

DSPACE

Introduction, Features & Technology

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Outline

- **What is DSpace and what does it do?**
- **The DSpace information model**
- **Components & features of DSpace**

What is DSpace?

- **A digital repository system**
- **Captures, stores, indexes, preserves and redistributes an organization's research material in digital formats**
- **Research institutions worldwide use DSpace for a variety of digital archiving needs -**
 - from institutional repositories (IRs) to
 - learning object repositories or electronic records management, and more.

DSpace is...

- **DSpace is a Digital Repository System**
 - Institutional Repositories
 - Learning Object Repositories
- **Open source development model**
 - BSD License

**More than 1700 known instances of DSpace
around the world**

(source:

**<http://registry.duraspace.org/registry/dspace>
, as on January 2015)**

Who built DSpace?

- **The MIT Libraries and Hewlett-Packard (HP) jointly developed DSpace. The system is now freely available to research institutions world-wide as an open source system that can be customized and extended.**
- **Formed not-profit organization in July 2007: Dspace Foundation**
- **In July 2009, the DSpace Foundation ceased operation. DuraSpace took over supporting the DSpace project.**
- **Who manages DSpace?**
 - DSpace is freely available as open source software. The DSpace Community manages the code base and releases new versions of the software. An active community of developers, researchers and users worldwide contribute their expertise to the DSpace Community

Who built DSpace?

- Who can download the software?

Open-source systems like DSpace are available for anyone to download and run at any type of institution, organization, or company (or even just an individual).

Users are also allowed to modify DSpace to meet an organization's specific needs.

The BSD distribution license describes its specific terms of use.

DSpace is freely available as open-source software from SourceForge.

DSpace...

- **Captures**

- Digital research material directly from the creators

- **Describes**

- Allows descriptive, technical, and rights metadata
- Assigns persistent identifiers

- **Distributes**

- Searches metadata & full text
- Delivers content over the web

- **Preserves**

- Content in supported formats for long term preservation

DSpace: New CINECA Theme

Applications Places System 18 °C Fri Jan 30, 2:39:14 PM root

DSpace Short-Term Cou x DSpace Authorization: | x

192.168.8.124:8080/jspui/

Home Browse Help Search DSpace Sign on to: ▾

DSpace JSPUI

DSpace preserves and enables easy and open access to all types of digital content including text, images, moving images, mpegs and data sets

[Learn More](#)

DSPACE

DSpace Authorization

DSpace is Live

Welcome to our digital repository of My University research!

More exciting news to appear here.

This is a default installation

[niscair - File Browser] DSpace Authorization: ...

DSpace: Old Theme

The screenshot shows a Mozilla Firefox browser window displaying the DSpace at My University homepage. The browser's address bar shows the URL `http://192.168.9.57:8080/jspui/`. The page features a navigation menu with links for Back, Forward, Reload, Stop, and Home. Below the navigation is a search bar with the Google logo. The main content area is divided into several sections: a search box with a 'Go' button and a link to 'Advanced Search'; a 'Browse' section with links for Communities & Collections, Issue Date, Author, Title, and Subject; a 'Sign on to:' section with links for Receive email updates, My DSpace authorized users, Edit Profile, Help, and About DSpace; a central message box titled 'DSpace is Live' with a welcome message and a search box; a 'Communities in DSpace' section with a link to 'library science'; and a right-hand sidebar with a 'This is a default installation of DSpace!' message and 'RSS Feeds' for 1.0 and 2.0 versions. The browser's status bar at the bottom shows the taskbar with various icons and the system clock at 10:15 AM.

DSpace at My University: Home - Mozilla Firefox

File Edit View History Bookmarks Tools Help

Back Forward Reload Stop Home `http://192.168.9.57:8080/jspui/` Google

Most Visited Getting Started Latest Headlines

DSpace at My University: Home

DSpace™

[About DSpace Software](#)

Search DSpace

[Advanced Search](#)

[Home](#)

Browse

- [Communities & Collections](#)
- [Issue Date](#)
- [Author](#)
- [Title](#)
- [Subject](#)

Sign on to:

- [Receive email updates](#)
- [My DSpace authorized users](#)
- [Edit Profile](#)
- [Help](#)
- [About DSpace](#)

DSpace at My University >

DSpace is Live

Welcome to our digital repository of My University research!

More exciting news to appear here.

Search

Enter some text in the box below to search DSpace.

Communities in DSpace

Choose a community to browse its collections.

[library science](#)

This is a default installation of DSpace!

It can be extensively configured by installing modified JSPs, and altering the site configuration.

RSS Feeds

Done

Start `F:\dspace 1.6 presentation` `DSpaceIntroduction - Jul...` `introduction to dspace v...` `DSpace at My Univers...` 10:15 AM

DSpace: Information Model

- **Communities & Collections**

- Hierarchical organization of items in the repository

- **Items**

- Logical units of content
- Receive persistent identifiers

- **Bitstreams & Bundles**

- Individual digital files

DSpace JSPUI

DSpace preserves and enables easy and open access to all types of digital content including text, images, moving images, mpegs and data sets

[Learn More](#)



DSpace at My University

Agriculture Community home page

Recent Submissions

Blue-Green Algae and Rice [See](#)

EXTERNAL LINKS

[e-gyankosh](#)
[M. S. Swaminathan Research Foundation \(MSSRF\)](#)

Admin Tools

- [Edit...](#)
- [Create collection](#)
- [Create Sub-community](#)
- [Export Community](#)
- [Export \(migrate\) Community](#)
- [Export metadata](#)

Browse

Issue Date	Author	Title	Subject
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Discover

Author	Subject	Date Issued
Ahluwat, I.P.S. (1)	Agrikultural communication (1)	2000 - 2008 (4)
Gangakh, B. (1)	Agrikultural cooperation (1)	1980 - 1989 (1)
Behem, U.K. (2)	Agrikultural Credit (1)	
Bhattacharya, A.K. (2)	Agrikultural extension (1)	
Chauhan, Jendra (2)	Agrikultural Finance (1)	
Sharma, A.P. (2)	Agricltural system (1)	
Ahluwat, Y.S. (1)	agrobresby (1)	
Anand Swain (1)	Agros livestock system (1)	



National Science Digital Library

Logged in as mukeshpund@niscai...
(Logout)

[NSDL at NISCAIR](#) >

Search NSDL

[Advanced Search](#)
[Subject Search](#)

PHYSICS

[Home](#)

Community home page

- Browse**
- [Communities & Collections](#)
 - [Titles](#)
 - [Authors](#)
 - [Subjects](#)
 - [By Date](#)

In:

Search for

or browse

Sub-communities within this community

Sign on to:

- [e-books](#) [0] 📖

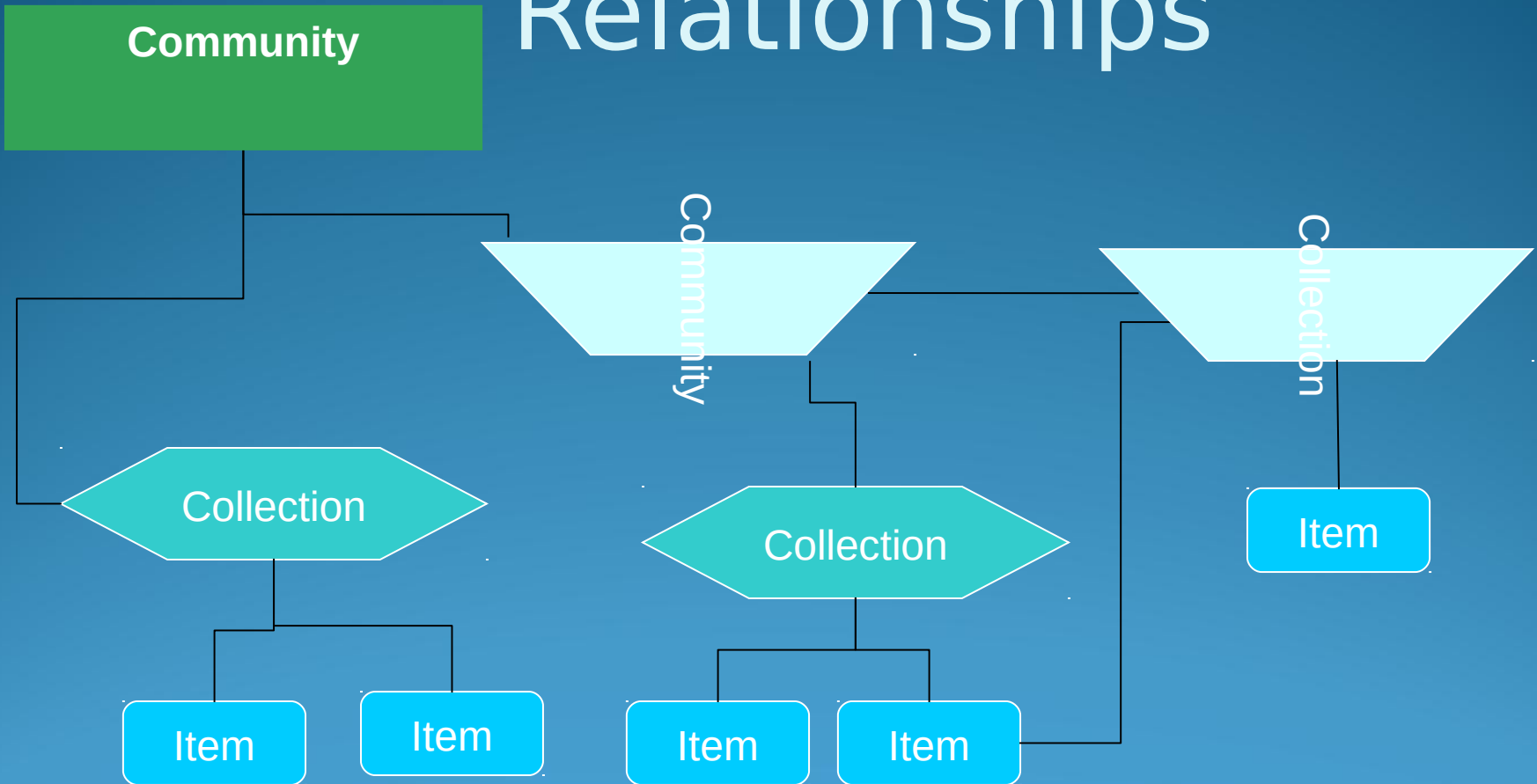


Admin Tools

-
-
-
- [Admin Help...](#)

Recent Submissions

Community & Collection Relationships



Communities & Collections

- **Collections and Communities organize items into a hierarchical form**

- **Metadata:**

- Limited descriptive metadata available
 - Name, description, license, etc...

- **Example:**

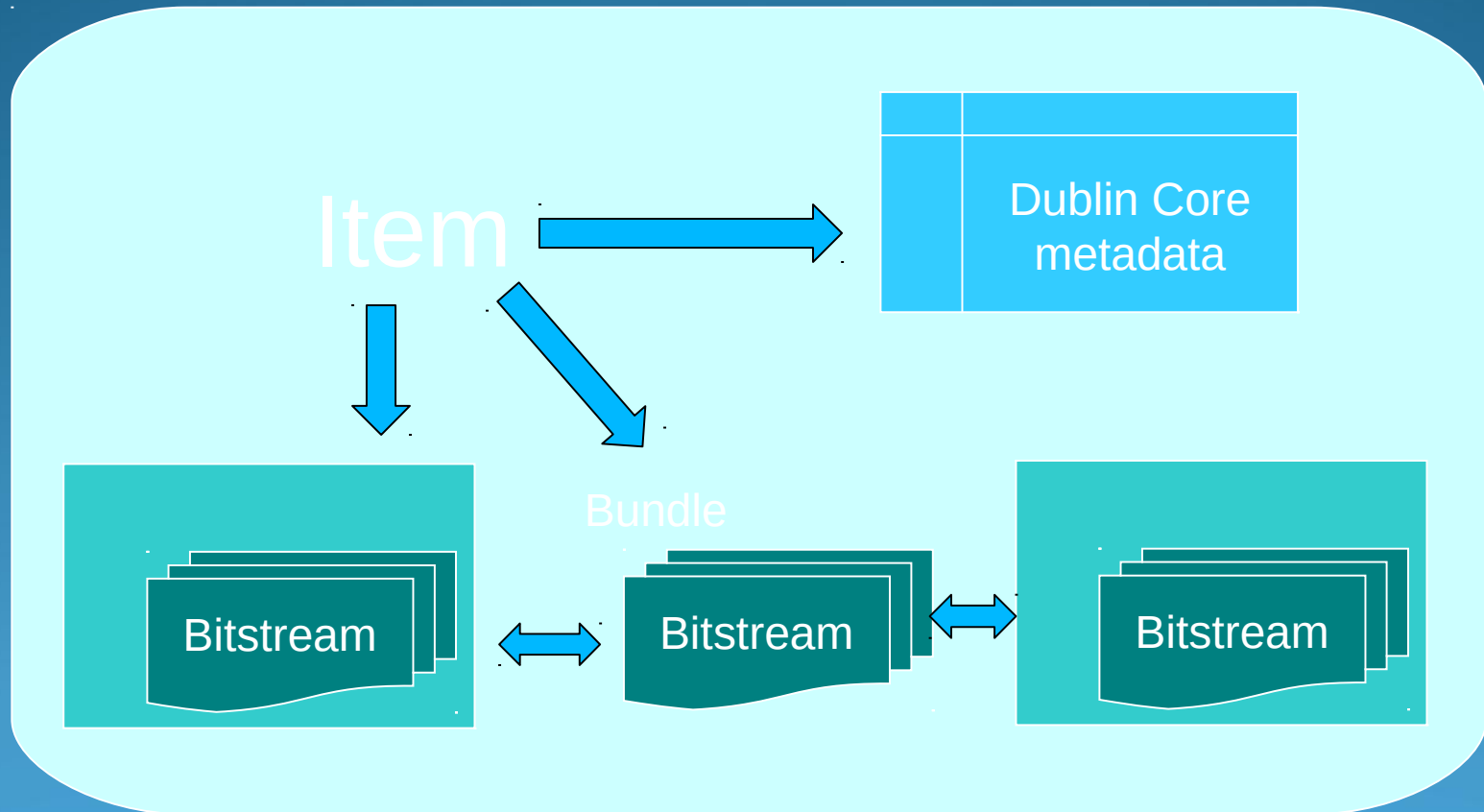
Communities

College of Architecture
Office of Graduate Studies

Collections

A Department's Technical Reports
A faculty member's publications

Item Composition



Items

- **Items are logical units of content**

- **Metadata:**

- All items have qualified Dublin Core metadata
- May contain metadata in other formats encoded as a bitstream

- **Example:**

- Book
- ETD thesis
- Web page (Images, CSS, HTML)
- Photographs

Bitstreams

- **Bitstreams are Individual Digital files**

- **Metadata:**

- Limited descriptive metadata available
 - name, file format, size, etc...

- **Example:**

- PDF file
- Word document
- JPEG picture
- Executable program
- HTML file
- CSS file

Bundles

- **Bundles group related bitstreams together**
- **Metadata:**
 - No metadata
- **Example:**
 - HTML files and images that compose a single HTML document may be organized into a bundle

Components & Features of DSpace

Item Metadata

- **Descriptive**

- Qualified Dublin Core
- Non Dublin Core supported also (as long as it's still flat)
- Any other format may be added as a bitstream
 - However, it will not be searchable

- **Administrative**

- Who can access, remove, or modify an item
- Stored in the database, no standard format used

- **Structural**

- Very basic
- What bitstreams are contained in an item
- What collections and communities does an item belong to

Dublin Core registry

Maintain what metadata fields may exist for an item in DSpace.

- **Three components**

- Schema (new)
- Element
- Qualifier
- Scope Note

The screenshot shows the DSpace Metadata Field Registry Schemas administration page. The page title is "Metadata Field Registry Schemas | ?". A note states: "Adding a new field to the registry does not add a corresponding input field to the submit forms!". The page displays a table with columns for "ID / Element / Qualifier / Scope Note". The table contains five rows, each representing a schema entry. Each row has a "contributor" field, a "qualifier" field, a "scope note" field, and "Update" and "Delete" buttons.

ID / Element / Qualifier / Scope Note	contributor	qualifier	scope note	Update	Delete
2	contributor	advisor	Use primarily for thesis advisor.	Update	Delete
3	contributor	author		Update	Delete
4	contributor	editor		Update	Delete
5	contributor	illustrator		Update	Delete

Format Registry

- Maintain a registry of file formats

Three levels:

- Supported
- Known
- Unknown

The screenshot shows a web browser window displaying the DSpace Bitstream Format Registry administration page. The page title is "Bitstream Format Registry" and it includes a navigation menu with options like Home, Content, Access Control, Statistics, General Settings, and Help. The user is logged in as admin@gmail.com. The main content area features a green header "DSpace Authorization / Administrator" and a section titled "Bitstream Format Registry" with a help icon. Below this, there are two informational boxes: one explaining that extensions are comma-separated lists of filename extensions, and another stating that new formats are initially marked as "internal". A table lists existing formats with columns for ID, MIME Type, Name, Long Description, Support Level, Internal?, and Extensions. The table contains five entries, each with an "Update" button and a "Delete..." button.

ID	MIME Type	Name	Long Description	Support Level	Internal?	Extensions	
1	application/octet-str	Unknown	Unknown data format	Unknown		Extensions	Update
2	text/plain, charset=	License	Item-specific license agree	Known		Extensions	Update Delete...
3	text/html, charset=u	CC License	Item-specific Creative Comi	Known		Extensions	Update Delete...
4	application/pdf	Adobe PDF	Adobe Portable Document	Known		pdf	Update Delete...
5	text/xml	XML	Extensible Markup Languag	Known		xml	Update Delete...

Handle System

- **CNRI- Corporation for National Research Initiatives**
- **Provides a persistent identifier**
- **Standard URL's change**
 - Hardware or software changes
 - Political changes
 - Network changes
- **Handles attempt to address these problems by creating a permanent URL independent of the repository.**
- **Example:**
 - <http://hdl.handle.net/1969.1/3356>

E-People

- **DSpace user accounts are called E-people**
- **If permitted, an e-person may:**
 - Login to the site
 - Sign up to receive notifications about changes to a collection
 - Submit new items to collections
 - Administer collections/communities
 - Administer the DSpace site.

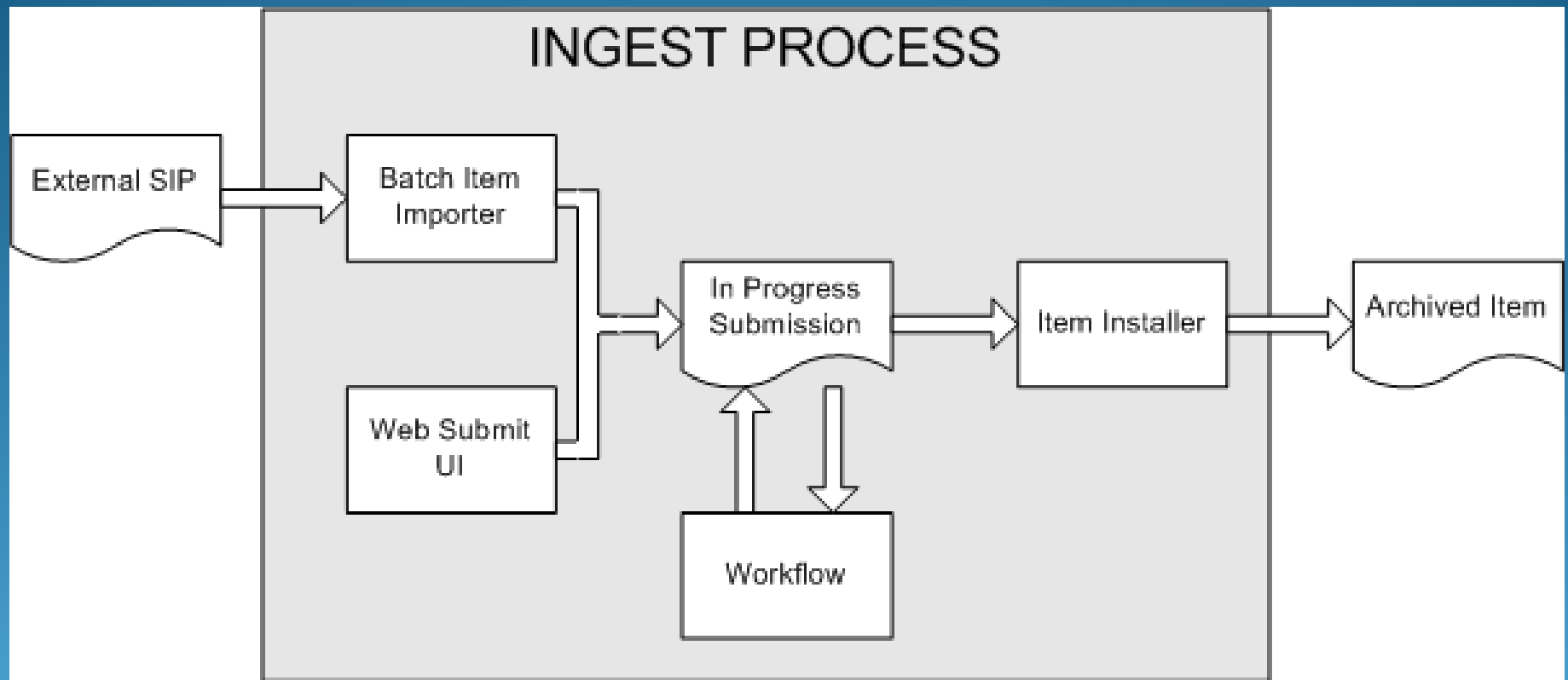
Authorization

- **The DSpace authorization system enables administrators to give e-people the ability to perform the following operations on an object.**
 - Add / Remove
 - Enable an e-person to add or remove any object (community, collection, item)
 - Collection Administrator
 - Enable an e-person to edit an item's metadata, withdraw items, or map items into the collection.
 - Write
 - Enable an e-person to add or remove bitstreams
 - Read
 - Enable an e-person to read bitstreams

Ingestion

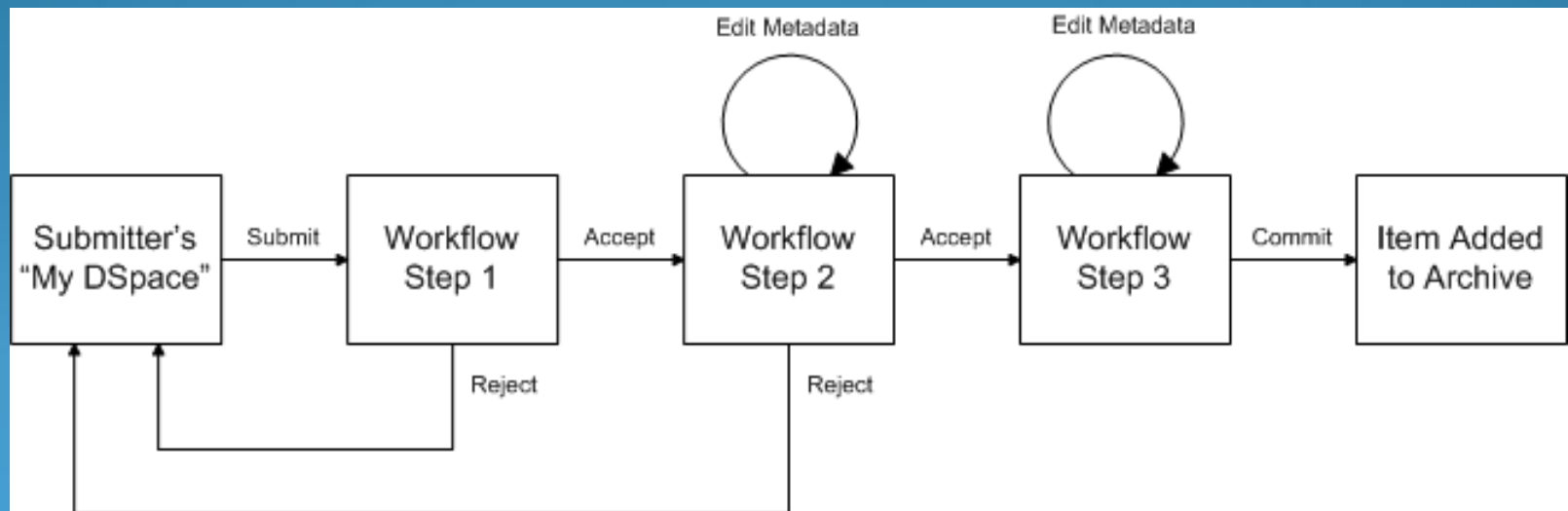
- **Ingestion = getting stuff into DSpace**
- **Batch import**
 - Many at a time
 - Needs to be in a specific format
 - XML encoded metadata
 - Bitstreams
- **Web based submission**
 - One at a time
 - Workflow processes

Ingestion Processes



Workflow

- **Step 1: May reject the submission**
- **Step 2: Edit metadata or reject**
- **Step 3: Edit Metadata**



Search & Browse

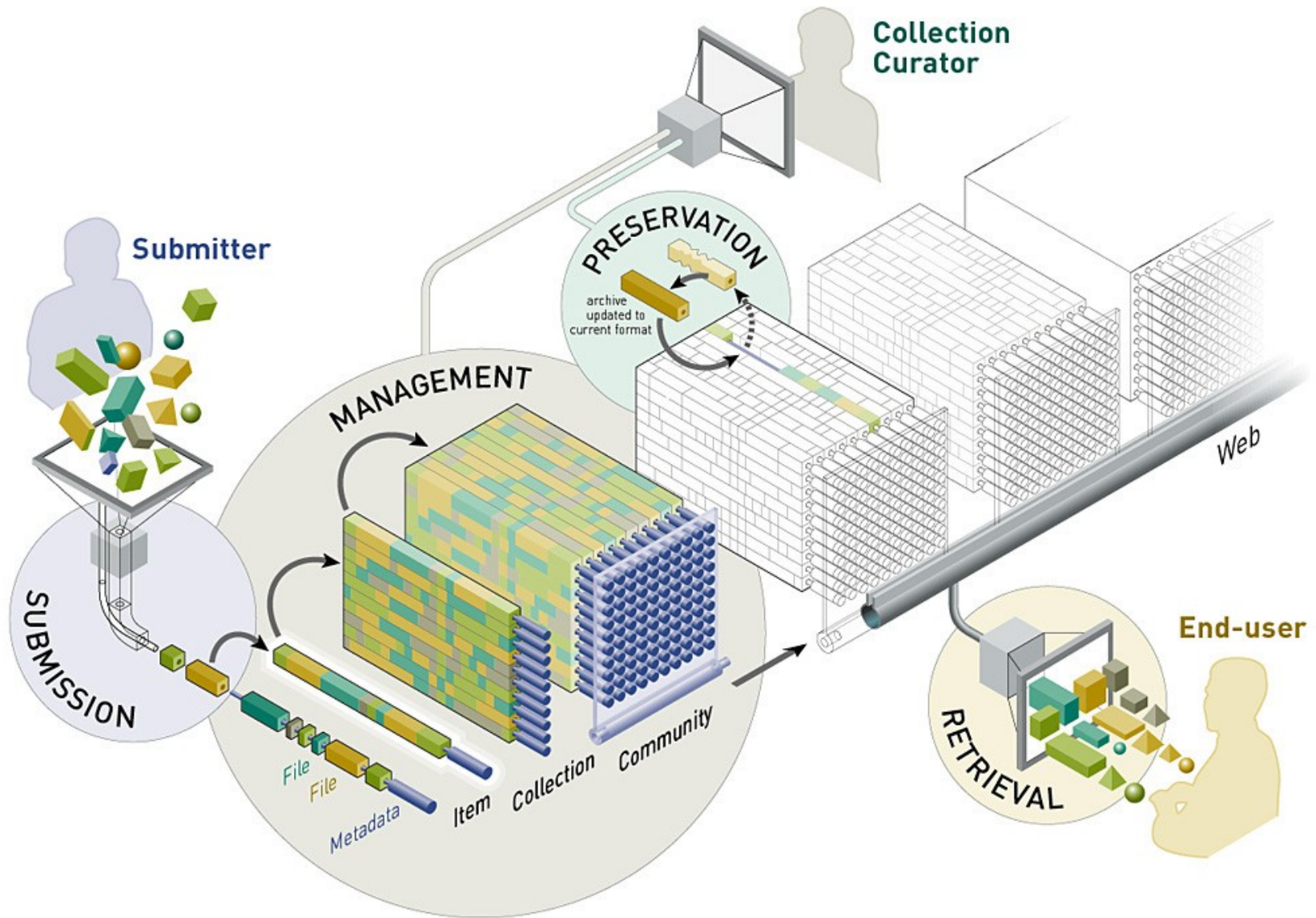
- **Users may browse any item in DSpace**
 - Title
 - Author
 - Date
 - Community / Collection
 - Subject (new)
- **Users may search for any item in DSpace based upon any Dublin Core value or a full text search.**

OAI-PMH

- **Enables other sites to harvest metadata from a DSpace repository**
- **Collections are exposed as OAI sets**
- **Only Dublin Core metadata is available**

Statistics

- **Analysis the DSpace logs to generate a set of statistics on how DSpace is being used.**
- **Metrics collected:**
 - Number of item visits
 - Number of collection visits
 - Number of community visits
 - Number of OAI requests
 - Number of logins
 - Most popular searches
- **Presented in a by-month form or in-total form.**
- **SOLR Statistics**
- **Google Analytic**



DSpace: Software Components

- **UNIX-like OS or Microsoft Windows**
- **Sun Java JDK 7 or later (standard SDK is fine, you don't need J2EE)**
- **Apache Maven -3.0.4 or later (Java build tool)**
- **Apache Ant 1.8.4 or later (Java build tool)**
- **Relational Database: (PostgreSQL or Oracle).**
- **Servlet Engine: (Jakarta Tomcat 7.x, Jetty, Caucho Resin or equivalent).**
- **Perl (required for [dspace]/bin/dspace-info.pl)**
- **Dspace Software Source code**

New Features in Dspace 4.x and 5.x

- **New Theme of JSPUI (by CINECA)**
- **Curation tasks administrative UI**
- **Advanced Embargo feature**
- **Item level versioning feature**
- **AJAX progress bar for file upload the submission upload step**
- **Sherpa/Romeo integration in the submission upload step**

New Features in Dspace 4.x and 5.x

- **Discovery: Search & Browse is now enabled by default in both XMLUI and JSPUI**
- **Facet Search (in Advance Search)**
- **More:**
 - Dspace-4:
<https://wiki.duraspace.org/display/DSDOC4x/Release+Notes>
 - Dspace-5:
<https://wiki.duraspace.org/display/DSDOC5x/Release+Notes>

Thank You