# Managing Content and Electronic Resources on the NIST Virtual Library (NVL)

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Session C301

In May 2002, the Information Services Division (ISD) of Technology Services (TS) at the National Institute of Standards and Technology (NIST) launched a redesigned Web site and implemented a dual content management system (CMS) that greatly facilitates maintenance of the division's Web site, the NIST Virtual Library (NVL). Content on the NVL is managed using an off-the-shelf content management system, eMPower*, and an in-house SQL database, the NVL Resources Administration System. Together these systems provide a seamless interface for NVL users, while allowing ISD staff to easily and quickly create and edit Web pages.

This paper will describe the team effort of Reference Services staff and Information Technology (IT) staff in designing, populating, implementing and maintaining the two systems. It will also discuss the training process that allows more than 20 ISD staff members to have ownership of various sections of the NVL.

## Background

NIST is a non-regulatory Federal agency within the U.S. Department of Commerce. Its mission is to develop and promote measurements, standards, and technology to enhance productivity, facilitate trade, and improve the quality of life.

The NIST Virtual Library is the Web site of the Information Services Division, including the NIST Research Library. The NVL provides access to databases and indexes, e-journals, and other science-related Web resources.ISD and the NIST Research Library support and enhance the research activities of the NIST scientific and technological community through a comprehensive program of knowledge management. The Research Library, which resides on the main NIST campus in Gaithersburg, MD, serves a population of about 3,000 and has a collection of almost 300,000 items.

The NVL was recently redesigned to enable customers to more easily find information on the Web site, to make the delivery of information quick and timely, and to make the site easier to maintain and manage. A dual content management system helped ISD meet these objectives.
The NVL's dual content management system consists of eMPower, a commercial product, and the NVL Resources Administration System, an in-house SQL database. eMPower controls static pages of the NVL while the NVL Resources Administration System controls dynamic electronic resource pages. These dynamic pages offer displays according to the customers' needs and requirements. The database can generate an alphabetical display as well as sort by subject. Separate page listings are not required, thereby making the site easier to manage and update.

* The identification of any commercial product or trade name does not imply endorsement or recommendation by the National Institute of Standards and Technology

**eMPower**

eMPower is a commercial off-the-shelf content management system. A wide range of CMS exist. eMPower is a basic, inexpensive product that is serving its current purpose well, although the division may decide to upgrade to a higher-end CMS. eMPower is an application that provides the user with a way to control the content and workflow of a Web site. It allows non-IT staff to maintain the Web site with little knowledge of HTML. Templates are used when creating new pages, and text and images are simply placed into "content blocks" within the templates using an application similar to a word editor. Currently more than 20 ISD staff members maintain and "own" content on the NVL.

The tasks of creating and maintaining the Web site are allocated among different eMPower user groups. The three types of users are administrator, editor, and publisher. The administrator sets up the site, registers templates, creates user groups and content groups, and adds users to the system. Content editors (or content contributors) maintain the Web site by creating new content and modifying existing content. The publisher (or content approver) approves and publishes content on the Web site.

Implementing the eMPower CMS was a joint effort carried out by IT and Reference Services staff. ISD IT staff set up the database, registered the templates, and created eMPower user groups. A reference librarian was responsible for making sure that all content was moved into the CMS by a given deadline. The same librarian continues to be responsible for the overall design and management of content on the NVL, and is currently the NVL Webmaster.

**Dynamic Pages**

The NVL Resources Administration System is the means by which ISD maintains electronic resources on the NVL. IT staff developed this system in-house based on requirements from the Reference Services staff. The system consists of a SQL database that generates dynamic pages of electronic resources. The database currently contains over 1000 unique resources. It is maintained by Reference Services staff, who add, edit and delete e-resources on their assigned pages. A notification system alerts these content contributors to any changes to the e-resources collection. The system generates e-mail messages that detail what items have been added, modified, or deleted, and also indicates who made the changes.
The NVL has many dynamically generated pages. These include pages for databases, e-journals, standards, patents, alerting services, and a "reference shelf" of useful tools, including dictionaries, a phone directory and ZIP code directory. The NVL Resources Administration System also generates "research by subject" pages. These pages include bibliographic tools and resources useful in specialized NIST areas of research. They include resources covering areas such as biotechnology, chemistry, computer science, engineering, health care, materials science, mathematics, and physics.

**Database Requirements**

The Reference Services staff defined the database requirements for the NVL Resources Administration System. The database was created by IT staff based on these requirements. "Resource types" and subject categories were created within the database based on the required

Web page displays. This was done so that each electronic resource would find its appropriate home on the NVL. Resource types included broad categories such as databases, e-journals, standards, patents, and so forth.

In addition, electronic resources needed to be assigned to more than one subject. The system also needed to allow for descriptions of resource types, subjects, and the resources themselves. Search functionality within the database was also a requirement. The user had to be able to search by resource name and to sort by resource type, subject, name, or any combination. The default sorting option was an alphabetical listing. In order to re-sort resources, an "importance level" needed to be assigned to each resource type and, in some cases, to subject categories. The database also needed to allow for public access or internal NIST access.
Once the requirements were defined, Reference Services staff, having the subject expertise needed for organizing content on the Web site, populated the NVL Resources Database with selected resources. When the NVL was launched, more than 800 electronic resources had been added to the database. This collection of resources included over 500 e-journals, over 50 databases, and several hundred other science-related Web resources.

**Keeping Content Current**

In maintaining the NVL, a schedule for updating content blocks was established for the content contributors. NVL resources links are checked weekly. Static pages, including all links, are reviewed bi-weekly. When the content approver is away, a back-up approves content. All pages are reviewed for Section 508 accessibility. NVL "news" sections are updated regularly.NVL home page "news" content changes weekly. The eMPower application allows for quick updates to the Web site. Four sections of the NVL home page are updated on alternating weeks, which allows the home page to change weekly. The ISD Highlights section, which includes news about ISD products and services, is updated bi-weekly with new articles. A "Come In and Browse" section provides information about the NIST Research Library's collections. It, too, changes on a bi-weekly schedule. A small area on the home page for promotional items offers space for quick announcements about ISD services. Another content block on the home page provides answers to frequently asked questions. The expectation is that the more frequently the Web page is updated, the more often our customers will visit the site.

**eMPower Training**

Once the NVL was launched, it was time to train all staff members assigned to maintain the Web site. In-house training was conducted by the librarian most familiar with using the eMPower application, and who had overall responsibility for the NVL. ISD IT and Reference Services staff together developed a training manual. Multiple training sessions were held, and eventually more than 20 staff members were trained to use the eMPower CMS. Hands-on training in NIST computer labs allowed staff to learn by doing. The sessions were team-taught by Reference and IT staff. Training sessions were 3 hours in length to allow for class exercises.

## NVL Resources Administration Training

Staff responsible for adding electronic resources to the NVL Resources Administration System also underwent training. Again, IT and Reference Services staff developed an in-house training manual. Multiple training sessions were held as more staff was assigned to be e-resources providers. Hands-on training sessions allowed staff to learn by doing, but this time the training sessions were held in the division's new training room where laptops were set up. Once again, training sessions were team-taught by Reference Services and IT staff. The sessions were shorter than the eMPower training sessions because the NVL Resources Database was a simple, yet elegant system designed specifically to maintain electronic resources on our Web site.

The team effort by ISD staff resulted in a successful launch of the redesigned NVL in May 2002. An open house celebrated the event and recognized the efforts of all those involved. The NVL continues to be maintained using the dual content management system, and the site continues to evolve through the Web content contributions of many ISD staff members.

## Managing Content and E-Resources on the NIST Virtual Library (NVL)

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## Managing Content and E-Resources on the NIST Virtual Library


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National Institute of Standards and Technology
Technology Administration, U.S. Department of Commerce

## Presentation Overview


- Introduction and Background Information
- NVL Redesign Project
- NVL Content Management Systems (CMS)
- CMS Implementation
- Maintaining the NVL
- Training NVL Content Contributors

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## What You Will Take Away

- Team effort required for the successful implementation of a dual content management system
- Advantages and disadvantages of using content management systems to create and maintain web sites
- An overall process for redesigning a web site and implementing a content management system

NIST

## National Institute of Standards and Technology (NIST)

- Non-regulatory federal agency within the U.S. Department of Commerce
- Gaithersburg, MD and Boulder, CO campuses
- Science and technology research
- Staff of over 3,000 employees
- NIST's Mission
  - To develop and promote measurements, standards, and technology to enhance productivity, facilitate trade, and improve the quality of life.

NIST

## Information Services Division (ISD)

- ISD's Mission:
  - To support and enhance the research activities of the NIST scientific and technological community through a comprehensive program of knowledge management
- Organizational structure
  - Research Library
  - Publications
  - Museum

NIST

## NIST Research Library

- Supports the research activities of the NIST scientific and technological community
- Located on the main NIST campus in Gaithersburg, MD
- Serves a population of 3,000 (about 1,500 scientists)
- Maintains a collection of over 300,000 items

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## NIST Virtual Library (NVL)

- Access to databases and indexes, e-journals, and other science-related web resources
- Access to information about and assistance with NIST publications
- Access to the NIST Virtual Museum

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## NVL Redesign

- Objectives
  - To enable customers to easily find information on the web site
  - To make the delivery of information quick and timely
  - To make the site easier to manage and maintain
  - To identify new services and products to meet customer needs
  - To provide customer feedback mechanisms

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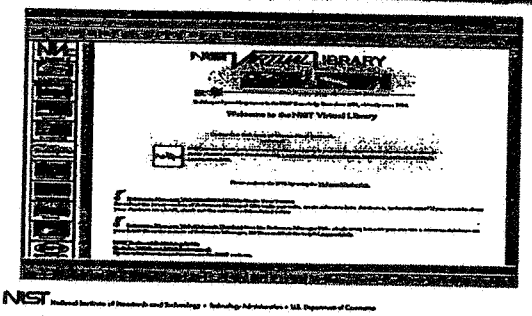
## Old NVL



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## NVL Redesign Milestones

- Overall approach defined by ISD Management (January 2001)
- NVL focus groups (April 2001)
- Web site architecture defined (Fall 2001)
- Content moved into CMS (Spring 2002)
- Marketing new site (Spring 2002)
- Web usability testing (April 2002)
- Launch new site (May 2002)

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## NVL Redesign

- Overall direction from Division Chief, Information Services Division (ISD)
- Redesign Team co-led by ISD Group Leaders
  - Developed implementation plan
  - Directed redesign project
- Redesign Team composed of two sub-teams
  - Content Team (content development)
  - Implementation Team (technical development)

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## NVL Content Management

- Dual content management system
  - eMPower
    - Static content
  - NVL Resources Administration System
    - Dynamic pages of resources

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## eMPower

- Commercial off-the-shelf content management system
- Allows content editors to maintain web site with little knowledge of HTML
- Currently more than 20 ISD staff members "own" content on the NVL

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## eMPower User Groups

- Administrators
  - Sets up site, registers templates, creates user groups
- Content contributors
  - Maintains the web site by creating new content and modifying existing content
- Content publishers
  - Approves (publishes) content to be placed on web site

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## Implementing and Using eMPower

- IT Staff set up the database, registered templates, and created eMPower user groups
- Library staff member had overall responsibility for moving content into CMS

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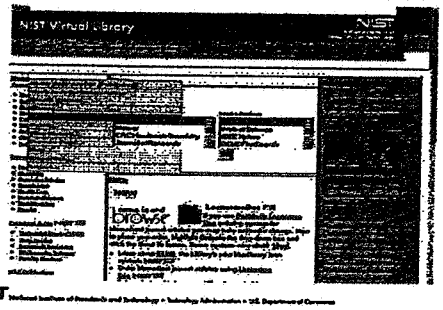
## eMPower User Interface

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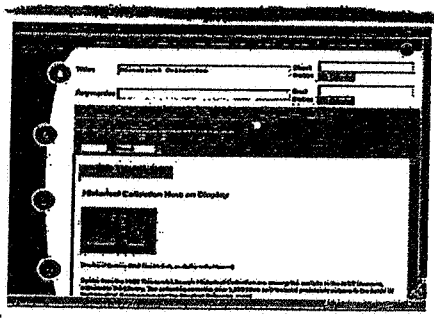
## eMPower Content Editor



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## NVL Resources Administration System

- Developed by IT staff based on requirements from Reference Services staff
- SQL database
- Dynamically generated web pages
- Over 1000 unique resources
- Maintained by Reference Staff
- Notification system alerts all Reference Staff

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## NVL Resources Administration System

- Generates General Research pages
  - Databases, E-journal, Standards, Patents, etc.
- Generates Research by Subject pages
  - Biotechnology, Chemistry, etc.

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## NVL Resource Database Requirements

- Define "resource types" -- Databases, E-journals, Standards, Patents, etc.
- Create subject categories for resources
- Permit resources to be assigned to more than one subject
- Allow for descriptions of resources
- Create search functionality within database
- Assign importance level to resource types and subjects that re-sorts alphabetical listings
- Allow for public access or internal NIST access

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## Populating the NVL Resources Database

- Added over 800 resources to database
  - Over 500 e-journals
  - Over 50 databases
  - Hundreds of web resources
- Database populated by Reference Services staff
  - Subject expertise required for assigning content appropriately

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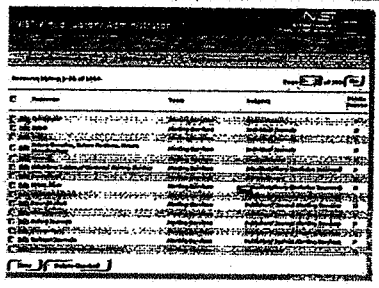
## NVL Resources Administration System



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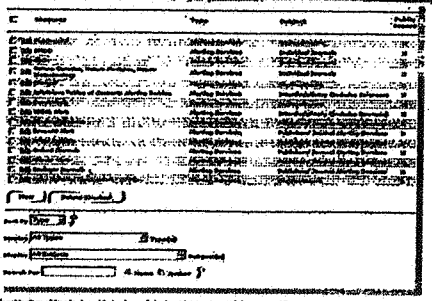
## Searching the Resources Administration System



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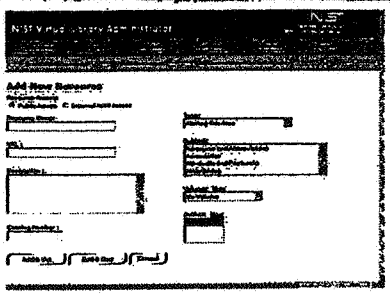
## Adding New Resources



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## Maintaining the NVL

- Established schedule for content editors
  - Check NVL resource links weekly
  - Review static pages, including links, bi-weekly
- Back-up content approval process in place
- Section 508 accessibility for all web pages
- Update NVL "news" sections regularly

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## Maintaining the NVL
(Cont'd)

NVL Homepage "news" content updated weekly or bi-weekly:

- ISD Highlights – news about ISD products and services
- "Come In and Browse" – information about the NIST Research Library's collections
- Promotional Items – quick announcements about services and products
- "How Do I ...." – answers to frequently-asked questions

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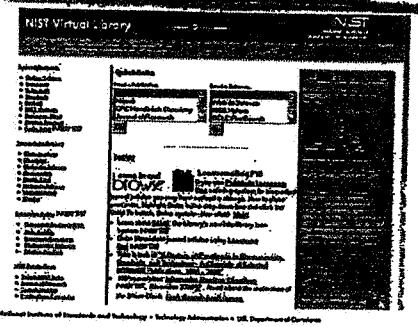
## Redesigned NVL

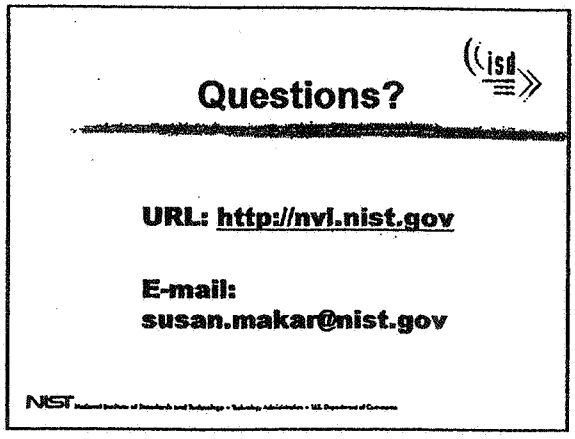


## Training eMPower Users

- In-house training manual developed by Information Technology and Reference Services staff
- Multiple training sessions – more than 20 staff members trained
- Hands-on training in computer lab
- Team-taught by Reference and IT staff
- Two and a half hour training session

## Training NVL Resources Database Users

- In-house training manual developed by IT and Reference Services staff
- Multiple training sessions
- Hands-on training on laptops
- Team-taught by Reference and IT staff
- Ninety minute training session


Questions?
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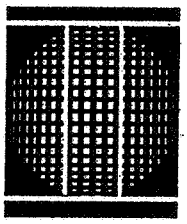

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