Informatica® Cloud Data Integration

Microsoft Sharepoint Online Connector

Informatica Cloud Data Integration Microsoft Sharepoint Online Connector
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Preface

Use *Microsoft Sharepoint Online Connector* to learn how to read from or write to Microsoft Sharepoint Online by using Cloud Data Integration. Learn to create a connection, develop and run synchronization tasks, mappings, and mapping tasks in Cloud Data Integration.

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Introduction to Microsoft Sharepoint Online Connector

You can use Microsoft Sharepoint Online Connector to connect to Microsoft Sharepoint Online from Data Integration.

Use Microsoft Sharepoint Online Connector to read data from or write data to Microsoft Sharepoint Online. You can use Microsoft Sharepoint Online objects as sources and targets in synchronization tasks, mappings, and mapping tasks.

You can switch mappings to advanced mode to include transformations and functions that enable advanced functionality.

When you run a task or mapping, the Secure Agent uses the Microsoft Sharepoint Online API to perform the specified operation and reads data from or writes data to Microsoft Sharepoint Online.

Note: Microsoft Sharepoint Online Connector supports Windows and Linux operating systems.

Microsoft Sharepoint Online Connector assets

The following table lists the Microsoft Sharepoint Online objects and task operations that you can include in Data Integration tasks:

Objects	Read	Insert	Update	Upsert	Delete	Data Preview	Lookup
List	Yes	Yes	Yes	NA	Yes	Yes	NA
Document Library	Yes	Yes	NA	NA	Yes	Yes	NA

You can update the **Title** and custom fields in the list object. Based on the **ID** specified, you can update the **Title** and custom fields in the list object. You must specify the **ID** if you want to delete data from the list object and **ServerRelativeUrl** path if you want to delete data from the document library object.

If the list object is empty, the data preview tab does not display the metadata of the custom fields. To solve this issue, you must add a dummy row in the list object.

The custom fields of the list object supports the following data types:

- Single line of text. For example, `File name`.

- Multiple lines of text. For example,

  ```
  File name 1
  File name 2
  File name 3
  ```

- Number. For example, `1001`.

- Choice. For example, `Choice 1`.

- Currency. For example, `50001.23`.

- Date and Time. For example, `2015-01-13T11:01:48`, `2013-03-12T12:01:38Z`, or `3/12/2013`.

  Note: Microsoft Sharepoint Online Connector does not certify the update operation when the column is of Date and Time data type.

- Yes/No. For example, `TRUE or FALSE`.

- Person or Group. For example, `1`.

You need to create custom objects using List or Document Libraries in Microsoft Sharepoint Online application. You can use Microsoft Sharepoint Online Connector to download attachments from the custom list and Document Library object in Microsoft Sharepoint Online. The List object supports attachments up to 185 MB and Document Library object supports attachments up to 171 MB. The field length for an object must not exceed 255 characters.

When you download an attachment and if another file exists with the same name, the Secure Agent overwrites the existing file in the target folder. When you attach a file and if another file exists with the same name, an error occurs. You must provide different file name to attach a file in the **Attachment_File_Path** folder.

Rules and guidelines for Microsoft Sharepoint Online objects and operations

You must follow certain rules and guidelines when you use specific Microsoft Sharepoint Online objects and operations:

Server path for target operations

Use the following rules and guidelines when you specify a path for a target operation:

- To perform a delete operation, you must add **/** at the beginning of the server relative path.
  For example, `/new folder/new_folder2/sharepoint.txt`

- To perform a delete or insert operation in the subsite Microsoft Sharepoint Online account, you must provide the complete path of subsite URL.
  For example, `/sites/new folder/new_folder2/sharepoint.txt`

- To perform an insert operation in the document library object, you must not add **/** at the beginning of the server relative path. For example, `folder_1/new folder/new_folder2/sharepoint.txt`

List object

Use the following rules and guidelines when you use the list object to perform an **Insert** operation:
Creating a list item

To create a list item, specify the **Title** and enter **FALSE** as the value of the **Attachments** field. The **ServerRedirectedEmbedUrl** and **Id** fields are not required.

For example, enter **SharepointOnline** as **Title** and **Attachments** as **FALSE** in the fields.

Creating a list item with an attachment

To create a list item and attach a file, specify the **Title** and enter **TRUE** as the value of the **Attachments** field. Enter the file name that you want to attach in the **ServerRedirectedEmbedUrl** field.

For example, enter **SharepointOnline** as **Title**, **Attachments** as **TRUE**, and `filename.ext` in the **ServerRedirectedEmbedUrl** fields.

Attaching a file to the existing list item

To attach a file to the existing list item, specify the **Title** and enter **TRUE** as the value of the **Attachments** field. Enter the file name that you want to attach in the **ServerRedirectedEmbedUrl** field and the list Id of the list item in the **ID** field.

For example, enter **SharepointOnline** as **Title**, **Attachments** as **TRUE** and `filename.ext` in the **ServerRedirectedEmbedUrl** fields. Enter <integer value> in the **ID** field.

Note: If you use an Expression transformation to set the value for the **Attachments** field to FALSE or TRUE, specify a String field type and pass the 'FALSE' or 'TRUE' values within single quotes.

Document library object

Use the following rules and guidelines when you use the document library object:

Note: A dummy file must be present in the document library object to perform the insert operation.

Creating a folder

To create a folder in the document library object, enter the folder path where you want to create the folder in the **ServerRelativeUrl** field and specify the folder name in the **Title** field. The **Name** field is not required.

For example, enter the folder path in **/Folder/Folder1** format in the **ServerRelativeUrl** field and the folder name in the **Title** field.

Attaching file to the existing folder

To attach a file to the existing folder in the document library object, enter the file name in the **Name** field and the folder path where you want to attach the file in the **ServerRelativeUrl** field. The **Title** field is not required.

For example, enter the file name in the `file.ext` format in the **Name** field and the folder path in the **/Folder/Folder1** format in the **ServerRelativeUrl** field.

Creating a folder with an attachment

To create a folder and attach a file in the document library object, enter the file name in the **Name** field and the folder path where you want to create the new folder and attach the file inside the new folder in the **ServerRelativeUrl** field. Enter the folder name in the **Title** field.

For example, enter the file name in the `file.ext` format in the **Name** field and the folder path in the **/Folder/Folder1** format in the **ServerRelativeUrl** field. Enter the folder name in the **Title** field.

The new folders created are available under the folder path that you specify in the **ServerRelativeUrl** column and the attachments are available inside the new folder. You can only attach one file at a time to an existing folder.

Rules and Guidelines for Microsoft Sharepoint Online Connector

Consider the following rules and guidelines when you use Microsoft Sharepoint Online Connector:

- If the list object does not contain any record, the custom fields do not appear in the list object.
- The name of the custom field label that appears in the **Fields** tab does not match the name in the Microsoft Sharepoint Online application.
- When you select a source connection and refresh the fields in the **Fields** tab, the Secure Agent does not refresh the fields.
- When you read files using Sharepoint online Connector, all folders are read till one level at the target end.

CHAPTER 2

Microsoft sharepoint online connections

Create a Microsoft Sharepoint Online connection to connect to Microsoft Sharepoint Online and read data from or write data to Microsoft Sharepoint Online. You can use Microsoft Sharepoint Online connections in synchronization tasks, mappings, and mapping tasks.

You can create a subsite account in the Microsoft Sharepoint Online application and specify the URL of the subsite account in the connection properties. Subsites enable you to categorize data as per your requirements.

For more information about how to create a subsite Microsoft Sharepoint Online account, see https://support.office.com/en-us/article/Create-sites-and-subsites-FD5031E1-162F-436E-95C7-3946F034D350

Prerequisites

Before you create a Microsoft Sharepoint Online connection to read from or write to Microsoft Sharepoint Online, be sure to complete the prerequisites.

Generate the Client ID and Client Secret

The client Id and client secret are required to generate a valid access token.

Perform the following steps to generate the client ID and client secret:

1. Log in to the Microsoft Sharepoint Online account.
2. Enter the following site or subsite URL:

    Site: `https://<sitename.com>/_layouts/15/appregnew.aspx`

    Subsite: `https://<sitename.com>/<subsitedomain>/_layouts/15/appregnew.aspx`

    The **App Information** page appears.
3. Click **Generate** next to the **Client Id** field.

The value of the client ID is displayed in the **Client Id** field. The following image shows the **App Information** page where you can generate the values of the client ID and client secret:

4. Click **Generate** next to the **Client Secret** field.

   The value of the client secret is displayed in the **Client Secret** field.

5. Enter an appropriate title for the App in the **Title** field.

6. Enter an app domain name in the **App Domain** field.

   For example, `www.google.com`

7. Enter a URL in the **Redirect URL** field.

   For example, `https://localhost/`. You must enter the same redirect URL in the connection property.

8. Click **Create**.

   The page redirects to the Microsoft Sharepoint Online page and the following message appears:

   `The app identifier has been successfully created.`

   The values of the client ID, client secret, title, and redirect URL are displayed.

Generate the Bearer Realm

A bearer realm is a unique ID provided for each user. Generate the bearer realm to obtain the authorization code.

Perform the following steps to generate the bearer realm:

1. Open the Google PostMan application.

2. Enter the following site or subsite URL in the Google PostMan application:

   Site: `https://<sitename.com>/_layouts/15/appregnew.aspx`

   Subsite: `https://<sitename.com>/<subsitedomain>/_layouts/15/appregnew.aspx`

   The following image shows the **BearerToken** page where you can generate the value of the bearer realm:

3. Select the **GET** method.

4. On the **Headers** tab, enter **Authorization** in the **Key** field and **Bearer** in the **Value** field.

5. Click **Send**.

6. Select the **Headers** tab in the **Response** header.

   The bearer realm value appears in the **WWW-Authenticate** section. For example:
   ```
   Bearer realm="77baf95d-f3e0-42b-aa08-9b798b8c177b"
   ```

Generate the Authorization Code

Generate the authorization code to gain access to the current site and to generate a valid refresh token.

Perform the following steps to generate the authorization code:

1. Enter the following site or subsite URL in the Google chrome browser:

   Site: `https://<site.sharepoint.com>/_layouts/15/OAuthAuthorize.aspx?`
   `client_id=<client_GUID>&scope=<app_permissions_list>&response_type=code&redirect_uri=<red`
   `irect_uri>`
   For example, `https://icloudconnectivitydev.sharepoint.com/_layouts/15/oauthauthorize.aspx?`
   `client_id=ecea5b1b-80e4-4f3e-a269-48b85c1797a8&`
   `scope=AllSites.Manage&response_type=code&redirect_uri=https%3A%2F%2Flocalhost%2F`

   Subsite: `https://<site.sharepoint.com>/<subsitedomain>/_layouts/15/OAuthAuthorize.aspx?`
   `client_id=<client_GUID>&scope=<app_permissions_list>&response_type=code&redirect_uri=<red`
   `irect_uri>`
   For example, `//informaticaone.sharepoint.com/sites/TEST/_layouts/15/oauthauthorize.aspx?`
   `client_id=ecea5b1b-80e4-4f3e-a269-48b85c1797a8&`
   `scope=AllSites.Manage&response_type=code&redirect_uri=https%3A%2F%2Flocalhost%2F`

2. Click **Trust it** to grant the application read access to the current site after the page redirects to the redirect URL page that you specify in the connection property.

   The redirect URL page includes the authorization code as a query string in the following format:

   `https://<redirect_url>/?code=<authcode>`
   The following image shows the authorization code as a query string in the URI:
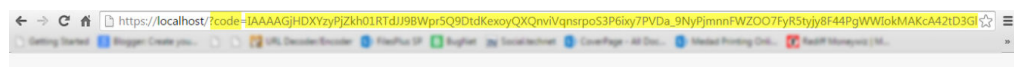
   Note: The authorization code generated is valid only for five minutes.

Generate the Refresh Token

A refresh token is required to perform the POST and GET methods in the Google PostMan application. After you generate a refresh token, it is valid for six months.

Perform the following steps to generate the refresh token:

1. Enter the following URL in the Google PostMan application:`https://accounts.accesscontrol.windows.net/<bearer_realm>/tokens/OAuth/2`

   The following image shows the **Normal** tab in the Google PostMan application where you can configure the properties to generate the refresh token:

2. Select the **POST** method.

3. On the **Header** tab, enter **Content-Type** in the **Key Name** field and **application/x-www-form-urlencoded** in the **Value** field.

4. On the **Body** tab, enter the xml request in the following format:
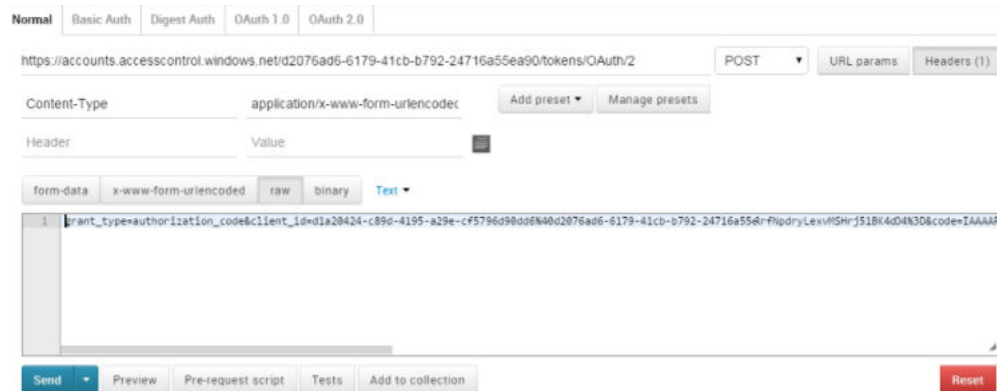
   ```
   grant_type=authorization_code &client_id=<client_id>@<bearer_realm>
   &client_secret=<client_secret> &code=<auth_code> &redirect_uri=<redirect_url> &resource=<
   audience principal ID >/<site_host>@<bearer_realm>
   ```

5. Click **Send**.

   The refresh token is generated in the **Response** tab. The following image shows the **Response** tab where the refresh token is generated:
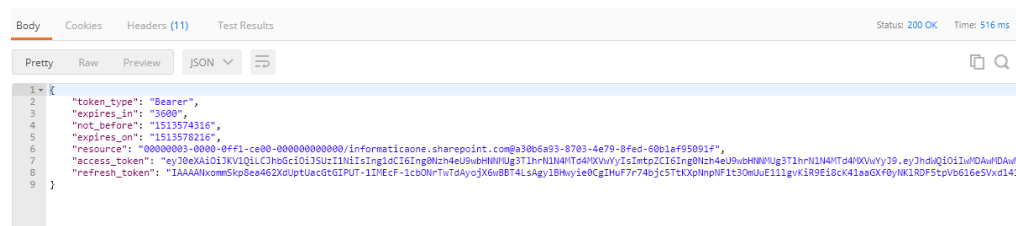
Connect to Microsoft Sharepoint Online

Let's configure the Microsoft Sharepoint Online connection properties to connect to Microsoft Sharepoint Online.

Before you begin

Before you configure a connection, generate the client ID, client secret, bearer realm, authorization code, and refresh code.

Check out "Prerequisites" on page 11 to learn more about these tasks.

Connection details

The following table describes the basic connection properties:

Property	Description
Connection Name	Name of the connection. Each connection name must be unique within the organization. Connection names can contain alphanumeric characters, spaces, and the following special characters: _ . + -, Maximum length is 255 characters.
Description	Description of the connection. Maximum length is 4000 characters.
Type	Sharepoint Online
Use Secret Vault	Stores sensitive credentials for this connection in the secrets manager that is configured for your organization. This property appears only if secrets manager is set up for your organization. When you enable the secret vault in the connection, you can select which credentials that the Secure Agent retrieves from the secrets manager. If you don't enable this option, the credentials are stored in the repository or on a local Secure Agent, depending on how your organization is configured. For information about how to configure and use a secrets manager, see "Secrets manager configuration" in the Administrator help.
Runtime Environment	The name of the runtime environment where you want to run tasks. Select a Secure Agent, Hosted Agent, or serverless runtime environment.
Client_Id	The client ID of Microsoft Sharepoint Online required to generate a valid access token.
Client_Secret	The client secret of Microsoft Sharepoint Online required to generate a valid access token.
Refresh_Token	The refresh token of Microsoft Sharepoint Online.
Redirect_URL	Enter the URL where you want to redirect from the Microsoft Sharepoint Online account.
URL	Enter the URL to the Microsoft Sharepoint Online account.
Attachment_File_Path	Specify the folder path where you want to download and attach the file to Microsoft Sharepoint Online.

Advanced settings

The following table describes the advanced connection properties:

Property	Description
Subsite_URL	Optional. Enter the subsite URL of the Microsoft Sharepoint Online account. If you do not enter a subsite URL, the Microsoft Sharepoint Online Connector reads the files from the URL that you specify in the **URL** property.

CHAPTER 3

Synchronization tasks with Microsoft Sharepoint Online Connector

Use a Synchronization task to synchronize data between a source and target.

You can configure a synchronization task using the Synchronization Task wizard.

When you create a task, you can associate it with a schedule to run it at specified times or on regular intervals. Or, you can run it manually. You can monitor tasks that are currently running in the activity monitor and view logs about completed tasks in the activity log.

Microsoft Sharepoint Online Sources in Synchronization task

You can configure the Microsoft Sharepoint Online source properties on the **Source** page of the Synchronization Task wizard.

The following table describes the Microsoft Sharepoint Online source properties:

Property	Description
Connection	Name of the Microsoft Sharepoint Online source connection.
Source Type	Type of the Microsoft Sharepoint Online source object available.
Source Object	Name of the source object.
Display technical names instead of labels	Displays technical names instead of business names.
Display source fields in alphabetical order	Displays source fields in alphabetical order. By default, fields appear in the order returned by the source system.

The following table describes the Microsoft Sharepoint Online advanced source properties:

Property	Description
Indirect File Path	The file path of the folder that you want to download. For more information, see the Filter files Knowledge Base article.
Preserve Directory Structure	Retains the same folder structure as that of Sharepoint Online.

Microsoft Sharepoint Online Targets in Synchronization task

You can configure the Microsoft Sharepoint Online target properties on the **Target** page of the Synchronization Task wizard.

The following table describes the Microsoft Sharepoint Online target properties:

Property	Description
Connection	Name of the Microsoft Sharepoint Online target connection.
Target Object	Name of the Microsoft Sharepoint Online target object.
Child Object	This attribute is not applicable for Microsoft Sharepoint Online Connector.
Display target fields in alphabetical order	Displays target fields in alphabetical order. By default, fields appear in the order returned by the target system.

Synchronization Task Example

You can create a synchronization task to read data from a Microsoft Sharepoint Online source and write data to the Microsoft Sharepoint Online target.

Perform the following task to create a synchronization task:

Note: You need to create a Microsoft Sharepoint Online connection before you configure the synchronization task.

1. In Data Integration, click **New** > **Tasks**.

2. Select **Synchronization Task**, and click **Create**.

   The **Definition** tab appears.

3. Configure the following fields on the **Definition** tab:

Field	Description
Task Name	Name of the synchronization task.
Description	Description of the synchronization task. Maximum length is 255 characters.
Task Operation	Select the task operation that you want to perform.

4. Click **Next**.

    The **Source** tab appears.

5. Configure the following fields on the **Source** tab:

Field	Description
Connection	Select a Microsoft Sharepoint Online source connection.
Source Type	Select the source type. By default, **Single** is selected.
Source Object	Select the required object from the list.
Display technical names instead of labels	Displays technical names instead of business names.
Display source fields in alphabetical order	Displays source fields in alphabetical order. By default, fields appear in the order returned by the source system.

6. Click **Next**.

    The **Target** tab appears.

7. Configure the following fields on the **Target** tab:

Field	Description
Connection	Select a Microsoft Sharepoint Online target connection.
Target Object	Select the target object.
Display target fields in alphabetical order	Displays target fields in alphabetical order. By default, fields appear in the order returned by the target system.

8. Click **Next**.

    The **Data Filters** tab appears.

9. Select the filter object, filter field, and filter operator to create a data filter on the **Data Filters** page.

10. Click **Next**.

    The **Field Mapping** tab appears.

11. Click **Automatch** on the **Field Mapping** tab to map source fields to target fields accordingly.

12. Click **Validate Mapping** to validate the mapping.

13. Click **Next**.

    The **Schedule** tab appears where you can schedule the task for each requirement and save.

14. Configure the advanced source properties on the **Schedule** tab.

15. Click **Save** > **Finish**.

16. Select the synchronization task from the **Explore** page and click **Actions** > **Run**.

    In **Monitor**, you can monitor the status of the logs after you run the task.

To see an example on how to load data to SharePoint Online from a flat file, see the Uploading files Knowledge Base article.

Mappings and Mapping tasks with Microsoft Sharepoint Online Connector

Use the Data Integration Mapping Designer to create a mapping. When you create a mapping, you configure a source or target to represent the object.

In advanced mode, the Mapping Designer updates the mapping canvas to include transformations and functions that enable advanced functionality.

Microsoft Sharepoint Online sources in mappings

To read data from Microsoft Sharepoint Online, configure a Microsoft Sharepoint Online object as the Source transformation in a mapping.

Specify the name and description of the Microsoft Sharepoint Online source. The following table describes the properties that you can configure for a Microsoft Sharepoint Online source:

Property	Description
Connection	Name of the active source connection.
Source Type	Type of the Microsoft Sharepoint Online source object.
Object	Name of the source object for the mapping.
Filter	This property doesn't apply for the Source transformation.
Sort	This property doesn't apply for the Source transformation.

The following table describes the Microsoft Sharepoint Online advanced source properties:

Property	Description
Indirect File Path	The file path of the folder that you want to download from Microsoft Sharepoint Online. For more information, see the Filter files Knowledge Base article.
Preserve Directory Structure	Retains the same folder structure as that of Sharepoint Online.

Note: When you configure a read operation to download attachments from the Sharepoint Online source object, you cannot exceed the maximum limit of 200 attachments for each source object. The average size of the folder that contains all the attachments cannot exceed 5 GB.

Microsoft Sharepoint Online targets in mappings

To write data to Microsoft Sharepoint Online, configure a Microsoft Sharepoint Online object as the Target transformation in a mapping.

Specify the name and description of the Microsoft Sharepoint Online target. The following table describes the properties that you can configure for a Microsoft Sharepoint Online target:

Property	Description
Connection	Name of the Microsoft Sharepoint Online target connection.
Target Type	Type of the Microsoft Sharepoint Online target object.
Object	Name of the Microsoft Sharepoint Online target object.
Operation	Select the target operation.

For information about uploading files from a flat file to SharePoint Online, see the Uploading files Knowledge Base article.

CHAPTER 5

Troubleshooting

Use the following sections to troubleshoot errors in Microsoft Sharepoint Online Connector.

Troubleshooting a Synchronization task

When you create a synchronization task that contains an invalid configuration, the Secure Agent displays a NULL error message. The NULL error message files are saved in a specific location.

For example, `<Secure Agent installation directory>\apps\Data_Integration_Server\<latest version of connector>\ICS\main\tomcat\log`

The session log captures the log and exception details of a failed synchronization task. You require special permission to run the application in debug mode.

Increasing the Secure Agent memory

To increase performance and avoid runtime environment memory issues, perform the following steps:

1. In Administrator, select **Runtime Environments**.
2. Select the Secure Agent for which you want to increase memory from the list of available Secure Agents.
3. In the upper-right corner, click **Edit**.
4. In the **System Configuration Details** section, select the **Type** as **DTM** for the Data Integration Service.
5. Edit **JVMOption1** as **-Xms4056m** and **JVMOption2** as **-Xmx4056m**.

   The following image shows the **Details** page:
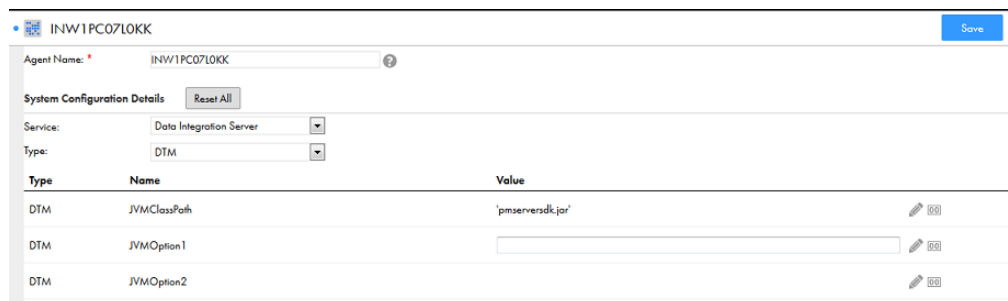
6. In the **System Configuration Details** section, select the **Type** as **TomCatJRE**

7. Edit **INFA_memory** as **-Xms256m -Xmx512m**.

The following image shows the **Agent Details** page:

Note: The minimum and maximum values for the Java heap size are given as an example. Specify the size according to your requirements.

8. Restart the Secure Agent.

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