



DocAve® 6 Connector

User Guide

Service Pack 8, Cumulative Update 2

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What's New in this Guide

- Minor edits and cover page update for current release.

About DocAve Connector

Use DocAve Connector to collaborate upon network file shares and cloud storage resources directly through SharePoint 2010, SharePoint 2013, and SharePoint 2016 on-premises without migration. Connected content appears as normal SharePoint content, and can be leveraged exactly as if it were residing within a SharePoint document library. All of SharePoint's powerful document management functionality—including permissions management, workflows, alerts, and versioning—can be applied to connected content.

In addition, Connector enables organizations to manage and present their audio and video files through a dedicated SharePoint Media Library. All wmv, wma, mp3, flv, aac, vp6, mp4, mpeg, mpg, avi, asf, aiff, au, cd, dat, divx, mov, mid, ogg, ra, rm, rmvb, qt, vqf, 3gp, m4v, mts, and wav files stored in network file shares and cloud storage resources are streamed and presented via SharePoint for fast delivery and reduced burden of storage. "Connected" media content is managed with all of SharePoint's powerful document management functionality, including permissions management, workflows, alerts, and versioning.

Complementary Products

Many products and product suites on the DocAve 6 platform work in conjunction with one another. The following products are recommended for use with Connector:

- DocAve Content Manager for SharePoint for restructuring or moving SharePoint content.
- DocAve Replicator for SharePoint for copying SharePoint content within the same SharePoint farm or from one SharePoint farm to another.
- DocAve Report Center for SharePoint to examine pain points in the SharePoint infrastructure and report on SharePoint user behavior and changes.
- DocAve Data Protection for setting backup and recovery points prior to adjusting SharePoint governance policies in this product.
- DocAve Preview for previewing Office files, PDF files, CAD files, and pictures in a picture format. Refer to [DocAve 6 Control Panel User Guide](#) for more information.

Submitting Documentation Feedback to AvePoint

AvePoint encourages customers to provide feedback regarding our product documentation. You can [Submit Your Feedback](#) on our website.

Before You Begin

Refer to the sections for system and farm requirements that must be in place prior to installing and using DocAve Connector.

AvePoint's Testing Policy and Environment Support

Supported Software Environments

AvePoint is committed to testing against all major versions and service packs of SharePoint as well as the latest versions of Windows Server and SQL Server, as Microsoft announces support and compatibility.

***Note:** AvePoint does not recommend or support installing DocAve on client operating systems.

Supported Hardware

AvePoint is committed to maintaining a hardware agnostic platform to ensure that DocAve operates on common Windows file sharing and virtualization platforms. To ensure that DocAve is hardware agnostic, AvePoint tests hardware that is intended to support SharePoint and DocAve infrastructure, storage targets, and hardware-based backup and recovery solutions, as supported by AvePoint's partnerships. AvePoint directly integrates with the following platforms: any Net Share, FTP, Amazon S3, AT&T Synaptic, Box, Caringo Storage, Cleversafe, DELL DX Storage, Dropbox, EMC Atmos, EMC Centera, Google Drive, HDS Hitachi Content Platform, IBM Spectrum Scale Object, IBM Storwize Family, Microsoft Azure Storage, NetApp Data ONTAP, NFS, OneDrive, Rackspace Cloud Files, and TSM.

All other hardware platforms that support UNC addressable storage devices are supported.

***Note:** AvePoint has ended the test and development for Caringo Storage and DELL DX Storage in DocAve since DocAve 6 SP7 CU1, as the providers of these two platforms have stopped the platform maintenance.

***Note:** Due to changes in the IBM Tivoli Storage Manager API, DocAve 6 Service Pack 6 and later versions require that TSMClient version 7.1.2 is installed on the Control Service and Media Service servers.

***Note:** Most of the hardware partnerships referenced in this guide are intended to make use of advanced functionality (such as snapshot mirroring, BLOB snapshots, indexing, long-term storage, WORM storage, etc.), and are not indications that any changes to the product are required for basic support. In most cases, hardware can be supported with no change to the product.

Supported Backup and Recovery

DocAve supports BLOB backup storage according to the list of hardware platforms above. BLOB snapshot function, however, is currently only supported on OEM versions and NetApp hardware.

DocAve supports SQL content and Application database backups via the SharePoint Volume Shadow Copy Service (VSS) on all Windows and SQL server platforms listed above. DocAve also supports snapshot-based SharePoint VSS on all hardware listed above where the hardware partner has certified support with Microsoft.

DocAve supports application and configuration server backups for all the supported software environments listed above. DocAve 6 SP5 or later supports VM backup via Hyper-V/VMWare for the following operating systems: Windows Server 2008 R2, Windows Server 2012, Windows Server 2012 R2, and Microsoft Hyper-V Server 2012 R2.

Configuration

In order to use DocAve Connector, the DocAve 6 platform must be installed and configured properly on your farm. Connector will not function without DocAve 6 present on the farm. For installation instructions, see the [DocAve 6 Installation Guide](#).

Agents

DocAve Agents are responsible for running DocAve jobs and interacting with the SharePoint object model. DocAve Agents enable DocAve Manager to communicate with the respective servers, allowing for Connector commands to function properly.

***Note:** The use of system resources on a server increases when the installed Agent is performing actions. This may affect server performance. However, if the Agent installed on a server is not being used, the use of system resources is very low and, therefore, the effect on server performance is negligible.

***Note:** If the license for Cloud Connect has already been applied and is working when you attempt to apply a license to Connector, the Agent must be restarted after applying the license in order to immediately use Connector.

For instructions on installing the DocAve Platform, DocAve Manager, and DocAve Agents, see the [DocAve 6 Installation Guide](#).

Required Permissions

Review the following sections for details on required Agent Account, File Share, and Local System permissions.

Agent Account Permissions

To install and use Connector properly, ensure that the Agent account has the following permissions:

1. Local System Permissions: These permissions are automatically configured by DocAve during installation. Refer to [Local System Permissions](#) for a list of the permissions automatically configured upon installation.
2. SharePoint Permissions: These permissions must be manually configured prior to using DocAve 6 Connector; they are not automatically configured.
 - a. User is a member of the **Farm Administrators** group. Since Administrator works across farms and on all SharePoint settings and configurations, this account is needed in order to provide the best and most complete quality of service.
 - b. Full Control to all zones of all Web applications via User Policy for Web Applications.
3. SQL Permissions: These permissions must be manually configured prior to using DocAve 6 Connector; they are not automatically configured.
 - Member has the database role of **db_owner** for all the databases related to SharePoint, including Content Databases, Config Database, and Central Admin Database.
 - Member has the database role of **db_owner** for all the DocAve stub databases.
 - Member has the server role of **dbcreator** to SQL Server since it must create a stub database before performing any Connector job.

***Note:** The **dbcreator** role is only required for Windows Authentication.
 - Member has the server role of **securityadmin** in SQL Server for enabling RBS.

File Share Permissions

Ensure that the user account used by the Connector library to access the file share has the following minimum permissions:

NTFS Permission	Needed?	Reason Needed
Full Control	No	
Traverse Folder/Execute File	Yes	Connector traverses the folder in order to access the data within subdirectories. It also needs to be able to open the file directly from the folder.
List Folder/Read Data	Yes	Connector must list all contents within the folder in order to display them within SharePoint. It also needs to read the data in order to provide the binaries via SharePoint.
Read Attributes	Yes	SharePoint has a promotion and demotion feature that reads Office file attributes and then uses them as column data.
Read Extended Attributes	Yes	Office files have extended attributes as well as custom attributes that are used in SharePoint promotion and demotion processes.
Create Files/Write Data	Yes	This permission is needed to create files within the file share when they are created within SharePoint.
Create Folders/Append Data	Yes	This permission is required to create folders within the file share when they are created in SharePoint. Connector creates hidden folders within the file share in order to store version history and prevent other libraries from connecting to the same file share.
Write Attributes	Yes	When SharePoint demotes column information into Office files, the user account must have the permission to write the file attributes into Office files
Write Extended Attributes	Yes	Office files have extended attributes, as well as custom attributes, that are used in SharePoint promotion and demotion processes.
Delete Subfolders and Files	Yes	In order to synchronize deletion within SharePoint into the file share, this permission is needed.
Delete	No	Since Connector does not delete the root folder that the data is connected to, this permission is not needed.
Read Permissions	Yes*	*This permission is needed only when loading NTFS permission information from the file share into a Connector library.
Change Permissions	Yes	When the Connector stubs are modified at the SharePoint side, this permission is needed to update the corresponding file in the storage location.
Take Ownership	No	Since Connector does not attempt to take ownership of a file or folder, this permission is not needed.

Local System Permissions

The following Local System Permissions are automatically configured during DocAve 6 Agent installation.

***Note:** If the Web application pool account is not the Agent account, the Web application pool account must have the **Read** permission to the ... **\DocAve6\Agent** folder.

User is a member of the following local groups:

- IIS WPG (for IIS 6.0) or IIS IUSRS (for IIS 7.0)
- Performance Monitor Users
- DocAve Users (the group is created by DocAve automatically; it has the following permissions):
 - o Full Control to the Registry of
HKEY_LOCAL_MACHINE\SOFTWARE\AvePoint\DocAve6
 - o Full Control to the Registry of
HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\eventlog
 - o Full Control to the Communication Certificate
 - o Permission of Log on as a batch job (it can be found within **Control Panel > Administrative Tools > Local Security Policy > Security Settings > Local Policies > User Rights Assignment**)
 - o Full Control permission for DocAve Agent installation directory
- Local Admin (this permission is required to deploy solution files to front-end Web servers)
- Full Control to GAC in order to install BLOB Provider .dll files into GAC)
- Full Control to **Microsoft SQL Remote Blob Storage** Folder to reconfigure maintainer configuration file

Health Analyzer

AvePoint recommends using Health Analyzer to check the prerequisites you need to correctly use DocAve Connector.

***Note:** Only the users in the DocAve **Administrators** group can use Health Analyzer.

For more information about Health Analyzer, refer to the [DocAve 6 Installation Guide](#).

Getting Started

Refer to the sections below for important information on getting started with Connector.

Launching Connector

To launch Connector and access its functionality, complete the following steps:

1. Login to DocAve. If you are already in the software, click the **DocAve** tab. The **DocAve** tab displays all modules on the left side of the window.
2. Click **Storage Optimization** to view the Storage Optimization modules.
3. Click **Connector** to launch this module.

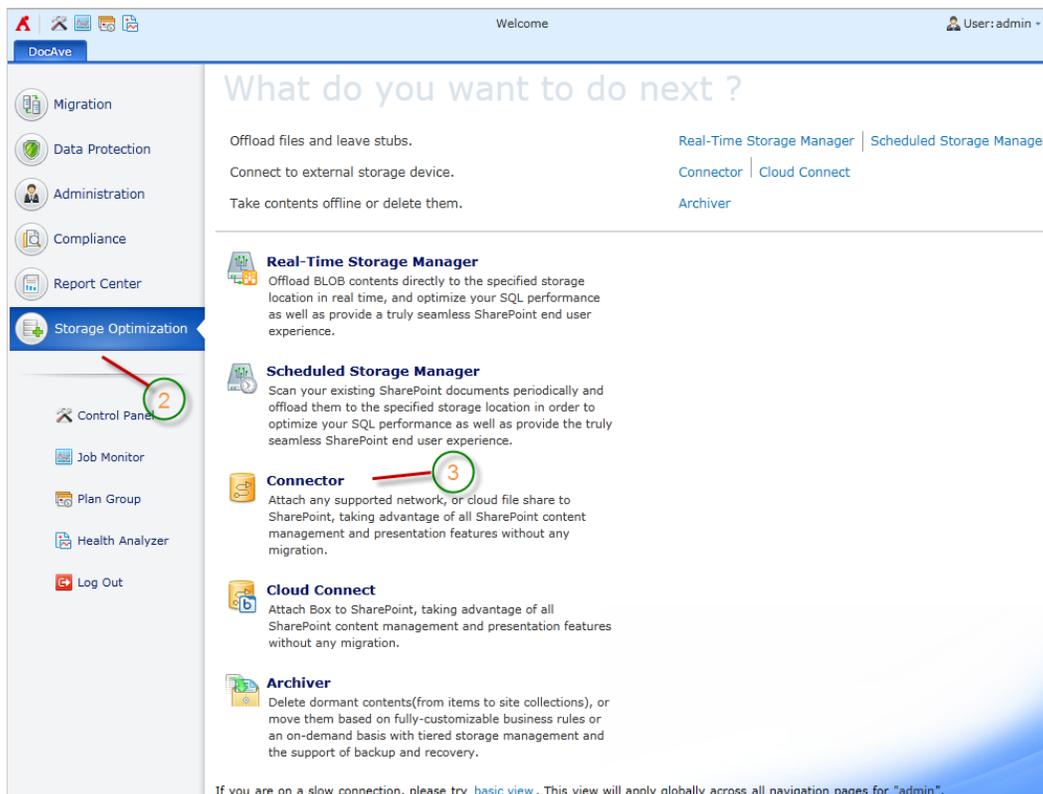


Figure 1: DocAve module launch window.

Navigating DocAve

DocAve mimics the look and feel of many Windows products, making for an intuitive and familiar working environment. While there are many windows, pop-up displays, and messages within DocAve products, they share similar features and are navigated in the same ways.

Below is a sample window in DocAve. It features a familiar, dynamic ribbon, and a searchable, content list view.

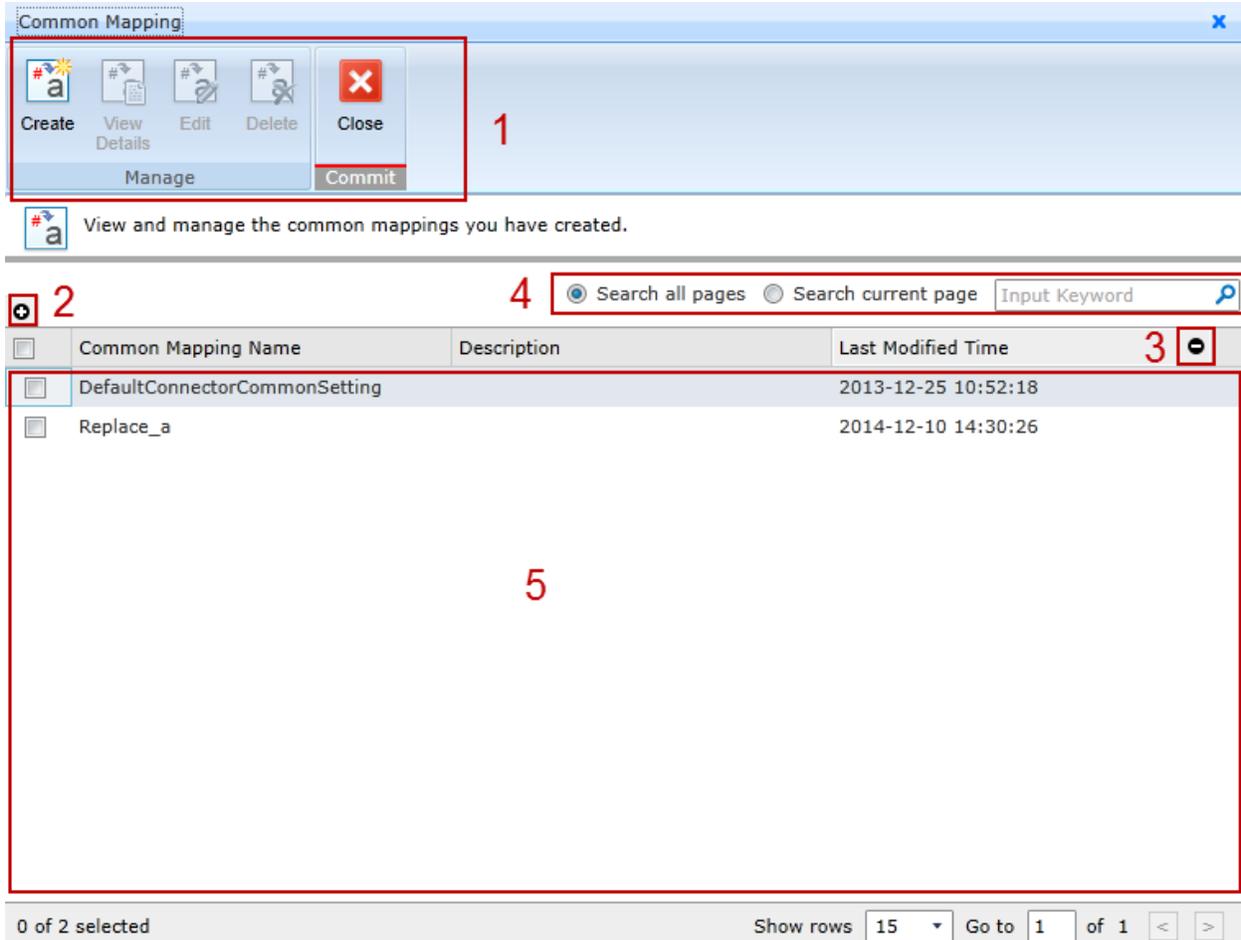


Figure 2: Navigating DocAve.

1. Ribbon Panes – Allows users to access the functionality of the active DocAve module.
2. Manage columns (⊕) – Allows users to manage which columns are displayed in the list. Click the manage columns (⊕) button, and then select the checkbox next to the column name in the drop-down list.
3. Hide the column (⊖) – Allows users to hide the selected column.
4. **Search** – Allows users to search the List View pane for a keyword or phrase. You can select **Search all pages** or **Search current page** to define the search scope.
***Note:** The search function is not case sensitive.
5. Management Pane – Displays the actionable content of the DocAve module.

User Interface Overview

After clicking **Connector**, the Storage Optimization suite user interface launches with the **Connector** tab active. This tab displays your farm environment and allows for quick access to all of Connector's features. The **How to Use Connector** area displays brief configurations and steps about using Connector. The Dashboard displays the storage path and the synchronization schedule configurations for the selected farm. Click **View Details** to view detailed information about the configured path/synchronization schedule for the Web applications/site collections/sites in the pop-up window. If you are away from the Dashboard page, click the **Connector Landing Page** link at the bottom of your interface to go back to the Dashboard.

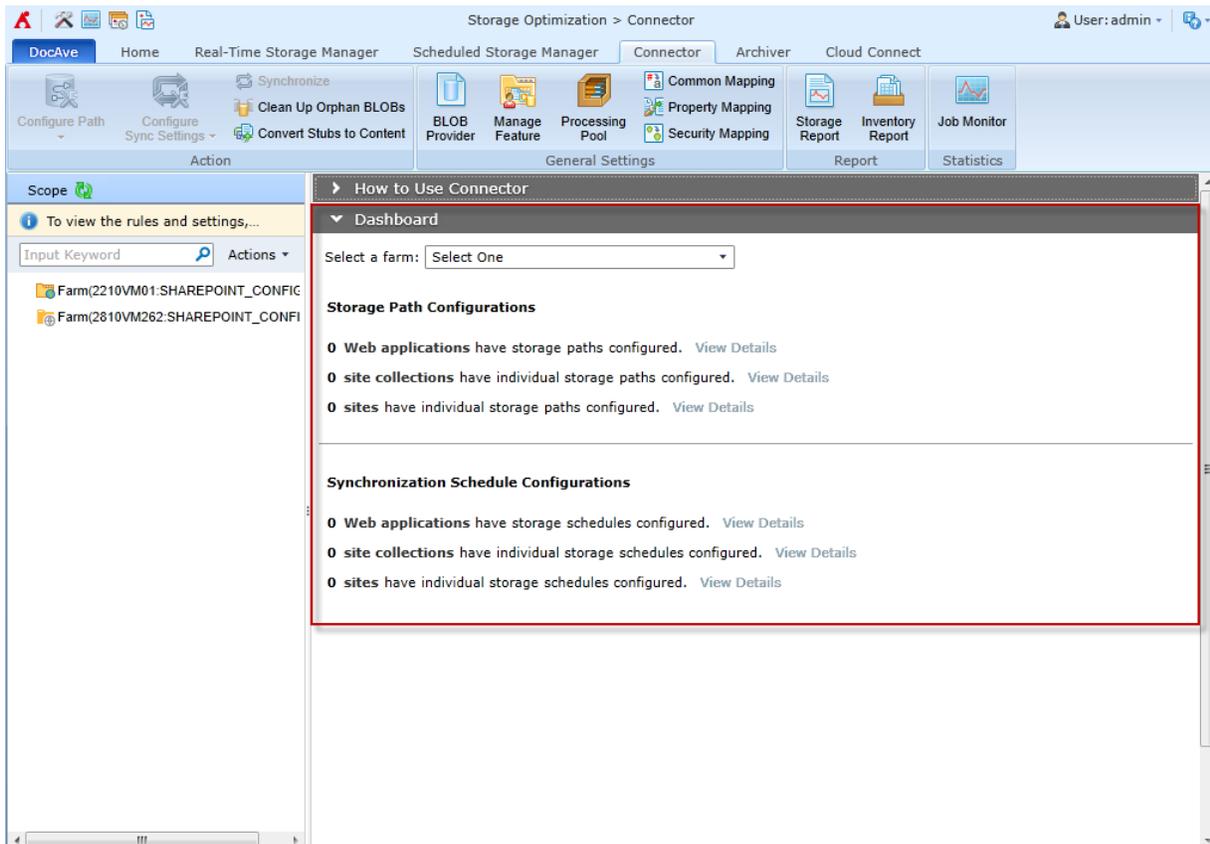


Figure 3: Dashboard interface.

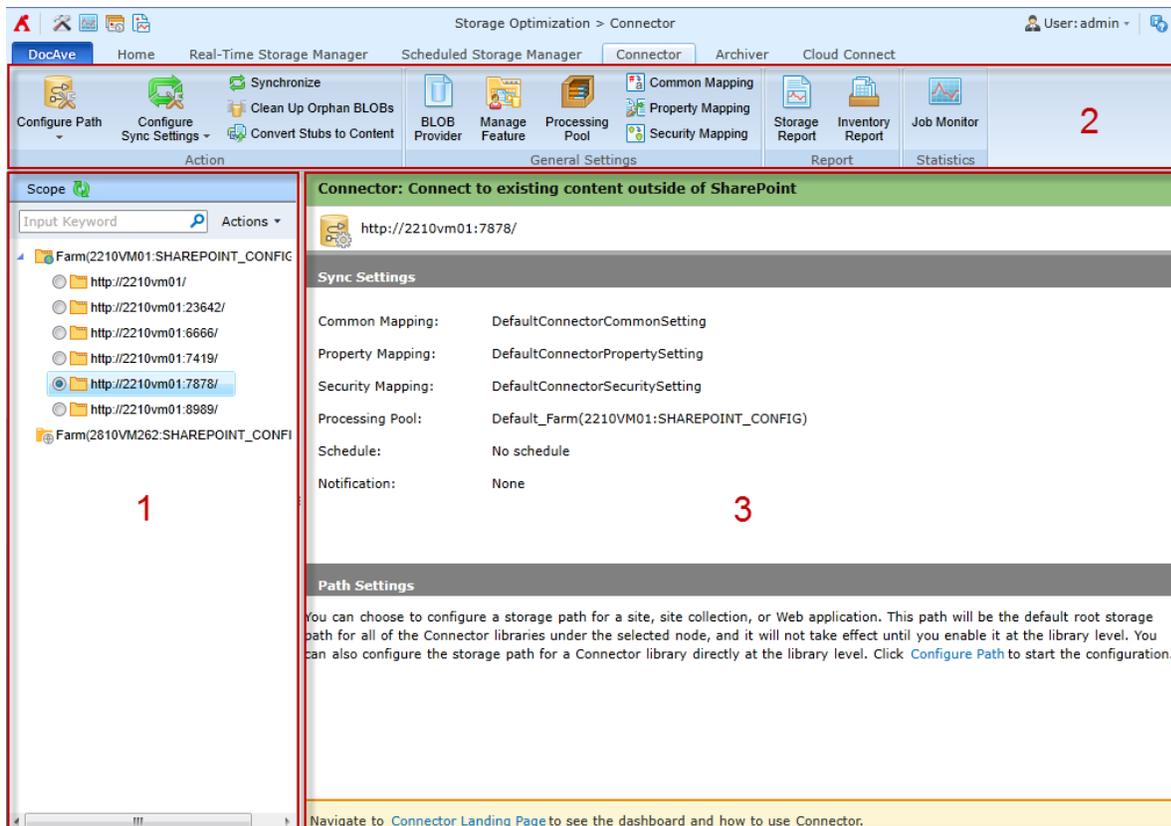


Figure 4: Connector user interface.

1. The **SharePoint tree (Scope panel)** displays all content within your farms. Use this panel to select the content that you wish to perform actions on.
2. The **ribbon** shows the available actions and wizards for the selected nodes. This content is dynamic; it will often change depending on what is selected in the SharePoint tree.
3. The **workspace** shows all form-based content that is used during the configuration of actions performed in DocAve products.

Selecting Farms and Nodes

To select farms and nodes, complete the following steps:

1. From the **Scope** panel on the left, click the farm that contains the relevant SharePoint content.
2. Select the relevant content from which you want to perform further operations by selecting the radio button to the left of the content.
3. After selecting content, you will be able to perform the procedures described throughout this guide.

Advanced Search

Advanced Search can narrow down the search criteria to display fewer nodes on your tree. When the node you are about to expand has more than ten thousand child nodes, AvePoint recommends using the Advanced Search.

To search the certain content on the tree, complete the following steps:

1. Right-click the node you are about to expand. A drop-down list appears.
2. Click **Advanced Search** in the drop-down list. The **Advanced Search** interface appears.
3. In the **Advanced Search** interface, click **Add a Criterion** to add a criterion which will be used to search the child nodes. Configure the following settings:
 - **Rule** – Select the rule for this search. You can use the **URL** rule for the Web application level. You can also use the **URL** and **Name** rule for the Site Collection node, the Sites node, the Lists node, and the Folders node.
 - **Condition** – Select the condition for the rule.
 - **Value** – Enter the value for the rule in the text box.
4. To add more criteria, click **Add a Criterion**, and repeat step 3. You can change the logical relationships between the criteria by clicking the **And** or **Or**. The logical relationship is set to **And**. **And** means that the child nodes that meet all of the criteria will be included in the result. **Or** means that the child nodes that meet any criterion will be included in the result. The **Basic Filter Condition** area displays the logic relationships of filter criteria.
5. Click **Search** to start searching the child nodes.
6. The tree displays the child nodes that meet the search criteria. If the results exceed more than ten thousand, a pop-up window will appear to recommend narrowing the search criteria and try again.

***Note:** The displayed child nodes do not include the **Include New** node.

If you select the current parent node to run a job, the child nodes under that parent node that were excluded from the search will not be included in the search results.

To display all of the child nodes on the tree, select **Refresh** from the drop-down list after right-clicking the current node.

Basic Steps for Configuring and Deploying Connector

The following features and solutions need to be activated or configured in order to properly run Connector. Click the link to jump to the corresponding section.

1. [Configuring the BLOB Provider.](#)
2. [Enabling the BLOB Provider.](#)
3. [Deploying the Connector Solution.](#)
4. [Activating the Connector Features.](#)
5. [Configuring Mapping Settings.](#) Configuring these settings is optional, as Connector comes with default mapping settings.
6. [Configuring the Processing Pool.](#) Configuring these settings is optional, as Connector comes with default Processing Pool settings.
7. Using Connector functionality:
 - [Creating a Connector Library in SharePoint](#) (optional step; existing SharePoint document libraries can be “connected” as well).
 - [Creating a Connection between SharePoint and a Storage Path.](#)
8. [Maintaining a Connector Library.](#)

Configuring the BLOB Provider

A binary large object (BLOB) is unstructured data (files, attachments, etc.) stored in SQL content databases. Any file or attachment that is uploaded into SharePoint is stored as a BLOB in the content database. By configuring the BLOB Provider, you are able to externalize BLOBs from a content database to a user-specified external storage. The BLOB Provider feature intercepts SharePoint database traffic and redirects all of the BLOB traffic to the external BLOB storage; what remains in SharePoint is a stub of the data. In order to provide transparency to SharePoint users and applications, Remote BLOB Storage (RBS) or External BLOB Storage (EBS) is used to expose the storage contents through the SharePoint interface. EBS is an interface provided by Microsoft SharePoint Server 2007 and 2010, while RBS is a set of standardized Advanced Programming Interfaces (APIs) that are incorporated as an add-on feature pack for Microsoft SQL Server. In order to use DocAve Connector, one of these two BLOB Providers must be enabled. AvePoint recommends you use RBS as your BLOB Provider. In Connector, the BLOB Provider is used to configure the storage of a SharePoint library's files with a given file share. The BLOB Provider also creates a stub database and enables the provider on the selected farm or node.

***Note:** Since the DocAve RBS Provider is a third-party provider, SQL Server 2012 Enterprise Edition or SQL Server 2008 R2 Enterprise Edition is required.

***Note:** EBS is not supported in a SharePoint 2013/2016 environment.

Feature	RBS (for SharePoint 2010/SharePoint 2013/SharePoint 2016)	EBS (not supported in SharePoint 2013 and SharePoint 2016)
BLOB store scope	RBS can be enabled at content database, Web application and farm levels. Each content database can have its own BLOB store. RBS is more flexible.	EBS can be enabled only at the farm level.
Number of providers	Multiple RBS providers can be in the same SharePoint farm.	Only one EBS provider per SharePoint farm.
Interface	Managed. RBS is a purely .NET-based solution. From a technology perspective, RBS fits in to .NET quite nicely.	Unmanaged. EBS relies on a legacy COM interface.
Migrating BLOBs from SQL Server stores to BLOB stores and vice versa	Windows PowerShell	Custom
SharePoint interface	SharePoint 2010 / SharePoint 2013 / SharePoint 2016 ship with many Windows PowerShell commands that can be used to manage RBS installation and configuration.	None

BLOB Provider Recommendations

Before enabling your BLOB Provider, be sure to reference the following “dos and don’ts” to BLOB Provider configurations.

You should:

- Start the wizard and verify RBS binaries (DocAve Agents) have been installed and enabled on all Web front-ends in your farms, whether these Web front-ends are user-facing or not.
- For best performance, choose a database server within the farm for your stub database.
- Choose to manage all stubs (pointers) for EBS or RBS at the farm level –one stub database per farm. Only when item counts of one million objects or greater are expected per container should you apply lower-level settings.
- Consider inheritance if configuring stub databases at a lower level. See [Stub Database Inheritance](#) for additional information on stub database inheritance.
- Configure a schedule for enabling RBS to ensure that you have planned for a growing farm.

You should avoid:

- Missing servers when installing the Agents. Failing to install RBS/EBS on a Web front-end (either user-facing or application-facing).
- Getting bogged down by your choice of EBS over RBS: pick what’s right for your SQL Server version. We provide you the ability to update from EBS to RBS at a later time. Refer to the [DocAve 6 Control Panel Reference Guide](#) for information on updating from EBS to RBS.
- Making these configurations more granular than necessary. The goal is simplicity in management: since this database will be included in your disaster recovery plans for your farm, too many databases can make your failover more complicated than it needs to be.
- Skipping the schedule configuration. Even as you grow your farm, new content databases will be added and need to be enabled for use with the rest of the storage optimization products.

For more information related to BLOB externalization best practices, refer to AvePoint’s [Optimize SharePoint Storage with BLOB Externalization](#) white paper.

Enabling the BLOB Provider

To enable the BLOB Provider on your servers, follow the instructions below.

***Note:** In the event that you want to enable the RBS/EBS provider on Web front-ends that have improperly installed Agents, use the standalone Agent tools. Refer to [Appendix C: Enabling the BLOB Provider Using the Agent Tools](#) for information on enabling the BLOB Provider using these tools.

1. To access the BLOB Provider, navigate to **Connector > BLOB Provider** in the **General Settings** group. The **BLOB Provider** page appears.
2. Verify RBS binaries (DocAve Agents) have been installed and enabled on all SharePoint servers that are running Web services in your farms. This also includes all application and index servers.

***IMPORTANT:** All these servers must have RBS binaries installed, or access to external content (outside the database) will fail.

- The **Install the BLOB Provider Binaries** page displays information about all Web front-end servers that have a DocAve Agent installed. By default, the BLOB Provider is installed during the Agent installation.
 - If the BLOB Provider is not installed on a particular server, **Not Installed** displays in the server's **BLOB Provider Binaries** column. If necessary, click **Install** to install the corresponding BLOB Provider.
3. Click **Next** when finished. The **Configure Stub Database** page appears.
 4. Choose the nodes you want to link to a stub database by selecting the checkbox to the left of the node. AvePoint recommends you configure one stub database for the entire farm.
 5. After selecting which nodes you want to link to a stub database, click **Configure** in the **Manage** group on the ribbon.
 6. Choose a database server within the farm for your stub database. **AvePoint recommends** you choose the default database server used by SharePoint Central Admin.
 - a. **Configure Stub Database** – Enter the **Database Server** and **Database Name** for the stub database.

***Note:** Once a stub database is configured and saved on a content database, the configuration cannot be changed.
 - b. **Authentication** – Select the authentication method used to access the database.
 - o **Windows authentication** (recommended) – Use this method when you want the user identity to be confirmed by Windows.
 - o **SQL authentication** – SQL server confirms the user identity according to the configured account and password.

- c. **Connection String** – Use this feature to create and configure stub databases using command lines. Click **Advanced** to expand the advanced configuration. Select **Edit Connection String Directly** to use **Connection String** method to create and connect the Stub Database using Windows or SQL authentication.

***Note:** If you select **Edit Connection String Directly**, configuration **a** and **b** above will be unavailable.

To create a stub database using Windows authentication, input the following information:

- o **Server** – Enter the name of a SQL Server instance. The value must be either the server’s name on the network, an IP address, or the name of a Configuration Manager alias. To connect to the default instance on the local server, refer to the following examples:
 - Server=,;
 - Server=IP Address;
 - Server=localhost;
 - Server=localDatabase\instancename;
- o **Database** – Enter the database name. If a database is not specified, the default database defined for the login is used. To connect to the database, refer to the following example: **Database=Database’s name**.
- o **Trusted_Connection** – Select the **true** value to use Windows Authentication Mode for login validation.
- o **DataSource** – Enter the instance’s name, the Hostname, or the IP address of a SQL Server. If this field is not specified, a connection is made to the default instance on the local computer.
- o **Failover Partner** – Enter the name of the failover server used for database mirroring.
- o **Initial Catalog** – Enter the stub database’s name.
- o **Integrated Security** – Select the **true** value to accept the value “SSPI” for Windows Authentication.

To create a stub database using SQL authentication, input the following information:

***Note:** Each instruction’s key and value must be connected with “=”. The instructions are separated using “;”.

- o **Server** – Enter the name of a SQL Server instance. The value must be either the server’s name on the network, an IP address, or the name of a Configuration Manager alias. To connect to the default instance on the local server, refer to the following examples:

- Server=.;
 - Server=IP Address;
 - Server=localhost;
 - Server=localDatabase\instancename;
 - o **Database** – Enter the database name. If a database is not specified, the default database defined for the login is used. To connect to the database, refer to the following example: **Database=Database’s name**.
 - o **Trusted_Connection** – Select the **False** value to not use Windows Authentication Mode for login validation. You can enter the credentials that will be used to connect to the database.
 - o **User ID** – Enter the login name.
 - o **Password** – Enter the password.
 - o **DataSource** – Enter the instance’s name, the Hostname, or the IP address of a SQL server. If not specified, a connection is made to the default instance on the local computer.
 - o **Failover Partner** – Enter the name of the failover server used for database mirroring.
 - o **Initial Catalog** – Enter the stub database’s name.
7. Click **OK** to proceed to the **Enable BLOB Provider** page. The **Enable BLOB Provider** page shows the **BLOB Provider Status** of the farms that have DocAve Agents installed.
8. To enable the BLOB Provider, click **Configure** in the **Action** column and proceed with the instructions below that are pertinent to the BLOB Provider you wish to enable. Note that if you are using a SharePoint 2010 environment, AvePoint recommends that you enable RBS for the farm. If you are using a SharePoint 2013 or SharePoint 2016 environment, you can only enable RBS for the farm.

To enable RBS:

- Under **Enable RBS for Farm**, click the farm name to expand the tree. View the RBS status and enable RBS on the selected content databases by selecting the checkbox in the **Enable** column.
 - Select **Enable** in the **Include New Content Databases** row to enable RBS for all newly-added content databases. In order to use this function, a schedule must be configured in the **Schedule** field.
 - Configure a **Schedule** to check for newly-added content databases. According to your configured schedule, Connector runs a search on your farm for new content databases. If any new content databases are found, Connector enables RBS on them.
- *Note:** The stub database rule is applied to a newly-added content database immediately after the content database is added to the corresponding Web application.

***Note:** If both EBS and RBS are enabled, RBS is used.

9. After configuring the BLOB Provider, click **OK** to save the configuration. Then, click **Next** to proceed to the **Overview** page.

10. The **Overview** page shows all stub database information for all farms.

- If desired, click **Edit** in the table heading row to edit the configuration.
- When satisfied with the configurations, click **Finish and Run Now** to save the configuration and then enable/disable the corresponding BLOB Provider.

***Note:** To enable the RBS Provider without using a schedule, you must click **Finish and Run Now** to enable it immediately. Clicking **Finish** immediately enables EBS, but only saves the RBS Provider configuration without enabling the RBS BLOB Provider.

Deploying the Connector Solutions

To use Connector in DocAve, you must first deploy the DocAve Connector solutions to your SharePoint farm.

There are six Connector solutions that can be deployed: **SP2010ConnectorContentLibrary.wsp** and **SP2010ConnectorMediaLibrary.wsp** are for SharePoint 2010; **SP2010ConnectorContentLibrary.wsp** and **SP2010ConnectorMediaLibrary.wsp** are for SharePoint 2013 with 2010 experience version; **SP2013ConnectorContentLibrary.wsp** and **SP2013ConnectorMediaLibrary.wsp** are for SharePoint 2013 with 2013 experience version; **SP2016ConnectorContentLibrary.wsp** and **SP2016ConnectorMediaLibrary.wsp** are for SharePoint 2016. Once you install and deploy the DocAve Connector solutions, the Connector feature will be listed in the Site Collection Feature List. Choose the solution to deploy according to the Connector features you want to use.

- The **SP2010ConnectorContentLibrary**, **SP2013ConnectorContentLibrary**, **SP2016ConnectorContentLibrary** solutions include the DocAve Content Library feature, DocAve Connector Library Converting feature, and MySite Libraries feature.
- The **SP2010ConnectorMediaLibrary**, **SP2013ConnectorMediaLibrary**, **SP2016ConnectorMediaLibrary** solutions include the DocAve Media Library feature.

Follow the steps below to deploy DocAve Connector solutions.

1. Navigate to the **DocAve > Control Panel > Solution Manager**.
2. Select the target farm from the **Farm** drop-down list.
3. Check the following checkboxes: **SP2010ConnectorContentLibrary.wsp** and **SP2010ConnectorMediaLibrary.wsp** for SharePoint 2010; **SP2010ConnectorContentLibrary.wsp** and **SP2010ConnectorMediaLibrary.wsp** for SharePoint 2013 with 2010 experience version; **SP2013ConnectorContentLibrary.wsp** and **SP2013ConnectorMediaLibrary.wsp** for SharePoint 2013 with 2013 experience version; **SP2016ConnectorContentLibrary.wsp** and **SP2016ConnectorMediaLibrary.wsp** for SharePoint 2016. Click **Install** in the **Actions** group.
4. Once the solutions are installed on the SharePoint farm, select the checkboxes below: **SP2010ConnectorContentLibrary.wsp** and **SP2010ConnectorMediaLibrary.wsp** for SharePoint 2010, or **SP2010ConnectorContentLibrary.wsp** and **SP2010ConnectorMediaLibrary.wsp** for SharePoint 2013 with 2010 experience version, or **SP2013ConnectorContentLibrary.wsp** and **SP2013ConnectorMediaLibrary.wsp** for SharePoint 2013 with 2013 experience version, or **SP2016ConnectorContentLibrary.wsp** and **SP2016ConnectorMediaLibrary.wsp** for SharePoint 2016. Click **Deploy** in the **Actions** group.
5. After the solutions are deployed successfully, the status of the solutions is shown as **Deployed** in the **Status** column.

Refer to the **Solution Manager** section of the [DocAve 6 Control Panel Reference Guide](#) for information on performing more operations on the solutions.

***Note:** For the SharePoint 2013 Site Collections which are created using the SharePoint 2010 template, you must install and deploy the Connector solutions designed for SharePoint 2010.

Activating the Connector Features

Once the Connector solution is deployed, you can configure Connector settings for SharePoint objects (including Web applications, site collections, sites, and libraries) through the DocAve user interface.

If you want to configure Connector settings for the libraries through the SharePoint user interface, the Connector features must be activated through DocAve or SharePoint after the Connector solution is deployed. Activating Connector in DocAve allows a user to activate/deactivate features for multiple site collections at once, while in SharePoint, a user must activate/deactivate site collections one by one.

Choose the feature you want to use:

- **DocAve Content Library** – Creates a Content Library for documents and other files in an external storage location. Synchronization jobs can be performed regularly to keep the Content Library consistent with its connected storage location.
- **DocAve Media Library** – Creates a Media Library for video, music and multimedia files in an external storage location. Media Libraries allow users to play videos online. Synchronization jobs can be performed regularly to keep the Media Library consistent with its connected storage location.
- **DocAve Connector Library Converting** – Converts the SharePoint Document Libraries, Picture Libraries and Form Libraries to Connector Content Libraries. In addition, you can also convert Asset Libraries to Connector Content Libraries in SharePoint 2010. The libraries that are converted to Connector Content Libraries can have Connector settings applied to them. Content Libraries synchronize updates between the storage location and SharePoint to maintain data consistency.
- **MySite Libraries** – Automatically creates Content Libraries when new My Sites are created. The created MySite library will inherit the configured storage path if the parent Web application level has been configured with a storage path. This feature is activated at the Web application level.

Activating Connector through SharePoint

To activate the Connector features through SharePoint, complete the following steps:

1. In SharePoint 2013 and SharePoint 2016, access the site collection for which you want to activate Connector. Click the Settings () icon and navigate to **Site settings > Site collection features**. Or navigate to **Site Actions > Site Settings > Site Collection Features** in SharePoint 2010. The **Site Collection Features** page appears.
2. Click **Activate** next to the DocAve Connector Library Converting, DocAve Content Library, and DocAve Media Library Connector features.

After activating the Connector feature, the status of the feature reads **Active** in the **Status** column.

As for the **MySite Libraries** feature, it is activated at the Web application level. After you navigate to **SharePoint Central Administration > Application Management > Manage Web applications**, select the desired Web application and click **Manage Features** on the ribbon. You can activate the **MySite Libraries** feature for the selected Web application.

***Note:** In a farm, the **Manage Features** on the ribbon is available only when the DocAve Agent is installed on the machine where the Central Administration resides and the Microsoft SharePoint Foundation Web Application service is enabled. Otherwise, you all have to activate the **MySite Libraries** feature in DocAve.

Activating Connector through DocAve

To activate the Connector features through DocAve, complete the following steps:

1. Navigate to **Connector > Manage Feature** in the **Manage** group. The **Manage Feature** page appears.
2. Select the Connector feature (**Content Library, Media Library, Library Converting, or MySite Libraries**) that you wish to activate in the **View** group. Configure the following settings for the selected features:
 - a. **Tree selection** – Select the target destination on which you wish to activate the Connector features.
 - b. Expand the SharePoint farm tree to the desired node and click **Activate** in the **Action** column to activate the Connector feature. Or you can click **Activate All** following the nodes you wish to activate the Connector feature.

***Note:** If the **MySite Libraries** feature is activated on the selected Web application, a Content library will be automatically created in the MySite when this MySite is created. For the advanced configuration, refer to the **<MySiteAutoCreation></MySiteAutoCreation>** node in [Appendix B: Connector Configuration File](#).

3. After activating the Connector features, the status of the features on the corresponding site collection is changed from **Inactive** to **Active** in the **Status** column.

Configuring Mapping Settings

Connector requires several configurations to file shares for use in SharePoint. Once RBS is configured, you now need to resolve the discrepancies that exist between SharePoint and file shares. Fundamentally, these are two different systems, with different default metadata styles, security levels, and naming/path conventions.

Configured mapping settings determine how the synchronized files and folders (as well as their metadata and security properties) are managed in SharePoint. Configuring these settings is optional, as the Connector module contains default mapping settings.

Common Mapping

SharePoint does not support file or folder names that are longer than 128 characters, or filenames that contain invalid characters (such as " # % & * : < > ? \ / { | } ~). Files or folders with names longer than 128 characters are pruned to 128 characters after being synchronized to SharePoint. For filenames that contain invalid characters, the characters are replaced with an underscore (_) after being synchronized to SharePoint.

***Note:** SharePoint 2016 has no limitation for the file or folder name length while the URL length limitation is still 260 characters. SharePoint 2016 supports the following special characters in file or folder names: ~ & { }.

DocAve applies a default common mapping named **DefaultConnectorCommonSetting**, which cannot be edited or deleted. To set up a new Common Mapping:

1. Navigate to **Connector>Common Mapping** in the **General Settings** group. The **Common Mapping** pop-up page appears.
2. To create a new mapping rule, click **Create** in the **Manage** group. The **Create Common Mapping** page appears.
3. Configure the following settings for Common Mapping:
 - a. **What would you like to call this common mapping?** – Enter a name and an optional description for the common mapping profile.
 - b. **What is the maximum length for folder and file names?** – Enter the maximum length of the folder/filename displayed in the Connector Library. You can define the length of the folder/filename in the range of 1 to 127 characters. If the folder/filename exceeds the length that is defined, the system automatically prunes the extra characters and saves the name according to the length defined. The folder/filename is pruned according to the following rules.
 - Regarding filename pruning, the file extension characters are counted towards the total number of characters. Only the filename itself is pruned. For example,

if the maximum length configured is 7, a file named **abcde.exe** is pruned to **abe.exe**.

- DocAve starts pruning from the middle of the filename. In file systems, versions of documents are commonly identified with characters at the beginning (“Copy of”) and characters at the end (“version1” or “_1”). By pruning characters from the middle of the filename, DocAve ensures that these identifying characters remain intact.
 - If there is already a file with the same name in SharePoint after DocAve prunes the filename, a numerical suffix is added to the original name of the file/folder after pruning.
- c. **How should invalid characters be replaced in SharePoint?** – Replace illegal characters in folder/filenames with legal characters when synchronizing content to SharePoint. By default, all of the illegal characters are replaced with an underscore (_).

SharePoint 2016 supports the following special characters in file or folder names: ~ & { }. Therefore, it is recommended to remove the rules for these 4 characters when configuring illegal characters replacement settings for SharePoint 2016.

Property Mapping

Files that are uploaded to SharePoint natively from a file system lose their metadata, but Connector can read all the file system metadata and presents them to SharePoint in full-fidelity. Property Mapping allows you to configure rules that map the file system properties to SharePoint metadata, thereby preserving the metadata.

By default, DocAve applies a default common mapping named **DefaultConnectorPropertySetting**, which cannot be edited or deleted. To set up a new Property Mapping:

1. From the **Connector** tab, select **Property Mapping** in the **General Settings** group. The **Property Mapping** pop-up page appears. Here, you can view all of the existing Property Mapping profiles.
2. To create a new property rule, click **Create** in the **Manage** group. The **Create Property Mapping** page appears in the workspace.
3. Configure the following settings for Property Mapping.
 - a. **What would you like to call this property mapping?** – Enter a name and an optional description for the Property Mapping profile.
 - b. **How should file system properties be mapped?** – Map the file system properties to SharePoint properties. Click either the **Content Library** or **Media Library** tabs above the table to set the corresponding properties. The file system properties are mapped to SharePoint properties with the original property names unless manually configured.

Security Mapping

Files that are uploaded natively to SharePoint from a file system lose their permission settings, but Connector can read the document and file share level permissions and loads them into SharePoint. Security Mapping allows you to configure rules that map the file system permissions to SharePoint permissions.

While mapping for permissions can be configured, it's important to remember that applying unique object level permissions is not a recommended best practice in SharePoint.

By default, DocAve applies a default common mapping named **DefaultConnectorSecuritySetting**, which cannot be edited or deleted. To set up a new Security Mapping:

1. From the **Connector** tab, select **Security Mapping** in the **General Settings** group. The **Security Mapping** pop-up page appears. Here, you can view all of the existing Security Mapping profiles.
2. To create a new property rule, click **Create** in the **Manage** group. The **Create Security Mapping** page appears in the workspace.
3. Configure the following settings for Security Mapping.
 - a. **What would you like to call this security mapping?** – Enter a name and optional description for the Security Mapping profile.
 - b. **How should file system permissions be mapped?** – Map file system permissions to SharePoint permissions. It provides you two modes for permission mapping. **Basic permissions mode** enables you to configure the mappings of file system permission levels to SharePoint Permission Levels. **Advanced permissions mode** enables you to configure more detailed permission mappings from file system to SharePoint. Select a SharePoint Permission from the drop-down list to apply it to the corresponding File System Permission.
4. To create a new SharePoint permission level for the permission mapping, click **New SharePoint Permission Level**. In the pop-up window, you can view the following SharePoint permission levels: **Contribute**, **Design**, **Full Control**, **None**, **Read**, and **View Only**. These SharePoint permission levels cannot be edited or deleted.
5. Click **Create** in the **Manage** group. The **Manage SharePoint Permission Level** page appears. Configure the following settings to create a new permission level.
 - **What would you like to call this SharePoint permission level?** – Enter a name and optional description for the SharePoint permission level.
 - **What permissions would you like to include?** – Select the detailed permissions for the new SharePoint permission level by clicking the corresponding checkboxes. Select **Select All** to include all permissions.

6. Click **OK** when finished. The newly-created SharePoint permission level is listed on the **Manage SharePoint Permission Level** page and the **SharePoint Permission** drop-down lists on the **Create Security Mapping** page.

Configuring the Processing Pool

The Processing Pool feature allows you to control the maximum number of synchronization jobs that can be run at the same time. Normally, a synchronization job is fairly resource intensive, so running multiple synchronization jobs simultaneously may affect the performance of the server. To avoid this condition, use the Processing Pool feature to limit the number of simultaneous synchronization jobs.

Synchronization jobs that are added into the Processing Pool become threads. The number of threads you allow in the processing pool is the maximum number of jobs that can be run simultaneously. The remaining synchronization jobs are placed in a queue.

Each SharePoint farm has a default processing pools: **DocAve_Farm(FarmName)**. The number of threads set in that processing pool is **5**.

To create a new Processing Pool, complete the following steps:

1. Navigate to **Connector > Processing Pool** in the **General Settings** group.
2. Click **Create** in **Manage** group on the **Processing Pool** tab. The **Processing Pool** page appears.
3. Enter a **Processing Pool Name** and an optional **Description**.
4. Select the **Farm** from the drop-down list.
5. Select an **Agent Group** from the drop-down list. The Agents in the selected Agent group are used by this Processing Pool to perform synchronization jobs. For more information about creating Agent groups, refer to the [DocAve 6 Control Panel Reference Guide](#).
6. Specify the **Maximum Number of Jobs** that will be used for the synchronization jobs. For example, if you enter **8** in this field, then 8 synchronization jobs can be run at the same time.

How Connector Works with SharePoint

In Connector, there are two ways you can link with a file server.

One method is to create a library in SharePoint based on a Connector library template, which DocAve installs out-of-the-box. You can customize this library, save the library as a template, and reuse it. In this case, the template ID for the library remains the same, and is a “known and approved” template for integration with Connector’s server API. For more information on this method, refer to [Creating a Connector Library in SharePoint](#).

With the second method, you can convert existing SharePoint libraries to Connector libraries and move the content from SharePoint to file servers you configure through DocAve. In this case, Connector references a known and tested list of templates. These are mostly out-of-the-box SharePoint template IDs. For more information on this method, refer to [Creating a Connection between SharePoint and a Storage Path](#).

The common theme for both methods is the **template ID** for the library. This template ID is important for two reasons:

- When Connector converts a library, a **Connector Settings** link is added to the SharePoint library’s **Settings** page. Connector checks the library’s template ID against a known and tested list of templates.
- Each library can be customized with different features that require Connector to adapt the way it synchronizes content. For instance, a picture library requires that Connector upload the content first to SharePoint in order to generate a thumbnail, while slide libraries require Connector to split storage of each .ppt into individual slides. For this reason, we have opted for a restricted model of deployment, only allowing templates that we have verified to convert successfully with all features enabled.

***Note:** For a list of the SharePoint libraries that Connector supports for conversion, refer to [SharePoint Libraries that can Be Converted to Connector Libraries](#).

In some cases, you may have a highly customized library that Connector fails to convert. The customized SharePoint library’s template ID is not on the “approved” conversion list. However, there are steps you can take to add this template ID to the approved list. For more information, refer to [Adding Customized SharePoint Libraries to the Connector-Approved List of Templates](#).

Creating a Connection between SharePoint and a Storage Path

With DocAve Connector, you can create a connection between a SharePoint library and a file share, or cloud storage path. In other words, you can “convert” an existing SharePoint document/form/picture/asset library to a Connector library with a configured storage path. The connection can be made at the Web application, site collection, site, or library level; however, it is most common for end users to make this connection at the library level.

***Note:** To directly connect the storage path content to a SharePoint library, configure a Connector path on the [Library Level](#). This is especially common when you’re looking to enable team sites for users who already have an existing file share.

***Note:** When connecting a [Web Application, Site Collection, or Site Level](#) or multiple libraries to a file share, DocAve Connector creates subfolders in the file share that reflect the hierarchy of the farm nodes selected. This is especially common when you’re looking to enable My Sites for an enterprise Web application, but maintain home drives or file shares underneath.

Regardless of the level that the connection is configured on, only DocAve Connector libraries (Content Library/Media Library) and the four types of SharePoint libraries (Document library/Form library/Picture library/Asset library) are actually connected to the storage path. In some cases, you may want to convert an existing custom SharePoint library. DocAve references a known and tested list of SharePoint templates available at the time of a release. These are mostly out-of-the-box SharePoint template IDs. If you are attempting to convert a highly customized SharePoint library, you will need to manually add the template ID to the “approved” list. For more information, refer to [Adding Customized SharePoint Libraries to the Connector-Approved List of Templates](#).

Once the connection is made and a synchronization job is run, any content that is uploaded to the SharePoint library is stored in the connected storage path (instead of in the SharePoint SQL database). What exists in the SQL database is a stub, not the actual data. However, content in the SharePoint library appears and functions normally, as though the actual data was still stored in SQL.

Overview

The Connector settings for the Web application, site collection, and site levels are divided into two parts: **Configure Path** and **Configure Sync Settings**.

***Note:** Only **Configure Path** is supported at the library level. Sync settings are not configurable at the library level, so the **Configure Sync Settings** option is not available for libraries.

- In the **Configure Path** wizard, you can configure the storage path.

- In the **Configure Sync Settings** wizard, you can configure Sync settings such as mapping settings and schedule settings.

Configuring the Connector Path

To connect a SharePoint library to a storage path, complete the following steps:

1. From the **Scope** panel, select the object that you wish to connect to a storage path.
2. Click the **Configure Path** drop-down in the **Action** group and select **Configure Path**.
3. Refer to the appropriate section below depending upon the level you selected.

Web Application, Site Collection, or Site Level

***Note:** The Web application, site collection, and site levels support only Net Share storage. DocAve Connector also supports cloud storage, FTP, HDS Hitachi Content Platform, IBM Storwize Family, NetApp Data ONTAP, Network File System and Net Share with WMS (only for Media Library) storage on the [Library Level](#), in addition to Net Share.

To configure the Connector settings on the Web application, site collection, or site level, complete the following steps:

1. Follow the instructions in [Configuring the Connector Path](#) to select a node.
2. **Configure Storage Path** appears. Configure a physical storage path to connect to the desired nodes in your SharePoint environment. For information regarding inheritance, refer to [Managing Inherited Connector Settings](#).
 - a. **Should these settings apply only to specific managed paths?** (Web application level only) – Select the managed path where you want to configure the Connector settings. The site collections and sites under the selected managed path inherit the Connector settings from the Web application automatically. The libraries under the selected managed path inherit the Connector settings from the Web application automatically only when they are enabled in the **Enable Library** step

After selecting a managed path, click the **Add Selected Managed Path** to add it. You can add several managed paths.
 - b. **What type of storage location would you like to connect?** – Select the storage device type. Only the **Net Share** storage is supported for the Web application, site collection, and site levels.
 - c. **What credentials would you like to use to connect?** – Enter the Net Share path whose content will be synchronized to the Connector library. Enter the **Username** and **Password**. This path will be the default root storage path for all the Connector Libraries created under the selected node. The UNC path's credentials will be automatically saved

as a managed account profile, which enables you to apply the password change to all of the settings using the same account. For more information, refer to the [DocAve 6 Control Panel User Guide](#).

- o The **Extended parameters** option is shown if the **Advanced** option is enabled. The **Extended parameters** option allows you to add customized properties to configure the advanced settings for the storage path.
3. Click **Next** when finished. The **Enable Library** page appears.
 4. **Would you like to enable the Connector settings on child libraries?** – Using the tree to the right, navigate down to the library level. Select the libraries where you want to enable the Connector settings. The checkboxes for the libraries that already have Connector settings configured are not available in the tree.
 5. When finished, click **Next**. The **Overview** page appears.
 6. Review and edit the Connector settings in the **Overview** page. Click **Back** to modify your configuration, click **Finish** to complete the configuration, or click **Cancel** to quit. After clicking **Finish**, folders are generated in the storage path you entered in the **UNC Path** field in the format *UNC Path\Managed Path\Site URL Name\Library URL Name*. The content in each library is stored in the corresponding path/folder in the storage location.

Library Level

Most end users will configure a Connector storage path on the library level to directly connect existing file share content to a SharePoint library. DocAve Connector supports cloud storage, FTP, HDS Hitachi Content Platform, IBM Storwize Family, NetApp Data ONTAP, Network File System and Net Share with WMS (only for Media Library) storage on the library level, in addition to Net Share.

While mapping for permissions can be configured, it's important to remember that applying unique object level permissions is not a recommended best practice in SharePoint.

***Note:** The only Connector option available at the library level is **Configure Path**. The **Configure Sync Settings** option is not available for configurations made at the library level.

***Note:** If connecting an existing SharePoint Document library, Form library, Picture library, or Asset library to a storage path, all content in the existing SharePoint library is moved to the storage path, even the content that was uploaded to the library prior to making the “connection” to the storage path.

The Connector settings at the library level can also be configured from SharePoint. Refer to [Configuring Connector Library Settings using the SharePoint Interface](#) for details.

To configure a Connector path on the library level in DocAve, complete the following steps:

1. Follow the instructions in [Configuring the Connector Path](#) to select a node. The **Connect to existing content outside of SharePoint** page appears. **Use path from parent** is selected if the storage path is already configured at the level higher than library level.
 - If it is checked, the library inherits the storage path from its parent site. The **UNC Path** and **Username** fields cannot be modified, but the **Password** is required. The UNC path's credentials will be automatically saved as a managed account profile which enables you to apply the password change to all of the settings using the same account. For more information, refer to the [DocAve 6 Control Panel User Guide](#).
 - If unchecking this option, you can specify a unique storage path for the library. If any of the parent objects including the site, site collection, and Web application are not configured to any storage path, this option is not available in the library configuration page.

For information regarding inheritance, refer to [Managing Inherited Connector Settings](#).

2. Select a **Storage Type** from the drop-down list:
 - a. **Net Share** – Enter the path you want to synchronize with this library, and then enter the **Username** and **Password** to set up access to the path to which data will be written. The UNC path's credentials will be automatically saved as a managed account profile which enables you to apply the password change to all of the settings using the same account. For more information, refer to the [DocAve 6 Control Panel User Guide](#). Clicking **Advanced** displays the **Extended Parameters** option, and it allows you to manage the advanced settings for the storage path. Refer to the Net Share section in [DocAve 6 Control Panel Reference Guide](#) for information on the available properties in the Extended Parameters option.

***Note:** If you configure Extended Parameters for Net Share in Connector, the device cannot be in **Read Only** mode since Connector needs to have permission to write or delete data from the storage location. For more detailed information about file share permissions, refer to [File Share Permissions](#).
 - b. **IBM Storwize Family** – Enter the path you want to synchronize with this library, and then enter the **Username** and **Password** to set up access to the storage device. The UNC path's credentials will be automatically saved as a managed account profile which enables you to apply the password change to all of the settings using the same account. For more information on the managed account profile, refer to the [DocAve 6 Control Panel User Guide](#). Clicking **Advanced** displays the **Extended Parameters** option, and it allows you to manage the advanced settings for the storage path. Refer to the IBM Storwize Family section in [DocAve 6 Control Panel Reference Guide](#) for information on the available properties in the Extended Parameters option.

***Note:** If you configure Extended Parameters for IBM Storwize Family in Connector, ensure that the device is not in **Read Only** mode since Connector writes and deletes data from the storage location.

- c. **FTP** – Specify the path you want to synchronize with this library by entering the **Host**, **Port**, and **Root Folder**. Then enter the **Username** and **Password** to set up access to the path where the data will be written. Clicking **Advanced** displays the **Extended Parameters** option, and it allows you to manage the advanced settings for the storage path. Refer to the FTP section in the [DocAve 6 Control Panel Reference Guide](#) for information on the available properties in the Extended Parameters option.
- d. **NetApp Data ONTAP** – Select **CIFS** or **NFS** from the Data ONTAP drop-down list and configure the other settings accordingly:
 - o **CIFS Share** – Specify a previously configured Storage system profile that contains the connection information to your storage system, and select a **Share** to be the storage location. You can specify the sub-folder path in the **Start folder** text box. Ensure that this path does not start with a forward slash (\). For example, if a full CIFS path is `\\na7m-a/blob/connector/library_files`, the server name **na7m-a** is selected in **Storage system profile**, and the CIFS share name **blob** is selected from the **Share name** drop-down list. The user must enter the value `connector/library_files` in the **Start folder**. Then, enter the **Username** and **Password** to set up access to the Filer. These credentials will be automatically saved as a managed account profile, which enables you to apply the password change to all of the settings using the same account. For more information, refer to the [DocAve 6 Control Panel User Guide](#). The **Extended parameters** option is shown if the **Advanced** option is enabled. The **Extended parameters** option allows you to add customized properties to configure the advanced settings for the storage path.
 - o **NFS** – Select a previously configured **Storage system profile** that contains the connection information to your storage system and then select a **Share** from the **Export** drop-down menu to be the storage location. You can specify the sub-folder path in the **Start folder** text box. If the share path you selected does not allow anonymous access, select the **Use username mapping** checkbox to enter the **Username** and **Password**. If the share path allows anonymous access, you can just leave the **Use username mapping** deselected. The **Extended parameters** option is shown if the **Advanced** option is enabled. The **Extended parameters** option allows you to add customized properties to configure the advanced settings for the storage path.
- e. **Network File System** – Enter the path you want to synchronize with this library, and then enter the **Username** and **Password** to set up access to the path where the data will be written. (Credentials are optional for anonymous access, therefore if the path you entered allows anonymous access, you can leave the **Username** and **Password** empty.) For more information, refer to the [DocAve 6 Control Panel User Guide](#). Clicking **Advanced** displays the **Extended Parameters** option, and it allows you to manage the advanced settings for the storage path. Refer to the Network File System section in

[DocAve 6 Control Panel Reference Guide](#) for information on the available properties in the Extended Parameters option.

***Note:** If you configure **Extended Parameters** for Network File System in Connector, the device cannot be in **Read Only** mode since Connector must have permission to write or delete data from the storage location. For more detailed information about file share permissions, refer to [File Share Permissions](#).

***Note:** The feature of **Client for NFS** must be installed on the local machine where the DocAve Agent is installed to use Network File System as the storage device. Otherwise, Network File System device will not be accessible.

***Note:** Unix path format is not supported.

- f. **HDS Hitachi Content Platform** – Specify the primary **Namespace Address** and an optional secondary **Namespace Address** where the data will be stored. Enter a **Root Folder** to be the exact storage location. Then, enter the **Username** and **Password** to set up access to the configured namespace. Clicking **Advanced** displays the **Extended Parameters** option, which allows you to manage additional settings. Refer to the HDS Hitachi Content Platform section in [DocAve 6 Control Panel Reference Guide](#) for information on the available properties in the Extended Parameters option.
- g. **Cloud Storage** – Select a Cloud Type from the drop-down list. There are several options: **RackSpace Cloud Files**, **Microsoft Azure Storage**, **Amazon S3**, **EMC Atmos**, **AT&T Synaptic**, and **Dropbox**. Refer to the RackSpace Cloud Files, Microsoft Azure Storage, Amazon S3, EMC Atmos, or AT&T Synaptic sections in the [DocAve 6 Control Panel Reference Guide](#) for information on the credentials and the available properties in the Extended Parameters option.

If you are configuring a Media Library, there is one more option available for storage type:

- h. **Net Share with WMS** – If you are configuring a Media Library, this option is available to connect the videos stored in this path to the Windows Media Service. Through the use of Net Share with WMS storage, videos can be played using Windows Media Service.

***Note:** The Windows Media Service must already be associated with the Net Share path.

3. **How should changes be synchronized?** – Select the synchronization mode that will be used:

***Note:** To review the synchronization mode behaviors for certain actions in SharePoint or a storage system, refer to the table in [Synchronization Mode Behaviors in SharePoint](#).

***Note:** This field was added in DocAve 6 SP2 CU1. When updating DocAve from one version older than DocAve 6 SP2 CU1, meaning no synchronization mode has been configured before the DocAve update, **Sync changes made from SharePoint to the storage path, existing files in the storage path to SharePoint, and load new files from the storage path** will be used after the DocAve update.

- **Sync changes made from SharePoint to the storage path and existing files in the storage path to SharePoint** – Select this option if the files are only being added, modified, or deleted through the SharePoint interface. Files added on the file server will not be synchronized to SharePoint. Deletions and modifications on the file server are not supported and could cause loss of data in SharePoint. Refer to AvePoint’s [Supplementary Tools User Guide](#) for instructions on cleaning up orphan stubs.

***Note:** AvePoint strongly recommends that you choose **Sync changes made from SharePoint to the storage path and existing files in the storage path to SharePoint** as the synchronization mode. Microsoft insists that RBS storage locations are not modified or accessed without risking possible inconsistencies between SharePoint and the actual files.

- **Sync changes made from SharePoint to the storage path, existing files in the storage path to SharePoint, and load new files from the storage path** – Select this option if files are being added, modified, or deleted through the SharePoint interface, and new files are regularly being added to the storage location. When selecting this option, the changes made in SharePoint will be synchronized to the storage path, and the newly added files in the storage path will be synchronized to SharePoint.
4. **Which permissions are required to run sync jobs?** – Select the permission levels in order to specify which end users can perform synchronization jobs. End users with at least permission to Add, Edit and Delete items can perform a synchronization operation. Note that unless manually configured, **Full Control** and **Site Collection Administrator** are selected.
 5. **Would you like to apply file system permissions?** – By default, the library inherits permissions from its parent site. If you select this option, the library permissions inherited from the parent site are broken. Instead, the storage path permissions are synchronized to the library after running the synchronization job. This option is only for Net Share, IBM Storwize Family and Net Share with WMS storage types.

***Note:** The permissions can only be synchronized when the files or folders in the storage location are being synchronized to SharePoint for the first time. If you want to reload the following permission changes from storage to SharePoint, use the **Sync-Folder** command through Connector PowerShell. For more help information on this command, refer to [Connector PowerShell](#).

- **Load the root folder’s permissions only** – If you select this option, the library permissions inherited from the parent site are broken after the synchronization. The library permissions are replaced with the root folder of the storage path’s permissions (that is, the permissions of the storage path). The files and folders under the library inherit the permissions from the library. The permissions can only be applied during the first synchronization.
- **Load and preserve all the items’ permissions from file system** – If you select this option, the library permissions inherited from the parent site are broken, and the item (folder/file) permissions will be the same as the permissions in the file system after the synchronization. The root folder and subfolder permissions in the storage path are

synchronized to the library. The permissions can only be applied during the item's first synchronization.

6. **Would you like to load metadata from file system?** – Specify whether to load metadata from file system while loading the files and folders from it. This option is only for the Net Share, IBM Storwize Family, Network File System, NetApp Data ONTAP, and Net Share with WMS storage types.

***Note:** The metadata can only be synchronized when files or folders in the storage location are being synchronized to SharePoint for the first time.

If you want to reload the following metadata changes from storage to SharePoint, use the **Sync-File** command through Connector PowerShell. For more help information on this command, refer to [Connector PowerShell](#).

If you want to load metadata from storage to SharePoint in the synchronization whenever the modify time of a file is changed in the storage side, enable the feature through the `<EnableReloadMetadata>>false</EnableReloadMetadata>` node in the Connector configuration file. Refer to [Appendix B: Connector Configuration File](#) for more details on configuring this node.

7. **How should file name changes be addressed?** – Specify whether to keep the file names in the storage path consistent with those in the Connector library when the file names are modified due to invalid characters or file name length during the synchronization job.
 - Disabling this option means the files will be modified in SharePoint during synchronization according to the Common Mapping rules. The filenames in the storage path will not change.
 - Enabling this option means the files will be consistent with the filenames in SharePoint (after synchronization). If a file or folder name contains special characters, enabling this option will result in the filenames in the storage path being consistent with the filenames in SharePoint (after synchronization). The folders' names will not be affected.
8. **Would you like to display UNC links?** – Choose whether or not to display the UNC link of the files with specific file types in the **UNCLink** column. The default file types are **mdt**, **accdb**, and **mdb**. You can edit the Connector configuration file to modify or add more file types. Refer to the `<UNCLinkTypes>mdt,accdb,mdb</UNCLinkTypes>` node in [Appendix B: Connector Configuration File](#) for details.
9. **Would you like to bypass SharePoint file limitations?** – Select **Allow uploading large files (greater than current Web application maximum upload size) as links** to allow data that is larger than the current Web application's maximum upload size to be linked from the storage device and synchronized between the storage device and SharePoint. Select **Allow uploading blocked file types as links** to allow data whose type is blocked by SharePoint to be linked from the storage device and synchronized between the storage device and SharePoint. The basic operations (including rename, copy, move, delete, etc.) of Connector links in SharePoint will be synchronized to the storage location.

***Note:** Make sure the user who uploads files that bypass SharePoint file limitations to Connector libraries has the **Add Items** permission to the library and **Add and Customize Pages** permission to the site where the library resides.

***Note:** Due to SharePoint limitations, files that exceed the Web application maximum upload size and files with blocked file types are uploaded as http links.

***Note:** In order for users to upload files that bypass SharePoint file limitations, the “Add List Items” and “Add and Customize Pages” list permissions are required.

***Note:** Granular backup jobs will not capture linked content.

***Note:** **Connector Link to a Document** and **Connector Link to Multimedia** content types must exist in your sites and libraries in order to bypass SharePoint file limitations. By default, these two content types are automatically added to your site and libraries after deploying the Connector solutions. If the **Connector Link to a Document** and **Connector Link to Multimedia** content types are unexpectedly missing from your libraries, manually add them.

Connector supports versioning management for Connector Link files. Enabling this feature requires the following two configurations:

- Enable **Versioning settings** in SharePoint **Library Settings**.
- Make sure the value of the `<EnableReUploadLinkFile>true</EnableReUploadLinkFile>` node is **True**.

Connector supports Pause and Resume operations when downloading these linked files. Connector link files can cause any of the following issues in SharePoint:

- When generating a version of a Connector link file in SharePoint, the version of this linked file will not be generated in the connected path.
- Connector linked files are not included in the index during SharePoint crawls.
- Connector linked files’ extensions cannot be modified.

If configuring a Media Library, there are three more Connector settings to configure: **Player**, **Thumbnail Settings**, and **Rich Text Settings**.

1. **What player settings would you like to configure?** – Configure the settings for the media player.
 - **Player size** – Customize the size of the player screen.
 - **Enable auto play** – Enables the videos to play automatically once the video icon is clicked.
2. **Would you like to customize the thumbnail size?** – Enter a size between 50 and 250 pixels.

3. **Would you like to enable the rich text video player?** – This feature allows you to add a button in the column of **Rich Text type** to play videos. This provides a method to enable the video for each item on the current site.
 - a. In the **Media Library Settings** page, select **Enable video player in Rich Text for the entire site**. Click **Save**.
 - b. Access a list in the site in which you have enable the rich text video player and create a column in the list. Select **Multiple lines of text** and **Enhanced rich text (Rich text with pictures, tables, and hyperlinks)** in the **Create Column** page.
 - c. Select an item in the list and click **Edit Item** in the **Manage** group on **Items** page. The **Item Edit** page appears. Click the column you just created and navigate to **Insert > Rich Text Settings** when in SharePoint 2013 and SharePoint 2016 or navigate to **Format Text > HTML > Rich Text Settings** when in SharePoint 2010. The **Player Settings** page appears.
 - d. Configure the Rich Text settings from this page, including **Video Source URL**, **Player Type**, and the **Player Size**. If you want the video to be played automatically, check the **Enable Auto Play** checkbox.

***Note:** This column only exists for lists; it does not exist in libraries.

Configuring Connector Library Settings using the SharePoint Interface

It is possible to configure initial Connector settings for the library level from either the DocAve GUI or from SharePoint. Other levels (such as Web application, site collection, and site) can only be configurable from the DocAve GUI.

The Connector setting options for the library level are exactly the same on the DocAve GUI and SharePoint. The [Library Level](#) section details how to configure Connector settings for the library level from the DocAve GUI. The section below describes how to configure the library level from SharePoint.

***Note:** If a library contains configured Connector settings that were applied from the DocAve GUI, you can edit these Connector settings from SharePoint.

To configure the Connector library from SharePoint:

1. Access the library that you will connect to your storage path.
2. Click the **Library** tab on **Library** page, and then click **Library Settings** in the **Settings** group.
3. Select **Connector Synchronization and Settings** in the **General Settings** column for a Document, Form, Picture, Asset, Content, or Media Library. The **Connector Synchronization and Settings** page appears.
4. Configure the settings for a DocAve Connector library (Content Library/Media Library) and a SharePoint Document, Form, Picture or Asset library from SharePoint. Refer to [Library Level](#) for information on these settings.

***Note:** If both Connector and Cloud Connect are enabled in your environment, all of the storage types used by both will appear in the **Storage type** drop-down list in SharePoint.

Configuring Sync Settings

This section describes how to configure the synchronization settings for the selected node.

***Note:** The default sync settings are used if you do not configure sync settings in the **Configure Sync Settings** Wizard.

The **Configure Sync Settings** option is not available for configurations made at the library level.

***Note:** If using a Hitachi Data System (HDS), ensure that no identical filenames or folder names with different cases exist in the file share. If such files or folders do exist, Connector will not synchronize them because SharePoint is not case-sensitive, while an HDS is case-sensitive.

***Note:** Some files and folders may not be synchronized from the storage system to SharePoint due to Windows API or SharePoint limitations. For more details on what kind of files are not supported, refer to [Files That Do Not Synchronize from Storage Path to SharePoint](#).

To configure sync settings, complete the following steps:

1. Click **Configure Sync Settings** in the **Action** group and select **Configure Sync Settings**.
2. **Configure Sync Settings** – Configure synchronization related settings for the selected object.
 - Select a **Common Mapping** from the corresponding drop-down list. There is a default common mapping profile in the drop-down list. If desired, select **New Common Mapping** from the drop-down list to create new common mapping profiles. Refer to [Common Mapping](#) for more information.
 - Select a **Property Mapping** from the corresponding drop-down list. There is a default property mapping profile in the drop-down list. If desired, select **New Property Mapping** from the drop-down list to create new property mapping profiles. Refer to [Property Mapping](#) for more information.
 - Select a **Security Mapping** from the corresponding drop-down list. There is a default security mapping profile in the drop-down list. If desired, select **New Security Mapping** from the drop-down list to create new security mapping profiles. Refer to [Security Mapping](#) for more information.
 - **Which processing pool would you like to use?** – Specify a processing pool for the synchronization process. There is a default processing pool for each SharePoint farm, **DocAve_Farm(FarmName)**. If desired, create new processing pools by selecting **New Processing Pool** from the drop-down menu. For more information, refer to [Configuring the Processing Pool](#).
 - **Would you like to configure a schedule?** – Choose whether or not to synchronize the content between the storage path and SharePoint periodically.

- o **No Schedule** – Does not configure any schedule to synchronize the data. If you select this option, you must run the synchronization job manually from SharePoint.
 - o **Configure the schedule myself** – When you select this option, the **Schedule Settings** option become available.
 - **Schedule Settings** – Select the start time and interval for the schedule. You can navigate to the **Calendar View** page by clicking the calendar icon or **Calendar View** to view the interval in the calendar. You can also specify the end time or how many times the synchronization will run for the schedule.
 - **Who should receive e-mail notification?** – Select a notification profile, and click **View** besides the drop-down list to configure the notification setting. You can also click **New Notification Profile** to create a new notification profile.
3. Click **OK** to save the settings or click **OK and Sync Now** to save the sync settings and run the synchronization job immediately.

Managing Inherited Connector Settings

The site collection, site, and library levels automatically inherit Connector settings from their parent nodes.

With regards to inherited Connector path settings, when setting up a connection between SharePoint and a storage device, inheritance is just a recommendation. The connection between SharePoint and the storage device is actually a connection between a SharePoint library and the storage device, as the library is inheriting the settings configured on the parent node. Only Connector settings on the library level have an effect on the connection relationship between SharePoint and storage device.

If this default inheritance logic is acceptable, then it is not necessary to configure Connector settings (such as **Storage Path** and **Mapping Settings**) at each level manually. Inheritance saves time by only requiring the aforementioned settings to be configured once, as each library in a particular node inherits the settings from its parent node.

If desired, you can break inheritance and configure unique Connector settings for each level. As mentioned, only the Connector settings on the library level have an effect on the connection relationship between SharePoint and the storage device.

If you want to break inheritance, select the child node beneath the configured parent node and select **Configure Path** and **Configure Sync Settings** to configure unique setting for the selected node.

Refer to the descriptions below for the inheritance details of each level.

Site Collection

If the upper-level Web application has Connector settings configured on it, the site collections below it inherit the Connector settings.

- The right pane of the DocAve Connector interface displays the parent node the current site collection inherits its path and sync settings. To break inheritance, access the **Configure Path** and **Configure Sync Settings** in the **Action** group to configure unique settings for the selected site collection.
- If the upper-level Web application does not have any Connector settings applied to it, access **Configure Path** and **Configure Sync Settings** in the **Action** group to configure Connector settings for the selected site collection.

***Note:** Only when the managed path of a site collection is configured at the Web application level do the site collections under the selected Web application inherit the Connector settings.

Site

If the upper-level site collection has configured Connector settings, the site inherits the Connector settings from its parent site collection.

- The right pane of the DocAve Connector interface displays the parent node the current site inherits its path and sync settings. To break inheritance, access **Configure Path** and **Configure Sync Settings** to configure unique settings for the selected site.
- If the upper-level site collection does not have any Connector settings applied to it, click **Configure Path** and **Configure Sync Settings** to configure Connector settings for the selected site.

Library

If the upper-level site has been configured Connector settings and no settings have been configured for the library, the library inherits the Connector settings from its parent site.

***Note:** The sync settings, including mapping settings and schedule settings, cannot be configured at the library level. The library inherits sync settings from its parent automatically. But if no Connector settings are configured at site level or above, the library uses the default Common Mapping, Property Mapping, and Security Mapping. In addition, the library uses the default schedule setting (**No Schedule**). In this case, it is necessary to run the synchronization job from SharePoint manually.

Adding Customized SharePoint Libraries to the Connector-Approved List of Templates

The “approved” list that Connector ships with does not contain templates other than out-of-the box approved templates. These template IDs are not universally unique for the entire SharePoint ecosystem, and AvePoint does not unknowingly approving a template that has not been tested.

However, in anticipation of the need for converting custom libraries, Connector does provide a way to manually add to the approved list. Before performing the steps below, it is recommended that you archive a copy of the .config file before making changes to it. In addition, AvePoint recommends that you test the library with all functions first (synchronization, modifications, search, workflow, and other normal user activity) to ensure compatibility before modifying this file in your production environment.

In terms of maintenance, be sure to back up the modified .config file so that you can leverage it for all future versions of DocAve, ensuring that your list of known and tested templates is maintained.

***Note:** In the Control Load Balancing (CLB) environment, execute the following operations in every server where the Control Service resides.

1. Open the Manager server.
2. Locate the **ControlConnectorTemplates.config** file in the following folder path:
\\AvePoint\DocAve6\Manager\Control\Config\Connector.
3. Open the **ControlConnectorTemplates.config** file using Notepad.
4. For this example, assume that your template ID is 31000. Locate the following code in the .config file, and add your library’s template ID to the list:

```
<ConnectorTemplates>
    <Template value="109" />
    <Template value="851" />
    <Template value="115" />
    <Template value="31000" />
</ConnectorTemplates>
```

5. Save the change and close the file.

After completing this configuration, you can configure further Connector settings for this library through DocAve Manager.

Removing Connector Settings

The storage path configuration and sync setting configuration can be removed from the Web applications, site collections, sites, and libraries using the **Remove Sync Settings** feature. Applying this feature removes the connection between SharePoint and the storage path.

***Note:** To make sure the synchronization jobs configured at higher levels can run normally, AvePoint recommends removing the storage path settings from a Connector library before deleting the library. To delete the storage path settings for all of the Connector libraries inside a specific site collection/site in bulk, AvePoint recommends using the Connector API. If there are both Cloud Connect and Connector libraries in a site or site collection, the storage path settings for both libraries will be deleted. For more information on Connector API functions, refer to **AgentCommonConnectorAPI.chm** located in the DocAve Agent installation directory, which is ...`\AvePoint\DocAve6\Agent\Documents\SDK\Connector`.

To remove the storage path configuration: From the **Connector** tab, select the target node on the farm tree, click **Configure Path** in the **Action** group, and select **Remove Path**. The connected storage path is removed from the selected node.

To remove the sync setting configuration: From the **Connector** tab, select the target node on the farm tree, click **Configure Sync Settings** in the **Action** group, and select **Remove Sync Settings**. The sync settings for the selected node are removed.

***Note:** The **Remove Sync Settings** option is not available for the library level, as the library level does not support configuration of sync settings.

Creating a Connector Library in SharePoint

After activating the Connector features, you can specify a storage path in DocAve or SharePoint. You can also create a Connector library in SharePoint. When a Connector library is created in SharePoint, all files uploaded to the library are automatically externalized to the configured storage device path rather than remaining in SQL storage.

While mapping for permissions can be configured, it's important to remember that applying unique object level permissions is not a recommended best practice in SharePoint. You can make the determination at the time of creation whether a library will reuse file system security or simply inherit from its SharePoint site, but we strongly recommend the latter.

The two types of Connector libraries are **Content Library** and **Media Library**. Neither library has restrictions on the file types that can be uploaded to them, but the Media Library contains the following special functionality:

- Media Libraries allow for the viewing of certain file type thumbnails. Refer to [Viewing All Video Thumbnails](#) for more details.

- The play times of video files stored in the Media Library can be recorded in SharePoint's Audit Log. The video playing action is included in the **Opening or downloading documents, viewing items in lists, or viewing item properties** event. Ensure that this event option is selected on the **Configure Audit Settings** page when you are configuring audit settings for recording play times of videos in SharePoint.
- It is easy to locate the URL of a video file currently being played in the Media Library. The file title on the top of the player is a link; click it to jump to a webpage that will play the video file. The URL in the address bar of this webpage is the URL of the video file being played.
- There is no size limitation to the media files that are played in the Media Library.

You can access the Media Library from a mobile device. For more information, refer to [Using the Media Library on a Mobile Device](#).

To create a Connector library (Content Library/Media Library) in SharePoint, complete the following steps:

1. In SharePoint, access the site where the Connector feature is activated.
2. When in SharePoint 2013 and SharePoint 2016, click the Settings () icon on the upper-right corner of the page and select **Site contents** in the drop-down list. The **Site Contents** page appears. Select the library you want to create. When in SharePoint 2010, click **Site Actions** on the upper-left corner of the page and select **More Options** in the drop-down list. Locate **Content Library** or **Media Library** under the **Libraries** column. Select the library you want to create.
 - **Name and Description** – Enter the name of the library and the optional description.
 - **Navigation** – Specify whether to display this library on the Quick Launch. (SharePoint 2010 only)
 - **Document/Item Version History** – Specify whether to create a version each time you edit a file in this library.
 - **Document Template** – Select from the **Document Template** drop-down list to determine the default template for all new files created in this library.

For more information, including details on specifying a default path for Connector libraries created in SharePoint, refer to [Configuring the Connector Path](#).

***Note:** If you have ever accessed DocAve 5 Connector libraries, you must clear your browser cookies and cache before accessing DocAve 6 Connector libraries that were created in the same site. This ensures proper functionality of the DocAve 6 Connector libraries.

Using a Connector Library

After creating a Connector library and synchronizing the content, access the **Library** page and manage your library. The following actions can be performed:

***Note:** The actions under the **Files (Documents** in SharePoint 2010) and **Library** tabs contain basic SharePoint Document library functions. The **Connector** tab is unique to DocAve Connector libraries.

Using the Files Tab

- **New Document** – Creates a new document in the library.
- **Upload Document** – Uploads one or multiple files to the library (uploading multiple files at a time is only available in SharePoint 2010).

***Note:** There is only the file's stub in the SharePoint library. The uploaded files are saved in the relevant folder in the connected path. You can also click **Upload Connector Links** to upload files whose size is greater than the current Web application's maximum upload size or whose type is blocked by SharePoint.

***Note:** To use the **Upload Connector Links** feature properly, make sure **Allow uploading large files (greater than current Web application maximum upload size: {0} MB) as links** and **Allow uploading blocked file types as links** options have been configured in Connector Settings. For more information on configuring this settings, refer to [Configuring Sync Settings](#).

***Note:** Make sure the user who uploads files through the **Upload Connector Links** feature to Connector libraries has the **Add Items** permission to the library and **Add and Customize Pages** permission to the site where the library resides.

- **New Folder** – Creates a new folder in the library.
- **Edit Document** – Opens the selected document for editing.
- **Check Out** – The checked-out document becomes read only and cannot be edited.
***Note:** When you check out one file in the Connector library in SharePoint, the attribute of the corresponding file stored in the Net Share storage is changed to **Read Only** to make sure the corresponding file in the Net Share storage is also locked for editing. After you check in the file, the original attribute of the file is recovered in the Net Share storage.
- **Check In** – Checks in the document that you checked out and accepts the changes made during the check-out.
- **Discard Check Out** – Checks in the document that you checked out and discards the changes made during the check-out.

- **View Properties** – Views the selected file’s properties.
- **Edit Properties** – Edits the selected file’s properties.
- **Preview** – Previews files in image format. Office files, PDF files, CAD files, and pictures are supported.
 - ***Note:** This feature is only available when **SP2010PreviewGUI.wsp**, **SP2013PreviewGUI.wsp**, or **SP2016PreviewGUI.wsp** is deployed on your farm. For detailed information about this feature, refer to the *Appendix C: Previewing Files in SharePoint Using the DocAve Preview Feature* section in the [DocAve 6 Control Panel User Guide](#).
- **Version History** – Views and manages the version history of the selected file.
- **Shared With (Document Permissions in SharePoint 2010)** – Accesses **Share (Permission Tools in SharePoint 2010)** to manage the selected file’s permissions.
- **Delete Document** – Deletes the selected file from the current library.
 - ***Note:** When a file is deleted in SharePoint, it is moved to the Recycle Bin. To mimic SharePoint behavior, the corresponding file in the storage location will be placed into a folder named **_r** under the **.fsdl** folder in the storage location after synchronization. If you empty the SharePoint recycle bin, the deleted files will be placed into a folder named **_d** under the **.fsdl** folder in the storage location.
- **Share** – Invites people to this document. (in SharePoint 2013 and SharePoint 2016)
- **Popularity Trends** – Reviews popularity trends report, which provide insight into how and what content is being accessed. (in SharePoint 2013 and SharePoint 2016)
- **E-mail a Link** – E-mails a link to the selected file. (SharePoint 2010 only)
- **Alert Me** – Receives e-mail or mobile notification when things change. (SharePoint 2010 only)
- **Follow** – Follows this document and gets updates in your newsfeed. (in SharePoint 2013 and SharePoint 2016)
- **Download a Copy** – Downloads a copy of the selected file to your computer.
- **Send To**
 - **Other Location** – Moves or copies the selected file to another location.
 - **Create Document Workspace** – Creates a Document Workspace for the selected file.
- **Manage Copies** – Manages all linked copies of the selected file.
- **Go To Source** – Navigates to the source file that is linked to the selected file.
- **Workflows** – Brings you to the Workflows page to start a new workflow on the selected document, or to view the status of a running or completed workflow.

- **Publish** – Publish a major version of the selected document.
- **Unpublish** – Unpublishes the current version of the selected document.
- **Approve/Reject** – Approves or rejects submissions to this library.
- **Cancel Approval** – Cancels approve/reject submission and unpublishes the selected document.
- **I Like It** – Tags the selected item with “I Like It.”
- **Tags & Notes** – Adds tags to the selected item. Also, adds notes to the item to help clarify the item. The notes are public.

Using the Library Tab

- **View (Standard View in SharePoint 2010)** – Views the items in the standard list format.
- **Quick Edit (Datasheet View in SharePoint 2010)** – Views the items in the datasheet list format.
- **New Row** – Adds a new row to this list. (SharePoint 2010 only)
- **Show Task Pane** – Opens a task pane to access additional commands. (SharePoint 2010 only)
- **Show Totals** – Displays totals under each column. (SharePoint 2010 only)
- **Refresh Data** – Reloads the data to display changes made by other users. (SharePoint 2010 only)
- **Create View** – Selects columns, filters, and other settings according to your requirements to create a new view.
- **Modify View** – Modifies the existing views.
- **Create Column** – Adds a new column to store additional information about each item in the current library.
- **Navigate Up** – Navigates to the parent folder of the current folder.
- **Current View** – Selects different views from the drop-down list. Click the triangles next to the **Current Page** field to go to the next page or previous page.
- **E-mail a Link** – E-mails a link to the library.
- **Alert Me** – Receives e-mail or mobile notification when things change. (SharePoint 2010 only)
- **RSS Feed** – Goes to the selected library’s RSS Feed page to view and subscribe to its feed.
- **Most Popular Items** – Reviews popularity trends report, which provide insight into how and what content is being accessed. (in SharePoint 2013 and SharePoint 2016)
- **Sync to SharePoint Workspace** – Creates a synchronized copy of the library on your computer using SharePoint Workspace. (SharePoint 2010 only)

- **Connect to Office** – Creates a shortcut to the library in the **SharePoint Sites** folder of the favorites list in the Office **Save As** and **Open dialog** boxes. You can conveniently access commonly-used libraries from a Microsoft Office program.
- **Connect to Outlook** – Synchronizes items and makes them available offline using Microsoft Outlook.
- **Export to Excel** – Exports items in the library using Microsoft Excel.
- **Open with Explorer** – Opens the library as a standard Windows Explorer folder.
- **Form Web Parts** – Modifies the Web parts in the forms associated with this library.
- **Edit Library** – Edits the current library in SharePoint Designer.
- **New Quick Step** – Creates your own Ribbon button to perform a custom action on the items in the library.
- **Library Settings** – Configures the setting such as permissions, columns, and views for current library.
- **Shared With (Library Permissions in SharePoint 2010)** – Manages permissions for the current library.
- **Workflow Settings** – Modifies the settings of the workflows associated with this library.

Using the Connector Tab

- **Synchronization Operations** – Runs synchronization jobs for the current library.
 - **Synchronize Current Folder** – Only synchronizes the current folder.
 - **Synchronize Current Folder and Subfolders** – Synchronizes the current folder and its subfolders.
- **View Report** – Downloads the library’s latest synchronization job report.

Using the SYNC Feature

- **SYNC** – Click the **SYNC** button on the upper-right corner of a Connector library page to create a synchronized copy of this document library on your computer (only available in SharePoint 2013 and SharePoint 2016).

***Note:** The **Sync a new library** feature in the OneDrive for Business sync client is not available for Connector libraries. Use the **SYNC** feature on the SharePoint side to achieve this function for a Connector library.

Specific Features in Connector Media Library

Connector Media Library not only has the same features as Connector Content Library, but it also has some additional features such as All Video Thumbnails, All Video Details, All Video Slides views. It also allows for use of the Media Library via mobile devices. See the following sections for more details.

Specific Views for Media Library

Media Library supports **All Video Thumbnails**, **All Video Details**, and **All Video Slides** views.

Click the following links to jump to the corresponding sections:

- [Viewing All Video Thumbnails](#)
- [Viewing All Video Details](#)
- [Viewing All Video Slides](#)

Viewing All Video Thumbnails

The Media Library allows you to view thumbnails for the following file types: videos, pictures, and PPTs. Refer to [Video/Audio/Picture Files in Media Library](#) for more information on these file types. To view video thumbnails, it is recommended to install ffmpeg and set the configuration file or install the SMPlayer. For more information on installing and configuring ffmpeg or SMPlayer, refer to [ffmpeg](#) or [SMPlayer](#).

***Note:** If you have not installed ffmpeg or SMPlayer before the synchronization job or you want to reload the thumbnails of videos, use the **Sync-Folder** command through Connector PowerShell. For more help information on this command, refer to [Connector PowerShell](#).

In order to view thumbnails in the Media Library, first install and configure SMPlayer or ffmpeg.

ffmpeg

To install and configure ffmpeg on each Agent server, complete the following steps:

1. Download the **ffmpeg.zip** file from <http://www.videohelp.com/tools/ffmpeg> to the desired location, and extract it.
2. Find the configuration file according to your SharePoint version. Locate the **SP2010SOConnector.config** file in the following path: ... \AvePoint\DocAve6\Agent\data\SP2010\Connector, or locate the **SP2013SOConnector.config** file in the following path: ... \AvePoint\DocAve6\Agent\data\SP2013\Connector, or locate the **SP2016SOConnector.config** file in the following path: ... \AvePoint\DocAve6\Agent\data\SP2016\Connector.

3. In the **SP2010SOConnector.config** file or the **SP2013SOConnector.config** file or the **SP2016SOConnector.config** file, change the value of the **<FFMpegPath>** element to the full path of the **ffmpeg.exe** file. For example:

<FFMpegPath>C:\Program Files\ffmpeg\ffmpeg.exe</FFMpegPath>

4. Navigate to **Start > All Programs > AvePoint DocAve 6 > DocAve 6 Agent Tools**, click **Agent Restart Service Tool**, and restart the **Agent Service** in the pop-up window.

SMPlayer

To install and configure the SMPlayer, complete the following steps:

1. Download the SMPlayer installation package from <http://sourceforge.net/projects/smplayer/>.
2. Choose **English** in the drop-down box when selecting the language.
3. Click **Next** and select **I accept the terms of the License Agreement**. Click **Next**.
4. Choose the **Typical** install type from the drop-down box and click **Next**.
5. Specify the destination folder, and then click **Install**.
6. When the installation process to completes, click **Finish**.

Be sure to set the **Player** metadata column to designate which player you want to use when opening the file.

Viewing All Video Details

The Media Library allows you to view the files' properties as well as their thumbnails.

In the All Video Details view, files can be opened directly by clicking the file name or the thumbnail. To work with PDF files properly, **Permissive** must be selected for the Browser File Handling option.

Navigate to **SharePoint Central Administration > Application Management > Manage web applications > General Settings > General Settings** to select the **Permissive** radio button.

Viewing All Video Slides

The Media Library allows you to view all of the files as a slide show.

Using the Media Library on a Mobile Device

Unlike SharePoint built-in libraries that only have the **Simple View** and **Details View** modes, a Media Library on a mobile device also supports **Thumbnail View**. Files are displayed in the **Thumbnail View** mode on a mobile device by default. However, only the files in **MP4 format with H264 video codec and AAC audio codec** can be played on the mobile device. A yellow play button is displayed on the thumbnail of these MP4 files. No button is displayed if the file cannot be played.

On the mobile device, the video file does not require a plug-in be installed. You can skip to a specific point in the file even if the download is already in progress. The file starts to be played and downloaded immediately from the point where you skip to. Therefore, you can enjoy video streaming conveniently and comfortably.

***Note:** Due to SharePoint configurations, some mobile devices do not display the **Upload Document** button. To upload a file onto the Media Library using a mobile device, you need to modify the **supportsFileUploadForSharePointMobile** attribute in the SharePoint configuration file.

Maintaining a Connector Library

Now that your Connector or SharePoint library is connected to an external storage device, it is important to maintain the health of your library by ensuring that it remains synched with SharePoint. See the sections below for information on manually syncing, managing stubs, and other maintenance actions.

Manually Synchronizing the Library with the Connected Path

If you did not set up a schedule when configuring the sync settings for your connected library, the library and storage path need to be manually synchronized. This ensures that the library stubs are displaying the most current content that exists in the storage path. You can manually synchronize the library with the connected path in either DocAve or SharePoint.

- Synchronize the library with the connected path in DocAve – Click **Synchronization** on the ribbon of the Connector Home page to run the synchronization job immediately.
- Synchronize the library with the connected path in SharePoint – There are two ways to perform the synchronization in SharePoint:
 - o Access the **Connector Synchronization and Settings** page in SharePoint to manually perform the synchronization operations.
 - **Synchronization** – Synchronizes the current library with the connected storage path.
 - **View Report** – Downloads the current library’s latest synchronization job report. This link will be shown after a synchronization job is finished.
 - **Connector Settings** – Returns to the **Connector Synchronization and Settings** page, where you can edit the Connector settings for the **current** library.
 - o Refer to [Using the Connector Tab](#) for performing the synchronization via operations under the Connector tab.

After the synchronization completes, the stubs for the files and folders in the file system are created or updated in the library.

***Note:** If using a Hitachi Data System (HDS), ensure that no identical filenames or folder names with different cases exist in the file share. If such files or folders do exist, Connector will not synchronize them because SharePoint is not case-sensitive, while an HDS is case-sensitive.

Manually Synchronizing an Individual File

The Sync file feature only allows for users to synchronize an individual file in a Connector library. You do this by modifying the **SP2010SOConnector.config** or **SP2013SOConnector.config** file. This will improve the efficiency since the synchronization of libraries may take a long time. For more details about enabling this feature, refer to [Appendix B: Connector Configuration File](#).

Make sure the **Sync File** feature is enabled and the Connector library has configured the storage path, then the Sync File option appears in the Callout menu. Select the file you want to perform the synchronization, and click the menu to select **Sync File** to run the synchronization job.

Managing Orphan BLOBs

If Connector stubs are removed from SharePoint, the BLOB content remains in the external storage. There are two ways to remove the orphan BLOB content: clear up orphan BLOBs through an independent job in DocAve Manager, or clear up orphan BLOBs through the configuration file. This option in the configuration file is triggered by the synchronization job automatically.

Clearing Up Orphan BLOBs by DocAve Manager

To configure the **Clean Up Orphan BLOBs** function in DocAve, complete the following steps:

1. Click **Connector > Clean Up Orphan BLOBs** in the **Action** group. The **Clean Up Orphan BLOBs** tab appears.
2. Click the farm name to expand the tree and select the Web applications or the databases where you want to configure the BLOB cleanup rules. After expanding the tree, you can select the farm node to select all the displayed objects on the tree.
3. Click **Configure**. A message appears on the top of the screen displaying **You can refer to the Storage Report for more detailed information about the orphan BLOBs**. Click **Storage Report** in the message. You will be redirected to the **Dashboard** screen in **Storage Report**. For more details, refer to [Viewing Collected Data Information for the Storage Report Profiles](#).

The **Enable Clean Up Orphan BLOBs** option appears. Selecting **No** disables the **Clean Up Orphan BLOBs** function for the selected scope. Selecting **Yes** displays the following options:

- **Scope Definition** – Select the **Include new content databases** checkbox to also apply the configured BLOB cleanup policy to newly added content databases in the selected Web applications.
- **Large and Blocked Files** – Select to delete the BLOBs for the large and blocked files.
- **Processing Pool** – Select a processing pool from the drop-down list to manage the Clean Up Orphan BLOBs job threads and Agent groups for selected nodes.
- **Schedule** – Configure a schedule for cleaning up orphan BLOBs.

- o **Start Time** – Schedule a start time to begin the BLOB cleanup job. To change the time zone, click the time zone under the **Start time** field.
- o **Interval** – Set an interval for recurring rules based on a schedule using the option of **Day(s)**, **Week(s)** or **Month(s)**.
- o Click **Calendar View** to view all scheduled BLOB cleanup jobs in the pop-up calendar by **Day**, **Week**, or **Month**.
- **Advanced Settings** – Set the duration for completely deleting the deleted files in the storage location; the deletion can be delayed using the options **Day(s)**, **Week(s)** or **Month(s)**.

The delay duration is 30 days by default. To mimic SharePoint behavior, files deleted from SharePoint will be placed into a folder named **_r** under the **.fsdl** folder in the storage location after a synchronization or Incremental synchronization is performed. If deleting files from the SharePoint recycle bin permanently, the deleted files will be placed into a folder named **_d** under the **.fsdl** folder in the storage location after a synchronization or Incremental synchronization is performed. After the delay duration is reached, the files are deleted from the **_d** folder.

- **Conflict Resolution** – Select which action to perform when a selected node already has BLOB cleanup settings configured.
 - o **Overwrite** – When a conflict occurs, **Overwrite** replaces the previous settings with the newly saved settings.
 - o **Skip** – When a conflict occurs, **Skip** will keep the previous settings. The newly configured settings will not replace the previously configured settings and will not be applied on nodes that have applied settings. For nodes that do not have previously configured settings, the newly configured settings will be applied to them.
 - o Click **View Conflict Items** to view nodes of which the schedules, delayed deletion settings and alternate file settings have already **been** configured.
- 4. Click **OK** to save the configuration or click **Cancel** to cancel the operation.
- 5. After saving the BLOB cleanup rule, the configured rule settings for the applicable nodes display in the **Schedule** and **Delay Deletion** columns.

Clearing Up Orphan BLOBs by Synchronization Job

You can configure the **ClearUpSwitch** node in the configuration file to enable the Clear Up Orphan BLOBs feature. This feature will be automatically triggered after each synchronization job runs. Refer to [Appendix B: Connector Configuration File](#) for details on configuring the node.

To mimic SharePoint behavior, files deleted from SharePoint are placed into a folder named **_r** under the **.fsdl** folder in the storage location. If deleting files from the SharePoint recycle bin permanently, the deleted files are placed into a folder named **_d** under the **.fsdl** folder in the storage location. After the delay duration is reached, the files are deleted from the **_d** folder.

By default, the delay duration is 30 days, which means after 30 days the files deleted from SharePoint will be permanently deleted from the storage side.

Managing Stubs

Refer to the sections below to manage the Connector stubs.

Converting Stubs to Content

After running a synchronization job, Connector moves the data to the storage path and creates stubs in SharePoint in place of the original data. To convert these stubs back to data in SharePoint's SQL server, use the **Convert Stubs to Content** function.

***Note:** Refer to [How to Determine If the Data Is Stub or Real Content](#) for information on identifying stubs and content.

1. Navigate to **Connector > Convert Stubs to Content** in the **Action** group. The **Convert Stubs to Content** tab appears.
2. In the pop-up window, select the scope where you want to perform the stub restore. If desired, enter the criteria in the textbox and click the magnifier to search for the desired object.
3. The tree can be expanded down to the item level. Click **Items** and all synchronized items' stubs are displayed in the **Stub Browser** area.
4. Choose to convert the stubs immediately or select another time in the **Schedule** field, and then configure the following settings.
 - **Convert now** – Choose this option if you want to convert the stubs to real data immediately.
 - **Configure the schedule myself** – Choose this option to convert the stubs based upon a configured schedule. If this option is selected, the following option will appear and need to be configured:
 - o **Schedule Settings** – Specify the start time for the schedule. You can also select a time zone for the schedule.
5. Click **OK** to start the conversion and convert the selected scope's stubs to real data.

How to Determine If the Data Is Stub or Real Content

There are no identifying markers for Connector stubs in SharePoint. Refer to the methods below to determine if the data is a stub or real content.

- If using the EBS Provider, navigate to the content database of the site collection in Microsoft SQL Server Management Studio and locate the **AllDocs** table. If the seventeenth bit of the binary number of the item's value in the **docflags** column is 1, then this item is stub. Otherwise, it is real content.

- If using the RBS Provider, navigate to the content database of the site collection in Microsoft SQL Server Management Studio and locate the **AllDocStreams** table (in the SharePoint 2013 and SharePoint 2016 environment, locate the **DocStreams** table). If the value of the item in the **RbsId** column is not **Null**, and the value in the **Content** column is **Null**, then the item is a stub. If the value of the item in the **Content** column is not null, the item is real content.

Updating DocAve 5 Stubs to DocAve 6 Format

DocAve 6 Service Pack 1 and later enables you to update the Connector stubs that were generated in DocAve 5 to DocAve 6 format. The corresponding operations are all performed in the Control Panel. Reference the **Converting DocAve 5 Connector Stubs** section in the [DocAve 6 Control Panel Reference Guide](#) for more information.

Converting EBS Stubs to RBS Stubs in DocAve 6

For more information on converting the EBS stubs to RBS stubs in DocAve 6, refer to **Converting EBS Stubs to RBS Stubs in DocAve 6** in the [DocAve 6 Control Panel Reference Guide](#).

Checking Connector Job Status

In the **Connector** tab, click **Job Monitor** in the **Statistics** group to navigate to the Connector module Job Monitor where Connector and Cloud Connect jobs reside. Here, you can view the status of scheduled Connector synchronization jobs.

If you have made synchronization schedules for multiple nodes, Job Monitor helps to clearly distinguish which plan is from which node. The **SharePoint URL** column displays the node for which the synchronization plan runs, and the **Level** column shows the corresponding node level.

To monitor jobs or troubleshoot for errors, Job Monitor should be your first step. If a job fails, click the **Rerun with Debug Logging** button to run the job again in the debug level. After the debug level job completes, you can download the job log to view details. For detailed information on Job Monitor, refer to [DocAve 6 Job Monitor Reference Guide](#).

***Note:** Only the scheduled Connector synchronization jobs are able to be monitored by Job Monitor. For synchronization jobs run manually in SharePoint, check the status by referencing the displayed progress bar.

Connector also generates a job report that contains detailed synchronization information for each connector library in SharePoint after the synchronization job completes. Refer to [Using the Connector Tab](#) and [Manually Synchronizing the Library with the Connected Path](#) for information on how to download these job reports.

Generating Storage Reports

Storage Report collects the data information from the content databases and show these collected data information in the storage report pane. You can also download the report to the configured file system location. The data to be collected information from includes SQL data, extended BLOB, orphan stubs and orphan BLOBs.

Creating a Storage Report Profile and Configure the Report Settings

The Report Profile Manager of Storage Report is where you configure a Storage Report profile, which includes a data collection configuration. This allows you to instantly apply the data collection configuration to multiple nodes, collect the corresponding data information and display the information in DocAve or the downloaded report.

To create and configure a Storage Report profile, complete the following steps:

1. Click **Storage Report** in the **Report** group.
2. In the **Storage Report** page, click **Report Profile Manager** in the **View** group on the ribbon. Then, click **Create** in the **Manage** group. The **Create Profile** configuration page appears.
3. Configure the following settings:
 - **Farm** – In the **Scope** pane, select a farm and click it to expand the farm tree. Select one or multiple nodes on the farm tree and apply the Storage Report configuration on the selected nodes.
 - **Profile Name** – Enter the profile name, followed by an optional **Description**.
 - **Optimized Report Settings** – Select one or multiple options to collect BLOB and stub information from the SQL databases.
 - **Include comparison of SQL data and optimized BLOBs** – Select this option to collect the information of SQL data that are stored in the SQL databases and the information of BLOB data that are extended to the configured file system location.
 - **Include stub reference details** – Select this option to obtain the detailed information of the stubs that are included in the data collection information. The detailed information of the stubs will be displayed in the downloaded **Detail** report.
 - **Retrieve orphan stub information** – Select this option to collect the orphan stubs information from the SQL databases on the selected nodes.
 - **Include orphan stub reference details** – Select this option to obtain the detailed information of the orphan stubs that are included in the data collection information. The detailed information of the orphan stubs displayed in the downloaded **Detail** report.

2. Select an existing storage report profile displayed in the **Storage Report** page, and then click **View Details** in the **Manage** group on the ribbon.
3. The **View Details** page appears. You can view the settings for the storage report profile, or click **Edit** to edit this storage report profile.

Deleting Existing Storage Report Profiles

To delete an existing storage report profile, complete the following steps:

1. In the **Storage Report** page, click **Report Profile Manager** in the **View** group on the ribbon.
2. Select one or multiple existing storage report profiles displayed in the **Storage Report** page, and then click **Delete** in the **Manage** group on the ribbon.
3. Click **OK** to delete this selected profile permanently from DocAve, or click **Cancel** to cancel it.

Running Jobs of Existing Storage Report Profiles

When a storage report profile is created for the selected nodes in a SharePoint farm, complete the following steps to run this profile:

1. In the **Storage Report** page, click **Report Profile Manager** in the **View** group on the ribbon.
2. Select one or multiple existing storage report profiles displayed in the **Storage Report** page, and then click **Run Now** in the **Action** group on the ribbon. Then, the corresponding jobs for the selected profiles start and are displayed in Job Monitor.

Viewing Collected Data Information for the Storage Report Profiles

After the jobs of the corresponding storage report profile finish running, the data information collected for the selected nodes configured in the saved profiles will be displayed in the **Storage Report** page. The collected data information in this page is displayed in three sections (**SQL and Optimized Data Comparison, Orphan Stub Details** and **Orphan BLOB Details**) according to the storage profiles' configuration and the **Data Collection Time**. The storage report records the occupation percentage of each data block and gives a basic view of the optimized storage in the SQL databases.

To view the collected data information, complete the following steps:

1. Click **Storage Report** in the **Report** group.
2. In the **Storage Report** page, click **Dashboard** in the **View** group on the ribbon. The data information of the last storage report profile job will be displayed after you enter the Dashboard interface.
3. Select an existing storage report profile from the **Profile Name** drop-down list and select a job finishing time from the **Data Collection Time** drop-down list. Then, the data information collected from the configured SQL databases for the nodes configured in the selected profile will be loaded and displayed in this page.
 - **SQL and Optimized Data Comparison** – Select this option tab to view the information of the SQL data that is stored in the SQL databases and the BLOBs that are extended from

the SQL databases. Meanwhile, the type of the extended BLOBs is recorded and displayed in this page.

- **Orphan Stub Details** – Select this option tab to view the information of the orphan stubs that are kept in SharePoint. The bar graph shows the count of orphan stubs that are stored in the corresponding SQL databases.
- **Orphan BLOB Details** – Select this option tab to view the information of the orphan BLOBs that are kept in the file system location. From the **Orphan BLOB Details** tab you can **View by content database** and **View by physical device**. For **View by content database**, the bar graph shows the size of orphan BLOBs that are extended from the specified SQL databases. For **View by physical device**, the store locations of the orphan BLOBs can be viewed by clicking the corresponding bar in the graph.
- **Alternate File Details** – Select this option tab to view the alternate file information.

You can view the alternate file count, orphan alternate file count, and orphan BLOB size information of each content database in the displayed table. By clicking the **Details** link, you can view the Farm Name, Physical Device, Clean Up Orphan BLOBs Schedule information and can view if the Clean Up Orphan BLOBs job includes the alternate files.

Select **View Orphan BLOB Information via Physical Device**. A table displayed showing the orphan file information in each physical device.

Downloading Storage Report

To view detailed information about the data information collected from the SQL databases configured in the corresponding storage report profile, you can download the storage report to the file system location.

To download a report for an existing storage profile, complete the following steps:

1. Click **Storage Report** in the Report group.
2. In the **Storage Report** page, click **Dashboard** in the **View** group on the ribbon.
3. Select an existing storage report profile from the **Profile Name** drop-down list and select a job finishing time from the **Data Collection Time** drop-down list.
4. Click **Export** in the **Action** group on the ribbon to export the report for storage report profile.
5. In the **Export** pop-up window, configure the following settings:
 - **Report Format** – Select a report type from the drop-down list.
 - **Export Settings** – Select an export location type for storing the report.
 - o **Download a local copy** – Select this option to export the report to the local file system location of the currently used server.
 - o **Export to a specific location** – Select this option to export the report to the location on the specified server. When selecting this option, the **Export Location** field is displayed as the further configuration. Select an existing export location

from the drop-down box to store the report before exporting. Select **View** beside the export location drop-down list. The **View Details** window appears. Select **Edit** in the window to edit the export location. For more information on the export location, refer to [Configuring Export Location for Storing Storage Report](#).

After the configuration of the settings above, click **OK** to start the export operation.

Configuring Export Location for Storing Storage Report

The report for a storage profile is supported exporting to a configured export location.

Creating an Export Location

To configure an export location, complete the following steps:

1. Click **Storage Report** in the Report group.
2. In the **Storage Report** page, click **Dashboard** in the **View** group on the ribbon.
3. Click **Export Location** in the **Action** group on the ribbon. The **Export Location** interface appears.
4. Click **Create** in the **Manage** group on the ribbon. The **Create** window appears.
5. Configure the following settings:
 - **Name and Description** – Enter a Name and an optional description for the export location.
 - **Path** – The export location can be a file share, storage area network (SAN), or network-attached storage (NAS).
 - Enter the **UNC Path** in the following format: `\\admin-PC\c$\data` or `\\admin-PC\shared` folder.
 - Select a managed account profile from the drop-down list or click **New Managed Account Profile**, and then click **Validation Test**. DocAve tests the path and user information to make sure it is valid. For more information on the managed account profile, refer to the [DocAve 6 Control Panel Reference Guide](#).
6. Click **OK** in the **Create** window to save the changes, or click **Cancel** to return to the **Export Location** interface without any changes.

Managing Created Export Locations

Once created, the export locations are listed in the **Export Location** interface. They can be edited, viewed and deleted. See the sections below for information on managing the storage report profiles.

Editing Existing Export Locations

To edit an existing export location, complete the following steps:

1. In the **Export Location** interface, select an export location that you want to edit.
2. Click **Edit** in the **Manage** group on the ribbon.

3. The **Edit** window appears. Edit the settings according to your requirement.
4. Click **OK** in the **Edit** window to save the changes, or select **Cancel** to return to the Export Location interface without any changes.

Viewing Existing Export Locations

To view an existing export location, complete the following steps:

1. In the **Export Location** interface, select an export location.
2. Click **View Details** in the **Manage** group on the ribbon.
3. The **View Details** window appears. You can view the settings for the export location, or click **Edit** to edit this export location.

Deleting Existing Export Locations

To delete an existing storage report profile, complete the following steps:

1. In the **Export Location** interface, select one or multiple existing export locations.
2. Click **Delete** in the **Manage** group on the ribbon.
3. A confirmation message appears. Click **OK** to delete this selected profile permanently from DocAve, or click **Cancel**.

Generating Inventory Reports

Use the **Inventory Report** function to view various statistics about Connector and Cloud Connect libraries that have been configured under each farm, Web application, site collection or site. You can then download the detailed reports to another location.

1. From the **Scope** panel on the left, click the farm that contains the relevant SharePoint content.
2. Expand the tree and select the desired farm/Web application/site collection/site from which you want to perform further operations by selecting the radio button to the left of the farm/Web application/site collection/site.
3. Click **Run Report** on the ribbon to collect the detailed information on the Connector and Cloud Connect libraries configured inside the selected scope.

After the job finishes, the collected information from the Connector and Cloud Connect libraries will be shown in the area on the right. Only the report of the current job will be displayed in the area on the right. To view the historical reports, click the **Job Monitor** button on the ribbon.

Click **Export** on the ribbon, specify a desired report format, and click **Export** on the ribbon to download the generated report in the configured format to the desired location.

Using the Connector PowerShell to Generate Reports

Through the use of the Connector PowerShell, Connector is able to generate reports (in .csv format) that details the mapping for each Connector library. These reports can be used to details end user deployment, for example.

The information generated in the report includes **Farm Name, Library Title, Solution Name, Site Collection URL, Site URL, Storage Type, Web Application URL, Library URL, Connected Path, Content Database** and **Library Type**. Refer to [Connector PowerShell](#) for how to call the **Show-ConnectedLibraries** command to generate such reports.

Connector Tools

Some tools are provided with the Connector module. Refer to the [DocAve 6 Supplementary Tools User Guide](#) for instructions on using these tools.

- **AgentToolSP2010ConnectorCreateList Tool** – Creates Connector libraries in bulk by this tool and the libraries have the Connector paths and settings configured according to the predefined configuration file. This tool is used for SharePoint 2010.
- **AgentToolSP2013ConnectorCreateList Tool** – Creates Connector libraries in bulk by this tool and the libraries have the Connector paths and settings configured according to the predefined configuration file. This tool is used for SharePoint 2013.
- **AgentToolSP2016ConnectorCreateList Tool** – Creates Connector libraries in bulk by this tool and the libraries have the Connector paths and settings configured according to the predefined configuration file. This tool is used for SharePoint 2016.
- **AgentToolSP2010Connector Tool** – Updates the Connector document versions from DocAve 6.0 (including 6.0, 6.0.1, and 6.0.2) to DocAve 6 Service Pack 1 or later versions and provides the encrypted password to connect to the file system before creating any Connector libraries using the **AgentToolSP2010ConnectorCreateList** tool, and generates the report of the stub status of files and folders within the selected scope.
- **AgentToolSP2013Connector Tool** – Updates the Connector document versions from DocAve 6.0 (including 6.0, 6.0.1, and 6.0.2) to DocAve 6 Service Pack 1 or later versions, and provides the encrypted password to connect to the file system before creating any Connector libraries using the **AgentToolSP2013ConnectorCreateList** tool. It also generates the report of the stub status of files and folders within the selected scope, and updates the Connector libraries to ensure they are available after updating SharePoint 2010 to SharePoint 2013.
- **AgentToolSP2016Connector Tool** – Updates the Connector document versions from DocAve 6.0 (including 6.0, 6.0.1, and 6.0.2) to DocAve 6 Service Pack 1 or later versions, provides the encrypted password to connect to the file system before creating any Connector libraries using the **AgentToolSP2016ConnectorCreateList** tool. It also generates the report of the stub status of files and folders within the selected scope, and updates the Connector libraries to ensure they are available after updating SharePoint 2013 to SharePoint 2016.
- **AgentToolSP2010OrphanStubClean Tool** – Cleans Connector orphan stubs from SharePoint 2010.
- **AgentToolSP2013OrphanStubClean Tool** – Cleans Connector orphan stubs from SharePoint 2013.
- **AgentToolSP2016OrphanStubClean Tool** – Cleans Connector orphan stubs from SharePoint 2016.
- **AgentToolSP2010MoveStub Tool** – Changes the existing stub database to another one and copy all existing data from the old stub database to the new one. It can also move a

site collection from one content database to another within the same Web application. This tool is used for SharePoint 2010.

- **AgentToolSP2013MoveStub Tool** – Changes the existing stub database to another one and copy all existing data from the old stub database to the new one . It can also move a site collection from one content database to another within the same Web application. This tool is used for SharePoint 2013.
- **AgentToolSP2016MoveStub Tool** – Changes the existing stub database to another one and copies all existing data from the old stub database to the new one . It can also move a site collection from one content database to another within the same Web application. This tool is used for SharePoint 2016.

Connector Caveats

- After the files are synchronized to a Content library/Media Library/Document library/Form library/Picture library/Asset library:
 - If the **Load Metadata from File System** function is enabled in Connector settings, the **Modified by** attribute of the synchronized files loads the value of the **Last Saved by** attribute.
 - If the **Load Metadata from File System** function is not enabled in Connector settings, the **Modified by** attribute of the synchronized files loads the Agent Account as its value.
- In Media Library, it is recommended that you download AVI files in order to play them.

Stub Database Inheritance

In rare cases (records management, for example, where there will be millions of files), it may be necessary to configure stub databases down to the Web application or content database level. Should this be the case, refer to the information below.

Note the following stub database inheritance rules for newly-added Web applications and content databases:

- By default, the stub database of the parent node will be used by the lower level.
- If there is no stub database configured for the parent node, the stub database of the grandparent node will be used, and so on.

If the stub database is not configured for a certain object when running a Connector job, the object’s stub database will also be automatically configured using the rules above. The stub database configuration will then be saved and displayed in DocAve. The corresponding stub database will be used in all of the later Connector jobs performed on the selected SharePoint object.

For example, assume that you only configured a stub database for a Web application and set a Connector rule on it. You did not configure the stub database for any of the content databases under the Web application. When the Connector rule is triggered on a specified content database in the Web application, the content database inherits the stub database of the Web application. The stub database configuration is saved and is used in all of the later Connector jobs performed on this content database.

The x in the table below indicates that the corresponding component remains not configured. If you do not wish for a lower level to inherit the stub database of a higher level, expand the tree to the desired level and configure a stub database for the lower level separately.

Selected Nodes	Configuration Status of the Stub Database			
	Existing Web Application	Existing Content Database	Newly-Added Web Application	Newly-Added Content Database
Only the Farm Node	x	x	Inherits the farm’s stub database.	Inherits the farm’s stub database.
Only a Web Application Node	Only the stub database of the selected Web application node is configured.	x	x	If the newly-added content database is in the selected Web application node, it inherits the Web application’s stub database. Otherwise, it remains not configured.

Selected Nodes	Configuration Status of the Stub Database			
	Existing Web Application	Existing Content Database	Newly-Added Web Application	Newly-Added Content Database
Only a Content Database Node	×	Only the stub database of the selected content database node is configured.	×	×
Farm Node and a Web Application Node	Only the stub database of the farm node and the selected Web application node is configured.	×	Inherits the farm's stub database.	If the newly-added content database is in the selected Web application node, it inherits the Web application's stub database. Otherwise, it inherits the farm's stub database.
Farm Node and a Content Database Node	×	Only the stub database of the farm node and the selected content database node are configured.	Inherits the farm's stub database.	Inherits the farm's stub database.
Web Application Node and a Content Database Node	Only the stub database of the selected Web application node and content database node are configured.	Only the stub database of the selected Web application node and content database node are configured.	×	If the newly-added content database is in the selected Web application node, it inherits the Web application's stub database. Otherwise, it remains not configured.
Farm Node, a Web Application Node and a Content Database Node	Only the stub database of the farm node, the selected Web application node, and the content database node are configured.	Only the stub database of the farm node, the selected Web application node, and the content database node are configured.	Inherits the farm's stub database.	If the newly-added content database is in the selected Web application node, it inherits the Web application's stub database. Otherwise, it inherits the farm's stub database.

Using Hot Key Mode

DocAve supports hot key mode, which allows you to perform actions quickly using only the keyboard. To access the hot key mode, press **Ctrl + Alt + Z** (simultaneously) on the keyboard while in the Connector interface.

The following table provides a list of hot keys for the **Connector** tab. To return to the top level after accessing a lower-level interface, press **Ctrl + Alt + Z**. For example, continuing to press **H** returns you to the Storage Optimization Home page.

Operation Interface	Hot Key
Storage Optimization Home Page	H
Realtime Storage Manager	R
Scheduled Storage Manager	S
Connector	C
Cloud Connect	B
Archiver	A
DocAve Home Page	1
DocAve Online Community	2
Control Panel	3
Job Monitor	4
Plan Group	5
Health Analyzer	6
Account Information	9
Help and About	0

Accessing the Connector Page Using Hot Keys

After you enter the Connector interface by pressing **C** in the top level of the Hot Key Mode, you are able to use the functions shown on ribbon by choosing the proper hot keys. The functions on ribbon and the corresponding hot keys are listed in the table below.

Function Name and Hot Key			
Configure Path	G	Configure Path	G
		Remove Path	R
Configure Sync Settings	R	Configure Sync Settings	C
		Remove Sync Settings	R
Manage Feature			F
Common Mapping			C
Property Mapping			N
Security Mapping			A
Clean Up Orphan BLOBs	O	Configure	C
		Close	X
Convert Stubs to Content	V	OK	O
		Cancel	C
Synchronize			K
Blob Provider			B
Processing Pool			P
Storage Report			SP
Inventory Report			IP
Job Monitor			J

Manage Feature

Function Name and Hot Key	
Content Library	CL
Media Library	ML
Library Converting	LV
MySite Libraries	MS
Close	X
Manage Feature	F (on the Connector main interface); MF (on the Manager Feature interface)

Common Mapping

Function Name and Hot Key					
Create	N	Save	S		
		Cancel	C		
View Details	V	Edit	E	Save	S
				Cancel	C
		Close	X		
Edit	E	Save	S		
		Cancel	C		
Delete	D				
Close	X				
Common Mapping	C				

Property Mapping

Function Name and Hot Key					
Create	N	Save	S		
		Cancel	C		
View Details	V	Edit	E	Save	S
				Cancel	C
		Close	X		
Edit	E	OK	O		
		Cancel	B		
Delete	D				
Close	X				
Property Mapping	N				

Security Mapping

Function Name and Hot Key					
Create	N	Save	S		
		Cancel	C		
View Details	V	Edit	E	Save	S
				Cancel	C
		Close	X		
Edit	E	Save	S		
		Cancel	C		
Delete		D			
Manage SharePoint Permission Level	P	Create	N		
		View Details	V		
		Edit	E		
		Delete	D		
		Close	X		
Close		X			
Security Mapping		A			

BLOB Provider

Function Name and Hot Key	
Configure	G
Back	B
Next	N
Finish	F
Cancel	C
BLOB Provider	B

Processing Pool

Function Name and Hot Key			
Create	N	Save	O
		Close	C
View Details	V		
Edit	E	Save	O
		Close	C
Delete	D		
Close	X		
Processing Pool	P		

Storage Report

Function Name and Hot Key					
Report Profile Manager	P	Create	N	Save	O
				Cancel	C
		View Details	V	Edit	E
				Cancel	C
		Edit	E	Save	O
				Cancel	C
Delete	X				
Run Now	R				
Dashboard	D				
Export	E				
Export Location	L	Create	C	Save	O
				Cancel	X
		View Details	V	Edit	E
				Close	X
		Edit	E	Save	O
				Cancel	X
Delete	D				
Close	X				
Job Monitor	J				
Close	C				
Storage Report	SP				

Inventory Report

Function Name and Hot Key	
Run Report	R
Export Report	E
Job Monitor	J
Close	X
Inventory Report	IP

Using Connector SDK and PowerShell

Connector SDK

DocAve Connector implements a set of APIs that allow you to use Connector functionality by calling Connector APIs. Refer to the Connector SDK Help file **AgentCommonConnectorAPI.chm** (which is named **SP2010ConnectorAPI.chm** in DocAve versions prior to SP2) for more information on using Connector APIs. This file is located in the DocAve Agent installation path, which is ... \AvePoint\DocAve6\Agent\Documents\SDK\Connector by default.

Connector PowerShell

DocAve Connector registers a Snap-In in Windows PowerShell that allows you to use certain Connector functions by running the Connector command in Windows PowerShell. The commands can only be run on servers that have DocAve Agent installed on them.

***Note:** The account used to run Connector commands in Windows PowerShell must have the following permissions:

- A member of local administrator.
- A member of farm administrator.
- Full Control to all zones of all Web applications via User Policy for Web Applications.
- Member has a Database Role of db_owner for all databases related to SharePoint, including Content Databases, SharePoint Configuration Database, and Central Administration Content Database.

Adding the Registered Connector Snap-In

In order to run Connector commands in Windows PowerShell, the registered Connector Snap-In must be added into Windows PowerShell first. Follow the steps below to add the Connector Snap-In.

***Note:** You must add the Connector Snap-In to Windows PowerShell each time before running Connector commands in it.

1. Click **Start** on the server that has DocAve Agent installed.
2. Click **Windows PowerShell**
3. Enter the following command, and press **Enter** to import the Connector Snap-In:

```
Add-PSSnapin ConnectorSnapIn
```

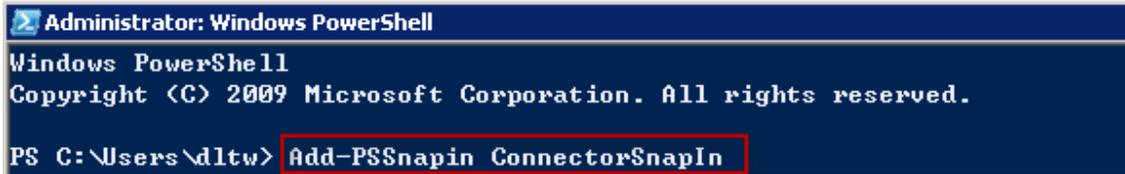


Figure 5: Adding Connector Snap-In.

Obtaining a List of Connector Commands

DocAve Connector provides several commands that perform Connector functions in Windows PowerShell. In the PowerShell that has Connector Snap-In added, enter the following command to obtain general information for these Connector commands.

```
Get-Command -Module ConnectorSnapIn
```

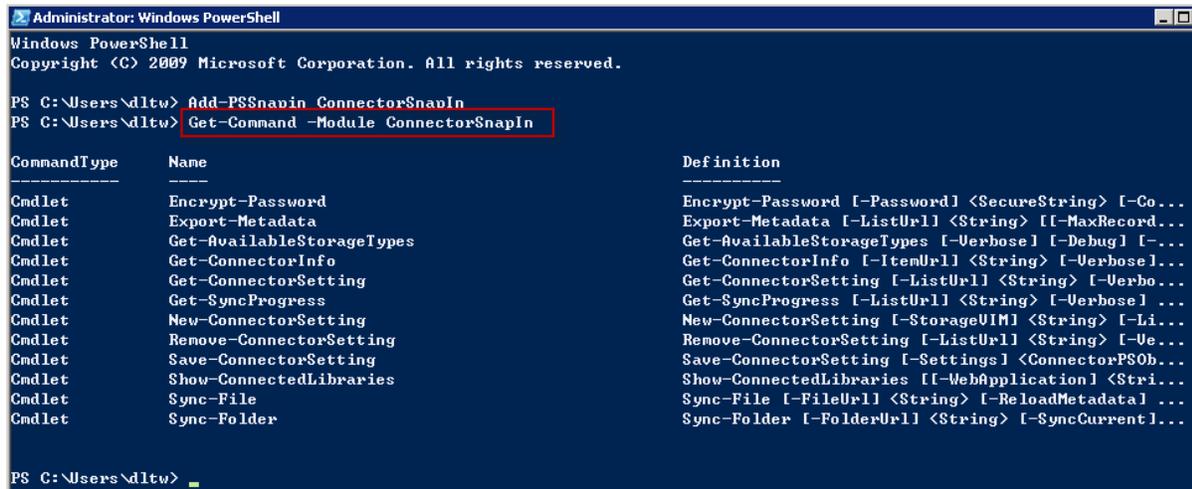


Figure 6: Getting Connector commands.

Getting Help Information

Viewing Help Information in Windows PowerShell

Enter the following command in Windows PowerShell to view help information on Connector Commands. The descriptions for each command, the corresponding parameters, and some command line examples are included.

```
Get-Command -Module ConnectorSnapIn | Get-Help -Detailed
```

Enter the following command in Windows PowerShell to view help information on a specific command. The descriptions for each command, the corresponding parameters, and some command line examples are included.

```
Get-Help <Operation Name> -Full
```

For example, **Get-Help Sync-Folder-Full** shows all of the help information for the Sync-Folder command.

Exporting Help Information to a .csv File

Enter the following command to export the help information to a .csv file and store it to the local machine.

```
Get-Command -Module ConnectorSnapIn | Get-Help -Detailed | Out-File -FilePath  
C:\Help.csv
```

A file with the name **Help.csv** is generated on the local machine after running this command.

Excel Metadata Feature

Connector SDK provides an API that enables you to export metadata from a file system to an Excel file . The Excel file is stored in the connected path. If you export the metadata from a file system to an Excel file, and then enable the **Load Metadata from File System** option, then the metadata stored in the Excel file will be loaded. This speeds up the synchronization job dramatically. Refer to the **AgentCommonConnectorAPI.chm** for more information on calling the proper API to export metadata to an Excel file. This function is only supported for **Net Share IBM Storwize Family, Network File System and Net Share with WMS** storage types. For more details, refer to the information below.

The Excel Metadata feature is used to export metadata from a file system to an Excel file that is stored in the connected path: ... \.*ConnectorMetadata*\Connector_ MetadataFile.xlsx. After enabling the **Load Metadata from File System** feature, the metadata stored in the Excel file will be synchronized to SharePoint while running the job. You can modify the Excel file to add new metadata, or modify the existing metadata in the Excel file.

***Note:** This feature only take effect on the file which is to be synchronized to SharePoint for the first time. If you want to reload the following metadata changes of the existing files in SharePoint from storage to SharePoint, use the **Sync-File** through Connector PowerShell. For more help information on the commands, refer to [Connector PowerShell](#).

Commands for the Excel Metadata Feature

Refer to the following steps to use the Excel Metadata Feature.

1. Run the command **Add-PSSnapin connectorsnapin** to import the **SP2010ConnectorCmdlet.dll** file for running the required commands for this Excel metadata feature.
2. Run the command to export metadata from a file system to an Excel file, an example of the command:
`Export-Metadata -ListUrl http://2410vm04:1234/sites/test/media2/Forms/AllVideoDetails.aspx -MaxRecordPerFile 500 -ExportAll`

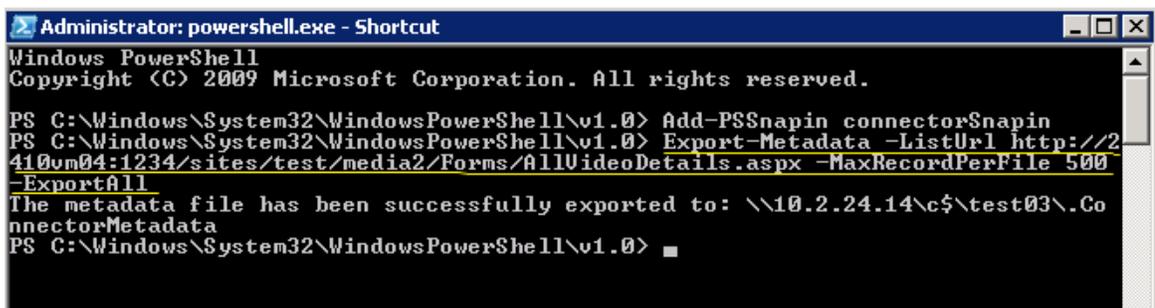


Figure 7: Screenshot of an example command.

3. Navigate to the connected path to find the **Connector_MetadataFile.xlsx** file in the automatically generated folder **.ConnectorMetadata**. The metadata can be modified in this

Excel file. The generated file name is in the following format:

Connector_MetadataFileNumber.xlsx. Each file's metadata is displayed as one entry in the Excel file, and each **Connector_MetadataFile.xlsx** can save 20000 entries. If the number of files exceeds 20000, a new **Connector_MetadataFile.xlsx** file will be generated.

In addition, a **Connector_MetadataReport.csv** file and a **FolderIndex.csv** file are generated automatically under the same directory. **Connector_MetadataReport.csv** is a report for exporting the metadata, which lists all of the files that failed to be exported. **FolderIndex.csv** provides a quick search to find out which metadata file the items of a certain folder is exported to.

***Note:** The **Load Metadata from File System** feature must be enabled, otherwise the **Connector_MetadataFile.xlsx** file cannot be generated.

Command Parameters for the Excel Metadata Feature

Refer to the following table for the detailed information of the command parameters.

Parameter	Type	Description
-ListUrl	Required	The URL of the Connector library which is connected to the Net Share path from which the metadata will be exported to an Excel file.
-MaxRecordPerFile	Optional	Set the number of the items that can be stored in one Excel file. The number must be an integer between 100 and 20,000. *Note: If there are more than 20,000 files in one folder, the extra items can still be put into one Excel file. That is to say, one folder can only correspond to one Excel file, but one Excel file can correspond to several folders when the number of the items is in the selected scope.
-ExportAll	Optional	Export all of the metadata to the Excel file. Enter this parameter to export all of the metadata; leave out this parameter to export only the default metadata or the configured metadata. *Note: When -ExportAll is not used, only the default metadata will be exported if the Property Mapping is not used in the Connector library, and only the configured metadata in the Property Mapping will be exported if the Property Mapping is used in the Connector library.

Customizing the Metadata in Excel

After exporting the metadata in Excel, you can customize this file before synchronizing the files into SharePoint. You can add or delete columns, change the column type, or modify the metadata values in bulk.

Refer the table below for more usage rules for customizing the metadata.

Type	Column_Name:=Type	Example of Content Format
Single line of text	Column_name:=Text	Random Character String, less than 255 characters
Multiple line of text	Column_name:=Note	Random Character String
Choice_Checkboxes (allow multiple)	Column_name:=CheckBoxChoice	Random Character String
Choice_Drop-Down Menu	Column_name:=DropDownChoice	Random Character String
Choice_Radio Buttons	Column_name:=RadioChoice	Random Character String
Number	Column_name:=Number	10
Date and Time_Date Only	Column_name:=DateOnly	12/30/2013
Date and Time_Date & Time	Column_name:=DateAndTime	12/30/2013 5:34:27 AM
Yes/No	Column_name:=Booleen	Yes
Person or Group	Column_name:=User	Domain\User
Managed Metadata	Column_name:=Taxonomy(Group;TermSet words;AllowMultipleValues)	TermLevel1 TermLevel1;TermLevel2 TermLevel1;TermLevel2;TermLevel3
Lookup	Column_name:=Lookup(listUrl;columnName;AllowMultipleValues)	value1 ;#value2 ;#value3
Currency	Column_name:=CurrencyNumber	\$100.00 or 100
Hyperlink or Picture	Column_name:=URL	http://www.avepoint.com

- **Single line of text** – Allows random character strings less than 255 characters. If you do not follow the corresponding column type format to customize the specific column, the column values you have added in the metadata file will be synchronized to SharePoint in the single line of text.
- **Multiple lines of text** – Allows random character strings.

- **Choice_Checkboxes (allow multiple :)** – Allows you to specify multiple values in the column cell and these values will be synchronized to SharePoint as choices. The format is **aaa;#bbb;#ccc**.
- **Choice_Drop-Down Menu/Choice_Radio Buttons** – Synchronizes the specified values in the column cells as choices. The format is **aaa**.
- **Number** – The column value can be any number larger than 1 or equal to 1, such as **1.1** or **11**.
- **Date and Time_Date Only/Date and Time_Date & Time** – Make sure the value is in the same format as that in SharePoint. The values in **Date and Time_Date & Time** column, and **Date and Time_Date Only** column, will be automatically converted into the corresponding time, according to the time zone that the SharePoint Server is using.
- **Yes/No** – If you enter **yes/true** or any character as the column value into this column, after the synchronization job, in the SharePoint side the value in the file/folder's **Yes/No** column is **Yes**. If you enter **no/false** into the column or you do not enter any character into the column, in the SharePoint side the value in the file/folder's **Yes/No** column is **No**.

***Note:** This column is not case-sensitive.

- **Person or Group** – Allows you to assign SharePoint users, SharePoint groups, and domain groups for the file/folder.
- **Managed Metadata** – The field type is taxonomy which represents fixed character strings. You are allowed to specify four values (group name, term name, whether to allow multiple values, and the separator you want to use). If there is already a column with the same name but in a different type existing in the SharePoint, the assignment for this column will be invalid. The column must be named in the following format: **Column_name:=taxonomy(Group;TermSet;AllowMultipleValues)**
 - o **Column_name** – Indicates the name of the added column, also the name of the Managed Metadata column displayed in the Connector library.
 - o **Taxonomy** – Indicates that this field is the managed metadata and cannot be changed.
 - o **Group** – Indicates the name of the term group.
 - o **TermSet** – Indicates the name of the term set.
 - o **AllowMultipleValues** – Indicates whether multiple values can be set for this column. It can be **true** or **false**.

Ensure that these parameters (Group, TermSet, and AllowMultipleValues) are separated using a semicolon (;).

For example, MyManagedMetadata:=taxonomy(GroupA;TermSet01>true).

Ensure that multiple values for the managed metadata column are separated using a vertical line (|).

For example, TermLevel1|TermLevel1;TermLevel2|TermLevel1;TermLevel2;TermLevel3.

- **Lookup** – The field type is lookup which represents fixed character strings. You are allowed to specify two values. The first one is the name of the list or library where it gets information from. The second one is the name of column which it points to. Note that the list or library and the corresponding values of this column it points to must exist. The column must be named in the following format:

Column_name:=Lookup(listUrl;columnName;AllowMultipleValues)

- o **Column_name** – Indicates the name of the added column, also the name of the Lookup column displayed in the Connector library.
- o **Lookup** – Indicates that this field is the lookup and cannot be changed.
- o **listUrl** – Indicates the URL of the list where it gets information from.
- o **columnName** – Indicates the name of the column which it points to. This parameter is case-sensitive.
- o **AllowMultipleValues** – Indicates whether multiple values can be set for this column. It can be **true** or **false**.

Ensure that these parameters (listUrl, columnName, and AllowMultipleValues) are separated using a semicolon (;).

For example, MyLookup:=Lookup(http://AvePoint/sites/listA;listA>true).

Ensure that multiple values for the lookup column are separated using a semicolon and a number sign (;#). For example, value1;#value2;#value3.

- **Currency** – The value can be any number or a number with a currency unit, such as 100 or \$100.

***Note:** In the generated metadata file, the **Full Path** column is the first row. If you delete the **Full Path** column or clear the values of the files in the **Full Path** column, the files' metadata will not be synchronized to SharePoint. In the following situations, the metadata will not be synchronized to SharePoint:

- If the column value does not match the column type, the column value will not be synchronized to SharePoint.
- If there is a column in SharePoint with the same column name but in a different type the column will not be created.
- If there is no value in an entire column, this column will not be created in SharePoint.

Appendix A: Support Tables

The following sections list the supported tables for Connector, including SharePoint built-in libraries, browsers, and file types in the Media Library.

SharePoint Libraries that can Be Converted to Connector Libraries

With the exception of Connector libraries, DocAve Connector can convert certain SharePoint libraries to Connector libraries and apply Connector settings to them.

√ means the library is able to be converted to Connector library.

× means the library is not able to be converted to Connector library.

SharePoint Library	Converting to Connector Library
Document Library	√
Form Library	√
Picture Library	√
Asset Library	√ (not yet supported in SharePoint 2013 and SharePoint 2016)
Wiki Page Library	×
Data Connection Library	×
Slide Library	×
Report Library	×

Multi-Browser Support

DocAve Connector libraries support multi-browser access. Refer to the following table for more information regarding the multi-browser support of different actions in a Connector library.

Actions in Connector Library	IE	Chrome	Firefox	Safari	Opera
Create Library	Supported	Supported	Supported	Supported	Supported
Synchronization	Supported	Supported	Supported	Partially Supported *Note: When using Safari as your browser, the webpage loading will stick when you click Synchronization in the library.	Supported
New Document	Supported	Not Supported	Not Supported	Not Supported	Not Supported
New Folder	Supported	Supported	Supported	Supported	Supported
Check Out/In	Supported	Supported	Supported	Supported	Supported
Upload Document	Supported	Supported	Supported	Supported	Supported
Upload Multiple Documents	Supported	Not Supported	Not Supported	Not Supported	Not Supported
Upload Connector Links	Supported	Supported	Supported	Not Supported	Not Supported *Note: Uploading data request greater than 360 KB cannot be sent in Opera.
Explorer View	Supported	Not Supported	Not Supported	Not Supported	Not Supported
Edit Content (Office Files)	Supported	Not Supported	Not Supported	Not Supported	Not Supported
Edit Properties	Supported	Supported	Supported	Supported	Supported
Change Path	Supported	Supported	Supported	Supported	Supported
View Report	Supported	Supported	Supported	Supported	Supported

Play Video	Supported	Partially Supported *Note: Real Player does not support playing videos in Chrome.	Supported	Partially Supported *Note: Safari does not support Silverlight Player in Windows system.	Partially Supported *Note: Opera does not support Silverlight Player in Windows system.
Download Manager	Partially Supported *Note: IE limitations, IE 9 or later versions are supported.	Supported	Supported	Supported	Partially Supported *Note: Opera limitations about the breakpoint transmission, Opera 12 or later versions are supported.
Slide View	Supported	Supported	Supported	Supported	Supported
Mobile View	Supported	Supported	Supported	Supported	Supported

***Note:** The Opera 12.0 and earlier browsers do not support the pause and resume function when downloading a file in the Connector library. Please update the Opera browser if needed.

Video/Audio/Picture Files in Media Library

Refer to the following table for the video file formats that can be uploaded onto a Media Library and the recommended player for each video format.

Format	Recommended Player	Does the File Have a Thumbnail?
WMV	Windows Media Player	Yes
FLV	Flash Player	Yes
AVI	Windows Media Player	Yes
RM	Real Player	Yes
RMVB	Real Player	Yes
DAT	Windows Media Player	Yes
MP4	HTML5	Yes
MOV	QuickTime Player	Yes
MPEG	Windows Media Player	Yes
MPG	Windows Media Player	Yes
M4V	HTML5	Yes
DIVX	Windows Media Player	Yes
QT	Quick Time Player	Yes
VP6	Windows Media Player	Yes
SWF	Download to play.	No
ASF	Windows Media Player	Yes
3GP	Windows Media Player	Yes
VOB	Download to play.	No

***Note:** If you use Internet Explorer 8 as your browser, choose one of recommended video players from the table above. If you use Internet Explorer 9 and above, Chrome, Safari, or Firefox, HTML5 is recommended.

Refer to the following table for the audio file formats that can be uploaded onto Media Library and the recommended player for each audio format.

Format	Recommended Player	Does the File Have a Thumbnail?
WAV	Windows Media Player	No
MID	Windows Media Player	No
WMA	Windows Media Player	No
MP3	Windows Media Player	Yes
AAC	Windows Media Player	No
AIFF	Windows Media Player	No
AU	Windows Media Player	No
CD	Windows Media Player	Yes
QT	Quick Time Player	Yes
RA	Real Player	No
OGG	Windows Media Player	No
VQF	Windows Media Player	No
FLAC	Not Supported, but you can download the file	No

Format	Recommended Player	Does the File Have a Thumbnail?
APE	Windows Media Player	No

Refer to the following table for information related to picture file formats.

***Note:** The thumbnail information works for both **All Video Thumbnails** view and **All Video Details** view.

Format	Does the File Have a Thumbnail?	Can the File be Previewed in the Preview Field?
BMP	Yes	Yes
EMF	Yes	No
GIF	Yes	Yes
JPEG/JPG	Yes	Yes
PNG	Yes	Yes
EXIF	Yes	No
ICO	Yes	No
TIFF	Yes	No
WMF	Yes	No
TIF	Yes	No
JPE	Yes	No
WDP	Yes	No
JFIF	Yes	No
DID	Yes	No
PCX	No	No
FPX	No	No
SVG	No	No
UFO	No	No
CDR	No	No
PCD	No	No
DXF	No	No
PSD	No	No

Displaying MP4 Files in Safari and Chrome in iOS

Refer to the following table for the support of different browsers for playing MP4 files with H264 codec in iOS.

iOS Version	Safari	Chrome	Mercury
iOS 6.1.6	Supported	Supported	Supported
iOS 7.1.1	Supported	Not Supported	Supported
iOS 8.1.2	Not Supported	Not Supported	Supported

Refer to the following table for the support of different browsers for playing MP4 files with AAC codec in iOS.

iOS Version	Safari	Chrome	Mercury
iOS 6.1.6	Supported	Supported	Supported
iOS 7.1.1	Not Supported	Not Supported	Not Supported
iOS 8.1.2	Not Supported	Not Supported	Not Supported

Refer to the following tables for the support of different browsers for playing the files that converted into MP4 format.

***Note:** The following table shows the support of playing files in Safari or Chrome after they are converted into MP4 format.

iOS 7	M4V	MOV	MP4	MTS	FLV	WMV	AVI
Safari	Supported						
Chrome	Not Supported						

iOS 8	M4V	MOV	MP4	MTS	FLV	WMV	AVI
Safari	Not Supported						
Chrome	Supported						

Making MP4 Files Play Properly in iOS

If you meet the cases in that your MP4 files cannot be played in iOS, refer to the following steps to fix it:

1. Log into SharePoint Central Administration, navigate to **Application Management > Manage web applications**.
2. Select the desired Web application, and click **Authentication Providers** on the ribbon.
3. In the Edit Authentication page, select the **Enable anonymous access** checkbox and deselect the **Require Use Remote Interfaces permission** checkbox. Click **Save** to save your changes.
4. Access the desired site collection, and go to **Site settings > Site permissions**.
5. Click **Anonymous Access** on the ribbon, and select **Entire Web site** in the **Anonymous Access** section. Click **OK** to save your changes.

After completing the configurations above, your MP4 files can be played properly in iOS.

Appendix B: Connector Configuration File

DocAve Connector provides configuration files named **SP2010SOConnector.config**, **SP2013SOConnector.config** and **SP2016SOConnector.config**, which allow you to customize Connector default settings by modifying elements in the configuration file. These files reside in ...*\AvePoint\DocAve6\Agent\data\SP2010\Connector* or ...*\AvePoint\DocAve6\Agent\data\SP2013\Connector* or ...*\AvePoint\DocAve6\Agent\data\SP2016\Connector* by default. Refer to the table below for information on the functions of each element in **SP2010SOConnector.config** or **SP2013SOConnector.config** or **SP2016SOConnector.config**.

Element	Function Description
<FFMpegPath>C:\Program Files\ffmpeg\ffmpeg.exe</FFMpegPath>	This is the default path where the ffmpeg.exe file is stored. This file is required for viewing video thumbnails in a Media Library. If you modify this path, be sure to place the ffmpeg.exe file that you downloaded into the new path.
<VideoTypes>wmv,wma,mp3,flv,aac,mp4,vp6,avi, asf,aiff,au,cd,dat,divx,mpeg,mpg,mov,mid,ogg,ra,rm,rmvb,qt,vqf,wav,3gp,m4v,mts</VideoTypes>	This element contains the supported video types for generating thumbnails in a Media Library. You can add new video types with extension names or remove any existing video types from this element.
<ImageTypes>bmp,emf,exif,gif,jpeg,jpg,png,tiff,ico ,wmf,tif,jpe,wdp,jfif,dib</ImageTypes>	This element contains the supported image types for generating thumbnails in a Media Library. You can add new image types with extension names or remove any existing image types from this element.
<RealFileTypes></RealFileTypes>	This element is used to specify the file types that will be converted to real contents.
<ConnectorProcessorReserveTime>300</ConnectorProcessorReserveTime>	This element is used to control the idle time of the Connector process SP2010ConnectorProcessor.exe or SP2013ConnectorProcessor.exe or SP2016ConnectorProcessor.exe . This process starts up when you configure any Connector-related settings in the DocAve Manager GUI. If there is no action being triggered after 300 seconds since the last action, this process ends automatically. You can change the reserve time to any positive integer. The unit is in seconds.
<ExcludedProcessNames>SP2010ConnectorProcessor,SP2010StorageOptimizationService,SP2010ConnectorISync</ExcludedProcessNames> <ExcludedProcessNames>SP2013ConnectorProcessor,SP2013StorageOptimizationService,SP2013ConnectorISync</ExcludedProcessNames>	The processes added in this node do not trigger Connector Event Handler when they are activated.

Element	Function Description
<ExcludedProcessNames>SP2016ConnectorProcessor,SP2016StorageOptimizationService,SP2016ConnectorISync,AgentToolSP2016ConnectorCreateList</ExcludedProcessNames>	
<EnableEventHandlerFlag>true</EnableEventHandlerFlag>	This element controls whether to enable the Event Handler while running Connector synchronization jobs. False means that the Event Handler is not enabled while running the synchronization job, while True enables the Event Handler. The default value is True .
<DeleteVersionsWhenDeleteSetting>>false</DeleteVersionsWhenDeleteSetting>	This element controls whether to delete the version files stored in the storage path's .fsdl folder when you remove the Connector settings from a library.
<EnableCloudThumbnail>true</EnableCloudThumbnail>	This element controls whether to generate thumbnails in the Media Library when running synchronization jobs on cloud storage. The default value is true .
<SizeofTempFile>2</SizeofTempFile>	This element controls the size of the temp file that is downloaded from the Cloud storage and used to get the thumbnails. The unit is MB , and the default size is 2 MB. This element only takes effect when the value of the <EnableCloudThumbnail></EnableCloudThumbnail> node is true.
<MaxScheduleJobThread>5</MaxScheduleJobThread>	This element controls the maximum number of threads used to perform the Connector synchronization job. The default value is 5 . It means that at most 5 Connector libraries can be synchronized at the same time.
<IncrementalSync> <Enabled>true</Enabled> <Interval>5</Interval> <ThreadCount>3</ThreadCount> <WorkingThreadTimeOut>30</WorkingThreadTimeOut> <MaximumMovingTimes>20</MaximumMovingTimes> </IncrementalSync>	This whole node is used to configure the Connector incremental synchronization job settings. After configuring this setting, the incremental synchronization jobs will be performed automatically by Connector. There are five sub nodes in the IncrementalSync node: <ul style="list-style-type: none"> • Enable or disable the Connector incremental synchronization job function. • The interval of two incremental jobs. The unit is minutes. You can change the interval time to any positive integer. • The maximum number of threads that can be used by an incremental job. The value of this element must be a positive number. There is no upper limit for the value of this element; however, a warning

Element	Function Description
	<p>message appears in the Agent Log if the value is larger than 100.</p> <ul style="list-style-type: none"> • The working threads of running incremental jobs time out if they have no response for over 30 minutes. You can change this value to any positive integer. The unit is minutes. • The maximum number of the retry operation when moving one file/folder from its original location to the new location in the storage path. The file/folder is moved in the storage path because the corresponding file/folder has been moved to another location in SharePoint.
<pre><CleanUpSwitch> <Enabled>>false</Enabled> <DelayDays>30</DelayDays> </CleanUpSwitch></pre>	<p>This node controls whether or not to enable the Clear Up Orphan BLOBs feature through synchronization jobs. After configuring this feature, the files deleted from SharePoint will be completely deleted from the storage location after the DelayDays is reached.</p> <ul style="list-style-type: none"> • Enabled – true means enable this feature, and false means disable this feature. • DealyDays – Set the duration to keep files deleted from SharePoint in the storage location. When the duration is reached, the files will be deleted permanently. The duration unit is day.
<pre><MySiteAutoCreation> <MySiteLibraryName></MySiteLibraryName> <MySiteLibraryUrl></MySiteLibraryUrl> <MySiteAutoSync>>false</MySiteAutoSync> </MySiteAutoCreation></pre>	<p>This whole node specifies the advanced settings to be used when the MySite Libraries feature is enabled.</p> <ul style="list-style-type: none"> • The name of the automatically created Content library. By default, it is My Library. • The relative URL to be used by the automatically created Content library. For example, mycontentlibrary. • If true, DocAve will perform a full synchronization job after saving the Connector library settings to the automatically created Content library. Otherwise, false.
<pre><SyncReport> <Enabled>>false</Enabled> <UserName></UserName> <PassWord></PassWord></pre>	<p>This whole node specifies whether to save the report of a Connector library's synchronization operations in the configured location. There are four sub nodes in the SyncReport node:</p>

Element	Function Description
<pre><ReportPath></ReportPath> </SyncReport></pre>	<ul style="list-style-type: none"> • Enable or disable saving the report of a Connector library's synchronization operations in the configured location. • The username of the user accessing the configured report location. For example, domain\user1. • The password of the user accessing the configured report location. This password must be one password encrypted using the AgentToolSP2010Connector tool or AgentToolSP2013Connector tool or AgentToolSP2016Connector tool. For more information on using the tools, refer to the DocAve 6 Supplementary Tools user guide. • The path where you want to save the report of a Connector library's synchronization operations. Both local paths and UNC paths are supported. <p>Once this function is enabled, a report will be generated each time a Connector library is synchronized and the generated report will be saved to the report location. If this function is disabled, the report will also be generated each time a Connector library is synchronized and the generated report will be saved to the .fsdl folder in the storage location of the Connector library.</p>
<pre><StorageLog> <Enabled>true</Enabled> <MaxFileSize>5</MaxFileSize> <MaxFileCount>100</MaxFileCount> </StorageLog></pre>	<p>This whole node controls whether to record the changes on the corresponding files in the connected storage path when the files in SharePoint are processed. There are three sub nodes in the StorageLog node:</p> <ul style="list-style-type: none"> • Enable or disable to record the changes on the corresponding files in the storage location when the files in SharePoint are processed. • The maximum size of the log file which records the changes. The value of this element must be a positive number. The default value is 5 MB, which means when the size of the log file exceeds 5 MB, another log file will be generated. • The maximum number of the log files. The default value is 100, which means when the hundredth log file reaches the maximum file size specified in the

Element	Function Description
	<p><code><MaxFileSize></MaxFileSize></code> node, the most earliest generated log file will be deleted to generate the hundred and first log file.</p>
<p><code><EnablePerformanceTest>>false</EnablePerformanceTest></code></p>	<p>This node controls whether to generate the report of synchronization performance. The default value is false.</p>
<p><code><EnableExceedQuota>>false</EnableExceedQuota></code></p>	<p>This node specifies whether one file can be uploaded to SharePoint when its size exceeds the remaining free space of the storage location. By default, the value of this node is false. It means that the files mentioned above can be uploaded to SharePoint normally, and the corresponding files will be stored in the content database. If you do not want the files mentioned above to be uploaded to SharePoint, configure the value of this node to true.</p>
<p><code><TwoWayEnabled>>false</TwoWayEnabled></code></p>	<p>This node controls whether the Two-Way Sync mode will be displayed in the Connector Setting page or not. The default value is false.</p>
<p><code><ConnectorJobSendDetailInterval>5</ConnectorJobSendDetailInterval></code></p>	<p>This node is used to specify the interval at which the job details will be sent to the manager while running a synchronization job. The default value is 5 minutes.</p>
<p><code><EnableAddSyncButtonToECB>>false</EnableAddSyncButtonToECB></code></p>	<p>This node controls whether to enable the Sync File feature. False means that the Sync File feature is not displayed in the Callout menu, while True enables the Sync File feature.</p> <p>*Note: The Sync File feature only appears in the Connector library's Callout menu when the value of EnableAddSyncButtonToECB is True and the Connector library has configured the storage path.</p>
<p><code><UNCLinkTypes>mdt,accdb,mdb</UNCLinkTypes></code></p>	<p>This node is used to configure the types of files whose UNC link can be displayed in the UNCLink column.</p> <p>The default file types are mdt, accdb, and mdb. Add more file types by using a comma as the separator.</p>
<p><code><WorkFlowsName></WorkFlowsName></code></p>	<p>This node allows triggering the configured workflows in Connector libraries when synchronizing files to SharePoint or uploading files through Upload Connector Links. Enter the workflow names in this node, and separate multiple names by a comma (,).</p>

Element	Function Description
<code><EnableReloadMetadata>>false</EnableReloadMetadata></code>	<p>This node controls whether or not to load metadata from the file system to SharePoint in the synchronization job whenever the modify time of a file is changed in the storage side.</p> <ul style="list-style-type: none"> • True – Synchronize metadata during the synchronization job whenever the modify time of the file is changed. • False – Only synchronize the metadata when files or folders in the storage location are being synchronized to SharePoint for the first time.
<code><EnableReUploadLinkFile>>false</EnableReUploadLinkFile></code>	<p>This node controls the conflict resolution for uploading Link files with the same name, and enabling the Versioning feature for Connector Link files.</p> <ul style="list-style-type: none"> • True – Allow to upload a Link file with the same name and overwrite the existing Link file. If enabling the SharePoint built-in Versioning settings for files, True will enable the Versioning feature for Link files and add a new version for the Link file with the same name. • False – Cannot upload a Link file with the same name.

Appendix C: Enabling the BLOB Provider Using the Agent Tools

In the event that you encounter errors when attempting to install EBS or RBS on your farm through the DocAve GUI, this tool can assist you in making sure this vital step can be accomplished.

This section describes the steps required to enable EBS or RBS using the .exe tools. Refer to [Configuring the BLOB Provider](#) for more information on BLOB Providers.

It is recommended that you use the Agent Account to run the corresponding .exe tools. Refer to [Required Permissions](#) to review the permissions needed to run the following two .exe tools.

Enabling EBS

To enable EBS using the tool, follow the steps below.

***Note:** The EBS .dll files are reloaded when you enable EBS, so an IIS restart is required.

1. Access the installation path of DocAve Agent. The default path is ... \AvePoint\DocAve6\Agent\bin.
2. Locate **AgentToolSP2010StorageEBS.exe**, right-click on it, and select **Run as administrator**.
3. The following buttons are shown in the tool:
 - In the Check EBS Status field:
 - **Check EBS** – Checks if EBS is enabled on the farm.
 - **Enable EBS** – Enables EBS on the farm. You can choose to restart the IIS now or later in the pop-up.
 - **Disable EBS** – Disables EBS on the farm. You can choose to restart the IIS now or later in the pop-up.
 - In the Install Blob Com field:
 - **Install** – Installs BLOB Com on the farm. You can choose to restart the IIS now or later in the pop-up.
 - **Uninstall** – Uninstalls BLOB Com from the farm. You can choose to restart the IIS now or later in the pop-up.
 - In the Check whether the Blob Com has been installed correctly field:
 - **Check** – Checks the status of the items listed in the left field.

Enabling RBS

To enable RBS using the tool, complete the steps below:

1. Access the installation path of DocAve Agent. The default path is ...**\AvePoint\DocAve6\Agent\bin**.
2. Locate **AgentToolSP2010StorageRBS.exe** or **AgentToolSP2013StorageRBS.exe** or **AgentToolSP2016StorageRBS.exe**, right-click on it, and select **Run as administrator**.
3. The following buttons are shown in the tool.
 - In the Remote Blob Storage Installation Status field:
 - **Check** – Checks the installation status of RBS in this farm.
 - **Install** – Installs RBS on the farm.
 - **Uninstall** – Uninstalls RBS from the farm.
 - After verifying the RBS installation status using the options above, you can perform the following actions in the **Remote Blob Storage Enable Status** field:
 - **Browse** – Generates a tree structure of the farm. The tree is detailed down to the content database level.
 - **Check** – Select some SharePoint nodes on the tree and click **Check** to check whether RBS is enabled on the selected nodes.
 - **Enable** – Enables RBS on the selected nodes.
 - **Disable** – Disables RBS on the selected nodes.

Appendix D: Synchronization Behavior

Files That Do Not Synchronize from Storage Path to SharePoint

Some files and folders cannot be synchronized from the storage path to SharePoint due to Windows API or SharePoint limitations.

Error Message	File Type	Reason
The file is a system file. Or The folder is a system folder.	File, Folder	The system files are usually generated automatically by the system, which does not belong to the user's data.
The file is hidden. Or The folder is hidden.	File, Folder	Connector does not synchronize hidden files or folders for privacy protection.
There may be the system folder with the same name "_t" or "_w" in SharePoint.	Folder	-t and _w folder are used to store the thumbnail pictures and previewed pictures for Media library, Picture library and Asset library. This folder belongs to SharePoint system file.
The file's URL is too long to add to SharePoint. Or The folder's URL is too long to add to SharePoint.	File, Folder	This is a SharePoint limitation, if the file or folder name length exceeds 127 characters, the file or folder cannot be uploaded to SharePoint. If the length of the file or folder URL exceeds 260 characters, the file or folder cannot be uploaded to SharePoint.
The file is 0 KB.	File	This is a SharePoint limitation, 0KB file cannot be uploaded to SharePoint.
The file is read-only.	File	Connector requires Full control permission for a file to perform the synchronization. Read-Only files do not have sufficient permissions, so it cannot be uploaded to SharePoint.
The file size exceeds the SharePoint limitation.	File	This is a SharePoint limitation, if the file size exceeds SharePoint limitation, the file cannot be uploaded to SharePoint.
The file has been blocked by the SharePoint administrator.	File	This is a SharePoint limitation, if uploading a file whose type is blocked by SharePoint, the file cannot be uploaded to SharePoint.

***Note:** When prompting **The file size exceeds the SharePoint limitation** or **The file has been blocked by the SharePoint administrator**, use the **Would you like to bypass SharePoint file limitations?** feature to break the limitations during configuring the library level path. For more details, refer to [Library Level](#).

Synchronization Mode Behaviors in SharePoint

The table below displays the behaviors of each synchronization mode for certain actions in SharePoint (SP).

Action	Sync Changes Made from SharePoint to the Storage Path and Existing Files in the Storage Path to SharePoint	Sync Changes Made from SharePoint to the Storage Path, Existing Files in the Storage Path to SharePoint, and Load New Files from the Storage Path	Timing
New files added to SharePoint	BLOB written with the filename to storage and a stub living in SharePoint.	BLOB written with the filename to storage and a stub living in SharePoint.	Real-Time
Files updated to SharePoint	BLOB written with the filename to storage and a stub living in SharePoint. If versioning is turned on, the previous version is saved to a hidden folder. If versioning is turned off, then the file remains in the _d folder under the .fsdl folder in the storage location until the configured Delay Deletion period elapses.	BLOB written with the filename to storage and a stub living in SharePoint. If versioning is turned on, the previous version is saved to a hidden folder. If versioning is turned off, then the file remains in the _d folder under the .fsdl folder in the storage location until the configured Delay Deletion period elapses.	Real-Time for SharePoint 2010 and SharePoint 2016; Synchronization Job for SharePoint 2013 *Note: Files will be synchronized to destination automatically in SharePoint 2010 and SharePoint 2016, while on SharePoint 2013, the file requires a synchronization job.

Action	Sync Changes Made from SharePoint to the Storage Path and Existing Files in the Storage Path to SharePoint	Sync Changes Made from SharePoint to the Storage Path, Existing Files in the Storage Path to SharePoint, and Load New Files from the Storage Path	Timing
Rename files/folders in SharePoint	The file/folder is renamed according to the modification in SharePoint.	The file/folder is renamed according to the modification in SharePoint.	Synchronization Job / Incremental Synchronization Job (configured in the SP2010SOConnector.config or SP2013SOConnector.config or SP2016SOConnector.config file)
Files and folders deleted in SharePoint; Recycle Bin not emptied	BLOB remains in the _r folder under the .fsdl folder in the storage location.	BLOB remains in the _r folder under the .fsdl folder in the storage location.	Synchronization Job/Incremental Synchronization
Files and folders restored from Recycle Bin	BLOB will be moved from _r folder under the .fsdl folder to the storage.	BLOB will be moved from _r folder under the .fsdl folder to the storage.	Synchronization Job/Incremental Synchronization
Files and folders deleted in SharePoint; Recycle Bin emptied	BLOB remains in the _d folder under the .fsdl folder in the storage location until the configured Delay Deletion period elapses.	BLOB remains in the _d folder under the .fsdl folder in the storage location until the configured Delay Deletion period elapses.	Synchronization Job
New files added to storage	N/A	New items are created with the same name that point to existing BLOB.	Synchronization Job
Files updated from storage (not recommended)	The existing item is updated to reflect the size of the updated file.	The existing item is updated to reflect the size of the updated file.	Synchronization Job
Rename files or folders in storage (not recommend)	The existing SharePoint stub will become an orphan stub and the renamed file or folder will not be synchronized to SharePoint.	The existing SharePoint stub will become an orphan stub and the renamed file or folder will	Synchronization Job

Action	Sync Changes Made from SharePoint to the Storage Path and Existing Files in the Storage Path to SharePoint	Sync Changes Made from SharePoint to the Storage Path, Existing Files in the Storage Path to SharePoint, and Load New Files from the Storage Path	Timing
		be synchronized to SharePoint as a separate link.	
Files and folders deleted in storage (not recommended)	N/A	N/A	Synchronization Job

SharePoint to External Storage System Sync

The table below displays the data types that are supported and unsupported when synchronizing from SharePoint to an external storage system.

Sync from SharePoint Library to External Storage	Net Share	Net Share with WMS	HDS Hitachi Content Platform	Network File System	IBM Storwize Family	Cloud Storage	Comment
File	Supported	Supported	Supported	Supported	Supported	Supported	
Folder	Supported	Supported	Supported	Supported	Supported	Supported	
Metadata	Partially Supported	Partially Supported	Unsupported	Partially Supported	Partially Supported	Unsupported	The metadata of Office files is contained in the file content. Therefore, the metadata of Office files is able to be synchronized to an external storage system. For the files with metadata separated from the file content, metadata is not able to be synchronized to an external storage system.
Permission	Unsupported	Unsupported	Unsupported	Unsupported	Unsupported	Unsupported	

External Storage System to SharePoint Sync

The table below displays the data types that are supported and unsupported when synchronizing from an external storage system to SharePoint.

Note that the metadata and permissions of a file and folder can only be synchronized to SharePoint when the file or folder is first synchronized to SharePoint. If and when you modify the metadata or permissions, either in SharePoint or in a storage path, the metadata and permission are not synchronized during the synchronization jobs. If you want to reload the following permission or metadata changes from storage to SharePoint, use the **Sync-Folder** command for permissions and the **Sync-File** for metadata through Connector PowerShell. For more help information on the commands, refer to [Connector PowerShell](#).

Sync from External Storage to SharePoint Library	Net Share	Net Share with WMS	HDS Hitachi Content Platform	Network File System	IBM Storwize Family	Cloud Storage	Comment
File	Supported	Supported	Supported	Supported	Supported	Supported	
Folder	Supported	Supported	Supported	Supported	Supported	Supported	
Metadata	Supported	Supported	Unsupported	Partially Supported	Supported	Unsupported	The synchronization speed is seriously impacted when synchronizing any Office file metadata other than the four default metadata (Data Created, Data Modified, Last Saved By and Owner). As such, only the four default metadata properties are selected in Connector Property Mapping.
Permission	Supported	Supported	Unsupported	Supported	Supported	Unsupported	

Appendix E: SharePoint Updates

Updating to SharePoint 2013

If you are running Connector with SharePoint 2010 and plan on updating to SharePoint 2013, take the following information into consideration when planning your update:

- Customers who have deployed EBS for SharePoint 2010 will not be able to update their databases to SharePoint 2013. Because Microsoft no longer supports EBS, databases marked as having externalized content in EBS will not be able to connect. Customers using EBS must update first to RBS using the Converting EBS Stub to RBS Stub functionality in the Control Panel. Refer to [DocAve Control Panel Reference User Guide](#) for more details. In cases where the database server does not support RBS, users will also need to update the database server to Enterprise Edition (or other compatible versions of SQL Server).
- Customers who have deployed Connector to their SharePoint 2010 environments using RBS will be able to update to SharePoint 2013:
 - Customers will need to install DocAve Agents in the SharePoint 2013 farm prior to attaching any SharePoint 2010 RBS databases.
 - Customers will need to configure the RBS provider for the SharePoint 2013 environment.
 - Customers will need to deploy the new SharePoint 2013 Connector solutions prior to being able to update the connected libraries.
 - When an old SharePoint 2010 content database is attached and updated in a new SharePoint 2013 farm, the user will only need to enable RBS for the updated content database and assign (or copy) the previous stub database to the new content database. This can be accomplished directly via the stub database configuration wizard in the product.

***Important:** Microsoft's best practices recommend setting the 2010 environment to a read-only state prior to updating to 2013. The reason this is imperative for an RBS update is that the 2010 and 2013 farm will both leverage the same underlying BLOB storage layer. You **MUST** follow this step to prevent corrupting data (that is, updating storage locations, running garbage collection, or tampering with BLOBs without updating the stub and content databases).

Updating a SharePoint 2010 Content Database with Connector Data to a SharePoint 2013 Database

***IMPORTANT:** Before continuing with the following steps, make sure your SharePoint 2010 content databases contain the Connector libraries. Otherwise, please follow the [Upgrade databases from](#)

[SharePoint 2010 to SharePoint 2013](#) article provided by Microsoft when updating your SharePoint 2010 to SharePoint 2013.

Prerequisites

1. DocAve 6 SP2 or a later version is required. If you are running a previous version of DocAve, update your DocAve version to SP2 or a later version first.
2. If the SharePoint 2010 content databases contain EBS stubs, those content databases cannot be updated to SharePoint 2013. This is because SharePoint 2013 does not support the EBS provider.
3. The SharePoint 2010 farm and SharePoint 2013 farm must use the same DocAve Control Server.
4. After the update, make sure the updated content databases still use the same stub databases. Otherwise, the stubs cannot be accessed after the update.
5. Before the update, DocAve Agents must be installed in the SharePoint 2013 farm and the Connector solutions must be deployed in the SharePoint 2013 farm.
6. If you want to use the SharePoint 2010 style sites after the update, **SP2010ConnectorContentLibrary.wsp**, **SP2010ConnectorMediaLibrary.wsp**, **SP2013ConnectorContentLibrary.wsp** and **SP2013ConnectorMediaLibrary.wsp** must be deployed and the corresponding features must be activated. Otherwise, you only need to deploy **SP2013ConnectorContentLibrary.wsp** and **SP2013ConnectorMediaLibrary.wsp** and activate the corresponding features. For the detailed steps on deploying the Connector solutions and activate the corresponding features, refer to [Deploying the Connector Solution](#) and [Activating the Connector Features](#).

Detailed Update Steps

1. Attach the SharePoint 2010 content databases to the SQL Server of the SharePoint 2013 environment. For more information, refer to [Attach a Database](#).
2. Mount the attached content databases to a selected Web application using the PowerShell command [Mount-SPContentDatabase](#).

For example, `Mount-SPContentDatabase "MyDatabase" -DatabaseServer "MyServer" -WebApplication http://webapplicationurl.`

***Note:** For more information on step 1 and step 2, refer to [Upgrade databases from SharePoint 2010 to SharePoint 2013](#).

3. If the customers need to update the UI style of SharePoint 2010 site collections in the attached content database to the SharePoint 2013 UI style, run the [Upgrade-SPSite](#) command. Otherwise, please neglect this step and the step below.

For example, `Upgrade-SPSite http://<site name>/sites/testsite -VersionUpgrade`

4. Run the **AgentToolSP2013Connector.exe** tool to update the Connector libraries in the specified site collection.

For example, `AgentToolSP2013Connector.exe -o UpgradeConnectedLibrary -url http://server/site`

For more information, refer to the *Operation –o UpgradeConnectedLibrary(SharePoint 2013 Only)* section in the [DocAve Supplementary Tools User Guide](#).

***Note:** If the customers continue to use the SharePoint 2010 style sites after the update, please do not run the **AgentToolSP2013Connector.exe** tool. However, when the customers decide to update the UI style of SharePoint 2010 site collections, step 3 and step 4 must be performed accordingly.

Updating to SharePoint 2016

If you are running Connector with SharePoint 2013 and plan on updating to SharePoint 2016, take the following information into consideration when planning your update:

- Customers will need to install DocAve Agents in the SharePoint 2016 farm prior to attaching any SharePoint 2013 RBS databases.
- Customers will need to configure the RBS provider for the SharePoint 2016 environment.
- Customers will need to deploy the new SharePoint 2016 Connector solutions prior to being able to update the connected libraries.
- When an old SharePoint 2013 content database is attached and updated in a new SharePoint 2016 farm, the user will only need to enable RBS for the updated content database and assign (or copy) the previous stub database to the new content database. This can be accomplished directly via the stub database configuration wizard in the product.

***Important:** Microsoft's best practices recommend setting the 2013 environment to a read-only state prior to updating to 2016. The reason this is imperative for an RBS update is that the 2013 and 2016 farm will both leverage the same underlying BLOB storage layer. You **MUST** follow this step to prevent corrupting data (that is, updating storage locations, running garbage collection, or tampering with BLOBs without updating the stub and content databases).

Updating a SharePoint 2013 Content Database with Connector Data to a SharePoint 2016 Database

***IMPORTANT:** Before continuing with the following steps, make sure your SharePoint 2013 content databases contain the Connector libraries. Otherwise, please follow the [Upgrade databases from SharePoint 2013 to SharePoint 2016](#) article provided by Microsoft when updating your SharePoint 2013 to SharePoint 2016.

Prerequisites

1. DocAve 6 SP2 or a later version is required. If you are running a previous version of DocAve, update your DocAve version to SP2 or a later version first.
2. The SharePoint 2013 farm and SharePoint 2016 farm must use the same DocAve Control Server.
3. After the update, make sure the updated content databases still use the same stub databases. Otherwise, the stubs cannot be accessed after the update.
4. Before the update, DocAve Agents must be installed in the SharePoint 2016 farm and the Connector solutions must be deployed in the SharePoint 2016 farm.

Detailed Update Steps

***Note:** Due to a SharePoint 2016 update bug, you must disable the RBS settings on the SharePoint 2013 environment before updating it to SharePoint 2016; otherwise, you must install the following two

SharePoint 2016 updates before the database update: <https://support.microsoft.com/en-us/kb/3118289> and <https://support.microsoft.com/en-us/kb/3118295>.

1. Attach the SharePoint 2013 content databases to the SQL Server of the SharePoint 2016 environment. For more information, refer to [Attach a Database](#).
2. Mount the attached content databases to a selected Web application using the PowerShell command [Mount-SPContentDatabase](#).

For example, `Mount-SPContentDatabase "MyDatabase" -DatabaseServer "MyServer" -WebApplication http://webapplicationurl`.

3. Run the **AgentToolSP2016Connector.exe** tool to update the Connector libraries in the specified site collection.

For example, `AgentToolSP2016Connector.exe -o UpgradeConnectedLibrary -url http://server/site`

For more information, refer to the *Operation –o UpgradeConnectedLibrary (SharePoint 2013 Only)* section in the [DocAve Supplementary Tools User Guide](#).

***Note:** As SharePoint 2016 does not support SharePoint 2010 mode site collections, you must upgrade all SharePoint 2010 mode sites to SharePoint 2013 mode on the existing 2013 farm before you mount the database on the new SharePoint 2016 farm.

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