

# **Volumes in Laserfiche 8.2: Introduction and Best Practices**

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**Laserfiche®**

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## **What Are Volumes?**

A volume is a storage location in a Laserfiche repository. The volumes associated with a repository contain the following repository information:

- TIFF images
- Text files
- Electronic files
- Thumbnails
- Word location data
- Files used in attachment annotations

## **Why Use Volumes?**

As different volumes can be placed in different physical locations, volumes are a good way to manage large numbers of files that can take up a lot of hard drive space. By storing data in different physical volumes, you can spread the files over several different hard disks or computers.

Breaking up data among volumes allows for easy back up, and, since volumes support size constraints, you can be sure that the data will be the right size to store on removable backup media.

Volumes allow a secondary level of information categorization. For instance, your folder structure might break files up by department, while your volumes categorized them by date of creation, or vice versa. As folders and volumes each have distinct security that can be set independently from one another, you can use these categories to determine who has access to what documents.

## **Types of Volumes**

### **Physical Volume**

A physical volume is a volume that has a single location in the Windows file structure. The individual volumes within a logical volume are also physical volumes.

Physical volumes can be configured both with and without size limits. If a physical volume has a size limit, new documents can be added to that volume until the size limit is reached. When the size limit is reached, trying to add new documents will produce an error since no new documents can be created or added in that volume. (Pages and metadata can be added to the volume even after the size limit is reached. See Volume Size Limits for more information.) If a physical volume has no size limit, it will continue to grow indefinitely, although it may be constrained by the size of the hard disk on which the volume files are placed. Please note that extremely large volumes

(for instance, volumes 10-20 GB in size) can lead to performance issues when exporting, backing up, or deleting volumes.

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**Example:** Bill is setting up his repository and wants to create two volumes: one for the Accounting department and one for the Marketing department. He is not concerned about size, so he sets them both up as physical volumes with no size limit. He configures them with the paths C:\AccountingVolume and C:\MarketingVolume respectively. They will continue to grow until either the maximum number of pages possible in Laserfiche has been reached (2,147,483,648) or until the C drive is completely full.

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## Logical Volume

A logical volume is a collection of physical volumes. When you create a new volume in the Laserfiche Administration Console, you have the option to create a physical or logical volume. When a new logical volume is created, the first physical volume associated with that logical volume is also created. You can specify whether you want additional physical volumes to be created within the logical volume based on a size limit or based on a timeframe or both. When the logical volume's size limit, or a specified timeframe, has been reached, a new physical volume is created and new documents are placed in the new physical volume. When a new physical volume is created, no new documents can be created or added to the old physical volume. (Pages and metadata may be still added to the old volume. See Volume Size Limits for more information.)

To the user, logical volumes simplify storing entries. Importing a document into a logical volume will automatically store it in the latest physical volume. Searching for volumes within a logical volume will return all the documents in that logical volume, regardless of what physical volume they are in. The individual physical volumes comprising the logical volume can be backed up to separate drives or burned to separate CDs or DVDs; they can be renamed or their paths changed in the Laserfiche Administration Console.

A physical volume's properties, such as size limit and location, are specific to that physical volume. Changing the default location and size limit for the logical volume will only affect future physical volumes, not current or previous physical volumes. Note that the one exception to this is that changing the timeframe for a time-based logical volume will affect the current volume and future physical volumes.

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**Example:** Sarah wants keep her repository's volumes small and manageable so that she can easily back them up on DVDs. She also does not want to confuse the repository's users with a large number of similar physical volumes. She creates a logical volume called CityCouncil, gives it a size limit, and configures it

to create a new physical volume when the desired size limit is reached. She sets the volume path to E:\CouncilVolume. When the CityCouncil logical volume is created, a CityCouncil1 physical volume is also created and placed at E:\CouncilVolume\CityCouncil1\. The Laserfiche Server will create new volumes—CityCouncil2, CityCouncil3, etc.—when the size limit is reached. From the user's perspective, there is only one volume: CityCouncil, and they can add files to CityCouncil without worrying about size restrictions. Sarah can easily burn the smaller physical volumes to DVD for backup.

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## Volume Size and Volume Rollover

### Volume Size Limits and Volume Rollover

When a physical volume within a logical volume reaches the maximum size for that logical volume, it undergoes a process called volume rollover. A new physical volume is created, and any new documents assigned to the logical volume will be placed within the new physical volume. When the new physical volume reaches the maximum size, the process repeats.

When a physical volume has reached its size limit, entries cannot be imported or migrated into the volume. However, new pages can still be added to existing documents in the volume, imaged pages can be created from electronic documents, attachment annotations can be added to documents, and documents can be OCR'd or have text extracted from them, even if the volume has already reached its maximum size. Additionally, since thumbnails are stored in the volume, thumbnail data may be added when documents in the volume are opened for the first time. All of these actions can cause the volume to exceed its maximum size. If you do not account for volumes growing over time, even after they have been rolled over, you can run into problems. For example, a volume designed to be backed up on DVD-ROM may become too large to burn to the disc.

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**Example:** Tony is scanning a document into his logical volume FinancialRecords, which is set with a maximum size of 30 GB. When he scans the document, the Laserfiche Server checks the size of the document and determines that FinancialRecords1 (the most recent physical volume within the FinancialRecords logical volume) has reached its size limit. The Server automatically creates FinancialRecords2 and places the new document in it. Tony does not need to change any settings to create or use the new physical volume. From his perspective, he is simply continuing to scan into FinancialRecords. Next, Tony scans some pages into an existing document stored in FinancialRecords1. Since no new document is created, the Server does not check the

size of FinancialRecords1. The new pages are added to the document, growing the size of FinancialRecords1 to 30.1GB.

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## Best Practices for Volume Size

Since physical volumes may grow after the volume has rolled over, we recommend setting volumes' maximum sizes to allow for expansion. Therefore, if the volume grows beyond the configured maximum size as new pages or text is added, it will still remain within your desired size range.

Exactly how much margin for error you should leave when configuring volume size will depend on how the volume is used. Since volumes expand when pages or text are added to them, you will need to leave more space in the volume for a site that frequently scans into existing documents than one that rarely or never adds pages to an existing document. Additionally, volumes published with Laserfiche Plus include metadata from the included files and may therefore be larger than the size of the volume on the disk. If you are not sure how much your volumes will expand, it is a good idea to be very conservative at first. Once the physical volumes have been in use for some time after rollover, you will have a better idea for how much space to leave and can adjust the size of future volumes accordingly.

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**Example:** Sarah backs up her volumes to DVD, so she wants to make sure they will not exceed 2GB, the size of her DVDs. She knows that the city council rarely adds new pages to existing documents, generally OCRs and Snapshots documents shortly after adding them to the repository, and usually scans documents in small batches. Since most documents will not get much larger after they have been added to the repository, she does not have to leave a large margin for error, but she also does not want to cut it too close. She sets the volumes' maximum size at 1.5GB, which gives her a margin for scanning into existing documents, adding to electronic documents, OCRing, and printing Snapshot images to this volume.

**Example:** Tony will be backing up his volumes to removable hard drives that hold 100GB of data. His company handles large financial records and frequently adds material to existing documents over a long period of time. They also have a high scan volume. Because of these factors, documents can double or even triple in size. To ensure that he can back up his volumes, Tony sets the maximum size of his volumes to 30GB. That way, if the number of pages doubles or triples, and the added pages are OCRed, he has plenty of room to add that material to the volume without exceeding his 100GB limit.

**Example:** Since Melissa is creating a new repository, she is not sure how much material will be added to existing documents.

But, she knows that she wants her final volumes to be no larger than 5 GB. She decides to initially set her logical volume to roll over when it reaches 2.5GB, giving her a margin of 50%. After using the repository for a while, she looks at finished physical volumes and sees that they average 4GB in size. She decides to create future volumes with a smaller margin based on her observations. Because she made a conservative first estimate, she can refine the rollover size of her volumes without exceeding the desired size.

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## Time-Based Volume Rollover

Logical volumes can be configured so that the physical volumes they are comprised of roll over based on a timeframe instead of a size limit. With time-based volume rollover, a new physical volume is created after a specified amount of time, and you can no longer add documents to the old physical volume. (Pages and metadata may be still added to the old volume. See Volume Size Limits for more information.) New entries will be added to the new physical volume until the specified amount of time elapses again.

You can configure a volume to rollover every x number of days, weeks, or months after the volume's creation date. If you modify this timeframe in the future, the new timeframe will apply to the current and future physical volumes. Old physical volumes will be based on the previous timeframe.

Configuring time-based logical volumes is useful if you know that you reliably produce a manageable size of data in a specific timeframe, and you want to organize your information and backups chronologically.

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**Example:** Branch offices create a series of reports every quarter based on the current activity in their branch. The reports for any given three-month period can vary in size. In the repository, these reports are stored in the individual branch office folders, but Susan also wants to organize them chronologically. She also wants to create a backup DVD of each quarter's field reports. To address these needs, Susan creates a logical volume named FieldReports and sets it to rollover every three months.

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## Correcting Oversized Volumes

Whether you have your physical volumes rollover by size, timeframe, or not at all, your volumes might exceed the desired size. There is a way to remedy the problem. If you want to preserve the documents' current order, you can create a new logical volume, configure it with a new maximum size, and migrate the documents from the old volume into the new one. Documents are migrated in the order that they were sorted in the Client. For instance, if you searched for all items in a volume and sorted them by creation date, and then migrated all items, they would be migrated into the new volumes in creation



date order. Alternatively, if you sorted them by name, they would be migrated in alphabetical order by name, and so on. Once all the documents are migrated, you can delete the old volume and rename the new logical volume with the old volume's name.

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**Example:** John's logical volume, Marketing, contains a set of physical volumes that are close to exceeding the capacity of each of the 9GB backup drives he wants to store them on (one volume per drive). He does not want to exceed the drive size, so he considers his options. Since his users frequently scan into existing documents, locking down the volumes is not a viable option. He decides that he wants to store the documents by creation date, so he migrates the documents into a new volume. In the Administration Console, he creates a new volume called Temporary with a maximum size of 6GB instead of 8GB (his previous, too-high maximum size). In the Laserfiche Client, he uses a Within Volume search to find all documents within the Marketing volume. He sorts the documents by Creation Date, selects them all, and chooses Migrate Document(s) from the Action menu. He selects to put them in the Temporary volume. Once the documents have been migrated, he makes sure that the Marketing volume has zero documents in it by checking its properties in the Administration Console. Then he deletes the now-empty Marketing volume. In order to make the transition as smooth as possible, he renames the Temporary volume to Marketing and changes the physical volume names from Temporary1 and Temporary2 to Marketing1 and Marketing2, and so on.

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## Volume Location and Moving Volumes

### Volume Location

When you create a volume, either physical or logical, you will need to configure a location for that volume. For a physical volume, this location is the place on the hard disk that the TIFF, text, and electronic document files will be placed. For a logical volume, the physical volumes associated with that volume will be created as sub-folders of the specified folder.

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**Example:** You configure the physical volume Loans with the path C:\LoansVolume. Volume files will be placed directly within that folder. You configure the logical volume StockInformation with the path C:\StocksVolume. Its physical volumes will be placed within that folder—the first physical volume will be located at C:\StocksVolume\StockInformation1, the second at C:\StocksVolume\StockInformation2, etc.

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In order to reduce the load on the server, you may wish to keep your volumes on a different machine than the server. If the volumes are large, it may also be useful to spread them out over several computers. The volumes can be placed on any drive on the network that Laserfiche Server service can access. You cannot browse to a network volume location when setting the path, but you can type the UNC path or network drive directly into the path box.

## Fixed and Removable Paths

The path for a volume can be either fixed or removable. The only difference between a fixed or removable volume path is that if the Laserfiche Server cannot locate a fixed volume, it will display an error message, and if the Laserfiche Server cannot locate a removable volume, it will prompt you to mount the volume. If a single volume has both a fixed and a removable path, you can assign different types of files (image files, text files, and electronic documents) to the different paths. For instance, you can put the image files for a volume at the fixed path location and the text files for the same volume at the removable path location.

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**Tip:** Although the removable path is intended for removable media, you can assign it to a fixed location. This configuration allows you to spread image, text and/or electronic documents from a single volume across several drives.

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## Moving Volumes

You can change the location of volumes by selecting the volume in the Administration Console and selecting the Path tab from the Properties dialog. (You cannot browse to network drives or UNC paths, but you can type them manually into the path box.) If you change the fixed path for a physical volume, the volume files will automatically be moved to their new location for you. If any problems occur during the volume move, the move will be cancelled and the original volume will remain unchanged in the original location. If you change a removable path, the volume will not be moved automatically—it must be manually relocated.

Changing the volume path for a logical volume will not change the path for the physical volumes associated with that volume. Only new physical volumes within that logical volume will be stored under the new path. You can change the path for individual physical volumes within a logical volume. If you change the fixed path for these physical volumes, the volumes will automatically be moved.

## Detaching, Exporting, and Attaching Volumes

Volume exporting is a way to transfer the contents of a volume to another repository or to back up a volume. When a volume is exported, its contents are copied into a folder specified at the time of volume export. A set of .xml

files containing the metadata for those documents also is created. Exported volumes have accompanying .xml files. A volume that has not been exported will not have these files. The .xml files contain the necessary information for reconstructing the documents and folder structure of the files in a Laserfiche repository. If an external volume does not have an associated .xml file, you will not be able to attach it to a repository. You can choose to export or detach your volumes in Laserfiche 6, Laserfiche 7, or Laserfiche 8 formats, allowing you to move documents easily between installations of various versions. If you are moving documents between installations, any extraneous information will be discarded. For example, you are exporting in Laserfiche 8 format and moving the documents to Laserfiche 6 format. Your documents' link information, which did not exist in Laserfiche 6, will be discarded.

When an exported volume is attached to a repository, the documents contained in that volume, as well as their folder structure, templates, document links, tags, and version information, will be added to the repository. However, the documents must be re-indexed in order to make them searchable in the new repository. If a volume is exported for backup purposes, it is a good idea to verify that the volume has successfully exported by attaching it to a repository and checking that the documents are in place and can be opened.

Volume detaching is similar to volume exporting, except that the volume is deleted from the originating repository at the time of export. Volume detaching does not give you the opportunity to verify that the volume can be successfully attached before it is removed from the repository. It is usually a good idea to export a volume, verify it, and then delete it rather than detaching it.

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**Note:** While much of the metadata for an exported volume is contained in the volume's files, some data will be lost. Specifically, all information related to users, security settings, all Records Management data, and all Auditing data will be left out, because the Server cannot incorporate this information into a pre-existing repository.

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## Volume Security

You can apply volume security to grant or restrict access to certain volumes. Applying security can be particularly useful if certain volumes are assigned to certain departments. By granting or removing rights to a volume, you can grant access only to the departments assigned to the volumes.

The following rights and privileges are associated with Laserfiche volumes:

**Read:** A user with this right can view content, such as images and text pages, associated with documents in that volume. This right does not affect the user's ability to view metadata such as template information.

**Add files:** A user with this right can add or create new pages in an existing document. This right is necessary to scan pages into a document.

**Modify/delete documents:** A user with this right can modify or delete images, text, and electronic files associated with documents in that volume.

**Create documents:** A user with this right can create a new document in a volume. This right does not itself allow users to add pages to documents. It is primarily used to control which volumes show up as options in the New Document or Import dialogs.

**Delete volume:** A user with this right can delete the entire volume, removing all the documents it contains.

**Read volume security:** A user with this right can see the security settings applied to this volume.

**Change volume security:** A user with this right can modify the security settings applied to this volume.

**Manage Volumes:** A user with this privilege can create a new volume, export, detach or attach a volume, or modify a volume's properties. This privilege also allows you to view or modify security for any volume in the repository.

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**Note:** Volume security works with Entry Access rights—neither overrides the other. A user must have both the appropriate Volume and Entry Access rights to a document to open, create, or modify a document.

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## Backing Up Volumes

In addition to backing up a repository's database files, it is important to back up the volume files as well. The entire volume directory, including the VOLUME.ID file and all sub-folders, must be backed up. If the original volumes are lost, the backup volumes can be restored by either moving them to the location of the original volumes or by indicating their new locations in the Administration Console. Volumes backed up in this way must be attached to the same repository with which they were originally associated. They cannot be attached to a new repository. Additionally, volume backups must be updated at the same time as the database. Otherwise, documents may be present in the database that are absent in the volume files (or vice versa), which can result in errors or lost information.

You can also back up volumes by exporting them and moving or burning the exported volume files to your backup medium. This backup method works well with logical volumes. For example, if you want the volumes to be backed up to DVDs, you can set your logical volumes to create new physical volumes when the volumes approach the capacity the DVD. (See Volume Size and Volume Rollover, above, for more information on logical volume and

recommended volume size.) You also can attach an exported volume to a new repository, if necessary.

## **Restricting Volumes**

You can protect volumes from changes by preventing users from modifying the files in a volume. There are three ways to restrict changes to a volume: disabling a volume, setting it as a read-only volume, or setting it as a permanent volume. These settings apply to all users who access that volume and are independent of security settings.

### **Disabled Volumes**

Disabling a volume makes the contents of the volume inaccessible. When a volume is disabled, users cannot view the files contained in the volume. They can open documents in the volume and see information not stored in the volume, such as metadata, but they cannot see the pages, text, or electronic files contained in the volume. Users cannot modify any of the files in the volume, or add new files to the volume, because you cannot add pages to documents, add electronic files, or generate text from the documents while a volume is disabled. Disabling a volume is most useful as a temporary measure. For instance, you might want to disable a volume when you are backing it up to ensure the volume files don't change during the backup process. When done, you can re-enable the volume with a single click.

### **Read-Only Volumes**

When a volume is read-only, its contents can be viewed but not modified. As with disabled volumes, files in read-only volumes cannot be modified and new files cannot be added to the volume. (Information that is not stored in the volume, such as templates, fields, and other metadata, can still be modified.) Unlike files in a disabled volume, files in a read-only volume are still viewable. When a user opens a document in the volume, they can see the pages of the document. Read-only volumes are useful for long-term protection and storage, since the volume's contents are still viewable. You can also set a volume as read-only temporarily for backup.

### **Permanent Volumes**

The contents of a permanent volume can be viewed, can be added to, but cannot be modified. (As with read-only and disabled volumes, information that is not stored in the volume, such as templates, fields, and other metadata, can still be modified.) Unlike a read-only volume, the files in a permanent volume are set as read-only in the Windows file system, independent of Laserfiche security. Be careful when setting a volume's status to permanent because it cannot be revoked. Making a volume permanent is useful if you want to permanently archive the volume and ensure that documents can be

added to it but never modified. For example, it might be necessary to make a volume permanent for compliance with security or archival policies. Additionally, if you are working with WORM (Write Once, Read Many) media, your WORM device may handle files marked as read-only in the Windows file system differently than other files. If you want to take advantage of that status when writing to the WORM media, you can set the volume as permanent.

## Volume Compression

Volume compression reduces the amount of space that a volume takes up on your hard drive. For example, you can compress your volumes before making a backup to reduce the size of your backup. Similarly, if you are exporting a volume to send to another office, you can compress the volume to reduce the space it takes on a DVD.

You can modify and interact with your files normally when they are compressed. Compressed volumes might experience some slow-down. If needed, you can decompress them at any point.

## Volume Encryption and Securing

An encrypted volume is an archival volume whose files have been encrypted on the Windows file system but that can still be accessed through Laserfiche applications by users with sufficient rights to do so.

A secured volume is a volume whose files are encrypted but that cannot still be accessed through Laserfiche applications. If a user opens a document from a secured volume, they will get a message saying that the volume is in a secured state and cannot be accessed. Until an administrator uses the encryption password to unlock the secured volume, no one will be able to access its contents.

If a volume is encrypted, whenever it is newly loaded by the Laserfiche Server (for instance, when it is attached, or if the Laserfiche Server was stopped and restarted), it will be loaded in its secured state. An administrator will need the encryption password to unlock it.

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**Important:** There is no way to retrieve an encrypted or secured volume's password. If you lose or forget the password and the volume is secured, you will not be able to unlock it and access its contents. Be very careful with encrypted volumes in order to avoid permanently losing access to the contents. If you realize that you have forgotten the password for a volume that is encrypted but not currently secured, it is strongly recommended that you decrypt it (which does not require the password) and then re-encrypt it with a new password that you will remember.

Otherwise, you will lose access to the volume the next time the Laserfiche Server is restarted.

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Volume encryption and secured volumes are used primarily for protecting archival information, especially for purposes of backup and volume export. Volume encryption serves two purposes: it protects the files on the Windows file system (preventing anyone from accessing their contents by navigating to them in Windows), and it ensures that the volumes will be loaded in a secured state if the Laserfiche Server is restarted. In turn, loading the volumes in a secured state ensures that their contents will be inaccessible through Laserfiche until a user with the correct encryption password unlocks the secured volumes and makes them available again.

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**Example:** Susan exports her volumes and burns them to DVD, both as a permanent volume backup and to send them to another repository for archiving. She encrypts these volumes when she exports for two reasons: First, it protects the files on the DVD. If someone gets a copy of the DVD, they will not be able to open and view the files in the volume. Second, it ensures that only someone with the encryption password will be able to attach the volume to a Laserfiche repository. Alternately, Susan could encrypt her volumes prior to backing up her repository files.

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## **Publishing by Volume**

With Plus 8, you can publish the contents of a volume. Plus publishing copies a set of Laserfiche documents—including much of the information associated with them, such as templates and document links—into a new, read-only repository that can be accessed with a Plus viewer. Publishing a volume is useful for archiving because the volume can be accessed straight from the published repository without needing to attach it to a repository. Volume publishing is also useful for backups. You can publish multiple volumes at once, and the volume distinctions (which files are in the volume) will be preserved in the published repository.



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