



PDF SHARE FORMS

Online, Offline, OnDemand

PDF forms and SharePoint are better together

Cascade drop-down fields with BCS

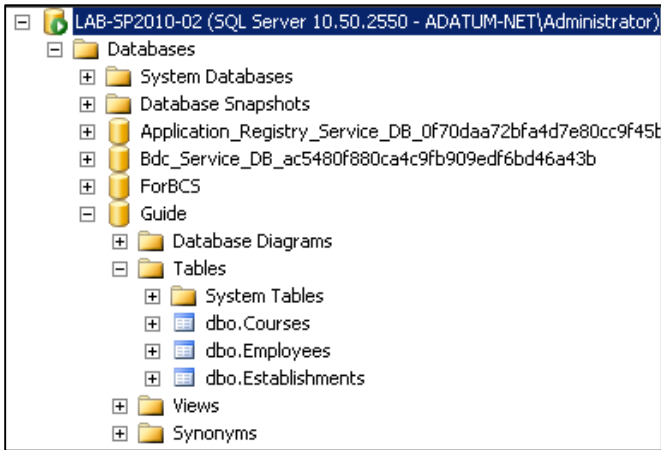
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This guide describes how to create form with cascade drop-down fields, which are fill-in by using Business Connectivity Services.

Preparing SQL tables

This structure is used:



Employees table used to store information about teachers:

```
CREATE TABLE Employees
(
  PersonID int NOT NULL IDENTITY (1, 1) PRIMARY KEY,
  LastName varchar(255) NOT NULL,
  FirstName varchar(255) NOT NULL,
  PhoneNumber varchar(255),
  WorkExperience int
);
```

Courses table stores information about courses and teacher who teach this course:

```
CREATE TABLE Courses
(
  CourseID int NOT NULL IDENTITY (1, 1) PRIMARY KEY,
  Name varchar(255) NOT NULL,
  CourseTeacherID int NOT NULL,
  FOREIGN KEY (CourseTeacherID)
    REFERENCES Employees(PersonID)
);
```

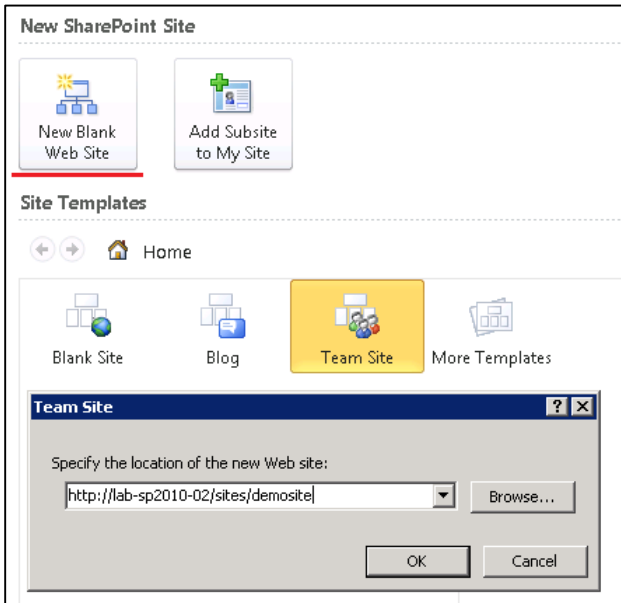
Establishment table store information about educational institutions and teachers who are working there:

```
CREATE TABLE Establishments
(
  EstablishmentID int NOT NULL IDENTITY (1, 1) PRIMARY KEY,
  Name varchar(255) NOT NULL,
  TeacherID int,
  FOREIGN KEY (TeacherID) REFERENCES Employees(PersonID)
);
```

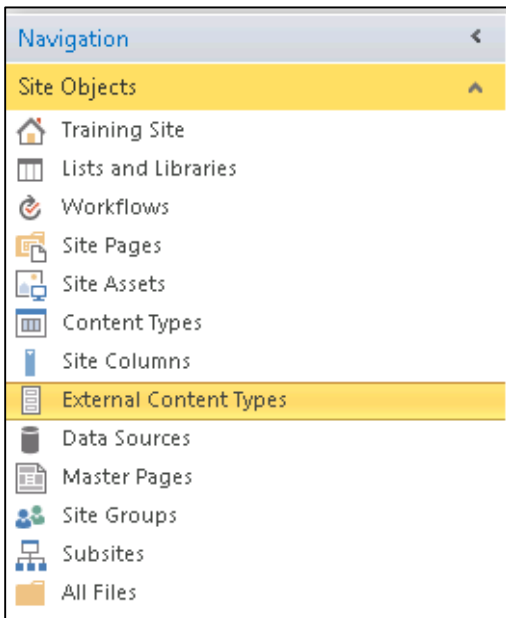
NOTE: Add some information into these tables.

Create External Content Type

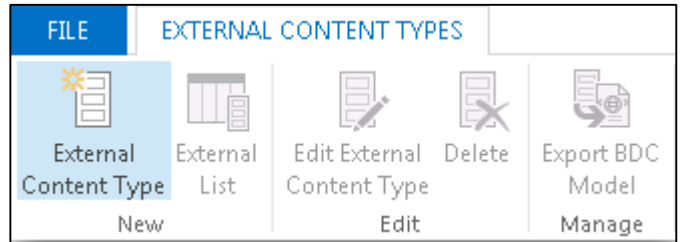
Step 1. Go to SharePoint Designer and create New SharePoint Site



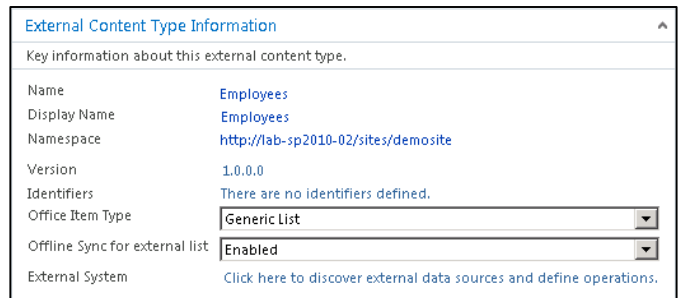
Step 2. Go to **Navigation** → **External Content Types** to create new **External Content Type**:



Click on **External Content Type**:

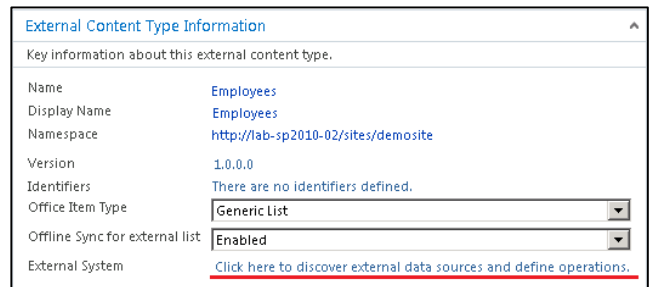


Specify **Name** and **Display Name**:

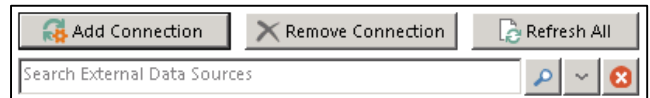


Specify **External System**:

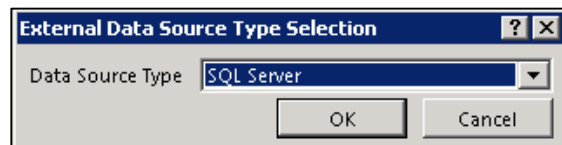
- Define operations



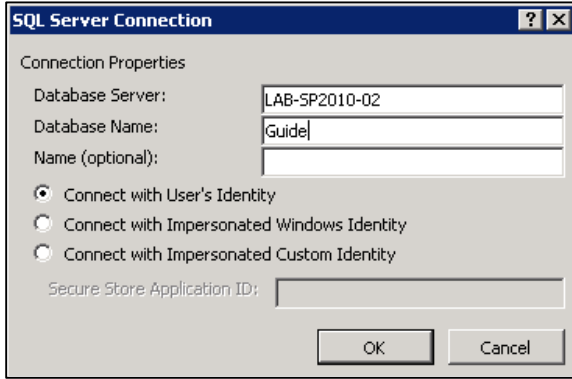
- Click **Add Connection**



- Choose **SQL Server**

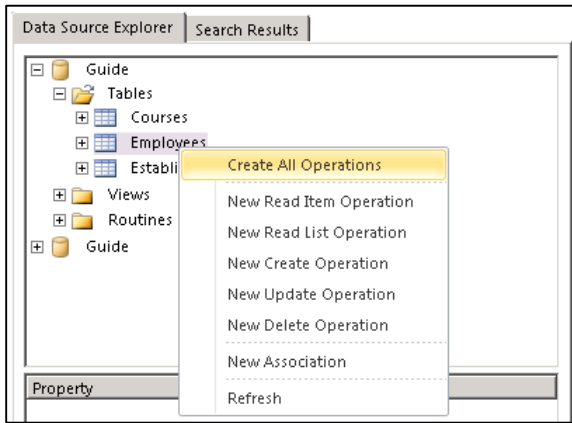


- Write DB Server and DB Name

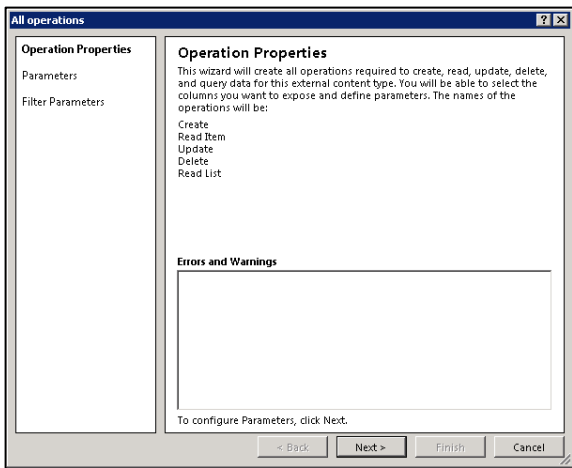


Step 3. Specify actions available with ECT:

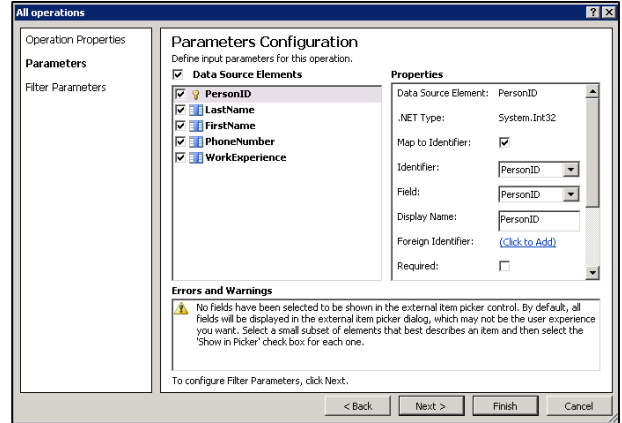
- Choose proper (this time **Employees**) SQL table and create all operations:



- Click Next



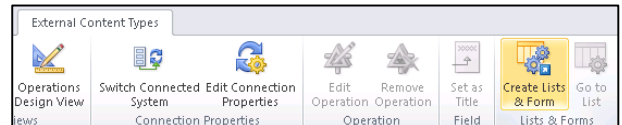
- Configure Identifier and choose fields that will be used with earlier mentioned actions:



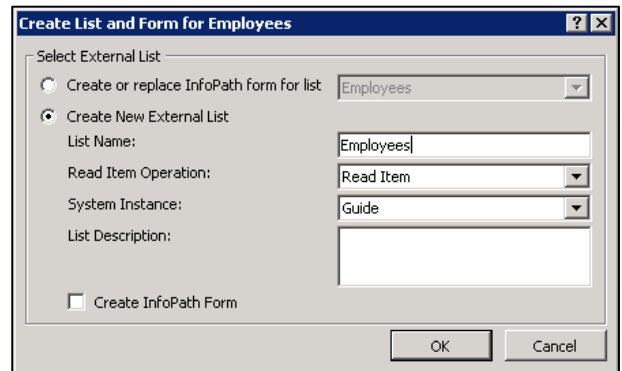
Then click Finish.

Step 4. Create External List. Navigate to **External Content Types** tab in created ECT (in this example - **Employees**) → **Create Lists & Forms**

- Click on **Create List & Form**



- Choose **Create New External List** radio button and write **List Name**



NOTE: This example shows creating of the one External Content Type and External List. We have two more called **Courses** and **Establishments**. To create them repeat steps 1. – 4. with different names: one with **Courses** other with **Establishment**

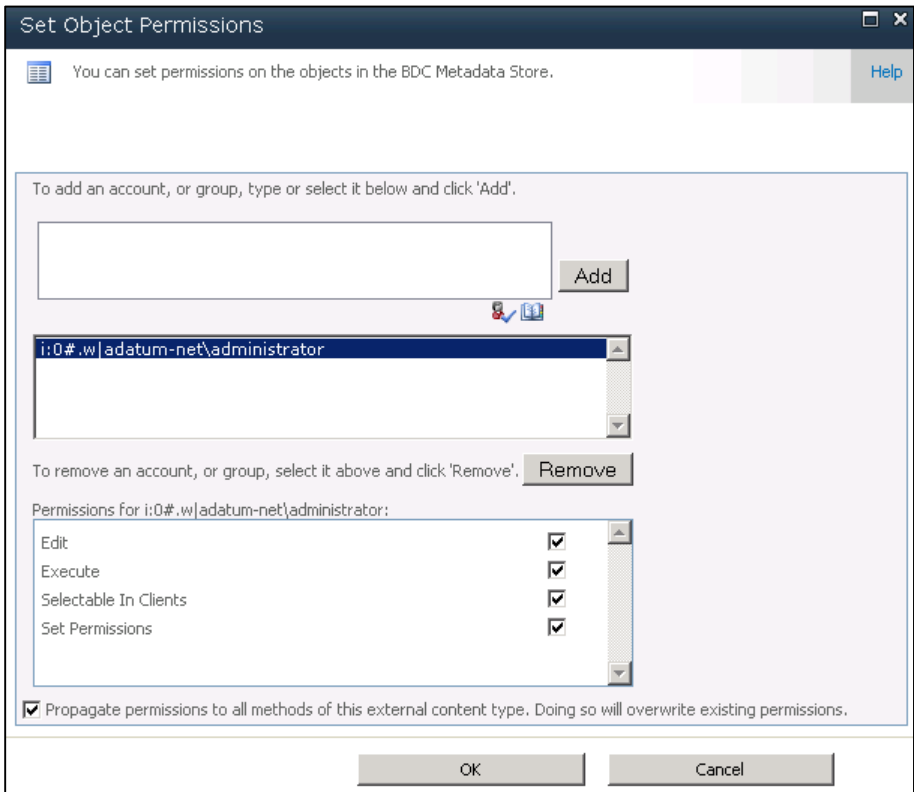
Step 5. Add permissions to External Content Type. Open **Central Administration** → **Manage Service Applications** → **Business Data Connectivity Service**:

Business Data Connectivity Service	Business Data Connectivity Service Application
Business Data Connectivity Service	Business Data Connectivity Service Application Proxy
Excel Services Application	Excel Services Application Web Service Application
Excel Services Application	Excel Services Application Web Service Application Proxy

Choose list:

<input type="checkbox"/>	Name ↑	Display Name	Namespace	Version	External System
<input type="checkbox"/>	Courses	Courses	http://lab-sp2010-02/sites/demosite	1.0.0.0	Guide
<input checked="" type="checkbox"/>	Employees	Employees	http://lab-sp2010-02/sites/demosite	1.0.0.0	Guide
<input type="checkbox"/>	Establishments	Establishments	http://lab-sp2010-02/sites/demosite	1.0.0.0	Guide

Navigate to **Edit** tab → **Set Object Permissions**:



Add user and allow user to Edit, Execute, Selectable and Clients and Set Permissions. Repeat all the same steps with all other External Content Types.

Results

- **Employees External Content Type:**

Use this page to view and manage settings for this external content type.

External Content Type Information

Key information about this external content type.

Name: Employees
 Display Name: Employees
 Namespace: http://lab-sp2010-02/sites/demosite
 Version: 1.0.0.0
 Identifiers: PersonID[Int32]
 Office Item Type: Generic List
 Offline Sync for external list: Enabled
 External System: Guide

Permissions

Permissions for this external content type.

Name	Permissions
adatum-net\administrator	Edit, Execute, Set Permissions, Selectable In Clients

External Lists

View and navigate to external lists bound to this external content type.

Name	URL
Employees	/sites/demosite/Lists/Employees/Read List.aspx

External Content Type Operations

Use this part to manage the operations of this external content type.

This external content type has read, write, and search capabilities. You may associate it with other external content types by creating an Association operation from the Operations: Design View.

Name	Type	Data Source Object
Create	Create	Employees
Read Item	Read Item	Employees
Update	Update	Employees
Delete	Delete	Employees
Read List	Read List	Employees

Fields

A list of the fields that were defined in the operations of this external content type.

Field Name	Type
LastName	System.String
FirstName	System.String
PhoneNumber	System.String
WorkExperience	System.Nullable<System.Int32>
PersonID	System.Int32

- **Courses External Content Type:**

Use this page to view and manage settings for this external content type.

External Content Type Information

Key information about this external content type.

Name: Courses
 Display Name: Courses
 Namespace: http://lab-sp2010-02/sites/demosite
 Version: 1.0.0.0
 Identifiers: CourseID[Int32]
 Office Item Type: Generic List
 Offline Sync for external list: Enabled
 External System: Guide

Permissions

Permissions for this external content type.

Name	Permissions
adatum-net\administrator	Edit, Execute, Set Permissions, Selectable In Clients

External Lists

View and navigate to external lists bound to this external content type.

Name	URL
Courses	/sites/demosite/Lists/Courses/Read List.aspx

External Content Type Operations

Use this part to manage the operations of this external content type.

This external content type has read, write, and search capabilities. You may associate it with other external content types by creating an Association operation from the Operations: Design View.

Name	Type	Data Source Object
Create	Create	Courses
Read Item	Read Item	Courses
Update	Update	Courses
Delete	Delete	Courses
Read List	Read List	Courses

Fields

A list of the fields that were defined in the operations of this external content type.

Field Name	Type
Name	System.String
CourseTeacherID	System.Int32
WorkingHours	System.String
CourseID	System.Int32

- Establishments External Content Type:

Use this page to view and manage settings for this external content type.

External Content Type Information

Key information about this external content type.

Name: Establishments
 Display Name: Establishments
 Namespace: http://lab-sp2010-02/sites/demosite
 Version: 1.0.0.0
 Identifiers: EstablishmentID(int32)
 Office Item Type: Generic List
 Offline Sync for external list: Enabled
 External System: Guide

Permissions

Permissions for this external content type.

Name	Permissions
adatum-net\administrator	Edit, Execute, Set Permissions, Selectable In Clients

External Lists

View and navigate to external lists bound to this external content type.

Name	URL
Establishments	/sites/demosite/Lists/Establishments/Read List.aspx

External Content Type Operations

Use this part to manage the operations of this external content type.

This external content type has read, write, and search capabilities. You may associate it with other external content types by creating an Association operation from the Operations Design View.

Name	Type	Data Source Object
Create	Create	Establishments
Read Item	Read Item	Establishments
Update	Update	Establishments
Delete	Delete	Establishments
Read List	Read List	Establishments

Fields

A list of the fields that were defined in the operations of this external content type.

Field Name	Type
Name	System.String
TeacherID	System.Nullable< System.Int32>
EstablishmentID	System.Int32

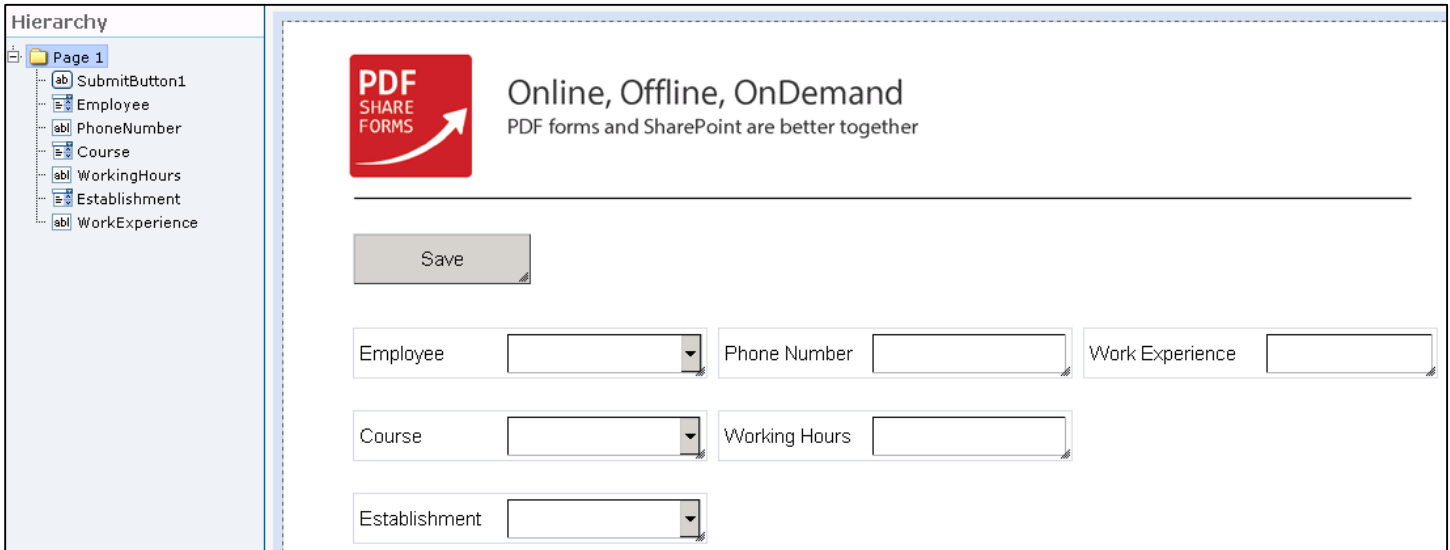
Lists will appear in SharePoint site:

Demo Site

- Home
- Libraries
- Site Pages
- Shared Documents
- PDF Forms Templates
- Guides
- Lists
 - Courses
 - Employees
 - Establishments

Dynamic (XFA) form

Step 1. Prepare template



This template has three dropdown fields, three text fields and submit button:

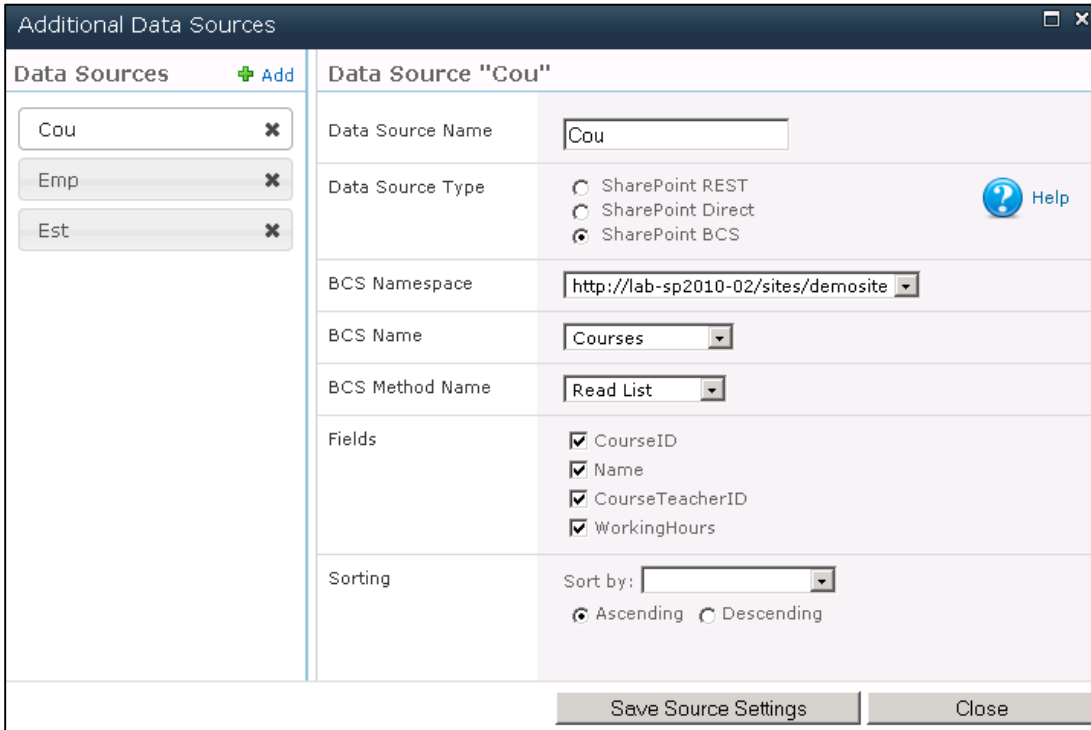
When choose **Employee** value – Phone Number and WorkExperience fields will be filled with information from **Employee** External Content List.

Course and **Establishment** dropdowns will be populated with data according on selected value in **Employee** value.

Working Hours field will be filled with information from **Course** External Content List according on selected value in **Course** dropdown.

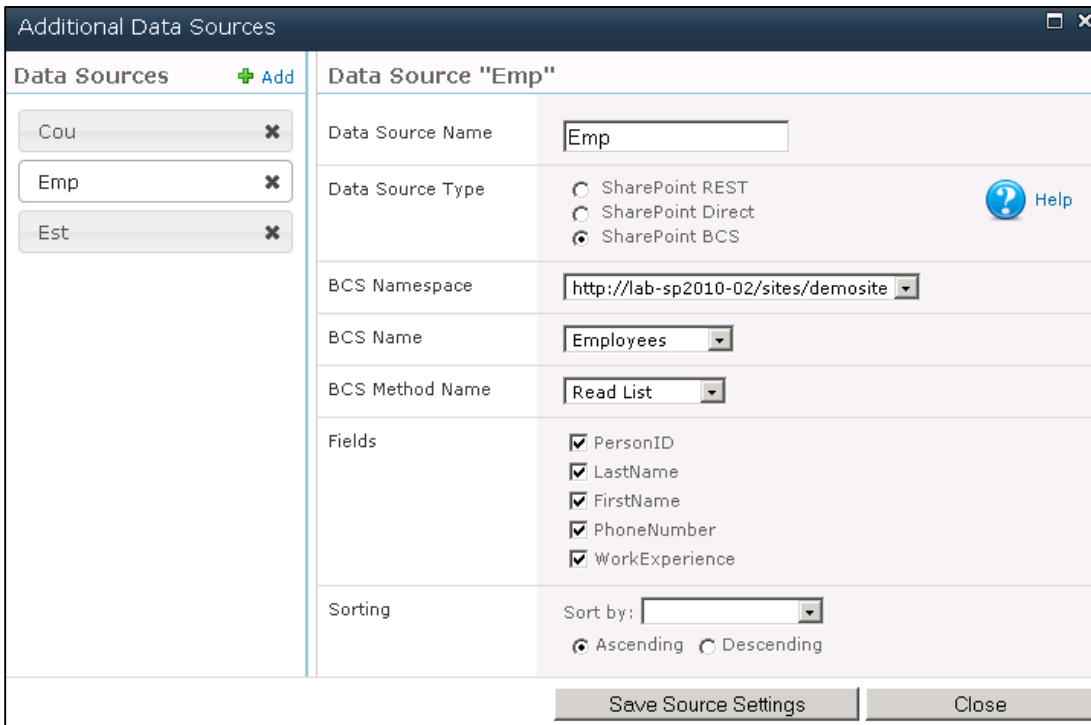
Step 2. Prepare **Data Sources**. Navigate to **PDF Form Tools** → **Developer** → **Data Sources**:

SharePoint BCS Data Source for **Courses** External Content List:



The screenshot shows the 'Additional Data Sources' dialog box with the 'Data Source "Cou"' configuration. The 'Data Source Name' is 'Cou'. The 'Data Source Type' is 'SharePoint BCS'. The 'BCS Namespace' is 'http://lab-sp2010-02/sites/demosite'. The 'BCS Name' is 'Courses' and the 'BCS Method Name' is 'Read List'. The 'Fields' section has checkboxes for 'CourseID', 'Name', 'CourseTeacherID', and 'WorkingHours', all of which are checked. The 'Sorting' section has a 'Sort by' dropdown and radio buttons for 'Ascending' (selected) and 'Descending'. Buttons for 'Save Source Settings' and 'Close' are at the bottom.

SharePoint BCS Data Source for **Employees** External Content List:



The screenshot shows the 'Additional Data Sources' dialog box with the 'Data Source "Emp"' configuration. The 'Data Source Name' is 'Emp'. The 'Data Source Type' is 'SharePoint BCS'. The 'BCS Namespace' is 'http://lab-sp2010-02/sites/demosite'. The 'BCS Name' is 'Employees' and the 'BCS Method Name' is 'Read List'. The 'Fields' section has checkboxes for 'PersonID', 'LastName', 'FirstName', 'PhoneNumber', and 'WorkExperience', all of which are checked. The 'Sorting' section has a 'Sort by' dropdown and radio buttons for 'Ascending' (selected) and 'Descending'. Buttons for 'Save Source Settings' and 'Close' are at the bottom.

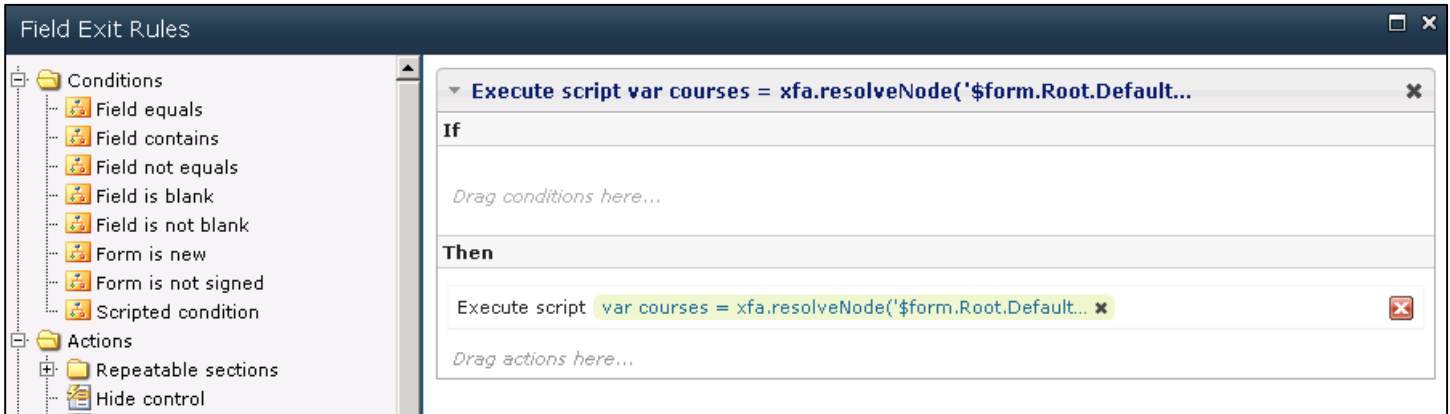
SharePoint BCS Data Source for **Establishments** External Content List:

Step 3. Choose **Employee** dropdown and navigate to **PDF Form Tools** → **Properties** → **Item Values**:

Dropdown will be populated with **Last Name** column values from **Employees** External Content List.

Values column value is **PersonID** and it will be used in scripts to get associated values from **Courses** and **Establishments** list.

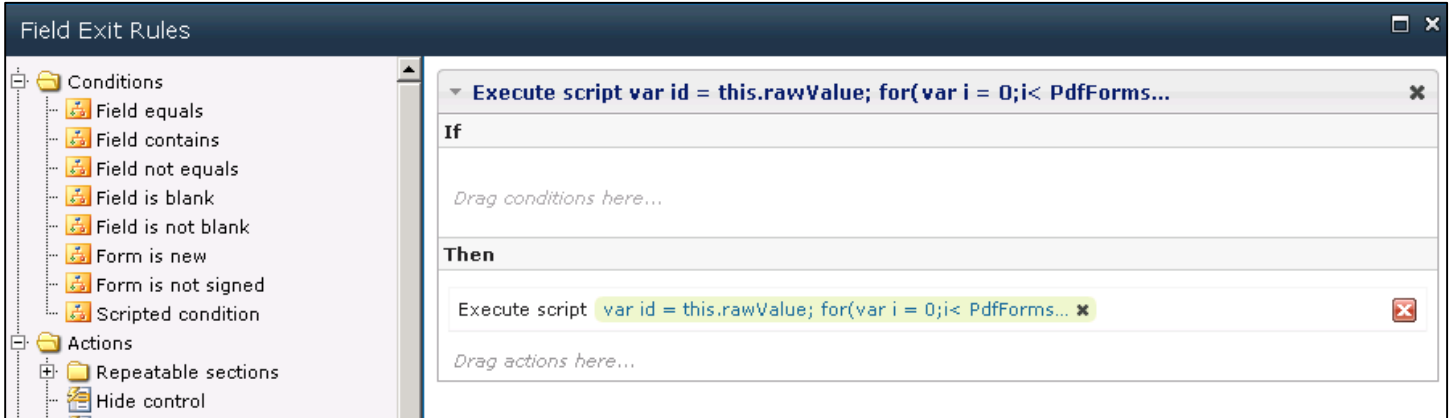
Step 4. Choose **Employee** dropdown and navigate to **PDF Form Tools** → **Properties** → **Actions** → **Field Exit**:



Add **Execute script** action and place script inside:

```
//refresh dropdowns
var courses = xfa.resolveNode('$form.Root.Default..Course');
courses.clearItems();
var establishment = xfa.resolveNode('$form.Root.Default..Establishment');
establishment.clearItems();
xfa.resolveNode('$data..Course').value = "";
xfa.resolveNode('$data..Establishment').value = "";
xfa.resolveNode('$data..WorkingHours').value = "";
//populate fields associated with Employee dropdown - Work Experience and Phone Number
var id = this.rawValue;
for(var i = 0;i< PdfForms.DataSources.Emp.length; i++ ){
if(PdfForms.DataSources.Emp[i]["PersonID"] == id){
    xfa.resolveNode("$data..WorkExperience").value =
PdfForms.DataSources.Emp[i]["WorkExperience"].toString();
    xfa.resolveNode("$data..PhoneNumber").value =
PdfForms.DataSources.Emp[i]["PhoneNumber"];
}
}
//populate Course dropdown according on Employee dropdown's value
var dd = xfa.resolveNode("$form.Root.Default..Course");
for(var i = 0;i< PdfForms.DataSources.Cou.length; i++ ){
if(PdfForms.DataSources.Cou[i]["CourseTeacherID"] == id){
dd.addItem(PdfForms.DataSources.Cou[i]["Name"],PdfForms.DataSources.Cou[i]["Name"].toString());
}
}
//populate Establishment dropdown according on Employee dropdown's value
var ddEst = xfa.resolveNode("$form.Root.Default..Establishment");
for(var i = 0;i< PdfForms.DataSources.Est.length; i++ ){
if(PdfForms.DataSources.Est[i]["TeacherID"] == id){
ddEst.addItem(PdfForms.DataSources.Est[i]["Name"],PdfForms.DataSources.Est[i]["Name"]);
}
}
}
```

Step 5. Choose **Course** dropdown and navigate to **PDF Form Tools** → **Properties** → **Actions** → **Field Exit**:



Add **Execute script** action and place script inside:

Script:

```
//this will fill in Working Hours field according on value selected in Course dropdown
var id = this.rawValue;
for(var i = 0;i< PdfForms.DataSources.Cou.length; i++ ){
if(PdfForms.DataSources.Cou[i]["Name"] == id){
    xfa.resolveNode("$data..WorkingHours").value =
PdfForms.DataSources.Cou[i]["WorkingHours"];
}
}
```

Step 6. Add **On Form Ready Script**. Navigate to **PDF Form Tools** → **Developer** → **On Form Ready Script**:

Script:

```
//this script will populate document's dropdowns with proper values whenever it will be opened
var id = xfa.resolveNode("$form.Root.Default..Employee").rawValue;
var dd = xfa.resolveNode("$form.Root.Default..Course");
dd.clearItems();
for(var i = 0;i< PdfForms.DataSources.Cou.length; i++ ){
if(PdfForms.DataSources.Cou[i]["CourseTeacherID"] == id){
dd.addItem(PdfForms.DataSources.Cou[i]["Name"],PdfForms.DataSources.Cou[i]["Name"].toString());
}
}
var ddEst = xfa.resolveNode("$form.Root.Default..Establishment");
ddEst.clearItems();
for(var i = 0;i< PdfForms.DataSources.Est.length; i++ ){
if(PdfForms.DataSources.Est[i]["TeacherID"] == id){
ddEst.addItem(PdfForms.DataSources.Est[i]["Name"],PdfForms.DataSources.Est[i]["Name"]);
}
}
```



Runtime

Step 1. Create new form:

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Save

Employee Phone Number Work Experience

Course Working Hours

Establishment

Choose **Employee**:

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Save

Employee Phone Number Work Experience

Course Working Hours

Establishment

Text fields are filled in and **Course** and **Establishment** dropdowns are populated.



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Choose **Course** (this will fillin **Working Hours** field):

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Save

Employee Phone Number Work Experience

Course Working Hours

Establishment

If different employee will be chosen – different values will be populated:

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Online, Offline, OnDemand

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Save

Employee Phone Number Work Experience

Course Working Hours

Establishment



Static (Acro) form

Step 1. Prepare template:

The screenshot displays a form design interface. On the left, a 'Hierarchy' pane lists the form's components: 'Page 1' (folder), 'SubmitButton1' (button), 'Employee' (dropdown), 'PhoneNumber' (text), 'WorkExperience' (text), 'Course' (dropdown), 'WorkingHours' (text), and 'Establishment' (dropdown). The main workspace shows a preview of the form. At the top left is the PDF Share Forms logo. To its right is the text 'Online, Offline, OnDemand' and 'PDF forms and SharePoint are better together'. Below this is a 'Save' button. The form contains three dropdown menus and three text input fields. The first dropdown is for 'Employee', the second for 'Course', and the third for 'Establishment'. The text fields correspond to 'PhoneNumber', 'WorkingHours', and an unlabeled field.

This template has three dropdown fields, three text fields and submit button:

When choose **Employee** value – Phone Number and WorkExperience fields will be filled with information from **Employee** External Content List.

Course and **Establishment** dropdowns will be populated with data according on selected value in **Employee** value.

Working Hours field will be filled with information from **Course** External Content List according on selected value in **Course** dropdown.

NOTE: In static form **Step 2.** – **Step 3.** are similar to **Step 2.** – **Step 3.** in dynamic form.



Step 4. Choose **Employee** dropdown and navigate to **PDF Form Tools → Properties → Actions → Blur:**
Add **Execute JavaScript** action and place script inside.

Script:

```
//refresh dropdowns
this.getField("Course").clearItems();
this.getField("Establishment").clearItems();
this.getField("WorkingHours").value = "";
//populate fields that are associated with Employee dropdown
var employee = this.getField("Employee").value;
var datalistEmp = DataSources["Emp"];
for(var i = 0;i< DataSources["Emp"].length; i++ ){
if(datalistEmp[i]["PersonID"] == employee){
    this.getField("PhoneNumber").value = datalistEmp[i]["PhoneNumber"];
    this.getField("WorkExperience").value = datalistEmp[i]["WorkExperience"].toString();
}
}
//populate Course dropdown with values according on Employee dropdown's value
var dd = this.getField("Course");
var datalist = DataSources["Cou"];
for(var i = 0;i< DataSources["Cou"].length; i++ ){
if(datalist[i]["CourseTeacherID"] == employee){
dd.insertItemAt(datalist[i]["Name"]);
}
}
this.getField("Course").value = "";
//populate Establishment dropdown with values according on Employee dropdown's value
var ddEst = this.getField("Establishment");
var datalistEst = DataSources["Est"];
for(var i = 0;i< DataSources["Est"].length; i++ ){
if(datalistEst[i]["TeacherID"] == employee){
ddEst.insertItemAt(datalistEst[i]["Name"]);
}
}
this.getField("Establishment").value = "";
```

Step 5. Choose **Course** dropdown and navigate to **PDF Form Tools → Properties → Actions → Blur:**
Add **Execute JavaScript** action and place script inside.

Script:

```
//this will fill in Working Hours field according on value selected in Course dropdown
var course = this.getField("Course").value;
var datalistCou = DataSources["Cou"];
for(var i = 0;i< DataSources["Cou"].length; i++ ){
if(datalistCou[i]["Name"] == course){
    this.getField("WorkingHours").value = datalistCou[i]["WorkingHours"];
}
}
}
```




Step 6. Add Global JavaScript. Navigate to **PDF Form Tools → Developer → Global JavaScript:**

Script:

```
//this script will populate document's dropdowns with proper values whenever it will be opened
var employee = this.getField("Employee").value;
var dd = this.getField("Course");
var datalist = DataSources["Cou"];
for(var i = 0;i< DataSources["Cou"].length; i++ ){
if(datalist[i]["CourseTeacherID"] == employee){
dd.insertItemAt(datalist[i]["Name"]);
}
}
this.getField("Course").value = "";

var ddEst = this.getField("Establishment");
var datalistEst = DataSources["Est"];
for(var i = 0;i< DataSources["Est"].length; i++ ){
if(datalistEst[i]["TeacherID"] == employee){
ddEst.insertItemAt(datalistEst[i]["Name"]);
}
}
this.getField("Establishment").value = "";
```

Step 7. Runtime

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Save

Atkins 516-654-067 10

Geography 12 hours

University of Latvia