

DICOM Media Creation Management Solutions with **LEADTOOLS**

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Introduction

It goes without saying that the DICOM specifications are massive and can be difficult to implement on your own. There are a wide variety of products for software developers, end-users and integrators that make DICOM and PACS more accessible and user-friendly. Out of the box solutions can sometimes be a tough fit due to the high cost, many complexities and specialized nature of the healthcare industry. When big-box solutions don't fit the bill many hospitals and practices turn to software developers to make a custom solution for them.

However, even among SDKs there are many features within the DICOM specifications that get overlooked or cast aside. One such feature is DICOM Media Creation Management. This important facet of a well-rounded medical imaging solution can enhance nearly every aspect of your healthcare organization from archival, patient satisfaction, physician collaboration all the way down to marketing. This white paper will demonstrate how to use the comprehensive DICOM and PACS functionality in LEADTOOLS to easily add DICOM Media Creation Management to your application.

Benefits of DICOM Media Creation Management

There are two primary aspects of Media Creation Management: client/server communication and disc burning. The latter can exist without the former, but many organizations miss out on the benefits of integrating Media Creation Management communication into their PACS.

Using a centralized Media Creation Management server and/or workstation is the ideal solution for a variety of reasons. Security is enhanced by ensuring only authorized personnel can burn the removable media. The requests and information will be easier for the institution to log and therefore comply with regulatory mandates. Finally, the most important staff (i.e. doctors and nurses) can spend more time with their patients since they will not be kept waiting on the physical copies to be made.

Technically speaking, any computer with a CD/DVD burning drive is capable of burning a disc with DICOM files, but the DICOM Media Creation Management specifications make sure it is done in a uniform fashion. Without these guidelines anyone could create a CD or DVD with some files that most patients and healthcare workers don't know what to do with.

Much can be accomplished with a properly-structured physical disc with an embedded viewing application. Mobility is a major aspect as it gives patients a take-home copy of their imaging studies and physicians can take it with them into the exam room or operating theater. Legacy physical mediums such as film are expensive, rigid and bulky. Using discs as a physical medium can create tremendous opportunities to save money and space. Additionally, studies can be anonymized and used as promotional materials for clients and at events. Most of all, DICOM Media Creation Management gives doctors, healthcare workers and patients across all medical disciplines a flexible and easily transportable method of delivery for their DICOM data sets and images.

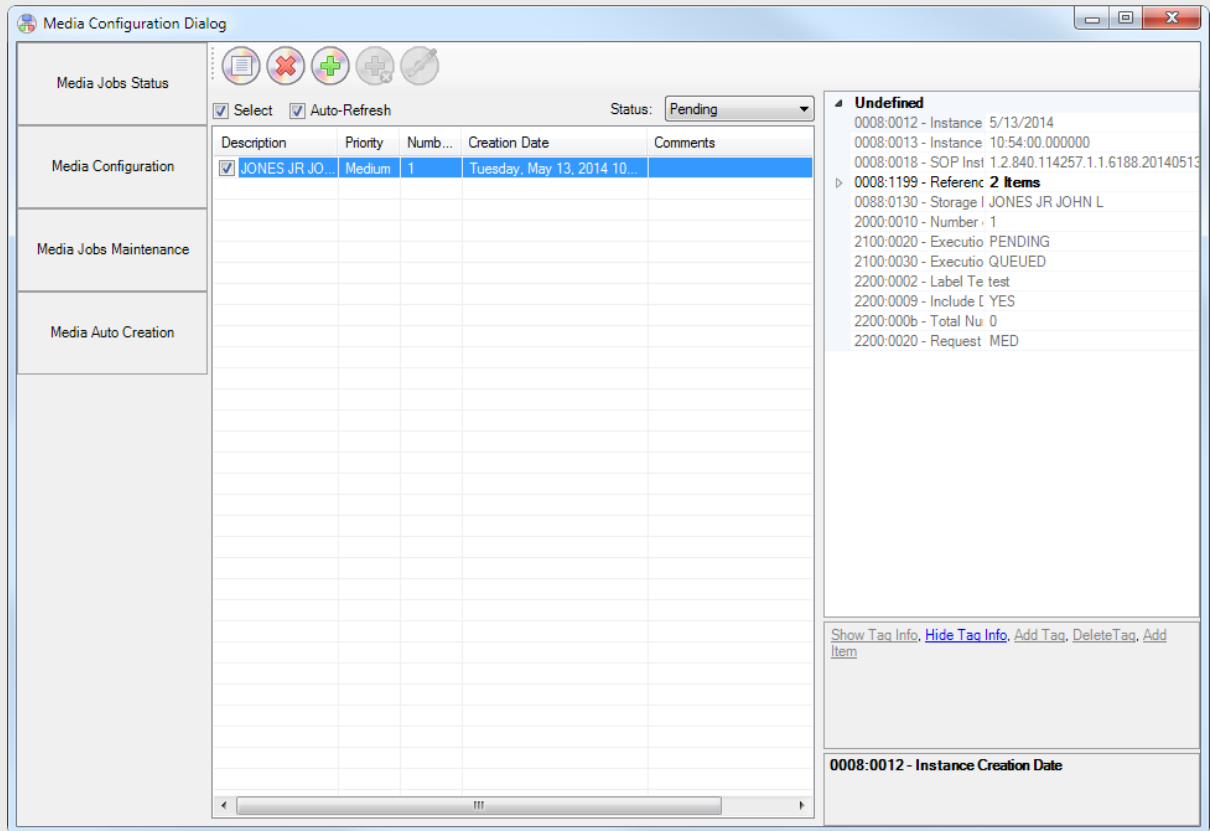
Using LEADTOOLS PACS Workstation Framework to Implement DICOM Media Creation Management

Implementing DICOM Media Creation Management is a breeze with LEADTOOLS. Whether your requirements are to build a full-scale PACS and DICOM viewing solution or to simply integrate media burning capabilities to your existing PACS infrastructure, LEADTOOLS will help you attain those goals quickly and easily with its PACS Workstation Framework. This OEM-ready solution with source code includes a 2D/3D viewer, local database, PACS storage server and fully customizable add-in factory.

Media Creation Server

In many scenarios, hospitals and practices use a dedicated server, workstation or device for receiving the DICOM Media Creation Management requests. To meet this need, the media creation add-in for the Medical Workstation can be used as-is for your DICOM Media Creation Management server and burning station.

To set up a DICOM Media Creation server, simply install the medical workstation application onto the machine you wish to burn discs from and then configure your client workstations to send their requests accordingly. On the local database's Media Configuration Dialog you will see the requests start rolling in and from there you can prepare, manage and burn all of the media creation jobs on the server.



With supported hardware, it is also possible to configure automatic media creation with labeling capabilities. In addition to saving time, using a burning and labeling device also increases security and compliance by ensuring the correct images and documents are only given to the authorized patients and medical staff. LEADTOOLS includes support for Primera devices with the ability to easily accommodate more manufacturers and devices through the workstation add-ins factory.

Media Creation Client

Sending DICOM Media Creation requests is an easy task with the LEADTOOLS high-level PACS Framework's [MediaCreationManagementScu](#) class. Communicating with any DICOM-compliant Media Creation Management server can be done with just a few lines of code. Just pass the server info (AE Title, port, IP address, etc.), media info (number of copies, priority, label text, etc.), and a list of the SOP Instance UIDs for the images you wish to burn and LEADTOOLS will take care of all the communication behind the scenes for you.

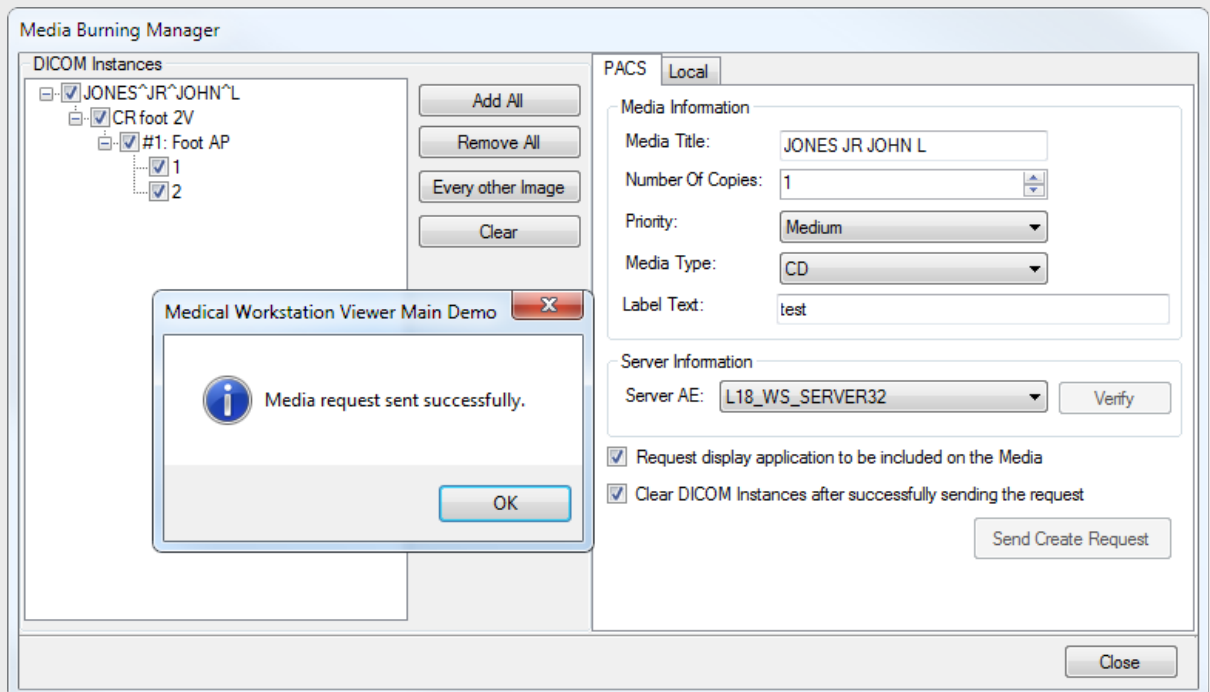
```

// Create the high-level SCU class and set the properties based on form
// input (_View)
MediaCreationManagementScu scu = new MediaCreationManagementScu(
    _View.SelectedServer.AETitle, scp);
scu.MediaSopInstanceUID = Utils.GenerateDicomUniqueIdentifer();
scu.NumberOfCopies = _View.NumberOfCopies;
scu.Priority = _View.Prioirty;
scu.MediaFileSetID = _View.MediaTitle;
scu.LabelText = _View.LabelText;
scu.IncludeDisplayApplication =
    _View.IncludeDisplayApplication ? YesNo.Yes : YesNo.No;

// Get the list of DICOM SOP Instance UIDs from the TreeView on the form
List<MediaCreationReferencedSop> referencedSops = GetMediaReferencedSops(
    _View.Instances);

// Send the request to the selected server
MediaCreationManagement mediaObject = scu.CreateMedia(referencedSops);

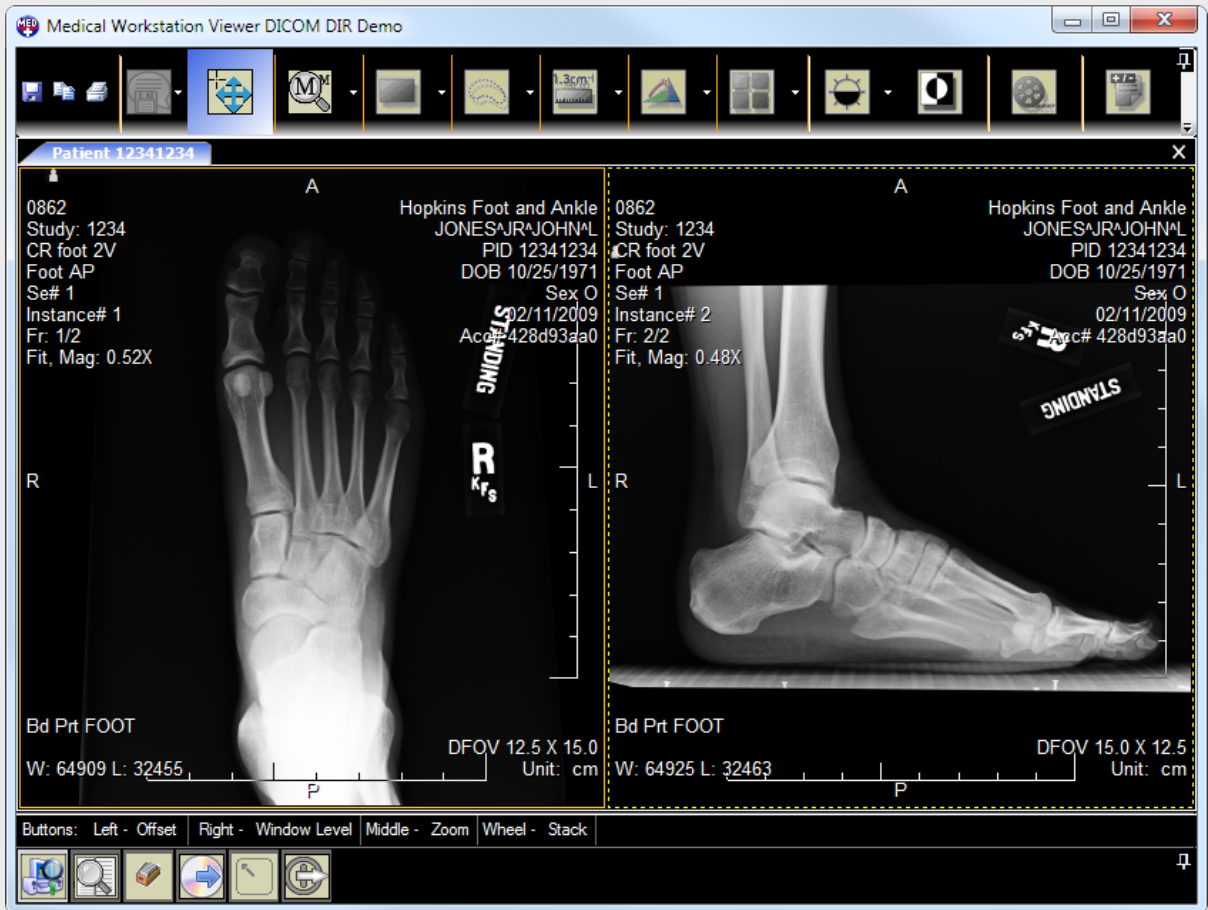
```



Burning can also be done directly on the client without a dedicated server as long as the workstation has a CD/DVD drive with writing capabilities.

Embedded Viewer

An important aspect of DICOM Media Creation is embedding a standalone viewer that can run directly from the CD or DVD. This is a huge benefit to patients who want to view their images at home or take their images to another practice. The LEADTOOLS embedded viewer is a slimmed down version of the workstation viewer that automatically detects and utilizes a DICOMDIR to display the studies, series and images. It also includes a collection of powerful tools such as window leveling, annotations, region processing and more.



It is also possible to create and use multiple embedded viewers. Since the source code for the LEADTOOLS embedded viewer is included with the SDK, you can customize it for various modalities, specialties and practices. For example, you can create a different viewer for MRI, CT, Ultrasound, Dental and more, each with their own default settings and particular viewing features.

Conclusion

Implementing DICOM Media Creation Management for any hospital or medical practice is a straightforward and programmer-friendly project with LEADTOOLS. All of the required client and server functionality conforms to the DICOM standard and can be used with any other DICOM-compliant PACS solution or media burning device. Additionally, all of these features are a part of the greater LEADTOOLS PACS Workstation Framework which can provide you with a fully-customizable and ready-to-ship viewing solution.

This is just one of many real world solutions you can tackle with LEADTOOLS. Its state of the art Medical Imaging SDK is the most flexible and powerful product in its class, and LEADTOOLS offers an incredible value with its comprehensive family of toolkits for raster, document, medical and multimedia imaging. For more information on how LEAD Technologies can image-enable your application and boost your ROI, visit www.leadtools.com to download a free evaluation, or give us a call at +1-704-332-5532.

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About LEAD Technologies

With a rich history of over twenty years, LEAD has established itself as the world's leading provider of software development toolkits for document, medical, multimedia, raster and vector imaging. LEAD's flagship product, LEADTOOLS, holds the top position in every major country throughout the world and boasts a healthy, diverse customer base and strong list of corporate partners including some of the largest and most influential organizations from around the globe.

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