



ARKIVVERKET
RIKSARKIVET

Archivematica og AtoM: «State of the art» programvare for digital bevaring og tilgjengeliggjøring

Arne-Kristian Groven,

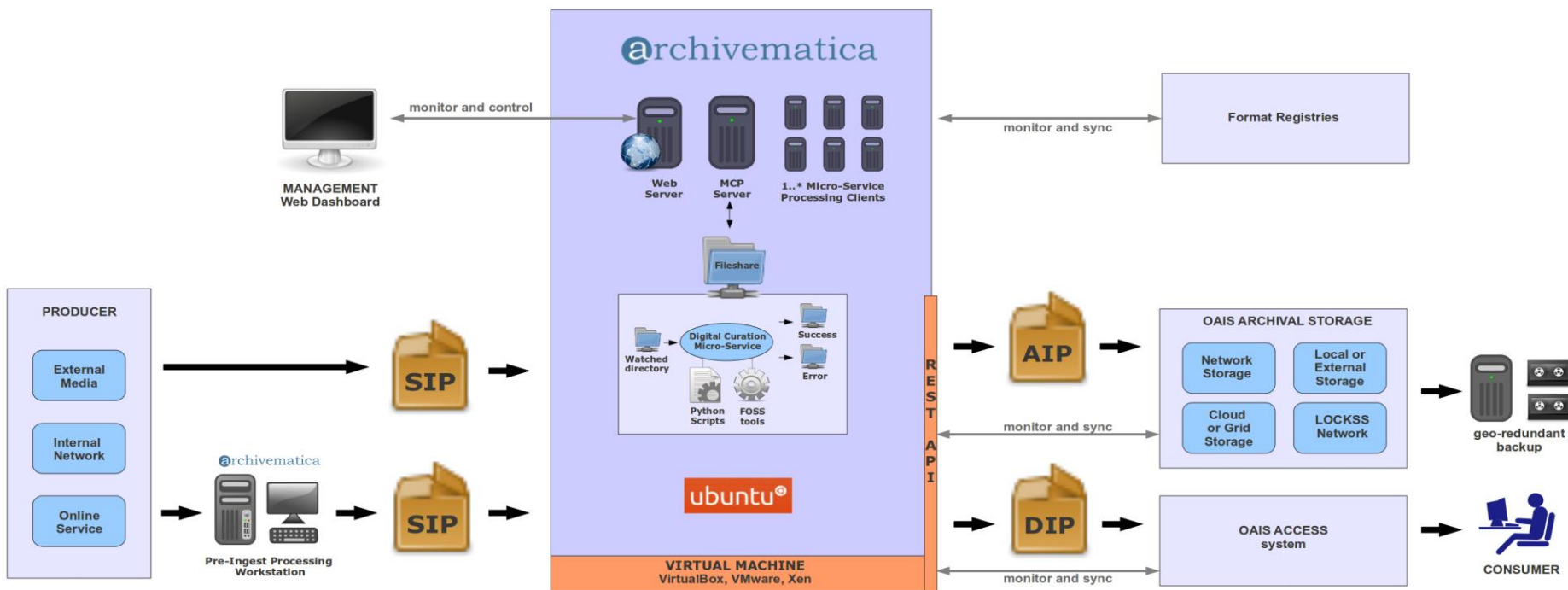
Arkivverket

09.10 2017

Teknologier jeg vil presentere her

- Archivematica: OAIIS «Front-end» til depotløsninger, hvor tester/valideringer gjennomføres før SIP/AIP/DIP (OAIIS informasjonspakker) genereres
- AtoM (Access to Memory): For tilgjengeliggjøring/visning/presentasjon av digital informasjon, via (fritekst-)søk og arkivbeskrivelser, samt arbeidsverktøy for å produsere arkivbeskrivelser («data management»)

Archivematica...

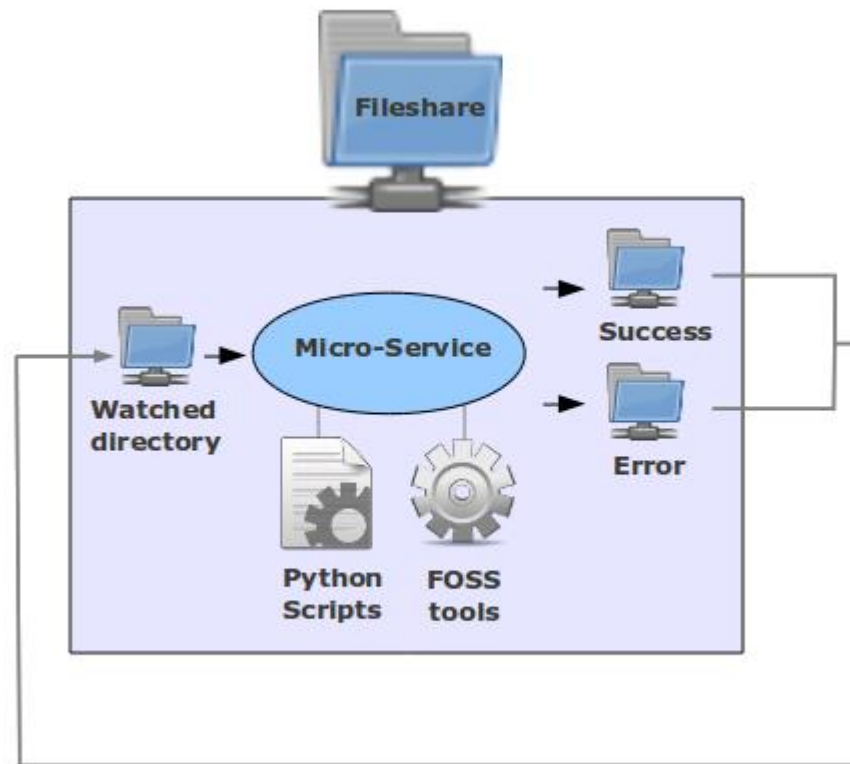


Kilde: <https://www.archivematica.org/wiki/File:Archivematica-0.8-beta-architecture.png>

Archivematica

- Mottar mappestrukturer
- Som sjekkes og bearbeides
- Mest mulig automatisert

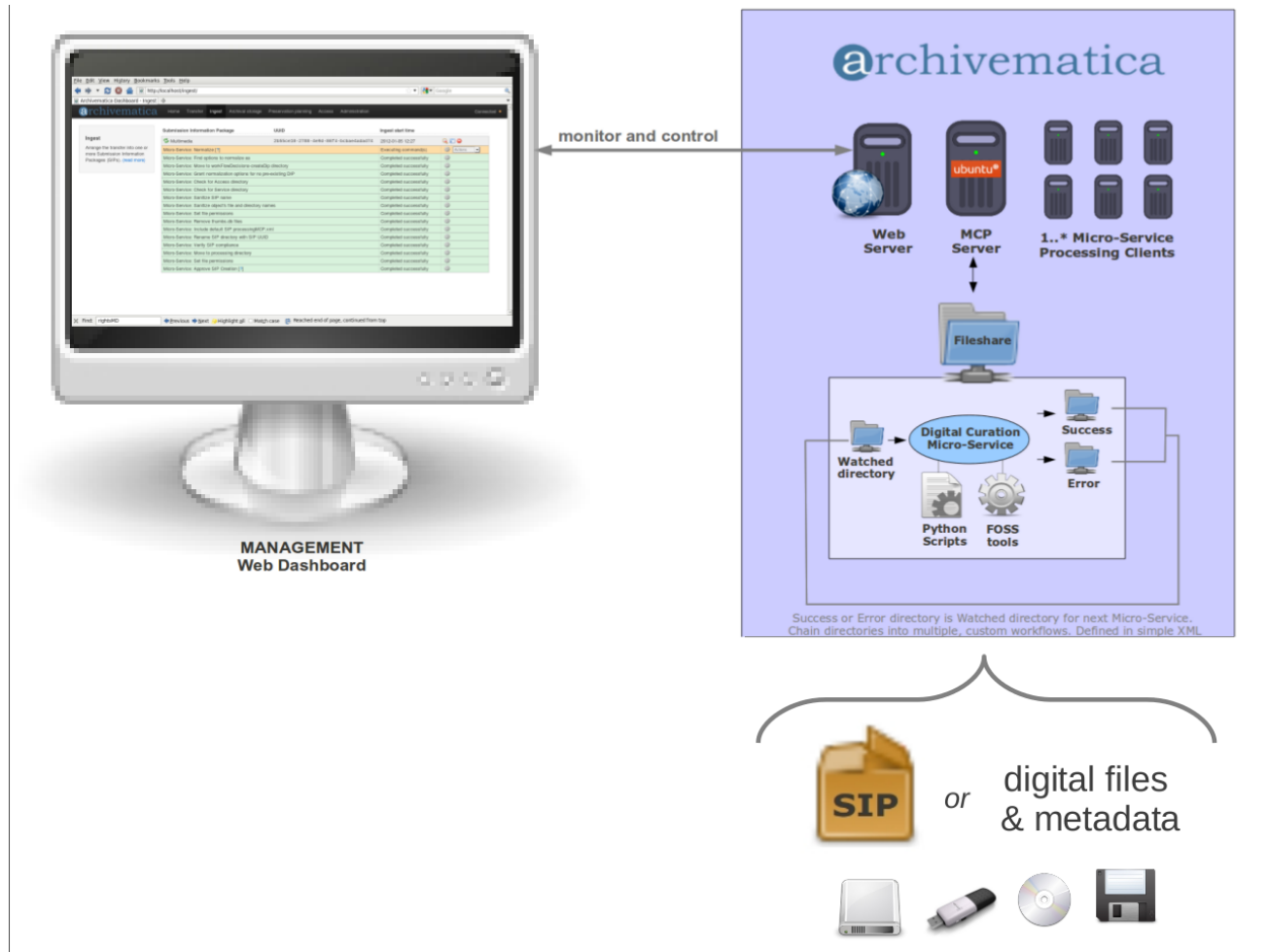
Automatisert arkitektur, benytter seg av såkalte mikrotjenester (MCP)



Kilde: <https://www.archivematica.org/wiki/File:Archivematica-0.8-beta-architecture.png>

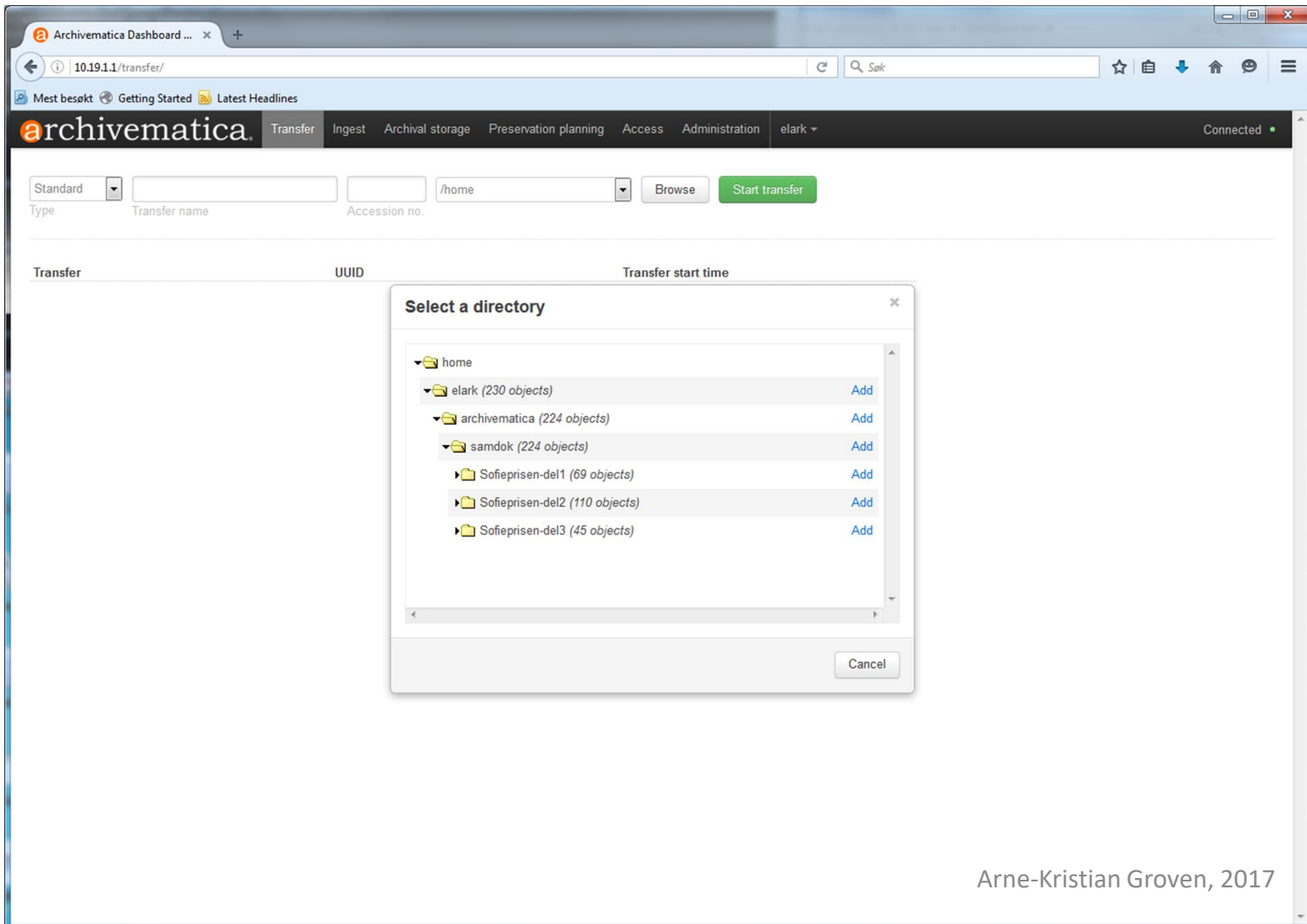
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Web-grensesnitt mot bruker



Kilde: <https://blogs.loc.gov/thesignal/2012/10/archivematica-and-the-open-source-mindset-for-digital-preservation-systems/>

Digitalt innhold som skal bearbeides hentes fra spesifiserte mapper...

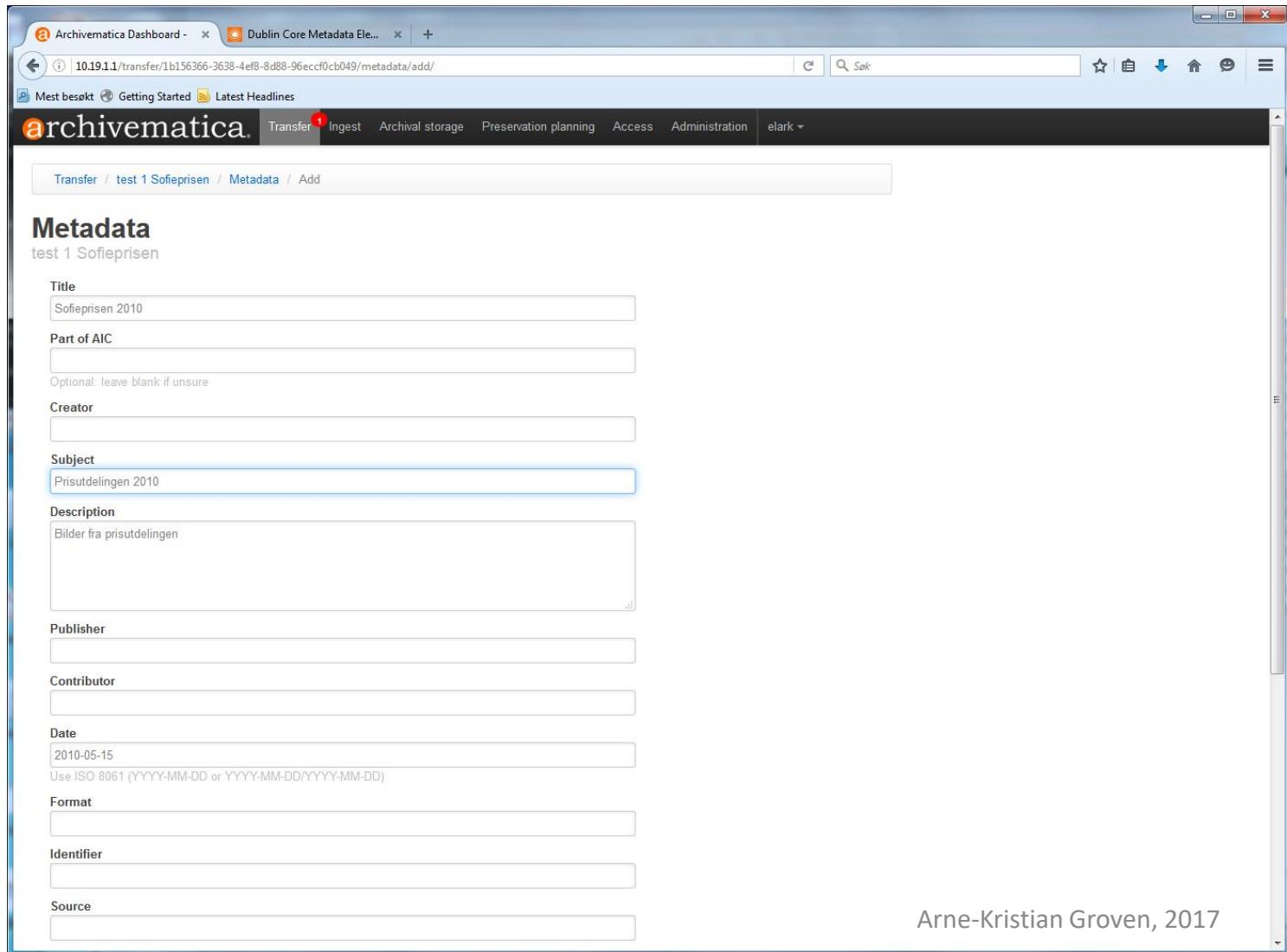


The screenshot shows the Archivematica web interface in a browser window. The address bar displays '10.19.1.1/transfer/'. The navigation menu includes 'Transfer', 'Ingest', 'Archival storage', 'Preservation planning', 'Access', 'Administration', and 'elark'. The main content area features a form with fields for 'Type' (set to 'Standard'), 'Transfer name', and 'Accession no.', along with a '/home' path field, 'Browse', and 'Start transfer' buttons. A 'Select a directory' dialog box is open, showing a tree view of directories under 'home':

- home
 - elark (230 objects) [Add](#)
 - archivematica (224 objects) [Add](#)
 - samdok (224 objects) [Add](#)
 - Sofieprisen-del1 (69 objects) [Add](#)
 - Sofieprisen-del2 (110 objects) [Add](#)
 - Sofieprisen-del3 (45 objects) [Add](#)

The dialog box also includes a 'Cancel' button at the bottom right.

Dublin Core (DC) metadata (kan) fylles ut



The screenshot shows the Archivematica web interface. The browser address bar displays the URL: `10.19.1.1/transfer/1b156366-3638-4ef8-8d88-96eccf0cb049/metadata/add/`. The page title is "Dublin Core Metadata Ele...". The breadcrumb trail is "Transfer / test 1 Sofieprisen / Metadata / Add".

Metadata

test 1 Sofieprisen

Title

Part of AIC

Optional: leave blank if unsure

Creator

Subject

Description

Publisher

Contributor

Date

Use ISO 8061 (YYYY-MM-DD or YYYY-MM-DD/YYYY-MM-DD)

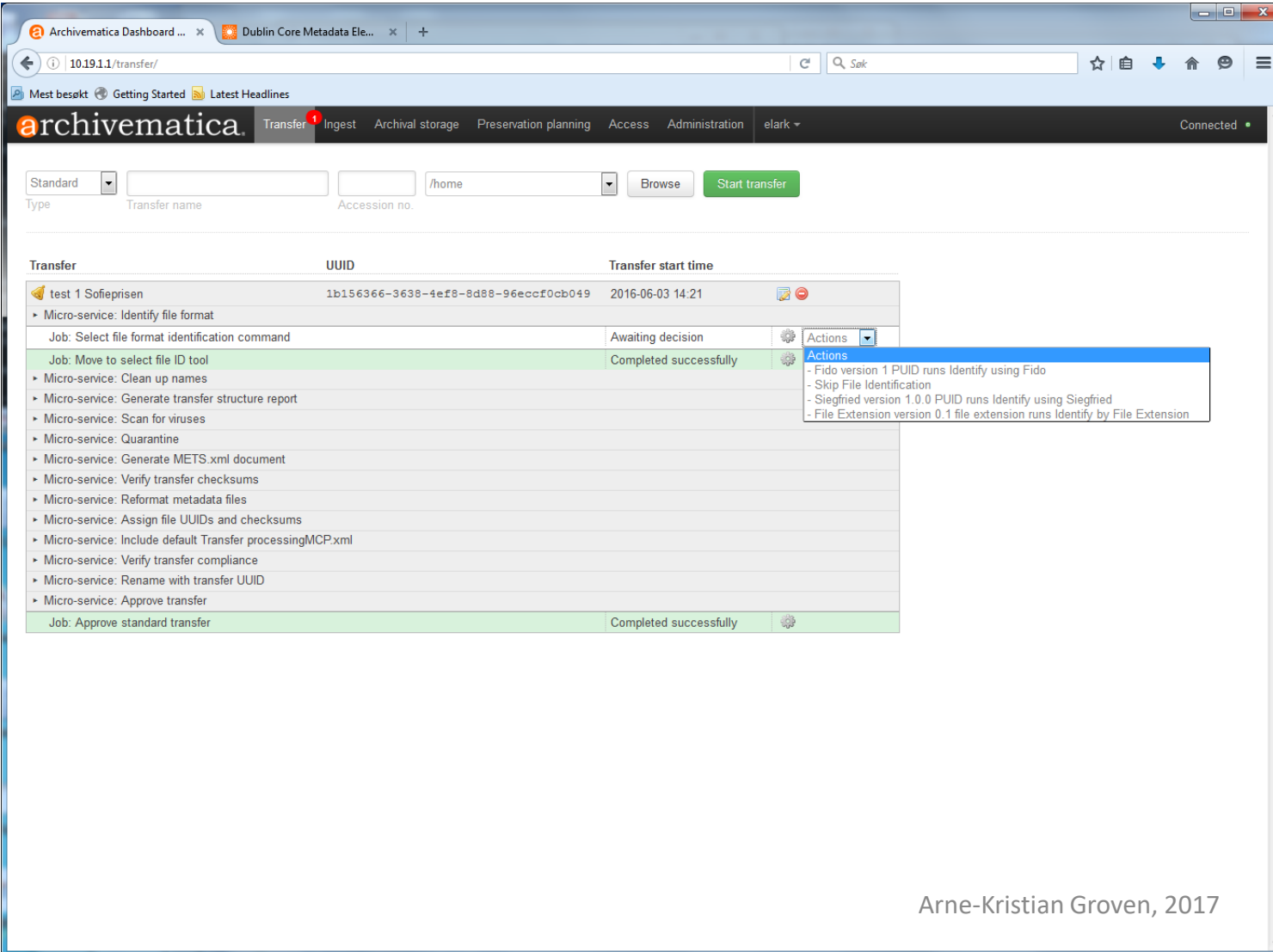
Format

Identifier

Source

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Automatiserte prosesser med beslutningspunkter som krever brukerinteraksjon



The screenshot shows the Archivematica web interface. The browser address bar displays `10.19.1.1/transfer/`. The navigation menu includes **Transfer** (with a red notification badge), **Ingest**, **Archival storage**, **Preservation planning**, **Access**, **Administration**, and **elark**. The user is logged in as **Connected**.

Form fields include a dropdown for **Type** (set to **Standard**), **Transfer name**, **Accession no.** (set to **/home**), a **Browse** button, and a green **Start transfer** button.

| Transfer | UUID | Transfer start time | Status | Actions |
|---|--------------------------------------|------------------------|-------------------|---------|
| test 1 Sofieprisen | 1b156366-3638-4ef8-8d88-96eccf0cb049 | 2016-06-03 14:21 | Awaiting decision | Actions |
| Micro-service: Identify file format | | | | |
| Job: Select file format identification command | | Awaiting decision | | |
| Job: Move to select file ID tool | | Completed successfully | | |
| Micro-service: Clean up names | | | | |
| Micro-service: Generate transfer structure report | | | | |
| Micro-service: Scan for viruses | | | | |
| Micro-service: Quarantine | | | | |
| Micro-service: Generate METS.xml document | | | | |
| Micro-service: Verify transfer checksums | | | | |
| Micro-service: Reformat metadata files | | | | |
| Micro-service: Assign file UUIDs and checksums | | | | |
| Micro-service: Include default Transfer processingMCP.xml | | | | |
| Micro-service: Verify transfer compliance | | | | |
| Micro-service: Rename with transfer UUID | | | | |
| Micro-service: Approve transfer | | | | |
| Job: Approve standard transfer | | Completed successfully | | |

The **Actions** dropdown menu is open, showing the following options:

- Fido version 1 PUID runs Identify using Fido
- Skip File Identification
- Siegfried version 1.0.0 PUID runs Identify using Siegfried
- File Extension version 0.1 file extension runs Identify by File Extension

SIP-er, OAIS mottakspakker, genereres først..

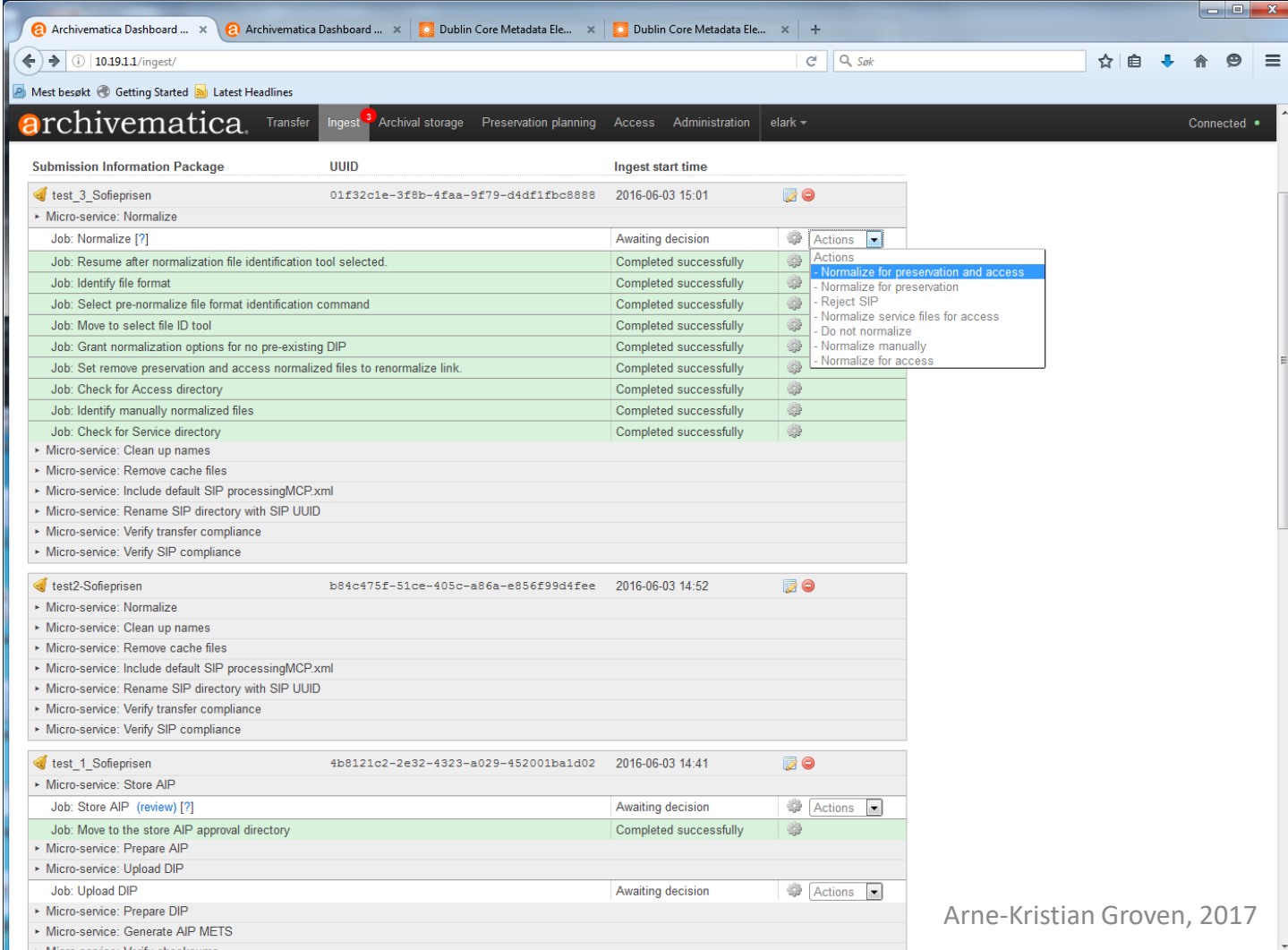
The screenshot shows the Archivematica web interface in a browser window. The address bar shows the URL `10.19.1.1/transfer/`. The navigation menu includes 'Transfer', 'Ingest', 'Archival storage', 'Preservation planning', 'Access', and 'Administration'. The user is logged in as 'elark' and is connected.

At the top, there is a form for starting a transfer with fields for 'Type' (set to 'Standard'), 'Transfer name', 'Accession no.', and a directory path (set to '/home'). There are 'Browse' and 'Start transfer' buttons.

The main content area displays a table of transfer jobs. The first job, 'test 1 Sofieprisen', is expanded to show a detailed list of micro-services and jobs, all of which are completed successfully.

| Transfer | UUID | Transfer start time |
|---|--------------------------------------|------------------------|
| test 1 Sofieprisen | 1b156366-3638-4ef8-8d88-96eccf0cb049 | 2016-06-03 14:21 |
| Micro-service: Create SIP from Transfer | | |
| Job: Check transfer directory for objects | | Completed successfully |
| Job: Move to SIP creation directory for completed transfers | | Completed successfully |
| Job: Create SIP from transfer objects | | Completed successfully |
| Job: Serialize Dublin Core metadata to disk | | Completed successfully |
| Job: Move to processing directory | | Completed successfully |
| Job: Create SIP(s) [?] | | Completed successfully |
| Job: Load options to create SIPs | | Completed successfully |
| Job: Check transfer directory for objects | | Completed successfully |
| Micro-service: Complete transfer | | |
| Micro-service: Examine contents | | |
| Micro-service: Validation | | |
| Micro-service: Characterize and extract metadata | | |
| Micro-service: Update METS.xml document | | |
| Micro-service: Extract packages | | |
| Micro-service: Identify file format | | |
| Job: Identify file format | | Completed successfully |
| Job: Determine which files to identify | | Completed successfully |
| Job: Select file format identification command | | Completed successfully |
| Job: Move to select file ID tool | | Completed successfully |
| Micro-service: Clean up names | | |
| Micro-service: Generate transfer structure report | | |
| Micro-service: Scan for viruses | | |
| Micro-service: Quarantine | | |
| Micro-service: Generate METS.xml document | | |
| Micro-service: Verify transfer checksums | | |
| Micro-service: Reformat metadata files | | |
| Micro-service: Assign file UUIDs and checksums | | |
| Micro-service: Include default Transfer processingMCP.xml | | |
| Micro-service: Verify transfer compliance | | |
| Micro-service: Rename with transfer UUID | | |
| Micro-service: Approve transfer | | |

Automatisert, regelstyrt konvertering til lagrings-/visningsformater (AIP-er/DIP-er)



The screenshot displays the Archivematica web interface. The browser address bar shows the URL `10.19.1.1/ingest/`. The page header includes the Archivematica logo and navigation tabs for Transfer, Ingest, Archival storage, Preservation planning, Access, Administration, and elark. The main content area is a table of submission information packages, each with a list of jobs and their status.

| Submission Information Package | UUID | Ingest start time | |
|---|--------------------------------------|------------------------|---|
| test_3_Sofieprisen | 01f32c1e-3f8b-4faa-9f79-d4df1fbc8888 | 2016-06-03 15:01 | |
| Micro-service: Normalize | | | |
| Job: Normalize [?] | | Awaiting decision | Actions |
| Job: Resume after normalization file identification tool selected. | | Completed successfully | Actions |
| Job: Identify file format | | Completed successfully | - Normalize for preservation and access |
| Job: Select pre-normalize file format identification command | | Completed successfully | - Normalize for preservation |
| Job: Move to select file ID tool | | Completed successfully | - Reject SIP |
| Job: Grant normalization options for no pre-existing DIP | | Completed successfully | - Normalize service files for access |
| Job: Set remove preservation and access normalized files to renormalize link. | | Completed successfully | - Do not normalize |
| Job: Check for Access directory | | Completed successfully | - Normalize manually |
| Job: Identify manually normalized files | | Completed successfully | - Normalize for access |
| Job: Check for Service directory | | Completed successfully | |
| Micro-service: Clean up names | | | |
| Micro-service: Remove cache files | | | |
| Micro-service: Include default SIP processingMCP.xml | | | |
| Micro-service: Rename SIP directory with SIP UUID | | | |
| Micro-service: Verify transfer compliance | | | |
| Micro-service: Verify SIP compliance | | | |
| test2-Sofieprisen | b84c475f-51ce-405c-a86a-e856f99d4fee | 2016-06-03 14:52 | |
| Micro-service: Normalize | | | |
| Micro-service: Clean up names | | | |
| Micro-service: Remove cache files | | | |
| Micro-service: Include default SIP processingMCP.xml | | | |
| Micro-service: Rename SIP directory with SIP UUID | | | |
| Micro-service: Verify transfer compliance | | | |
| Micro-service: Verify SIP compliance | | | |
| test_1_Sofieprisen | 4b8121c2-2e32-4323-a029-452001ba1d02 | 2016-06-03 14:41 | |
| Micro-service: Store AIP | | | |
| Job: Store AIP (review) [?] | | Awaiting decision | Actions |
| Job: Move to the store AIP approval directory | | Completed successfully | |
| Micro-service: Prepare AIP | | | |
| Micro-service: Upload DIP | | | |
| Job: Upload DIP | | Awaiting decision | Actions |
| Micro-service: Prepare DIP | | | |
| Micro-service: Generate AIP METS | | | |
| Micro-service: Verify checksums | | | |

Arne-Kristian Groven, 2017

Gjennomgang resultatene eller ordning før endelig godkjenning

Archivematica Dashboard ... x Archivematica Dashboard ... x Dublin Core Metadata Ele... x Dublin Core Metadata Ele... x +

10.19.1.1/ingest/preview/normalization/6dd503c7-28cc-41c4-96fd-e87b3a8c8bdf/

Mest besøkt Getting Started Latest Headlines

archivematica Transfer **Ingest** Archival storage Preservation planning Access Administration elark v

Review normalization

Ingest / test_1_Sofieprisen

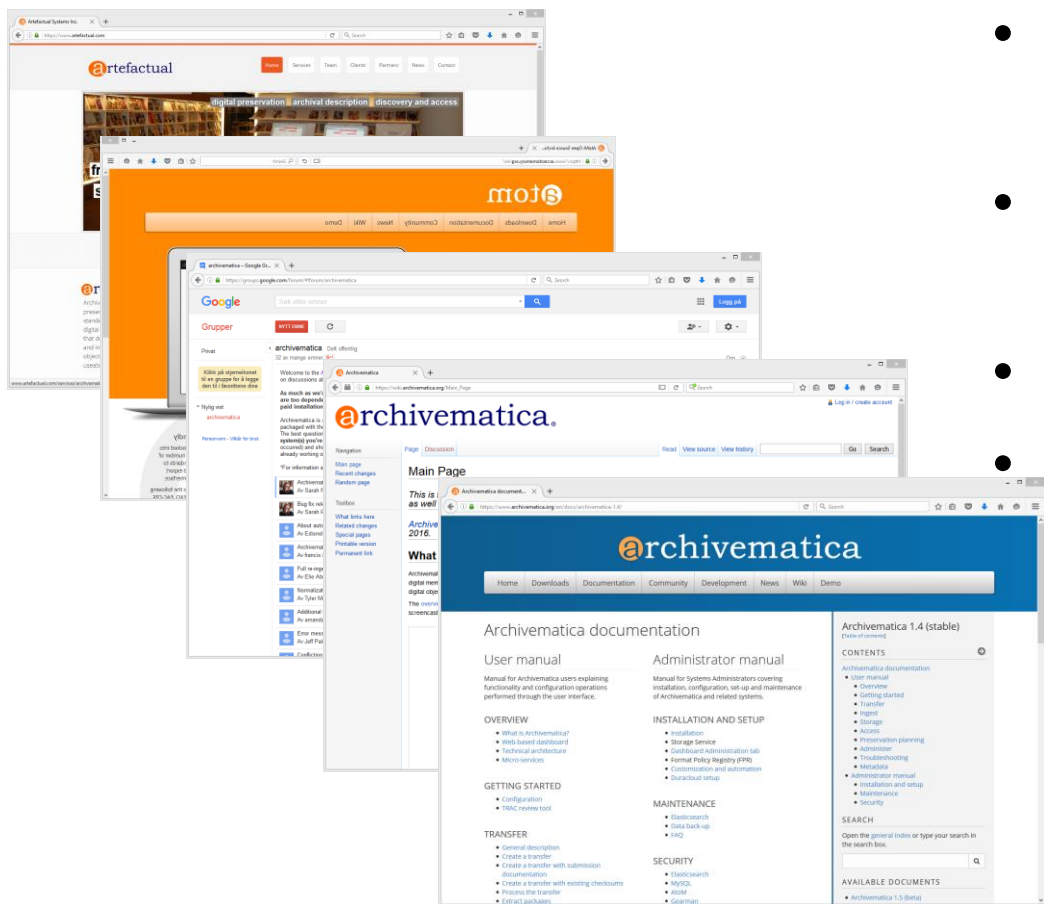
- approveNormalization
 - test_1_Sofieprisen-4b8121c2-2e32-4323-a029-452001ba1d02
 - DIP
 - logs
 - fileFormatIdentification.log
 - fileMeta
 - metadata
 - dc.json
 - submissionDocumentation
 - objects
 - 2010
 - Bilder
 - DSC_0005-3823069f-0fc1-4c53-b041-e55ed6876ecd.tif
 - DSC_0005.jpg
 - DSC_0022-46080114-5071-4f67-b7f5-dbbfcf3e3e8d.tif
 - DSC_0022.jpg
 - DSC_0032-2a347cd3-18dd-4cc7-b2f0-b0fbc5861c14.tif

Erfaringer knyttet til bruk av Archivematica

- Verktøyet har relativt lav brukerterskel
- Men ettersom så mye skjer automatisert så bør/må brukeren sette seg inn i hva som skjer, for å kunne utnytte verktøyet optimalt
- I tillegg bør brukeren ha forkunnskap om DC, OAIS, METS og PREMIS
- Verktøyet er veldokumentert, med mange (internasjonale) arkiv-, bibliotek- og museumsorganisasjoner som brukere

Mye dokumentasjon finnes

- <https://www.artefactual.com/>
- <https://www.accesstomemory.org>
- <https://groups.google.com/forum/#!forum/archivemata>
- <https://wiki.archivemata.org>
- <https://www.archivemata.org>



Generelt om tillit til programvare

- Negativ risiko forbundet med (innkjøp og bruk av) programvare, fri eller lukket, er stor dersom:
 - Få har kompetanse til å modifisere programvaren
 - Få bruker programvaren
- Dessuten, innenfor langtidsbevaring (og tilgjengeliggjøring), dersom dataene må gjennom mange (format-) transformasjoner:
 - Så vil lukkede løsninger forhindre kvalitetssikring, og øke (negativ) risiko
 - Fri og åpne løsninger vil redusere denne risikoen og øke etterprøvbarehet
- Dette er hovedgrunnen til at mange velger fri programvare/åpen kildekode for digital langtidsbevaring (og aksess)

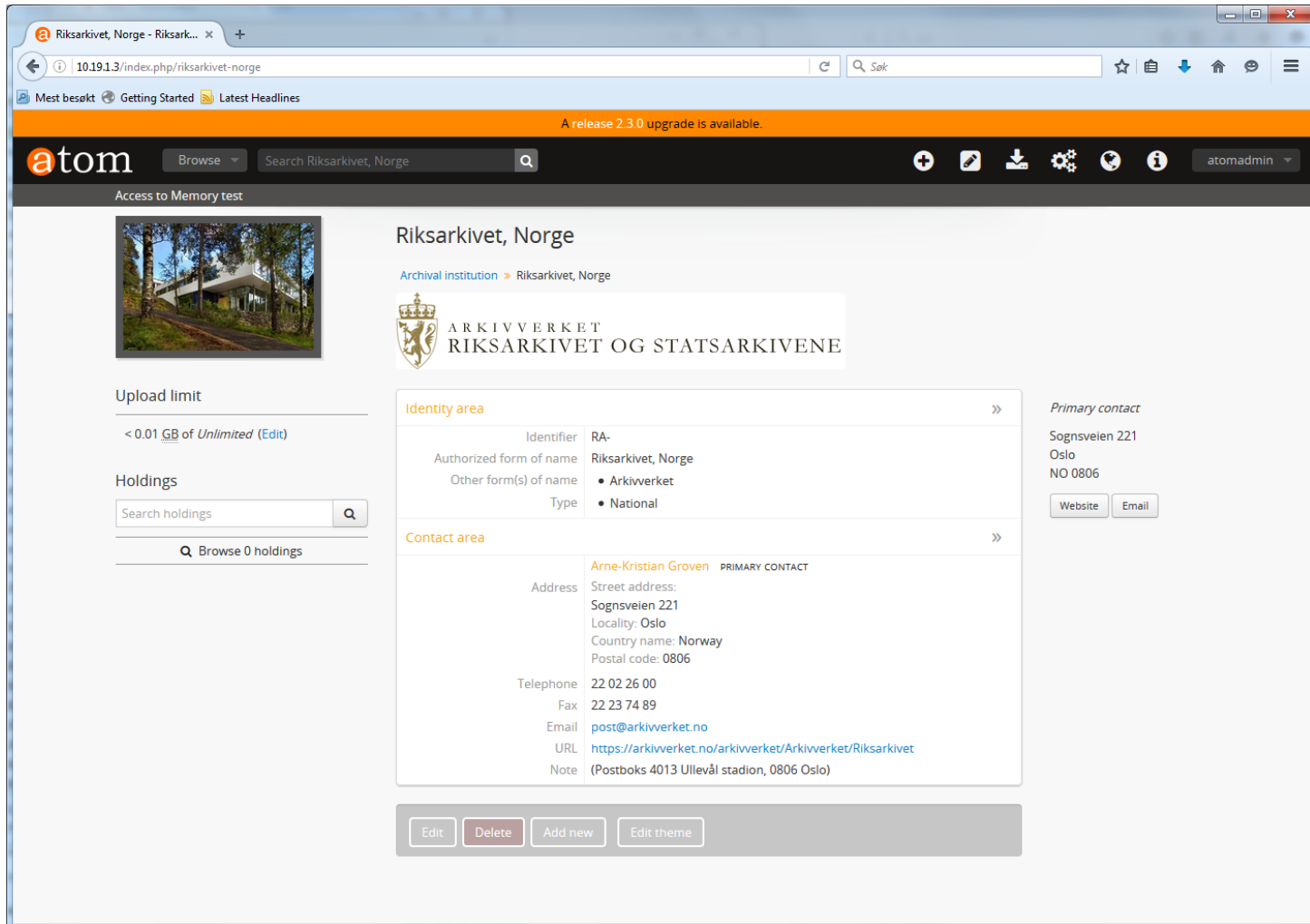
Archivematica oppsummert

- Innstallasjon
 - Archivematica har en fleksibilitet som muliggjør mange ulike konfigurasjoner og oppsett langs verdikjeden fra arkivskaper til depot
 - Men dette krever (relativt) høy teknisk kompetanse for å kunne utnytte mulighetene (en engangsjobb)
- Bruk
 - Archivematica effektiviserer bearbeiding av digitalt arkivmateriale, slik at en kan regne minutter og timer, framfor dager og uker
- Og tilliten til prosessene ligger dokumentert i systemet på standardiserte formater
- <https://www.archivematica.org/en/>

Access to Memory.. eller bare AtoM

- Også en moderne, kompleks web-applikasjon
- Gode søkemuligheter (Elasticsearch)
- Visning av digital informasjon
 - tekst, lyd, bilde, film m.m.
- Følger internasjonale standarder for arkivbeskrivelser:
 - ISDIAH, ISAD(G), ISAAR-CPF, ISF, men muliggjør utvidelse av egne standarder
- For arkivpersonale, arbeidsbenk for arkivbeskrivelser/visning
- For (eksterne og interne) brukere, mange ulike innganger til materialet (søk og arkivbeskrivelser)
- Høy grad av sikkerhet og god aksesskontroll basert på definerte roller
- Informasjonsutveksling på internasjonale utvekslingsformater

AtoM muliggjør standardisert beskrivelse av arkivinstitusjon (ISDIAH)



The screenshot displays the AtoM interface for Riksarkivet, Norge. The browser address bar shows the URL `10.19.1.3/index.php/riksarkivet-norge`. The interface includes a search bar, a navigation menu, and a main content area. The main content area features a photo of the building, an upload limit section, and a holdings search section. The central focus is a detailed metadata form for the institution, which includes an identity area and a contact area.

Riksarkivet, Norge
Archival institution > Riksarkivet, Norge

**ARKIVVERKET
RIKSARKIVET OG STATSARKIVENE**

Identity area

| | |
|-------------------------|--|
| Identifier | RA- |
| Authorized form of name | Riksarkivet, Norge |
| Other form(s) of name | <ul style="list-style-type: none">Arkiverket |
| Type | <ul style="list-style-type: none">National |

Contact area

| | |
|-----------|--|
| Address | Arne-Kristian Groven PRIMARY CONTACT Street address: Sognsveien 221 Locality: Oslo Country name: Norway Postal code: 0806 |
| Telephone | 22 02 26 00 |
| Fax | 22 23 74 89 |
| Email | post@arkivverket.no |
| URL | https://arkivverket.no/arkivverket/Arkivverket/Riksarkivet |
| Note | (Postboks 4013 Ullevål stadion, 0806 Oslo) |


Primary contact
Sognsveien 221
Oslo
NO 0806
[Website](#) [Email](#)


[Edit](#) [Delete](#) [Add new](#) [Edit theme](#)

AtoM muliggjør standardisert beskrivelse av arkivskaper (ISAAR(CPF))

Union Co

[Authority record](#) » Union Co

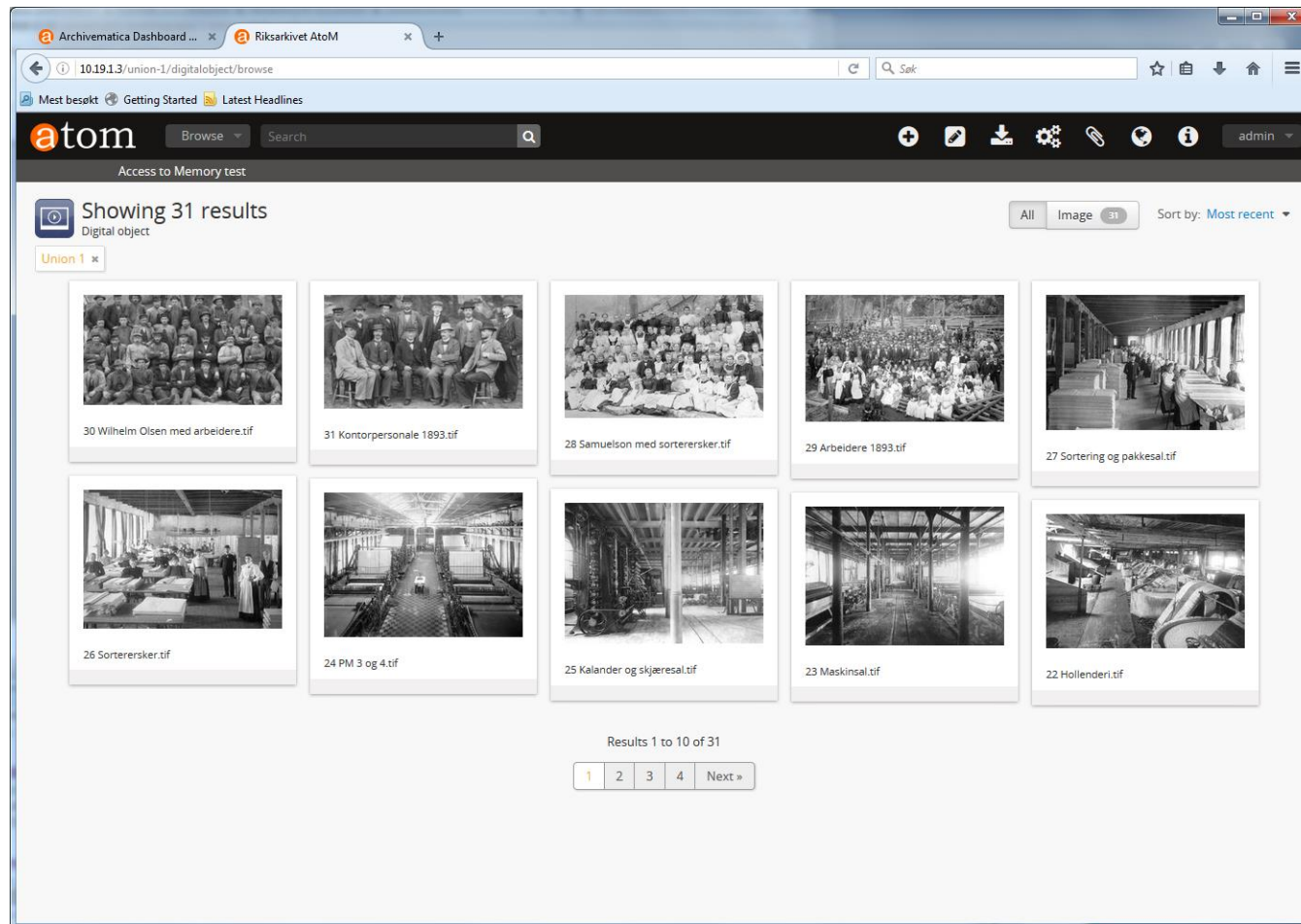
[Export](#)
 [EAC](#)

| Identity area | |
|-----------------------------|--|
| Type of entity | Corporate body |
| Authorized form of name | Union Co |
| Parallel form(s) of name | <ul style="list-style-type: none">Norske Skog Union |
| Description area | |
| Dates of existence | 1803-2006 |
| History | "I 1873 kjøpte Benjamin Sewell og Halvor Emil Heyerdahl Skiens Træsliberi, og stiftet selskapet Union Co. De hadde planer om en samlet tremasse- og papirfabrikk på Smedøya i Skien, under navnet Union Bruk. For å realisere Union Bruk fikk de med seg en ...  |
| Control area | |
| Authority record identifier | RA/PA-1422 |

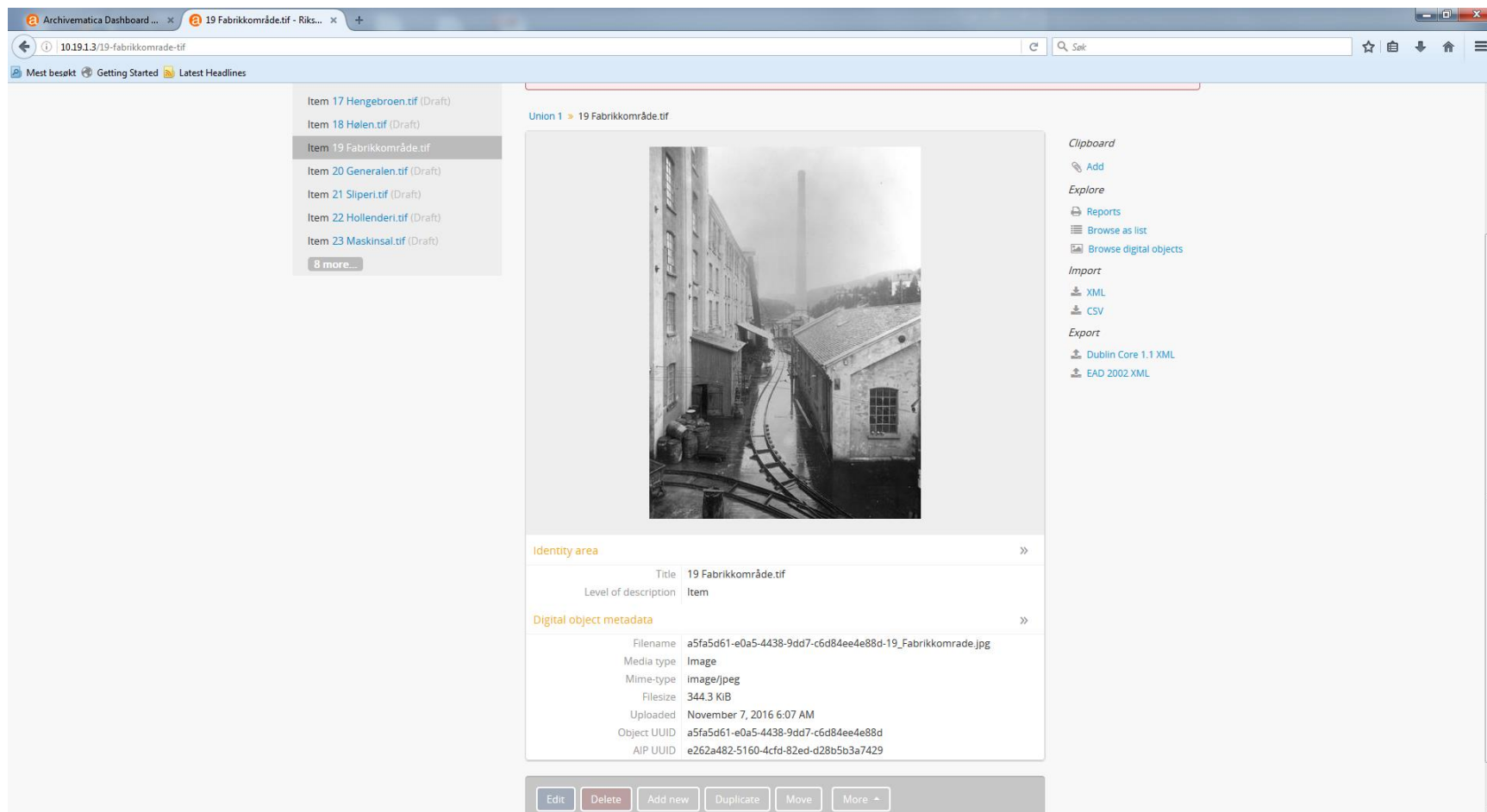
AtoM: Oversikt over bildesamlinger (Generelt: Filer på vilkårlige formater)

The screenshot displays the AtoM web interface in a browser window. The address bar shows the URL `10.19.1.3/union-1`. The interface includes a navigation menu with 'Holdings' and 'Quick search' options. A sidebar on the left lists items under 'Union 1', including 'Item 01 Hollfoss - Midtfoss - Skotfoss 1...', 'Item 02 Drewsen Sliperi 1889.tif (Draft)', 'Item 03 Besiktigelse i 1890.tif (Draft)', 'Item 04 De var med fra starten.tif (Draft)', and 'Item 05 Fossene.tif (Draft)', with a '26 more...' link. The main content area is titled 'Union 1 (Draft)' and contains a pink box with instructions: 'This archival description, or one of its higher levels, requires at least one creator.' followed by mandatory elements: 'Date(s)', 'Extent and medium', 'Identifier', and 'Level of description'. Below this is a preview of a slide show for '01 Hollfoss - Midtfoss - Skotfoss 1889.tif', showing a landscape with a river and buildings. The interface also features a right-hand sidebar with 'Clipboard' (Add), 'Explore' (Reports, Browse as list, Browse digital objects), 'Import' (XML, CSV), and 'Export' (Dublin Core 1.1 XML, EAD 2002 XML) options. At the bottom, there is an 'Identity area' with the title 'Union 1' and a set of action buttons: 'Edit', 'Delete', 'Add new', 'Duplicate', 'Move', and 'More'.

AtoM: Eksempel på visning av (deler av) bildesamlinger



AtoM visning: Eksempel på visning av bilde med arkivbeskrivelse (ISAD(G))



The screenshot displays the Archivematica AtoM interface. The browser address bar shows the URL `10.19.1.3/19-fabrikkomrade.tif`. The left sidebar lists several draft items, with 'Item 19 Fabrikkområde.tif' selected. The main content area shows a photograph of a narrow street in a factory complex, with a tall chimney in the background. Below the image is the 'Identity area' and 'Digital object metadata' section.

Identity area

| | |
|----------------------|----------------------|
| Title | 19 Fabrikkområde.tif |
| Level of description | Item |

Digital object metadata

| | |
|-------------|---|
| Filename | a5fa5d61-e0a5-4438-9dd7-c6d84ee4e88d-19_Fabrikkomrade.jpg |
| Media type | Image |
| Mime-type | image/jpeg |
| Filesize | 344.3 KiB |
| Uploaded | November 7, 2016 6:07 AM |
| Object UUID | a5fa5d61-e0a5-4438-9dd7-c6d84ee4e88d |
| AIP UUID | e262a482-5160-4cfd-82ed-d28b5b3a7429 |

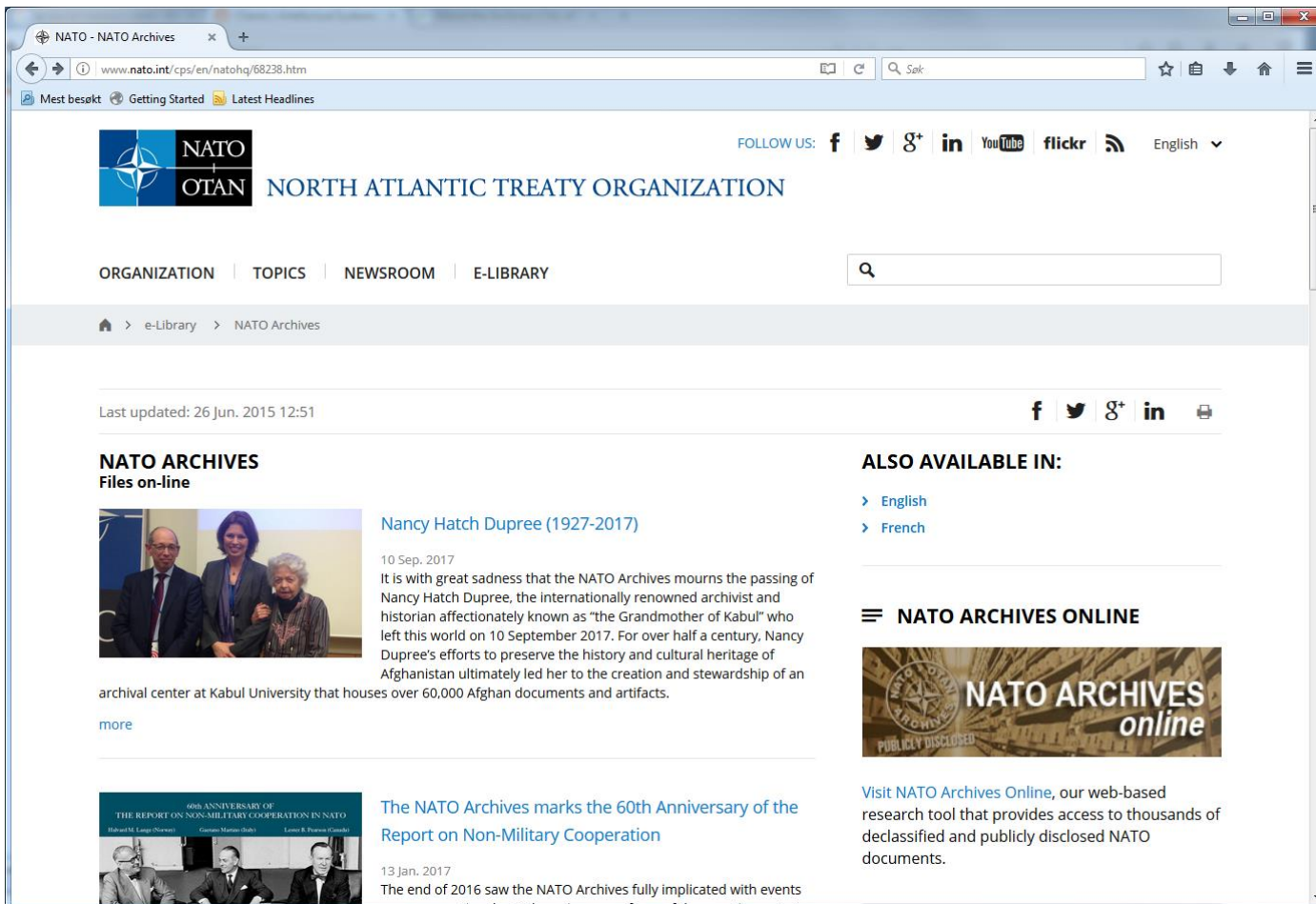
At the bottom of the interface, there are buttons for 'Edit', 'Delete', 'Add new', 'Duplicate', 'Move', and 'More'.

AtoM visning: Visning av bilder med høy oppløsning



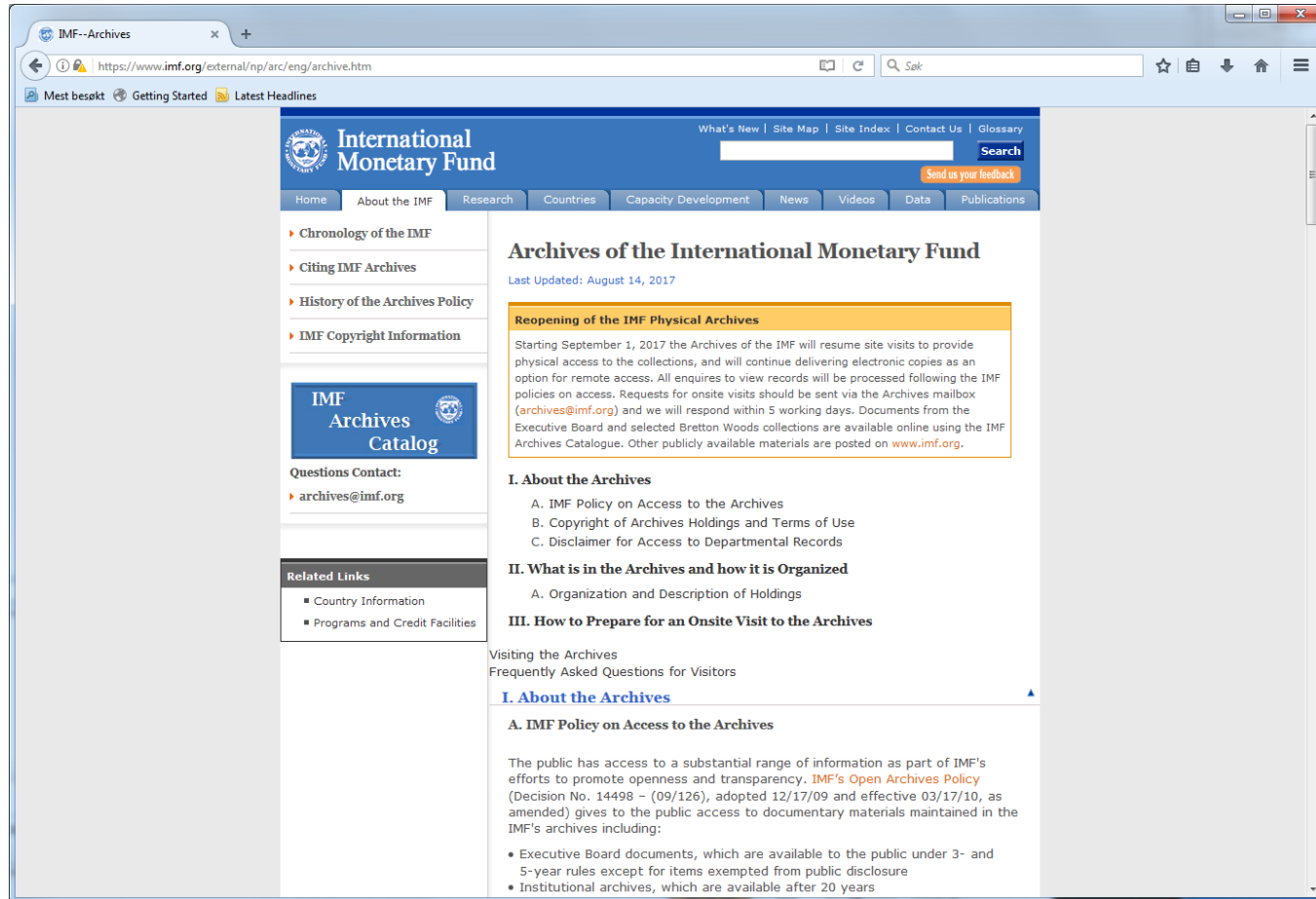
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Eksempler på internasjonale arkiver som bruker denne programvaren...

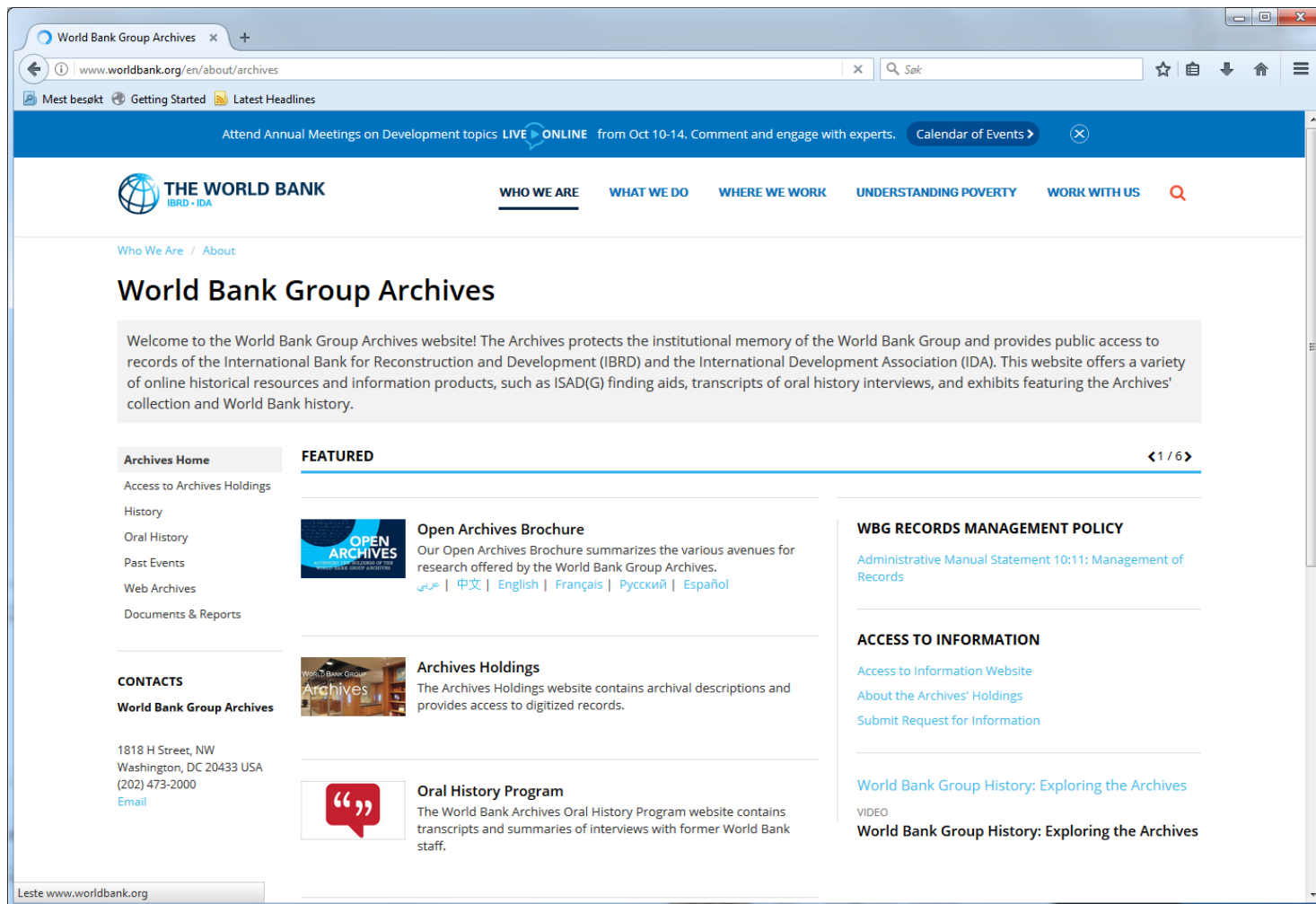


The screenshot shows the NATO Archives website in a browser window. The URL is www.nato.int/cps/en/natohq/68238.htm. The page features the NATO logo and the text "NORTH ATLANTIC TREATY ORGANIZATION". Navigation links include "ORGANIZATION", "TOPICS", "NEWSROOM", and "E-LIBRARY". A search bar is present. The main content area displays a news article titled "NATO ARCHIVES Files on-line" with a sub-heading "Nancy Hatch Dupree (1927-2017)". The article text reads: "10 Sep. 2017 It is with great sadness that the NATO Archives mourns the passing of Nancy Hatch Dupree, the internationally renowned archivist and historian affectionately known as 'the Grandmother of Kabul' who left this world on 10 September 2017. For over half a century, Nancy Dupree's efforts to preserve the history and cultural heritage of Afghanistan ultimately led her to the creation and stewardship of an archival center at Kabul University that houses over 60,000 Afghan documents and artifacts." Below the article is a "more" link. To the right, under "ALSO AVAILABLE IN:", there are links for "English" and "French". Further down, a section titled "NATO ARCHIVES ONLINE" features a graphic with the text "NATO ARCHIVES online" and "PUBLICLY DISCLOSED". Below this is a link to "Visit NATO Archives Online, our web-based research tool that provides access to thousands of declassified and publicly disclosed NATO documents." At the bottom, another article is visible, titled "The NATO Archives marks the 60th Anniversary of the Report on Non-Military Cooperation", dated "13 Jan. 2017".

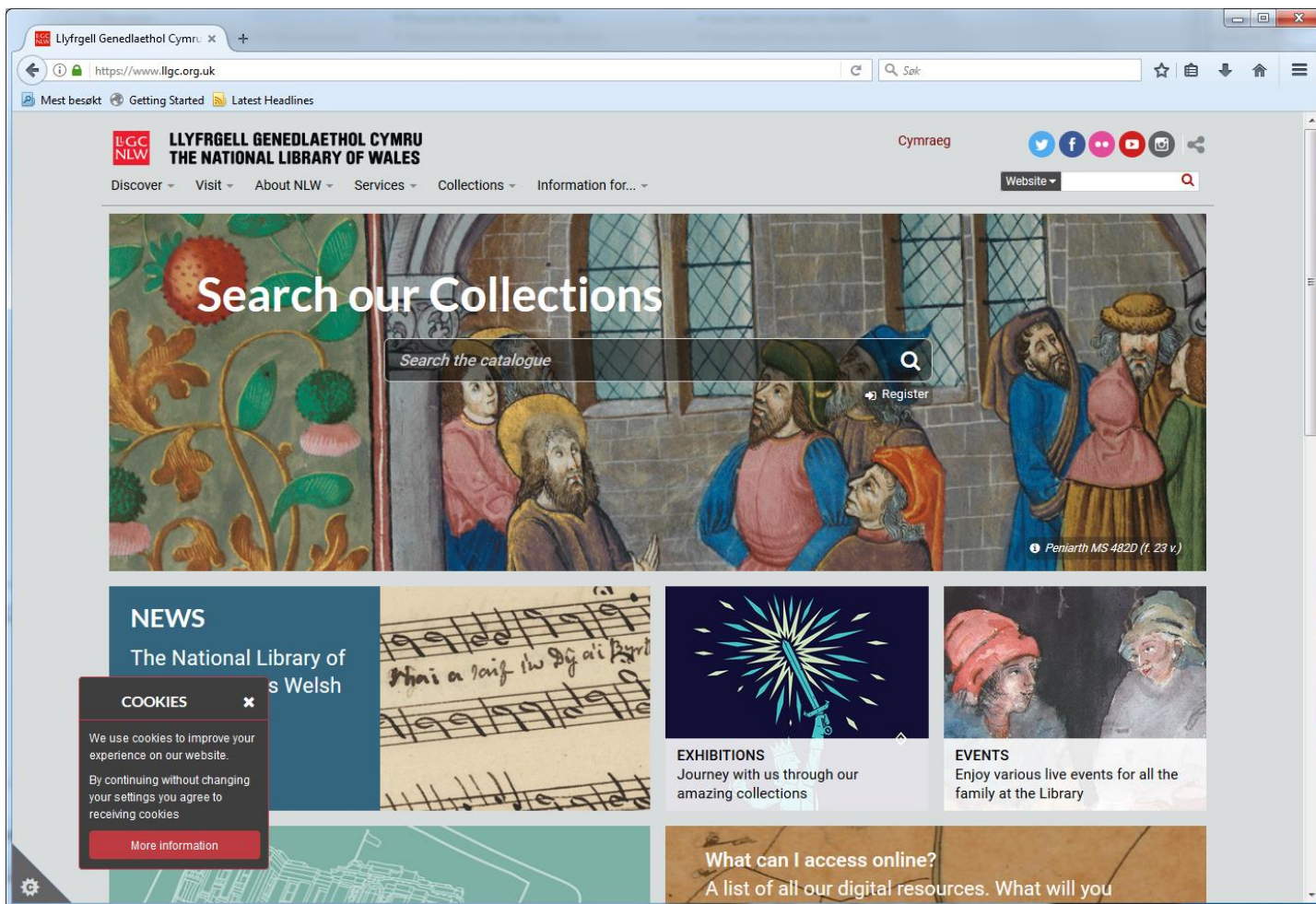
Eksempler på internasjonale arkiver som bruker denne programvaren...



Eksempler på internasjonale arkiver som bruker denne programvaren...



Eksempler på internasjonale arkiver som bruker denne programvaren...



AtoM oppsummert

- Innstallasjon
 - AtoM har en fleksibilitet som muliggjør mange ulike konfigurasjoner og lokale tilpasninger
- Bruk
 - AtoM forenkler arkivmedarbeideres arbeid, gjennom arkivbeskrivelser og digitale objekter i samme brukerflate og bruk av internasjonale standarder
 - Muliggjør effektiv gjenfinning av arkivmateriale, gjennom arkivbeskrivelser, struktur eller fritekst-søk
 - Visning til både interne og eksterne brukergrupper muliggjøres, med avspilling og aksess av ulike formater med ulik oppløsning
- <https://www.accesstomemory.org/en/>