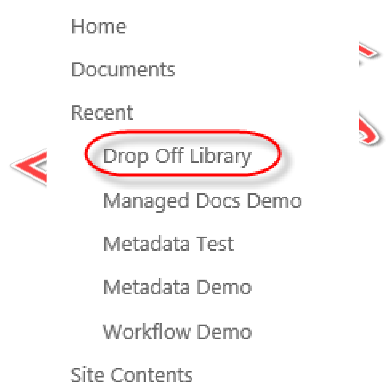
The following walk-through will show you how to activate the Content Organizer Feature for a site.

Note
The Content Organizer feature only comes with the pay versions of SharePoint so this walk-through will not work on a SharePoint Foundation installation.

1. Open our browser and navigate to your team site.
2. Activate the Content Organizer feature for your site.
    A. Click the **Settings** menu button and choose the **Site settings** option.
    B. Click the **Manage Site Features** link in the **Site Actions** group of the **Settings** page.

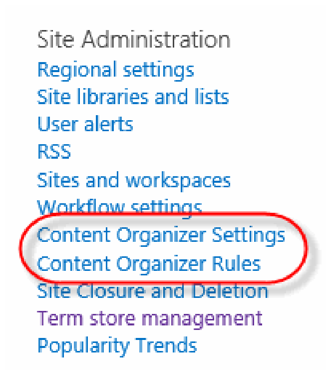
C. Click the **Activate** button for the **Content Organizer** feature.

D. Verify the **Content Organizer** feature is active and that there is a new library named **Drop Off Library** in the site's **Quick Launch** menu.

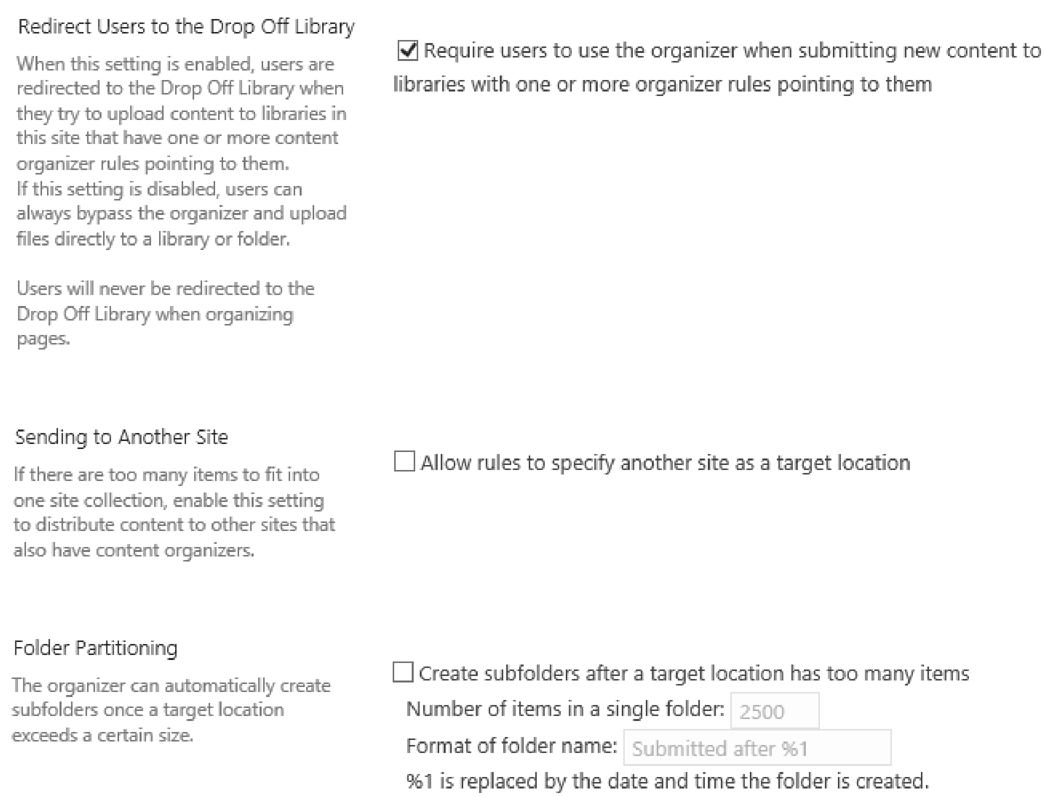


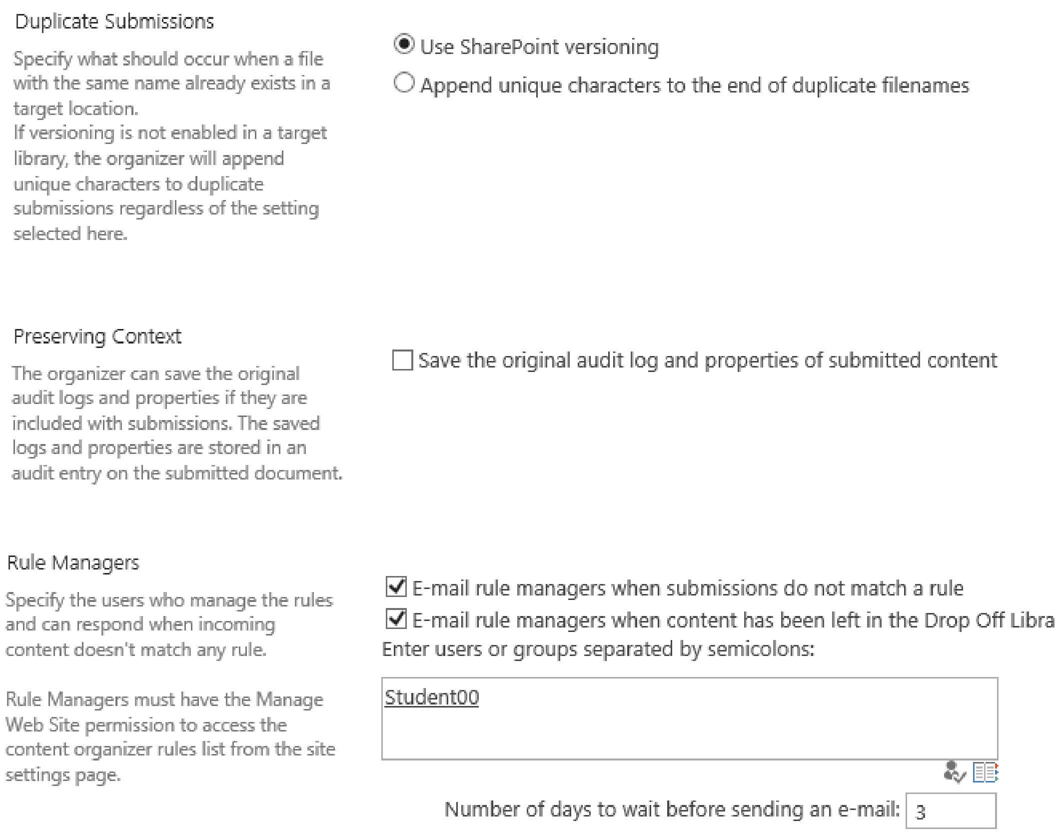
6.2. Configuring Content Organizer Settings

In addition to creating the **Drop Off Library**, activating the **Content Organizer** feature adds two new links under the **Site Administration** group on the **Settings** page. These links can be used to configure the basic settings of the Content Organizer feature as well as the rules that are applied to the **Drop Off Library**.



The following screen captures show the setting choices found through the **Content Organizer Settings** link.





6.3. Configuring Content Organizer Rules

Content Organizer rules are based on properties defined in content types. Creating custom content types with custom fields will provide the most flexibility when creating Content Organizer rules.

The following walk-through will show you how to create a Content Organizer rule based on the **Title** property of the **Document** content type. If the file name of a document placed in the **Drop Off Library** has the text “Project-X” in it, the Content Organizer will automatically move it to a library named “Project -X Docs”. In the exercise later in this lesson, you will go further and create a custom content type with a custom field to use for defining a Content Organizer rule.

1. Create a new document library named “Project-X Docs” in your site.
   - A. Click the **Settings** menu and choose the **Add an app** option.
   - B. Click the **Document Library** template link.

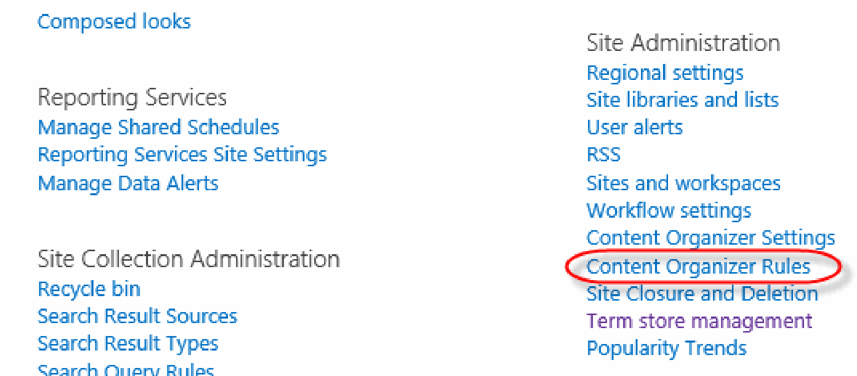
C. Type `Project-X Docs` in the **Name** field.

D. Click the **Create** button to finish creating the new document library.

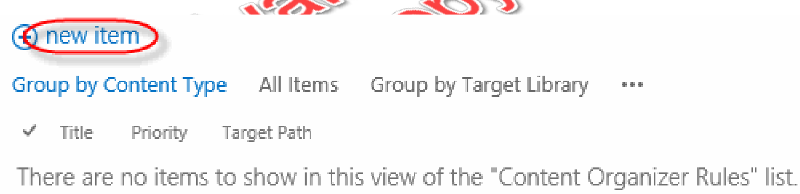
2. Create a Content Organizer rule that routes **Document** content types that contain the text “Project-X” in their file name to the **Project-X Docs** library.

   A. Click the **Settings** menu and choose the **Site settings** option.

   B. Click the **Content Organizer Rules** link under the **Site Administration** group of the **Settings** page.

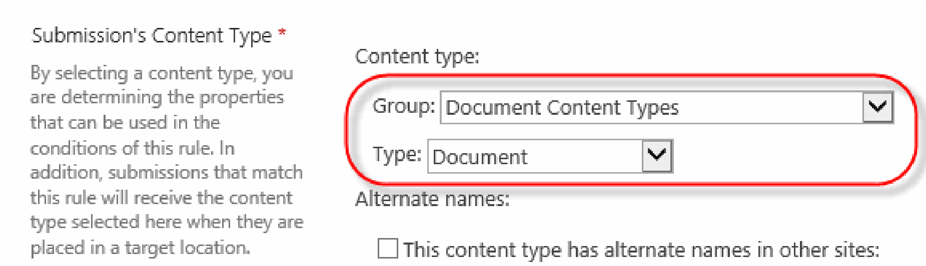


   C. Click the **new item** link.

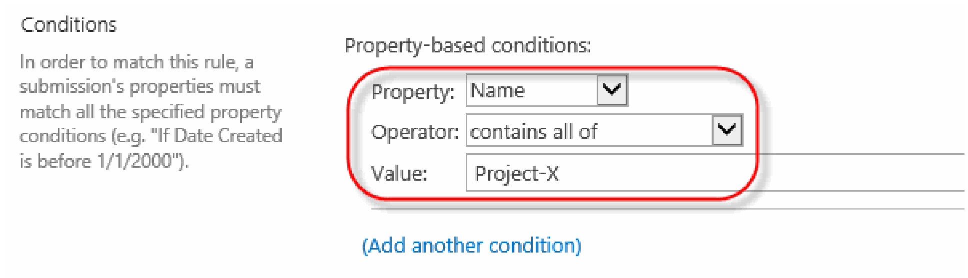


   D. Type `Project-X Rule` in the **Name** field.

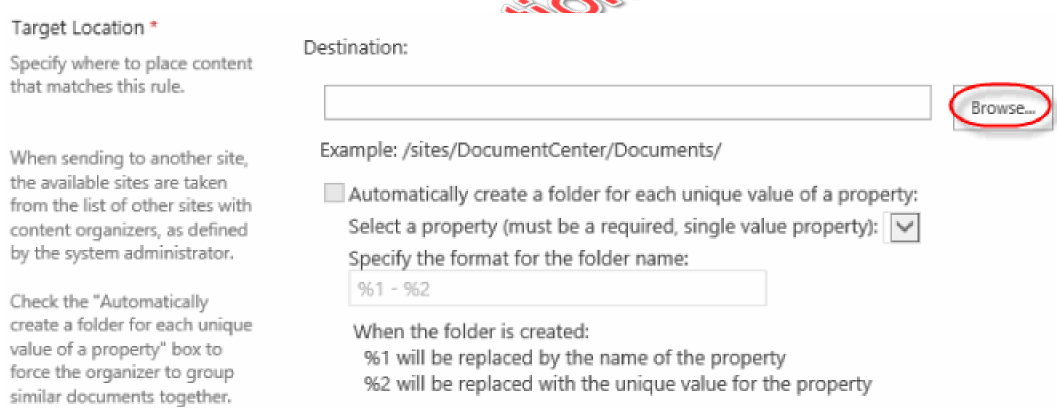
   E. Choose **Document Content Types** for the **Group** field and **Document** for the **Type** field in the **Content type** area.



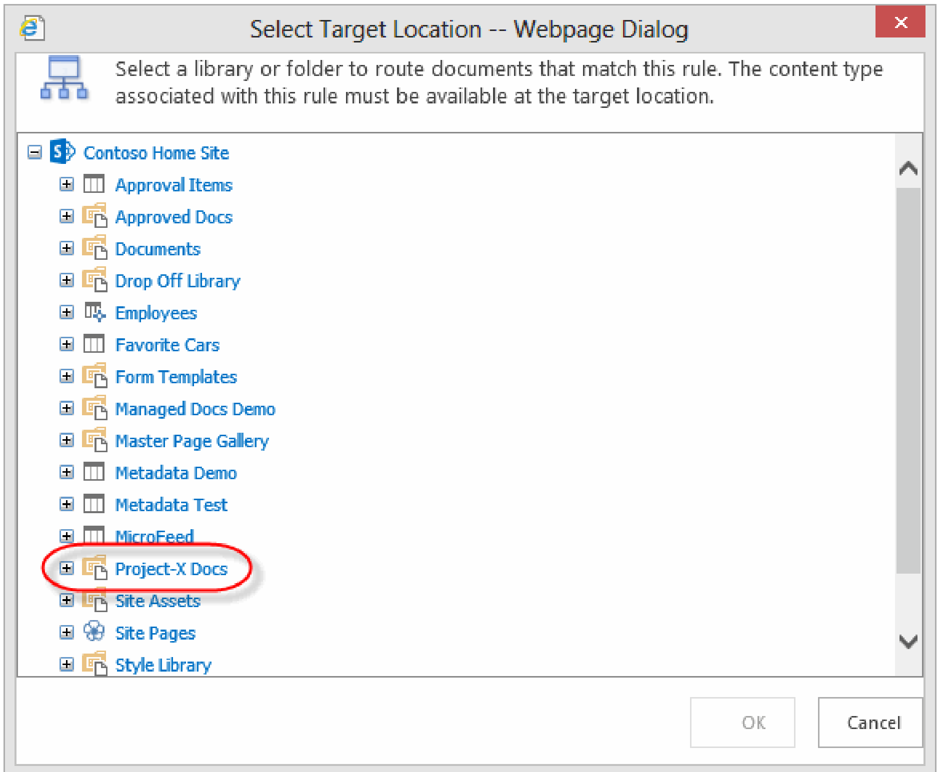
   F. Choose **Name** for the **Property** field and **contains all of** for the **Operator** field and type `Project-X` in the **Value** field in the **Conditions** area.



G. Click the **Browse…** button next to the **Destination** field in the **Target Location** area.



H. Select **Project-X Docs** from the list in the **Select Target Location** dialog and click the **OK** button to save the setting.



I. Click the **OK** button to save the rule.

3. Test the Content Organizer rule by creating a new Word document in the **Drop Off Library** with the title of “Project-X Ideas”.

   A. Click the **Drop Off Library** link in the **Quick Launch** menu.

   B. Click the **New Document** button link on the **FILES** tab toolbar.

   C. Type `Testing the Document Organizer feature` in the body of the Word document.

   D. Click the **Save** icon in the upper-left corner of the Word window.

   E. Click the **DropOffLibrary** library link under **Other Web Locations** option on the Word **Save As** page.

   F. Type `Project-X Information` in the **File name** field and click **Save**.

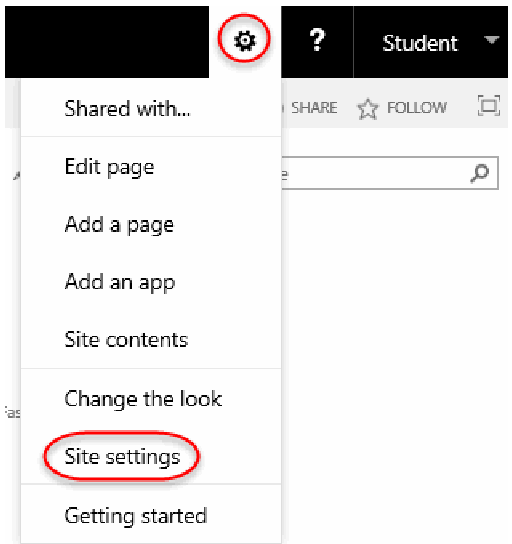
   G. Close Microsoft Word.

   H. Verify the document has been routed to the **Project-X Docs** library.

Exercise 9: Activating and Configuring the Content Organizer Feature

15 to 25 minutes

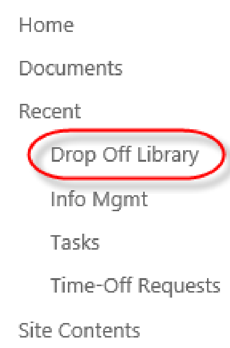
1. Navigate to your team site.
2. Activate the Content Organizer feature for the site.
   A. Click **Settings** and then choose **Site Settings** from the options menu.



   B. Click the **Manage Site Features** link in the **Site Actions** group of the **Settings** page.

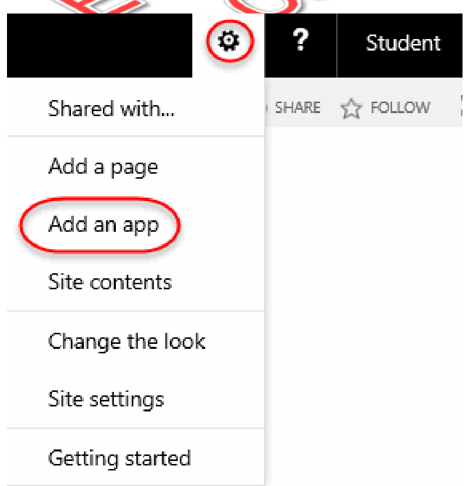
   C. Click the **Activate** button for the **Content Organizer** feature.

D. Verify the **Content Organizer** feature is active and that there is a new library named **Drop Off Library** in the site's **Quick Launch** menu.

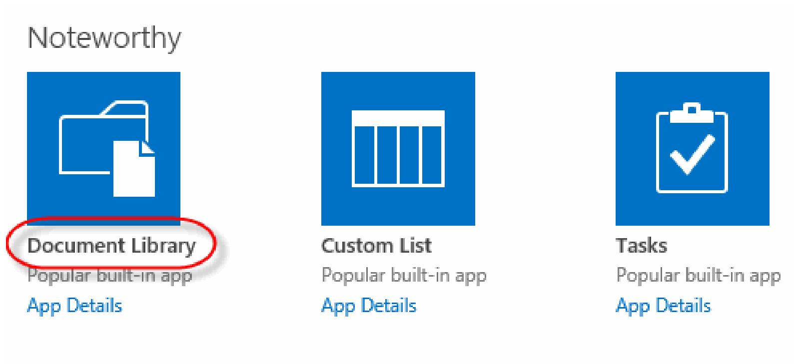


3. Create two new Document Libraries to be used as targets for Content Organizer rules.

   A. Click the **Settings** menu and select the **Add an app** link from the drop-down of choices.



   B. Click the **Document Library** template link.



C. In the **Adding Document Library** dialog form that opens, type `Sales Docs` in the **Name** field.

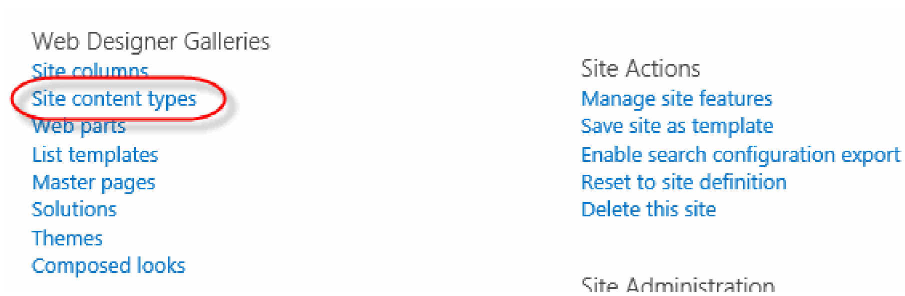
D. Click the **Create** button to complete creating the library.

E. Repeat the previous steps to create a second Document Library named `Marketing Docs`.

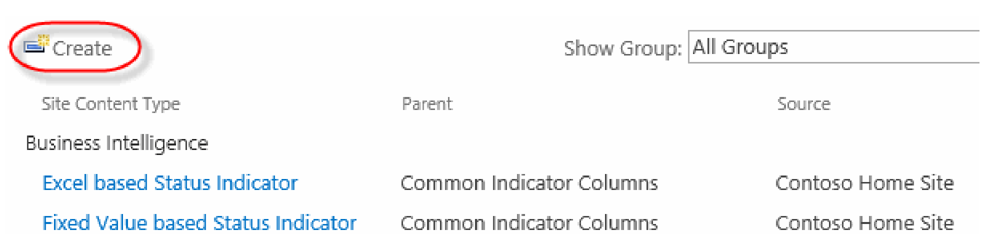
4. Create a new Content Type named "Department Memos" that inherits the Document Content Type and adds a new site column named "Contoso Department".

   A. Click the **Settings** menu and then choose the **Site settings** option.

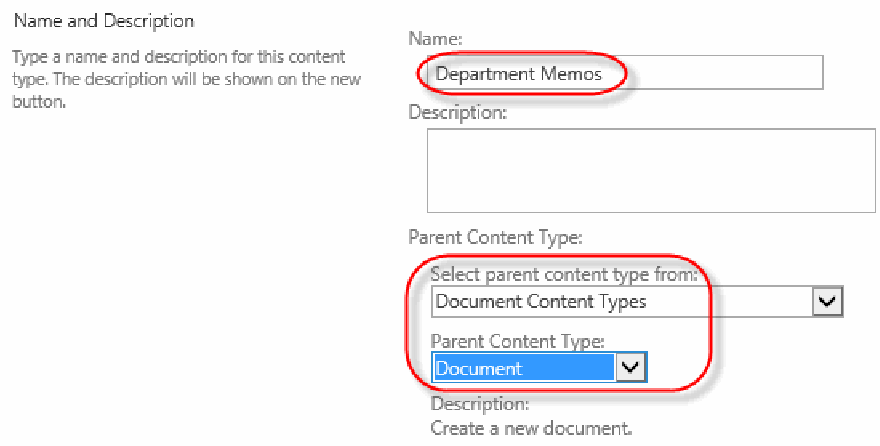
   B. Click the **Site content types** link from the **Web Designer Galleries** group on the **Site Settings** page.



   C. Click the **Create** link at the top of the **Site Content Types** page.

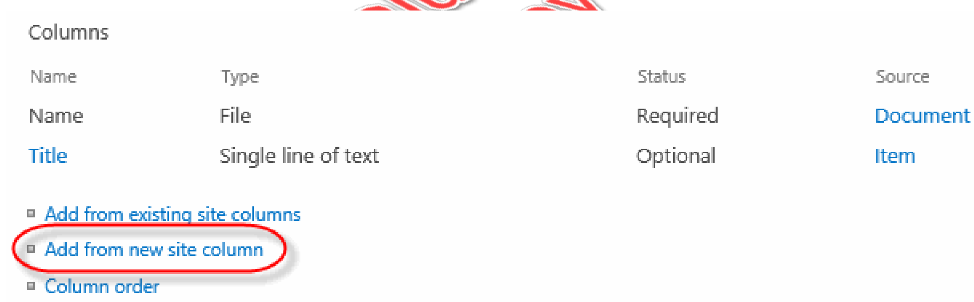


D. Type `Department Memos` in the **Name** field, choose **Document Content Types** in the **Select parent content type from** field and choose **Document** in the **Parent Content Type** field.

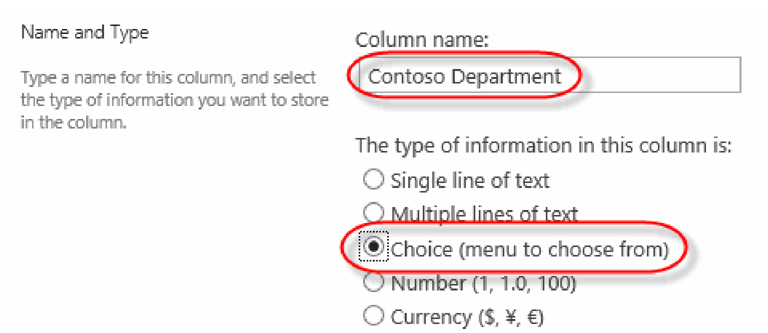


E. Click the **OK** button at the bottom of the form to save the new content type.

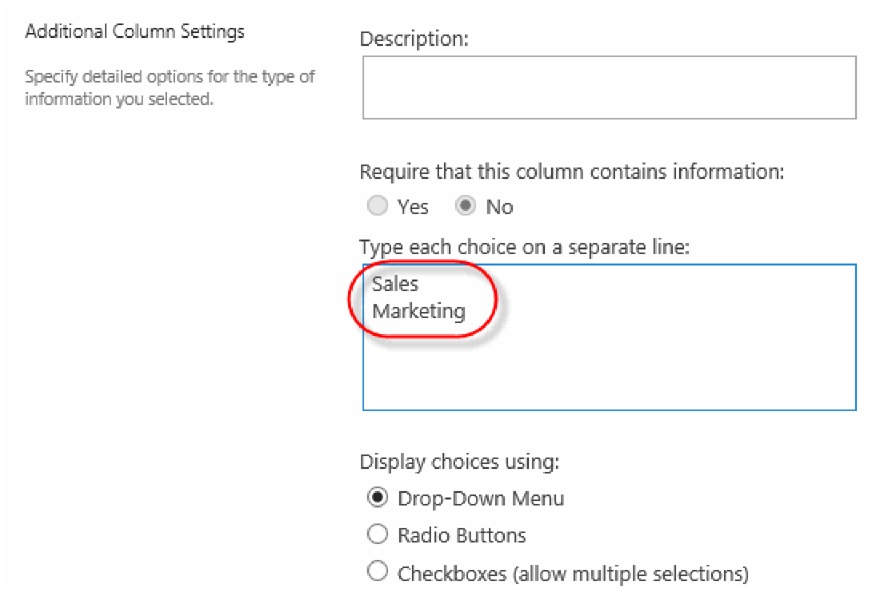
F. Click the **Add from new site column** link in the settings page of the new content type.



G. Type `Contoso Department` in the **Column name** field and choose the **Choice (menu to choose from)** radio button for the data type.



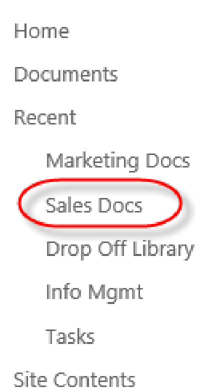
H. Type `Sales` and `Marketing` on separate lines in the choices field under the **Additional Column Settings** group.



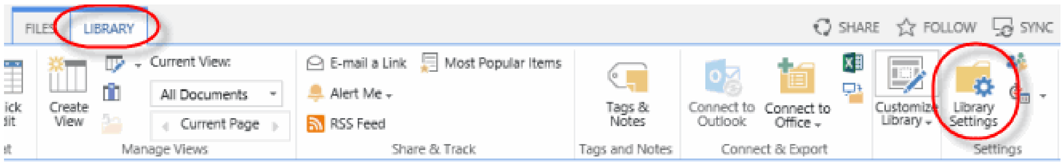
I. Leave the rest of the site column settings at their default values and click the **OK** button to save the new site column.

5. Add the new **Department Memos** content type to both the **Sales Docs** and **Marketing Docs** libraries.

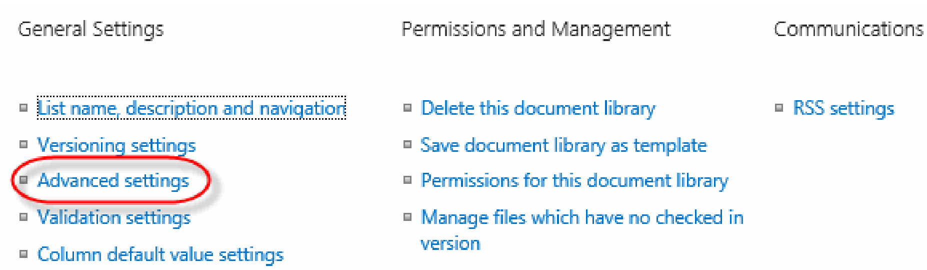
A. Click the **Sales Docs** link in the site's **Quick Launch** menu.



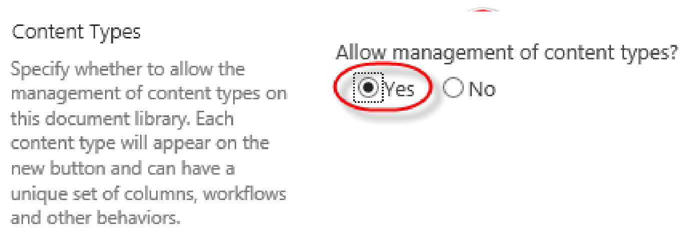
B. Click the **Library Settings** button on the **LIBRARY** tab toolbar.



C. Click the **Advanced settings** link under the **General Settings** group of the **Site Settings** page.

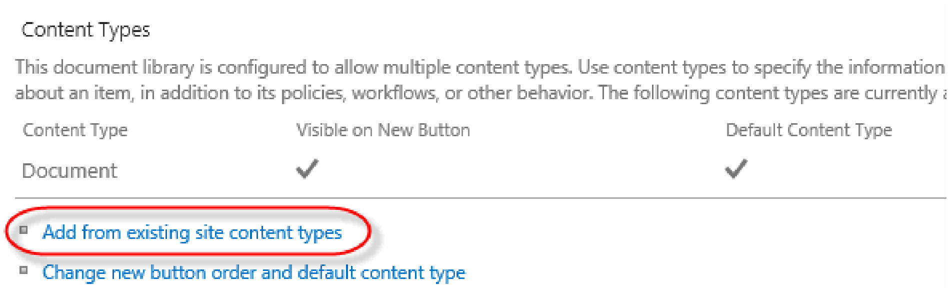


D. Click the **Yes** radio button option under the label **Allow management of content types**.

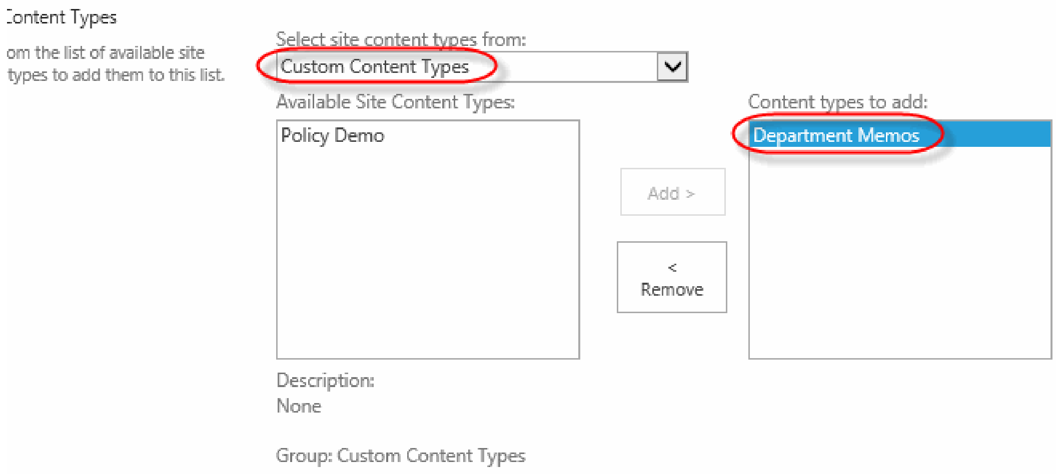


E. Click the **OK** button to save the settings.

F. Click the **Add from existing site content types** link in the **Content Types** area of the **Library Settings** page.



G. Select **Custom Content Types** in the **Select site content types from** drop-down menu and click the **Add** button to add the **Department Memos** content type to the **Content types to add** list box.



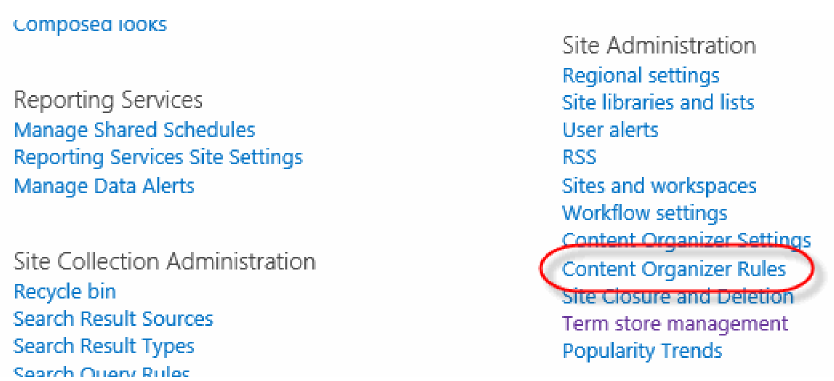
H. Click the **OK** button to save the setting.

I. Repeat the previous steps to add the **Department Memos** content type to the **Marketing Docs** library.

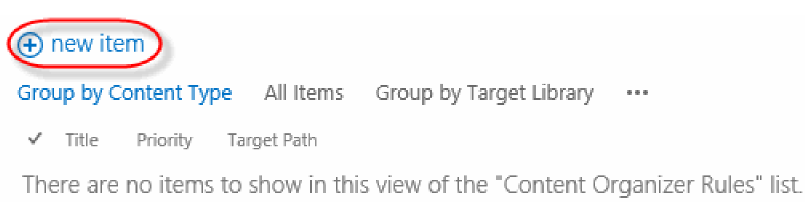
6. Create new **Content Organizer Rules** to move documents placed in the **Drop Off Library** into either the **Sales Docs** or **Marketing Docs** library based on the **Department Memos** content type's **Contoso Department** column value.

A. Click the **Settings** menu and then choose the **Site settings** option.

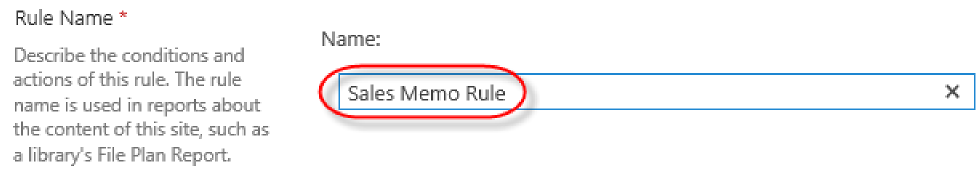
B. Click the **Content Organizer Rules** link under the **Site Administration** group of the **Site Settings** page.



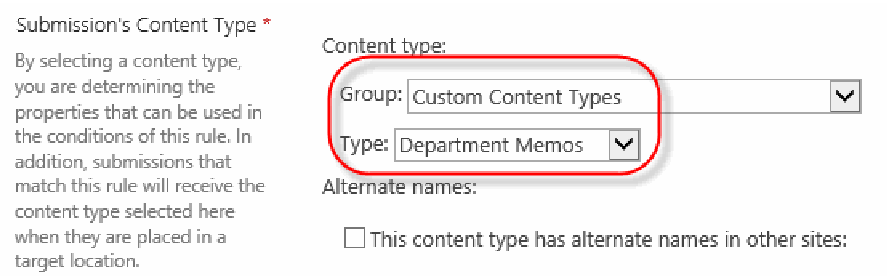
C. Click the **new item** link.



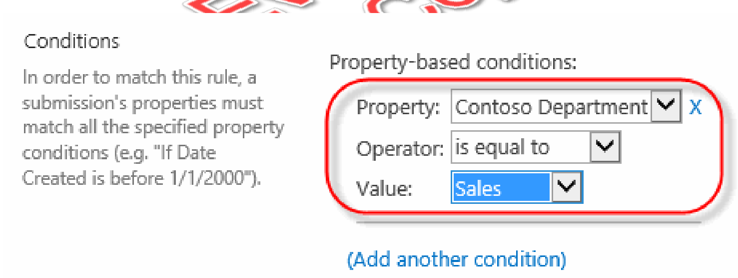
D. Type `Sales Memo Rule` in the **Name** field.



E. Select **Custom Content Types** in the **Group** field and **Department Memos** in the **Type** field under the **Submission's Content Type** area.

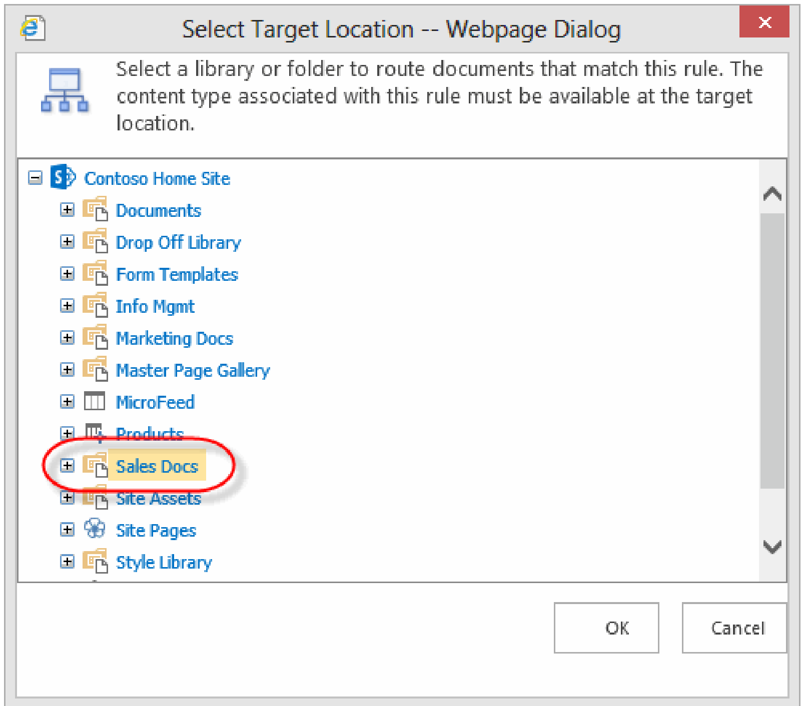


F. Select **Contoso Department** in the **Property** field and **Sales** in the **Value** field under **Conditions** area.



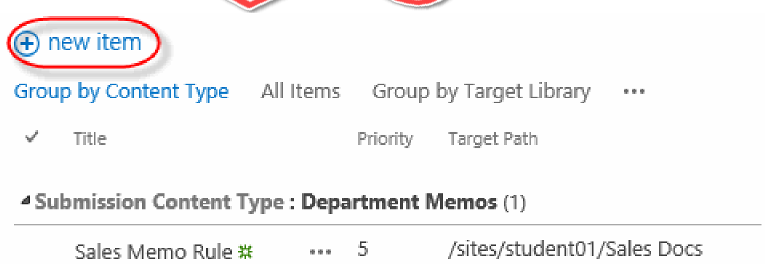
G. Click the **Browse…** button next to the **Destination** field in the **Target Location** area.

H. Select **Sales Docs** from the list in the **Select Target Location** dialog and click the **OK** button to save the setting.



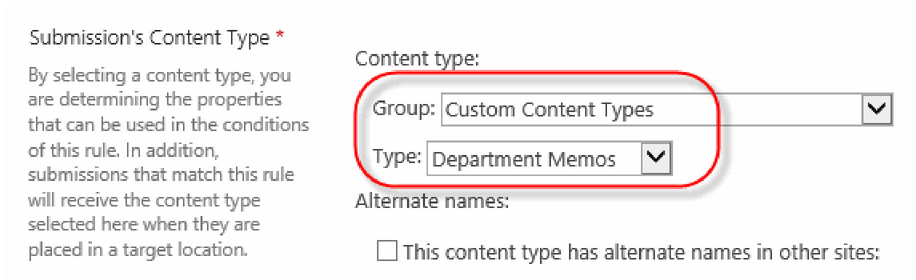
I. Click the **OK** button to save the new rule.

J. Click the **new item** link.

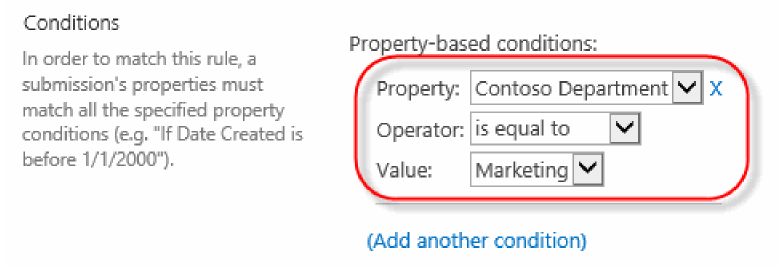


K. Type `Marketing Memo Rule` in the **Name** field.

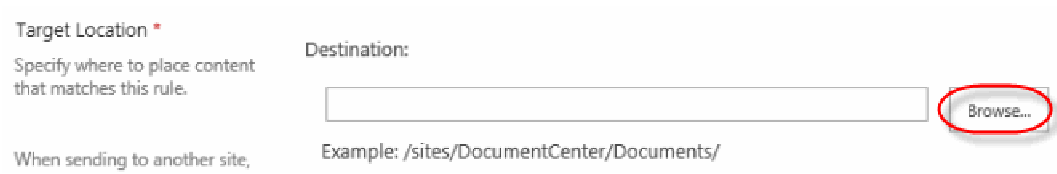
L. Select **Custom Content Types** in the **Group** field and **Department Memos** in the **Type** field under the **Submission's Content Type** area.



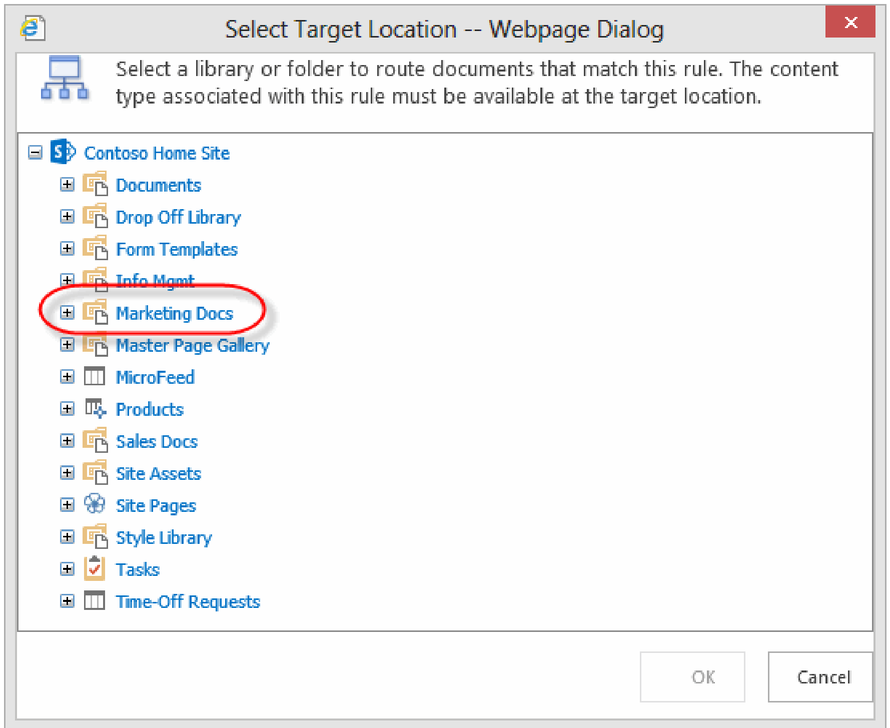
M. Select **Contoso Department** in the **Property** field and **Marketing** in the **Value** field under **Conditions** area.



N. Click the **Browse…** button next to the **Destination** field in the **Target Location** area.



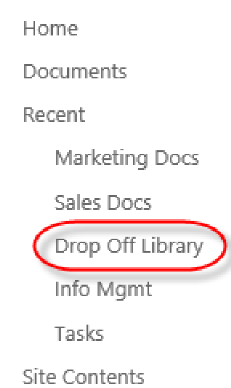
O. Select **Marketing Docs** from the list in the **Select Target Location** dialog and click the **OK** button to save the setting.



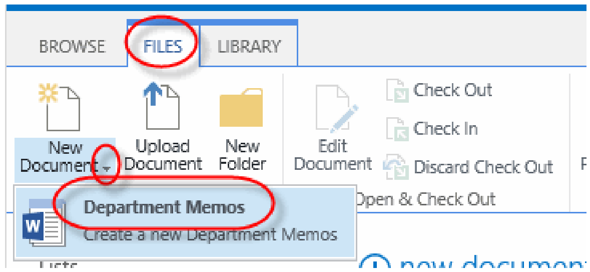
P. Click the **OK** button to save the new rule.

7. Test the Content Organizer rules by creating two **Department Memo** documents in the **Drop Off Library** and setting the **Contoso Department** field and verifying they are automatically moved to the appropriate document library.

   A. Click the **Drop Off Library** link in the site's **Quick Launch** menu.

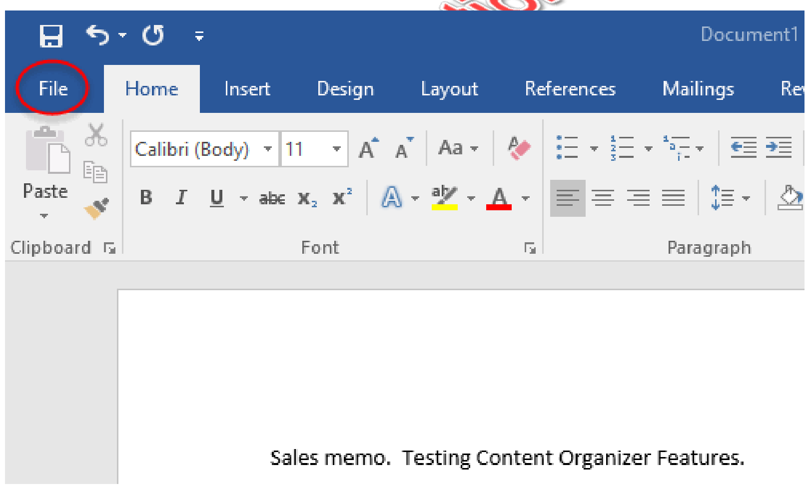


   B. Click the **FILES** tab to open the toolbar and click the **New Document** drop-down and choose the **Department Memos** option.

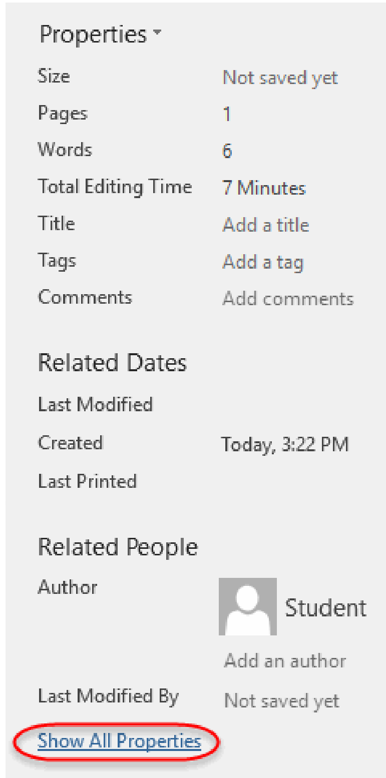


C. Type `Sales memo. Testing Content Organizer Feature.` In the body of the document.

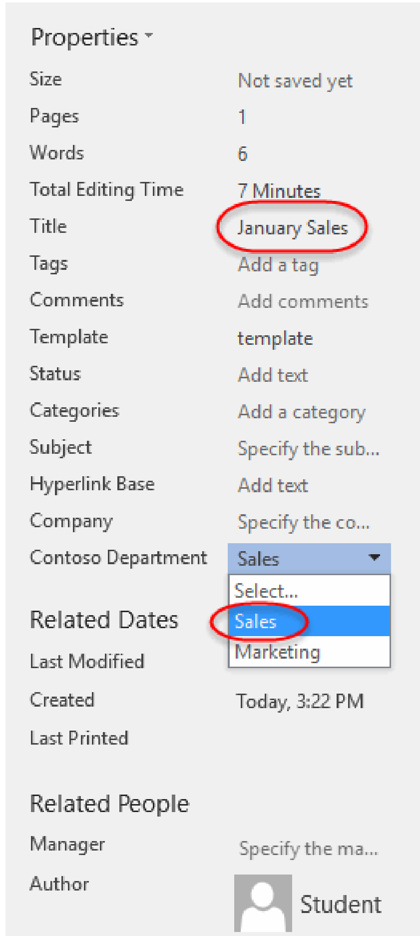
D. Click the **File** tab in the upper left corner of the Microsoft Word window.



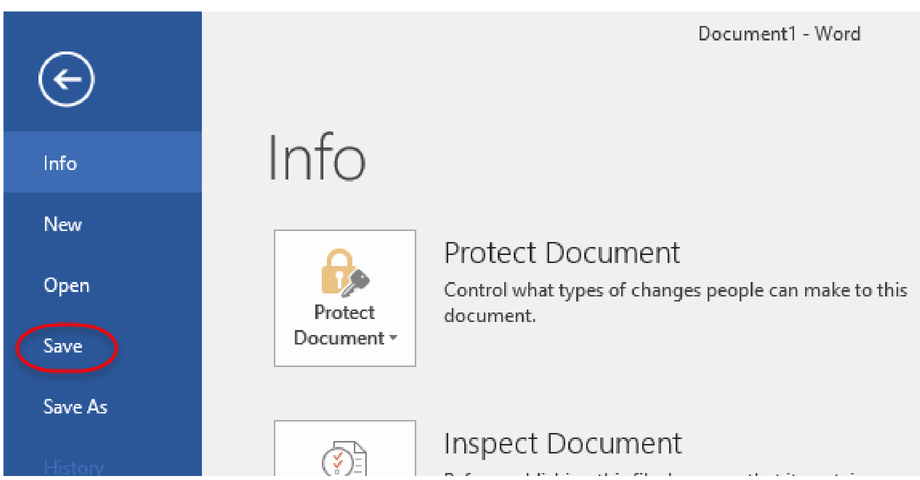
E. Click the **Show All Properties** link in the **Properties** section.



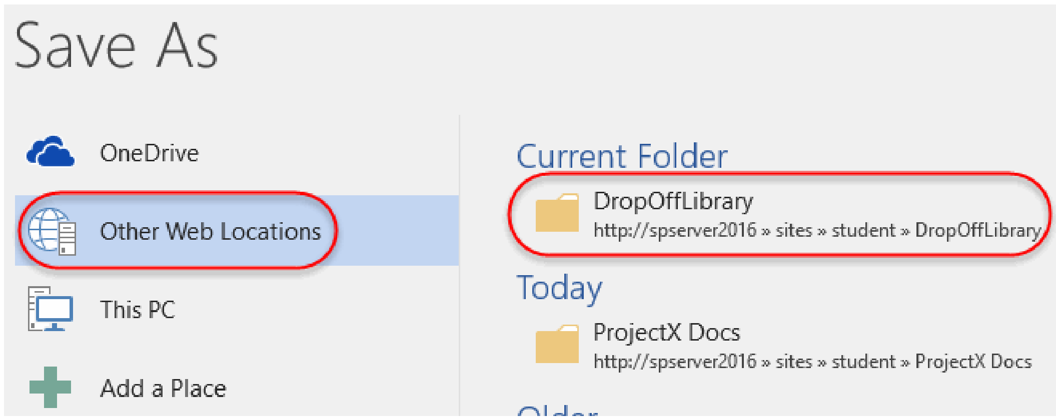
F. Type `January Sales Memo` in the **Title** field and make sure **Sales** is selected in the **Contoso Departments** field of the documents properties.



G. Click the **Save** link in the menu bar on the left side of the Microsoft Word window.



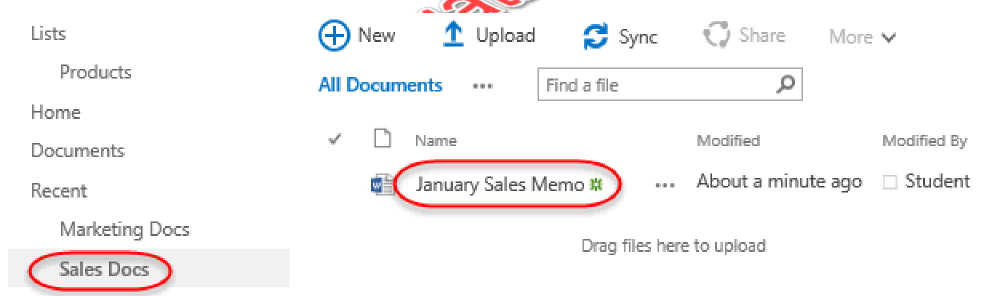
H. Click the **DropOffLibrar** link under **Other Web Locations** on the Word **Save As** page.



I. Type `January Sales Memo` in the **File name** field of the **Save As** dialog and click the **Save** button.

J. Close Microsoft Word.

K. Verify the document is not in the **Drop Off Library** but that it is in the **Sales Docs** library.



L. Repeat the previous steps but replace the references to “Sales” with “Marketing” to verify the Content Organizer rules are working.

Conclusion

In this lesson, you learned:

- How to activate the Content Organizer site feature.
- How to modify the Content Organizer Settings.
- How to create Content Organizer rules.

LESSON 7
Document ID Service

Topics Covered

☑ The Document ID feature.

☑ Activating the Document ID feature in a Site Collection.

☑ Configuring the Document ID feature settings.

☑ Forcing the Document ID feature timer jobs to run.

☑ Linking to a document using the Document ID URL.

Introduction

SharePoint's Document ID service, available with the pay versions of SharePoint, creates unique IDs for documents that are prefixed with text the Site Collection Administrator defines. What's more is that the ID assigned to the document creates a fixed URL that can be used to link to the document even if it is moved to another library or site. The Document ID service can only be used on documents and cannot be used on list items.

The Document ID service is enabled at the Site Collection level by activating a feature. Once the service is activated the Site Collection Administrator can define the prefix string to be used. SharePoint uses a Timer Job, **Document ID assignment job**, to set the IDs on existing documents once the Document ID Service has been activated. The Timer Job runs every 24 hours by default so existing documents will not have the IDs until the job has run. A Farm administrator can manually run the job to have the IDs created sooner. New documents will have IDs created when the document is saved to the library.

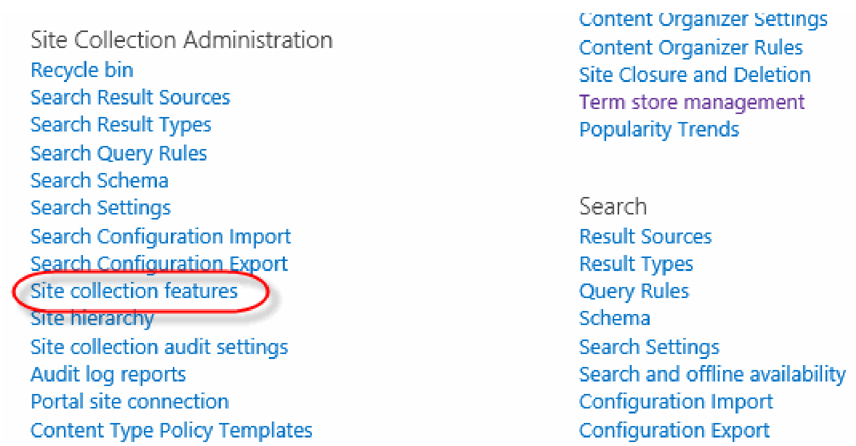
7.1. Activating the Document ID Feature

The following walk-through will show you how to activate the Document ID Service feature on a site collection.

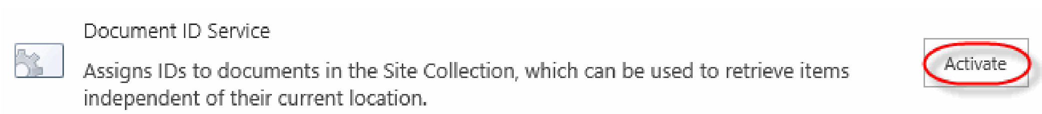
Note

This walk-through is the same as the first steps performed in the exercise at the end of the lesson. You can activate a feature only once for a Site Collection, so if you plan to do the exercise you can skip this walk-through.

1. Activate the Document ID feature for the site collection of your root site.
   A. Click **Settings** menu and then choose **Site Settings** from the options.
   B. Click the **Site Collection Features** link in the **Site Collection Administration** group of the **Site Settings** page.



   C. Click the **Activate** button for the **Document ID Service** feature.



7.2. Configuring Document ID Settings

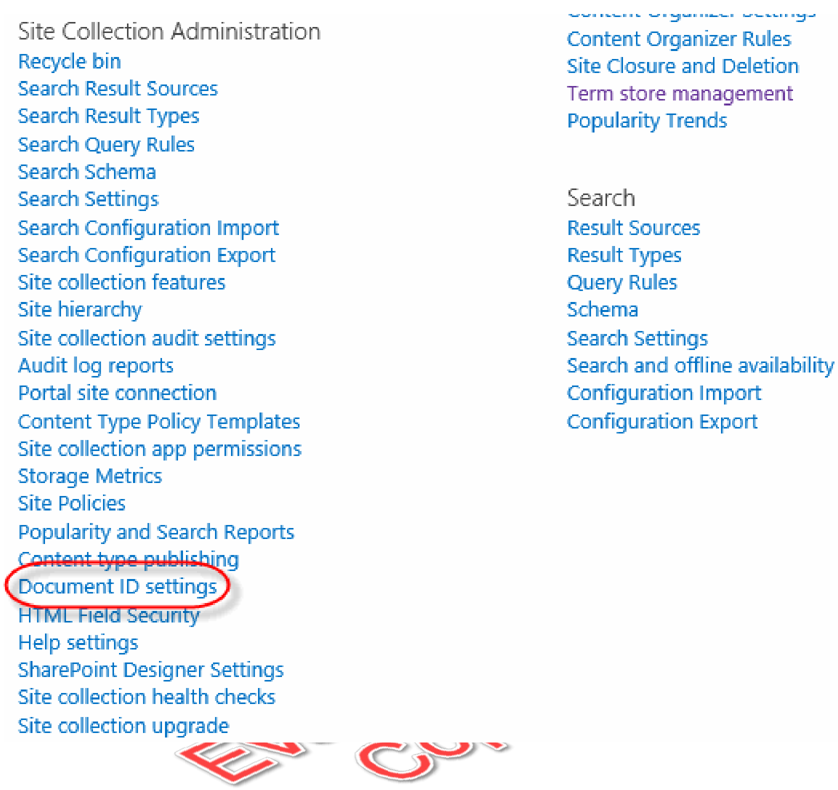
The following walk-through will show you how to configure the Document ID settings for the Site Collection to use an ID prefix of “Contoso” and to reset all existing documents with the ID. Once the setting is in place the walk-through will show you how to use Central Administration to force the Timer Jobs to run so you can verify the service is working without having to wait 24 hours for the service to run naturally.

Note

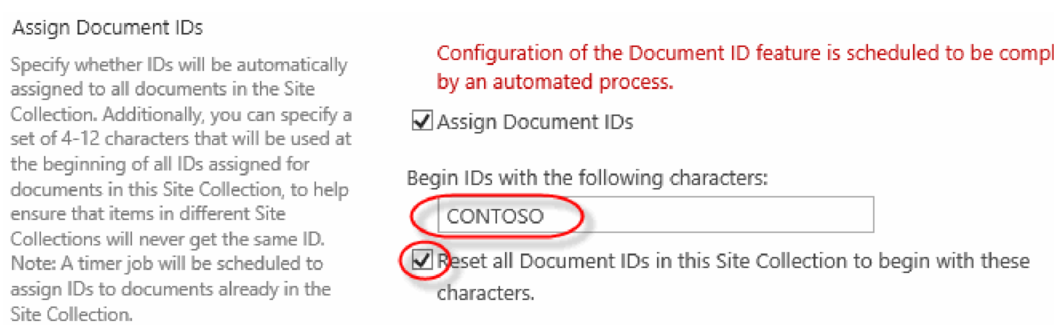
This walk-through is the same as the steps performed in the exercise at the end of the lesson. If you plan to do the exercise, you can skip this walk-through.

1. Create a new Microsoft Word document in the **Documents** library to test the Document ID feature.
   A. Click the **Documents** link in the site's **Quick Launch**.
   B. Click the **New Document** link on the **FILES** tab toolbar to launch Microsoft Word and create a new document.
   C. Type `Test for Document ID feature.` in the body of the new Word document.
   D. Click the **Save** icon in the upper left corner of the Microsoft Word window.
   E. Click the **Other Web Locations** link and then select **Shared Documents** on the **Save As** window in Microsoft Word.
   F. Leave the default file name and click the **Save** button.
   G. Close Microsoft Word.

2. Configure the Site Collection **Document ID Settings** to prefix document IDs with "CONTOSO".
   A. Click the **Settings** menu and then choose **Site Settings** from the options.
   B. Click the **Document ID settings** link in the **Site Collection Administration** group of the **Site Settings** page.



C. Type `CONTOSO` in the text-box field labeled **Begin IDs with the following characters** and check the box labeled **Reset all Document IDs in this site Collection to begin with these characters**.



D. Click the **OK** button to save the new Document ID prefix.

3. Use **Central Administration** to force the Document ID service timer jobs to run.

Note

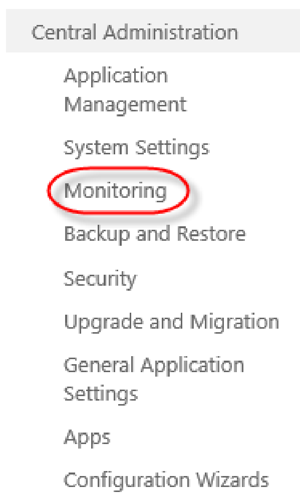
You can only perform these steps if you have access to your farm's Central Administration site. If you do not, you can skip these steps and wait 24 hours for it to naturally occur.

A. Open a new browser tab and navigate to the Central Administration site for you SharePoint farm.

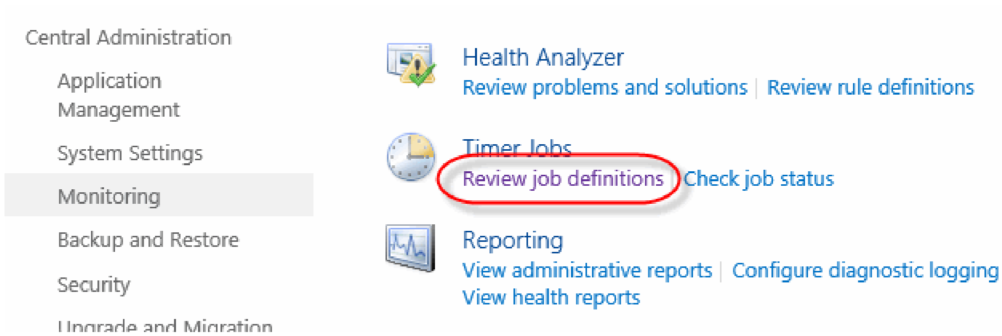
Note

The default setup for this class calls for the Central Administration site to be accessible through "http://spserver2016:5000".

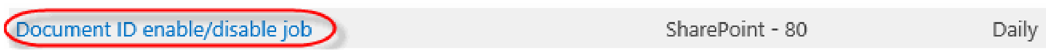
B. Click the **Monitoring** link in the **Central Administration** site's **Quick Launch**.



C. Click the **Review job definitions** link under the **Timer Jobs** group.

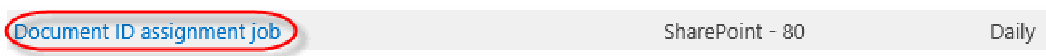


D. Scroll down the list of Timer Jobs and locate and click the **Document ID enable/disable job** link.



E. Click the **Run Now** button at the bottom of the job definition form.

F. Scroll down the list of Timer Jobs and locate and click the **Document ID assignment job** link.



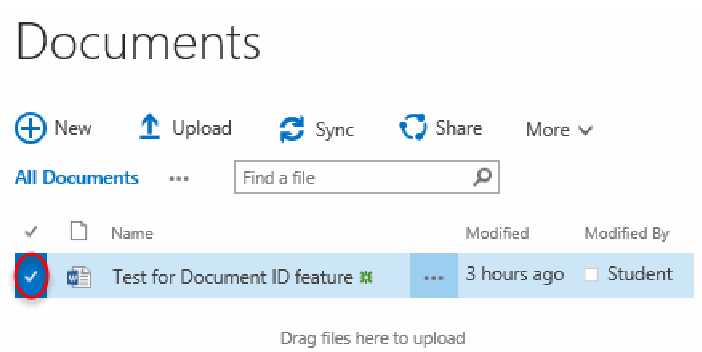
G. Click the **Run Now** button at the bottom of the job definition form.

H. Close the browser tab for **Central Administration**.

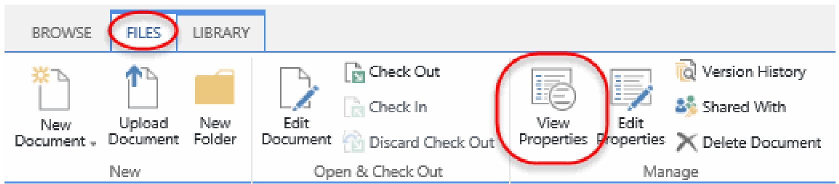
4. Verify that Document IDs have been generated for documents in the **Contoso Home Site**.

A. Click the **Documents** link in the **Contoso Home Site** site's **Quick Launch** menu.

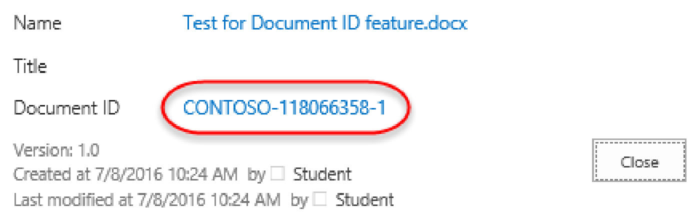
B. Click in the **select** column to the left of the **Test for Document ID feature** link to select the document.



C. With the document selected click the **FILES** and then click the **View Properties** link on the toolbar.



D. Verify the **Document ID** property exists for the document and it has a value that starts with "CONTOSO".



Note

If the document doesn't have an Document ID assigned to it yet, you will need to wait at least 30 minutes and then repeat the previous steps from Central Administration to force the timer jobs to run. Depending on the size of the Site Collection SharePoint uses an entry in the content database table called **ScheduledWorkItems** to delay the configuration of Document ID feature. If it's registered in this table running the timer jobs won't have any affect until the scheduled time elapses.

E. Click the **Close** button to close the document's properties dialog.

7.3. Linking Documents Using Their Document ID

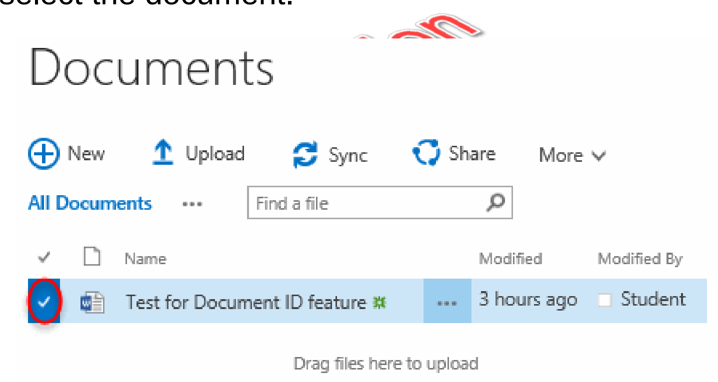
The main function of the Document ID service is to provide a hyperlink to the document that will work even if the document is moved to another library or even another site.

The Document ID service uses a redirect page, **DocIdRedir.aspx**, that takes the unique Document ID generated by the service as a parameter. The following is a screen capture of the fixed URL created by the Document ID service for the **Test for Document ID feature.docx** document located in the **Documents** library from the previous demonstration:

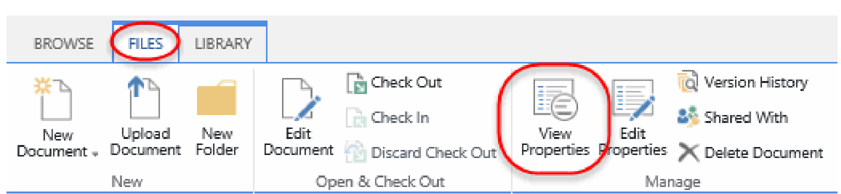
The URL can be seen by hovering over the Document ID property of the document.

The following walk-through will show you how to create a hyperlink on the Home page of your team site to a document in the **Documents** library. For the document's URL, we will use the Document ID service's path.

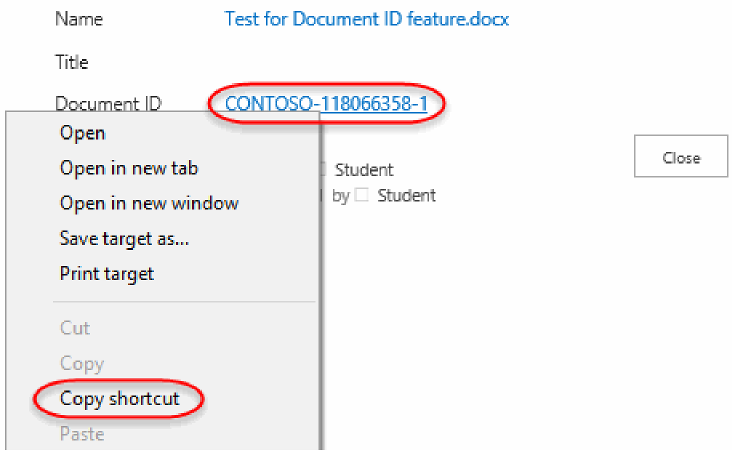
1. Copy the Document ID link of the **Test for Document ID feature.docx** document.
   A. Click the **Documents** link in your site's **Quick Launch** menu.
   B. Click in the **select** column to the left of the **Test for Document ID feature** link to select the document.



   C. With the document selected click the **FILES** and then click the **View Properties** link on the toolbar.



   D. Right-click the **Document ID** property link and choose the **Copy shortcut** option.



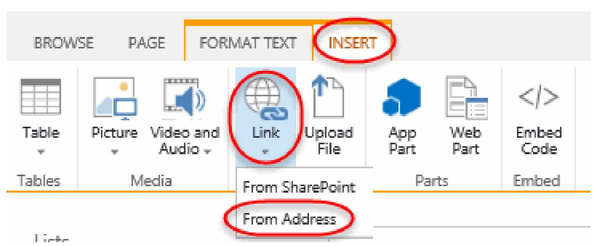
2. Create a hyperlink on the Home page of your site that uses the Document ID URL to the **Test for Document ID feature.docx** document.

   A. Click the **Home** link in the site's **Quick Launch** to navigate back to the home page of your site.

   B. Click the **Edit** link at the top of the page to edit the page.

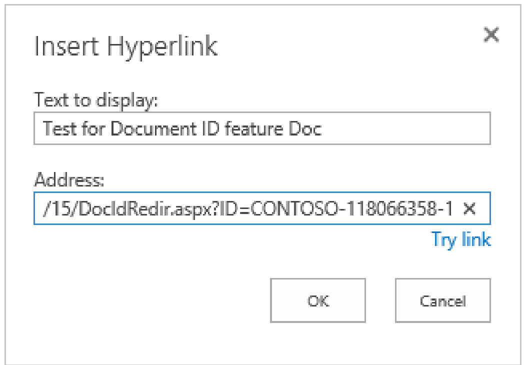
   C. Place our insertion point at the bottom of the main middle content area.

   D. Click the **Link** button drop-down in the **INSERT** tab toolbar and choose the **From Address** option.



   E. Type `Test for Document ID feature Doc` in the **Text to display** field.

   F. Paste the copied URL form the Document ID property into the **Address** field.



G. Click the **OK** button to save the hyperlink.

H. Click the **SAVE** icon in the upper right of the page to save the changes.

I. Click the link and verify it prompts you to open the **Test for Document ID feature.docx** document.

J. Cancel opening the document.

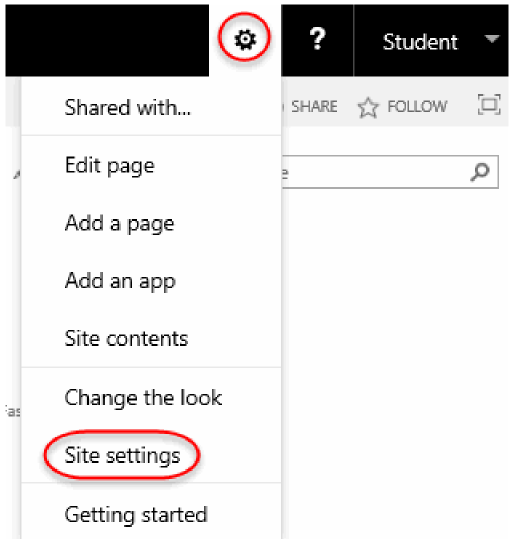
Exercise 10: Activating and Configuring the Document ID Service

15 to 25 minutes

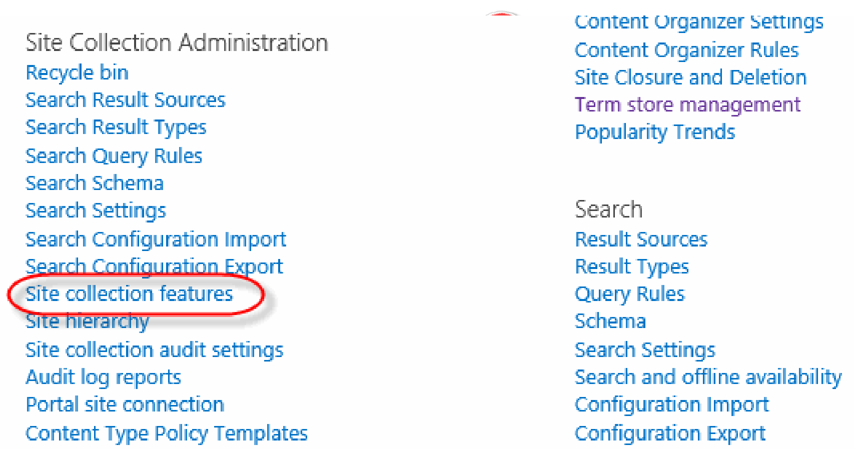
Note

This exercise uses the same instructions from the walk-throughs. If you have already done the walk-through you should skip this exercise.

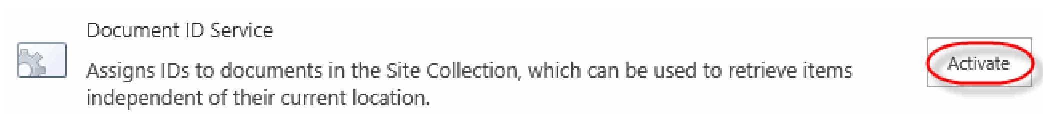
1. Navigate to your team site.
2. Create a new Microsoft Word document in the **Documents** library to test the Document ID feature.
    A. Click the **Documents** link in the site's **Quick Launch**.
    B. Click the **New Document** link on the **FILES** tab toolbar to launch Microsoft Word and create a new document.
    C. Type `Test for Document ID feature.` in the body of the new Word document.
    D. Click the **Save** icon in the upper left corner of the Microsoft Word window.
    E. Click the **Other Web Locations** link and then select **Shared Documents** on the **Save As** window in Microsoft Word.
    F. Leave the default file name and click the **Save** button.
    G. Close Microsoft Word.
3. Activate the Document ID feature for the site collection of your root site.
    A. Click **Settings** menu then choose **Site Settings** from the options.



B. Click the **Site Collection Features** link in the **Site Collection Administration** group of the **Site Settings** page.



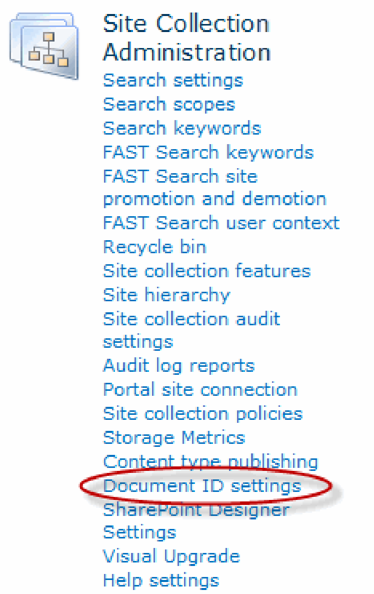
C. Click the **Activate** button for the **Document ID Service** feature.



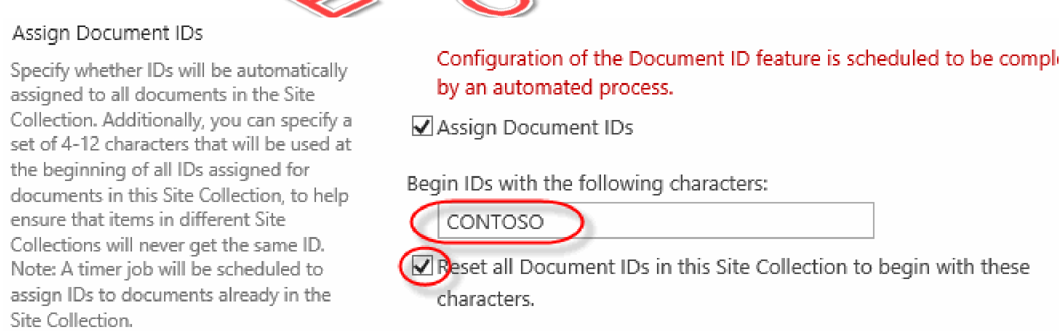
4. Configure the Site Collection **Document ID Settings** to prefix document IDs with “CONTOSO”.

   A. Click **Site Actions** then choose **Site Settings** from the options menu.

B. Click the **Document ID settings** link in the **Site Collection Administration** group of the **Site Settings** page.



C. Type `CONTOSO` in the text box field labeled **Begin IDs with the following characters** and check the box labeled **Reset all Document IDs in this site Collection to begin with these characters**.



D. Click the **OK** button to save the new Document ID prefix.

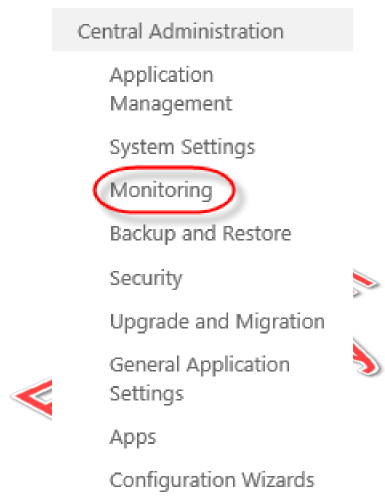
5. Use **Central Administration** to force the Document ID service timer jobs to run.

Note
You can perform these steps only if you have access to your farm's Central Administration site. If you do not, you can wait 24 hours for it to naturally occur.

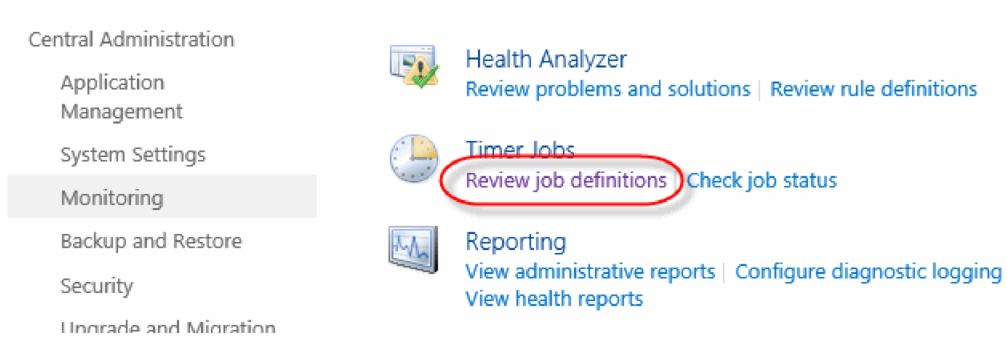
A. Open a new browser tab and navigate to the Central Administration site for you SharePoint farm.

Note
The default setup for this class calls for the Central Administration site to be accessible through “http://spserver2016:5000”.

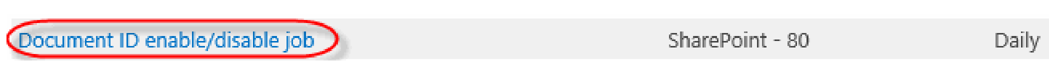
B. Click the **Monitoring** link in the **Central Administration** site’s **Quick Launch**.



C. Click the **Review job definitions** link under the **Timer Jobs** group.



D. Scroll down the list of Timer Jobs and locate and click the **Document ID enable/disable job** link.



E. Click the **Run Now** button at the bottom of the job definition form.

F. Scroll down the list of Timer Jobs and locate and click the **Document ID assignment job** link.

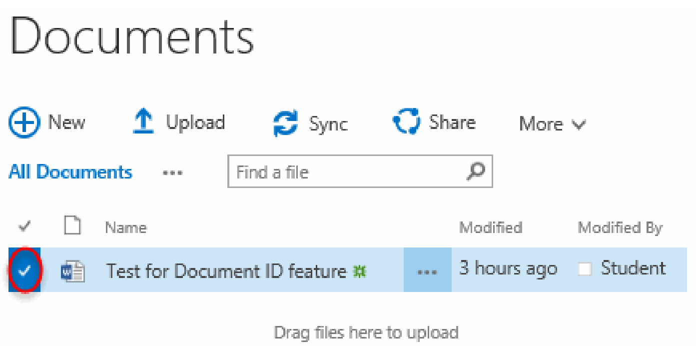
G. Click the **Run Now** button at the bottom of the job definition form.

H. Close the browser tab for **Central Administration**.

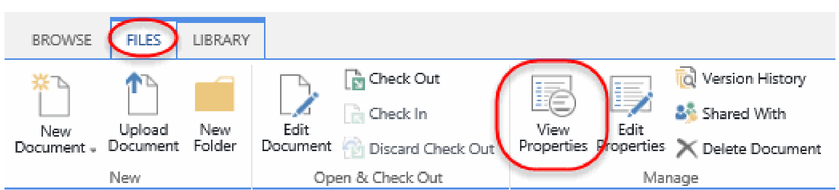
6. Verify that Document IDs have been generated for documents in your team site.

   A. Click the **Documents** link in the **Contoso Home Site** site's **Quick Launch** menu.

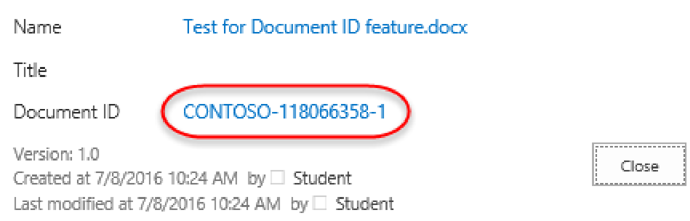
   B. Click in the **select** column to the left of the **Test for Document ID feature** link to select the document.



   C. With the document selected click the **FILES** and then click the **View Properties** link on the toolbar.



   D. Verify the **Document ID** property exists for the document and it has a value that starts with "CONTOSO".



Note

If the document doesn't have an Document ID assigned to it yet, you will need to wait at least 30 minutes and then repeat the previous steps from Central Administration to force the timer jobs to run. Depending on the size of the Site Collection SharePoint uses an entry in the content database table called **ScheduledWorkItems** to delay the configuration of Document ID feature. If it's registered in this table running the timer jobs won't have any affect until the scheduled time elapses.

E. Click the **Close** button to close the document's properties dialog.

Conclusion

In this lesson, you learned:

- What the Document ID feature does.
- How to activate the Document ID feature in a Site Collection.
- How to configure the Document ID feature settings.
- How to force the Document ID feature timer jobs to run.
- How to link to a document using the Document ID URL.

LESSON 8
Document Sets

Topics Covered

☑ The advantage of using Document Sets.

☑ Activating the Document Set feature.

☑ Creating content types that inherit from the Document Set type.

☑ Adding custom columns to an inherited Document Set.

☑ Modifying the Welcome Page of a Document Set.

☑ Adding Document Sets to a library.

Introduction

SharePoint's Documents Sets are like enhanced versions of folders. As with folders, you primarily use them to group similar documents together. They are enhanced with the ability to have their own metadata, workflows, and home page.

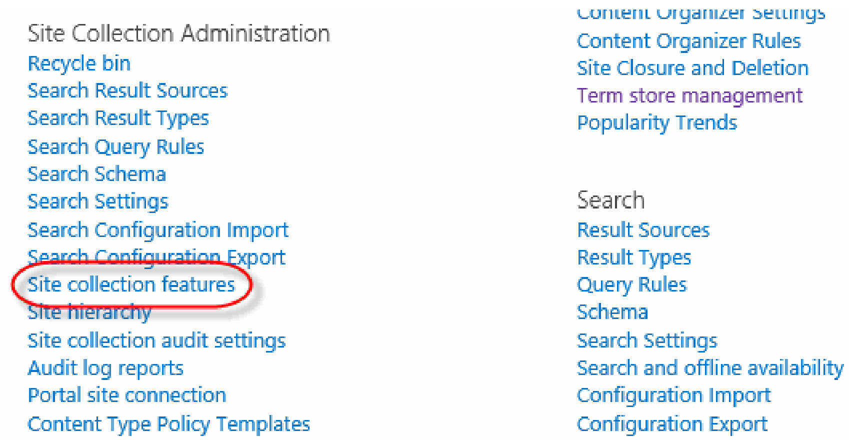
To use Document Sets, the feature must be active at the Site Collection level. Once activated, there will be a new Document Set content type in the Site Collection's content type gallery. To best take advantage of the enhancements offered by Document Sets, you should create custom content types that inherit from the Document Set content type.

8.1. Activating the Document Sets Feature

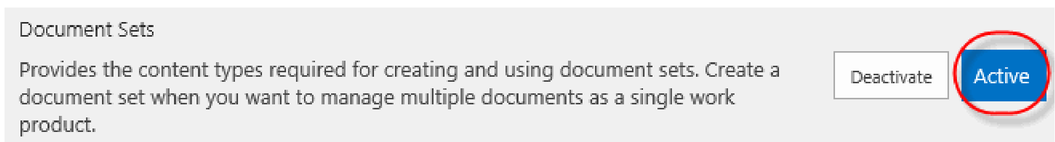
This walk-through will show you how to verify the Document Sets feature is active for the Site Collection. Once activated at the Site Collection level, Document Sets will be available to use in any site in the Site Collection.

1. Verify the Document Sets feature is active for the site collection.
    A. Click **Settings** menu and then choose **Site settings** from the options.

B. Click the **Site Collection Features** link in the **Site Collection Administration** group of the **Site Settings** page.



C. Verify the **Document Sets** feature is active.



8.2. Creating a Document Set Content Type

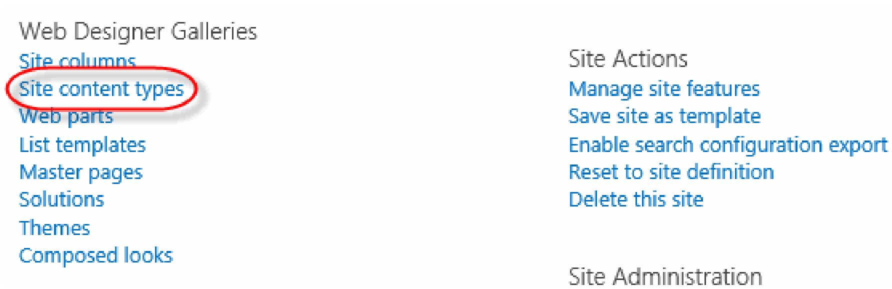
One of the primary benefits of document sets is their ability to store metadata. In order to do that, you need to define columns in a custom content type that inherits from the document set type.

This walk-through will show you how to create a new content type named “Course Documents” that inherits from the Document Set content type. The walk-through will customize the new “Course Documents” content type by adding site columns to it.

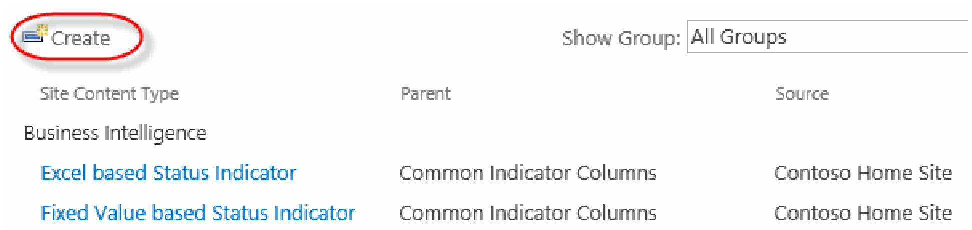
1. Create a new site Content Type that inherits from the Document Set content type.

    A. Click the **Settings** menu and select **Site settings** from the options.

    B. Click the **Site content types** link in the **Web Designer Galleries** group of the **Site Settings** page.

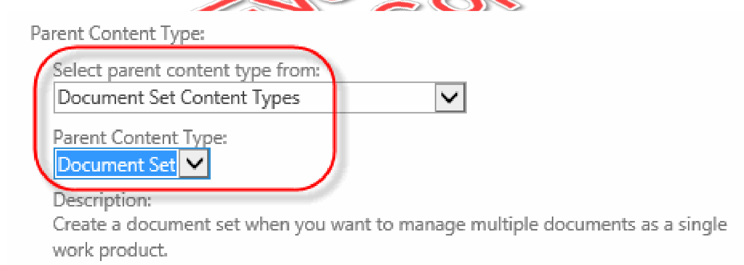


C. Click the **Create** link at the top of the **Site Content Types** page.

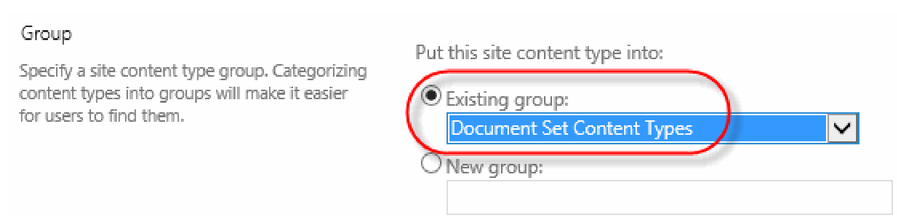


D. Enter `Course Documents` in the **Name** field.

E. Select **Document Set Content Types** in the **Select parent content type from** drop-down field and select **Document Set** in the **Parent Content Type** drop-down field.

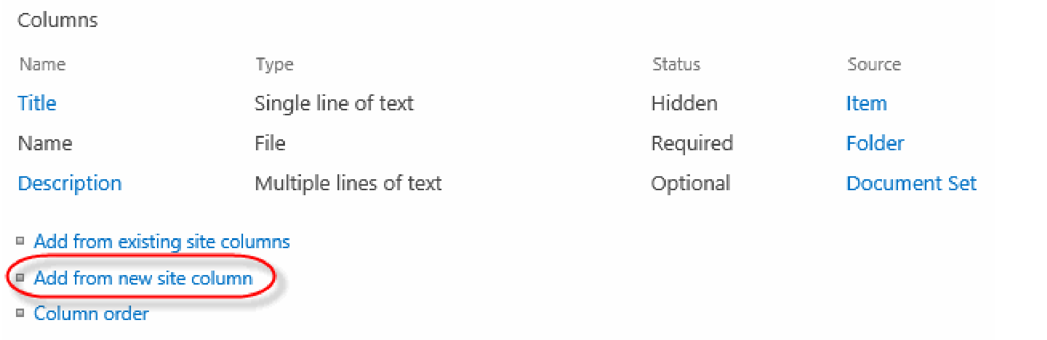


F. Select **Document Set Content Types** in the **Existing group** drop-down field and click the **OK** button to complete creating the new Content Type.



2. Add a custom field to the new content type to store the number of days that the course runs.

A. Click the **Add from new site column** link under the **Columns** area of the **Course Documents** Content Type settings page.

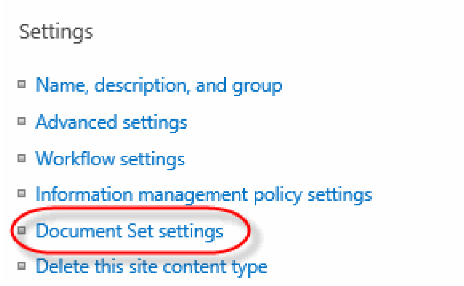


B. Type `Number of Days` in the **Column name** field and choose the **Number** radio button as the data type.

C. Click the **OK** button to create the column.

3. Add the **Number of Days** column to the **Welcome Page** of the **Course Documents** content type.

A. Click the link under the **Settings** area of the content type settings page.



B. Click the **Add** button to move the **Number of Days** from the **Available columns** list to the **Columns shown on the welcome page** list.

C. Click the **OK** button to save the changes.

8.3. Adding a Document Set Content Type of a Library

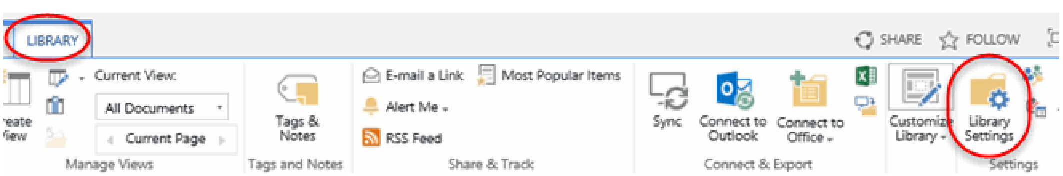
To use a document set in a library, you must first add it to the list of content types supported by the library. Once that is done, you can create document set folders just like you would create regular folders except you will have the ability to add information into any of the columns the document set content type defined.

The following walk-through will show you how to add the new **Course Documents** content type to the **Documents** library and create an instance of the document set in the library.

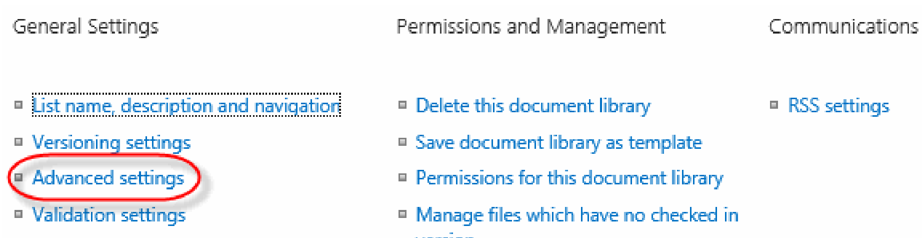
1. Add the new **Course Documents** Content Type to the **Documents** library.

    A. Click the **Documents** link in the site's **Quick Launch** menu.

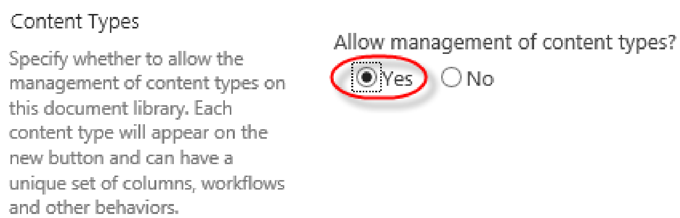
    B. Click the **Library Settings** button on the **LIBRARY** tab toolbar.



    C. Click the **Advanced settings** link under the **General Settings** group of the **Site Settings** page.



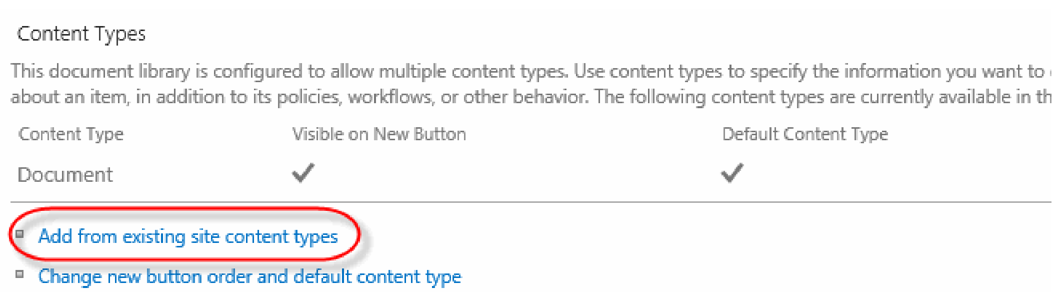
D. Click the **Yes** radio button option under the label **Allow management of content types**.



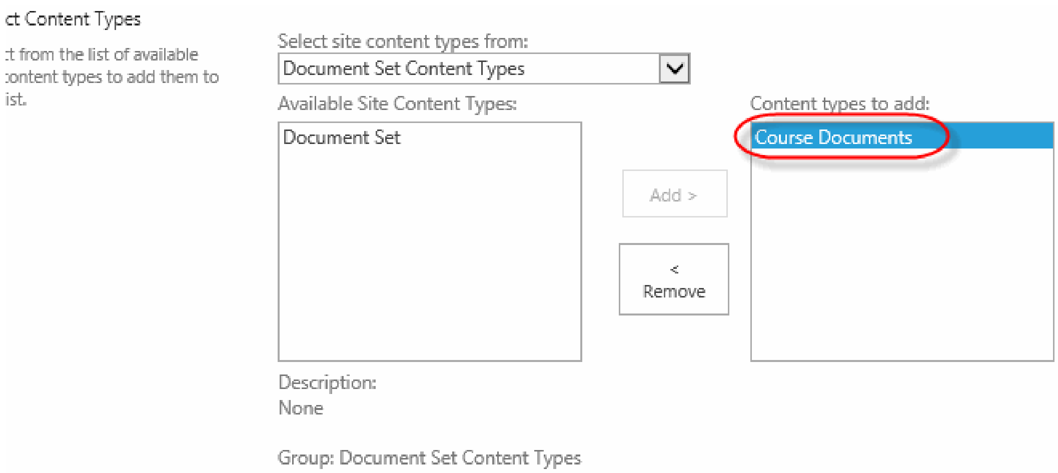
Note
The **Allow management of content types** setting might already be set to **Yes** from an earlier walk-through.

E. Click the **OK** button to save the settings.

F. Click the **Add from existing site content types** link in the **Content Types** area of the **Library Settings** page.



G. Select **Document Set Content Types** in the **Select site content types from** drop-down menu and click the **Add** button to add the **Course Documents** content type to the **Content types to add** list box.

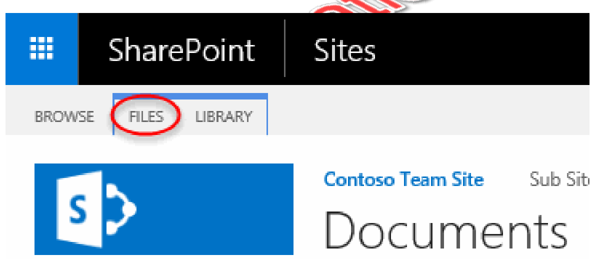


H. Click the **OK** button to save the setting.

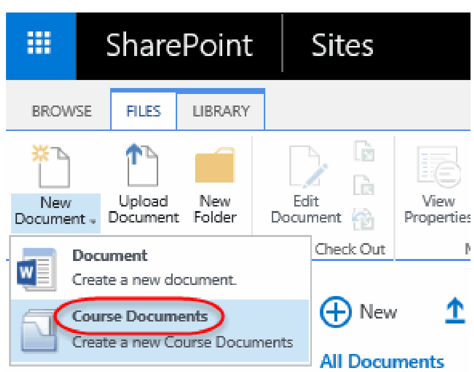
2. Create a new **Course Documents** Document Set in the **Documents** library.

   A. Click the **Documents** link in the site's **Quick Launch** menu.

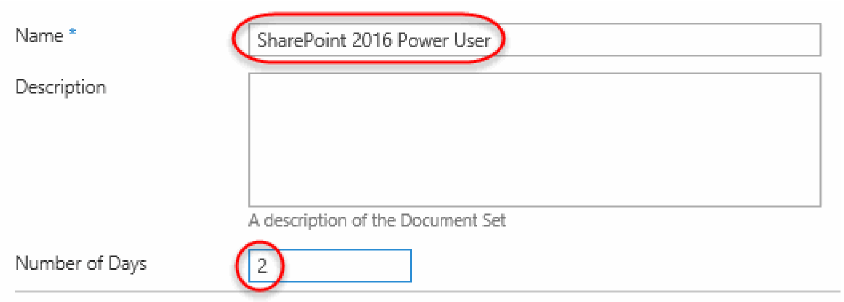
   B. Click the **FILES** tab to open the toolbar.



   C. Click the down arrow below the **New Document** button on the **FILES** tab and choose **Course Documents**.

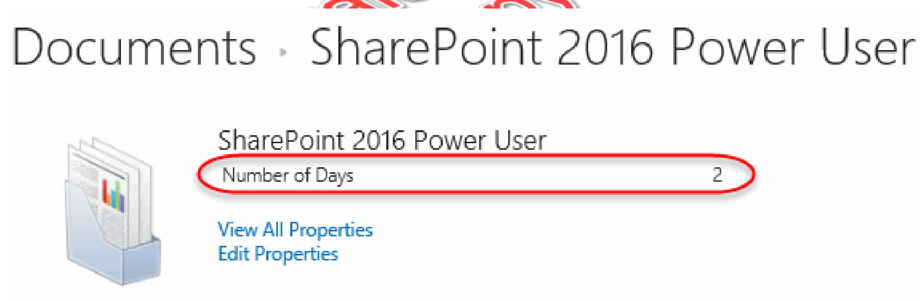


D. Type `SharePoint 2016 Power User` in the **Name** field and type `2` in the **Number of Days** field of the **New Document Set** dialog.



E. Click the **Save** button to save the new Document Set.

F. Verify the **Welcome Page** shows the custom **Number of Days** column data on it.

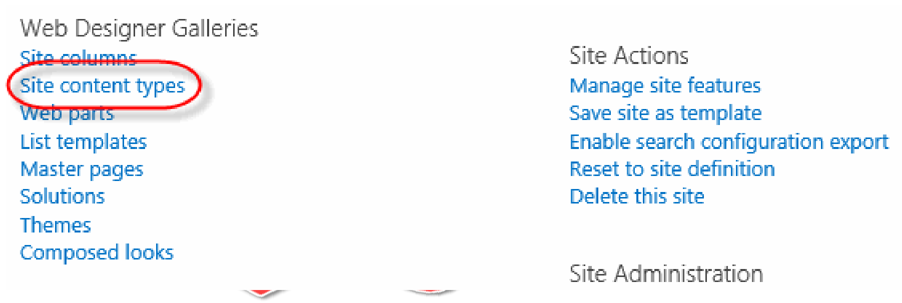


Once the steps from the preceding walk-through have been completed, you can then upload various documents that go with the course. For example, PowerPoint slides, setup guide, course manual, course outline, etc. Additionally the **Welcome Page** can be edited and customized.

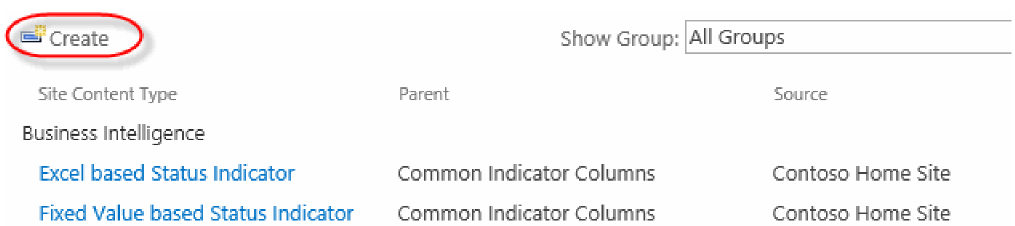
Exercise 11: Configuring Document Sets Feature

10 to 15 minutes

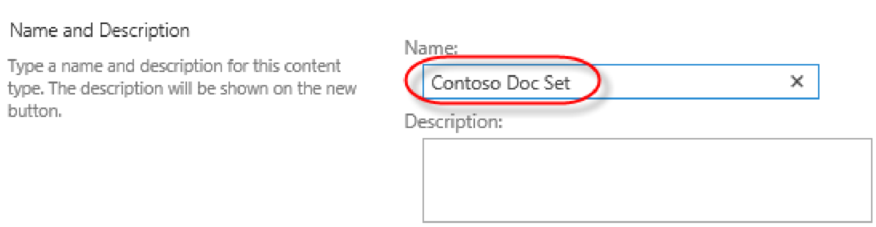
1. Navigate to your team site.
2. Create a new site Content Type that inherits from the Document Set content type and add a custom field.
   A. Click the **Settings** menu and select **Site settings** from the options.
   B. Click the **Site content types** link in the **Web Designer Galleries** group of the **Site Settings** page.



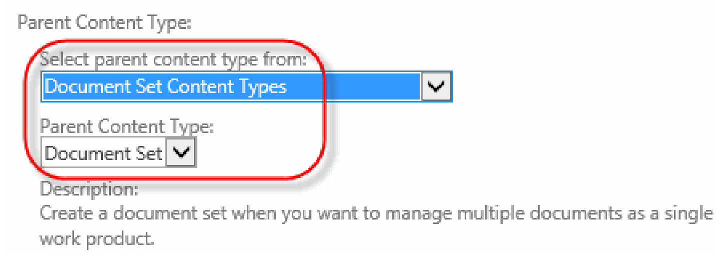
   C. Click the **Create** link at the top of the **Site Content Types** page.



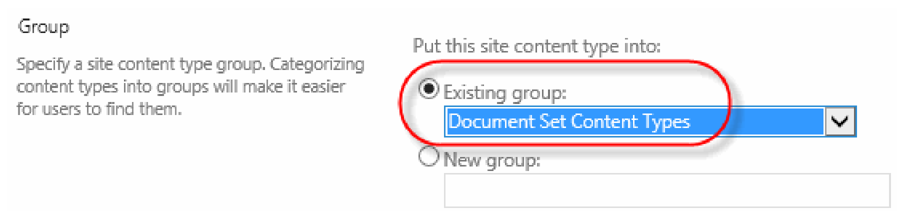
   D. Enter `Contoso Doc Set` in the **Name** field.



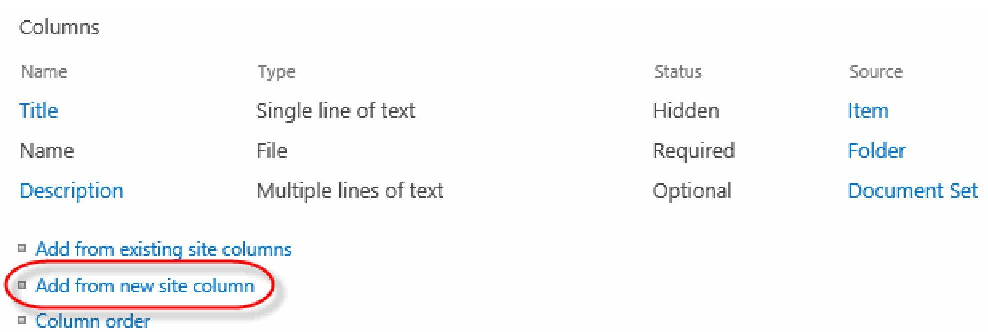
E. Select **Document Set Content Types** in the **Select parent content type from** drop-down field and select **Document Set** in the **Parent Content Type** drop-down field.



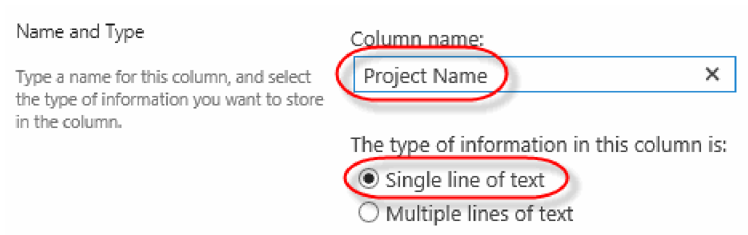
F. Select **Document Set Content Types** in the **Existing group** drop-down field and click the **OK** button to complete creating the new Content Type.



G. Click the **Add from new site column** link under the **Columns** area of the **Contoso Doc Set** Content Type settings page.



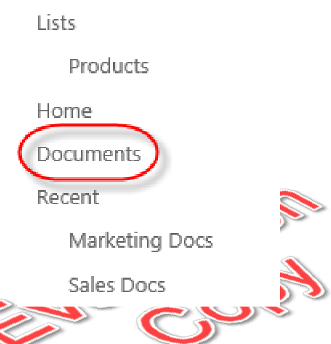
H. Type “Project Name” in the **Column name** field of the **New Site Column** page.



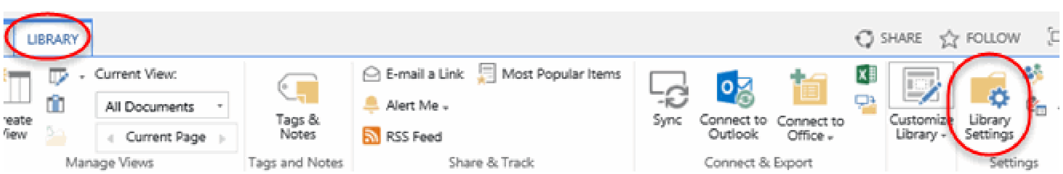
I. Leave the rest of the **New Site Column** settings at their default values and click the **OK** button.

3. Add the new **Contoso Doc Set** Content Type to the **Documents** library.

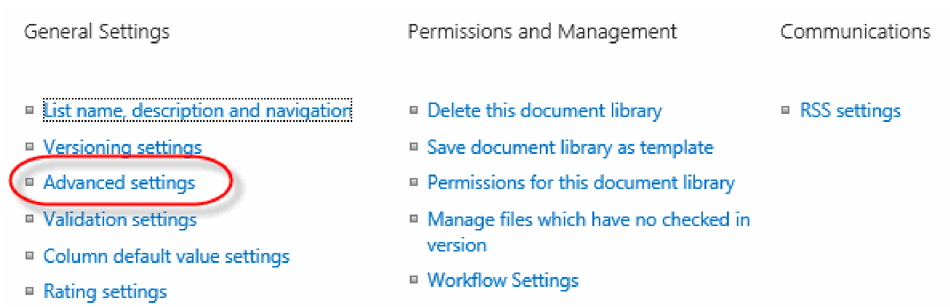
   A. Click the **Documents** link in the site's **Quick Launch** menu.



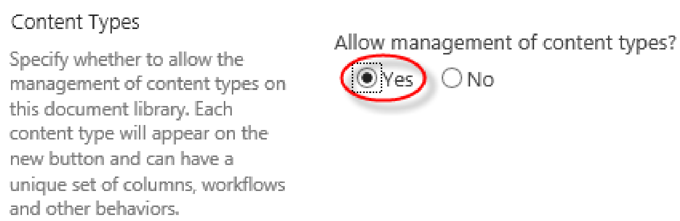
   B. Click the **Library Settings** button on the **LIBRARY** tab toolbar.



   C. Click the **Advanced settings** link under the **General Settings** group of the **Site Settings** page.



D. Click the **Yes** radio button option under the label **Allow management of content types**.

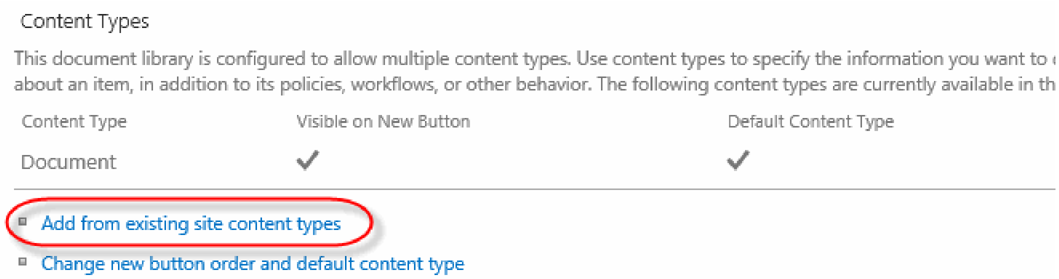


Note

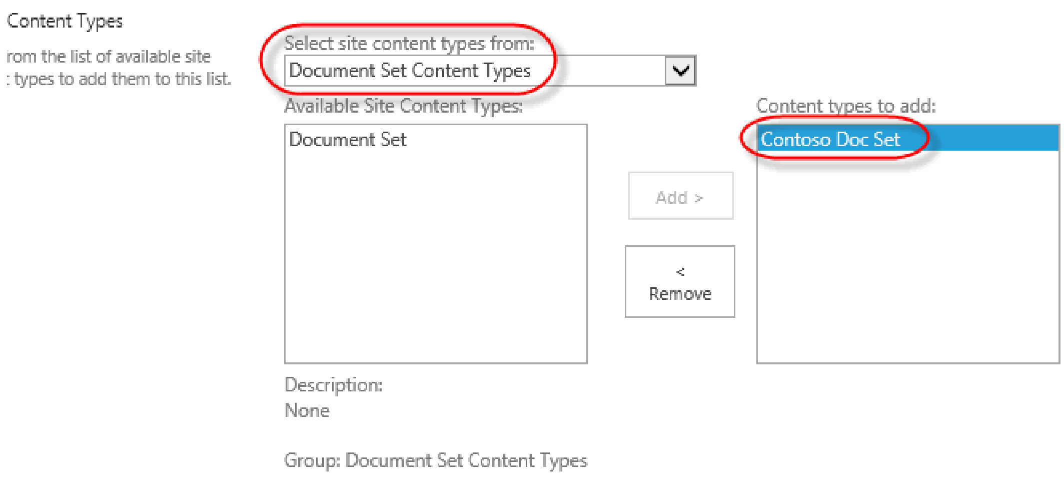
The **Allow management of content types** setting might already be set to **Yes** from an earlier exercise.

E. Click the **OK** button to save the settings.

F. Click the **Add from existing site content types** link in the **Content Types** area of the **Library Settings** page.



G. Select **Document Set Content Types** in the **Select site content types from** drop-down menu and click the **Add** button to add the **Contoso Doc Set** content type to the **Content types to add** list box.

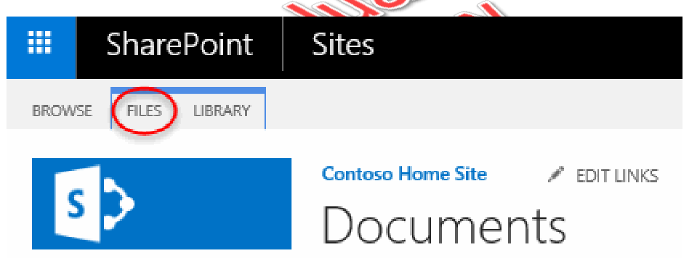


H. Click the **OK** button to save the setting.

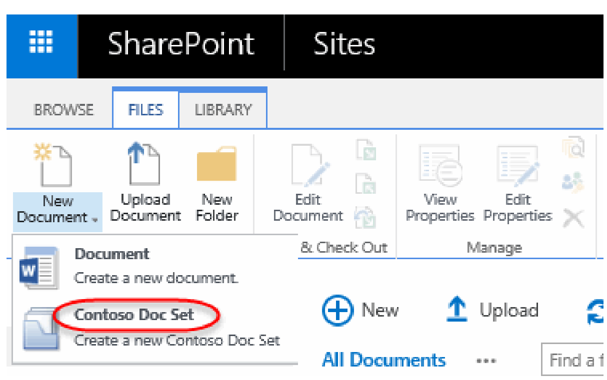
4. Create a new **Contoso Doc Set** Document Set in the **Documents** library with a **Project Name** of “Project X”.

   A. Click the **Documents** link in the site’s **Quick Launch** menu.

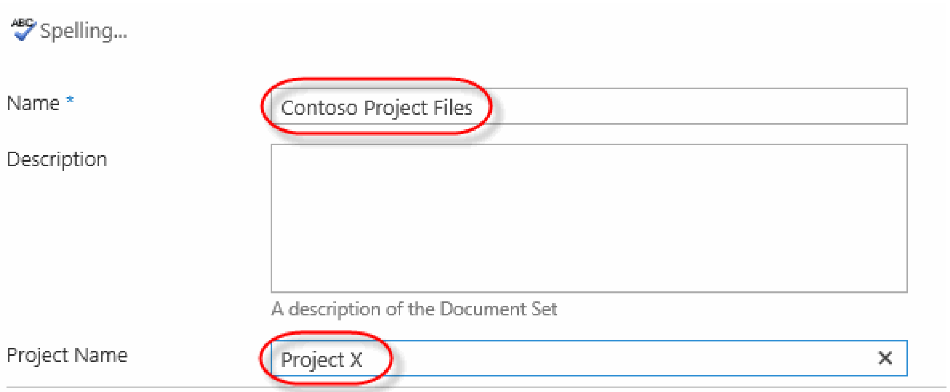
   B. Click the **FILES** tab to open the toolbar.



   C. Click the down arrow below the **New Document** button on the **FILES** tab and choose **Contoso Doc Set**.



D. Type `Contoso Project Files` in the **Name** field and type `Project X` in the **Project Name** field of the **New Document Set** dialog.



E. Click the **SAVE** button to save the new Document Set.

Note

Once the steps from the preceding exercise have been completed, you can then upload various documents that go with the course. For example, PowerPoint slides, setup guide, course manual, course outline, etc. Additionally the **Welcome Page** can be edited and customized.

Conclusion

In this lesson, you learned:

- The advantage of using Document Sets.
- How to activate the Document Set feature.
- How to create content types that inherit from the Document Set type.
- How to add custom columns to an inherited Document Set.
- How to modify the Welcome Page of a Document Set.
- How to add Document Sets to a library.

LESSON 9

SharePoint Server Publishing Infrastructure

Topics Covered

☑ Activating the site collection's **SharePoint Server Publishing Infrastructure** feature.

☑ Activating the site's **SharePoint Server Publishing** feature.

☑ The SharePoint Publishing Infrastructure works.

☑ Creating a page using publishing layouts.

☑ Changing the layout of a page.

Introduction

SharePoint's publishing infrastructure provides an enhanced way to create and store information displayed through the site's web pages. The publishing infrastructure can be enabled by activating features at both the site collection and site level.

9.1. Activating the SharePoint Server Publishing Infrastructure

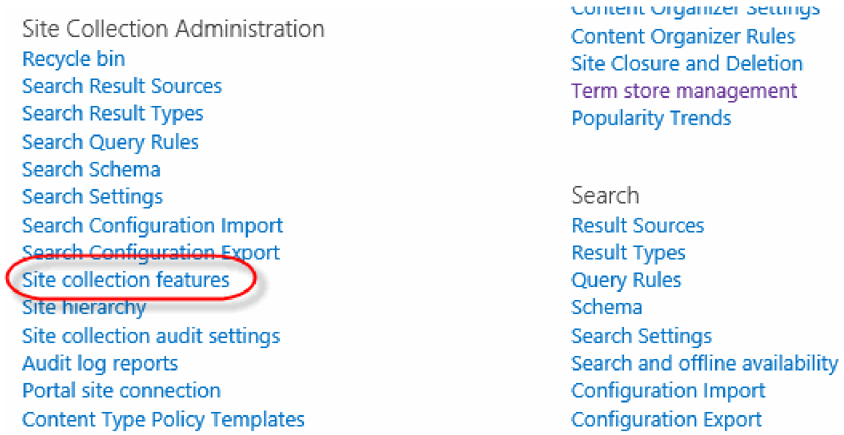
Two features are responsible to enabling publishing on a SharePoint site. The first feature is the **SharePoint Server Publishing Infrastructure** feature that is activated at the site collection features. Once the **SharePoint Server Publishing Infrastructure** feature is activated, then the **SharePoint Server Publishing** site feature can be activated on sites within the site collection.

The following walk-through will show you how to activate the **SharePoint Server Publishing Infrastructure** and the **SharePoint Server Publishing** features in the root site of your site collection.

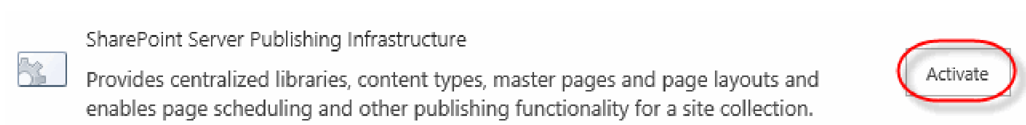
1. Activate the **SharePoint Server Publishing Infrastructure** feature for your site collection.

    A. Click **Settings** menu and then choose **Site Settings** from the options.

B. Click the **Site Collection Features** link in the **Site Collection Administration** group of the **Site Settings** page.



C. Click the **Activate** button for the **SharePoint Server Publishing Infrastructure** feature.



2. Activate the **SharePoint Server Publishing** feature for your team site.

A. Click **Settings** menu and then choose **Site Settings** from the options.

B. Click the **Manage Site Features** link in the **Site Actions** group of the **Site Settings** page.

C. Click the **Activate** button for the **SharePoint Server Publishing** feature.

9.2. Publishing Infrastructure Basics

Activating the **SharePoint Server Publishing Infrastructure** at the site collection level adds the following content types to the content type's gallery.

Page Layout Content Types		
Article Page	Page	Contoso Home Site
Catalog-Item Reuse	Page	Contoso Home Site
Enterprise Wiki Page	Page	Contoso Home Site
Error Page	Page	Contoso Home Site
Project Page	Enterprise Wiki Page	Contoso Home Site
Redirect Page	Page	Contoso Home Site
Welcome Page	Page	Contoso Home Site
Publishing Content Types		
ASP NET Master Page	System Master Page	Contoso Home Site
Html Master Page	ASP NET Master Page	Contoso Home Site
Html Page Layout	Page Layout	Contoso Home Site
Page	System Page	Contoso Home Site
Page Layout	System Page Layout	Contoso Home Site

Activating the **SharePoint Server Publishing** feature on a site adds several new things to the site. One of the main additions is a new library named **Pages**. The **Pages** library is automatically configured with the content types added by the **SharePoint Server Publishing Infrastructure** as shown in the following image.

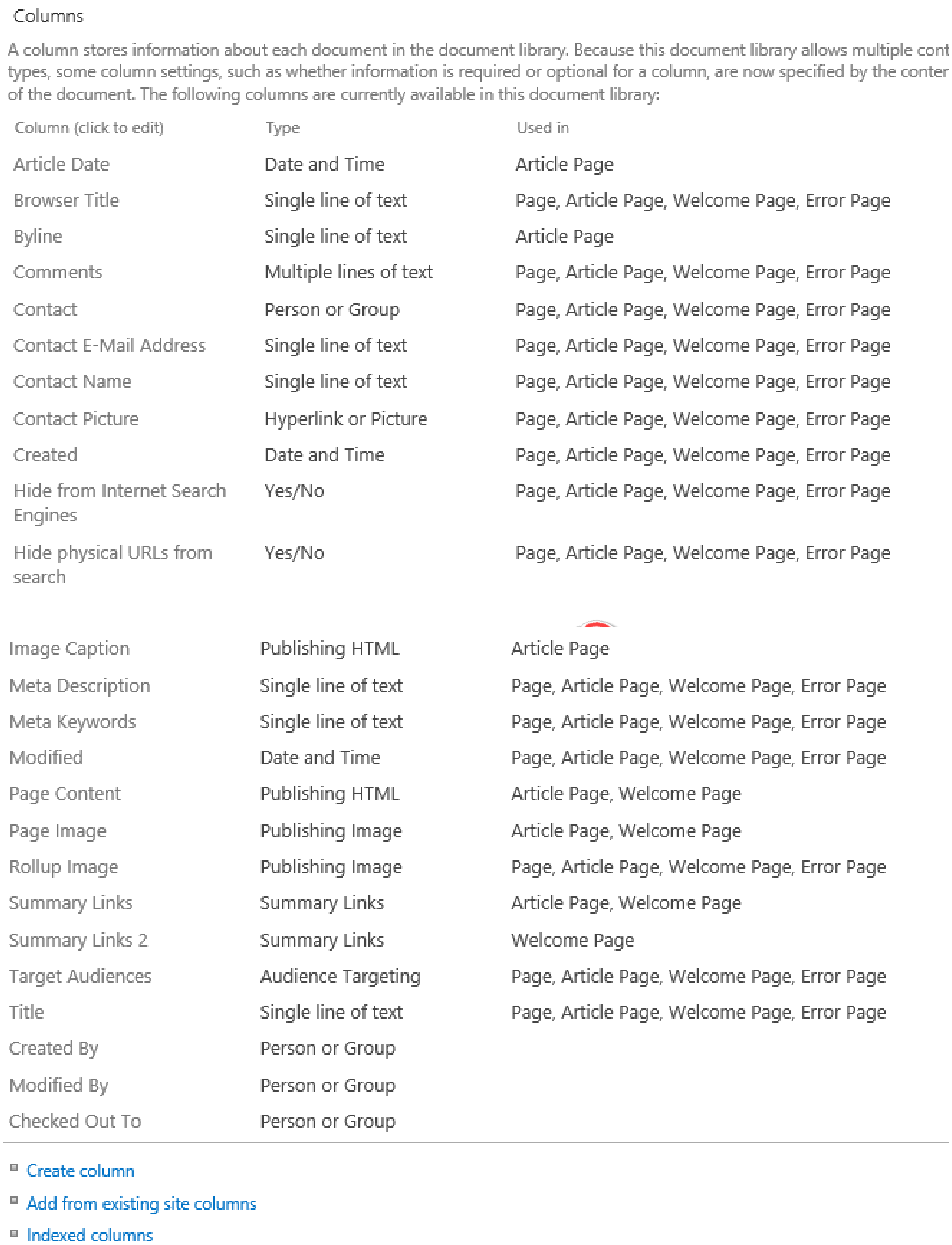
Content Types

This document library is configured to allow multiple content types. Use content types to specify the information you want to c about an item, in addition to its policies, workflows, or other behavior. The following content types are currently available in thi

Content Type	Visible on New Button	Default Content Type
Page	✓	✓
Article Page	✓	
Welcome Page	✓	
Error Page	✓	

- Add from existing site content types
- Change new button order and default content type

Through the content type associations, the **Pages** library has the columns shown the following image:



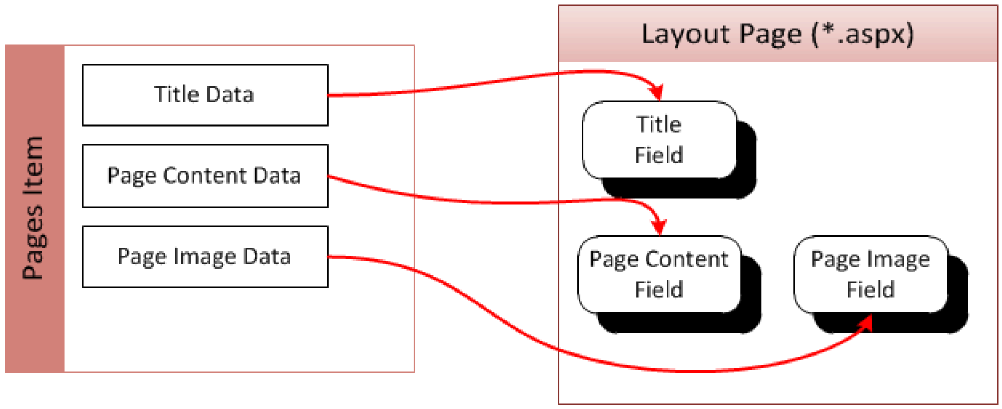
Columns

A column stores information about each document in the document library. Because this document library allows multiple cont types, some column settings, such as whether information is required or optional for a column, are now specified by the conter of the document. The following columns are currently available in this document library:

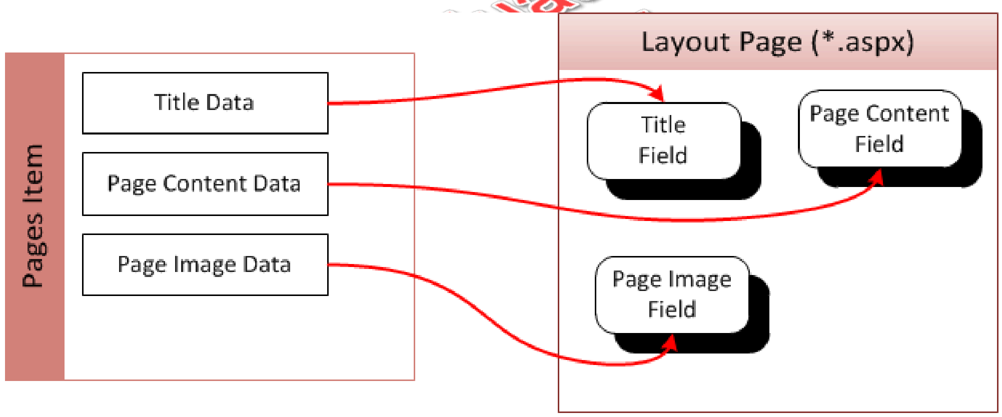
Column (click to edit)	Type	Used in
Article Date	Date and Time	Article Page
Browser Title	Single line of text	Page, Article Page, Welcome Page, Error Page
Byline	Single line of text	Article Page
Comments	Multiple lines of text	Page, Article Page, Welcome Page, Error Page
Contact	Person or Group	Page, Article Page, Welcome Page, Error Page
Contact E-Mail Address	Single line of text	Page, Article Page, Welcome Page, Error Page
Contact Name	Single line of text	Page, Article Page, Welcome Page, Error Page
Contact Picture	Hyperlink or Picture	Page, Article Page, Welcome Page, Error Page
Created	Date and Time	Page, Article Page, Welcome Page, Error Page
Hide from Internet Search Engines	Yes/No	Page, Article Page, Welcome Page, Error Page
Hide physical URLs from search	Yes/No	Page, Article Page, Welcome Page, Error Page
Image Caption	Publishing HTML	Article Page
Meta Description	Single line of text	Page, Article Page, Welcome Page, Error Page
Meta Keywords	Single line of text	Page, Article Page, Welcome Page, Error Page
Modified	Date and Time	Page, Article Page, Welcome Page, Error Page
Page Content	Publishing HTML	Article Page, Welcome Page
Page Image	Publishing Image	Article Page, Welcome Page
Rollup Image	Publishing Image	Page, Article Page, Welcome Page, Error Page
Summary Links	Summary Links	Article Page, Welcome Page
Summary Links 2	Summary Links	Welcome Page
Target Audiences	Audience Targeting	Page, Article Page, Welcome Page, Error Page
Title	Single line of text	Page, Article Page, Welcome Page, Error Page
Created By	Person or Group	
Modified By	Person or Group	
Checked Out To	Person or Group	

- Create column
- Add from existing site columns
- Indexed columns

Publishing pages differ in that their content is stored separately from the page in the different fields of the **Pages** library. Traditional pages like those created in the **Site Pages** library store the page and its contents as a single entity within the library. The publishing page hosts special field controls that read the data from the page item fields and display it on the page similar to the following diagram.

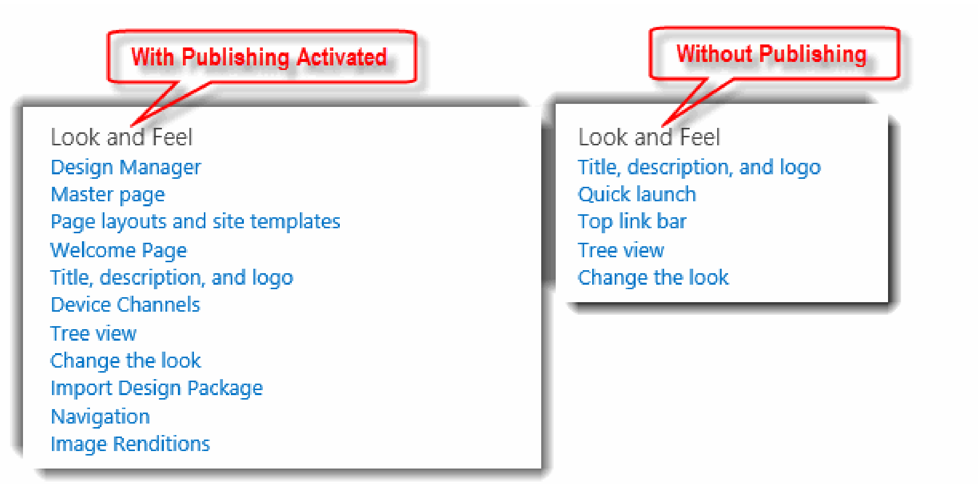


The advantage of this system is that the actual layout page can be changed out without affecting the content it is displaying. The data from the **Pages** library item is simply read and displayed in the new layout.



SharePoint comes with several layout pages you can change out and it's possible to create your own layout pages using SharePoint Designer.

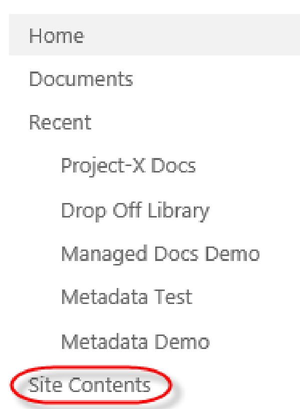
In addition to the **Pages** library and the new content types, the publishing feature adds new links under the **Look and Feel** group of the **Site Settings** page. These links allow you to change the master page and home page for the site using the browser. You can also control the layout pages and site templates allowed in the site.



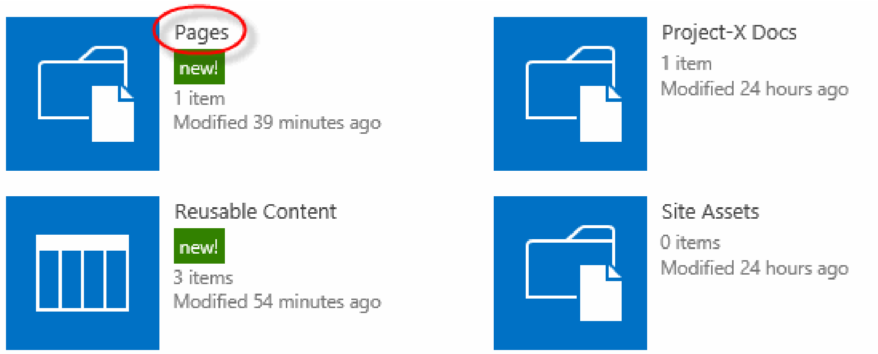
9.3. Creating Pages with Page Layouts

This walk-through will show you how to create a new page in the **Pages** library linked to one of the layout pages provided by SharePoint.

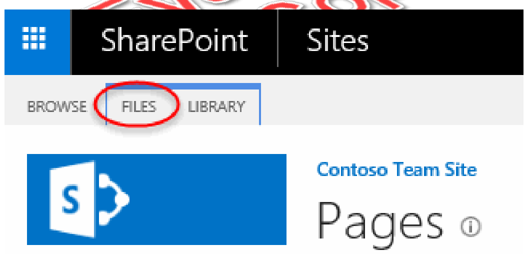
1. Create a new Article Page named "Contoso Camping 2016" in the **Pages** library.
   A. Click the **Site Contents** link in the site's **Quick Launch** menu.



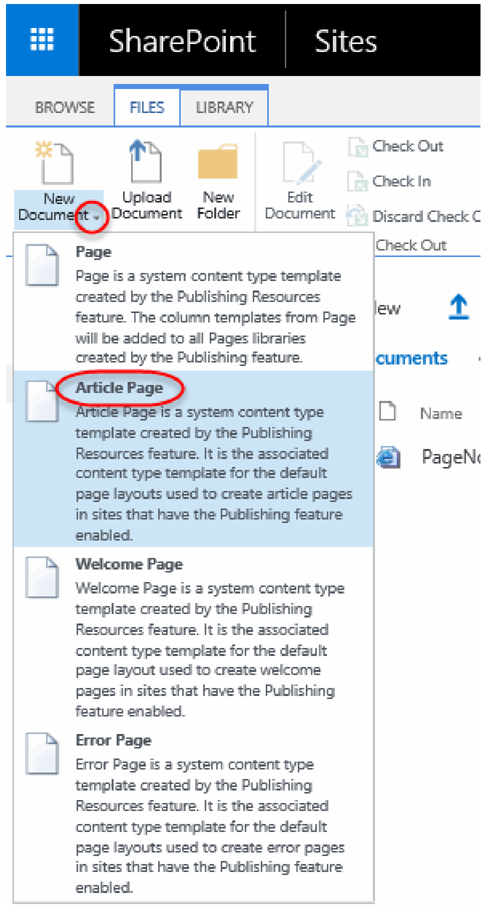
   B. Click the **Pages** link from the list of **Site Contents**.



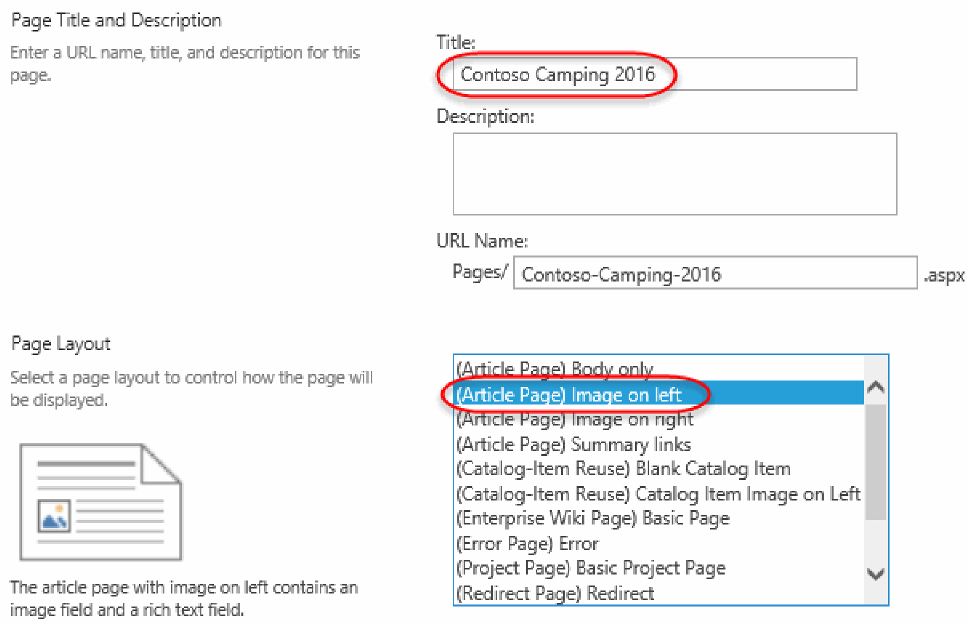
C. Click the **FILES** tab to open the toolbar.



D. Click the arrow below the **New Document** button and select the **Article Page** option from the menu.



E. Type `Contoso Camping 2016` in the **Title** field and choose **(Article Page) Image on left** for the **Page Layout**.



F. Click the **Create** button to finish creating the page.

2. Add an image to the **Images** library for later use in editing the layout page.

   A. Click the **Site Contents** link in the **Quick Launch** menu.

   B. Click the **Images** library link in the list of **Site Contents**.

   C. Click the **Upload** link in the **Images** library.

   D. Click the **Browse** button.

   E. Select the `relaxed-with-laptop.jpg` file from the folder you downloaded the class file to and click the **Open** button.

   F. Click the **OK** button.

   G. Click the **Save** button.

3. Edit the **Contoso-Camping-2016** page.

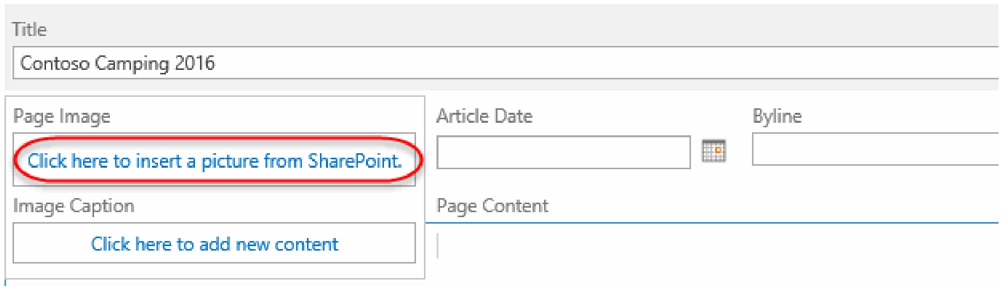
   A. Click the **Site Contents** link in the **Quick Launch** menu.

   B. Click the **Pages** link in the list of **Site Contents**.

   C. Click the **Contoso-Camping-2016** page link in the **Pages** library.

   D. Click the **EDIT** icon in the upper-right corner of the page to edit the page.

E. Click the **Click here to insert a picture from SharePoint** link.



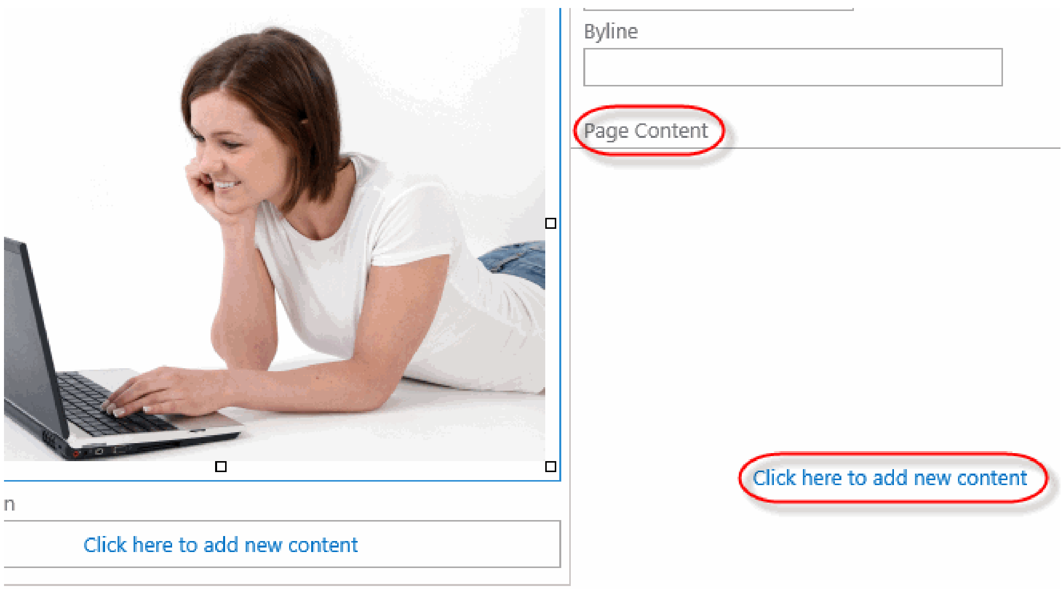
F. Click the **Browse** button.

G. Click the **Images** link on the left-side tree-view list to see the contents.

H. Select the **relaxed-with-laptop** image and click the **Insert** button.

I. Click the **OK** button on the **Edit Image Properties** dialog.

J. Click the **Click here to add new content** link in the **Page Content** field.



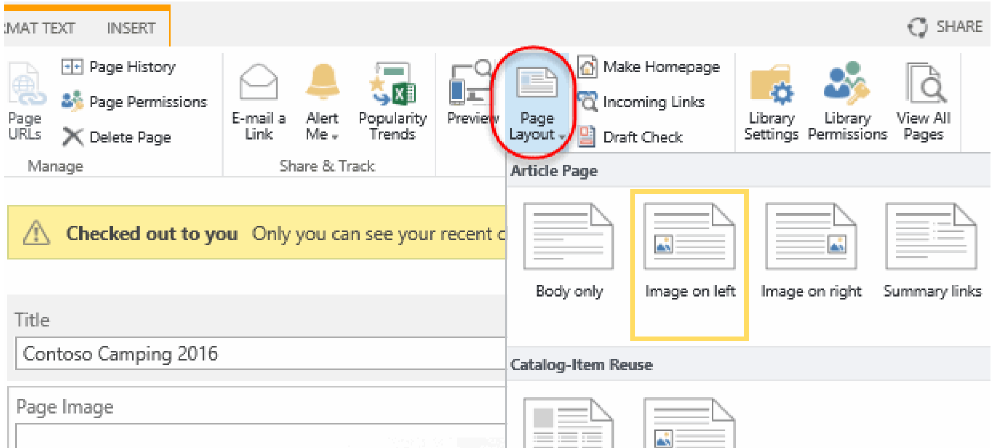
K. Type `Bring your own marshmallows to the campout!` in the **Page Content** field.

L. Click the **SAVE** icon in the upper-right corner of the page.

4. Change the layout of the **Contoso Camping 2016** page.

A. Click the **EDIT** icon in the upper-right corner of the page.

B. Click the **Page Layout** drop-down button on the **PAGE** tab toolbar.



C. Select the **Image on right** layout option.

D. Click the **SAVE** icon in the upper-right corner of the page.

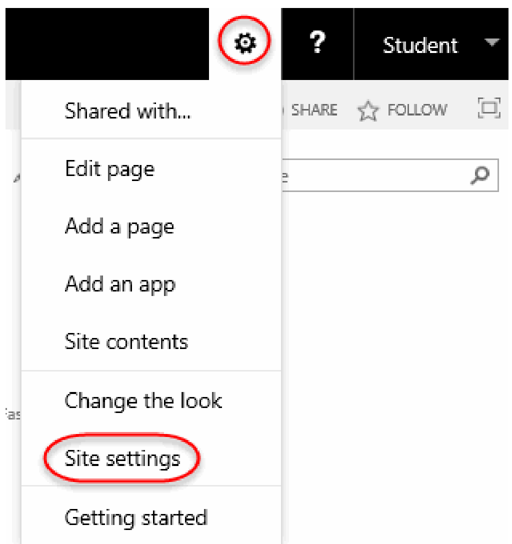
Note
The **Pages** library has the require check out setting on by default so don't forget to check in your page if you want to allow others to edit it. You will also need to publish a major version before users with only read permissions will be able to see your changes.

E. Verify that the text content is now on the left and the image is on the right.

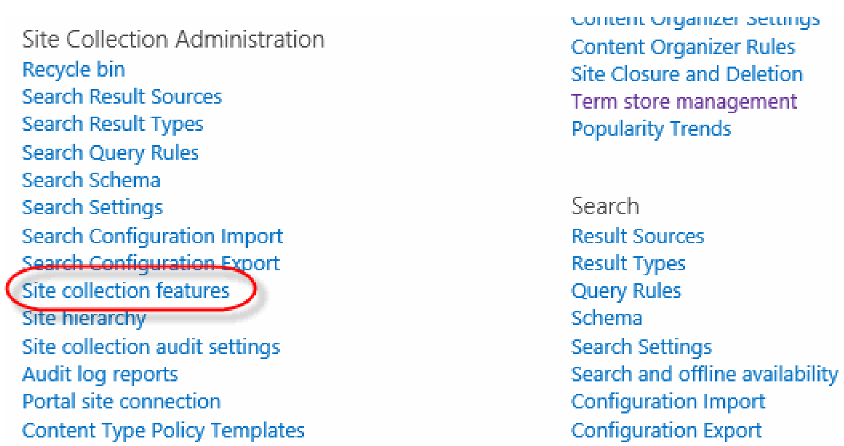
Exercise 12: Activating Publishing Infrastructure

5 to 10 minutes

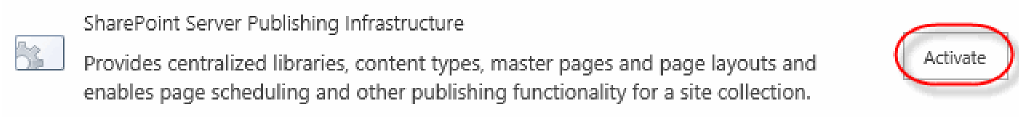
1. Navigate to your root team site.
2. Activate the **SharePoint Server Publishing Infrastructure** feature for the site collection.
   A. Click **Settings** menu and then choose **Site Settings** from the options.



   B. Click the **Site Collection Features** link in the **Site Collection Administration** group of the **Site Settings** page.



C. Click the **Activate** button for the **SharePoint Server Publishing Infrastructure** feature.



3. Activate the **SharePoint Server Publishing** feature for your root team site.

   A. Click **Settings** menu and then choose **Site Settings** from the options.

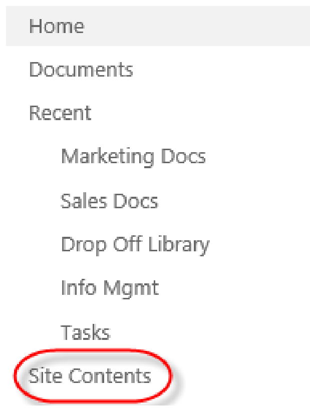
   B. Click the **Manage Site Features** link in the **Site Actions** group of the **Site Settings** page.

   C. Click the **Activate** button for the **SharePoint Server Publishing** feature.

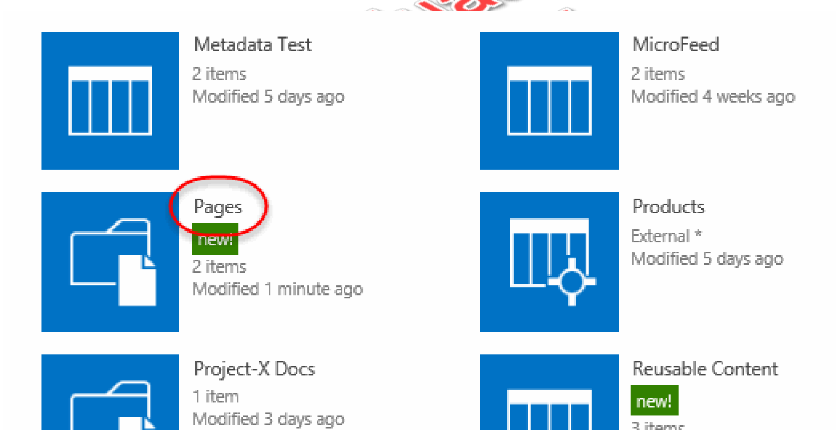
Exercise 13: Creating Publishing Pages

10 to 15 minutes

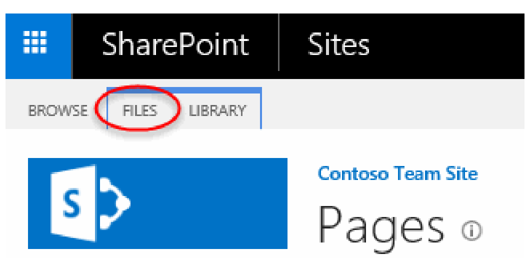
1. Add a **Welcome Page** layout page to the **Pages** library.
    A. Click the **Site Contents** link in the site's **Quick Launch** menu.



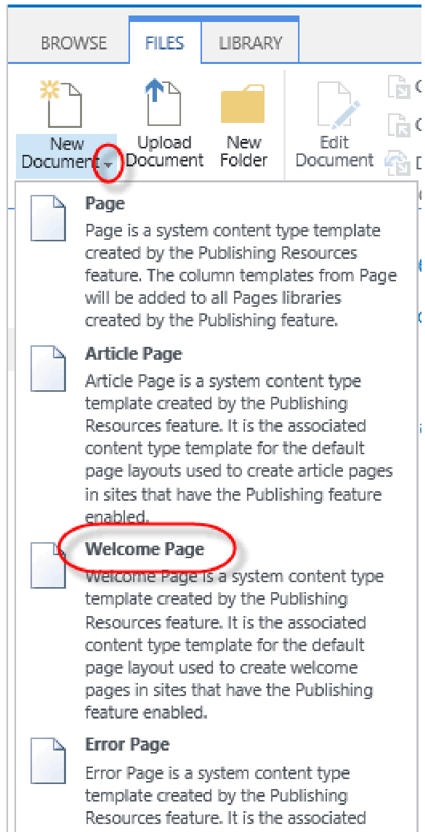
    B. Click the **Pages** link from the list of **Site Contents**.



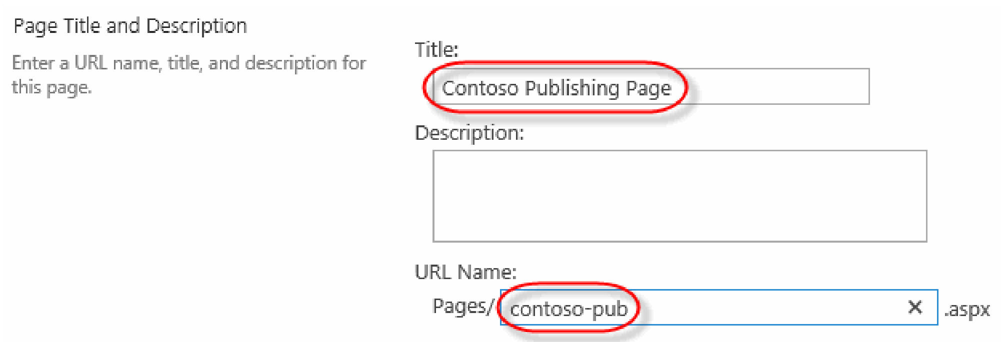
    C. Click the **FILES** tab to open the toolbar.



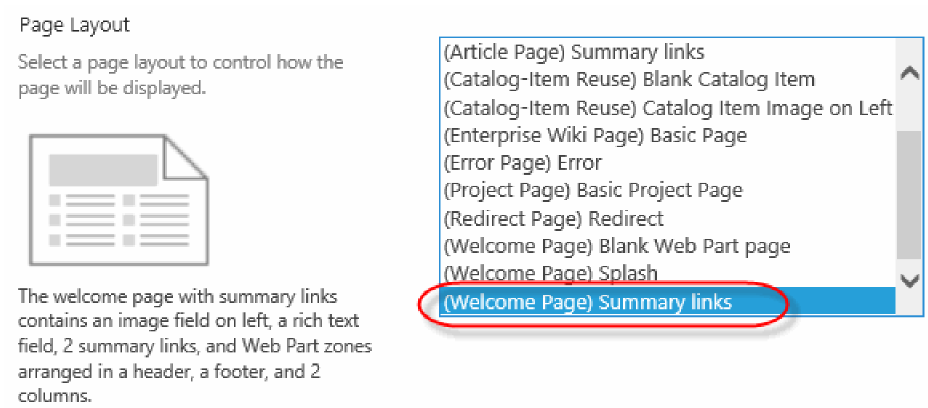
D. Click the arrow below the **New Document** button and select the **Welcome Page** option from the menu.



E. Type `Contoso Publishing Page` in the **Title** field and `contoso-pub` in the **URL Name** field.

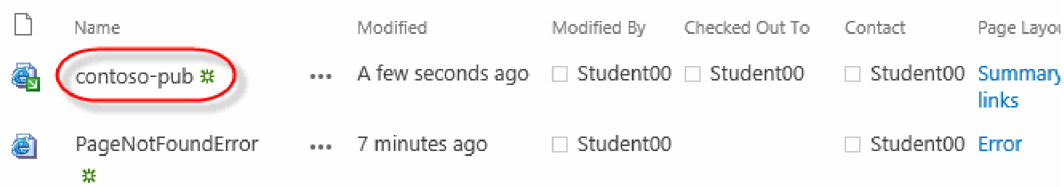


F. Select **(Welcome Page) Summary links** in the **Page Layout** list box and click the **Create** button to complete creating the publishing page.

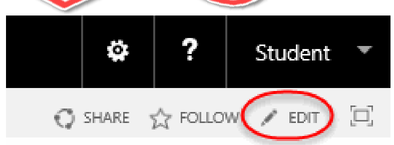


2. Edit the **contoso-pub** publishing page.

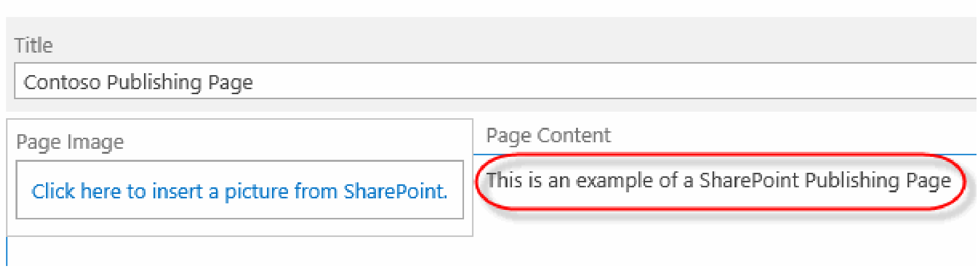
   A. Click the **contoso-pub** link in the **Pages** library.



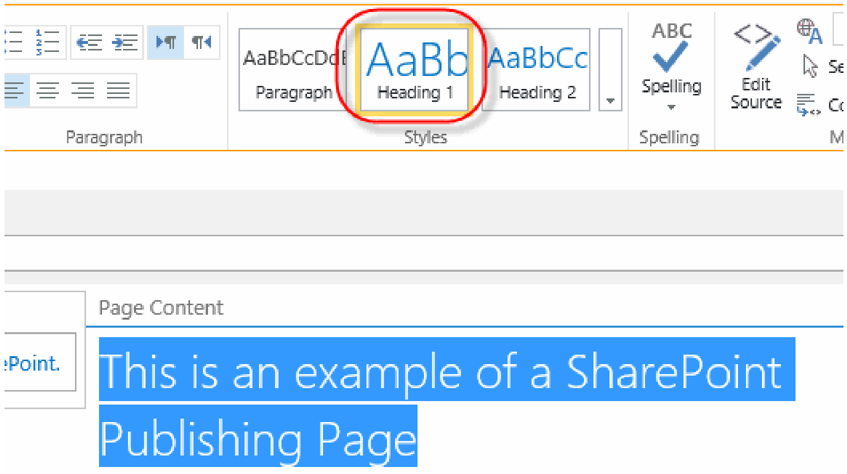
   B. Click the **EDIT** icon in the upper-right corner of the page.



   C. Type `This is an example of a SharePoint Publishing Page` in the **Page Content** area of the page.

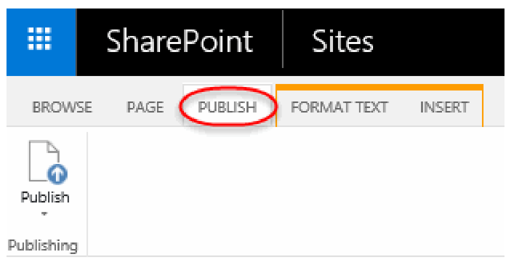


   D. Use your mouse to highlight the text you typed from the previous step and then click the **Heading 1** from the **Styles** section of the **FORMAT TEXT** toolbar.

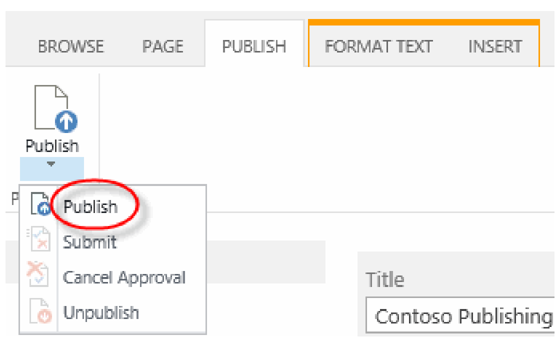


3. Publish the **contoso-pub** publishing page.

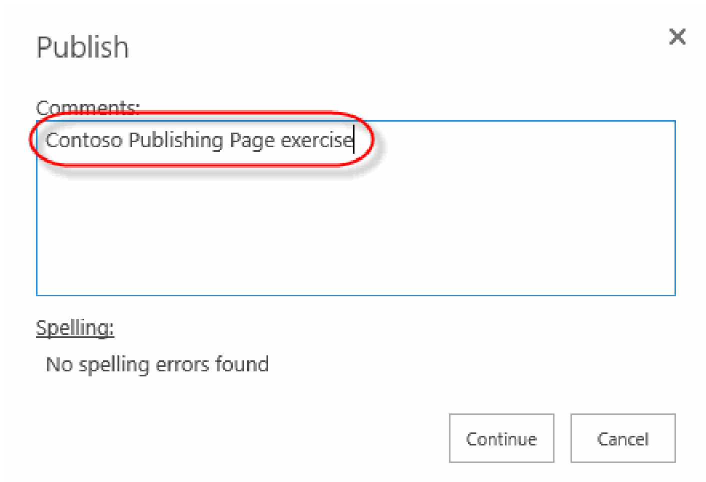
   A. Click the **PUBLISH** tab in the publishing page toolbar.



   B. Click the **Publish** button on the **PUBLISH** tab and choose the **Publish** option.



   C. Type `Contoso Publishing Page exercise` in the **Comments** field and click the **Continue** button.



Conclusion

In this lesson, you learned:

- How to activate the site collection's **SharePoint Server Publishing Infrastructure** feature.
- How to activate the site's **SharePoint Server Publishing** feature.
- How the SharePoint Publishing Infrastructure works.
- How to create a page using publishing layouts.
- How to change the layout of a page.

LESSON 10

Configuring and Consuming Site Search Results

Topics Covered

☑ Basic search in SharePoint.

☑ Adding a Search Center.

☑ Configuring the site's search box to use a Search Center.

☑ Crawling content.

Introduction

SharePoint 2016 comes out-of-the-box with search capabilities. With proper configuration SharePoint search is scalable to content sources containing millions of items.

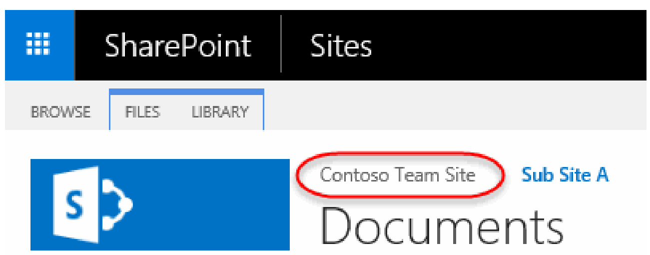
10.1. Search SharePoint for Content

SharePoint sites come with a search field built into each page of the site by default.

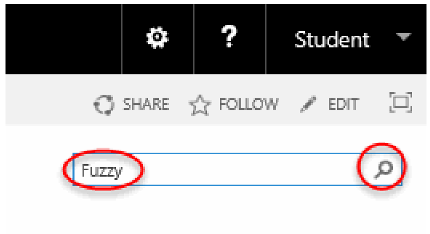
For search results to return anything back, the Farm administrator has to configure the Search Service with content sources and the content has to be crawled and indexed by the service. Typically, the crawling process is scheduled to run automatically by the Farm administrator. When new content is added to a site, it will not show in search results until the crawl process has run and updated the Search Service's databases and indexes.

The following walk-through will show you how to add new content to your root team site and the child site **Sub Site A** and then perform a search for the newly added content. If you do not have a child site named **Sub Site A** any child site will do.

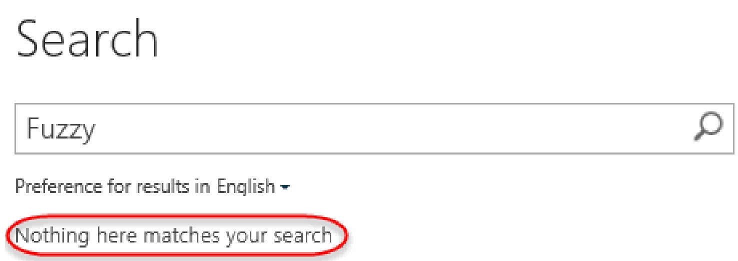
1. Add new Word documents to both your root team site and a child site of your root.
   - A. Click the **Documents** link in the **Quick Launch** menu of your root site.
   - B. Click the **FILES** tab to open the toolbar and click the **New Document** button.
   - C. Type `Fuzzy Wuzzy was a bear.` in the body of the new Word document.
   - D. Save the document with the file name “Fuzzy Wuzzy part 1.docx” and close Word.
   - E. Click the **Sub Site A**, or whatever child site you want to use, link in the parent site’s **Top Link** bar to navigate to the child site.
   - F. Click the **Documents** link in the **Quick Launch** menu of the child site.
   - G. Click the **FILES** tab to open the toolbar and click the **New Document** button.
   - H. Type `Fuzzy Wuzzy had no hair.` in the body of the new Word document.
   - I. Save the document with the file name “Fuzzy Wuzzy part 2.docx” and close Word.
   - J. Click the link of the parent root site in the **Top Link** bar.



2. Search the site for items that contain the word “Fuzzy” in them.
   - A. Type `Fuzzy` in the **Search this site…** text-box field and click the **Search** icon button.



B. Verify that there are no results for the word “Fuzzy”.

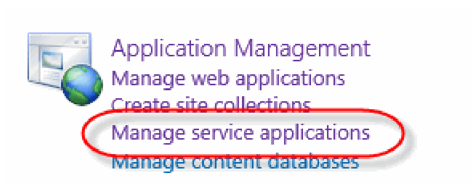


3. Start an incremental crawl.

Note
You can only perform these steps if you have access to the Central Administration site of your farm.

A. Open a new browser tab and navigate to your farm's Central Administration site. The setup for this course has the Central Administration site at `http://SPServer2016:5000`

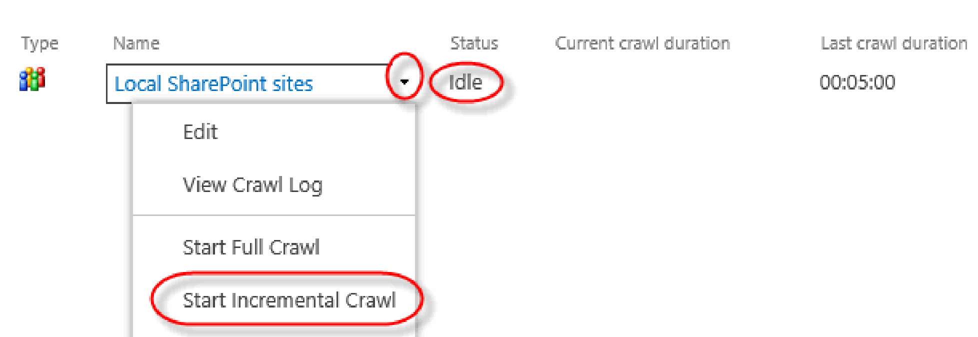
B. Click the **Manage service applications** link located in the **Application Management** group.



C. Click the **Search Service Application** link within the list of services to open the **Search Administration** page.

D. Click the **Content Sources** link in the **Quick Launch** menu of the **Search Administration** page.

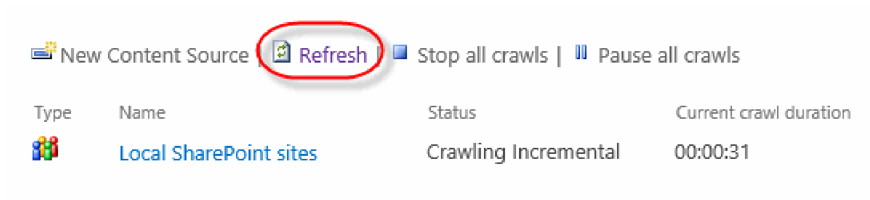
E. Verify that the **Local SharePoint sites** content source's **Status** is **Idle**. If the **Status** is **Idle** and then hover over the **Local SharePoint sites** link and click the arrow to open the drop-down menu and select the **Start Incremental Crawl** option.



Note

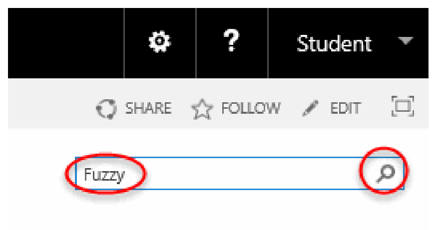
If the content source's **Status** is not **Idle**, click the **Refresh** link as described in the next step. Note that in a production site crawls would be scheduled to run periodically and you would not have to manually start them.

F. Click the **Refresh** link at the top of the **Search Administration** page until the **Status** column is back to **Idle**. You only need to click the **Refresh** every 10 to 15 seconds. The crawl process could take up to 5 minutes to complete.

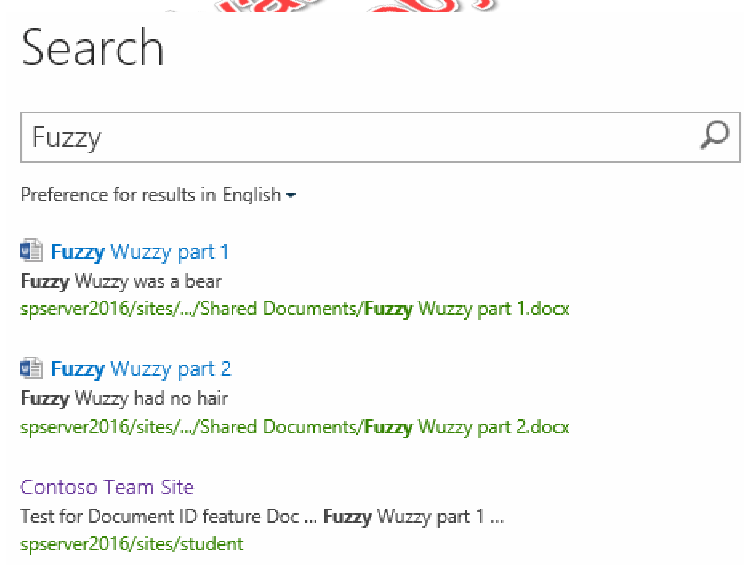


4. Retest the search of our site for items with the word “Fuzzy” in them.

   A. Click the **Search** icon on the **Search Results** page to search again for items with the word “Fuzzy” in them.



   B. Verify we now have at least three results for “Fuzzy”.



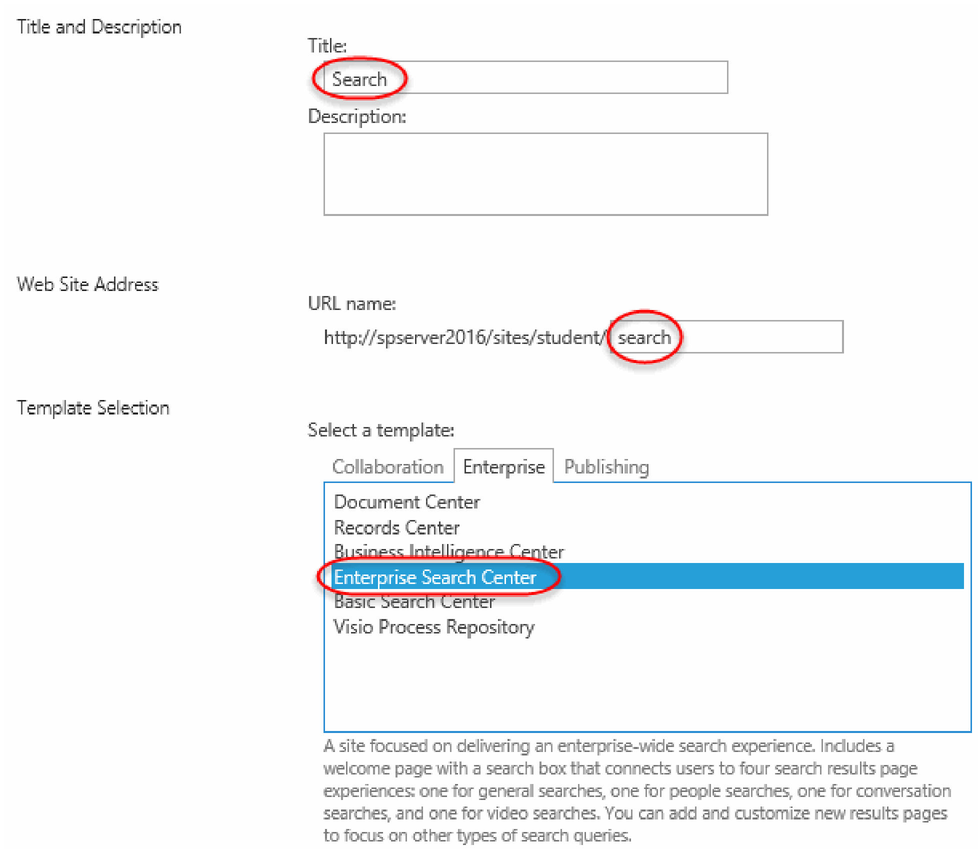
10.2. SharePoint Search Center

SharePoint Server 2016, both standard and enterprise, come with site templates for a Basic Search Center and an Enterprise Search Center. Adding a Search Center to a site collection provides users with more advanced search options and scopes. The Enterprise Search Center comes with built in tabs on the search results page that includes a People search scope. To use the Enterprise Search Center the site collection has to have the Publishing Infrastructure feature activated. Once a Search Center has been created the site administrator can configure the site's default search box to link to it.

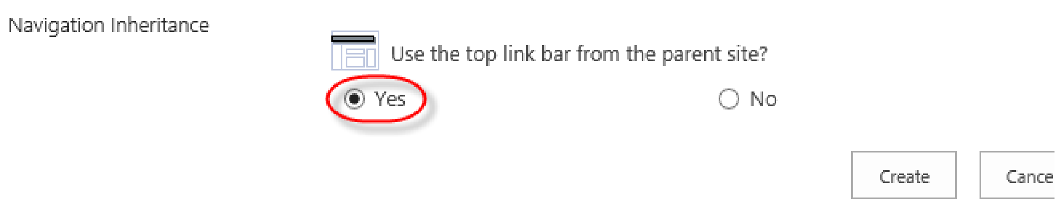
The following walk-through will show you how to create an Enterprise Search Center and configure a site to use it for search results.

Note
The exercise at the end of this lesson performs the same steps and they only need to be done once for a site.

1. Add an Enterprise Search Center to our site collection.
   - A. Click **Site Contents** from the **Quick Launch** menu.
   - B. Click the **new subsite** link at the bottom of the **Site Contents** page.
   - C. Choose the **Enterprise Search Center** template from the **Enterprise** tab and type "Search" for both the **Title** and **URL name** fields.

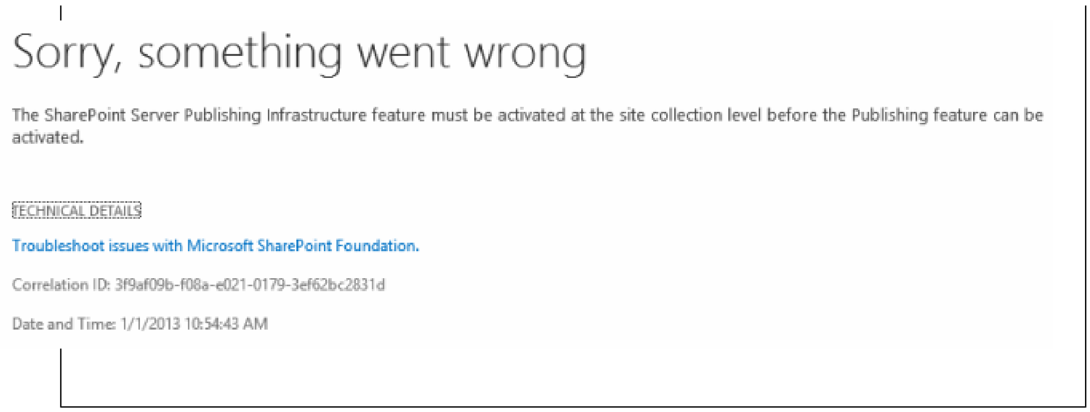


D. Select **Yes** for the option to **Use the top link bar from the parent site** and click the **Create** button.



Note

If the Publishing Infrastructure is not activated for the site collection, we will get the following error:



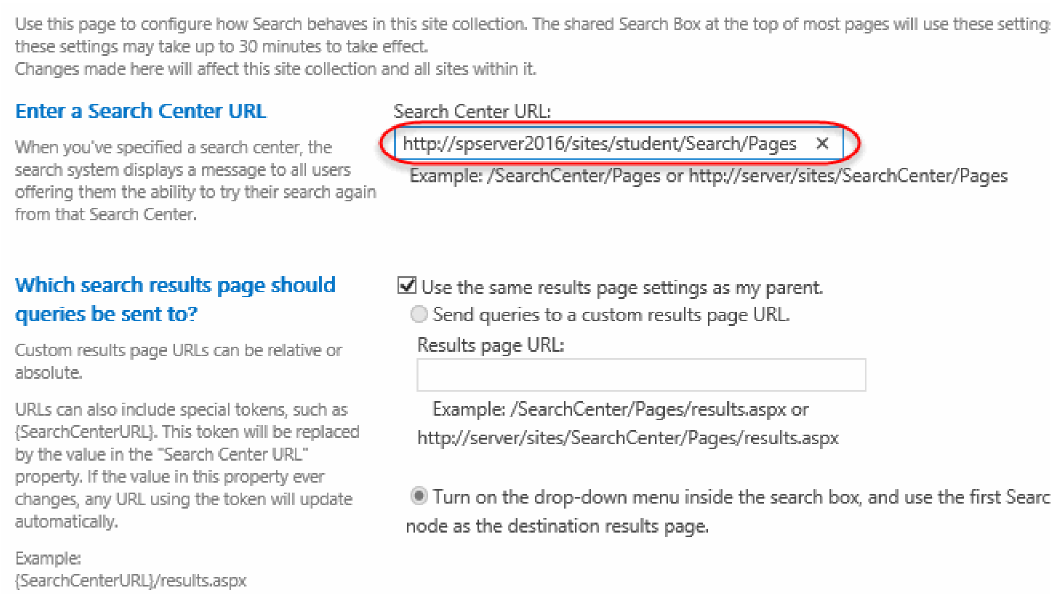
E. Click the **Contoso Home Site** in the **Top Link** bar to navigate back to the home page of your site.

2. Configure our site's default search box to use the new Enterprise Search Center and enable scope selection.

   A. Click the **Settings** icon and then choose **Site Settings** from the options menu.

   B. Click the **Search Settings** link under the **Site Collection Administration** group.

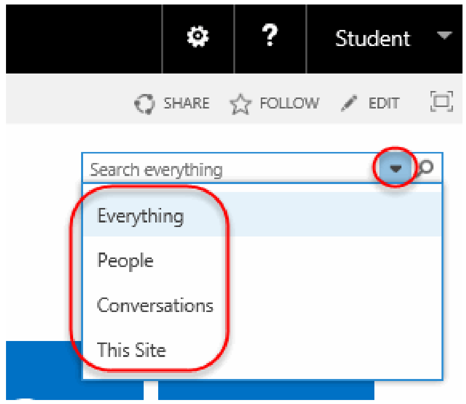
   C. Type in the path to your search center, this example uses `http://spserver2016/sites/student/Search/Pages` in the **Search Center URL** field.



D. Click the **OK** button to save our changes.

E. Navigate back to the home page of your site.

F. Verify that there is a new drop-down field that lets us choose a scope for our search.

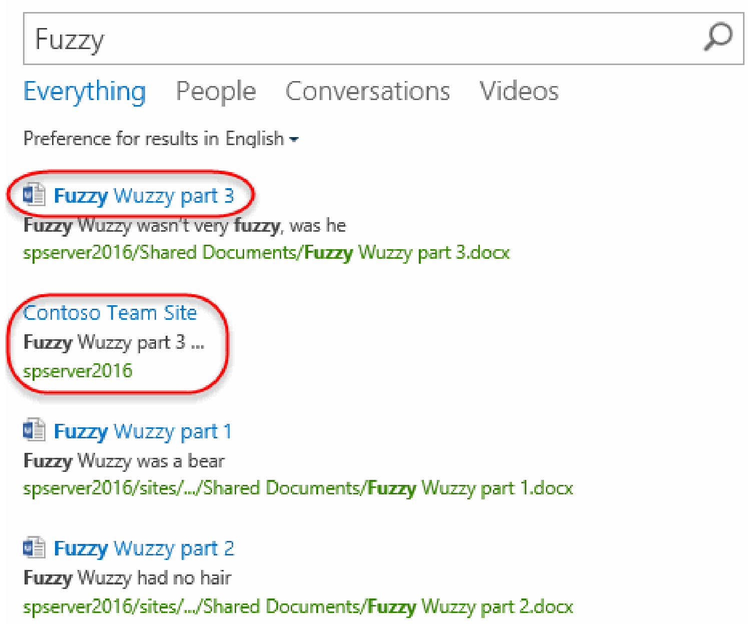


3. Test the new search functionality by searching again for the word “Fuzzy”.

A. Type `Fuzzy` in our site’s search field and verify the scope drop-down field is set to **Everything**.

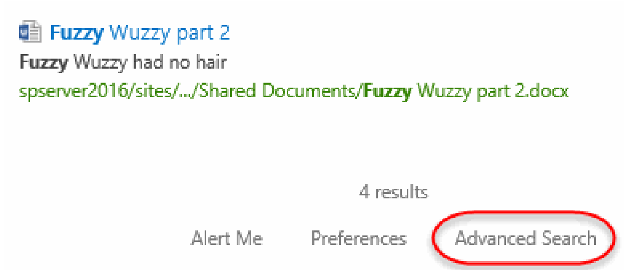
B. Click the **Search** icon to start the search.

C. Verify that we got at least one result back linking to a document found in the Contoso Root site.

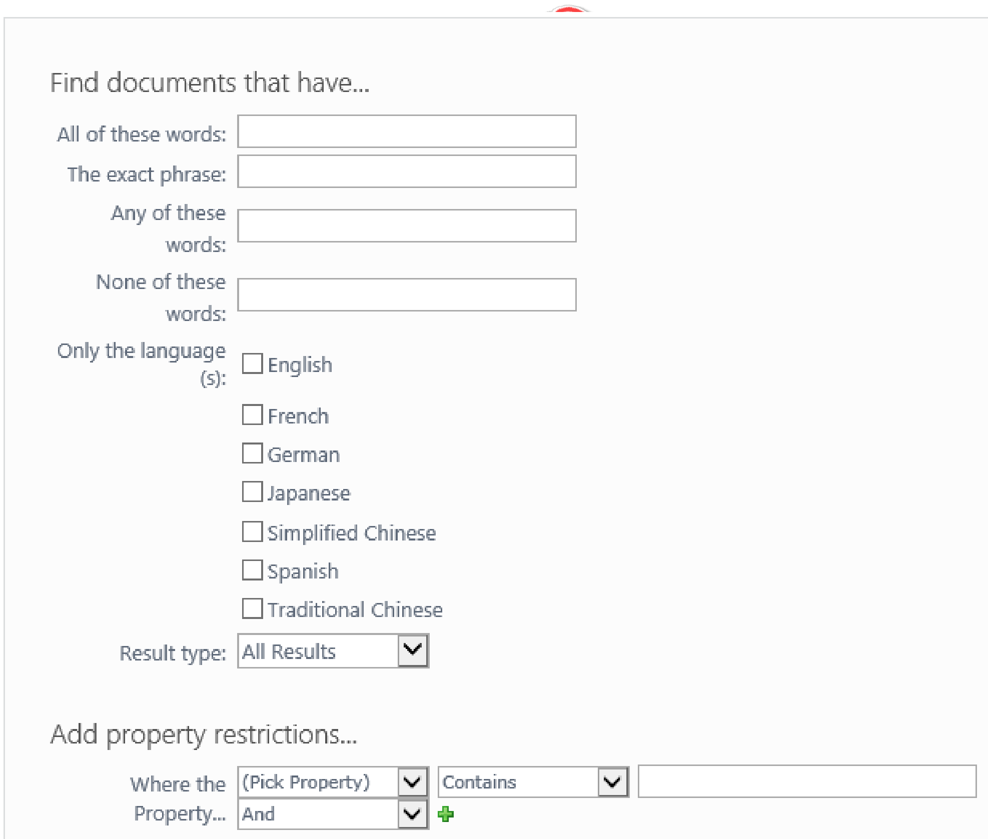


Note
You got back results from another site collection because with the Search Center you can pick the **Everything** option that includes everything within your farm.

D. Click the **Advanced Search** link at the bottom of the search results page.



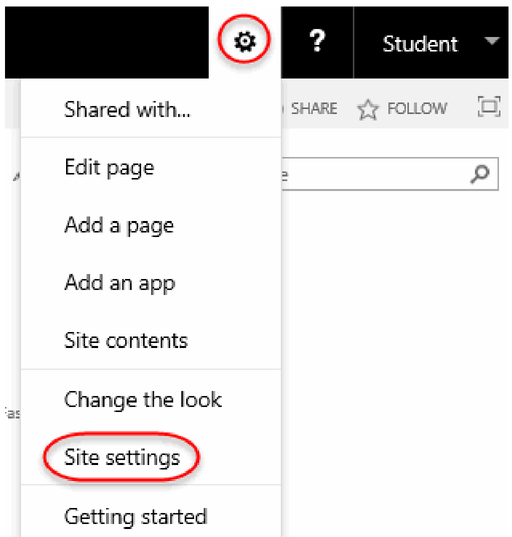
E. Verify the **Advanced Search** offers multiple options to help refine a search.



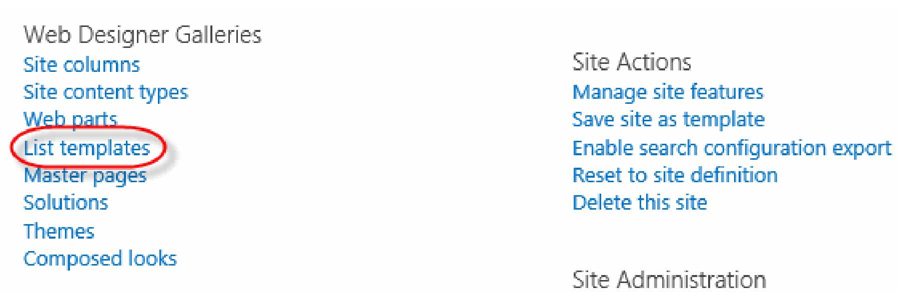
Exercise 14: Basic SharePoint Search

10 to 15 minutes

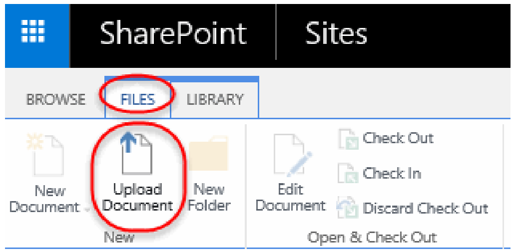
1. Navigate to your team site.
2. Import the `FavCarsList.stp` list template file and create a new list using the template. If you already have the **Favorite Cars** list in your site from an earlier exercise you can skip the following sub-steps.
   A. Click the **Settings** menu and then click the **Site Settings** option.



   B. Click the **List templates** link on the **Site Settings** page within the **Galleries** group.



   C. Click the **FILES** tab to open the toolbar and then click the **Upload Document** link-button.



D. Click the **Browse** button in the **Add a template** dialog.

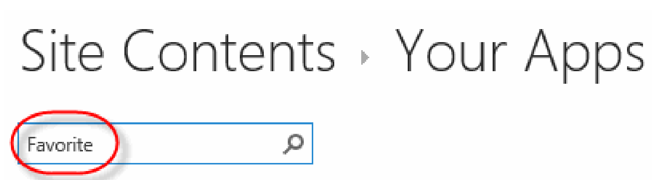
E. Navigate and select the `FavCarsList.stp` file from the folder you downloaded the class files to and click the **Open** button on the **Choose File to Upload** dialog window.

F. Click the **OK** button on the **Add a template** dialog.

G. Click the **Save** button on the **List Template Gallery** dialog to save the file into the gallery.

H. Click the **Settings** menu and then choose the **Add an app** option.

I. Type `Favorite` in the **Find an app** search field and click the **Search** icon.

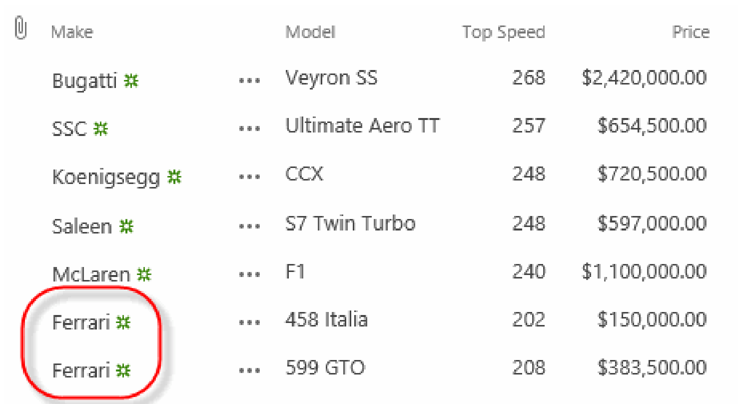


J. Select the **Favorite Cars List** template from the list template choices and enter `Favorite Cars` in the **Name** field.

K. Click the **Create** button to complete creating the new list.

L. Click the new **Favorite Cars** link in the **Quick Launch** menu.

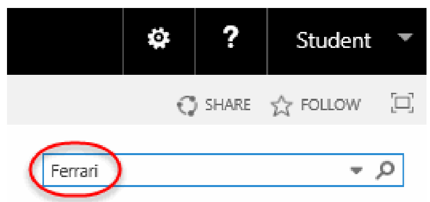
M. Verify the new list is created and populated with cars including a couple of Ferraris that will be used later for searching.



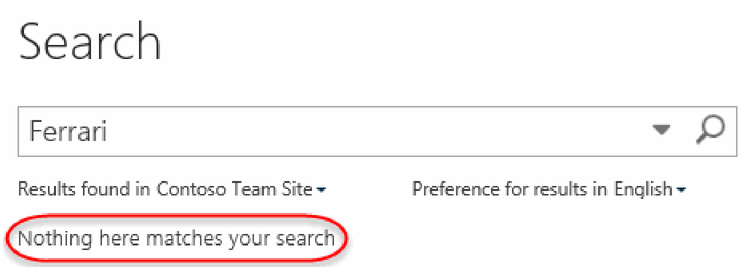
	Make		Model	Top Speed	Price
	Bugatti	•••	Veyron SS	268	$2,420,000.00
	SSC	•••	Ultimate Aero TT	257	$654,500.00
	Koenigsegg	•••	CCX	248	$720,500.00
	Saleen	•••	S7 Twin Turbo	248	$597,000.00
	McLaren	•••	F1	240	$1,100,000.00
	Ferrari	•••	458 Italia	202	$150,000.00
	Ferrari	•••	599 GTO	208	$383,500.00

3. Search your site for items with the word “Ferrari” in them.

    A. Type `Ferrari` in the **Search this site…** field located in the top right of the sites page and click the **Search** icon button.



    B. Verify that no results where found for “Ferrari”.



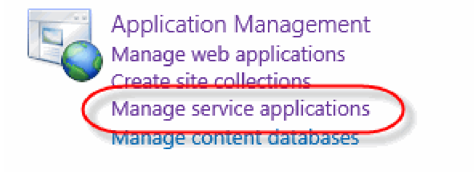
    C. Leave the **Search Results** page open in your browser for a later step in this exercise.

4. Start an incremental crawl.

Note
You can only perform these steps if you have access to your farm’s Central Administration site.

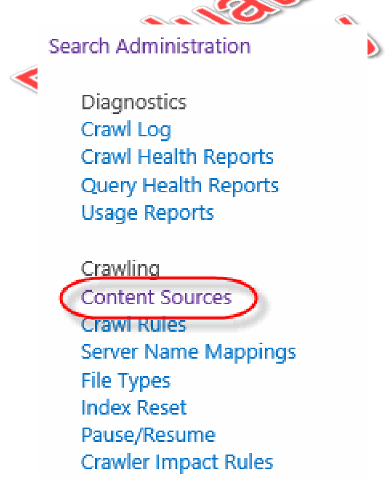
A. Open a new browser tab and navigate to your farm's Central Administration site. If your site was set up using instructions provided with this course the URL should be `http://spserver2016:5000`.

B. Click the **Manage service applications** link located in the **Application Management** group.

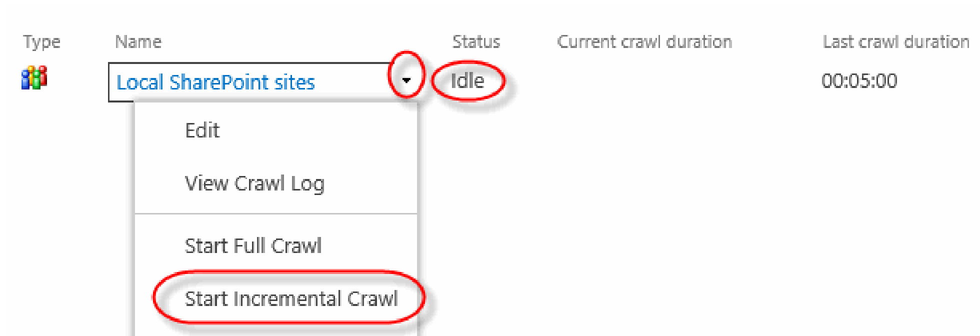


C. Click the **Search Service Application** link within the list of services to open the **Search Administration** page.

D. Click the **Content Sources** link in the **Quick Launch** menu of the **Search Administration** page.



E. Verify that the **Local SharePoint sites** content source's **Status** is **Idle**. If the **Status** is **Idle**, then hover over the **Local SharePoint sites** link and click the arrow to open the drop-down menu and select the **Start Incremental Crawl** option.



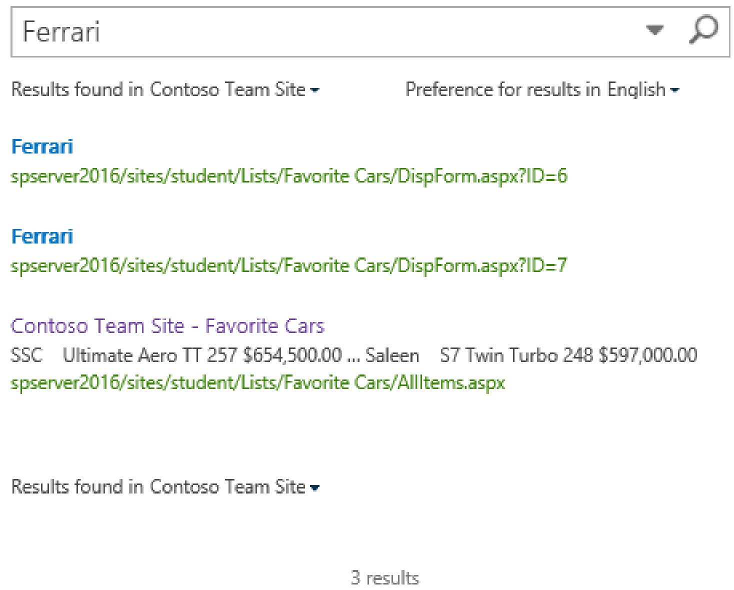
Note
If the content source's **Status** is not **Idle**, click the **Refresh** link as described in the next step. Note that in a production site crawls would be scheduled to run periodically and you would not have to manually start them.

F. Click the **Refresh** link at the top of the **Search Administration** page until the **Status** column is back to **Idle**, you only need to click the **Refresh** every 10 to 15 seconds. The crawl process could take up to 5 minutes to complete.

5. Retest the search of your site for items with the word "Ferrari" in them.

A. Click the **Search** icon on the **Search Results** page to search again for items with the word "Ferrari" in them.

B. Verify you have at least 3 results for "Ferrari".



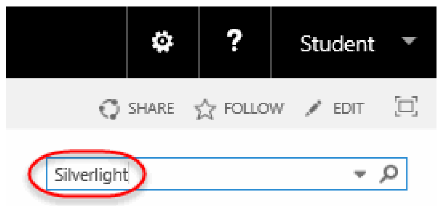
Note

If you do not have any results repeat the step series, "Start an incremental crawl".

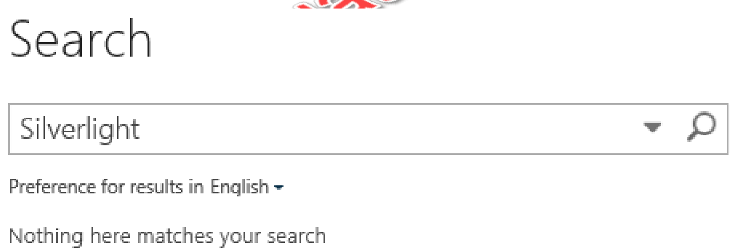
Exercise 15: Advanced Search

10 to 25 minutes

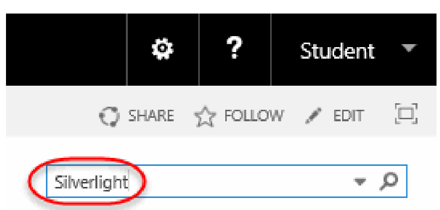
1. Navigate to your team site.
2. Search your site and another site collection for documents that contain the word “Silverlight”.
    A. Type `Silverlight` in the **Search this site…** field located in the top right of the sites page and click the **Search** icon button.



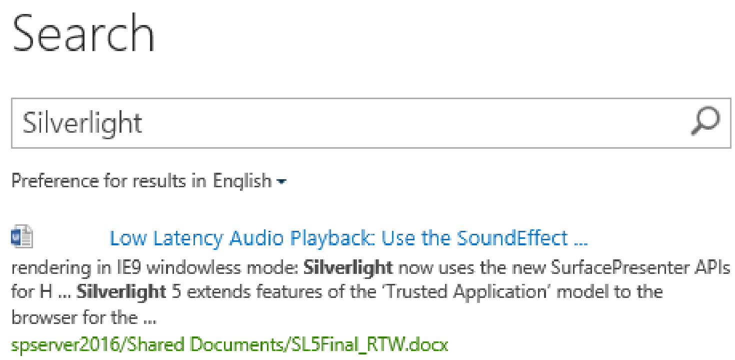
    B. Verify that no results where found for the word “Silverlight”.



    C. Navigate to the **Contoso Root Site** by typing `http://spserver2013` in your browser URL field.
    D. Type `Silverlight` in the **Search this site…** field located in the top right of the sites page and click the **Search** icon button.



    E. Verify that one result was found for the word “Silverlight”.



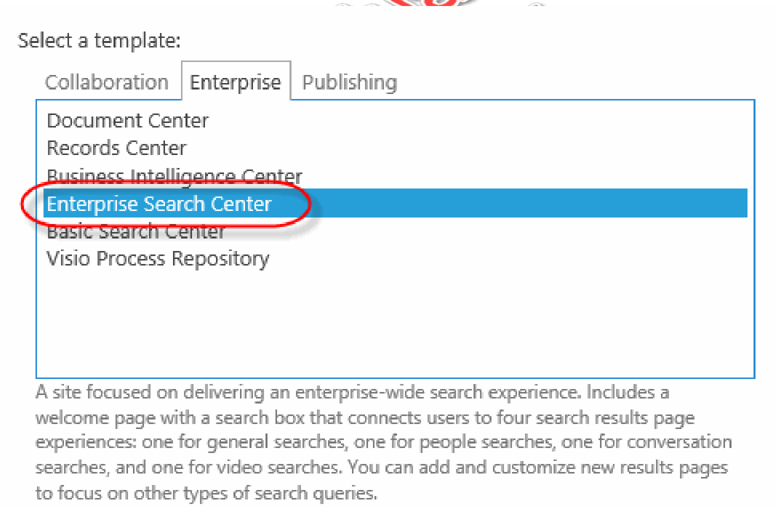
F. Navigate back to your student site by entering the address: `http://spserver2016/sites/student` in your browser URL field.

3. Add an Enterprise Search Center to your site collection.

   A. Click the **Site Contents** link in the **Quick Launch** menu.

   B. Click the **new subsite** link at the bottom of the **Site Contents** page.

   C. Choose the **Enterprise Search Center** template and type `Search` for both the **Title** and **URL name** fields and click the **Create** button.



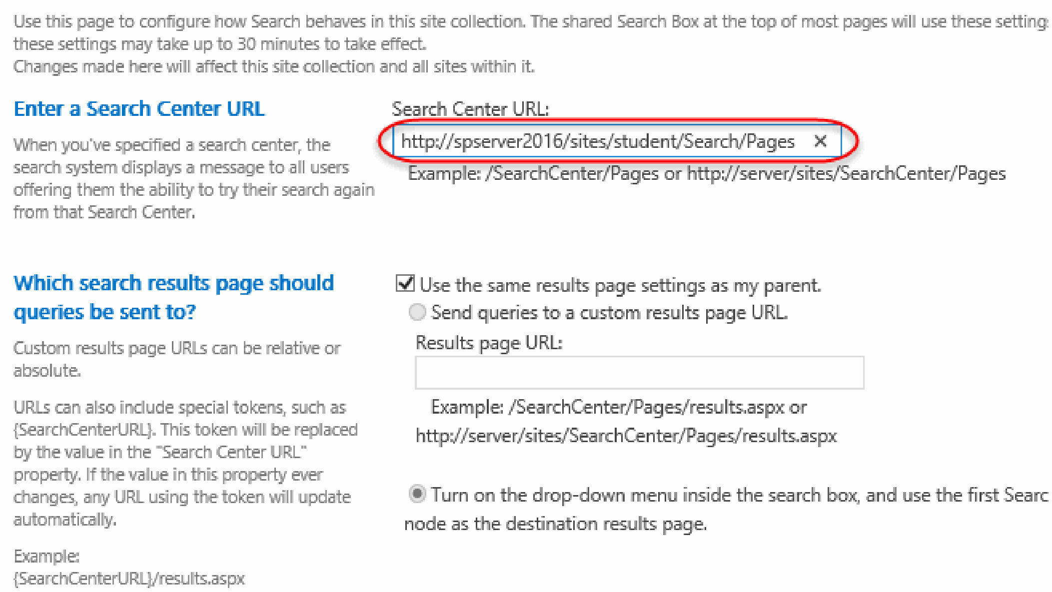
   D. Navigate back to your Student site.

4. Configure your site's default search box to use the new Enterprise Search Center.

   A. Click **Settings** menu and then choose **Site Settings** from the options.

   B. Click the **Search Settings** link under the **Site Collection Administration** group.

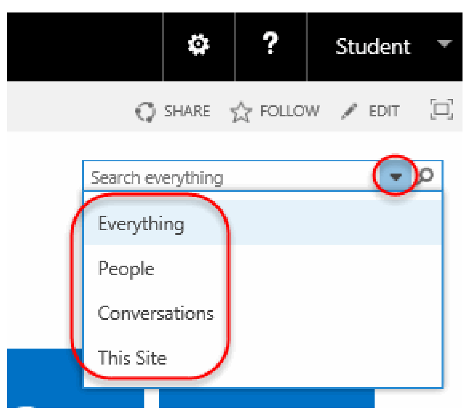
C. Select the **Enable custom scopes** radio-button option and type `http://spserver2016/sites/student/Search/Pages` in the **Search Center URL** field.



D. Leave the rest of the settings at their default and click the **OK** button to save your changes.

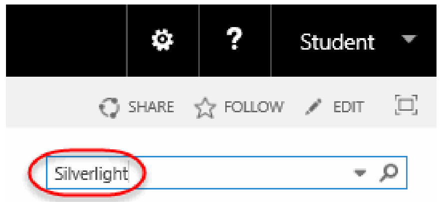
E. Navigate back to the home page of your Student site.

F. Verify that there is a new drop-down field that lets you choose a scope for your search.



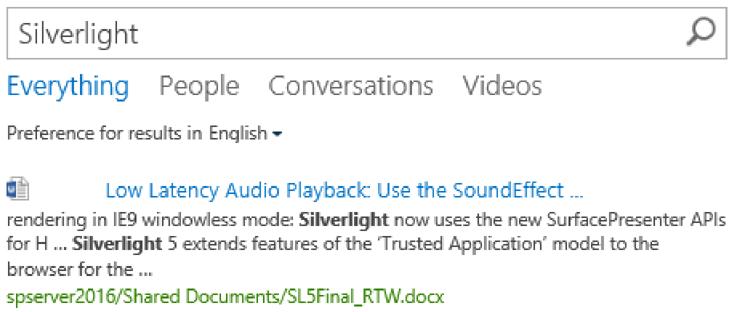
5. Test the new search functionality by searching again for the word "Silverlight".

A. Select **Everything** in the search drop-down and type `Silverlight` in your site's search field.

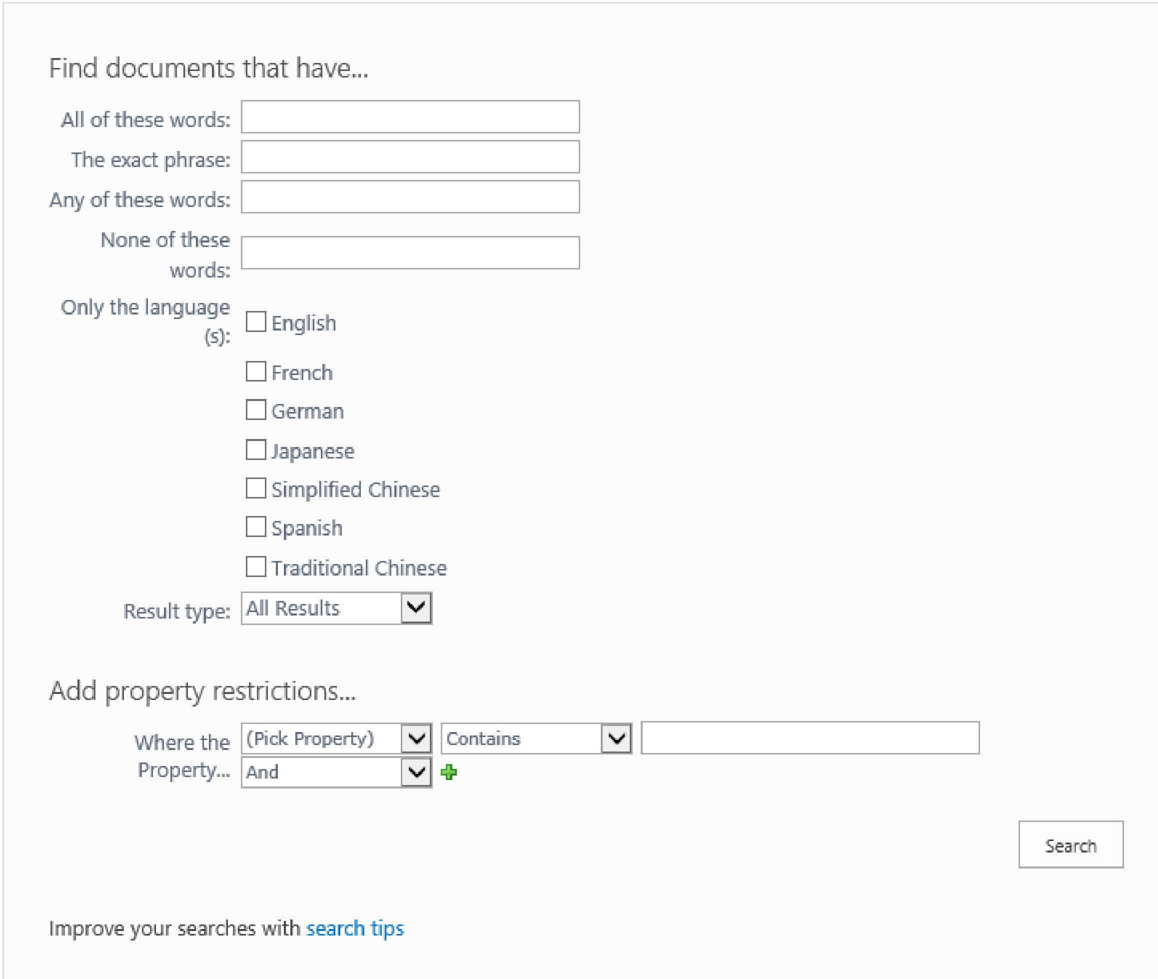


B. Click the **Search** icon to start the search.

C. Verify that you got at least one result back linking to a document found in the Contoso Root site.



D. Click the **Advanced Search** link at the bottom of the search results page.



Conclusion

In this lesson, you have learned:

- How to perform a basic search in SharePoint.
- How to add a Search Center.
- How to configure the site's search box to use a Search Center.
- How to crawl content.