

# Digital Rights Management and Cultural Institutions

Case Study: NJVid

## Project Description

NJVid aims to make educational video content accessible to a wide audience. It is an online video portal and repository platform for presentation, storage and archiving of digital video works for the "educational and cultural institutions throughout New Jersey, including K-20 [educational institutions], libraries, museums and archives" (NJVid, 2010). NJVid is a collaboration between William Patterson University, Rutgers University, and NJEDge.net, and the initial funding for the project was awarded by The Institute of Museum and Library Services (IMLS).

Videos from contributing institutions are "encoded at Rutgers University in New Brunswick and stored in a Fedora Repository at NJEDge.Net in Newark" ("NJVid In-Depth," n.d.). NJVid currently has a small team of personnel that manage the central repository.

NJVid currently provides access to 19 collections containing over 677 digital videos covering a variety of subjects. The NJVid repository is divided into three broad collection types:

1. the Commons (the currently largest collection),
2. commercially licensed videos (currently the largest collection), and

### Special points of interest:

- NJVid address: <http://njvid.net/>
- NJVid contains three broad types of content: openly available videos, commercially licensed videos, and learning-on-demand videos. Contributing institutions determine use controls for the openly available material. Access and use are restricted for commercially licensed and learning-on-demand videos.
- NJVid uses the following technological tools to control access and use: XACML rights metadata, Shibboleth authentication and authorization software, and streaming video.
- NJVid uses the following policy tools to control access and use: posted terms of use and copyright statements on its website, copyright information included in collection item metadata, and depositor agreement forms.
- Recommendations from NJVid include best practices for using XACML and Shibboleth, developing rights metadata, and creating access and use policies for a project involving a consortium of institutions.

3. learning-on-demand content ("NJVid In-Depth", n.d.). Policies regarding access vary for each collection and policies regarding use are set at the video object level.

The institutions that have contributed content to the NJVid repository include New Jersey museums and historical societies, universities, public K-12 schools, and media production organizations such as public television and

radio.

The Commons is comprised of materials where the contributing institution permits viewing by all users. In contrast, commercially licensed videos are restricted to users from institutions included in the video collection's license agreement. This section acts as a consortial video distribution platform. Learning-on-demand content (not yet available at the time of the study), will include lectures and other non-commercial educational content uploaded directly to NJVid by faculty from various participating institutions. Access to learning-on-demand materials will be determined by the faculty member who contributes the content and/or the University (depending on local policies).

## Motivations for controlling access and use

According to study participants, Sandra Miller (NJVid Principal Investigator, Director of Instruction and Research Technology at William Paterson University), Thomas Nemeth (NJVid Project Coordinator and Super Collections Manager), and Sujay Daniel (NJVid Project Manager and Technologist at NJEDge), motivations to control access and use within NJVid vary based on the specific collection.

In the Commons Collection, contributing institutions determine what, if any, use restrictions will be placed on the videos that they provide to NJVid. Contributing institutions have a choice:

- they can make their material accessible via "streaming only,"
- they can permit "download without allowing alterations of their original work," or
- they can permit "downloadable with alterations permitted." ("NJVid In-Depth", n.d.).

At the time of the study, no institutions have chosen to allow users to download their content or download and

alter their content. The NJVid team attributes this to a culture that has not become accustomed to the concept of manipulating intellectual property; but, they believe that institutions may eventually allow it.

A notice of use restrictions for each item is included in the metadata displayed alongside the video (see Figure 1).

Detailed rights metadata are also available by clicking the "Full Record" link that accompanies each collection item.

Metadata are searchable and viewable for all of the videos in the NJVid collections including those with access restrictions. The NJVid team believes that this is important because it allows the public to be aware that these types of resources are available even if they cannot directly access them.

In order to comply with license terms, the collection of commercially licensed videos must ensure that only authorized users at the licensee institutions have access to the videos. Because different institutions may subscribe to different videos, this involves keeping track of signatories to different licenses and what videos the licenses cover. NJVid works directly with commercial providers, like the Films Media Group, to acquire the licensed content for its repository and to remain informed of which institutions have licensed which videos. In order to access licensed content, users must authenticate through their institution's login and their campus must be running Shibboleth authorization and authentication software. NJVid uses a combination of XACML statements and Shibboleth software to "authenticate and authorize end-users viewing access-restricted commercial video ("NJVid In-Depth", n.d.). NJVid utilizes Rutgers' Workflow Management System to create metadata for the videos.

NJVid is also planning to provide learning-on-demand content for faculty and students from educational institutions. Faculty will create and self-upload this content for use in particular courses, and access can be limited to specific students, affiliation roles, or institutions. The faculty-

created content will be assigned a URL that faculty can then make available to students logging in to the collection via their institution. If a faculty member were interested in making content from a course more widely available, they could submit it to the Commons where it would be available to all users.

## Controlling Contributions

Contributions to the Commons are open to all museums, educational institutions, and libraries in New Jersey; however, only those in NJTrust will be able to access the restricted videos of the commercial video collection or those restricted within the upcoming learning-on-demand collection. Contributing institutions are providing content for educational purposes, so there is little reason to suspect that the videos will fail to meet NJVid's standards.


Depositors however must agree to the terms and conditions of the website and sign a deposit agreement form.

In the future as more content is being submitted regularly, NJVid expects to establish a review process for the videos submitted to the Video Commons and learning-on-demand collections.

In two particular instances, NJVid received films with uncertain copyright statuses. For each of these films, the NJVid team conducted extensive research to determine whether or not the films were protected under copyright. In both cases, it was concluded that the films were not currently under copyright. Videos of the films were subsequently made available to the public in the Video Commons collection, and the steps taken to determine the copyright statuses were documented in detail in the rights metadata accompanying the videos (see Figure 2).

Figure 1. Screenshot of item from NJVid collection. Note rights statement accompanying video (lower right).

**The land called New Jersey**



Play in High Resolution

**Video Description**

**Title:**  
The land called New Jersey

**Date Created:**  
1963

**Subject:**  
[Country or Region Specific, Society, History, Historic sites, Revolution \(United States 1775-1783\), Historic buildings](#)

**Name:**  
[Carlo, Michael A. \(photographer\), Jacobson, David \(editor\), Sharples, Winston \(composer\), Cunningham, John T. \(consultant\), Starbecker, Gene \(director\), Bransby, John \(producer\), Humble Oil and Refining Company \(Incorporated in Del.\)](#)

**Abstract:**  
Portrays three hundred years of progress in New Jersey and the contributions of the citizens of the State to the history of the United States. Includes sequences on the granting and the naming of the State, on colonial period, on early industry and transportation, and on Thomas Edison and the age of invention. Describes the industries, the educational system, cities, the recreational areas, landmarks, historic sites and other features of twentieth century New Jersey.

**Collection:**  
[William Paterson University of New Jersey Collection](#)

**Target or Intended Audience:**  
[General](#)

**Rights:**  
This video is protected by copyright. It may not be modified, transformed or built upon in any manner, other than through use of NJVid annotation and segmentation tools, without the permission of the copyright holder. Please contact the contributing institution for further information about the use of this video.

**Persistent URL**  
**Metadata:** [View MARC Record](#) | [View Full Record](#)

In another case, an institution contributed a video that contained appearances by politicians and celebrities who had not given written permission to be used in the video. Some of the people in the video had passed away since it was created, so it was obviously impossible to retroactively acquire permission in those cases. As a result of these permission issues, the contributing institution requested that this video should be placed in the restricted-access section of the site normally used for commercially licensed videos. NJVid agreed to this arrangement, but generally discourages contributors from placing access

restrictions on their content unless it is explicitly required by a licensing agreement.

## Technological controls employed

NJVid uses an XML-based Fedora repository. All items in the repository are encoded in XML allowing for the use of XACML statements to control access to each item. Broadly speaking, XACML is used "to codify and enforce access policies within an XML schema language" (Agnew, 2008, p. 210). The XACML statements for the videos in the NJVid collections work with Shibboleth authentication

Figure 2. Screenshot of rights metadata for item with uncertain copyright status.

RIGHTS Record	
<b>Rights Declaration (NJVid2_v1</b>	This video is protected by copyright. It may not be modified, transformed or built upon in any manner, other than through use of NJVid annotation and segmentation tools, without the permission of the copyright holder. Please contact the contributing institution for further information about the use of this video.
<b>Status</b>	Public domain
<b>Note</b>	No indication copyright was renewed by Esso or Humble Oil and Refining Company.
<b>Status</b>	Open
<b>Reason</b>	Copyright expired
<b>Status</b>	Published
<b>Type</b>	Availability research
<b>Detail</b>	Jane Hutchison and Tom Nemeth viewed the entire film and found no copyright notice or symbol anywhere throughout the film, including beginning and end title cards. End title card simply displays "Esso." This film was sponsored by Humble Oil & Refining Co., which later merged with Exxon Corporation on 1/1/73. This would lead one to think that Exxon might hold copyright to this film, and perhaps they have a searchable online database to confirm this. However, via a search on the Association of Moving Image Archivists listserv to come up with additional leads, Tom found a post by Debbie Norris posted 9/11/02 that asked whether Exxon has a searchable film archive. J. Fred MacDonald of MacDonald & Associates in Chicago (which maintains a small archive of films that they license out to customers for profit), responded that he licenses the Texas equivalent of this New Jersey film, also produced by Humble Oil & Refining Co, entitled "Texas in Review." Tom called MacDonald. MacDonald told Tom that he has been licensing "Texas in Review" to customers for years to no ill-effect. According to MacDonald, Exxon could not be bothered to retain copyright to this material, because it is of no lasting value to them. Separately, based on a scan of a newspaper's TV listings found on Flickr ( <a href="http://www.flickr.com/photos/sensesworkingvertime/514182370/">www.flickr.com/photos/sensesworkingvertime/514182370/</a> ), one can see that a film entitled "The Land called New Jersey" aired on WABC (channel 7) at 10AM on 7/5/64. Apparently this film was produced to market New Jersey as a tourist attraction to convince travelers to get in their cars and use Esso fuel to visit New Jersey. Shortly after the production of this film, Esso divested themselves of their film production marketing initiatives. Apparently, they made similar films for individual states, thus explaining the "Texas in Review" film. Bottom line: By all accounts, Exxon decided not to renew this film's copyright.

and authorization software to grant or deny users access based on users' institutional affiliations. When users attempt to access items that require permission, they are directed to a page with a list of affiliated institutions (see Figure 3). After selecting an institution, users are prompted to log in using their institutional username and

"XACML statements for the videos in the NJVid collections work with Shibboleth authentication and authorization software to grant or deny users access based on users' institutional affiliations."

password. The login information is then verified against the institution's Lightweight Directory Access Protocol (LDAP), and an XACML statement from the institution (the identity provider) is sent to NJVid (the service provider) via Shibboleth.

This XACML statement provides verification for the service provider that the user is a member of an authorized institution. The service provider then compares the user's XACML statement with the XACML policy statement for the collection item in question, and a decision is made to either grant or deny access to the user based on the compatibility of the two statements. In addition to XACML statements, NJVid uses security certificates to authenticate the identities of users and institutions.

NJVid content is presented via streaming video (MPEG-4 and H.264) in order to prevent direct downloading of restricted content. Some commercial video providers had expressed concerns that progressive download is susceptible to unauthorized downloading because it requires an entire copy of the video to be stored locally in the web browser's cache when the user views a video. For this reason, NJVid uses streaming video for restricted content. Streaming video files are not stored on the user's com-

puter. Instead, "the video data is played and then discarded by the media player" (Bouthillier, 2003). While limited bandwidth has never been an issue for NJVid, it is possible that a similar streaming video project could have issues with too many users simultaneously accessing a particular video (e.g., during a class).

NJVid currently only uses Shibboleth to authenticate at the institutional level, but the software does allow for finer granularity with regards to groups of users. For NJVid to be able to take advantage of finer-grained distinctions between users, more detailed information would have to be provided in each institution's LDAP. For example, a typical university's LDAP only contains usernames and passwords with no information about users' departments or majors. If the LDAP contained such information, then NJVid could use Shibboleth to restrict access to more specific groups of users.

## Recommendations for use of technological controls

According to the NJVid staff, for institutions interested in utilizing Shibboleth, installation can be easy or complicated depending on the experience and skill-level of the person(s) responsible for the installation. NJVid has established a Shibboleth user group and has provided simplified installation instructions in order to facilitate Shibboleth use by identity providers. These tools have been very effective in encouraging reluctant institutions to adopt Shibboleth. The user group also provides opportunities to check in with current users about problems they may be having, and to update them on software developments. NJVid has not had any issues with the stability of Shibboleth.

The NJVid team indicated that institutions could encounter difficulties implementing Shibboleth from a policy standpoint if they do not have clear and secure LDAP policies. Shibboleth can only use one LDAP, so institutions that have more than one will have to decide which direc-

tory is the most appropriate to use. Moreover, no matter how secure Shibboleth is, if a university's LDAP is weak, then the whole system can be vulnerable. For this reason, it is critical for institutions to examine the guidelines and security practices involved with their LDAP before implementing Shibboleth.

## Policy controls employed

The NJVid team believes that it is of crucial importance to include clear policy statements and warnings in addition to technological constraints on access because some users will always be able to circumvent even the most secure technological protection measures. NJVid has found that utilizing technological and policy tools together is much more effective than just technology alone in preventing

unauthorized access and use of materials.

Copyright and terms of use statements are posted on the website under "Terms and Conditions" as well as within the "Rights" section of the metadata for each video. These policies are also built into the XACML metadata for each video allowing for technological control of access and use to only those users who are allowed to view specific content. For example, in the case of commercially licensed videos, use is restricted to members of the institutions that have licensed the content. Shibboleth authentication identifies the user as a member of a particular institution, so no individual-level registration or click through agreements are required before accessing the collections.

As noted earlier, contributors of content must submit

Figure 3. Screenshot of Shibboleth institutional authentication page.

**Select an identity provider**

The Service you are trying to reach requires that you authenticate with your home institution, please select it from the list below.


**Choose from a list:**

--Choose your institution--  ☐ Remember for session

or

**Search by keyword:**

Need assistance? Send mail to [shib@njedge.net](mailto:shib@njedge.net) with description.

 **NJEDge.Net**  
New Jersey's Higher Education Network



both a deposit agreement and a metadata deposit form before their videos are added to the collections. These forms include terms and conditions regarding copyright and access restrictions to the contributed content. It is the responsibility of the contributing institutions to determine the copyright status of the videos they provide to NJVid.

A “Super Collection Manager” at NJVid oversees the approval of the metadata and deposit agreement forms, and there is often some amount of back and forth between NJVid and the contributor before the metadata and copyright documentation reach an acceptable level to allow the content to be uploaded to the NJVid repository. Privacy and other concerns regarding the content of submitted videos are also dealt with during this process. Since NJVid is a distributor of content and not the copyright owner, any and all unauthorized uses of content are reported to the contributor/copyright holder.

## Recommendations for use of policy controls

The NJVid team recommend that policy statements should be as simple as possible in order to avoid confusion. For content contributors, it is necessary to emphasize the importance of providing metadata and rights information in order to produce content that can be preserved and accessed for a number of years. Contributors may be frustrated by the amount of work that must be done upfront in order to achieve preservation quality content, so it is important to explain the benefits of this work for long-term access and preservation.

Developing forms like the deposit agreement and metadata deposit forms that NJVid uses can be helpful in clarifying the roles of each institution involved. For example, NJVid has been careful to clearly define that its role is to distribute and provide access to the content contributed by participating institutions.

The NJVid team warns of administrative complexities re-

lated to managing license content. Institutions may find that a great deal of work is involved in keeping track of which institutions have access to which materials as licenses change over time. NJVid found that it is more effective for this information to be managed by the repository instead of by each individual institution. When the NJVid project began, contributing institutions initially kept track of which other institutions could access licensed materials; however, NJVid found this process too cumbersome and ultimately decided to manage access itself. NJVid now works directly with commercial providers to acquire the licensed content for its repository and to remain informed of which institutions license which videos.

NJVid staff also suggest planning for central rights metadata services. NJVid offers contributing institutions the option of creating their own rights metadata, but in practice the project team has found that most institutions prefer that NJVid provide this service. Most institutions have been willing to give up direct control over their collection materials and metadata in order to reduce the amount of time that their staff must devote to the project. This suggests that similar projects should plan to devote resources to providing metadata and collection management services for the contributing institutions.

Managing rights metadata at the project level also helps with the lack of standardization that can arise when institutions create their own metadata. If metadata is created at the institutional level, then either standards must be created for institutions to follow or metadata must be

"NJVid has found that utilizing technological and policy tools together is much more effective than just technology alone in preventing unauthorized access and use of materials."

converted to a standard form after the project team receives it. NJVid has also found drop-down menus on metadata creation forms to be helpful for standardizing metadata created by institutions.

For other projects like NJVid that involve a consortium of institutions contributing content and resources, it is necessary to engage all members of the consortium at the beginning of the project when deciding what policies to adopt. The NJVid team spent the first year of the project in consultation with scholars, librarians, and other members of the institutions in the consortium in order to decide exactly what policy language to use. Allowing some time for contributing institutions to reach a consensus regarding policies is important for avoiding future difficulties. Finally, it is important to understand the audiences for particular restricted collections and how these audiences will wish to use materials from the collections. Policy decisions should be based on the areas of overlap between audiences' desired uses and what commercial con-

tent providers will allow.

## References

- Agnew, G. (2008). *Digital rights management: A librarian's guide to technology and practise*. Oxford, UK: Chandos.
- Bouthillier, L. (2003). *Streaming vs. downloading video: Choosing the right solution*. Retrieved from <http://www.streamingmedia.com/Articles/ReadArticle.aspx?ArticleID=64573>
- Frequently asked questions*. (n.d.). Retrieved from NJVid - New Jersey Digital Video Repository website: <http://fdr.njedge.net/njvid/faq/>
- NJVid in-depth* [Microsoft Word document]. Retrieved March 13, 2010, from [http://fdr.njedge.net/njvid/faq/NJVid\\_In-Depth.doc](http://fdr.njedge.net/njvid/faq/NJVid_In-Depth.doc)
- NJVid OAI address: <http://fdr.njedge.net:8080/fedora/oai>



### Digital Rights Management and Cultural Institutions: Case Study of NJVid

Kristin R. Eschenfelder, Andrew M.  
Johnson, Walker Evans and Jennifer  
Huck

This article licensed through a Creative  
Commons Attribution-Non Commercial 3.0  
License.

For more information:

Kristin R. Eschenfelder, Associate Professor  
School of Library and Information Studies  
4228 Helen C. White Hall  
600 N. Park Street  
Madison, WI 53706  
Email: [eschenfelder@wisc.edu](mailto:eschenfelder@wisc.edu)  
<http://slisweb.lis.wisc.edu/~libtpm/>

The Digital Rights Management and Cultural Institutions Project was funded by an Institute of Museum and Library Services (IMLS) grant 04-06-0029-06 to investigate the impact of digital rights management technologies on the development of digital collections in U.S. archives, libraries and museums.

The case studies portion of the project identified six exemplary projects that employed a variety of rights management technologies and policies to serve as examples from which other institutions might learn.

Related study outputs include:

Eschenfelder, K.R. (2009). Controlling Access to and Use of Online Cultural Collections: A Survey of U.S. Archives, Libraries and Museums for IMLS. University of Wisconsin-Madison School of Library and Information Studies: Madison, Wisconsin. (<http://minds.wisconsin.edu/handle/1793/38251>)

Eschenfelder, K.R.; Agnew, G (2010) "Technologies Employed to Control Access to or Use of Digital Cultural Collections: Controlled Online Collections" D-Lib Magazine.



