



DocAve® 6 Connector

User Guide

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Table of Contents

About DocAve Connector	6
Complementary Products	6
Submitting Documentation Feedback to AvePoint	6
Before You Begin	7
Configuration	7
Agents	7
Required Permissions	7
Agent Account Permissions	7
File Share Permissions	8
Local System Permissions	9
Getting Started	10
Launching Connector	10
User Interface Overview	11
Selecting Farms and Nodes	12
Basic Steps for Configuring and Deploying Connector	13
Configuring the BLOB Provider	14
BLOB Provider Recommendations	15
Enabling the BLOB Provider	16
Configuring Mapping Settings	20
Common Mapping	20
Property Mapping	21
Security Mapping	22
Deploying the Connector Solution	23
Activating the Connector Features	24
Activating Connector through SharePoint	24
Activating Connector through DocAve	24
How Connector Works with SharePoint	26
Creating a Connection between SharePoint and a Storage Path	27
Overview	27

Configuring the Connector Path.....	28
Web Application, Site Collection, or Site Level	28
Library Level	29
Configuring Sync Settings.....	33
Configuring the Processing Pool.....	35
Managing Inherited Connector Settings.....	35
Site Collection.....	36
Site	36
Library	36
Adding Customized SharePoint Libraries to the Connector-Approved List of Templates.....	37
Removing Connector Settings.....	38
Creating a Connector Library in SharePoint.....	39
Using a Connector Library.....	41
Using the Document Tab	41
Using the Library Tab.....	42
Using the Connector Tab	43
Viewing Thumbnails in the Media Library	44
Installing and Configuring ffmpeg or SMPlayer.....	44
Maintaining a Connector Library.....	45
Manually Synchronizing the Library with the Connected Path.....	45
Managing Stubs.....	45
Converting Stubs to Content	45
Upgrading DocAve 5 Stubs to DocAve 6 Format	46
Converting EBS Stubs to RBS Stubs in DocAve 6	47
Checking Connector Job Status	47
Generating Storage Reports.....	47
Creating a Storage Report Profile and Configure the Report Settings	47
Managing Created Storage Report Profiles.....	49
Viewing Collected Data Information for the Storage Report Profiles.....	50
Downloading Storage Report	50
Generating Inventory Reports.....	51
Using the Connector SDK to Generate Reports	52

Connector Tools	53
Connector Caveats.....	54
Stub Database Inheritance.....	55
Using Hot Key Mode.....	57
Accessing the Connector Page Using Hot Keys	57
Manage Feature	58
Common Mapping.....	58
Property Mapping	58
Security Setting	59
Blob Provider.....	59
Processing Pool	59
Storage Report	60
Inventory Report	60
Using Connector SDK and PowerShell.....	61
Connector SDK.....	61
Connector PowerShell	61
Adding the Registered Connector Snap-In.....	61
Obtaining a List of Connector Commands	62
Getting Help Information	63
Excel Metadata Feature.....	64
Commands for the Excel Metadata Feature	64
Command Parameters for the Excel Metadata Feature	65
DocAve Connector Use Case.....	66
Appendix A – Video/Audio/Picture Files in Media Library	67
Appendix B – Multi-Browser Support.....	69
Appendix C – Connector Configuration File.....	70
Appendix D – Customization Support Table	74
SharePoint to External Storage System Sync	74
External Storage System to SharePoint Sync	75
Appendix E – Enabling the BLOB Provider Using the Agent Tools	76
Enabling EBS.....	76
Enabling RBS.....	77

Appendix F – Synchronization Mode Behaviors in SharePoint.....	78
Appendix G – Upgrade SharePoint 2013	80
Prerequisites	81
Detailed Upgrade Steps	81
Notices and Copyright Information.....	83

About DocAve Connector

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

In addition, Connector enables organizations to manage and present their audio and video files through a dedicated SharePoint Media Library. All wmv, wma, mp3, aac, vp6, mp4, mpeg, mpg, avi, and wav files stored in network file shares and cloud storage resources are streamed and presented via SharePoint for fast delivery and reduced burden of storage. "Connected" media content is managed with all of SharePoint's powerful document management functionality, including permissions management, workflows, alerts, and versioning.

Complementary Products

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

- DocAve Content Manager for SharePoint for restructuring or moving SharePoint content
- DocAve Replicator for SharePoint for copying SharePoint content within the same SharePoint farm or from one SharePoint farm to another
- DocAve Report Center for SharePoint to examine pain points in the SharePoint infrastructure and report on SharePoint user behavior and changes
- DocAve Data Protection for setting backup and recovery points prior to adjusting SharePoint governance policies in this product

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Before You Begin

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

Configuration

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

Agents

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

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

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

Required Permissions

Agent Account Permissions

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

1. Local System Permissions: These permissions are automatically configured by DocAve during installation. Refer to [Local System Permissions](#) for a list of the permissions automatically configured upon installation.
2. SharePoint Permissions: These permissions must be manually configured prior to using DocAve 6 Connector; they are not automatically configured.
 - 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.
 - Full Control to all zones of all Web applications via User Policy for Web Applications.

3. SQL Permissions: These permissions must be manually configured prior to using DocAve 6 Connector; they are not automatically configured.
 - Member has the database role of **db_owner** for all the databases related to SharePoint, including Content Databases, Config Database, and Central Admin Database.
 - Member has the database role of **db_owner** for all the DocAve stub databases.
 - Member has the server role of **dbcreator** to SQL Server since it must create a stub database before performing any Connector job.

File Share Permissions

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

NTFS Permission	Needed?	Reason Needed
Full Control	No	
Traverse Folder/Execute File	Yes	Connector traverses the folder in order to access the data within subdirectories. It also needs to be able to open the file directly from the folder.
List Directory/Read Data	Yes	Connector must list all contents within the folder in order to display them within SharePoint. It also needs to read the data in order to provide the binaries via SharePoint.
Read Attributes	Yes	SharePoint has a promotion and demotion feature that reads Office file attributes and then uses them as column data.
Read Extended Attributes	Yes	Office files have extended attributes as well as custom attributes that are used in SharePoint promotion and demotion processes.
Create Files/Write Data	Yes	This permission is needed to create files within the file share when they are created within SharePoint.
Create Directories/Append Data	Yes	This permission is required to create folders within the file share when they are created in SharePoint. Connector creates hidden folders within the file share in order to store version history and prevent other libraries from connecting to the same file share.
Write Attributes	Yes	When SharePoint demotes column information into Office files, the file attributes need to be written to.
Write Extended Attributes	Yes	Office files have extended attributes, as well as custom attributes, that are used in SharePoint promotion and demotion processes.
Delete Subdirectories and Files	Yes	In order to synchronize deletion within SharePoint into the file share, this permission is needed.
Delete	No	Since Connector does not delete the root folder that is connected to, this permission is not needed.

NTFS Permission	Needed?	Reason Needed
Read Permissions	Yes*	*This permission is needed only when loading NTFS permission information from the file share into a Connector library.
Change Permissions	Yes	When the Connector stubs are modified at the SharePoint side, this permission is needed to update the corresponding file in the storage location.
Take Ownership	No	Since Connector does not attempt to take ownership of a file or folder, this permission is not needed.

Local System Permissions

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

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)

Getting Started

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

Launching Connector

To launch Connector and access its functionality, follow the instructions below:

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 **Connector** to launch this module.

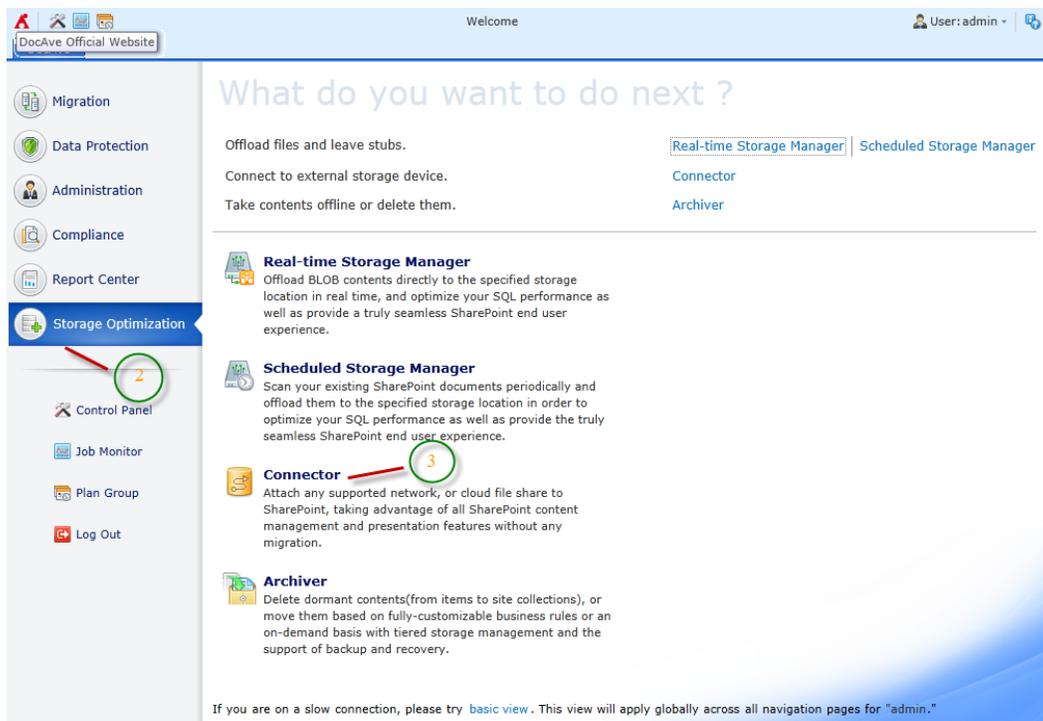


Figure 1: DocAve module launch window.

User Interface Overview

After clicking **Connector**, the Storage Optimization suite user interface launches with the **Connector** tab active. This tab displays your farm environment and allows for quick access to a list of Connector features. On the dashboard, the storage path configuration and the synchronization schedule configurations for the specified farm will be displayed. Click **View Details**, and the detailed information about the configured path/synchronization schedule for the Web applications/site collections/sites can be viewed on the pop-up window.

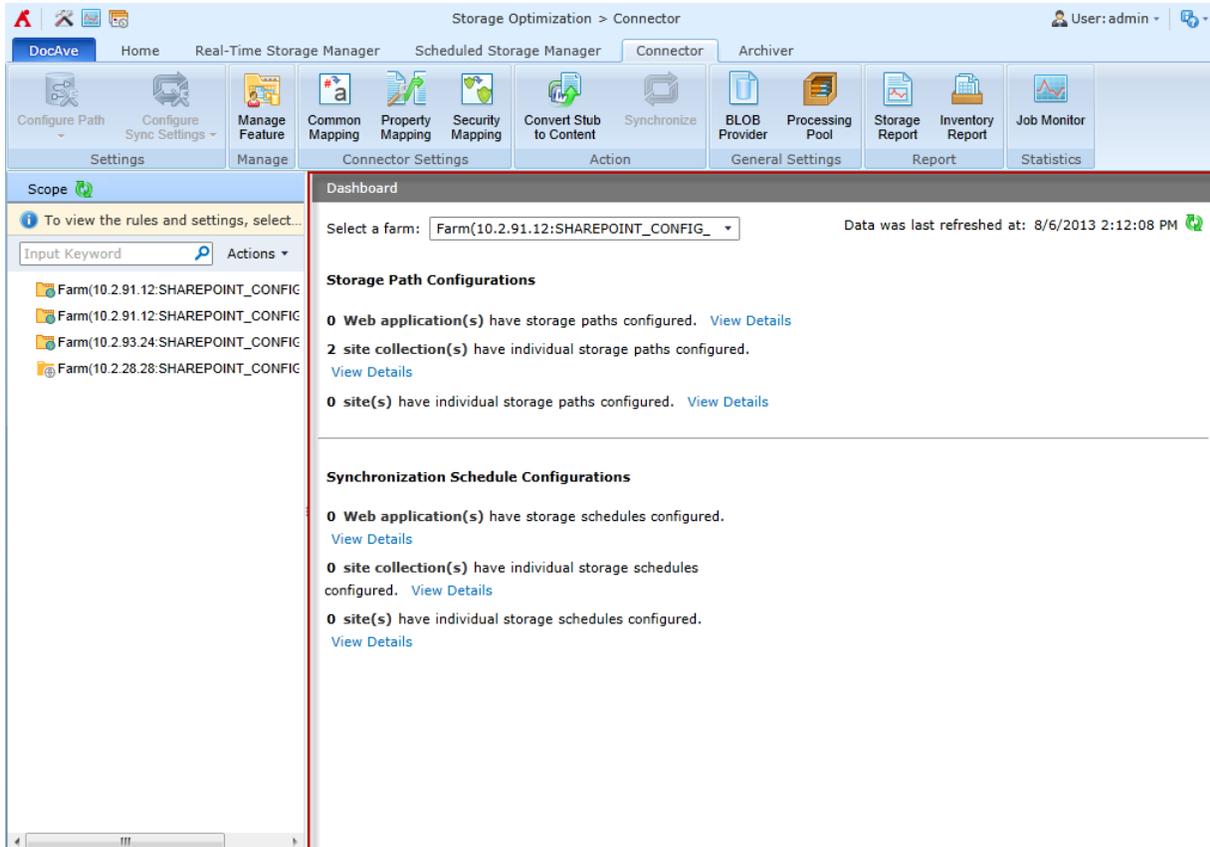


Figure 2: Dashboard interface.

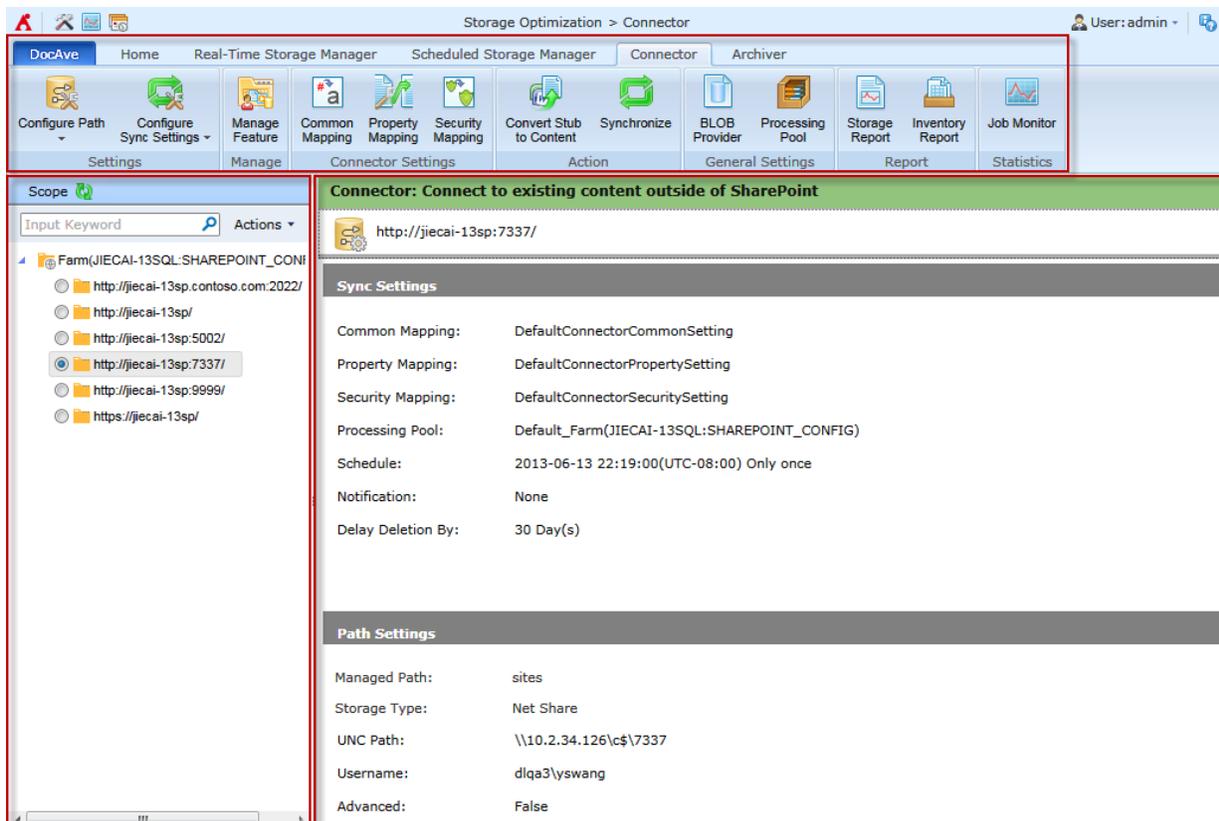


Figure 3: Connector user interface.

1. The **SharePoint tree (Scope panel)** displays all content within your farm(s). 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:

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

Basic Steps for Configuring and Deploying Connector

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

1. [Configuring the BLOB Provider.](#)
2. [Enabling the BLOB Provider.](#)
3. [Configuring Mapping Settings.](#) Configuring these settings is optional, as Connector comes with default mapping settings.
4. [Deploying the Connector Solution.](#)
5. [Activating the Connector Features.](#)
6. Using Connector functionality:
 - [Creating a Connector Library in SharePoint](#) (optional step; existing SharePoint document libraries can be “connected” as well).
 - [Creating a Connection between SharePoint and a Storage Path.](#)
7. [Maintaining a Connector 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 a user-specified external storage. The BLOB Provider feature intercepts SharePoint database traffic and redirects all of the BLOB traffic to the external BLOB storage; what remains in SharePoint is a stub of the data.

In order to provide transparency to SharePoint users and applications, Remote BLOB Storage (RBS) or External BLOB Storage (EBS) is used to expose the file share contents through the SharePoint interface. EBS is an interface provided by Microsoft SharePoint Server 2007 and 2010, while RBS is a set of standardized Advanced Programming Interfaces (APIs) that are incorporated as an add-on feature pack for Microsoft SQL Server. In order to use DocAve Connector, one of these two BLOB Providers must be enabled. As RBS binaries are installed during Agent installation, it is recommended you use RBS as your BLOB Provider.

For the purpose of Connector, the BLOB Provider is used to configure the storage of a SharePoint library's files with a given file share. The BLOB Provider also creates a stub database and enables the provider on the specified farm or node.

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

***Note:** RBS can be enabled at the content database level in a SharePoint 2013 farm. EBS is not supported in a SharePoint 2013 environment.

Feature	RBS (for SharePoint 2010 and SharePoint 2013)	EBS (not supported in SharePoint 2013)
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 perspective, RBS fits in to .NET quite nicely.	Unmanaged. EBS relies on a legacy COM interface.
Migrating BLOBs from SQL Server stores to BLOB stores and vice versa	Windows PowerShell	Custom

Feature	RBS (for SharePoint 2010 and SharePoint 2013)	EBS (not supported in SharePoint 2013)
SharePoint interface	SharePoint 2010 and SharePoint 2013 ship with many Windows PowerShell command lets that can be used to manage RBS installation and configuration.	None

BLOB Provider Recommendations

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

You should:

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

You should avoid:

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

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

Enabling the BLOB Provider

To enable the BLOB Provider on your server(s), follow the instructions below.

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

1. To access the BLOB Provider, click the **Connector** 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.

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

- The **Install the BLOB Provider Binaries** page displays information about all Web front-end servers that have a DocAve Agent installed. By default, the BLOB Provider is installed during the Agent installation.
 - If the BLOB Provider is not installed on a particular server, **Not Installed** displays in the server's **BLOB Provider Binaries** column. If necessary, click **Install** to install the corresponding BLOB Provider.
3. Click **Next** when finished. The **Configure Stub Database** page appears.
 4. Choose the nodes you want to link to a stub database by selecting the checkbox to the left of the node. 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 ease of 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** (where the stub database will reside) 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 specified 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 “=”. The instructions are separated using “;”.

- **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.
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, 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 database(s) 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, Connector runs a search on your farm for new content databases. If any new content databases are found, Connector enables RBS on them.

***Note:** The stub database rule is applied to a newly-added content database immediately after the content database is added to the corresponding Web application.

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

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

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

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

Configuring Mapping Settings

As described earlier, Connector requires several steps to configure file shares 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 file shares. Fundamentally, these are two different systems, with different default metadata styles, security levels, and naming / path conventions.

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

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 file shares.

Common Mapping

SharePoint does not support file or folder names that are longer than 127 characters, or filenames that contain invalid characters (such as " # % & * : < > ? \ / { | } ~). By default, files or folders with names longer than 127 characters are pruned to 127 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.

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

1. From the **Connector** tab, select **Common Mapping** in the **Connector 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. **Common Mapping Name** – Enter a name and an optional description for the common mapping profile.
 - b. **Character Length Settings** – Specify the maximum length of the folder/filename displayed in the Connector Library. You can define the length of the folder/filename in the range of 1 to 127 characters. If the folder/filename exceeds the length that is defined, the system automatically prunes the extra characters and saves the name according to the length defined. The folder/filename is pruned according to the following rules.

- Regarding filename pruning, the file extension characters are counted towards the total number of characters. Only the filename itself is pruned. For example, if the maximum length specified is 7, a file named **abcde.exe** is pruned to **abe.exe**.
 - DocAve starts pruning from the middle of the filename. In file systems, versions of documents are commonly identified with characters at the beginning (“Copy of”) and characters at the end (“version1” or “_1”). By pruning characters from the middle of the filename, DocAve ensures that these identifying characters remain intact.
 - If there is already a file with the same name in SharePoint after DocAve prunes the filename, a numerical suffix is added to the original name of the file/folder after pruning.
- c. **Illegal Character Replacement Settings** – Replace illegal characters in folder/filenames with legal **characters** when synchronizing content to SharePoint. By default, all of the illegal characters are replaced with an underscore (_).

Property Mapping

While files that are uploaded to SharePoint natively from a file system lose their metadata, Connector is intended to read all file system metadata and present them to SharePoint in full-fidelity (all metadata preserved). Property Mapping allows you to configure rules that map the file system properties to SharePoint metadata, thereby preserving the metadata.

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

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

Security Mapping

While files that are uploaded natively to SharePoint from a file system lose their permission settings, Connector is intended to read document and file-share level permissions and load them into SharePoint. Security Mapping allows you to configure rules that map the file system permissions to SharePoint permissions.

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

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

1. From the **Connector** tab, select **Security Mapping** in the **Connector Settings** group. The **Security Mapping** pop-up page appears. Here, you can view all of the existing Security Mapping profiles.
2. To create a new property rule, click **Create** in the **Manage** group. The **Create Security Mapping** page appears in the workspace.
3. Configure the following settings for Security Mapping.
 - a. **Security Mapping Name** – Enter a name and optional description for the Security Mapping profile.
 - b. **Security Mapping** – Map file system permissions to SharePoint permissions. Select a SharePoint Permission from the drop-down list to apply it to the corresponding File System Permission.
4. To create a new SharePoint permission level for the permission mapping, click **New SharePoint Permission Level**. In the pop-up window, you can view the default SharePoint permission levels: **Contribute**, **Design**, **Full Control**, **None**, **Read**, and **View Only**. These default SharePoint permission levels cannot be edited or deleted.
5. Click **Create** in the **Manage** group. The **Create SharePoint Permission Level** page appears. Configure the following settings to create a new permission level.
 - **Name and Description** – Enter a name and optional description for the SharePoint permission level.
 - **Permissions** – Select the detailed permissions for the new SharePoint permission level by clicking the corresponding checkboxes. Select **Select All** to include all permissions.
6. Click **OK** when finished. The newly-created SharePoint permission level is listed on the **Manage SharePoint Permission Level** page and the **SharePoint Permission** drop-down lists on the **Create Security Mapping** page.

Deploying the Connector Solution

To use the Connector feature in DocAve, you must first deploy the DocAve Connector solution to your SharePoint farm. There are four Connector solutions can be deployed:

SP2010ConnectorContentLibrary.wsp and **SP2010ConnectorMediaLibrary.wsp** are for SharePoint 2010; **SP2013ConnectorContentLibrary.wsp** and **SP2013ConnectorMediaLibrary.wsp** are for SharePoint 2013.

Once you install and deploy the DocAve Connector solution, the Connector feature will be listed in the Site Collection Feature List. Choose the solution to deploy according to the Connector features you want to use.

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

Follow the steps below to deploy DocAve Connector 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; **SP2013ConnectorContentLibrary.wsp** and **SP2013ConnectorMediaLibrary.wsp** for SharePoint 2013. 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 **SP2013ConnectorContentLibrary.wsp** and **SP2013ConnectorMediaLibrary.wsp** for SharePoint 2013. Click **Deploy** in the **Actions** group.
5. After the solutions are deployed successfully, the status of the solutions is shown as **Deployed** in the **Status** column.

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

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

Proceed to the next section for information on activating the Connector features.

Activating the Connector Features

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

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

Activating Connector through SharePoint

To activate the Connector features through SharePoint:

1. In SharePoint, access the site collection for which you want to activate Connector. 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** Connector 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 Connector library. These four types of SharePoint libraries can have Connector settings applied to them after being converted to a Connector library.
3. After activating the Connector feature, the status of the feature reads **Active** in the **Status** column.

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

Activating Connector through DocAve

To activate the Connector features through DocAve:

1. From the **Connector** tab, click **Manage Feature** in the **Manage** group. The **Manage Feature** page appears.

2. Select the Connector feature(s) (**Content Library, Media Library, Library Converting, or MySite Libraries**) that you wish to activate in the **View** group. Configure the following settings for the selected feature(s):
 - a. **Tree selection** – Select the target destination on which you wish to activate the Connector feature(s).
 - b. Expand the SharePoint farm tree to the desired node and click **Activate** in the **Action** column to activate the Connector feature(s) on the specified node. Alternatively, click **Activate All** following one node to activate the Connector features on all of the nodes under the specified node.

***Note:** If the **MySite Libraries** feature is activated on the specified Web application, a Content library will be automatically created in the My Site when this My Site is created in the specified Web application. For the advanced configuration, refer to [Appendix C – Connector Configuration File](#).
3. After activating the Connector features, the status of the features on the corresponding site collection is changed from **Inactive** to **Active** in the **Status** column.

How Connector Works with SharePoint

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

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

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

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

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

***Note:** For a table of the SharePoint libraries Connector supports for conversion, see [Appendix D – Customization Support Table](#).

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

Creating a Connection between SharePoint and a Storage Path

With DocAve Connector, you can create a connection between one or more SharePoint libraries and one or more file share or cloud storage paths. In effect, you are “converting” an existing SharePoint Document library/Form library/Picture library/Asset library to a Connector library with a configured storage path. The connection can be made at the Web application, site collection, site, or library level; however, it is most common for end-users to make this connection at the library level.

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

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

Regardless of the level that the connection is configured on, only DocAve Connector libraries (Content Library/Media Library) and the four types of SharePoint libraries (Document library/Form library/Picture library/Asset library) are actually connected to the storage path. In some cases, you may want to convert an existing custom SharePoint library. For more information, refer to [Adding Customized SharePoint Libraries to the Connector-Approved List of Templates](#).

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

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 Connector-Approved List of Templates](#).

Overview

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

- In the **Configure Path** wizard, you can configure the storage path and enable the libraries that you want to inherit the storage path.

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

Configuring the Connector Path

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

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

Web Application, Site Collection, or Site Level

***Note:** By default, the Web application, site collection, and site levels support only Net Share storage. DocAve Connector also supports cloud storage and HDS Hitachi Content Platform storage on the Library Level, in addition to NetShare.

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

1. Follow the instructions in [Configuring the Connector Path](#) to select a node.
2. **Configure Storage Path** appears. Configure a physical storage path to connect to the desired nodes in your SharePoint environment. For information regarding inheritance, refer to [Managing Inherited Connector Settings](#).
 - a. **Managed Path** (Web application level only) – Specify the managed path where you want to configure the Connector settings. The site collections and sites under the selected managed path inherit the Connector settings from the Web application automatically; the libraries under the selected managed path inherit the Connector settings from the Web application automatically only when they are enabled in the **Enable Library** step. Other objects that do not belong to the selected managed path do not inherit the Connector settings from the Web application.
After specifying a managed path, click the **Add Selected Managed Path** to add it. You can add several managed paths.
 - b. **Storage Type** – Select the storage device type. Only the **Net Share** storage is supported for the Web application, site collection, and site levels.
 - **Net Share** – Specify the Net Share path whose content will be synchronized to the Connector library created in the specified node. Then, enter the **Username** and **Password** to set up access to this existing Net Share path, where data uploaded in SharePoint will also be written and stored. This will be the default root storage path for all the Connector Libraries created under the selected

node. The **Extended parameters** option is shown if the **Advanced** option is enabled. The **Extended parameters** option allows you to add customized properties to configure the advanced settings for the storage path.

3. Click **Next** when finished. The **Enable Library** page appears.
4. **Enable Library** – Using the tree to the right, navigate down to the library level. Select the libraries where you want to enable the Connector settings. The checkboxes for the libraries that already have Connector settings configured are not available in the tree.
5. When finished, click **Next**. The **Overview** page appears.
6. Review and edit the Connector settings in the **Overview** page. Click **Back** to modify your configuration, click **Finish** to complete the configuration, or click **Cancel** to quit. After clicking **Finish**, folders are generated in the storage path you specified in the **UNC Path** field in the format *UNC Path\Site Collection Name\Site Name\Library Name*. The content in each library is stored in the corresponding path/folder in the storage location.

Library Level

Most end-users will configure a Connector storage path on the library level to directly connect existing file share content to a SharePoint library. DocAve Connector supports cloud storage and HDS Hitachi Content Platform storage on the library level, in addition to Net Share.

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

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

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

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

To configure a Connector path on the library level in DocAve:

1. Follow the instructions in [Configuring the Connector Path](#) to select a node.
2. The **Settings and Path** page appears.
3. **Use path from parent** is selected by default if the storage path is already configured at the site level; if it is checked, the library inherits the storage path from its parent site. The **UNC Path** and **Username** fields cannot be modified, but the **Password** is required. If unchecking this option,

you can specify a unique storage path for the library. If the parent site is not configured to any storage path, this option is not available in the library configuration page. For information regarding inheritance, refer to [Managing Inherited Connector Settings](#).

4. Select a **Storage Type** from the drop-down list:
 - a. **Net Share** – Specify the path you want to synchronize with this library, and then enter the **Username** and **Password** to set up access to the path to which data will be written. Clicking **Advanced** displays the **Extended Parameters** option, and it allows you to manage the advanced settings for the storage path, for example, the authentication method used to access the storage path. Refer to the Net Share section in [DocAve 6 Control Panel Reference Guide](#) for information on the available properties in the Extended Parameters option.
 - b. **HDS Hitachi Content Platform** – Specify the primary **Namespace Address** and an optional secondary **Namespace Address** where data will be stored. Enter a **Root Folder** to be the exact storage location. Then, enter the **Username** and **Password** to set up access to the specified namespace. Clicking **Advanced** displays the **Extended Parameters** option, which allows you to manage additional settings. Refer to the HDS Hitachi Content Platform section in [DocAve 6 Control Panel Reference Guide](#) for information on the available properties in the Extended Parameters option.
 - c. **Cloud Storage** – Select a Cloud Type from the drop-down list. There are several options: **RackSpace Cloud Files, Windows Azure Storage, Amazon S3, EMC Atmos, AT&T Synaptic, and Dropbox.**

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

- d. **Net Share with WMS** – If you are configuring a Media Library, this option is available to connect the videos stored in this path to the Windows Media Service. Through the use of **Net Share with WMS** storage, videos can be played using Windows Media Service.
***Note:** The Windows Media Service must already be associated with the **Net Share** path.
5. **Synchronization Mode** – Select the synchronization mode that will be used:
***Note:** To review synchronization mode behaviors for certain actions in SharePoint or a storage system, refer to the table in [Appendix F – Synchronization Mode Behaviors in SharePoint](#).
***Note:** This field is added since DocAve 6 SP2 CU1. When upgrading DocAve from one version older than DocAve 6 SP2 CU1, meaning no synchronization mode has been configured before the DocAve upgrade, **Sync changes made in SharePoint to the storage path and load new files from the storage path** will be used after the DocAve upgrade.
 - **Sync changes made in SharePoint to the storage path** – Select this option if files are only being added, modified, or deleted through the SharePoint interface. Files added on

the file server will not be synchronized to SharePoint. Deletions and modifications on the file server are not supported and could cause loss of data in SharePoint. Refer to AvePoint's [Supplementary Tools User Guide](#) for instructions on cleaning up orphan stubs.

***Note:** We strongly recommend that you choose **Sync changes made in SharePoint to the storage path** 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 in SharePoint to the storage path 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.
6. **Permissions for End User** – 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.
 7. **Load Permissions from File System** – By default, the library inherits permissions from its parent site. If you select this option, the library permissions inherited from the parent site are broken. Instead, the storage path permissions are synchronized to the library after running the synchronization job. This option is only for the **Net Share** and **Net Share with WMS** storage types.
 - **Load the root folder's permissions only** – If you select this option, the library permissions inherited from the parent site are broken after the synchronization. The library permissions are replaced with the root folder of the storage path's permissions (that is, the permissions of the storage path). The files and folders under the library inherit the permissions from the library. The permissions can only be applied during the first synchronization.
 - **Load and preserve all the items' permissions from file system** – If you select this option, the library permissions inherited from the parent site are broken, and the item (folder/file) permissions will be the same as the permissions in the file system after the synchronization. The root folder and sub-folder permissions in the storage path are synchronized to the library. The permissions can only be applied during the first time that the item is synchronized to SharePoint.
 8. **Load Metadata from File System** – Specify whether to load metadata from file system while loading files and folders from it. Note that the metadata can only be loaded during the first synchronization with SharePoint. This option is only for the **Net Share** and **Net Share with WMS** storage types.

9. **Keep Name Consistent** – Specify whether to keep the filenames in the Connector library and storage path consistent:
 - Disabling this option results in the filenames being modified in SharePoint during synchronization according to the 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.
10. **File Size Limitation** – Select **Allow linking large file (larger than 2GB)** to allow data that is larger than 2GB to be linked from the storage device and synchronized between the storage device and SharePoint.

***Note:** Due to SharePoint limitations, only a link will be uploaded to SharePoint for an item over 2 GB in size. Note that files larger than 2 GB can cause some issues in SharePoint:

 - The content type of a large file cannot be changed.
 - Generating a version of a large file results in only a link in SharePoint. The version of this large file is not generated in the connected path.
 - Large files are not included in the index during SharePoint crawls.
 - Large files cannot be copied or moved in Explorer View.

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

1. **Player** – 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. **Thumbnail Settings** – When the **Customize the size of thumbnail** option is enabled, you can specify a value for the size of thumbnail. Specify a size between 50 and 250 pixels.
3. **Rich Text Settings** – 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 items; it does not exist in libraries.

Configuring Connector Library Settings using the SharePoint Interface

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

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

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

To configure the Connector library from SharePoint:

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

Configuring Sync Settings

After completing the **Configure Path** Wizard, you can configure the sync settings. This section describes how to set up the synchronization settings for the paths you have configured. Note that the default sync settings are used if you do not configure sync settings in the **Configure Sync Settings** Wizard.

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

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

Complete the following steps:

1. Click **Configure Sync Settings** in the **Settings** group and select **Configure Sync Settings**.
2. **Configure Sync Settings** – Configure synchronization-related settings for the selected object.
 - Select a **Common Mapping** from the corresponding drop-down list. There is a default common mapping profile in the drop-down list. If desired, select **New Common Mapping** from the drop-down list to create new common mapping profiles. Refer to [Common Mapping](#) for more information.
 - Select a **Property Mapping** from the corresponding drop-down list. There is a default property mapping profile in the drop-down list. If desired, select **New Property Mapping** from the drop-down list to create new property mapping profiles. Refer to [Property Mapping](#) for more information.
 - Select a **Security Mapping** from the corresponding drop-down list. There is a default security mapping profile in the drop-down list. If desired, select **New Security Mapping** from the drop-down list to create new security mapping profiles. Refer to [Security Mapping](#) for more information.
 - **Processing Pool** – 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](#).
 - **Schedule Selection** – Choose whether or not 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.
 - **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.
 - **Delay Deletion** – Set the duration for completely deleting the deleted files in the **_d** folder under the **.fsdl** folder in the storage location. **Days/Weeks/Months** can be selected from the drop-down list. The delay duration is 30 days by default. To protect

the data, while deleting the files in the storage location, the deleted files will be put into the **_d** folder under the **.fsdl** folder in the storage location.

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.

Configuring the Processing Pool

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

Synchronization jobs that are added into the Processing Pool become threads. The number of threads you allow in the processing pool is the maximum number of 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 **Connector** tab > **Processing Pool** in the **General Settings** group.
2. Click **Create** in **Manage** group on the **Processing Pool** tab. The **Processing Pool** page appears.
3. Enter a **Processing Pool Name** and an optional **Description**.
4. Select the **Farm** from the drop-down list.
5. Select an **Agent Group** from the drop-down list. The Agents in the specified 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.

Managing Inherited Connector Settings

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

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

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

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

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

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

Site Collection

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

- To break inheritance, access the **Configure Path** and **Configure Sync Settings** features to configure unique settings for the selected site collection.
- If the upper-level Web application does not have any Connector settings applied to it, access **Configure Path** and **Configure Sync Settings** in the **Manage** group to configure Connector settings for the selected site collection.

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

Site

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

- To break inheritance, access **Configure Path** and **Configure Sync Settings** to configure unique settings for the selected site.
- If the upper-level site collection does not have any Connector settings applied to it, click **Configure Path** and **Configure Sync Settings** to configure Connector settings for the selected site.

Library

If the upper-level site has been configured Connector settings, by default the library inherits the Connector settings from its parent site. You cannot change sync settings at the library level.

***Note:** The sync settings, including mapping settings and schedule settings, cannot be configured at the library level. The library inherits sync settings from its parent automatically. But if no Connector settings

are configured at site level or above, the library uses the default Common Mapping, Property Mapping, and Security Mapping. In addition, the library uses the default schedule setting (**No Schedule**). In this case, it is necessary to run the synchronization job from SharePoint manually.

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

The “approved” list that Connector ships with does not contain templates other than out-of-the box approved templates, 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, Connector does provide a way to manually add to the approved list. Before performing the steps below, it is recommended that you archive a copy of the .config file before making changes to it.

In addition, AvePoint recommends that you test the library with all functions first (synchronization, modifications, search, workflow, and other normal user activity) to ensure compatibility before modifying this file in your production environment.

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

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.

Removing Connector Settings

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

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

To remove the sync setting configuration: From the **Connector** tab, select the target node on the farm tree, click **Configure Sync Settings** in the **Manage** 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 specified Connector library before deleting that library. To delete the storage path settings for all of the Connector libraries inside a specified site collection/site in bulk, AvePoint recommends using the Connector API. For more information, refer to **AgentCommonConnectorAPI.chm** located in the DocAve Agent installation directory, which is ... \AvePoint\DocAve6\Agent\Documents\SDK\Connector by default.

Creating a Connector Library in SharePoint

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

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

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

- Media Libraries allow for the viewing of certain file type thumbnails. Refer to [Viewing Thumbnails in the Media Library](#) 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 2 GB in the Media Library. There is no size limitation to the media files that are played in this library.

***Note:** When configuring Connector settings for the library, take note of the **File Size Limitation** setting. If this option is unchecked, the files uploaded into the library must be no more than 2 GB. If this option is checked, files that are larger than 2 GB can be uploaded to the library.

To create a Connector library (Content Library/Media Library) in SharePoint:

1. In SharePoint, access the site where the Connector 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 Connector libraries created in SharePoint, see [Configuring the Connector Path](#).

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

Using a Connector Library

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

***Note:** The actions under the **Document** tab and the **Library** tab contain basic SharePoint Document library functions. The AvePoint **Connector** tab is unique to DocAve Connector libraries.

Using the Document Tab

- **New Document** – Creates a new document in this library.
- **Upload Document** – Uploads one file or multiple files to this library. Note that there is only the file's stub in the SharePoint library; the uploaded file(s) are saved in the specified folder in the connected path. You can also click **Upload Large Documents** to upload to the library documents that are larger than 2 GB.
- **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 file in the Connector library (Content Library/Media Library) in SharePoint, the attribute of the corresponding file stored in the Net Share storage is changed to **Read Only** to make sure the corresponding file in the Net Share storage is also locked for editing when it is checked out in SharePoint. After you check in the file or discard the check-out, the original attribute of the file is then recovered in the Net Share storage.
- **Check In** – Checks in the document that you checked out and accepts the changes made during the check-out.
- **Discard Check Out** – Checks in the document that you checked out and discards the changes made during the check-out.
- **View Properties** – Views the selected file's properties.
- **Edit Properties** – Edits the selected file's properties.
- **Version History** – Views and manages the version history of the selected file.
- **Document Permissions** – Accesses **Permission Tools** 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. As long as you do not empty the Recycle Bin, the synchronization between the connected path and the SharePoint library will not synchronize the deleted file (that is, will not delete the

file). If you empty the Site Collection Recycle Bin after deleting the file, then the corresponding file in the connected path is also deleted.

- **E-mail a Link** – E-mails a link to the selected file.
- **Download a Copy** – Downloads a copy of the selected file to your computer.
- **Send To**
 - **Other Location** – Moves or copies the selected file to another location.
 - **Create Document Workspace** – Creates a Document Workspace for the selected file.
- **Manage Copies** – Manages all linked copies of the selected file.
- **Go To Source** – Navigates to the source file that is linked to the selected file.
- **Workflows** – Brings you to the Workflows page to start a new workflow on the selected document, or to view the status of a running or completed workflow.
- **Publish** – Publish a major version of the selected document.
- **Unpublish** – Unpublishes the current version of the selected document.
- **Approve/Reject** – Approves or rejects submissions to this library.
- **Cancel Approval** – Cancels approve/reject submission and unpublishes the selected document.
- **I Like It** – Tags the selected item with “I Like It.”
- **Tags & Notes** – Adds tags to the selected item. Also, adds notes to the item to help clarify the item; the notes are public.

Using the Library Tab

- **Standard View** – Views the items in the standard list format.
- **Datasheet View** – 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.
- **RSS Feed** – Goes to the selected library’s RSS Feed page to view and subscribe to its feed.
- **Sync to SharePoint Workspace** – Creates a synchronized copy of this library on your computer using SharePoint Workspace.
- **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.
- **Library Permissions** – 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 Subfolder(s)** – Synchronizes the current folder and its sub-folders.
- **View Report** – Downloads the library’s latest synchronization job report.

***Note:** The SharePoint Document library, Form library, Picture library and Asset library do not have this tab. You can access the **Connector Settings** page of the library to perform manual synchronization or download the job report for these library types.

Viewing Thumbnails in the Media Library

The Media Library allows you to view thumbnails for the following file types: videos, pictures, and PPTs. Refer to [Appendix A – 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 [Installing and Configuring ffmpeg or SMPlayer](#).

Installing and Configuring ffmpeg or SMPlayer

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 **SP2010SOConnector.config** file in the following path: ... \AvePoint\DocAve6\Agent\data\SP2010\Connector, or find the **SP2013SOConnector.config** file in the following path: ... \AvePoint\DocAve6\Agent\data\SP2013\Connector .
3. In the **SP2010SOConnector.config** file or the **SP2013SOConnector.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.

Maintaining a Connector Library

Now that your Connector or SharePoint library is connected to external storage, it is important to maintain the health of your library by ensuring that it remains synced 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 connected path in DocAve – Click **Synchronization** on the ribbon of Connector homepage to run the synchronization job immediately.
- Synchronize the library with the connected path in SharePoint – Access the **Content/Media Library Settings** or **Connector 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.
 - **Edit Connector Settings** – Returns to the **Content/Media Library Settings** or **Connector Settings** page, where you can edit the Connector settings for the **current** library.

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

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

Managing Stubs

Refer to the sections below to manage the Connector stubs.

Converting Stubs to Content

After running a synchronization job, Connector moves the data to the storage path and creates stubs in SharePoint in place of the original data. To convert these stubs back to data in SharePoint’s SQL server, use the **Convert Stub 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 **Connector** tab > **Convert Stub 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. If desired, enter the criteria in the textbox and click the magnifier to search for the specified 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 specified 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:
5. Click **OK** to start the conversion and convert the selected scope's stubs to real data.

How to Determine If the Data Is Stub or Real Content

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

- If using the EBS Provider, navigate to the content database of the site collection in Microsoft SQL Server Management Studio and locate the **AllDocs** table. If the specified item's value in the **docflags** column is larger than **65536**, 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 environment, locate the **DocStreams** table). If the value of the specified item in the **RbsId** column is not **Null**, and the value in the **Content** column is **Null**, then the item is a stub. If the value of the specified item in the **Content** column is not null, the item is real content.

Upgrading DocAve 5 Stubs to DocAve 6 Format

DocAve 6 Service Pack 1 and later enables you to upgrade the Connector stubs that were generated in DocAve 5 to DocAve 6 format. The corresponding operations are all performed in Control Panel.

Reference the **Converting DocAve 5 Connector Stubs** section in the [DocAve 6 Control Panel Reference Guide](#) for more information.

Converting EBS Stubs to RBS Stubs in DocAve 6

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

Checking Connector Job Status

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

To monitor jobs or troubleshoot for errors, Job Monitor should be your first step. For detailed information on each option, refer to the [DocAve 6 Job Monitor Reference Guide](#).

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

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

Generating Storage Reports

Storage Report supports to collect the data information from the content databases and show these collected data information in the storage report pane or in the report that is downloaded in the specified 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 specified 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**.
- **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 specified file system 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. This option is supported for SharePoint 2010 and SharePoint 2013.
 - **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.
 - **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.
- **Schedule** – Select when to collect the data information specified 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 specified 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 specified 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. By default, 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 specified 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 the information of the orphan BLOBs that are kept in the file system 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 specified SQL databases. For **View by physical device**, the store locations of the orphan BLOBs can be viewed by clicking the corresponding bar in the graph.

Downloading Storage Report

To view detailed information about the data information collected from the specified SQL databases configured in the corresponding storage report profile, you can download the storage report to the specified 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 specified storage report profile.
5. In the **Export** pop-up window, select **CSV** or **XLS** file format from the drop-down list in the **Report Format** field, and then click **OK** to start to download the report.

Generating Inventory Reports

Use the **Inventory Report** function to view various statistics about Connector libraries that have been configured under each 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 site collection/site from which you want to perform further operations by selecting the radio button to the left of the site collection/site.
3. Click **Run Report** on the ribbon to collect the detailed information of the Connector libraries configured inside the selected site collection/site.

After the job finishes, the collected information of the Connector libraries configured inside the selected 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, specify a desired report format, and click **Export** on the ribbon to download the generated report in the specified format to the desired location.

Using the Connector SDK to Generate Reports

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

The information generated in the report includes **Farm Name**, **Library Title**, **Solution Name**, **Site Collection URL**, **Site URL**, **Storage Type**, **Web Application URL**, **Library URL**, **Connected Path**, **Content Database** and **Library Type**. Refer to DocAve Connector SDK User Guide for how to call the proper Connector API to generate such reports.

Connector Tools

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

- **AgentToolSP2010ConnectorCreateList Tool** – This tool is used to help perform Connector functions from outside of the DocAve GUI if using SharePoint 2010.
- **AgentToolSP2013ConnectorCreateList Tool** – This tool is used to help perform Connector functions from outside of the DocAve GUI if using SharePoint 2013.
- **AgentToolSP2010Connector Tool** – This tool is used to upgrade document versions stored in the connected storage path for Connector from DocAve 6 to the current version of DocAve for SharePoint 2010. This tool is also used to encrypt passwords for Connector in conjunction with the AgentToolSP2010ConnectorCreateList tool.
- **AgentToolSP2013Connector Tool** – This tool is used to upgrade document versions stored in the connected storage path for Connector from DocAve 6 to the current version of DocAve for SharePoint 2013. It can also be used to upgrade the Content database from SharePoint 2010 (where DocAve 6 Connector is used) to SharePoint 2013. This tool is also used to encrypt passwords for Connector in conjunction with the AgentToolSP2013ConnectorCreateList tool.
- **AgentToolSP2010OrphanStubClean Tool** – This tool is used to clean Connector orphan stubs from SharePoint 2010.
- **AgentToolSP2013OrphanStubClean Tool** – This tool is used to clean Connector orphan stubs from SharePoint 2013.
- **AgentToolSP2010MoveStub Tool** – This tool is used to change the existing stub database to another one and copy all existing data from the old stub database to the new one. This tool is used for SharePoint 2010.
- **AgentToolSP2013MoveStub Tool** – This tool is used to change the existing stub database to another one and copy all existing data from the old stub database to the new one. This tool is used for SharePoint 2013.

Connector Caveats

- After the files are synchronized to a Content library/Media Library/Document library/Form library/Picture library/Asset library:
 - If the **Load Metadata from File System** function is enabled in Connector settings, the **Modified by** attribute of the synchronized files loads the value of the **Last Saved by** attribute.
 - If the **Load Metadata from File System** function is not enabled in Connector settings, the **Modified by** attribute of the synchronized files loads the Agent Account as its value.
- The **Title** attribute for the Media Library cannot be loaded.
- In Media Library, it is recommended that you download AVI files in order to play them.
- In RMS environment, if using DocAve 5 Archiver, DocAve 5 Extender, DocAve 6 Real-time Storage Manager, or DocAve 6 Scheduled Storage Manager on a Connector library, some of the files cannot be opened because the RMS environment will encrypt the data. Connector cannot load encrypted data.

Stub Database Inheritance

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

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

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

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

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

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

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

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

Using Hot Key Mode

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

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

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

Accessing the Connector Page Using Hot Keys

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

Function Name and Hot Key			
Configure Path	G	Configure Path	G
		Remove Path	R
Configure Sync Settings	R	Configure Sync Settings	C
		Remove Sync Settings	R
Manage Feature			F
Common Mapping			C
Property Mapping			N
Security Mapping			A
Convert Stub to Content	V	OK	O
		Cancel	C
Synchronize			K
Blob Provider			B
Processing Pool			P
Storage Report			SP

Function Name and Hot Key	
Inventory Report	IP
Job Monitor	J

Manage Feature

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

Common Mapping

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

Property Mapping

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

Security Setting

Function Name and Hot Key					
Create	N	OK	O		
		Cancel	B		
View Details	V	Edit	E	OK	O
				Cancel	B
		Close	X		
Edit	E	OK	O		
		Cancel	B		
Delete		D			
Manage SharePoint Permission Level	M	Create	N		
		View Details	V		
		Edit	E		
		Delete	D		
		Close	X		
Close		X			
Security Setting		A			

Blob Provider

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

Processing Pool

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

Storage Report

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

Inventory Report

Function Name and Hot Key	
Run Report	R
Export Report	DL
Job Monitor	J
Close	X
Inventory Report	IR

Using Connector SDK and PowerShell

Connector SDK

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

Connector PowerShell

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

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

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

Adding the Registered Connector Snap-In

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

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

1. Click **Start** on the server 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 Connector Snap-In:

Add-PSSnapin ConnectorSnapIn

```
Administrator: Windows PowerShell
Windows PowerShell
Copyright (C) 2009 Microsoft Corporation. All rights reserved.

PS C:\Users\administrator.BJTW> Add-PSSnapin ConnectorSnapIn
PS C:\Users\administrator.BJTW>
```

Figure 4: Adding Connector Snap-In

Obtaining a List of Connector Commands

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

Get-Command -Module ConnectorSnapIn

```
Administrator: Windows PowerShell
Windows PowerShell
Copyright (C) 2012 Microsoft Corporation. All rights reserved.

PS C:\Users\slli> Add-PSSnapin connectorSnapin
PS C:\Users\slli> Get-Command -Module connectorSnapIn

CommandType      Name
-----
Cmdlet           Export-Metadata      connectorSnapin
Cmdlet           Get-AvailableStorageTypes connectorSnapin
Cmdlet           Get-ConnectorInfo    connectorSnapin
Cmdlet           Get-ConnectorSetting connectorSnapin
Cmdlet           Get-SyncProgress     connectorSnapin
Cmdlet           New-ConnectorSetting connectorSnapin
Cmdlet           Remove-ConnectorSetting connectorSnapin
Cmdlet           Save-ConnectorSetting connectorSnapin
Cmdlet           Show-ConnectedLibraries connectorSnapin
Cmdlet           Sync-Files           connectorSnapin
Cmdlet           Sync-Folder          connectorSnapin

PS C:\Users\slli>
```

Figure 5: Getting Connector commands.

Getting Help Information

Viewing Help Information in Windows PowerShell

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

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

Exporting Help Information to a .csv File

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

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

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

Excel Metadata Feature

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

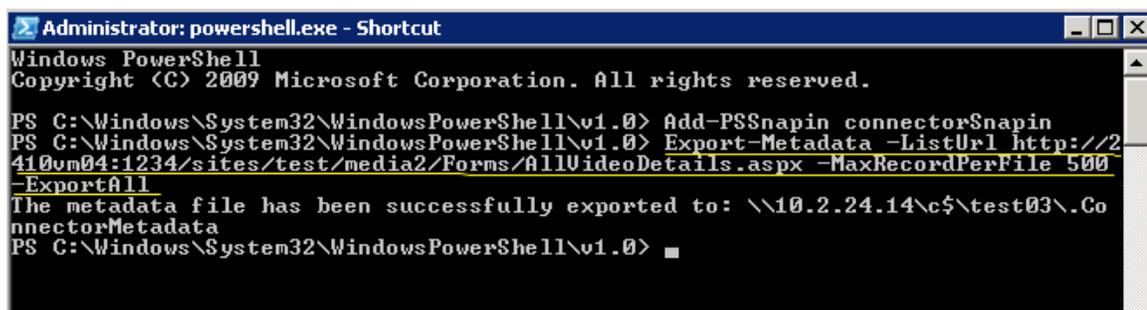
The Excel Metadata feature is used to export metadata from a file system to an Excel file that is stored in the connected path: ...**ConnectorMetadata**\Connector_MetadataFile.xlsx. After enabling the **Load Metadata from File System** feature, the metadata stored in the Excel file will be synchronized to SharePoint while running the 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 take effect on the file which is to be synchronized to SharePoint for the first time.

Commands for the Excel Metadata Feature

The Excel Metadata Feature is realized by running the command 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 file system to an Excel file, an example of the command: **Export-Metadata -ListUrl http://2410vm04:1234/sites/test/media2/Forms/AllVideoDetails.aspx -MaxRecordPerFile 500 -ExportAll**



```
Administrator: powershell.exe - Shortcut
Windows PowerShell
Copyright (C) 2009 Microsoft Corporation. All rights reserved.

PS C:\Windows\System32\WindowsPowerShell\v1.0> Add-PSSnapin connectorSnapin
PS C:\Windows\System32\WindowsPowerShell\v1.0> Export-Metadata -ListUrl http://2410vm04:1234/sites/test/media2/Forms/AllVideoDetails.aspx -MaxRecordPerFile 500 -ExportAll
The metadata file has been successfully exported to: \\10.2.24.14\c$\test03\ConnectorMetadata
PS C:\Windows\System32\WindowsPowerShell\v1.0>
```

Figure 6: 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.

***Note:** The **Load Metadata from File System** feature must be enabled, or 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 specified Connector library which is connected to the Net Share path from which the metadata will be exported to an Excel file.
-MaxRecordPerFile	Optional	Set the number of the items that can be 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 specified scope.
-ExportAll	Optional	Whether to export all of the metadata to the Excel file. Enter this parameter to export all of the metadata; leave out this parameter to export only the default metadata or the configured metadata. *Note: When -ExportAll is not used, only the default metadata will be exported if the Property Mapping is not used in the Connector library, and only the configured metadata in the Property Mapping will be exported if the Property Mapping is used in the Connector library.

DocAve Connector Use Case

A common obstacle encountered by organizations using SharePoint involves the question of how to incorporate into the environment the many files that reside on one or more file shares. Because these file shares exist on the network and are accessible by anyone within the organization, they often contain large amounts of unorganized data. From a storage optimization point of view, migrating these files into SharePoint's SQL Server is not desired.

This is the problem faced by Joe, the SharePoint administrator for a large hospital. Prior to SharePoint deployment, the hospital used three different file shares to store various types of data. Now, as SharePoint administrator, it is Joe's responsibility to determine a method of incorporating these files into SharePoint. Knowing that [SQL Server performs best](#) when it is not cluttered with [BLOBs](#), Joe decides to deploy DocAve Connector in order to "connect" these file shares to the SharePoint environment. That way, he can take advantage of SharePoint's metadata, security, and permission functionality while maintaining optimal SQL storage space.

First, Joe chooses [RBS as the BLOB provider](#). He configures the stub database (the location in SQL where the connected contents' stubs will reside) and [enables the BLOB provider](#). He then [deploys](#) and [activates](#) the Connector solution on his farm.

Once this is complete, Joe uses the **Configure Path** feature in Connector to [connect the desired SharePoint library to a file share](#). From the **Scope** panel, he navigates down to the **List** node of the applicable site and selects an existing library. He configures the following settings:

- He does not select **Load permissions from file system** because he wishes to manage permissions from SharePoint once the content is connected.
- For Load metadata from file system, and Keep Name Consistent, he selects Yes.
- Knowing that there are certain images in the file share that are large in size, Joe selects **Allow linking large file (larger than 2GB)**. These files will be linked rather than have stubs created.

Joe knows that in addition to connecting the file share content to this library, all existing content in this SharePoint library will be moved to the connected file share; this is his intent because he wants to move the existing content in this library out of SQL Server. Additionally, Joe does not have to configure any sync settings because he created a connection on the library level. Once the file share content is connected to the SharePoint library, any files that are uploaded to the SharePoint library will be moved to the configured file share path.

Now that Joe has successfully created a connected path between the SharePoint library and file share, he uses [DocAve Content Manager](#) to reorganize the connected files and place them in the appropriate library location in the SharePoint environment. Not only has Joe avoided a time-consuming migration, but he's prevented inundating SQL with BLOBs from the file share...all while still being able to use SharePoint's metadata, permissions, and security functionality on the connected content.

Appendix A – 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
WMV	Windows Media Player
FLV	Flash Player
AVI	Windows Media Player
RM	Real Player
RMVB	Real Player
DAT	Windows Media Player
MP4	Windows Media Player, QuickTime Player
MOV	QuickTime Player
MPEG	Windows Media Player
MPG	Windows Media Player
SWF	Not supported, click its name and it can be opened in Internet Explorer directly
ASF	Not Supported
3GP	Not Supported
VOB	Not Supported

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
WAV	Windows Media Player
MID	Windows Media Player
WMA	Windows Media Player
MP3	Silverlight Player
FLAC	Not Supported, but you can download the file
APE	Not Supported, but you can download the file
OGG	Not Supported, but you can download the file

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	Whether the File Has a Thumbnail	Whether the File Can be Previewed in the Preview Field
BMP	Yes	Yes
GIF	Yes	Yes
JPEG/JPG	Yes	Yes
PNG	Yes	Yes
EXIF	Yes	Yes
ICO	Yes	Yes
TIFF	Yes	Yes

Format	Whether the File Has a Thumbnail	Whether the File Can be Previewed in the Preview Field
PCX	No	No
TIF	No	No
FPX	No	No
SVG	No	No
UFO	No	No
CDR	No	No
PCD	No	No
DXF	No	No
PSD	No	No

Appendix B – Multi-Browser Support

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

Actions in Connector Library	IE	Chrome	Firefox	Safari	Opera
Create Library	Supported	Supported	Supported	Supported	Supported
Synchronization	Supported	Supported	Supported	Supported	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	Not Supported
Upload Document	Supported	Supported	Supported	Supported	Supported
Upload Multiple Documents	Supported	Not Supported	Not Supported	Not Supported	Not Supported
Upload Large Documents\Multimedia	Supported	Supported	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	Not Supported	Not Supported	Not Supported	Not Supported

Appendix C – Connector Configuration File

DocAve Connector provides configuration files named **SP2010SOConnector.config** and **SP2013SOConnector.config**, which allow you to customize Connector default settings by modifying elements in the configuration file. These files reside in **...\\AvePoint\\DocAve6\\Agent\\data\\SP2010\\Connector** or **...\\AvePoint\\DocAve6\\Agent\\data\\SP2013\\Connector** by default. Refer to the table below for information on the functions of each element in **SP2010SOConnector.config** or **SP2013SOConnector.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,ape,aiff,au,cd,dat,dvd,divx,mpeg,mpg,mov,mid,ogg,ra,rm,rmbv,qt,svcd,vcd,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,icon,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.
<ConnectorProcessorReserveTime>300</ConnectorProcessorReserveTime>	This element is used to control the idle time of the Connector process SP2010ConnectorProcessor.exe or SP2013ConnectorProcessor.exe . This process starts up when you configure any Connector-related settings in the DocAve Manager GUI. If there is no action being triggered after 300 seconds since the last action, this process ends automatically. You can change the reserve time to any positive integer. The unit is in seconds.
<ExcludedProcessNames>SP2010ConnectorProcessor,SP2010StorageOptimizationService,SP2010ConnectorISync</ExcludedProcessNames>, <ExcludedProcessNames>SP2013ConnectorProcess	The processes added in this node do not trigger Connector Event Handler when they are activated.

Element	Function Description
or,SP2013StorageOptimizationService,SP2013ConnectorISync</ExcludedProcessNames>	
<EnableEventHandlerFlag>>false</EnableEventHandlerFlag>	This element controls whether to enable the Event Handler while running Connector synchronization jobs. False means that the Event Handler is not enabled while running the synchronization job, while True enables the Event Handler.
<DeleteVersionsWhenDeleteSetting>>false</DeleteVersionsWhenDeleteSetting>	This element controls whether to delete the version files stored in the storage path's .fsdl folder when you remove the Connector settings from a library.
<EnableCloudThumbnail>>false</EnableCloudThumbnail>	This element controls whether to generate thumbnails in the Media Library when running synchronization jobs on cloud storage.
<MaxScheduleJobThread>5</MaxScheduleJobThread>	This element controls the maximum number of threads used to perform the Connector synchronization job. The default value is 5. It means that at most 5 Connector libraries can be synchronized at the same time.
<pre> <IncrementalSync> <Enabled>>true</Enabled> <Interval>5</Interval> <ThreadCount>3</ThreadCount> <WorkingThreadTimeOut>30</WorkingThreadTimeOut> <MaximumMovingTimes>20</MaximumMovingTimes> </IncrementalSync> </pre>	<p>This whole node is used to configure the Connector incremental synchronization job settings. There are four sub nodes in the IncrementalSync node:</p> <ul style="list-style-type: none"> • Enable or disable the Connector incremental synchronization job function. • The interval of two incremental jobs. The unit is minutes. You can change the interval time to any positive integer. • The maximum number of threads that can be used by an incremental job. The value of this element must be a positive number. There is no upper limit for the value of this element; however, a warning message appears in the Agent Log if the value is larger than 100. • 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.

Element	Function Description
	<ul style="list-style-type: none"> The maximum number of the retry operation when moving one file/folder from its original location to the new location in the storage path. The file/folder is moved in the storage path because the corresponding file/folder has been moved to another location in SharePoint.
<pre><MySiteAutoCreation> <MySiteLibraryName></MySiteLibraryName> <MySiteLibraryUrl></MySiteLibraryUrl> <MySiteAutoSync>>false</MySiteAutoSync> </MySiteAutoCreation></pre>	<p>This whole node specifies the advanced settings to be used when the MySite Libraries feature is enabled.</p> <ul style="list-style-type: none"> The name of the automatically created Content library. By default, it is My Library. The relative URL to be used by the automatically created Content library. For example, mycontentlibrary. If true, DocAve will perform a full synchronization job after saving the Connector library settings to the automatically created Content library. Otherwise, false.
<pre><SyncReport> <Enabled>>false</Enabled> <UserName></UserName> <PassWord></PassWord> <ReportPath></ReportPath> </SyncReport></pre>	<p>This whole node specifies whether to save the report of a Connector library's synchronization operations in the specified location. There are four sub nodes in the SyncReport node:</p> <ul style="list-style-type: none"> Enable or disable saving the report of a Connector library's synchronization operations in the specified location. The username of the user accessing the specified report location. For example, domain\user1. The password of the user accessing the specified report location. This password must be one password encrypted using the AgentToolSP2013Connector tool or AgentToolSP2010Connector tool. For more information on using the tools, refer to the DocAve 6 Supplementary Tools user guide. The path where you want to save the report of a Connector library's

Element	Function Description
	<p>synchronization operations. Both local paths and UNC paths are supported.</p> <p>Once this function is enabled, a report will be generated each time a Connector library is synchronized and the generated report will be saved to the specified report location. If this function is disabled, the report will also be generated each time a Connector library is synchronized and the generated report will be saved to the .fsdl folder in the storage location of the Connector library.</p>
<EnableExceedQuota>>false</EnableExceedQuota>	<p>This node specifies whether one file can be uploaded to SharePoint when its size exceeds the remaining free space of the storage location. By default, the value of this node is false. It means that the files mentioned above can be uploaded to SharePoint normally, and the corresponding files will be stored in the content database. If you do not want the files mentioned above to be uploaded to SharePoint, configure the value of this node to true.</p>

Appendix D – Customization Support Table

With the exception of Connector libraries (Content and Media Libraries), DocAve Connector can convert certain SharePoint libraries to Connector libraries and apply Connector settings to them.

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

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

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

SharePoint to External Storage System Sync

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

Sync from SharePoint Library to External Storage	Net Share	Net Share with WMS	HDS Hitachi Content Platform	Cloud Storage	Comment
File	√	√	√	√	
Folder	√	√	√	√	
Metadata	Limited Support	Limited Support	×	×	The metadata of Office files is contained in the file content. Therefore, the metadata of Office files is able to be synchronized to an external storage system. For the files with metadata separated from the file content, metadata is not able to be synchronized to an external storage system.
Permission	×	×	×	×	

External Storage System to SharePoint Sync

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

Note that the metadata and permissions of a file and folder can only be synchronized to SharePoint when the file or folder is first synchronized to SharePoint. If and when you modify the metadata or permissions, either in SharePoint or in a storage path, the metadata and permission are not synchronized during the synchronization jobs.

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

Appendix E – 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 [Licensing and Permissions](#) for 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**, 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 specified nodes.
 - **Disable** – Disables RBS on the specified nodes.

Appendix F – 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 in SharePoint to the Storage Path	Sync Changes Made in SharePoint to the Storage Path 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 specified 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
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.	Incremental Synchronization Job (configured in the SP2010SOConnector.config or SP2013SOConnector.config file)
Files and folders deleted in SharePoint; Recycle Bin not emptied	BLOB remains in the storage.	BLOB remains in the storage.	Synchronization Job
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 specified Delay Deletion period elapses.	BLOB remains in the _d folder under the .fsdl folder in the storage location until the specified Delay Deletion period elapses.	Synchronization Job

Action	Sync Changes Made in SharePoint to the Storage Path	Sync Changes Made in SharePoint to the Storage Path and Load New Files from the Storage Path	Timing
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
Files and folders deleted in storage (not recommended)	N/A	N/A	Synchronization Job

Appendix G – Upgrade SharePoint 2013

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

- Customers who have deployed EBS for SharePoint 2010 will not be able to upgrade 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 upgrade first to RBS using the DocAve EBS to RBS Stub functionality in the Control Panel. In cases where the database server does not support RBS, users will also need to upgrade the database server to Enterprise Edition (or other compatible versions of SQL Server).
- Customers who have deployed Connector to their SharePoint 2010 environments using RBS will be able to upgrade to SharePoint 2013:
 - Customers will need to install DocAve Agents in the SharePoint 2013 farm prior to attaching any SharePoint 2010 RBS databases.
 - Customers will need to configure the RBS provider for the SharePoint 2013 environment.
 - Customers will need to deploy the new SharePoint 2013 Connector feature prior to being able to update the connected libraries.
 - If upgrading directly from DocAve 6 SP2, all existing storage system profiles, physical devices, and logical devices are preserved.
 - When an old SharePoint 2010 content database is attached and upgraded in a new SharePoint 2013 farm, the user will only need to enable RBS for the upgraded 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 upgrading to 2013. The reason this is imperative for an RBS upgrade 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).

Upgrading a SharePoint 2013 Content Database with Connector Data to a SharePoint 2013

Database ***IMPORTANT:** Before continuing with the following steps, make sure your SharePoint 2010 content databases contain the Connector libraries. Otherwise, please follow the [Upgrade databases from SharePoint 2010 to SharePoint 2013](#) article provided by Microsoft when upgrading your SharePoint 2010 to SharePoint 2013.

Prerequisites

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

Detailed Upgrade 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 specified 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 upgrade 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 upgrade the Connector libraries in the specified site collection.

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

For more information, refer to the **New Command for the AgentToolSP2013Connector tool** section in the DocAve [Supplementary Tools User Guide](#).

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

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