



# DocAve® 6.0.1 Replicator

## User Guide

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## About DocAve Replicator

As Microsoft SharePoint environments grow, data and settings often need to be moved, replicated, and synchronized among sites, or even between geo-distributed farms. DocAve Replicator allows Microsoft SharePoint administrators to replicate content, configurations, securities, and users from one SharePoint location to another, within the same farm and across farms, both online and offline. Replication can be “live” (event-triggered) or on a set schedule so that content, configurations, securities, and users can be synchronized between sites and objects. Live replication triggers are fully customizable, and replication can be executed as full or incremental. Incremental replication can be at the file or byte levels. DocAve Replicator provides you with a full range of enterprise-class replication options and features.

## 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 Replicator:

- DocAve Connector for collaborating upon network file shares and cloud storage resources directly through SharePoint without migration
- DocAve Content Manager for SharePoint for restructuring or moving SharePoint content
- 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
- Archiver to reduce SharePoint storage costs by automatically offloading SharePoint content that would ordinarily reside in expensive SQL Server storage to less-expensive hierarchical storage systems, based upon fully customizable business rules
- Storage Manager to mitigate the negative consequences of exponential data growth by combining multiple real-time and scheduled business rules to externalize BLOB content based on file size, type, or other document properties

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<http://www.avepoint.com/resources/documentation-feedback/?flush=1>

# Before You Begin

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

## Configuration

In order to use DocAve Replicator, the DocAve 6 platform must be installed and configured properly on your farm. Replicator will not function without DocAve 6 present on the farm.

## Agents

DocAve Agents are responsible for running DocAve jobs and interacting with the SharePoint object model. DocAve Agent must be installed on at least one of the front-end Web servers.

**\*Note:** If you want to use Realtime Replication, DocAve Agents must be installed on all of the front-end Web servers. DocAve Agents enable DocAve Manager to communicate with the respective servers, allowing for Replicator 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](#).

## Licensing and Permissions

To install and use Replicator 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. If there are no strict limitations within your organization on the permissions that can be applied, you can simply add the **DocAve Agent Account** to the local **Administrators** group to apply all of the required permissions.
2. SharePoint Permissions: These permissions must be manually configured prior to using DocAve 6 Replicator; 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.
  - Permissions for Wrapper:
    - Full control to all zones of all web applications via User Policy for Web Applications

- User Profile Service:
    - User Personal Features
    - Create Personal Site
    - User Social Features
  - Managed Metadata Service: Term Store Administrator
  - Business Data Connectivity Service: Full Control
  - Search Service: Full Control
  - User Profile Connection Permission: Full Control
3. SQL Permissions: These permissions must be manually configured prior to using DocAve 6 Replicator; they are not automatically configured.
- Database Role of db\_owner for all the databases related with SharePoint, including Content Databases, Config Database, and Central Admin Database
    - Creator and Security Admin permission to SQL Server
  - DB\_reader to SharePoint 2010 Config DB

## Local System Permissions

The following Local System Permissions are automatically configured during DocAve 6 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\EventLog6
    - 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
  - Member of WSS\_RESTRICTED\_WPG\_V4
  - Member of WSS\_WPG
  - Local Administrator (If the SP2010ReplicatorEventhandler.dll does not exist in GAC after the installation, add the agent account to Local Administrator group and then SP2010ReplicatorListener.exe will install the assembly automatically under the agent account.)

# Getting Started

SharePoint and the DocAve platform modules have common functionality. While some of this shared functionality is covered in this guide, the primary focus of this document is the functionality that is specific to the DocAve module.

For information on the shared functionality not covered in this document, refer to SharePoint Help.

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

## Launching Replicator

To launch Replicator 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 **Administration** to view the Administration modules.
3. Click **Replicator** to launch this module.

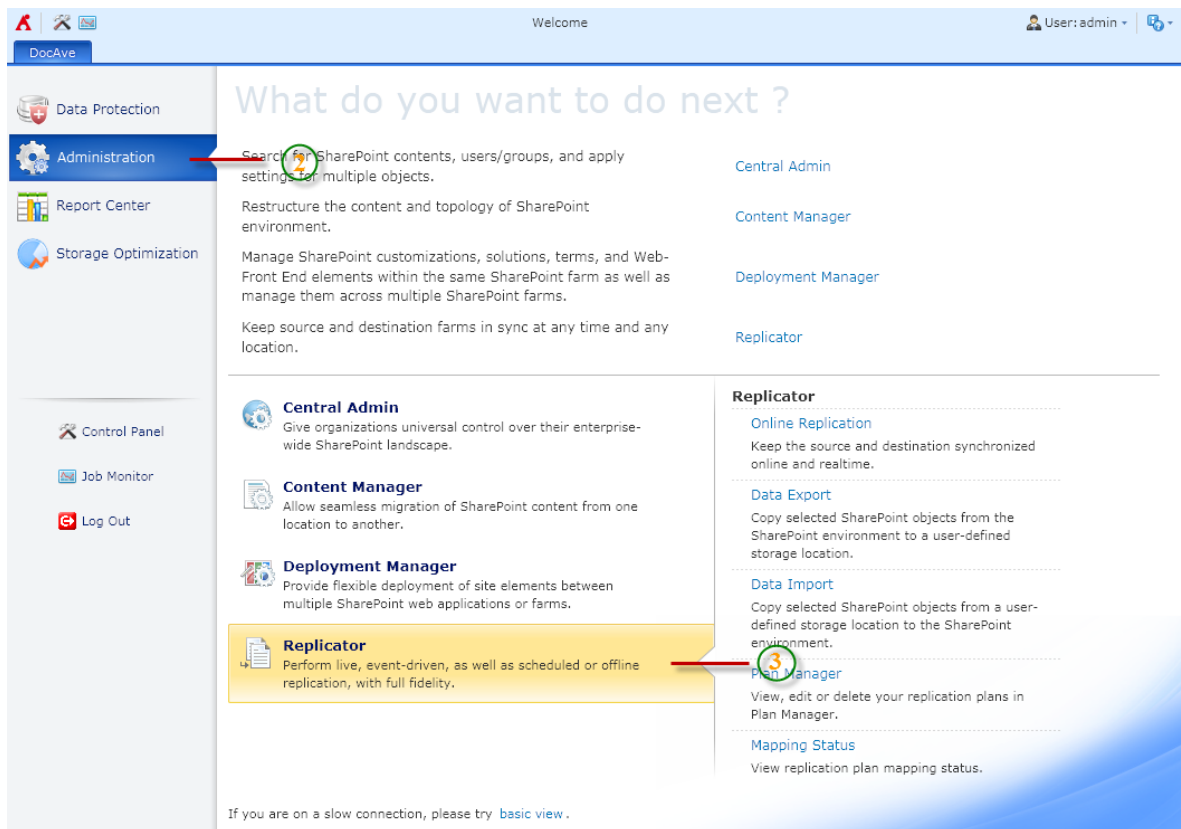
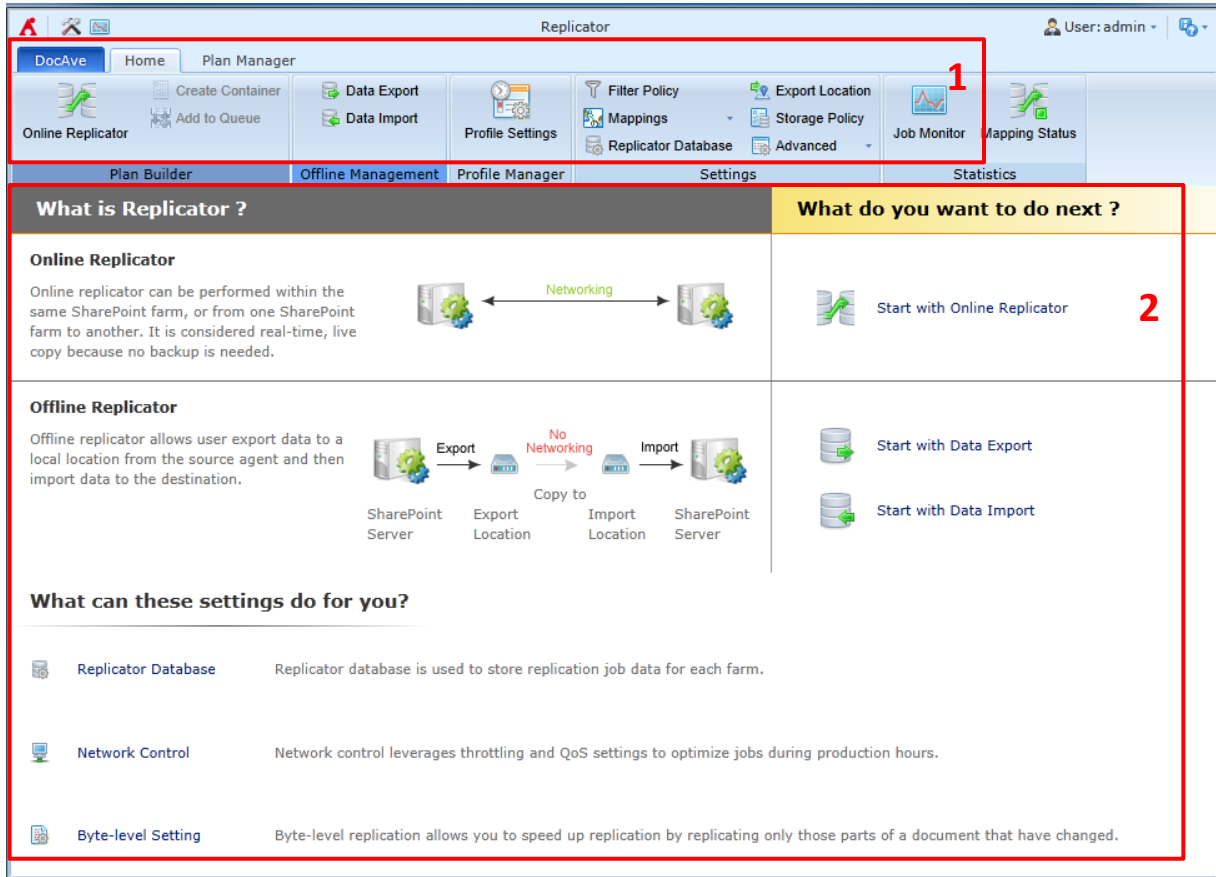


Figure 1: DocAve module launch window.

# User Interface Overview

After clicking **Replicator**, the Replicator user interface launches with the **Home** tab active.



**Figure 2:** Replicator user interface.

1. The **ribbon** shows the available actions for Replicator.
2. The **workspace** shows explanations and the content that is used during the configuration of actions performed in DocAve products.

# Basic Steps to Configuring and Creating Replicator Jobs

The following are the order of steps required to configure and create a Replicator job:

1. **Perform pre-Replicator job configurations:**
  - [Configure the Replicator database\(s\)](#).
  - [Configure devices and set up storage policies](#) (only necessary if backing up environment before Replication).
  - [Configure mapping settings](#) (optional).
  - [Configure outgoing e-mail server settings](#) (optional).
2. **To run an Online Replicator job:**
  - [Configure network control settings](#).
  - [Configure byte-level settings](#) (for byte-level replication only).
  - [Set up online mapping profiles](#).
  - [Build an Online Replicator plan](#).
3. **To run an Offline Replicator job:**
  - [Set up an export mapping profile](#).
  - [Set up an import mapping profile](#).
  - [Build an Offline Replicator plan](#).

# Pre-Replicator Job Configurations

The sections below detail the configurations to make prior to setting up a Replicator job.

## Configuring the Replicator Database

In order to use Replicator, you must configure a *dedicated* Replicator database in SQL for every farm that will be using Replicator. A Replicator database stores the job data for each farm. After configuring the Replication database for a farm, this farm will be available in Replicator, and it can act as both source and destination.

1. On the **Home** tab, in the **Settings** group, click **Replicator Database**.
2. Select the farm that will be using Replicator and click **Configure** in the **Edit** column. The **Configure Replicator Database** page appears.
3. Configure the following settings for the database that will store replication job data:
  - **Configure Replicator Database** – Replicator supplies a default **Database Server** and **Database Name**. If desired, enter a new database server and a database name in the corresponding fields. If the database does not exist, DocAve creates a database with the specified name. However, it is recommended that you use the default database for most instances.
  - **Authentication** – Select the authentication mode for the replicator database. If you select **SQL authentication**, the necessary information must be specified in the **Account** and **Password** fields. You can also validate the SQL database account by clicking **Validation Test**.
4. Click **OK** to finish and save the configuration.
5. If using Replicator on more than one farm, repeat the procedure above on each farm as well.

## Configuring Devices and Setting Up Storage Policies

In order to perform a backup of the environment prior to a Replicator job, it is necessary to first configure one or more physical device(s) and then set up a storage policy. If you are not backing up your environment prior to running a Replicator job, this step is not necessary.

**\*Note:** Replicator supports only Net Share storage devices.

In addition, DocAve has the ability to treat multiple storage devices as a single logical unit when saving backup data. This is especially useful for very large Replicator plans, as many small drives can be combined. Therefore, a logical drive must be defined only when you want to back up the environment before replication.

For instructions on defining devices and setting up storage policies, refer to the [DocAve 6 Control Panel Reference Guide](#).

## Configuring Mapping Settings

Before performing a replication job, you may want to define the Domain Mapping, User Mapping, and Language Mapping settings.

### Domain Mapping

Use domain mapping if, in the destination node, you wish to change (in metadata fields) a source domain name. During replication, Replicator will change the source domain name to your specified domain name in the destination node.

To access Domain Mapping, click **Home** tab > **Mappings** > **Domain Mapping**. The Control Panel appears.

For specific instructions on setting up domain mapping, refer to the [DocAve 6 Control Panel Reference Guide](#).

### User Mapping

Use user mapping if, in the destination node, you wish to change (in metadata fields) an existing source node username. During replication, Replicator will replace the source username in metadata fields with your specified username in the destination node metadata fields.

To access User Mapping, click **Home** tab > **Mappings** > **User Mapping**. The Control Panel appears.

For specific instructions on setting up user mapping, refer to the [DocAve 6 Control Panel Reference Guide](#).

### Language Mapping

Use language mapping to display the destination content in a different language than the source content after the plan has been executed.

To access Language Mapping, click **Home** tab > **Mappings** > **Language Mapping**. The Control Panel appears.

For specific instructions on setting up language mapping, refer to the [DocAve 6 Control Panel Reference Guide](#).

## Outgoing E-mail Server Settings

Replicator allows you to configure outgoing e-mail for DocAve 6. Configuring outgoing e-mail enables you to track the status of services or jobs. This is done through the Control Panel.

For instructions on setting up outgoing e-mail server settings, refer to the [DocAve 6 Control Panel Reference Guide](#).

# Configuring Online Replicator Settings

An Online Replicator plan replicates content, configurations, securities, and users from one SharePoint location to another, either across the same online farm or across multiple online farms.

While it is theoretically possible to run an Online Replicator job without configuring the settings described in the sections below, it is **strongly** recommended that you configure these settings in order to ensure appropriate content management during replication.

See the sections below for instructions on configuring Replicator for online jobs.

## Configuring Network Control

Configure the Network Control feature to optimize your replication job by making full use of network resources during the replication. For example, if replicating a massive amount of data that may affect network performance, use Network Control to set the starting time of the replication job to be during non-working hours. If a large replication job must be performed during working hours, set up a bandwidth limit for the job in order to minimize the impact on the network. Additionally, you can set up a connection retry for the replication job in the event that the job fails due to a network outage.

1. On the **Home** tab, in the **Settings** group, click **Advanced**, and select **Network Control**. The Network Control window pops up.
2. From the **Manage** group, click **Create**. Configure the following settings for the network control:
  - **Profile Name** – Enter a name for the profile, and add an optional description.
  - **Run During** – Specify the job's running speed during working hours and non-working hours and select corresponding unit (KB/second or MB/second). It is recommended that you use a lower speed during working hours and a higher speed during non-working hours.
  - **Define Work Schedule** – Specify the working hours by selecting the daily working hours and the working days.
  - **Connection Retry** – Specify a **Retry delay** by which the job will be retried and enter a number of retry attempts. By default, the **Retry delay** is 30 Minute(s), which means the job is retried once every 30 minutes.
3. Click **OK** to save the settings; the profile is listed in the **Network Control** page. On this page you can select a specific profile, click **Edit** to modify the configurations, or click **Delete** to remove the profile.

## Configuring Byte-level Settings (Byte-level Replication Only)

If performing a [Byte-level replication](#), it is recommended you configure the byte-level settings for each farm. These settings define snapshot retention time, data size limits, and the location to store the original and constructive data for Byte-level replication.

1. On the **Home** tab, in the **Settings** group, click **Advanced > Byte-level Settings**. The **Byte-level Settings** window appears.
2. All farms configured for Replicator are listed. Click **Configure** in the **Edit** column beside the farm to which you want to apply this feature. Configure the following settings:
  - **Configure Snapshot Settings** – Specify a retention time period for the snapshot to be stored and specify the **Data size limit**. When the entered retention time expires, the snapshot is automatically deleted. Note that byte-level replication is effective only if the selected data size to be transferred is larger than the **Data size limit**.
  - **Path** – Enter the drive of the format `\\<hostname>\c$\...`, and then define the Username and Password to set up access to the path that will store the snapshot.  
**\*Note:** The path you specified must be an existing one.
3. Click **OK** to save the settings.

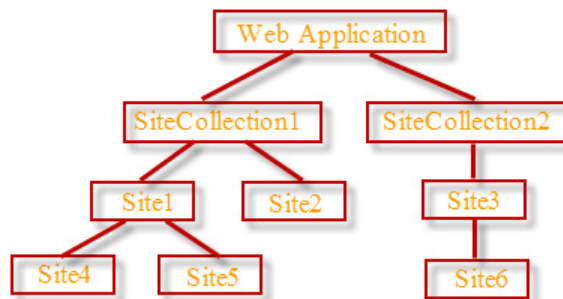
**\*Note:** Byte-level replication can only be applied between two farms, and both of them must configure the Byte-level Settings. Also, the specified paths must be different in order to ensure the proper function of Byte-level replication. The Byte-level settings for source farm will take effect during the replication.

## Setting Up Online Mapping Profiles

The Online Mapping Profile allows you to specify and define numerous settings including Replication Options, Conflict Options, Filter Options, Mapping Options and Advanced Options. Follow the instructions below to create an Online Mapping Profile.

1. From the **Home** tab, in the **Profile Manager** group, click **Profile Settings**. The **Profile Manager** window appears with the Online Mapping settings.
2. From the **Profile Manager** tab, in the **Options** group, ensure **Online Profile** is highlighted.
3. From the **Profile Manager** tab, under the **Profile/Sub-profile Management** group, click **New**.
4. Enter a profile name in the pop-up window and click **OK**.
5. Select the **Replication Options**. For details about this section, refer to [Replication Options](#).
6. Select the **Conflict Options**. For details about this section, refer to [Conflict Options](#).
7. Select the **Filter Options**. Select a filter policy from corresponding drop-down list. If there is no existing filter policy, select **New Filter Policy** to create a new one. For detailed information about creating a filter policy, refer to the [DocAve 6 Control Panel Reference Guide](#).

8. Select the **Mapping Options**. Select the language mapping, user mapping and domain mapping from corresponding drop-down boxes. For details information about the three mappings, refer to the [DocAve 6 Control Panel Reference Guide](#).
9. Configure the **Advanced Options**:
  - Select an optional **Data Compression** setting. Select the **Compression** checkbox to enable data compression, and then choose a compression level using the slider. A low compression level results in a faster compression rate but a larger data set, while a high compression level results in a slower compression rate but a smaller, better quality data set. Note that small data sets cause slower job execution times.
  - Select the **Encryption** checkbox (optional) to enable data encryption. Note that encrypting data causes slower job execution times.
  - **Backup Environment Before Replication** — Select this option to back up the environment before the replication. Note that this option is only available if you have a DocAve Granular Backup and Restore license. Select a storage policy from corresponding drop-down box for the backup job. For details regarding storage policy, refer to the [DocAve 6 Control Panel Reference Guide](#). Backing up before replication enables you to revert the destination environment back to the original environment (the environment before the replication).
  - **Concurrent Threads** — Specify the number of threads to run in the same mapping at a time. This number should be a reasonable one based upon your computer system configuration. If the inputted number is too high, this may be a drain on system resources. The default and recommended number is 2. The minimum unit for the concurrent thread is subsite; if the mapping level is list level or folder level, it only starts the concurrent thread option you select.



For example, the screenshot above is the source structure. There is a replication job on the web application level from source to destination. If the **Concurrent Threads** value is **2**, it replicates two sites simultaneously, in random order, during a replication job. Please note subsite *Site4*, *Site5*, or *Site6* can be replicated only when their parent site (*Site1* or *Site3*) is replicated.

- **Network Control** — Select a network control profile from the drop-down box to optimize your replication efficiency. For details regarding this feature, refer to [Configuring Network Control](#).

- **Enable Byte-level** — Choose whether or not to enable [byte-level replication](#), which replicates the updated data. If you select **Yes**, you must configure the [Byte-level Settings](#).
10. Click **Save** to save the profile.
    - Alternatively, click **Save as** and enter a profile name to save it as another profile. Select **Save and replace existing profile** to replace the original profile. Otherwise, it is saved without removing the original profile.

## Replication Options

Replication Options allow you to configure which security settings (from site collection level down to item level), configuration settings (from site collection level down to list level), and content can be replicated. Set up a sub-profile for Replication Options by the following steps.

1. From the Home tab, in the **Profile Manager** group, click **Profile Settings**. The **Profile Manager** window appears with the Online Mapping settings.
2. From the **Profile Manager** tab, in the **Options** group, ensure **Online Profile** is highlighted.
3. Click Replication Options on the left-hand panel, and from the **Profile Manager** tab, under the **Sub-profile** group, click **Edit Sub-profile** to make the **Replication Options** field active.
4. From the **Profile Manager** tab, under the **Profile/Sub-profile Management** group, click **New**.
5. **Enter a profile name** in the pop-up window and click **OK**.
6. Click the **Security** tab. Choose whether or not to **Replicate SharePoint securities**, and select the securities you want to replicate. All source securities are replicated to the destination for the criteria you select.
  - **Site Collection Level** — User, Groups. As all configurations for site collection are saved in the root site, you must also select the options under Site level if you wish to replicate the site collection level security properly.
  - **Site Level** — Users, Groups, Permission levels, Site permission. **Permission levels** enable you to replicate customized permission levels from the source to the target properly.
  - **List Level** — Users, Groups, List permission.
  - **Folder Level** — Users, Groups, Folder permission.
  - **Item Level** — Users, Groups, Item permission.

**\*Note:** Ensure that the source's parent (along with its security settings) is either being replicated with the source or is already replicated to the destination. This ensures that the permission for the source can be replicated properly. Otherwise, Replicator only replicates the value of the metadata (such as Modified by, Created by, etc.) to the destination.

  - Receive security changes from destination (in two-way replication) — The security changes in the destination are merged with the source in order to maintain the

consistency of security in the source and destination. This selection only supports two-way replication.

- Enable sync deletions for users and groups — Synchronously deletes users and groups on one side based on the deletions made on the other side. In one way replication, this option deletes users and groups on the destination based on the deletions made on the source.
  - In two way replication, if you also select Receive security changes from destination (in two-way replication), this feature deletes users and groups on one side based on the deletions made on the other side. If you do not select Receive security changes from destination (in two-way replication), the deletions on destination cannot be synced to the source.
7. Click the **Configuration** tab. Choose whether or not to replicate SharePoint configurations and select the configuration settings you want to replicate.
- **Site Collection Level** — Site collection features and properties, Site collection search scopes, and search keywords.
  - **Site Level** — Site features and properties, Site column and content type, Navigation and quick launch, Site template and list template, Web parts, page layout, master pages and other hidden lists.
    - If a **Site column and content type** with the same name as the source already exists in destination, Replicator overwrites the column in the destination. F
    - **Hidden lists** are lists that cannot be viewed in the **All Site Content** page (such as the lists used to save the site template and list template, web parts, page layout, master pages, and the lists that are hidden by the users).
  - **List Level** — List settings, List alerts, Personal views, Public views.
    - In order to use the List alerts in destination properly, the Web Application Outgoing E-Mail Settings for the specified destination web application must be configured before running the Alerts replication job.
    - If there is a personal view with the same name as the source for one user, Replicator merges the view settings in source to the destination's.
    - If there is a public view with the same URL as the source, the destination original public view is overwritten by source public view.
- \*Note:** Replicator can only activate the features in destination site collection. If one feature is active in the source and inactive in the destination, after the replication job, this feature in destination is activated. But if one feature is inactive in the source and active in the destination, after the replication job, this feature is still activated in the destination.
- \*Note:** If one feature only exists in the source, Replicator does not install this feature. It is necessary to manually install the feature on the destination before running the

replication job or use DocAve Deployment Manager to deploy the source structure to destination directly.

- **Receive configuration changes from destination (in two-way replication)** — The configuration changes in the destination are merged to the source in order to maintain the consistency of configuration settings in the source and destination.
8. Click the **Content** tab. Choose whether or not to replicate SharePoint content.
- **User Profiles** — Select whether or not to replicate the user profiles to destination.  
**\*Note:** This feature only works for site collection and web application level replication jobs. The Search Service Application for both the source and destination must already be created. If the destination job is across different agents, it is recommended setting up the user mapping for the source user who has a user profile in Search Service Application.
  - **Receive deletions from destination** — The deletions in the destination are merged to the source in a two-way replication job in order to maintain the consistency of source and destination.  
**\*Note:** By default, the real content of Storage Manager/Connector is replicated to the destination, which can be accessed directly after the job. To only replicate the stubs (pointer) of Storage Manager/Connector to the destination, navigate to ... \AvePoint\DocAve6\Agent\data\SP2010\Replicator\SP2010Replicator.xml and modify the value of **BackupExtenderOrConnectorData** attribute to **False**. The stubs of Storage Manager/Connector are replicated to the destination. Also, ensure that the BLOB is accessible in the destination.
9. Click **Save** to save the sub-profile.
- Alternatively, click **Save as** and enter a sub-profile name to save it as another sub-profile. Select **Save and replace existing profile** to replace the original sub-profile. Otherwise, it is saved without removing the original sub-profile.

## Conflict Options

Use the Conflict Sub-profile feature to define what actions Replicator takes if the Configuration or Content objects in the source are the same as the ones in the destination. To set up a sub-profile for Conflict Options:

1. From the Home tab, in the **Profile Manager** group, click **Profile Settings**. The **Profile Manager** window appears with the Online Mapping settings.
2. From the **Profile Manager** tab, in the **Options** group, ensure **Online Profile** is highlighted.
3. From the **Profile Manager** tab, under the **Profile/Sub-profile Management** group, click **New**.
4. **Enter a profile name** in the pop-up window and click **OK**.
5. Click **Conflict Options** on the left-hand panel and click the **Configuration** tab to define how Replicator will handle configuration conflicts.

- **Conflict Resolution** — Choose how to handle a conflict between the source and destination. **Source always wins** regards the changes on the source as valid and changes on the destination as invalid if there is a conflict. **Destination always wins** considers the changes on the destination as valid and the changes on the source as invalid if there is a conflict.

**\*Note:** This configuration conflict only occurs during two-way replication.

- **Conflict Action** — Choose a method to handle the conflicting data. **Skip** ignores the conflicting data and performs no action on the source and destination, while **Overwrite** replicates the conflicting data to the source/destination based on the conflict resolution rule. Note that this setting only applies to content, not Security settings or User Permissions.

**\*Note:** If the destination content type is in a site collection related to the corresponding Managed Metadata service, selecting **Overwrite** to handle a conflict overwrites the destination content type with the source content type. If this occurs and you publish the destination content type, all other site collections that used this content type will be affected.

6. Click the **Content** tab to define how Replicator will handle content conflicts.

- **Conflict Resolution** — Choose how to handle a conflict between the source and destination. **Source always wins** regards the changes on the source as valid and changes on the destination as invalid if there is a conflict. **Destination always wins** considers the changes on the destination as valid and the changes on the source as invalid if there is a conflict. **Item with latest modification time wins** regards the changes within an item/file with the most recent modified time as valid if there is a conflict with an item/file. **Item with higher version number wins** looks upon the changes of an item/file whose version is higher as the valid one if there is a conflict in item/file.

- Rearrange the order of conflict resolutions by selecting relevant number from the Order drop-down box to modify the priority of conflict resolutions.

- **Conflict Action** — Choose a method to handle the conflicting data. **Skip** ignores the conflicting data and performs no action on the source and destination. **Overwrite** replicates the conflicting data to the source/destination based on the conflict resolution rule, while **Manual conflict resolution** overwrites the content according the conflict resolution rule and generates a file to store the overwritten content.

- **Conflict Notification** — Select a report recipient from the drop-down box who will receive the conflict report in case of a conflict and input relevant parameters if necessary and click **Add**. If select **Email Address**, input an email address which you want to receive the conflict report. If select **User Column**, input the user or group of *person and group* column.

**\*Note:** Ensure the Conflict Resolution setting is appropriate for your particular deployment. Improper configuration can lead to unintended overwriting of content.

7. Click **Save** to save the sub-profile.

- Alternatively, click **Save as** and enter a sub-profile name to save it as another sub-profile. Select **Save and replace existing profile** to replace the original sub-profile. Otherwise, it is saved without removing the original sub-profile.

# Configuring Offline Replicator Settings

An Offline Replicator plan replicates content, configurations, securities, and users from one offline SharePoint location to another offline location.

While it is theoretically possible to run an Offline Replicator job without configuring the settings described in the sections below, it is **strongly** recommended that you configure these settings in order to ensure appropriate content management during replication.

See the sections below for instructions on configuring Replicator for offline jobs.

## Setting Up an Export Mapping Profile

Create an Export Mapping Profile to configure replication export options, filter options, and other advanced options.

1. From the **Home** tab, in the **Profile Manager** group, click **Profile Settings**. The **Profile Manager** tab appears.
2. In **Options** group, click **Export Profile**.
3. In the **Profile/Sub-profile Management** group, click **New**.
4. Enter a profile name in the pop-up window and click **OK**.
5. Select the **Replication Options**. For details about this section, refer to [Replication Options](#).
6. Click **Filter Options** from the panel on the left. If there is no existing filter policy, click **New Filter Policy** to create one. For details about creating a filter policy, refer to the [DocAve 6 Control Panel Reference Guide](#).
7. Click **Advanced Options** from the panel on the left.
  - Select an optional **Data Compression** setting. Select the **Compression** checkbox to enable data compression, and then choose a compression level using the slider. A low compression level results in a faster compression rate but a larger data set, while a high compression level results in a slower compression rate but a smaller, better quality data set. Note that small data sets cause slower job execution times.
  - Select the **Encryption** checkbox (optional) to enable data encryption. Note that encrypting data causes slower job execution times.
8. Click **Save** to save the profile.
  - Alternatively, click **Save as** and enter a profile name to save it as another profile. Select **Save and replace existing profile** to replace the original profile. Otherwise, it is saved without removing the original profile.

## Setting Up an Import Mapping Profile

Create an Import Mapping Profile to configure replication import options, conflict options, and other advanced options.

1. From the **Home** tab, in the **Profile Manager** group, click **Profile Settings**. The **Profile Manager** tab appears.
2. In **Options** group, click **Import Profile**.
3. In the **Profile/Sub-profile Management** group, click **New**.
4. Enter a profile name in the pop-up window and click **OK**.
5. Select the **Conflict Options**. For details about this section, refer to [Conflict Options](#).
6. Click **Mapping Options** from the panel on the left to select your Language, User, and Domain mapping. For details about these mapping options, refer to the [DocAve 6 Control Panel Reference Guide](#).
7. Click **Advanced Options** from the panel on the left.
  - **Backup Environment Before Replication** — Select this option to back up the destination content before the replication. Note that this option is only available if you have a DocAve Granular Backup and Restore license. Select a storage policy from corresponding drop-down box for the backup job. For details regarding storage policy, refer to the [DocAve 6 Control Panel Reference Guide](#). Backing up before replication enables you to revert the destination environment back to the original environment (the environment before the replication).
8. Click **Save** to save the profile.
  - Alternatively, click **Save as** and enter a profile name to save it as another profile. Select **Save and replace existing profile** to replace the original profile. Otherwise, it is saved without removing the original profile.

# Building an Online Replicator Plan

An Online Replicator plan replicates content, configurations, securities, and users from one SharePoint location to another, either across the same online farm or across multiple online farms.

Follow the instructions below to build an Online Replicator plan:

1. From the **Home** tab, in the **Plan Builder** group, click **Online Replicator**.
2. In the **Source** pane, click the farm name to expand the data tree.
  - Select the node whose data you wish to replicate. If working with a large environment, enter the site collection URL into the **Input Keyword** text box to search for the desired site collection.
  - Select the source node by checking the corresponding checkbox.
3. In the **Destination** pane, click the farm name to expand the data tree.
  - Select to where you will import the replicated data. If working with a large environment, enter the site collection URL into the **Input Keyword** text box to search for the desired site collection.
  - Select the destination node by checking the corresponding checkbox.
4. Select an [online mapping profile](#) from the **Add to Queue with profile** drop-down box.
5. Click **Apply** to add this mapping to the Queue.
6. To add additional mappings to the Queue:
  - In the **Queue** section, select a mapping to enable the **Queue Tools** tab in the ribbon. This allows you to configure the selected mapping.
  - From the **Queue Tools** tab, in the **Manage** group, click **Add New Mapping to Queue**. The **Home** tab becomes active; follow steps 2 through 5 above to create and add a new replication mapping.

**\*Note:** Click **Delete** to remove a selected mapping.
7. To edit selected mappings in the **Queue** section, select operations from the **Queue Tools** tab > **Batch Settings** group.
  - **Mapping Type** – Select a mapping type for the selected mapping(s). **One way** (one arrow) only replicates data from source to destination, while **Two way** (two arrows) performs dual replication between the source and destination; this means that data in the source is replicated to the destination and data in the destination is replicated to the source.
  - **Profile** – Choose an [online mapping profile](#) from the drop-down box for the selected mapping(s).

- **Real Time** – Choose whether or not to enable real time replication for the selected mapping(s). If selecting **Yes**, select the detailed contents for which you want to enable real time replication.
- **Source Agent Group** – Select an agent group for the selected mapping(s) from the drop-down box. For details regarding creating an agent group, refer to the [DocAve 6 Control Panel Reference Guide](#).
- **Enable Mapping** – Choose whether or not to enable the selected mapping(s) in the plan you wish to create.

\***Note:** Mappings that are applied on the same plan must be using the same source farm.

8. Click **Save** to save the settings as a plan. The **Save Plan** window appears.

- **Plan Name** – Enter a name for the plan, and add an optional description.
- **Schedule** – Choose whether or not to use a schedule.
  - **No Schedule** – The plan is not run on any schedule and must be initiated manually.
  - **Configure the schedule myself** – Configure a customized schedule, and run the plan by schedule.

Click **Add Schedule**; the **Add Schedule** window pops up.

- **Options** – Choose the replication mode from the drop-down box. **Full Replication** replicates all of the source content to the destination, while **Incremental Replication** only replicates the modified content (**Add**, **Delete**, and **Modify**) since last incremental or full backup. If selecting **Incremental Replication**, the following options come enabled.
  - **Modifications** – Choose whether or not to replicate the modifications since last job.
  - **Deletions** – Choose whether or not to replicate the deletions since last job.
- **Schedule Settings** – Select the interval at which the plan occurs.
- **Range of Recurrence** – Input the start time for the job and select the end time of the recurring schedule.
- Click **OK** to save the settings. After configuring the schedule for this replication job, click **Calendar View** to view the job in a calendar view.
- Configure the email **Notification** settings. Using the drop-down boxes, select the type of report (**Summary** or **Detailed**), enter the recipient's e-mail address, and click **Add**. Repeat this procedure for any additional recipients.

9. Click **OK** to finish the plan setup. The plan is now listed in **Plan Manager**. In **Plan Manager**, select the replication job which you wish to run, and click **Run Now**. In the pop-up window, choose the replication mode from the drop-down box. **Full Replication** replicates all of the source content

to the destination, while **Incremental Replication** only replicates the modified content (**Add**, **Delete**, and **Modify**) since last incremental or full backup.

10. If selecting Incremental Replication:

- **Modifications** – Choose whether or not to replicate the modifications since last job.
- **Deletions** – Choose whether or not to replicate the deletions since last job.
- **Reference Time** – Choose whether or not to run the incremental replication job since a specified time.

**\*Note:** The default maximum storage time of a SharePoint change log is 60 days. If the reference time you configure is greater than 60 days, DocAve only runs an incremental replication for the modifications in 60 days.

11. Click **OK** to save the job or **OK and Run Now** to run the job immediately.

**\*Note:** If two or more mappings in a replication plan have inclusion relationship similar to the diagram below, the content in Mapping-B is not replicated when Mapping-A is run and the content in Mapping-B is replicated only when Mapping-B is run. To replicate the content in Mapping B by using Mapping A, Mapping-B must be deleted before running Mapping-A.

## Performing a Byte-level Replication

In cases where there is only a small change to the content (for example, when only the title of a file is changed), byte-level replication can be leveraged to transfer only the change to the file instead of transferring the entire file.

Byte-level replication is optimal for limited/poor connection scenarios, pseudo real-time synchronization, and large file sizes. By minimizing the amount of data transferred, Byte-level replication reduces the impact on bandwidth and infrastructure while ensuring content stays synched.

**\*Note:** Byte-level replication can only be applied between two farms, both of which must have for byte-level settings configured. In addition, the specified paths must be different in order to ensure the proper function of byte-level replication. The Byte-level settings for the source farm are used during the replication.

To perform byte-level replication:

1. Within Replicator, [configure the byte-level settings](#). Example settings are shown below.

The screenshot displays two columns of configuration settings for Replicator. Each column has a light gray background. The left column is for source 'TECHWRITER01' and the right column is for source 'TECHWRITER02'. Both columns have the same fields: 'Keep snapshot at most:' (365 days), 'Data size limit:' (200 KB for left, 300 KB for right), 'Path:' (\\TECHWRITER01\C\$\Snapshot and \\TECHWRITER02\C\$\Snapshot), 'Username:' (ccbranch\add), and 'Password:' (masked with dots).

- With these example settings, the snapshots are kept for 365 days and the byte-level replication is applied to any selected data whose size is larger than 200KB. In this case, as farm TECHWRITER01 is the source, the configuration for TECHWRITER01 is used during the replication.
  - **Data size limit** is intended to prevent scenarios where the act of byte-level replication generates more system usage overhead than the transfer of the entire file itself.
2. Set up an [online mapping profile](#). In **Advanced Options**, select **Yes** to enable **Byte-level replication**.
  3. [Build a full online replication plan](#).
  4. Run the replication job. If the selected content meets the trigger condition, byte-level replication is performed.

## Performing a Three-Way Replication Job

Use three-way replication in order to keep three sites in sync with one another. For the procedure below, let's assume that we are setting up three-way replication for three sites: AvePoint\_New York, one in AvePoint\_London, and one in AvePoint\_Toyko. AvePoint\_New York is the headquarters, so the other two branches must stay synced with this site.

To set up and run a three-way replication job:

1. Within Replicator, [set up a conflict profile](#) with the settings shown below.

Order	
1	<input checked="" type="radio"/> Source always wins <input type="radio"/> Target always wins
2	Item with latest modification time wins
3	Item with higher version number wins

Skip  Overwrite  Manual conflict resolution

Conflict report recipient(s): Item Creator

Report	Type	Recipient
Conflict Report Re	Email Address	eric.cheng@avepoint.com

**Figure 3:** Setting up a conflict sub-profile.

2. [Set up a full online mapping profile](#).
3. [Build an online full replication plan](#). In our example, there are two mappings for this plan: one is between New York site and the London site, and the other is between New York site and the Tokyo site. See the image below.

Order	Type	Real Tir	Action	Source	Destination
1	Two way	No	Enable	http://techwriter01:3333/sites/AvePoint_New York	http://AvePoint_London/AvePoint_Londo
2	Two way	No	Enable	http://techwriter01:3333/sites/AvePoint_New York	http://AvePoint_Tokyo/AvePoint_Tokyo

**Figure 4:** Mappings for three-way replication.

4. Run a full replication in order to sync the branch offices with the headquarters.
5. Next, [build an online incremental replication plan](#). Choose for this plan to run on a schedule, or for the plan to run in real time.

# Building an Offline Replicator Plan

Replicator offers the ability to replicate content from an offline source to an offline destination. The process includes setting up an export location, exporting the data to the export location, physically transporting the export location to the destination location, and then importing the data to the destination location.

## Setting up an Export Location

The export location is an external system storage that will contain the exported data to be replicated. This export location is physically transported to the destination location where the import is to be performed.

To set up the export location:

1. From the **Home** tab, in the **Settings** group, click **Export Location**. The Control Panel **Export Location** tab appears in the pop-up window.
2. Configure the export location. For instructions on creating an export location, refer to the [DocAve 6 Control Panel Reference Guide](#).
3. Click **OK** to save the configurations. The export location will be available in the Staging Location drop-down box when [configuring a Data Export](#).

## Using Data Export

The following instructions explain how to export data to a staging export location in order to perform an offline replication:

1. From the **Home** tab, in the **Offline Management** group, click **Data Export**.
2. In the **Source** pane, click the farm name to expand the data tree.
  - Select the node whose data you wish to export. If working with a large environment, enter the site collection URL into the **Input Keyword** text box to search for the desired site collection.
  - Select the source node by checking the corresponding checkbox.
3. In the Destination pane, select an export location from the drop-down box. If there is no existing export location, select **New Staging Location** to [create a new one](#).
4. Select an [export mapping profile](#) from the **Add to Queue with profile** drop-down box and click **Apply**.
5. To batch configure selected mappings in the **Queue** section, select operations from the **Queue Tools** tab > **Batch Settings** group.
  - **Mapping Type** – Select a mapping type for the selected mapping(s). **One way** (one arrow) only replicates data from source to destination, while **Two way** (two arrows)

performs dual replication between the source and destination; this means that data in the source is replicated to the destination and data in the destination is replicated to the source.

- **Source Agent Group** – Select an agent group for the selected mapping(s) from the drop-down box.
- **Enable Mapping** – Choose whether or not to enable the selected mapping(s) in the plan you wish to create

**\*Note:** Mappings that are applied on the same plan must use the same source farm.

6. Click **Save** to save the settings as a plan.

- **Plan Name** – Enter a name for the plan, and add an optional description.
- **Schedule** – Choose whether or not to use a schedule.
  - **No Schedule** – Run the plan immediately.
  - **Configure the schedule myself** – Configure a customized schedule, and run the plan by schedule.

Click **Add Schedule**; the **Add Schedule** window pops up.

- **Options** – Choose the replication mode from the drop-down box. **Full Replication** replicates all of the source content to the destination, while **Incremental Replication** only replicates the modified content (**Add, Delete, and Modify**) since last incremental or full backup.

If selecting **Incremental Replication**, the following options come enabled.

- **Modifications** – Choose whether or not to replicate the modifications since last job.
- **Deletions** – Choose whether or not to replicate the deletions since last job.
- **Schedule Settings** – Select the interval at which the plan occurs.
- **Range of Recurrence** – Input the start time for the job and select the end time of the recurring schedule.
- Click **OK** to save the settings. After configuring the schedule for this replication job, click **Calendar View** to view the job in a calendar view.
- Configure the email **Notification** settings. Using the drop-down boxes, select the type of report (**Summary** or **Detailed**), enter the recipient's e-mail address, and click **Add**. Repeat this procedure for any additional recipients.

7. Click **OK** to finish the plan setup. The plan is now listed in **Plan Manager**. In **Plan Manager**, select the replication job which you wish to run, and click **Run Now**. In the pop-up window, choose the replication mode from the drop-down box. **Full Replication** replicates all of the source content to the destination, while **Incremental Replication** only replicates the modified content (**Add, Delete, and Modify**) since last incremental or full backup.

8. Click **OK** to save this job or **OK and Run Now** to run the job immediately.

## Using Data Import

The following instructions explain how to import data to the destination location in order to perform an offline replication:

1. From the **Home** tab, in the **Offline Management** group, click **Data Import**.
2. In the **Source** pane, click the farm name to expand the export location. Select the backed up data you want to import. Click the **Details** tab to view the content of the backed up data.
3. In the **Destination** pane, select an import location.
4. Select an [import mapping profile](#) from the **Add to Queue with profile** drop-down box and click **Apply**.
5. To batch configure selected mappings in the **Queue** section, select operations from the **Queue Tools** tab > **Batch Settings** group.
  - **Mapping Type** – Select a mapping type for the selected mapping(s). **One way** (one arrow) only replicates data from source to destination, while **Two way** (two arrows) performs dual replication between the source and destination; this means that data in the source is replicated to the destination and data in the destination is replicated to the source.
  - **Enable Mapping** – Choose whether or not to enable the selected mapping(s) in the plan you wish to create.
  - **Destination Agent Group** – Select an agent group for the selected mappings. For details regarding creating an agent group, refer to the [DocAve 6 Control Panel Reference Guide](#).
6. Click **Save** to save the settings as a plan.
  - **Plan Name** – Enter a name for the plan, and add an optional description.
  - **Schedule** – Choose whether or not to use a schedule.
    - **No Schedule** – Run the plan immediately.
    - **Configure the schedule myself** – Configure a customized schedule, and run the plan by schedule.

Click **Add Schedule**; the **Add Schedule** window pops up.

- **Options** – Choose the replication mode from the drop-down box. **Full Replication** replicates all of the source content to the destination, while **Incremental Replication** only replicates the modified content (**Add**, **Delete**, and **Modify**) since last incremental or full backup. If selecting **Incremental Replication**, the following options come enabled.
  - **Modifications** – Choose whether or not to replicate the modifications since last job.
  - **Deletions** – Choose whether or not to replicate the deletions since last job.

- **Schedule Settings** –Select the interval at which the plan occurs.
  - **Range of Recurrence** – Input the start time for the job and select the end time of the recurring schedule.
  - Click **OK** to save the settings. After configuring the schedule for this replication job, click **Calendar View** to view the job in a calendar view.
- Configure the email **Notification** settings. Using the drop-down boxes, select the type of report (**Summary** or **Detailed**), enter the recipient’s e-mail address, and click **Add**. Repeat this procedure for any additional recipients.
7. Click **OK** to finish the plan setup. The plan is now listed in **Plan Manager**. In **Plan Manager**, select the replication job which you wish to run, and click **Run Now**. In the pop-up window, choose the replication mode from the drop-down box. **Full Replication** replicates all of the source content to the destination, while **Incremental Replication** only replicates the modified content (**Add**, **Delete**, and **Modify**) since last incremental or full backup.
  8. Click **OK** to save this job or **OK and Run Now** to run the job immediately.

## Performing a Two-Way Offline Replication Job

If two sites must be kept in sync despite being separated by a firewall or no connection, the system administrator can use two-way offline replication to accomplish the sync between two sites.

1. Within Replicator, [set up the same export location](#) for both farms. Set the same UNC path for both farms. See the example below.

The screenshot displays two configuration panels for export locations. The left panel is for 'ExportLocation1' and the right panel is for 'ExportLocation2'. Both panels have the following fields:

- Name:** ExportLocation1 (left), ExportLocation2 (right)
- Description:** (empty text boxes)
- Farm:** Farm(TECHWRITER01:SHAREPO) (left), Farm(TECHWRITER02:SHAREPO) (right)
- \*UNC path:** \\TECHWRITER01\c\$\ExportLocation1 (left), \\TECHWRITER01\C\$\ExportLocation1 (right)
- \*Username:** ccbranch\add (left), ccbranch\add (right)
- \*Password:** (masked with dots)

**Figure 5:** Example export locations for two-way offline replication.

2. [Build an export plan](#) for the source and an export plan for the destination. Note that since these two locations are on two different farms, the export plan must be built separately for each.

3. After the full export jobs complete, [build an import plan](#) for the source and an import plan for the destination. Note that since these two locations are on two different farms, the export plan must be built separately for each. When scheduling the import jobs, ensure that they are set to run *after* the export jobs.
4. Once complete, the two-way offline replication plan will run at the specified times.

Note that incremental replication is not possible in this scenario because DocAve Replicator has no access to the destination Replicator database; without access to the destination database, it is impossible to compare changes in content.

# DocAve Replicator Use Cases

The following use cases apply the procedures described in this guide to several real-world situations. These use cases are intended to give the user an idea of when and why one would use common DocAve Replicator functionality. Note that these situations assume that the DocAve platform and applicable modules have been installed successfully, and that the prerequisite conditions are met (appropriate permissions for the Agent account, creation of logical devices, etc.).

## Online Replicator for One Farm

One common application of Replicator on a single farm is the replication of one calendar to several other calendars in that same farm. In this scenario, assume that the Vice President of Product Development for a software organization would like to release an internal Product Release Calendar (PRC) to the organization every week; the calendar will display the target release dates for the various products in development. Due to the nature of software development, product release target dates change frequently, and as a result, the PRC will change just as frequently. The organization's SharePoint administrator, Joe, can use DocAve Replicator to account for the dynamic scheduling issues and to ensure that the entire organization is viewing the same official PRC.

First, Joe checks SharePoint permissions to ensure that the source PRC is viewable and editable only by the VP. Because the calendar is on a Product Development site that is only accessible to the VP, Joe is confident that only the VP can modify the content within the calendar. Then, Joe accesses DocAve Replicator and clicks **Online Replicator** to build a one way, [online mapping plan](#). Joe expands the farm tree and selects the PRC in the **Source** pane. Next he must select a destination.

For the destination, Joe intends on replicating the PRC to each department's official SharePoint calendar. To do this, he must create a mapping for each desired location. Joe selects the PRC as the **Source**. In the **Destination** pane, he expands the Sales department web application, navigates down to the Sales calendar, and selects the calendar for the destination. Joe clicks **Apply** to add the mapping to the **Queue**. He then repeats this process, selecting each department's calendar as the **Destination** and adding each mapping to the **Queue**. When finished, Joe clicks **Save**, creates a **Plan** name, and schedules the plan to run every Friday at 5 pm.

Lastly, Joe saves and enables the new plan. With these mappings in place and a weekly replication schedule established, Joe can be sure that the latest PRC will be replicated from the source location (the VP's calendar) to the various destination locations (calendars for Sales, HR, Manufacturing, etc.).

## Online Replicator for Two Farms

In addition to being useful on a single farm, online replication is also beneficial in multi-farm environments, especially environments with farms that are separated by vast distances or poor internet connections. In either case, the use of real-time, byte-level online replication is recommended.

For this example, assume that an organization has two offices; one of the offices is in the United States, and the other office is in China. The SharePoint administrator for the US farm, Joe, wants to use DocAve Replicator to keep content synched between these two farms.

Joe's first step is to identify the content that he wants to replicate. In the interest of reducing the duration of Replicator job times and maintaining acceptable system performance, Joe wants to limit the scope of the mappings to only the content that must stay current on both farms. Consequently, Joe decides to create mappings for two different libraries. The first library is a collection of Excel spreadsheets that detail pricing information for various products. The other library contains large Excel files that contain up-to-the-minute accounting information for the organization; both the US and China Accounting Team edit this document on a daily basis.

Now that Joe has decided upon which lists/libraries to replicate, he begins to create the mappings. Joe creates the following mappings and adds them to the **Queue**:

### Mapping 1

For the pricing spreadsheets library, Joe configures the mappings as follows:

- **Mapping Type:** One-way replication to the Japan farm because product pricing is determined in the US office and then disseminated to the rest of the organization.
- **Real Time:** Real-Time replication is not necessary because the pricing information does not change frequently.
- **Enable Mapping:** Joe selects **Enable** because he wants this mapping to take effect immediately.
- Joe applies the **Default** mapping **Profile**; he wants to replicate **Security, Configuration, and Content** because the settings for this library are identical across both farms. All other default profile settings are applicable to this mapping.

### Mapping 2

For the accounting Excel documents, Joe configures the mappings as follows:

- **Mapping Type:** Two-way replication because frequent edits to the documents will be made by both China and U.S. employees.
- **Real Time:** Joe enables **Real Time** replication to ensure that all numbers in the Excel documents are current when viewed by any employee at either office.
- **Enable Mapping:** Joe selects **Enable** because he wants this mapping to take effect immediately.

- Joe creates a new mapping **Profile**. He wants to replicate **Security, Configuration, and Content** because the settings for this library are identical across both farm. For **Conflict Options**, Joe sets the **Conflict Resolution to Destination always wins** because the primary Accounting Office is in China. Joe selects **Enable Byte-level settings** so that only changes to the Excel files are replicated, rather than the entire large file every time a change is made.

With these mapping configurations, Joe can be sure that he is utilizing Replicator features appropriately. He chooses to only replicate content that must stay current on both farms, reducing the duration of Replicator job times and ensuring acceptable system performance. He uses Real-Time replication where applicable, and applies suitable Conflict Resolution settings to each mapping. This use case demonstrates that the key to developing efficient Replicator jobs involves understanding each job and customizing each mapping according to its purpose.

## Moving Site Content to a Target Newly-Created Site

In some cases, it may be desirable to replicate existing content to a new site. For example, assume that a New York-based company is opening a new marketing office in Paris. In this case, the New York SharePoint administrator would create a new Marketing site for Paris, then replicate the New York Marketing site content to the Paris site.

To move site content to a target newly-created site:

1. From the **Home** tab, in the **Plan Builder** group, click **Online Replicator**.
2. In the **Source** pane, select the site that you wish to replicate. If working with a large environment, enter the site collection URL into the **Input Keyword** text box to search for the desired site collection. Select the source site by checking the corresponding check box.
3. In the **Destination** pane, expand the destination data tree to the site level of the desired destination site collection.
4. Select radio button to the left of the “manual input” text box. Enter the site tile for this newly created site.
5. Click the **Create Container** button to the right of the text box. Or, on the **Home** tab, in the **Plan Builder** group, click **Create Container**. The **Create Site Collection** window appears.
6. In the **Create Site Collection** page, configure the new site.
7. When finished, click **OK** to create the new site. This newly-created site is now listed under the Sites node of the specified site collection.
8. Finish [creating an Online Replicator plan](#).
9. When the job is run, the content in the source site is replicated to the newly-created target site.

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