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Exam : **70-488**

Title : Developing Microsoft SharePoint Server 2013 Core Solutions

Version : DEMO

1. Topic 1, Consolidated Messenger

Background

Business Scenario

You are the lead architect, developer, and web administrator of SharePoint 2013 for your company, Consolidated Messenger. Consolidated Messenger is a national company with hundreds of franchises. Consolidated Messenger focuses on bicycle-based courier services in metropolitan areas. Consolidated Messenger sells franchises to franchisees. Franchisees have three user types:

| User	Role
Franchise Manager	Responsible for managing the franchise
Franchise Employee	Responsible for managing accounts and setting pick-up and drop-off locations for couriers
Courier	Responsible for picking-up and dropping off packages

Technical Scenario

When a franchisee purchases a franchise, they are provided with:

• access to Consolidated Messenger's SharePoint 2013 multi-tenant farm located at https://sp.consolidatedmessenger.com

• access to a Customers list in the Corporate site collection, named CorporateSiteCollection, which includes a list of all Customers across all franchisees

• a single site collection for each franchisee, named FranchiseeSiteCollection

• an unlimited number of customer subsites for each franchisee

Consolidated Messenger has funded the creation of three apps.

App Name	Purpose
FranchiseMonitor	Used by franchisees from their franchise locations to monitor the progress of the bicycle couriers
CourierMobile	Used by bicycle couriers to perform their day-to-day function of receiving and delivering packages
CloudManager	Used to perform management of bicycle couriers, their routes, and their schedules

Solution Architecture

Multi-tenant SharePoint Farm
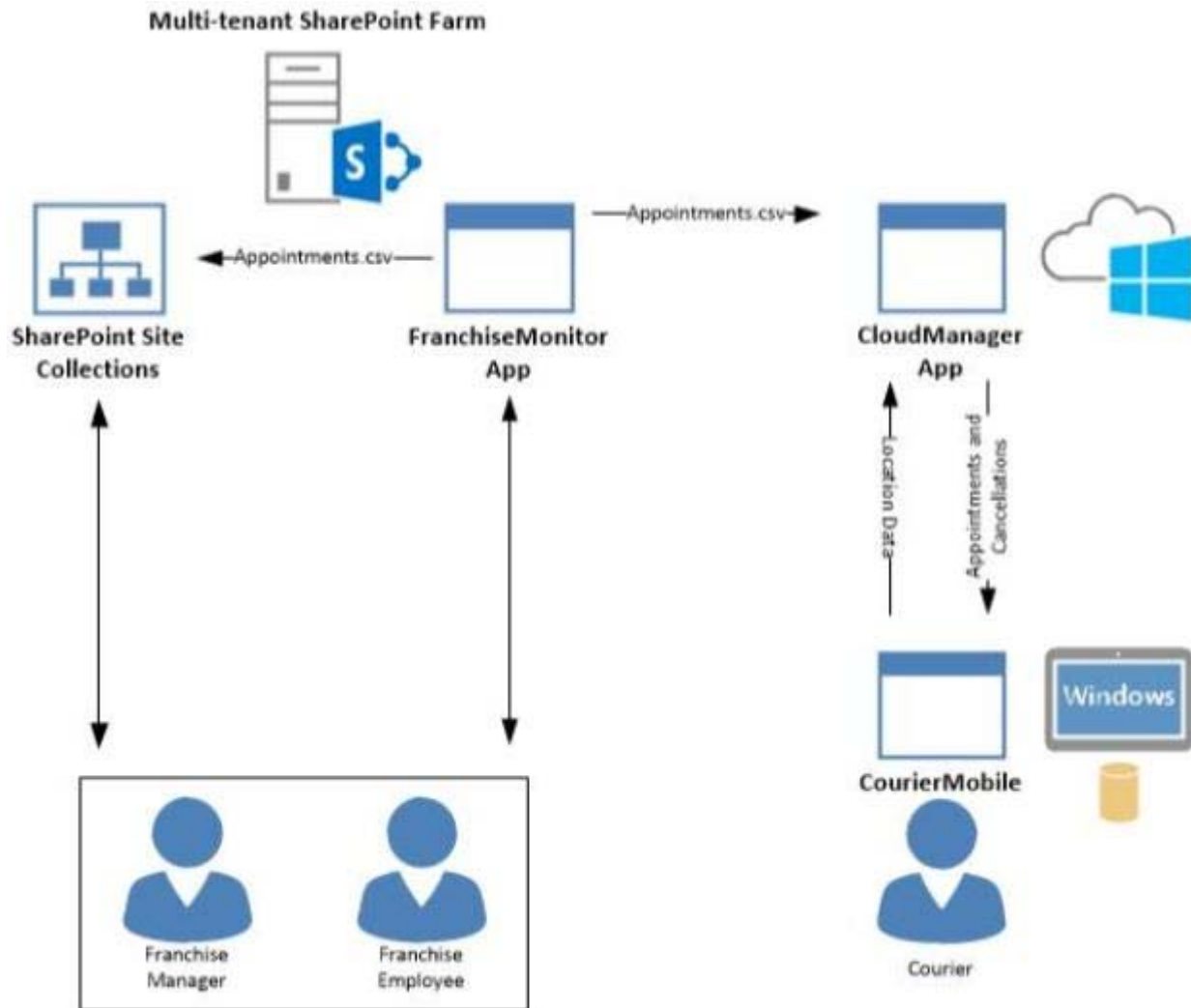
Site Collection Structure
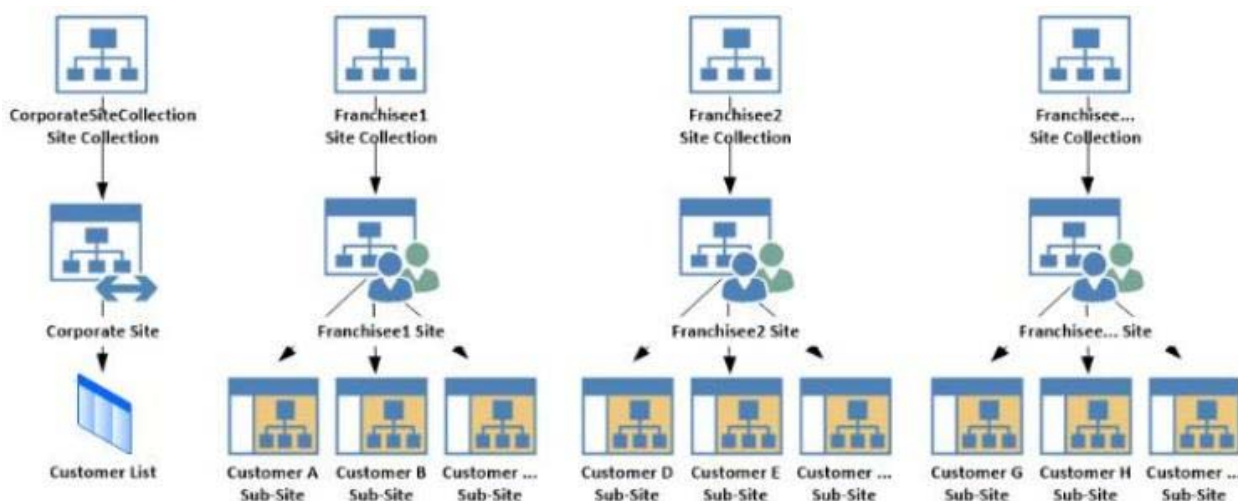
SharePoint Farm Design

My Sites are not created for each Franchisee unless they are requested.

Business Requirements

User	SharePoint Access
Franchise Manager	• Franchise Managers are site collection administrators for each franchise. • Franchise Managers may only access their site collection settings and not the settings of the web application. • Franchise Managers must be able to add users to a site in a People Picker control based on claims. • Franchise Managers must be able to search for claims by using the type-in control of the claims picker. The claims must be displayed by using a flattened structure. • Franchise Managers may access only their site collection settings and not the settings of the web application.
Franchise Employee	• Franchise employees are customer subsite owners for each franchise. • Franchise employees must be able to read from the Customers list in the CorporateSiteCollection. • Franchise employees must have complete control over the customer subsites that is assigned to the the franchise.
Courier	• No SharePoint access

Technical Requirements
Each Franchise site collection must include a SharePoint document library to store CSV files.

FranchiseMonitor App

Application Design
Franchise employees use Microsoft Excel 2013 to create a list of pick-up and drop-off locations for each bicycle courier for each day. The spreadsheet is named Appointments.csv.

Business Requirements
The FranchiseMonitor app must allow a Franchise employee to upload Appointments.csv to a SharePoint document library in each Franchisee site collection, and send Appointments.csv to the CloudManager app.

Technical Requirements
• The FranchiseMonitor app must display the courier's location on the bicycle courier's microfeed on the SharePoint farm if the courier has remained stationary for more than three minutes.
• The FranchiseMonitor app must be listed on the Site Contents page of the host web.
• The FranchiseMonitor app must use claims-based authentication, once launched, to authenticate the franchisee against an API provided by Margie's Travel.
• The FranchiseMonitor app must be deployed to all site collections by the SharePoint administrator.
• The FranchiseMonitor app must be immediately available to be installed on websites within the tenancy on a website-by-website basis to any tenant contained in the SharePoint farm.

• The FranchiseMonitor app must be able to create lists within SharePoint to store records of the CSV files so that they may be sent to the CloudManager app.

CourierMobile App

Application Design
• Each bicycle courier for each franchise is provided a Microsoft Surface Pro device with LTE. Most bicycle couriers do not return their Microsoft Surface Pro devices back to their franchise locations nightly.
• The CourierMobile app runs on the bicycle courier's Microsoft Surface Pro device.
• Margie's Travel provides an API to enable external developers to authenticate by using OAuth and claims-based authentication. Many couriers are members of Margie's Travel.
• The CourierMobile app receives Microsoft Outlook appointments and Outlook appointment cancellations from the CloudManager app. The appointments include the address of the location for pick-up or drop-off.

Business Requirements
• The CourierMobile app must display a Bing map to display route data when Outlook appointments or appointment cancellations are received.
• The CourierMobile app must capture the location of the Microsoft Surface Pro device on a regular interval. This data must be captured regardless of whether the device has connectivity.
• The CourierMobile app must be able to connect to the SharePoint Customers list and verify whether the account belongs to the franchisee to avoid pickups or deliveries to customers that do not belongs to the franchisee. When the CourierMobile add accesses the Customers list, it must only read its contents with the minimum permissions necessary.

Technical Requirements
• The CourierMobile app must provide the ability to authenticate by using the courier's Microsoft account or the Margie's Travel API.
• The CourierMobile app must include a custom sign-in page that includes branding from Consolidated Messenger and Margie's Travel, based on the authentication provider selected by the user.
• The CourierMobile app must be able to capture more than 30 million data points of location data daily as they occur and upload the location data to the cloud when connected to the Internet.

CloudManager App

Application Design
CloudManager processes two sets of data:
• Updates to the list of appointments received from the FranchiseMonitor app
• Geo-location data received from the CourierMobile app

Business Requirements
The CloudManager app must implement business logic that parses Appointments.csv and geo-location data and sends Appointments or Appointment cancellations to the CourierMobile app.

Technical Requirements

• The CloudManager app must elastically scale to capture courier location data as the number of bicycle couriers increases or decreases.

• The CloudManager app must process bicycle courier location data from a data store capable of storing more than 30 million items.

Solution Code

MyClaimsProvider.cs

```
CP01 [SharePointPermissionAttribute(SecurityAction.LinkDemand, ObjectModel = true)]
CP02 [SharePointPermissionAttribute(SecurityAction.InheritanceDemand, ObjectModel =
true)]
CP03

CP04    public class MyClaimsProvider : Microsoft.SharePoint.Administration.Claims.SPCla
imProvider
CP05    {
CP06        public abstract String Name;
CP07
CP08        protected abstract void FillSchema(...);
CP09        protected abstract void FillClaimTypes(...);
CP10        protected abstract void FillClaimValueTypes(...);
CP11        protected abstract void FillEntityTypes(...);
CP12
CP13        public abstract bool SupportsResolve;
CP14        protected abstract void FillResolve(...);
CP15        protected abstract void FillResolve(...);
CP16
CP17        public abstract bool SupportsSearch;
CP18        protected abstract void FillSearch(...);
CP19
CP20    }
```

AppManifest.xml for Franchise Monitor app

```
AM01 <?xml version="1.0" encoding="utf-8" ?>
AM02 <App xmlns="http://schemas.microsoft.com/sharepoint/2012/app/manifest"
AM03     ProductID="{4a07f3bd-803d-45f2-a710-b9e944c3396e}"
AM04     Version="1.0.0.0"
AM05     SharePointMinVersion="15.0.0.0"
AM06     Name="FranchiseMonitor"
AM07 >
AM08  <Properties>
AM09    <Title>Franchise Monitor App</Title>
AM10    <StartPage>~remoteAppUrl/Home.aspx?{StandardTokens}</StartPage>
AM11  </Properties>
AM12
AM13  <AppPrincipal>
AM14    <RemoteWebApplication ClientId="1ee82b34-7c1b-471b-b27e-ff272accd564" />
AM15  </AppPrincipal>
AM16
AM17  <AppPermissionRequests>
AM18    <AppPermissionRequest Scope="http://sharepoint/content/sitecollection/web/
list" Right="Write"/>
AM19      </AppPermissionRequests>
AM20 </App>
```

You need to ensure that the CourierMobile app determines whether the franchisee owns the account. What should you do?

A. Use OAuth and App only security. Request the Read right from the http://sharepoint/content/
sitecollection/web/list scope URI.
B. Use OAuth and App+User security. Request the Read right from the http://sharepoint/content/
sitecollection scope URI.
C. Use SPSecurity.RunWithElevatedPrivileges to connect to SharePoint and read from the Accounts list
in the site collection.
D. Use the SharePoint user credentials of the bicycle messenger to connect to SharePoint and read from
the Accounts list in the site collection.

Answer: B

Explanation:

* SharePoint users three types of authorization policies. The user-only policy requires only that the call to
SharePoint include an authenticated user identity. The app-only policy requires only that the call include
only an authenticated app identity. The user+app policy requires that the call include both kinds of
authenticated identities.

* You may have already heard that OAuth 2.0 plays an important role in the authentication and
authorization of apps for SharePoint. It does, but it is not necessarily a part of the authorization story for
every app for SharePoint. If you plan to build an app for SharePoint that runs in an remote web application
and communicates back to SharePoint using server-side code, you will need to use OAuth.

Scenario:

* The CourierMobile app must be able to connect to the SharePoint Customers list and verify whether the
account belongs to the franchisee to avoid pickups or deliveries to customers that do not belongs to the
franchisee. When the CourierMobile add accesses the Customers list, it must only read its contents with
the minimum permissions necessary.

* Margie's Travel provides an API to enable external developers to authenticate by using OAuth and
claims-based authentication. Many couriers are members of Margie's Travel
Reference: Authorization and authentication of apps for SharePoint 2013

2.A franchisee deletes several sites from the franchise's site collection. The franchisee site collection
administrator must recover the sites. You need to instruct the franchisee site collection administrator on
how to access the page to recover the sites.
What should the site collection administrator do to get to the appropriate page?
A. Select General Settings for the Web Application in Central Administration and change the second
stage Recycle Bin settings to 100 percent.
B. Select General Settings for the Web Application in Central Administration and change the first stage
Recycle Bin settings to 0 days.
C. Select the Recycle Bin on the Site Settings page. Choose the appropriate sites and select Restore
Selection.
D. Select the Recycle Bin in the Quick Launch page. Choose the appropriate sites and select Restore
Selection.

Answer: D

Explanation:

To restore a deleted site or workspace directly from the Site Collection Recycle Bin:
1. Click Recycle Bin on the Quick Launch.
2. On the Site Name Recycle Bin page, above the list of deleted objects, click the Site Collection Recycle

Binlink.

3. On the Site Collection Administration Recycle Bin page, under Select a View, make sure that Deleted from end user Recycle Bin is selected.

4. Locate the site or workspace that you want to restore.

5. Select the check box next to the site or workspace that you want to restore, and then click Restore Selection.

Incorrect:

Not A, not B: The sites have been deleted. They need to be restored. A and B are wrong because modifying the Recycle Bin settings after the sites are deleted will have no effect on the deleted sites.

Reference: Restore a deleted object from a SharePoint Recycle Bin

3.You need to ensure that the CloudManager app can write route progress check-ins to the courier's microfeed.

What should you do? (Each correct answer presents part of the solution. Choose all that apply.)

A. Ensure that SP.RequestExecutor.js can be accessed in a browser window with no errors.

B. Ensure that the CloudManager app has the Manage permission request scoped to the URL for the franchisee's My Site.

C. Ensure that the MySite host is provisioned for each franchisee.

D. Ensure that all cookies are made available between the My Site and the CloudManager app domain.

E. Ensure that the CloudManager app has the Write permission request scoped to the URL for the franchisee's My Site.

F. Ensure that SP.UserProfiles.js can be accessed in a browser window with no errors.

Answer: A, B, D, E

Explanation:

* From scenario:

/ Business Requirements

The FranchiseMonitor app must allow a Franchise employee to upload Appointments.csv to a SharePoint document library in each Franchisee site collection, and send Appointments.csv to the CloudManager app.

/ The FranchiseMonitor app must display the courier's location on the bicycle courier's microfeed on the SharePoint farm if the courier has remained stationary for more than three minutes.

/ The CloudManager app must implement business logic that parses Appointments.csv and geo-location data and sends Appointments or Appointment cancellations to the CourierMobile app.

4.DRAG DROP

Some franchisees want to launch the FranchiseMonitor app from a link named Launch Franchise Monitor that is displayed next to the name of the user who is currently logged in. Other franchisees do not want to have the link present.

The link must be contained within the same out-of-the-box control, as shown in the screenshot below:
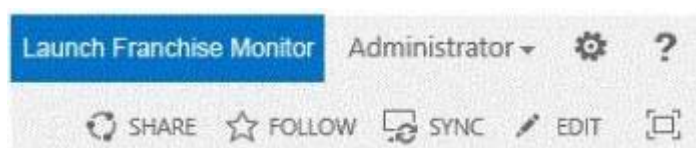
You need to configure support for the Launch Franchise Monitor link.

Which four actions should you perform in sequence? (To answer, move the appropriate actions from the list of actions to the answer area and arrange them in the correct order.)

|	Answer Area
Add a new user control named SuiteLinksDelegate.	
Ensure that the class inherits from the **WebPart** class and overrides the RenderControl method.	
Add a new code module named SuiteLinksDelegate.	
Create a new SharePoint 2013 Empty Project.	
Add a reference to the control to the AppManifest file.	
Add a reference to the control to an empty elements file.	
Ensure that the class inherits from the **UserControl** class and overrides the Render method.	
Create a new App for SharePoint 2013 project.	

Answer:

	Answer Area
	Create a new SharePoint 2013 Empty Project.
Ensure that the class inherits from the **WebPart** class and overrides the RenderControl method.	Add a new user control named SuiteLinksDelegate.
Add a new code module named SuiteLinksDelegate.	Ensure that the class inherits from the **UserControl** class and overrides the Render method.
	Add a reference to the control to the AppManifest file.
Add a reference to the control to an empty elements file.	
Create a new App for SharePoint 2013 project.	

Explanation:

Note:

Box 1 (see box 4): Empty elements are most often used to define SharePoint project items that lack a project or project item template in Visual Studio. When you add an empty element to your project, a node named EmptyElement[x] (where [x] is a unique number) is created. EmptyElement[x] contains a single file that is named Elements.xml. Use XML statements to define the desired elements in Elements.xml.

Box 2: SuiteLinksDelegate delegate control allow us to add links in right suite bar like "Newsfeed","Sites" etc.
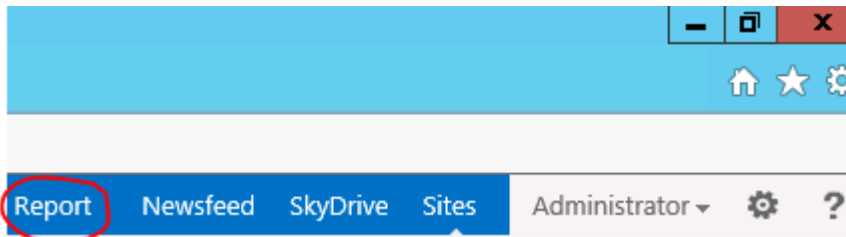
Box 3: User Control Code Behind:

protected override void Render(HtmlTextWriter writer) etc.

Box 4: For all these delegate controls , you need to add a reference in Elements.xml file to specify the control id and control source properties:

```
<?xml version="1.0" encoding="utf-8"?>
<Elements xmlns="http://schemas.microsoft.com/sharepoint/">
  <Control ControlSrc="/_controltemplates/15/MyDelegateControls/UserControl.ascx"
      Id="DelegateControlID" //ID of DelegateControl e.g. "SuiteLinksDelegate"
      Sequence="1" />
</Elements>
```

Reference: New Delegate Controls in SharePoint 2013

5.You need to implement the custom claims provider for the SharePoint farm.

Which code segments should you implement? (Each correct answer presents part of the solution. Choose all that apply.)

```
☐ A.   public abstract bool SupportsEntityInformation;
       protected abstract void FillClaimsForEntity(Uri context, SPClaim entity,
       List<SPClaim> claims);


☐ B.   protected abstract void FillSchema(SPProviderSchema schema);
       protected abstract void FillClaimTypes(List<String> claimTypes);
       protected abstract void FillClaimValueTypes(List<String> claimValueTypes);
       protected abstract void FillEntityTypes(List<String> entityTypes);


☐ C.   public abstract bool SupportsHierarchy;
       protected abstract void FillHierarchy(Uri context, String[] entityTypes,
       String hierarchyNodeID,
        int numberOfLevels, bool includeEntityData, SPProviderHierarchyTree hierarchy);


☐ D.   public abstract bool SupportsResolve;
       protected abstract void FillResolve(Uri context, String[] entityTypes,
       String resolveInput,
        List<PickerEntity> resolved);
       protected abstract void FillResolve(Uri context, String[] entityTypes,
       SPClaim resolveInput,
        List<PickerEntity> resolved);


☐ E.   public abstract String Name;


☐ F.   public abstract bool SupportsSearch;
       protected abstract void FillSearch(Uri context, String[] entityTypes,
       String searchPattern,
        String hierarchyNodeID, int maxCount, SPProviderHierarchyTree searchTree);
```

A. Option A
B. Option B
C. Option C
D. Option D
E. Option E
F. Option F

Answer: B, D, F

Explanation:

The following are required methods when writing a claims provider.

B: Required for claims picker

Claims can be displayed in the people picker control through claims picking. The following methods in the SPClaimProvider class are required methods if you want to implement claim picking in the people picker control.

protected abstract void FillSchema(SPProviderSchema schema);

      protected abstract void FillClaimTypes(List<String> claimTypes);

      protected abstract void FillClaimValueTypes(List<String> claimValueTypes);

      protected abstract void FillEntityTypes(List<String> entityTypes);

D: Required for resolving claims in the type-in control of the claims picker

If you want to be able to resolve claims by using the type-in control of the claims picker, you must

implement the following methods in the SPClaimProvider class.

public abstract bool SupportsResolve

protected abstract void FillResolve(Uri context, String[] entityTypes, String resolveInput,

List<PickerEntity> resolved);

protected abstract void FillResolve(Uri context, String[]

F: Required for searching for claims in the claims picker

If you want to be able to search for claims in the claims picker, you must implement the following property and method in the SPClaimProvider class.

public abstract bool SupportsSearch

protected abstract void FillSearch(Uri context, String[] entit

* From scenario:

MyClaimsProvider.es

```
CP01 [SharePointPermissionAttribute(SecurityAction.LinkDemand, ObjectModel = true)]
CP02 [SharePointPermissionAttribute(SecurityAction.InheritanceDemand, ObjectModel =
true)]
CP03

CP04    public class MyClaimsProvider : Microsoft.SharePoint.Administration.Claims.SPCla
imProvider
CP05    {
CP06        public abstract String Name;
CP07
CP08        protected abstract void FillSchema(...);
CP09        protected abstract void FillClaimTypes(...);
CP10        protected abstract void FillClaimValueTypes(...);
CP11        protected abstract void FillEntityTypes(...);
CP12
CP13        public abstract bool SupportsResolve;
CP14        protected abstract void FillResolve(...);
CP15        protected abstract void FillResolve(...);
CP16
CP17        public abstract bool SupportsSearch;
CP18        protected abstract void FillSearch(...);
CP19
CP20    }
```

Reference: How to: Create a claims provider in SharePoint 2013