OAI "Cheat Sheet":
A Taxonomy of Rapid OAI Deployment Strategies

This handout provides a taxonomy of strategies that have been frequently deployed in institutions seeking to implement OAI data providers in the context of commonly used metadata formats and digital library systems. Comments are provided to frame each of the strategies.

Effort required: While all these strategies certainly require some coordinated work by digital library professionals, the effort entailed for implementation is typically not onerous for most organizations and reaps many rewards through the resulting capability to exchange metadata by means of a standardized protocol. OAI implementation is often misunderstood as requiring major systems development, which is not at all the case. Major overhauls of existing digital library infrastructures are not necessary. OAI implementations is often more akin to a systems patch, merely requiring the installation of a few programming scripts or a new module onto existing software. Many effective, simple, and quick solutions currently exist for implementing OAI on top of existing infrastructures — solutions requiring only moderate planning and some staff time to deploy. The following taxonomy maps a number of commonly used systems to solutions, and highlights issues to consider when deciding when or whether to employ these strategies.

SEE ALSO: **OAI Implementation: Administrative Planning** (a guide to work and resource planning) **Summary of OAI Metadata Best Practices** (common metadata formats, quality issues in sharing metadata, and best practices for OAI data and service providers) and **OAI Tools** (technology available for generating, converting, managing, and harvesting metadata).

OAI Deployment Taxonomy

Many scripts and software for enabling OAI implementation can be deployed on top of existing digital library infrastructures. Examples of infrastructures commonly found in digital libraries today are listed below (left column) and mapped to OAI solutions that various institutions have found easily and cost-effectively allowed them to implement OAI. Strengths and limitations of each OAI solution are also provided.

Current Infrastructure →	*OAI Solution*
XML files in directory structure	**Virginia Tech OAI Scripts (**http://www.dlib.vt.edu/projects/OAI**)**
This is a common situation in many digital library infrastructures, in which XML files maintained in a structured directory hierarchy are indexed by a search engine for public search and display. This is also one of the most flexible infrastructures, and lends itself to many possible OAI implementations.	Pros: This frequently deployed toolkit is comprised of free, open source Perl scripts that can be easily configured for many XML formats (for example, works well with TEI headers). The scripts are flexible and simple to adapt to many infrastructures.
	Cons: The scripts were developed several years ago and are no longer being actively developed or enhanced.
Staff who maintain this variety of digital library infrastructure frequently have developed a strong expertise in one or more preferred programming languages for data wrangling, and often use XML style-sheet transformation tools. The easiest option for proficient programmers is often to write a simple set of scripts that can respond to the six queries defined by the OAI protocol.	**XSL Transforms (or other customized solution using preferred programming language in use at the institution)**
	Pros: Most flexible option for those who know their own systems well. A set of correctly functioning OAI data provider scripts can usually be written by a competent programmer in a week or less.
	Cons: Requires a competent programmer.
Z39.50 gateways	**ZMARCO (**http://zmarco.sourceforge.net **)**
Many libraries have Z39.50 gateways for systems which hold digital library item records. These systems may include online catalogs or database systems with Z39.50 gateways such as the popular Zebra open source software. Libraries may wish to share MARC records available in these systems via the OAI-PMH.	Pros: This tool was developed by the University of Illinois at Urbana Champaign as a way of providing OAI-PMH access to MARC records already accessible through Z39.50 gateways. ZMARCO is free open source software that is straightforward to implement. The software is written in Visual Basic and VBScript and is easy to modify if desired.
	Cons: Correctly parsing MARC records occasionally requires some troubleshooting.

Current Infrastructure ➞ OAI Solution	
ContentDM The popular ContentDM software for digital archives management has been widely deployed for digital library purposes.	**OAI Module for Content DM** (http://www.contentdm.com) Pros: Supports resumption tokens, sets, and record deletion allows compound objects. Cons: Does not support multiple metadata formats (only unqualified DC), does not permit definition of date stamp granularity level, and must be purchased as an add-on product to the base system.
DLXS This digital library system from the University of Michigan is widely deployed in many libraries.	***DLXS Broker* Module** (http://www.dlxs.org) Pros: Allows set harvesting and resumption tokens. Cons: At time of writing does not yet support multiple metadata formats or deleted records.
Tools with built-in OAI data providers: ePrints, Dspace, Fedora These systems are being widely deployed as institutional repositories at many universities.	**(Built in capabilities)** These systems all have existing OAI capabilities that are described in the system documentation. Implementation is usually straightforward, and may consist mainly of deciding on which options to implement.
Desktop computer databases or other systems with export capability Many archives keep their metadata in commonly available databases like Filemaker Pro or Procite. These records may be of great interest to the wider scholarly community, but are usually not even available on the Web, much less through OAI.	**Metadata Migrator (**http://www.MetaScholar.org/sw/mm**)** Pros: This tool was developed by Emory University to facilitate the process of quickly and easily enabling OAI-PMH access to records in local databases. The tool is free, open source software with a wizard-style user interface for those new to OAI. It is written in PHP and incorporates portions of the VA Tech scripts. Cons: Version 1.0 does not yet support multiple metadata formats, automatic updating, or set harvesting.

REFERENCES

Foulonneau, M., et al. (2004, November 15). *Getting a Leg Up on the Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH).* Presentation for the National Science Digital Library Conference, Chicago, IL. http://nsdl.comm.nsdl.org/meeting/session_docs/2004/2620_National_Science_Digital_Library_Conference.doc