

Fishbowl Solutions

Oracle WebCenter Content Connector for Microsoft Graph

Installation and Administration Guide

Version 1.1



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Table of Contents

	About this Document.....	4
Chapter 1:	Product Overview.....	5
	About the Connector.....	5
	Product Features.....	5
Chapter 2:	Implementation Planning & Architecture.....	6
	Connector Architecture	6
	Metadata Considerations	6
	Security Planning	6
	How Authentication is Supported for Indexing.....	6
	How Authorization is Supported.....	6
Chapter 3:	Before You Begin.....	7
	Installation Requirements	7
	Installation & Configuration Overview.....	7
	Supported Environments.....	7
	User Permissions.....	7
	Licensing.....	7
Chapter 4:	New Installation.....	8
	Microsoft Azure Configuration	8
	Content Server Component Installation & Configuration.....	9
	Component Configuration.....	9
Chapter 5:	Upgrading from Previous Versions.....	10
Chapter 6:	Using the Software	11
	Connector Configuration.....	11
	Editing Connectors.....	12
	Schema Configuration.....	14
	Editing Schemas	14
	Managing Indexed Documents	15
	Microsoft 365 Search Administration	16
	Using the Connector with Copilot for Microsoft 365	16
Chapter 7:	Help & Troubleshooting	17
	Connector Tracing Sections.....	17
	Frequently Asked Questions.....	17
Chapter 8:	Product Support	18

About this Document

This document contains specific information needed to install and configure Fishbowl Solutions' Oracle WebCenter Content Connector for Microsoft Graph to index and serve content within the Content Server. It is intended for administrators familiar with Oracle WebCenter Content and Microsoft Azure. We highly recommend reading through this entire document before beginning the installation and configuration process.

Chapter 1: Product Overview

About the Connector

The Oracle WebCenter Content Connector for Microsoft Graph enables Microsoft Graph to securely index and serve content stored in WebCenter Content. This integration allows customers to expose information stored within WebCenter Content in Microsoft 365 services, including Microsoft Search and Copilot for Microsoft 365.

Product Features

The Oracle WebCenter Content Connector for Microsoft Graph includes the following features:

- Search multiple Oracle WebCenter Content instances
- Configure custom metadata schema
- Index and search string, date, integer, and decimal metadata fields
- Provides intelligent processing for Oracle Site Studio sites
 - Feeds data files as full-context HTML pages
 - Provides search result links to full-context web pages, not XML data files
- Optionally assign security permissions to items defined per connector instance
- Limit items indexed per connector through definition of additional where clause
- Manage indexed content and re-index items from WebCenter Content

Chapter 2: Implementation Planning & Architecture

Connector Architecture

The Oracle WebCenter Content Connector for Microsoft Graph uses Microsoft Graph's external data connections API to feed content from Oracle WebCenter Content to a custom connection within Microsoft Graph. The connector product consists of a Content Server component installed on each Content Server instance you wish to index.

Metadata Considerations

Before configuring the connector, it is important to consider how metadata can impact the search experience. Metadata can be used for the following purposes related to search:

- Searchable during keyword-based searches
- Available for use with filters
- Can be added to search result templates

Microsoft Graph schemas are limited to 128 fields that cannot be deleted after creation. The connector includes a schema configuration page which allows for selection of metadata to include in the index. When selecting metadata fields to include in the schema, consider the purposes listed above.

Security Planning

How Authentication is Supported for Indexing

During indexing, content is pushed from Oracle WebCenter Content to Microsoft Graph via the external data connectors API. Microsoft Azure provides options to create secret strings to be used for secure communication.

How Authorization is Supported

Document security based on WebCenter Content security groups, accounts, and ACLs are assigned to content by the connector during indexing. External groups are assigned to users in Microsoft Entra ID corresponding to each user's permissions in WebCenter Content. Search results will be restricted based on the user's WebCenter permissions if the connector has been configured to index document security information.

Chapter 3: Before You Begin

Installation Requirements

Before proceeding with installation, you will need the following:

- Software from Fishbowl Solutions:
 - `FishbowlAdministration.zip` - Content Server component provided by Fishbowl Solutions
 - `MicrosoftGraphConnector.zip` - Content Server component provided by Fishbowl Solutions. This component also includes the `FishbowlSearchIndex` component.
 - This documentation
- Oracle WebCenter Content installed
- Valid connector software license key provided by Fishbowl Solutions

Installation & Configuration Overview

1. Configure the app registration for the connector within Microsoft Azure.
2. Install the `FishbowlAdministration`, `MicrosoftGraphConnector`, and `FishbowlSearchIndex` components on the Content Server and configure product licensing.
3. Configure connector from within WebCenter Content.
4. Validate proper indexing within Microsoft 365.

Supported Environments

The Connector is supported on the following environments:

- **Operating Systems:** Windows and Linux
- **Oracle Content Server:** 12c (12.2.1.0 or newer) and 14c
- **Java:** Version 8 or newer
- **Database:** MSSQL and Oracle

User Permissions

In order to complete the installation, you will need the following:

- Search Administrator role access in Microsoft Azure
- Administrator access to Oracle WebCenter Content

Licensing

Before using the Connector, you will need to enter a valid license key. A unique key is needed for each Content Server instance. You can request a license key by creating a support ticket at <https://support.fishbowlsolutions.com>. You can also contact support directly via email at: support@fishbowlsolutions.com or by calling: +1 (952) 465-3407.

Chapter 4: New Installation

Microsoft Azure Configuration

The following information outlines how to configure Microsoft Azure to create a custom app registration to allow content to be indexed.

1. In Azure, navigate to the [App registrations](#) page.
2. Click [New registration](#).
3. Give the application a name (for example, [WebCenter Content](#)). The Supported account types setting can be left at its default option of [Accounts in this organizational directory only](#), and no Redirect URIs need to be entered.
4. Click [Register](#). The **Overview** page for the new app registration will be shown.
5. Note down the **Application (client) ID** and **Directory (tenant) ID** values.
6. On the left side menu, navigate to [Manage](#) > [API permissions](#).
7. Click [Add a permission](#).
8. Click [Microsoft Graph](#).
9. Click [Application permissions](#).
10. Search for and select the following permissions:
 - [ExternalConnection.ReadWrite.OwnedBy](#)
 - [ExternalItem.ReadWrite.OwnedBy](#)
 - [User.Read.All](#) (if indexing content with document security)
11. Click [Add permissions](#).
12. Click [Grant admin consent for \[organization name\]](#) and confirm.
13. On the left side menu, navigate to [Manage](#) > [Certificates & secrets](#).
14. Click the [Client secrets](#) tab.
15. Click [New client secret](#).
16. Enter a description for the secret and click [Add](#).
17. Note down the **Value** of the new secret. The value cannot be viewed again after leaving this page.

Content Server Component Installation & Configuration

You will need to install the FishbowlAdministration and MicrosoftGraphConnector components on each Content Server where you wish to use the product.

If you are upgrading from a previous version, see [Chapter 5: Upgrading from Previous Versions](#).

1. Install and enable the latest FishbowlAdministration component if it is not already installed on the server.
2. Install and enable the MicrosoftGraphConnector component.
3. Enter the appropriate [Component Configuration](#) for your environment.
4. A License Agreement will be displayed at the top of the page. Click **Continue** to save your configuration and accept the License Agreement.
5. Restart the Content Server.
6. Add your license through Fishbowl Administration. Click on **Fishbowl Tools > Fishbowl Administration > Component Information**.
7. Find the row for [MicrosoftGraphConnector](#) and click the **Add License** icon.
8. Enter the license key for your server and click **OK**.
9. Installation is now complete.

Component Configuration

InstallFishbowlSearchIndex

If checked, the FishbowlSearchIndex component will be installed. When installing MicrosoftGraphConnector for the first time, this setting should be checked.

Chapter 5: Upgrading from Previous Versions

To upgrade, install and enable the [MicrosoftGraphConnector](#) and [FishbowlSearchIndex](#) components on top of the old versions. Existing configurations will be saved. You will not need to update your license key.

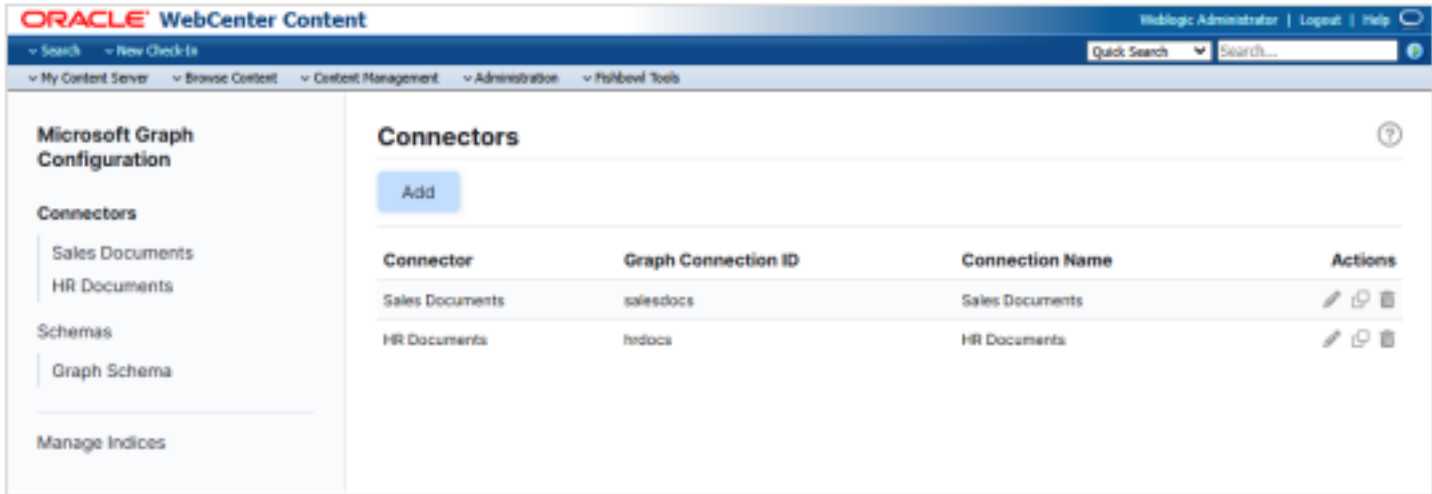
After upgrading, verify your configuration within the new version. Contact support with any questions.

Chapter 6: Using the Software

To access the Connector's administration pages within WebCenter Content, navigate to **Fishbowl Tools > Search Administration > Microsoft Graph Configuration**.

Connector Configuration

The Connectors page allows you to create and configure connections to Microsoft Graph. To access this page, click **Connectors** from the side menu of the Microsoft Graph Configuration page.



The table displays all currently configured connectors. For each connector, the connector's name, Graph connection ID, and Graph connection name are displayed. A grayed-out row indicated that the connector is currently disabled.

Each row contains actions to edit, clone, and delete the respective connector. To create a new connector, click the **Add** button above the table. If an error occurs during the creation of a new connector when creating the external connection in Microsoft Graph, an error icon will display in that connector's row. Hovering over the icon will display the error message.

When deleting a connector, the confirmation prompt will contain an option to delete documents from the external index. If this box is checked, the external connection will be deleted from Microsoft Graph along with the connector configuration in WebCenter Content. If unchecked, the external connection and any indexed documents will still be available in Microsoft Graph after deleting the connector.

Editing Connectors

When creating or editing a connector, the following options are available:

The screenshot shows the 'Edit Connector' dialog box with the following fields and values:

- Name:** Sales Documents
- Enabled:** ☒
- Batch Size:** 5
- Index Interval:** 1
- Index Document Permissions:** ☒
- User Permissions Update Interval:** 5
- Principal Name Property:** dEmail
- Additional Where Clause:** Department (xDepartme) = Sales (Sales) +
xDepartment = 'Sales'
- * Run As User:** sysadmin
- Text Extractor:** PDFBox
- Graph Connection ID:** salesdocs
- * Connection Name:** Sales Documents

Name

The connector instance name for this connector. This must be unique.

Enabled

If enabled, this connector will actively synchronize content with Microsoft Graph. Existing indexed documents are still accessible if a connector is disabled.

Batch Size

The number of documents included in a single index batch for this connector.

Index Interval

How often (in minutes) this connector will check for and index documents.

Index Document Permissions

If enabled, document permissions will be indexed and user permissions will be synchronized. If disabled, existing user permissions for this connector will be deleted from Microsoft Graph.

User Permissions Update Interval

How often (in minutes) user permissions will be synchronized with Microsoft Graph.

Principal Name Property

The WebCenter Content user metadata field that corresponds to the user ID property in Microsoft Entra ID.

Additional Where Clause

A SQL where clause to limit which documents are indexed by this connector. If this is changed after documents have been indexed, the connector will automatically re-evaluate the matching documents. Indexed documents that no longer match the where clause will be deleted, and documents that newly match the where clause will be queued for indexing.

Run As User

The WebCenter Content user to run the connector as. The permissions of this user will dictate which items are indexed.

Text Extractor

Which method to use for extracting full-text content for documents while indexing. The following options are available:

None - Full-text content will not be indexed. Documents will be indexed as metadata-only.

PDFBox - Apache PDFBox will be used to extract content. Note that PDFBox can only extract text from PDF documents; content items whose web-viewable renditions are not PDFs will fail indexing.

Tika - Apache Tika Server will be used to extract content. This method requires deploying an instance of Apache Tika Server to a location accessible to WebCenter Content. For more information on Apache Tika and to download Tika Server, visit the [Apache Tika website](#).

Text Extractor URL

The URL to the Apache Tika Server instance to use for text extraction, if Tika is selected as the text extractor.

Graph Connection ID

The ID for the external connection to create in Microsoft Graph for this connector. This must be unique among external connections in your Azure tenant and cannot be changed after the connection has been created.

Connection Name

The display name for the external connection for this connector.

Connection Description

A description for the external connection for this connector.

Tenant ID

The tenant/directory ID of the Azure app registration to use for this connector. This cannot be changed after the connection has been created.

Client ID

The client/application ID of the Azure app registration to use for this connector. This cannot be changed after the connection has been created.

Client Secret

A client secret string created in the Azure app registration to use for this connector.

Schema

The [schema](#) to use for this connector. This cannot be changed after the connection has been created. The default schema indexes dDocTitle, dInDate, dDocAuthor, and dExtension.

Icon

An icon to use for indexed content for this connection. More specifically, the base-64 encoded string of the provided icon will be indexed as the `iconurl` property for indexed documents.

Schema Configuration

The Schemas page allows you to create and configure metadata schemas for use with connectors. To access this page, click **Schemas** from the side menu of the Microsoft Graph Configuration page.

The table displays all currently configured schemas. Each row contains actions to edit, clone, or delete the respective schema. To create a new schema, click the **Add** button above the table.

Note: A schema cannot be deleted if it is currently in use by a connector.

Editing Schemas

Edit Schema

Schema Name

Graph Schema

Fields

Field dDocTitle

Searchable

Retrievable

Exact Match

Queryable

Refinable

Required

Semantic Label

title

Field dInDate

Searchable

Retrievable

Exact Match

Queryable

Refinable

Required

Semantic Label

lastModifiedDateTime

Field dDocAuthor

Searchable

Retrievable

Exact Match

Queryable

Refinable

Required

Semantic Label

lastModifiedBy

Field dExtension

When creating or editing a schema, options are available to configure the schema's name and the list of metadata fields included in the schema. To add fields to the schema, click the **Add Fields** icon to the top right of the fields list. This will open a dialog containing a list of metadata fields available to be added to the schema. Select the fields you wish to add, then click the **Add** button. Fields can be deleted from the schema by clicking the **Delete** icon in the top right corner of a field.

Note: If the schema is currently in use by a connector, new fields can be added, but existing fields cannot be deleted.

The following options are available for configuring each metadata field:

Searchable

Searchable field values are added to the full-text index in Microsoft Graph and can return matches when performing a search.

Note: A Searchable field cannot also be Refinable.

Queryable

Queryable fields can be searched for using Microsoft Search's advanced knowledge/keyword query language (KQL).

Retrievable

Retrievable fields can be returned and displayed in search result templates within Microsoft Search.

Refinable

Refinable fields can be configured as custom search filters in Microsoft Search.

Note: A Refinable field cannot also be Searchable.

Exact Match Required

If checked, metadata values must match the query or filter term exactly to be returned.

Note: This cannot be enabled for Searchable fields.

Semantic Label

A well-known tag published by Microsoft that allows indexed content to be more closely integrated with Microsoft Search. Assigning semantic labels helps improve search experience.

Note: The url and iconurl semantic labels are automatically indexed as the URL to the web-viewable rendition of the document and the base-64 encoded string of the icon configured for the connector, respectively.

Managing Indexed Documents

The Manage Indices page allows administrators to monitor and perform incremental index actions on items indexed through the connector. To access this page, navigate to **Fishbowl Tools > Search Administration > Manage Indices**.

For information on using the Manage Indices page, refer to the Fishbowl Search Index Installation and Administration Guide.

Microsoft 365 Search Administration

After creating a new connector, additional configuration options are made available within the [Microsoft 365 Admin Center](#). To access these options, navigate to **Settings > Search & intelligence** from the left side menu.

Note: If you do not see this menu option, ensure you have the Search Administrator role in your Azure tenant.

The **Data sources** tab contains general information about all external connections created in this Microsoft 365 tenant, including the connection name, ID, and last sync time. For newly created connections, the **Required actions** column will include the [Include Connector Results](#) action. Clicking this action will enable results from this connection to be shown in the **All** vertical, which includes results from all connections and Microsoft 365 services.

The **Customizations** tab includes settings to customize how search results are displayed.

- The **Result types** page allows you to create custom templates that dictate how search results from external connections are displayed in search results.
- The **Verticals** page allows you to create custom tabs or “verticals” on the search results page. This can be used to create a tab that displays only documents from WebCenter Content, for example. Fields configured as **Refinable** in the schema can be made into search filters for a vertical. Selecting the **All** vertical and clicking [Manage connector results](#) allows you to configure which connections are shown in the **All** vertical search results.

Using the Connector with Copilot for Microsoft 365

Documents indexed into Microsoft Graph via the Connector are compatible with Copilot for Microsoft 365. To make sure Copilot for Microsoft 365 can use indexed documents effectively, consider the following:

An **Icon** must be configured in the connector configuration, and the **title** semantic label must be assigned to a metadata field in the schema configuration.

Provide a meaningful connection name and description in the connector configuration. The description should include details about the kind of content indexed by the connector, as well as how users will use the content.

Chapter 7: Help & Troubleshooting

Connector Tracing Sections

Tracing sections can be enabled in [Administration](#) > [System Audit Information](#) > [Tracing Sections Information](#).

The connector and Fishbowl Search Index include the following tracing sections:

- fishbowlsearchindex
- microsoftgraph

Frequently Asked Questions

What information is indexed by the connector?

Configured metadata and extracted text from the web-viewable file of the currently released version are indexed. Unreleased documents in workflow and previous revisions are not indexed.

What changes require reindexing?

For some configurations to take effect you will need to re-index your content. The most common configurations requiring reindexing are listed below. Indexing can take a significant amount of time. We recommend making any desired configuration changes before reindexing to avoid indexing multiple times.

The following changes require content to be reindexed:

- Enabling or disabling document permissions

Note: Though not strictly required, it is recommended to reindex content after modifying the metadata schema.

Content can be re-indexed from the [Manage Indices](#) page. To reindex, click [Reindex All Items](#).

Where can I search for indexed documents?

Microsoft Search is available in several Microsoft 365 services. Search including indexed documents from external connections can be found in the following places:

- The [Microsoft 365 home page](#)
- [Microsoft Search in Bing](#) (also known as Bing for Work)
- The SharePoint home page
- The Work tab in Windows Search

Additionally, indexed content can be used by Copilot for Microsoft 365 and custom agents developed using Copilot Studio. This includes any location where the standard Copilot for Microsoft 365 interface is present, such as Microsoft 365, Teams, Word, PowerPoint, and Windows.

Note: Indexed content is supported in the side-bar Copilot found in Word and PowerPoint. It is **not** currently supported in the inline Copilot used for generating content.

Why don't I see indexed documents in the Microsoft Search results?

By default, newly created connections are not displayed in the All vertical in Microsoft Search. See [Microsoft 365 Search Administration](#) for details on how to expose indexed documents in the general search results or create a new tab for WebCenter Content documents.

Chapter 8: Product Support

Contact Fishbowl Solutions' product support for any issues related to this product:

Support Portal: <https://support.fishbowlsolutions.com>

Email: support@fishbowlsolutions.com

Phone: (952) 465-3407

Website: <http://www.fishbowlsolutions.com>