

Archiving Full Resolution Images

Archival or full resolution files are very large and are either uncompressed or minimally compressed. This tutorial explains how to use CONTENTdm and the Project Client to assist with the storage and archiving of full resolution or archival quality images.

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Section I: Overview

CONTENTdm supports three full resolution image file formats: TIFF, JPEG, and JPEG2000. The TIFF format is frequently used for archival purposes because it supports both uncompressed and lossless compression. With lossless compression, all data originally in the file remains after the file is uncompressed.

With the CONTENTdm Project Client, you can convert full resolution files to more compressed JPEG or JPEG2000 display images during the import process. A display image is the JPEG or JPEG2000 copy of the full resolution image that end users view after clicking on a thumbnail image.

CONTENTdm also provides an Archival File Manager that handles the storage of archival or full resolution files in archive volumes. If Archival File Manager is enabled on the server, any file imported into the CONTENTdm collection using the Project Client is copied to the specified storage (volume) location, and the file is cataloged in a manifest file (manifest.txt), which is stored in each volume location.

The manifest file (manifest.txt) can be useful for logging information about files stored in your archive or copied to storage media. The manifest file is required for items to be imported into the OCLC Digital Archive, a separate service that stores master files and digital originals in a secure, managed environment. For more information, see the [Digital Archive Getting Started Guide](#) (PDF).

Note: Archival File Manager only applies to items added using the Project Client. It does not apply to items added using Connexion digital import or the Web-based Add option.

If Archival File Manager and display image settings are enabled, CONTENTdm keeps track of three versions of your images: 1) full resolution, 2) display, and 3) thumbnail. The thumbnail and display images reside on the server. The full resolution image can reside on the server or be stored offline depending on organizational policies and the process established by your administrator.

Full resolution images can be imported one at a time, in multiples, or as all or part of compound objects. The general process for managing and archiving full resolution images is:

1. Set up your CONTENTdm Server to enable the Archival File Manager and the generation of display images from your full resolution images.
2. Create a project within the Project Client that points to that server.

3. Import the full resolution items into the project using the Project Client. Display-quality versions are generated, and you can enter metadata.
4. Upload the items to the collection on the server. The full resolution image files are stored in an archival volume location.
5. Copy the volumes of full resolution files from the staging area to a permanent location, such as a DVD or another server.

Volumes are logical units that contain a set of archival images. CONTENTdm automatically manages and creates volumes when you use the Project Client. CONTENTdm automatically creates a folder in Archive Volume Location for each successive volume when the previous volume is closed or becomes full. CONTENTdm enables you to determine the volume size and, if you choose, it also enables you to name volumes.

For example, if you are archiving your images on DVD, then one volume would contain 4.7 GB of images, since 4.7 GB is the capacity of a standard DVD.

In the next sections of the tutorial, we discuss two different full resolution archiving scenarios — burning full resolution images onto a DVD and allowing full resolution images to be seen online. The steps for both options are similar: We configure the CONTENTdm collection on the server to enable the Archival File Manager and set Display Image Settings; we create a project within the Project Client that enables us to import the full resolution items; we import the items into the project; and we upload them into the pending queue. After the items are in the collection, we move the full resolution files from the staging area to a permanent location.

Section II: Configuring the CONTENTdm Server

The tutorial will begin with configuring settings on the CONTENTdm Server. The first step is to configure your CONTENTdm collection to enable the Archival File Manager. You must have rights to configure settings and field properties in CONTENTdm Administration to perform this step.

Step 1. Opening CONTENTdm Administration

Open CONTENTdm Administration from the Project Client by clicking the **Administration** menu and selecting **CONTENTdm Administration**.

To access CONTENTdm Administration using the Web, enter *http://your.server.address/cgi-bin/admin/start.exe* in your browser address bar.

Click the **Collections** tab, and then click **Profile** to check the Archival File Manager settings in the **Optional Collection Settings Summary** section of the page. Archival File Manager is disabled by default.

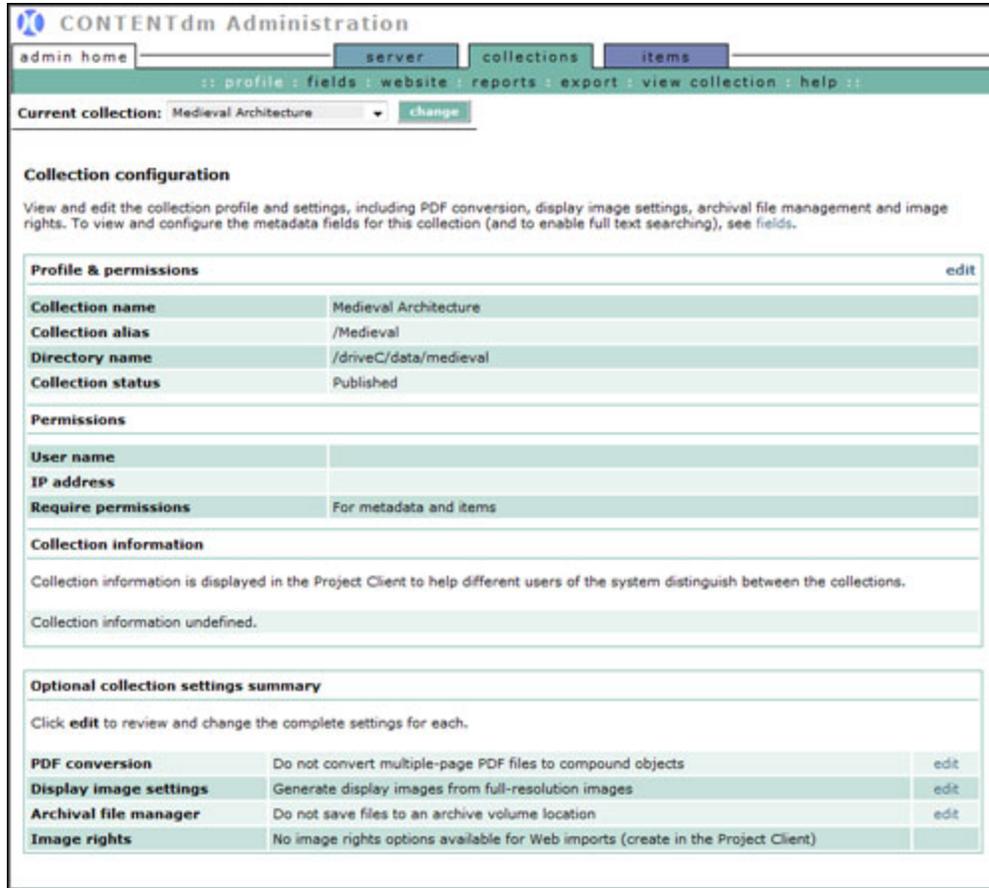


Figure 1. Archival File Manager Disabled

Step 2. Editing Archival File Manager Settings

To enable the Archival File Manager, click **Edit**. The Edit Archival File Manager Setting page displays. **Note:** Editing the settings does not change the settings for existing volumes.



Figure 2. Editing Archival File Manager Settings

To enable Archival File Manager, set **Save files to specified archive volume location** to **Yes**. **Define Archival File Settings** displays.

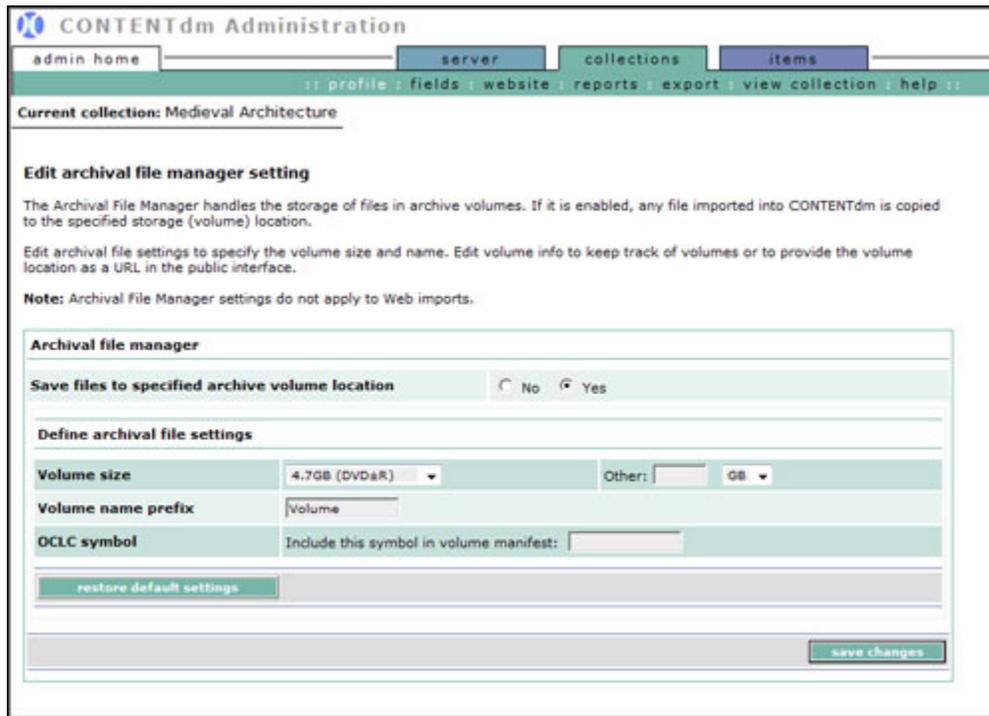


Figure 3. Editing Archival File Manager Settings

Specify your desired settings for archival files. A description of each option follows.

Field	Definition
Volume Size	This allows you to define the size of a volume. When the specified size limit of a volume is reached, the Project Client creates a new volume automatically.
Volume Name Prefix	This allows you to specify a root name for your volumes. For example, if you type the word Volume into the text field, your volumes will be called Volume1, Volume2, etc. The name can include up to 60 single-byte characters.
OCLC Symbol	Your collection's OCLC symbol to include in the volume manifest. This field is optional.

Change the settings according to the two scenarios introduced in the Overview section. The first is the archival file settings used to burn archival TIFFs onto DVD. The second is the settings used when planning to store full resolution images online and make them available to users for downloading.

Storing on DVD

In this scenario, enable Archive File Manager by setting **Save files to specified archive volume location** to **Yes**.

Next, because we are working with DVDs, select **4.7 GB (DVD)** from the drop-down list for the volume size.

Volume Name Prefix already uses **Volume** as the prefix (you can change it to any other preferred name for your volumes).

Then, enter your organization's OCLC Symbol to include it in the volume manifest.

To store archival images on DVD, your Archival File Manager settings might look like this:

Field	Value
Volume Size	4.7 GB (DVD)
Volume Name Prefix	Volume
OCLC Symbol	OCL

Finally, we want to restrict access to the information about the location of the full resolution images. This is managed through the field properties for the Archival File field. This field contains volume and file name information about the archival file associated with the item. The display of the field is determined by the Hide field property setting.

To view and edit the Archival File field properties, in CONTENTdm Administration, on the **Collections** tab, click **Fields**. The Metadata Fields page displays. Under Administrative Fields, check that the Archival File field has the following settings that will hide the field contents from the public interface and from searching:

Search	Hide
No	Yes

Storing Online

In this scenario, enable Archive File Manager by setting **Save files to specified archive volume location** to **Yes**.

Next, choose **650 MB (CD-R)** for the volume size. Volume size is not a critical parameter when archiving images onto the server because there is usually sufficient hard disk space. This example will use the 650 MB size in case you want to store the images on CD-ROM at a later date.

Finally, leave **Volume** in the **Volume Name Prefix** text field. The OCLC Symbol field is optional.

To store archival images online, your Archival File Manager settings might look like this:

Field	Value
Volume size	650 MB (CD-R)
Volume name prefix	Volume

When you have finished selecting the appropriate parameters, click the **Save Changes** button at the bottom of the page to save your settings on the server.

Finally, we do not want to restrict access to the information about the location of the full resolution images because we want users to be able to access those versions online. This is

managed through the field properties for the Archival File field. This field contains volume and file name information about the archival file associated with the item. The display of the field is determined by the Hide field property setting.

To view and edit the Archival File field properties, in CONTENTdm Administration, on the **Collections** tab, click **Fields**. The Metadata Fields page displays. Under Administrative Fields, check that the Archival File field has the following settings that will not hide the field contents from the public interface and from searching:

Search	Hide
Yes	No

The next step is to create a new project in the Project Client and specify Display Image Settings for the project.

Display Image Settings also can be set on the server as the default settings for all projects. The Display Image Settings defined in Collection Configuration apply to all import methods, except for the Web-based Add and Connexion digital import. Project Client users can override these settings when working with full resolution files by editing project settings.

Section III. Working with the Project Client

You cannot enable or disable Archival File Management within the Project Client; the settings are enabled and set on the server. However, when enabled on the server, you can change the archival volume storage location within the Project Settings Manager in the Project Client. (The default storage location will be similar to C:\Documents and Settings\My Documents\CONTENTdm Project Client*collection alias*.)

The Project Client uses the information you entered in CONTENTdm Administration to manage your full resolution files. The step-by-step process is explained below, but first, it will be helpful to understand how the Project Client and CONTENTdm Server work together.

When you create a new project in the Project Client that is associated with a collection that has the Archival File Manager enabled, the Project Client will request the next available volume from the server and will create a folder for that volume in the Archive Volume Location. When a full resolution file is imported, the Project Client checks to make sure that it will fit in the volume (using the Volume Size settings specified in Collection Configuration in CONTENTdm Administration). If the file fits, the Project Client copies it to the volume. If the file does not fit, the Project Client requests a new volume name from the CONTENTdm Server and creates a folder for that new volume in the Archive Volume Location.

Step 1: Creating a Project Client Project & Editing Project Settings

Creating a new project is the same whether you are planning to archive your full resolution images on a DVD or a server. First, open the Project Client and create a new project. The New Project wizard will guide you through creating a new project.

Next, review and edit the project settings for display images and archival file management. Open the Project Settings Manager by clicking **Edit Project Settings** from the left task pane. The General Settings page displays. Click **Project Options** in the left navigation. The Project Options page displays.

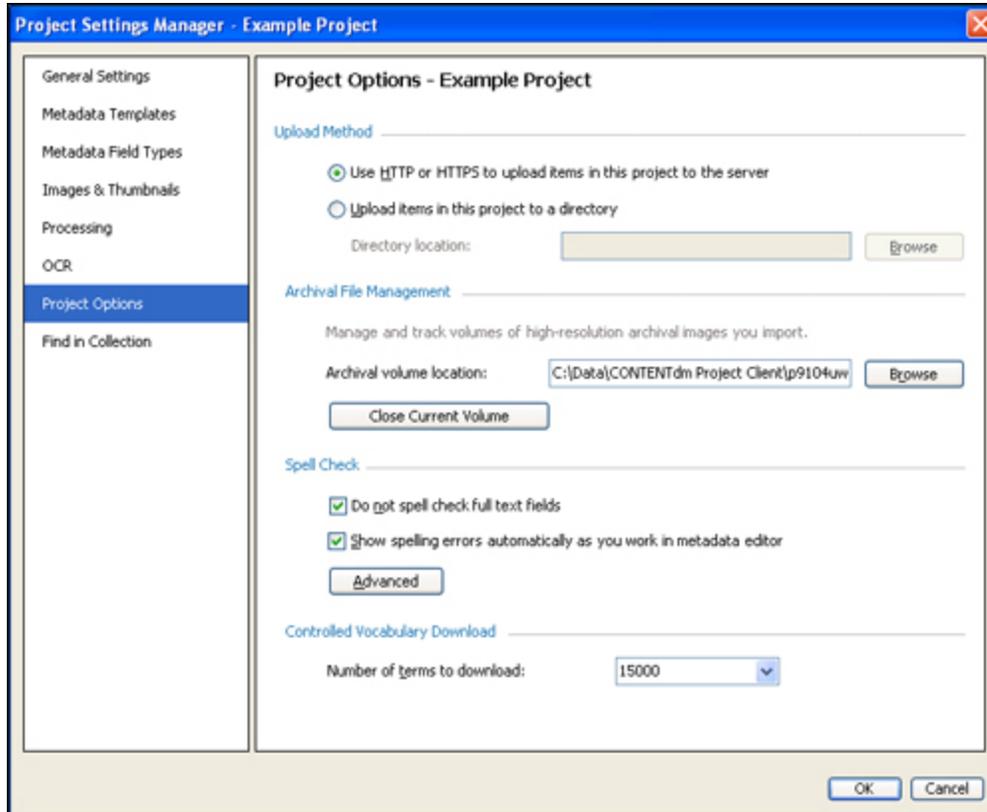


Figure 4. Editing Archival File Manager Settings

You can review Archival File Management settings. The Archival Volume location is displayed. If the section is unavailable, the Archival File Manager has not been enabled in CONTENTdm Administration.

Next, review the display image settings. Click **Images & Thumbnails** from the left navigation. The Display Image & Type section lists the Display Image Settings set on the server.

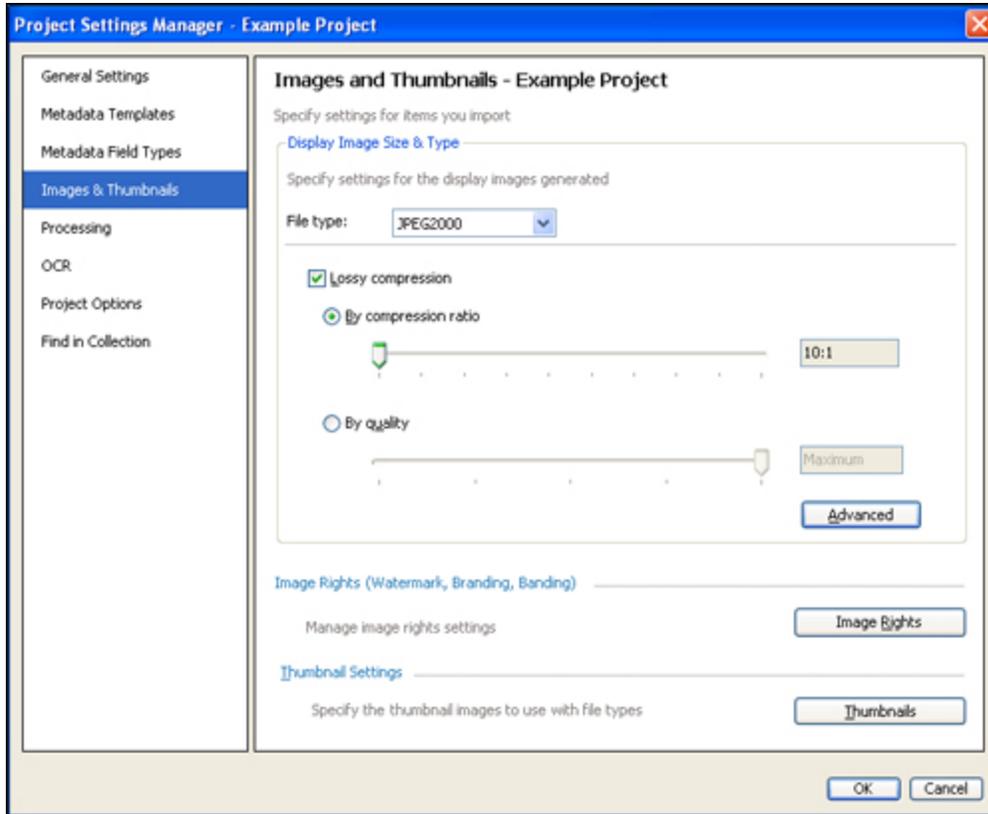


Figure 5. Project Settings Manager — Images & Thumbnails

Because we didn't change the settings on the server, the defaults are displayed as follows (click **Advanced** to review those settings):

File Type	JPEG2000
Lossy Compression	selected
By Compression Ratio	10: 1
Advanced	Resolution levels: Auto Quality layers: 20 Tile dimensions: 1024 x 1024

These settings will be used to generate display images when you add full resolution images to your project. (You will have the option when adding the items to turn off display image generation for individual imports, if you wish.) Any changes to the settings in the Project Settings Manager only apply when you add images and archive files using this project. All other projects will use the server settings, unless you modify those project settings, as well.

Step 2. Adding Full Resolution Images to a Project

Now that you have a collection on the server and a Project Client project that are set up to generate display images and enabled for archival file management, you are ready to add full resolution items using the Project Client. You can add high-resolution files to your project using the same methods used for other items. (For more information, see [Adding Items and Objects](#).)

Using the Project Client, you can:

1. Add items one at a time
2. Add multiple items
3. Add a compound object that consists of full resolution images

Each of these options is available from the left task pane from the Project Client Home tab.

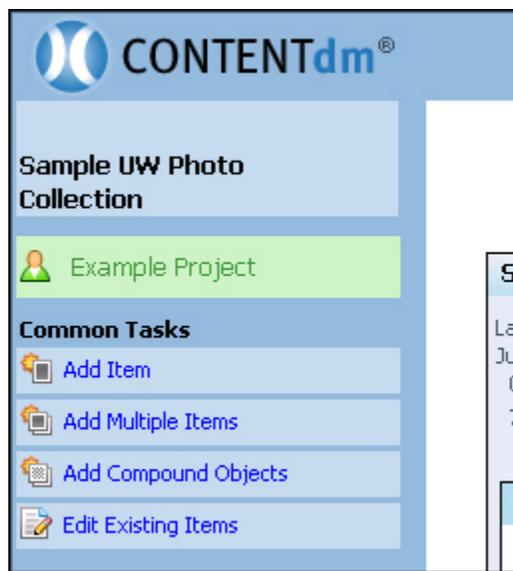


Figure 6. Project Client Options for Adding Items

Generally, it is most efficient to scan and process your images before adding them to CONTENTdm. After this is done, large groups of prepared images can be added to projects quickly and easily.

Tip: Up to 10,000 items can be added to a project at one time. But, when you first start working with full resolution files, we recommend you do not immediately add the maximum allowable number. Instead, experiment with much smaller batches to ensure that the time required for the import process is acceptable and adjust the size of your batch import accordingly. The greater the number and size of the files, the more time required to add the files to the Project Client and upload them to the collection.

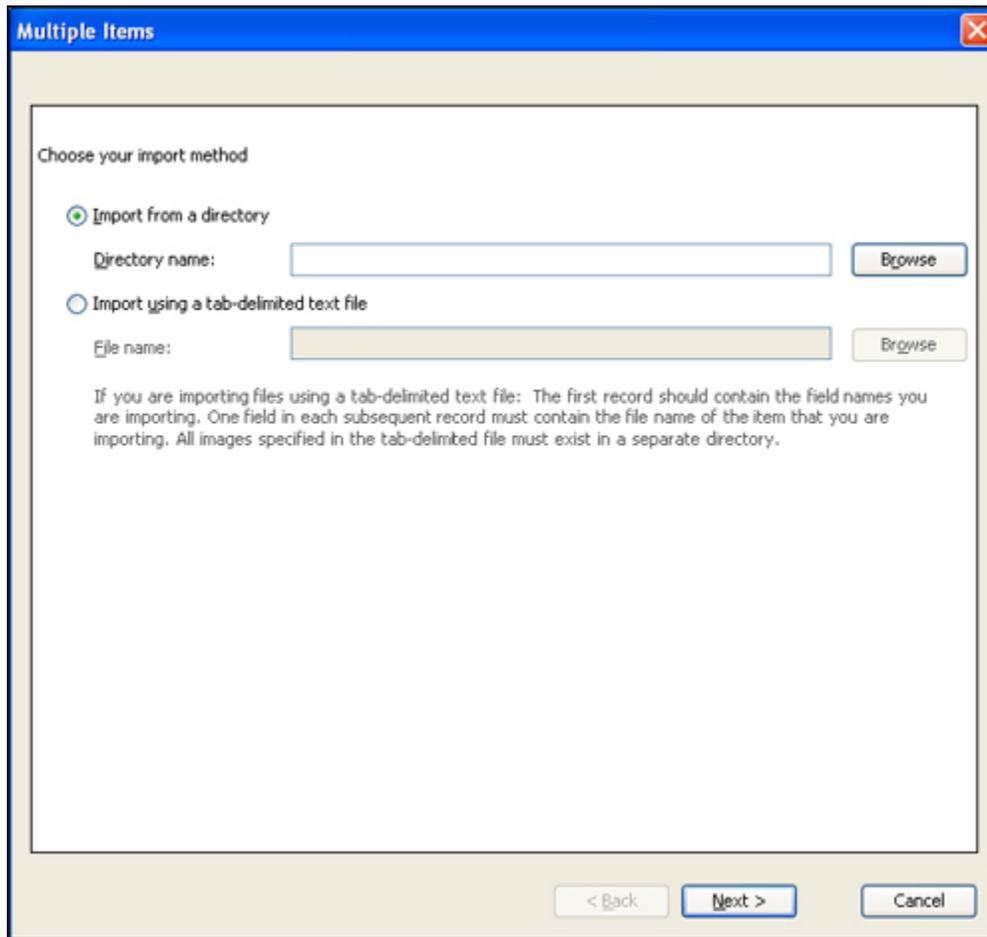
For the purposes of this tutorial, we will add multiple TIFF files to our project.

Adding Multiple TIFF Files to the Project

To begin adding multiple items, click **Add Multiple Items**. This initiates a series of screens that will step you through the process.

In the first screen, specify whether you are importing files from a directory or whether you are using a tab-delimited text file. For more information about tab-delimited text files, see [Importing Multiple Files with Tab-delimited Text](#) in the Help files.

In this tutorial, we are going to import files from a directory. Select **Import from a directory**. Then, select the directory location.



The screenshot shows a dialog box titled "Multiple Items" with a blue header bar and a close button (X) in the top right corner. The main content area is titled "Choose your import method" and contains two radio button options. The first option, "Import from a directory", is selected with a green dot. Below it is a text input field labeled "Directory name:" followed by a "Browse" button. The second option, "Import using a tab-delimited text file", is unselected. Below it is a text input field labeled "File name:" followed by a "Browse" button. At the bottom of the dialog, there are three buttons: "< Back", "Next >", and "Cancel". A paragraph of instructional text is located below the second option, stating: "If you are importing files using a tab-delimited text file: The first record should contain the field names you are importing. One field in each subsequent record must contain the file name of the item that you are importing. All images specified in the tab-delimited file must exist in a separate directory."

Figure 7. Select Import Method

Click **Browse** to locate the directory. The Browse for Folder window displays. Once you find the directory, select the directory name. Click OK.

Tip: If you are importing files that aren't on your hard drive, you must map to a network location before you select the directory.

The Browse for Folder window closes and you return to the Import Method screen. The directory you specified appears in the text box. Click **Next**. The Archive File Settings screen displays.

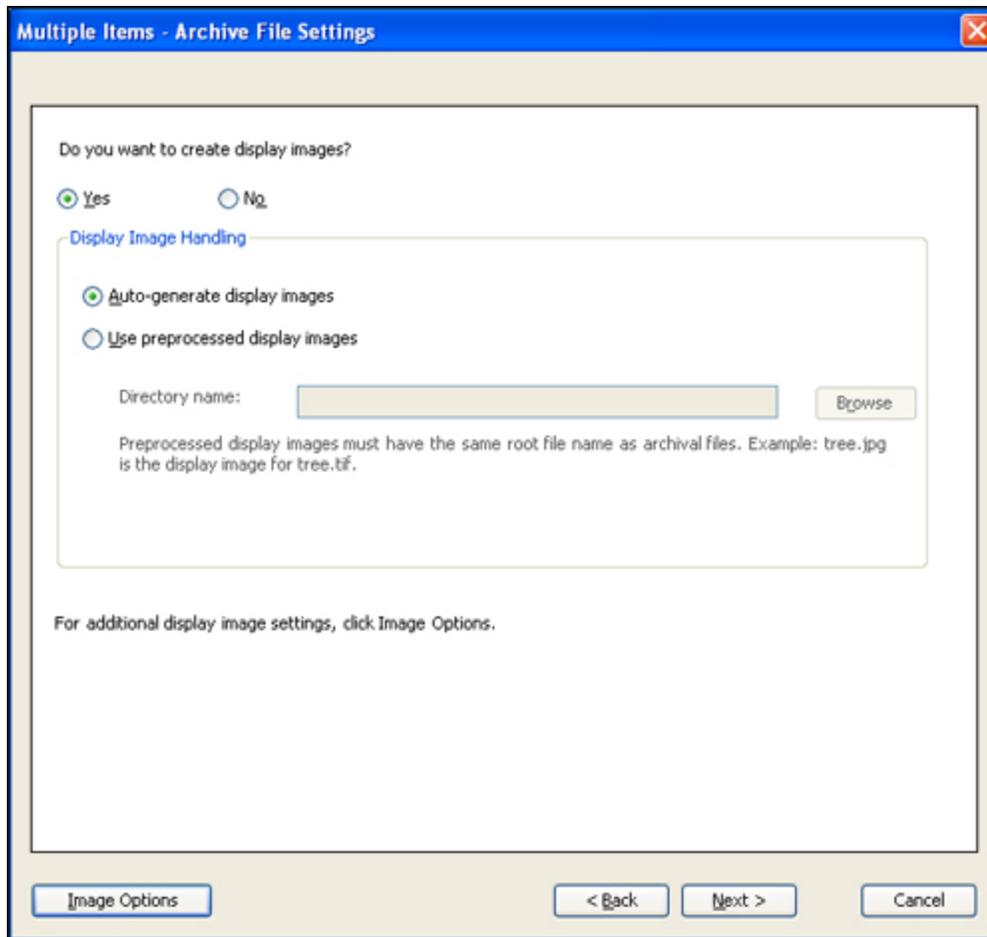


Figure 8. Archive File Settings

You are importing full resolution images and want to have display-quality images automatically generated by CONTENTdm, so select **Yes**. The settings we specified in the Project Settings Manager will be used. You can click **Image Options** to review or change those settings.

Full resolution images are not recommended for use as display images because of the time it takes for these large files to be downloaded for viewing. (You can choose to use preprocessed display images, if you had resized and saved smaller, custom versions of your files using an image editing program.)

Click **Next**. The Confirm Settings screen displays.

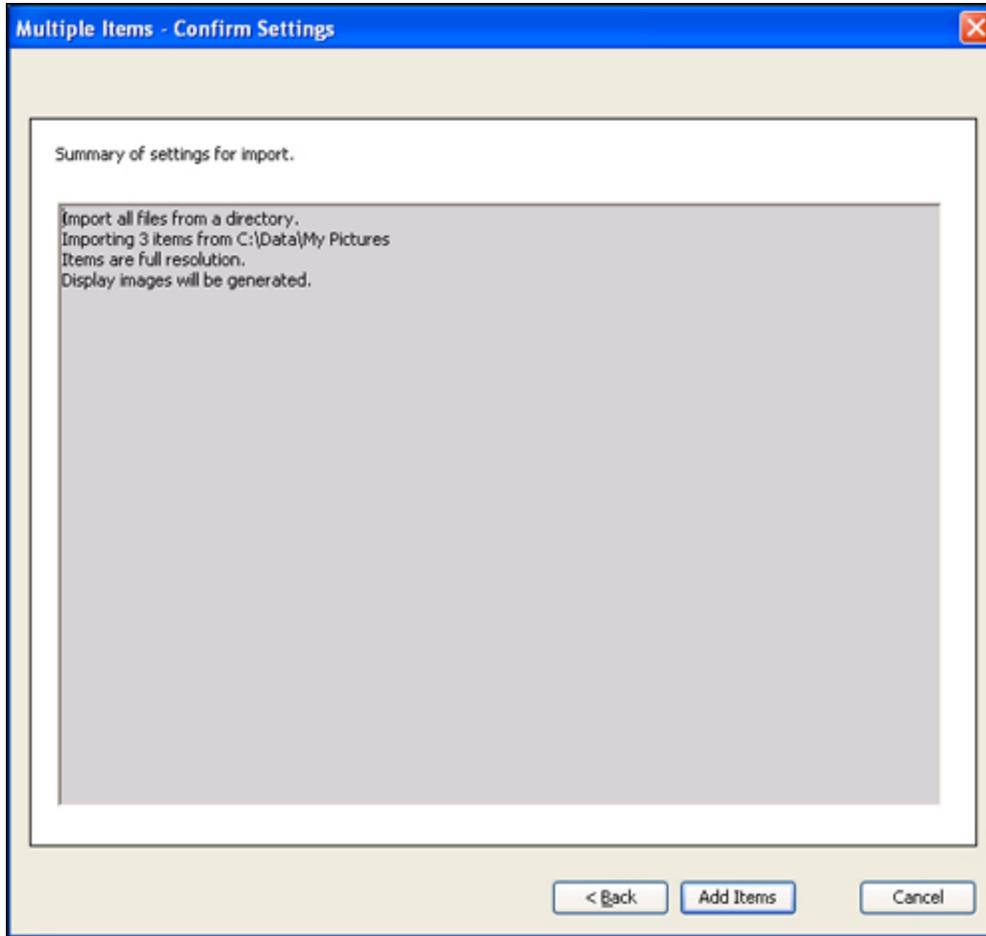


Figure 9. Confirm Settings

Click **Add Items** to complete the import. A progress screen displays as the items are added to the Project. Then a Summary screen displays the confirmation that the items were successfully added, with no errors or warnings.

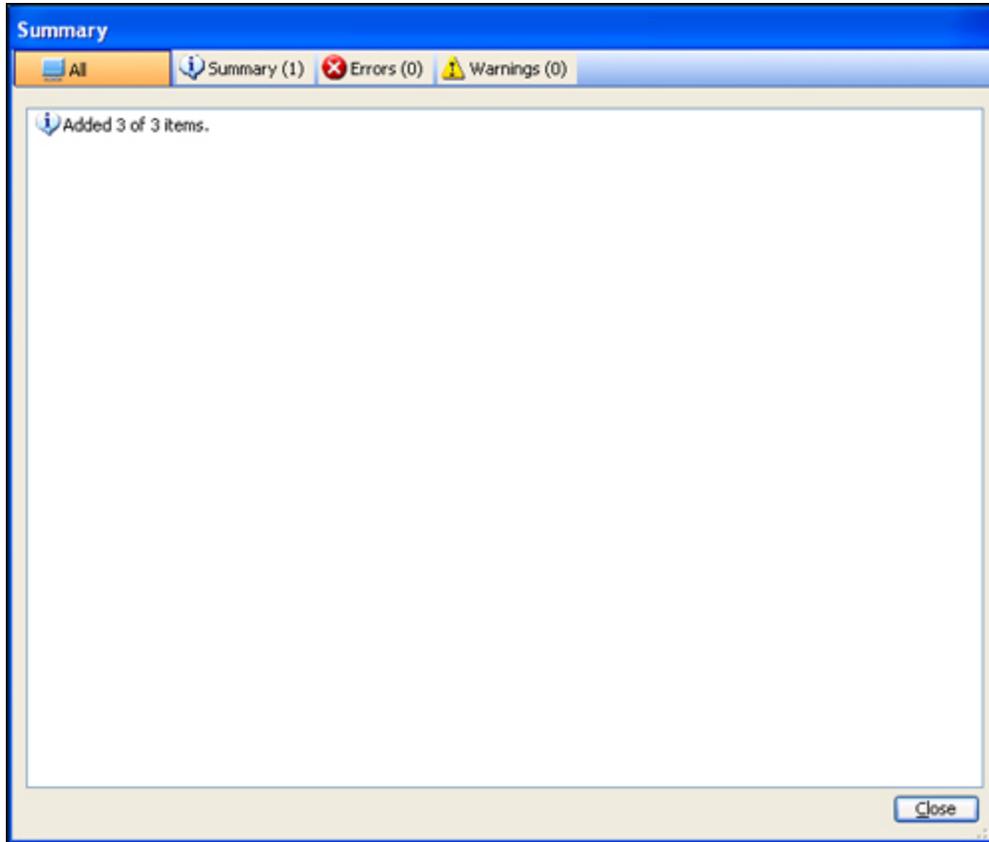


Figure 10. Confirm Settings

Click **Close** after the files have been added to the project. The volume and full resolution file names are displayed in the Full Resolution metadata field.

The image shows a spreadsheet interface for a project named "Example Project". The spreadsheet has several columns: "Coverage", "Rights", "Internal Search Term", "Full resolution", "OCLC number", and "Date". The "Full resolution" column contains the text "Volume2/AllenLibrary...". Above the spreadsheet, there are navigation buttons: "Load for Approval", "Open in Tab", and "Delete".

Coverage	Rights	Internal Search Term	Full resolution	OCLC number	Date
			Volume2/AllenLibrary...		

Figure 11. Volume and File Names within the Project Spreadsheet

Add additional metadata in the project spreadsheet. When you are done, select the items and click **Upload** to send the items to the pending queue for approval.

If you have the appropriate user rights, you can add the items to the collection and build the text index. The full resolution files have been copied to the Archival Volume Location.

Section IV: Moving Full Resolution Files to Permanent Locations

After all your full resolution items have been uploaded, approved, and added to the collection, copy the files that have been stored in the archival volume location to a more permanent location. Each volume will also contain a manifest file, listing the contents of the volume. Before copying the files, make sure that the current volume is closed. A volume is closed by the Project Client when it reaches its capacity. You can also close a volume at any time.

In this example, we will close a volume before it is full. From the Project Settings Manager, click **Project Options**, then click **Close Current Volume**. The current volume is closed and a new volume is created and named according to the naming specified in CONTENTdm Administration.

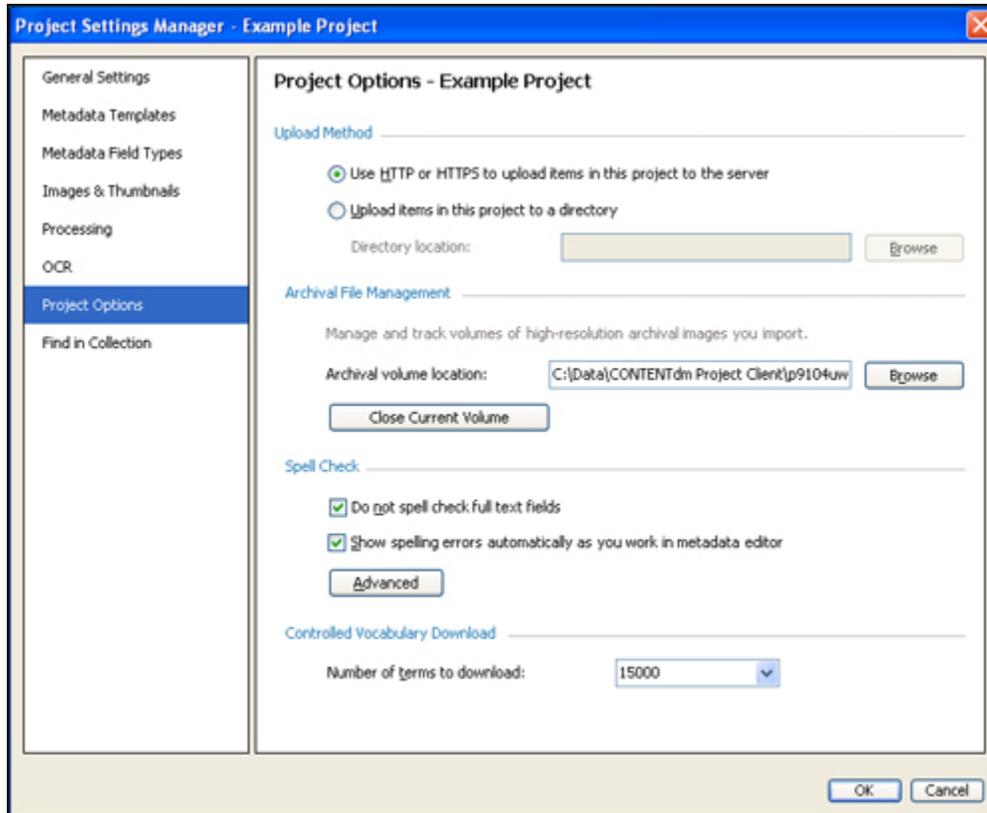


Figure 12. Project Settings Manager — Project Options

Check that the volume has been closed by looking at the directory structure in the Archival Volume Location. A new volume will have been created. Closing a volume (or when a volume becomes full) automatically creates a new volume. You can now copy the closed volume to a permanent location. This process of closing volumes is the same whether you plan to store your TIFF files online or on a DVD.

DVD Scenario

If you use a DVD, you will burn the contents of your closed volumes to a DVD using a DVD writer program. Remember to name the DVD appropriately: Volume1, Volume2, and so on.

Next, specify the location of the permanent storage on the CONTENTdm Server so that you can find the volume in the future. To do this, you must have rights to configure settings and field properties.

Navigate to the Collection Configuration page of CONTENTdm Administration as discussed in Section II, Step 1. Make sure that the collection you need to work with is selected.

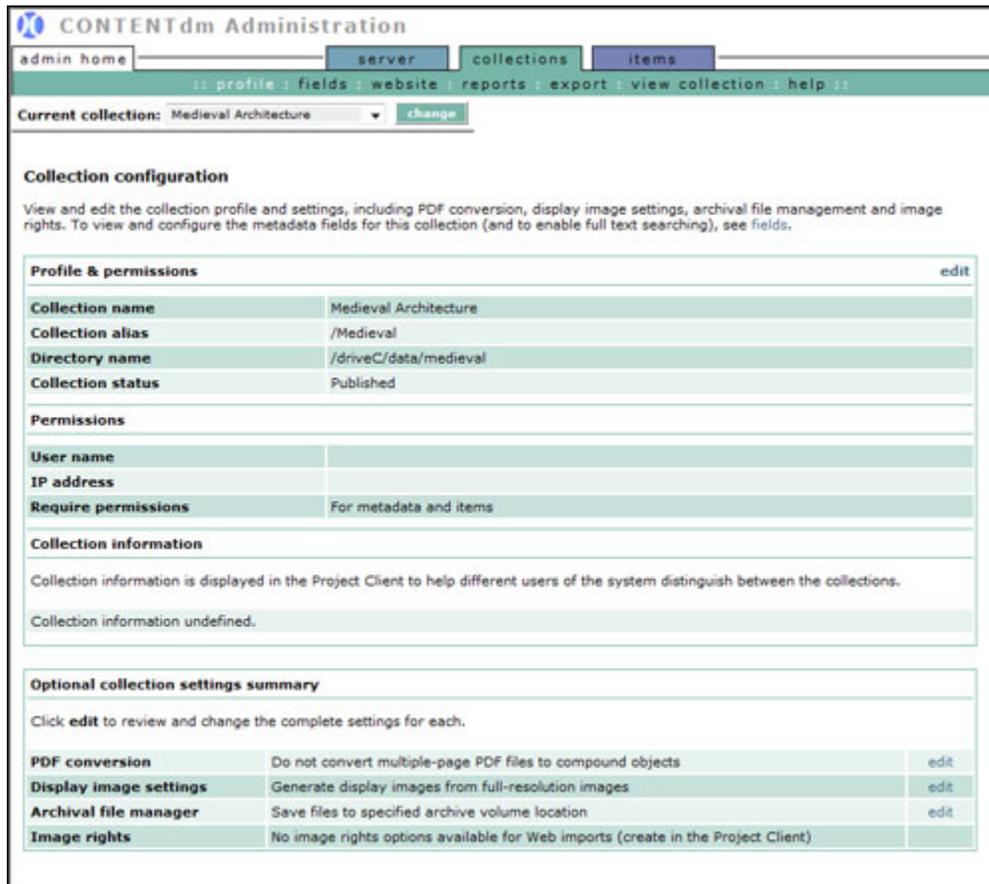


Figure 13. Collection Configuration Page

Click the **Edit** link for Archival File Manager. The Edit Archival File Manager Setting page displays. Click **View Volume List**. The Volume List page displays.

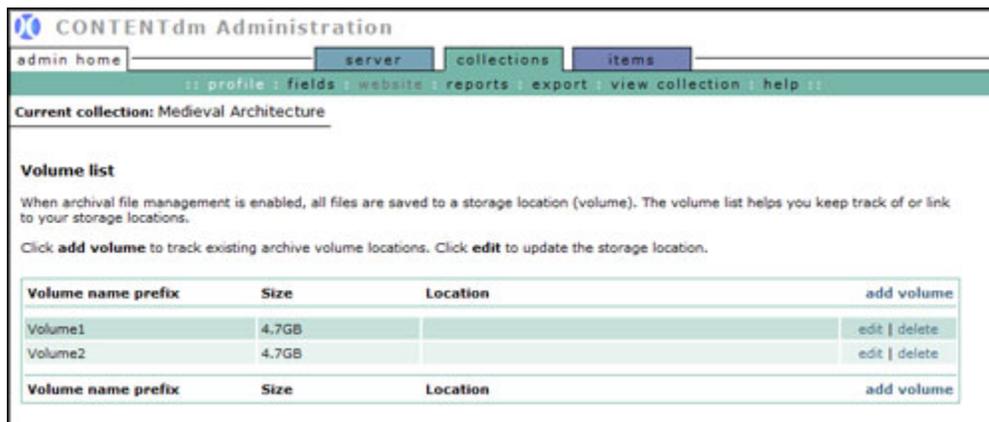


Figure 14. Volume List

Click **Edit** in the row containing the volume name to open the **Edit Volume** page. Update the location field to indicate where the volume is located, and any other relevant information required by your organization.

CONTENTdm Administration

admin home | server | collections | items

profile | fields | website | reports | export | view collection | help

Current collection: Medieval Architecture

Edit volume

Edit the size or location of the storage location (volume). For example, if you moved several volumes to DVD or changed the location of the volume and want to provide the URL, update the information and click **save changes**.

Note: Updating information about the volumes does not change the size or location of the actual volumes.

Volume name prefix	Volume1	
Volume size	4.7GB (DVD±R)	Other: <input type="text"/> GB
Location	DVD, stored by Joe Smith	

save changes

Figure 15. Update Location Field

Online Scenario

If you are storing the full resolution files online, you will not burn copies of volume folders to DVD. Instead, you will copy volumes to the server. First, create a directory on your server with an appropriate title (this example uses the name full-res) and then copy the entire Volume1 folder to that directory. Next, create a virtual directory on your Web server so that you can link to the images. Finally, update the Location field in the Full Resolution Volume List (Figure 14). For this, follow the same steps as you followed in the DVD example, except in the Location field enter the URL where the Volume1 folder resides. In this case the URL is `http://your.server.address/full-res/`.

CONTENTdm Administration

admin home | server | collections | items

profile | fields | website | reports | export | view collection | help

Current collection: Medieval Architecture

Edit volume

Edit the size or location of the storage location (volume). For example, if you moved several volumes to DVD or changed the location of the volume and want to provide the URL, update the information and click **save changes**.

Note: Updating information about the volumes does not change the size or location of the actual volumes.

Volume name prefix	Volume1	
Volume size	4.7GB (DVD±R)	Other: <input type="text"/> GB
Location	http://your.server.address/full-res/	

save changes

Figure 16. Update Location Field with URL

Now when you search the collection and retrieve an item, a link to the full resolution image will be displayed in the Full Resolution metadata field.