

Process Director Documentation

Configuring Azure OAuth



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Configuring Azure for Process Director Integration

Microsoft Modern Authentication (an OAuth-based authentication system) provides much more secure access to SharePoint, SMTP email, and other Azure services from Process Director, but does require a complex setup process. To set up Modern Authentication between Azure and Process Director, you must complete the following steps.

1. [Create a certificate](#) to authenticate Process Director with Azure.
 - a. Using Microsoft's certreq.exe, installed on all modern Windows OS versions.
 - b. Using PowerShell, also included with all modern Windows OS versions.
2. [Add Process Director as a Registered Active Directory application](#) in the Azure Active Directory portal.
 - a. Add the public key certificate to the Process Director application in Azure.
 - b. Configure the appropriate Azure settings.


In this topic, we'll address each of these required steps in detail. Additional information about this topic can also be obtained from [Microsoft's online documentation](#).

 You cannot configure any OAuth settings for SharePoint Datasources or SMTP Email in Process Director until you have created and registered an Azure Active Directory Application in Azure by completing the steps described in this topic.

Create a certificate to authenticate Process Director with Azure

Microsoft prefers the use of certificates for authentication. Each certificate includes both the public and private keys used to encrypt data. The public key (in a CER file) is used by SharePoint Online to authenticate Process Director. The private key is packaged in a password-protected PFX file and is used by Process Director to authenticate with Azure Services. There are two methods that can be used on Windows-based systems to create a proper certificate.

- Using Microsoft's certreq.exe, installed on all modern Windows OS versions.
- Using PowerShell, also included with all modern Windows OS versions.

 Keep in mind that certificates expire after a set period of time. Most organizations specify the maximum length of time certificates should be used. By default, the instructions that follow will generate certificates valid for one year. You should, therefore, generate and install new certificates well before existing certificates expire. This implies that your organization also has a mechanism in place to be reminded when expiration is approaching, to ensure that service interruptions don't occur.

Creating a Certificate with certreq.exe

This method of certificate creation might be preferred if you're less comfortable with command-line operations and don't intend to automate the generation of certificates. [Microsoft's online documentation](#) has

additional information about certreq.exe.

Instructions

First, using a text editor like Notepad, copy and paste the following text into a new document:

```
[Version]
Signature = "$Windows NT$"

[Strings]
szOID_ENHANCED_KEY_USAGE = "2.5.29.37"
szOID_KEY_ENCIPHERMENT = "1.3.6.1.5.5.7.3.1"

[NewRequest]
Subject = "cn=BP Logix Process Director"
MachineKeySet = false
KeyLength = 2048
HashAlgorithm = Sha1
Exportable = true
RequestType = Cert

KeyUsage = "CERT_KEY_ENCIPHERMENT_KEY_USAGE"
; The following values can be changed to generate certificates that expire
; sooner or later depending on your organizations needs. The default is 1 year.
ValidityPeriod = "Years"
ValidityPeriodUnits = "1"

[Extensions]
%szOID_ENHANCED_KEY_USAGE% = "{text}%szOID_KEY_ENCIPHERMENT%"
```

Once you've done so, save the document as an INF file in a folder on your system, e.g., `c:\Users\Some.User\Documents\PD Certificate\CertReq.inf`.

Open the Windows Command Prompt. You can press the [WINDOWS] key, type "cmd", then select the "Command Prompt" application.

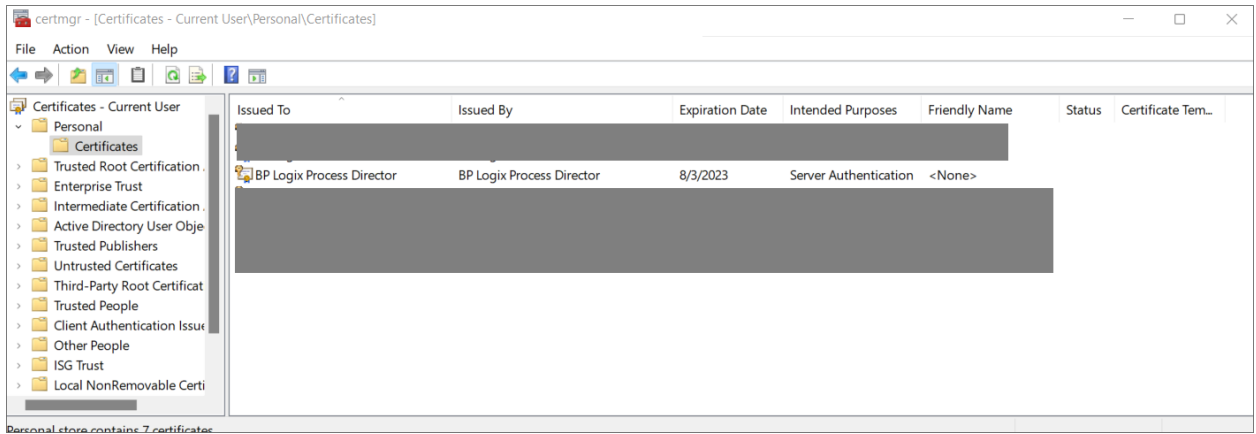
In the Command Prompt, open the directory in which you installed the INF by using the `cd` command, and the folder path to the INF file, then pressing the [ENTER] key. Using the example above, you'd need to type:

```
cd c:\Users\Some.User\Documents\PD Certificate\
```

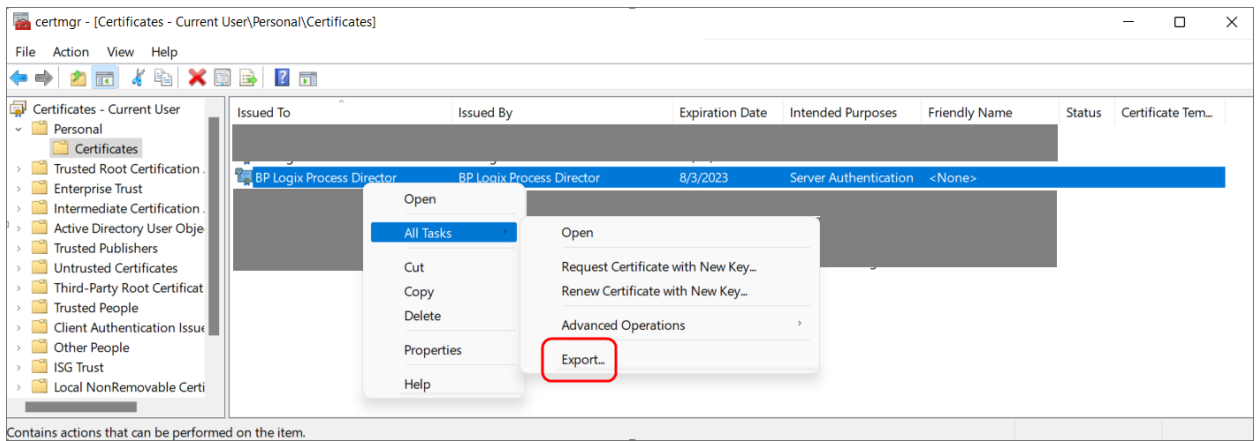
Once the directory changes, type the following and press the [ENTER] key to run the certreq application.

```
certreq -new certreq.inf PublicKey.cer
```

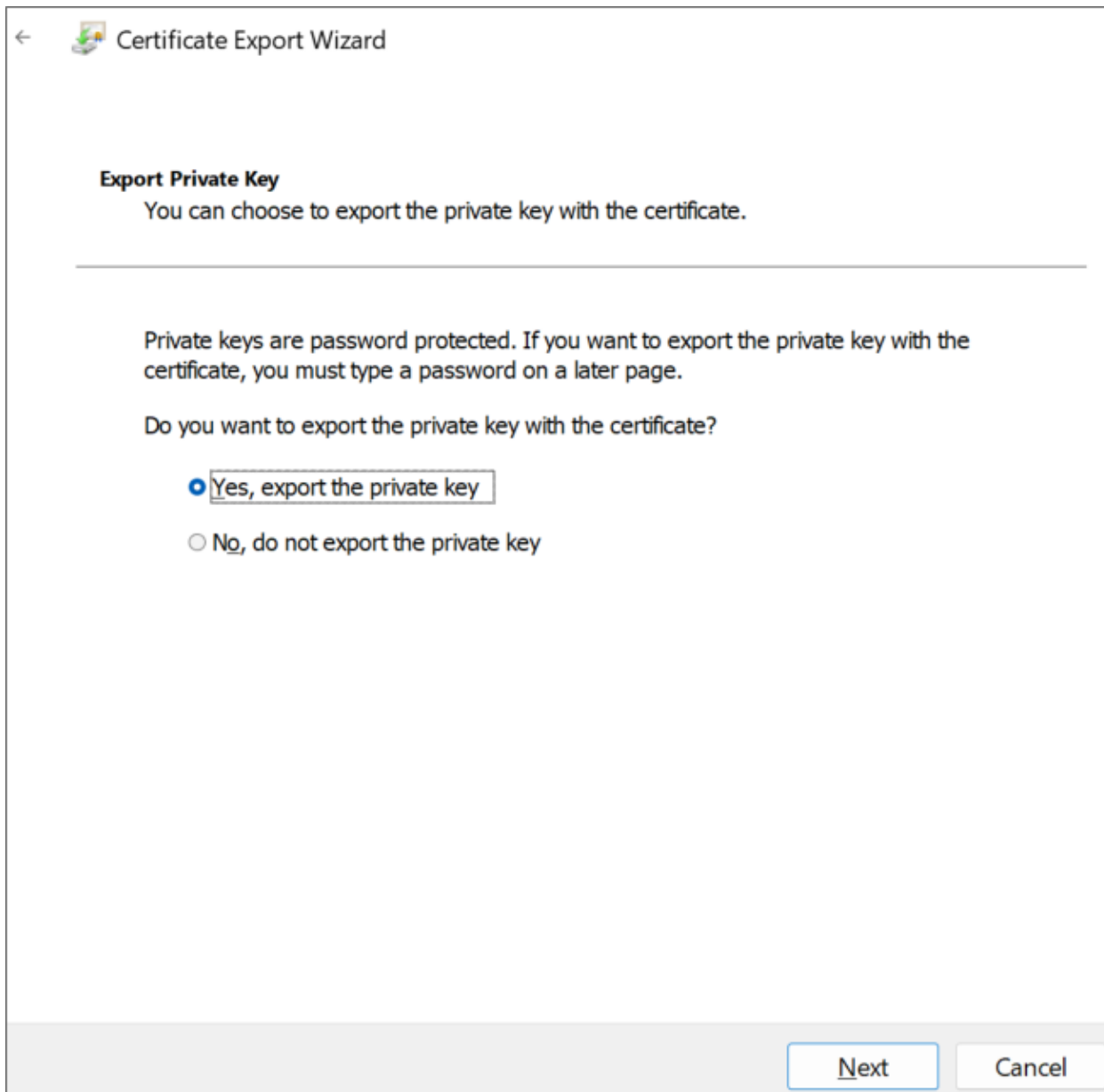
Running the certreq application will create the certificate, and add it to the Windows Certificate Manager. To continue, you'll need to open the Certificate Manager to access the new certificate. To open the Certificate Manager, you can press the [WINDOWS] key, type "certmgr", then select the "Manage computer certificates" option. When the Certificate Manager opens, you'll need to navigate to the `Personal\Certificates` folder, where you should see the certificate issued to and by BP Logix Process Director.



Right-click that certificate and then select **All Tasks > Export**.

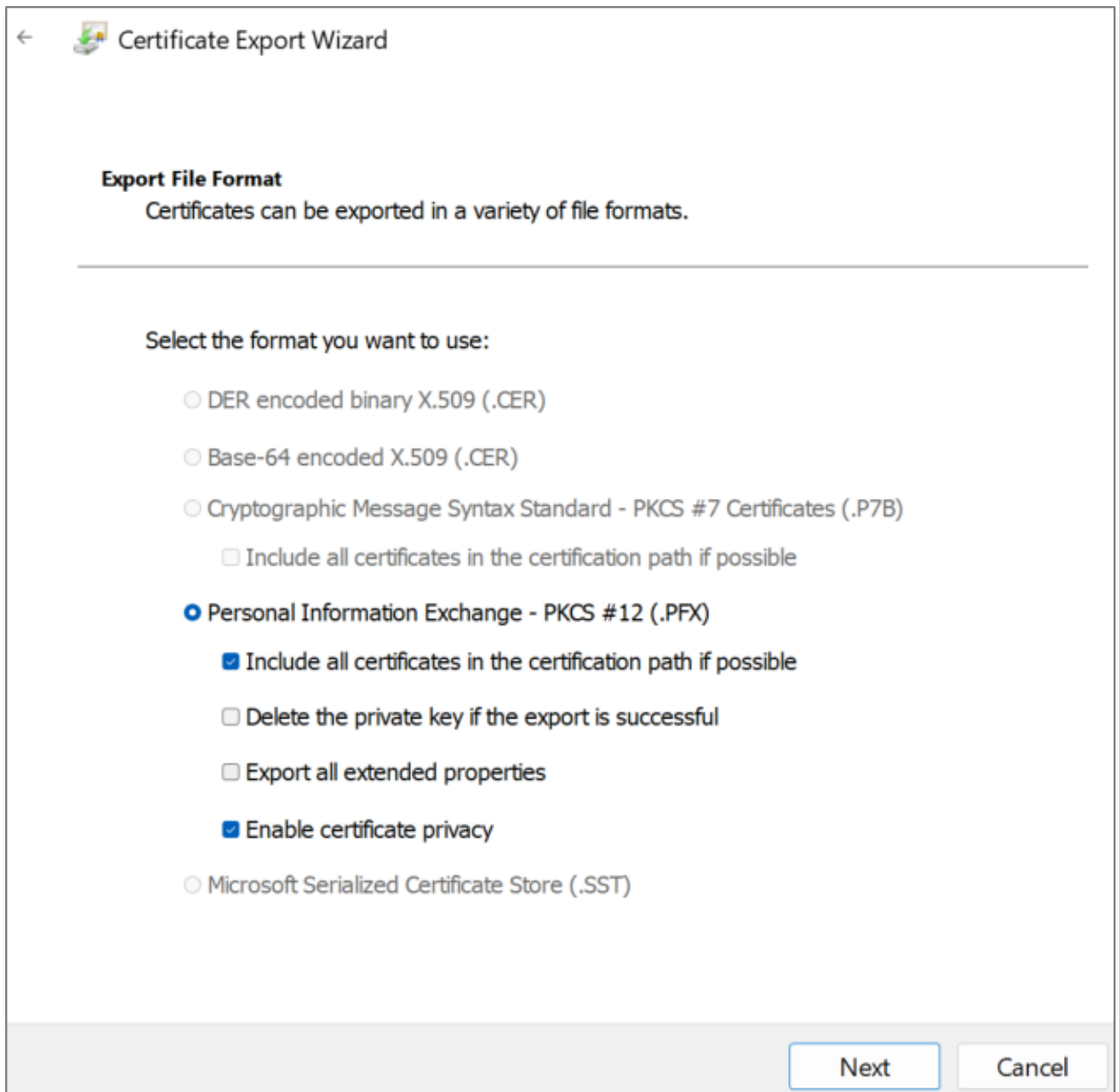


The Certificate Export Wizard will open. On the first screen, click the **Next** button. On the **Export Private Key** screen, select **Yes, export the private key**, then click the **Next** button.





On the **Export File Format** screen of the Wizard, Ensure that you select the following options:

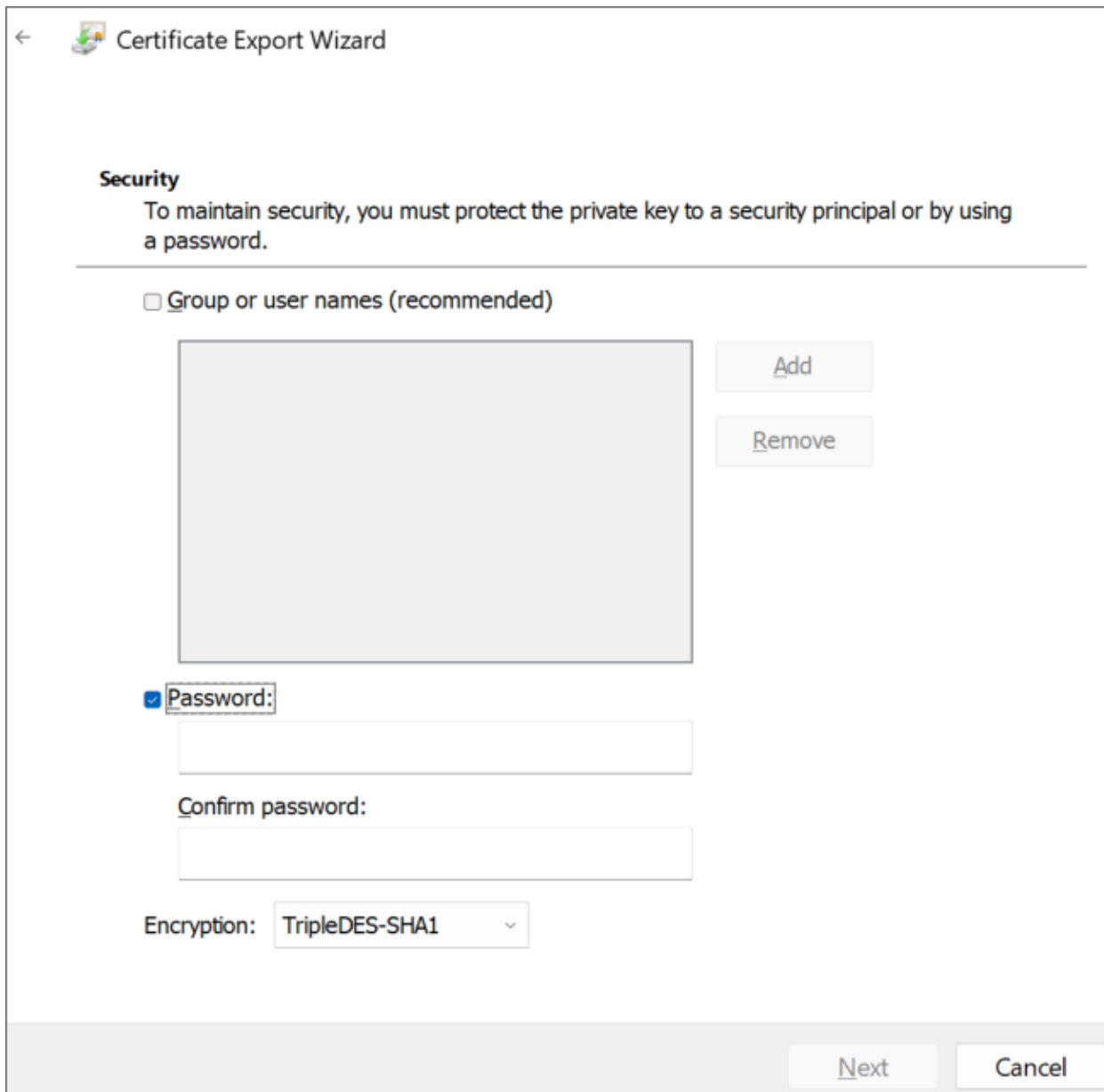
- Personal Information Exchange - PKCS #12 (.PFX)
- Include all certificates in the certification path, if possible
- Enable certificate privacy



On the **Security** screen, check **Password** as the security protocol and enter a password twice.

 Be sure to store this password securely, you'll need it in future steps.

 Be sure to use a long, sufficiently complex password in line with your organization's cryptographic standards.



← Certificate Export Wizard

Security
To maintain security, you must protect the private key to a security principal or by using a password.

Group or user names (recommended)

Add

Remove

Password:

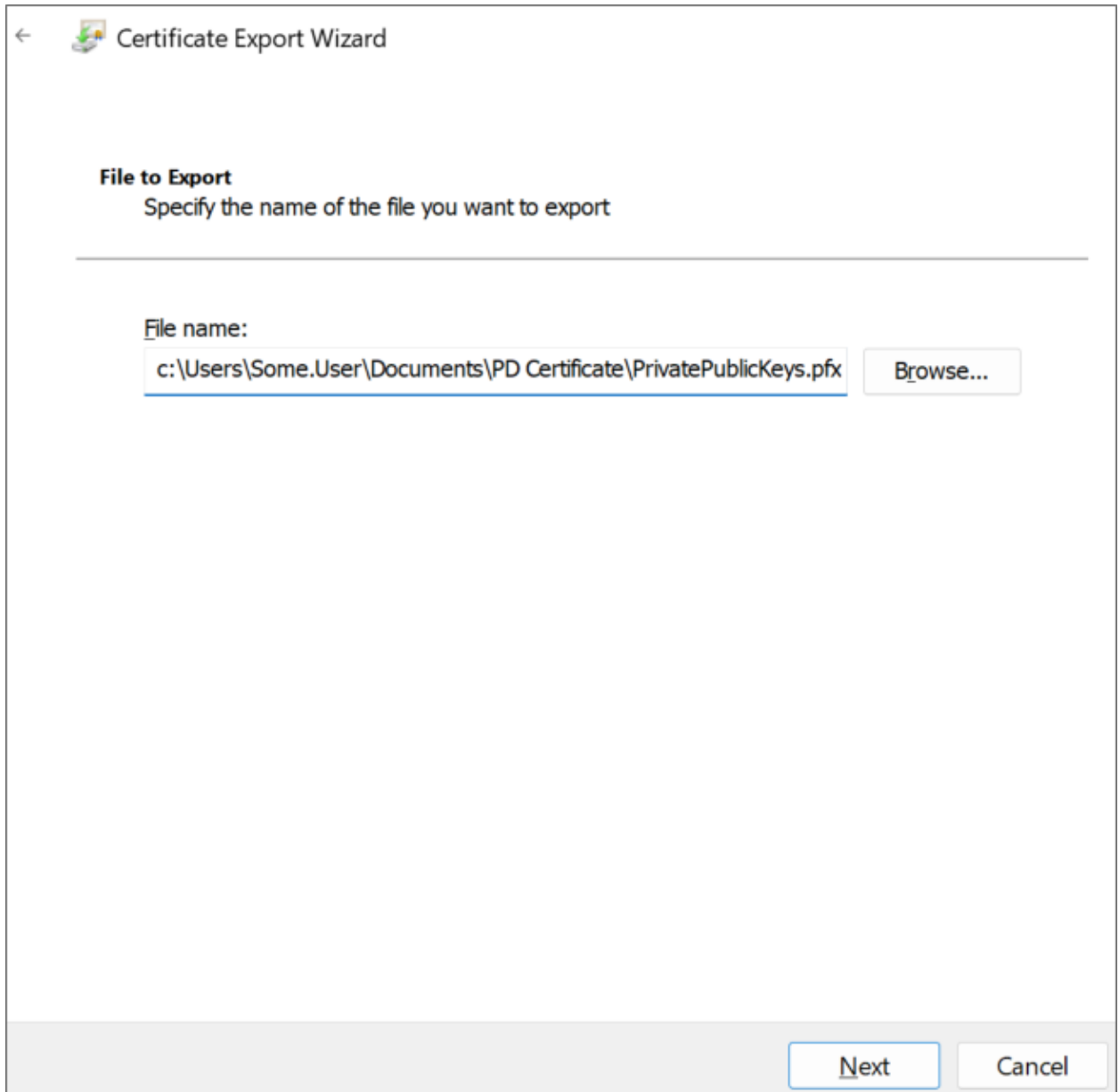
Confirm password:

Encryption: TripleDES-SHA1 ▾

Next

Cancel

On the **File to Export** screen, store the resulting PFX file in the same folder as you stored the CertReq.Inf and PublicKey.Cer files, then click the **Next** button.



Click the **Finish** button on the next Wizard screen, then **OK** to finish the Wizard and close it.

BP Logix recommends that you remove the certificate installed in the Certificate Manager by right-clicking it and then selecting **Delete** followed by **Yes** to delete it in the confirmation dialog.

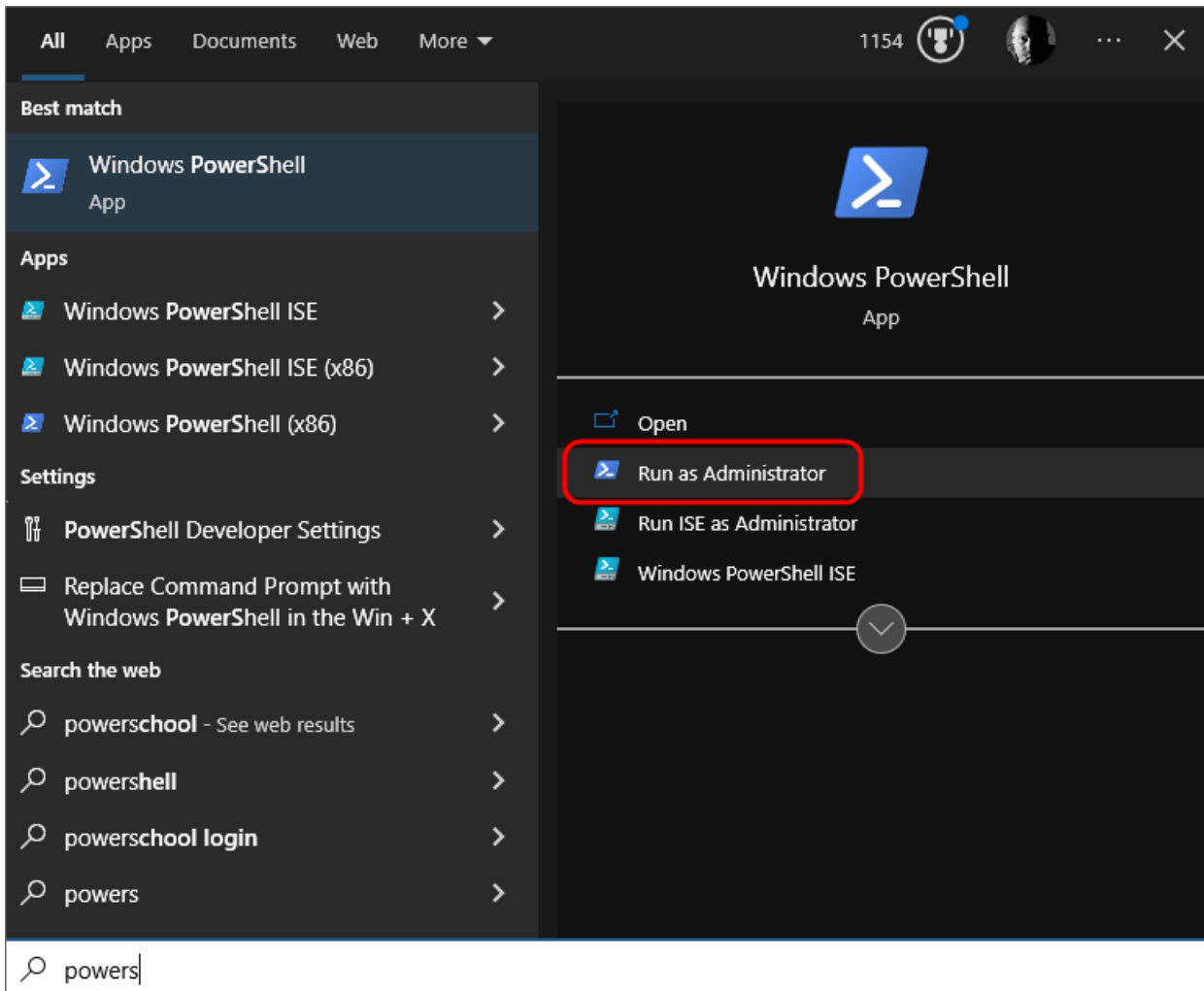
Keep both the `PublicKey.cer` and `PrivatePublicKeys.pfx` files handy for subsequent steps in this setup process. You should also archive them in a secure, backed up location as well.

Creating a Certificate with PowerShell

PowerShell is a command line application that's included with all modern versions of Windows. You can choose this method if you're comfortable with PowerShell and might want to automate certificate generation on a recurring basis.

Instructions

Open PowerShell by pressing the [WINDOWS] key, typing "PowerShell" then selecting the **Run as Administrator** option to open Windows PowerShell.



In PowerShell, create or navigate to the directory you'd like to use to store the certificate files. Once you're in the desired directory, run the following command:

```
$cert = New-SelfSignedCertificate -CertStoreLocation Cert:\LocalMachine\ -  
KeyUsage KeyEncipherment  
-KeyAlgorithm rsa -KeyLength 2048 -subject "BP Logix Process Director"  
-DnsName "BP Logix Process Director" -Type SSLServerAuthentication  
-TextExtension @("2.5.29.37={text}1.3.6.1.5.5.7.3.1")
```

Next, run these commands in PowerShell, replacing `<password>` with a password of your choosing. Ensure the password is cryptographically secure, in accordance with your organization's standards. Be sure to also store this password securely, as you'll need it in future steps.

```
$pwd = ConvertTo-SecureString -String '<password>' -Force -AsPlainText  
$path = 'cert:\LocalMachine\My\' + $cert.Thumbprint
```

Finally, run these commands to create the .PFX and .CER files. Modify the `<path>` value to store the file in a location of your choosing.

```
Export-PfxCertificate -cert $path -FilePath <path>\PrivatePublicKeys.pfx -Pass-  
word $pwd  
Export-Certificate -cert $path -FilePath <path>\PublicKey.cer
```

Keep both the PublicKey.cer and PrivatePublicKeys.pfx files handy for subsequent steps in this setup process. You should also archive them in a secure backup location as well.

Add Process Director to Azure

To add Process Director as an application in your Azure Active Directory portal at the Tenant level, complete the steps below after signing into your Azure portal (portal.azure.com):

1. Register Process Director as an Application

- A. If you have access to multiple tenants, use the Directories + subscriptions filter in the top menu to switch to the tenant in which you want to register the application.
- B. Search for and select **Azure Active Directory**.
- C. Under **Manage**, select **App registrations** > **New registration**.
- D. Enter a display **Name** for your application, e.g., “Process Director”. This name can be changed later, if needed.
- E. Specify who can use the application. Typically, only accounts in this organizational directory should be used. See the Microsoft documentation titled [Quickstart: Register an application with the Microsoft identity platform](#) for more information.
- F. Add the **Redirect URI**, which is the URI for your Process Director installation, e.g., `https://my-org.bplogix.net`.
- G. Click the **Register** button to register the application.

2. Add Your Public Key Certificate

To add your public key certificate to the Process Director application in Azure, complete the steps below.

- A. In the Azure portal, in **App registrations**, select the Process Director application you created previously, e.g., “Process Director”, as in step 1D, above.
- B. Select **Certificates & secrets** > **Certificates** > **Upload certificate**.
- C. Select the PublicKey.cer file you created earlier.
- D. Upload the certificate file to Azure.

Your AAD Application should now be properly registered and secured with a certificate.

Conclusion

Congratulations! Assuming that you've correctly followed the instructions above, you've now configured an Azure Integration with Process Director. To complete the integration, you'll need to perform some additional, specialized configuration in Azure, depending on whether you're trying to:

- [Create a Sharepoint data source](#) or
- [Set up SMTP email access on the Properties page](#) of the **IT Admin** area's **Installation Settings** section, using the "Office365/Microsoft OAuth" **SMTP Authentication Type**.

SharePoint Data Sources

With the implementation of Microsoft's move to **Modern Authentication**, using the Microsoft identity platform, logging into cloud-based versions of SharePoint is no longer possible by simply using a user name and password. Legacy installations that use older versions of SharePoint may still do so, but SharePoint has largely implemented an OAuth-based authentication scheme, with additional security provided by the use of encryption certificates.

In Process Director v5.44.1000, Modern Authentication for SharePoint was implemented using the [SharePoint OAuth](#) Datasource, which only gives access to SharePoint at the Tenant (organizational) level.

For Process Director v5.44.1103, The [SharePoint OAuth](#) Datasource was renamed to [SharePoint OAuth \(Tenant\)](#), while a new Datasource [SharePoint OAuth \(Site\)](#), was added to give access to SharePoint at the Site level, rather than at the entire tenant.

The existing [SharePoint](#) Datasource, which uses the simple username/password authentication scheme, is still available for customers who are using older versions of SharePoint. This legacy authentication method should be relevant to only a very small minority of customers, and has been renamed to [SharePoint Legacy](#).



This update to the SharePoint Datasources will require updating the SharePoint Custom Tasks!

Configuring a SharePoint OAuth (Tenant) Datasource

Modern Authentication provides much more secure access to SharePoint, but does require a more complex setup process. To set up Modern Authentication between SharePoint and Process Director, you must first create and register an Azure Active Directory (AAD) application. The System Administrator's Guide has instructions for creating the AAD application in the [Configuring Azure for Process Director Integration](#) topic.

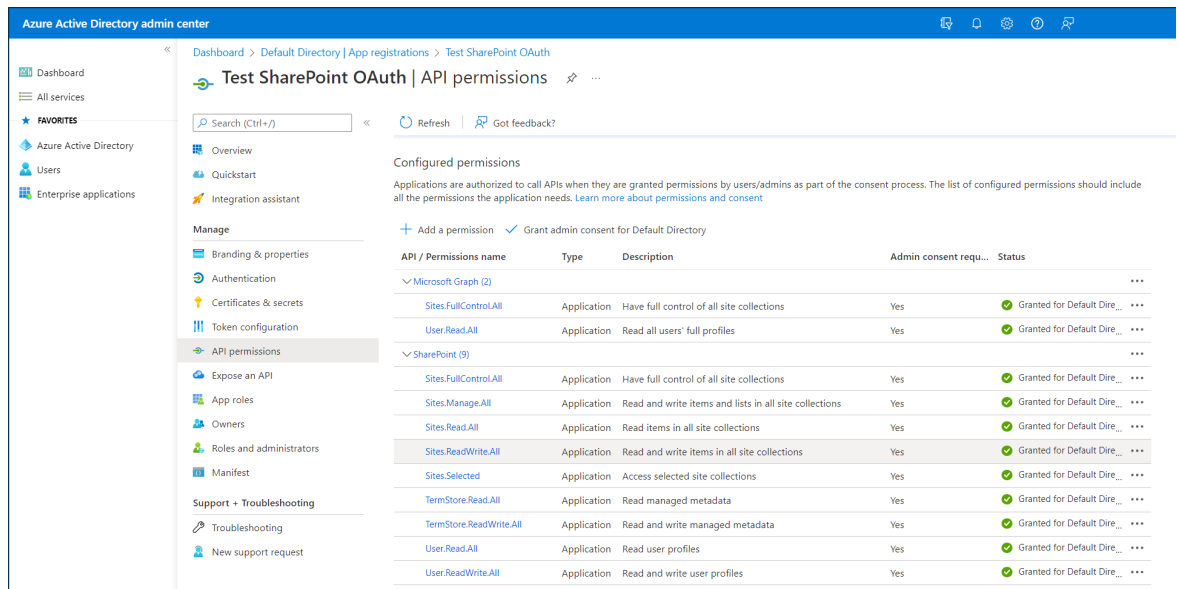
Once you've created the AAD Application, you can begin the process for configuring SharePoint Online.

Configure SharePoint Online permissions

To configure the AAD application to use SharePoint with Process Director, you'll need to perform the following configuration steps:

1. If you have access to multiple tenants, use the Directories + subscriptions filter in the top menu to switch to the tenant in which you want to register the application.
2. Search for and select **Azure Active Directory**.
3. Under **Manage**, select **App registrations**, then select your Process Director application. In this example, we'll use "Test SharePoint OAuth" as the AAD Application name, though, of course, the name you use may vary.

4. Click **API permissions**.
5. Click **Add a permission** and add all permissions displayed below to the **SharePoint** section of the **API Permissions** area:

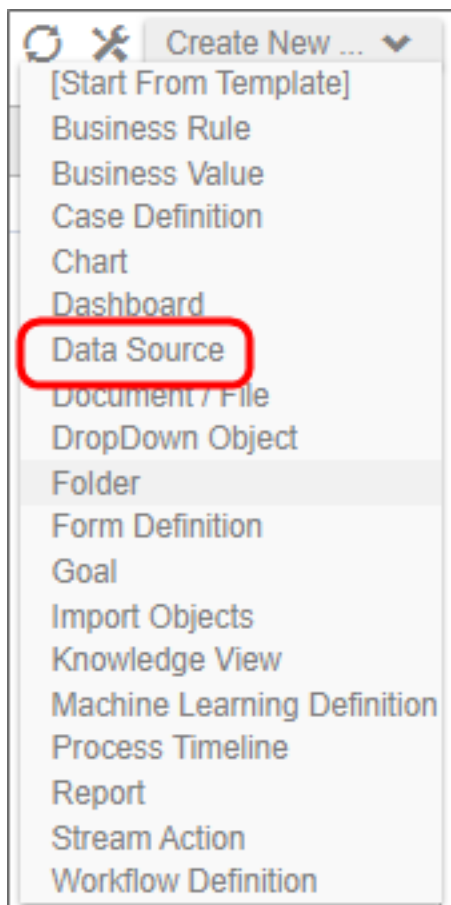


Create the SharePoint OAuth (Tenant) Datasource

Now that the application has been fully registered in Azure, and the appropriate SharePoint API permissions have been set, you can create the SharePoint OAuth Datasource in Process Director. Be sure to keep the Azure window open, however, as you'll need to transfer some information from Azure to configure the SharePoint OAuth Datasource. Ensure you've opened the **Azure Active Directory admin center** window to the **Overview** tab of the **App registrations** page of your Process Director integration app. In this example, we'll use the "Test SharePoint OAuth" application we used in the steps above.

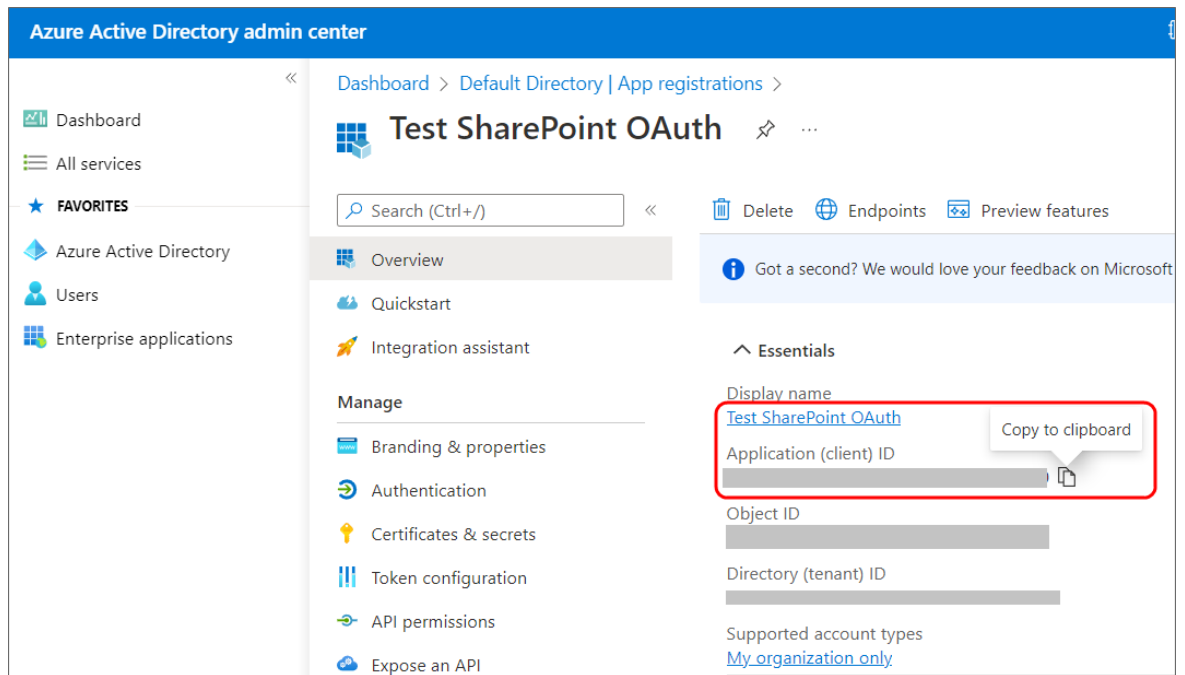
Instructions

1. Navigate to the Process Director folder in which you want to store the new Datasource, then select **Data Source** from the **Create New** menu.

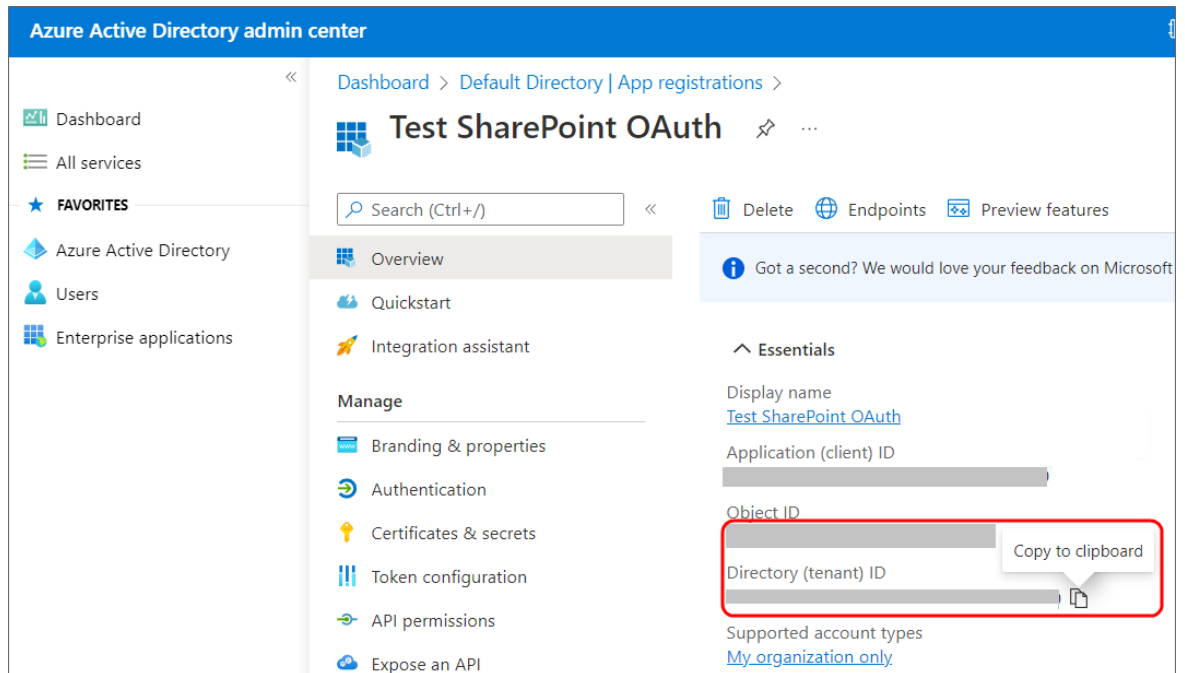


2. In the **Create New Data Source** screen, enter an **Name** for the Datasource, then click the **OK** button to create the Datasource and open its configuration screen.
3. On the **Properties** tab of the Datasource definition, change the **DataSource Type** to "SharePoint OAuth (Tenant)".
4. Set the **SharePoint Site URL** to the URL your SharePoint Online server.
5. To set the **Client ID** property, go to the Azure window, and using the "Copy to Clipboard" icon, copy the value in the **Application (client) ID** property, then paste it into the **Client ID** Property of the

Datasource definition.




6. Similarly, you'll need to copy the value of the **Directory (tenant) ID** property in Azure to the **Tenant ID** property of the Datasource definition.



7. To set the certificate to use for this Datasource, click the **Browse** button for the **SharePoint Certificate File** property, then locate and select the PrivatePublicKeys.pfx file you created earlier (either with certreq.exe or PowerShell).
8. Enter the certificate **Password** that you created for the PrivatePublicKeys.pfx file.

9. Click the **OK** button to save your changes, then update the Datasource definition by selecting **Update** from the **OK** dropdown menu at the upper right corner of the page.
10. Click the **Test Connection** button to ensure that the Datasource can connect properly to SharePoint.

SharePoint OAuth (Tenant) Datasource Properties

Datasource Connection Name Icon 

SharePoint Datasource

PROPERTIES

Description

Enter a brief description of this Object

Datasource Type

SharePoint OAuth ▼

Sharepoint Site URL

Client ID

Tenant ID

Sharepoint Certificate File (*.pfx)

Browse

Certificate Password (optional)

In addition to the standard **Description** property, setting the **Datasource Type** property to *SharePoint OAuth* enables configuration of the connection properties listed below.

SharePoint Site URL

The fully-qualified URL that connects to the SharePoint installation.

Client ID

The value of the **Application (client) ID** property contained in the App Registration screen in Azure.

Tenant ID

The value of the **Directory (tenant) ID** property contained in the App Registration screen in Azure.

SharePoint Certificate File

A **Content Picker** than enables you to browse to and upload the certificate (.PFX) file to Azure.

Certificate Password

The password that you configured for the certificate (.PFX) file when you created it.

Configuring the SharePoint OAuth (Site) Datasource

Configuring the [SharePoint OAuth \(Site\)](#) Datasource is far less complex than configuring the tenant-level Datasource, and requires no certificate to be created or uploaded to Azure. To add Process Director as an application in your Azure Active Directory portal at the Site level, complete the steps below after signing into your Azure portal (portal.azure.com):

1. Configure SharePoint Site Permissions

1. Navigate to the site you want to configure access for in your tenant. This is typically of the form <https://mytenant.sharepoint.com>, replacing “mytenant” with the appropriate name.
2. Adjust the URL to https://mytenant.sharepoint.com/_layouts/15/appregnew.aspx.
 - a. Click the buttons to generate both a **Client Id** as well as a **Client Secret**.
 - b. Select the **Client Id** value, copy the text and store the value somewhere safe to be used in later steps in this guide.
 - c. Select the **Client Secret** value, copy the text and store the value somewhere safe to be used in later steps in this guide.
3. Now you need to grant permissions to newly registered app (AKA principal). Navigate to https://mytenant-admin.sharepoint.com/_layouts/15/appinv.aspx. It’s important to note the addition of “-admin” to your site's normal name.

The screenshot shows the SharePoint Admin Center interface for creating a new application. The top navigation bar includes 'Office 365' and 'Admin'. The main content area is titled 'SharePoint admin center' and has a left-hand navigation menu with options like 'site collections', 'infopath', 'user profiles', 'bcs', 'term store', 'records management', 'search', 'secure store', 'apps', 'sharing', 'settings', 'configure hybrid', and 'device access'. The main form area is titled 'App Inv' and contains the following fields:

- App Id and Title:** The 'App Id' field is highlighted in yellow and contains the value 'f727176a-64c9-4697-a713-0b'. A green 'Lookup' button is next to it. The 'Title' field contains 'Process Director'.
- App Domain:** The field contains 'www.localhost.com'. Below it is an example: 'Example: "www.contoso.com"'.
- Redirect URL:** The field contains 'https://www.localhost.com/'. Below it is an example: 'Example: "https://www.contoso.com/default.aspx"'.
- App's Permission Request XML:** The field is highlighted in yellow and contains the XML: '<AppPermissionRequests AllowAppOnlyPolicy="true"><AppPermissionRequest Scope="http://sharepoint/content/sitecollection" Right="FullControl" /></AppPermissionRequests>'. Below it is a description: 'The permission required by the app.'

At the top right of the form are 'Create' and 'Cancel' buttons. At the bottom right of the form are 'Create' and 'Cancel' buttons.

- a. Add your Client Id as **App Id**.
 - b. Add the XML as shown, reproduced here to aid in copy and paste. Note, there are other, more restrictive options that can be considered listed in Table 1 at Microsoft's documentation topic, [Add-in permissions in SharePoint](#). Be careful using other values as it may prevent Process Director from working correctly.

```
<AppPermissionRequests AllowAppOnlyPolicy="true">
  <AppPermissionRequest Scope=
e="http://sharepoint/content/sitecollection" Right="FullControl" />
</AppPermissionRequests>
```
 - c. Set the **Title** to "Process Director".
 - d. Set **App Domain** to the fully qualified domain name of your Process Director deployment.
 - e. Set the **Redirect URL** to the URL of your Process Director deployment.
4. Click **Create**.
 5. Click **Trust It** in the follow-up prompt.

2. Configure the Datasource

1. In a Process Director **Content List** folder, select **Data Source** from the **Create New** menu.
2. Supply a **Name** and click **OK** to open the new Datasource definition.
3. Set the **Datasource Type** drop-down to "SharePoint OAuth (Site)".
4. Add the **SharePoint Site URL** for your SharePoint Online installation.
5. Add the **Client ID** (AKA Application Id) and **Client Secret** from SharePoint that you set aside in the steps for **Configure SharePoint Site Permissions** above.
6. Click **OK** then select the **Update** item from the **OK** menu at the top right corner of the page to save the configuration.
7. Click the **Test Connection** button to test your connection to the SharePoint site.

A successful test means that your Datasource is correctly configured and is connecting to the SharePoint site correctly.

Conclusion

Congratulations! Assuming that you've correctly followed the instructions above, you've now configured both SharePoint Online and Process Director. You can now use this Datasource and the SharePoint Custom Tasks in Process Director to integrate your SharePoint sites and data with Process Director.

Sharepoint Legacy Datasource

For connections to pre-OAuth versions of SharePoint, the SharePoint Legacy datasource type enables you to create a datasource connection to the SharePoint server.

The screenshot displays the configuration window for a new datasource. On the left is a vertical toolbar with icons for settings, linking, cloning, saving, and confirmation. The main area is titled 'PROPERTIES' and contains the following fields:

- Datasource Connection Name:** A text input field containing 'SP Test'. To its right is an 'Icon' field with a database icon.
- Description:** A large text area with the placeholder text 'Enter a brief description of this Object'.
- Datasource Type:** A dropdown menu currently set to 'SharePoint Legacy'.
- Sharepoint Site URL:** An empty text input field.
- User ID:** An empty text input field.
- Password:** An empty text input field.
- Domain:** An empty text input field.

At the bottom of the configuration area is a button labeled 'Test Connection' with a document icon.

There are four properties to configure to create this datasource.

The **Sharepoint Site URL** property enables you to enter the fully qualified URL of the Sharepoint server to which you wish to connect.

The **User ID** must be the user ID for a valid SharePoint User, while the **Password** property will be the password for the specified user. The **Domain** property is the SharePoint domain that contains the specified user.

Once you've configured the datasource, you can click the **Test Connection** button and a message banner will appear, notifying you whether the connection was successful.

Other Datasource Types

To see more information about different [Datasource Types](#) and their configuration, please refer to the following topics:

- [Common Datasources](#)
- [Excel Datasources](#)
- [File Datasources](#)
- [Social Datasources](#)

Microsoft OAuth for SMTP

To configure integration between Azure and Process Director, you'll first need to create and register an Azure Active Directory (AAD) Application, if you do not have one. Please see the [Configuring Azure for Process Director Integration](#) topic for instructions on how to create and register an AAD Application.

Once the AAD Application has been registered, you'll need to perform some additional configuration to the AAD Application's settings in Azure.

First, in the **Authentication** area, you'll need to set the **Allow public client flows** property to: **Yes (On)**

Unfortunately, there are many factors that might impact the remaining AAD Application settings you'll need to use. Since that is so, you may wish to reference Microsoft's explanation of [SMTP OAuth implementation](#).

Depending on your Azure installation, as well as your organization's policies, there are different configuration settings that you might need to implement, in order to enable your AAD application to enable Process Director to use OAuth to send mail messages. **BP Logix cannot, therefore, definitively describe what settings might be required to make your Azure installation accept OAuth authentication, as we have no knowledge of, or access to, your Azure configuration.**




We strongly recommend that you refer to the Microsoft documentation topic on this subject: [How to set up a multifunction device or application to send emails using Microsoft 365 or Office 365](#).

We can provide some common configuration suggestions that have worked for our customers in the past, though ***we cannot guarantee that these settings will work with your specific Azure configuration.***

1. If it's available for your Azure installation, in the [Office 365 Exchange Online](#) section of the [API Permissions](#) area, you can set the permissions `SMTP.AccessAsUser.All`. This setting is not available for all installations. This setting seems to have been deprecated for recent installations of Azure, in lieu of #2, below.
2. In the [Office 365 Exchange Online](#) area, enable the `SMTP.SendAsApp` property. You may also need to enable `IMAP.SendAsUser.All` to true.
3. In the [Microsoft Graph](#) section of the [API Permissions](#) area, you can enable the following permissions: `Microsoft.Graph.DelegatedSMTP.Send` and `DelegatedUser.Read`.
4. For more comprehensive email access, you can set `Microsoft.Graph.DelegatedIMAP.AccessAsUser.All`.

If no combination of the settings above work for you, you may need to contact your Microsoft Azure technical support representative to assist you with configuring the correct AAD App permissions for your installation.

 For more information on authentication permissions, please refer to the [Microsoft Graph Permissions Reference](#) from Microsoft. Please be aware that BP Logix has an extremely limited ability to assist you with troubleshooting your Azure installation or settings.

Once configured, you'll need to get the following properties from the AAD Application's settings to transfer to the corresponding OAuth settings for the "Office365/Microsoft OAuth" **SMTP Authentication Type**, which is found on the [Properties page](#) of the [Installation Settings](#) section of the [IT Admin](#) area.:

SMTP Authentication Type	<input type="text" value="Office365/Microsoft OAuth"/>
SMTP Tenant ID	<input type="text"/>
SMTP Client ID	<input type="text"/>
SMTP Secret	<input type="text"/>

1. **SMTP Tenant ID**
 - a. The ID of the Azure Tenant in which the AAD Registered App resides (Creation of an AAD Registered App requires the existence of a Tenant)
 - b. The Tenant ID is displayed as the **Directory (tenant) ID** property on the **Overview** page of your AAD Application in Azure, but this value will also be displayed following `login.microsoft.com/...` in the Endpoint URLs that the App references
2. **SMTP Client ID**
 - a. The ID of the AAD Registered App
 - b. This value is displayed as the **Application (client) ID** property on the **Overview** page of your AAD Application.
3. **SMTP Secret**
 - a. The client secret or application password the administrator created to use with the AAD Registered App.
4. **UserID/Password**
 - a. Some installations may require that you provide a valid **UserID** and **Password** to connect to an email account on your system for sending mail messages, as part of the authentication.

Some Azure configurations may also be configured to require a specific email address be used to send *all* mails as the "From" email address. In that case, you will *at least* need to go to the [Global Variables page](#) and set the **Workflow From Email Address** property to the email address you've specified in Azure. You

may also wish to set that email address for the [Registered Email](#) property on this page ([Properties](#)), as a backup to the [Global Variables](#) setting.



Be advised that, with this configuration, ALL email addresses sent from the system MUST use the specified email address as the From address. This means that any custom email addresses you configure elsewhere, such as the "From Email" property of a Email Data control in an email template, *will not send email messages.*