AvePoint®

DocAve® 6 Cloud Connect

User Guide

Service Pack 11, Cumulative Update 1

Issued January 2019

*The Enterprise-Class **Management Platform** for **SharePoint**® Governance*

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What's New in this Guide

- Updated the Agent Account Permissions section.
- Added the Configurations for Pre-Created Stub Databases section.
- Updated the Enabling the BLOB Provider section.

About DocAve Cloud Connect

DocAve Cloud Connect displays Box content in SharePoint 2010, SharePoint 2013, SharePoint 2016, and SharePoint 2019 on-premises, without the need for 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.

Additionally, Cloud Connect 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, qt, vqf, 3gp, m4v, mts, and wav files stored in Box are streamed and presented via SharePoint for fast delivery and data storage optimization. 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 Cloud Connect.

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, Amazon S3-Compatible Storage, 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 TSM Client 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 Cloud Connect, the DocAve 6 platform must be installed and configured properly on your SharePoint farm. Cloud Connect 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 Cloud Connect commands to function properly. For instructions on installing the DocAve Platform, DocAve Manager, and DocAve Agents, see the DocAve 6 Installation Guide.

***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 the effect on server performance is negligible.

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

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 Cloud Connect 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 Cloud Connect; 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 Cloud Connect; they are not automatically configured.
    - Member has the database role of **db_owner** for the SharePoint Content Databases.
    - Member has the database role of **db_owner** for all the databases related to SharePoint 2010, including Config Database, and Central Admin Database; member has the database role of **SharePoint_Shell_Access** for the databases related to SharePoint 2013, SharePoint 2016 and SharePoint 2019, including 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 Cloud Connect job.

      ***Note**: The **dbcreator** role is only required for Windows Authentication.

      ***Note**: This permission is used to create the stub database via DocAve Manager. If your organization has a strict permission management policy for SQL databases and is unable to grant the **db_creator** role to the account used to create stub databases, DocAve Cloud Connect can use the pre-created database and the **db_creator** role will not be required. For details, refer to Configurations for Pre-Created Stub Databases.
    - Member has the server role of **securityadmin** in SQL Server for enabling RBS.

Configurations for Pre-Created Stub Databases

Your organization might have a strict permission management policy for SQL databases, and might be unable to grant the **db_creator** role to the account used to create the stub database via DocAve Cloud Connect. In this case, DocAve can use the pre-created stub database and then the **db_creator** role will not be required.

Follow the steps below to set up the configurations for the pre-created stub database:

1. Create the stub database in SQL Server.
2. Make sure the database is using the correct collation, and the collation is **Latin1_General_CI_AS_KS_WS**.
3. By default, the **Simple** recovery model for the database is used. You can use the **Full** recovery model for the database depending on your SQL management policy.
4. The account used to access the database when you create a stub database in Enabling the BLOB Provider must have the database role of **db_owner** for the stub database.

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):
    - Full Control to the Registry of HKEY_LOCAL_MACHINE\SOFTWARE\AvePoint\DocAve6
    - Full Control to the Registry of HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\eventlog
    - Full Control to the Communication Certificate
    - 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**)
    - 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 ensure you meet the DocAve Cloud Connect prerequisites.

***Note:** Only users in the DocAve **Administrators** group can use Health Analyzer. In addition, Cloud Connect and Connector share the same scanning rules, so you must select **Connector** in the **Module Filter** in the Health Analyzer profile settings to scan the environment for Cloud Connect.

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 Cloud Connect.

Launching Cloud Connect

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

1. Log in 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 **Cloud Connect** to launch this module.

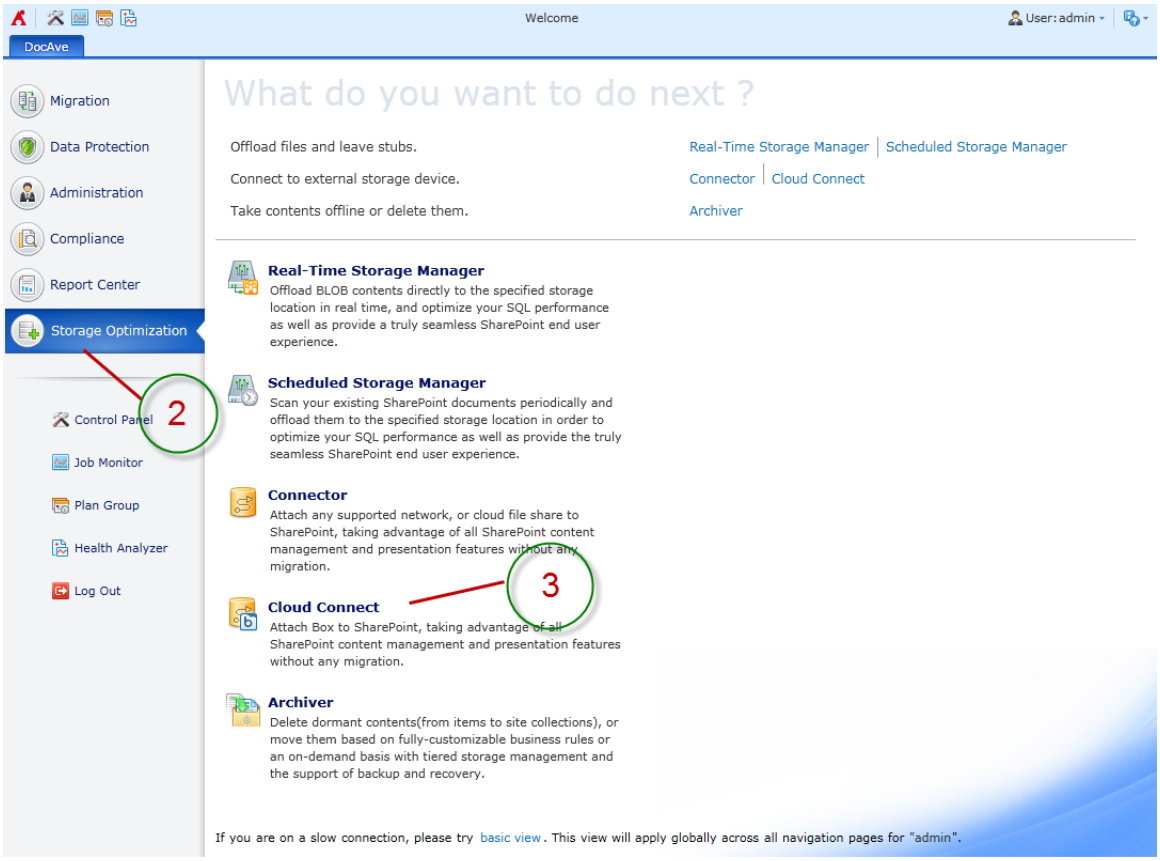

Figure 1: DocAve module launch window.

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.

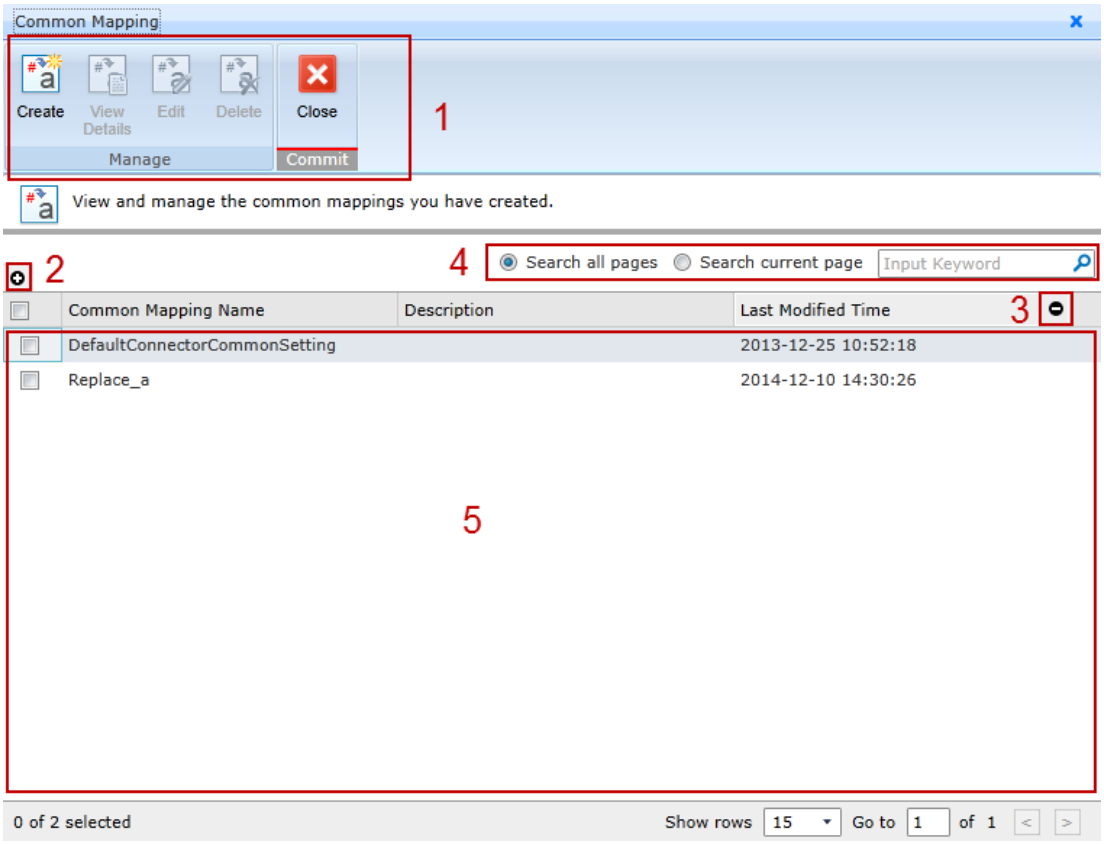

Figure 2: Navigating DocAve.

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

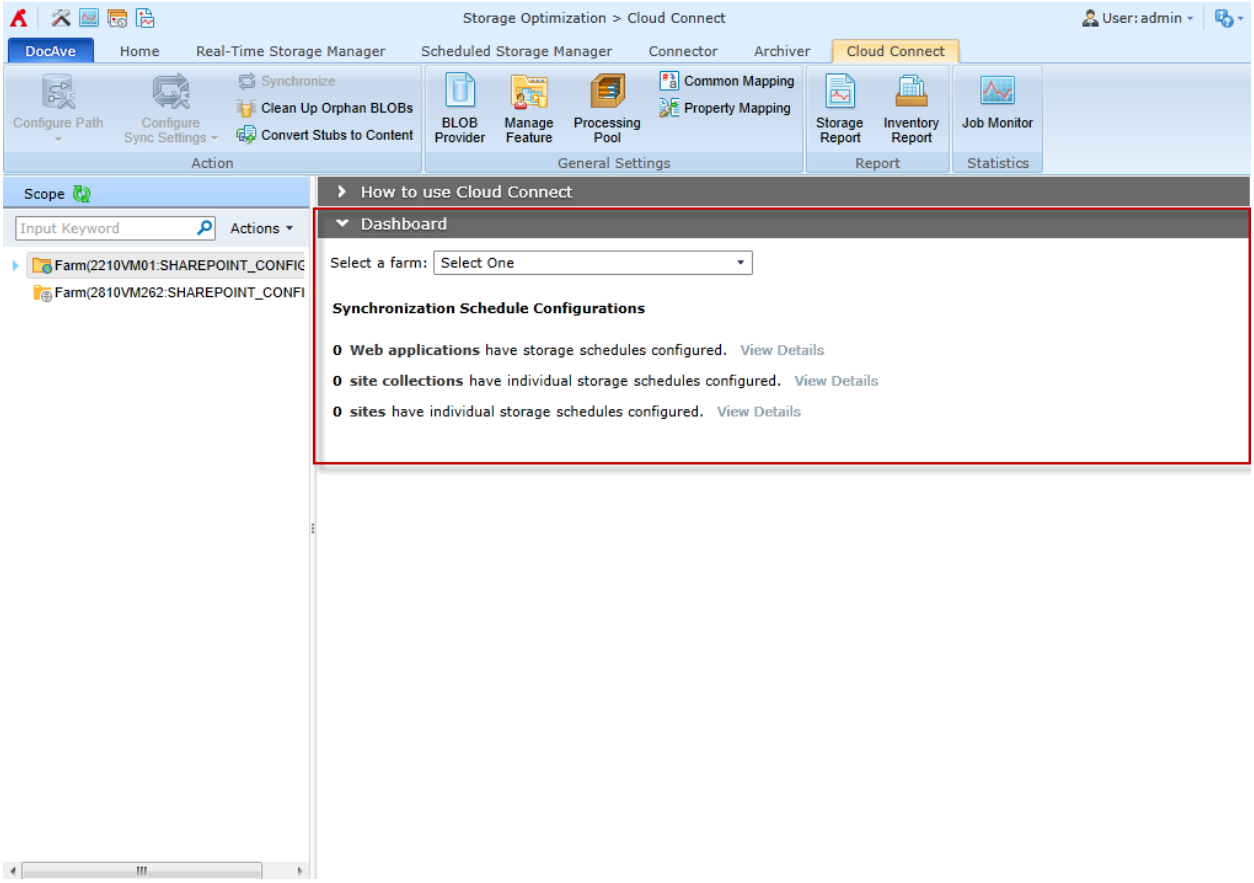

Figure 3: Dashboard interface.

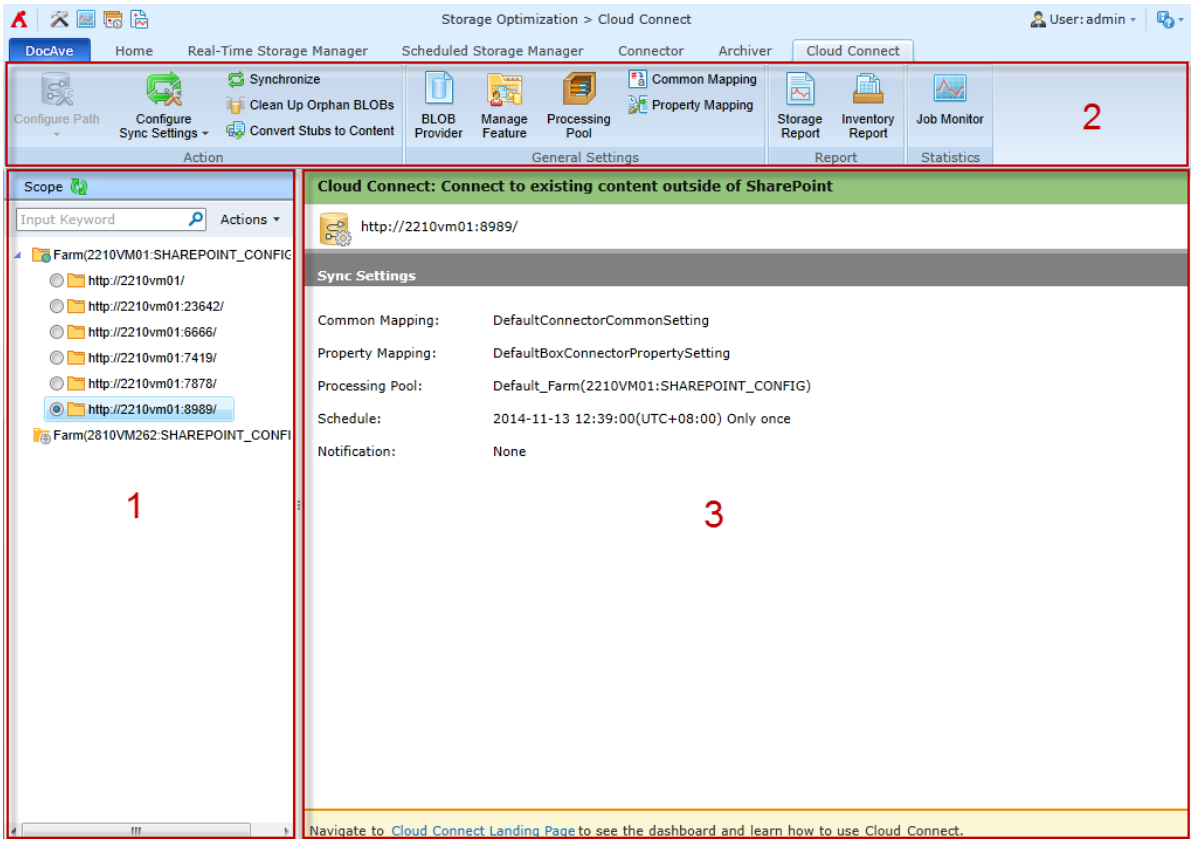

Figure 4: Cloud Connect user interface.

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. Selecting content often reveals new tabs and functionality on the **ribbon**.
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 that you want to perform further operations on 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

When the node you are about to expand in a tree has more than ten thousand child nodes, DocAve recommends using Advanced Search to narrow down the search criteria, which will display fewer nodes on the tree and improve the performance.

To use Advanced Search, 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 that 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** rule and the **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**. By default, the logical relationships are set to **And**. **And** means that the child nodes that meet all criteria will be included in the search results. **Or** means that the child nodes that meet any criterion will be included in the search results. The **Basic Filter Condition** area displays the logic relationships of filter criteria.
5. Click **Search** to start searching the child nodes.

The tree displays the child nodes that meet the search criteria. If the search returns more than ten thousand results, a pop-up window will appear and recommend that you narrow the search criteria and try again.

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

If you run a search in the selected current node, the child nodes that are excluded in the search will not be included in the search results.

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

How Cloud Connect Works with SharePoint

In Cloud Connect, there are two ways you can link to Box folders.

The first method creates 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. When reusing the template, its ID for the library remains the same and is a "known and approved" template for integration with Cloud Connect's server API. For more information on this method, refer to Creating a Cloud Connect Library in SharePoint.

The second method converts existing SharePoint libraries to Connector libraries and moves the content from SharePoint to the Box location you configure through DocAve. In this case, Cloud Connect 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 Box.

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

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

*__Note__: For a list of the SharePoint libraries Cloud Connect can convert, refer to SharePoint Libraries that Can Be Converted to Cloud Connect Libraries.

In some cases, you may have a highly customized library that Cloud Connect cannot convert, for example: The customized SharePoint library's template ID is not on the approved conversion list. Nevertheless, 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 Cloud Connect-Approved List of Templates.

Details and Best Practices for Cloud Connect Synchronization with SharePoint

As SharePoint evolves as a platform, best practices for DocAve modules and features will continue to emerge. In the case of Cloud Connect, AvePoint recommends enabling file checkouts for Cloud Connect libraries and libraries that are connected to Box. Adhering to this recommendation will ensure that collaboration on Box documents sync properly. See the sections below for additional information.

SharePoint 2013/2016/2019

If you open a file in SharePoint 2013/2016/2019 and create minor versions without checking out the file, the changes will not be written to Box nor will the Box version number increase. The same is true if you edit and save a file without any versioning enabled. In both of these cases, the changes will not be written to Box until the next sync job or when you update the document's properties.

If you create minor versions *after checking out the file*, though, then the changes will be written to Box once you check in the file, and the Box version number will increase by how many minor versions were created while it was checked out. This is because "check-in" is an update operation in SharePoint; thus, SharePoint will process a synchronization for the file, and all versions will be externalized to the storage location.

***Note**: If a user is making changes to content on the Box side while a user is also making changes in SharePoint, once a sync job runs, the SharePoint version will override the Box version.

Therefore, as a best practice, AvePoint recommends that administrators require file checkouts for Cloud Connect libraries and libraries that are connected to Box.

SharePoint 2010

Changes made to files in SharePoint 2010 will be written to Box directly, without any synchronization required. Each minor version created will also immediately create a new version in Box, regardless of whether you checked out the file. On the Box side, if you have the file open for editing at the same time as someone else is editing via SharePoint, you will receive notifications from Box that there are updates to this document; however, saving this document from the Box side will create a version of the file in Box.

As a best practice, AvePoint recommends that administrators require file checkouts for Cloud Connect libraries or libraries that are connected to Box.

Steps to Configure and Deploy Cloud Connect

The following steps are required in order to properly run Cloud Connect. Click the link to jump to the corresponding section.

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

Configuring the BLOB Provider

A binary large object (BLOB) is unstructured data (files, attachments, etc.) stored in SQL content databases. By default, 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 user-specified external storage and leave a data stub in SharePoint to point to the content. The BLOB Provider feature intercepts SharePoint database traffic and redirects all BLOB traffic to the external BLOB storage.

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, and RBS is a set of standardized Advanced Programming Interfaces (APIs) that are incorporated as an add-on feature pack for Microsoft SQL Server. When enabled on a farm or node, the BLOB Provider creates a stub database.

***Note**: EBS is not supported in a SharePoint 2013/2016/2019 environment.

In order to use DocAve Cloud Connect, one of these two BLOB Providers must be enabled, and it is recommended you use RBS as your BLOB Provider.

***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.

Feature	RBS (for SharePoint 2010/SharePoint 2013/SharePoint 2016/SharePoint 2019)	EBS (only supported in SharePoint 2010)
BLOB store scope	RBS can be enabled at content database level and Web application level. 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	Unmanaged. EBS relies on a legacy COM interface.

Feature	RBS (for SharePoint 2010/SharePoint 2013/SharePoint 2016/SharePoint 2019)	EBS (only supported in SharePoint 2010)
	perspective, RBS fits in to .NET quite nicely.	
Migrating BLOBs from SQL Server stores to BLOB stores and vice versa	Windows PowerShell	Custom
SharePoint interface	SharePoint 2010, SharePoint 2013, SharePoint 2016 and SharePoint 2019 ship with many Windows PowerShell cmdlets that can be used to manage RBS installation and configuration.	None

BLOB Provider Recommendations

Before enabling your BLOB Provider, be sure to check the following advice for 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.
- For the best performance, choose a database server within the farm as your stub database.
- Choose to manage all stubs (pointers) for EBS or RBS at the farm level – one stub database per farm. Apply lower-level settings when expect more than one million objects per container.
- Consider configuring database inheritance when configuring stub databases at a lower level. See Stub Database Inheritance for additional information on stub database inheritance.
- Configure a schedule for enabling RBS and ensure that you have planned for a growing farm.
- Choose which of EBS or RBS to use based on your SQL Server version and SharePoint version. SharePoint 2013 and beyond only support using RBS, and SharePoint 2010 can use either EBS or RBS depending upon your SQL Server

version. We provide the ability to update from EBS to RBS at a later time, as your needs change. Refer to the DocAve 6 Control Panel Reference Guide for information on updating from EBS to RBS.

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 cannot enable BLOB Provider from DocAve GUI, you can use the standalone Agent tools to enable the BLOB Provider. Refer to Appendix C: Enabling the BLOB Provider Using the Agent Tools for more information.

1. To access the BLOB Provider, click the **Cloud Connect** tab > **BLOB Provider** in the **General Settings** group. The **BLOB Provider** page appears in the workspace.
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.

   ***Note:** All these servers must have RBS binaries installed or access to external content 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. For ease of use, it is recommended to 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. For easy stub database management and maintenance, it is recommended you choose the default database server used by SharePoint Central Admin.

a. **Configure Stub Database** – Specify 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.

   - **Windows authentication** (recommended; the default option) – Use this method when you want the user identity to be confirmed by Windows.
   - **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 authentication 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:

   - **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;
   - **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**.
   - **Trusted_Connection** – Select the **true** value to use Windows Authentication Mode for login validation.
   - **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.
   - **Failover Partner** – Enter the name of the failover server used for database mirroring.

- **Initial Catalog** – Enter the stub database's name.
- **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 an equals sign (=). The instructions are separated using a semicolon (;).

- **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;
- **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**.
- **Trusted_Connection** – Select the **False** value to not use Windows Authentication Mode for login validation. You can specify the credentials that will be used to connect to the database.
- **User ID** – Enter the login name.
- **Password** – Enter the password.
- **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.
- **Failover Partner** – Enter the name of the failover server used for database mirroring.
- **Initial Catalog** – Enter the stub database's name.

Note the following:

- If you want DocAve to create the stub database, the account for creating the stub database must have the server role of **db_creator** for the SQL server where you want to create the stub database. The account must have the database role of **db_owner** for the newly created or existing stub database.

- If your organization has a strict permission management policy for SQL databases and is unable to grant the **db_creator** role to the DocAve Agent account or the selected Windows account/SQL database account, DocAve Cloud Connect can use the pre-created database and then the **db_creator** role will not be required. You only need to grant the database role of **db_owner** to the DocAve Agent account or the account specified in DocAve for accessing the stub database. For details, refer to Configurations for Pre-Created Stub Databases.

7. When finished, 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, it is recommended that you enable RBS for the farm; if you are using a SharePoint 2013 environment or SharePoint 2016 or SharePoint 2019, 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, if necessary.
   - Select **Enable** in the **Include New Content Databases** row to enable RBS for all newly-added content databases (that is, content databases added after configuration of the BLOB Provider). In order to use this function, a schedule must be configured in the **Schedule** field.
   - Configure a **Schedule** (available when **Enable RBS for Farm** is selected) to check for newly-added content databases. According to your configured schedule, Cloud Connect runs a search on your farm for new content databases. If any new content databases are found, Cloud Connect 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 immediately.

***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 Cloud Connect Solutions

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

The **SP2010ConnectorContentLibrary.wsp** and **SP2010ConnectorMediaLibrary.wsp** solutions are for SharePoint 2010. The **SP2010ConnectorContentLibrary.wsp** and **SP2010ConnectorMediaLibrary.wsp** solutions are for SharePoint 2013 with 2010 experience version; the **SP2013ConnectorContentLibrary.wsp** and **SP2013ConnectorMediaLibrary.wsp** solutions are for SharePoint 2013 with 2013 experience version. The **SP2016ConnectorContentLibrary.wsp** and **SP2016ConnectorMediaLibrary.wsp** solutions are for SharePoint 2016. The **SP2019ConnectorContentLibrary.wsp** and **SP2019ConnectorMediaLibrary.wsp** solutions are for SharePoint 2019. Once you install and deploy the DocAve Cloud Connect solutions, the Cloud Connect feature will be listed in the Site Collection Feature List. Choose the solution to deploy according to the Cloud Connect features you want to use.

- The **SP2010ConnectorContentLibrary**, **SP2013ConnectorContentLibrary**, and **SP2016ConnectorContentLibrary**, and **SP2019ConnectorContentLibrary** solutions include the DocAve Content Library feature, DocAve Connector Library Converting feature, and MySite Libraries feature.
- The **SP2010ConnectorMediaLibrary**, **SP2013ConnectorMediaLibrary**, and **SP2016ConnectorMediaLibrary**, and **SP2019ConnectorMediaLibrary** solutions include the DocAve Media Library feature.

***Note**: Cloud Connect shares the same solutions with Connector. When you have deployed the solutions in Connector, you do not need to deploy them again.

***Note**: If you have SharePoint 2013 site collections that were created using the SharePoint 2010 template, you must install and deploy the SharePoint 2010 Cloud Connect solutions.

Follow the steps below to deploy DocAve Cloud Connect solutions.

1. Navigate to the **DocAve** tab > **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;

SP2019ConnectorContentLibrary.wsp and **SP2019ConnectorMediaLibrary.wsp** for SharePoint 2019. 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, or **SP2019ConnectorContentLibrary.wsp** and **SP2019ConnectorMediaLibrary.wsp** for SharePoint 2019. 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.

Proceed to the next section for information on activating the Cloud Connect features.

Activating the Cloud Connect Features

Once the Cloud Connect solution is deployed, you can configure Cloud Connect settings for SharePoint objects through the DocAve user interface.

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

Choose the features 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 – Coverts Document Libraries, Picture Libraries, Form Libraries, and Asset Libraries to Cloud Connect Content Libraries. 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.

***Note**: Cloud Connect shares the same features with Connector. So, when you have activated the features in Connector, you need not to activate them again.

Refer to the applicable section below to enable the Cloud Connect features.

Activating Cloud Connect through SharePoint

To activate the Cloud Connect features through SharePoint, complete the following steps:

1. In SharePoint, access the site collection that you want to activate Cloud Connect. Navigate to **Site Actions** > **Site Settings** > **Site collection features**. The **Site Collection Features** page appears.

2. Click **Activate** next to the **DocAve Connector Library Converting**, **DocAve Content Library**, and **DocAve Media Library** Cloud Connect features. This enables the features for the selected site collection.

   ***Note**: The **DocAve Connector Library Converting** feature is used to convert the SharePoint Document library, Form library, Picture library, and Asset library to a DocAve Cloud Connect library. These four types of SharePoint libraries can have Cloud Connect settings applied to them.

3. After activating the Cloud Connect feature, the status of the feature reads **Active** in the **Status** column.

Activating Cloud Connect through DocAve

To activate the Cloud Connect features through DocAve, complete the following steps:

1. From the **Cloud Connect** tab, click **Manage Feature** in the **General Settings** group. The **Manage Feature** page appears.
2. Select the Cloud Connect features, **Content Library**, **Media Library**, **Library Converting**, or **MySite Libraries** which you wish to activate in the **View** group. Configure the following settings for the selected features:
   a. **Tree selection** – Select the target destination.
   b. Expand the SharePoint farm tree to the desired node and click **Activate** in the **Action** column to activate the Cloud Connect features on the selected node. Alternatively, click **Activate All** following one node to activate the Cloud Connect features on all nodes under the selected node.
3. After activating the Cloud Connect features, the status of the features on the corresponding site collection is changed from **Inactive** to **Active** in the **Status** column.

Configuring Mapping Settings

As described earlier, Cloud Connect requires several steps to configure Box folders for use in SharePoint. Once RBS, the vehicle of delivery of content, is configured, you now need to resolve the discrepancies that exist between SharePoint and Box.

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

In general, the most logical mappings possible have already been made. This section is intended for you to review the default settings configured to resolve common differences between SharePoint and Box.

Common Mapping

SharePoint 2010 and SharePoint 2013 does not support file or folder names that are longer than 128 characters, or filenames that contain invalid characters (such as " # % & * : < > ? \ / { | } ~). By default, 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 invalid characters are replaced with an underscore (_) after being synchronized to SharePoint.

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: ~ & { }.

SharePoint 2019 has no limitation for the file or folder name length while the URL length limitation is still 400 characters. SharePoint 2019 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 new Common Mapping:

1. From the **Cloud Connect** tab, select **Common Mapping** in the **General Settings** group. The **Common Mapping** pop-up page appears. Here, you can view all of the existing Common Mapping profiles.
2. To create a new mapping rule, click **Create** in the **Manage** group. The **Create Common Mapping** page appears in the workspace.
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?** – Specify the maximum length of the folder or filename displayed in the Cloud Connect Library. If the folder or filename exceeds the maximum length, the system automatically prunes the extra characters and saves the name. The folder or 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 the Box storage, 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 illegal characters are replaced with an underscore (_).

   SharePoint 2016 supports the following special characters in file or folder names: ~ & { } and SharePoint 2019 supports the following special characters in file or folder names: ~ & { } # %. Therefore, it is recommended to remove the rules for the corresponding characters when configuring illegal characters replacement settings for SharePoint 2016/SharePoint 2019.

Property Mapping

While files that are uploaded to SharePoint natively lose their metadata, Cloud Connect can read the following Box properties: Modified, Created, Description, Owned By, and Tags and present it in SharePoint. Property Mapping allows you to configure rules that map the Box properties to SharePoint metadata, thereby preserving the metadata.

***Note**: Cloud Connect only supports the following Box properties: Modified, Created, Description, Owned By, and Tags.

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

1. From the **Cloud Connect** tab, select **Property Mapping** in the **General Settings** group. The **Property Mapping** pop-up page appears. Here, you can view all 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 Box properties be mapped?** – Map the Box properties to SharePoint properties. Click either the **Content Library** or **Media Library** tabs above the table to set the corresponding properties. By default, the Box properties are mapped to SharePoint properties with the original property names.

Configuring the Processing Pool

The Processing Pool feature allows you to control the maximum number of synchronization jobs that can be run simultaneously. Normally, a synchronization job is fairly resource-intensive, so running multiple synchronization jobs simultaneously may affect the performance of the server. To avoid performance issues, 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 synchronization 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 the default processing pool is 5.

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

1. Click **Cloud Connect** tab > **Processing Pool** in the **General Settings** group.
2. Click **Create** in **Manage** group on the **Processing Pool** tab. The **Create 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.

Creating a Connection between SharePoint and Box

With DocAve Cloud Connect, you can create a connection between one or more SharePoint libraries and one or more Box storage paths. In other words, you can "convert" an existing SharePoint document/form/picture/asset library to a Cloud Connect library with a configured storage path. The connection only can be made at the library level.

Only DocAve Cloud Connect libraries (Content Library/Media Library) and the four types of SharePoint libraries (Document library/Form library/Picture library/Asset library) are actually connected to Box. 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, so 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 Cloud Connect-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 Box location (instead of in the SharePoint SQL database). Content in the SharePoint library appears and functions normally; however, the content of the SQL database is a stub, not the actual data.

Overview

The Cloud Connect 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 Cloud Connect Path

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

***Note**: The only Cloud Connect 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 Cloud Connect settings at the library level can also be configured from SharePoint. Refer to Configuring Cloud Connect Library Settings using the SharePoint Interface for details.

1. From the **Scope** panel, select the library 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. **Box** is selected as the storage type. Configure the following settings for the Box storage location.
    a. **Root Folder Name** – Enter the folder name you want to synchronize with this library or enter a slash (/) to represent the root folder.
    b. **E-mail address** – Enter the e-mail address to access Box.
    c. **Token storage location** – Enter the path of the location where the token's file resides. For details about how to generate the token, refer to DocAve 6 Supplementary Tools User Guide.
    d. **Username** – Enter the username to access the token storage location.
    e. **Password** – Enter the relevant password for the user.
    f. **Enable As-User** – Choose whether to use the user you specified for the root folder in Box site to access the Box storage. Enter the e-mail address of the user that you want to use to access the Box storage.

    ***Note**: Enable As-User is a feature only for Enterprise Box accounts.

    g. **Use the client information provided by DocAve** – Select this radio button and click **Retrieve Token** below to use the opened site to generate the Token that is used when configuring the Box.
    h. **Use my client information** – If you do not want to use the client information provided by DocAve, you can select this radio button to use the **StorageTokenClient** tool to generate the token. For details about how to Use the tool to generate the token, refer to DocAve 6 Supplementary Tools User Guide.
    i. **Proxy Settings** – If the server cannot connect to the internet, or if you want to connect to the internet via the proxy server, select this checkbox and configure the following settings:
        - **Proxy host** – The hostname or IP address of the proxy server.
        - **Proxy port** – The port used to access the proxy server.
        - **Username** – The username to log into the proxy server.
        - **Password** – The password to access the proxy server.

***Note**: The username and password are optional since anonymous proxy is supported.

j. **Advanced** – Specify the following extended parameters in the advanced settings if necessary. If you have multiple parameters to enter, press **Enter** to separate the parameters. Refer to the instructions below to add parameters.

   - **RetryInterval** – Customize the retry interval when the network connection is interrupted. The default value is 30000 milliseconds. You are allowed to enter any positive integer between 0 and 2147483646 (the unit is millisecond). For example, RetryInterval=30 represents the interval between the network interruption and reconnection is 30 milliseconds.
   - **RetryCount** – Customize the reconnection times after the network connection is interrupted. The default value is 6. You are allowed to enter any positive integer between 0 and 2147483646. For example, RetryCount=10 represents when the network connection is interrupted, it can reconnect at most 10 times.

   Click **Validation Test** to verify that the information you entered is correct.

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

   ***Note:** To review synchronization mode behaviors for certain actions in SharePoint or Box, refer to Synchronization Mode Behaviors in SharePoint and Details and Best Practices for Cloud Connect Synchronization.

   - **Sync changes made from SharePoint to the storage path and existing files in the storage path to SharePoint** – Select this option if files are only being added, modified, or deleted through the SharePoint interface. Files added to Box will not be synchronized to SharePoint. Deletions and modifications on the Box 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:** We strongly recommend 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. If 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.

5. **Which permissions are required to run sync jobs?** – Select the permission levels in order to specify which end-users can perform synchronization. All the permission levels that are equal to or bigger than the union of the following three permissions will be listed here: **Add Items**, **Edit Items**, **Delete Items**. The end-users with any one of the listed permissions can perform a synchronization operation. Note that **Full Control** and **Site Collection Administrator** are selected by default.

6. **Would you like to load metadata from file system?** – Specify whether to load metadata from Box while loading files and folders from it. Note that the metadata can only be loaded during the first synchronization with SharePoint.

   ***Note:** The metadata can only be synchronized when files or folders in the storage location are synchronized to SharePoint for the first time. If you want to reload metadata changes from storage to SharePoint, use the **Sync-File** command through Cloud Connect PowerShell. For more help information on this command, refer to Cloud Connect 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: Cloud Connect 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 Cloud Connect library when the file names are modified due to invalid characters or file name length limitation during the synchronization job.

   - Disabling this option results in the file names being modified in SharePoint during synchronization according to the Common Mapping rules. The filenames in the storage path will not change.
   - Enabling this option results in the filenames in the storage path being consistent with the filenames in SharePoint (after synchronization). If file or folder names contain 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 bypass SharePoint file limitations?** – Select **Allow uploading large files (greater than current Web application maximum upload size: 250 MB) 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 Cloud Connect links in SharePoint will be synchronized to the storage location.

***Note:** Due to SharePoint limitations, only a link will be uploaded to SharePoint for an item over the current Web application maximum upload size or an item with a blocked file type.

***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 Cloud Connect solutions. If the **Connector Link to a Document** and **Connector Link to Multimedia** content types are unexpectedly missing from your libraries, manually add them.

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

- Generating a version of a Cloud Connect link file results in only a link in SharePoint. The version of this linked file is not generated in the connected path.
- Cloud Connect linked files are not included in the index during SharePoint crawls.
- Cloud Connect linked files' extensions cannot be modified.

If configuring a Media Library, there are three more Cloud Connect 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. The followings are the detailed steps to use this feature.

a. In the **Media Library Settings** page, select **Enable video player in Rich Text for the entire site**. Click **Save** to save the setting.

b. Access a list in the target site 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 **Format Text** > **HTML** > **Rich Text Settings**. The **Player Settings** page appears.

d. Configure the Rich Text settings in 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 Cloud Connect Library Settings using the SharePoint Interface

It is possible to configure initial Cloud Connect settings for the library level from either the DocAve GUI or from SharePoint.

The Cloud Connect setting options for the library level are exactly the same on both the DocAve GUI and SharePoint. The Configuring the Cloud Connect Path section details how to configure Cloud Connect 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 Cloud Connect settings that were applied from the DocAve GUI, you can edit these Cloud Connect settings from SharePoint as well.

To configure the Cloud Connect 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 library, Form library, Picture library, Asset library, Content Library, or Media Library. The **Connector Synchronization and Settings** page appears.
4. Configure the settings for a DocAve Cloud Connect library (Content Library/Media Library) and a SharePoint Document library, Form library, Picture library or Asset library from SharePoint. Refer to Configuring the Cloud Connect Path for information on these settings.

   ***Note**: If both Cloud Connect and Connector have been enabled in your environment, all of the storage types using by both Cloud Connect and Connector will appear in the

Storage type drop-down list in SharePoint. Select **Box** from the **Storage type** drop-down list to configure the storage path settings for Cloud Connect.

Configuring Sync Settings

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

***Note:** To review synchronization mode behaviors for certain actions in SharePoint or Box, refer to Synchronization Mode Behaviors in SharePoint and Details and Best Practices for Cloud Connect Synchronization.

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:** Some files and folders might not be synchronized from the storage system to SharePoint due to Windows API or SharePoint limitations. For more details on what 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.
    - **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 configure a schedule?** – Choose whether to synchronize the content between the storage path and SharePoint periodically.

- **No Schedule** – Does not configure any schedule to synchronize data. If you select this option, you must run the synchronization job manually from SharePoint.
- **Configure the schedule myself** – When you select this option, the **Schedule Settings** option and **Processing Pool** option become available.
  - **Schedule Settings** – Specify the start time and interval for the schedule. Click the calendar icon or **Calendar View** to the **Interval** field to view the interval in the calendar. Then, specify an end time for the schedule and a date to end 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; or select **New Notification Profile** to create a new notification profile.

3. Click **OK** to save the sync settings; or click **OK and Sync Now** to save the sync settings and run the synchronization job immediately.

Managing Inherited Cloud Connect Settings

The site collection, site, and library levels automatically inherit Cloud Connect sync settings from their parent nodes.

If this default inheritance logic is acceptable, then it is not necessary to configure Cloud Connect settings (such as **Sync Settings** 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 Cloud Connect sync settings for each level. As mentioned previously, only the Cloud Connect 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 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 an upper-level Web application has Cloud Connect settings configured on it, by default, the site collections below it inherit the Cloud Connect settings.

- The right pane of DocAve Cloud Connect interface displays from which node the current site collection inherits the sync settings. To break inheritance, access the **Configure Sync Settings** feature to configure unique settings for the selected site collection.

- If the upper-level Web application does not have any Cloud Connect settings applied to it, access **Configure Sync Settings** in the **Action** group to configure Cloud Connect 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 Cloud Connect settings.

Site

If the upper-level site collection has configured Cloud Connect settings, by default the site inherits the Cloud Connect settings from its parent site collection.

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

Adding Customized SharePoint Libraries to the Cloud Connect-Approved List of Templates

The "approved" list that Cloud Connect ships with does not contain templates other than out-of-the box approved templates since AvePoint cannot guarantee support and compatibility for changes made by customers or other vendors. Also, these template IDs are not universally unique for the entire SharePoint ecosystem, so we must avoid unknowingly approving a template that has not been tested.

However, in anticipation of the need for converting custom libraries, Cloud Connect 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 Cloud Connect settings for this library through DocAve Manager.

Removing Cloud Connect Settings

To remove the storage path configuration: From the **Cloud Connect** 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.

***Note**: The **Remove Path** option is not available for Web application, site collection and site levels.

To remove the sync setting configuration: From the **Cloud Connect** 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.

***Note**: To make sure the synchronization jobs configured at higher levels can run normally, AvePoint recommends removing the storage path settings from the selected Cloud Connect library before deleting that library. To delete the storage path settings for all Cloud Connect libraries inside a site collection/site in bulk, AvePoint recommends using the Cloud Connect API. If there are both Cloud Connect and Connector libraries in a site/site collection, the storage path settings for both the Cloud Connect and Connector libraries will be deleted. For more information on Cloud Connect API functions, refer to **AgentCommonConnectorAPI.chm**

located in the DocAve Agent installation directory, which is *...\AvePoint\DocAve6\Agent\Documents\SDK\Connector* by default.

Creating a Cloud Connect Library in SharePoint

After activating the Cloud Connect features, you can specify a storage path in DocAve or SharePoint, and create a Cloud Connect library in SharePoint. When a Cloud Connect library is created in SharePoint, all files uploaded to the library are automatically externalized to the configured Box location rather than remaining in SQL storage. The two types of Cloud Connect 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 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 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 current video file. The URL in the address bar of this webpage is the URL of the video file being played. Copy this URL and paste as needed.
- You are able to play media files that are larger than the maximum upload size of current Web application in the Media Library. There is no size limitation to the media files that are played in this library.

You can access the Media Library from a mobile device, such as an iPad, iPhone, or iPod touch, etc. For more information, refer to Using the Media Library on a Mobile Device. To create a Cloud Connect library (Content Library/Media Library) in SharePoint, complete the following steps:

1. In SharePoint, access the site where the Cloud Connect feature is activated.
2. Click **Site Actions** on the upper-left corner of the page and select **More Options** in the drop-down list. Locate **Content Library/ 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.
    - **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 Cloud Connect libraries created in SharePoint, refer to Configuring the Cloud Connect Path.

Using a Cloud Connect Library

After creating a Cloud Connect 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** (**Document** in SharePoint 2010) tab and the **Library** tab contain basic SharePoint Document library functions. The AvePoint **Connector** tab is unique to DocAve Cloud Connect libraries.

Using the Files Tab

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

  ***Note**: In SharePoint 2010 and SharePoint 2013, only a file's stub exists in the SharePoint library, and the uploaded files are saved in the configured Box location. In SharePoint 2016 and SharePoint 2019, the uploaded files' whose size are less than 2GB will reside in the library as stubs; the uploaded files' whose size are greater than 2 GB and less than the current Web application's maximum upload size will reside in the library as real content.
- **New Folder** – Creates a new folder in this 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 Cloud Connect library (Content Library/Media Library) file in SharePoint, the attribute of the corresponding file stored in the Box location is changed to **Locked**. After you check in the file or discard the check-out, the original attribute of the file is then recovered in the Box location.
- **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**, **SP2016PreviewGUI.wsp** or **SP2019PreviewGUI.wsp**

is deployed on your farm according to your farm version. 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 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 Box location will be placed into a folder named **_r** under the **.fsdl** Box folder after synchronization. If you empty the SharePoint recycle bin, the deleted files will be placed into a folder named **_d** under the **.fsdl** Box folder.
- **Share** – Invites people to this document. (in SharePoint 2013, SharePoint 2016 and SharePoint 2019)
- **Popularity Trends** – Reviews popularity trends report, which provides insight into how and what content is being accessed. (in SharePoint 2013, SharePoint 2016 and SharePoint 2019)
- **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, SharePoint 2016 and SharePoint 2019)
- **Share Box Link –** Shares the files and folders from SharePoint with others via URL links of Box files and folders. The URL will take the recipients directly to the content in Box. For details, refer to Sharing Box Links. You can also disable the shared URL feature. For details, refer to Disabling Shared Box Link.
- **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.

***Note:** Make sure the following URLs can be access by the DocAve Agent so that Cloud Connect can obtain data from Box to SharePoint: https://api.box.com, https://upload.box.com, https://dl.boxcloud.com, https://www.avepointonlineservices.com, and https://www.box.com.

Sharing Box Links

To share Box links of the files or folder in SharePoint with the others, complete the steps below:

1. In the SharePoint library interface, select a file or folder.
2. Select **Share Box Link** on the ribbon of the **Document** tab of **Library Tools**. The **Share Box Link** interface appears.
3. In the **Share Box Link** field, select the **Share Box Link** option to share the URL link of the selected file or folder with others that will direct the recipients to the content in Box.
4. **Link Access** – Select **Open** to allow anyone with the link to access the shared file or folder. Select **Collaborators only** to only allow the invited users (collaborators) to access.
5. If you select **Open**, you can choose whether to allow anyone with the link to download the shared content.
6. **E-mail Notification** – Enter e-mail addresses separated with a semicolon to designate the recipients and enter an optional message to the recipients. The recipients will receive the shared link and the message in the e-mail.

   ***Note**: To send e-mails to the recipients, the **Outgoing E-mail Settings** must be configured in DocAve Control Panel.
7. Click **OK**. The e-mail containing the message and the Box link of the selected file or folder is sent to the recipients.

***Note**: If selecting multiple files or folders, only **E-mail Notification** field is available to configure in the **Share Box Link** interface, which means you will share the Box links of the selected files or folders to the recipients as you desired.

Disabling Shared Box Links

To disable the URL link of the Box file or folder shared to the others, complete the steps below:

***Note**: The **Disable Box Link** feature is only available while selecting one file or folder.

1. In the SharePoint library interface, select a file or folder that you want to disable its shared URL link.
2. Select **Share Box Link** on the ribbon of the **Document** tab of **Library Tools**. The Share Box Link interface appears.
3. In the **Share Box Link** field, select **Disable Box Link** option to disable the URL link of the selected file or folder that is shared to the others.
4. Click **OK**. The shared Box link is disabled, and the users with the shared URL link of the selected file or folder cannot access the content in Box.

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.
- **Show Task Pane** – Opens task pane to access additional commands.
- **Show Totals** – Displays totals under each column.
- **Refresh Data** – Reloads the data to display changes made by other users.
- **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 current library.
- **Navigate Up** – Navigates to the parent folder of 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 this library.
- **Alert Me** – Receives e-mail or mobile notifications when things change.
- **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, SharePoint 2016 and SharePoint 2019)
- **Sync to SharePoint Workspace** – Creates a synchronized copy of this 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 this library using Microsoft Excel.
- **Open with Explorer** – Opens this 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 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 sub-folders.
- **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 for use with SharePoint 2013, SharePoint 2016 and SharePoint 2019).

***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.

Cloud Connect Media Library

Cloud Connect Media Library not only has the same features as Cloud Connect Content Library, but it also has some additional features such as All Video Thumbnails view, All Video Details view, All Video Slides view, and using Media Library via mobile devices. See the following sections for more details.

Specific Views for Media Library

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

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 Cloud Connect PowerShell. For more help information on this command, refer to Cloud Connect 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 on each Agent server 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***, or locate the **SP2019SOConnector.config** file in the following path: *...\AvePoint\DocAve6\Agent\data\SP2019\Connector*.

3. In the **SP2010SOConnector.config** file or the **SP2013SOConnector.config** file or the **SP2016SOConnector.config** file or the **SP2019SOConnector.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** to finish the installation process.

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 properties of files and their thumbnails.

In the All Video Details view, files can be opened directly by clicking the file name or the thumbnail. In order to directly open PDFs, the **Permissive** Browser File Handling option must be selected. 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 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 in each view, 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 a mobile device, the video file can be played without any plug-in installed and automatically downloaded as it is playing. You can also play the file at a specific point as desired even if the download is still 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:** Controlled by the 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 Cloud Connect Library

Now that your Cloud Connect or SharePoint library is connected to Box storage, it is important to maintain the health of your library by ensuring that Box storage 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 synced; 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 Box location in DocAve – Click **Synchronize** on the ribbon of Cloud Connect homepage to run the synchronization job immediately.
- Synchronize the library with the Box location in SharePoint – There are two ways to perform the synchronization in SharePoint, including using the **Connector Synchronization and Settings** page and the **Connector** tab.

  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 Cloud Connect settings for the **current** library.

  Refer to Using the Connector Tab for performing the synchronization via operations under the Cloud Connect tab.

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

Manually Synchronizing an Individual File

The **Sync file** feature allows you to synchronize an individual file in a Connector library. This will improve the efficiency since the synchronization of entire libraries may take a long time. For more details about enabling this feature, refer to Appendix B: Cloud Connect Configuration File.

In order to have the Sync File option appear in the Callout menu, make sure the **Sync File** feature is enabled and the Connector library has had the storage path configured. Select the file you want to synchronize and select **Sync File** from the menu 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 automatically after you run a synchronization job.

Clearing Up Orphan BLOBs by DocAve Manager

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

1. Click the **Cloud Connector** tab > **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 then select the Web applications or the databases in which 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**. The following message appears at the top of the screen: "You can refer to the Storage Report for more detailed information about the orphan BLOBs."

   Click **Storage Report** in the message and the **Dashboard** appears. For more details, refer to Viewing Collected Data Information for the Storage Report Profiles.
4. Select **Yes** or **No** for the **Enable Clean Up Orphan BLOBs** option. 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 whether 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 for selected nodes.
   - **Schedule** – Configure a schedule for cleaning up orphan BLOBs.
     - **Start Time** – The scheduled BLOB cleanup job starts on the time specified. To change the time zone, click the time zone under the **Start time** field.

    - **Interval** – Set an interval for recurring rules based on a schedule using the option of **Day(s)**, **Week(s)** or **Month(s)**.
    - 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 Box 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 Box storage location after a synchronization or Incremental synchronization is performed. If files are deleted 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, 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.
    - **Overwrite** – When a conflict occurs, **Overwrite** replaces the previously configured settings with the currently saved settings and applies the currently saved settings to the selected nodes.
    - **Skip** – When a conflict occurs, **Skip** will keep the previously configured 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.
    - Click **View Conflict Items** to view nodes with previously configured schedules, delayed deletion settings and alternate file settings.

5. Click **OK** to save the configuration or click **Cancel** to cancel the operation.
6. 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 clear up job will be automatically triggered each time after a synchronization job runs. Refer to Displaying MP4 Files in Safari and Chrome in iOS

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 Cloud Connect stubs.

Converting Stubs to Content

After running a synchronization job, Cloud Connect moves the actual data to the Box storage location 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. Click **Cloud Connect** tab > **Convert Stubs to Content** in the **Action** group. A pop-up window appears.
2. In the pop-up window, select the scope where you want to perform the stub restore. 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. The name of the stub, the type of the stub, and the size of the stub's real data are displayed.
4. Choose to convert the stubs immediately or on a specific 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:
        - **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 in SharePoint for Cloud Connect stubs. 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/SharePoint 2016/SharePoint 2019 environment, locate the **DocStreams** table). If the value of the specified item in the **Rbsld** column is not **Null,** and the value in the **Content** column is **Null**, then the item is a stub. If the value of the specified item in the **Content** column is not null, the item is real content.

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 Cloud Connect Job Status

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

If you have made synchronization schedules for multiple nodes, Job Monitor helps to clearly distinguish which node a plan runs for. 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 Mode** 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**: Cloud Connect and Connector share **Job Monitor**.

***Note**: Only scheduled Cloud Connect synchronization jobs are monitored by DocAve Job Monitor. For synchronization jobs run manually in SharePoint, check the status by referencing the displayed progress bar.

Cloud Connect also generates a job report that contains detailed synchronization information for each Cloud Connect 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 the collected data information in the storage report pane or in the report that is downloaded in the configured file system location. The collected information of these data includes SQL data, extended BLOB, orphan stubs and orphan BLOBs. The sections below describe how to create a profile and run the storage report to collect the data information and also describe how to download the storage report in the configured file system location to obtain the detailed collected data information.

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 data 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 both the information of SQL data that are stored in the SQL databases and the information of BLOB data that are extended to the configured Box location after starting the corresponding job for this created Storage Report profile.

        - **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 after starting the corresponding job for this created Storage Report profile.
        - **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.
        - Select a notification profile to designate which DocAve user can receive an orphan stub report. Click **View** beside the drop-down list to view details of the notification profile or click **New Notification Profile** from the drop-down list. For information on creating a notification profile, see the DocAve 6 Control Panel Reference Guide.
    - **Retrieve orphan BLOB information** – Select this option to collect the orphan BLOBs information from the SQL databases on the selected nodes after starting the corresponding job for this created Storage Report profile.
- **Alternate File Report Settings** – Select this option to collect the alternate file information after starting the corresponding job.
    - **Include reference details** – Select this option to obtain the detailed information of the alternate files that are included in the data collection information.
- **Report Schedule** – Select when to collect the data information configured in **Report Settings**.
    - **No Schedule** – Start running the job of the created storage report profile immediately after finishing the configuration.
    - **Configure the schedule myself** – Configure a schedule yourself and run the job of the created storage report profile according to the configured start time and interval.

4. Click **Save** to save the configurations of the storage report profile on the selected nodes of the farm tree. In the Storage Report page, select the created storage report displayed in this page and click **Run Now** in the **Action** group on the ribbon. Or, click **Save and Run Now** to save and run the job of the created storage report profile.

Managing Created Storage Report Profiles

Once created, the storage report profiles can be edited, viewed and deleted. See the sections below for information on managing the storage report profiles.

Editing Existing Storage Report Profiles

Some storage report profiles' settings can be modified using the **Edit** feature. The **Profile Name**, **Report Settings**, **Schedule**, and the nodes on the farm tree can all be edited. To edit 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 an existing storage report profile displayed in the **Storage Report** page, and then click **Edit** in the **Manage** group on the ribbon.
3. The **Edit Profile** page appears; you can view the settings for the storage report profile.

Viewing Existing Storage Report Profiles

Detailed information about the created storage report profiles can be viewed using the **View Details** feature. To view 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 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 on the selected 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 complete 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 are 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 information on the orphan BLOBs that are in the Box storage location. Meanwhile, on the **Orphan BLOB Details** tab, two modes are provided for displaying the obtained data: **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 configured 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 selected 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 selected 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.
     - **Download a local copy** – Select this option to export the report to the local file system location of the currently used server.
     - **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 both 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 a desired 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 of the Connector and Cloud Connect libraries configured inside the selected site collection/site.

After the job finishes, the collected information of the Connector and Cloud Connect libraries configured inside the selected farm/Web application/site collection/site 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, select a report format, and click **Export** on the ribbon to download the generated report in the configured format to the desired location.

Using the Cloud Connect PowerShell to Generate Reports

Through the use of the Cloud Connect PowerShell, you can generate reports (in .csv format) that detail the mapping for each Cloud Connect library.

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 Cloud Connect PowerShell for how to call the **Show-ConnectedLibraries** command to generate such reports.

Cloud Connect Tools

Some tools are provided with the Cloud Connect module. Refer to the DocAve 6 Supplementary Tools User Guide for instructions on using these tools.

- **AgentToolSP2010ConnectorCreateList** Tool – Creates Cloud Connect libraries in bulk by this tool and the libraries have the Cloud Connect paths and settings configured according to the predefined configuration file. This tool is used for SharePoint 2010.
- **AgentToolSP2013ConnectorCreateList** Tool – Creates Cloud Connect libraries in bulk by this tool and the libraries have the Cloud Connect paths and settings configured according to the predefined configuration file. This tool is used for SharePoint 2013.
- **AgentToolSP2016ConnectorCreateList** Tool – Creates Cloud Connect libraries in bulk by this tool and the libraries have the Cloud Connect paths and settings configured according to the predefined configuration file. This tool is used for SharePoint 2016.
- **AgentToolSP2019ConnectorCreateList** Tool – Creates Cloud Connect libraries in bulk by this tool and the libraries have the Cloud Connect paths and settings configured according to the predefined configuration file. This tool is used for SharePoint 2019.
- **AgentToolSP2010Connector** Tool – Provides the encrypted password to connect to the Box location before creating any Cloud Connect libraries using the **AgentToolSP2010ConnectorCreateList** tool and generates the report of the stub status of files and folders within the selected scope.
- **AgentToolSP2013Connector** Tool – Provides the encrypted password to connect to the Box location before creating any Cloud Connect libraries using the **AgentToolSP2013ConnectorCreateList** tool, generates the report of the stub status of files and folders within the selected scope, and updates the Cloud Connect libraries to ensure they are available after updating SharePoint 2010 to SharePoint 2013.
- **AgentToolSP2016Connector** Tool – Provides the encrypted password to connect to the Box location before creating any Cloud Connect libraries using the **AgentToolSP2016ConnectorCreateList** tool and generates the report of the stub status of files and folders within the selected scope, and updates the Cloud Connect libraries to ensure they are available after updating SharePoint 2013 to SharePoint 2016.
- **AgentToolSP2019Connector** Tool – Provides the encrypted password to connect to the Box location before creating any Cloud Connect libraries using the **AgentToolSP2019ConnectorCreateList** tool and generates the report of the

stub status of files and folders within the selected scope, and updates the Cloud Connect libraries to ensure they are available after updating SharePoint 2016 to SharePoint 2019.

- **AgentToolSP2010OrphanStubClean** Tool – Cleans Cloud Connect orphan stubs from SharePoint 2010.
- **AgentToolSP2013OrphanStubClean** Tool – Cleans Cloud Connect orphan stubs from SharePoint 2013.
- **AgentToolSP2016OrphanStubClean** Tool – Cleans Cloud Connect orphan stubs from SharePoint 2016.
- **AgentToolSP2019OrphanStubClean** Tool – Cleans Cloud Connect orphan stubs from SharePoint 2019.
- **AgentToolSP2010MoveStub** Tool – Changes the existing stub database to another one and copy all existing data from the old stub database to the new one, as well as 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, as well as 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 copy all existing data from the old stub database to the new one, as well as move a site collection from one content database to another within the same Web application. This tool is used for SharePoint 2016.
- **AgentToolSP2019MoveStub** Tool – Changes the existing stub database to another one and copy all existing data from the old stub database to the new one, as well as move a site collection from one content database to another within the same Web application. This tool is used for SharePoint 2019.
- **StorageTokenClient** Tool – Generates the Token to allow DocAve Cloud Connect to access data in your Box storage location. For more information about how to generate the Token, refer to the *Storage Token Client* section in DocAve 6 Supplementary Tools User Guide.

Cloud Connect Caveats

After files are synchronized to a Content library, Media Library, Document library, Form library, Picture library, and/or Asset library:

- If the **Load Metadata from File System** function is enabled in Cloud Connect settings, the **Owned by** attribute will be synchronized according to the **Owned by** attribute.
- If the **Load Metadata from File System** function is not enabled in Cloud Connect settings, the **Owned by** value will be the Agent Account.

In the 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:

- 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.

If the stub database is not configured for a certain object when running a Cloud Connect 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 later Cloud Connect synchronization jobs performed on the selected SharePoint object.

For example, assume that you only configured a stub database for a Web application and set a Cloud Connect rule on it. You did not configure the stub database for any of the content databases under the Web application. When the Cloud Connect rule is triggered on a configured 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 later Cloud Connect jobs performed on this content database.

The × 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	×	×	Inherits the farm's stub database.	Inherits the farm's stub database.

Selected Nodes	Configuration Status of the Stub Database			
	Existing Web Application	Existing Content Database	Newly-Added Web Application	Newly-Added Content Database
Only a Web Application Node	Only the stub database of the selected Web application node is 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.
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	Inherits the farm's stub database.	Inherits the farm's stub database.

Selected Nodes	Configuration Status of the Stub Database			
	Existing Web Application	**Existing Content Database**	**Newly-Added Web Application**	**Newly-Added Content Database**
		are configured.		
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 Cloud Connect SDK and PowerShell

Cloud Connect SDK

DocAve Cloud Connect implements a set of APIs that allow you to use Cloud Connect functionality. Refer to the Cloud Connect SDK Help file **AgentCommonConnectorAPI.chm** 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*.

Cloud Connect PowerShell

DocAve Cloud Connect registers a Snap-In in Windows PowerShell that allows you to use certain Cloud Connect functions by running the Cloud Connect 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 Cloud Connect 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 Cloud Connect Snap-In

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

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

1. Click **Start** on the server has DocAve Agent installed.
2. Find **Windows PowerShell** and click it to run it.
3. Enter the following command, and press **Enter** to import the Cloud Connect Snap-In:

   ```
   Add-PSSnapin ConnectorSnapIn
   ```

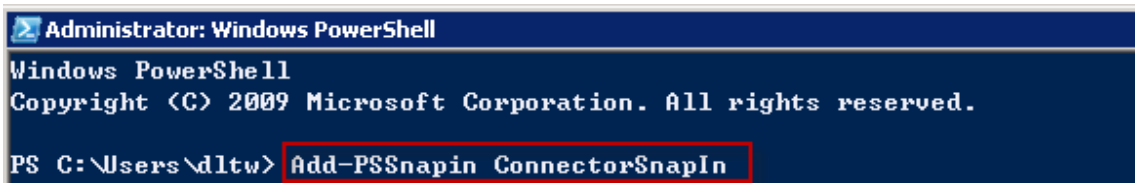

Figure 5: **Adding Cloud Connect Snap-In.**

Obtaining a List of Cloud Connect Commands

DocAve Cloud Connect provides several commands that perform Cloud Connect functions in Windows PowerShell. Enter the following command to obtain general information for these Cloud Connect commands:

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

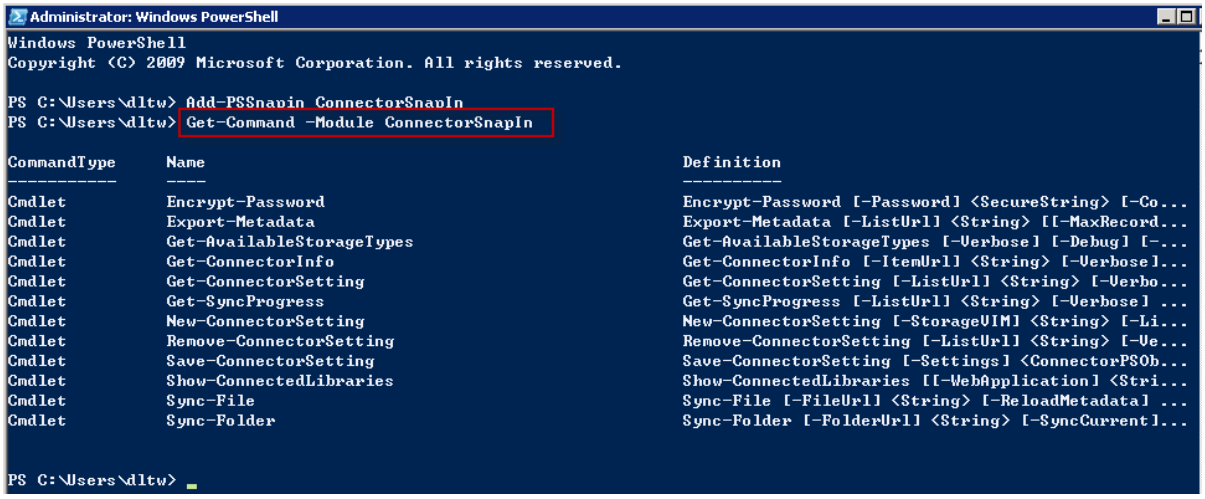

Figure 6: **Getting Cloud Connect commands.**

Getting Help Information

Viewing Help Information in Windows PowerShell

Enter the following command in Windows PowerShell to view help information on Cloud Connect 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** to view all 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 Box to an Excel file that is stored in the Box location. If you export the metadata from Box to an Excel file, and then enable the **Load Metadata from File System** option, then metadata stored in the Excel file is 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.

The Excel Metadata feature exports metadata from a Box location 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 during the synchronization job. You can modify the Excel file to add new metadata or modify the existing metadata in the Excel file.

*__Note__: This feature only takes effect on files that are being synchronized to SharePoint for the first time. If you want to reload metadata changes, use the **Sync-File** through Connector PowerShell. For more help information on the commands, refer to Cloud Connect PowerShell.

Commands for the Excel Metadata Feature

To use the Excel Metadata Feature, run the commands using Windows PowerShell. Refer to the following steps to run the commands.

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 Box location to an Excel file, an example of the command: `Export-Metadata -ListUrl http://2410vm04:1234/sites/test/media2/Forms/AllVideoDetails.aspx -MaxRecordPerFile 500 -ExportAll`

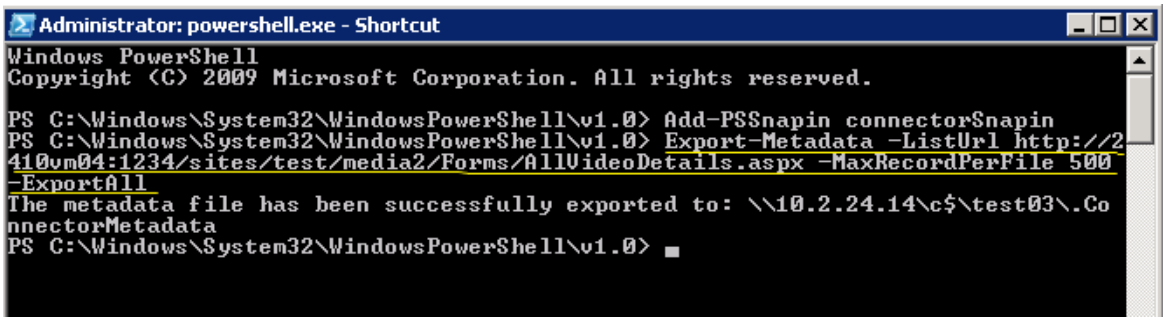

Figure 7: Screenshot of the command.

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 is named 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 by default. If the number of files exceeds 20000, a new **Connector_MetadataFile.xlsx** file will be generated with a numeric.

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 failed to be exported. **FolderIndex.csv** provides a list to quick search and find out which metadata file a certain folder exists.

***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 selected Cloud Connect 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 kept 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 more than 20,000 items of the metadata 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	Whether to export all metadata to the Excel file. Enter this parameter to export all metadata; leave out this parameter to export only the default metadata or the configured metadata.

Parameter	Type	Description
		*__Note__: When __-ExportAll__ is not used, only the default metadata will be exported if the Property Mapping is not used in the Cloud Connect library, and only the configured metadata in the Property Mapping will be exported if the Property Mapping is used in the Cloud Connect 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

Type	Column_Name:=Type	Example of Content Format
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 string less than 255 characters. If you do not follow the corresponding column type format to customize the 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 string.
- **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 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 when synchronized to SharePoint.
- **Managed Metadata** – The field type is taxonomy which represents fixed character strings. You are allowed to specify four values, respectively the 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. If there is no column with the same name in the SharePoint, a **Managed Metadata**

column will be created. The column must be named in the following format: **Column_name:=taxonomy(Group;TermSet;AllowMultipleValues)**

- **Column_name** – Indicates the name of the added column, also the name of the Managed Metadata column displayed in the Connector library.
- **Taxonomy** – Indicates that this field is the managed metadata and cannot be changed by any other words.
- **Group** – Indicates the name of the term group.
- **TermSet** – Indicates the name of the term set.
- **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. 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 must exist, 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)

  - **Column_name** – Indicates the name of the added column, also the name of the Lookup column displayed in the Connector library.
  - **Lookup** – Indicates that this field is the lookup and cannot be changed by any other words.
  - **listUrl** – Indicates the URL of the list where it gets information from.
  - **columnName** – Indicates the name of the column which it points to. This parameter is case-sensitive.
  - **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 the number with the currency unit, such as 100.

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

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

Appendix A: Support Tables

The following sections list the support tables for Cloud Connect, such as supported SharePoint built-in libraries, supported browsers, and supported file types in Media Library.

SharePoint Libraries that Can Be Converted to Cloud Connect Libraries

DocAve Cloud Connect can convert certain SharePoint libraries to Cloud Connect libraries and apply Cloud Connect settings to them.

√ means the library is able to be converted to Cloud Connect library.

× means the library is not able to be converted to Cloud Connect library.

SharePoint Library	Converting to Cloud Connect Library
Document Library	√
Form Library	√
Picture Library	√
Asset Library	√ (not yet supported in SharePoint 2013 and SharePoint 2016 and SharePoint 2019)
Wiki Page Library	×
Data Connection Library	×
Slide Library	×
Report Library	×

Multi-Browser Support

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

Actions in Cloud Connect Library	IE	Chrome	Firefox	Safari	Opera
Create Library	Supported	Supported	Supported	Supported	Supported
Synchronization	Supported	Supported	Supported	Supported ***Note**: The webpage loading stuck on Safari when clicking Synchronize 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
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	Supported	Partially Supported	Partially Supported

Actions in Cloud Connect Library	IE	Chrome	Firefox	Safari	Opera
		***Note**: Real Player does not support playing videos in Chrome.		***Note**: Safari does not support Silverlight Player in Windows system.	***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 Cloud Connect 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:** For Internet Explorer 8, choose the recommended player for the corresponding video type from the table above. For 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
APE	Not Supported, but you can download the file	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	Yes
GIF	Yes	Yes
JPEG/JPG	Yes	Yes
PNG	Yes	Yes
EXIF	Yes	Yes
ICO	Yes	Yes
TIFF	Yes	Yes (Only supported in Safari and IE)
WMF	Yes	Yes
TIF	Yes	Yes (Only supported in Safari)
JPE	Yes	Yes
WDP	Yes	Yes (Not supported in IE)
JFIF	Yes	Yes
DID	Yes	Yes
PCX	No	No
FPX	No	No
SVG	No	No
UFO	No	No
CDR	No	No
PCD	No	No

Format	Does the File Have a Thumbnail?	Can the File be Previewed in the Preview Field?
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	Supported	Supported	Supported	Supported	Supported	Supported
Chrome	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported

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

Making MP4 Files Play Properly in iOS

If your MP4 files cannot be played in iOS, refer to the following steps to work around this issue:

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: Cloud Connect Configuration File

DocAve Cloud Connect provides configuration files named **SP2010SOConnector.config**, **SP2013SOConnector.config**, and **SP2013SOConnector.config**, which allow you to customize Cloud Connect 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* or *...\AvePoint\DocAve6\Agent\data\SP2019\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** or **SP2019SOConnector.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 Cloud Connect process **SP2010ConnectorProcessor.exe** or **SP2013ConnectorProcessor.exe** or **SP2016ConnectorProcessor.exe** or **SP2019ConnectorProcessor.exe**. This

Element	Function Description
	process starts up when you configure any Cloud Connect-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> <ExcludedProcessNames>SP2016ConnectorProcessor,SP2016StorageOptimizationService,SP2016ConnectorISync,AgentToolSP2016ConnectorCreateList</ExcludedProcessNames> <ExcludedProcessNames>SP2019ConnectorProcessor,SP2019StorageOptimizationService,SP2019ConnectorISync,AgentToolSP2019ConnectorCreateList</ExcludedProcessNames>	The processes added in this node do not trigger Cloud Connect Event Handler when they are activated.
<EnableEventHandlerFlag>true</EnableEventHandlerFlag>	This element controls whether to enable the Event Handler while running Cloud Connect 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 Cloud Connect 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

Element	Function Description
	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 Cloud Connect synchronization job. The default value is **5**. It means that at most 5 Cloud Connect 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 Cloud Connect incremental synchronization job settings. After configuring this setting, the incremental synchronization jobs will be performed automatically by Cloud Connect. There are five sub nodes in the IncrementalSync node: • Enable or disable the Cloud Connect 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 message appears in the Agent Log if the value is larger than 100.

Element	Function Description
	• 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.
<CleanUpSwitch> <Enabled>false</Enabled> <DelayDays>30</DelayDays> </CleanUpSwitch	This node controls whether 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. • 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 days.
<MySiteAutoCreation> <MySiteLibraryName></MySiteLibraryName>	This whole node specifies the advanced settings to be used when the MySite Libraries feature is enabled.

Element	Function Description
<MySiteLibraryUrl></MySiteLibraryUrl> <MySiteAutoSync>false</MySiteAutoSync> </MySiteAutoCreation>	• 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 Cloud Connect library settings to the automatically created Content library. Otherwise, false.
<SyncReport> <Enabled>false</Enabled> <UserName></UserName> <PassWord></PassWord> <ReportPath></ReportPath> </SyncReport>	This whole node specifies whether to save the report of a Cloud Connect library's synchronization operations in the configured location. There are four sub nodes in the **SyncReport** node: • Enable or disable saving the report of a Cloud Connect library's synchronization operations in the configured location. • The username of the user accessing the selected report location. For example, domain\user1. • The password of the user accessing the selected report location. This password must be one password encrypted using the **AgentToolSP2010Connector** tool or **AgentToolSP2013Connector** tool or **AgentToolSP2016Connector** tool or

Element	Function Description
	AgentToolSP2019Connector 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 Cloud Connect library's synchronization operations. Both local paths and UNC paths are supported. Once this function is enabled, a report will be generated each time a Cloud Connect library is synchronized and the generated report will be saved to the selected report location. If this function is disabled, the report will also be generated each time a Cloud Connect library is synchronized and the generated report will be saved to the **.fsdl** folder in the storage location of the Cloud Connect library.
<StorageLog> <Enabled>true</Enabled> <MaxFileSize>5</MaxFileSize> <MaxFileCount>100</MaxFileCount> </StorageLog>	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: • 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

Element	Function Description
	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 **<MaxFileSize></MaxFileSize>** node, the most earliest generated log file will be deleted to generate the hundred and first log file.
<EnablePerformanceTest>false</EnablePerformanceTest>	This node controls whether to generate the report of synchronization performance. The default value is **false**.
<EnableExceedQuota>false</EnableExceedQuota>	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.
<ConnectorJobSendDetailInterval>5</ConnectorJobSendDetailInterval>	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.
<EnableAddSyncButtonToECB>false</EnableAddSyncButtonToECB>	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.

Element	Function Description
	***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.
<WorkFlowsName></WorkFlowsName>	This node allows triggering the configured workflows in Cloud Connect libraries when synchronizing files to SharePoint or uploading files through **Upload Connector Links** button. Enter the workflow names in this node, and separate multiple names by a comma (,).
<EnableReloadMetadata>false</EnableReloadMetadata>	This node controls whether metadata is loaded from the file system to SharePoint in the synchronization job whenever the modify time of a file is changed in the storage side. • **True** – Synchronize metadata during the synchronization job when the modify time of a 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.

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** or **AgentToolSP2019StorageRBS.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	Cloud Connect 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 SharePoint limit, or the length of the file or folder URL exceeds SharePoint limit, the file or folder cannot be uploaded to SharePoint.
The file is 0 KB.	File	This is a SharePoint limitation, 0 KB file 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.

Error Message	File Type	Reason
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 while configuring the library level path. For more details, refer to Configuring the Cloud Connect Path.

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 specified Delay Deletion period elapses.	Real-Time for SharePoint 2010 and SharePoint 2016 and SharePoint 2019; Synchronization Job for SharePoint 2013 *Note: Files will be synchronized to Box automatically in SharePoint 2010 and SharePoint 2016 and SharePoint

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
			2019, while on SharePoint 2013, the file requires a synchronization job.
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 or SP2019SOConnector.config file)

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
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 be synchronized to SharePoint as a separate link.	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
Files and folders deleted in storage (not recommended)	N/A	N/A	Synchronization Job

SharePoint to Box Storage System Sync

The table below displays the data types that are supported and unsupported when synchronizing from SharePoint to Box.

Sync from SharePoint Library to External Storage	Box	Comment
File	Supported	
Folder	Supported	
Metadata	Partially Supported	Office file metadata is contained in the file content and can therefore be synchronized to Box. For the files with metadata that is separate from file content, metadata cannot be synchronized to Box.
Permissions	Unsupported	

Box Storage System to SharePoint Sync

The table below displays the data types that are supported and unsupported when synchronizing from Box to SharePoint.

Note that the metadata 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 Box, the metadata is not synchronized during the synchronization jobs. If you want to reload the metadata changes from Box to SharePoint, use the **Sync-Folder** command for permissions and the **Sync-File** command for metadata through Cloud Connect PowerShell. For more help information on the commands, refer to Cloud Connect PowerShell.

Sync from Box Storage to SharePoint Library	Box	Comment
File	Supported	
Folder	Supported	
Metadata	Unsupported	The synchronization speed is seriously impacted when synchronizing any Office file metadata.
Permission	Unsupported	

Appendix E: SharePoint Updates

Updating to SharePoint 2013

If you are running Cloud Connect 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 Cloud Connect 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 Cloud Connect 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 Cloud Connect Data to a SharePoint 2013 Database

***IMPORTANT:** Before continuing with the following steps, make sure your SharePoint 2010 content databases contain the Cloud Connect 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 SP4 CU3 or a later version is required. If you are running a previous version of DocAve, update your DocAve version to SP4 CU3 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 Cloud Connect 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 Cloud Connect solutions and activate the corresponding features, refer to Deploying the Cloud Connect Solution and Activating the Cloud Connect 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 Cloud Connect libraries in the configured 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 Cloud Connect 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 Cloud Connect 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 Cloud Connect Data to a SharePoint 2016 Database

***IMPORTANT:** Before continuing with the following steps, make sure your SharePoint 2013 content databases contain the Cloud Connect 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 SP4 CU3 or a later version is required. If you are running a previous version of DocAve, update your DocAve version to SP4 CU3 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 Cloud Connect 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`.

***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.

Updating to SharePoint 2019

If you are running Cloud Connect with SharePoint 2016 and plan on updating to SharePoint 2019, take the following information into consideration when planning your update:

- Customers will need to install DocAve Agents in the SharePoint 2019 farm prior to attaching any SharePoint 2016 RBS databases.
- Customers will need to configure the RBS provider for the SharePoint 2019 environment.
- Customers will need to deploy the new SharePoint 2019 Cloud Connect solutions prior to being able to update the connected libraries.
- When an old SharePoint 2016 content database is attached and updated in a new SharePoint 2019 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 SharePoint 2016 environment to a read-only state prior to updating to SharePoint 2019. The reason this is imperative for an RBS update is that the 2016 and 2019 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 2016 Content Database with Cloud Connect Data to a SharePoint 2019 Database

***IMPORTANT:** Before continuing with the following steps, make sure your SharePoint 2016 content databases contain the Cloud Connect libraries. Otherwise, please follow the Upgrade databases from SharePoint 2016 to SharePoint 2019 article provided by Microsoft when updating your SharePoint 2016 to SharePoint 2019.

Prerequisites

1. DocAve 6 SP4 CU3 or a later version is required. If you are running a previous version of DocAve, update your DocAve version to SP4 CU3 or a later version first.
2. The SharePoint 2016 farm and SharePoint 2019 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 2019 farm and the Cloud Connect solutions must be deployed in the SharePoint 2019 farm.

Detailed Update Steps

1. Attach the SharePoint 2016 content databases to the SQL Server of the SharePoint 2019 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`.

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