



# Integrating CIFS with File Access Manager

Version: 8.4

Revised: March 27, 2023

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## Connector Overview

A CIFS server is an EMC component that corresponds to a file server (\\cifs\_server\_name).

You can configure a CIFS server on a physical Data Mover or on a VDM. Typically, the CIFS servers are configured on a VDM.

Every CIFS server requires an Application definition in File Access Manager.

The CIFS connector enables crawling, permissions collection (without local users and local groups) and data classification but does not provide activity monitoring.

File Access Manager provides dedicated specified connectors for common application types. You should check for a specific connector, if we provide it, before trying to install a generic connector. See the section on Business Resource Structure in the File Access Manager Administrator Guide for a full list of supported application types.

## Supported Versions

Any CIFS compliant file server.

## Capabilities

This connector enables you to use File Access Manager to access and analyze data stored in CIFS and do the following:

- Analyze the structure of your stored data.
- Classify the data being stored.
- Verify user permissions on the resources, and compare them against requirements.

See the File Access Manager documentation for a full description.

## Prerequisites

Make sure your system fits the descriptions below before starting the installation.

## Software Requirements

File Access Manager requires the latest ASP.NET Core 6.0.x Hosting Bundle. This bundle consists of .NET Runtime and ASP .NET Core Runtime. You can download the latest 6.0.x Hosting Bundle version from [here](#) .

## CIFS User Permissions

File Access Manager requires different permissions, based on the tasks that require those permissions. The user configured in the Application Configuration Wizard must have the following permissions for each task:

### ***Crawling***

A user with Shared Read access, who has permissions to enumerate all shares on the CIFS server.

A user with File Read access, with permissions to read file attributes.

Typically, in most systems, this would be a member of the local Backup Operators group on the CIFS server.

### ***Permission Collection***

A user with Shared Read access, who has permissions to enumerate all shares on the CIFS server.

A user with permissions for enumeration of CIFS share-level permissions.

Typically, in most systems, this would be a member of the local Backup Operators group on the CIFS server.

### ***Data Classification***

A user with Shared Read access, who has permissions to enumerate all shares on the CIFS server.

A user with File Read access, with permissions to read the file contents.

Typically, in most systems, this would be a member of the local Backup Operators group on the CIFS server.

## CIFS Connector Communications Requirements

Requirement	Source	Destination	Port
File Access Manager Message Broker	Permissions Collector / Data Classification Col- lector	RabbitMQ	5671
Permissions Col- lector & Data Clas- sification Analysis	Permissions Collector / Data Classification Server	Monitored server	CIFS/SMB (139, 445)

## Collecting Data Stored in an External Application

### Terminology:

#### **Connector**

The collection of features, components and capabilities that comprise File Access Manager support for an endpoint.

#### **Collector**

The “Agent” component or service in a Data Classification and or Permission Collection architecture.

#### **Engine**

The core service counterpart of this architecture.

#### **Identity Collector**

A logical component used to fetch identities from an identity store and holds the configuration, settings for that identity store, and the relations between these identities.

The identity collector has no “physical” manifest.

- The actual work is done by the Collector Synchronizer.

The list below describes the high level installation process required to collect and analyze data from an external application. Most of these should already be set up in your File Access Manager installation. See the server Installation guide for further details.

#### **Install a Data Classification central engine**

One or more central engines, installed using the server installer

#### **Install a Permission Collection central engine**

One or more central engines, installed using the server installer

#### **Create an Application in File Access Manager**

From the Business Website. The application is linked to central engines listed above.



### ***Install Permission Collectors and / or Data Classification Collector (optional)***

Optionally, you can install collectors that will run on a separate server and take some of the work from the central PC and DC engines (Where supported). When installing a collector, you attach it to an engine. If no collectors are installed, the central services act as both the engine and the collector.

To install a collector, you must have the **RabbitMQ** service installed for communication between the central engines and the collectors. RabbitMQ is installed

For further details, see section **Application > Central Service > Collector Relations** in the File Access Manager Administrator Guide

## CIFS Installation Flow Overview

To install the CIFS connector:

1. Configure all the prerequisites.
2. Add a new CIFS application in the Business Website.
3. Install the relevant services:
  - Permissions Collector
  - Data Classification Collector

Installing the permissions collector and data classification services is optional and should only be installed by someone with a full understanding of File Access Manager deployment architecture. The File Access Manager Administrator Guide has additional information on the architecture.

## Adding a CIFS Application

In order to integrate with CIFS, we must first create an application entry in File Access Manager. This entry includes the identification, connection details, and other parameters necessary to create the link.

To add an application, use the **New Application Wizard**.

1. Navigate to *Admin > Applications*
2. Click **Add New** to open the wizard.

### Select Wizard Type

1. Click **Standard Application**
2. Click **Next** to open the **General Details** page.

### General Details

#### *Application Type*

CIFS

#### *Application Name*

Logical name of the application

#### *Description*

Description of the application

#### *Tags*

Select tags for the application from the dropdown menu, and / or type a new name, and press **Enter** to create a new tag. The dropdown list of tags filters out matching tags as you type and displays up to 50 tags.

The **tags** replace the **Logical container** field that was used when creating applications in releases before 8.2

#### *Event Manager Server*

This option is available if there are more than one event manager servers configured in the system.

Select an event manager from the drop down menu.

### ***Identity Collector***

Select from the Identity Collector dropdown menu.

- You can create identity collectors in the administrative client. **Applications > Configuration > Permissions Management > Identity Collectors.**

See section "OOTB Identity Collection" in the Collector Installation Manager File Access Manager Administrator Guide for further details.

- If adding a new identity collector, press the **Refresh** button to update the Identity Collector dropdown list.

Click **Next.** to open the Connection Details page.

## **Connection Details**

### ***Server Name***

The name of the CIFS server to which users connect

### ***Domain Name***

The user defined in the prerequisites

### ***Username / Password***

Credentials of the the user defined in the prerequisites

Click **Next.**

## **Configuring and Scheduling the Permissions Collection**


Permissions can be analyzed to determine the application permissions of an out-of-the-box application, provided you have defined an identity store for File Access Manager to use in its analysis, and you have run a crawl for the application.

The permission collector is a software component responsible for analyzing the permissions in an application.

The Central Permission Collector Service is responsible for running the Permission Collector and Crawler tasks.

If the "File Access Manager Central Permission Collector" wasn't installed during the installation of the server, this configuration setting will be disabled.

### **To configure the Permission Collection**

- Open the edit screen of the required application.
  - a. Navigate to **Admin > Applications**.
  - b. Scroll through the list, or use the filter to find the application.
  - c. Click the edit icon  on the line of the application.
- Press **Next** till you reach the **Crawler & Permissions Collection** settings page.

The actual entry fields vary according to the application type.

When entering this page in edit mode, you can navigate between the various configuration windows using the **Next** and **Back** buttons.

### ***Central Permissions Collection Service***

Select a central permission collection service from the dropdown list. You can create permissions collection services as part of the service installation process. See section "Services Configuration" in the File Access Manager Administrator Guide for further details.

### ***Skip Identities Sync during Permission Collection***

Skip identity synchronization before running permission collection tasks when the identity collector is common to different connector.

This option is checked by default.

## **Scheduling a Task**

### ***Create a Schedule***

Click on this option to view the schedule setting parameters.

### ***Schedule Task Name***

A name for this scheduling task

When creating a new schedule, the system generates a default name in the following format:

{appName} - {type} Scheduler

You can override or keep this name suggestion.

### ***Schedule***

Select a scheduling frequency from the dropdown menu.

- ***Schedule Types and Intervals***

***Once***

Single execution task runs.

***Run After***

Create dependency of tasks. The task starts running only upon successful completion of the first task.

***Hourly***

Set the start time.

***Daily***

Set the start date and time.

***Weekly***

Set the day(s) of the week on which to run.

***Monthly***

The start date defines the day of the month on which to run a task.

***Quarterly***

A monthly schedule with an interval of 3 months.

***Half Yearly***

A monthly schedule with an interval of 6 months.

***Yearly***

A monthly schedule with an interval of 12 months.

***Date and time fields***

Fill in the scheduling times. These fields differ, depending upon the scheduling frequency selected.


***Active check box***

Check this to activate the schedule.

Click **Next**.

## Configuring and Scheduling the Crawler

### *To set or edit the Crawler configuration and scheduling*

- Open the edit screen of the required application.
  - a. Navigate to **Admin > Applications**.
  - b. Scroll through the list, or use the filter to find the application.
  - c. Click the edit icon  on the line of the application.
- Press **Next** till you reach the **Crawler & Permissions Collection** settings page.

The actual entry fields vary according to the application type.

### **Calculate Resource Size**

Determine when, or at what frequency, File Access Manager calculates the resources' size.

Select one of the following:

- Never
- Always
- Second crawl and on (This is the default)

### **Create a Schedule**

Click to open the schedule panel. See [Scheduling a Task](#)


## Setting the Crawl Scope

There are several options to set the crawl scope:

- Setting explicit list of resources to include and / or exclude from the scan.
- Creating a regex to define resources to exclude.

## Including and Excluding Paths by List

### ***To set the paths to include or exclude in the crawl process for an application***

- Open the edit screen of the required application.
  - a. Navigate to **Admin > Applications**.
  - b. Scroll through the list, or use the filter to find the application.
  - c. Click the edit icon  on the line of the application.
- Press **Next** till you reach the **Crawler & Permissions Collection** settings page.


The actual entry fields vary according to the application type.

  1. Scroll down to the Crawl configuration settings.
  2. Click **Advanced Crawl Scope Configuration** to open the scope configuration panel.
  3. Click Include / Exclude Resources to open the input fields.
  4. To add a resource to a list, type in the full path to include / exclude in the top field and click **+** to add it to the list.
  5. To remove a resource from a list, find the resource from the list, and click the x icon on the resource row.

When creating exclusion lists, excludes take precedence over includes.

### **Excluding Paths by Regex**

#### ***To set filters of paths to exclude in the crawl process for an application using regex.***

- Open the edit screen of the required application.
  - a. Navigate to **Admin > Applications**.
  - b. Scroll through the list, or use the filter to find the application.
  - c. Click the edit icon  on the line of the application.
- Press **Next** till you reach the **Crawler & Permissions Collection** settings page.

The actual entry fields vary according to the application type.



1. Click **Exclude Paths by Regex** to open the configuration panel.
2. Type in the paths to exclude by Regex, See regex examples in the section below. Since the system does not collect BRs that match this Regex, it also does not analyze them for permissions.

### Crawler Regex Exclusion Example

The following are examples of crawler Regex exclusions:

#### **Exclude all shares which start with one or more shares names:**

Starting with `\\server_name\shareName`

Regex: `\\\\server_name\\shareName$`

Starting with `\\server_name\shareName` or `\\server_name\OtherShareName`

Regex: `\\\\server_name\\(shareName|OtherShareName)$`

#### **Include ONLY shares which start with one or more shares names:**

Starting with `\\server_name\shareName`

Regex: `^(?!\\\\server_name\\shareName($|\\.*)) .*`

Starting with `\\server_name\shareName` or `\\server_name\OtherShareName`

Regex: `^(?!\\\\server_name\\(shareName|OtherShareName)($|\\.*)) .*`

#### **Narrow down the selection:**

Include ONLY the C\$ drive shares: `\\server_name\C$`

Regex: `^(?!\\\\server_name\\C\\$($|\\.*)) .*`

Include ONLY one folder under a share: `\\server\share\folderA`

Regex: `^(?!\\\\server_name\\share\\$(\\folderA$|\\folderA\\.*)) .*`

Include ONLY all administrative shares

Regex: `^(?!\\\\server_name\\[a-zA-Z]\$($)).*`

To write a backslash or a Dollar sign, add a backslash before it as an escape character.

To add a condition in a single command, use a pipe character “|” .

## Excluding Top Level Resources

Use the top level exclusion screen to select top level roots to exclude from the crawl. This setting is done per application.

### *To exclude top level resources from the crawl process*

1. Open the application screen

*Admin > Applications*

2. Find the application to configure and click the drop down menu on the application line. Select **Exclude Top Level Resources** to open the configuration panel.

3. **Run Task**

The Run Task button triggers a task that runs a short detection scan to detect the current top level resources.

Before running the task for the first time, the message above this button is:

**"Note: Run task to detect the top-level resources"**

If the top level resource list has changed in the application while you are on this screen, press this button to retrieve the updated structure.

Once triggered, you can see the task status in

*Settings > Task Management > Tasks*

This will only work if the user has access to the task page

When the task has completed, press **Refresh** to update the page with the list of top level resources.

4. Click the top level resource list, and select top level resources to exclude.
5. Click *Save* to save the change.
6. To refresh the list of top level resources, run the task again. Running the task will not clear the list of top level resources to exclude.

## Top Level Resources Exclusion

WFS-DC testing

**Last Successful Run** 06-22-2021 4:57:27 PM

[Run Task](#) [View Task Status](#)

**Note:** Refresh the list to view recently discovered resources [Refresh](#)

**Top Level Resources Exclusion List** 0 Selected | [Clear Selection](#)

Top Level Resources Exclusion List ^

- \\si-...-5\C\$
- \\si-...-5\MSSQLSERVER
- \\si-...-5\print\$

### Special Consideration for Long File Paths in Crawl

If you need to support long file paths above 4,000 characters for the crawl, set the flag

**`excludeVeryLongResourcePaths`**

in the Permission Collection Engine App.config file to true.

By default this value will be commented out and set to false.

This key ensures, when enabled, that paths longer than 4000 characters are excluded from the applications' resource discovery (Crawl), to avoid issues while storing them in the SQLServer database.

When enabled, business resources with full paths longer than 4000 characters, and everything included in the hierarchical structure below them, will be excluded from the crawl, and will not be collected by File Access Manager. This scenario is extremely rare.

You should not enable exclusion of long paths, unless you experience an issue.

### Background

File Access Manager uses a hashing mechanism to create a unique identifier for each business resource stored in the File Access Manager database. The hashing mechanism in SQLServer versions 2014 and earlier, is unable to process (hash) values with 4,000 or more characters.

Though resources with paths of 4000 characters or longer are extremely rare, File Access Manager is designed to handle that limitation.

### ***Identifying the Problem***

When using an SQL Server database version 2014 and earlier

The following error message in the Permission Collection Engine log file:

```
System.Data.SqlClient.SqlException (0x80131904): String or binary data would be truncated.
```

In all other cases, this feature should not be enabled.

### ***Setting the Long Resource Path Key***


The Permission Collection Engine App.config file is `RoleAnalyticsServiceHost.exe.config`, and can be found in the folder

```
%SailPoint_Home%\FileAccessManager\[Permission Collection instance]\
```

Search for the key **excludeVeryLongResourcePaths** and correct it as described above.

## **Selecting and Scheduling the Data Classification Settings**

***To associate an application with a data classification service, and set the schedule:***

- Open the edit screen of the required application
  - a. Navigate to **Admin > Applications**
  - b. Scroll through the list, or use the filter to find the application
  - c. Click the edit icon  on the line of the application

- Press **Next** till you reach the **Data Classification** settings page.

The actual entry fields vary according to the application type

### ***Central Data Classification Service***

Associate the application with a Central Data Classification Service. This service is responsible for running the Data Classification tasks.

If the “Central Data Classification” wasn’t installed during the installation of the server, this field is disabled.

### ***Disabling Data Classification***

To disable data classification, delete the entry from the central data classification field.

Disabling data classification can also be achieved by setting the scheduler to be inactive (which is the default setting for data classification).

### ***Create a Schedule***

This option is enabled only if a central data classification service is selected.

See [Scheduling a Task](#)

See the chapter “Data Classification” in the File Access Manager Administrator Guide for more information

Click **Next** or **Finish**.

## **Data Privacy**

A user can associate the application with a Central Data Classification Engine Service. This engine will be responsible for executed Data Privacy tasks.

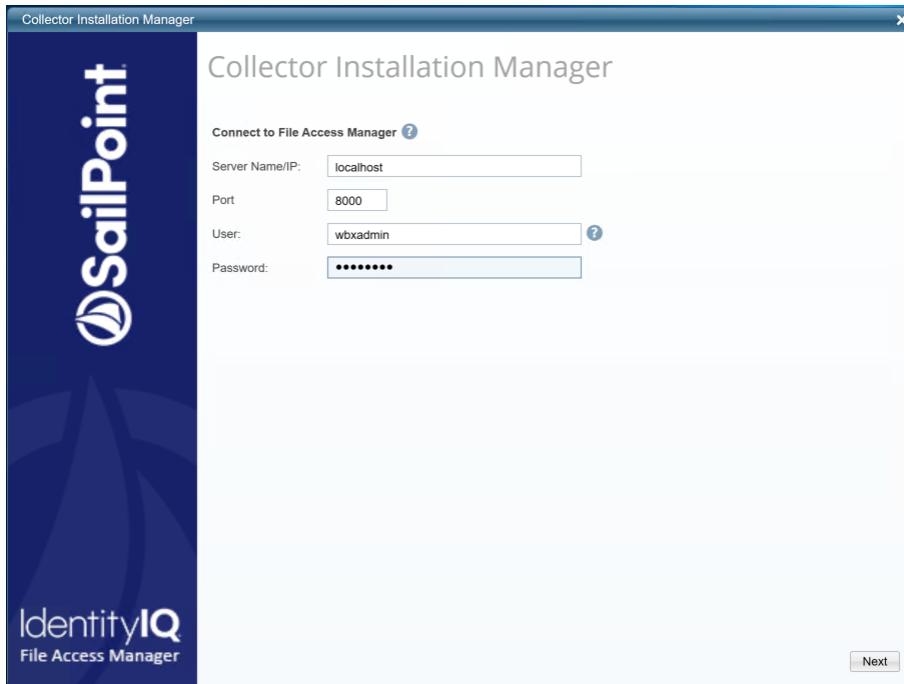
Though using different processes for each, the Data Classification engine service is in charge for both Data Privacy and Data Classification discovery tasks.

You may choose the same service for both, or use a different one for each, to run them in parallel.

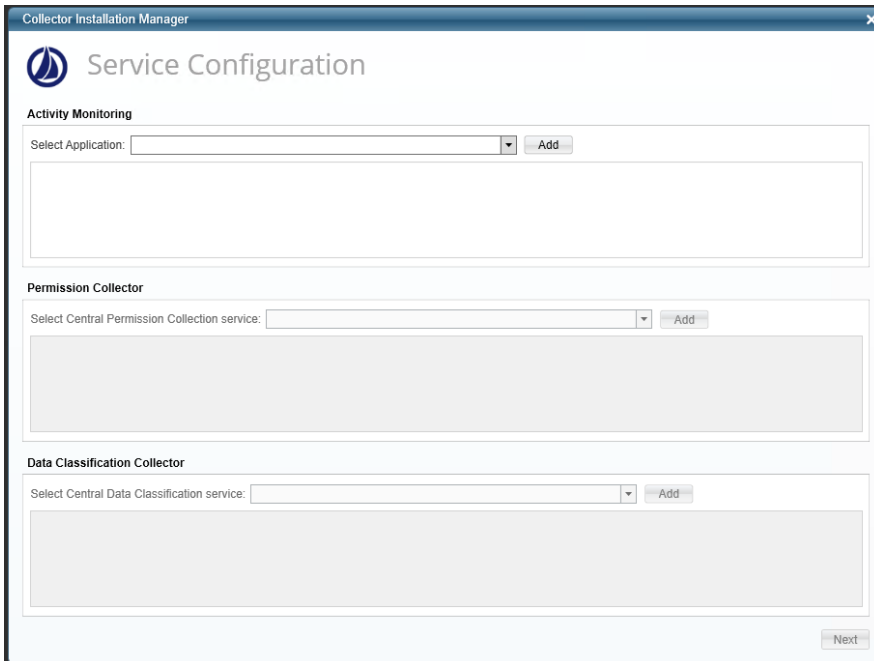
The fields on the Data Privacy step are the same as the Data Classification step.

## Installing Services: Collector Installation

1. Run the **Collector Installation Manager** as an Administrator.  
The installation files are in the installation package under the folder Collectors.  
The Collector Installation Manager window displays.



2. Enter the credentials to connect to File Access Manager.
  - a. ServerName/IP should be pointed to the Agent Configuration Manager service server.
  - b. A File Access Manager user with Collector Manager permission (permission to install collectors). For Active Directory authentication, use the format domain\username.
3. Click **Next** to open the Service Configuration window.



4. If you are installing the Permission Collector, select the Central Permission Collector to which to connect this service. Click **Add**.
5. If you are installing the Data Classification, select the Central Classification Collector to which to connect this service. Click **Add**.
6. Click **Next**.

The Installation Folder window displays.

If this is the first time you are installing collectors on this machine, you will be prompted to select an installation folder. All future collectors will be installed in this folder.

7. Browse and select the location of the target folder for installation.
8. Browse and select the location of the folder for system logs.
9. Click **Next**.
10. The system begins installing the selected components.
11. Click **Finish**.

The Finish button is displayed after all the selected components have been installed.

The File Access Manager Administrator Guide provides more information on the collector services.



## Verifying the CIFS Connector Installation

### Installed Services

Verify that the services installed for the connector are available and active. Using windows Service manager, or other tool, look for the File Access Manager services, and see that they are running.

for example:

- File Access Manager Central Permissions Collection - <Application\_Name> service is running.
- File Access Manager Central Data Classification - <Application\_Name> service is running.

### Log Files

Check the log files listed below for errors

- "%SAILPOINT\_HOME\_LOGS%\PermissionCollection\_<Service\_Name>.log"
- "%SAILPOINT\_HOME\_LOGS%\DataClassification\_<Service\_Name>.log"

### Permissions Collection

1. Run the Crawler and Permissions Collector tasks (*Settings > Task Management > Scheduled Tasks*)
2. Verify that:
  - The tasks completed successfully
  - Business resources were created in the resource explorer (*Admin > Applications > [application column] > Manage Resources*)
  - Permissions display in the Permission Forensics page (*Forensics > Permissions*)