Psiog SharePoint Connector Documentation

Contents

1. Document Info

Software Release:	V3.0
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File Name:	Psiog SharePoint Connector Documentation

2. Revision History

S No	Date of Modification	Change Made
1	13 Jan 2022	Document V1
2	12 May 2022	Added validations to file, folder and sub directory names to overcome issues faced due to special characters in file or folder names.
3	17th Oct 2022	Added License Allocation Added Point 10, 11 under Features Added Point 9 under Walkthrough
4	8th Nov 2022	Updated version compatibility from 7.12 to 7.18
5	16th Feb 2023	Added enhancements to connector – Dynamic folder creation and developer API
6	29th Dec 2023	Added enhancements to connector – Graph API migration (Azure AD App registration and document repository configuration) and Freedom UI Compatibility
7	13th March 2024	UI Changes - Freedom UI

3. Purpose

The document is intended to provide functional and technical information about the plug-in to help Users, SharePoint Admin and Creatio Developers understand the functionalities and configure settings.

4. Plug-in Information

The SharePoint Connector plug-in is designed to facilitate upload, download and deletion of files directly from Creatio UI. The plug-in can be used by organizations which use/ intend to use SharePoint Office 365 as a Document Repository for Creatio.

5. Build Information

S No	Particular	Details
1	Version	3.2312.27
2	Creatio Version Compatibility	8.0.0 and up (Classic and Freedom UI)
3	Creatio Product	Across all products
4	Database	Postgres, MS SQL
5	Operating System	Windows 10

6	Platform	.NET Framework 4.7
7	Dependent Package	ProductCore
8	Environments supported	Cloud & On-premise

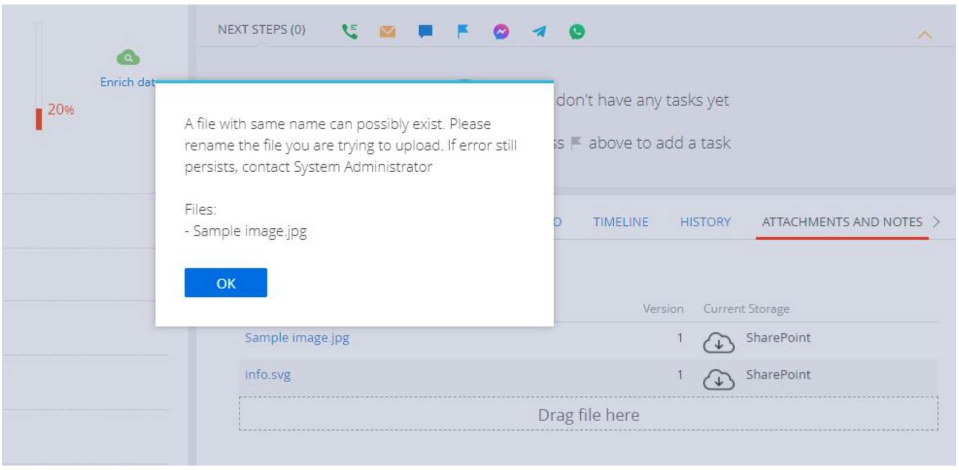
6. Features

The SharePoint Connector will enable users to:

1. Configure OOTB and Custom sections to integrate with SharePoint.
2. Configure directories and sub-directories for each Section
3. Create directories to which files uploaded from ‘Attachment Detail’ (Classic UI) / ‘Attachment List’ (Freedom UI) in each section must be sent, via Microsoft Graph API
4. Upload files to specific folders in SharePoint Document Repository through Creatio via Microsoft Graph API
5. Download files from folders from the Document Repository via Microsoft Graph API
6. Delete an existing file from a folder in SharePoint via Microsoft Graph API
7. View where the attachment is stored currently (SharePoint or Creatio database).
8. Retry file upload to SharePoint if previous attempt fails due to unforeseen circumstances. Enable settings “PsgAllowStorageInDB” to store files in Creatio Database to manually retry upload to SharePoint later.
   Note: If the setting, “PsgAllowStorageInDB” is not enabled, files will not be stored in Creatio database in case of unforeseen errors (Eg: network errors) which may occur while the file is being uploaded to SharePoint.
9. Open files in SharePoint via securely generated links. The files will be visible to all authenticated users of an organization.
10. The access rights to files is restricted to OrganizationView mode

7. Control Points

1. If a file with same name as an existing file is uploaded to same folder in SharePoint, there will be no over-riding or merging of the files. SharePoint API will reject the upload and an appropriate error message will be displayed to the user. The user is expected to rename the file and upload back through Creatio UI, if such an error is encountered.

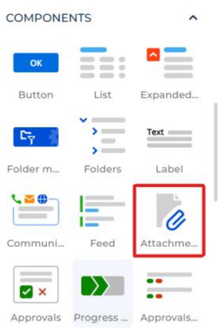


A file with same name can possibly exist. Please rename the file you are trying to upload. If error still persists, contact System Administrator

Files:
- Sample image.jpg

	Version	Current Storage
Sample image.jpg	1	SharePoint
info.svg	1	SharePoint

2. Changes made directly in SharePoint – like adding/deleting/updating of folders or files will not be reflected in Creatio. All uploads/ deletions are synced with SharePoint only through Creatio UI.
3. Owing to email activities which can include attachments, attachments added to activity is restricted to Creatio Database.
4. A file name cannot contain special characters other than
    a. Underscore: _
    b. Hyphen: -
    c. Parenthesis: ()
    d. Exclamatory Mark: !
    e. Space
5. The connector supports file upload to SharePoint from existing Freedom UI sections and new sections created with the default base form page.
6. Files added under the custom attachments component of a custom form page in Freedom UI will be restricted to Creatio Database.



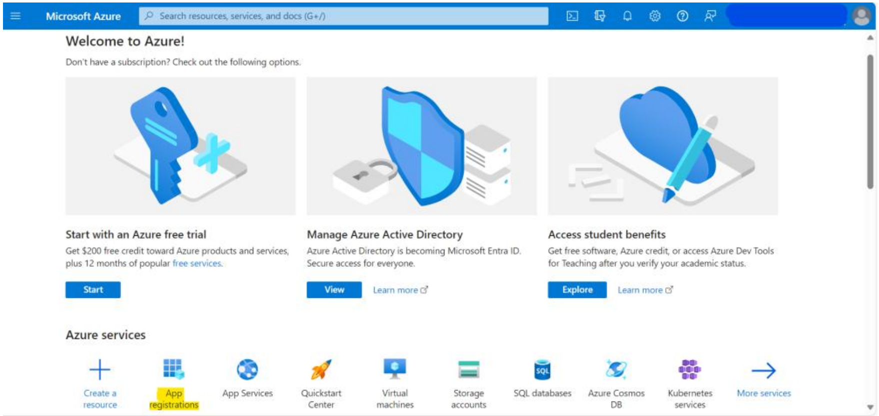
8. Configuration

8.1 SharePoint - Graph API access

1. The SharePoint plugin uses the https://login.microsoftonline.com hostname to authenticate and subsequently use Graph APIs with bearer tokens to perform Folder Creation, File Upload, Download and Delete operations.
2. Follow the steps in 8.2 to generate Client Id, Client Secret, Tenant Id / Realm Id and Site Id. These values must then be configured in Creatio system settings.

8.2 Azure AD App registration and document repository configuration

1. Go to Microsoft Azure -> **App Registrations**



[redacted]

Welcome to Azure!

Don't have a subscription? Check out the following options.

Start with an Azure free trial

Get $200 free credit toward Azure products and services, plus 12 months of popular free services.

Manage Azure Active Directory

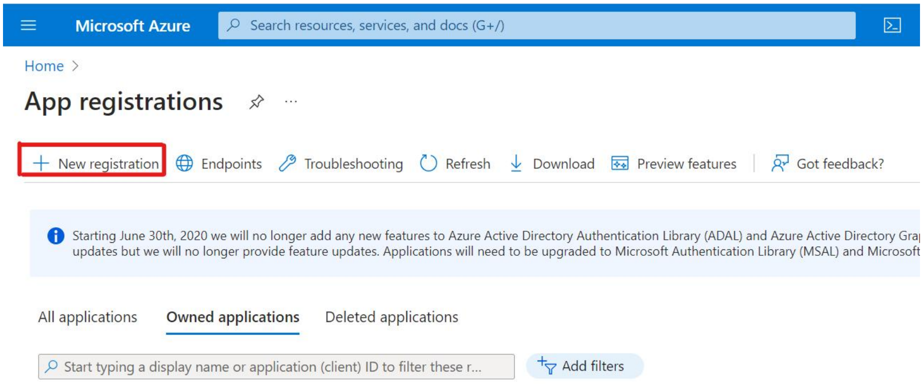
Azure Active Directory is becoming Microsoft Entra ID. Secure access for everyone.

Access student benefits

Get free software, Azure credit, or access Azure Dev Tools for Teaching after you verify your academic status.

Azure services

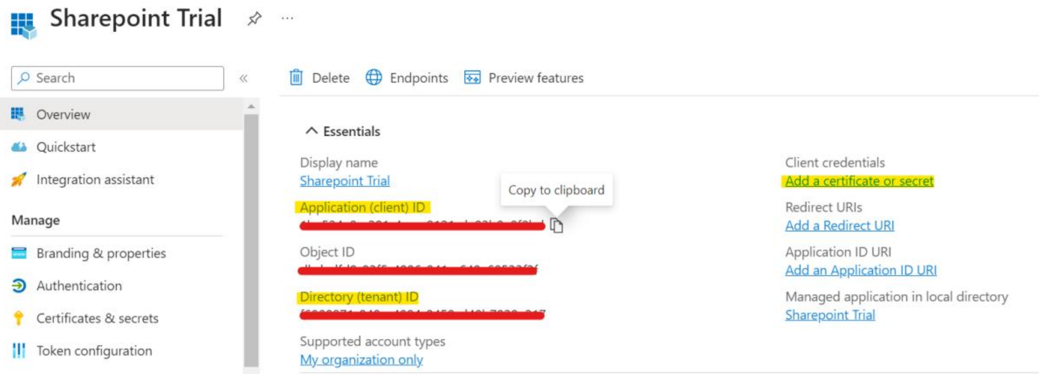
2. Select + **New Registration**, give a display name for the application and click **Register**



Starting June 30th, 2020 we will no longer add any new features to Azure Active Directory Authentication Library (ADAL) and Azure Active Directory Gra
updates but we will no longer provide feature updates. Applications will need to be upgraded to Microsoft Authentication Library (MSAL) and Microsoft

All applications
Owned applications
Deleted applications
Start typing a display name or application (client) ID to filter these r...
Add filters

3. Once the app is registered, note down the **Client Id and Tenant Id** from the page that appears. Then click on **Add a certificate or secret**



Display name
Sharepoint Trial

Application (client) ID
[redacted]

Object ID
[redacted]

Directory (tenant) ID
[redacted]

Supported account types
My organization only

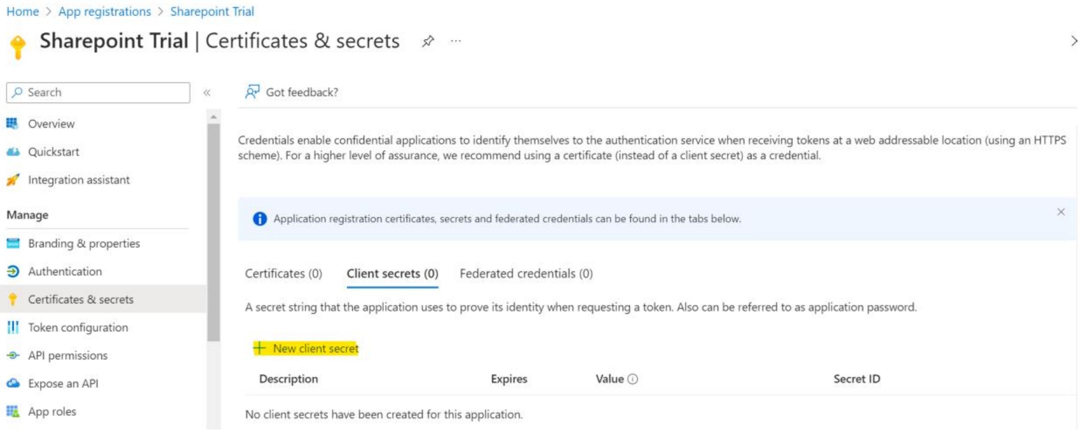
Client credentials
Add a certificate or secret

Redirect URIs
Add a Redirect URI

Application ID URI
Add an Application ID URI

Managed application in local directory
Sharepoint Trial

4. Under Certificates & secrets, click on **+ New client secret**. Enter a description for the client secret and click **Add**.



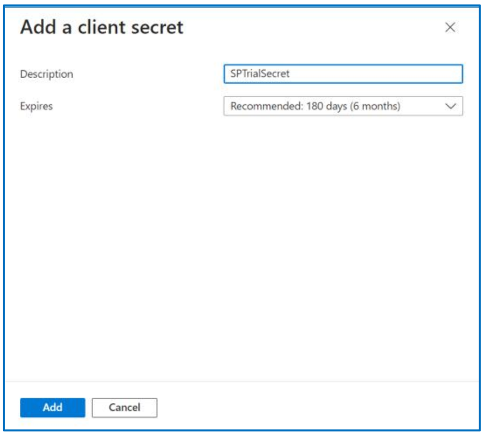
Credentials enable confidential applications to identify themselves to the authentication service when receiving tokens at a web addressable location (using an HTTPS scheme). For a higher level of assurance, we recommend using a certificate (instead of a client secret) as a credential.

Application registration certificates, secrets and federated credentials can be found in the tabs below.

A secret string that the application uses to prove its identity when requesting a token. Also can be referred to as application password.

Description	Expires	Value	Secret ID

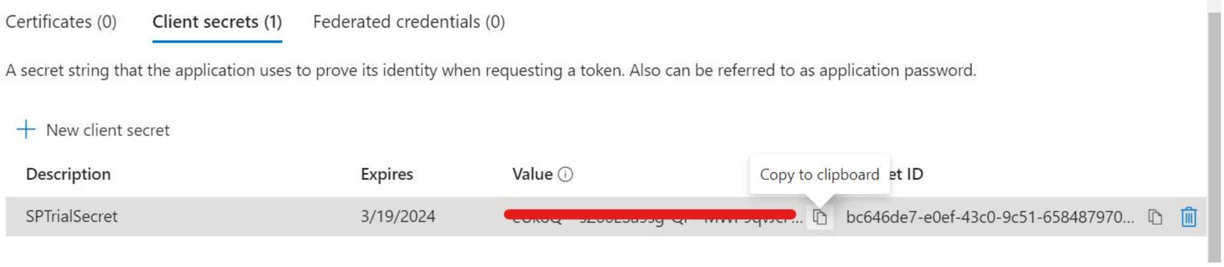
No client secrets have been created for this application.



Description: SPTrialSecret

Expires: Recommended: 180 days (6 months)

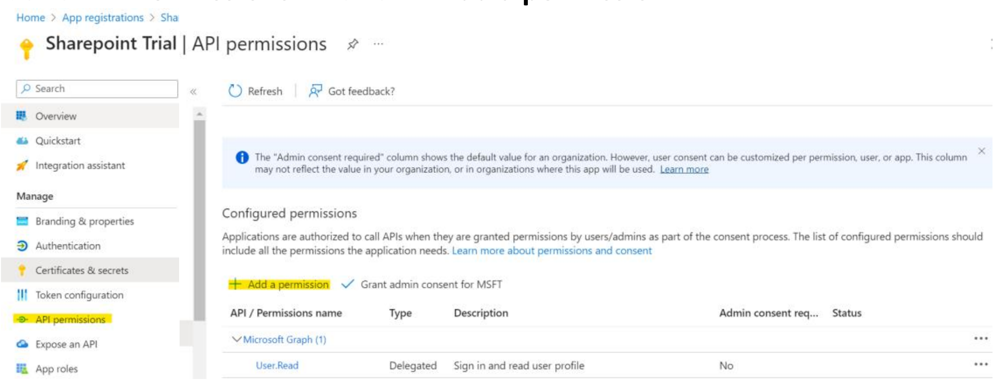
5. Note down the **Value** of the client secret.



A secret string that the application uses to prove its identity when requesting a token. Also can be referred to as application password.

Description	Expires	Value ⓘ	Secret ID
SPTrialSecret	3/19/2024	[redacted]	bc646de7-e0ef-43c0-9c51-658487970...

6. Go to **API Permissions**. Click on **+ Add a permission**.



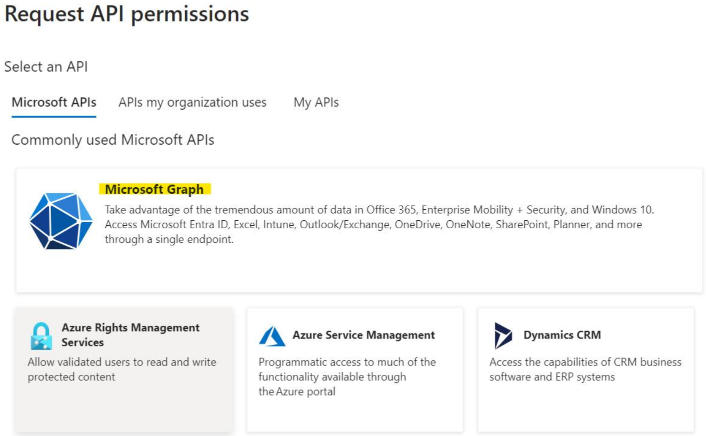
The "Admin consent required" column shows the default value for an organization. However, user consent can be customized per permission, user, or app. This column may not reflect the value in your organization, or in organizations where this app will be used. Learn more

Configured permissions

Applications are authorized to call APIs when they are granted permissions by users/admins as part of the consent process. The list of configured permissions should include all the permissions the application needs. Learn more about permissions and consent

API / Permissions name	Type	Description	Admin consent req...	Status
Microsoft Graph (1)				
User.Read	Delegated	Sign in and read user profile	No	

7. Select **Microsoft APIs -> Microsoft Graph**



Request API permissions

Select an API

Commonly used Microsoft APIs

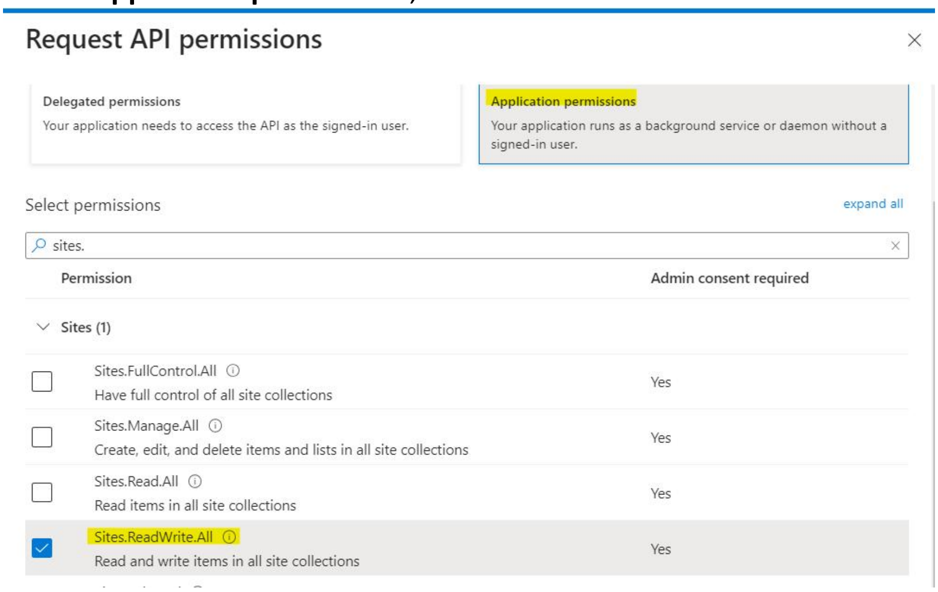
Microsoft Graph
Take advantage of the tremendous amount of data in Office 365, Enterprise Mobility + Security, and Windows 10. Access Microsoft Entra ID, Excel, Intune, Outlook/Exchange, OneDrive, OneNote, SharePoint, Planner, and more through a single endpoint.

Azure Rights Management Services
Allow validated users to read and write protected content

Azure Service Management
Programmatic access to much of the functionality available through the Azure portal

Dynamics CRM
Access the capabilities of CRM business software and ERP systems

8. Under **Application permissions**, select **Sites.ReadWrite.All**



Request API permissions

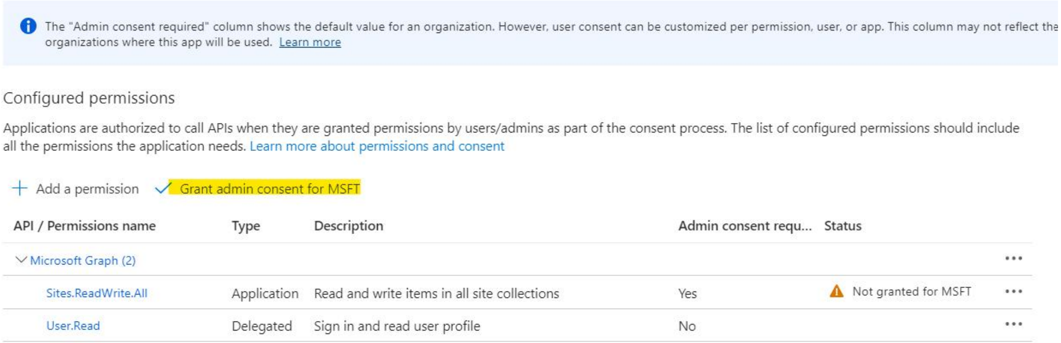
Delegated permissions
Your application needs to access the API as the signed-in user.

Application permissions
Your application runs as a background service or daemon without a signed-in user.

Select permissions

	Permission	Admin consent required
	Sites (1)	
☐	Sites.FullControl.All ⓘ Have full control of all site collections	Yes
☐	Sites.Manage.All ⓘ Create, edit, and delete items and lists in all site collections	Yes
☐	Sites.Read.All ⓘ Read items in all site collections	Yes
☑	Sites.ReadWrite.All ⓘ Read and write items in all site collections	Yes

9. Select **Grant admin consent for <User>** and approve it.



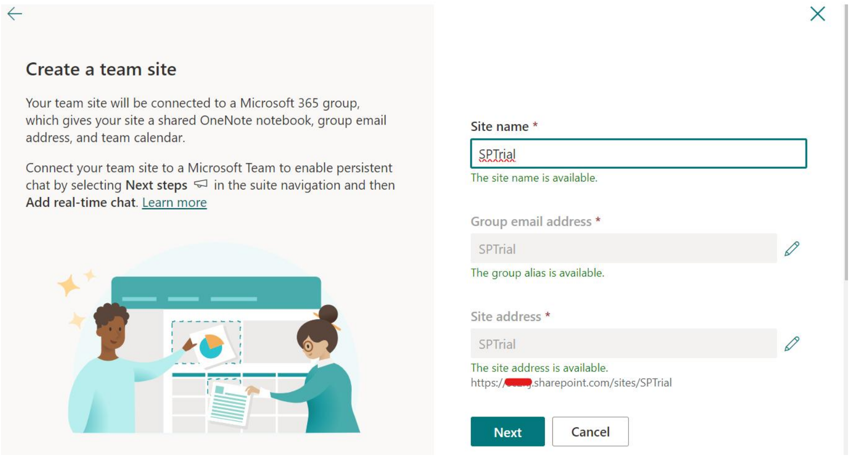
The "Admin consent required" column shows the default value for an organization. However, user consent can be customized per permission, user, or app. This column may not reflect the organizations where this app will be used. Learn more

Configured permissions

Applications are authorized to call APIs when they are granted permissions by users/admins as part of the consent process. The list of configured permissions should include all the permissions the application needs. Learn more about permissions and consent

API / Permissions name	Type	Description	Admin consent requ...	Status
Microsoft Graph (2)				
Sites.ReadWrite.All	Application	Read and write items in all site collections	Yes	⚠ Not granted for MSFT
User.Read	Delegated	Sign in and read user profile	No	

10. Go to your SharePoint domain (https://<tenant-name>.sharepoint.com) and create a new Team Site, providing your own Team Site name. (Skip this step if you have an existing SharePoint site)



Create a team site

Your team site will be connected to a Microsoft 365 group, which gives your site a shared OneNote notebook, group email address, and team calendar.

Connect your team site to a Microsoft Team to enable persistent chat by selecting **Next steps** in the suite navigation and then **Add real-time chat**. Learn more

Site name *

SPTrial

The site name is available.

Group email address *

SPTrial

The group alias is available.

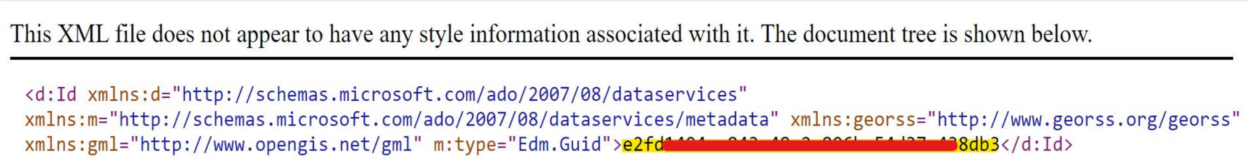
Site address *

SPTrial

The site address is available.

https://[redacted].sharepoint.com/sites/SPTrial

11. Go to https://<tenant-name>.sharepoint.com/sites/<TeamSite>/_api/site/id and note down the **Site Id**



This XML file does not appear to have any style information associated with it. The document tree is shown below.

```
<d:Id xmlns:d="http://schemas.microsoft.com/ado/2007/08/dataservices"
xmlns:m="http://schemas.microsoft.com/ado/2007/08/dataservices/metadata" xmlns:georss="http://www.georss.org/georss"
xmlns:gml="http://www.opengis.net/gml" m:type="Edm.Guid">e2fd[redacted]8db3</d:Id>
```

8.3 Test SharePoint configuration through Postman (SharePoint Admin)

Once SharePoint credentials are created, the steps below can be followed to verify configuration.

1. Download Postman.
2. Request 1
   a. **Request URL:** https://login.microsoftonline.com/<TenantId>/oauth2/v2.0/token
   b. **Request Body (x-www-form-urlencoded):**
      i. grant_type:client_credentials
      ii. client_id:<Client Id>
      iii. scope: https://graph.microsoft.com/.default
      iv. client_secret: <Client Secret>

3. If SharePoint is configured successfully, the above request would return an Access Token.
4. **Request 2:** Confirm that you are able to create folders in SharePoint Document Repository.
   a. **Request URL:** https://graph.microsoft.com/v1.0/sites/<SiteId>/drive/root/children
   b. **Type:** POST
   c. **Auth:**
      Type: Bearer Token
      Token: *<Copy-paste the access_token from Request 1 response>*
   d. **Body Type**: RAW JSON
   e. **Body:**

```
{
  "name": "New Folder",
  "folder": { },
  "@microsoft.graph.conflictBehavior": "fail"
}
```

5. If your credentials are correct, the above request would return a 201 (Created) response with details of the created folder.

8.4 System Settings

All system settings related to the plugin can be found in the folder “SharePoint settings” folder in System settings section.

S No	Name	Code	Description
1	SharePoint Domain	PsgSPDomain	1. Complete Domain of SharePoint Document Repository 2. Example: https://abc.sharepoint.com
2	SharePoint Relative URL	PsgSPRelativeURL	1. Relative URL of the Document Repository 2. Example: /sites/SharePointConnectorforCreatio
3	SharePoint Root Folder	PsgSPRootFolder	1. Root folder inside which Creatio is Authorised to create folders and upload files. 2. Example: /Shared Documents
4	SharePoint Client Id	PsgSPClientId	Client Id
5	SharePoint Client Secret	PsgSPClientSecret	Client Secret
6	SharePoint Resource Id	PsgSPResourceId	Tenant or Realm Id
7	SharePoint Site Id	PsgSPSiteId	Site Id
8	SharePoint Proxy Server	PsgSPProxyServer	Proxy server URL if required for security purposes.
9	Allow Storage In DB	PsgAllowStorageInDB	Enable this setting if Creatio should store files in Creatio Database in case SharePoint upload fails.

8.5 Lookup

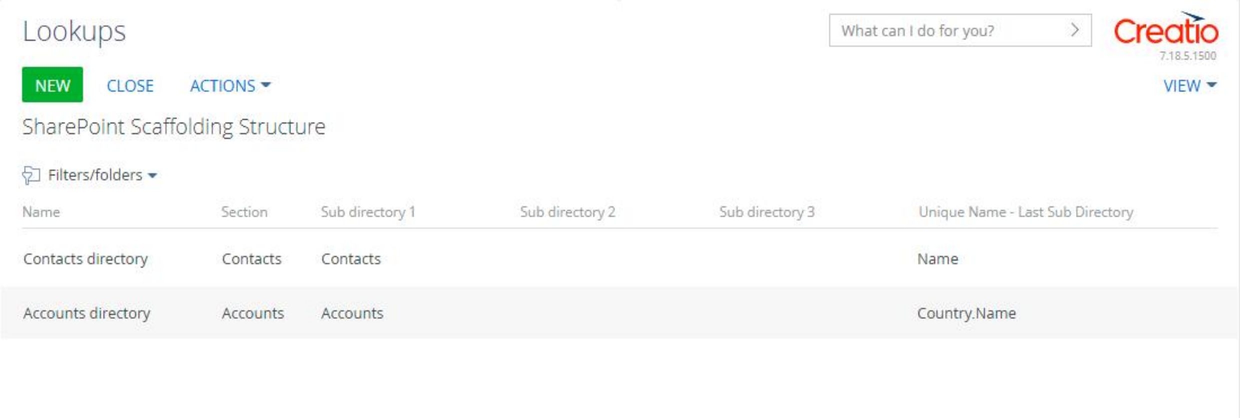
The following lookup needs to be configured to:

1.Enable SharePoint for a section.
2.Determine the folder/ subfolder to which a file must be uploaded in SharePoint.

Name of lookup: SharePoint Scaffolding Structure
Code: PsgSPScaffoldingStructure

Structure:

S No	Column Title	Column Code	Type	Description
1	Name	Name	String	Name
2	Section	PsgSection	Lookup	Lookup to pick sections to configure SharePoint
3	Sub directory 1	PsgSubDir1	String	First sub folder after root folder
4	Sub directory 2	PsgSubDir2	String	Second sub folder after root folder
5	Sub directory 3	PsgSubDir3	String	Third sub folder after root folder
6	PsgUniqueName	Unique Name - Last Sub Directory	String	List of dynamic sub-folders after 3rd sub-directory.



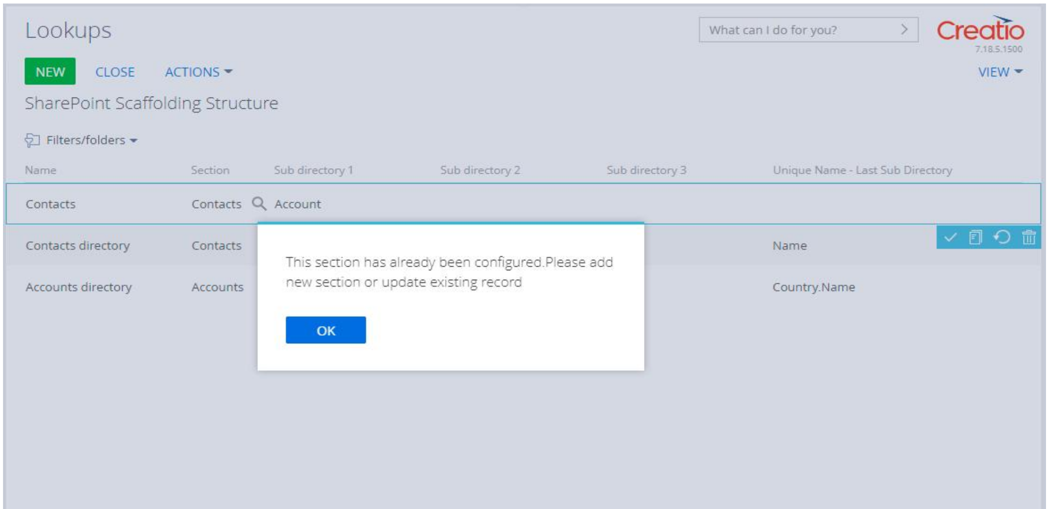
SharePoint Scaffolding Structure

Name	Section	Sub directory 1	Sub directory 2	Sub directory 3	Unique Name - Last Sub Directory
Contacts directory	Contacts	Contacts			Name
Accounts directory	Accounts	Accounts			Country.Name

8.5.1 Validations

The SharePoint Scaffolding Structure Lookup has the following validations

1. Each section can have only 1 configuration associated with it.

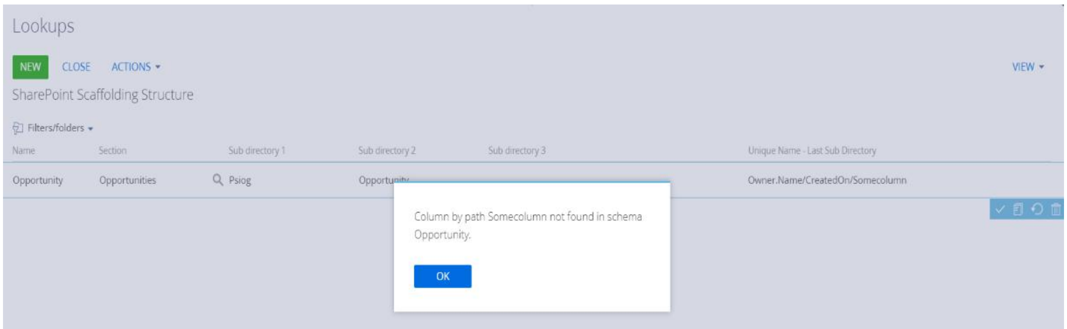


SharePoint Scaffolding Structure

Name	Section	Sub directory 1	Sub directory 2	Sub directory 3	Unique Name - Last Sub Directory
Contacts	Contacts	Account			
Contacts directory	Contacts				Name
Accounts directory	Accounts				Country.Name

This section has already been configured.Please add new section or update existing record

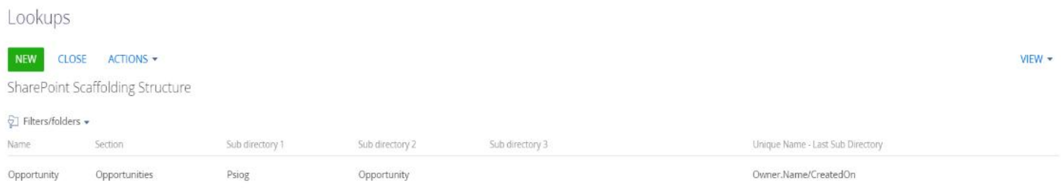
2. Unique Name – Last Sub Directory column in the Lookup must be valid – The column name is expected to be a column in the table or must be a column in a table linked to the section selected section through a Foreign Key. Multiple column names can be added and must be separated by a '/'



SharePoint Scaffolding Structure

Name	Section	Sub directory 1	Sub directory 2	Sub directory 3	Unique Name - Last Sub Directory
Opportunity	Opportunities	Psiog	Opportunity		Owner.Name/CreatedOn/Somecolumn

Column by path Somecolumn not found in schema Opportunity.

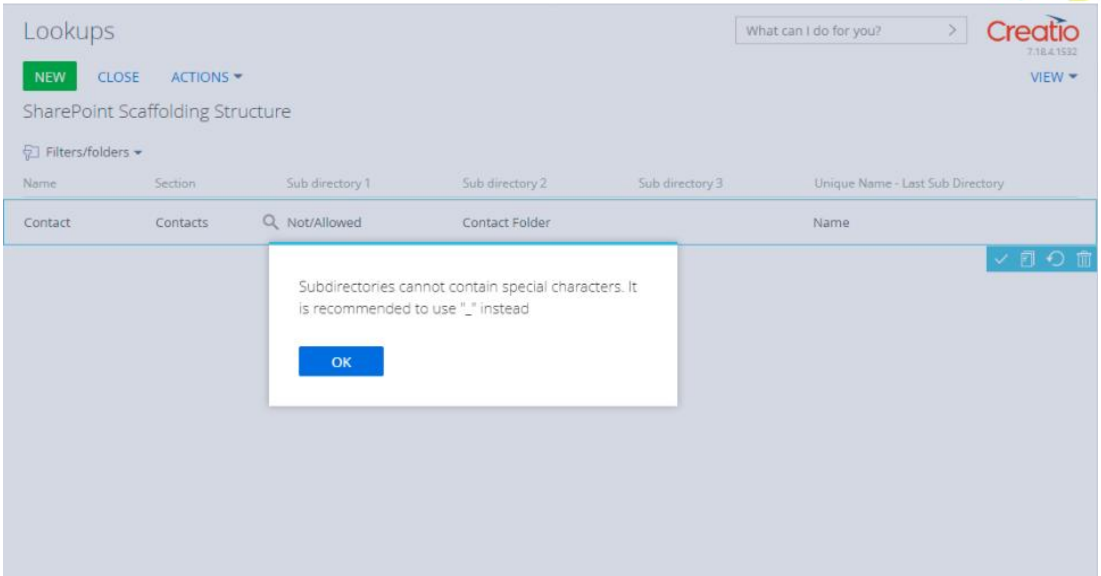


SharePoint Scaffolding Structure

Name	Section	Sub directory 1	Sub directory 2	Sub directory 3	Unique Name - Last Sub Directory
Opportunity	Opportunities	Psiog	Opportunity		Owner.Name/CreatedOn

3. It is also mandatory to fill the Unique Name – Last Sub Directory column in the Lookup
4. The Sub Directory or folder names must not contain special characters. Allowed special characters are
    a. Underscore: _
    b. Hypen: -
    c. Paranthesis: ()
    d. Space

   If special characters other than the ones mentioned above are configured, the following error will pop up



SharePoint Scaffolding Structure

Name	Section	Sub directory 1	Sub directory 2	Sub directory 3	Unique Name - Last Sub Directory
Contact	Contacts	Not/Allowed	Contact Folder		Name

Subdirectories cannot contain special characters. It is recommended to use "_" instead

5. If the Unique Name contains special characters (as in name of account or contact having special characters such as * | ? " , / ^ @ \ . { } : < >), the code will replace these special characters with underscore.

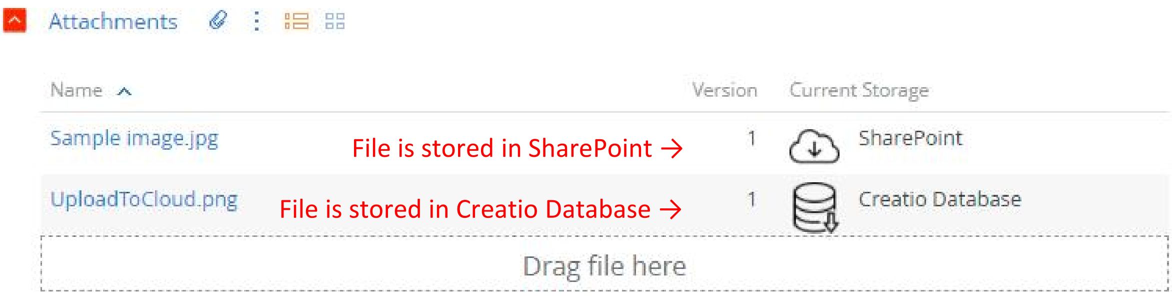
8.6 License Allocation

The user should check that licenses are added and available in the 'All licenses' block in the License manager.

9. Walk-through

9.1 Classic UI

1. Authorization to SharePoint will take place through the Azure AD (AAD) application, using Microsoft's Graph API (https://login.microsoftonline.com/<<your AAD tenant id>>)
2. The resulting Bearer Token, upon successful authentication is stored in Redis Cache to reuse it and avoid frequent authorization.
3. A section that is configured to integrate with SharePoint will have a button instead of the OOTB button. This former button simply means that files uploaded to that section will be sent to SharePoint.
4. All files will have its current storage (Creatio Database or SharePoint) represented on the UI as follows:

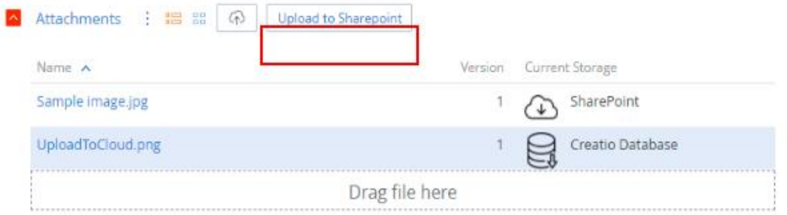


Name	Version	Current Storage
Sample image.jpg	1	SharePoint
UploadToCloud.png	1	Creatio Database

File is stored in SharePoint →

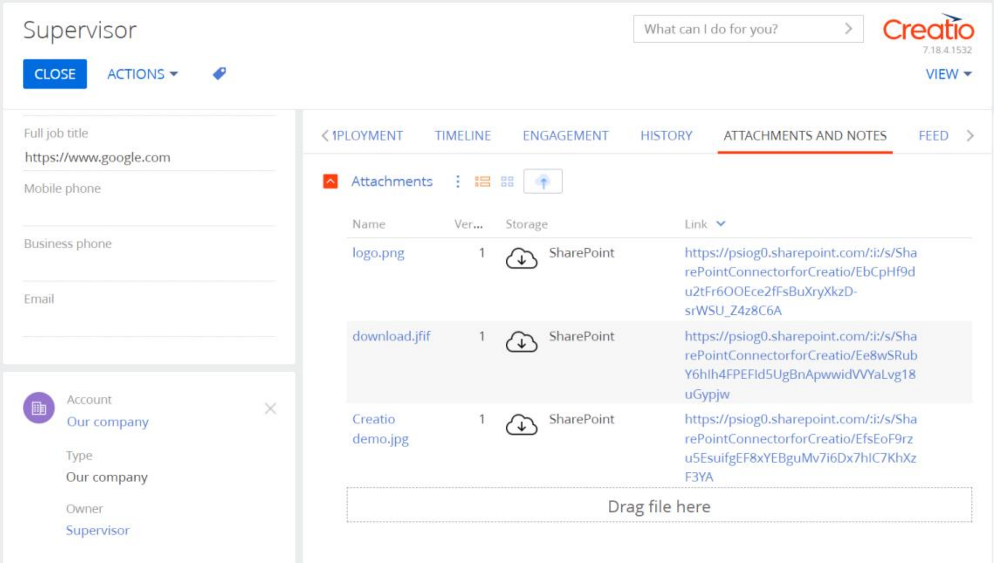
File is stored in Creatio Database →

5. A file currently stored in Creatio database can also be uploaded into SharePoint by selecting the file and clicking the button “*Upload to Sharepoint*”. This button will be visible only if the section is configured to SharePoint.



Name	Version	Current Storage
Sample image.jpg	1	SharePoint
UploadToCloud.png	1	Creatio Database

6. A file deleted in Creatio will also be deleted in SharePoint (if file exists in SharePoint)
7. A file uploaded to SharePoint can be downloaded by clicking on the Name of the file.
8. Once a file is uploaded to SharePoint, ShareLink API will generate a secure ShareLink to the file. This will allow all authenticated users within your organization to access the file via the ShareLink.
9. It is assumed that any access rights to these links will be handled by user who uploads the document.



Full job title
https://www.google.com

Mobile phone

Business phone

Email

Account
Our company

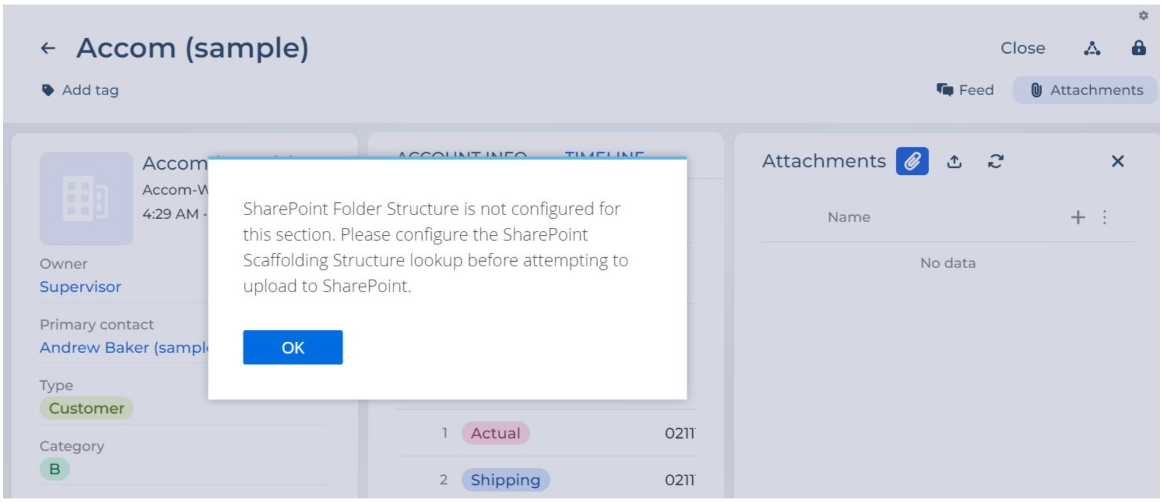
Type
Our company

Owner
Supervisor

Name	Ver...	Storage	Link
logo.png	1	SharePoint	https://psiog0.sharepoint.com/:i:/s/SharePointConnectorforCreatio/EbCpHf9du2tFr6OOEce2fFsBuXryXkzD-srWSU_Z4z8C6A
download.jfif	1	SharePoint	https://psiog0.sharepoint.com/:i:/s/SharePointConnectorforCreatio/Ee8wSRubY6hlh4FPEFld5UgBnApwwidVVYaLvg18uGypjw
Creatio demo.jpg	1	SharePoint	https://psiog0.sharepoint.com/:i:/s/SharePointConnectorforCreatio/EfsEoF9rzu5EsuifgEF8xYEBguMv7i6Dx7hIC7KhXzF3YA

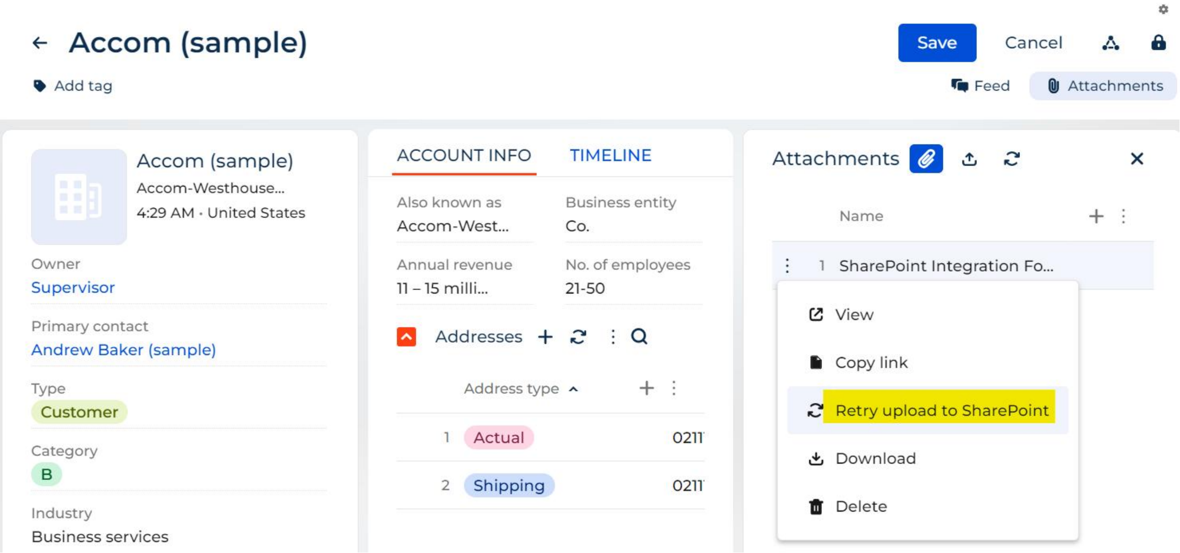
9.2 FreedomUI

1. Authorization to SharePoint will take place through the Azure AD (AAD) application, using Microsoft’s Graph API (https://login.microsoftonline.com/<<your AAD tenant id>>)
2. The resulting Bearer Token, upon successful authentication is stored in Redis Cache to reuse it and avoid frequent authorization.
3. Form pages of all existing and custom Freedom UI sections (based on the default base page) will have an Upload to SharePoint 📎 button to the left of the Upload ⇧ OOTB button. This former button simply means that files uploaded using it will be sent to SharePoint, whereas the latter will be sent to Creatio DB.
4. If you click on the Upload to SharePoint button in a section where SharePoint is not configured, you will get the following error message:

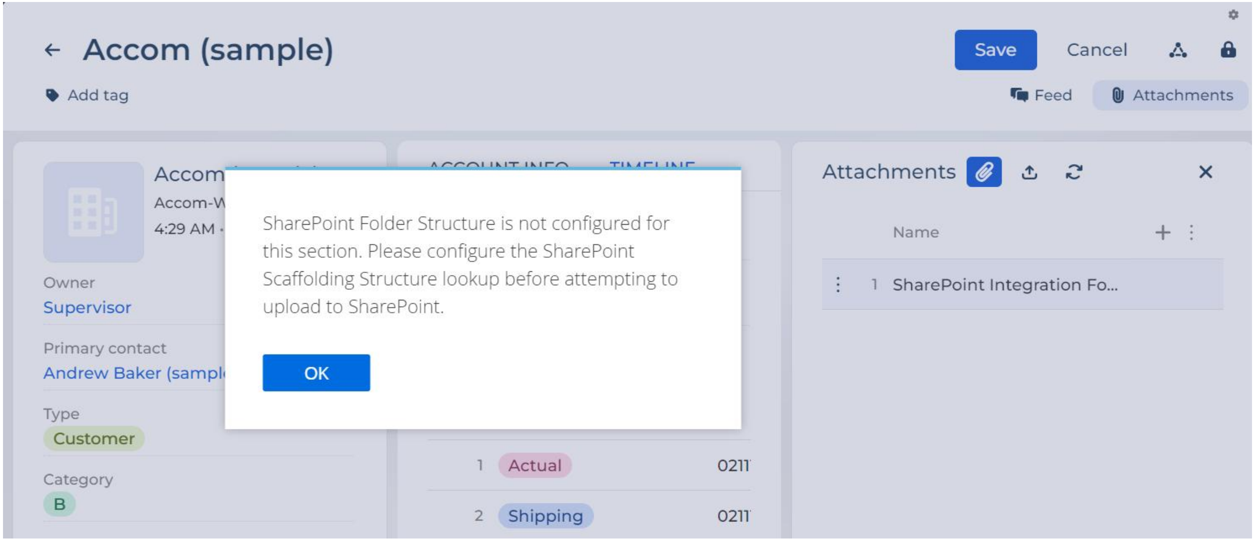


SharePoint Folder Structure is not configured for this section. Please configure the SharePoint Scaffolding Structure lookup before attempting to upload to SharePoint.

5. A file currently stored in Creatio database can also be uploaded into SharePoint by clicking the "*Retry Upload to Sharepoint*" button from the menu near the file name.



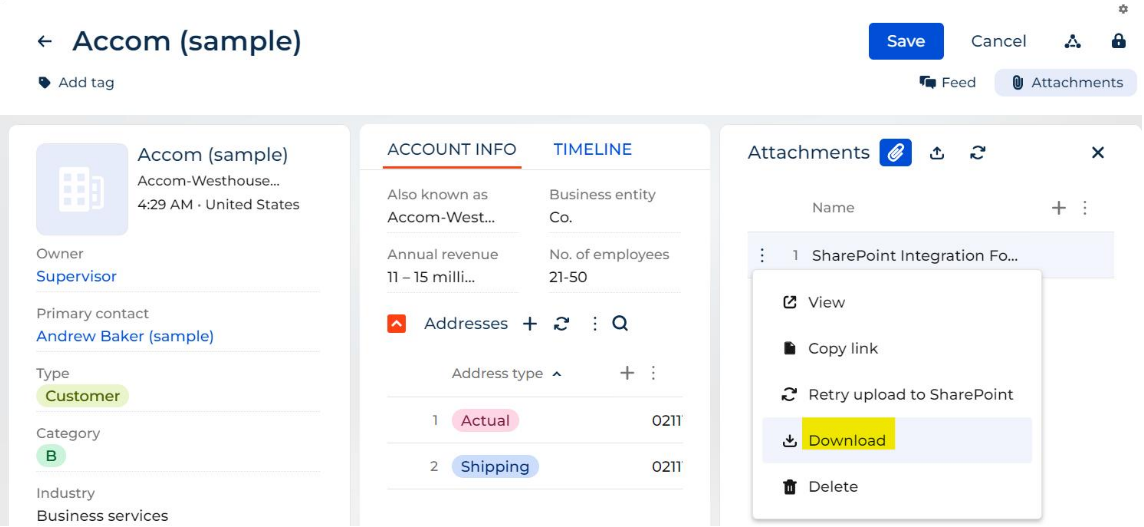
If SharePoint is not configured for that section, you get the following error message:



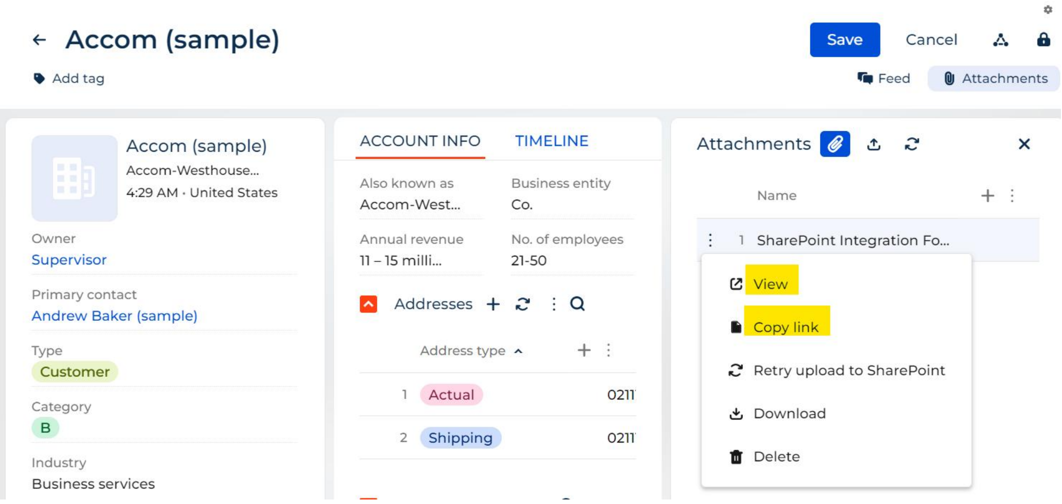
SharePoint Folder Structure is not configured for this section. Please configure the SharePoint Scaffolding Structure lookup before attempting to upload to SharePoint.

6. A file deleted in Creatio will also be deleted in SharePoint (if file exists in SharePoint)

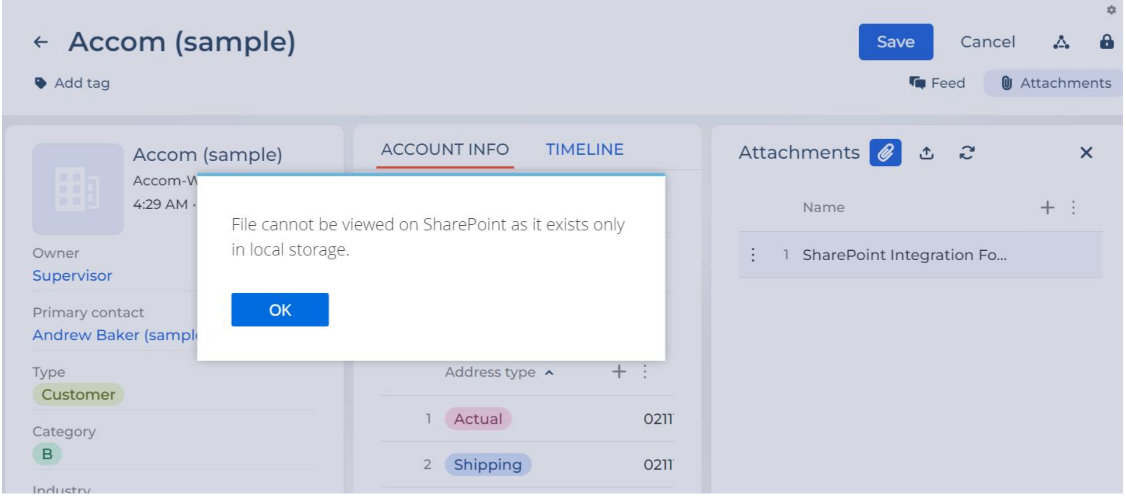
7. A file uploaded to SharePoint can be downloaded by clicking on the download button from the menu next to the name of the file.



8. Once a file is uploaded to SharePoint, ShareLink API will generate a secure ShareLink to the file. This will allow all authenticated users within your organization to access the file via the ShareLink. You can view the file directly on SharePoint or copy the ShareLink to your clipboard by clicking on the **View** and **Copy link** buttons respectively.



In case the file does not exist on SharePoint, the following error pops up:


File cannot be viewed on SharePoint as it exists only in local storage.

9. It is assumed that any access rights to these links will be handled by user who uploads the document.

10.Developer API

As part of 5th Revision the connector has been upgraded with a Create Folder developer interface. A SharePoint folder will typically be created when a file is added to the Attachment detail of a configured section. In the event that the folders need to be created in advance, the developer interface can be utilized.

Following are the details about the Create Folder interface

Namespace: PsgSharePointDeveloperApiService
Class Name: PsgSharePointDeveloperApiService
Method Name: CreateSharePointFolderStructure
Method Input Parameters:

1. EntitySchemaName
    a. Data Type: String
    b. Definition: Code value of Entity Schema Name / Section Name
2. EntityRecordId
    a. Data Type: string
    b. Definition: Section Record Id based on which dynamic folders are created.

Ways to utilize a developer interface

1. Via client side
    a. Call the Developer interface via a Button or an event using Service Helper
2. Via Script task (Business Process) or Source Code Schema
    a. A source code schema or script task in a business process can be used to call the Developer API

11.Note To Existing Users

As part of 6th Revision the connector has been upgraded to use the Graph APIs instead of the SharePoint Rest API (Add-in model), which has been deprecated. If you are an existing user of the SharePoint connector from before this upgrade (as of 29th Dec 2023), kindly refer section 8.2 of the document (Azure AD App registration and document repository configuration) to set up the Azure AD App. Use the credentials of this Azure AD application to reconfigure the corresponding system settings.