



# Cumulus® 7.0

## Software Development Kits

### Overview

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Dubai Internet City  
Building 5, Office G10  
PO Box 500160  
Dubai  
United Arab Emirates



Phone: +971-4-391-0020  
Fax: +971-4-391-6807  
E-mail: [info@canto.com](mailto:info@canto.com)  
<http://www.canto.com>

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# 1. Introduction

This document gives an overview of the software development kits (SDKs) available for Cumulus. The various SDKs for Cumulus allow you to develop software that integrates Cumulus into your software, customizes the way Cumulus works, or adds new features to Cumulus.

Most of the SDKs describe one of the application programming interfaces (APIs) that the Cumulus application (Single User, Cumulus Client, and Cumulus Viewer) offers for customization. Other SDKs contain documentation of various data formats Cumulus uses to exchange information.

The following diagram shows the various APIs of the Cumulus application:

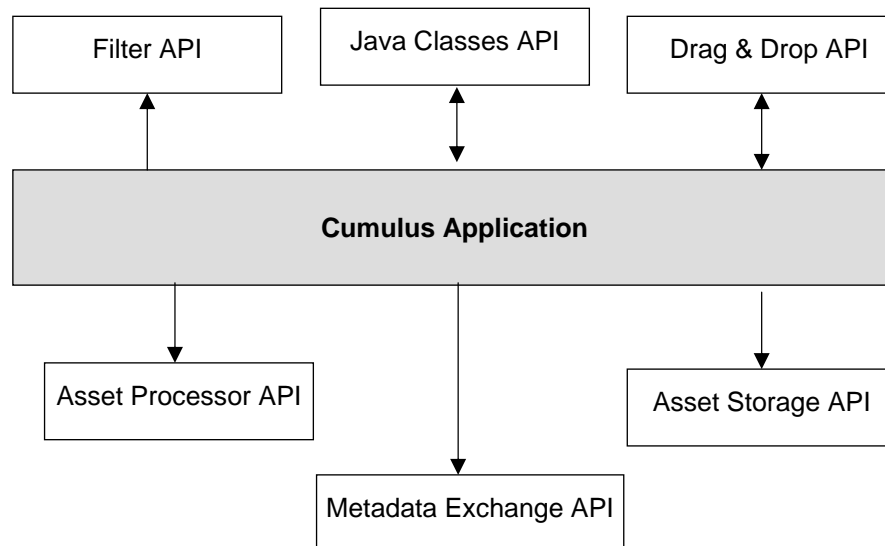


Figure 1: APIs of the Cumulus Application

The Cumulus Server supports the following APIs:

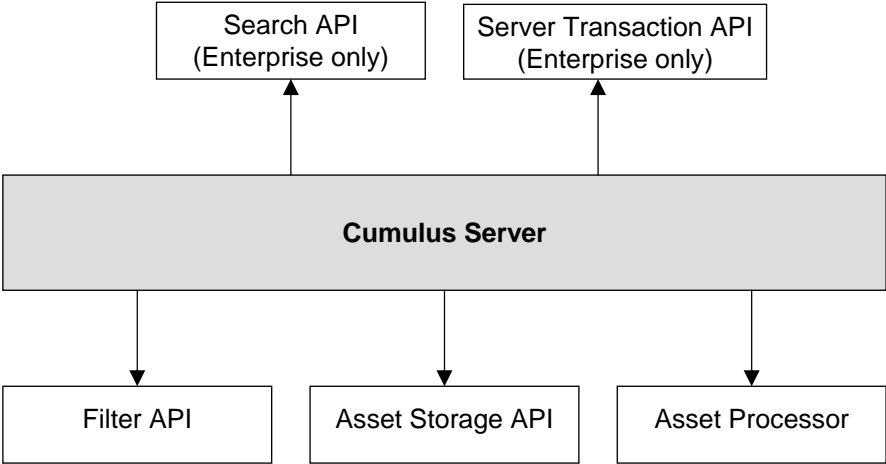


Figure 2: APIs of the Cumulus Server

To create typical integration solutions here is a list of recommended SDKs to use:

<b>What You Want to Do</b>	<b>Which SDK to Use</b>
Add support for a new file format	<i>Filter SDK</i> <i>Cumulus Metadata Format SDK</i>
Enable Cumulus to work with assets that are not stored in files	<i>Asset Storage SDK</i>
Automate tasks and make them available as a menu command	<i>Cumulus Java Classes SDK</i>
Import assets managed by Cumulus into your application	<i>Drag &amp; Drop SDK</i> <i>Cumulus Java Classes SDK</i>
Catalog documents of your application with Cumulus when you save them	<i>Filter SDK</i> <i>Cumulus Metadata Format SDK</i> <i>Cumulus Java Classes SDK</i>
Link Cumulus information with other data in an external database	<i>Cumulus Java Classes SDK</i>
Customize the Internet search and reply pages	<i>Cumulus Java Classes SDK</i>
Import or export record information	<i>Cumulus Java Classes SDK</i> <i>Cumulus Metadata Format SDK</i> <i>Export File Format SDK</i>
Automate cataloging of assets (e.g. watch folders)	<i>Cumulus Java Classes SDK</i>
Automatically fill information in Cumulus records	<i>Cumulus Java Classes SDK</i>
Replace the functionality of a menu command or add a new menu command	<i>Cumulus Java Classes SDK</i>
Build an editor or viewer for Cumulus	<i>Cumulus Java Classes SDK</i>
Convert assets from one format to another	<i>Asset Processor SDK</i>
Add custom searching (e.g. by image contents)	<i>Search SDK</i>
Centrally log changes made to the catalog	<i>Server Transaction SDK</i>
Perform additional tasks on changes made to a Cumulus catalog	<i>Server Transaction SDK</i>
Perform additional modules for actions	<i>Asset Processor SDK</i>

## 2. Filter SDK

This SDK allows you to add support for a new file format to Cumulus. You can also extend the support for a format that is already supported by Cumulus by capturing additional information.

Cumulus uses plug-in modules for capturing information from an asset. By writing your own filter module, you can expand the format support of Cumulus and enable it to

- Fill fields in with valuable information from the asset when it is added to a catalog.
- Update fields in Cumulus as the Cumulus record is updated.
- Show a full-size preview of the asset either as a pixel image, a QuickTime movie or a QuickDraw3D model.
- Write information back to the asset.

## 3. Asset Storage SDK

This SDK allows you to enable Cumulus to work with assets that are not kept as files in the file system. For example, you may want to add support for assets stored in a proprietary archiving system.

Cumulus uses plug-in modules for accessing assets in their storage. By writing your own AssetStore module, you can extend the support of Cumulus and enable it to

- Add new assets from your asset storage to a catalog either through a dialog or Drag & Drop.
- Create a reference to the asset, keep this reference in the Cumulus catalog and resolve that reference later when accessing the asset.
- Show the location of the asset.
- Fill fields in Cumulus with valuable information about the storage of the asset.
- Write information from the catalog back to the asset.
- Add versioning to your asset storage (check in, check out).

## 3.1 Asset Processor SDK

This SDK allows you to process assets of a Cumulus catalog. For example, you may want to convert any kind of asset to Acrobat PDF.

Cumulus uses plug-in modules for processing assets. By writing your own asset processor module, you can enable Cumulus to

- Process any asset via a menu command, an action or the Cumulus Java Classes.
- Bring up a dialog to specify the processing parameters or pass the parameters via the Cumulus Java Classes.

## 3.2 Metadata Exchange SDK

This SDK allows you to write back any Cumulus catalog information to the asset as soon as the information is saved to the catalog. For example, the “Cumulus Metadata Support” module stores any metadata in an asset next to the original asset.

Cumulus uses plug-in modules for exchanging metadata with other metadata repositories. By writing your own metadata exchange module, you can enable Cumulus to

- Read any metadata information from an external metadata source.
- Write any field content back to an external metadata source.

## 4. Drag & Drop SDK

This SDK allows you to receive information about assets in a Cumulus catalog as the user drags objects from Cumulus to your application. Your application may be a layout program that wants to place an image file when the user drops an asset onto your document window.

By evaluating the data Cumulus sends when dragging, you can

- Get information about the record and the asset dragged.
- Get information about the dragged categories.
- Get information about the dragged user permissions (Macintosh only).

## 5. Server Transaction SDK

The Server Transaction API provided by the server of the Cumulus Enterprise Edition allows you to track any changes made to a Cumulus catalog by a client. Cumulus supports plug-in modules (to be installed at the Cumulus server) which are informed of any changes made to the catalog.

By writing a server transaction module for Cumulus, you can

- Centrally log any changes made to the catalog.
- Add custom user permissions and reject changes before they are actually performed.
- Automatically generate field values out of other field values on the server.
- Synchronize an external database with changes made to a Cumulus catalog.

## 6. Search SDK

This SDK allows you to create custom search criteria for Cumulus. It is based on different other APIs and SDKs and combines them to present a way to add custom search capabilities to Cumulus. You may have a sophisticated search engine that uses image analysis, and want to make this available to search for assets using similarity searches on thumbnails.

By writing a search module for Cumulus, you can

- Add your custom searching method and index all assets as they are cataloged or updated.
- Perform a search based on your indexed information and return the records matching the search request.

## 7. Cumulus Metadata Format SDK

This SDK allows you to read and write files created by the “Cumulus Metadata Support” module. This module stores metadata in a separate file to exchange it with other software.

The Cumulus Metadata Support module reads and writes metadata for every record in a Cumulus catalog. Whenever Cumulus adds an asset to a catalog or updates a record the Cumulus Metadata Support module reads the metadata file located next to the asset. When Cumulus saves a modified record the module writes metadata back to the metadata file. With the Cumulus Enterprise Edition this also applies to the categories in a catalog.

By exchanging metadata via the Cumulus Metadata File, you can

- Supply information to be filled into Cumulus fields during cataloging. This even works for assets of formats that are not currently supported by Cumulus.
- Read information about the asset that the user entered in Cumulus without actually running the Cumulus application.
- Exchange metadata (such as audio) that cannot be stored in your asset itself.
- Get more consistency in storing metadata across different asset formats.
- Increase accessibility of metadata because it is stored next to the asset and can be read without using Cumulus.

## 8. Export File Format SDK

This SDK allows you to read and write record and category export files used by Cumulus. These files enable you to exchange record and category data with proprietary software systems that cannot be linked with Cumulus directly.

By exchanging metadata through the Cumulus Metadata File, you can

- Convert record information from or to proprietary systems.

## 9. Field Format SDK

Some field data in a Cumulus record are complex and cannot be stored in a simple data type like a string or an integer. For such fields Cumulus uses a structure called “Package” (see the Package Format SDK for details). This SDK describes how the following fields are structured:

- Picture Field
- Audio Field
- Asset Reference Field
- Contained Assets Field
- Container Assets Field

## 10. Package Format SDK

The Package data structure is used for many purposes inside Cumulus. For example, the value of a picture or audio field is data-structured as a Package. The Cumulus Metadata File Format is also based on Packages.

Packages have the following features:

- Storage of simple data such as Integer, UNICODE string, GUID, Floating Point
- Store structured types such as “Record” and “List” that can contain simple or structured types.
- Automatic swapping of byte order when saving to a buffer and loading from a buffer.
- Enumerating of all items in a Package.

## 11. Cumulus Java Classes

The Cumulus Java Classes are a complete set of object classes that allow Java programmers to control a faceless Cumulus client from Java. It is similar to our Cumulus scripting API for Mac OS and Windows but offers far more functionality as Java is a more powerful programming language than AppleScript, VisualBasic or JavaScript are.

The Cumulus Java Classes are available for Windows NT, 2000, XP/2003, SOLARIS 7 or later, Linux and Mac OS X 10.1. or later. The installer contains the binaries, documentation and sample code for a Java application as well as a simple JSP website. The also available runtime installer installs just the binaries. You need a Cumulus Server version 5.5.1 or later with a valid runtime license to accept connections from the Cumulus Java Classes.

### 11.1 License Information

Cumulus Java Classes are part of the Cumulus Enterprise Edition and the Cumulus Developer Program. Only with a Cumulus Enterprise Edition they may be used in a production environment. They may be used by members of the Cumulus Developer Program (CDP) solely for development, test and evaluation purposes. They may not be sold, rented or passed on to third parties in any way. Members of the Cumulus Developer Program may pass - but not sell - the Cumulus Java Classes Runtime software to their customers along with their software that was developed with the Cumulus Java Classes provided that such customer has separately acquired a Cumulus Java Classes Runtime license.

## 12. Changes from 5.5 to 6.5

This chapter lists the changes from the Cumulus 5.5 SDK to the new 6.5 SDK.

### 12.1 SDKs no longer available

The following SDKs are no longer available:

- Deliver SDK (Macintosh Only)
- Scripting SDK including Notification SDK
- Menu Command SDK

The Scripting and Menu Command SDK are replaced by the Cumulus Java Classes.

### 12.2 New Interfaces

The SDK contains the following new interfaces:

- IAssetAccessCollection2
- IAssetAction
- IAssetPackaging
- IAssetProcessor4
- IModuleLicense
- IPack
- IParametersDialog
- IProgress

For a detailed documentation of the new interfaces refer the Cumulus 6.5 Plug-In Module Reference.

## 13. Changes from 6.5 to 7.0

No changes were made in SDKs and interfaces from the Cumulus 6.5 SDK to the new 7.0 SDK.

## 14. Availability

All SDKs are available for the members of the Cumulus Developer Program (CDP).

The following SDKs are available on demand:

- Asset Storage SDK
- Asset Processor SDK
- Filter SDK
- Transaction SDK
- Authenticator SDK
- Cumulus Java Classes SDK

All other SDKs are available on request.

Please contact the CDP support for details: [cdp@canto.com](mailto:cdp@canto.com)