SailPoint IdentityIQ

Version: 8.1.0.5000

File Access Manager v8.1
Service Pack 5
Deployment Guide

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Chapter 1: Planning Your Service Pack Deployment

What is a Service Pack?

Service Packs are cumulative packages containing all released E-Fixes to date, since the last Major or Patch release. Service Packs allow customers to stay up to date with the latest bug fixes and performance enhancements, with minimal down time and without the need to upgrade. Service Packs only update the File Access Manager components for which bug fixes or performance enhancements were issued, while the rest of the system remains untouched.

Service Packs Deployment Process

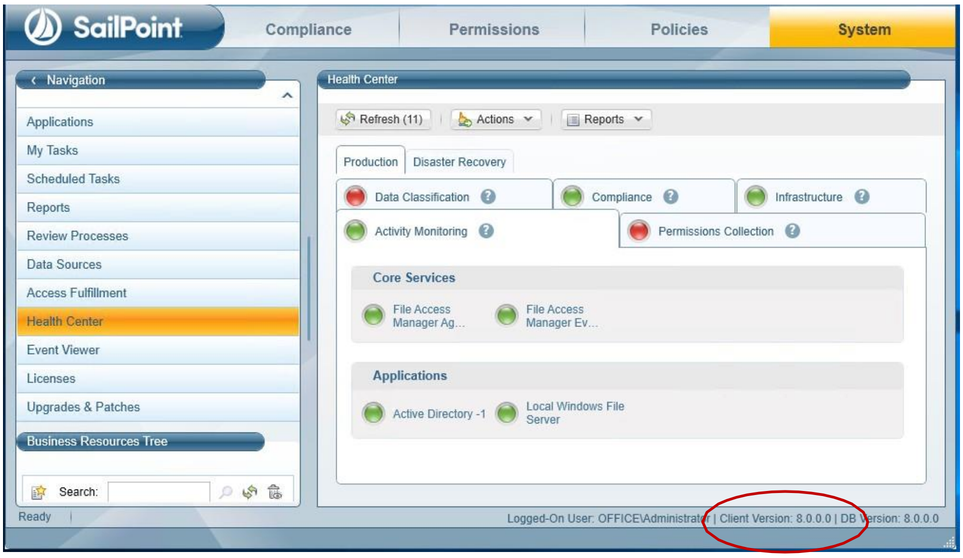
Starting from version 6.1, SecurityIQ (FAM) Service Packs deployment is done automatically. Service Packs are deployed by the File Access Manager update deployment mechanism. By simply uploading a Service Package through the Administrative Client, and pressing a button to initiate the deployment, the Service Pack will be deployed and will automatically update all relevant File Access Manager components.

All File Access Manager components, including Web Sites, Administrative Clients, Core Services, Activity Monitors, Permission Collection and Data Classification Engine and Collectors, Watchdogs and the File Access Manager Database, will be updated – provided that the service pack contains update for the specific component.

The only exception to that is the File Access Manager Collector Manager – used to deploy Collectors and Activity Monitoring Agents – which is a standalone application, and will need to be updated manually, if an update is available.

Version Numbers

The current version number is displayed on the bottom right corner of the Administrative Client screen.



Logged-On User: OFFICE\Administrator | Client Version: 8.0.0.0 | DB Version: 8.0.0.0

Figure 1 Application Monitors Screen

File Access Manager version numbers are represented by a four-section number, e.g., 8.1.0.5000.
The first two sections represent major releases. File Access Manager 8 GA release number is 8.0.0.0. whereas, File Access Manager 8.1 release will be represented by the number 8.1.0.0.
The next section represents Patch Releases, e.g., File Access Manager 8.0P1 version number is 8.0.1.0.
Service Pack updates are reflected in the last section, and so File Access Manager0 8.1 Service Pack 5 version number is 8.1.0.5000.
The Database version number will be updated with every service pack. For File Access Manager 8.1 Service Pack 5, the database version number is 8.1.0.5000.
The Client version number will be updated if the service pack includes changes to the Administrative Client. For File Access Manager 8.1 Service Pack 5, the database version number is 8.1.0.5000.

Infrastructure components, such as Elasticsearch and RabbitMQ will retain the same version number, unless and update to the actual infrastructure components is applied, in which case their version number will be updated as well. 8.1 Service Pack 2 does not include any updates to such infrastructure components.

Versions included in this release:

Table 2 File Access Manager Component Version Details

Component	Version
File Access Manager Database	8.1.0.5000
File Access Manager Elasticsearch	5.1.1
File Access Manager RabbitMQ	3.7.4
File Access Manager API	8.1.0.5000
File Access Manager Web Client	8.1.0.5000
File Access Manager Administrative Client	8.1.0.5000

Backup Measures

Backups are important. Having the original deliverable readily available, will allow you to quickly and easily roll-back changes if needed. One of the great things about Service Packs is that they allow for small surgical changes to be made to the system, by changing only what is necessary. For that reason, they are also easy to roll back, provided that backup measures have been taken.

Database

As a rule, we recommend that regular backups be performed on the IdentityIQ File Access Manager database.

Service Packs can occasionally require changes to the database, either in the form of content modification on specific tables or in the form of schema changes to the tables and object in the database.

In the case of schema changes, we recommend that a copy of the original database object be taken. The simplest way of doing that is creating a backup object with a different name, using the script of the original object. In most cases, that would entail generating a Create script of the original object and renaming the object name in the script before execution.

You can consult your DBA on how to create such backup objects.

Other Components

The IdentityIQ File Access Manager updates' deployment mechanism creates a backup for every component updated by the service pack. Once the service pack package is loaded and its deployment started, before any changes are made, a backup copy of the updated component is taken and stored in the designated Backup folder. The Backup folder is located under the SAilPoint home directory (set by the SAILPOINT_HOME environment variable, and is by default at C:\Program Files\SailPoint\). A folder bearing the Service Pack name will be created in the main Backup folder, and a backup of each of the updated components will be created.
For SP5 the Backup folder would be {%FILE_ACCESS_MANAGER_HOME%}\Backup\8.1.0.5000

Chapter 2: Support Matrix

Table 3 IdentityIQ File Access Manager Server Support Details

System	Supported Versions
IdentityIQ File Access Manager Servers	Windows 2012R2/2016/2019
Workstation	Windows 8 and above
Browser	IE 11, Edge, Firefox, Chrome, Safari
Database	MS SQL Server 2012/2014/2016/2017

Chapter 3: Deploying Version 8.1 Service Pack 5

The deployment process consists of the following steps:

1. Downloading the Service Pack from this Compass Location
2. Read the Service Pack deployment guide thoroughly
3. Pre-deployment Steps
4. Service Pack Deployment
   a. Upload the Service Pack through the Administrative Client
   b. Kick-Off the Service Pack deployement
   c. Verify successfully deployment
5. Post Deplyment Steps

Pre-upgrade Steps

1. Replace the Assembly Certificate on SQLServer 2017 and above

a. If you are using a SQL Server Database, of version 2017 or later, you must run the recreate_assembly_certificate.sql script, included in the *File Access Manager v8.1.0.5000 Package* "scripts" folder.

b. The script replaces the certificate used to sign our CLR Assemblies, that is stored in the database.

2. Assign the Collector Synchronizer Service with a Certificate Hash Key using the CollectorSynchronizerCertificateAssignmentTool

a. Copy the "CollectorSynchronizerCertificateAssignmentTool" folder Included in the *File Access Manager v8.1.0.5000 Package* "tools" folder and place it on the server hosting the Collector Synchronizer service.

b. From the "CollectorSynchronizerCertificateAssignmentTool" folder, run "CollectorSynchronizerCertificateAssignmentTool.exe" with a user with administrative privileges on the server. Make sure the result is successful (the output window should show Success rather than Failure).

Note: The Certification Assignment Tool requires the location of the CollectorSynchronizerServiceHost.exe executable, and assumes the service and executable are located at the "%SAILPOINT_HOME%\FileAccessManager\CollectorSynchronizer\" path. In some cases, for example on environments upgraded from SecurityIQ 6.1, the service executable may be located on a different path. If that is the case in your environment please set the "collectorSyncExePath" app.config key to the correct path, in the CollectorSynchronizerCertificateAssignmentTool.exe.config application configuration file, under the app.settings tag.

Note: If you have already applied Service Pack 3 for File Access Manager 8.1 prior to this service pack – these steps can be skipped. Applying Service Pack 3 is **not** a pre-requisite to applying Service Pack 4. All Service Packs are cumulative.

3. If you have any one-way trusts currently configured with FAM, run the SIQETN-2941-2977-TrustedDomainsTester tool.

a. Copy the "SIQETN-2941-2977-TrustedDomainsTester" folder Included in the *File Access Manager v8.1.0.4000 Package* "tools" folder and place it on any server hosting a core service. Unzip the contents.

b. Double-click TrustedDomainsTester.exe

c. This should open a command line window that will automatically start to process your configured Data

Enrichment Connector(s) and Identity Collector(s). For each DEC/IC, the tool will determine whether the expected trusted domains can still be retrieved, and display either Found in Green or Not found in Red next to each domain, as well as an overall conclusion in green or red indicating whether all domains were found or not for that DEC/IC.

d. Any DEC/IC with a red conclusion should be reviewed and determined if reconfiguration will be required after upgrading, to ensure all intended domains are accounted for.

Service Pack Deployment

1. Extract the "File Access Manager v8.1.0.5000.zip" installation package.

2. Navigate to the "Service Pack 5" folder.

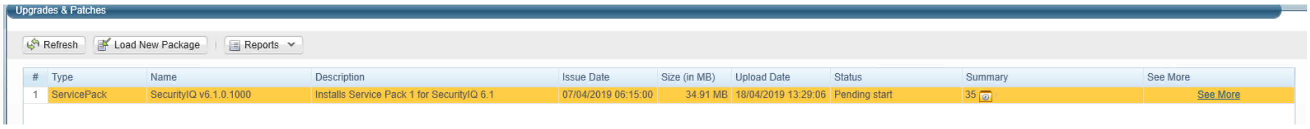
3. Log into the IdentityIQ File Access Manager administrative client Client

4. Click **System** >> **Upgrades & Patches** >> **Load New Package**
   This will open the **Load Package** dialog.

5. Press **Browse** and load the file "**File Access Manager v8.1 Service Pack 5.wbxpkg**" from the Service Pack folder.

6. Press **Upload Package**.
   The system will upload and validate the file. This might take a few minutes.

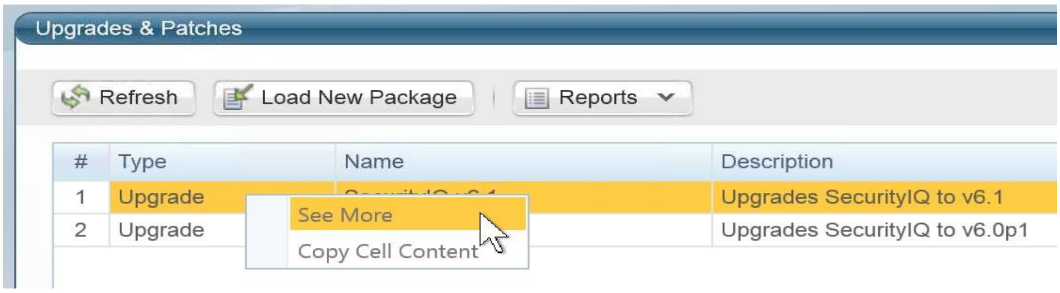
7. Once it is validated, press **Save**. This will add the upgrade package to the upgrades page.



#	Type	Name	Description	Issue Date	Size (in MB)	Upload Date	Status	Summary	See More
1	ServicePack	SecurityIQ v6.1.0.1000	Installs Service Pack 1 for SecurityIQ 6.1	07/04/2019 06:15:00	34.91 MB	18/04/2019 13:29:06	Pending start	35	See More

Figure 2: Upgrades & Patches table

8. Right click the upgrade package and select **See More** from the menu.

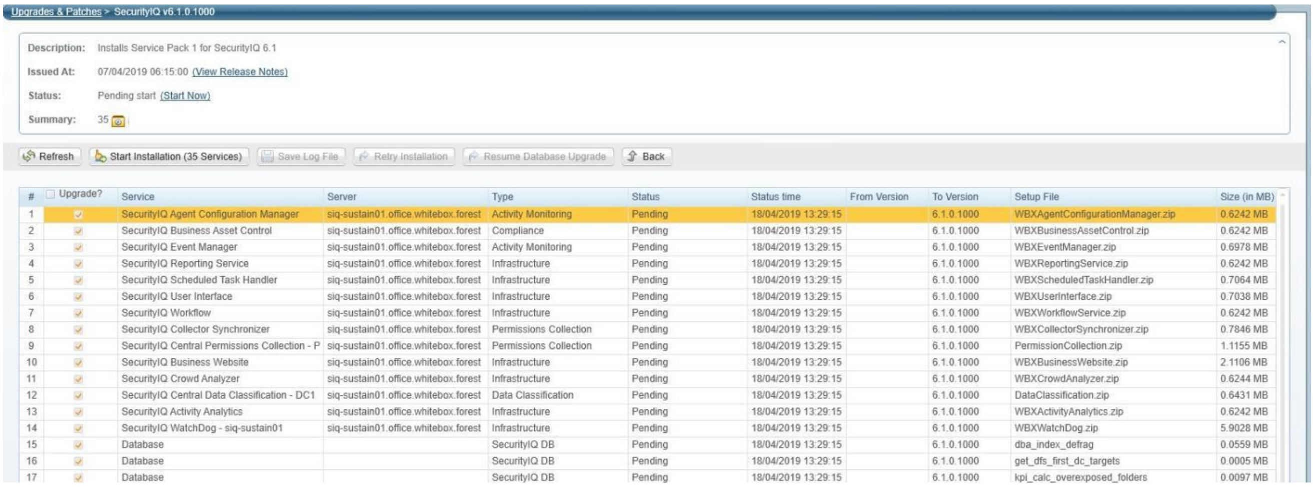


#	Type	Name	Description
1	Upgrade		Upgrades SecurityIQ to v6.1
2	Upgrade		Upgrades SecurityIQ to v6.0p1

Figure 3: Expand Service Pack package - Details

This will open the upgrade detail panel, showing a list of the upgrade steps included in this package.

Each installation line is listed in “Pending” state when it is added to the upgrade/installation list.


Upgrades & Patches > SecurityIQ v6.1.0.1000
Refresh
Start Installation (35 Services)
Save Log File
Retry Installation
Resume Database Upgrade
Back

Description: Installs Service Pack 1 for SecurityIQ 6.1

Issued At: 07/04/2019 06:15:00 (View Release Notes)

Status: Pending start (Start Now)

Summary: 35

#	☐ Upgrade?	Service	Server	Type	Status	Status time	From Version	To Version	Setup File	Size (in MB)
1	☑	SecurityIQ Agent Configuration Manager	siq-sustain01.office.whitebox.forest	Activity Monitoring	Pending	18/04/2019 13:29:15		6.1.0.1000	WBXAgentConfigurationManager.zip	0.6242 MB
2	☑	SecurityIQ Business Asset Control	siq-sustain01.office.whitebox.forest	Compliance	Pending	18/04/2019 13:29:15		6.1.0.1000	WBXBusinessAssetControl.zip	0.6242 MB
3	☑	SecurityIQ Event Manager	siq-sustain01.office.whitebox.forest	Activity Monitoring	Pending	18/04/2019 13:29:15		6.1.0.1000	WBXEventManager.zip	0.6978 MB
4	☑	SecurityIQ Reporting Service	siq-sustain01.office.whitebox.forest	Infrastructure	Pending	18/04/2019 13:29:15		6.1.0.1000	WBXReportingService.zip	0.6242 MB
5	☑	SecurityIQ Scheduled Task Handler	siq-sustain01.office.whitebox.forest	Infrastructure	Pending	18/04/2019 13:29:15		6.1.0.1000	WBXScheduledTaskHandler.zip	0.7064 MB
6	☑	SecurityIQ User Interface	siq-sustain01.office.whitebox.forest	Infrastructure	Pending	18/04/2019 13:29:15		6.1.0.1000	WBXUserInterface.zip	0.7038 MB
7	☑	SecurityIQ Workflow	siq-sustain01.office.whitebox.forest	Infrastructure	Pending	18/04/2019 13:29:15		6.1.0.1000	WBXWorkflowService.zip	0.6242 MB
8	☑	SecurityIQ Collector Synchronizer	siq-sustain01.office.whitebox.forest	Permissions Collection	Pending	18/04/2019 13:29:15		6.1.0.1000	WBXCollectorSynchronizer.zip	0.7846 MB
9	☑	SecurityIQ Central Permissions Collection - P	siq-sustain01.office.whitebox.forest	Permissions Collection	Pending	18/04/2019 13:29:15		6.1.0.1000	PermissionCollection.zip	1.1155 MB
10	☑	SecurityIQ Business Website	siq-sustain01.office.whitebox.forest	Infrastructure	Pending	18/04/2019 13:29:15		6.1.0.1000	WBXBusinessWebsite.zip	2.1106 MB
11	☑	SecurityIQ Crowd Analyzer	siq-sustain01.office.whitebox.forest	Infrastructure	Pending	18/04/2019 13:29:15		6.1.0.1000	WBXCrowdAnalyzer.zip	0.6244 MB
12	☑	SecurityIQ Central Data Classification - DC1	siq-sustain01.office.whitebox.forest	Data Classification	Pending	18/04/2019 13:29:15		6.1.0.1000	DataClassification.zip	0.6431 MB
13	☑	SecurityIQ Activity Analytics	siq-sustain01.office.whitebox.forest	Infrastructure	Pending	18/04/2019 13:29:15		6.1.0.1000	WBXActivityAnalytics.zip	0.6242 MB
14	☑	SecurityIQ WatchDog - siq-sustain01	siq-sustain01.office.whitebox.forest	Infrastructure	Pending	18/04/2019 13:29:15		6.1.0.1000	WBXWatchDog.zip	5.9028 MB
15	☑	Database		SecurityIQ DB	Pending	18/04/2019 13:29:15		6.1.0.1000	dba_index_defrag	0.0559 MB
16	☑	Database		SecurityIQ DB	Pending	18/04/2019 13:29:15		6.1.0.1000	get_dfs_first_dc_targets	0.0005 MB
17	☑	Database		SecurityIQ DB	Pending	18/04/2019 13:29:15		6.1.0.1000	kpi_calc_overexposed_folders	0.0097 MB

Figure 4: Review Service Pack package - Details

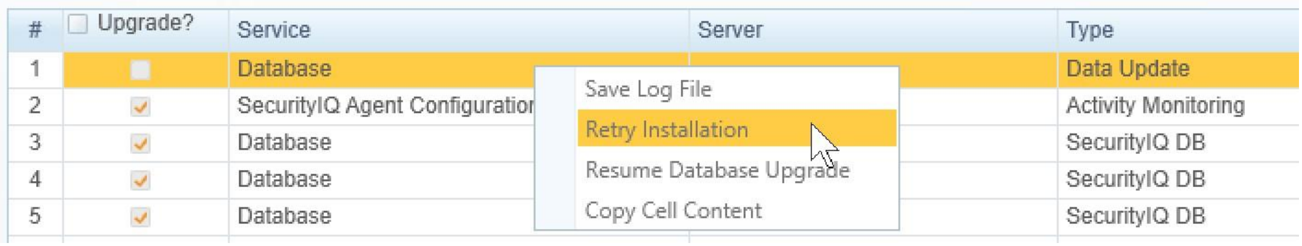
9. Click **Start Installation** and **Confirm** to start the installation process.

The Service Pack deployment process runs a series of prerequisites checks before the Database update begins. Then proceeds to perform the Database updates.
Following the Database updates, the first component to be updated will be the Watchdog Service, installed on the server hosting the User Interface core service.
Following that, all other components will be updated.

What if an update line fails?

If a script or a component update fails, right-click the failed line in the ”**System/Upgrade and Patches**” screen and click **Save** to save the log file. The system will download the log file where you can see error messages describing the issues.

After you fix the issue, right-click the failed line and click **Retry** to rerun the script and continue the upgrade process.



#	□ Upgrade?	Service	Server	Type
1	□	Database		Data Update
2	☑	SecurityIQ Agent Configuratior		Activity Monitoring
3	☑	Database		SecurityIQ DB
4	☑	Database		SecurityIQ DB
5	☑	Database		SecurityIQ DB

Figure 5: Retry installation line

10. Wait until all services have **Completed** or are in a **"Pending Restart"** status.

11. If one of the services is in a **"Pending Restart"** status, restart the server on which this service is installed.

    The Service Pack update will continue automatically after restarting.

12. Wait until all services are in **"Completed"** status after restarting.

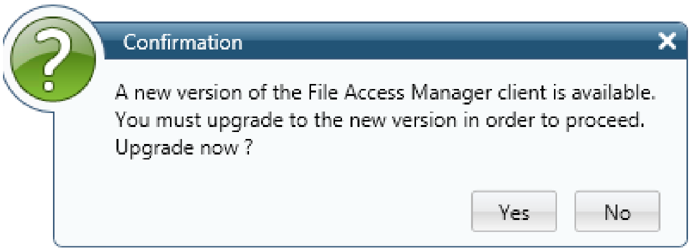
Note: See *Chapter 5: Troubleshooting* **for further suggestions and information.**

Post Upgrade Actions

IdentityIQ File Access Manager Client Upgrade

Please close and re-open all File Access Manager Administrative Client applications.

On the first run of the IdentityIQ File Access Manager administrative client after an update, a popup message displays, requesting that you update the client. During the update, you will be required to reenter the server on which the User Interface Service is installed.



Confirmation

A new version of the File Access Manager client is available.
You must upgrade to the new version in order to proceed.
Upgrade now ?

Figure 4: Message - Update File Access Manager Client

Validate the Service Pack update

To validate the installation, and verify that the correct version was installed, check in the Windows Add/Remove programs in the control panel.

The versions of the IdentityIQ File Access Manager components should be set to 8.1.0.5000
The IdentityIQ File Access Manager Database version should be set to 8.1.0.5000

Note: See "Versions included in this release:" for a full list of components updated.

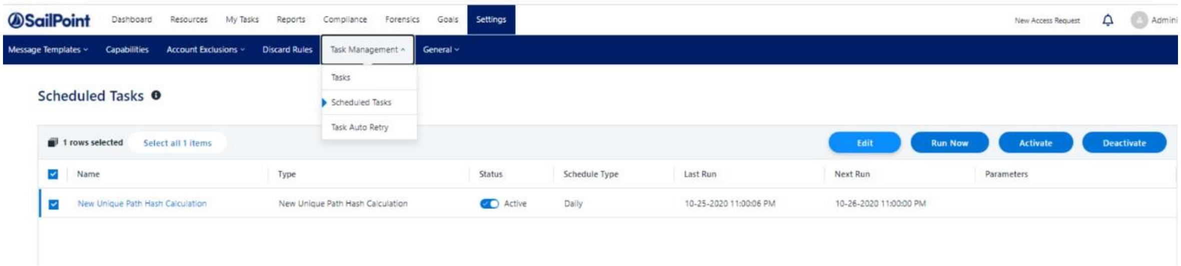
Chapter 4: Important Information and Updates

To address possible issues with resources paths containing certain accented characters that manifest unique behavior in case-transformations, such as the Turkish dot-less I's, e.g., we are changing the way we are calculating the internal unique hash-value identifiers for business resources. This change is internal and does not have any effect on user experience. Since this change affects all business resources, we are taking a phased approach in rolling out the change.

The first phase, delivered with Service Pack 3, initiated the process of recalculating resource identifiers. To that end, we created a dedicated scheduled task that will run in the background and recalculate the resource identifiers. To minimize the impact on the overall system, the task is scheduled to run nightly within a designated timeframe. The task will handle portions of the data each night, until the all business resource identifiers have been recalculated. Following the completion of the initial run, the task will continue to run nightly to address any deltas in the form of new resources created as a result of new business resources detected in existing applications or newly onboarded applications.

The second phase of the change will be part of the 8.2 upgrade and will conclude the transition to using the new business resource identifiers.

The task responsible for running this process, the “New Unique Path Hash Calculation” task, is enabled by default and scheduled to run nightly at 4 AM local time, for a duration of 4 hours. Like all other tasks, the “New Unique Path Hash Calculation” task can be modified through the “Scheduled Tasks” screen in the Task Management section of the File Access Manager Business Website.



Scheduled Tasks

1 rows selected Select all 1 items

☑	Name	Type	Status	Schedule Type	Last Run	Next Run	Parameters
☑	New Unique Path Hash Calculation	New Unique Path Hash Calculation	Active	Daily	10-25-2020 11:00:06 PM	10-26-2020 11:00:00 PM	

We highly recommend monitoring and ensuring the successful operation of the “New Unique Path Hash Calculation” task, as the completion of the unique identifiers recalculation will be required for future upgrades to the File Access Manager 8.2 release. Any delays in that process will impede future upgrades.

Occasional failures and some interruption to the task are expected are handled by the task and taken into account. However, if you are experiencing persisting issues that affect the successful operation of the task, please contact SailPoint Support.

Note! If you apply Service Pack 5 on a new environment, that does not have any applications configured, and no business resources have already been created, the “New Unique Path Hash Calculation” task may fail with a warning. This can be safely ignored, until applications are added to the system and business resources have been discovered. At this stage, the task will pick up and update the newly discovered business resources unique identifiers.

SIQSUS-489 – SharePoint Online Refactor

File Access Manager now offers full support of standard OAuth 2.0 Authentication for the SharePoint Online connector.

The new authorization sequence will direct the user through a standard Microsoft O365 consent flow, to grant the File Access Manager SharePoint Online Connector application the privileges to acquire and refresh access tokens.

The new authentication method replaces the previous Basic Authentication flow, that required admins to provide user and password credentials.

- The SharePoint Online Connector now uses only fully modern authentication methods, and does not require Legacy Authentication methods be enabled, tenant-wide, or otherwise.
- The SharePoint Online Connector supports any user as a delegated account (the granting account), including users with Multi-Factor Authentication requirements enabled, and is no longer limited by Microsoft's restrictions on Federated Accounts
- The SharePoint Online Connector supports internal token management and will be responsible for managing and renewing its own tokens.
- The SharePoint Online Connector now supports the use of multiple service accounts, for the Permission Collection, Data Classification and Activity Monitoring modules, to utilize larger API access quotas and minimize delays caused by Microsoft O365 Rest APIs quotas, throttling and back-off algorithms.
- As part of this change, the OneDrive Connector's support for file-level permissions analysis, no longer requires user and password credentials and will be using the existing OneDrive OAuth token instead.

Please reference full guide posted on Compass for more details: File Access Manager SharePoint Online Full OAuth Support

SIQETN-3006 – Server installer requires default web site in IIS

Allow IIS site to override from "Default Web Site" during server installation.

Follow the instructions in the contained README in the service pack sub-folder "SIQETN-3006".

SIQETN-2976 – Adjusting Custom Fulfillment to Allow Cloud Based Apps

Allow cloud applications to use custom fulfillment.
Impersonation will not be used by default for custom fulfillment. To use impersonation when running custom fulfillment scripts, add the following key to the file CollectorSynchronizerServiceHost.exe.config in the <appSettings> section:
<add key="shouldImpersonate" value="true" />

SIQETN-3026 – Overhaul of Data Classification Policy Corrections

1. Spelling/verbiage use of terms based completely on WHO ICD-10 policy. Refer to ICD-10 Version:2019

2. Based on ICD-S+T split, if user has created user-defined ICD-T policy, customer will need to rename/delete in favor of new OOTB ICD-T policy.

SIQETN-3024 – Allow Event Manager to Optionally Save to DB, Delete Event Backups

This enhancement supports the ability to turn off/on whether SQL event backups are made, and also whether they are cleaned up during event deletion.

Two new system configuration options are now supported in the DB table system_configuration_value:
"Store event backups to SQL Server"
and
"Remove SQL backups on event deletion"

The current behavior and default configuration (or if the values are missing from the Database) is True for both values. Events will be stored to elastic and backups of those events will also be saved to SQL. And when events are deleted, the corresponding SQL event backups will also be deleted.

If "Store event backups to SQL Server" is set to False, the event manager(s) will save events to Elastic only; backups to SQL will not be made.

If "Remove SQL backups on event deletion" is set to False, event deletion tasks will only delete events from Elastic; any existing SQL event backups will be retained. Any existing SQL event backups that are skipped from being deleted in this way will not be delete-able from FAM using deletion tasks, even if "Remove SQL backups on event deletion" is reset to True. When setting "Remove SQL backups on event deletion" to False, the user is responsible for the lifetime and ultimate deletion of those skipped events.

SIQETN-2961 – Allow FAM Service to Override Default Behavior and Always Use Self-Signed Certificate

When hosting a service, a FAM service will first look in the machine's certificate store for a valid certificate with matching hostname, otherwise will use the self-signed certificate from the FAM DB.

This fix provides a way to override this behavior and always use the self-signed certificate as a workaround for the case where FAM software is trying to use a certificate that is intended for some other software running on the same machine.

To override the default behavior of using a valid server CA cert if found, and instead to always use the FAM DB self-signed certificate:

1. For all FAM services that host a WCF service, execute the following SQL to add a system configuration row: If want to make setting system-wide for any FAM service, run the following SQL:
   INSERT into [whiteops].[system_configuration_value] values (N'Use DB Certificate', N'True', N'System.Boolean')
2. For a particular FAM service, edit the app config file in a text editor (i.e. "AgentConfigurationManagerServiceHost.exe.config") and add a new key/value to the appSettings section: <add key="useDbCertificate" value="true" />

SIQETN-2941 – One-Way Trust Corrections

Previously, trusts relationships between domains were interpreted by File Access Manager as the opposite trust direction (Incoming as Outgoing, Outgoing as Incoming). This change corrects that behavior and should only impact users that utilize and have previously configured one-way trusts within File Access Manager. Though these changes are designed to better capture and reflect the environment trusts relation, they may affect some changes to your current File Access Manager set up and may require some further actions by File Access Manager Administrators. This tool has been created to help assess your configuration of Active Directory Data Enrichment Connectors (DECs) and Identity Collectors (ICs) and ensure the correct setup is in place and no additional changes are required. It will display the current configuration of trusted domains as mapped by File Access Manager prior to the change, as well as the trust relationship layout that will be captured and mapped following this change - which would be applied upon upgrade - and highlight any mismatches and outstanding domains.

For more details and access to the TrustedDomainsTester Tool please see Compass: One-Way Trust Corrections in 8.2 and upcoming 8.1 SP4

SIQETN-2934 – Identities Report Summary Showed Incorrect User Count

This issue previously incorrectly counted empty domain groups as users. The query has now been corrected to filter out these records when counting user statistics

Composite Rule Calculation Task Scope

Previously, the Composite Analyze task processed all data classification results. This Enhancements scopes the task to a single application at a time, only running after the relevant Data Classification task has completed.

With these changed, the Composite Analyze task will no longer run automatically after making changes to a composite policy or rule.

Extended Requestable Permissions Settings to Normalized Folders

This enhancement extends requestable permissions settings to normalized resources.

For Non-Normalized Resources - the user can only request access rights based on the Requestable Permissions defined for this application. Previously, for Normalized (managed) resources - users were able to request permissions to all managed permission types - regardless of the Requestable Permissions Settings; thus, even if the Full Control Permission Type was not marked as a requestable permission - users can still request access with Full Control Permissions. This was by design.

This change will extend the application of the Requestable Permissions settings to Normalized (managed) resources as well - so that users may no longer even request access with the particular permissions type , if that type is not marked as requestable.

Optimize Database Queries to Improve Performance

This enhancement improved the efficiency of queries related to specific objects to help reduce overall database stress.

SIQSUS-490 – Exchange Online Connector Full OAuth 2.0 Support

The File Access Manager Exchange Online Connector now offers Full OAuth 2.0 Authentication, removing the need to provide User/Password credentials, federated users limitation, adding support for MFA requirements, and support for multiple service accounts.

This change requires changes to your current Exchange Online configuration settings.
Please refer to *Appendix C: Exchange Online Connector Full OAuth 2.0 Support* for more details

SIQSUS-11 Isilon Activity Monitor - Multiple Access-Zone and Tenant Isolation Support

File Access Manager Access Manager Isilon Connector now supports Activity Monitoring on Multiple Access Zones on the same Isilon Cluster, as well as full tenant isolation removing the need for System Access Zone access for tenants' Access Zones.
This change requires additional configuration settings in the Isilon Application Configuration.
Please refer to *Appendix A: Isilon Multiple Access-Zone and Tenant Isolation Support* for more details.

SIQSUS-491 - Azure AD Connector Full OAuth 2.0 Support

The File Access Manager Azure AD Connector now offers Full OAuth 2.0 Authentication, removing the need to provide User/Password credentials, federated users limitation, and adding support for MFA requirements.

This change requires changes to your current Azure AD configuration settings.
Please refer to *Appendix B: Azure AD Connector Full OAuth 2.0 Support* for more details.

Data Classification Enhancements

Among many improvements and performance enhancements to the Data Classification modules, File Access Manager 8.1 Service Pack 2 introduces several parameters that help customize and adjust the Data Classification module to best fit your needs and optimize performance.

These parameters have been added to the DC_Parameter table and have default values, that maintain the current behavior.

Changes to these parameters will take effect only after a restart to the relevant Data Classification Engine.

Parameter Name	**Description**	**Possible Values**
ContentType	Determines whether Data Classification should extract and index the files Content, Metadata (file properties), or both. This is meant to increase granular control over indexing, as well as for Metadata classification of AIP protected files.	0 – Content (Body) only 1 – Metadata only 2 – Both (Default)
ShouldNewPropertiesBeDisplayed	Determined whether new file properties (Metadata fields) automatically discovered during the scanning and indexing process, should be presented to the user as searchable fields and available attributes in rule constructions.	`'true'` – New property fields will be presented. (Default) `'false'` – New property fields will not be presented.
MaxFileSizeMB	Determines the Maximum size (in Mega Bytes) for files to be included in the scanning and indexing process. Anything over this size will be excluded and listed in the DataClassification.FailedDocuments log.	0 – 500 If 0 is selected only content under 1 MB will be indexed

SIQETN-2536 – Handling Business Resource paths longer than 4000 characters

SIQETN-2536 fixes a SQLServer in versions 2014 (and earlier) limitation.

File Access Manager uses a hashing mechanism to create a unique identifier for each Business Resource stored in the File Access Manager database. SQL Server databases hashing mechanism, in versions 2014 and earlier, is unable to process (hash) values with 4000 or more characters.
Though resources with paths of 4000 characters or longer are extremely rare, SIQETN-2536 is designed to handle that limitation.

SIQETN-2536 introduces an Application Configuration (app.config) key to the Permission Collection Engine that, when enabled, will ensure paths longer than 4000 characters are excluded from the applications' resource discovery (Crawl), to avoid issues while storing them in the SQLServer database.

The Application Configuration key - "excludeVeryLongResourcePaths" – accepts "True" or "False" values, to enable or disabled the exclusion, respectively. It is disabled (set to "False") and commented out, by default.

Note: When enabled, resources with paths longer than 4000 characters *will* be excluded

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.

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

The issue will manifest itself through the following error message in the Permission Collection Engine log file, and only if the File Access Manager SQLServer database is of version 2014 or earlier:

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

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

Note: This enhancement is only relevant if the File Access Manager database is on SQLServer version 2014 or earlier.

In all SQLServer versions after 2014 – this is no longer a limitation, and no action is needed.

Note: Service Pack 5 will automatically apply SIQETN-2536.

However, the configurable key is disabled by default, and will not affect current behavior, unless enabled.

SIQETN-2329 - Update Site Collection Administrator / Secondary Owners Script - to address Move to SharePoint Service Administrator and GUID identifiers

Microsoft stopped using global SIDs as a group identifier and moved to Tenant specific GUID to represent Admi n groups. In addition, with the drop of the Global Administrator role requirement, the FAM service account is no longer a member of the Company Administrators group, but a member of the SharePoint Service Administrator group instead, due to its the assignment of the SharePoint Administrator Role.

As a result, we needed to change the SIQUpdateOneDriveSecondaryOwners.ps1 to reflect that change. Since this is an external script, the change will not be applied automatically, and will need to be run manually, if you wanted to take advantage of that change, and the reduced necessary privileges.

Note: Working environments are not required or recommended to apply this change.

Although possible, it is by no means required to apply that change and run that script.

Chapter 5: Troubleshooting

Upgrade Package Loading Fails

Problem: During the package upload step, you receive a warning with the message "*Loading the package failed due to the following error: Signature is not valid*":

The problem is likely that the machine hosting the User Interface service does not have the necessary Root Certificate (or is missing part of the Certification Chains leading up to the root) to validate the signature of the upgrade package.

Suggested solution:

1. To resolve the issue you should check that the machine hosting the User Interface service contains the root certificate named "DigiCert Assured ID Root CA", which has a serial# 0C:E7:E0:E5:17:D8:46:FE:8F:E5:60:FC:1B:F0:30:39.
   If this root certificate is missing, it can be downloaded from https://www.digicert.com/digicert-root-certificates.htm and installed as a trusted root certificate manually.

2. Another reason for this error would be that the machine hosting the User Interface service has been configured so that updating root certificates is disabled. To fix this, set the registry value HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Microsoft\SystemCertificates\AuthRoot\DisableRootAutoUpdate to 0, and retry uploading the upgrade package.
   This will allow Microsoft to restore the missing root certificate during validation.

NHibernate configuration

Problem: During the upgrade, the NHibernate configuration file or registry key do not display on one of the machines:

Suggested solution:

1. Copy the “hibernate.cfg” from another server to \SailPoint\Nhibernate.

2. Copy the “[HKEY_LOCAL_MACHINE\SOFTWARE\whiteboxSecurity]” key from another machine to this machine.

3. Run the ResetDBPassword utility, to reencrypt the database password with the current server’s certification

   a. Make sure the SecurityIQ Home environment variable is set to the correct location
   b. Ensure that the folder named “External Tools”, containing the “makecert.exe” executable, or copy that folder from the Core Services server (the server hosting the User Interface service), and place it in the SecurityIQ Home directory
   c. Ensure that the folder named “ServerInstaller” exists in the “%SECURITYIQ_HOME%\File Access Manager” path, and within that folder you can locate the “Tools” directory, or copy it from the Core Services server.
   d. Navigate to the “DBResetPassword” folder
   e. In a Command Line window (cmd) from the “DBResetPassword” directory path, run the following command:

```
C:\Program Files\SailPoint\File Access Manager\Server
Installer\Tools\DBResetPassword>
DBResetPassword.exe {YourPasswordGoesHere}
```

f. After the NHibernate file is reencrypted, resume the manual uninstallation and installation of the remaining service on that server.

Business Website

Problem: You encounter an "Access Denied" error message while logging in to the Business Website after the upgrade

Suggested solution:

1. Navigate to the wwwroot folder on the server hosting the Website at C:\inetpub\wwwroot).
2. Verify that the IdentityIQFAM and SiqApi folders are in the wwwroot folder.
3. If these folders are in the wwwroot folder, but there are still problems with the Business Website, contact support.
4. If these folders are **not** in the wwwroot folder, perform the following steps:
5. Open the Internet Information Service (IIS) manager (Server Manager ❼ Tools ❼ Internet Information Service (IIS) manager).
6. Select the Application Pools node.
7. Verify that the IdentityIqFamV1_ApplicationPool, IdentityIqFamV2_ApplicationPool and SiqApi_ApplicationPool are missing from the Application Pools node.
8. Create the new application pools, (naming them IdentityIqFamV1_ApplicationPool, IdentityIqFamV2_ApplicationPool and SiqApi_ApplicationPool), with the following parameters: .Net CLR Version: .Net CLR Version v4.0.30319 Managed pipeline mode: Integrated
9. Check the "**Start application pool immediately**" checkbox.
10. For each application pool, navigate to Advance Settings (Right-click ❼ **Advanced Settings**)
11. Under Process Model, set the "**Identity**" parameter to **LocalSystem**.
12. Under Recycling set the "**Regular Time Interval (minutes)**" to **720**.
13. From the Site panel (on the left), navigate to **IdentityIQFAM**, and click on it.
14. Click "**Basic Settings**" on the right. If this option is not available, right click **IdentityIQFAM** (on the left) and select "Convert to Application".
15. On the newly opened screen, click **Select**, select the IdentityIqFamV1_ApplicationPool you created earlier, and click **OK** twice.
16. Double click "**Authentication**".
17. Enable "Windows Authentication" and disable all other authentication methods.
18. Repeat Steps 11-15 for the SiqApi site and SiqApi_ApplicationPool.
19. Reset the IIS using the iisreset command.

Business Website

Problem: You encounter the following error, in the File Access Manager Server Installer log, when trying to uninstall the Business Website:

```
Unable to uninstall service: WBXBusinessWebsite
System.InvalidOperationException: Sequence contains more than one
matching element
```

Suggested solution:

1. Open the **Internet Information Services (IIS) Manager**
2. Expand the **Server Name**
3. Expand **"Sites"**
4. Expand **"Default Web Site"**
5. Select **"SecurityIQBiz"** and click **"Basic Settings"** on the right side
6. Click **"Select…"** then select **"SecurityIQ_ApplicationPool"** then click **OK**, then click **OK** again
7. Go to **"Application Pools"**
8. Select **"SecurityIQ_ApplicationPool"** and click **"View Applications"** on the right side
9. Right click **"/SecurityIQBiz/Whitebox_Rest"**, then click **"Change Application Pool"**, select **"DefaultAppPool"** and click **OK**
10. Right click **"/SecurityIQBiz/WhiteopsRest"**, then click **"Change Application Pool"**, select **"DefaultAppPool"** and click OK
11. Go to **"Application Pools"** and Confirm that the **"SecurityIQ_ApplicationPool"** application pool has only one application (in the **"Applications"** column)
12. Try to uninstall again.

Watchdog Services fail to upgrade on Windows Server 2008 R2 or earlier

Problem: The Watchdog service fails to upgrade on Windows Servers of versions 2008 R2 or earlier or the watchdog upgrade stays in pending state for an unreasonably long time, and the WatchDogSelfUpgrade log file indicates a .NET Framework incompatibility, requesting to update the .NET Framework to version 4.5

This issue may occur on servers without .NET Framework version 4.5 installed, or when an earlier version is installed.
Windows Servers of version 2008R2 and earlier, are more likely to experience this issue.
This pertains to only to servers ***monitored*** by File Access Manager
(File Access Manager components other than the Windows Activity Monitor, require Windows OS version 2012R2 or above)

Suggested solution:
This issue should not recur in Service Pack 5.
If you are experiencing these please contact SailPoint Support.

Chapter 6: List of Released E-Fixes

The following E-Fixes are included in this Service Pack and will be automatically deployed by the Service Pack:

Service Pack 2

SIQETN-2416 - Exchange Online BAM - MessageBind operation deprecated

Microsoft is in the process of deprecating the MessageBind operation for Exchange Online.
The new operation type that replaces the MessageBind is _MailItemsAccessed_.
The MailItemsAccessed is valid for all LogonTypes: AdminAudit, AuditDelegate, and AuditOwner.

SIQETN-2468 - Bulk Re-assignment during Certifications Not Fully Re-Assigning All

Access Certification Campaign Bulk re-assignment refactoring and performance enhancement, to prevent timeout and incomplete re-assignment operations for large scale campaigns.

SIQETN-2491 - SharePoint Online/OneDrive allow Configurable URL/Root Domain

O365 *dedicated* tenants may have custom URLs for their SharePoint Online and OneDrive environments.
This fix add support for such customer URLs.
This fix only applies for O365 *Dedicated Tenant* environments.

SIQETN-2525 - HDS Activity Monitor Improvements

The following enhancements were made to the HDS Activity Monitor:

1. Deletion of cached open events occur based on how long they've existed (TTL) rather than arbitrarily at an interval.
2. TTL and deletion interval are configurable.
3. Failure to fetch HNAS shares at any point does not delete the shares cache already in memory.
4. The log reader thread is now stopped along with the service, to avoid leaving the process up after the service is down.
5. Notifications about close events not being matched to open events are now reported as warnings rather than errors.

SIQETN-2562 - Microsoft has changed how groups are identified in AD

Microsoft has changed the internal group names from "c:0-.f|rolemanager|{SID}" to both "c:0-.f|rolemanager|{UID}" and "c:0t.c|tenant|{UID}" update to the permissions collection engines we required to handle the new way these internal groups are named.

SIQETN-2586 - SharePoint Online Permission Collection fails - due to Site Collection fetching error (CSOM Dictionary Concurrency

Contention)

CSOM Dictionary Concurrency Contention caused a problem with synchronization in setting the timeouts during permission collection was causing a task to fail prematurely. The timeout logic was updated to make the timer event check the status of the timer, before triggering a timeout. The timer event will not trigger a timeout event if the timer that it is associated with is stopped. All access to the CSOM libraries was brought into locks, and data transfer objects were introduced to transfer the permissions information from the collector to the engine.

SIQETN-2641 - OneDrive - SPOnline Performance & Throttling Enhancements

This enhancement encompasses several fixes and refactoring changes directed at improving the performance, throttling handling, resiliency and logging for the SharePoint Online and OneDrive connectors.

SIQETN-2681 - OneDrive BAM - Not Finding Owner ID with Custom Tenant URL Configured

It is possible (but not common) for a SharePoint Online/OneDrive for Business customer to have a custom Tenant URL/Domain. Together with SIQETN-2491, we added the ability to configure these custom URL.

This fix keeps the domain configurable, while adding back in the proper format for parsing the URL within the OneDrive event, so that the events that are retrieved from OneDrive use the correct URL pattern.

These fixes only apply for O365 *Dedicated Tenant* environments.

SIQETN-2756 - Merging large number of Root BRs fails on timeout

During a crawl, if the number of root shares is relatively large - merging the root BRs may time-out, failing the crawl task.

SIQETN-2763 - Generic Table Support for Activity Monitoring - Forensics & Reports

After setting up a Generic Table Activity Monitoring, issues in displaying Activities Forensics and creating Activity Reports may occur, such as Loading Failed on the Activities Forensics screen and null errors in the Reporting log.

SIQETN-2766 - Threshold Alert "Details" filter does not include correct User Information

When creating a threshold alert for activities performed "by the same user", and then viewing the activity results from the alert details when clicking "View activities", the user is not included in the filter used for the activities detailed view, presenting activities from other users as well.

SIQETN-2771 - SharePoint permission collection loads all resources within a site collection at once

SharePoint permission collector loads extensive permissions hierarchy, on initial BR load, which may cause timeouts during permission collection.

SIQETN-2778 - OneDrive Crawling Unique File Level Permissions is missing throttling support

Recent additions to support throttling detection and back-off for OneDrive did not include the crawl for File level with unique permissions when detecting whether to include the file in the crawl resource results.

SIQETN-2780 - OneDrive crawling can timeout while verifying mailboxes as part of fetching roots

To eliminate uninitialized or decommissioned personal drives which will throw a 404 File Not found during crawl, we query each mailbox during the roots collection crawl step to exclude those personal drives.
This increases the number of API calls during the roots fetching step relative to the number of personal drives.
Timeouts may occur during this stage in large environments.

SIQETN-2788 - Exchange Online Crawl failure to create initial PowerShell session causes task cleanup error and subsequent task failures

When the initial PowerShell session cannot be created during EXO crawler initialization, the subsequent cleanup throws an exception, causing the cleanup task to fail to complete, and subsequent tasks on the same engine to fail to start.

SIQETN-2789 - Data Classification fails to complete (hangs) when processing file with long path

When data classification indexes a resource with a very long file name / path, an exception is encountered which causes the completion response to fail to send to the engine and therefore the task will not complete.

SIQETN-2795 - SharePoint On-Prem Activity Monitor seemingly not monitoring due to performance issues

SharePoint On-Prem Activity Monitor might seem to not be monitoring at all, due to a performance issue causing it to take a while to parse a certain type of activity.

SIQETN-2796 - Exchange Online Connector Does Not Handle Apostrophes (') Well

Exchange Online crawling and permissions collection throw an error on mailboxes /users with apostrophes in the name.

SIQETN-2798 - Well Known SID lookup misses in Exchange OnPrem Activity Monitor causes excessive errors and slows event processing

Access Certification Campaign Bulk re-assignment refactoring and performance enhancement, to prevent timeout and incomplete re-assignment operations for large scale campaigns.

SIQETN-2803 - Activities Website's Forensic Screen and Reports Fail on Elasticsearch Queries Timeouts

Activities Forensics Screen throws a timeout error, when trying to fetch available values for filter fields,
and when querying results, if the scope time frame is too large.

SIQETN-2813 - Data Classification - OutOfMemory error can occur when not all indexing is cancelled on task stop

It's possible for an OutOfMemoryException to occur when re-running a Data Classification task because the previous task does not get completely cancelled and memory allocations are not completely cleared

SIQETN-2814 - Normalization fails if use Template Groups is not enabled

Normalization fails with an error if "Template Groups" is not enabled, although this configuration is not mandatory.

SIQETN-2817 - Unable to override maxLuceneQueueSizeBytes in Data Classification

Unable to override Lucene max index size in collector. The Lucene max index will always be set to use 1/4 of RAM.

SIQETN-2818 - Data Classification Collector leaving objects in memory after task is cancelled

When a Data Classification task is cancelled, documents that are being processed are not released from memory, as well as classification results in indexer.

SIQETN-2819 - Data Classification (Behavioral) Rule Screen does not load, when IIQ Dec is defined

Behavioral Classification filter section fails to load due to incorrect registraion of the IIQ WPC.

SIQETN-2822 - Campaign creation Screen does not present dynamic review processes for Identity Based campaigns

Campaigns based on Identity Filters do not allow for Dynamic Review Process.
The issue results for the fact that dynamic review processes are associated by Application, and / or by Identity Collector.

SIQETN-2825 - Access fulfillment template group do not set display name

Template groups created by access fulfillment do not properly set display name.

SIQETN-2826 - Access fulfillment use distinguished name if display name does not exist

Access fulfillment fails if existing template groups do not have a display name. This is not an appropriate condition for failure.

SIQETN-2828 - Access fulfillment fails if existing template groups are not in same domain as managed groups OU

Access fulfillment fails if existing template groups are not in same domain as managed groups OU. This occurs because the assumes all template groups are not pre-existing.

SIQETN-2831 - Crawler fails in Content Analysis phase on failing to match Business Resources with Special Characters

Crawler fails in Content Analysis phase on failing to match Business Resources with Special Characters, due to calculated hash comparison mismatch.

SIQSUS-11 – Isilon Activity Monitor - Multiple Access-Zone and Tenant Isolation Support

See Appendix A below for further details.

SIQSUS-127 – DropBox Activity Monitor Refactoring – V2 Schema Support

The DropBox Activity Monitor was refactor to support the DropBox V2 API schema, in additional to several performance enhancements.

SIQSUS-491 – Azure AD Connector Full OAuth 2.0 Support

See Appendix B below for further details.

SIQSUS-544 – Added Support for increases session Concurrency in FAM API

Session Factory session now allows for more efficient session concurrency.

Service Pack 3

SIQETN-2809 - Permission Forensics screen breaks when textually searching by Resource Name and / or Full Path

The New Permission Forensics screen allows text searches on the Business resource Full Path and Name fields. When one of these fields is selected in the filter and the user then attempts to search for a value, it will present the top 50 results of the relevant application, by default. However, the auto-search functionality means that when the user starts typing in the value field, a search will automatically begin searching for matches.
This will result in a textual search on a non-indexed column (Business Resource Full Path, or Name), which in large places a considerable strain on the database.

While the equals operator requires less resources and will likely work, the Starts With and Contains are much more resource intensive and are likely to fail. (The reason is that Starts With uses a *like 'XXX%'* search and Contains uses the *Like '%XXX%'* which is even heavier.)

This is a known issue with searches in business service, and that's why we have the Resource (tree) component. However, since he problem is that the fields are still there and available to query by, users are likely to make accidentally use them, which may cause the screen to fail to load.

SIQETN-2827 - Subsequent Queued Tasks Never Begin After Failed Crawl Task

When a task such as crawl, PC, or DC, fails due to intermittent DB connectivity, subsequent queued tasks will immediately fail silently. Since these are unable to update their status in the DB it will look as though queued tasks never began.

SIQETN-2842 - High Memory Usage During Reindex Events Task

High memory usage is being reported in the Task Scheduler service during an ES Reindex Events task.
The default ES batch size of 2000 is used for batch size and for the send queue size. This means memory usage could be as high as AverageEventSize * 2000 * 2000, which if ES falls behind SQL performance could easily use all available RAM. Events pre-fetch in bulk in addition to maintaining a queue of bulked events uses up a lot of RAM.

Expose the following app config settings from the Scheduled Task Handler service: esReindexEventsBatchSize, esReindexEventsMaxBatchMb, esReindexEventsThreadCount, esReindexEventsQueueSize

Added new setting esReindexEventsMaxBatchMb as an in-memory limit in bytes for ES batch sends. The default is 50MB.

SIQETN-2846 - Data Classification Engine Does not release Memory on Large Scans

In the Data Classification Engine, when resources are loaded to be indexed in Large Environments, The engine creates a Data Tables that holds a lot of records and allocates large memory segments, However, since this object is very large and not explicitly cleared, and since the Garbage Collector does not release (clears out / reclaims) large object, but merely marks the space as available - the memory is still marked as allocated and not released by the Service.

SIQETN-2849 - Crawler sometimes stops prematurely thinking no more resources are available

Under certain conditions, the Crawler can come to a premature stop, determining that there are no more resources to crawl, when in reality there are. It's a very rare occurrence, but in the right (or wrong) timing and environment, the following can occur:

- A single root crawler thread can start to add new resources to the job queue.
- Other threads start picking them up and finishing the work before the root thread can add them all.
- If those other threads' jobs have no children to crawl, they might decrease the job count just before the root thread increases it, making it reach 0.
- The job count is tested and is determined to be 0, meaning no more jobs are available and the crawl is finished prematurely.

SIQETN-2854 - Data Classification Collector Running Out of Memory

Possible increase in unmanaged memory Hyland DocumentFilters library. Small object fragmentation due to StringBuilder usage without initial capacity could also be contributing to high memory usage.

SIQETN-2855 - CIFS Crawler intermittently deletes shares if letter case doesn't match database

The CIFS Crawler can sometimes enumerate shares in a different letter case than the last time (e.g. \\SERVERNAME\Share vs. \\servername\share).
In that case, the share is deemed as un-crawled at the end of the crawl and is deleted.
This can happen more regularly on upgraded environments where the initial resource was created by the Activity Monitor and not the Crawler (this can sometimes lead to this kind of discrepancy).

SIQETN-2856 - Permission Collection Engine Fails Normalization Tasks After Timeout

When a long running normalization task does not complete within the timeout value of 1-hour, next pending request will begin processing. With multiple collectors now multiple normalization tasks are running at the same time and now multiple completion responses will signal the semaphore twice, causing a semaphore exception. This will cause state where tasks are marked as failed by a previously run task.

SIQETN-2864 - DC_Parameter table settings Includes Extension-less files for Indexing

The FormatsToIndexAsDocuments parameter in the DC_Parameter table includes an extra semicolon (;) that will cause files without extension to be indexed by default. This may decrease performance and have downstream effects

SIQETN-2869 - Active Directory GPO Activity Monitoring fails to fully initiate when a single GPO is corrupted

When the Active Directory Activity Monitor starts up, it takes inventory of the GPOs present in the domain. If one of the GPOs is corrupted in a way that throws an exception, it causes the entire inventory process to stop, and the GPO tracking thread doesn't start because of it. This results in some events that depend on comparing versions of the GPO's files to be silently skipped, like GPO Policy Modify events.

SIQETN-2871- WFS Cluster Activity Monitor forces events duplication across shares

Events on each of the Windows Cluster node shares will be duplicated to all overlapping shares. This has always been the behavior for WFS Cluster Activity Monitor, because of the way cluster events are monitored. This change will keep the Original Access Path empty on the original event for activities done remotely. Events from activity done locally on one of the nodes, will continue to have Original Access Paths - and we cannot change that. However, there should not be many such activities anyways, as most access to clustered servers are usually done remotely. If this is not the case with their environment, and they will still see a lot of activities with Original Access Path (i.e. Locals) - then we'll probably have to think of another means of exclusion.

Moreover, the Windows File Server (Standalone) has a app.setting key that named duplicateEventsForOverlappingShares - which controls whether to duplicate events - and is false by default.

```
<add key="duplicateEventsForOverlappingShares" value="False"/>
```

Because of the way the Cluster BAM is constructed, this was ignored until now. I added changes to take this key into account, so events won't be duplicated to other shares, without the need to discard them in the event manager (which should also reduce the load on the event manager and policy engine). Once again, this is set to FALSE by default - which means events won't be duplicated. Changes to that key, if needed, must be done on all nodes of the cluster.

SIQETN-2872 - Subsequent Queued Tasks Never Begin After Failed Identity Collection Task

When a task such as Identity Collection fails due to intermittent DB connectivity, if the same Identity Collection task is run, it. And since they are unable to update their status in the DB it will look as though queued tasks never began.

SIQSUS-490 – Exchange Online Connector Full OAuth 2.0 Support

See Appendix C below for further details.

SIQSUS-569 - Extend Isilon Multiple Access Zone Support to Permission Collection

This enhancement extends the support for Isilon Multiple Access Zones and tenant isolation to Permission Collection and the entire connector.

See Appendix A below for further details.

SIQSUS-588 - CIFS Impersonation Layer Enhancements

This change addresses an integration issue between Windows Clients and CIFS endpoints.

NetApp has identified situations whereby the configuration of UNIX symbolic links, called symlinks, in conjunction with the DFS advertisement, might result in unexpected behavior for CIFS clients, using Server Message Block (SMB) version 2 and 3 SMB2/SMB3 - such as windows servers (like the ones hosting File Access Manager services). This may result in a "Multiple Connections" errors that may affect Permission Collection and Data Classification tasks for CIFS endpoints:

```
Multiple connections to a server or shared resource by the same user, using more than one user name are not allowed.
Disconnect all previous connections to the server or shared resource and try again.
```

To address this we implemented an alternative impersonation flow that is not affected by this issue, following Microsoft Engineering recommendations.

For more information please see the links below:

NetApp: Impact of a shares symlink settings and DFS advertisement

NetApp: Control automatic DFS advertisements in ONTAP with a CIFS

SIQSUS-489 – SharePoint Online Refactor

Feature removed dependency on LegacyAuthenticationEnabled and replaces with full REST OAuth.

SIQETN-2979 – Entire Alert Scope deleted From Shared Scope upon Application Deletion

Corrected deletion scope which was being handled incorrectly.

SIQETN-2997 – Active Directory Trusted Domain Enumeration Performance Improvements

While configuring an Active Directory Identity Collector / DEC and synchronizing domains, trusted domains are enumerated recursively in the background according to their trust relationships with the starting domain.

Sometimes, these trusted domains are on slow connections or entirely unreachable, which can cause a significant delay in the enumeration process.

This enhancement aims to accelerate the process by introducing a multithreaded approach to the same process. This way, trusted domains can continue to be enumerated while some domains are stuck on waiting for a reply.

SIQETN-2975 – Excluded Deleted Resources When Running Broken Permissions Inheritance By Resources Report

Broken Permissions Inheritance by Resource Report Previously included deleted resources. They are now removed.

SIQSUS-2969 – Orphan Account Appear in Permissions instead of Azure User for Exchange Online

Microsoft has changed the powershell API response object when returning folder permissions for exchange online. Addressed new way to resolve the UPN based on available properties.

SIQETN-2967 – Support NoLanguage Mode When Connecting to Exchange On Prem

Exchange changed its PowerShell connection from FullLanguage to NoLanguage mode resulting in issues connecting with Exchange. Addressed changes to allow connection.

SIQETN-2961 – Allow FAM Service to Override Default Behavior and Always Use Self-Signed Certificate

Added ability to override behavior which looks in machines certificate store to always use self-signed certificates.

SIQETN-2960 – access_request_find_resources_by_name performance improvements

Adjusted access_request_find_resources_by_name stored procedure to improve performance.

SIQSUS-2957 – Collector Sync Optimize String Concatenation

Swapped string concatenation to string builder to improve Identity Collection performance

SIQETN-2954 – Access Fulfillment Normalization Bundle

Bundle of fixes surrounding Normalization

- SIQETN-2889: Normalization Fails While Loading Group Members
- SIQETN-2929: Access Fulfillent Normalization can't see intra-forest members in groups
- SIQETN-2814: Normalization Fails if use Template Groups is Not Enabled
- SIQETN-2939: Normalization Fails With Missing Username and Password While Loading Group Members
- SIQDEV-15336: Normalization – Recursive Groups are Not Handled

SIQETN-2951 – Error Upgrading Database User Story "Scope Composite Task"

Rewrote user story to match standards

SIQETN-2945 – Isilon Unique Hash Fix

Adjusted calculation of new unique path hashes for Isilon resources.

SIQETN-2944 – DFS Mapping Fails if Link Target is Windows File Server Cluster

Now when iterating Windows File server application, checks if it is failover cluster. If it is, uses root business resource, if not uses configured server name.

SIQSUS-2941 – Active Directory One-Way Outgoing Trusts Interpreted and Incoming and Vise-Versa

Fixes the view of one-way trusts being interpreted in the wrong direction

SIQETN-2939 – Normalization Fails While Loading Group Members

Added new method to construct directory entry with username, password and full LDAP path.

SIQETN-2935 – SMTP Responses Not Searchable after 51 Entries

Expanded capacity of SMTP Responses

SIQETN-2934 – Identities Report Summary Page Shows Incorrect User Count

Identities report incorrectly counted empty domain groups as users, corrected to filter out these records.

SIQETN-2932 – PowerShell User Requires Impersonated User to Have Elevated Privileges

Corrected to no longer require PowerShell Impersonated User to have elevated permissions

SIQETN-2931 – Alert Threshold Does Not Support Application/Application Type Scopes

Corrected Threshold Alerts to trigger properly when utilizing Application or an Application Type scope.

SIQETN-2929 – Access Fulfillment Normalization Can’t See Intra-Forest Members in Groups

Normalization now traverses AD Groups from top to bottom to fetch intra-forest members

SIQETN-2916 – Resource Owners and Owner Election Improvements

Owner Election now works with SharePoint Online.

SIQETN-2907 – Scheduled Task With ‘Run After’ Failing to Initialize With Too Many Scheduled Tasks

Corrected params list when exceeding limit to break it into multiple queries

SIQETN-2906 – Crawl Fails When Top-Level Fold has Out-of-Range LastWriteTime

Corrected crawl failing when resource was outside of database datetime2 range.

SIQETN-2897 – OneDrive Crawl Fails If Item Has been Created/Modified By Application

OneDrive has items created entirely by applications, using their own identity as identification vs on behalf of a user. Corrected crawl to no longer fail on these items.

SIQETN-2895 – Scope Composite Rule to Single Application

Enhancement to scope data classification composite rule to a single application (vs processing all data classification each run)

SIQETN-2890 – Extend Requestable Permissions to Apply to Normalized Folders and Managed Permissions

Extends Requestable Permissions settings to Normalized resources.

SIQETN-2889 – Normalization Fails While Loading Group Members

Corrected normalization failing when unable to get object while loading group members

SIQETN-2887 – Change Client Handling of Upgrade Logs

Saving an upgrade log now displays message instead of opening the file

SIQETN-2885 – Box Activity Monitoring – API Calls Improvements

Refactor Box and Dropbox Activity Monitors

SIQETN-2880 – WebUI Performance Enhancement & Caching

Enabled and added additional data caching. Implemented batch audit logging. Optimized database queries

SIQETN-2859 – Can’t Launch Scheduled Tasks if Username Contains Apostrophe

Corrected so when FAM users with apostrophes in their name can run Scheduled Task

SIQETN-2835 – Optimize Database Queries to Reduce Database Stress

Optimized database queries to reduce stress on database.

SIQETN-2819 – Data Classification Rule Screen does Not Load When IIQ DEC is Defined

Corrected to handle loading of rules screen when utilizing IIQ Data Enrichment Connector.

SIQETN-2814 – Normalization Fails If Use Template Group is Not Enabled

Corrected so when not utilizing template groups, normalization would not fail.

SIQETN-2754 – Box Activity Monitoring Improved De-Duplication Mechanism

Box Activity Monitoring would display duplicate activity, improved to remove duplicates before reporting.

Service Pack 5

SIQETN-2952 – Discard rules improperly read regex from database

Fix case where regular expression pipe character is converted to comma in browser.

SIQETN-2958 – Error while Revoking Direct Permission on a DFS resource

Fix bug preventing revocation of permission on a DFS resource.

SIQETN-2964 – Requesting access same as a colleague for a DFS Resource

DFS access request fix same as colleague not displaying any users.

SIQETN-2976 – Adjusting Custom Fulfillment to Allow Cloud Based Apps

Allow cloud applications to use custom fulfillment.

SIQETN- 2985 – Access request approvals to DFS data owners not sent

Add support for DFS data owner approval for access requests.

SIQETN- 2988 – SPO Campaigns return no records when using an identities filter based on local groups

Campaigns using a filter on 'group entity type' with a value of 'local group' will now return results.

SIQETN-2991 – Azure Identity Collection Failure When Duplicate User Parsed

Fix bug where duplicate user is not detected during Azure identity collection.

SIQETN- 2993 – SharePoint On-Prem/Online Crawl Performance is Slow When Scope is Restricted

Improve performance during Sharepoint crawl tasks.

SIQETN-2995 – Duplicate File Property Name Causes Data Classification To Fail to Process File

Fix bug where duplicate file meta-data key causes indexing error.

SIQETN- 2997 – Box Crawler fails due to non-escaped character single quote

Sanitize Box cached data when saving to DB during crawl.

SIQETN- 3001 – Active Directory Activity Monitor Slow Performance When Processing Well Known SIDs

Cache failed SID lookups when processing AD events to improve performance.

SIQETN-3006 – Server installer requires default web site in IIS

Allow IIS site to override from "Default Web Site" during server installation.

SIQETN- 3013 – Event Manager reduce locking while syncing data

Optimize event manager data synchronization.

SIQETN-3016 – Reports Task Hangs in 'Reports Pending Send'

Fix report generation hanging in 'Reports Pending Send' status.

SIQETN-3018 – Dashboard KPI resources calculation widgets failed

Added IS NOT NULL statement to filter out NULL role_bam_ids.

SIQETN-3019 – Box Identity Collector Not Utilizing Latest Token

Ensure up-to-date access token is used for all Box API calls when synchronizing identities.

SIQETN-3024 – Allow for Event Manager to Optionally Save to DB

This enhancement supports the ability to turn off/on whether SQL event backups are made, and also whether they are cleaned up during event deletion.

Two new system configuration options are now supported in the DB table system_configuration_value:
"Store event backups to SQL Server" and "Remove SQL backups on event deletion"

SIQETN-3025 – Adjust DC Forensic Report to Allow for more than 10K Results

Data Classification Reports now support over 10K results. The configuration value supporting this limit is now “Maximum Forensics Reports Page Results” in the system_configuration_table.

SIQETN-3026 – Overhaul of Data Classification Policy Corrections

Updates to ICD policies: Spelling/verbiage use of terms based completely on WHO ICD-10 policy. Refer to ICD-10 Version:2019. Based on ICD-S+T split, if user has created user-defined ICD-T policy, customer will need to rename/delete in favor of new OOTB ICD-T policy.

SIQETN-3032 – Data Classification Import Result Fails When Task Scheduler on DEBUG

Bug fixes for Data Classification import.

SIQETN-3034 – Loading Failed Permission Forensics when Unable to Find BR ID

Fix bug where non-existent business resource lookup causes error in browser.

SIQETN-3036 – Active Directory Identity Collection can fail if domain connectivity is unstable

Surround Identity Collection Active Directory queries with a retry mechanism.

SIQETN-3041 – Slow Performance Calling SCIM API DataClassificationResults

Optimize the SQL query for data classification results when using SCIM API.

SIQETN-3044 – Box Does Not Check Retry-After when Throttled/Box Scaling Limit Reached

Added waits if received 429 or 503 responses prior to and after calls to Box. Also handle Box internal scaling limit error response so that first 3000 groups are returned.

Appendix A: Isilon Activity Monitor - Multiple Access-Zone and Tenant Isolation Support

Description

Important! The Following refers to changes in the Activity Monitor component of the Isilon Connector. Complete tenant Isolation and deprecation of the dependency on the Management API requires additional changes to the *Permission Collection* Service – that will be released shortly.
Please follow our Blog and Forum for announcements.

File Access Manager now offers Tenant Isolation and Full Capabilities for Multiple Access-Zones on Isilon Clusters. With the addition of Activity Monitoring capabilities for Multiple Access-Zones within an Isilon Cluster, and removing the dependency on the Administrative (System)-Zone-based OneFS API, each Access Zone within the cluster functions as an independent Isilon Application within FAM, with the complete set of FAM capabilities. This enhancement marks the transition in approach from a Cluster-Oriented to a Zone-Oriented configuration. The new configuration will allow users to easily configure applications per Access Zone settings, now allowing for multiple Access Zones on the same cluster to be created with ease.

With the deprecation of the dependency on the Management API, this new mode of access simplifies the configuration setting, and only requires knowledge, connectivity and access rights of and to the managed Access Zone. This allows for a complete delegation of the configuration, administration and monitoring of an Isilon Access Zone to the tenant owner, removing the need for centralized management. Tenant Isolation and management is critically valuable in multi-tenant hosted environments, where such isolation enhances data privacy and autonomous management.

The new configuration also simplifies setting Access Zone and Management API (optional) settings, through the Application Configuration Wizards, settings that were previous set through application setting files.

General Description

This enhancement brings full tenant isolation, and full capability support for multiple access zones on the Isilon Cluster, treating each Access Zone as a separate entity.

Important! ALL existing Isilon application will continue to function, with no changes required from current users. This enhancement requires some configuration changes be made for the new capabilities to become available and take effect. However, no configuration changes are required, if multiple access zone support is not required in your environment, and all currently configured application will continue to operate as always.

Configuration Changes

Configuration changes included in this enhancement are:

- The following fields were are added to the configuration as new (optional) fields:
    - **Storage Cluster Name** – The name of the clustered as it is registered with the CEPA Server
    - **Access Zone** – The name of the Access Zone as it is configured on the Isilon Cluster
- New Tenant Isolation Fields (optional)
    - **Use OneFS API** – Enables / Disable access to the OneFS API, and reversely, Disable / Enables tenant Isolation. OneFS API is located only on the System Zone, and is used by the Permission Collection and Activity Monitor components of the Isilon Connector to fetch Share Information as well as Local Users and Roles for each individual Access Zone.
      Unchecking this will disable The Activity Monitor access to the API and the information will be collected solely using the SMB protocol, and access only the managed Access Zone.
    - **Management IP** – If access to the OneFS API is enabled, this field specifies the location of the Management API (System Access Zone). This field accepts IP addresses and / or any resolvable DNS name (FQDN or otherwise).
    -

Note! App.Config Settings Keys will be deprecated on the next FAM release

The **Access Zone** and **Management IP** app.config settings keys, in the Activity Monitoring services configuration files, that were being used until now to configure Non-System Access Zone Applications in FAM, are replaced now with the **Access Zone** and **Management IP** application configuration fields, that are available through the application configuration wizard.
Although these app.config keys are still considered in FAM's 8.1 and 8.0.1 releases, they will be deprecated on the next FAM release.

To allow users time to adjust their configuration, and to minimize the effort required by our users, we continue to support these app.config keys through the 8.0.1 and 8.1 releases.
However, we strongly recommend that these setting be adjusted now to use the Application Configuration through the Application Configuration Wizard, to ensure successful future upgrades, and the continuous uninterrupted operation of the FAM environment.

The same app.config settings, on the Isilon Permission Collection services, will be replaced by a separate enhancement, and currently should be kept set.

Note! All Activity Monitors for Access Zones of the Same Cluster must be installed on the same File Access Manager server

Due to limitations of the CEPA architecture, all Activity Monitor Services, monitoring Access Zones of the same cluster, must be installed on the same File Access Manager Server.

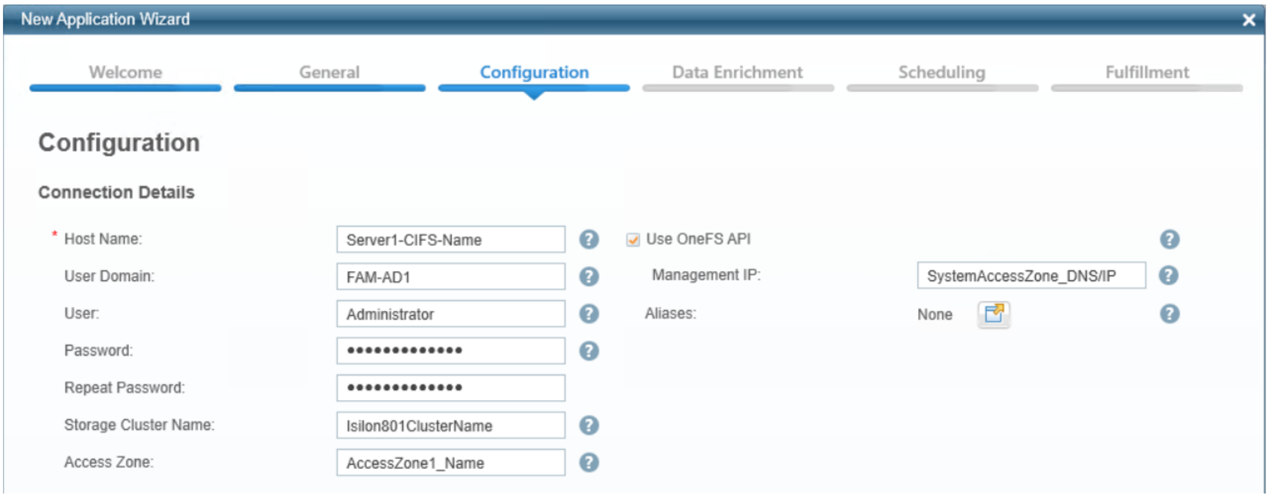
The File Access Manager Isilon Activity Monitor is a multi-instance service, i.e. a Single Service serves multiple instances of the Activity Monitor, e.g., for the different Access Zones. As a result, only a single service will be created (and appear in the Windows Services list), however, this single service will create activity monitors instances for all the Isilon Access Zones it is configured to monitor.

There is no limitation to the number of *Clusters* that can be monitor by a single File Access Manager Service. Although all monitors for Access Zones of the same cluster must reside on the same File Access Manager server, Activity Monitors for other clusters and their Access Zones can also be installed on the same File Access Manager server, provided that sufficient resources are allocated for that machine.

We recommend that instances will be added gradually, and resources be allocated appropriately to accommodate for the increase in activity volume, as the scope of the monitored environment grows, and more Activity Monitors are added to the server.

Configuration (Screenshots)

1. Application Configuration Wizard



Configuration

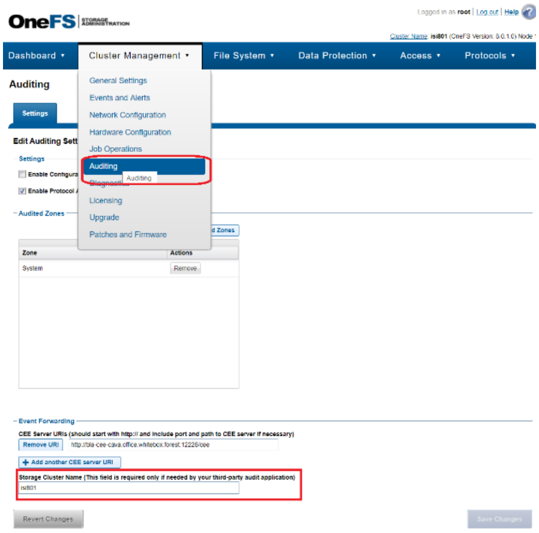
Connection Details

* Host Name: Server1-CIFS-Name
User Domain: FAM-AD1
User: Administrator
Password: •••••••••••••
Repeat Password: •••••••••••••
Storage Cluster Name: Isilon801ClusterName
Access Zone: AccessZone1_Name

☑ Use OneFS API
Management IP: SystemAccessZone_DNS/IP
Aliases: None

- **Host Name** - The File Server's name users connect to it - its CIFS Name. This will be used by the SMB (CIFS) protocol.
- **User's Domain, Name & Password** – The Service Account dedicated for FAM, defined in the pre-requisite section of

  the Isilon Connector Deployment Guide
- **Storage Cluster Name -** The name configured in the Auditing section of the Isilon OneFS Admin Console (under the Cluster Management >> Auditing settings tab)



Cluster Name: isi801 (OneFS Version: 8.0.1.0) Node 1

Auditing

Edit Auditing Sett

Settings

□ Enable Configura

☑ Enable Protocol A

Audited Zones

Zone	Actions
System	Remove

Event Forwarding

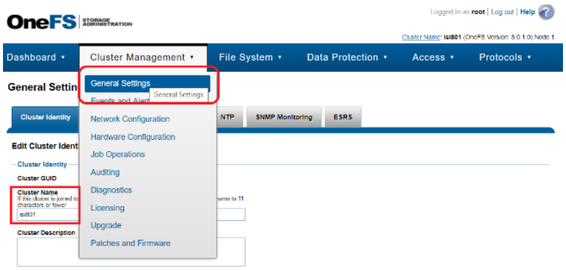
CEE Server URIs (should start with http:// and include port and path to CEE server if necessary)

http://bla-cee-cava.office.whitebox.forest:12228/cee

Storage Cluster Name (This field is required only if needed by your third-party audit application)

isi801

or if not configured, the name of the Isilon Cluster itself (under Cluster Management >> General Settings)



Cluster Name: isi801 (OneFS Version: 8.0.1.0) Node 1

General Settin

Edit Cluster Ident

Cluster Identity

Cluster GUID

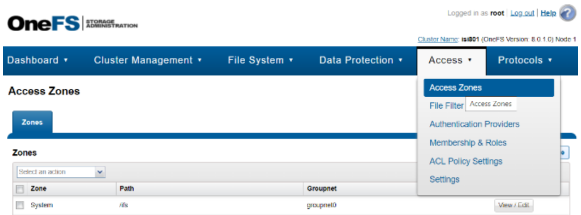
Cluster Name

If this cluster is joined to … name to 11 characters or fewer

isi801

Cluster Description

- **Access Zone -** The name of the Access Zone as it is configured in the Isilon Cluster configuration, in the Access section of the Isilon OneFS Admin Console (under Access >> Access Zones)

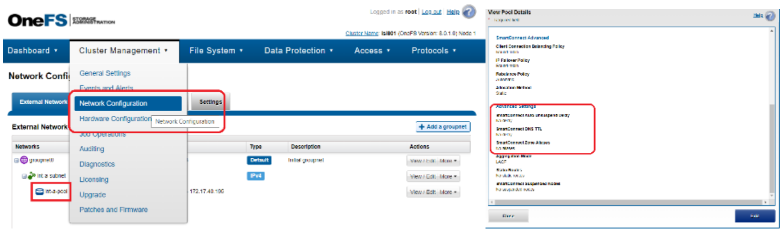


Zone	Path	Groupnet
System	/ifs	groupnet0

- **Use OneFS API** – Enables / Disables access to the OneFS API.
  The Isilon OneFS Admin Management API is only available through the System Access Zone.
  The Management API is used by the Isilon Connector to fetch Share Information and Local Users, Groups and Roles information, and required access to the System Access Zone to that end.
  With the New Isilon Connector, access to the Management API is no longer required for Activity Monitoring, and is skipped by default, using native SMB Access to the managed Access Zone instead.
  However, you can choose to keep the old configuration and keep access the Management API on the System zone, to retrieve Share and Local Identities information.

- **Management IP** – The IP address or DNS name of the Management Interface (the System Access Zone).
  If access to the OneFS API is enabled (by checking the **Use OneFS API** checkbox, see above),
  this field specifies the location of the Management API (System Access Zone).
  This field accepts IP addresses and / or any resolvable DNS name (FQDN or otherwise).

- **Aliases** – SmartConnect Zone Aliases used as alternative DNS Names for the CIFS Server. All aliases must be provided to ensure that all activities performed on that server, through all access paths, are monitored by File Access Manager.
  These are available under the IP Pool Settings, in the Network Configuration section of the Isilon OneFS Admin Console (under the Cluster Management >> Network Configuration tab)



Appendix B: Azure AD Connector Full OAuth 2.0 Support

Description

File Access Manager now offers full support of standard OAuth 2.0 Authentication for the Azure AD connector.

The new authorization sequence will direct the user through a standard Microsoft O365 consent flow, to grant the File Access Manager Azure AD Connector app the privilege to acquire and refresh access tokens.

The new authentication method replaces the previous Basic Authentication flow, that required admins to provide user and password credentials.

- The Azure AD Connector now uses only fully modern authentication methods, and does not require Legacy Authentication methods be enabled, tenant-wide, or otherwise.
- The Azure AD Connector supports any user as a delegated account (the granting account), including users with Multi-Factor Authentication requirements enabled, and is no longer limited by Microsoft's restrictions on Federated Accounts
- The Azure AD Connector Supports internal Token Management, and will be responsible for managing and renewing its own tokens.

General Description

This enhancement brings full OAuth support to the Azure AD Identity Collector, instead of the legacy user and password approach.

This means the configuration will resemble other connectors for cloud applications such as OneDrive.

- Configuring the Identity Collector, instead of providing a user name and a password, you will click on a link that sends you to a Microsoft login page.
- Enter the relevant user credentials and give your consent for the File Access Manager Azure AD O365 Application to access your directory data.
- You will then copy the resulting Authorization Code to the appropriate field, which will then be used to generate the first access token.
- The access token will be used in all requests to the tenant's Azure AD, and will be automatically refreshed when needed.
- **Note!:** This enhancement requires multiple manual steps that must be followed carefully. This enhancement will also require you to reconfigure the AzureAD Identity Collector, and go through the configuration wizard to generate access tokens and switch over to modern authentication flow.
- This will not recreate the identity collector, and current AzureAD information will remain intact.

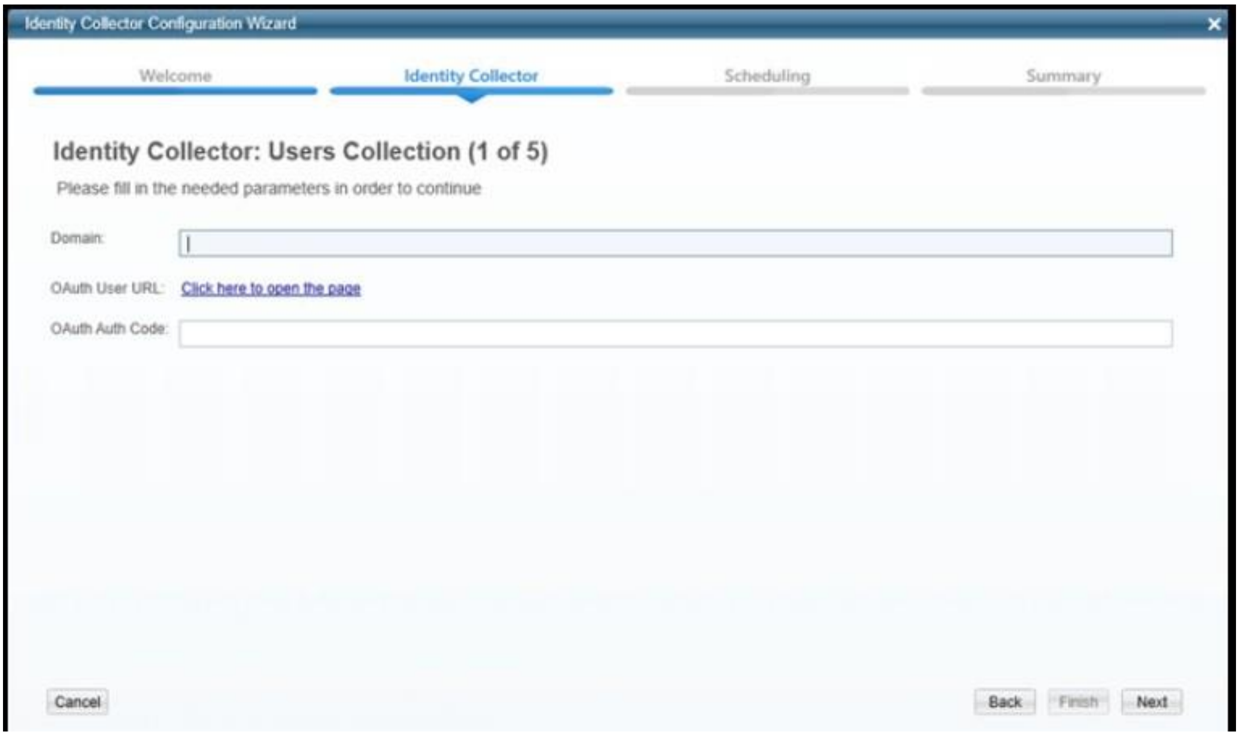
Deployment Instructions

1. As part of this Service Pack Pre-Upgrade steps, you should have run the "CollectorSynchronizerCertificateAssignmentTool" utility that is attached as part of this package.
   Please refer to the *Pre-Upgrade* section in *Chapter 3: Deploying Version 8.1 Service Pack 5* and perform the pre-upgrade steps if you have not yet done so.
2. **Important!** Without completing this step, the Azure AD Identity Collectors will not work.
   1. Open the Administrative Client, edit your Azure AD Identity Collectors and follow the wizard to completion.
   2. The screen called "Identity Collector: Users Collection (1 of 5)" has undergone some modifications, so make sure to click on the "OAuth User URL" link and follow the instructions.
3. **Optional:** Run Identity Collection for Azure AD and make sure the task completes successfully.
4. **Optional:** Run Identity Collection for Azure AD again after two hours and make sure the task completes successfully.

Configuration Steps (Screenshots)

2. Identity Collector Configuration Screen

In the Identity Collector Configuration Wizard enter your O365 Domain name then click on the "OAuth User URL" link to generate an Authorization Code



Identity Collector: Users Collection (1 of 5)

Please fill in the needed parameters in order to continue

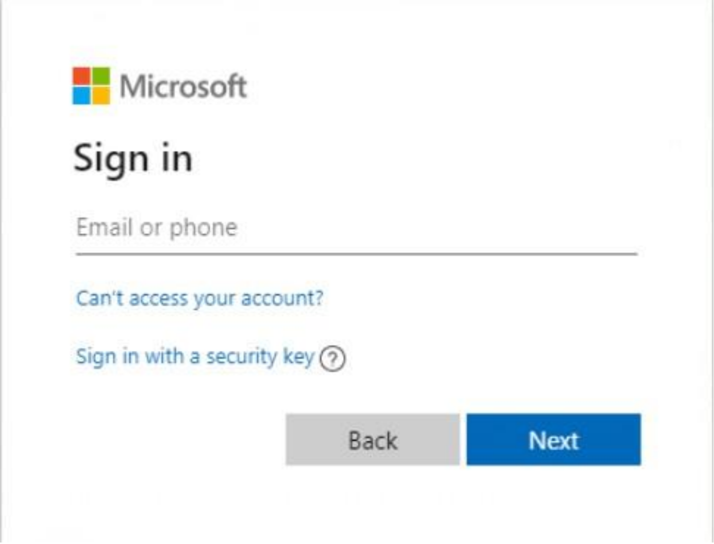
Domain:

OAuth User URL: Click here to open the page

OAuth Auth Code:

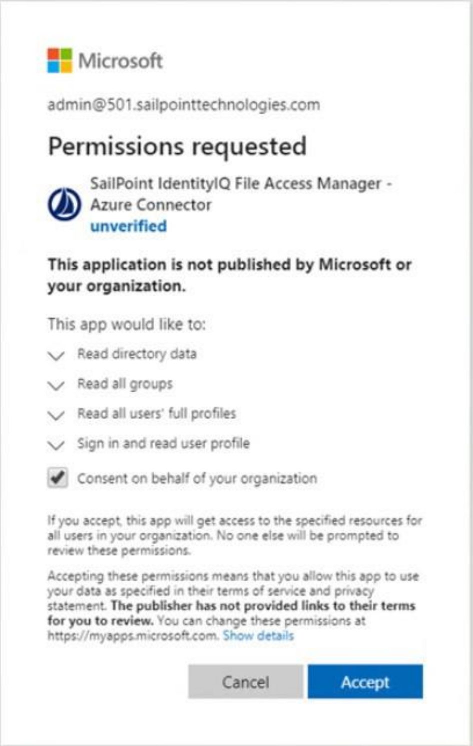
2. MS O365 Login Screen

You will then be redirected to the Microsoft O365 Login Screen Login with the user that should be used by the Identity Collector



3. MS O365 Application Consent Screen

You will then be prompted to consent to granting access to the File Access Manager Azure Connector Accept to receive an Authorization Code and continue with generating the Access Token



Microsoft

admin@501.sailpointtechnologies.com

Permissions requested

SailPoint IdentityIQ File Access Manager - Azure Connector
unverified

This application is not published by Microsoft or your organization.

This app would like to:

- Read directory data
- Read all groups
- Read all users' full profiles
- Sign in and read user profile

☑ Consent on behalf of your organization

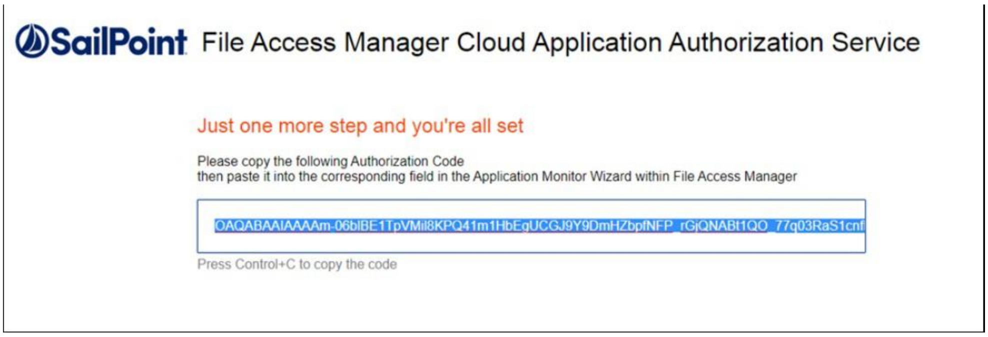
If you accept, this app will get access to the specified resources for all users in your organization. No one else will be prompted to review these permissions.

Accepting these permissions means that you allow this app to use your data as specified in their terms of service and privacy statement. **The publisher has not provided links to their terms for you to review.** You can change these permissions at https://myapps.microsoft.com. Show details

4. MS O365 Application Consent Screen

A final redirect will lead you to the File Access Manager Cloud Application Authotization Service, and will present the received Authorization Code

- Copy that code and past it in the Auth Code field in the Identity Collector Configuration Wizard screen
- Click next and complete the Identity Collector configuration flow.



SailPoint File Access Manager Cloud Application Authorization Service

Just one more step and you're all set

Please copy the following Authorization Code
then paste it into the corresponding field in the Application Monitor Wizard within File Access Manager

OAQABAAIAAAAm-06bIBE1TpVMil8KPQ41m1HbEqUCGJ9Y9DmHZbpfNFP_rGjQNABt1QO_77q03RaS1cnf

Press Control+C to copy the code

Prerequisites

Permissions

The File Access Manager Azure AD Connector Requires the following permissions:

- Directory.Read.All – This Permission grants **read only** access to AAD contents (by default, all domain users can read all AAD data)

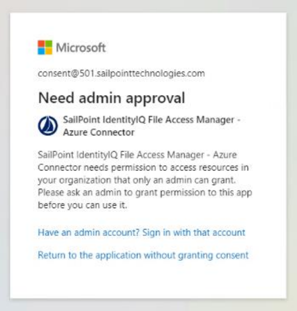
Administrator’s Consent Requirements

To grant a third party application (ISV) with the Directory.Read.All permission requires an administrator consent, which can be given by users with one of the following roles:

- Global Administrator (Company Administrator).
- Application Administrator.
- Cloud Application Administrator.

Hence, during the ***initial configuration*** phase (while generating the token for the first time), the service account dedicated to the File Access Manager Azure AD Connector, must have one of the above-mentioned roles.
Once consent is given, the role can be removed from the user.

The Consent flow will appear different for users with different roles.
Non-admin user trying to access the consent screen will be presented with the following screen:


Microsoft

consent@501.sailpointtechnologies.com

Need admin approval

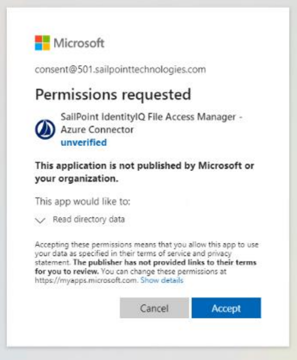
SailPoint IdentityIQ File Access Manager - Azure Connector

SailPoint IdentityIQ File Access Manager - Azure Connector needs permission to access resources in your organization that only an admin can grant. Please ask an admin to grant permission to this app before you can use it.

Have an admin account? Sign in with that account

Return to the application without granting consent

Application Administrators trying to access the consent screen, will be presented with a request to consent and grant the File Access Manager Application the Read Directory Data permissions:


Microsoft

consent@501.sailpointtechnologies.com

Permissions requested

SailPoint IdentityIQ File Access Manager - Azure Connector
unverified

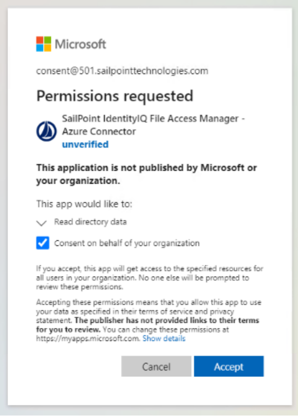
This application is not published by Microsoft or your organization.

This app would like to:

Read directory data

Accepting these permissions means that you allow this app to use your data as specified in their terms of service and privacy statement. **The publisher has not provided links to their terms for you to review.** You can change these permissions at https://myapps.microsoft.com. Show details

Users with the Global Administrator role trying to give consent to an application will be presented with a screen containing an additional checkbox (Consent on behalf of your organization):



Microsoft

consent@501.sailpointtechnologies.com

Permissions requested

SailPoint IdentityIQ File Access Manager - Azure Connector
unverified

This application is not published by Microsoft or your organization.

This app would like to:

- Read directory data

☑ Consent on behalf of your organization

If you accept, this app will get access to the specified resources for all users in your organization. No one else will be prompted to review these permissions.

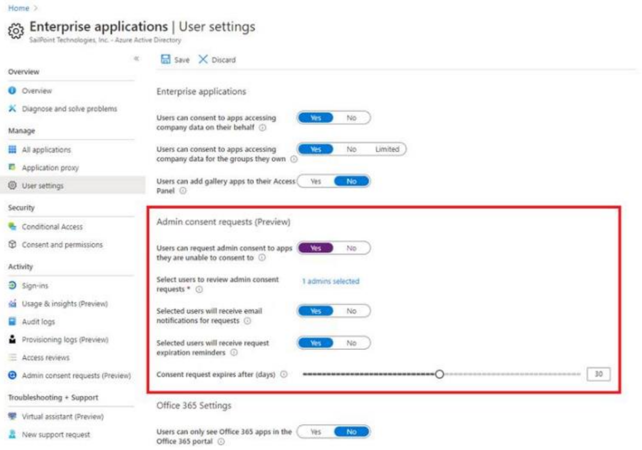
Accepting these permissions means that you allow this app to use your data as specified in their terms of service and privacy statement. **The publisher has not provided links to their terms for you to review.** You can change these permissions at https://myapps.microsoft.com. Show details

This extra checkbox consents to give permissions to the application on behalf of all other users in the organization, thereby ensuring no other user would have to explicitly give consent to the app to run on its behalf.
File Access Manager does not require this checkbox to be checked, as our application only needs to run on behalf of the consenting user.
Checking this option is optional, and not mandatory.

Avoiding the Administrative Roles Grant

To avoid granting an administrative role the service account, even if only for the duration of the consent sequence, you may use Azure's "Admin Consent Requests". This relatively new feature lets non-admin users indirectly give consent to application that require admin consent by requesting an admin's authorization.

This feature can be enabled on the tenant's level, and allows setting one of the three above-mentioned administrator roles as a reviewer:



Home >
Enterprise applications | User settings
SailPoint Technologies, Inc. - Azure Active Directory
Save
Discard
Overview
Overview
Diagnose and solve problems
Manage
All applications
Application proxy
User settings
Security
Conditional Access
Consent and permissions
Activity
Sign-ins
Usage & insights (Preview)
Audit logs
Provisioning logs (Preview)
Access reviews
Admin consent requests (Preview)
Troubleshooting + Support
Virtual assistant (Preview)
New support request

Enterprise applications

Users can consent to apps accessing company data on their behalf: [✓ Yes] No

Users can consent to apps accessing company data for the groups they own: [✓ Yes] No Limited

Users can add gallery apps to their Access Panel: Yes [✓ No]

Admin consent requests (Preview)

Users can request admin consent to apps they are unable to consent to: [✓ Yes] No

Select users to review admin consent requests *: 1 admins selected

Selected users will receive email notifications for requests: [✓ Yes] No

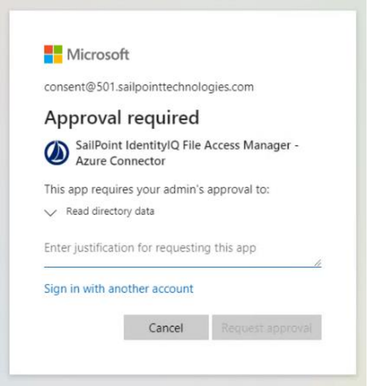
Selected users will receive request expiration reminders: [✓ Yes] No

Consent request expires after (days): 30

Office 365 Settings

Users can only see Office 365 apps in the Office 365 portal: Yes [✓ No]

When users without one of these administrative roles go through the normal consent flow, they will be presented with the screen:



Microsoft

consent@501.sailpointtechnologies.com

Approval required

SailPoint IdentityIQ File Access Manager - Azure Connector

This app requires your admin's approval to:

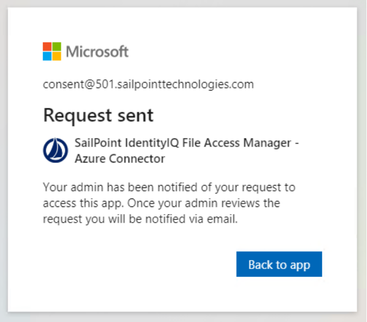
- Read directory data

Enter justification for requesting this app

Sign in with another account

The requested is required to provide a justification for granting consent to the application and a request is sent to the administrator listed in the configuration as reviewers.

When clicking on “Request approval” to continue, the following screen appears:



Microsoft

consent@501.sailpointtechnologies.com

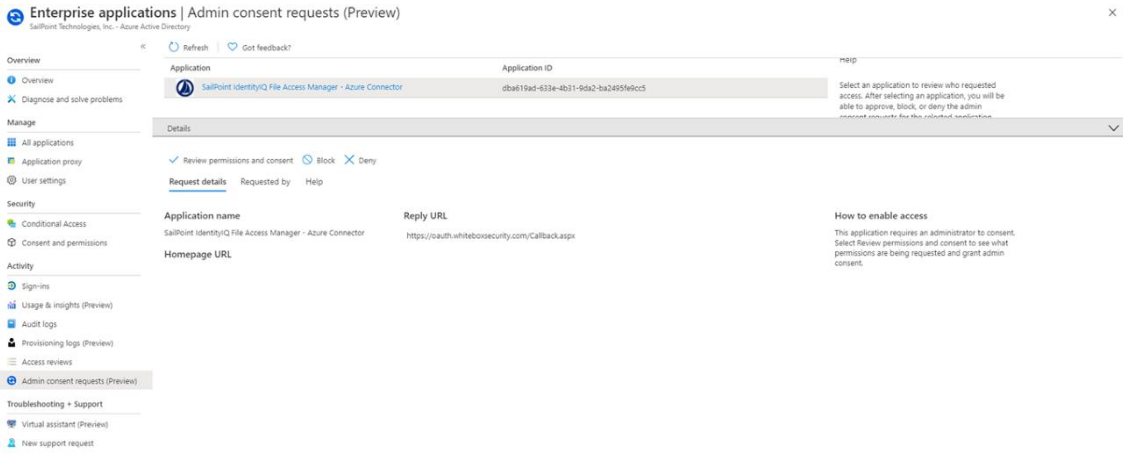
Request sent

SailPoint IdentityIQ File Access Manager - Azure Connector

Your admin has been notified of your request to access this app. Once your admin reviews the request you will be notified via email.

Clicking on “Back to app” would just return an “access denied” error as access was not yet granted.
This screen can be safely closed while waiting for admin consent.

The reviewing administrator will either receive an email notifying them of the request, or have to go to the “Admin Consent Requests” screen and check for new requests:



Enterprise applications | Admin consent requests (Preview)
SailPoint Technologies, Inc. - Azure Active Directory

Application	Application ID
SailPoint IdentityIQ File Access Manager - Azure Connector	dba619ad-633e-4b31-9da2-ba2495fe9cc5

Help

Select an application to review who requested access. After selecting an application, you will be able to approve, block, or deny the admin consent requests for the selected application.

Application name
SailPoint IdentityIQ File Access Manager - Azure Connector

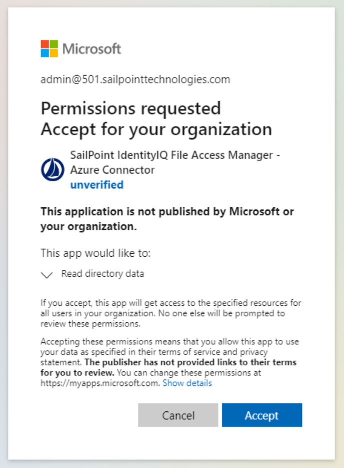
Reply URL
https://oauth.whiteboxsecurity.com/Callback.aspx

Homepage URL

How to enable access

This application requires an administrator to consent. Select Review permissions and consent to see what permissions are being requested and grant admin consent.

To approve a request, the administrator will go through the “Review permissions and consent” flow, where they will be presented with the familiar consent screen:



Microsoft

admin@501.sailpointtechnologies.com

Permissions requested
Accept for your organization

SailPoint IdentityIQ File Access Manager - Azure Connector
unverified

This application is not published by Microsoft or your organization.

This app would like to:

Read directory data

If you accept, this app will get access to the specified resources for all users in your organization. No one else will be prompted to review these permissions.

Accepting these permissions means that you allow this app to use your data as specified in their terms of service and privacy statement. **The publisher has not provided links to their terms for you to review.** You can change these permissions at https://myapps.microsoft.com. Show details

After an administrator “Accepts”, non-administrator users can will have to go the through token generation sequence again. However, this time the consent screen will be skipped entirely, and the flow will lead directly to the Authorization code.

Note: This method gives consent to the app on behalf of the entire organization, similar to when a Global Administrator ticks the checkbox to enables the Consent on behalf of your organization, as described above.

Appendix C: Exchange Online Connector Full OAuth 2.0 Support

Description

File Access Manager now offers full support of standard OAuth 2.0 Authentication for the Exchange Online connector. The new authorization sequence will direct the user through a standard Microsoft O365 authentication flow, to grant the File Access Manager service account the privilege to acquire and refresh access tokens.

The new authentication method replaces the previous Basic Authentication flow, that required admins to provide user and password credentials.

- The Exchange Online Connector now uses only fully modern authentication methods, and does not require Legacy Authentication methods be enabled, tenant-wide, or otherwise.
- The Exchange Online Connector now supports the use of multiple service accounts, for both the Permission Collection and Activity Monitoring modules, to utilize larger API access quotas and minimize delays caused by Microsoft O365 Rest APIs quotas, throttling and back-off algorithms.
- The Exchange Online Connector supports any user as a delegated account, including users with Multi-

Factor Authentication requirements enabled, and is no longer limited by Microsoft's restrictions on Federated Accounts ○ The Exchange Online Connector supports internal token management and will be responsible for managing and renewing its own tokens.

General Description

This enhancement brings full OAuth support to the Exchange Online Connector, instead of the legacy user and password approach.

File Access Manager uses the Microsoft official ADAL library to generate and refresh OAuth tokens.

- Configuring the Exchange Online Connector, instead of providing a username and a password, you will click on the plus sing (+) next to the relevant token manager component, to generate a new OAuth Access Token.
- You will then be redirected to a standard Microsoft O365 login screen.
- Enter the relevant service account credentials and login.
- The Microsoft ADAL library will then initiate a PKCE Authorization Code Flow to generate the initial OAuth token, that will then be encrypted and stored as part of the Exchange Online application configuration.
- The access token will be used in all requests to the tenant’s O365 Exchange environment and will be automatically refreshed when needed.
- Multiple service accounts can be used to generate tokens for both the Permission Collection and Activity Monitoring modules.
- The same service accounts can be used for both modules; however, this is not recommended as the service account API call quota would be shared across the two modules, which will increase the likelihood of exceeding the API call quota and encountering throttling issues.
- **Note!** This enhancement requires multiple manual steps that must be followed carefully. This enhancement will also require you to reconfigure the Exchange Online Connector, go through

the configuration wizard to generate access tokens and switch over to modern authentication flow.

- This will not recreate the application, and current Exchange Online information will remain intact.

Deployment Instructions

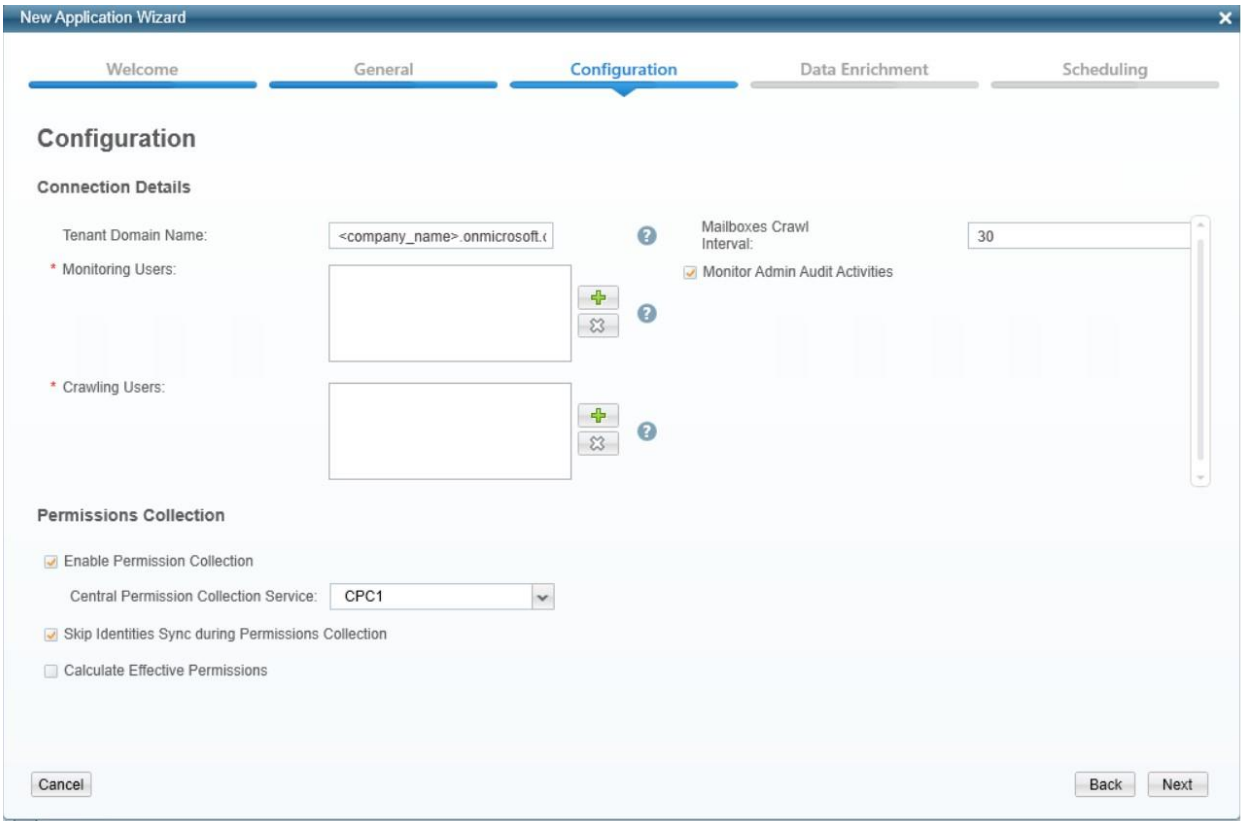
Important! Without completing this step, the Exchange Online Connector will not function properly.

1. Open the Administrative Client, edit your Exchange Online Application and follow the wizard to completion.
2. The main “Configuration” screen has undergone some modifications.
   Make sure to fill in the “Tenant Domain Name” field and use the Add and Remove buttons of the Token Management component to add and remove tokens.
3. **Optional:** Run a Crawl and Permission Collection tasks and make sure the tasks complete successfully.
4. **Optional:** Ensure the Exchange Online Activity Monitor is running and that events are displayed in the Activity Forensics screen on the File Access Manager Business Website.

Configuration Steps (Screenshots)

1. The Exchange Online Application Configuration Screen

In the New/Edit Application Wizard enter your O365 Tenant Domain name, then use the “Add Token” button of the Token Management Component - marked by the green Plus sign (“+”) – to login using the File Access Manager service account and generate OAuth Tokens



New Application Wizard

Welcome | General | Configuration | Data Enrichment | Scheduling

Configuration

Connection Details

Tenant Domain Name: <company_name>.onmicrosoft.c

* Monitoring Users:

* Crawling Users:

Mailboxes Crawl Interval: 30

☑ Monitor Admin Audit Activities

Permissions Collection

☑ Enable Permission Collection

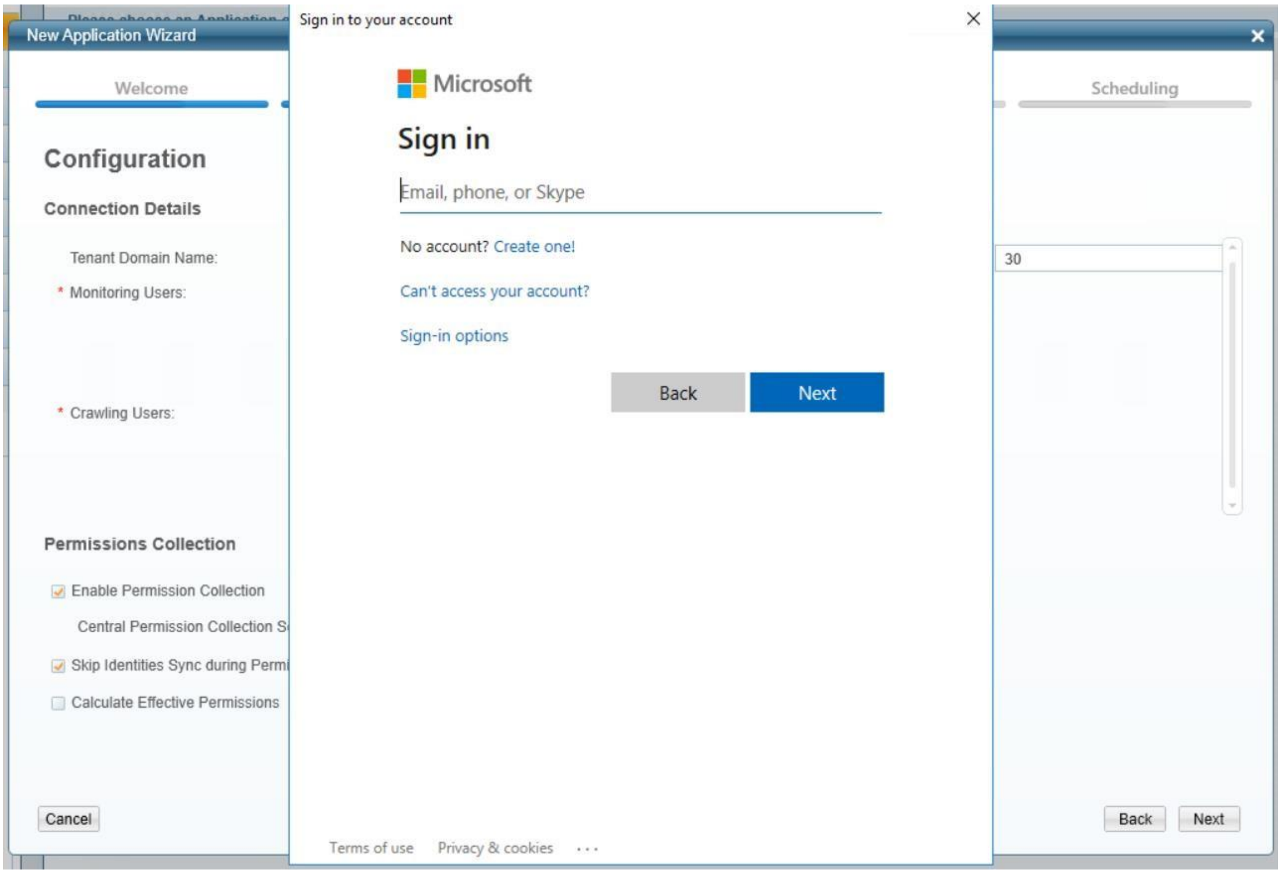
Central Permission Collection Service: CPC1

☑ Skip Identities Sync during Permissions Collection

□ Calculate Effective Permissions

2. MS O365 Login Screen

You will then be redirected to the Microsoft O365 Login Screen. Login with the Service Account that should be used by the Exchange Online Connector.



Configuration

Connection Details

Tenant Domain Name:

* Monitoring Users:

* Crawling Users:

30

Permissions Collection

☑ Enable Permission Collection

Central Permission Collection S

☑ Skip Identities Sync during Permi

☐ Calculate Effective Permissions

Sign in to your account

Microsoft

Sign in

Email, phone, or Skype

No account? Create one!

Can't access your account?

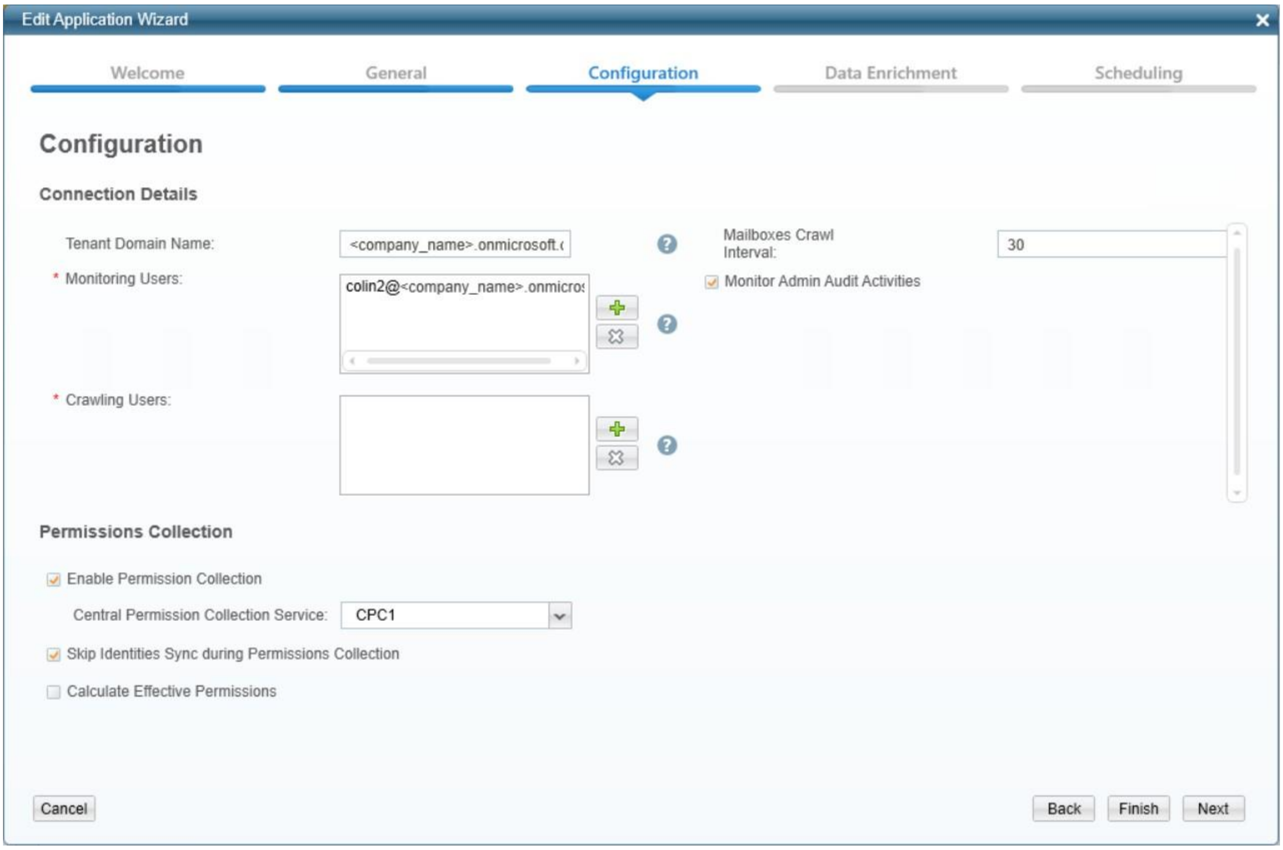
Sign-in options

3. The Token Management Component

Upon a successful login of the Service Account, an OAuth Access Token for the Service Account will be generated, encrypted and added to the Exchange Online Application Configuration.

Although the Service Account name is presented in the Token Management Component, credentials are not persisted as part of the Application Configuration. File Access Manager persists the OAuth tokens exclusively.

The Service Account is extracted dynamically from the generated token, solely for display purposes.



Configuration

Connection Details

Tenant Domain Name: <company_name>.onmicrosoft.c

Mailboxes Crawl Interval: 30

* Monitoring Users: colin2@<company_name>.onmicros

☑ Monitor Admin Audit Activities

* Crawling Users:

Permissions Collection

☑ Enable Permission Collection

Central Permission Collection Service: CPC1

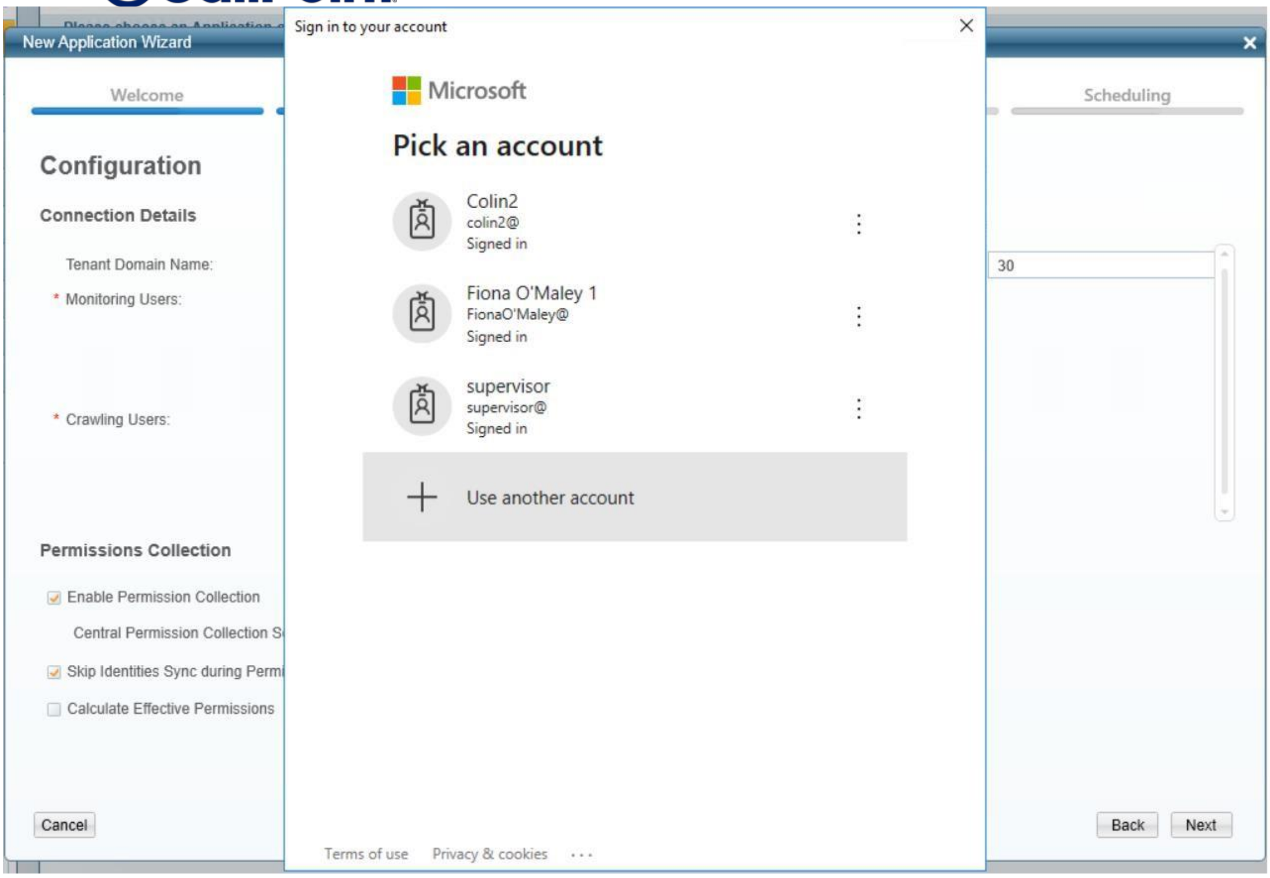
☑ Skip Identities Sync during Permissions Collection

☐ Calculate Effective Permissions

4. Multiple Service Account Support

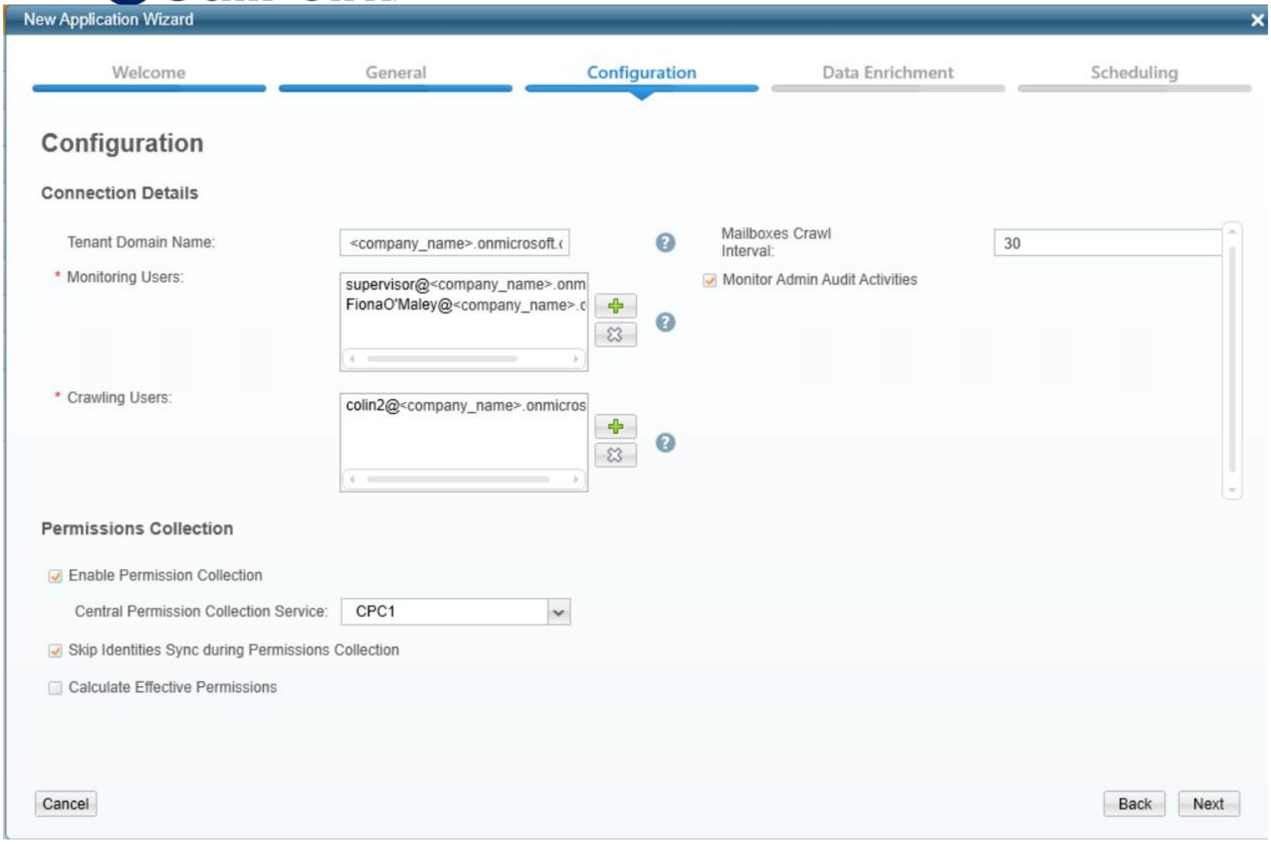
Use the “Add” and “Remove” buttons of the Token Management Component to manage the service accounts to be used by the Permission Collection and Activity Monitoring modules of the Exchange Online Connector. Multiple Service Accounts can be added as desired – to increase API call capacity and avoid throttling issues. Multiple service accounts can be used to generate tokens for both the Permission Collection and Activity Monitoring modules.

The same service accounts can be used for both modules; however, this is not recommended as the service account API call quota would be shared across the two modules, which will increase the likelihood of exceeding the API call quota and encountering throttling issues.



5. Complete the Configuration

Once you’ve added all the service accounts to the configuration, a list of all associated account will appear in the Token Management Components.
Follow the wizard instruction to complete the configuration.



Configuration

Connection Details

Tenant Domain Name: <company_name>.onmicrosoft.c

* Monitoring Users: supervisor@<company_name>.onm
FionaO'Maley@<company_name>.c

* Crawling Users: colin2@<company_name>.onmicros

Mailboxes Crawl Interval: 30

☑ Monitor Admin Audit Activities

Permissions Collection

☑ Enable Permission Collection

Central Permission Collection Service: CPC1

☑ Skip Identities Sync during Permissions Collection

□ Calculate Effective Permissions