Cumulus 8.6

Administrator Guide

Canto®

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Table of Contents

This chapter offers a brief introduction to the Cumulus Digital Asset Management System. Cumulus can store any type of digital media assets, including all types of documents, images, audio, video, layouts from publishing programs, presentations, and PDF files. Once assets are stored, Cumulus becomes a central media repository from which you and your co-workers can view, locate, search, organize, copy, move, categorize, and otherwise manipulate the cataloged assets. Once you've settled on a process for storing and retrieving your digital assets that works for you, the process can be automated, further enhancing the efficiency of your workflows.

In this chapter, you will learn how Cumulus can help you manage your media assets, the theory behind the Cumulus client/server architecture, and the structure of this manual.

Intro

Cumulus

Canto offers different editions of Cumulus:

- Cumulus Workgroup Edition
- Cumulus Enterprise Edition

The different editions of Cumulus are designed to meet the needs of anyone who wants to keep track of their digital media. To meet individual workflow needs, Canto has developed a range of additional add-on products. For more information on Cumulus products, see Canto's website (www.canto.com.)vo

This Administrator Guide

The Administrator guide is one of three manuals that are provided with a Cumulus edition:

- The *Installation Guides* describe how to install Cumulus Workgroup or Cumulus Enterprise.
- The *Administrator Guide* (this manual) describes how to manage users and catalogs.
- The *Client User Guide* covers how to use Cumulus for Windows or Mac OS X to catalog and manage media assets. This guide includes the descriptions on how to set up Cumulus sets and templates.

All manuals are provided as PDF files and can be downloaded from Canto's website.

Organization

To give you the quickest access to the topic you're looking for, this guide covers only those subjects that are the exclusive domain of the Cumulus Administrator. Everything else you need to know about managing your assets with Cumulus can be found in the *Client User Guide*.

This Administrator Guide covers the following topics:

- "Getting Started" – Covers a few basic guidelines about working with Cumulus and how to provide catalogs for your workgroup. (See "Getting Started" chapter, starting on page 15.)
- "Managing Catalogs" – Describes how catalogs manage the media assets stored on your system, how to define the properties of individual catalogs and how to maintain the catalog files (copy, compress, back up, divide, merge, etc.). (See "Managing Catalogs" chapter, starting on page 27.)
- "Server Console" – Describes how to use the Server Console that provides utilities for performing Cumulus' administrative tasks. (See "Server Console" chapter, starting on page 71.)
- "Managing Users" – Covers how to make catalogs available to users, and how to set individual user permissions. (See "Managing Users" chapter, starting on page 99.)
- **Cumulus Vault** – Describes how to configure catalogs for use with the Vault. (See "Configuring Vault" chapter, starting on page 131.)

This guide also contains a chapter on solving a few problems that may arise (see "Troubleshooting" chapter, starting on page 153), and a glossary to give you a quick reference to some of the terms used in this manual (see "Glossary" chapter starting on page 167). The Appendix provides information on on parameters for Cumulus AssetProcessors and information on the Sample EJaPs folder included with any Cumulus Client installation.

Cross-Platform Issues

Cumulus is a cross-platform application, meaning that it runs on Windows® and Mac® OS X (Macintosh®) systems. Though the program's features are identical in each version, portions of the user interface differ due to operating system or keyboard conventions. These differences are denoted or explained when necessary and assumed otherwise (e.g., the difference between "maximizing" a window in Windows, and "zooming" a window in the Mac OS X is not explained).

This icon denotes what pertains to Mac OS X only.

This icon denotes what pertains to Windows only.

User Interface Item Conventions

To differentiate user interface items – buttons, menus, text fields, etc.– from surrounding text, those items are displayed in **bold**. For example:

"Click the **Open** button."

To differentiate menu hierarchies, the > character is used. For example:

"Select **File** > **Open** to open a file."

This example means to select the **Open** item from the **File** menu.

Cumulus Step by Step

Instructional steps are identified by the following structure:

1. This would be the first instruction. The mouse icon makes it easy to identify.
2. The final instruction has a border beneath it, indicating that there are no further steps.

Understanding Cumulus

To get started with Cumulus, you need to understand only a few basic concepts. Cumulus creates special files called *catalogs*, which Cumulus uses to keep track of your valuable *assets*. As you catalog your assets, Cumulus creates special catalog entries called *records* that represent the assets to be managed. Each record contains vital searchable information about the asset it represents. To make searching and retrieving records easier, Cumulus lets you organize and classify records into logical groups called *categories*. Any individual set of records comprises a *collection*. A collection is a way of looking at catalog(s).

Assets

An asset in Cumulus is simply any one cataloged file or data stream. A video clip, an audio clip, an image, or a page layout document are examples of files that are commonly cataloged in Cumulus. But the word *file* suggests an asset that is stored on a digital medium like a hard-disk or CD-ROM. What if the asset is a record in a database? This is not a file per se, but as far as Cumulus is concerned, it is a data stream that can be cataloged, kept track of and accessed.

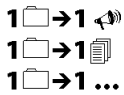
Catalogs

Like a filing cabinet, Cumulus catalogs serve as storage locations for asset collections. You can have as many catalogs as you like. Catalogs are cross-platform compatible, so it doesn't matter what type of computer is used to create a catalog. Catalogs are explained in detail starting on page 27.

Categories

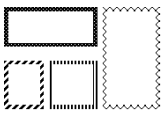
Like folders in a filing cabinet, Cumulus categories serve to organize assets (files). But here the similarities end. Assets can appear in any number of Cumulus categories at one time. Categories are explained in detail in the Client User Guide.

Records



Records represent assets. Each record represents one asset. Records hold information on the asset, such as file size, type, location, creation date, and much more. Cumulus allows the creation of customizable record fields, which can contain almost any sort of information you desire. Since these user-defined record fields are also fully searchable, you can tailor Cumulus to fit your requirements. Record fields are explained in detail starting on page 28. It's very important to draw the distinction between records and assets. Records are part of Cumulus catalogs; assets are not. Records represent assets.

Collections

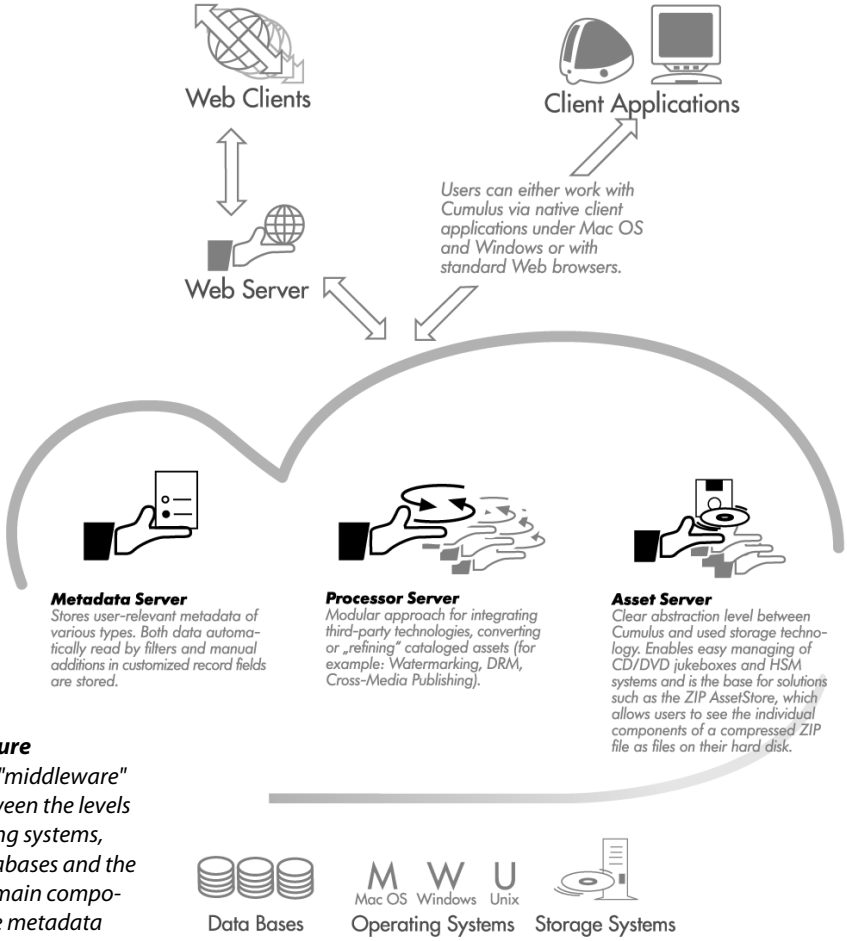


Collections are like snapshots from your open catalog. When you work with your assets in Cumulus, you're viewing a constantly changing group of records. Without collections, each view of this group would be lost as soon as it was changed. Collections, however, enable you to capture any particular set of records and save it as you see it—all without disrupting your workflow. For example, you can modify the viewing attributes of your records in innumerable ways, add or delete records, select the information that appears with each record, and so on. Once you see something you like or could use again, save it as a collection and recall it whenever you need it. You can even send your collection as an attachment to an e-mail message in one easy step.

A collection also acts as your temporary workspace in Cumulus, meaning that changes made to your collections do not affect the content of your catalogs. Even deleting a record from a collection does not remove it from the catalog (unless you really want it to, which you can do, too). Collections are explained in detail in the Client User Guide.

How Cumulus Works

Cumulus features a client/server architecture in which individual users (or clients) access the server application across a network.



The Cumulus Architecture
Cumulus can be seen as "middleware" as it communicates between the levels of the employed operating systems, storage devices and databases and the user interface level. The main components of Cumulus are the metadata server, an asset server and a processor server. These components can be installed on different computers with different operating systems.

The Cumulus Client/Server Architecture

The overall client/server architecture is simple. The Cumulus Server is installed on a server computer in the network. The Cumulus Clients are then installed on computers that have access to the computer running the Cumulus Server.

The communication between Clients and Server is handled via the Internet-standard TCP/IP, enabling Clients to access Cumulus catalogs from within the office or anywhere else in the world. Since Cumulus is cross-platform compatible, both Mac OS X and Windows Clients can access catalogs administered by *any* Cumulus Server. The only restriction is that the Client has to have TCP/IP access to the computer running the Server.

You don't have to specify which computers are running the Cumulus Client application. The Cumulus Server allows as many Clients to connect as the number of Clients you purchased, no matter where they're trying to connect from.

The Cumulus Administrator

The Cumulus Administrator has to perform the following tasks:

- Installing the Cumulus Server application on a server computer in the network. (See *Installation Guide*.)
- Registering your Cumulus configuration and activating the software. (See *Installation Guide*.)
- Configuring the Cumulus Server – employing the Remote Admin utility. (See "Remote Admin," p. 83)

The Cumulus Administrator is responsible for the following tasks:

- Providing catalogs to Cumulus Clients by creating new catalogs or adding existing ones to the list of catalogs administered by the Cumulus Server. (See "Providing Catalogs," p. 19.)
- Configuring each catalog's settings to meet the specific needs of the workgroup. (See "Catalog Settings," p. 28.)
- Making catalogs available or unavailable to Cumulus Clients and defining individual user permissions. (See "Managing Users," p. 99.)
- Maintaining the catalog files themselves, including tasks such as optimizing catalog performance, backing up and restoring catalogs, repairing catalogs, etc. (See "Catalog Maintenance," p. 61.)

The permission to perform these tasks can be given to other users. The Cumulus Administrator has all these permissions by default and is the one who is responsible that the permissions are given according to the specific needs of the workgroup.

Cumulus Clients

Cumulus Clients access workgroup catalogs by logging onto the Cumulus Server and opening catalogs administered by the Server. Once logged on, they have access to all of the functions described in the Client User Guide (provided, of course, that the Cumulus Administrator has not restricted their permissions to use these functions).

Finding Help

If you have a question that is not answered in this guide, there are a number of additional resources to check:

Online Help

Cumulus includes a help system. Access it via the **Help** menu or the **Help** buttons provided in dialog windows. Similar to other help systems, subjects are organized by contents and index, and are searchable. The Cumulus help system is based on HTML pages that can be viewed with any standard Web browser. However, if you employ any pop up blockers, the display of the help system may not be possible.

> TIP:
> Recommend your Cumulus Client users to load Cumulus help online from the Canto website, where the latest updates will always be available. (**Help** > **Source** > **Online**)

Canto Online

The Canto website (www.canto.com) contains many resources of value to you as a Cumulus user. Among them Canto's User 2 User Support Forums. These forums are non-moderated bulletin boards hosted on the Canto website. Canto support does not answer questions here, the forums are user to user only. Feel free to use the forums to discuss any problems you may be having using Cumulus and receive help from other Cumulus users.

This chapter covers some topics important for getting your Cumulus configuration up and running. Since your workgroup needs Cumulus catalogs to access, this chapter gives you a few guidelines about effective catalog administration, as well as information on how to provide catalogs to your workgroup.

Getting Started

The Cumulus Server

Once installed, as default the Cumulus Server is launched "invisibly" every time the computer it's running on is started up. Most administrative actions can be performed from a Cumulus Client application logged on as Cumulus Administrator to the Server. Before you can log on from a Client, however, you have to register the Cumulus software and maybe configure the Cumulus Server properties. You configure the properties of a Cumulus Server using the Remote Admin module. For details on the Remote Admin module, see "Remote Admin," p. 83.

The Cumulus Administrator

To administer Cumulus, there has to be a user account which functions as the Cumulus Administrator. This user account is created during the installation of the Cumulus Server with the default name *cumulus*.

There is only one Cumulus Administrator, but to provide your workgroup with extra flexibility in managing catalogs, Cumulus permits more than one user to *act* as Cumulus Administrator simultaneously. It does not, however, permit more than one user to open a catalog as Administrator at the same time. Each one simply needs to enter the user name of the Cumulus Administrator when connecting to the Cumulus Server.

Initial Tasks and Their Order

The sections that follow describe how to log on as Administrator and then how to provide catalogs as this is the next step to be performed. This should be done before you set up any Cumulus Client users as you can only allow them access to catalogs that are provided by the Cumulus Server. For a description on how to set up users, see "Managing Users," p. 99. However, before you let your Cumulus Clients work with these catalogs you should set up the catalogs as well. For a description on how to set up catalogs, see "Catalog Settings," p. 28.

For general information on the responsibilities of the Cumulus Administrator, see "The Cumulus Administrator," p. 12.

Logging On as Cumulus Administrator

Before you can begin managing your workgroup's catalogs, you have to log onto the Server as Cumulus Administrator from a Cumulus Client application.

To log on as Cumulus Administrator:

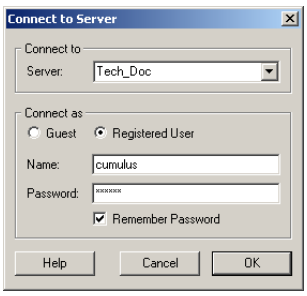
1. From any Cumulus Client, select **File > Connect to Server**.

   The Connect to Server dialog box appears.

2. In the **Server** field, select or enter the name of the Cumulus Server, you want to connect to.

   If you are logging on from the same computer as the Server is installed, you can type in **localhost**. If more than one Cumulus Servers are available to you, click on the arrow to get a list displayed. This list contains the names/IP addresses of all currently active Cumulus Servers in the network. If necessary, edit the IP address of the Cumulus Server by selecting another one from the drop-down list. The IP address can be either a numbered address or the name of the Cumulus Server (e.g., cumulus.canto.com).

   NOTE: *To be able to connect to the Server, every Client must specify a port number. By default, Cumulus automatically determines an open port*



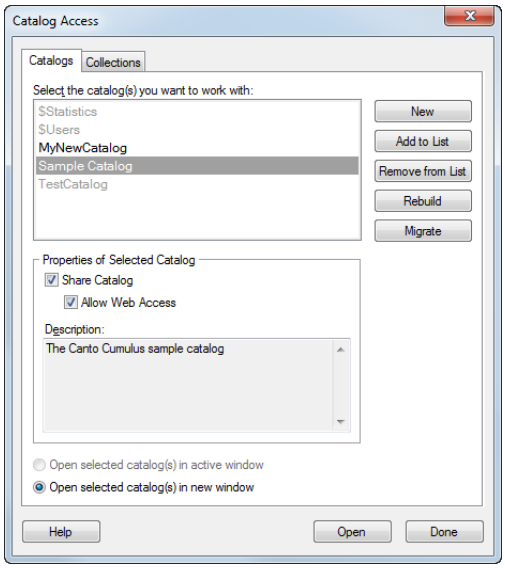
Dialog to connect to the Cumulus Server

number and configures it for both Server and Clients (see "Remote Admin," p. 83). Change the port number only to avoid a conflict with other server software. If the port number is changed, all Clients need to be informed of this fact or they will not be able to log on.

3. Under **Connect as**, enable **Registered User**.
4. Type the user name of the Cumulus Administrator in the **Name** field and the corresponding password in the **Password** field. (See "The Cumulus Administrator," p. 16, for information on the identity of the Cumulus Administrator.)
5. Click **OK**.

   The Catalog Access window appears.

The Catalog Access window lists all catalogs currently administered by the Cumulus Server and is the starting point for performing numerous administrative tasks.



The Catalog Access window – starting point for numerous administrative tasks

Via the Catalog Access window, you can:

- open a catalog and modify its properties (see "Catalog Settings," p. 28)
- create new catalogs (see "Creating New Catalogs," p. 20).
- add existing catalogs to the list of those administered by the Cumulus Server (see "Adding Existing Catalogs," p. 21).
- remove catalogs from this list. Then they are not administered by the Cumulus Server.
- determine which catalogs should be shared and be available to Cumulus Clients in general. The individual access permissions of Cumulus Clients for catalogs are defined employing the User Manager module (see "User Manager," p. 101).
- publish catalogs to the Internet (only available if a Cumulus Internet solution is installed with your Cumulus configuration).

Working Smart

Before you jump into providing catalogs for your workgroup, it's a good idea to become familiar with a few guidelines that will make your work with Cumulus as efficient and effective as possible.

Name a Catalog Manager

It's best to assign one person in your workgroup to manage assets and Cumulus catalogs. Having one manager helps keep things consistent and provides your workgroup with a recognized source for asset and catalog information.

For the catalog manager to be able to effectively manage workgroup catalogs, this user has to log on to the Cumulus Server as the Cumulus Administrator. For details on acting as the Cumulus Administrator, see "The Cumulus Administrator," p. 16.

Develop an Effective File Naming Convention

Even though Cumulus makes it easy to keep track of assets with its thumbnail previews and wealth of search options, there is no substitute for a well planned filing system. There will be times that you must access files without the convenience of the Cumulus interface. For example, when writing scripts to enable Cumulus to automate the workflow, a consistent and predictable filing system can not only save many hours of script debugging, but it can also enable functionality that might not otherwise be possible.

How you name your files will depend on how you use them. A news agency may decide to name incoming news stories prefixed with the current date and affixed with the file type:

2003-06-01-ElectionResults.txt
2003-06-01-ElectionResults.tif

Using the date in this order lists the files chronologically when sorted alphabetically. It also makes it easier for Cumulus scripts to select files based on a date range.

A Web design group may choose to include an image's file size in its name to make entering HTML size tags more convenient: MainPageBanner200x50.gif

Or, to use this manual as an example, file names for screen shots of menus and dialog boxes each begin with either "M_" or "W_" to identify the platform from which the images come. For example, the file name for the Mac OS File menu is: M_FileMenu.tif. Its Windows counterpart is called: W_FileMenu.tif

Using the two file name prefixes not only helps differentiate the files at a glance, but also helps to make the filing system more predictable. From this example, you can probably guess the file names of most images in this document. Consistency and predictability are key to developing a naming convention that will serve you and your workgroup well.

Develop an Effective Folder Naming Convention

Apply an equally clear naming convention to your folder (directory) structures. Cumulus can use your folder hierarchy to create categories when cataloging assets. It is a real time saver if your folder structure helps to identify your assets.

Some users may choose to store assets in folders based on file type rather than project name. A sound clip of audience applause, for example, may be used in many projects, but it will always be a sound clip. You can use Cumulus' categories to associate assets with one or more projects.

Cross-Platform Catalog Use

Though the catalogs that Cumulus creates are completely cross-platform compatible, it is up to you to use a catalog file naming convention compatible with each platform which you plan to use for your catalogs.

Keep in mind that catalog *names* and catalog *file names* are two different things. For cross-platform purposes, you need only be concerned with catalog file names. (see "Renaming Catalogs," p. 65, for catalog naming information.)

Consult your operating system's documentation for details on the range of characters that can be used. In the meantime, here are a few tips:

- Windows uses a backslash (\) to differentiate folder hierarchies. Mac OS users should avoid using this character in their catalog names. (The Mac OS uses a colon (:) to differentiate folder hierarchies, but this character is not allowed in files name on either platform, so it is of no real concern.)
- Windows file names can be up to 255 characters in length. Mac OS file names must be 31 characters or less.

Characters that are safe for use on all Cumulus platforms include all upper and lower case letters, all numbers, the hyphen (-), and the underscore (_).

Multiple Catalogs & Servers

You may want to use separate servers for different departments within your organization. Although each server can manage one or more catalogs, you must have a separate copy of Cumulus for each server.

When evaluating your media management needs, consider the following questions:

- How many Clients will access the catalog?
- How many assets do you need to manage, today and in the future?
- Where will the cataloged assets be stored? Who should have access to the cataloged assets (for example, to modify them)?
- Does the media archive contain logically unrelated groups of assets?
- Do different groups of people use different groups of assets? Or do the documents themselves fall into multiple categories?

Providing Catalogs

Catalogs to be shared by your workgroup must be administered by the Cumulus Server, which means that they must appear in the list of catalogs administered by the Server (in the Catalog Access window). Catalogs administered by the Cumulus Server have to be stored locally on the computer running the Server application. So before you jump into providing catalogs for your workgroup, make sure that you create or note the location(s) that will house the catalogs you provide.

You have a couple of options for providing catalogs to be administered by the Cumulus Server. You can either create new catalogs or add existing catalogs to the list in the Catalog Access window. If you add catalogs from previous Cumulus versions, you should migrate them to the current Cumulus format. The sections that follow describe how to provide catalogs to your workgroup using any of these routes.

Creating New Catalogs

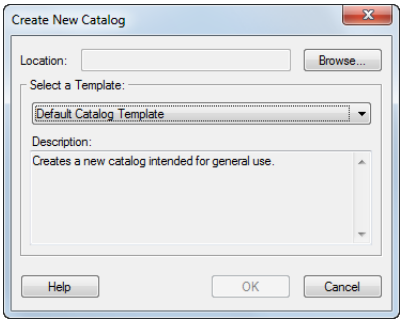
The first step in creating new workgroup catalogs is to create or note the location where they will be stored on the computer running the Cumulus Server. So if you haven't already done so, do that now.

Then you can log on to the Cumulus Server from any Cumulus Client and tell the Server where the catalog is to be stored and what you want to call it.

To create new catalogs for your workgroup:

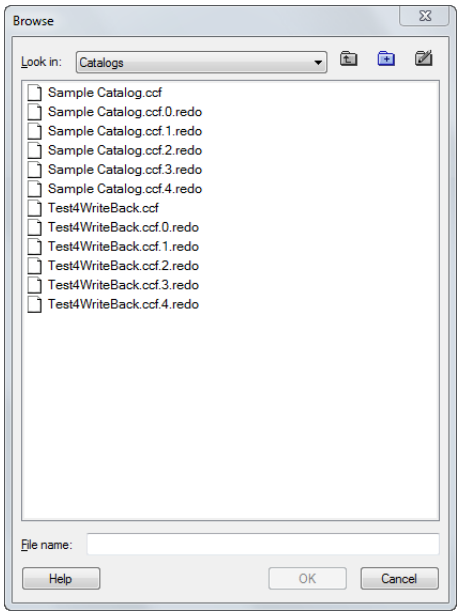
1. Log on as Cumulus Administrator to the Cumulus Server (see "Logging On as Cumulus Administrator," p. 16).
2. In the Catalog Access window, click **New**.

   The **Create New Catalog** window appears.



3. Click **Browse**.

   The **Browse** window appears:



4. From the **Look In** drop down menu, select the location where the new catalog shall be stored. (Only locations approved by the Cumulus Administrator are accessible.)
5. In the **File Name** field enter a name for the new catalog, then click **OK.**

   The **Browse** window is closed. In the **Location** field of the **Create New Catalog** window, the location and the name of the new catalog are displayed.
6. From the **Select a Template** drop down menu, select a template.. (For more information on catalog templates, see "Catalog Templates," p. 59).

7. Click **OK**.

The new catalog now appears in the catalog list of the Catalog Access window.

Adding Existing Catalogs

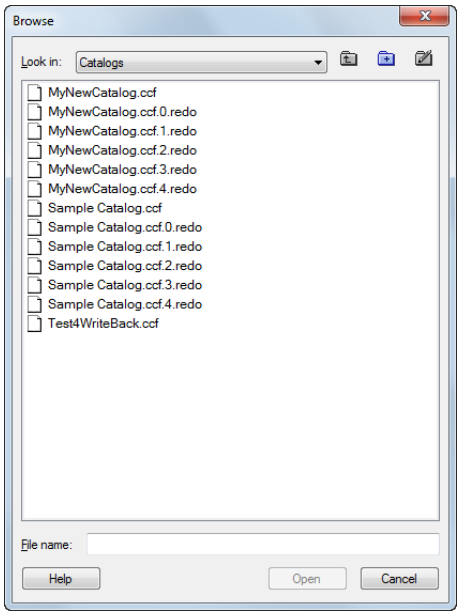
Catalogs to be administered by the Cumulus Server must be stored locally on the computer running the Server application Only catalogs stored in locations approved by the Cumulus Administrator can be used by Cumulus. So before you add a catalog for your workgroup, make sure that it is stored in appropriate location. You can then log on to the Cumulus Server from any Cumulus Client and tell the Server where the catalog can be found.

Catalogs created with Cumulus 6 versions can be used with Cumulus 8. Catalogs created with Cumulus versions earlier than 6 must be migrated before they can be used with Cumulus 8. (See "Migrating Catalogs," p. 67, for more information.)

To add an existing Cumulus catalog to the list:

1. Log on as Cumulus Administrator to the Cumulus Server (see "Logging On as Cumulus Administrator," p. 16).
2. In the Catalog Access dialog box, click **Add to List**.

   The **Browse** window appears.



3. If necessary, select the location where the catalog is stored from the **Look In** drop down menu

   Select the desired catalog file (.ccf) from the list an click **Open**.The added catalog appears in the catalog list of the Catalog Access window.

Your catalogs are now administered by the Cumulus Server and can be accessed by Cumulus Clients.

Catalog Availability

There are two levels of catalog access to keep in mind when managing user permissions:

- **Catalog availability** – Determines whether or not a catalog is available for sharing at all. If available, the catalog is available to every Client who connects to the Server, unless you define specific user access restrictions.
- **User permissions** – Determines how a catalog is shared. You can define which access permissions users have. (See "User Properties," p. 104.)

Making Catalogs Available

Just because a catalog appears in the list of catalogs administered by the Cumulus Server, it doesn't mean that it can be shared by your workgroup. You first have to make each catalog available before it can be accessed by Clients.

To make a catalog available to Clients in general:

1. Log on as Cumulus Administrator to the Cumulus Server (see "Logging On as Cumulus Administrator," p. 16).

   The Catalog Access window appears. You can see which catalogs are accessible to clients by selecting a catalog and noting whether the **Share Catalog** option is checked for that catalog.
2. Select the catalog you wish to make available to Clients and enable **Share Catalog**.

   A dialog asks you to confirm the change of the sharing status of the catalog in question.
3. Confirm the change.

The catalog is now available to every Client who has got the respective permissions, see "User Properties," p. 104.

Making Catalogs Unavailable

There are two ways to make a catalog unavailable to Clients. Both are done from the Catalog Access window. You can:

- *temporarily* deactivate it in the list of catalogs administered by the Cumulus Server by disabling **Share Catalog**.
- *permanently* remove it from the list of catalogs administered by the Cumulus Server by clicking **Remove from List**. The catalog is not deleted, but is no longer administered by the Cumulus Server.

To make a catalog unavailable to Clients in general:

1. Log on as Cumulus Administrator to the Cumulus Server (see "Logging On as Cumulus Administrator," p. 16).

   The **Catalog Access** window appears. You can see which catalogs are accessible to clients by selecting a catalog and noting whether the **Share Catalog** option is checked for that catalog.
2. Select the catalog you wish to make unavailable to clients and disable **Share Catalog**. A dialog box appears asking you to confirm the change of the sharing status of the catalog in question.
3. Click **OK.**

The catalog still appears in the list of catalogs administered by the Cumulus Server, but it is no longer available to be shared by Clients.

To remove a catalog from the list of catalogs administered by the Cumulus Server:

1. Log on as Cumulus Administrator to the Cumulus Server (see "Logging On as Cumulus Administrator," p. 16).

   The **Catalog Access** window appears.
2. Select the catalog you wish to remove from the list and click **Remove from List**.

   If the catalog to be removed is being used by a Client, a dialog box appears in which you can determine the length of time the Clients have before they will be disconnected. This dialog box also lets you send these Clients a message on the impending disconnection.
3. Click **OK.**

The catalog is removed from the list in the Catalog Access window, but is *not* deleted from the system.

Going On

As Cumulus Administrator, you are responsible

- for setting up these catalogs to meet the needs of your workgroup. To find out how, see "Managing Catalogs," p. 27.
- for creating Cumulus Client users and giving them the permissions for accessing catalogs and functions as it best suits your workflow. To find out how, see "User Properties," p. 104.
- for providing View Sets, Asset Handling Sets, Actions, and Metadata Templates to the Cumulus Client users that meet the specific needs of your workgroup. To find out how to define these sets, see the Client User Guide.
  The Cumulus Administrator can also give other Client users the permissions to define these items. Since Cumulus 6.5, you can have users with very individual permissions. For example, you can have users who have the permissions to define shared Asset Handling Sets or the permissions to define shared View Sets and others who are allowed to do both. This enables big organizations to delegate these tasks to different users, e.g. from different departments. However, as the Cumulus Administrator knows best about the fields included in the catalogs, it's also the Cumulus Administrator who knows best how to set up View Sets that meet the specific needs of the workgroup and fit the catalogs used by the workgroup. Again it's the Cumulus Administrator who knows best about the Asset Handling modules that are used by the workgroup and that's why the Cumulus Administrator is the one who knows best how to set up Asset Handling Sets that are ideal for the workflow. The same goes for Actions and Metadata Templates. However, since Cumulus 6.5, it is up to you either to take over these tasks yourself or to train other users so that they can take on these tasks.
- for configuring messages sent by the mail notification function.

Configuring Mail Notification Messages

Standard messages for the Mail Notifier are contained in the **MailConfig.xml** configuration file, which is located in the **conf** folder inside your Cumulus Server installation folder.

The configuration file contains pre-configured messages. You can easily change the wording and content of these messages. Just follow the instructions given in the comments of the **MailConfig.xml** file.

Default User Settings

However, the Cumulus Administrator has all permissions by default and is the only one who can define the User Settings before other Cumulus Client users start working with a new Cumulus installation. This is possible because all settings are centrally stored at the Cumulus Server. The Cumulus Server installation folder includes a **conf** folder that houses folders where the settings are stored. The Users folder holds the individual folders of Cumulus Clients (named as their login names) where their individual settings are stored. The Server folder holds the shared settings that can be used by all Cumulus Clients.

When a Client user logs in to a new Cumulus installation for the first time, all settings are taken from the DefaultUser folder. However, only then, as with logging in for the first time, an individual folder is created in the Users folder for each Client user to store her/his individual settings. When logging in next time, the settings from this individual folder will be taken.

Customizing Default User Settings

In case the Cumulus Administrator wants the Client users to have initial User Settings that differ from those Canto provides, there is an easy way to prepare this before a Client user logs in for the first time.

In order to do this, log in as Cumulus Administrator and define the User Settings as you want them to be for Cumulus Client users to start with. Then save them and close the Preferences windows (or even quit the Cumulus application). The User Settings are stored in the Cumulus Administrator's folder (default: **cumulus**) inside the Cumulus Server installation folder, e.g

..\Canto\Cumulus Enterprise Server\ conf\Options\Users\%7b98ca1422-0171-4d1d-8b84-8cdda4ab70ae%7d\cumulus or

/usr/local/Cumulus_Enterprise_Server/conf/Options/Users/%7b98ca1422-0171-4d1d-8b84-8cdda4ab70ae%7d/cumulus

Then copy the ModulePreferences.xml & ModulePreferences.pack files from the this folder to the folder of the default user (named **defaultuser),** e.g.

..\Canto\Cumulus Enterprise Server \conf\Options\Users\ %7b98ca1422-0171-4d1d-8b84-8cdda4ab70ae%7d\defaultuser or

/usr/local/Cumulus_Enterprise_Server/conf/Options/Users/%7b98ca1422-0171-4d1d-8b84-8cdda4ab70ae%7d/defaultuser

NOTE:

Do not copy any possibly existing collections.xml file! Collections can not be duplicated this way.

> **TIP: Copying the User Settings of a Selected User for Other Users**
> The User Manager module offers a function that lets you copy user settings from one user to another. In that case the User Settings for the Cumulus application as set in the Preferences window are copied. For details see "Copying User Settings," p. 126.

Default User Settings with Roles

If you employ the role-based mode of the User Manager, Cumulus offers the possibilty to provide different initial settings for the different roles. Each role created with the User Manager has its own folder located in the **Users** folder, and if a user assigned to certain roles logs in for the first time, she/he will get her/his indivudual user folder which contains the settings provided by the role's folder. If the role's folder does not contain certain settings they are taken from the Default-User folder. If a user is assigned to more than one role, the settings from the assigned roles will be added and merged before copied to the indivudual user folder.

To make use of this feature you must copy the desired settings (e.g. ModulePreferences.xml & ModulePreferences.pack) to the roles' folders.

This section describes how to set the catalog settings to suit your needs and offers some suggestions for effective cataloging strategies, also it covers some catalog maintenance issues.

Managing Catalogs

Catalog Settings

Fundamental changes can be made to each catalog by modifying its settings. These settings have no effect on catalogs other than on the one for which they are set. It's important to consider a catalog's settings when the catalog is new, *before* you add records to it.

PRECONDITIONS To modify a catalog's settings, you must have the appropriate Administrator permissions (**Permissions > Administrator Permissions > Modify Catalog Settings**.) To view a catalog's settings, you must have the appropriate Administrator permissions (**Permissions > Administrator Permissions > View Catalog Settings**.)

To access the settings of a catalog:

1. Make sure the collection window containing the catalog is the active window in Cumulus. If you have more than one catalog opened in the active collection window, the Catalog Settings window provides a list from which you can select the catalog you want to modify.
2. Select **Cumulus** / **Edit > Preferences**.
3. Click **Catalog Settings**.

   The Catalog Settings window is displayed. If the active collection window contains more than one catalog, select the catalog you want to modify under **Catalogs**.

   The settings for the selected catalog are displayed in the Catalog Settings window.

The Catalog Settings window controls several important factors that come into play while managing assets. The options are divided into the following sections:

- **General** – Catalog location and name, sharing options and options on a central location for the assets.
- **Record Fields** – Displays the record fields that the catalog contains. You can add or delete fields and customize selected fields. This allows you to organize the information that can be stored on an asset in its record. Remember, metadata retrieved from assets while cataloging can only be stored if the corresponding record fields are included in the catalog.
- **Category Fields** – Displays the category fields that the catalog contains. You can add or delete fields and customize the fields.
- **Mirroring** – Displays the current mirroring settings for the catalog. You can activate mirroring and define the database that serves as the mirror. (For more information on mirroring, see "Database Mirroring," p. 54.)
- **Permissions Summary** – Shows what permissions each user or role has for the catalog. You can only view the information, for editing you have to employ the User Manager of the Server Console.

See "Overview: Catalog Settings", below, for an overview of the options available from this window.

Overview: Catalog Settings

The Catalog Settings window has three sections that provide access to each of its options. The options that are set from this window are specific to the active/selected catalog. They have no effect on other catalogs.

General Section

Catalog

1 *Catalog file name, as seen from the Windows desktop/ Mac OS Finder (not editable from here).*

2 *Catalog name. Defaults to file name, can be changed. (See "Renaming Catalogs," p. 65, for details. Note that catalogs cannot be renamed while set to use the Cumulus Vault in **Always and Exclusive** mode.)*

3 *Displays the catalog format*

4 *Displays the catalog size (actual size/maximum size).*

5 *Prevents the creation of new categories that share names with existing categories.*

6 *Activates journaling for the catalog. (See "Journaling Catalogs," p. 53)*

IMPORTANT! *Do not employ journaling and mirroring for the same catalog! Use one of the mechanisms depending on how the catalog is used.: (See "Securing Catalogs," p. 52, for more information.)*

Sharing

7 *Enabling this option makes a catalog available to Cumulus Clients.*

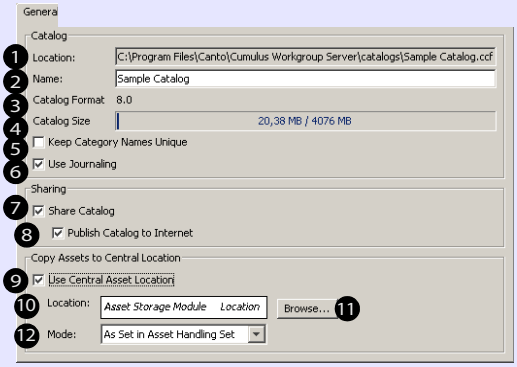
8 *Enabling this option is the first step to publishing a shared catalog on the Internet.*

Copy Asset to Central Location

9 *If activated, newly cataloged assets can or will be copied to the selected Central Asset Location – depending on the selected mode.*

10 *Displays the selected Central Asset Location*

11 *Opens a dialog for selecting the Central Asset Location.*



12 *Opens a dialog for selecting the mode for copying asset to the Central Asset Location.*
– ***As Set in Asset Handling Set*** *– the Asset Handling Set employed for cataloging decides if assets are copied to the selected Central Location.*
– ***Always*** *– Assets are always copied to the selected Central Location, regardless of the Asset Handling Set settings.*
– ***Always and Exclusive*** *– Assets are always copied to Vault and their asset storage location is Vault exclusively. (This option is available only if Vault is selected as Central Asset Location.)*

NOTE: *Duplicates control with Central Asset Location!*
For controlling duplicates with Central Asset Location activated, the record fields Original Asset Identifier, Original Asset Name and Original Asset Reference are required. You have to add these fields to catalogs with Central Asset Location activated if you also want duplicates control.

Record and Category Fields Section

1 *Field name.*

2 *Field type.*

3 *Overview on how the field is used for sorting and searching.*

4 *Overview on whether the user may edit the content of the field. Checkboxes may be activated/deactivated directly.*

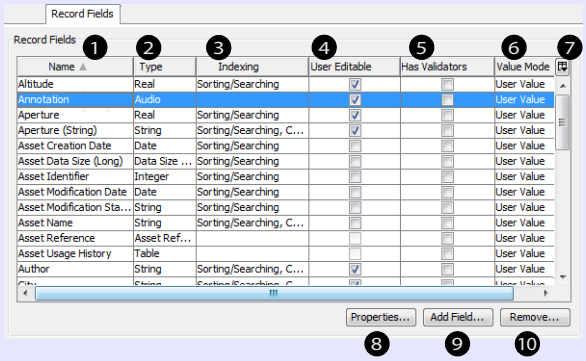
5 *Overview on whether a field is a mandatory field, or whether the field value is checked by a validator. Checkboxes for display only!*

6 *Overview on the value mode*

7 *Opens a menu for selecting the columns to be displayed on this tab.*

8 *Opens dialog for defining field properties. For details see "Overview: Field Properties," p. 35.*

NOTE: *Catalog Name, Record ID and Category ID are so-called virtual fields. These fields are meant to be used for display and processing purposes only. Therefore you cannot define their properties.*



9 *Opens dialog for selecting the field to be added.*

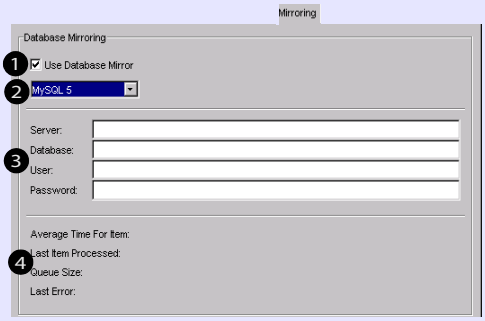
10 *Removes the selected field from the list.*

Overview: Catalog Settings

Mirroring Section

IMPORTANT! *Do not employ journaling and mirroring for the same catalog! Use one of the mechanisms depending on how the catalog is used.: (See "Securing Catalogs," p. 52, for more information.)*

1 *Activates mirroring for the catalog. (See "Setting up a Catalog for Mirroring," p. 57)*
2 *Selects the database system used for mirroring the catalog.*
3 *Defines the actual database used for mirroring the catalog. The displayed fields depend on the on the selected database system.*
4 *Displays information on the actual mirroring process.*



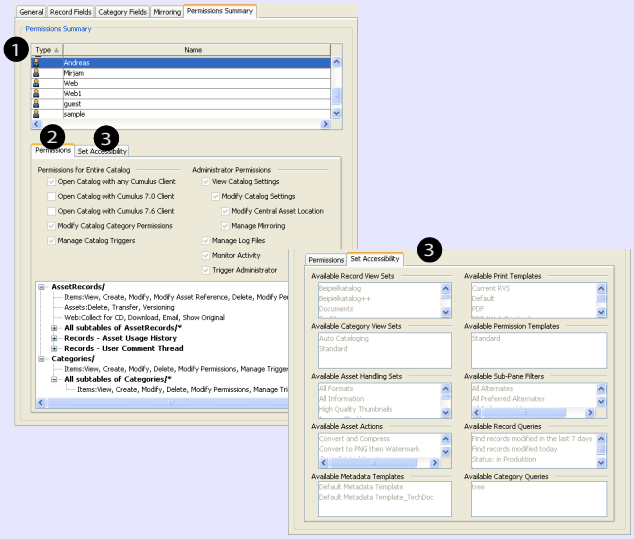
For more information on mirroring, see "Database Mirroring," p. 54.

Permissions Summary

Shows what permissions each user or role has for the catalog.

NOTE: *You can only view the information, for editing you have to employ the User Manager of the Server Console.*

1 *Lists the users and roles managed by the Cumulus Users catalog.*
2 *Displays the permissions the above selected user/role has for the catalog.*
3 *Displays the sets, actions, queries, and templates available for the above selected user/role with that catalog.*



Employing a Central Asset Location

A Central Asset Location is a single storage location used to store specific digital assets. Employing a Central Asset Location ensures your assets remain accessible to all, and can more easily be accounted for. Cumulus lets you choose between different types of Central Asset Locations:

- *File System* – Any standard file system location can be used as a Central Asset Location. The most common example is a network file server. This type is supported by the Asset Storage Modules for the operating systems.
- *Internet (FTP) Servers* – If you need to keep files accessible from an Internet FTP server, you can choose an FTP server as Central Asset Location. This option is less popular for works-in-progress because of performance and other limitations associated with this type of server access; but when archiving assets, this option can be ideal. This type is supported by the URL AssetStore.
- *Cumulus Vault* – This type provides asset check in/out and version control services not available with the other two types. The file system on the Vault Server machine physically stores the assets kept in the Vault, but Cumulus Vault controls access to the files, which enables it to offer these advanced services not available when using the file system directly. This type is supported by the Vault AssetStore.

A Central Asset Location is chosen as a catalog property setting. Each catalog can have its own Central Asset Location. What the best choice is depends on how the catalog is used. For more best practice information on Central Asset Locations, see the tutorial "Understanding Central Asset Locations in Cumulus" from Canto's "Exploring Series."

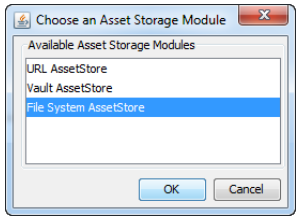
PRECONDITIONS: To set up a Central Asset Location for a catalog, you must have the appropriate Administrator permissions (**Permissions > Administrator Permissions > Modify Central Asset Location** (option for the Modify Catalog Settings permission.)

To configure a catalog to employ a Central Asset Location:

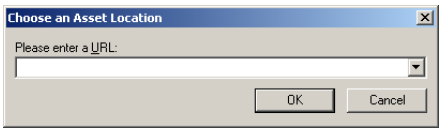
1. Make sure the collection window containing the catalog is the active window in Cumulus.
2. Select **Cumulus** / **Edit > Preferences**.
3. Click **Catalog Settings**.

   The Catalog Settings window is displayed. If the active collection window contains more than one catalog, select the catalog you want to edit under **Catalogs**.
4. Click **General**.
5. Under Copy Assets to Central Location, enable **Use Central Asset Location**.

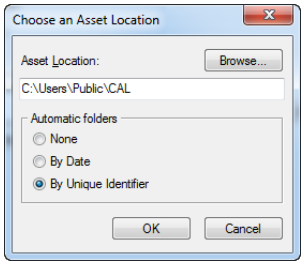
   The next step is to choose where to store the copies and which Asset Storage module you want to use.
6. Click **Browse**. The Choose an Asset Storage Module dialog opens.



7. Select the desired module and click **OK**. The next steps depend on the selected module:
   - Selecting the **URL AssetStore** opens a dialog for entering a URL.



     Enter a valid URL of an existing FTP directory and click **OK**.
   - Selecting a **File System AssetStore** opens a dialog to select a folder. Browse for the folder you want the asset to be stored in and then click **OK**. A further dialog appears offering options for the automatic creation of subfolders:

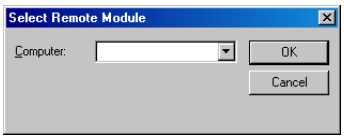


     None: All cataloged assets are stored in the same folder

     By Date: Subfolders are created on a daily basis. Assets cataloged on the same day are stored in the same folder. If two or more assets have identical file names, a unique identifier will be added to the file name.

     By Unique Identifier: Every cataloged Asset gets it's own folder and unique path where it is stored within the Central Asset Location.

     Select the desired option and click **OK**.
   - Selecting the **Vault AssetStore** opens the Select Remote Module dialog.



     Select the computer running the file system or the Vault Server from the **Computer** field. Your next step is to decide whether you want the assets to be stored directly in the folder of the Vault Server or in a subfolder nested in the Vault Server folder. Such a subfolder is called a Vault Folder.

     Select the desired option. If you decided on **Use Vault Server Directly**, your next step is to click **OK**.

     If you decided on **Use Vault Folder**, the list for selecting this folder is activated. Then your next step is to select the Vault Folder you want the asset to be stored in and click **OK**.

     NOTE: *If a catalog is set as exclusive for a Vault Folder this folder cannot be used as a central asset storage location for any other catalog. If you want a catalog to be set as exclusive, you have to create a new Vault Folder for it.*
8. Select the mode for copying assets to the central asset storage location chosen above. The mode determines when the Central Asset Location is used:
   - **As Set in Asset Handling Set** – the Asset Handling Set employed for cataloging decides if assets are copied to the selected Central Location.

- **Always** – Assets are always copied to the selected Central Location, regardless of the Asset Handling Set used.
- **Always and Exclusive** (available with Vault AssetStore only) – Assets are always copied to Vault and their asset storage location is exclusively Vault.

9. Click **Apply** to save your changes and select the next catalog you want to set up for a Central Asset Location.
   OR
   Click **OK** to save your changes and close the Preferences window.

When users catalog assets to this catalog from now on, the asset can be copied or will be copied to the selected Central Asset Location.

NOTE: Central Asset Locations and Asset Handling Sets

Every Asset Handling Set that is to be used with a Central Asset Location (for cataloging or access), must be configured with the Central Asset Location's corresponding asset storage module activated. So, activate the Mac OS and Windows AssetStore modules for file system locations, the URL AssetStore for FTP locations and the Vault AssetStore for Vault locations.

Customizing Field Properties

The properties of a catalog field can be extensively customized. You can define:

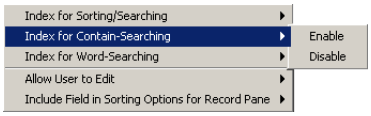
- whether the field can be edited
- whether the field values should be based on formulas
- whether the visibility of the field is restricted, and to which users or roles
- whether and how the field is indexed for sorting and searching
- whether and how the record field is linked with the asset and its metadata fields
- and whether string fields support multiple languages

To access the properties of a record field:

1. Make sure the collection window containing the catalog is the active window in Cumulus.
2. Select **Cumulus** / **Edit** > **Preferences**.
3. Click **Catalog Settings**.
   The Catalog Settings window is displayed. If the active collection window contains more than one catalog, select the catalog you want to edit under **Catalogs**.
4. Click **Record Fields** or **Category Fields**. This displays a list of the current record or category fields included in the catalog.
5. Select the entry for the field whose properties you want to change.
6. Check the **Sorting**, **Contain Search** and **User Editable** options for the field and activate the desired options. (See "Record and Category Fields Section," p. 29, for all available options.)
7. Click the **Properties** button. This brings up a dialog in which you can set the properties for the field. The properties depend on the field type. (See "Overview: Field Properties," p. 35, for all available options.)
8. Define the properties as you want them.
9. Click **OK** to close the Field Properties window. This brings you back to the fields list.

TIP: Editing Field Properties of Multiple Record Fields At Once

Certain field properties can be activated or deactivated for multiple fields at once. On the record fields list, select the fields and use the alternate (right) mouse button to open a context menu. The menu options match the field properties you can (de)activate for multiple fields at once.



Selecting a menu item opens a submenu that offers **Enable** and **Disable** options. Select the desired option and the field property will be enabled/disabled for your selection of fields. If your selection of fields includes a field type that does not have the selected property, this field will just be ignored.

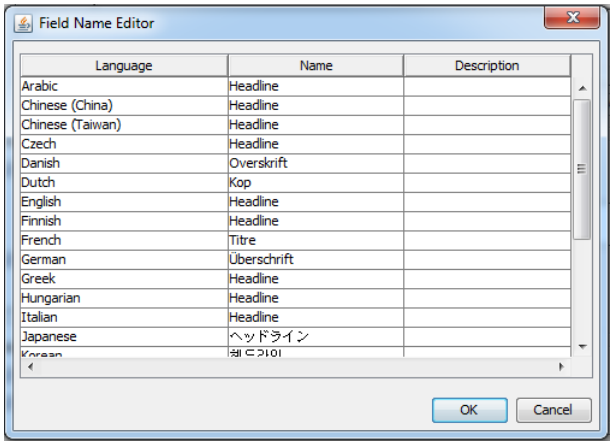
Editing Language-Specific Field Names

The names of fields as they are shown in the user interface (also known as display names) may be translated to different languages, in order to have them displayed in the language of the application or the preferred language, respectively. The names of the fields provided by Canto are already translated in several languages.

To edit language-specific names of a field

1. Open the **Properties** window of the field which display names you want to edit.
2. Click the … button to the right of the **Field Name** field.

   The **Field Name Editor** window appears.



3. Edit the Name fields for any desired language. Optionally, add a description in the respective language.

   If a description exists, an info icon is displayed next to the name of the field in Info View, Info Window and Info Pane. Hovering the cursor over this icon will reveal the description in a tool tip.
4. Click **OK.**

   The language-specific field names are changed accordingly.
5. If you are editing names of a multilingual field, you will additionally be asked whether you want to apply your changes to all additional languages. It is

strongly recommended to do so in order to keep the names of the multilingual fields consistent in all languages.

6. Click **Yes** to apply your changes to all languages.

Example: The following table shows the display names of the multilingual field **Headline** as used in the user interfaces (UIs) of different languages. In addition to the field in the base language, multi language fields comprehend one extra field for each language enabled. To view or edit the content of these field, they must be added to View Sets, either individually or in any desired combination.

The base language of the field in this example is English; it is set to support two additional languages (German, French).

	English Field	German Field	French Field
Display Name in the English UI	Headline	Headline (German)	Headline (French)
Display Name in the German UI	Überschrift (Englisch)	Überschrift	Überschrift (Französisch)
Display Name in the French UI	Titre (Anglais)	Titre (Allemand)	Titre

Overview: Field Properties

The Field Properties window reflects the field type. Most properties are the same but certain field types, e.g. an Audio field cannot be used for indexing and an initial value does not make any sense. That's why the properties dialog for this field type does not provide these fields.

General Tab

Field Properties

1 *Field name. You can use this field to edit a field's name.*

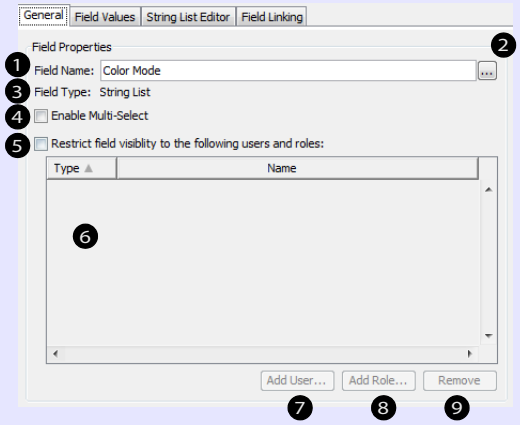
2 *Opens the Field Name Editor to enter/edit the display names and, if desired, descriptions of the fields in other languages. Language-specific names will be displayed according to the selected application language. The according field description will be displayed as the field's tool tip in the information window, information view and information pane. Useful in multilingual environments. (See "Editing Language-Specific Field Names," p. 34)*

3 *Displays the Field type.*

4 *With String List Fields only: If activated, the users can select multiple values for this field in the Info View or the Information window. The values are displayed with check boxes.*

NOTE: *Whether this option is activated or not influences the available indexing options. If activated, the field can be indexed for contain-searching but not for sorting.*

5 *If activated, the visibility of the field is restricted to the users (and roles, if your Cumulus runs in role mode) specified here. Click the appropriate button (**Add User** or **Add Role**. Note that the Add User button is available only if you have the Browse for Users permission.) These buttons open a corresponding dialog. For adding users, you can search for available users. The possible search criteria depend on the authentication method (see above).*



NOTE: *Field visibility can not be restricted for users or roles with the "Modify Catalog Settings" permission. Such users/roles always can see all fields.*

6 *List of the users /roles which are allowed to see the field.*

7 *Opens a dialog to search for users and add them to the list.*

8 *Opens a dialog to select roles and add them to the list.*

9 *Removes selected users from the list.*

Overview: Field Properties

Indexing

The options available depend on the field type.

10 Field can be used for sorting and searching. (Equivalent to the Sort/Search check box in the Field List column.)

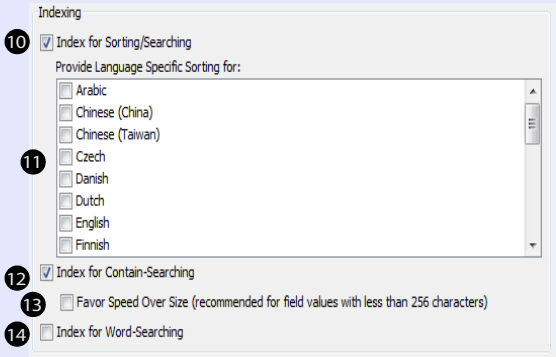
11 The index for sorting records can be set language dependent. Depending on the language selected for running the Client application the sorting will follow the rules of the language. Activate the languages your users run the Client application in. Then a language specific sorting index will be created for each of the selected languages. And if the Client application is started in one of these languages, a language specific sorting of records can be provided.

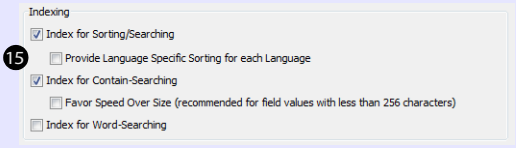
NOTE: *This applies to fields without multiple language support. For Fields with multiple language support enabled, refer to no 15!*

12 Field can be used for searching by means of the operators "contain" or "doesn't contain." (Equivalent to the Contain-Search check box in the Field List column.)

13 If activated, searching the contents of String fields can be speeded up significantly. Use this option with care because it enlarges the catalog size. The optimization of the search index requires more memory in the catalog and therefore activating this option is only recommended for fields with little data content.

14 If activated, Cumulus provides an additional search function for the Find window and the Advanced Find window. You can search for whole words, not just for matching strings. Enclose the word you are searching for in single quotation marks and Cumulus will only find the records that contain the exact word.





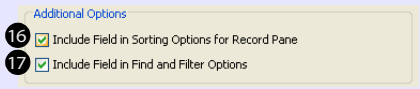
*For example searching for **copy** will find records containing the words **copy** as well as **copyright**, **copyhold**, **copyfree** and so on. Searching for **'copy'** will find records containing the word **copy** only*

15 Only when multiple language support is enabled: If activated, Cumulus provides language-specific sorting of records for all languages enabled under the Languages tab.

Additional Options

16 Field will be included in the Record pane's drop-down list for sorting

17 Field will be offered as search criteria in the drop-down lists of Find windows and filter definitions.



Overview: Field Properties

Field Values Tab

The values of fields can either be defined by the user or be based on formulas.

1 *If activated, the field value can be defined by the user.*

2 *Fills the field with an initial value (as defined in the field to the right). (See "Initial Value for Fields," p. 39, for details.)*

3 *Allows a user to edit the field contents. (Equivalent to the User Editable check box in the Field List column.)*

4 *If activated, the field must be filled with a value when metadata are edited. In the Information window or view, empty mandatory fields are marked with a special icon and a validator pane is displayed. Changed metadata can only be saved if all required fields are filled in. (For details, see "Mandatory Fields," p. 39.).*

5 *If activated, the content of the field must match certain criteria, depending on the type of the field; either a defined regular expression (string fields), or specific values (fields that contain numbers and dates).*

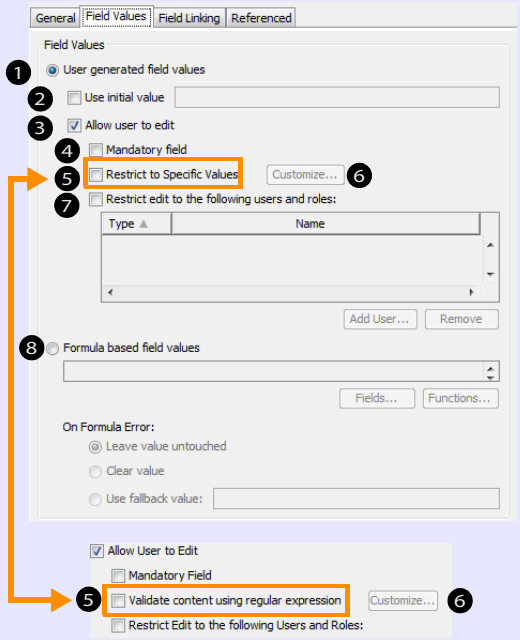
6 *Opens a dialog to specify a regular expression (string fields) or specific values (fields that contain numbers and dates) to be used as validators for the field content.*

7 *With Cumulus Enterprise or permissions add-on products only:*

*The **Allow User to Edit** property is enhanced by the option to restrict editing to specified users and roles only. If the **Restrict Edit** option is activated, you must add those users to the list you want to permit editing the field. Click the appropriate button (**Add User** or **Add Role**. Note that the Add User button is available only if you have the Browse for Users permission.) These buttons open a corresponding dialog. For adding users, you can search for available users.*

*The possible search criteria depend on the authentication method (see above). Default search criteria is the login name. Enter the search value (a string) and click the **Find** button. The result of this search is listed below. Select the user(s) you want and click **OK**. The users are added. When adding roles, Cumulus will list the available roles. Select the role(s) you want and click **OK**. The roles are added.*

8



9 *If activated, the field values are based on the formulas defined below. For details on how to define such formulas, see "Field Formulas," p. 40.*

String List Editor Tab

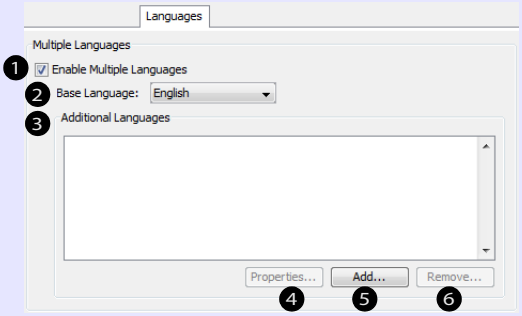
This tab is provided for String List fields only. See "Editing a String List Field," p. 49, for details.)

Overview: Field Properties

Languages Tab (String Fields only!)

Multiple Languages

The contents of string fields may be kept in more than one language. This is especially useful in multilingual environments, e.g. to provide image captions in several languages.
For each additional language, a new field is introduced to the catalog. However, these fields are not visible in the Record Fields tab or the Category Fields tab of the preferences dialog, but only from within the properties of the base field.
Language-specific fields may be selected for display in Record View Sets, e.g. to provide different view sets for different languages, or to display information in different languages simultaneously.
If multiple languages are enabled, Cumulus may be configured to display the field contents in the language that is specified for the client application. If no language field corresponding to the client language can be found, the specified base language is used instead.



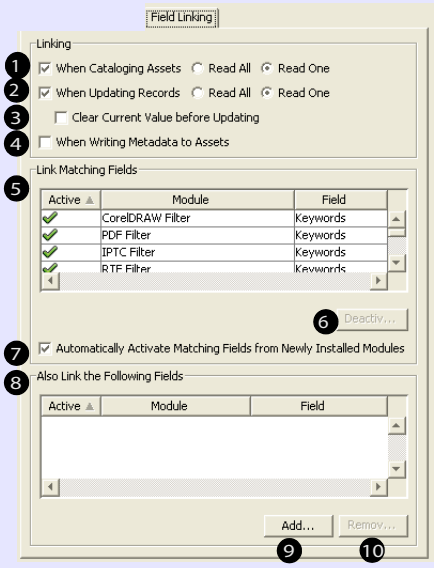
1 *If activated, the content of the field may be kept in more than one language.*
2 *Displays and allows to specify the base language*
3 *Displays all specified languages for which sub-fields are introduced.*
4 *Opens a dialog for defining properties for the selected language-specific sub-field.*
5 *Opens a dialog to select one or more additional languages for which a sub-field is introduced.*
6 *Removes selected languages from the list, and sub-fields from the catalog.*

TIP: *You may easily check which fields are configured for multiple language support. Just have the **Multilingual** column displayed on the Record Fields tab or the Category Fields tab (see "Record and Category Fields Section," p. 29). Multilingual fields show an activated checkbox.*

Field Linking Tab

Linking

1 *When cataloging assets, the selected record field will be filled automatically. (Read One: only the first matching field will be used).*
2 *When updating records, the selected record field will be filled automatically. (Read One: only the first matching field will be used).*
NOTE: *Do not activate this option if you want to keep the additional information you have entered.*
3 *Before updating records, existing values will be removed from the selected record field. Allows to refresh the field's contents from new asset values, without accumulating unnecessary metadata in the field.*
4 *Any changes in field contents will be written back to the asset, if the file format and the filter for the asset format support this function and if **Always** or **Silently** is enabled under Writing Metadata to Assets in the Asset Handling Set used.*
NOTE: *Only if this option is activated for IPTC fields the IPTC information edited in Cumulus can be written back.*



Link Matching Fields

5 *List of fields with the same GUID (globally unique identifier) or name and type that can fill data into the record field. If activated the asset field will fill the record field.*
6 *Activates/deactivates the selected field for matching.*
7 *If a new Filter module is added that provides any matching fields, these fields will be added and activated automatically.*

Also Link Following Fields

8 *List of fields that are also linked. Use the Add/Remove buttons to add/remove fields to/from this list.*
9 *Opens a dialog to select the field to be added.*
10 *Removes the selected field from the list.*

Referenced Tab

.Provides an overview of the View Sets, Metadata Templates and Print Templates that bear a reference to the field.

Defining Field Values

The values of fields can either be defined by the user or be based on formulas. If defined by the user, a field can have an initial value and you can allow users to edit it or even force them to edit it (mandatory fields).

Initial Value for Fields

To add a default text to a field (e.g. the Notes field) of all newly cataloged assets in a certain catalog, you have to enable the option **Initial Value** for the field and enter the text you want to have as default. If the asset's metadata already contain a value for this field, the initial value will be ignored.

As the initial value of a String List field must be one of the terms you entered for the String List, you do not enter the initial value but select a term from the list provided when clicking the ... button next to the field.

The initial value of a Boolean field is "false" if the **Active** option is not checked. If you activate this option, the initial value is set to "true".

Mandatory Fields

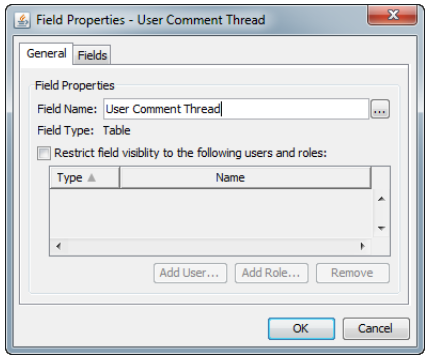
If the **Mandatory Field** option is activated for a field, the field must be filled with metadata when the metadata are edited. If windows or views which allow the editing of metadata contain empty mandatory fields, these fields are marked with a special icon and a validator pane is displayed at the bottom of the Information Window or Information View. Changes to the metadata can only be saved if all required fields are filled in.

The **Mandatory Field** option is available for the following field types: Data Size, Date, Date Only, Integer, Label, Length, Long, Rating, Real, Resolution, String, String List, Time Only.

NOTE: *With automatic cataloging the mandatory option attribute is not considered valid but as soon as a user edits any metadata of a record that includes an empty mandatory field and is going to save the changes, a message reminds him/her when the record is saved.*

Table Fields

Table fields are special field type that can include other metadata fields. The properties of Table fields differ from other field types.



This field type serves as the basis for the statistics and commenting available in Cumulus, and can serve as the foundation for new capabilities. For more information on Table fields, contact Canto.

Field Formulas

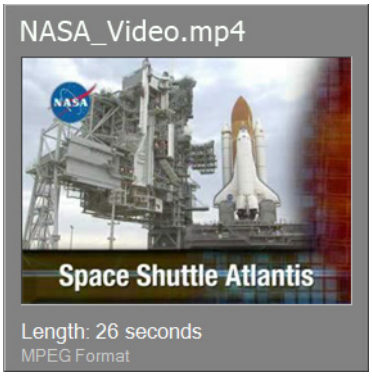
Cumulus field values can be determined by formulas that are authored as part of a field's properties. A formula can be as simple as the concatenation of two field values into a single string, or as complex as if-then decision making.

Formulas can be assigned to record and category fields. Values for existing records and categories are calculated (or recalculated) when the record or category's metadata is saved after an edit. Formulas are executed during cataloging operations for newly created asset records and categories.

Field formulas offer many significant benefits:

Metadata display versatility Used in conjunction with "display only" metadata fields you add to your catalogs, field formulas enable you to provide users with data displays formatted in more meaningful ways.

Example: A video's Duration field might contain the value "25.566." Even when displayed using the field's label, the user sees "Duration: 25.566," which could be more clear. A simple field formula can round that value and display it with adjacent strings that tell a more complete story: "Length: 26 seconds."



This also permits you to do away with including field name labels in thumbnail views by adding labels only to the fields that need them. In the image shown, neither the asset record name (top) nor the format field (bottom) require field name labels because their values make clear what the field is used for. By using a formula to make the Duration field's value more clear, three lines of vertical space are saved that would ordinarily be required for field names.

Another usage example would be to combine the values of the fields *Horizontal Pixels, Vertical Pixels* and the appropriate resolution field to provide a single line of commonly used information:

"2400 x 1200 @ 300 DPI"

This single formula, applied to the properties of a string field you add to your catalog, saves you a full 5 lines of vertical space in your thumbnail display. The added string field ensures that each field's original value remains intact.

Calculations Field values can be calculated to provide useful, searchable metadata values that would not otherwise exist in your catalogs without manual data entry. Example: say you have a field for *Cost Per Use*. Another field, *Times Used,* tracks how many times you've used the particular asset. A third field, *Total Cost of Use,* uses a simple multiplication formula to offer a sum of the total costs associated with the asset.

Workflow monitoring and guidance Field formulas can also set values in asset records that are later used as "flags" by managers, Live Filtering or Scheduler actions for further consideration.

Metadata Write-back Flexibility The flexibility of the Cumulus architecture makes it possible (and easy) to use metadata taxonomies and field types that cannot be written back to assets because of the "string only" limitation of most metadata standards. You can circumvent this limitation in many cases by using formulas in conjunction with Cumulus's Field Linking. By adding special "metadata write back" fields to your catalogs, you can add formulas that concatenate the contents of several fields (or fields with data types incompatible with write-back operations, such as string lists) and "field link" them for write-back to your assets.

Category information not conventionally available Categories don't have automatic creation or modification date fields associated with them. In addition, there is no conventional way to determine which user created a category, or last modified its metadata. Field formulas make it possible (and easy) to track all this information and more.

Generate printer-friendly reports Setting up formula-filled fields that you use on print templates offers you a great way to output metadata in formats suitable for review by others. Formulas enable you to combine metadata fields that would otherwise be "report hostile," such as string lists, Booleans, and labels and ratings, into strings that fit nicely onto printed pages. Formulas also enable you to manipulate metadata that you intend to export from Cumulus for use in other systems.

Syntax Overview

A field formula is an expression that returns a single value, which can be of type *number, real, boolean, string, date, date only* or *time only*. The constant value *null* can also be returned to represent an empty field value.

When applying operators on two values of different types, one or both values are converted into a compatible type. Example: ("Cumulus " + 7.5) results in the string "Cumulus 7.5" because 7.5 is converted to a string before the + operator is applied.

If an error occurs, the field's value is set according to settings you determine while authoring the formula. (See "Multiplying the values of two catalog fields," below, for details.) If no error occurs, the resulting value is automatically converted to match the field's type.

The arithmetic operators available are a subset of those available in programming languages such as C, Java, or Java Script.

Formal Syntax

```
expression = bool_expression [ "?" expression ":" expression ]

bool_expression = { "!" bool_expression } | { comparison [ { "||" | "&&"
} bool_expression ] }

comparison = expression { "<" | "<=" | "==" | "!=" | ">=" | ">" }
expression

calculation = expression { "+" | "-" | "*" | "/" | "%" } expression

factor = function | value | true | false

function = identifier "(" [param [ "," param ] ] ")"
```

Function Reference

The Cumulus formula editor includes an in-line help reference that describes each function and how it can be used. The functions available may increase with each release of the software, so to be sure the information available is up to date, no function overview is provided in this guide.

See "In-line Help," below, for details.

Formula Examples

The following formula examples rely on specific catalog fields. If using these formulas in your catalogs, make sure you substitute the same field names with fields from your own catalogs.

Adding text labels, formatting output and rounding numeric values

Catalog field: *disp_Duration (String)*

```
"Length: " + String(fieldValue("Duration") , "%.1f")+ " seconds"
```

Duration field value: 3.467

Output: "Length: 3.5 seconds"

This formula takes the *real* value in the catalog's Duration field, rounds it to a single decimal place, and surrounds the resulting value with text strings.

The `"%.1f"` portion of this formula will be familiar to those who have worked with the `printf` function available in many programming languages. Cumulus supports the following `printf` formatting options:

Data Type	Supported	Example
String	s	%-20.20s
Integer	d, I, o, u, x, X	%d
Real	e, E, f, g, G	%5.2f

In addition, you may use the new line escape character "\n" within a string to force a line break where needed:

```
"Vertical: " + fieldvalue("Vertical Pixels") + "\n" +
"Horizontal: " + fieldvalue("Horizontal Pixels")
```

Multiplying the values of two catalog fields

Catalog field: *disp_Megapixels (String)*

```
fieldvalue("Horizontal Pixels") * fieldvalue("Vertical Pixels") /
(1024*1024) + " megapixels"
```

Horizontal Pixels field value: 3456

Vertical Pixels field value: 2304

Output: "7 megapixels"

This formula multiples the values of the Horizontal Pixel and Vertical Pixel fields, divides that value by 1,048,576 in order to get the number of megapixels in an image, and appends that value with a text string that describes the result.

If-then decision making

Catalog field: *disp_Orientation (String)*

```
(fieldvalue("Horizontal Pixel") == null || fieldvalue("Vertical Pixel")
== null) ? "N/A" : ((fieldvalue("Horizontal Pixel") >
fieldvalue("Vertical Pixel")) ? "Landscape" : (fieldvalue("Horizontal
Pixel") < fieldvalue("Vertical Pixel") ? "Portrait" : "Square"))
```

Horizontal Pixels field value: 2400

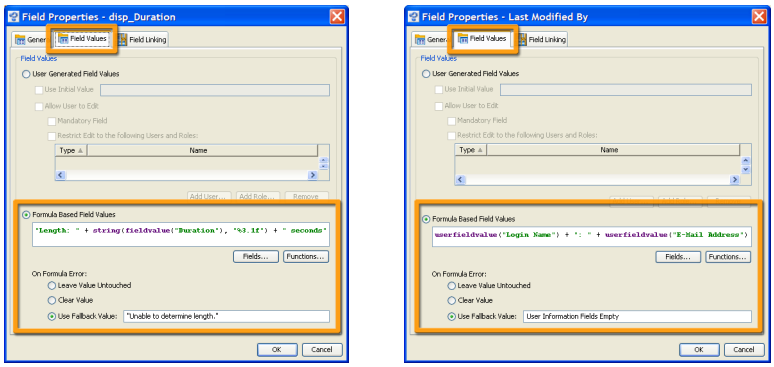
Vertical Pixels field value: 1200

Output: "Landscape"

This formula compares values found in the Horizontal Pixel and Vertical Pixel fields. If the Horizontal Pixel value is larger, the image is determined to be "Landscape." If smaller, it's "Portrait." If the two values are the same, the image is "Square."

The Field Formula Editor

The field formula editor can be found under the Field Values tab of both the Category and Record Field Properties windows.



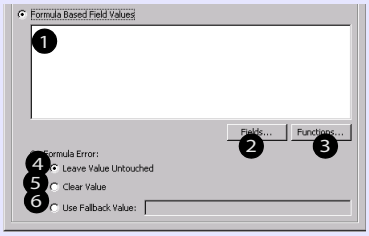
Under the Field Values tabs of the Field Properties windows for records (left) and categories (right) lies the field formula editor. The record formula here produces the field display shown in the image at the start of this section. The category formula uses the user data record information to fill the "Last Modified By" category field with the logged-in users name and email address.

When using a field formula, a field's value cannot be edited directly by users. For this reason, the window uses radio buttons to permit either "user generated" or "formula based" values.

The main text area of the formula editor is where you'll define your formulas. The interface elements of the editor are:

Formula Editor

1. *The formula editing field*
2. *List containing all catalog fields*
3. *List containing all functions*
4. *Option for not changing field value on formula error*
5. *Option for clearing field value on formula error.*
6. *Option for using a fallback string value on formula error*



Construct your formulas in the text field provided. Take advantage of the Fields and Functions drop-down lists to save time and help you avoid syntax errors introduced by simple typos.

Choose your preferred option for error handling. An error occurs when for whatever reason your formula cannot be executed. Errors can include syntax issues in the formula itself, or problems evaluating field data used in the formula.

When you click **OK** to dismiss the Field Properties window, your formula is saved and activated.

NOTE: *The order in which fields are calculated cannot be determined absolutely. For this reason, take care when creating formulas that are dependent on other field values also based on formulas. If needed, consider "wrapping" one field's formula into the formula of another field, thereby forcing the order of calculation. Example:*
Field "A" formula: `fieldvalue("B") * 1.5`
Field "B" formula: `fieldvalue("Image Height") + 3.0`
This may result in unexpected results if field "A" is evaluated before field "B". The solution is to include the field "B" formula in the formula of field "A":
Field "A" formula: `(fieldvalue("Image Height") + 3.0) * 1.5`

In-line Help

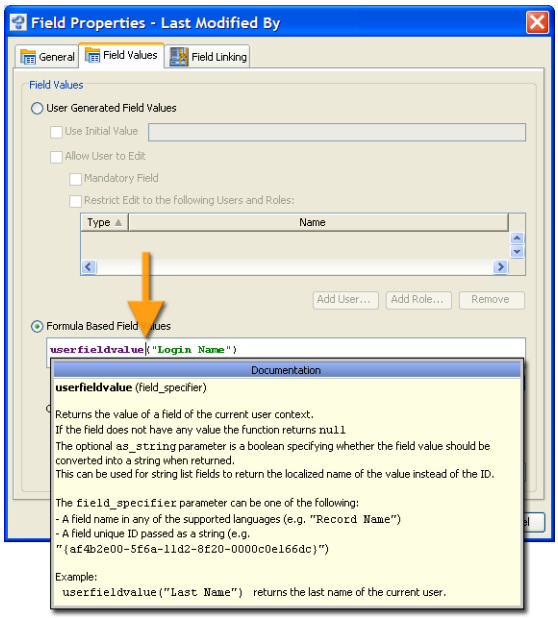
An in-line function and syntax reference is built into the formula editor. This feature provides a handy reference that will save you time and help you avoid syntax errors.

Three types of in-line help are available:

- Syntax reference – See an example of the syntax used with a function.
- Usage reference – See information about the purpose of a function, the value it returns, and a usage example.
- Autocompletion – See a menu list of functions whose names match characters you've typed.

To activate in-line help:

1. Click to place your cursor within the function's name in the formula editing field.
2. Type CTRL p (syntax reference) or CTRL q (usage reference). The usage reference help window that appears may be resized as needed.



Place your cursor right after a function name and type CTRL-p for a quick syntax reference, or CTRL-q for an in-depth overview of the function (shown).

Both windows disappear when another key is pressed or the mouse is clicked in the Formula editing field itself. (Hint: Escape, Shift, CTRL or ALT are good keys to use to dismiss the window because they don't introduce any new characters into the Formula field.)

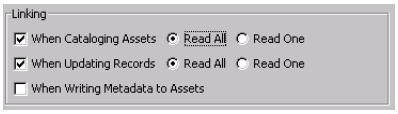
3. For function name autocomplete assistance, type the first few characters of a function's name and press CTRL-Spacebar to see a list of functions whose names match the characters you've typed.

Field Linking

Some asset formats (e.g., JPEG) can store metadata. Cumulus can read, store and manage this metadata by linking it to record fields. The record fields are provided

by the Cumulus application, the Asset Storage modules, Metadata modules, and the filters.

You can decide when the linking should happen (when cataloging assets and/or updating records), and whether changes to the metadata should be written back to the asset. Changed metadata can only be written back if this function is supported by the file format, the filter and Asset Storage module used for accessing the asset.



Linking Options of a String Field

If the record field's type is String, you can also decide whether the linking applies to all or only the first matching asset field. If the **Read All** option is activated, the values of the linked fields are read consecutively. Under **Link Matching Fields**, all fields which "feed" the field are listed – fields that have the same GUID (Globally Unique Identifier) or name and type. If the **Read All** option is activated, Cumulus will fill the record field with the data from all activated modules. If a module is deactivated, its data are "ignored" by Cumulus.

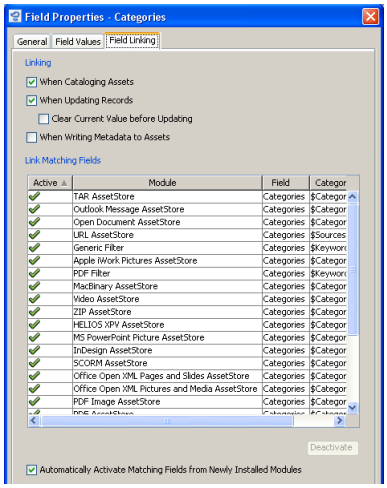
NOTE: Field Linking Checks for Field Types

In addition to its own type, a field may be linked to certain other field types only.

– Integer fields accept: String, Boolean, Real
– Real fields accept: String, Boolean, Integer
– Boolean fields accept: String, Integer, Real
– Date fields accept: String
– String List fields accept: String
– String fields accept: Boolean (true, false), Integer, Real, Date, String List (exact string matching)
– Binary fields accept: Audio, Picture

Automatic Creation of Folder Categories

The fields linked to Categories record field are responsible for the automatic creation of folder categories in a catalog Under which tab (master category) such a folder category is created, is defined under **Category Target**. You can change the default target by clicking into the field and selecting another tab..



Field Linking of the Categories Field

If you don't want automatically created folder categories in a catalog, you have to deactivate the corresponding modules.

To avoid the automatic creation of folder categories you have to change the default linking of the **Categories** field:

1. Make sure the collection window containing the catalog is the active window in Cumulus.
2. Select **Cumulus** / **Edit** > **Preferences**.
3. Click **Catalog Settings**.

   The Catalog Settings window is displayed. If the active collection window contains more than one catalog, select the catalog you want to edit under **Catalogs**.
4. Click **Record Fields**.
5. Select the field named **Categories** and click the **Properties** button.
6. Click **Field Linking**.
7. Select the module which to be deactivated (the one that should not create categories during the cataloging process. e.g. Windows or Mac OS File System AssetStore).
8. Click **Deactivate**.
9. Click **OK**. This brings you back to the fields list.
10. Click **Apply** to save your changes. If you now catalog assets employing this module, no directory categories will be automatically created and assigned to the record.

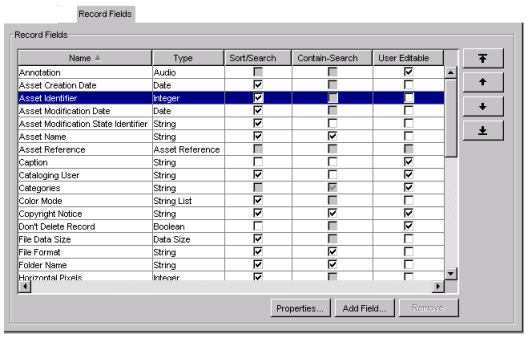
Adding Fields

To store information in addition to or different from the default settings, you can add fields to the catalog either by activating them from the list of fields that Cumulus supports or by defining a custom field.

To add a record or category field:

1. Make sure the collection window containing the catalog is the active window in Cumulus.
2. Select **Cumulus** / **Edit** > **Preferences**.
3. Click **Catalog Settings**.

   The Catalog Settings window is displayed. If the active collection window contains more than one catalog, select the catalog you want to edit under **Catalogs**.
4. Click **Record Fields** or **Category Fields**. This displays a list of the current record or category fields included in the catalog.



5. Click the **Add Field** button. This opens the dialog **Add Field**.

This dialog provides three tabs. Two of them can be used to add fields that Cumulus supports, but that are not currently in the catalog. You can either select the field to be added from an alphabetically sorted list or from a tree structure that lists the fields sorted by the module that provide the fields.

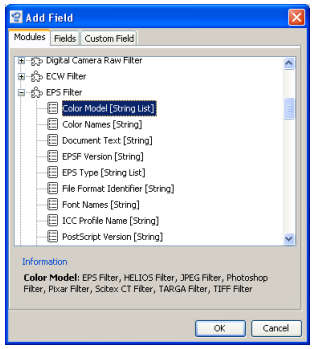
- The **Modules** tab, displaying nodes: **Catalogs, Catalog Templates**, **Modules** and **Languages**.

  – The **Catalogs** nodes expands to a list of all catalogs open in the active collection. Clicking the plus sign in front of a catalog's name displays all fields of that catalog that are not included in the catalog you want to edit. Either select the name of a catalog to add all contained fields, or select the individual fields you want to add.

  NOTE: *If the Catalog node includes the catalog that you are editing itself, this catalog contains table fields (e.g. Asset Usage History). Table fields introduce a second level into the catalog, as they themselves contain fields, which may or may not be contained in the top level, or in any other table field, too. At any level of the catalog – top level or table field level – the Catalog node offers the fields, that in fact belong to this catalog, but not to the current level.*

  – The **Catalog Templates** nodes expands to a list of all available catalog templates. Clicking the plus sign in front of a catalog's name displays all fields of that catalog template that are not included in the catalog you want to edit. Either select the name of a catalog template to add all contained fields, or select the individual fields you want to add.

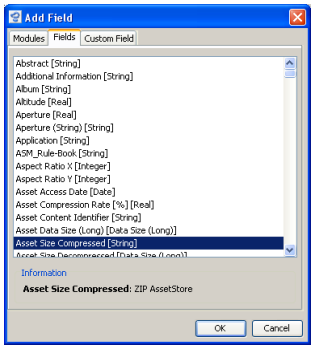
  – The **Modules** node expands to a list of all Cumulus modules that provide fields. Clicking the plus sign in front of a module's name displays the fields supported by the respective module that are not included in the catalog you want to edit. Either select the name of a module to add all fields supported by that module, or select the individual fields you want to add.



  – The **Languages** node expands to a list of all languages configured for string field values. Clicking the plus sign in front of a language name displays the fields that support values in the respective language that are not included in the catalog you want to edit. Either select the name of a language's to add all respective fields, or select individual fields to be added.

  Additionally, all language independent fields that are not included in the catalog are listed and can be added.

- The **Fields** tab displays a list of all the fields that are not yet included in the catalog.



The third tab, the **Custom Field** tab, enables you to define your own custom fields so you can store information in addition to fields that Cumulus supports. See "Creating a Custom Field," below, for details.

6. Select the field(s) you want to add.
7. Click **OK**. This brings you back to the fields list.
8. Click **Apply** to save your changes.

NOTE: *If you want this field to be shown in a view, you have to customize the corresponding view set and add this field. (See Client User Guide, section "Adding a Field to a Record View", for details.)*

Creating a Custom Field

To set up a catalog to store information in addition to fields that Cumulus supports, you can define your own custom fields.

NOTE: Same Custom Field for Multiple Catalogs

If you have created a custom field for one catalog, you can easily copy this field to another catalog. If multiple catalogs are opened in the same window, Cumulus will display the custom record fields of all these open catalogs in the list of the Fields tab. You can select a custom field of another catalog and add it to the current catalog. We recommend using this way of adding the same custom field to several catalogs, as only then will the field have the same GUID (Globally Unique Identifier) in different catalogs. And only when the GUID is the same, a custom field can be used for searching in different catalogs. Another advantage is that fields of the type String List already include the entries that have been made.

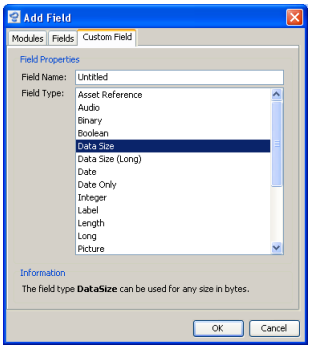
With a standard Workgroup Edition you can create custom record fields only. An Enterprise Edition or an corresponding add-on product enables you to create custom category fields, too.

To add a custom field:

---

1. Make sure the collection window containing the catalog is the active window in Cumulus.
2. Select **Cumulus** / **Edit** > **Preferences**.
3. Click **Catalog Settings**.

   The Catalog Settings window is displayed. If the active collection window contains more than one catalog, select the catalog you want to edit under **Catalogs**.

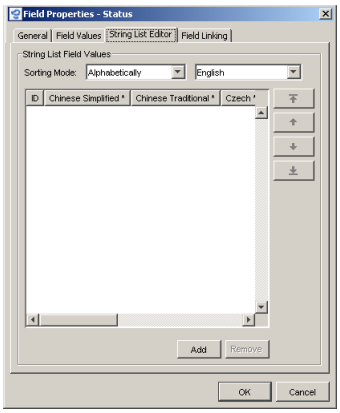


4. Click **Record Fields** or **Category Fields**. This displays a list of the current record or category fields included in the catalog.
5. Click the **Add Field** button. This brings up a dialog in which you can add a new field.
6. Click the **Custom Field** tab.
7. Enter a name for the field and select the type of field. (For information on field types, see "Field Types" in the Client User Guide.)
8. Click **OK**. The new field is added to the list of fields included in the catalog.
9. Define the field properties.
   - In the list you can activate certain options
     – Sorting
     – Contain Search
     – User Editable: If this is not checked, the field contents cannot be modified.
   - In the Field Properties dialog you can define more options for the field. Select the field's entry in the list and click the **Properties** button. The options available from the Field Properties dialog depend on the field type. For details, see "Overview: Field Properties," p. 35.
10. Click **OK** to close the Field Properties window. This brings you back to the fields list.
11. Click **Apply** to save your changes.

If you want this field to be shown in a view, you have to customize the corresponding view set and add this field. (See "Adding a Field to a View" in the Client User Guide for details.)

Editing a String List Field

To edit the entries of a String List field, the Field Properties dialog for the field must be displayed. The String List Editor tab lets you view and edit the terms of the selected String List.



Each term has an ID and can be stored in multiple languages. This is only important when working in a multilingual environment. If you want users who open the catalog with another language version of Cumulus to see the term in this language, you have to store the translation of this term. Depending on the language version of Cumulus, the term in the corresponding column will be displayed.

The String List Editor tab lets you edit an existing entry, add a new term or delete an existing term by using the corresponding buttons. Save any changes you

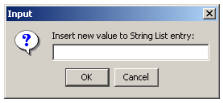
make with the **OK** button of Field Properties window. They are valid as soon as you click the **Apply** button to save your Catalog Settings.

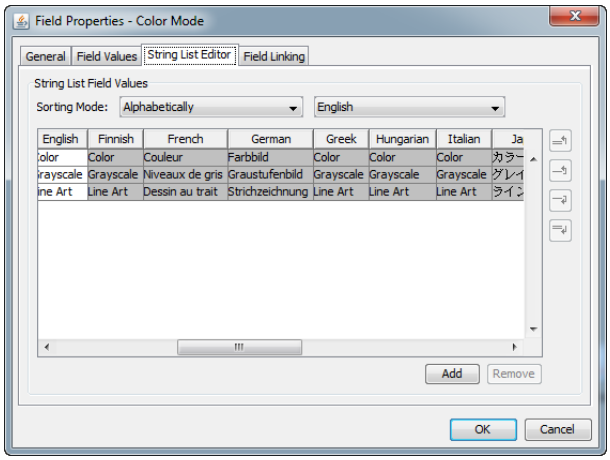
To edit a term of a String List field, just select its entry in the list and double-click the term you want to edit.

To create a new term for a String List field:

1. Click **Add**.
2. Enter the new term in the dialog that appears and click **OK**.

   The new term appears in each language field of the list.





If you are working in a multilingual environment, you can now double-click the field for a language and enter the translation for the term. A user will only have the terms of one language displayed. The language a user gets displayed initially depends on the language defined during the installation, but can be changed by the user anytime.

You can edit a term of a String List field at any time:

1. Select the entry for the term you wish to edit.
2. Double-click the term in the language you want to edit in and type the new term in the field.

   The term will be changed in all records that use it when you have saved the changes and closed the Properties window.

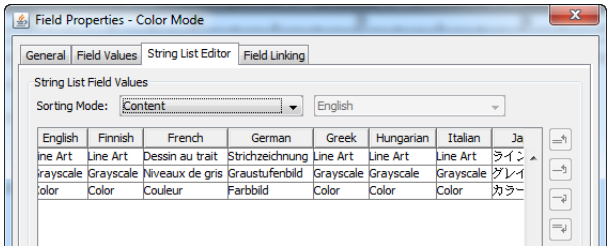
You can define the sorting of the terms of a String List field. You can select different sorting modes for a String List field:

- **Alphabetical** (default sorting mode)
  The terms of the String List field will be displayed sorted alphabetically according to the rules of the language of the application (e.g the Cumulus Client). This sorting mode is useful for e.g. keywords.
- **Content**
  The terms of the String List field will be displayed as sorted in this list – independent from the language defined for the user. This sorting mode is useful for e.g. status descriptions. Use the arrow buttons to the right of the list to change the order of the entries.
- **Language Specific**
  This mode allows you to define different sort orders for different languages. This sorting mode is useful for e.g. country selection where depending on language, different countries should appear on top of the list.

The sorting mode displayed for the String List field in the Select Mode field is the active mode, once you click **OK** for the Field Properties dialog.

If you want to define a sorting mode other than alphabetical:

1. Select the Sorting Mode.



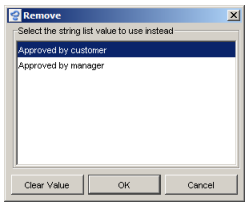
2. In case you decided on the Content sorting mode, use the arrow button on the right to define the order of the terms.
3. In case you decided on the Language Specific sorting mode, select a language and then use the arrow button on the right to define the display order of the terms of the selected language. Repeat this for each language.

You can delete an entry that you no longer need and replace it with another entry.

To delete an entry:

1. Select the entry you wish to delete.
2. Click **Remove**.

   Cumulus prompts you to assign a new entry to those records or categories and displays a list of terms (in the language that is defined for you as Cumulus user).
3. Select a replacement entry from the list and click **OK**. The new entry is assigned to all records previously associated with the deleted entry. This may take a while, depending on the number of records that require reassignment.



Preparing Catalogs for Special Purposes

Cumulus catalogs can serve various purposes. For some special purposes catalogs require special preparations.

Optimizing Standard Metadata Format Support

Cumulus supports the standard metadata formats IPTC, EXIF and XMP. To prepare a catalog to support these standards Cumulus offers wizards. See “Prepare Catalog” in the *Client User Guide*, for details

Configuring Web Links

The Cumulus Client offers a function that enables users to get Web link URLs for selected records, their assets, thumbnails or previews (Asset > Configure Web Link URL.) The links will work only if your Cumulus installation includes Cumulus Web Client or Sites and the catalogs containing the records are set to be published in the Internet (Catalog Settings > General). The catalogs must:

- contain the following record fields (provided by the Cumulus application module):
  – Asset URL enabled (allows users to get links for the assets)
  – Preview URL enabled (allows users to get links for the previews)
  – Thumbnail URL enabled (allows users to get links for the thumbnails)
  Note that if a catalog does not contain one of the corresponding fields the respective links cannot be created by any user.

And also following prerequisites are needed:

- The function is available to users only if at least one Base URL for Web Access is defined in the Cumulus Server Settings (Server Console > Remote Admin> Settings). (See "Cumulus Server Settings," p. 83,for details.)
- In order to be able to configure Web link URLs, a user must have permission to write metadata for the catalog containing the respective records.
  - If using the User Manager in advanced mode the following Application Permissions for records:
    – Modify Items
  - If using the User Manager in simple mode the following permissions:
    – Write Metadata
- The configuration file of the Cumulus Web Client, web.xml, must be edited. (You can find the file in the subfolder **WEB-INF** of the **webclient** folder inside the **webapps** folder of your Web application server folder, e.g.: **C:\Program Files\Canto\Cumulus Web Solutions\apache-tomcat-7.0.26\webapps\webclient\WEB-INF\web.xml.)** Edit it as follows:
  - To specify the Cumulus Server that opens the given catalog, replace the parameter value for the parameter
    com.canto.cumulus.web.directurl.server
    with the IP address or name of the appropriate server
  - To specify the (technical) user that is used to login on that Cumulus Server, replace the parameter value for the parameter
    com.canto.cumulus.web.directurl.user
    with the name of that user.
    HINT: This user must be able to open the respective catalog!
  - To specify the password of that user, replace the parameter value for the parameter
    com.canto.cumulus.web.directurl.password
    with the password, or leave it empty if no password is required.

Securing Catalogs

To prevent an unforeseen technical mishap from damaging or destroying your catalogs you should have a strategy. Cumulus offers the following mechanisms to preserve catalog data in case of a failure:

- Backing up
- Journaling
- Mirroring

Canto recommends you to backup your catalogs regularly and in addition, to avoid losing changes made to a catalog after the most recent backup, employ *either* catalog journaling *or* mirroring as a second mechanism. Which mechanism is best depends on your needs.

The advantage of *journaling* is that you can immediately continue working after a failure.

Use *mirroring* for a catalog that is intended to serve as a 'caching engine' which for example saves data into an external SQL-compatible database Or with a second Cumulus Server, you can use *mirroring* for failover functionality and load balancing. The disadvantage of mirroring is that rebuilding a catalog from its mirror database might be very time consuming. (For a description on how to rebuild catalogs from mirrors, see "Repairing Catalogs," p. 64.)

IMPORTANT! *Do not employ journaling and mirroring for the same catalog! Use one of the mechanisms depending on how the catalog is used.*

For backing up your catalogs regularly, Canto recommends you to use the Cumulus Backup Manager and in addition, to have rotating backups, you should include the catalog files in your regular system backup provided by your server platform. (For a description on how to use the Backup Manager, see "Backup Manager," p. 75.)

> **TIP: Avoiding Improper Shutdowns of the Cumulus Server**
> To avoid improper shutdowns of the Cumulus Server always stop the Cumulus Server before you make any changes to the operating system that might cause a shut down of the system (e.g. updates). Shutting down the Cumulus Server might take a while depending on the number and size of catalogs managed by the Cumulus Server. Do not interrupt the shutdown process!
> *Windows only*: When stopping a Cumulus Server under Windows check that the Cumulus Server service has stopped. You can check this either via the Services Control Panel using the Refresh function (F5) or via the Task Manager (no **Cumulus Server.exe** in the processes list.)
> *UNIX only*: When you are stopping a Cumulus Server under UNIX and **stop-cumulus.sh** runs into a time-out, use **status.sh** to check that the Cumulus Server has stopped.

The next sections give more details on the journaling and mirroring mechanisms and describe how to activate them.

Journaling Catalogs

Journaling Cumulus catalogs improves data security. A journaling catalog logs changes to a journal (special circular log files) before actually writing them to the catalog. Such a journal is used to repair any inconsistencies that occur as a result of an improper shutdown of the Cumulus Server or the computer running the Cumulus Server. In the event of an improper shutdown, a given set of changes may have either been fully committed to the catalog (i.e., written to the hard disk), in which case there is no problem, or the changes will have been marked as not yet fully committed, in which case the system will read the journal, which can be rolled up to the most recent point of data consistency. Every time a Cumulus Server opens a catalog the journals will be read and executed.

SPECIAL TECH INFORMATION: Cumulus Catalog Journal

A Cumulus catalog journal consists of 5 circular log files named as the catalog file with the extension **.redo**. These log files are saved along with the catalog file in the same folder. Each of these files has an initial size of 20 MB and the files can become quite large. The required space differs; as rule of thumb: twice the size of the catalog file is recommended.

IMPORTANT! Copying or Moving Journaling Catalogs

*When copying, moving or backing up a catalog externally, the journal of the catalog (all 5 *.redo log files) must be included, e.g. copied or moved along with the catalog file.*

IMPORTANT! Using Backup Files Created by Cumulus

*If you want to replace a damaged catalog file of a journaling catalog with a backup file created by Cumulus, you must delete the journal of the catalog (all 5 *.redo log files) before you copy and/or rename the backup file.*

You activate journaling for a catalog in the Catalog Settings (**Cumulus** / **Edit** > **Preferences** > **Catalog Settings** > **General**.)

Database Mirroring

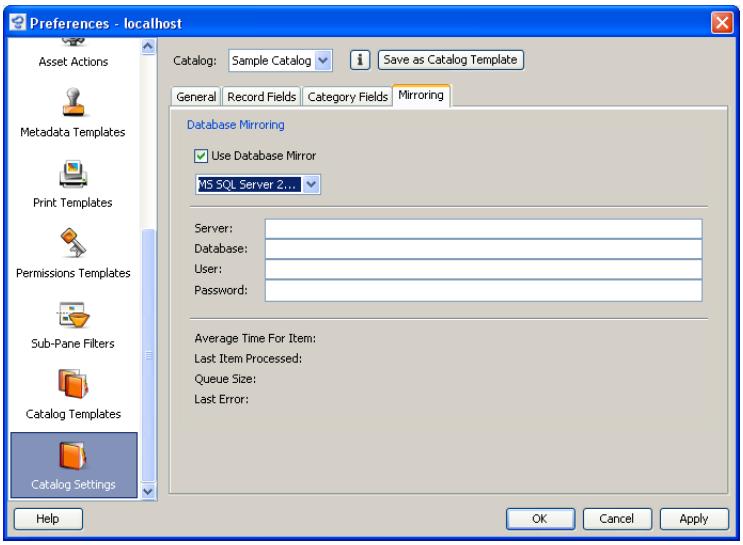
Mirroring enables you to use the Cumulus database as a 'caching engine' that for example saves data into an external SQL-compatible database. In this role, a Cumulus catalog serves as a permanent cache.

Saving the data in an SQL database offers the advantage that any SQL analyses are possible. However, changes made to the catalog data from within the SQL database are not copied back to Cumulus and therefore should not be made. When a mirrored catalog is rebuilt, the SQL database serves as master. Each catalog requires its own SQL database.

Canto provides a plug-in that includes support for different SQL database systems. (The support for Oracle is available with Cumulus Enterprise only.) If you require support for another database system, contact Canto. Each database system requires it own JDBC driver. The JDBC drivers for most systems are preinstalled; except one: The official JDBC driver for MySQL must be downloaded from the MySQL website (www.mysql.com). Currently the driver is available under:
http://dev.mysql.com/downloads/. The driver must be copied to the appropriate subfolder of the **esp** folder in your Cumulus Server installation folder. The subfolder **dbmirror** contains a folder named **lib**. Copy the downloaded driver into this **lib** folder (e.g to **..esp/dbmirror/lib**).

Cumulus catalogs of a second Cumulus Server installation can also serve as mirroring target databases. For more information, see "Using Cumulus Catalogs as Mirroring Target Databases," p. 56.

A catalog is set up for mirroring on the Mirroring tab of a catalog's settings (Cumulus / Edit > Preferences > Catalog Settings.)



Example dialog for setting up mirroring. The fields for defining the database depend on the selected database system.

PRECONDITIONS: To set up a catalog for mirroring, you must have the appropriate Administrator permissions (**Permissions > Administrator Permissions > Manage Mirroring** (option for the Modify Catalog Settings permission.)

If you want to use mirroring, you should activate it directly after you have installed Cumulus, or after new catalogs are created. Note that once you activate the mirroring option for a catalog, the initialization can take some time, depending on the size of the catalog. (And the process cannot be paused – if interrupted, it must be started from the beginning.)

NOTE: Never set up multiple catalogs for mirroring at once!
Start the process for a subsequent catalog only after the previous catalog has been completely processed.

If mirroring is activated, the events to be saved in the SQL database are written in a task queue. For safety reasons, each task is saved in a temporary internal file. This file is deleted after the task is successfully processed. Storage locations for the queues and safety files are defined in the **server.xml** file found in the **conf** folder in the Cumulus Server installation folder. You define the basic or "root" folder for the files. This folder will house the subfolders for the queues—one subfolder for each queue (named as the unique identifier given for the queue). The default storage location is the Cumulus Server installation folder. If you want to use mirroring, you should define the storage location directly after you install Cumulus. The collection of these files can become quite large, requiring ample storage space. The required space depends on the SQL database system and the amount of data stored in each asset. There is a difference between the initial process and normal operation. As rule of thumb: twice the size of the mirrored catalog file is recommended.

Note that if you have a catalog mirrored to a SQL database, you should back up the target database and not the original Cumulus catalog. For information on how to repair a mirrored catalog using the target database, see "Repairing Catalogs," p. 64.

Error Management

Basic mirroring errors are written to the system log of the Cumulus Server (e.g. when mirroring could not be started.) Errors that occur while mirroring is running are logged as configured in the **log4j.xml** file, which is found in the **conf** folder in the Cumulus Server installation folder. Canto recommends you have one log file for all mirroring events and set up email notification for all errors that occur while mirroring.

If the SQL database addressed by mirroring is not available, an error will be logged and the Cumulus Server will try to process the current task again and again. As soon as SQL database is available again, the process is resumed automatically. However, if it cannot be resumed, the size of the task queue will grow with any change performed on the catalog.

TIP: Finding the Short ID of a field.
To find out the IDs of a field you can have them displayed in the list of fields in the **Record Fields** tab or the **Category Fields** tab of the Catalog Settings (**Edit** > **Preferences** > **Catalog Settings**).

BACKGROUND INFORMATION: Performance
The performance depends on the SQL database system in use. During normal runtime testing, Canto did not experience performance delays or differences between different SQL database systems. The time needed for the initial process, however, depends on the SQL database in use. The time needed for the initial process is also influenced by the cache size available for the Cumulus Server (can be configured in the Server Console: **Remote Admin** > **Settings** > **Optimization.**)

Using Cumulus Catalogs as Mirroring Target Databases

Cumulus catalogs can also serve as mirroring target databases. This requires a second Cumulus Server installation. Then one Cumulus catalog can be mirrored to another Cumulus catalog of the other Cumulus Server installation. This offers failover functionality and load balancing. A target Cumulus catalog at the secondary Cumulus Server is set to read only. With read-only applications (e.g. Web Publisher Pro) it can be used as a read-only replica and take load from the primary Cumulus Server. Note that Cumulus Triggers only work in the original catalog.

NOTE: Mirroring Cumulus 6 Catalogs
If you mirror a Cumulus 6 catalog, the target catalog will always be a Cumulus 7 catalog.

When using Cumulus as target database system, the following data are required to define the database serving as mirror:

- Server – IP address of the computer hosting the Cumulus Server
- User – Login name of the Cumulus Administrator of the Cumulus Server used as mirror.
- Password – Password of the Cumulus Administrator of the Cumulus Server used as mirror.
- Database Path – Path of the Cumulus catalog file

  NOTE: *You can either enter the path of an existing catalog or have a new one created by entering its path.*

Setting up a Catalog for Mirroring

Before you activate mirroring for any catalog, the location for queues and the task safety files should be configured. The location is defined in **server.xml** file, which is found in the **conf** folder in the Cumulus Server installation folder.

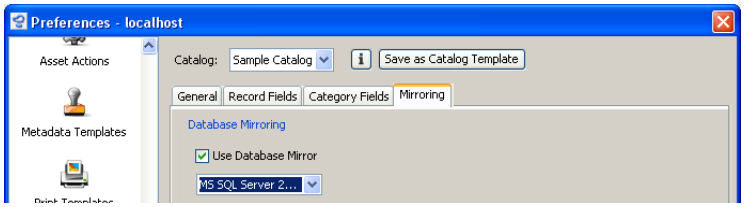
The initial process setting up a catalog for mirroring takes some time, depending on the size of the catalog file and the SQL database system in use. During this time, other users are blocked from accessing the catalog. For this reason, Canto recommends you deactivate the sharing option for this catalog before you start the initial process.

To set up a catalog for mirroring:

1. Make sure the collection window containing the catalog is the active window in Cumulus.
2. Select **Cumulus** / **Edit** > **Preferences**.
3. Click **Catalog Settings**.

   The Catalog Settings window appears. If the active collection window contains more than one catalog, select the catalog you want to edit under **Catalogs**.
4. Click **Mirroring**. This displays the current settings for the selected catalog.
5. Activate the **Use Database Mirroring** option.

   The fields for the mirroring target database are activated.
6. Select the database system you want to use. Depending on the selected database system, the fields for defining the actual database are displayed.



7. Enter the data required. You must define a different target database for each catalog to be mirrored.

   Example: With a MySQL 5 database, the following data are required:

   - Server – IP address of the server hosting the SQL database
   - Database – Name of the SQL database
   - User – Login name of the SQL database user
   - Password – Password for the SQL database user

   NOTE: *If the target database is another Cumulus catalog, you can either enter the path of an existing catalog or have a new one created by entering its path.*
8. Click **OK** to start the mirroring. The field below the definition fields informs you on the status of the mirroring.

   NOTE: *If you want to set up multiple catalogs for mirroring, don't start the process for the next catalog before the current catalog has been completely processed.*

To stop the mirroring for a catalog, deactivate the **Use Database Mirroring** option and confirm the action by clicking **Apply** or **OK**. Before you stop the mirroring you should consider that starting it again, will start the mirroring for the entire catalog from the beginning again.

New Catalogs

New catalogs can be created by the Cumulus Administrator only. The Cumulus Administrator is also responsible for providing catalogs to Client users.

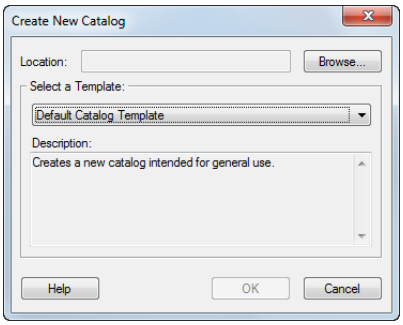
Creating Catalogs

To create a new catalog you can log on to the Cumulus Server from any Cumulus Client and tell the Server where the catalog is to be stored and what you want to call it.

To create new catalogs for your workgroup:

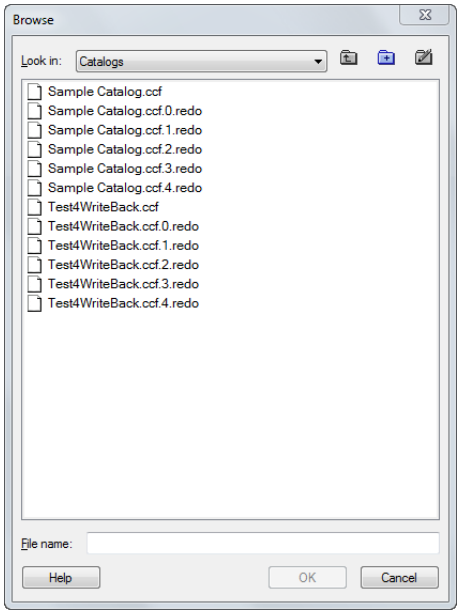
1. Log on as Cumulus Administrator to the Cumulus Server (see "Logging On as Cumulus Administrator," p. 16).
2. In the Catalog Access window, click **New**.

   The **Create New Catalog** window appears.



3. Click **Browse**.

   The **Browse** window appears:



4. From the **Look In** drop down menu, select the location where the new catalog shall be stored. (Only locations approved by the Cumulus Administrator are accessible).

5. In the **File Name** field enter a name for the new catalog, then click **OK.**

   The **Browse** window is closed. In the **Location** field of the **Create New Catalog** window, the location and the name of the new catalog are displayed
6. From the **Select a Template** drop down menu, select a template.
7. Click **OK**.

The new catalog now appears in the catalog list of the Catalog Access window.

Catalog Templates

You can define templates that you can use to create new catalogs, prepare existing catalogs for specific usage or even update older catalogs. There's no faster way to get new catalogs up and running, or to consistently replicate updates made to one catalog on another catalog. Create new, pre-configured image databases, video catalogs, PDF archives and more, from a single menu item – no more redundant catalog tweaking necessary!

PRECONDITIONS: To create and edit Catalog Templates, you must have the appropriate permissions (**Server Permissions > Catalog Template Permissions**.)

Creating and Editing a Catalog Template

To create a new Catalog Template you can save the settings of an existing catalog as Catalog Template or duplicate a template.

To create a new Catalog Template by duplicating an existing one and adapting its settings:

1. Select **Cumulus** / **Edit** > **Preferences**.
2. Click **Catalog Templates**.
3. Under **Template**, select the Catalog Template to be used as a basis for the new one.
4. Click the **Duplicate** button. The **Name and Settings** dialog opens.
5. Enter a name for the new template, and optionally
   - Activate the **Allow Sharing** option, if you want this view set to be available to other users.
   - Activate **Copy display names** only, if you also want to take over the language-specific display names from the original (not recommended for new catalog templates).
   - Activate **Copy description** only, if you also want to take over the descriptions specified for other languages from the original (not recommended for new catalog templates).
6. Click **OK**. The Catalog Template window is displayed.
7. Define the new Catalog Template.
8. Click **Apply** to save your changes.

To create a new Catalog Template by saving the settings of an existing catalog as Catalog Template:

1. Select **Cumulus** / **Edit** > **Preferences**.
2. Click **Catalog Settings**.
3. Under **Catalog**, select the Catalog to be used as a basis for the new Catalog Template.

4. Click the **Save as Catalog Template** button. The **Name and Settings** dialog opens.
5. Enter a name for the new template, and optionally
   - Activate the **Allow Sharing** option, if you want this view set to be available to other users.
   - Leave **Copy display names** activated, if want to take over the display names specified for other languages from the original.
   - Leave **Copy description** activated, if you want to take over the descriptions specified for other languages from the original
6. Click **OK**.

To change an existing Catalog Template:

1. Select **Cumulus** / **Edit** > **Preferences**.
2. Click **Catalog Templates**.
3. Under **Template**, select the template you want to edit. The settings for the selected template are displayed in the Catalog Template window.
4. Make your changes.
5. Click **Apply** to save your changes.

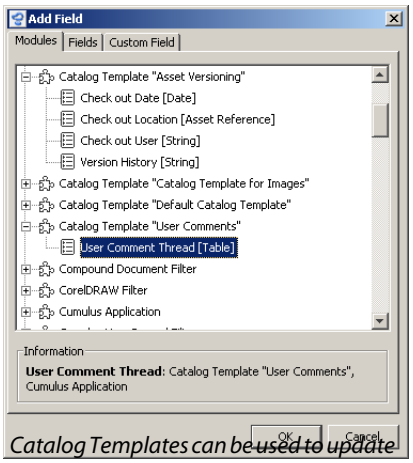
The Catalog Template Window

The Catalog Template window controls several important factors that come into play while managing assets. The options are divided into the following sections:

- **General** – Options for Catalog Templates
  – **Keep Category Names Unique** – Prevents the creation of new categories that share names with existing categories.
  – **Use Journaling** – Activates journaling for the catalog. (See "Journaling Catalogs," p. 53)
  – **Use Template for Catalog Creation** – Makes the template appear in the **Get Catalog Template** dialog when creating a new catalog. So do not activate this option, if you want to use a Catalog Template for preparing other catalogs only.
- **Record Fields** – Displays the record fields that a new catalog will contain. You can add or delete fields and customize selected fields. This allows you to organize the information that can be stored on an asset in its record. Remember, metadata retrieved from assets while cataloging can only be stored if the corresponding record fields are included in the catalog. For details on how to add and configure record fields, see the corresponding descriptions in the chapter "Catalog Settings," p. 28.
- **Category Fields** – Displays the category fields that a new catalog will contain. You can add or delete fields and customize the fields. For details on how to add and configure category fields, see the corresponding descriptions in the chapter "Catalog Settings," p. 28.

TIP: Using Catalog Templates to Update Older Catalogs

You can use Catalog Templates to provide specific catalog fields for other catalogs. When adding fields to a catalog, click on Modules and you are also offered the fields of Catalog Templates.



Catalog Templates can be used to update existing catalogs or prepare them for specific usages.

Catalog Maintenance

Taking regular care of your catalogs ensures not only the best performance, but also your data security.

Catalog Size and Performance

The biggest factor affecting catalog size is the number of records in the catalog. There is no hard limit on the number of records that a catalog can hold, but catalog files cannot be larger than one terabyte.

As multiple catalogs can be opened in one window, an advantage of this is that it makes it easier to search for an asset. Workgroups with large catalogs can now split them into multiple catalogs and be able to open and search them in one Window. The beauty of smaller catalogs is that, the time required to repair, restructure or reorganize a catalog is reduced tremendously. Furthermore, if a particular catalog is being repaired or restructured, the assets in the other catalogs will be unaffected and can still be accessed.

Search times, however, are not affected by catalog size.

Record Size

The actual number of records you can fit into the catalog size limit depends on the individual records' sizes. Factors that determine a record's size include:

- **The type of asset the record represents.** Different asset types have different information that needs to be stored to identify them, so their records use varying amounts of catalog space. For example, a video clip uses space for frame rate and total frame number fields that a simple image doesn't require.
- **The amount of text in the record's Notes field**. All those characters in the Notes field have to be stored somewhere! If you add 1k worth of text, you add

1k to the record size. Multiply that times a thousand or so records and you have added an entire megabyte to your catalog's size.

- **The record's thumbnail size and quality.** Larger and higher quality thumbnail images take up more space. (See "Catalog Settings," p. 28, for information on thumbnail settings.)

Typically, your catalogs will never reach the maximum size. If they do, you'll need to divide them. (See "Dividing Catalogs," p. 66.)

Speeding Up Cataloging

As a catalog grows, the time required to catalog new assets increases. There are a few tricks for Asset Handling Sets that you can do to increase performance when cataloging large amounts of assets at once:

- Choose **Catalog Duplicates** on the Cataloging tab. This option prevents Cumulus from having to "think" too much about what it is cataloging. (See Client User Guide "Overview: Asset Handling Sets" for details.)
- Deactivate any asset formats that you don't need. (See Client User Guide "Asset Format Support" for details.)

Compressing Catalogs

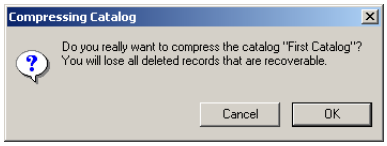
Compressing a catalog when it comes close to its maximum size. You can check the actual and maximum catalog size in the Catalogs Settings.

NOTE: Deleted Records in Cumulus versions prior to 8

When records are deleted from catalogs, with Cumulus versions prior to 8 they could optionally remain a part of the catalog in case you need to retrieve them. These not-quite deleted records take up space. You can delete them permanently by compressing the catalog.

To compress a catalog:

1. Make sure the catalog you want to compress is the active window in Cumulus. If you have more than one catalog opened in the active window, you will be asked to select the catalog.
2. Select **File** > **Administration** > **Compress Catalog**. (Only active if the catalog is not yet compressed as much as possible.) You are warned that compressing the catalog will permanently remove the deleted records.



3. Click **OK** to compress the catalog.

Backing Up Catalogs

The value and usefulness of a Cumulus catalog increases exponentially as the catalog grows. To prevent an unforeseen technical mishap from damaging or destroying your catalogs (and your work schedule), consider regular and frequent backups.

It's important to remember that backing up a Cumulus catalog *does not* back up the catalog records' associated asset files. Make sure that all your important files are included in your regular backups.

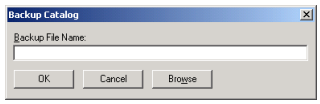
There are different ways of backing up a catalog:

- Any backup software program
- With the Cumulus Backup feature
- With the Cumulus Backup Manager

The first way may be the quickest and most convenient, particularly if you already use a backup software program. A Cumulus catalog, being just another file on your computer, can be copied to other volumes, or included in a network or automated backup. Catalogs should be closed before they are copied to other volumes to ensure that all changes are safely saved. However, you can back up an open catalog, if you employ the Cumulus Backup feature. The Cumulus Backup Manager is included in the Cumulus Server Console. For a description on how to use the Backup Manager, see "Backup Manager," p. 75.

To back up a catalog using the **Backup** feature:

1. Make sure the catalog you want to back up is the active window in Cumulus. If you have more than one catalog opened in the active window, you will be asked to select a catalog.
2. Select **File** > **Administration** > **Backup Catalog**. The Backup window opens.



3. In the **Backup File Name** field, either
   – enter the name and path for the backup catalog (using the path and file naming conventions of the operating system your Cumulus Server is installed on)
   OR
   – click **Browse** to select a location for the backup catalog and then enter the name for the backup catalog. (The area you are allowed to browse is defined in the Cumulus Server Settings).

   NOTE: *The name for the backup catalog file can be the same name as the original catalog file with the file name extension .bak. You may also choose the file name extension .ccf. There is no difference in format, but then you may need to choose a different name or a special backup location to avoid confusion with the original catalog.*
4. Click **OK**. The catalog is saved in the format selected.

Preparing Catalogs for Special Metadata

If you want to capture IPTC, XMP or EXIF data from assets (and to write back such data to assets), the catalog(s) managing these assets and the Asset Handling Set(s) to be used must be prepared. Cumulus provides special functions for this.

File > **Administration** > **Prepare Catalog** opens a submenu with options for preparing catalogs to manage different standard metadata formats. For more details, see Client User Guide, section "Prepare Catalog."

Copying Catalogs

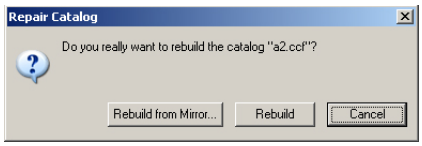
The Backup function described above is Cumulus' mechanism for copying catalogs in their ready-to-use state. You can also use the conventional ways of copying files on your computing platform to make copies of Cumulus catalogs. Remember, copying catalogs does not copy the associated asset files.

Repairing Catalogs

If a catalog becomes damaged, Cumulus may be able to rebuild it. When you try to open a damaged catalog, Cumulus asks to repair it. You can also initiate the repair process for local catalogs from within the program by selecting **File** > **Administration** > **Rebuild Catalog.** For repairing remote or mirrored catalogs, use the **Rebuild** button in the **Catalog Access** window when logged in as administrator (**File** > **Connect To**.)

Catalogs are most commonly damaged by an abnormal termination of the Cumulus Server that, for example was caused by an improper shutdown or a system crash.

After choosing the rebuild function, a dialog opens that asks whether you really want to do this. If you used the **Rebuild** button in the **Catalog Access** window, you are offered two options. If you choose **Rebuild**, the catalog is rebuilt on the information found. If you choose **Rebuild from Mirror**, a dialog will open that lets you enter the information required to identify the mirror.



NOTE: *You can use the* **Rebuild from Mirror** *option if you need to create a new catalog that is to hold the data from the mirror.*

If a mirrored catalog is damaged and even the information on mirroring is destroyed, a dialog opens that offers the same two options **Rebuild from Mirror** and **Rebuild**. Click the button for the appropriate option.

If you choose **Rebuild from Mirror**, a dialog opens that lets you enter the information required to identify the mirror.

Enter the required information and click **OK**. Then Cumulus will rebuild the catalog with the data from the mirror and – if there is one – from the queue.

Where to Get the Queue ID?

Each mirrored catalog has an XML file (*.ccm) that contains the mirroring information. This file is stored in the same folder as the Cumulus catalog. It provides the information on the queue ID under **CUID**. In the following example the queue ID is **{FF9E643F-11BB-4E95-9B62-6BAFE841A5F8}.**

```
<?xml version="1.0" encoding="UTF-8"?>
<ns:record xmlns:ns="http://www.canto.com/XML/ns/Package/
1.0">
```

```
 <ns:guid
ns:key="MMod">{FAB9CC52-C721-4720-A2D4-3450EABA88F2}</
ns:guid>
 <ns:int32 ns:key="UseM">1</ns:int32>
 <ns:guid
ns:key="CUID">{FF9E643F-11BB-4E95-9B62-6BAFE841A5F8}</ns:guid>
 <ns:record ns:key="MCnf">
  <ns:string ns:key="Serv">dell470</ns:string>
  <ns:string ns:key="DBas">test</ns:string>
  <ns:string ns:key="User">thomas</ns:string>
  <ns:binary
ns:key="Pass">8106DF418C242DD52F0D31C1E9012969BE05FF0C</
ns:binary>
 </ns:record>
</ns:record>
```

Renaming Catalogs

Cumulus catalogs actually have two names:

- One is the name of the catalog file, as you see it from your computer's desktop. This is called the catalog *file* name.
- The other is the name of the catalog, as seen in the catalog window's title bar. This is simply called the catalog name.

When a catalog is first created, the catalog name defaults to the same name as the catalog file. Newly created catalogs are named the same as their file names by default, but the catalog name can be changed at any time.

Before you rename a catalog, be aware that a catalog's name is an internal reference within Cumulus. The catalog name is the name users will see when connecting to catalogs, and it also appears at the top of catalog windows. It's important to remember after renaming a catalog, that you must update the permissions of any users (or roles) that have restricted catalog access that includes access to the renamed catalog. This is because restricted catalog access permission is based on the names of catalog, so users will not be able to access renamed catalogs until those newly renamed catalogs are added back into the list of accessible catalogs for that user (or role).

Note that catalogs cannot be renamed while set to use the Cumulus Vault in Always and Exclusive mode.

To change a catalog name (what you see in the catalog window):

1. Make sure the collection window containing the catalog is the active window in Cumulus.
2. Select **Cumulus** / **Edit** > **Preferences**.
3. Click **Catalog Settings**.

   The Catalog Settings window is displayed. If the active collection window contains more than one catalog, select the catalog you want to edit under **Catalogs**.
4. Click **General**. You'll see a field labeled **Name**.
5. Enter a new name for the catalog in the **Name** field and click **OK**. The change is saved and the window closes.

You change a catalog's file name as you would any other file.

Deleting Catalogs

Unlike deleting records, deleting catalogs is not undoable. (Unless you have a disk utility program that makes recovering deleted files possible.) Cumulus has no built-in mechanism for deleting catalogs. Delete catalogs as you would any other file on your computer. Remember that assets are not deleted with catalogs. Catalogs must be closed to be deleted.

Dividing Catalogs

At some point you may wish to divide the contents of one catalog into smaller catalogs. Reasons for doing so include:

- The catalog has grown close to its maximum size (e.g. 1 terabyte).
- Your computer can no longer accommodate the number of records in the catalog effectively (processor or RAM limitations).
- The contents of the catalog have become too diverse to be usefully categorized in one catalog.

Like many operations in Cumulus, there is more than one way to divide a catalog. The first way is best suited to smaller numbers of records.

To divide a catalog using drag and drop:

1. Make sure the catalog from which you wish to divide is the active window in Cumulus.
2. Create or open the catalog you wish to move records into in a separate window. Arrange the catalog windows so that you can see both.
3. Search for the records you wish to move to the new catalog, using any of Cumulus' search options.
4. Click on or near a thumbnail in the original catalog and select **Edit** > **Select All** to select the records. (At this point you could cut and paste the records between the catalogs as one way of moving them, which would save you the step of deleting the old records in the old catalog.)
5. Click on the thumbnail of any of the selected records and drag the set into the new catalog window. The records are copied. The copied records' categories are created in the new catalog.

   NOTE: *Cumulus doesn't consider copying records from one catalog to another as "cataloging assets." Therefore, the Asset Handling Sets have no effect on this action.*
6. You can optionally delete the records from the old catalog by first clicking on the old catalog's window to activate it, and then selecting **Edit** > **Delete** before the selection of records has changed.

To divide a catalog containing a very large number of records, it may be easier to export the records from the old catalog and import them into the new catalog. (See "Importing and Exporting" in the *Client User Guide*.)

After the export/import process is over, you can delete the records from the old catalog, as described above.

Merging Catalogs

Merging catalogs requires some forethought in order to be done properly. If both catalogs contain identical category structures, the process is easy and can be done in different ways:

- Drag and drop records between catalogs.

- Using Cumulus' export and import features.

"Dividing Catalogs," above, describes each process.

But if the category structures of the two catalogs differ, there are a few extra steps to take. (See "Importing and Exporting" in the *Client User Guide*.)

Migrating Catalogs

Catalogs from versions prior to Cumulus 6 cannot be migrated within Cumulus 8. If you need to migrate Catalogs from versions prior to Cumulus 6, please contact your Cumulus support.

When you first open a Cumulus 6 or 7 catalog with Cumulus 8, it is prepared to be used with Cumulus 8. You can immediately start working with it.

However, you need to explicitly migrate a Cumulus 6 or 7 catalog file to Cumulus 8 if

- Integer or Long Integer field values are used for sorting
- the individual permissions for records or categories feature was used (e.g with Cumulus Enterprise.)

The explicit migration can be done in two different ways:

- Using the **Migrate** button provided in the Catalog Access window. The catalog will be migrated in place.
- Using the **Migrate Catalog** menu item of the **Administration** menu provided by the **File** menu. This way allows you to migrate catalogs that are not yet managed by the Cumulus Server and can be stored anywhere in your network. Canto recommends you to use this way for catalogs prior to Cumulus 7 because with Cumulus 7 the internal data structure of catalogs was optimized for managing large amounts of data (catalog size up to1 TB) and only this way of migration optimizes a catalog's internal data structure for managing large amounts of data.

The explicit migration of a Cumulus 6 or 7 catalog to Cumulus 8 takes time: the larger the catalog file, the more time required for the conversion. Canto recommends starting by using the catalogs as they are and then migrating them one by one during work-off-hours. Note that once a catalog has been opened with Cumulus 8, it can no longer be used with older versions of Cumulus.

A catalog's type and size can be viewed in its Catalog Settings window (**Cumulus** / **Edit** > **Preferences** > **Catalog Settings** > **General** tab.)

Migrating a Cumulus 6 or 7 Catalog via the Administration Menu

Catalogs created with Cumulus 6 or 7 can be easily migrated to Cumulus 8. However, Canto recommends you always make a backup catalog and then use this backup version of the catalog for migration.

To migrate a Cumulus 6 or 7 catalog:

1. Select **File** > **Administration** > **Migrate Catalog**. A dialog for selecting a catalog appears.
2. Select the Cumulus catalog you want to migrate and click **Open**.
3. Select a name and location for the migrated Cumulus catalog and click **Save**. A progress bar appears to indicate the status of the conversion.

   Once the progress bar disappears, your catalog has been migrated to the current Cumulus catalog format and saved in the location you selected.

NOTE: *If problems occur during a catalog migration, try repairing the catalog using your former Cumulus version. Choose the Repair option under the Administration menu and then try the migration again.*

Using Server Console Modules

The Server Console combines administration tools for Cumulus Workgroup and Enterprise. Some of the Server Console modules are specially designed for catalog management. You need the appropriate Administrator permissions to use these modules.

Logging of Catalog Activities

The Log Manager module presents a number of options from which you can enable a log file for a catalog and define its content.

PRECONDITIONS: To manage a log file for a catalog, you must have the appropriate Administrator permissions (**Permissions** > **Administrator Permissions** > **Manage Log Files**.)

To enable and define the logging of a catalog:

1. Select **File** > **Administration** > **Server Console**, or connect to the Web Server Console via a Web browser.
2. The Server Console application is started. Log on as Cumulus Administrator to the Cumulus Server that manages the catalogs you want to have logged.
3. Select **Log Manager**. The Log Manager Properties window opens.

   In the field **Default Log Folder** you may enter another folder to serve as the default folder for log files.
4. In the field **Catalog**, select the catalog you want to have logged. You can only set the logging properties for catalogs for which you have the appropriate Administrator permissions: Manage Log Files.
5. Then define the logging properties for the selected catalog.
   - Click **Enable Logging** if you want the logging to be active.
   - In the field **Log Folder** you may enter another folder other than the default folder to serve as the folder for the log file(s) of the current catalog.
   - If you want a separate log file for each day, enable **Daily Log File**. Daily log files have the advantage that you can delete those you no longer need.
   - Select the columns you want the log file to contain as well as their sequence by clicking the arrow buttons. To delete a column just click the minus option in the list: –
   - Select the events you want the log file to contain by check marking them.
6. Click **Save Changes**. The catalog's activities will be logged in a file named after the catalog. If you enabled **Daily Log File** the date is added to the name (year-month-day).

The Activity Monitor

You can monitor catalog activity from the Activity Monitor window. This window shows:

- the activity on the Cumulus Server

- information about any logged-in user, e.g. host address, catalog(s) the user is connected to, time of login, duration of session, etc.

Additionally, you may

- disconnect users from a catalog
- send a message to selected users

PRECONDITIONS: To monitor a catalog's activity, you must have the appropriate Administrator permissions (**Permissions > Administrator Permissions > Monitor activity**.)

To access the Activity Monitor:

1. Select **File** > **Administration** > **Server Console**, or connect to the Web Server Console via a Web browser.
2. The Server Console application is started. Log on as Cumulus Administrator to the Cumulus Server that manages the catalog you want to monitor.
3. Select **Activity Monitor**. The Activity Monitor window opens.

The activity bar at the top of the window indicates the activity on the Cumulus Server. The list below displays which users are connected to which catalogs. You can only monitor catalogs for which you have the appropriate Administrator permissions: Monitor Activity.

The list of connected users consists of multiple columns. The one for names of the users currently connected to the catalog, the one for the names/IP addresses of the computers from which they're connecting, the names of the catalogs they are connected to and when the connection was started are displayed by default. You can also use the Activity Monitor to disconnect users from the current catalog.

Disconnecting Users from a Catalog

Before you configure catalog properties or perform catalog maintenance tasks, you should disconnect all users currently working with the catalog.

To disconnect users from a catalog:

1. In the Activity Monitor window select the user(s) to be disconnected and click **Disconnect User**.

   A dialog appears for you to specify how long Cumulus should wait before disconnecting, and to write an instant message to these users, letting them know why they're being disconnected.

Sending a Message to Selected Users

You may send messages to a single user or to multiple users at once. To send a message:

2. In the Activity Monitor window select the user(s) to which you want to send a message and click **Send Message**.
   The **Send Message window** appears.
3. Enter the text of your message and click **OK**. The message is sent.

The message is displayed in an information window on the desktop of the selected user(s). The user must click OK to close the information window.

Archiving Information

Many organizations maintain several catalogs: one catalog for production assets and a second catalog to manage archives. With Cumulus you can also take your assets off-line, update the file references, and still be able to search and retrieve them.

In general, archiving assets involves the following steps:

1. Copy and/or move the assets you wish to archive to the other media.
2. Merge the records you wish to archive into an archival catalog by first copying the categories and then the records. For more information, see "Merging Catalogs," p. 66.
3. Update all asset references in the archive catalog.
4. If desired, delete the records you archived from your production catalog.

The Importance of Updating Asset References

Cumulus tracks the location of media assets through *asset references*. Whenever you move an asset, you must update the asset reference to reflect the new location.

About Archiving on CD-ROM

Like other read-only media, creating an archive on CD-ROM requires that all information be set up correctly in advance. When creating archives on CD-ROM, remember the following:

- Create a temporary "staging" volume/drive and give it the same name as the final CD-ROM disc.
- Copy and/or move the catalogs and assets you wish to archive to the staging volume/drive.
- Update all file references. The file references within each record must point to the assets located on the staging volume/drive.
- Burn a new CD that contains the contents of the temporary volume/drive. Remember that the CD must have the same name as the staging volume/drive.

Creating Hybrid CD-ROMs

Differences between the Windows and Mac OS operating systems present some distinct challenges when archiving to external media such as CD-ROM. To avoid problems in locating information on hybrid CD-ROMs, remember to use one of the following file system combinations:

- a hybrid CD-ROM containing an ISO 9660 file system with Joliet extension as well as a Mac OS HFS file system
- an ISO 9660 CD-ROM without extensions

Because of operating system naming restrictions, the use of other file system combinations can lead to problems when finding files on either platform.

Cumulus Server Console combines utilities for different administrative tasks. This chapter describes the Cumulus Server Console and covers some of the administrative actions that are performed with the Server Console utilities.

Server Console

Overview

Cumulus Server Console combines different administration utilities to provide easy access to them:

- The Activity Monitor
  Displays information on the Cumulus Server activity and users connected to the selected catalog. Allows you to disconnect users.
- Backup Manager
  Enables you to define rules for the automatic backup of catalogs and your Cumulus configuration files.
- FileSystem Companion Manager
  Enables you to configure instances of the Cumulus FileSystem Companion, an optional component which listens to file system events and converts them into Cumulus actions.
- File System Versioning
  Enables you to set up and configure asset versioning for any Central Asset Location on your file system.
- Log Manager
  Allows you to activate the logging process for selected catalogs and set up log properties.
- Mail Manager
  Enables you to configure Cumulus to work with your email server, to choose sending Cumulus Server notifications, and see the queue of mails to be sent.
- Remote Admin
  Displays the Cumulus Server status and lets you stop or start the Server. The options of these modules let you view and edit the current Server settings and license status and provide a utility to ease the configuration of the File-Sharing.Info file.
- Report Manager
  Enables you to configure and generate reports based on catalog statistics or on Cumulus Server activity.
- Scheduler Manager
  Enables you to define and schedule tasks to be automatically performed by Cumulus.
- Set Manager
  Enables you to export and import shared Cumulus items (Sets, Templates, etc.). And enables you to unload all individual sets.
- User Manager
  Enables you to specify users and their access rights to certain catalogs and functions.
- Vault Server
  Displays the current Cumulus Vault Server Setup and lets you configure and administer the Vault Server.
- Sites Configurator (Web Server Console only!)
  For a description see the Cumulus Sites Administrator Guide.

The Cumulus Server Console can be accessed either via the Server Console application installed along with your Cumulus Client, or as the Web Server Console via a Web browser from anywhere, if the Web Server Console (which is a part of the Cumulus Web Solutions) is installed on your Cumulus system. In any case, you need the appropriate permissions to access and work with the Server Console.

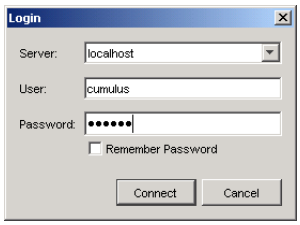
Accessing the Server Console

Both the Server Console Application and the Web Server Console provide almost the same look and feel and comprise the same configuration options and modules. The Web Server Console additionally offers the Sites Configurator module. (For adescription of the Sites Configurator, see the Sites Administrator Guide.)

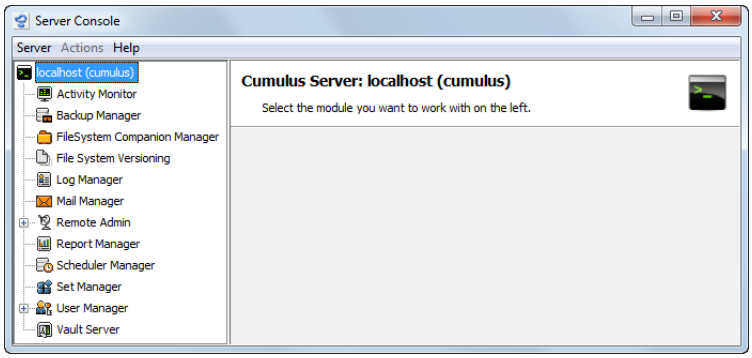
Opening the Server Console Application

To open the Server Console application:

1. Start the Cumulus Client application on the machine that you installed the Server Console application on.
2. Select **File** > **Administration** > **Server Console**.
   The Login window opens.



3. Enter the name or the IP address of the Cumulus Server you want to administrate.
4. Enter the name and the password of the Cumulus Administrator or the user who has the permissions to perform the required administrative tasks.
5. Click **Connect**.
   The modules of the Server Console application are loaded.

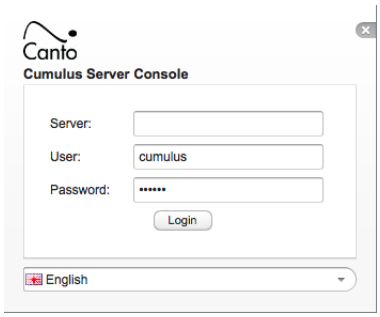


Opening the Web Server Console

To open the Web Server Console:

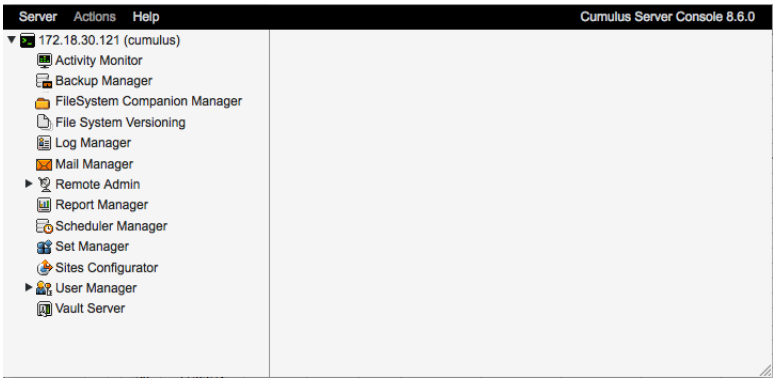
1. Open a Web browser and enter the address of the Web Server console into the address field:
   <servername or IP address>:8080/serverconsole

The Web Server Console login window is displayed.



2. Optionally, select a different language.
3. Enter the name or the IP address of the Cumulus Server you want to administrate.
4. Enter the name and the password of the Cumulus Administrator or the user who has the permissions to perform the required administrative tasks.
5. Click **Login**.

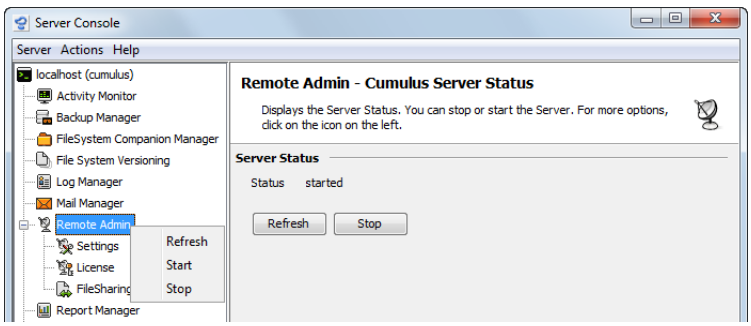
   The Web Server Console page is loaded.



NOTE: *Both the Server Console Application and the Web Server console provide almost the same look and feel and offer identical functions and modules.*

Next to the server name, the name of the logged-in administrator is displayed in brackets: **localhost (cumulus)**.

The Server Console offers its own menu bar. The Server menu lets you connect to additional Cumulus Servers that you want to administrate or to quit the connection to a selected Cumulus Server. The Action menu offers the functions available for the currently selected item. These functions are also revealed with a right/alternate mouse click on items.



Select the item on the left that represents the module you need to perform your administrative task on. Some modules offer multiple options. These are denoted by an icon on its left. Click this icon to reveal the options.

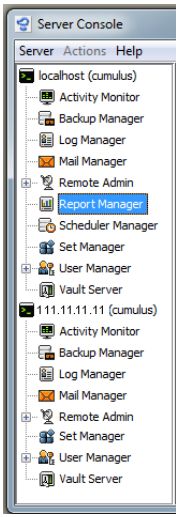
In order to work with these modules you need the appropriate Administrator permissions for each of these modules. These permissions are set in the User Manager module for each user. As the Server Console modules Log Manager and Activity Monitor refer to tasks for catalog management, these permissions are set in the Permissions section. Since the Server Console modules User Manager and Backup Manager refer to administrative tasks concerning the Cumulus Server, these permissions are set in the Server Permissions section.

The following sections cover the Backup Manager, the Scheduler Manager, Report Manager, Set Manager, and Remote Admin utility. For a description on how to use the

- Activity Monitor, see "The Activity Monitor," p. 68
- Log Manager, see "Logging of Catalog Activities," p. 68
- User Manager, see "User Manager," p. 101
- Vault Server, see "Configuring Vault," p. 131.

Using Server Console for Multiple Cumulus Servers

If you have a Cumulus installation with more than one Cumulus Server, Server



Server Console with multiple Servers

Console lets you administer these multiple Servers. Select **Server** > **Connect** to connect to another Cumulus Server. The panel on the left then provides an entries for each server and its accessible modules. Next to each server name, the name of the logged-in administrator is displayed in brackets.

Backup Manager

PRECONDITIONS: To work with the Backup Manager you must have the appropriate Administrator permissions for the Cumulus Server: Backup Administrator

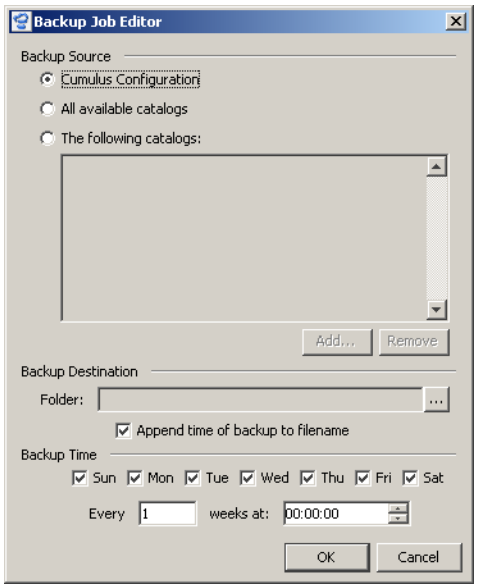
The Backup Manager allows you to automatically backup your Cumulus configuration files and catalogs – if the catalogs are based on the Cumulus database engine.

You can define jobs for the backup. These jobs include options for:

- Items to be backed up – You can either have a backup of your Cumulus configuration files, of all catalogs that are available at your Cumulus Server or just of selected catalogs.
- Destination for the backup files
- Time data when the backup should be performed

When you backup your Cumulus configuration files, a ZIP archive with all configuration files inside the **conf** folder will be created and stored at the chosen destination. Unless you activate the option **Append time of backup to file name**, this ZIP file will be overwritten by the next backup copy that is made due to the defined backup job.

When backing up catalogs, a catalogs does not have to be closed for the backup. The backup can even be made while clients are connected. When backing up a catalog, a temporary file is created for the catalog – the moment the backup was started. This temporary file will be saved as a BAK file to the selected destination. It is saved under the catalog file name with the extension BAK. Unless you activate the option **Append time of backup to file name**, this BAK file will be overwritten by the next backup copy that is made due to the defined backup job.



When scheduling backups, remember to take into account the time that Cumulus needs for creating and saving the catalog backup files.

Email confirmations can be sent automatically after catalog back-up operations conducted by the Backup Manager, if the Mail Manager is set to send notifications.

IMPORTANT! *It's important to remember that backing up a Cumulus catalog does not back up the catalog records' associated asset files. Make sure that all your important files are included in your regular backups.*

When defining the destination for the backups, the Select Destination Folder dialog opens. It allows you to navigate in the Remote File Browser Sections that are defined in the Cumulus Server Settings of the Remote Admin module.

FileSystem Companion Manager

The Cumulus FileSystem Companion is an add-on which listens to file system events and converts these to Cumulus actions in a smart way. This allows Cumulus to automatically catalog assets and to create, update or delete records based on changes in the file system.

Optional feature! May not be available with your Cumulus configuration.

The FileSystem Companion is available for Windows and Linux file servers only (which however may be accessed from any client platform). It runs as a separate service, called an instance, on the respective server machine. Each of the instances of the service has its own configuration xml file specifying the unique name of the instance, the address of the Cumulus Server and the technical user which is used to connect to that Cumulus Server.

Beyond these basic settings, the instances of the Cumulus FileSystem Companion are configured via the FileSystem Companion Manager of the Cumulus Server Console. This comprises the specification of the folder(s) to be watched as well as the catalog, Asset Handling Set and Permission Template to be used, certain time out values and a list of items to be ignored by an instance of the FileSystem Companion. Last but not least, these instances can be activated/deactivated via the FileSystem Companion Manager.

IMPORTANT! *The FileSystem Companion and the watched folders must be physically located on the same machine.*
Do not use the FileSystem Companion with network shares mounted into the file system because this can result in erroneous behavior.

The following table shows which file system event results in which Cumulus action:

File System Event	Resulting Cumulus Action
CREATE	*catalog created asset*
UPDATE	*update existing record or catalog asset if no record is found*
DELETE	*delete existing record*
RENAME	*rename existing record as well*

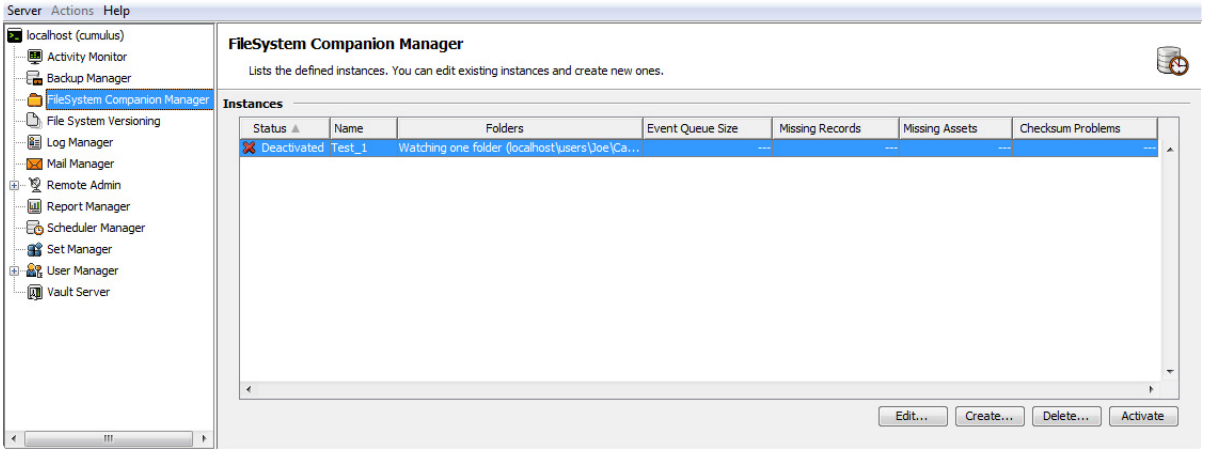
However, there is no one-to-one relation between a file system event and a Cumulus action. Cumulus puts file system events in a queue and processes them with a configurable delay, thus allowing to collect multiple events for a file in a given time and finally applying an appropriate Cumulus action that is the result of a number of file system events. This time out, or delay, is helpful e.g. if an application creates, renames and/or deletes temporary files while processing an asset.

For example, if there a sequence of file system events like: CREATE, UPDATE, UPDATE, DELETE, the resulting Cumulus action would be IGNORE, because it is impossible to create a record before the newly created asset is deleted again.

As a special case, RENAME operations on the file system are always executed immediately in Cumulus, without any delay.

Configuring FileSystem Companion Instances

The FileSystem Companion Manager displays a list of existing configurations. You can create new configurations, as well as edit, delete and activate/deactivate existing ones. If the name of an existing FileSystem Companion instance and the name of a configuration match, the settings specified in the configuration take effect for the respective instance.

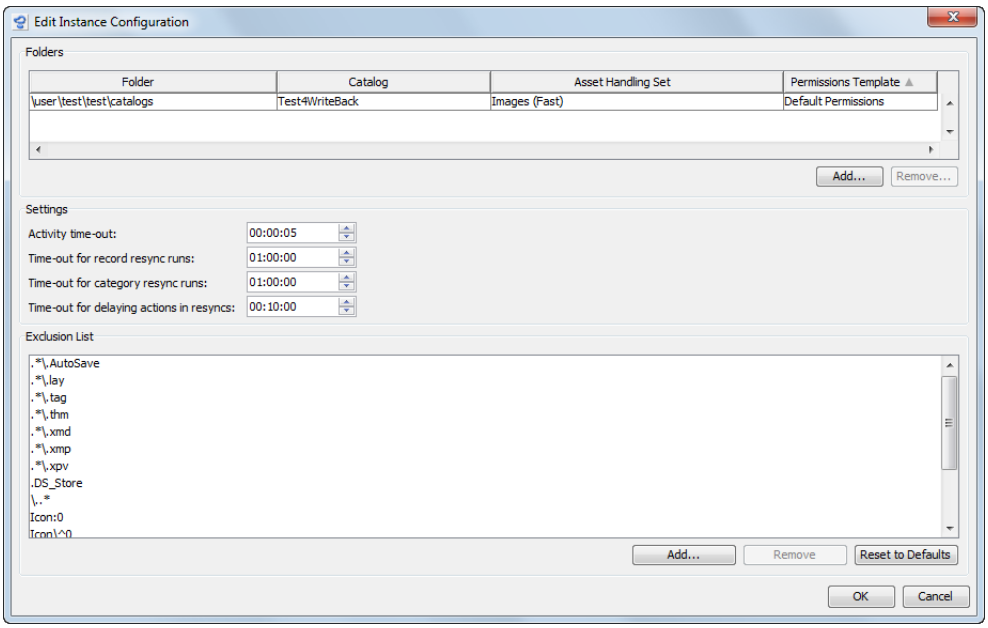


The following Information is displayed for each instance:

- **Status** – Running/Not Running/Deactivated
- **Name** – Name of the instance. Should match the name of an existing instance of the FileSystem Companion
- **Folders** – Number of and path to folders to be watched, and name of the catalog to which the file system events are synchronised
- **Event Queue Size** – Number of assets for which file system events are waiting to be processed

  The following columns provide information on inconsistencies found by the resync process running in the background. Usually, these inconsistencies are solved automatically within a certain amount of time.
- **Missing Records** – number of assets with no corresponding records
- **Missing Assets** – number of records with no corresponding asset
- **Checksum Problems** – number of reference inconsistencies

Existing or new instances are configured via the Edit Instance Configuration window.



Folders – a list of folders to be watched by the instance. The following information is displayed for each folder:

- **Folder** – Absolute path to the folder to be watched. All folders below this folder will be watched, too

  NOTE: *This leads to a (technical) source category tree which is visible on the* **All** *tab of the Category pane. This category tree must not be modified manually!*
- **Catalog** – Name of the catalog to which file system events from the specified folder are synchronised. Catalogs can be selected via d drop-down list

  NOTE: *It is not possible to apply system events from different folder paths to the same catalog!.*
- **Asset Handling Set** – Name of the Asset Handling Set to be used with the Cumulus action. Can be selected via a drop-down list
- **Permissions Template** – Name of the Permissions Template to be applied. Can be selected via d drop-down list

Settings – In this section, several time out values can be specified.

- **Activity time-out** – Minimum delay between the receipt of a file system event and its conversion into a Cumulus action.

  NOTE: *Usually, the actual time between a file system event and the resulting Cumulus action is larger than this value, depending on the load on the machine and the number of file system events coming in.*
- **Timeout for record resync runs** – Resync thread waits at least that amount of time between checking for records without asset and assets without record
- **Timeout for category resync runs** – Resync thread waits at least that amount of time between checking the technical FileSystem Companion category structure for categories without matching folders on disk.
- **Timeout for delaying actions in resyncs** – Resync thread waits at least that amount of time after it has detected an inconsistency (for example a record in the catalog with missing asset) and before the according cleanup function is executed (in this example, deleting the record).

Exclusion List – a lists of files, file types and folders which are to be ignored by the FileSystem Companion.

These settings must be notated in regular expressions!

File System Versioning

Cumulus supports asset versioning for assets stored in an asset versioning system like Cumulus Vault (see "Configuring Vault," p. 131), as well as for assets stored in a Central Asset Location on your file system.

The proper way to modify a versioned asset and to create a new version is to check the asset out first, then edit it, then check it in again. However, with file system based asset storage – and in contrast to Vault based asset storage – an asset may be revealed and modified directly within the file system, i.e. without previously been checked out from Cumulus. Cumulus therefore allows to check in and create a new version of a modified asset that has not been checked out before.

Prerequisites

Versioning of assets can be set up for any catalog which employs a file system based Central Asset Location (**Edit > Preferences > Catalog Settings > General > Use Central Asset Location**).

The following prerequisites must be met to make file system based versioning work for a catalog:

- The special fields for versioning (contained in the catalog template *Fields for Asset Versioning Control*) must be included in the catalog.
- The respective Central Asset Location must be configured as a Versioning Location (via the **File System Versioning** section of the **Server Console**).

Some Technical Background

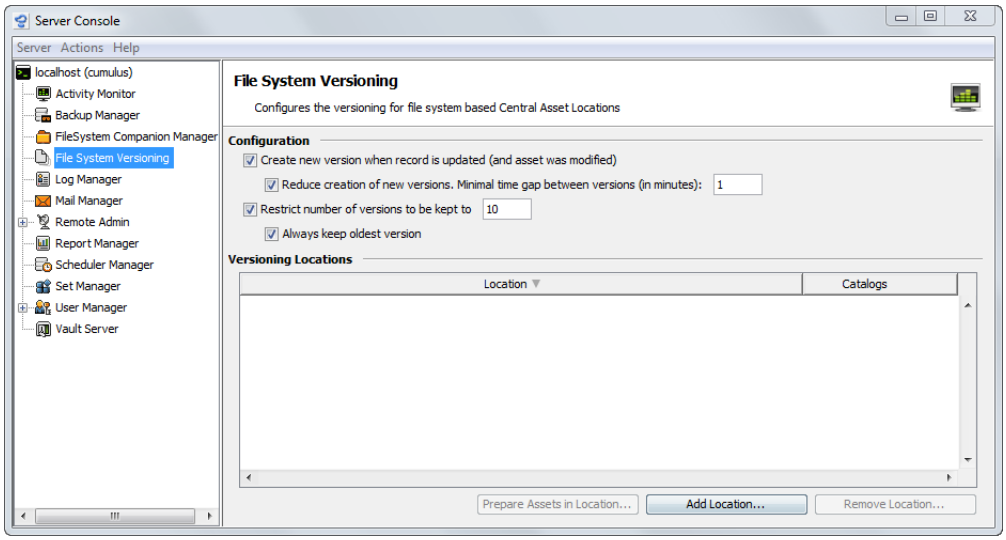
Cumulus stores the versions of assets in hidden folders within the central asset location so that they can't be revealed by simply browsing the file system. Only the current version of an asset is always visible in the file system.

NOTE: *In order to prevent the accidental destruction of a current version of an asset, Cumulus always keeps a second copy of that version in a hidden folder. Every time Cumulus generates a new version from a changed, but not checked-out asset, this hidden file becomes the penultimate version.*

Cumulus can generate new versions of changed assets every time the respective records are updated. Records can be updated either manually (via **Metadata > Update Record**) or automatically, e.g. via the auto cataloging function for source categories, or a scheduler action.

Configuring the File System Versioning

File system based versioning of assets can be configured via the Server Console.



The following settings can be configured:

- **Create new version when record is updated (and asset was modified)**: This takes effect both with manual and automatic updates of the record.
  If this option is not activated, new versions must be explicitly created via the **Asset > Check In** menu command.
- **Reduce creation of new versions. Minimal time gap between versions**: If activated, at least the specified number of minutes must go by before a new version is created, even if the asset has been changed in the meantime. – Depending on the system load, the length of the task queue, etc, the effective gap may exceed the specified value.
  This is useful to avoid clutter whenever an application creates frequent updates of a file.
  NOTE: *This setting only affects the creation of versions via an update record process. It does not affect the creation of new versions via checking in assets!*
- **Restrict numbers of versions to be kept to**: If activated, only the specified number of versions are kept.
- **Always keep oldest version**: If activated, the oldest version – the "original" file – is never deleted.

To configure a central asset location for asset versioning:

1. Click **Add Location**.
   A window appears displaying any central asset location defined in any catalog that is not yet configured for versioning.
2. Select the desired location, then click **OK**.
   A window appears asking whether all not yet versionable assets in the selected location shall be made versionable:
   Yes: Existing assets in the central asset location are made versionable.
   No: Existing assets are not made versionable; but new assets are always created as versionable. – You may transform not versionable assets to versionable ones anytime later via the **Prepare Assets in Location** button

3. Select the desired option. The location and the catalog to which the respective assets are cataloged are is displayed in the **Versioning Locations** list.

You may stop asset versioning for a location anytime via the **Remove Location** button. If you do so, you may also disable versioning for currently versioned assets (i.e. make them unversionable) and remove all existing versions.

Mail Manager

PRECONDITIONS: To work with the Mail Manager you must have the appropriate Administrator permissions for the Cumulus Server: Mail Administrator

The Mail Manager lets you configure Cumulus to work with your email server. It enables you to define and test your email server settings, choose to send Cumulus Server notifications, and see the queue of mail to be sent. Cumulus Server notifications include messages generated by the Cumulus Scheduler and Cumulus Server (e.g. syslog system messages, error messages or informations on successfully performed processes such as catalog backups.)

Overview: Mail Manager

The Server Console module Mail Manager module provides access to the central Cumulus mail configuration settings and the mail queue.

1 Displays the central Cumulus mail configuration settings.

2 Displays the list of messages to be sent. Provides buttons for deleting selected messages or refreshing the list

Server

The following settings define the mail server employed for sending emails from within Cumulus and its configuration.

3 Address of the SMTP Server employed.

4 SMTP Port. It the port is set automatically according to the security settings. (Port 25 is the SMTP standard TCP port)

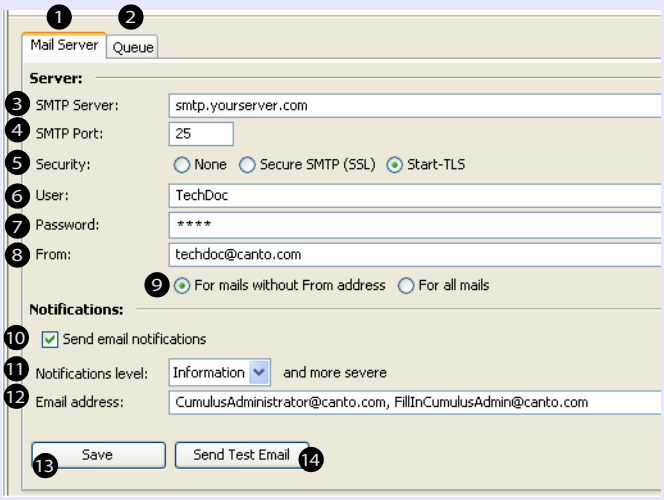
5 Security level for mail server communication. Options are:
– None: no security level defined
– Secure SMTP (SSL): Secure Sockets Layer
– Start-TLS – Transport Layer Security (TLS)
For setting the security level ask your mail server administrator.

6 Name of the mail server user account (used for authentication at the mail server)

7 Password of the mail server user account

8 Email address of the sender - either used for all mails sent or only for mails without a From address.

*9 Options for the From address. If the option **For mails without From address** is activated, the address of the sender will be used by default.*



Notifications

The following settings define whether and how notifications are sent:

10 If activated, notifications generated by the Cumulus Server and Scheduler are sent as mail messages to the email addresses defined below.

11 Defines the level of notifications that shall be sent via mail. Levels of notification include information, warning and error. The more severe levels are always included.

12 Mail address of the recipients of the notification. You can enter multiple addresses separated by commas.

13 Saves your settings and closes the window.

14 Sends a test mail messages employing the current settings.

TIP:
The notification emails or other automatically generated email messages (e.g. URLs) might be very short and therefore might be identified as unwanted email messages (E-mail spam or junk). Canto recommends you to send test mails and – if necessary – to request the recipients to include the From address in the safe senders lists of their local emails clients.

Remote Admin

You use the Remote Admin module to stop or start the Cumulus Server and to configure Cumulus Server Settings, such as the identity of the Cumulus Administrator, the TCP/IP port number of the Server, and time-outs for various actions. You also use the Remote Admin module to activate your Cumulus installation and/or additional options, and to view and, if necessary, modify, license information.

You need to be logged in as the Cumulus Administrator to work with Remote Admin.

The Remote Admin function can be performed via the Server Console or via its Web front-end from any computer. The following describes the version offered by the Server Console.

Cumulus Server Status

Once you click the Remote Admin entry in the Server Console, the Cumulus Server Status is displayed. You can start and stop the Cumulus Server.

Cumulus Server Settings

To reveal the Cumulus Server Settings click the + icon on the left side of the Remote Admin entry. Then click on the entry **Settings**. The Cumulus Server Settings will be displayed. The Server Settings options affect global Cumulus Server behavior.

If you want to change the settings, edit the settings and click **Save Changes** to send them to the Cumulus Server application. See "Overview: Cumulus Server Settings," p. 84, for an overview of the setting options available.

Overview: Cumulus Server Settings

General

1 *User name of the Cumulus Administrator.*

2 *Password for the Cumulus Administrator.*

3 *Click to change the password for the Cumulus Administrator.*

4 *Displays and lets you change the name of the guest account for the Cumulus guest connection login. The name you enter must be an existing Cumulus user account.*

5 *Displays and lets you change the language of the messages the Cumulus Server sends. Click the arrow button to select a language.*

6 *Maximum age for Cumulus users' passwords. After time period entered has passed since the last change, the user has to change it. Cumulus will request this change automatically. If you enter the value "0", passwords will never expire.*

TIP: *If you want to set the password to "never expire" of a certain user only, you can do this with the User Manager.*

7 *Displays the path to the folder containing the temporary files for catalog mirroring. The path is relative to Cumulus Server installation unless an absolute path is entered.*

8 *The Remote File Browser Section defines the starting point (highest point in the hierarchy of the file system) for the Remote File Browser dialog within Cumulus.*

9 *Click to add another Remote File Browser Section. Then enter a name for it. To set the path for the new section, click in the section's entry in the column Path and enter an existing path.*

10 *To remove a section, mark the section's entry and click this button.*

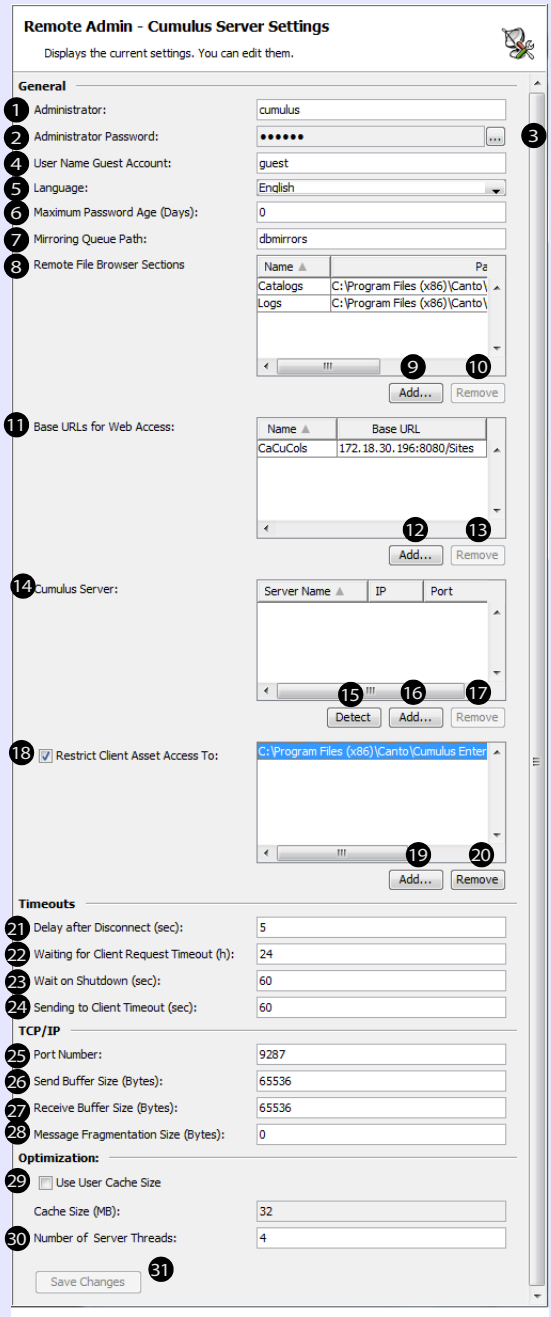
11 *Base URLs For Web Access define the Web addresses to catalogs that are published on the Internet with Cumulus Internet solutions (Web Client or Sites). Such an address is needed to create correct URLs for records, assets, preview or thumbnails in order to access them via Web link. The URL creation can be requested by the Cumulus Client employing the* ***Configure Web Link URL*** *function. This function is available only if at least one Base URL is defined here. (Fore more information on the requirements to make this function work, see "Configuring Web Links," p. 52.) Cumulus can manage multiple addresses for multiple Web applications. They are identified by the names you give them.*

12 *Click to add another Base URL. Then enter a name for it. To set the Web address, click in the Base URL's entry in the column Base URL and enter the address of the Web application in the following format: [http://[Web server IP address]:[Port No.]/[Name of Web application folder]*

13 *To remove a Base URL, mark its entry and click this button.*

14 *List of server machines running Cumulus Servers. This list is of importance in a multi-server environment only. The servers listed here are employed when cataloging, resolving/creating asset references from other platforms, communicating with Vault and for license check. You can either enter servers manually or have them detected by the system.*

15 *Click to have servers detected by the system. Depending on your network environment this may take a while. Once your entire system was checked and the list is completed, the detected list will replace the current list.*



Overview: Cumulus Server Settings

16 *Click to add another server manually.*

17 *To remove a server from this list, mark its entry and click this button. For best performance Canto recommends you check this list regularly and remove all servers that are not available.*

18 *If activated, the server locations for assets that can be delivered via Server/Client Asset Transfer are restricted to the folder(s) (including subfolders) specified here.*
Default: activated.

19 *Click to specify a new folder.*

20 *To remove a folder from the list, mark its entry and click this button.*

TCP/IP

25 *You can define a custom TCP/IP port number (in the field to the right) for Server and Clients. It is recommended using 9287 (this is registered for Cumulus).*
If you use any other number, you must set up the port number used by Sites, the Web Client, and the Vault Server (if installed on a machine other than the Cumulus Server) accordingly. You will also have to inform all Cumulus Clients to use the changed port number in the Connect To Server dialog (e.g. 123.123.123.123:9288 or ServerName:9288) OR change the port number in each Client's XML file - found in the ***conf*** *folder of the Cumulus Client installation folder. Under Mac OS X, you open this folder by opening the installation folder of your Cumulus application and then pressing the CTRL key and selecting the Cumulus application icon simultaneously to get the context menu for the application. In this menu select* ***Show Package Contents****, then open* ***contents*** *and finally open* ***Mac OS****.*
NOTE: *If you use any other number, you may have to change your firewall settings accordingly.*

26 *Defines the number of bytes sent as a block by the network interface card. Change the standard value of 16384 for special purposes only.*

Time outs

21 *When the Server disconnects a Client (e.g., for shutdown), it waits for a certain amount of time (e.g., 1 minute) plus the specified number of seconds before closing the Client connection.*

22 *The Server expects to get the next request from a Client within the specified time.*

23 *Number of seconds the Server waits for Clients to disconnect on shutdown.*

24 *When the Server sends data to a Client, the data must be transferred within the specified number of seconds or the Server automatically disconnects the Client.*

27 *Defines the number of bytes received as a block by the network interface card. Change the standard value of 16384 for special purposes only.*

28 *Size of a message that the server will send as one block. The default value "0" should be used with any local network as then the messages will be sent as one block by the server. You should only change this value if you have a Cumulus installation that includes Clients with a slow connection (e.g. modem or ISDN). If you change the fragmentation size under UNIX or Mac OS X, the value should be half (or less) of value set for the send buffer.*

Optimization

29 *If not enabled, Cumulus automatically determines the optimum size of the RAM cache for catalogs administered by the Server. If enabled, you can define a custom cache size (in the field Cache Size). For 32 bit Cumulus Server, the maximum cache size is 1961 MB.*

30 *Enterprise Servers only: Number of threads that can reply to a Client request at the same time. Four threads are sufficient for a Cumulus standard installation. Increase this figure for multi-core processors or multi-processor machines only. Maximum is 50.*

31 *Confirms the changes and sends them to the Cumulus Server application.*

License

To reveal the License information, click the + icon on the left side of the Remote Admin entry. Then click on the entry **License**. The license information for your Cumulus installation will be displayed.

Registering And Activating Additional Licenses

Newly purchased options or additional licenses can easily be activated. In the License information pane, click on **Activate Cumulus**, then log in to your Customer Portal Account. Activate the appropriate checkboxes, then click **OK**.

For more information on activating and registering Cumulus, see the *Installation Guide*.

FileSharing Info Settings

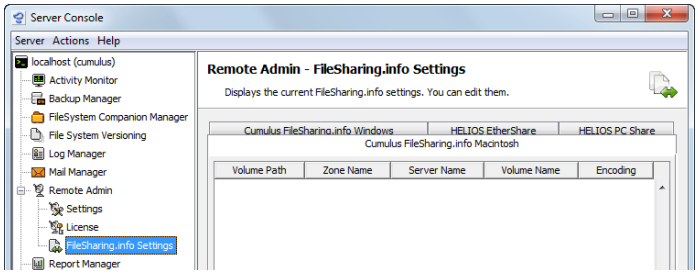
The **FileSharing.Info** file is used by Cumulus Servers to build:

- UNIX asset references based upon Mac OS X or Windows file system asset references

- Mac OS X asset references based upon UNIX or Windows file system asset references

It contains information on how a Windows, UNIX or Mac OS X asset reference should be converted to a corresponding UNIX or Mac OS X reference. The information stored in this file must be adapted to your Cumulus configuration.

Remote Admin provides a utility to ease the configuration of the FileSharing.Info file. The utility provides different tabs:

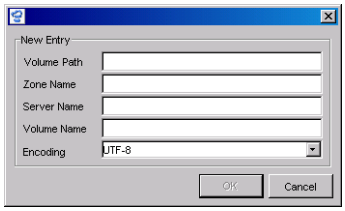


For the volumes from which assets are cataloged, you need to add entries for the FileSharing.Info that contain the required information.

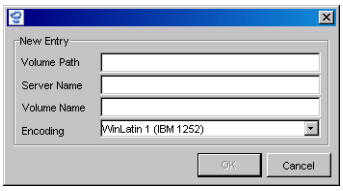
NOTE: HELIOS EtherShare and HELIOS PCShare

If HELIOS EtherShare is installed on the machine that runs the Cumulus Server, you do not need to update the Macintosh section settings of the FileSharing.Info file manually; Cumulus does this automatically.
If you have also installed HELIOS PCShare, you do not need to update the Windows section settings manually. The HELIOS EtherShare and HELIOS PCShare tabs display the information that is provided to the FileSharing.Info by this software.

To add the information on the platform volume from which assets are cataloged, click the tab for the appropriate platform and click the **Add** button. A dialog opens that asks for the information needed to create the correct platform asset reference based upon the asset references already provided.



Dialog for entering information to create a reference based upon a Mac OS X reference.



Dialog for entering information to create a reference based upon a Windows reference.

- **Volume Path** – volume path of the share point in the notation of the platform (e.g. UNIX notation: **/shares/volume**)
- **Server Name** – Name of the file server. This can be the IP address or the real server name (DNS-resolvable name).
- **Zone Name** – AppleTalk zone name as it appears to Mac OS X clients (Mac OS X only)
- **Volume Name** – Name of the volume on the file server
- **Encoding** – The encoding for the Macintosh section definitions should always be set to **UTF-8**. The encoding for the Windows section definitions should always be set to **WinLatin1**.

Make sure you enter the server names and volume names (case sensitive) exactly as they are displayed for the appropriate platform in an Asset Reference field of the Cumulus Information window/view. This field also shows what you should enter as server name (the IP address or the real server name). The volume names

entered must match exactly the names of the volumes themselves. (Note that spaces must not be escaped by quotes.) Make sure you don't enter a UNIX server name.

After the **FileSharing.Info** is edited, the records must be updated to get valid entries for the missing platform asset references. Use a Cumulus Client (Mac or Windows) to update the records (**Metadata** > **Update Records** > **Update now**). Use an Asset Handling Set that has the File System AssetStore for the missing platform asset references activated. After doing so, the Asset Reference field in the Information window/view will show the following UNIX path for a cataloged asset:

//MyServer/MySharedVolume/MyFolderStructure/MyAsset

Without correct **FileSharing.Info** entries, a UNIX reference would look something like this:

MyServer:/home/LoginName/MySharedVolume/MyFolderStructure/MyAsset

This is a *non existing path* and Cumulus *cannot* resolve it.

The entries on the Cumulus FileSharing.Info Macintosh and Cumulus FileSharing.Info Windows tab of Remote Admin FileSharing.Info Settings window can be edited or deleted. To edit an entry, select the desired entry and click **Edit**. To delete an entry, select the desired entry and click **Delete**.

To save the changes you made in the Remote Admin FileSharing.Info Settings window, select **Actions** > **Save**.

Additional Notes

- Best Guess
  If the Unix File System AssetStore is activated, during cataloging, the Cumulus Client tries to create a corresponding UNIX asset reference and sends a request to the Cumulus Server. Using the **FileSharing.Info** file, the Cumulus Server answers this request. If a UNIX asset reference could be created, it is stored with the cataloged asset. If the Cumulus Server cannot create a UNIX asset reference, it stores instead a "best guess" reference such as: **/usr/home/images/picture.jpg**.
- Asset Handling Sets
  When working in a cross-platform environment, Canto recommends using Asset Handling Sets that have the Asset Storage modules for all three different file systems activated: Mac OS File System, UNIX File System and Windows File System.
- Cumulus Internet Solutions and Local Access
  If you run Cumulus Web Client, Sites, Web Publisher Pro (WPP) or Internet Client Pro (ICP) on a computer other than your Cumulus Server, you might need a configured **FileSharing.Info** file on the computer running the Cumulus Internet Solution. The **FileSharing.Info** file is needed in case the Cumulus Internet Solution accesses assets that were cataloged locally from the same computer the Cumulus Internet Solution is running on. In this special case, a properly configured **FileSharing.Info** file must be copied to the **etc** (UNIX) or **conf** (Windows) subfolder of the installation folder of the Cumulus Internet Solution.
  If you use a Cumulus Java Classes installation different from the one in the Cumulus Internet Solution installation folder, the configured **FileSharing.Info** file must be copied to the **etc** (UNIX) or **conf** (Windows) subfolder of that Cumulus Java Classes installation folder.
- Applications based on Cumulus Java Classes
  If you use an additional application with your Cumulus installation, and this application is running under UNIX or Mac OS X on a computer other than

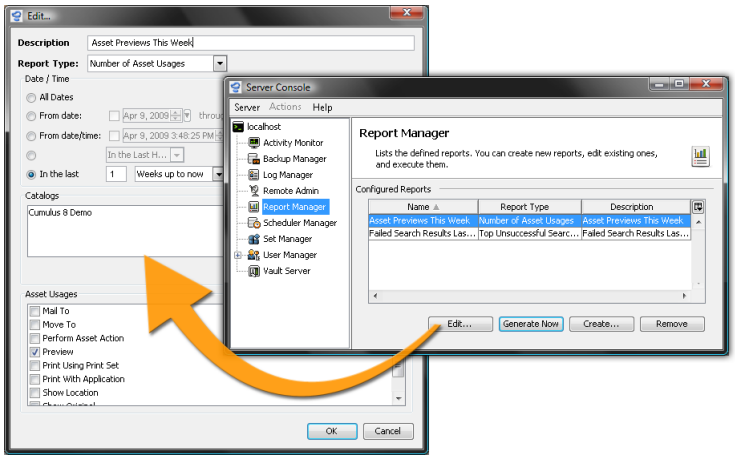
your Cumulus Server, you might need a **FileSharing.Info** file on this computer. In this case the configured **FileSharing.Info** file must be copied to the **etc** (UNIX) or **conf** (Windows) subfolder of the Cumulus Java Classes installation folder used by the application.

Report Manager

Cumulus can generate reports based on catalog statistics (number of previews, print outs, mail to, etc.) and reports based on Cumulus Server activity, such as successful and failed search results, client connection rates, and more.

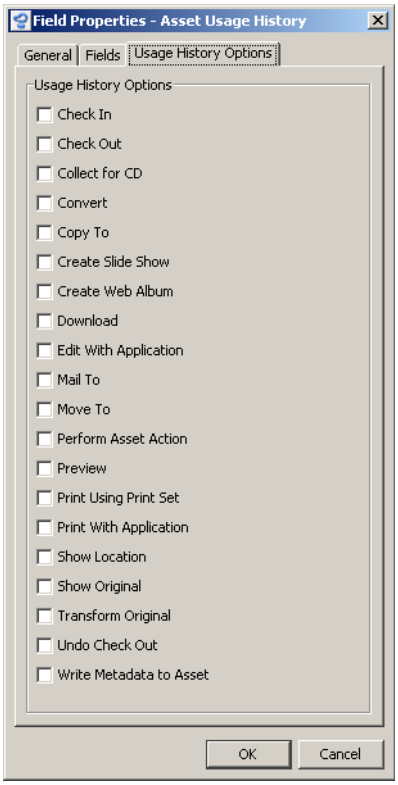
Optional feature! May not be available with your Cumulus configuration.

The Report Manager enables you to configure reports customized to your needs. The created reports can be exported. For example, reports can help you "fine-tune" your metadata values, because you can see exactly what users are searching for. When a search fails, now you can see the term used. Reporting helps you ensure your system is tuned to perfection and that you're getting the most out of it.



Requirements

Generating usage evaluation reports is based on the record field Asset Usage History. This field has to be added to each catalog where you want to track usage. Once added you configure it and mark the activities you want to be tracked in the catalog.



Required for usage evaluation tracking is a configured Asset Usage History record field.

> **TIP: Asset Usage History Field**
> The asset usage tracked by this field can also be viewed in the Client application. Divide the Record pane with a sup-pane and select the Asset Usage History filter.

Generating time related reports (search term and licensing reports) is based on a special Cumulus catalog. Its catalog name is **$Statistics** and its catalog file name is **Statistics.ccf**. This manual refers to it as the Statistics catalog.

The Statistics catalog has to be managed by your Cumulus Server, meaning it has to be included in the Catalog Access list. It must not be shared nor published to the Internet.

It is possible to open the Statistics catalog with a Cumulus Client, but this is not recommended. There is only one reason to open the Statistics catalog with a Cumulus Client: If you want to have more fields than the default configuration offers, you can add record fields to the Statistics catalog.

Working with the Report Manager

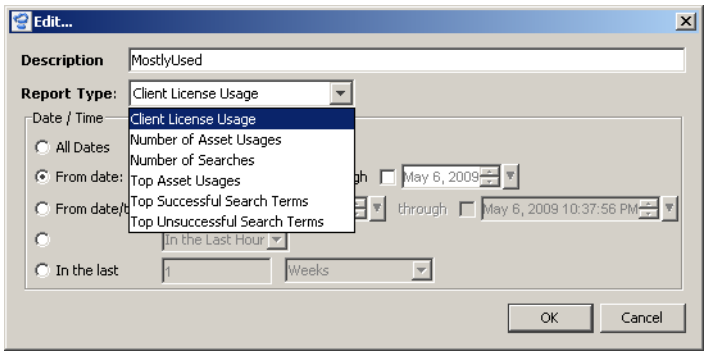
PRECONDITIONS: To use the functions of the Report Manager you must have the appropriate Report permissions for the Cumulus Server: Create, modify, delete reports. (**Server Permissions** > **Report Permissions**)

To generate a report you create a report configuration and then use it to generate a report on demand.

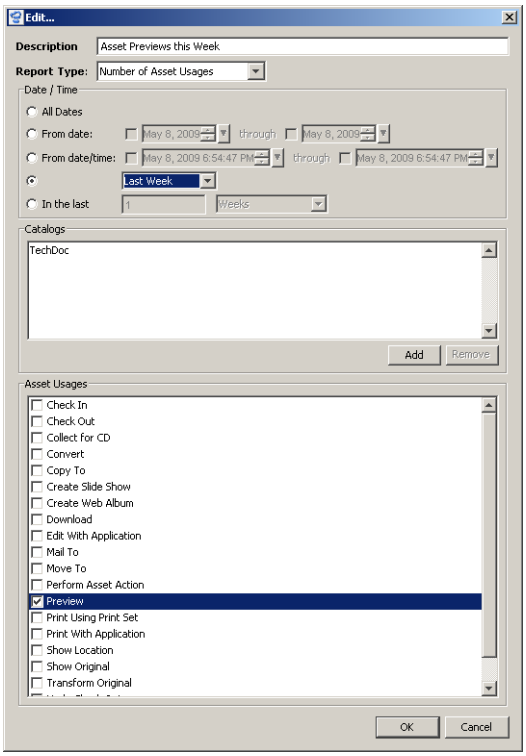
Once you have created a report configuration, it is saved and listed under Configured Reports. To generate a report you select its entry and click the **Generate Now** button.

Configuring Reports

Reports are easy to configure. You can select from different report types:



The options available for the report configuration depend on the selected report type.



Example of a report configuration for tracking asset usage

Usage Reports

Remember that all usage reports require a configured **Asset Usage History** record field in the catalog tracked. Only usage types activated in the fields properties can be tracked and used for reports.

- **Top Successful Search Terms**
  Search terms of queries that had a result. The report contains the frequency as well as the search term that the user entered sorted by the frequency. Note

that only textual search operations are taken into account (e.g. in string or string list fields.)

- Top Unsuccessful Search Terms
  Search terms of queries that led to no results. The report contains the frequency as well as the search term that the user entered sorted by the frequency. Note that only textual search operations are taken into account (e.g. in string or string list fields.)
- Top Asset Usage
  Select the asset usage kind that should be reported (e.g. "Download"). The report shows the names of the assets that were used and the usage type, sorted by usage frequency.

  The results are displayed in a table that can be sorted by number of occurrence, date, etc. The table contents can be saved into a tab-separated text file to be imported into Microsoft Excel for evaluation and presentation.
- Top File Formats
  This report shows the number of assets and the total asset data size per file format for each selected catalog. The purpose is to get an overview of how many assets of each format the catalogs contain and how much disk space they are occupying.

Under **Asset Usages** you will find all usage history options – even those currently not activated for the corresponding catalog. This enables you to generate reports even for usages that are no longer tracked in the catalog. However, make sure that for a report you only activate asset usages for such usages the corresponding catalog can provide tracked data for.

Time Related Reports

Remember that time related reports require the Statistics catalog.

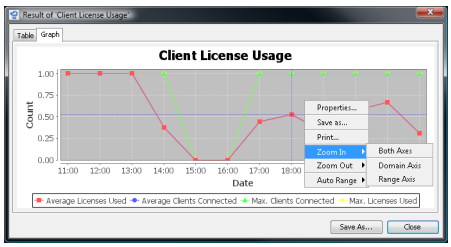
- Assets Added
  Depending on the time period the list contains assets that were added to the selected catalogs.
- Checkouts
  This report lists all combinations of user + asset along with the number of checkouts and checkout times during the given date range.
- Number of Searches
  Depending on the time period, the list contains the number of queries being performed. The interval is either minute, hour, day or month depending on the length of the period.
- Number of Asset Usages
  Depending on the time period, the list contains the number of asset usages (e.g. "Download" and "E-Mail"). The interval is either minute, hour, day or month depending on the length of the period.
- Client License Usage
  Depending on the time period the list contains the number of users logged on as well as the number of licenses being used. The interval is either minute, hour, day or month depending on the length of the period.

  The results can be displayed either in a table or in a graph. They can be saved into a tab-separated text file to be opened by MS Excel or in a graphics file (e.g. PNG).
- Generic Asset Query
  This type of report returns a list of assets that match the given date range and also an optional server-side query. You can select the date field for the range and also sort the result by a given field.

Generating Reports

To generate a report you select its entry and click the **Generate Now** button.

The generated reports can include text tables and images, which can be exported for use and analysis in spreadsheets, presentations and other programs. The **Save As** button lets you save the reports in formats that can be imported by other applications.



Report on Client License Usage as a graph

> **TIP:**
> The Cumulus Scheduler can run your configured reports at times you define. For more information see "Generating Reports," p. 92

Editing or Removing Report Configurations

To edit or remove report configurations select the report's entry and then click the appropriate button.

Scheduler Manager

The Cumulus Scheduler enables you to define and schedule tasks to be automatically performed by Cumulus. It will save you time and increase your productivity by automating frequent tasks. The Scheduler enables you to run time consuming functions during off-peak hours, and also enables you to automate routine tasks. In combination with the Cumulus Trigger feature, the Cumulus Scheduler makes a powerful tool to automate business processes and save wasted resources.

The Cumulus Scheduler consists of the Scheduler Manager and the Scheduler Server Application. The Scheduler Server Application be installed separately (on the computer that you want to perform the tasks; for details see the *Installation Guide*.) The Scheduler Manager lets you set up tasks that are to be performed by the Scheduler Server Application.

Setting Up a Scheduler Task

The set up for a Scheduler task includes:

- The Scheduler Action to be performed
- The catalogs on which the Scheduler Action should be performed
- When the Scheduler Action should be performed

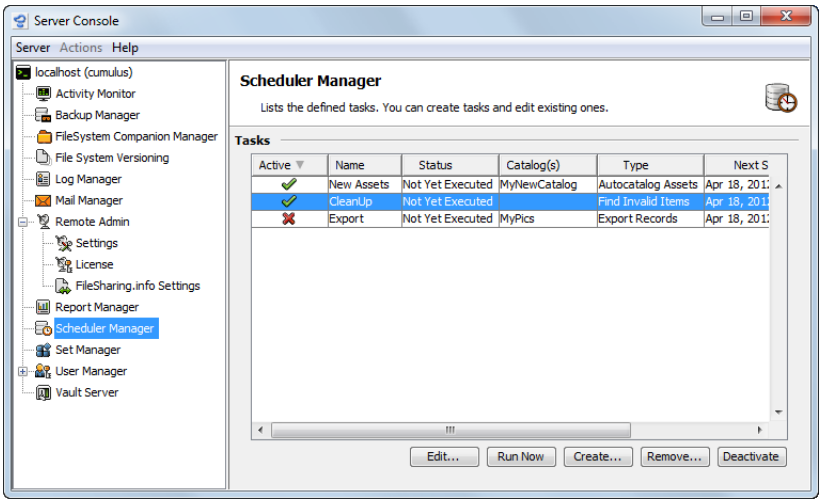
The Scheduler Actions are selected from a list and can be configured. The Scheduler Actions available depend on the Cumulus Server you are connected to. Available actions are stored in a special folder.

How to install and configure the Scheduler Server Application is described in the Installation Guide.

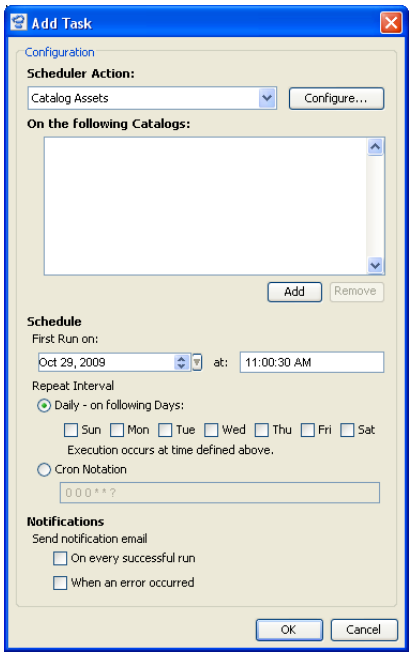
The Scheduler Manager utility is included in the Cumulus Server Console. To work with the Scheduler Manager, a user /role must have the appropriate **Scheduler Task Permissions** (part of the **Server Permissions** of the respective user/role).

To set up a Scheduler Task with the Scheduler Manager:

1. Select the **File** > **Administration** > **Server Console**, or connect to the Web Server Console via a Web browser.
2. The Server Console is started. Log on as Cumulus Administrator (or the user who has the Scheduler Administrator permission) to the Cumulus Server that manages the catalogs you want to have Scheduler Tasks performed on.
3. Select **Scheduler Manager**. A window opens that lists all Scheduler Tasks.



4. To set up a new task, click the **Create** button. This dialog opens



5. Select the Scheduler Action you want to be performed.
   If the selected action can be configured, the **Configure** button is activated and you can configure the action to your needs. (For more information see "Provided Scheduler Actions," p. 94.)
6. Determine 'where' the action is to be performed. Click **Add** to choose the catalogs. The list of catalogs is displayed that are managed by the Cumulus Server you are connected to. Select the desired catalogs in the list and click **OK**.

7. Determine when the action is to be performed. Under **Schedule** define:
   - date and time for the first run.
   - the Repeat Interval. You can choose to have it repeated on specific days or use cron notation for more specific time data. If you decide on certain days, simply activate the check box(es) for the corresponding day(s). Cron notation should be used by specialists only.
8. Decide whether and about what you want to be notified via email concerning the run of the Scheduler task under **Notifications**:

   NOTE: *Notifications are sent only if the Notification option is activated in the Mail Manager. Also check there whether the email address of the intended recipient is included.*
9. Click **OK** to save your settings. Your new Scheduler Task is added to the list.
10. To activate the task, click the **Activate** button. – On activated tasks, the button changes to **Deactivate**.

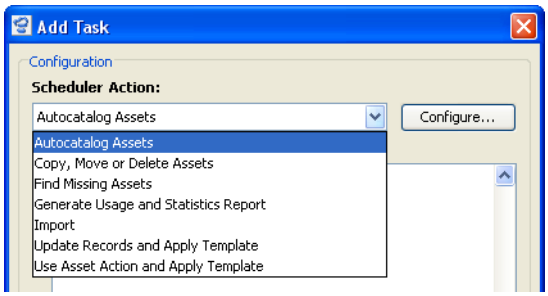
All activated tasks are performed by the Scheduler Server Application at the time defined in the task. You need only make sure that the Scheduler Server Application is running and that the computer running it is online and can access the Cumulus Server.

From time to time you should check the status of the tasks, as it cannot be granted that they could be executed.

Use the **Run Now** button to execute any Scheduler task immediately. This is very handy when testing, when you don't want a task to run at intervals, or when you need a task to run just once.

Provided Scheduler Actions

Most of the Scheduler actions that Cumulus provides are the basis for powerful workflow possibilities.

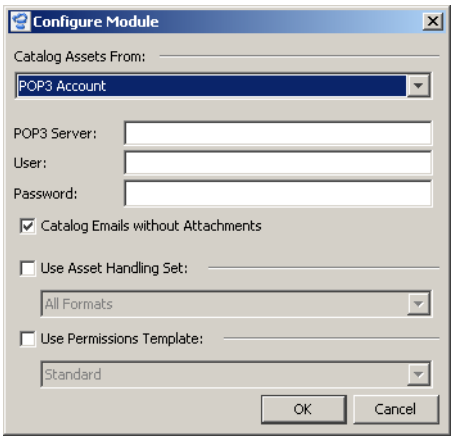


Note that some of the provided actions belong to optional features which may not be available with your Cumulus configuration.

Autocatalog Assets

You can configure the Cumulus Scheduler to autocatalog assets from any location on your network, at any interval you need. There's no need to leave a Cumulus Client application running, because the Cumulus Scheduler will handle it all. More so than drop-folder cataloging, this capability can serve as a basis for interfacing Cumulus with other systems that produce documents, such as invoicing systems or software that produces on-demand PDFs (or other formats). Within minutes of those files being produced, they can be safely cataloged into Cumulus and available to you from anywhere.

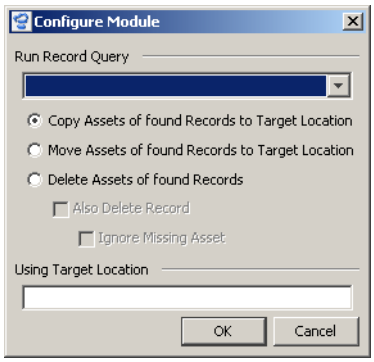
This Cumulus Scheduler action also provides an email cataloging technology. Cumulus can check a standard POP3 email account and retrieve and catalog any email it finds. Email text is extracted into an asset record, and all attachments are cataloged and linked to the email record.



Select the option to catalog emails from a POP3 account, enter the data of your POP3 Server and you can have emails cataloged automatically.

Copy, Move or Delete Assets

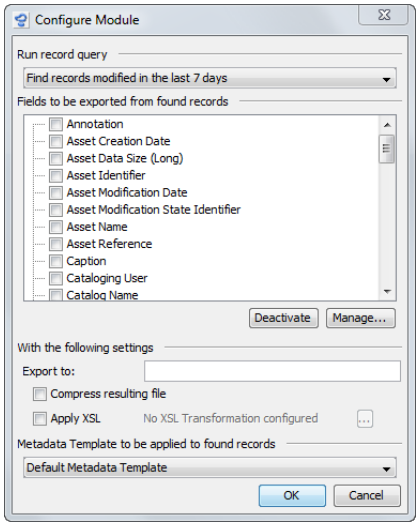
This action moves assets to archive locations, or deletes temporary or obsolete assets – all automatically, all based on metadata values. It even enables you to use Cumulus as the distribution system that moves files created by other systems to the locations you need.



You can define metadata values in your catalogs that direct the Cumulus Scheduler to copy, move or even delete assets.

Export Records

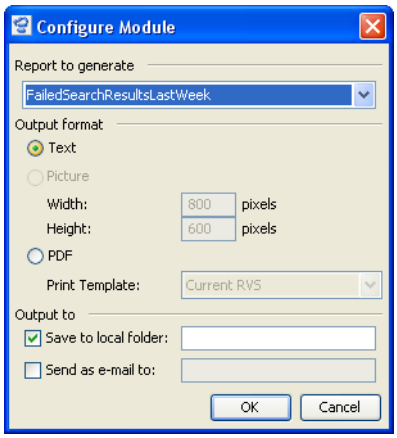
This action exports records found by a query to an xml file.



You can select which metadata fields shall be exported from the found records, as well a s a Metadata Template to be applied before the export. You can also choose whether the resulting file is to be compressed or whether an XSL transformation is to be applied.

Generate Usage and Statistic Report

Cumulus reports can be scheduled to occur at intervals you define, ensuring their contents are up to date and accurate. You can determine which reports you want run, choose when you want them run, and choose the catalogs to report on. You can also choose the output format and the destination for the output. The options available for the output format depend on the report type employed.



Select one of the reports you defined with the Report Manager and then have the Scheduler generate it at times you define for this Scheduler task.

> **TIP:**
> You can use the Scheduler's autocataloging to automatically catalog each new report back into Cumulus.

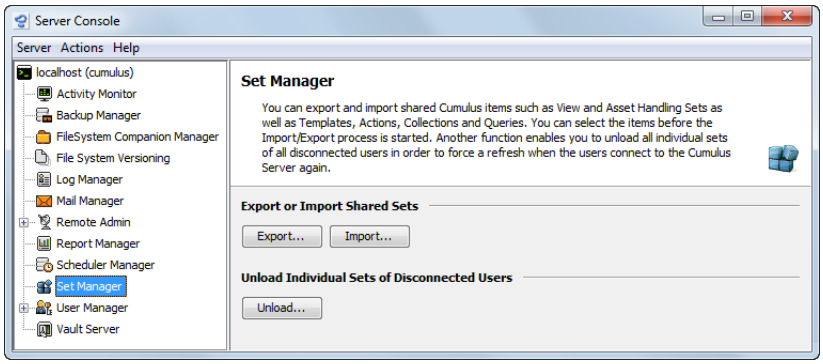
Set Manager

The Set Manager enables you to export and import shared Cumulus items such as View and Asset Handling Sets as well as Templates, Actions, Collections and Queries. You can select the items before the Import/Export process is started. Another function enables you to unload all individual sets of all disconnected users in order to force a refresh when the users connect to the Cumulus Server again. This function lets the Cumulus Client application reload the individual sets of a user.

To use the Set Manager you need to be Cumulus Administrator.

To import or export Cumulus items (shortly called: sets) with the Set Manager:

1. Select the **File** > **Administration** > **Server Console**, or connect to the Web Server Console via a Web browser.
2. The Server Console is started. Log on as Cumulus Administrator to the Cumulus Server that manages sets you want to export or that you want to import sets to.



3. Click the button for the function you want to perform.
4. Follow the on-screen instructions.

As a user administrator you have the job of managing user access to catalogs. Not only does Cumulus let you define whether each catalog is shared by your workgroup, but also how each catalog is shared by each user. In this chapter, you will learn how to set up Client users, how to make catalogs available to Client users, and how to define specific user permissions.

Managing Users

User Management

The Cumulus user management enables you to specify users and their access rights to certain catalogs and functions.

Cumulus permissions are based on an additive concept. This means that a new user does not have any permissions by default. This minimizes the risk of granting permissions accidently but implies that you have to grant any new user at least the minimum permissions a user needs to work with Cumulus.

NOTE: Migrating from Cumulus 6

Permissions have been based on this additive concept since Cumulus 6.5. Hence when updating from Cumulus 6 to Cumulus 6.5 or higher, the newly introduced Cumulus permissions (e.g for sets, action, queries and templates) have to be added to the properties of each user of your former Cumulus 6 installation.

The Users Catalog

The user management is based on a special Cumulus catalog. Its catalog name is **$Users** and its catalog file name is **Users.ccf**. This manual refers to it as the Users catalog.

The Users catalog has to be managed by your Cumulus Server, meaning it has to be included in the Catalog Access list. It must not be shared nor published to the Internet.

Canto has developed a special module to manage users with this catalog. The name of this module is **User Manager** (available via the Server Console.)

It is possible to open the Users catalog with a Cumulus Client, but this is not recommended for user management. There is only one reason to open the Users catalog with a Cumulus Client: The user data are stored in record fields. If you want to have more fields than the default configuration offers, you can add record fields to the Users catalog. If you do this, always use the version of the Cumulus Client application that fits the version of your Cumulus Server.

Modes

Cumulus is intended to meet the needs of many different customers. This is why the Cumulus user management offers different modes. Whether you settle for user-based or role-based mode defines the method by which permissions are assigned. For both methods a simple and advanced view is offered for granting the permissions.

User- and Role-Based Mode

Cumulus provides two different modes for the method of managing users:

- the user-based mode where you assign the permissions to each user
- the role-based mode where each user can be assigned to roles that include certain permissions *(Note that this is an optional feature which may not be available with your Cumulus configuration.)*

The user-based mode was designed for a smaller number of users to be administered. You assign permissions and catalogs to each user individually.

The role-based mode was developed for a large number of users to be administered. You can create roles that you use to assign a common set of permissions and catalogs to multiple users. Organizing users by defining roles makes it easier to manage access rights. With this strategy, rather than assigning permissions to each user for each object, you assign permissions to a few roles and then add users to the appropriate role. When using Cumulus, users are granted permis-

sions based on any roles to which they belong.

When you create a user account for a new user, you add that account to the appropriate role. Then, the user has the permissions associated with that role. Also, changing permissions is easier: rather than having to change permissions for each user, you change the permissions assigned to the role.

If you work with the role-based mode and you have a LDAP server, you can define mappings from LDAP groups to Cumulus roles. By using this mapping you no longer need an entry for this user in the User Manager. (See "Cumulus Roles," p. 129, for further information.)

You have to decide which mode you want to work with. Once you have switched to the role-based mode you cannot switch back to the user-based mode. Both modes offer the same range of functions – except that the role-based mode offers roles to "bundle" users. So in case you have Cumulus users that can easily be "bundled" or split into different groups, we recommend that you employ the role-based mode. And we do *not* recommend that you start with the user-based mode and then switch to the role-based mode, otherwise each user you have defined will be converted to be a role.

The user-based as well as the role-based mode works with the Users catalog and the User Manager module to manage users with this catalog.

Simple View and Advanced View

The user-based as well as the role-based mode can be used in either the simple or the advanced view. The simple view subsumes several permissions whereas the advanced view lets you assign permissions in a very granular manner. For more information, see "Simple View: Catalog Permissions," p. 106, and "Advanced View: Permissions," p. 107.

The simple view enables you to set user or role permissions for a single catalog, or your entire Cumulus Server with just a few mouse clicks. You can switch to the advanced view when you need to make more granular changes. Both modes are always available, so you don't have to choose just one.

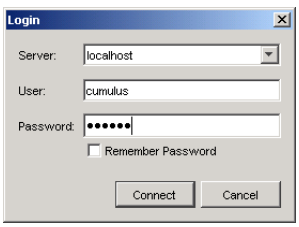
NOTE: Migrating from Cumulus 6

When migrating from Cumulus 6 Canto recommends you to use the advanced view for checking and updating the permissions.

User Manager

To work with the User Manager you need to have the appropriate Administrator permissions for the server: User Administrator.

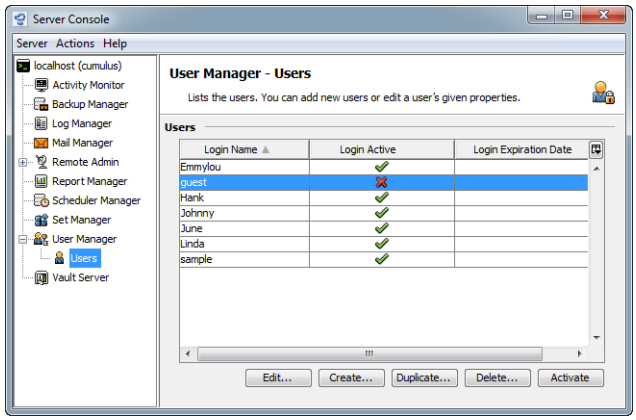
The User Manager is one module of the Cumulus Server Console. To start the User Manager:



5. From within the Cumulus Client, select **File** > **Administration** > **Server Console**, or connect to the Web Server Console via a Web browser.
6. Log on to the Cumulus Server you want to administrate as Cumulus Administrator or as user who has the permission: User Administrator.

   The modules of the Server Console application are loaded.
7. To reveal the User list click the + icon on the left side of the entry **User Manager**. Then click on the entry **Users**. The list of users will be displayed.

The Users List



The first step is to set up the users you wish to give access to working with your Cumulus installation. If you want to import user data from Cumulus 5 catalogs, see "Importing Users and Permissions from Cumulus 5 Catalogs," p. 121. If you want to import user data from a Cumulus Internet solution, see "Importing User Data from Cumulus Internet Solutions," p. 122.

Creating Users

A new user does not have any permissions by default. We recommend that you create "typical" user accounts that fit the needs of your organization first and then duplicate these user accounts to set up the real users. However, when using this method, remember to keep such users up-to-date, e.g. when adding new catalogs. Create as many of these account "templates" as you need.

> **TIP: User Settings**
> Administrators have no access to each user's preference settings, so users must make user setting changes on their own. If you want to provide a default set of User Settings for each newly created user, also configure the User Settings of your "typical" user accounts as you need.

To add a new user to the Users list:

1. Click the **Create** button.
   OR
   Select your "typical" user and click the **Duplicate** button.

IMPORTANT!
Check whether this user's properties are up-to-date – especially the catalogs that she/he is allowed to access.

   A dialog is opened.

2. Enter the Login name for the new user and click **OK**. The name must be unique.

   The properties window for the new user is opened.

   Only if you want to have the user always be identified by the UUID provided by the Cumulus Built-in authenticator and stored in the Users catalog, activate the **Unique User ID** option. (For more information on the Unique User ID, see "User Identification," p. 105.)

3. Activate the **Login Active** checkbox if you want to allow the user to work with Cumulus immediately after you have closed the user's properties window.
4. Select the authentication method. You can choose different methods for different users of your Cumulus installation. The provided choice of authentication methods is:
   - **Built-in** – The Cumulus built-in authentication will be used exclusively. Advantage: Independent from the system you are using.
     With this authentication method only, different options for changing the password are available.
   - **System** – The user password will be authenticated by the system. Advantage: Password must be changed once only.
   - **LDAP** – If you are employing LDAP (Lightweight Directory Access Protocol) the user password will be authenticated by LDAP. Advantage: Password must be changed once only. (See "LDAP Authentication Method," p. 127, for details on how to use this method with Cumulus.)
5. Click the  button to enter a password for the new user.

   NOTE: *Don't forget to inform your new user about this login name and password.*
6. Enter the data for the new user in the corresponding fields of the General and Additional Fields sections. (See "Overview: User Properties – General & Additional Fields," p. 104, for more information on the sections and fields).
7. If working in user-based mode: Set the permissions for the new user. (See "Simple View: Catalog Permissions," p. 106, or "Advanced View: Permissions," p. 107, for more information.)

   If working in role-based mode: Assign the user to a role. On the Role tab click the **Add** button to get a list of available roles. Select the role(s) you want to assign to the user and click **OK**.

   NOTE: *Due to the additive permissions concept, the permissions a user has got are the sum of the permissions given to all roles the user is assigned to.*
8. Click **OK** to save the defined properties.

Duplicating, Editing and Deleting Users

For duplicating, editing and deleting users select the user's entry and then click the appropriate button. Duplicating a user works the same way as creating a new user except that when duplicating the properties of the duplicated user are copied for the new user – all properties except the login name.

User Properties

A Cumulus user's properties include her/his contact information and, in the user-based mode, the permissions she/he has for functions and catalogs. The User Properties window has several sections that provide access to the information stored on a user. These sections are:

- General – Login information and basic personal information
- Additional Fields – Additional contact information on the user

In simple user-based mode additionally:

- Permissions – Global permissions and catalog permissions

In advanced user-based mode additionally:

- Catalogs – Cumulus catalogs the user is allowed to access
- Permissions – Permissions the user has on these catalogs
- Server Permissions – Permissions the user has for functions and objects managed by the Cumulus Server.

In role-based mode additionally:

- Roles – Roles the user is assigned to

The following overview describes the General and Additional Fields sections only.

Overview: User Properties – General & Additional Fields

The User Properties window has several sections that provide access to the information on the selected user.

General Section

The General section contains the basic information on a user.

1 *Must be activated to enable the user to log on.*

2 *Displays the user's login name; the name must be unique.*

3 *If activated, user will always be identified by the UUID. For more information, see "User Identification," p. 105.*

4 *Displays the selected authentication method.*

5 *Click this button to have the available authentication methods displayed. For more information on authentication methods, see "Creating Users," p. 102.*

6 *Displays the encrypted password. (Note that the placeholder stars are shown even if no password is set, e.g. when creating a new user.)*

7 *Click this button to enter or change the password.*
NOTE: *Don't forget to inform the user about her/his password.*

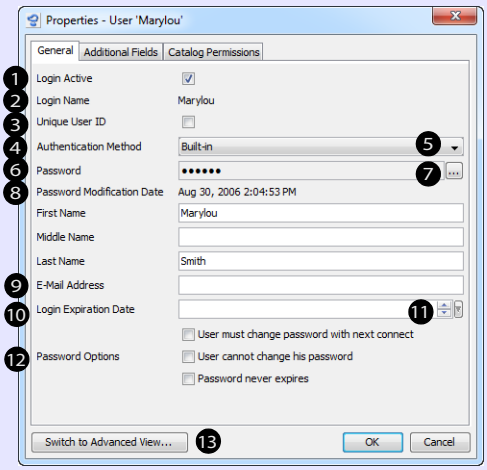
8 *Displays the date when the password was last modified. This date along with the maximum password age defines when the user has to change her/his password. The value for the maximum password age is defined in the Cumulus Server Settings (see "Overview: Cumulus Server Settings," p. 84).*

9 *Should contain a valid e-mail address. If the E-Mail Address field does not contain an address, the user cannot make use of any of the e-mail functions of Cumulus Web Client or Sites.*

10 *If this field does not contain a value the user's login will not expire.*

11 *Click this button to select an expiration date for the user's login.*

12 *Enable the desired option for changing the password. (Only available with the Cumulus built-in authentication method.)*



NOTE: *The **Password never expires** option overwrites the maximum password age set for Cumulus users' passwords in the Cumulus Server Settings (see "Overview: Cumulus Server Settings," p. 84).*

13 *Switches the permissions management from Advanced View to Simple View and vice versa. The Advanced view provides three tabs for the permissions management where as in simple view the user or role permissions are subsumed and offered on one tab. For details see "Simple View and Advanced View," p. 101.*

Overview: User Properties – General & Additional Fields

Additional Fields Section

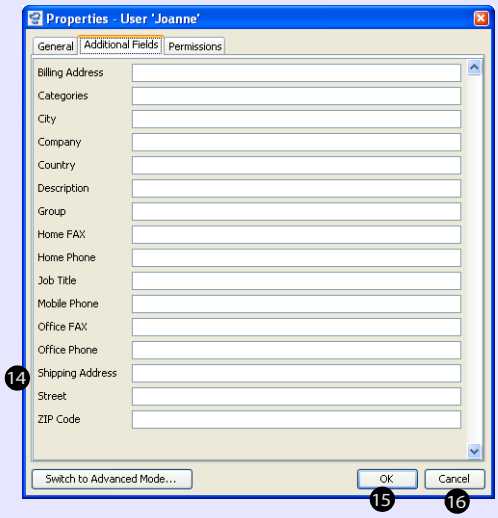
The fields displayed in this section depend on the record fields on the catalog displayed in alphabetical order (A-Z).

14 Should contain an address. If the Shipping Address field does not contain an address, the user cannot make use of any of the Cumulus Web Client CD delivery functions.

15 Saves the information on the user and closes the window.

NOTE: *Depending on configuration, it may last up to 30 minutes until the changes become valid for the Cumulus Web Client, Web Publisher Pro or Internet Client Pro web application(s).*

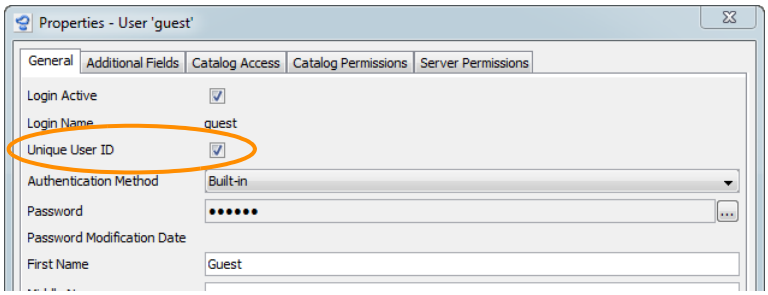
16 Closes the window without saving any changes.



User Identification

Cumulus uses a Unique User ID (UUID) for user identification. A UUID consists of a definition of the authenticator and a unique ID from the authenticator. The authenticator is required to provide a unique ID.

In the User Manager, a user's properties are enhanced by a **Unique User ID** (General tab). If this option is enabled, the user will always be identified by the UUID provided by the Cumulus Built-in authenticator and stored in the Users catalog.



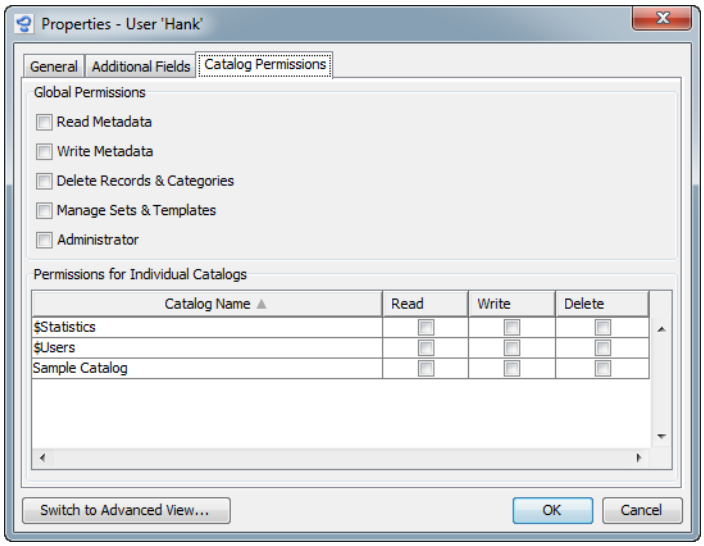
The UUID is used when record and category permissions are checked. If you employ the Cumulus Built-in authenticator the **Unique User ID** option must be activated to enable the user to connect to the Cumulus Server. If you employ a different authenticator (e.g. LDAP), it might provide own UUIDs. If you want to use these UUIDs, you must deactivate the **Unique User ID** option in the Cumulus user's properties.

NOTE: Changing the Authentication Method!

If you change the authenticator and use its UUIDs, the permissions set for a user are no longer valid. They must be set again for the 'new' user (identified by the UUID of the other authenticator.)

Simple View: Catalog Permissions

In simple view the user or role permissions are subsumed to global permissions or permissions on catalog base.



You can either grant a user global permissions or grant "individual" permissions for catalogs. Once you grant a user the global permission, the user has this permission for any catalog – no matter whether the permission is given for the catalog or not.

Global permissions are:

- Read Metadata – User can view catalogs and the metadata of all record and categories.
- Write Metadata – User can edit the metadata of all record and categories, e.g. can catalog assets and add metadata to records.
- Delete Records & Categories – User can delete records (and their assets) as well as categories.
- Manage Sets & Templates – User can create, edit and delete sets, templates and actions (all items defined for the Cumulus application in the Preferences window – except Catalog Templates and Catalog Settings).
- Administrator – User can perform all administrative tasks and use the according utilities (e.g. User Manager, Backup Manager). For example, the user can create catalogs and configure them via the Catalog Settings in the Preferences window; furthermore the user can set up Catalog Templates. The user is also allowed to configure Cumulus Vault, define Scheduler tasks and generate reports.

Catalog permissions:

- Read – short for Read Metadata (description see above)
- Write – short for Write Metadata (description see above)
- Delete – short for Delete Records & Categories (description see above)

IMPORTANT!

Minimum Permissions

In simple view the minimum permissions required for a user to work with Cumulus are: Read *for at least one catalog. Or if catalog specific permissions are not required, Global Permission* Read Metadata.

TIP:
You can use the simple view in conjunction with the advanced view – make "broad stroke" permissions settings in simple view and then fine tune them exactly as you need in advanced view.

Advanced View: Permissions

Cumulus provides an enhanced permissionsmanagement. Each user's or role's properties include several permission sections:

- Catalog Access – Cumulus catalogs the user is allowed to access.
- CatalogPermissions – Permissions the user has for these catalogs.
- Server Permissions – Permissions the user has for functions and objects managed by the Cumulus Server.

NOTE: *Permission changes made to the account of a connected user will not take effect until that user logs out and back in again. Keep this in mind whenever you're testing permissions options on your Server.*
If you don't log out of your test account, you might think your changes are not taking effect.

IMPORTANT! Minimum Permissions
In advanced view the minimum permissions required for a user to work with Cumulus are: the Application Permissions **Open Catalog with any Cumulus Client**, **View Item** *for Records and access to at least one catalog, one Record View Set and one Category View Set.*

Catalogs

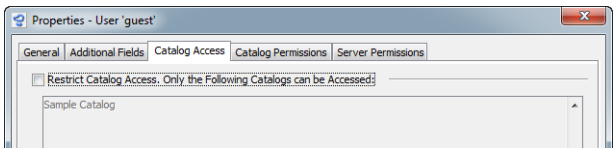
The permissions for a user's access to catalogs are defined in the Catalogs section of the Properties window for the user or role.

You can allow a user to have access to all catalogs that are managed by the Cumulus Server or restrict the access to selected catalogs.

Access to All Catalogs

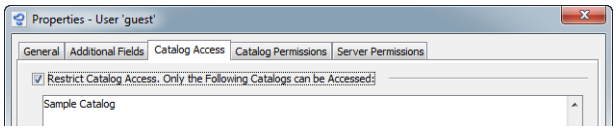
If the **Restrict Catalog Access** option is not enabled, the user is allowed to access all catalogs that are managed by the Cumulus Server and enabled for sharing. In this case

- all catalogs added to the Cumulus Server are automatically available to this user
- the permissions set in the Permissions section are valid for all catalogs.



Restricted Access to Selected Catalogs

If the **Restrict Catalog Access** option is activated, you can set the permissions either for all of the allowed catalogs or individually for each of the allowed catalogs.



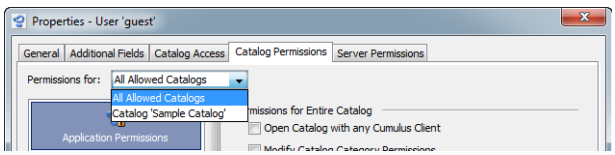
Before you consider activating the **Restrict Catalog Access** option, you should be aware of the following. In this case, each newly created catalog which you want this user to have access to must be added to the list of catalogs.

IMPORTANT!
Restrict Catalog Access Option
Any user should have access to at least one shared catalog!

Catalog Permissions

A user's permissions for catalogs are defined in the Catalog Permissions section of the Properties window for the user. The catalog permissions refer to the catalogs defined in the Catalogs section of the Properties window.

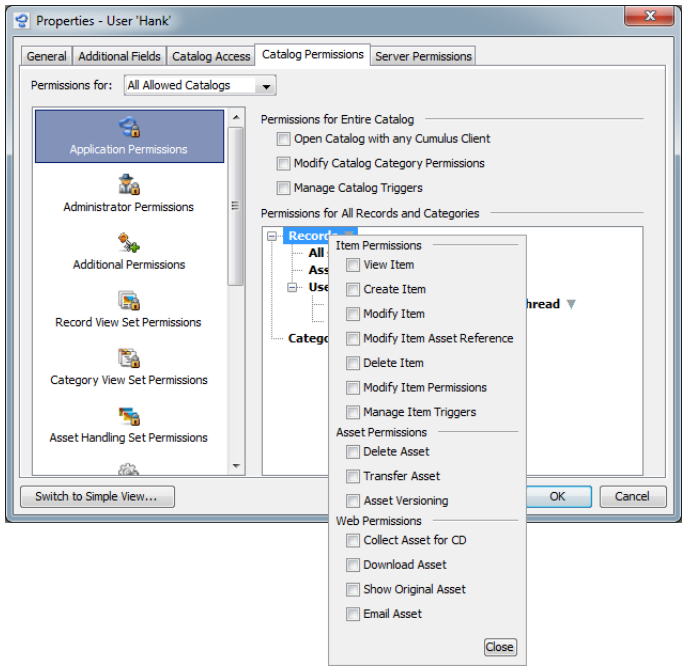
A user's permissions for catalogs can be set collectively for all allowed catalogs or individually for selected catalogs. However, note that the permissions individually set for selected catalogs are always added to the permissions that are set for all allowed catalogs.



Once you have clicked on the Catalog Permissions section of a user's properties, you select the catalog you want to set the permissions for. Set the permission for **All Allowed Catalogs** first and then select the catalog for which you want to set the permissions individually.

Application Permissions

The Application Permissions define the user's general permissions for functions on catalogs, records, categories and assets as well as the user's permissions when accessing Cumulus via Web.



NOTE: *If you give one of these permissions for* **All Allowed Catalogs,** *the user will have this permission for all catalogs managed by your Cumulus Server.*

IMPORTANT! Minimum Application Permissions

The minimum Application permission required for a user to work with Cumulus is Open Catalog.

With Enterprise or the Extended Permissions add-on, these Application permissions can be expanded by individual Record or Category permissions. If you want to make use of this feature, you can follow two different concepts:

- You assign the Application permissions as needed in general and use the individual Record or Category permissions to add permissions for selected records and categories due to special purposes.
- You reduce the Application permissions to a minimum of permissions (even none) and use the individual Record or Category permissions to set permissions on the record/category level. This concept offers the advantage that you can remove permissions for specific users/roles on the record/category level. You can even use a Permissions Template to do so. If following this concept, Canto recommends you to set up a special Permissions Template used for cataloging that assigns the permissions you would like a 'normal' user to have.

For more information on individual Record or Category permissions, see the Client User Guide.

The following section describes which permission is needed to perform which function.

Permissions for Entire Catalog

These permissions govern the user's access to the selected catalog itself.

- **Open Catalog with any Cumulus Client** – needed to gain access to the catalog in order to open it; e.g with a Cumulus Client application to get the catalog displayed in the Catalog Access window. "Any Cumulus Client" includes

the Cumulus Client application, Cumulus Web Client, Sites, HELIOS Companion, and any individually programmed application based on Cumulus Java Classes.

NOTE: *The catalog access can be restricted to certain Cumulus Client versions and variations. See "Client Groups," p. 122, for further information. If you have set up any Client Groups, the options for the Catalog Permissions will be enhanced with an entry* Open Catalog with *for each defined group.*

- Modify Catalog Category Permissions – needed to define permissions for categories that represent catalogs (optional.)
- Manage Catalog Triggers – needed to create, edit and delete own triggers for catalogs.

Permissions for All Records and Categories

These permissions govern the user's access to the records or categories of the selected catalog.

- View Item – With Enterprise or the Extended Permissions add-on only: allows a user to see all records/categories – even if Live Filtering is active.
- Create Item – needed to catalog assets/create categories and to import records/categories.
- Modify Items – *For records*: needed to modify records (manually or via automation) and to update records (as this includes modifying the records). This permission is also needed for checking assets in or out with any version control system, e.g. Cumulus Vault.
  A user who is allowed to modify records, may additionally be allowed to change the asset reference that is included in the record. The permission for modifying the asset reference must be given explicitly by assigning the Modify Item Reference permission.
  For categories: needed to rename, modify and move categories and for the synchronization and auto-cataloging functions.
- Delete Items – needed to delete records/categories.
- Modify Item Permissions – With Enterprise or the Extended Permissions add-on only: needed to edit individual record/category permissions.
- Manage Item Triggers – needed to create, edit and delete own triggers for records/categories.

Asset Permissions

Certain functions require accessing the assets directly. The following permissions grant this access for the assets cataloged to the selected catalog:

- Delete Assets – needed to delete assets.
- Transfer Assets – needed for any function where accessing the asset directly is required but where the Cumulus Client (native or Web) user cannot access the assets directly. In other words, this permission is needed for Server/Client asset transfer and for Cumulus Web Client, and Sites. If Server/Client asset transfer is employed, this permission is needed to get a preview displayed. With any version control system, e.g. Cumulus Vault, this permission is also needed for copying, moving or previewing assets.
- Asset Versioning – needed to use any version control system, e.g. Cumulus Vault. Along with this permission the Modify Records permission is always needed to check assets out or in.

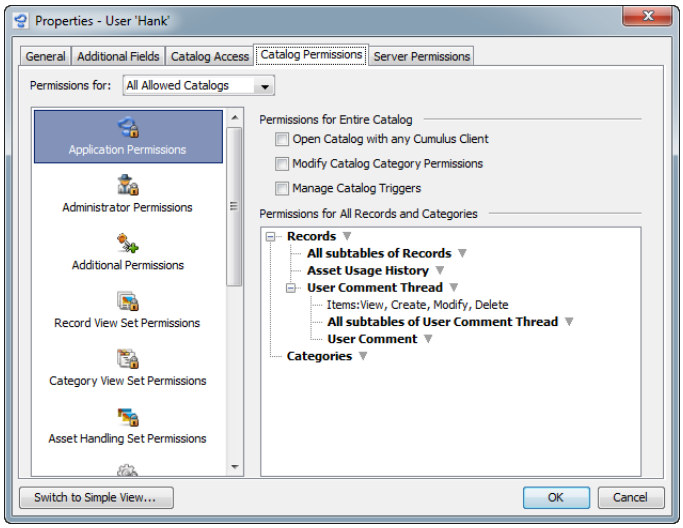
Web Permissions (needed for Cumulus Internet Solutions only)

These permissions govern the user's access to assets when the user employs a Cumulus Internet Solution as client to work with the selected catalog.

- **Collect Asset for CD**– needed with Cumulus Web Client to have the function **Collect for CD-ROM** available in the Collections Basket.
- **Download Asset** – needed with Cumulus Web Client and Sites. Along with this permission the Transfer Asset permission is always needed to download assets.
- **Show Original Asset**– needed with Cumulus Web Client and Sites to have the original asset displayed with the Show Original command. Along with this permission the Transfer Asset permission is always needed to have the original assets displayed.
- **Email Assets** – needed with Cumulus Web Client for e-mailing assets. Along with this permission the Transfer Asset permission is always needed to email assets.

Subtable Permissions

The Application Permissions also define a user's permissions for Table fields. The User Comments feature is based on such a subtable. This means that the permissions for this feature are managed with the permissions granted for the corresponding field: User Comment Thread. To make full use of the User Comments feature, a user needs the view, create, modify and delete permissions.

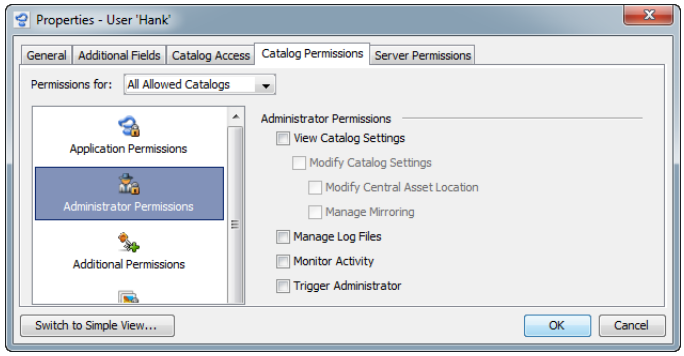


Permissions for the User Comment Thread field. Required to enable a user to make full use of the User Comments feature are view, create, modify and delete.

Tracking an asset's usage history is also based on a Table field: Asset Usage History. If you want a user to be able to see an asset's usage history, you have to grant the view permission to that user.

Administrator Permissions

The Administrator Permissions refer to administrative functions for catalogs.



NOTE: *If you grant one of these permissions for* **All Allowed Catalogs**, *the user will have this permission for all catalogs managed by your Cumulus Server.*

- **View Catalog Settings** – The user is allowed to view the selected catalog's settings in the Catalog Settings window of the central Cumulus Preference window.
- **Modify Catalog Settings** – The user is allowed to make modifications for the selected catalog in the Catalog Settings window of the central Cumulus Preference window. A user who is allowed to modify the catalog's settings, may additionally be allowed to set up and modify a central asset location for the selected catalog. The permission for modifying the central asset location must be given explicitly by assigning the **Modify Central Asset Location** permission. The permission for setting up mirroring for the catalog must be given explicitly by assigning the **Manage Mirroring** permission.

  NOTE: *Canto recommends that you allow only one user to have access to this or have one person responsible per catalog. If several users have the permission for modifying the Catalog Settings you might get into trouble when they modify at the same time, as the first user accessing the Catalog Settings and saving changes blocks those with access to the Catalog Settings from saving their changes.*
- **Manage Log Files** – The user is allowed to start the Log Manager module and set up a log file for the selected catalog.
- **Monitor Activity** – The user is allowed to start the Activity Monitor module and to view the list of users connected to the selected catalog. The user is also allowed to disconnect users from the selected catalog.
- **Trigger Administrator** – needed to create, edit and delete all triggers of all users

Additional Permissions

This section gives you the possibility to include permissions that are used by additional EJaPs, Internet solutions and solutions based on Cumulus Java Classes. For details as to which permission should be included, ask the producer or programmer of the additional software.

Set, Action, Query and Template Permissions

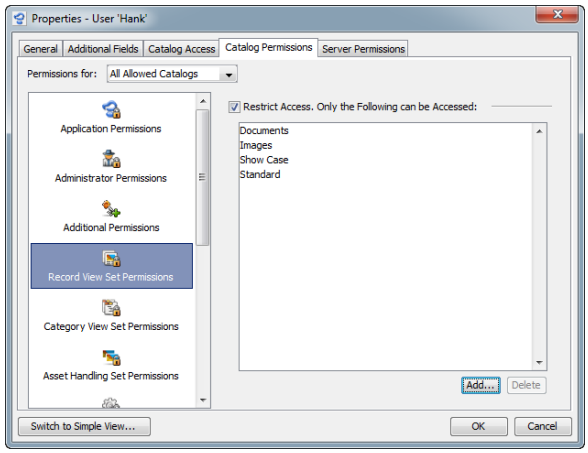
For the selected catalog, you can restrict the user's access to selected items of one type (sets, actions, queries and templates). If you restrict the user's access to a selection of shared items of this type, the items not selected will not be available for the user.

NOTE: *If you grant one of these permissions for* **All Allowed Catalogs,** *the user will have this permission for all catalogs managed by your Cumulus Server.*

If the **Restrict Access** option is not enabled, the user is allowed to access all shared items of the selected type that are enabled for sharing.

To restrict a user's access to a selection of shared items only, enable the **Restrict Access to** option. Use the **Add** button to set up the selection.

If the **Restrict Access** option is enabled, you have to add items. Otherwise the user has no access to any item of the selected type in the catalog.



Before you consider activating the **Restrict Access** option, you should be aware of the following: each newly created item which you want this user to have access to must be added to the list.

If the user is working with a multi-catalog collection (a collection that includes records from more than one catalog), the new impact of the **Restrict Access** option has the following consequences when selecting sets, actions, queries and templates: The user can only choose items that are available for him/her for all catalogs included in the collection. In other words, only such items that belong to the intersection of the permissions that the user has for all catalogs included in the collection. If the user opens another catalog in an existing collection, the selection of available sets, actions, queries and templates might change.

NOTE: *Be careful when using this permission feature. Erroneous configurations for Record and Category View Sets can prevent the user from seeing any records/categories.*

IMPORTANT! Restrict Access Option

A user needs at least access to one Record View Set, one Category View Set and one Asset Handling Set. Without these permission granted, a user cannot open a catalog.

TIP: Checking Assigned Sets, Templates etc.

The Server Console Action menu offers a **Check Users Catalog** function for the User Manager item. This function searches for settings (sets, templates etc.) that are assigned to users (or roles) in the Users catalog but no longer available with your Cumulus installation. If any settings are found that are assigned but not available, the function lets you remove the assignments from all users (or roles) in the catalog.

Migration

The permissions for sets, actions, queries and templates are new since Cumulus 6.5. You have to add these permissions to the properties of each user of your former Cumulus 6 installation.

In Cumulus 7, this **Restrict Access** option for the items listed above has been moved from Server Permissions to Catalog Permissions. This enhances the impact of the option: now the restricted access can be set on a catalog-by-catalog basis.

The only **Restrict Access** option available under Server Permissions belongs to **Collections Permissions** because collections can span across catalogs.

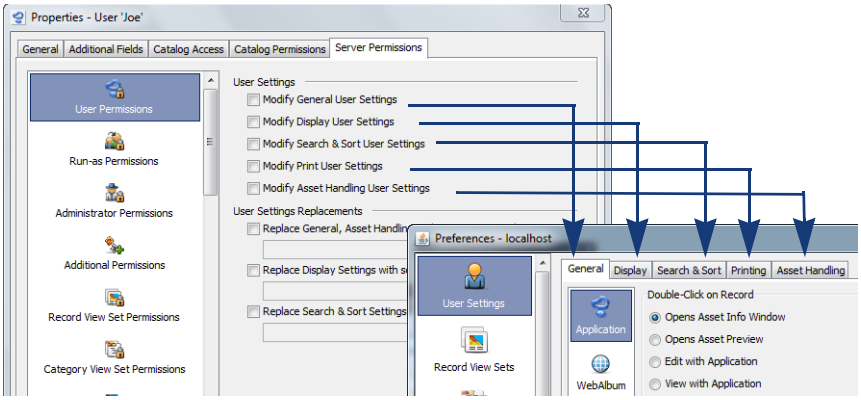
Server Permissions

A user's permissions referring to the Cumulus Server are defined in the Server Permissions section of the Properties window for the user. The permissions defined in this section do not refer to any catalog but to the settings managed by the Cumulus Server.

User Permissions

These permissions define what the user is allowed to modify on her/his own user settings in the User Settings window of the central Cumulus Preference window.

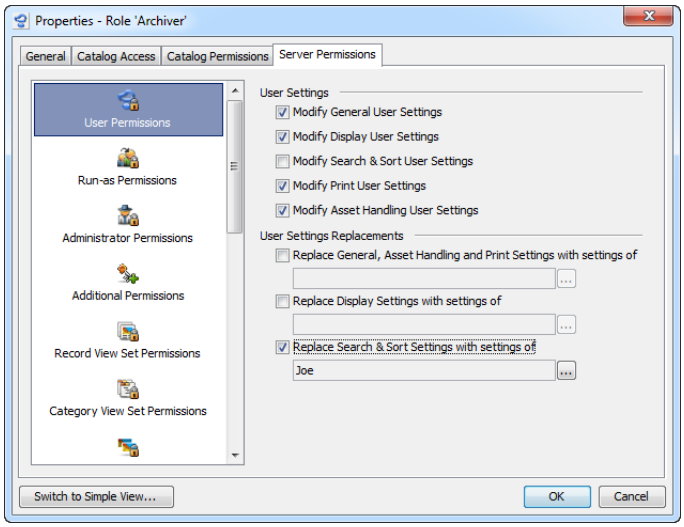
The permissions refer to the different sections of the User Settings window.



If you are working in role mode, the **User Permissions** section additionally provides the possibility to replace certain user settings of all users belonging to a role with the settings of a defined user. Thus you can easily achieve that all users belonging to a certain role have, for example, identical search and sort settings.

All you have to do is to create a new user, specify his/her user settings according to your ideas, then take this user to have the appropriate settings applied to all

other users belonging to the role. Changing the settings of your template user, affects the settings of these users accordingly as soon as they log in (again).



If certain user settings are replaced by the settings of a specific user, the members of the role are no longer allowed to change their respective user setting by themselves. If, for example, the **Replace Search & Sort Settings with settings of** is activated (as seen in the screenshot above), the **Modify Search & Sort User Settings** option is deactivated automatically.

IMPORTANT! Be careful with users belonging to more than one role!
If different roles have defined user settings replacement for the same parts of the user settings, but from different template users and with different values, the result for a user belonging to several roles is a purely random replacement!

Run-as Permissions

The Run-as permissions define as which other user(s) a user may act.

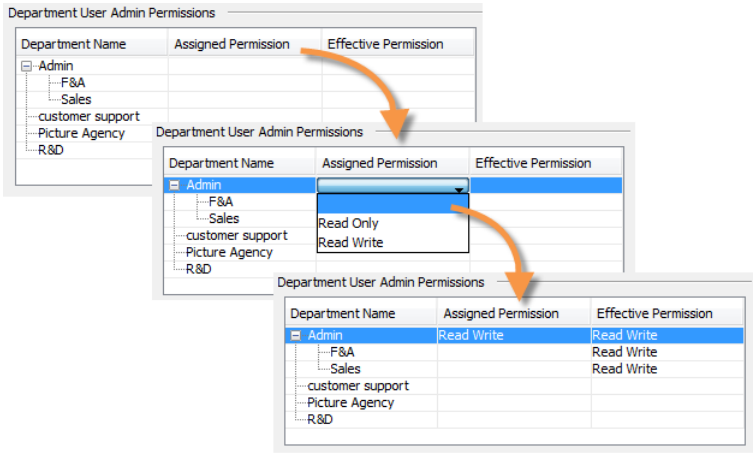
The Run-as function (**File > Administration > Connect to Server As**) is useful e.g. for substitution purposes, or for an administrator who needs to test the configuration of users or roles.

Administrator Permissions

You can assign the following administrator permissions:

- Browse for Users – The user is allowed to employ the **Add User** button to search for users when setting up Triggers with Mail Notification for other users and – optional only – individual permissions for records/categories and Permissions Templates. With Enterprise this permission is also required to be able to search for users with the **Restrict Edit to the following Users and Roles** or the **Restrict field visibility to the following users and roles** options in the properties of a record or category field.
- User Administrator – The user is allowed to work with the User Manager.
- Backup Administrator – The user is allowed to start the Backup Manager module and define rules for the automatic backup of catalogs.
- Vault Administrator – The user is allowed to administer the Vault Server.
- Mail Administrator – The user is allowed to work with the Mail Manager and configure Cumulus to work with an email server.
- Global User Administrator – The user has global user administrator permissions.

- Department User Administrator Permissions (if Global User Administrator is not activated)– The user may have department-specific user administration permissions which can be set in this table.



- Keep in mind that the effective permissions may differ from the assigned permissions! For example, assigning read-write permission to a top-level department results in read-write permissions for all subordinate departments, no matter what permissions they are assigned to individually. If Global User Administrator is activated, the Effective Permission is always Read Write.

NOTE:
Department-specific user administrator permissions only operate if **Global User Administrator** *permissions is deactivated.*

Additional Permissions

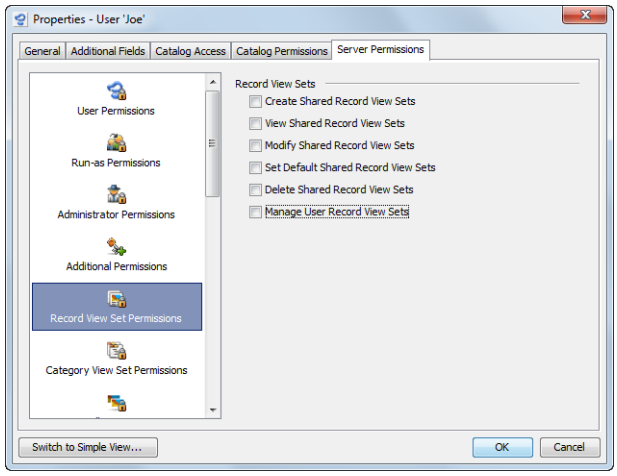
This section gives you the possibility to include permission that are used by additional EJaPs, Internet solutions and solutions based on Cumulus Java Classes. For details as to which permission should be included, ask the producer or programmer of the additional software.

Set, Action, Query and Template Permissions

These permissions define how the user is allowed to work with:

- Record View Sets
- Category View Sets
- Asset Handling Sets
- Asset Actions
- Metadata Templates
- Print Templates
- Permissions Templates (optional)
- Sub-Pane Filters
- Collections
- Scheduler Jobs
- Record Queries
- Category Queries (optional)

The permissions you can set for all these items are similar. For each type you can define whether the user is allowed to manage her/his own sets, actions, queries and templates. The permission **manage** includes creating, viewing, modifying and deleting.



NOTE: Collection Permissions
The permission **Manage User Collections** *is also required for saving the contents of the Collection Basket pane or the Cumulus Web Client / Sites Collection Baskets.*

For shared items you can define the permissions:

- Create
- View (in the Preferences window)
- Modify
- Set Default
- Delete
- Manage

You can set these permissions for all shared items.

Live Filtering™

Optional feature! May not be available with your Cumulus configuration.

You can have certain users to have a "filtered view" on a catalog. The view of a user or a user group can be limited to preselected categories and/or records. For example the asset access for the sales staff can be limited to final, approved material, while the work in progress in the Marketing department should not be visible.

If you want to restrict a user or a role to seeing and working with only certain categories and/or records, you can do so by means of Categories and/or Records Filter. These filters are defined via saved search queries. If you restrict the access to a catalog through a filter, the user's access to the catalog is restricted to the search result of the query employed as filter. Each time the user opens the catalog, a search employing the selected query is performed. That way the user gets a current result of the search query you defined to work with.

To restrict the access to a catalog through filters:

1. Open the user's or role's properties.
2. Select the **Permissions** section
3. Select the catalog(s) you want to set the Live Filtering for under **Permissions for**.

   The Live Filtering icon will be enabled and can be selected.

4. Click the Live Filtering icon.
5. If you want to restrict the access to selected categories, enable the **Use Category Live Filtering** option. Then select the query to be used. For a centrally stored shared query use the **Use Query** button. For any other exported query use the **Use File** button.
6. If you want to restrict the access to selected records, enable the **Use Record Live Filtering** option. For this option you can select one of the following ways of filtering records:
   - **Automatically Use Resulting Categories for Record Live Filtering**
     The user will only see the records that are assigned to categories that have been found by the query used for Category Live Filtering.
   - **Use Record Query**
     The user will only see the records found by the selected record query. For a centrally stored shared query use the **Use Query** button. For any other exported query use the **Use File**.
7. When you click the **Use Query** or **Use File** button a dialog for selecting the corresponding query will open.

   NOTE: *If you cannot open the default folder for storing queries, it may be due to its folder properties. If the folder properties are set to* **Hidden**, *this folder cannot be addressed by the Select dialog. Then you either have to change the folder properties or save the queries to another location that you can access.*
8. Select the query you want to apply as filter and click **OK/Select**. The query is saved with the filter and the search conditions of the query are displayed. Note that the data of the query is saved with the filter and if you change the query later on, the filter will not be changed accordingly.

   NOTE: *If you want to use an exported query file, make sure that the query you select matches the corresponding Live Filtering option:*
   – For **Live Filtering Categories,** *use a query saved with the* **Find Categories** *window.*
   – For **Live Filtering Records**, *use a query saved with the* **Find Records** *window.*
   It is a good idea to name the queries so you have a hint.

   For **Live Filtering Records** additional options are offered. Under **Live Filtering Options**, you can define if the records displayed for the user include records from categories above and/or below the found categories. This is important only if your defined Record Live Filtering includes categories as a filtering condition (either based on the result of Category Live Filtering or using a record query that searches in the Categories record field).
9. Click **OK** to save the user's properties.

   The Live Filtering access restrictions are valid for the user next time the user logs on to the Cumulus Server.

To undo a Live Filtering restriction, disable the corresponding option. The query will not be active any more and all records/categories will be available for the user next time the user logs on to the Cumulus Server.

Live Filtering and the Additive Permissions Concept

Remember that Cumulus permissions are based on an additive concept. By default, Live Filtering works in accordance with this concept.

Multiple Roles

If a user is assigned to multiple roles, her/his permissions are the sum of the permissions of these multiple roles. So if assigned to multiple roles with different Live Filtering restrictions, the user has access to the sum of the search results defined by the queries applied to those roles.

Queries and View Permissions

A user who is allowed to open a catalog but not to view its records or categories will nevertheless be able to see the records/categories found by the queries assigned to her/him by Live Filtering.

Individual Permissions for Records and Categories Precede Queries

A user who by individual permissions for records/categories is allowed to view records/categories will always see them – regardless of the results of Live Filtering queries. Individual permissions for records /categories have priority.

Working with the Role-Based Mode

Optional feature! May not be available with your Cumulus configuration.

Before you start working with the role-based mode, you should set up a role concept that fits the company needs.

You can create roles that you use to assign a common set of permissions and catalogs to multiple users. A role includes:

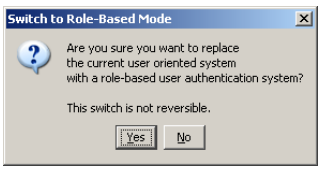
- Catalogs – Cumulus catalogs an assigned user is allowed to access.
- Catalog Permissions – Permissions an assigned user has for these catalogs (including Live Filtering options).
- Server Permissions – Permissions an assigned user has for functions and objects managed by the Cumulus Server.

Switching to Role-Based Mode

Once you have decided to work with the role-based mode, you have to switch to this mode.

NOTE:
This switch cannot be undone.

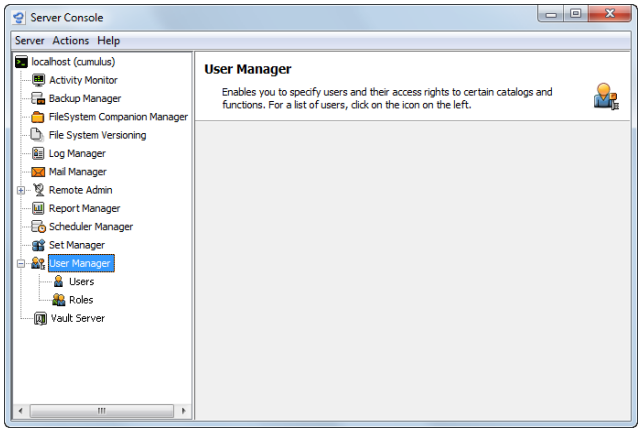
1. Highlight the **User Manager** entry in the left panel of the Server Console.
2. Select **Actions** > **Switch to Role-Based Mode**. A warning is displayed.



3. Click **Yes**. A message informs you that you have to disconnect from the Server in order to have the role-based mode activated.
4. Click **OK**.
5. Select **Server** > **Disconnect**.

6. Select **Server** > **Connect.** Log on to the Cumulus Server again as Cumulus Administrator or the user who has the permission (User Administrator). Now the role-based mode of the User Manager is active.

If the you have switched to role-based mode of the User Manager, the User Manager entry in the Server Console offers a new option: Roles



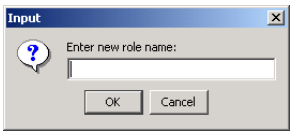
To reveal the Roles click the + icon on the left side of the User Manager entry. Then click on the entry **Roles**. The list of roles will be displayed.

The first step when working with the role-based mode is creating roles.

Creating New Roles

To create a new role:

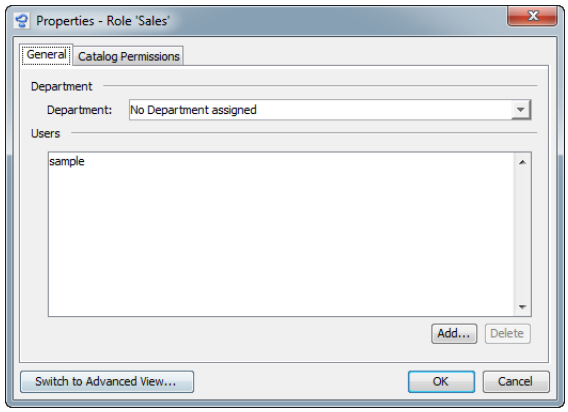
1. In the Roles list, click the **Create** button...



2. Enter a name for the new role and click **OK**.

   NOTE: *If you want to use the automatic role mapping between LDAP groups and Cumulus roles, the role name needs to match the value of an attribute of the corresponding LDAP group. (For details on how to map roles and LDAP groups, see "Cumulus Roles," p. 129.)*

   The properties window for the new role is opened.



NOTE: *The* **Department** *section is displayed only if you have set up departments. Departments is an optional feature which may not be available with your Cumulus configuration.*

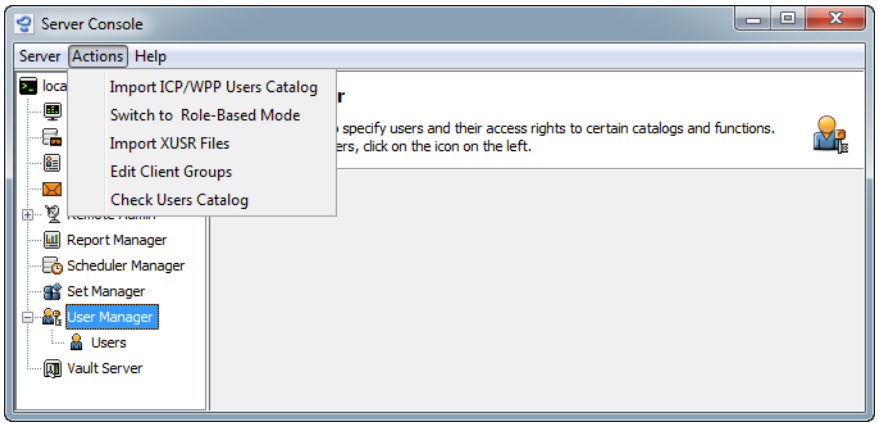
3. Set the permissions for the new role in the Catalogs, Permissions and Server Permission sections. (See "Advanced View: Permissions," p. 107, for more information on the sections).
4. Assign users to this role either
   - by clicking the **Add** button to assign users managed by the Cumulus User Manager, or
   - by mapping of LDAP groups to this role if you want to assign users managed by your LDAP server only. For information on how to map roles and LDAP groups, see "Cumulus Roles," p. 129.
5. Click **OK** to save the defined properties.

Duplicating, Editing and Deleting Roles

For duplicating, editing and deleting roles select the role's entry and then click the appropriate button. Duplicating a role works the same way as creating a new role except that when duplicating, the properties of the duplicated role are copied for the role user.

Actions for User Manager

The Actions menu for the User Manager module provides several administration utilities.



Importing User Data

The User Manager offers functions to import data from Cumulus 5 Catalogs and Cumulus Internet Solutions.

Importing Users and Permissions from Cumulus 5 Catalogs

After you have added your Cumulus 5 catalog to the Catalog Access List of your current Cumulus installation, you can use a function that imports all information on user rights included in the Cumulus 5 catalogs into the User Manager.

If the user is known (identified by the Login name), the function will add the catalog to the list of catalogs for the user (section Catalogs in the user's properties) and import the permissions for this catalog (section Permission).

If the user is not known, the function will create a new user for each user who had permissions for the Cumulus 5 catalog and then will add the catalog and its permissions to the new user.

Use **Actions** > **Import C5 - Catalog Permissions** to import users and permissions. Enter the login data for the Cumulus Server managing the catalog and select the catalog.

NOTE: *If working with the role-based mode of the User Manager and using the* **Import C5 - Catalog Permissions function***, a role will be created for each permission of the Cumulus 5 catalog and each user who had this permission for the Cumulus 5 catalog will be assigned to the corresponding role.Cumulus 5 & Cumulus 6 User Permissions*

This is how the Cumulus 5 user permissions are transferred to Cumulus 6 user permissions:

- Open this Catalog – Open Catalog
- Modify Category List – Create Categories, Modify Categories, Delete Categories
- Modify Records – Create Records, Modify Records
- Delete Records – Delete Records
- Transfer Asset – Transfer Assets, Checkout Assets, Collect Assets, Delete Assets, Download Assets, Email Assets

Importing User Data from Cumulus Internet Solutions

Use **Actions** > **Import ICP/WPP Users Catalog** to import the user data from a Cumulus Web Publisher Pro 1.0 or Internet Client Pro 2.0 $Users/$UsersAndGroups catalog.

Use **Actions** > **Import XUSR Files** to import the user data provided by Cumulus Web Publisher Pro or Internet Client Pro.

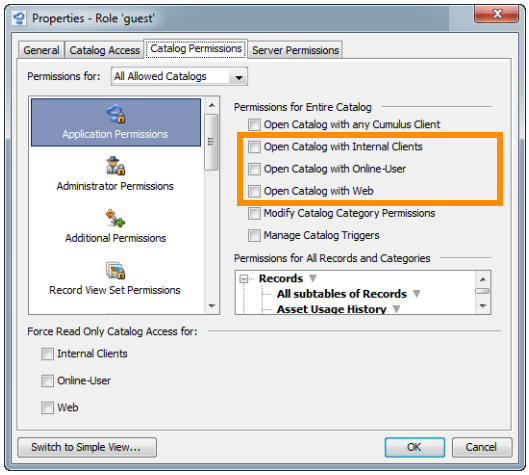
Client Groups

Client Groups are a means to restrict access to Cumulus to certain applications (e.g. Cumulus Client, Web Client, Sites, QXP Companion, etc) or versions of applications.

For each defined Client Group an entry **Open Catalog with** is added to the available Catalog Permissions of a user or role.

Additionally, you may **Force Read Only Catalog Access** for any defined client group. If the user opens a catalog with a Cumulus product that is contained in

such a client group, only read access is possible, regardless of any other permissions set for the user.



Example of the Catalog Permissions tab with additional options for Client Groups.

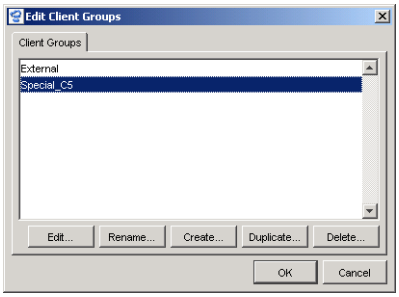
NOTE: Force read Only Catalog Access and Cumulus Sites

The force read only option is especially interesting if applied to client groups that include Cumulus Sites in their definition. Unlike any other Cumulus Client, Cumulus Sites does not require a Cumulus license when accessing a catalog in read only mode. Thus, visitors from the internet may browse your Cumulus catalogs without generating additional charges.

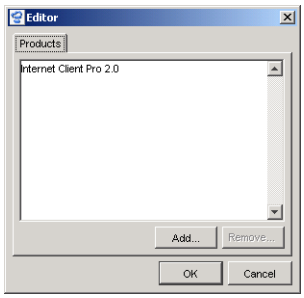
To work with Client Groups:

1. In the left panel of the Server Console window, click on the entry **User Manager**.
2. Select **Actions** > **Edit Client Groups**.

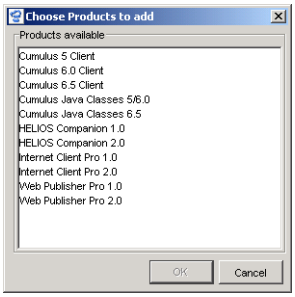
   The Edit Client Groups window is opened. It lists the existing Client Groups.



Use the appropriate buttons for creating, duplicating, editing, renaming or deleting a Client Group. A Client Group is defined by its name and the application products that are assigned to it.



Click the **Add** button in the Products window to add a product.



A list offers a range of Cumulus products that can be included. The list will also offer other products if they are registered and activated with the Cumulus Server.

NOTE: Updating!
Remember to update the products assigned to Client Groups as well.

Departments

Optional feature! May not be available with your Cumulus configuration.

IMPORTANT!
If you have the Department feature activated in addition to your already running Cumulus system, you must restart the Cumulus Server in order to make this feature available to the users.

With Cumulus departments, users and roles may be grouped together, e.g. according the organizational structure of a company. Then specific administrators (sub-administrators) may be defined who are in charge of the users/roles of a department, or several departments, but can not interfere with users/roles of departments they are not in charge of.

Sub-administrators can grant or revoke permissions to the role(s) assigned to the department(s) they are in charge of, but only if they have the respective permissions themselves. For example, there might be a role called "picture editor" with the permission of editing metadata and which belongs to the department "Research". The administrator in charge can revoke the editing metadata permissions from the picture editor role only if the administrator role (or any other role he or she acts in) itself has the editing metadata permission.

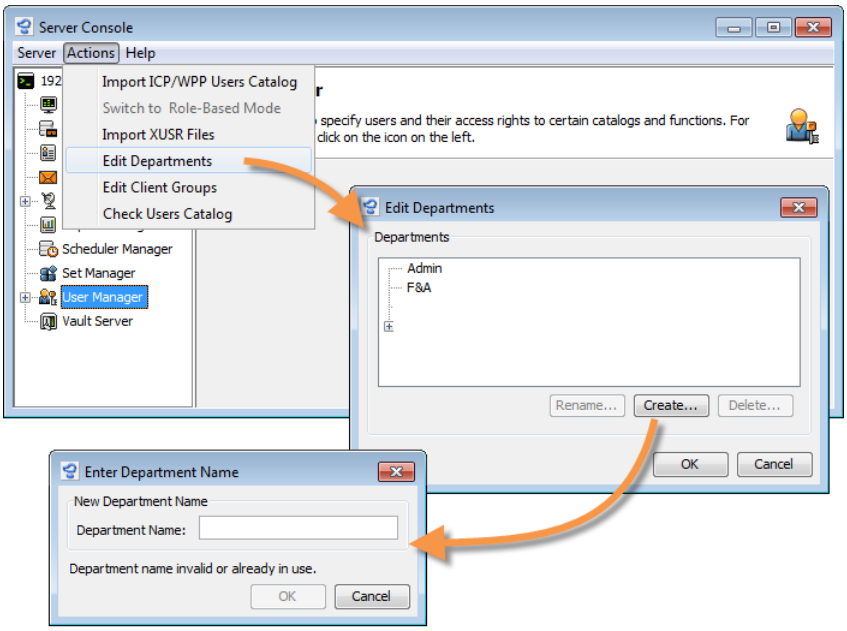
Defining departments does in no way interfere with user permissions and catalog access, which is controlled as always by the role(s) assigned to a user, nor does it influence the assignment of users to roles or vice versa.

The department feature is available in role-based mode only.

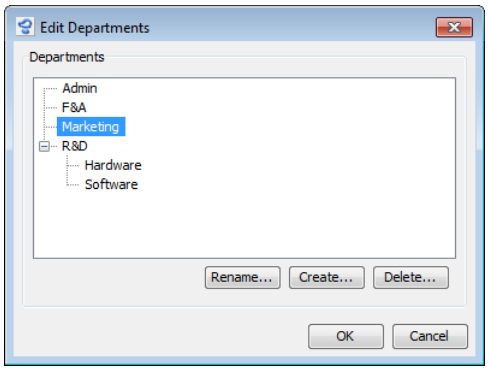
To create departments:

1. Log in to the Server Console as administrator.

2. In the left pane of the Server Console, click on **User Manager**, then select **Actions** > **Edit Departments**.
   A dialog appears allowing to create new departments and to edit or remove existing ones.



3. Click **Create** to add a new department, then enter a name for the new department and **click OK**
   You may create as many departments and sub-departments as you need.



4. When you are done, click **OK**.

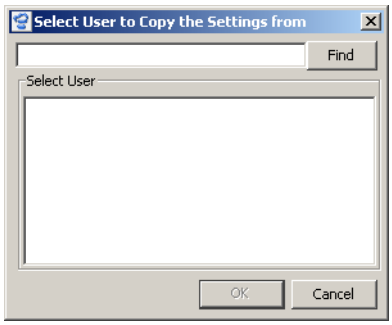
Checking the Users Catalog

This utility scans the Users catalog for inconsistencies. It checks whether all catalogs, sets and templates that are assigned to users/roles are available. If an item is found that is assigned but not available, it is recognized as invalid and you will be asked whether the according assignments should be deleted. You can have Cumulus do this item for item or just ask you once for all items. Be careful when deleting assignments for catalogs: Cumulus considers catalogs as available only if they are opened with the Cumulus Server.

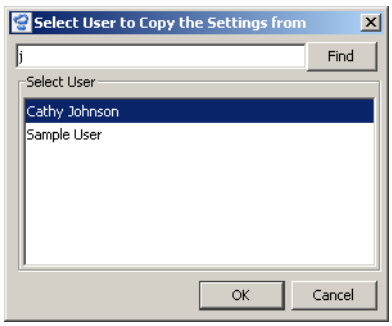
Copying User Settings

When the Users entry is selected in the User Manager module, the Actions menu offers another option: Copy User Settings. This option allows you to copy user settings from one user to another. The User Settings for the Cumulus application as set in the Preferences window are then copied.

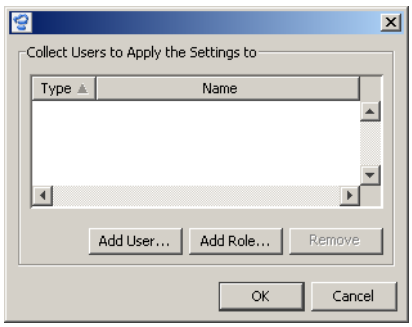
1. In the left panel of the Server Console window, click the entry **User Manager** and reveal its options. Then click on **Users**.
2. Select **Actions** > **Copy User Settings**. A dialog opens to select the user you want to serve as template.



3. Enter search criteria to find the desired user by her/his name. (The Cumulus built-in authentication will search login name, first, middle and last name.)
4. Click **Find**. The found users are listed. (Note that by default the result list can include a maximum of 50 entries.)



5. Select the user you want to use as template and click **OK**.
   The next step is to collect the users/roles you want to apply the settings to.

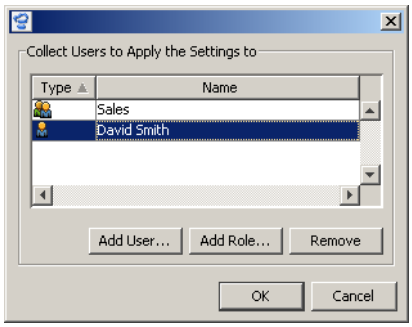


6. Click **Add User** or **Add Role** to find those you want to inherit the settings.
   - Clicking **Add User** opens a dialog to find and select users.
     Enter search criteria to find the desired user by her/his name. (The Cumulus built-in authentication will search login name, first, middle and last name.)

Then click **Find**. The found users are listed. (Note that by default the result list can include a maximum of 50 entries.)

- Clicking **Add Roles** opens a dialog that lists the roles.

7. Select the users/roles you want to inherit the settings and click **OK**. They are transferred to the list of the **Collect Users** window.



If a role is listed, the settings will be applied to all users assigned to the role.

8. Click **OK** to apply the settings to the users addressed in the window.

LDAP Authentication Method

This section describes the way the new LDAP Authenticator plug-in for the Cumulus Server version 6.5 or later works.

If you want to employ LDAP for user authentication with your Cumulus installation, you need profound LDAP knowledge to configure the set up for the co-operation between your existing LDAP server configuration and the Cumulus user management properly. In order to employ LDAP for user authentication with your Cumulus installation, you don't need to change your existing LDAP schema or contents to add information needed for Cumulus.

The Cumulus LDAP Authenticator can be used in the following scenarios:

- The user is already included in the $Users catalog of Cumulus and the password should be checked using an existing LDAP server configuration.
- The user is already included in the $Users catalog of Cumulus and the **E-Mail Address** field of her/his properties should be filled using an existing LDAP server configuration.
- The user who should work with Cumulus is already included in an existing LDAP server configuration and no separate entry (user record in the $Users catalog) should be created for the user (with the role-based user management only).

The LDAP Authenticator is part of the Cumulus Server installation. It is configured through the **LDAP.xml** file in the **conf** folder (located in the Cumulus Server installation folder). The Server installation provides two example files that are pre-configured for ActiveDirectory and OpenDirectory LDAP schemes. It is best to start making a copy of the example that fits your LDAP installation and rename it to **LDAP.xml**. The provided pre-configured files contain detailed comments on the configuration items. If you use any other LDAP scheme than ActiveDirectory and OpenDirectory (e.g. eDirectory), you have to adapt the structure to the structure of your LDAP scheme.

The **LDAP.xml** file contains the LDAP host name and also the distinguished name (DN) of a user that is allowed to read the necessary LDAP information. The file also contains the password of this user in clear text so you should set up file permissions so that the LDAP.xml cannot be read by unauthorized users.

You can also specify whether to use Secure Socket Layer (SSL) communication with the LDAP server.

User Password Authentication

The LDAP Authenticator can check the user password for authentication. The LDAP Authenticator is used only if the field **Authentication Method** in a user's properties is set to **LDAP**. Then LDAP will check the password a user logs in with, against a login name that matches the **Login Name** field of the user's properties stored in the $Users catalog. With the role-based mode of the User Manager, it is always used if the user has no record in the $Users catalog.

The LDAP Authentication module uses the simple LDAP authentication method.

To employ the LDAP authentication method for a user's password you have to configure the following items of the LDAP.xml file:

<ns:authenticator>

<ns:search>

The example LDAP.xml files are syntactically correct for ActiveDirectory and OpenDirectory LDAP schemes. However, they contain placeholders. In order to make your version of the LDAP.xml work, you have to replace these placeholders with real values only. If you use any LDAP scheme other than ActiveDirectory and OpenDirectory, you have to adapt the structure to the structure of your LDAP scheme also.

User Fields

Optional feature! May not be available with your Cumulus configuration.

The LDAP Authenticator can provide field values for the user record (user properties) to be used in any client application for customized solutions. In the LDAP.xml file you can specify which field corresponds to which LDAP user node attribute. The field can be either an existing field from the $Users catalog in Cumulus or you can define your own field by specifying a new unique ID for it. (To specify a new unique ID, you should use the function provided by your operating system, e.g. for Linux use the command **uuidgen -t** or for Mac OS X use the command **uuidgen**.)

In any Cumulus Internet solution, you can display the field value using the standard <cumulus:fieldValue> JSP tag with the unique ID of the field.

If the user has a record in the $Users catalog of Cumulus, the field values from this record have precedence over values from the LDAP Authenticator.

To have LDAP Authenticator providing field values you have to configure the following items of the LDAP.xml file:

<ns:authenticator>

<ns:search>

<ns:fields>

The example LDAP.xml files provide one by one mappings of LDAP attribute values to Cumulus field values. The examples include those attributes included in a standard ActiveDirectory and OpenDirectory LDAP installation that have corresponding Cumulus fields in the $Users catalog. If you want your mapping to include another attribute from a user node, you have to add it as a new field element to your LDAP.xml file. If you use any LDAP scheme other than ActiveDirectory and OpenDirectory, you have to adapt the structure to the structure of your LDAP scheme and replace the pre-configured field elements by field elements fitting your LDAP scheme.

Cumulus Roles

Optional feature! May not be available with your Cumulus configuration.

If you work with the role-based mode of the User Manager, you can define mappings from LDAP groups to Cumulus roles. By using this mapping you no longer need an entry for this user in the User Manager (a user record in your $Users catalog). All you need is to define Cumulus roles and assign permission to them. Assigning users to these roles is done using the role mapping of the LDAP Authenticator. All role assignments done by the LDAP Authenticator module are added to the roles already assigned to the user through a record in the $Users catalog.

The LDAP Authenticator supports different kinds of role mappings:

- Automatic mapping of all LDAP groups to Cumulus roles by matching one of the group's attributes (e.g. the group's name)
  This is the easiest way of mapping LDAP groups to Cumulus roles. All you need to do is give your Cumulus roles names that correspond to an attribute of an LDAP group. For example you can name your Cumulus roles so that they match the "cn" attribute of your LDAP groups.
- Manual mapping of groups to a Cumulus role
  You can define additional mappings of specific LDAP groups to a specific Cumulus role so that a user is assigned that role if he or she is a member of any or each of the given LDAP groups. For example you can define a mapping to assign all users to the "CumulusAdmin" role if they are members of both the "Administrators" and the "Backup Operators" group.

To have LDAP Authenticator supporting role mapping you have to configure the following items of the LDAP.xml file:

```
<ns:authenticator>
    <ns:search>
    <ns:roles>
        <ns:role-mapping>
```

The example LDAP.xml files are syntactically correct for ActiveDirectory and OpenDirectory LDAP schemes. However, they contain placeholders for the names of Cumulus roles and LDAP groups. In order to make your version of the LDAP.xml work, you have to replace these placeholders with real values only. If you use any LDAP scheme other than ActiveDirectory and OpenDirectory, you also have to adapt the structure to the structure of your LDAP scheme.

Automatic mapping can be used if the names of your Cumulus roles correspond to attribute values of your LDAP groups. The easiest way is to use the **cn** attribute of the LDAP group node to match the Cumulus role name.

```
<ns:role-mapping attribute='cn'/>
```

*Example for automatic role mapping using the **cn** attribute to match the Cumulus role name.*

Manual role mapping is based on rules that define which LDAP group memberships are mapped to a Cumulus role membership. These rules are defined using <ns:role-mapping> elements.

The membership conditions inside a <ns:role-mapping> element are combined by “and”. A user will be assigned to a role only if the user fulfils all conditions. See also the following example:

```
<ns:role-mapping>
  <ns:name>Admins</ns:name>
  <ns:ldap-member>CN=Administrators,CN=Builtin,DC=MYCOMPANY,DC=COM</ns:ldap-member>
  <ns:ldap-member>CN=Backup Operators,CN=Builtin,DC=MYCOMPANY,DC=COM</ns:ldap-member>
</ns:role-mapping>
```

Example for the "and" combination: a user will be a member of the Cumulus role "Admins" only if the user fulfils all conditions – being a member of both of the LDAP groups "Administrators" and "Backup Operators".

If you want to use "or" combinations, you simply add new <ns:role-mapping> elements for the same Cumulus role name. All role mapping elements are combined using "or". A user will be assigned to a role if the user fulfils the conditions of at least one <ns:role-mapping> element. See also the following example:

```
<ns:role-mapping>
  <ns:name>Admins</ns:name>
  <ns:ldap-member>CN=Administrators,CN=Builtin,DC=MYCOMPANY,DC=COM</ns:ldap-member>
</ns:role-mapping>

<ns:role-mapping>
  <ns:name>Admins</ns:name>
  <ns:ldap-member>CN=Backup Operators,CN=Builtin,DC=MYCOMPANY,DC=COM</ns:ldap-member>
</ns:role-mapping>
```

Example for the "or" combination: all members of the LDAP group "Administrators" as well as all members of LDAP group "Backup Operators" will be members of the Cumulus role "Admins".

Security Aspects

The LDAP.xml configuration file needs to specify a user that is able to read the LDAP server's information. This user only needs read access to the LDAP parts you specify in your LDAP.xml file (typically the users node and possibly the groups node). As you also need to specify this user's password in the LDAP.xml file, you need to make sure the file cannot be read by any unauthorized user.

The LDAP Authenticator module does not make any changes to the LDAP server. It only reads information from it.

Cumulus® Vault is a revision control system that gives your workgroup added data security and up-to-the-minute information on the status of each asset. As its name suggests, Vault enhances the security of your team's assets – controlling who accesses them, how and when (via check in and check out). It also gives you more ways of working with your assets in Cumulus, providing version retention and tracking, at-a-glance version information, and integration into the existing Cumulus environment. Additionally, Cumulus Vault enables Client users to access assets independent of platforms. Another Cumulus Vault feature enables you to set up Vault exclusive catalogs. All assets added to such a catalog are handed over to Vault and their asset storage location is Vault exclusively.

This chapter addresses the Administrator. It covers activating and administering the Vault Server as well as configuring Cumulus catalogs to be controlled by Cumulus Vault. Information on using Vault to check assets in and out as well as on managing asset versions are provided in the Client User Guide.

Configuring Vault

How Cumulus Vault Works

As the Cumulus Vault Administrator, it's up to you to configure Cumulus Vault to meet the needs of your workgroup. But before you jump in, it's good to get a basic idea of how your Cumulus catalogs interact with Vault. And if you don't want to miss out on any of the technical details, you can read "Behind the Scenes," p. 133, to find out what's going on in the background.

Cumulus Vault can control and monitor access to all assets. Think of it as the Cumulus librarian. Users check assets out for editing and check them back in again when they're through. Every time an asset is checked out, Vault automatically gives the user the latest version to ensure that revisions remain up-to-date.

Vault allows only one user at a time to check out an asset, preventing multiple edits that can result in conflicting – and confusing – versions. If another user attempts to check the asset out, Vault informs the would-be editor which user has the file. When a user checks an asset back in, Vault saves the updated file as a new version without overwriting previous versions. It keeps all back revisions, making it possible to track changes to an asset during the production cycle – a concept referred to as a revision control system. It also provides information on all versions: Who made the changes? When? With Vault, these questions are easy to answer, making last week's edits just as accessible as today's.

Cumulus Vault consists of the Vault Server and Vault Client software.

Vault Server

Cumulus Vault is a revision control system that controls and tracks the access to your team's assets. Vault also provides a place to store your team's assets, in all of their versions.

As Vault Administrator, you define where Vault keeps your workgroup's assets by configuring the Vault Server. This location can be wherever you want it to be, with one restriction: the physical location must be a local disk on the computer running the Vault Server. It's up to you to create the folder that will actually house the assets. You then tell the Vault Server to store the assets in this Vault Server Storage location. You may even tell the Vault Server to store the assets in automatically created subfolders. And when setting up catalogs to work with Vault, you can create special folders inside the Vault Server Storage folder, so called Vault Folders.

For information on setting up the Vault Server, see "Configuring the Vault Server," p. 135.

Vault and Catalogs

Every Cumulus catalog can work with Cumulus Vault. For those that do, either all of its assets are stored in Vault – and are subject to its control – or only selected ones. Cumulus Vault enhances the possibilities of using a central location for a catalog. As the Cumulus Vault Administrator, you define for each catalog whether and how it is going to interact with Vault.

The first step is to prepare a catalog to work with Vault, which is done by adding special version control fields to the catalog. The fields that belong to Cumulus Vault are **Check out Location**, **Check out Date**, **Check out User** and **Version History**. They enable Clients to check an asset out to a particular location and provide information describing who checked out which version when. For information on adding these version control fields to catalogs, see "Preparing Catalogs for Vault," p. 138.

The next step is to set up the catalog to hand over its assets to Vault whenever they are cataloged. You can either tell the catalog to hand over all assets, or let

each user decide whether the assets they're cataloging should be placed under Vault's control. You then specify Vault as the central location for the catalog. (Central Location is Cumulus-speak for a location to which Cumulus copies assets during the cataloging process; e.g. a folder on your file server or an FTP server.) For information on specifying Vault as Central Asset Location for a catalog, see "Linking Catalogs to Vault," p. 140.

A further consideration is whether users have the permissions required to check assets out of and into Vault. For information on these permissions, see "User Access to Vault," p. 143.

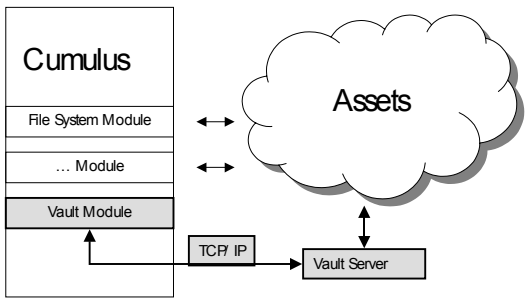
Once assets are stored in Vault, users can retrieve them by checking them out, a procedure that locks the associated record in the catalog for other users. When an asset is checked back in, Cumulus moves it as a new version to Vault, and unlocks and updates the associated record in the catalog. Previous versions of the asset are retained in Vault so that users can view their histories or access them, if they become useful again.

Vault and Asset Handling Sets

Once you decide to employ Cumulus Vault, you should adjust the Asset Handling Sets that your workgroup uses. At least the Asset Handling Sets must have the Asset Storage module Cumulus Vault activated. And if you have set a catalog to let each user decide whether cataloged assets should be placed under Vault's control or not, the Copy to Central Asset Location option must be activated also. In addition, Asset Handling Sets include the Vault settings for version handling. For more information setting up Asset Handling Sets for Vault, see "Configuring Asset Handling Sets for Vault," p. 142.

Behind the Scenes

From a technical perspective, Cumulus Vault is an Asset Storage module that interacts with the Cumulus application. Asset Storage modules manage the access to an asset's location (where it's stored on a file system) and provide Cumulus with information on the asset. In the case of Vault, this information is provided in the form of the version control fields (Check out Location, Check out Date, Check out User and Version History).



Cumulus Vault is one of the Asset Storage modules that interact with the Cumulus application. It controls and monitors access to assets. With Cumulus Vault the access to the assets is managed by TCP/IP. This provides another advantage of Cumulus Vault: Client users can access the original assets independent of platforms.

When you specify Vault as a Central Location, Cumulus works with the assets placed there only via the Vault Asset Storage module. This module enables check out, check in and version tracking by means of the special version control fields mentioned above.

When an asset is cataloged to Vault, an entire folder for the asset is created in the folder you specified as the Central Location for the catalog. This folder has the same name as the asset itself ( with the extension .data) and the other is an information file ( with the extension .info) containing the contents of the version control fields described above. Except for the file extension, each of these files has the same name: a serial number starting at one for the first cataloged version. Note that when assets are cataloged to Vault, no corresponding folder category will be automatically created under the Sources tab (and $Sources).

Every time a user checks an asset out of Vault, Cumulus copies the latest version – based on its serial number – to the location the user specifies. It then locks the associated record in the catalog so that no other users may check the asset out.

When the asset is checked back in, Cumulus moves the updated version back to that asset's folder in Vault. It renames the latest version, raising the previous serial number by one. It then re-catalogs that version to update the associated record in the catalog. Finally, Cumulus unlocks the record so that other users may access the asset.

Cumulus Vault Servers fully support the storing and versioning of resource forks, file types and file creators.

Installation

The Vault Client software is included in the Cumulus Client software. The Vault Server software is included in the Cumulus Server software.

Vault Server on Another Computer

The Vault Server does not have to be on the same computer running the Cumulus Server. You can decide to have the Vault Server running on ar computer other than the Cumulus Server. The computer you select for the Vault Server will not only manage Client access to Vault but also physically store all versions of all assets controlled by Vault, so it should have enough storage space available. You can also have the Vault Server running on a different computer, and it will still communicate seamlessly with your Cumulus Server.

If you decide to have the Vault Server running on a computer other than the Cumulus Server, you have to install the Cumulus Server software on that computer.

When selecting the computer for the Vault Server, keep in mind that not only will it store all assets – and all versions – under Vault's control, but also that every Client will need continuous TCP/IP access to it for checking these assets in and out.

Whichever route you choose, this documentation refers to the installation as a *Vault Server*.

How to Make Vault Work

In order to make Vault work with your Cumulus configuration, you have to perform the following tasks:

- Specify the Cumulus Vault Administrator. You use the User Manager module of the Server Console for this.
- Activate Vault and configure the Vault Server meeting your requirements. You use the Vault module of the Server Console for this.
- Set up your Cumulus catalogs to work with Vault. Using the Catalog Settings of the Preferences window, you prepare the catalog by adding special version control record fields and linking the catalog to Vault.
- Last but not least configure the Asset Handling Sets used by your workgroup.

Configuring the Vault Server

You configure the Vault Server by telling it where to store the assets that are to be controlled by Cumulus Vault. Only the Cumulus Vault Administrator can configure the Vault Server, meaning that there has to be a user account that functions as the Vault Administrator.

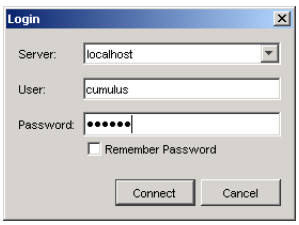
Specifying the Cumulus Vault Administrator

To configure the Vault Server, there has to be a user account which functions as the Cumulus Vault Administrator.

If the Vault Server is running on the same computer as the Cumulus Server, you can give any existing user the Vault Administrator permission.

However, if the Vault Server is not on the same computer as the Cumulus Server, you need to specify the Vault Administrator on this computer. You may even have to set up a user who is given the Vault Administrator permission.

In both cases use the User Manager module of the Server Console to do so:



1. From within the Cumulus Client, select **File** > **Administration** > **Server Console**, or connect to the Web Server Console via a Web browser
2. Log on to the computer running the Vault Server you want to administrate as Cumulus Administrator or the user who has the permission: User Administrator.
3. Select **User Manager**.
4. Edit the user's description who is supposed to be the Vault Administrator and under **Server Permissions**, select the **Administrator Permissions** to assign the **Vault Administrator** permission.
5. Click **OK** to save the defined properties.

In order to make it easy for the Vault Administrator user to perform all administrative tasks, this user should also have the following permissions for the catalogs that use Vault:

- Application Permissions
  Open Catalog, Create Record, Delete Asset
- Administrator Permissions
  View Catalog Settings, Modify Catalog Settings, Modify Central Asset Location

Activating Vault and Specifying the Vault Storage Location

As the Vault Administrator, it's up to you to create and specify the location of the main Vault folder where Vault will store the assets it controls. Where this location actually exists is up to you, with one restriction: it must physically be on a local disk of the computer running the Vault Server.

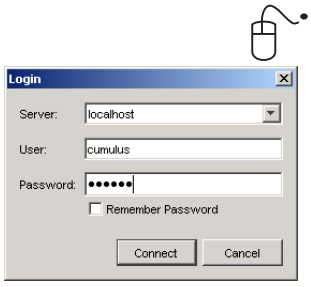
There are a couple of things to keep in mind when creating the folder to house your team's assets:

- All versions of your Vault-controlled assets from all catalogs will be housed there, so sufficient storage space should be available.
- You can specify a new location for the main Vault folder at any time (end of project, month, year, etc.), but once you do your workgroup will not be able to use Cumulus Vault to access the assets stored in the previous location unless you have made use of a special utility that updates the asset references to the new location .

First, create this main Vault Storage folder on the computer running the Vault Server, and then configure the Vault Server application by telling it where this folder is. You can structure this main Vault Storage folder when setting up catalogs for Vault. Use this way to create any subfolders in the main Vault folder, only. When you create new folders inside the main Vault Storage folder when setting up catalogs. These folders are created as special folders for Vault and called Vault Folders. Such a special Vault Folder contains an XML file that describes it and that is necessary for certain functions, e.g. the exclusive assignment of a catalog to Vault as its central asset location.

When configuring the Vault Server you are offered to have Vault Folders automatically structured when a certain number of days or assets is reached. For better performance we strongly recommend you to make use of the functions that automatically create subfolders.

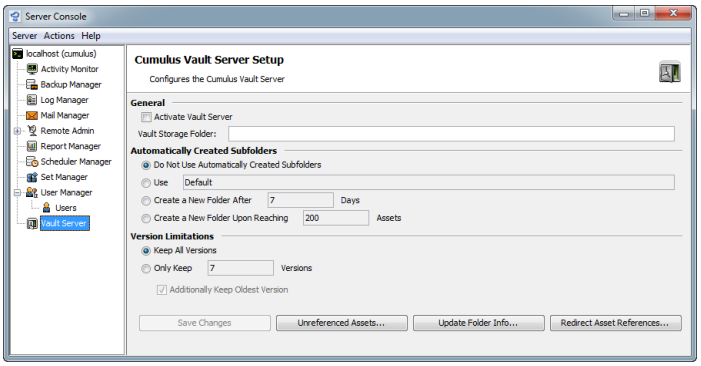
To configure the Vault Server:



1. From within a Cumulus Client, select **File** > **Administration** > **Server Console**, or connect to the Web Server Console via a Web browser.
2. Log on to the Cumulus Server you want to administrate as Cumulus Administrator or the user who has the permission: Vault Administrator.

   The modules of the Server Console application are loaded.
3. The Server Console application is started. Log on to the computer running the Vault Server as a user who has Vault Administrator permission.
4. Select **Vault Server**.

   The **Cumulus Vault Server Setup** window is displayed.



5. Under General, enable **Activate Vault Server**.

6. In the **Vault Storage Folder** field, enter the path to the folder on the Vault Server computer into which the assets shall be placed when cataloged.

   The path you enter here refers to a location on the computer running the Vault Server. Make sure to observe the conventions for describing paths of the operating system where the Vault Server is installed, regardless of whether you are connecting from a Windows or Mac OS Client.

   NOTE: Vault Server for Mac OS X
   As the Vault Server for Mac OS X is based on UNIX technology you have to use UNIX path and file naming conventions for administration.

7. Under Automatically Created Subfolders, decide on the handling of subfolders by selecting the desired option:

   - **Do Not Use Automatically Created Subfolders**
     All assets will be stored directly in the Vault folders.
     This option is only available while none of the the subfolder options is activated. Once the automatic creation of subfolders is activated, there is no point of return.

     NOTE: *If you decide on this option and later decide on using subdirectories, all assets stored directly in Vault folders will be moved to a special subdirectory called Default. This will also happen to assets stored in Vault with former versions of Cumulus Vault when you decide to use subdirectories with the current Cumulus Vault version.*

   - **Use**
     Enter the complete path of an existing subfolder or a folder to be created within the Vault Storage Folder (using the path naming conventions of the operating system where your Vault Server is installed).
     Remember, that for better performance we strongly recommend you to activate this option.

     NOTE: *If you don't enter a name and leave the default unchanged, new cataloged assets are stored in the same Default folder as the assets that were automatically moved there after the use of automatically created subfolders was activated.*

   - **Create a New Folder After ... Days**
     Enter the number of days (1 to 10,000) after which a new subfolder will be created to house the assets to be cataloged hereafter. This number is the minimum number of days before a new subfolder will be automatically created.

   - **Create a New Folder Upon Reaching ... Assets**
     Enter the maximum number of assets (1 to 10,000) a subfolder may contain before a new subfolder will be created to house the assets to be cataloged hereafter. (Due to Cumulus TAG files or other metadata files, the actual number might differ.)

     NOTE: *These automatically created subfolders are named after their creation date and time (YYYY-MM-DD_hh-mm-ss).*

8. Under Version Limitations, decide on the handling of versions. You can either keep all versions or limit the versions of an asset kept in Vault. If you activate the option **Only Keep**, enter the number of latest versions you want to be kept in Vault. If you also want the oldest version to be kept, enable the option **Additionally Keep Oldest Version**.

9. Click **Save Changes**.

Once you have configured the Vault Server you should go on and set up your Cumulus catalogs to work with Vault.

Implementing Cumulus Vault

You implement Cumulus Vault by setting up your Cumulus catalogs to work with Vault. There are two things that you need to do with a catalog to subject its assets to Vault's control:

- **Prepare** the catalog by adding the special version control record fields to all records of the catalog. (See "Preparing Catalogs for Vault," p. 138.)
- **Link** the catalog to Vault by having its assets placed there whenever they are cataloged. You can either store all of a catalog's assets in Vault, or let the users decide which assets are to be stored there. (See "Linking Catalogs to Vault," p. 140.)

Another consideration is user access to the assets controlled by Vault. You need to make sure that the desired users can work with these assets. To find out how, see "User Access to Vault," p. 143.

If a catalog is configured to work with Vault, you also have the option of handing over already cataloged assets to Vault. For more information, see "Adding Already Cataloged Assets to Vault," p. 144.

Configuring catalogs to work with Vault is similar to configuring catalogs in general. You first log on as Cumulus Administrator to the Cumulus Server, then open the desired catalog and specify its properties.

Opening a Workgroup Catalog

The following is a brief review of opening a catalog:

1. From any Cumulus Client, select **File** > **Connect to Server**.
   The Connect to Server dialog opens.
2. Type the name of the user who has the appropriate permissions for the catalogs to be set up for Vault in the **Name** field and the corresponding password in the **Password** field.
3. Click **OK**. The Catalog Access window opens.
4. In the Catalog Access window, select the catalog(s) you would like to open and click **Open**.

Once the catalog is open, you are ready to add the record fields required to work with Cumulus Vault.

Preparing Catalogs for Vault

To make a catalog work with Vault, you have to add the version control record fields to the catalog. These fields are:

- **Check out Location** – Contains encoded information on where the asset has been checked out to, i.e., the location to which it has been saved on the user's file system. You must add this field for Vault to be able to copy and track assets.
- **Check out Date** – Contains information on the date and time the asset was checked out.
- **Check out User** – Contains information on who checked the asset out.
- **Version History** – Contains information on each version of an asset, i.e., when it was checked out and in as well as by whom. This field is a text field and can be edited by the user (if allowed).

  NOTE: Check out Duration
  If the **Check out Date** *field is also contained in the catalog, the* **Version**

History *field contains information on the check out duration at the end of each entry. This information is only available via this field. If this information is deleted from this field it cannot be reconstructed.*

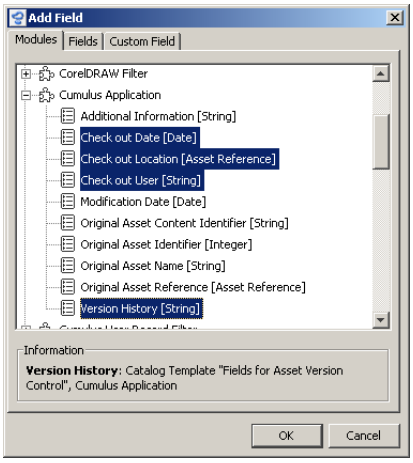
NOTE: Reconstructing Data
If the content of the **Version History** *field was completely deleted, the field is treated as containing no value and will be filled with the information stored on the server upon the next checking or record update.*

The fields **Check out Date** and **Check out User** also enable catalog users to view whether or not an asset is currently checked out and, if so, by whom. But to view the contents of these fields, they have to be added to the Record View Sets. (For information on adding fields to a view, see the Client User Guide.)

To add version control fields to your catalog:

1. Make sure the collection window containing the catalog is the active window in Cumulus.
2. Select **Cumulus** / **Edit** > **Preferences**.
3. Click **Catalog Settings**.

   The Catalog Settings window is displayed. If the active collection window contains more than one catalog, select the catalog you want to edit under **Catalogs**.
4. Click **Record Fields**. This displays a list of the current record fields included in the catalog.
5. Click the **Add Field** button. This opens the dialog **Add Field**.
6. Click the **Modules** tab.
7. Select **Cumulus Application**.
8. Select the field(s) you want to add. Version control fields are: **Check out Location**, **Check out Date**, **Check out User**, **Version History**



TIP: Under **Modules**, you can use also use the Catalog Template **Fields for Asset Version Control** for adding the fields.<<<

9. Click **OK**. This brings you back to the fields list to which the fields have been added.
10. Click **Apply** to save your changes.

The catalog can now work with Vault, but there are no assets in Vault for it to work with. The next step is to have Cumulus place assets under Vault's control whenever they are cataloged.

Linking Catalogs to Vault

When a catalog is linked to Cumulus Vault, assets can be handed over to Vault when they are cataloged by any user. As the Cumulus Administrator, you link a catalog to Vault by telling Cumulus essentially two things.

First, you have to configure Cumulus to be able to add assets to Vault when they are cataloged. You do this by specifying Cumulus Vault as a central location for the catalog. You even have a couple of options for specifying when assets should be handed over to Vault:

- **Always** – All assets added to the catalog are handed over to Vault. Should be considered the default setting, because it ensures that all of the catalog's assets are subject to Vault's access and revision control.
- **As Set in Asset Handling Set** (i.e., at the users' discretion) – You let each user specify (with the Asset Handling Set they employ) whether or not to catalog assets to Vault. Useful if only certain types of assets – as your workgroup defines them – need to be subject to access and version control.
- **Always and Exclusive** – All assets added to the catalog are handed over to Vault and their asset storage location is Vault exclusively. A catalog that is set to this option will have a forced 1-to-1 relation with its Vault Folder: every record in the catalog represents an asset stored in the corresponding Vault Folder and each asset in this Vault Folder is represented by a record in this catalog. This is the guiding principle for all functions performed. For example this means that assets managed by this catalog cannot be moved and that deleting the records representing them will always delete the assets as well. A catalog that is set to this option is called a Vault exclusive catalog.

  NOTE: *After the* **Always and Exclusive** *option has been activated for a catalog, all assets already contained in the catalog will be copied to the corresponding Vault Folder and their records will be updated to reflect the new asset storage location.*

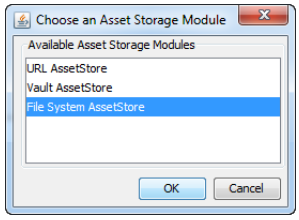
Second, you have to tell Cumulus where to store the assets to be controlled by Vault, in effect tell Cumulus which computer in your network is running the Vault Server. You specify this computer by its network name or TCP/IP address. At this point, you don't need to specify the actual folder on the Vault Server computer, since you already specified it when you configured the Vault Server.

To link a catalog to Vault:

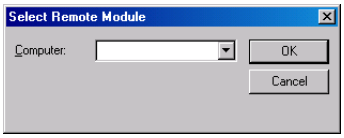
1. Make sure the collection window containing the catalog is the active window in Cumulus.
2. Select **Cumulus** / **Edit** > **Preferences**.
3. Click **Catalog Settings**.

   The Catalog Settings window is displayed. If the active collection window contains more than one catalog, select the catalog you want to edit under **Catalogs**.
4. Click **General**.
5. Under Copy Assets to Central Location, enable **Use Central Asset Location**.
6. Choose where to store the copies and which Asset Storage module you want to use.

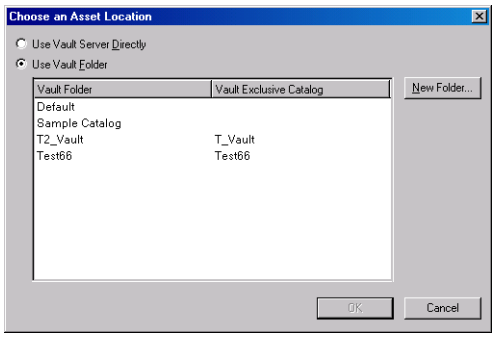
The Choose an Asset Storage Module dialog opens.



7. Select **Cumulus Vault** and click **OK**.
   The Select Remote Module dialog opens.



8. Select the computer running the Vault Server from the **Computer** field. This is the computer that contains the folder you specified as the Vault location (see "Configuring the Vault Server," p. 135). You can click the arrow button to the right of the field for a list of currently active Vault Servers in your network.
   The Choose Asset Location dialog is opened. You now have to decide whether you want the assets to be stored directly in the folder of the Vault Server or in a subfolder nested in the Vault Server folder. Such a subfolder is called a Vault Folder.



9. Select the desired option.
10. If you decided on **Use Vault Server Directly**, your next step is to click **OK**.
    If you decided on **Use Vault Folder**, the list for selecting this folder is activated. Then your next step is to select the Vault Folder you want the asset to be stored in and click **OK**.
    If you want a new Vault Folder to be created for storing the assets of this catalog, click **New Folder**. A dialog for entering a name for the folder is displayed. It contains the name of the catalog as default.

    NOTE: *If a catalog is set exclusive for a Vault Folder this folder cannot be used as a central asset storage location for any other catalog. If you want a catalog to be set exclusive, you have to create a new Vault Folder for it.*

    You return to the General section of the Catalog Settings window. The name or IP address of the computer running the Vault Server and the name of the Vault Folder are displayed.

11. Select the mode for copying assets to the central asset storage location chosen above:
    - **Always**
    - **As Set in Asset Handling Set**
    - **Always and Exclusive** (available with Vault only)

    (For more information on the different modes, see page 140.)
12. Click **Apply** to save your changes and select the next catalog you want to set up for Vault.
    OR
    Click **OK** to save your changes and close the Preferences window.

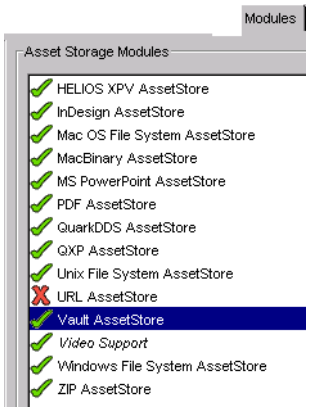
When users catalog assets to this catalog from now on, the asset can be placed or will be placed into the folders inside the Vault Server folder you specified when you configured the Vault Server.

Configuring Asset Handling Sets for Vault

The Asset Handling Sets your workgroup users use have to be configured for Vault. Asset Handling Sets are important for Vault in the various aspects:

- for cataloging
- for asset access
- for asset version handling

For cataloging they are important as the user must use Asset Handling Sets with



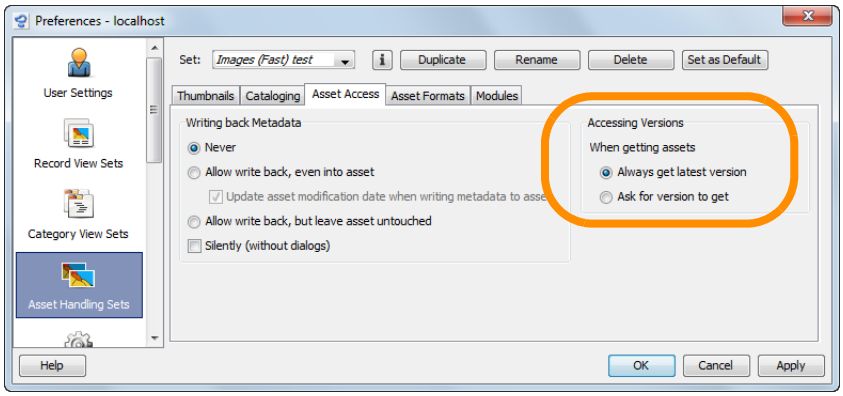
The Cumulus Vault module must be activated in Asset Handling Sets in order to catalog assets to Vault or to access assets stored in Vault.

the Asset Storage module Cumulus Vault activated for cataloging assets to be placed under Vault's control. And Asset Handling Sets are very important for cataloging if you have set a catalog to let each user decide whether the assets they're cataloging should be placed under Vault's control or not. The user decides this by selecting an Asset Handling Set. If the user employs an Asset Handling Set with the Copy to Central Asset Location option and the Asset Storage module Cumulus Vault activated for cataloging, the cataloged assets are placed under Vault's control.

For asset access they are important, as the user must use Asset Handling Sets with the Asset Storage module Cumulus Vault activated for accessing assets that are stored in Vault.

For asset version handling they are important, as they include the Vault settings for version handling. Since Vault controlled assets may exist in multiple versions, you may have to make a choice between the different versions available when you preview, mail, and copy assets controlled by Vault. Cumulus makes it easy for you to make this choice. It even enables you to pre-set your decision to best suit

the way you work. This setup is defined in an Asset Handling Set. By selecting an Asset Handling Set, the user decides on the way of asset version handling.



Cumulus Vault Setup for version handling in Asset Handlings Sets

See the *Client User Guide* for information on how to set up Asset Handling Sets in general.

With Vault we recommend you to have your Cumulus users using shared Asset Handling Sets only. As these Asset Handling Sets can be centrally administered. You can also restrict the users' access to certain Asset Handling Sets only. However, whichever way you choose, make sure that at least the Asset Handling Sets selected in the User Settings of your users have the Cumulus Vault module activated.

If you ever decide that you want to change the Vault Server for this catalog, you can return to the Catalog Settings and click Browse to specify a new computer. However, then you have to redirect the assets. Cumulus provides a special utility for redirecting Vault assets. For information on this utility, see "Redirecting Asset References," p. 149.

User Access to Vault

Users' access to assets controlled by Vault is catalog-specific, since they access these assets via Cumulus catalogs.

You have to assign those users who are to work with Vault the corresponding permissions. You assign individual user permissions with the User Manager module of the Server Console.

If you want users to be able to check assets out, check them back in, undo a check out and move assets out of Vault, they have to be assigned the permissions:

- Open Catalog
- Create Records, Modify Records
- Check Out/In, Transfer Asset

If you also want users to be able to delete records, you have to assign them the Delete Record permission.

If you also want users to be able to delete assets – and individual asset versions – from Vault, you have to assign them the Delete Record permission and the Delete Asset permission.

In Vault exclusive catalogs you can only delete a record along with its asset only. If you want users to be able to delete records from such catalogs you have to assign them the Delete Record permission and the Delete Asset permission.

For a detailed description of user permissions, see "Catalog Permissions," p. 108.

NOTE: Permissions on Records from a Vault Exclusive Catalog!
If a user has a catalog housing records that derive from a Vault exclusive catalog (Central Asset Location set to **Always and Exclusive***) the user's permissions on these records are the user's permissions given for the catalog the records derive from. For example: Even if a user has all permissions for catalog A her/his permissions for records that derive from catalog B (which is a Vault exclusive catalog) are the user's permission for catalog B.*

Adding Already Cataloged Assets to Vault

Linking a catalog to Vault means that assets cataloged to it in the future can be handed over to Vault. But what about the assets your workgroup has already cataloged? They too can be placed under Vault's control, as many of them as you want at a time.

NOTE:
In order to be able to add already cataloged assets to Vault, the Client you're connecting from must have access to the assets themselves – wherever they may be stored in the network.

To add already cataloged assets to Vault's control:

1. Open the catalog whose assets you would like to add to Vault (see "Opening a Workgroup Catalog," p. 138).
2. Select the record(s) representing the asset(s) you would like to hand over to Vault.
3. Select **Asset** > **Move To**.
   The Select Asset Storage Module dialog opens.
4. Select **Cumulus Vault** and click **OK**.
   The Select Remote Module dialog opens.
5. In the **Computer** field, select the computer running the Vault Server and click **OK**.
   Cumulus moves the selected assets to Vault, where they are now subject to access and version control.

Now that you've got Cumulus Vault running just the way you want it, you can let the Clients start working with it—and let Vault take care of the rest. If you are also going to be working with the assets controlled by Vault, you can find all you need to know about how in the Client User Guide.

Administration Utilities

Cumulus provides several utilities for special Vault administration tasks. The utilities can either be started via the Actions menu (when Vault Server is selected) or via buttons in the Vault Server Setup window.

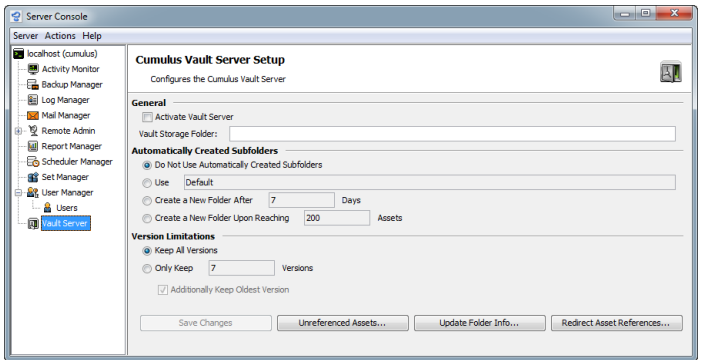
Managing Non-cataloged Assets Stored in Vault

Due to whatever reason, Vault may contain assets which are not cataloged. You can search for these and either delete them or add them to a catalog. As you can only search catalog for catalog, this function is most helpful when you manage all assets stored in Vault via one catalog.

To manage non-cataloged assets stored in Vault:

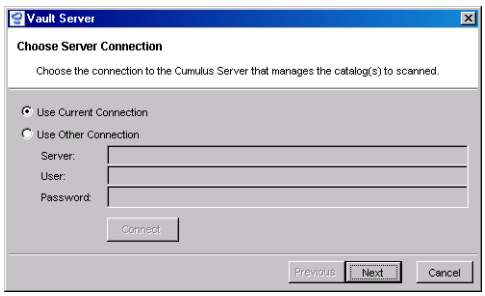
1. From within a Cumulus Client, select **File** > **Administration** > **Server Console**, or connect to the Web Server Console via a Web browser.
2. The Server Console application is started. Log on to the computer running the Vault Server as a user who has Vault Administrator permission.
3. Select **Vault Server**.

   The **Vault Server Setup** window is displayed.



4. Click the **Unreferenced Assets** button.

   The **Choose Server Connection** dialog is displayed.



5. If the catalogs you want to scan are managed by a Cumulus Server running on the same computer as the Vault Server you are connected to, then you can use the current connection and click **Next**.

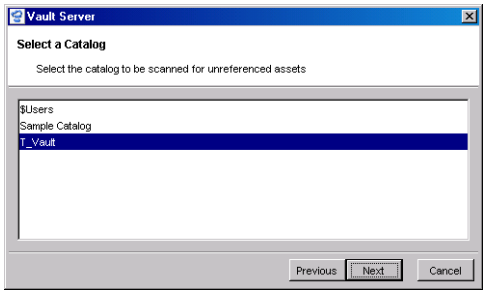
   However, check if you are logged on to the Vault Server as a user who has the required permissions for the catalogs to be scanned and has access to the Asset Handling Sets needed for cataloging. If not, you should change the connection as described below. Required permissions are: Open Catalog, Create Record and Delete Asset.

If the catalogs you want to scan are managed by a Cumulus Server running on a different computer as the Vault Server you are connected to, then you have to change the connection and connect to this computer.

To change the connection:

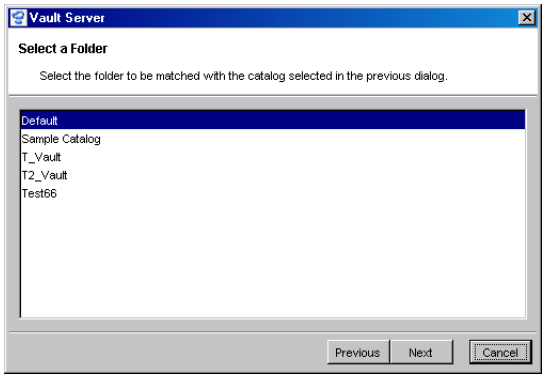
- Enable the **Use Other Connection** option.
- In the **Server** field, enter the server name or the IP address of the computer running the Cumulus Server managing the desired catalogs.
- Enter the name and the password of a user who has the required permissions for the catalogs you want to scan.
- Click **Connect** and **Next**.

The **Select a Catalog** dialog is displayed. It lists the catalogs that are managed by the Cumulus Server chosen in the previous dialog and which the logged on user has access to.



6. Select the catalog to be scanned and click **Next**.

   The **Select a Folder** dialog is displayed. It lists the folders inside the Vault Storage folder.

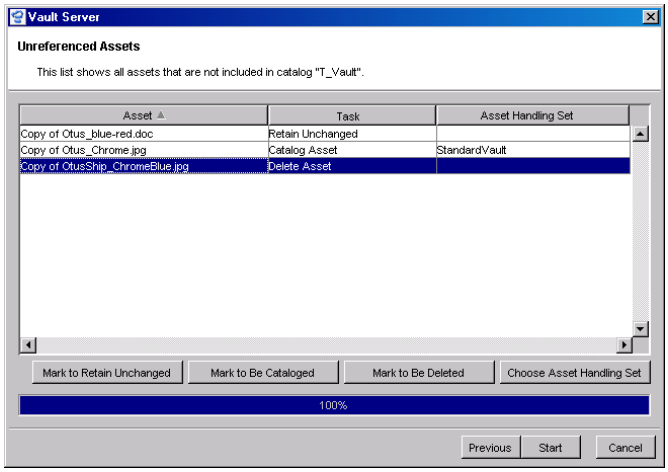


7. Select the folder to be matched with the catalog chosen in the previous dialog. The selected folder(s) will be scanned as well as its/their automatically created subfolders.

   NOTE: *If you don't select a folder, the level of the Vault Storage folder will be scanned – including all automatically created subfolders but not the Vault Folders.*

8. Click **Next** to start the process.

   A list shows those assets that are stored in the selected folder but not contained in the selected catalog.

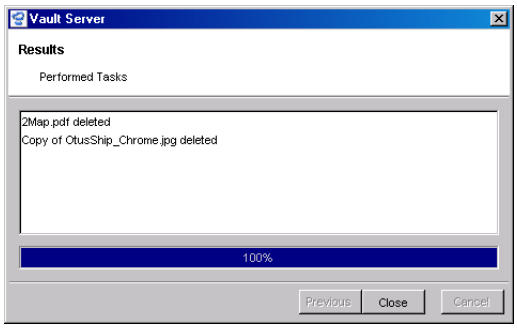


If the list is empty, no unreferenced assets were found. Then you can either quit the utility by clicking **Close** or go back to previous steps by clicking **Previous**.

9. Select the desired asset(s) and
   - if you want to delete the asset(s) (and all its/their versions) from Vault, click **Mark to Be Deleted**.
   - if you want to add the asset(s) to the selected catalog, click **Mark to Be Cataloged**.
   - if you don't want to touch the asset, click **Mark to Retain Unchanged**.

   TIP: You can also click in the **Task** column to select the task to be performed on an asset.

   The assets get marked for the task to be performed.
10. For assets to be cataloged, you should choose an Asset Handling Set for the cataloging:
    - Select the entry for the asset to be cataloged and click **Choose Asset Handling Set**. A list shows those Asset Handling Sets that have Cumulus Vault activated as Asset Storage module and that are available to the user you are logged on with.
    - Choose the Asset Handling Set you want to be used for cataloging the selected asset.
11. When the tasks for all assets are defined and all Asset Handling Sets are chosen, click **Start**. The assets are processed as defined. A list informs you on the tasks that were performed.



12. Click **Close** to quit the utility.

This function was designed for clearing assets which are in Vault but not cataloged. However, you may also use this function for cataloging assets in Vault to other catalogs.

Update Folder Information

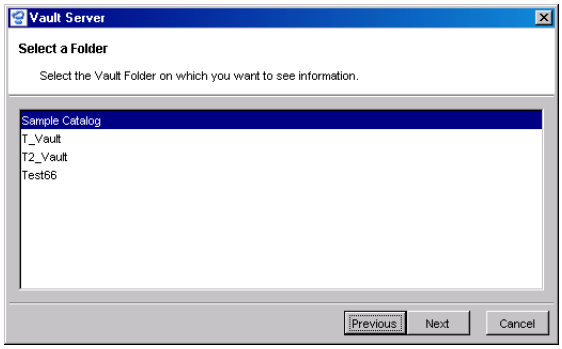
Folders set up as central asset location for catalogs are called Vault Folders. Vault Folders are located in the folder chosen as Vault Storage Folder. Each asset that is copied to the central asset location is copied to the selected Vault Folder. How does Cumulus recognize such a Vault Folder? A Vault Folder contains an XML file that holds the information Cumulus needs. To see and update this information, Cumulus provides a utility.

To update the information on Vault folders:

1. From within a Cumulus Client, select **File** > **Administration** > **Server Console**, or connect to the Web Server Console via a Web browser.
2. The Server Console application is started. Log on to the computer running the Vault Server as a user who has Vault Administrator permission.
3. Select **Vault Server**.

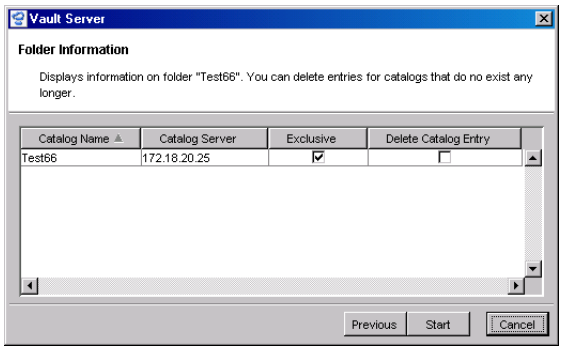
   The **Vault Server Setup** window is displayed.
4. Click the **Update Folder Info** button.

   The **Select a Folder** dialog is displayed. It lists the Vault folders of the Vault Server you are connected to.



5. Select the Vault Folder on which you want to see information and click **Next**.

   The information on the the selected Vault Folder is displayed.



- **Catalog Name** – Name of the catalog
- **Catalog Server** – IP address of computer running the Cumulus Server managing the catalog.
- **Exclusive** – If the catalog is a Vault exclusive catalog this option shows a check mark.

- **Delete Catalog Entry** – This option can be activated in order to delete the entry for this catalog from the Vault Folder's information. This is useful for catalogs that were deleted and no longer exist.

6. If you want to delete the entry for this catalog, activate the **Delete Catalog Entry** option and click **Start**.
7. Click **Close** or **Cancel** to quit the utility.

Redirecting Asset References

Asset references contain information on the server the assets are stored on; e.g. IP address and/or server name. Therefore they have to be updated when the server changes. Canto provides utilities to help make the process of updating the records easy and trouble-free.

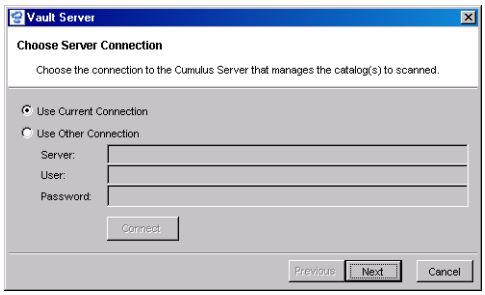
The utility will scan selected catalogs for records 'pointing' to the former Vault location and then update these records to reflect the new location of the Vault assets. Without this utility, the records would still 'point' to the former Vault Server. The utility does not overwrite, move or otherwise affect asset files at all.

To update the asset references of assets kept in Vault after the Vault Server has changed:

1. From within a Cumulus Client, select **File** > **Administration** > **Server Console**, or connect to the Web Server Console via a Web browser.
2. The Server Console application is started. Log on to the computer running the Vault Server as a user who has Vault Administrator permission.
3. Select **Vault Server**.

   The **Vault Server Setup** window is displayed.
4. Click the **Redirect Asset References** button.

   The **Choose Server Connection** dialog is displayed.



5. If the catalogs you want to scan are managed by a Cumulus Server running on the same computer as the Vault Server you are connected to, then you can use the current connection and click **Next**.

   However, check if you are logged on to the Vault Server as a user who has the required permissions for the catalogs. If not, you should change the connection as described below. Required permission are: Open Catalog, Modify Record including Modify Asset Reference.

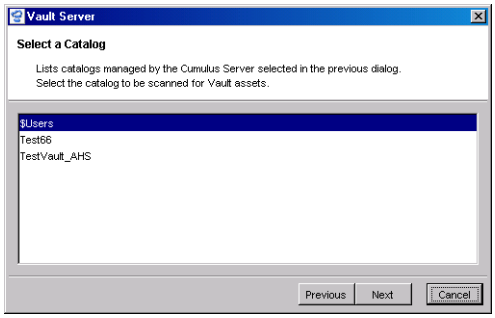
   If the catalogs are managed by a Cumulus Server running on a different computer than the Vault Server you are connected to, then you have to change the connection and connect to this computer.

   To change the connection:

   - Enable the **Use Other Connection** option.

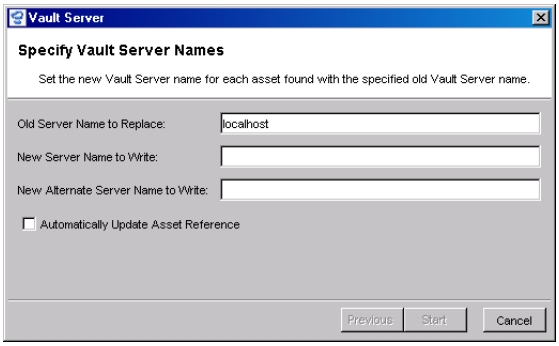
- In the **Server** field, enter the server name or the IP address of the computer running the Cumulus Server managing the desired catalogs.
- Enter the name and the password of a user who has the required permissions for the catalogs you want to scan.
- Click **Connect** and **Next**.

The **Select a Catalog** dialog is displayed. It lists the catalogs that are managed by the Cumulus Server chosen in the previous dialog and which the logged on user has access to.



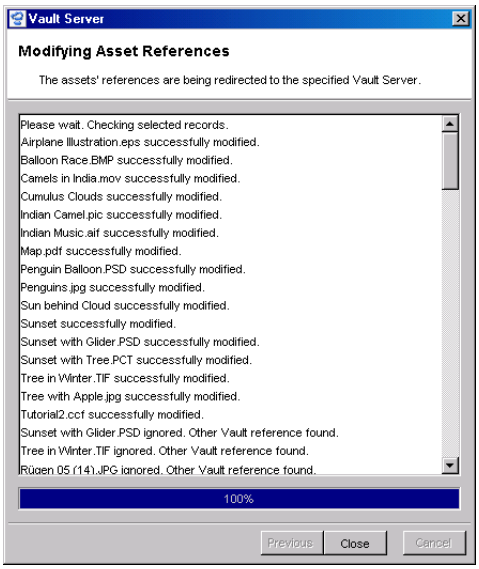
6. Select the catalog(s) managing the Vault assets and click **Next**.

   The **Specify Vault Server** Names dialog is displayed.



7. In the **Old Server Name to Replace** field, enter the DNS name or IP address of the computer where your former Vault Server was installed. As default, Cumulus prompts the name of the first Vault Server computer which it finds in the selected catalog's records.
8. In the **New Server Name to Write** field, enter the DNS name or IP address of the computer where your current Vault Server is installed.
9. In the **New Alternate Server Name to Write** field, you can optionally enter the alternate information on the computer where your current Vault Server is installed – the information you did not enter in the **New Server Name to Write** field above (DNS name or IP address).
10. If you want to have the complete information that is stored in the record field Asset References updated, activate the **Automatically Update Asset Reference** option.
11. Click **Start**. The utility will search the selected catalog(s) for records that 'point' to the former Vault location. Then it will check whether the corresponding assets exist in the new Vault location and finally will update the

assets' references. A list informs you which assets' references were redirected.



NOTE: *If you cancel the function, it will be stopped but the updates of the already processed records are kept.*

12. Click **Close** to quit the utility.

This chapter offers troubleshooting information to help you quickly solve common problems. Topics covered in this chapter include factors that influence program performance, common problems and their solutions, and the importance of documenting problems before calling for assistance.

Troubleshooting

Factors Influencing Performance

Numerous factors can affect software program performance. The following lists common factors to consider if Cumulus seems to be having performance problems.

Server Speed and Available Memory

The processor speed and memory of the server hosting Cumulus dramatically affects overall program performance. For more information, see "Cumulus Server System Requirements" in the Installation Guide.

Use of a Non-Dedicated Server

Ideally, having a dedicated Cumulus Server ensures the highest possible program performance. If you are experiencing performance problems and are running Cumulus concurrently with other programs, evaluate the number of applications that are running simultaneously. Test and see if performance improves as the number of programs running concurrently decreases.

Storage Media Type

The type of media on which you store your catalogs dramatically affects the speed at which Cumulus catalogs, displays and locates media file information. For the fastest performance possible, store catalogs on your server instead of offline on removable media (e.g., CD-ROM or SyQuest, Zip, Jaz, and MO cartridges).

Number of Records

The sheer number of assets Cumulus manages at once directly affects cataloging performance, but not record search and retrieval time. Unlike other media management programs, Cumulus indexes nearly every word entered into a record by default. When you catalog new assets, the program rebuilds the index as each asset is cataloged. Thanks to this design, Cumulus can search and retrieve records instantly regardless of the catalog size. However, after a certain point, cataloging performance may degrade.

Hard Disk Fragmentation

Check your system's hard disk for fragmentation. For more information on hard disk fragmentation and defragmentation, see the documentation that came with your system.

Common Problems and Solutions

This section contains frequently asked questions and their possible solutions.

Slow Catalog Performance

When I work with a catalog from a Client, most of the functions I use take much longer than expected. Why?

The problem may lie in the connection between the Clients and the computer running the Cumulus Server. Communication between Server and Clients is handled via TCP/IP. If the Server computer is a Domain Name Server (DNS) that is normally difficult to reach from other computers, then Cumulus functions executed across this connection will also take longer to run.

Maximum Catalog Size

What is the largest number of records that a Cumulus catalog can hold?

Cumulus Workgroup is limited to a catalog file size of 4 GB. Cumulus Enterprise is limited to a catalog file size of 1 TB. The number of records this permits depends upon:

- the thumbnail quality/size settings
- the amount of text in each record (e.g., in the Notes field)

For example, catalogs containing incredibly long notes as well as large and high quality thumbnails might reach the 4 GB maximum file size at 100,000 records. In contrast, catalogs with records that contain shorter notes and small thumbnails might not reach the 4 GB maximum file size until 400,000 records.

For information on selecting thumbnail size for *new* catalogs, see "Catalog Settings," p. 28. For information on changing thumbnail size for existing records, see the Client User Guide.

Changing Thumbnail Appearance

Can I change a thumbnails appearance?

The actual size (in pixels) of a thumbnail is controlled by the Asset Handling Set used for cataloging. You can, however, change a thumbnail's appearance within the Record pane by selecting three different options (small, medium, large) found in the View menu or the toolbar. You can define the size for these three options in the User Settings. For more information, see the Client User Guide.

Exporting Catalog Information

How do I export catalog information to another program?

Cumulus supports the ability to export record and category information to a tab-delimited text file, which can then be imported into other catalogs or applications. For more information on exporting and importing, see the Client User Guide.

Dealing with Unexpected Categories

I was dragging and dropping records between two catalogs and some new categories appeared in the Category pane. What happened?

Every Cumulus catalog can have a different category structure that contains different categories. When you drag or import a record to another catalog, it may be assigned to categories that don't exist in the destination catalog. If that is the case, Cumulus automatically creates the missing categories in the destination

catalog.

To avoid this situation, export the categories from one catalog and import the into the other catalog before importing records. For more information on exporting and importing, see the Client User Guide.

Working with DCS Separation Files

How do I work with DCS separation files in Cumulus?

DCS 1.0 files consist of five different files: the master file and the four color separation files for Cyan, Magenta, Yellow, and Black. When cataloging DCS files make sure you use an Asset Handling Set that has DCS File Support activated. Then Cumulus catalogs only the master file to avoid creating five records for a single image.

Cataloging OPI System Files

I use Cumulus to catalog the low-resolution files from my OPI system, place them in layout applications, and then print them. Will they be substituted with high-resolution files as expected during printing?

Cumulus is fully compatible with many OPI systems and can form the backbone of a successful automation system in any environment. Make sure you use Asset Handling Sets for cataloging and accessing that have OPI System Support activated.

Accessing Support Information Online

If you have a problem not covered in this chapter, be sure to review the *FAQ* section and the Canto's User 2 User Support Forums on the Canto Website for additional troubleshooting information (www.canto.com).

Special Problems and Solutions

This section deals with special configuration problems and their solutions.

Different Port Numbers

I installed Cumulus but the Cumulus default port numbers are already used. What do I have to do?

You have to install and start the Cumulus Server and the Remote Admin utility manually with commands found in the Cumulus Server installation folder and then change the port number(s).

First install the Cumulus Server and the Remote Admin utility:
– Windows: start **install-admin.bat** and **install-cumulus.bat**
– Mac OS X/UNIX: start **install-admin.sh** and **install-cumulus.sh**

In case the port number 8954 is already used, change the port number for Remote Admin by replacing the number in the **RemoteAdminPortNumber** entry in the **server.xml** file (found in the **conf** folder inside the Cumulus Server installation folder).

Then start the Remote Admin utility
– Windows: start the Service or use **start-admin.bat**
– Mac OS X/UNIX: **start-admin.sh**

In case the port number 9287 is already used, open the Remote Admin window with your Web browser (http://[ServerID]:PortNumber/login.html). Click on **Change Properties** and change the port number for the Cumulus Server by

replacing the number in the **TCP/IP Port Number** field. Then click **Submit**.

Finally start the Cumulus Server
– Windows: start the Service or use **start-cumulus.bat**
– Mac OS X/UNIX: **start-cumulus.sh**

If you use another port number for the Cumulus Server you have to inform all Cumulus Clients to use the changed port number in the Connect To Server dialog (e.g. 123.123.123.123:9288 or ServerName:9288).

If you employ Cumulus Options as Cumulus Sites or Vault, and if they are installed on a machine other than the Cumulus Server, you must set up the port number used by Cumulus Sites and the Vault Server accordingly.

Damaged Field Index

Error message: "The catalog is damaged but you can continue working with it. In any case, ask your Cumulus Administrator to check the Cumulus Server system log for details. " What must the Cumulus Administrator do?

This error message indicates an indexing error. The Cumulus Server's system log will contain an entry like

Index damaged: Catalog "My Catalog", Field "My Field", Sort Index,
File "C:\Cumulus\Core\CuDBEngine\src\BTree.cpp" (1234)"

The Cumulus Administrator should then

- open the Catalog Settings for the indicated catalog (e.g. "My Catalog") (**Cumulus** / **Edit** > **Preferences** > **Catalog Settings**),
- open the Properties of the indicated field (e.g. "My Field"),
- deactivate the indicated indexing (**Sort Index** = Index for Sorting/Searching; **Contain Index** = Index for Contain-Searching, **Word Index** = Index for Word-Searching) for the field and apply the change,
- activate the indexing again and apply this change.

Documenting Problems

When Cumulus behaves in an unexpected way or does not work properly, please review your situation and repeat the steps that led to the problem. Try to reproduce the error, paying special attention to the actions you took before it occurred. If there are many steps, write them down so you can tell us exactly what you did.

This appendix provides information on parameters for Cumulus Asset-Processors when used with one of the Cumulus Internet solutions, additional EJaPs or applications based on the Cumulus Java Classes and information on the Sample EJaPs folder included with any Cumulus Client installation.

Appendix

AssetProcessor Parameters

The Cumulus AssetProcessors can be used with additional EJaPs or applications based on the Cumulus Java Classes.

For example: if you want to employ the Pixel Image Converter, you have to choose "Pixel Image Converter" as the converter module. Then you set the parameter. The following sections list the possible parameters for the different Cumulus AssetProcessors.

For descriptions on how to configure the different Cumulus AssetProcessors for the Cumulus application see the Client User Guide.

Pixel Image Converter

- JPEGQuality=<value>
  (possible values as integer: 1-10)
- Format=<value>
  (possible values as string: TIFF, JPEG, BMP, PDF, SCT, PNG, PCX)
- Compression=<value>
  (possible values as string: None, Flate)
- ColorSpace=<value>
  (possible values as string: GRAY, RGB, CMYK)
- StoreIPTC=<value>
  (possible values as integer: 1 or 0; as string: TRUE or FALSE)
- StoreXMP=<value>
  (possible values as integer: 1 or 0; as string: TRUE or FALSE)
- Resolution=<value>[%]
  (value in dpi – dots per inch – as real, e.g. 72.0 without unit
  OR relative to original image in percent, e.g. 50%)
- Width=<value>
  (value for width in pixel, e.g. 640)
- Height=<value>
  (value for height in pixel, e.g. 480)
- MaxWidth=<value>
  (value for maximal width in pixel, e.g. 600)
- MaxHeight=<value>
  (value for maximal height in pixel, e.g. 600)
- CropLeft, CropTop, CropRight, CropBottom=<value>
  (values for crop dimensions in pixel)

NOTE: Different Units or Percentage!

You can also define the values for width, height and crop dimensions in other units or percentage of the original image pixel size. To do so, enter the abbreviation of the measurement unit (in, cm, pc) or the percentage character at the end of the number (integer or floating point) of the Width or Height parameter, e.g. "Width=50.0%" or "Height=3.25in"

NOTE: MaxWidth and MaxHeight

If you define MaxWidth and MaxHeight which specify a bounding box, these values will be preferred to any given values for Width and Height.

- EnlargeImage=<value>
  (possible values as integer: 1 or 0; as string: TRUE or FALSE)
- SourceDPI=<value>
  To use a correct value of resolution of source image, if a wrong value is saved.
- Filter=Blur|Gauss|Sharp
  Use this parameter to apply a filter.

- FilterSize=S|M|L
  Use this parameter to vary the radius of a filter (S for small, M for medium, L for large.) Will be used only if Filter is set.
- RotD=90|180|270
  Apply rotation of the image for 90, 180 or 270 degrees.
- FlipH=TRUE|FALSE
  Apply horizontal mirroring of the image.
  (Possible values as integer: 1 or 0; as string: TRUE or FALSE)
- FlipV=TRUE|FALSE
  Apply vertical mirroring of the image.
  (Possible values as integer: 1 or 0; as string: TRUE or FALSE)

Example :

```
<%link converter="Pixel Image Converter"
param="Format=TIFF"%>Convert To TIFF<%endlink%>
```

ZIP Processor

- ZipFile=<filename>
  (if not specified the asset name with the .zip extension is default.)
- MacBinary=<value>
  (possible values as integer: 1 or 0; as string: TRUE or FALSE)
- MacOSXCompatible=<value>
  (possible values as integer: 1 or 0; as string: TRUE or FALSE)
- Encoding=<value>
  Possible values are
  – DOSLatinUS
  – DOSLatin1
  – DOSLatin2
  – ISOLatin1
  – ISOLatin2
  – ISOLatin9
  – MacRoman
  – MacJapanese
  – MacRussian
  – MacCentralEuroRoman
  – UTF8
  – WinLatin1
  – WinLatin2
  – WinJapanese

NOTE:
If you enable the Mac OS X compatible Format, the encoding will be always "UTF8".

Example:

```
<%link converter="ZIP AssetProcessor"
param="MacBinary=1"%>Zip-File<%endlink%>
```

DCS

You can use one of the following parameters to get a specific color separation file:

- GetCyan
- GetMagenta
- GetYellow
- GetBlack

- GetMain

Example:

```
<%link converter="DCS"
param="GetCyan"<%endlink%>
```

OPI

You can use one of the following parameters to get the high or low resolution file:

- GetHiRes
- GetLowRes

Example:

```
<%link converter="OPI"
param="GetHiRes"<%endlink%>
```

PDF PageMerge AssetProcessor (optional)

- PDFFile=<filename>

QXP Server AssetProcessor (optional)

- DDSServer=<servername> or <IPaddress>
- Format="PDF"

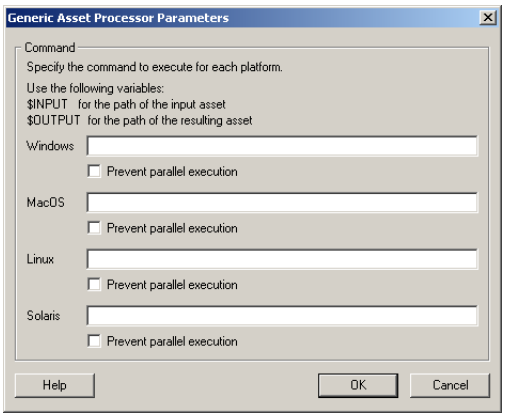
  NOTE: *Only PDF format supported!*

  Params=<parameters for specified format>

Generic Asset Processor (optional)

Enables Cumulus to call external applications from within Asset Actions. It can be used for processing, packaging, and delivering tasks.

For each platform you specify the command lines for external applications by defining variables (similar to those for the Generic Filter.)



The following variables have to be used in the command line for the input and output files: $INPUT and $OUTPUT. They will be replaced by Cumulus before exe-

cuting the command line depending on the module task in the following manner:

Asset Processor Task	$INPUT	$OUTPUT
Processing	Quoted path of source asset.	Quoted path of destination asset.
Packaging	Space separated list of quoted paths of source assets.	Quoted path of destination asset.
Delivering	Quoted path of source asset.	- (will be deleted)

In case the application to be called expects a special file extension, you can specify the extension directly behind the variable:

```
$OUTPUT.jpg              „C:\Temp\CumulusTemporary.jpg“
```

In the same manner you can specify suffixes to append at the destination name:

```
$OUTPUT_step01.tiff    „C:\Temp\CumulusTemporary_step01.tiff“
```

To exactly specify the file name you can assign one:

```
$OUTPUT=result.png    „C:\Temp\result.png“
```

NOTE:
Some applications require the proper file extension (e.g. OUTPUT.jpg or OUTPUT.flv.)

Replacement Examples for Processing

```
"C:\Program Files\MyConverter\conv.exe" $INPUT /opt1 -prm=2 $OUTPUT
```

will be replaced by:

```
"C:\Program Files\MyConverter\conv.exe" "C:\My Assets\Selected.jpg" /
opt1 -prm=2 "C:\Temp\Cumulus01"
```

Replacement Examples for Packaging

```
"C:\Program Files\MyZipTool\myziptool.exe" -compress -zipfile=$OUTPUT
$INPUT
```

will be replaced by:

```
"C:\Program Files\MyZipTool\myziptool.exe" -compress -
zipfile="C:\Temp\Cumulus02"      ...

 "C:\My Assets\Selected1.jpg" "C:\My Assets\Selected2.pdf" "C:\My
Assets\Selected3.doc"
```

Replacement Examples for Delivering

```
cmd /C copy $INPUT "C:\My Destination Folder"
```

will be replaced by:

```
cmd /C copy "C:\Asset Location\The Selected Asset.ext" "C:\My
Destination Folder"
```

Examples for Windows

Processing: Conversion of images to JPEG using IrfanView

```
"C:\Program Files\IrfanView\i_view32.exe" $INPUT /convert=$OUTPUT.jpg
```

Processing, Packaging: Compression of files using 7-Zip to 7z format:

```
"C:\Program Files\7-Zip\7z.exe" a -t7z $OUTPUT.7z $INPUT
```

Calling a batch script:

```
cmd /c "C:\My Scripts\myscript.cmd" $INPUT $OUTPUT
```

Examples for Mac OS / Linux / Unix:

Generate compressed tar file:

```
tar -czf $OUTPUT.tgz $INPUT
```

Generate compressed tar file with specified destination file name:

```
tar -czf $OUTPUT=FromProcessor.tgz $INPUT
```

Generic Filter

The Generic filter has got an additional option to generate the thumbnail and the preview by calling an external application, in the same way the Generic Processor works. The parameters are nearly the same: command lines for each platform. For this module the variables which have to be used are:

- `$INPUT` – will be replaced by the quoted path of the cataloged asset
- `$PREVIEW` - will be replaced the quoted path of a temporary file.

The called application has to generate a picture in JPEG or PNG format.

Examples

Generate a PNG image from EPS assets using GhostScript on Windows

```
"C:\Program Files\gs\gs8.61\bin\gswin32.exe" -sDEVICE=pngalpha
-dEPSCrop -dBATCH

  -dNOPAUSE -dNOPROMPT -dQUIET -sOutputFile=$PREVIEW.png $INPUT
```

If your workflow already generates a JPEG preview for an asset and saves it beside the asset named `<assetfilename>_preview.jpg` then you can access this preview using the following command line and make a copy for Cumulus:

```
cmd /C copy $INPUT_preview.jpg $PREVIEW
```

Sample EJaPs Folder

With Cumulus 6 Canto introduced a new technology: Embedded Java Plugins or EJaP for short. The newly introduced EJaP technology provides unlimited possibilities to customize the out of the box solutions to individual needs and to add new functionality. Since EJaP is Java-based, it enables Cumulus to be enhanced with a multitude of commands, thereby making Cumulus more customizable than ever before. Any new task can now be programmed with EJaP.

The Sample EJaPs folder provides examples of this new technology. The EJaPs included can be integrated with the Cumulus out of the box solution. The new functionality they provide might be included in the Cumulus menus, in the Preferences dialog or might have no user interface. For details see the documentation the respective EJaP provides.

The integration with the Cumulus out of the box solution is very easy. Copy the EJaP (file extension ejp) in the **ejp** folder of the installation folder of your Cumulus application (Cumulus Client or Single User). Under Mac OS X, you open this folder by opening the installation folder of your Cumulus application and then pressing the CTRL key and selecting the Cumulus application icon simultaneously to get the context menu for the application. In this menu select **Show Package Contents**, then open **contents** and finally open **Mac OS**. There you find the **ejp** folder.

Once you have started the Cumulus application again, you can make use of the functionality the EJaP provides.

Technical Support and Liability

For support and for any further product or technical information, kindly contact the company that produced the respective EJaP.

The software in the Sample EJaPs folder was created by and is the property of software developers independent from Canto. It is provided "as is". In no event will Canto be liable for any lost revenue, profit or date, or for special, indirect, consequential, incidental or punitive damages, arising out of or related to the use of or inability to use this software. All express or implied warranties, including any implied warranty of fitness for a particular purpose or non-infringement are disclaimed.

This Glossary offers an alphabetical listing of terms and phrases used throughout this manual and Cumulus.

Glossary

Action

Function or combination of certain functions. Cumulus provides different types of actions. See also Asset Action, Trigger Action.

Asset

A general term describing any type of digital media (including graphic, page layout, presentation, sound, and video files) that has value to its owner.

Asset Action

Combination of certain functions saved under a chosen name that is performed on assets in Cumulus.

Asset Handling Module

When cataloging and accessing assets, Cumulus uses different modules: Asset Storage, Asset Processor, Metadata and Filter modules.

Asset Handling Set

A setting that defines how assets are handled – during the cataloging process and when accessing assets.

Asset Information

The information about an asset as stored in the record associated with the asset.

Asset Information window

A special window that displays the information about a cataloged asset. This information is stored in the asset's record. (See also Record.) Cumulus also provides an Information View and an Information Pane.

Asset Reference

The mechanism by which Cumulus tracks the actual location of an asset managed in a Cumulus catalog.

AXR (Asset Cross References)

Automatic detection of usage and cross-references of assets within Cumulus. Cumulus is able to detect links and placed assets in compound documents such as QuarkXPress, EPS, Adobe InDesign, and Illustrator (version 8, 9) as well as Microsoft Word and PowerPoint documents.

Boolean

A system of logic based on two possible values: true or false. Cumulus uses the Boolean operators "and" and "or" to combine search conditions.

Cache

A temporary storage area where frequently accessed data can be stored for rapid access.

Catalog

A special file (with the extension *.ccf*) that Cumulus creates to manage cataloged assets. See also Asset and Cumulus Catalog File.

Catalog file name

Name of the special file for a catalog ( with the extension *.ccf*). The catalog name defaults to this file name (without the extension). The catalog name can be changed without changing the catalog file name. See also Cumulus Catalog File.

Cataloging
The process by which a user adds one or more assets to a catalog.

Category
Cumulus categories are used to organize records, much like folders are used to organize files in a traditional filing cabinet. But the asset can appear in any number of Cumulus categories at one time. They are similar in purpose to keywords used in other programs. See also Folder category and Related category.

Category Information window
A special window that displays the information about categories.

Category Exchange File
See Cumulus Category Exchange File.

Category pane
Located on the left side of the Collection window. The Category pane displays category names in a hierarchical list. Multiple tabs are provided so that categories can be created and displayed in separate tabs.

Category View Set
A setting that defines the display options for the Category Information window. For each tab different display options can be set.

Central asset location
A central asset location is a single storage location used to store certaindigital assets. Employing a central asset location ensures your assets remain accessible to all, and can more easily be accounted for.

Client
A computer user who accesses a server application (such as the Cumulus Server) across a network.

Client/server architecture
A software configuration in which users (also called clients) access a server application across a network.

Collection
Any set of records from any one catalog, including their display properties. A collection can be saved (see Cumulus Collection File) and opened again. A collection – whether saved or unsaved – is always connected to its catalog. In order to open a particular collection you must have access to its catalog.

Collection window
A window featuring two panes (Category pane and Record pane) that function as the central user interface.

Compound search
A search query consisting of two or more search conditions.

Context menu
Also called shortcut menu. A menu that opens when clicking the right mouse button / Control key + mouse button. The available options are related to the selected object.

Cross Client

See Cumulus Cross Client.

Cumulus

An indispensable digital asset management system for organizing and managing digital assets. See also Asset.

There are different editions of Cumulus designed to meet the needs of anyone who wants to keep track of their digital media: Cumulus Workgroup and Cumulus Enterprise.

Cumulus Administrator

A person who configures and manages Cumulus catalogs. The Administrator is responsible for keeping the catalogs running smoothly for Cumulus Client users, backing up catalogs, and other tasks.

Cumulus application window

The main Cumulus window containing the menu bar, the toolbar, the statusbar, and – as "child" window(s) – the Collection window(s) with various panes.

Cumulus Action

See Asset Action.

Cumulus Catalog File

A special file(with the extension *.ccf*) that Cumulus creates to manage cataloged assets (digital media).

Cumulus Category Exchange File

A file (with the extension *.cce*) that Cumulus creates when exporting category information.

Cumulus Collection File

A special file (with the extension *.cfe*) that Cumulus creates to manage saved collections.

Cumulus Cross Client

Standalone version of the Cumulus Native Client. It enables users to create new catalogs on their local computers, open catalogs served by Cumulus Servers, and update metadata and assets between the two.

Cumulus Internet Client Pro

A Cumulus Option. A powerful Java based application designed to publish, distribute and market assets over the Internet. Users with a standard Web browser can comfortably search for cataloged assets, collect them into a collection basket and convert them as required. They can also catalog assets, assign them to categories and edit metadata.

Cumulus Record Exchange File

A special file (with the extension *.cre*) that Cumulus creates when exporting record information.

Cumulus Server

The computer where Cumulus Server software is installed and where Cumulus catalogs should reside.

Cumulus Sites

A Cumulus Option. Starting with Cumulus 8.1, Cumulus Sites is the ideal tool to publish and market digital assets on dynamically generated Web pages to the Web.

Cumulus Vault

A Cumulus Workgroup and Enterprise feature. A full-featured Version Control System that manages user access to asset files and provides up-to-the-minute information on each asset's version history.

Cumulus Web Client

A Cumulus Option. Provides Cumulus catalogs online and offers read/write access for metadata edits as well as asset uploads and downloads to users with a standard Web browser. Starting with Cumulus 8.1, Cumulus Web Client is a standard feature on all Cumulus Workgroup, Enterprise and Complete systems. It is also available as an option for Cumulus Entry.

Cumulus Web Publisher Pro

A Cumulus Option. A powerful Java based application designed to publish, distribute and market assets over the Internet.

Details view

Each record appears in the Record pane as a text listing that includes fields you can define (e.g., record name, file format, resolution, etc.). See also Thumbnail view.

Drag and Drop

A way to move user-interface objects by dragging them with the mouse and dropping them into targets.

EJaP

Embedded Java PlugIn. Technology that provides unlimited possibilities to add new functionality or to integrate Cumulus into workflows. EJaPs are Java code that runs within the Cumulus application.

EJSP

Embedded Server Plug-In. Technology that provides possibilities to add new functionality, or to integrate Cumulus into workflows. ESPs are similar to EJaPs (Embedded Java PlugIn). Whereas EJaPs are Java code that runs within the Cumulus application, ESPs are Java code that runs at the Cumulus Server.

EXIF

Exchangeable Image File Format. Standard for storing interchangeable information in image files, especially those using JPEG compression. Most digital cameras now use the EXIF format. The format is part of the DCF standard created by JEIDA (Japan Electronics and Information Technology Industries Association) to encourage inter-operability between imaging devices. Cumulus can read EXIF metadata information while cataloging. You can view and edit this metadata. See also Metadata.

Filters

Software utilities that Cumulus uses to capture information about an asset during the cataloging process. For more information on the availability of new file filters, please see the Canto Website (www.canto.com).

Find window

Cumulus tool that enables users to search catalogs for records or categories that match search conditions.

Folder category

Folder categories are automatically created by Cumulus during the cataloging process. These automatically created categories resemble the folder or directory hierarchy in which the assets reside. They are identified by a smaller folder in their icons. They are created by default but this option can be disabled.

FTP

File Transfer Protocol. A standard Internet protocol, which is the simplest way to exchange files between computers on the Internet.

HTTP

HyperText Transfer Protocol. A standard Internet protocol, which is the protocol most often used in the World Wide Web to transfer information between servers and browsers.

ICP

See Cumulus Internet Client Pro.

Information window

Special windows that display the information about records or catagories. See also Asset Information window, and Category Information window.

IPTC

International Press Telecommunication Council. Standard for digital text applied to an image. Applications used for professional imaging, support IPTC; e.g. the text information in Photoshop is a subset of the IPTC information. Cumulus can read IPTC metadata information while cataloging. You can view and edit this metadata and Cumulus can write your changes back to the asset. See also Metadata.

IPTC Information window

A special window that displays the IPTC information about a cataloged asset. This information is stored in the asset's record.

Java Server Page

Java Server Page (JSP) is a technology for controlling the content or appearance of Web pages through the use of servlets, small programs that are specified in the Web page and run on the Web server to modify the Web page before it is sent to the user who requested it.

LDAP

Lightweight Directory Access Protocol. Directories containing information such as names, phone numbers, and addresses are often stored on a variety of incompatible systems. LDAP provides a simple protocol that allows you to access and search these disparate directories over the Internet.

Media file

Any electronic or digital media file (including graphic, page layout, presentation, sound and video files). See also Asset.

Menubar

Appearing at the top of the Cumulus application window, the menubar houses menus that contain every program command.

Metadata

Metadata is any data that helps to describe the content or characteristics of an asset. It is the information stored with each asset—such as file name, location, etc. Different types of assets have different metadata fields: an image file, for example, would contain information on color and resolution, while an audio file would have a field for the playback duration.

Palette Mode

View mode that is specially designed for using Cumulus with another application, e.g. a desktop publishing application. In palette mode the Cumulus application shrinks to a palette that can conveniently be used with another application. That way you can easily drag and drop cataloged assets into other applications.

Path/Pathname

A description of the location where a file is stored on a computer hard drive, server, or removable medium (such as CD-ROM, Syquest, Zip, Jaz, or MO cartridges).

Preview

A special program mode in which you can examine cataloged assets such as video clips, sound files, and image files.

Query

A combination of search conditions. Queries can be saved to disk and loaded into the Find window.

Quicklist

A list containing default field values to fill in fields. In Cumulus, available with the IPTC Information window.

Record

The actual catalog entry Cumulus creates when an asset is added to a catalog. Records store valuable information about an asset, such as the file name, file location, file type, resolution, etc.

Record Exchange File

See Cumulus Record Exchange file.

Record pane

Located on the right side of the Collection window, the Record pane displays records as thumbnails or plain text. See also Record, Thumbnail view and Details view.

Related category

An alias of an existing category that acts as a virtual cross reference to the original category. You can use related categories to place multiple instances of the same category under various parent categories, without having to copy the entire contents of the category. By default, the names of related categories are displayed in italics with a *"(related)"* appendix.

Record View Set

A setting that defines how records are displayed in the different view modes Cumulus provides: Thumbnail View, Details View, Info View and Information window.

Resolution

The number of pixels per inch in any graphic file format. Higher-resolution files have a higher number of pixels per inch than lower-resolution files. Working with higher-resolution files usually requires more memory and hard disk space than working with lower-resolution files.

Script

A list of instructions executed by a computer. Scripts are used by Cumulus to perform complex tasks automatically.

Server/Client Asset Transfer

A Cumulus feature (especially useful in a cross platform environment) that allows users in a network to access assets for previewing, copying and transferring via their connection to the Cumulus Server. With this feature the user is not forced to have direct access to the computer where the asset is stored. Only the computer running the Cumulus Server requires this access.

Simple search

A search query consisting of one search condition.

Sites

See Cumulus Sites.

Skin

A term for the particular way in which information is arranged and displayed on a computer screen.

Statusbar

A bar providing descriptions on category/record status.

TAG file

The Cumulus Metadata Exchange file format, which Cumulus can create when cataloging assets from a location where you are allowed to save files. The file has the same name as the asset (with the extension *.tag*). TAG files can hold all information that can be viewed in the Asset Information window – and more. For example, if a particular asset has been cataloged into different catalogs, this information is part of that asset's TAG file.

Thumbnail

A miniature display of a cataloged asset.

Thumbnail view

The record appears with a miniature display of the cataloged asset in the Record pane.

Toolbar

A standard program tool that offers buttons as shortcuts to commonly used commands.

Tooltip

A small floating descriptive window that appears above a toolbar button when the cursor is positioned over it.

Trigger

A stored procedure that is activated automatically when a specified event occurs. Cumulus Triggers can be used to perform many tasks, such as auditing catalogs, records and categories. Cumulus Triggers can be set for catalogs, records and categories.

Trigger Action

The action performed when a Cumulus Trigger is activated. See also Action.

URL

Uniform Resource Locator. The address of a file (resource) accessible on the Internet.

XMP

Extensible Metadata Platform. Adobe's XMP™ is a labeling technology that allows you to embed metadata into the asset itself. With an XMP-enabled application (e.g. all applications of Adobe Creative Suite), information about a project can be captured during the content creation process and embedded within the file and into a content management system. Cumulus can read XMP metadata information while cataloging. You can view and edit this metadata and Cumulus can write your changes back to the asset. See also Metadata.

Web Client

See Cumulus Web Client.

WPP

See Cumulus Web Publisher Pro.

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