

The E-ARK project: An EU-funded archival cooperation ... Just finished

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Senior Advisor, The National Archives of Norway, NorDig, Stockholm, 25.-26.10 2017

Arne-Kristian Groven, 2017

This presentation aims at

- Giving a brief introduction to the E-ARK project
- Presenting our pilot, performed at the National Archives of Norway, both goals and results
- Showing the (main) tools used in the pilot from an end-user perspective, using a few screenshots.
- Discussing, briefly, both project and pilot







@EARKProject on Twitter



EARKProject Project Management is not Micromanagement Silly

https://t.co/JNfbzUA7Xk

Oct 09 · reply · retweet



EARKProject The latest edition of the E-ARK Project Monthly News is out!

Welcome to the E-ARK Project

(European Archival Records and Knowledge Preservation)

E-ARK is a multinational big data research project that aims to improve the methods and technologies of digital archiving, in order to achieve consistency on a Europe-wide scale.

Tackling a range of problems associated with independent recordkeeping technologies, systems and practices, E-ARK aims to impact the development of internationally accessible archives through: the

Latest News

E-ARK Rated "Excellent" by the EC - "A European Showcase Project" 03-04-2017

The European Commission's Year 3 Review of the E-ARK Project has rated it as "Excellent" and have...

Partners



University of Brighton (E-ARK Project Co-Ordinator)

AIT Austrian Institute of Technology GmbH

Archives of the Republic of Slovenia - Arhiv Republike Slovenije

The DLM Forum Foundation

Statens Arkiver: The Danish National Archives

The Digital Preservation Coalition

Universität zu Köln: The University of Cologne

Instituto Superior Técnico - Lisbon Technical University

The National Archives of Hungary

Rahvusarhiiv: The National Archives of Estonia

Arkivverket: National Archival Services of Norway

ES Solutions (Sweden)

Magenta (Denmark)

KEEP Solutions LDA (Portugal)

Agência para a Modernização Administrativa IP - Agency for Public Services Reform, IP (Portugal)

Ministerio de Hacienda y Administraciones Pública - The Ministry of Finances and Public Administrations (Spain)

University of Portsmouth

(Plus the Swiss Federal Archives)

The E-ARK Objectives

- In co-operation with commercial systems providers, E-ARK will create and pilot a pan-European methodology for electronic document archiving
- [E-ARK will be] synthesising existing national and international best practices, that will keep records and databases authentic and usable over time.
- E-ARK will demonstrate the potential benefits [for public...] by providing simple, efficient access to the workflows for the three main activities of an archive acquiring, preserving and enabling re-use of information.

Technologies used in our pilot

- The ESSArch software, which is open source software available from:
 - ESSArch Tools Producer, ETP, (v0.93.1)
 http://etp.essarch.org/
 - ESSArch Tools Archive, ETA (v0.93.1)
 http://eta.essarch.org/
 - ESSArch Preservation Platform, EPP, (v2.7.3)
 http://epp.essarch.org/
- The vendor is ES Solutions AB.

Initial pilot goals

- To evaluate ESSArch tools on three real world production data sets, containing a fairly substantial number of digital records
- To specifically look into the ability to get a job done with a satisfactory result
- Also to provide quantitative measurements around time consumption
- Preferably using the E-ARK package definitions

Deviations/challenges

- When these pilot goals were defined at the beginning of the project, the direction of the E-ARK work regarding OAIS package structure implementations was still not known to us.
- We hoped it would imply minor changes compared to OAIS package structure we had defined at the National Archives of Norway a few years earlier.
- But the resulting E-ARK package structure represented more substantial differences than anticipated.

Options available for us

- Either to apply the E-ARK package definitions on (constructed) data sets on test servers, or
- Evaluate the E-ARK tools on the production data set, but with another OAIS package structure
- Or both

How we addressed these challenges

- We ran the three original scenarios on real world data sets, using tools developed in E-ARK, but not on the E-ARK package structure.
- In addition we ran (in December 2016 to January 2017) additional test scenarios on both real and constructed data sets in a test environment, using the E-ARK package structure.
- By doing it this way we could also evaluate the tools ability to handle different OAIS package structures.

Screenshots: ESSArch Tools Producer

- Preparation of the digital material, including submission agreements, specifying profile details etc.
- SIP creation
- SIP submission to ESSArch Tools Archive

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File and folders, the package structures created

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Parch@essarch-test01:/ESSArch/data/etp/prepare/1039ca40-c366-492b-89ef-73f13112f554
dr-xr-xr-x. 13 root root
                            0 Jan 24 12:52 svs
drwxrwxrwt. 8 root root 4096 Jan 25 03:08 tmp
drwxr-xr-x. 13 root root 4096 Nov 3 09:06 usr
drwxr-xr-x. 19 root root 4096 Jan 24 12:51 var
[arch@essarch-test01 /]$ cd ESSArch/data/etp/prepare/
[arch@essarch-test01 prepare]$ 1s -1
total 8
drwxrwxr-x. 6 arch arch 73 Dec 2 21:08 0b4750fa-8911-40d6-9886-19d8247b6a46
drwxrwxr-x. 6 arch arch 73 Dec 2 21:05 1039ca40-c366-492b-89ef-73f13112f554
drwxrwxr-x. 6 arch arch 4096 Jan 24 14:12 14a34150-0806-481f-b0c5-abb308226eba
drwxrwxr-x. 2 arch arch 6 Jan 24 14:38 278015f8-9e40-4529-b95c-89369dd74a91
drwxrwxr-x. 6 arch arch 92 Dec 2 21:12 820a53e4-ab94-49ed-9b2f-6b7764cc1b45
drwxrwxr-x. 6 arch arch 73 Jan 25 19:30 e32cfeb7-0345-4c85-8f15-6b8e4ab78e30
drwxrwxr-x. 2 arch arch 6 Nov 18 10:50 e74d5c13-be38-4b76-a84b-6c0d6e57b9eb
drwxrwxr-x. 6 arch arch 4096 Nov 18 11:04 f378544a-670d-4fd2-a8cf-b1b885ee7506
drwxrwxr-x. 2 arch arch 6 Nov 18 11:29 f72deec1-8f7e-4606-9a56-f2f2a5560121
[arch@essarch-test01 prepare]$ cd 1039ca40-c366-492b-89ef-73f13112f554/
[arch@essarch-test01 1039ca40-c366-492b-89ef-73f13112f554]$ ls -1
total 0
drwxrwxr-x. 2 arch arch 6 Dec 2 21:05 documents
drwxrwxr-x. 4 arch arch 45 Dec 2 21:05 metadata
drwxrwxr-x. 3 arch arch 20 Dec 2 21:05 representations
drwxrwxr-x. 2 arch arch 6 Dec 2 21:05 schemas
[arch@essarch-test01 1039ca40-c366-492b-89ef-73f13112f554]$
```

File and folders,

the package structures created

```
🧬 arch@essarch-test01:/ESSArch/data/etp/prepare/1039ca40-c366-492b-89ef-73f13112f554/representations/... 📼 💷 💻 🔀
[arch@essarch-test01 1039ca40-c366-492b-89ef-73f13112f554]$ ls -1
total 0
drwxrwxr-x. 2 arch arch 6 Dec 2 21:05 documents
drwxrwxr-x. 4 arch arch 45 Dec 2 21:05 metadata
drwxrwxr-x. 3 arch arch 20 Dec 2 21:05 representations
drwxrwxr-x. 2 arch arch 6 Dec 2 21:05 schemas
[arch@essarch-test01 1039ca40-c366-492b-89ef-73f13112f554]$ cd representations/
[arch@essarch-test01 representations]$ 1s -1
total 0
drwxrwxr-x. 3 arch arch 17 Dec 2 21:05 rep-001
[arch@essarch-test01 representations]$ cd rep-001/
[arch@essarch-test01 rep-001]$ ls -1
total 0
drwxrwxr-x. 3 arch arch 24 Jan 25 19:55 data
[arch@essarch-test01 rep-001]$ cd data/
[arch@essarch-test01 data]$ 1s -1
total 4
drwxrwxr-x. 15 arch arch 4096 Jan 25 19:38 Sofieprisen
[arch@essarch-test01 data]$ cd Sofieprisen/
[arch@essarch-test01 Sofieprisen]$ ls -1
total 76
-rw-rw-r--. 1 arch arch 29696 Jan 25 19:38 4.4.11 GLOBALE FAKTA OM KASTING AV MAT.doc
drwxrwxr-x. 15 arch arch 4096 Jan 25 19:38 Aktivitetsplaner
drwxrwxr-x. 4 arch arch 41 Jan 25 19:38 Arkiv
drwxrwxr-x. 14 arch arch 4096 Jan 25 19:38 Å
drwxrwxr-x. 3 arch arch 4096 Jan 25 19:38 Avvikling
-rw-rw-r--. 1 arch arch 4747 Jan 25 19:38 epostmaler.txt
drwxrwxr-x. 4 arch arch 4096 Jan 25 19:38 Informasjon
drwxrwxr-x. 4 arch arch 38 Jan 25 19:39 Kopier
drwxrwxr-x. 2 arch arch 4096 Jan 25 19:38 Logoer Sofieprisen
drwxrwxr-x. 2 arch arch 84 Jan 25 19:38 Lokaler
drwxrwxr-x. 16 arch arch 4096 Jan 25 19:39 Äkonomi
drwxrwxr-x. 7 arch arch 4096 Jan 25 19:38 Organisasjon
drwxrwxr-x. 2 arch arch 4096 Jan 25 19:38 Overlapping
drwxrwxr-x. 4 arch arch 41 Jan 25 19:38 Prisen
drwxrwxr-x. 2 arch arch 4096 Jan 25 19:38 SÃ,knader Ã,k. stÃ,tte
[arch@essarch-test01 Sofieprisen]$
```

Screenshots: ESSArch Tools Archive

- Receives SIPs created in ESSArch Tools Producer
- Transfer SIPs into ESSArch Preservation Platform

https:	//10.19	9.19	IP/prepa	re-IP >	k ht	ttps://.	10.19.1.4:4445/ × ESSArch Preservation Pla	tform × +		
(https:/	/10.19.1.4	:4445/#	/trans	fer-SIP			C Søk	☆自◆合三
Mest	besøk	t 🕲 (Getting St	arted	😼 Lat	est He	adlines			
ESS Rec	SAr eptio	ch ⁻	Tools Transfe	for	Arc	chiv	/e			admin 上 🌔
Archival institution Archivist organization other					10 global search Label test06	▼Date 2017-01-27 10:14:45	Status	Events		
							test 04	2017-01-24 14:12:25	Transferred	Events
							Test (2000 - 2012) - 1234	2016-11-18 11:04:46	Transferred	Events
										Ξ
<		Ja	nuary 20)17		>				
	Sun	Mon	Tue We	d Thu	Fri	Sat				
1	01	02	03 04	05	06	07				
2	08	09	10 11	12	13	14				
3	15	16	17 18	19	20	21				
4	22	23	24 25	26	27	28				-

Screenshots: ESSArch Preservation Platform

- Receives and validates the SIPs
- Creates the AIPs

– but no automated file conversion (migration)!

- Storage management
- Checks in AIPs (and SIPs)
- Checks out AIPs upon requests
- Media management and monitoring



EPP (ESSArch Preservation Platform) 2.8.1 - Status at 2017-01-27 11:40

Processes:	Storage media overview
SIPReceiver: 1	Archive tapes online:
SIPValidateAIS: 1	None
SIPValidateApproval: 1	Add new tapes starting with:
SIPValidateFormat: 1	None
AIPCreator: 1	Write tapes:
AIPChecksum: 1	None
AIPValidate: 1	Empty tapes:
SIPRemove: 1	None
AIPWriter: 1	Error tapes:
AIPPurge: 1	None
TLD: 1	
db_sync_ais: 1	Origoing requests
ESSlogging: 1	USER REQUEST PURPOSE STATUS INFO
AccessEngine: 1	No uncompleted requests
ETPServer: 1	

Proc logfile alarms:

None

https://10.19.1SIP/prepare-IP × https://10.19.1.4:4445/ × ESSArch Preservation Platform × +													
C Sak													
EPP (ESSArch	Mest besøkt 🛞 Getting Started 🔊 Latest Headlines EPP (ESSArch Preservation Platform)												
CONTROL AREA 🔻	INGEST 🔻	ACCESS 🔻	Administration 🔻	REPORTS 👻	MANAGEMENT 🔻	HELP 👻							

Select which information package to checkin from reception

Show 10 • entries			Column visibility	Search:				
IDENTIFICATION	ARCHIVIST II	LABEL	CREATE DATE	START II DATE	END IT DATE	TYPE	MEDIA	STATE
f378544a-670d-4fd2-a8cf-b1b885ee7506	the archivist	Test (2000 - 2012) - 1234	2016-11-18T11:04:46.011000+01:00	2016-11-10	2016-12-20	SIP	EFT	Reception
14a34150-0806-481f- b0c5-abb308226eba	the archivist	test 04	2017-01-24T14:12:25.168000+01:00	2016-11-10	2016-12-20	SIP	EFT	Reception
e32cfeb7-0345-4c85-8f15-6b8e4ab78e30	the archivist	test06	2017-01-27T10:14:45.851000+01:00	2016-11-10	2016-12-20	SIP	EFT	Reception
Showing 1 to 3 of 3 entries							Previous	1 Next

-				Enclar 1	D of Dist									- 0	x
https://10.19.15	MP/prepare-IP	× https://1	0.19.1.4:4445/	ESSArch	Preservation Platforn	× (+									
🗲 🛈 🚱 https:/	/ 10.19.1.4 /cor	trolarea/fromre	ceptionprogress/135cb	3d7-624d-4346-9	a49-bdc8afe76bd0/			C	Q. Søk			☆	ê 🖡	⋒	≡
🔊 Mest besøkt 🛞 0	Getting Started	I 🗻 Latest Hea	dlines												
EPP (ESSArch	Preserva	tion Platfo	rm)								WELCOME, ADM	IIN. CHANG	E PASSWO	RD / LOO	G OUT
-															
CONTROL AREA 🔻	INGEST 🔻	ACCESS 🔻	ADMINISTRATION -	REPORTS 🔻	MANAGEMENT 👻	HELP 🔻									
Request to c	heck in IP fr	om recention													
Request to c		omreception													
Result:															
Category:	contro	olarea													
Label:	Check	In from Reco	eption												
User:	admin														
Request pur	pose:sjekk	inn													
Status:	OK														
Summary:															
Found logfile	: /ESSArch	/data/gate/r	eception/e32cfeb7	7-0345-4c85-	8f15-6b8e4ab78	30_ipevent	ts.xml for pa	ckage: /ESSArch	n/data/gate/reo	ception					
Copy /ESSA	345-4085-0 rch/data/a:	ste/reception	/8830.Lar /832cfeb7-0345-4	c95-9f15-6b	804-2h78030 tar t	n nackade (content dire	ctony: /ESSArch	/data/enn/cont	rol/0445759	a-001b-4c65	- b777-fb5	cf0b047	6d	
/e32cfeb7-0	345-4c85-1	Bf15-6b8e4ab	78e30/content	005-0115-000		о раскауе с	content direc	CLOIY. /ESSAICH	uata/epp/com	.101/0448/30	a-0010-4005	-0777-103	0190942	ou	
Success to	get METS a	gents,altRec	ords and label from	n e32cfeb7-0	345-4c85-8f15-6	b8e4ab78e3	30.xml								
Add altReco	rdID ['POLIC	CYID', u'c46c	ff167f5d4b338e96	a6fd35d79de1	'] to metsfile										
Add altRecord	rdID ['INFO	RMATIONCLA	SS', u'1'] to metsf	ile											
Add altReco	rdID ['DELI\	/ERYTYPE', u	N/A'] to metsfile												
Add altReco	rdID ['DELI\	ERYSPECIFIC	CATION', u'N/A'] to	metsfile											
Create new	PREMIS: /E	SSArch/data	/epp/control/044a	758a-001b-4	c65-b777-fb5cf9	09426d/e32	cfeb7-0345-	-4c85-8f15-6b8e	4ab78e30/met	adata/premi	s.xml				
Add new ent	try to DB fo	r AIC_UUID:	044a758a-001b-4	c65-b777-fb5	cf9b9426d										
Add new ent	try to DB fo	r IP_UUID: e	32cfeb/-0345-4c8	5-8f15-6b8e4	ab/8e30	26 - 2									
Add new ent	try to DB to	r eventident	ifierValue: 28854a	80-7822-4e8. 02-0201-4d9:	- 0/ef-151003a0	3Dez									
	try to DB to	r eventident	ifierValue: 29779a	02-6301-406	- 6600- 62e00072	0207									
Add new ent	try to DB fo	r eventident	ifierValue: d5ae0b	c1-43b1-4d7	-a322-e240e7f3	5d3d									
Add new ent	try to DB fo	r eventident	ifierValue: b9ddf99	b-954c-45ba	-9f43-c73c675fc	fe8									
Add new ent	try to DB fo	r eventIdent	ifierValue: 26dc99	41-5ed8-410	3-842b-c63280d	99ea									
Add new ent	try to DB fo	r eventIdent	ifierValue: 432a62	4e-ccad-478	5-8bbd-2223dc56	97e2									
Add new ent	try to DB fo	r eventIdent	ifierValue: 0730d5	39-3a86-4a8	5-904f-9a34a03c	349a									
Add new ent	try to DB fo	r eventIdent	ifierValue: d11edd	8c-dee2-425a	a-b1aa-1f21109f	7a20									
Add new ent	try to DB fo	r eventIdent	ifierValue: 0da7db	a7-9cf0-4768	-9408-d53852fa	87dd									
Add new ent	try to DB fo	r eventIdent	ifierValue: 071851	4a-7d51-4582	2-9c4c-96404b13	d6ca									
Add new ent	try to DB fo	r eventIdent	itierValue: fe9b169	€1-efb2-4c95	-a763-16139561	78C									

Data set characterization: Scenario 1

- Data used in this pilot originated from an archival producer called Direktoratet for utviklingssamarbeid (Norad). Norad is the Norwegian Agency for Development Cooperation. The period of data creation was 2003-04-01 to 2005-12-31.
- The data is the standardized output from an EDRMS system, generated according to the national NOARK-4 standard. The output consisting of a generated Noark-4 XML file containing (meta-) data descriptions of the records created in the EDRMS, in addition to the documents (records) represented as (mostly) PDF/A files. The overall size is 20 GB.

Data set characterization: Scenario 2

- Data used in this pilot originated from an archival producer called Folketrygdfondet, which is a professional investment manager whose main task is to manage the Government Pension Fund Norway on behalf of the Ministry of Finance. The period of data creation was 2005-01-01 to 2014-03-31.
- The data is the standardized output from an EDRMS system, generated automatically according to the national NOARK-5 standard. The output consisting of a generated Noark-5 XML file containing (meta-) data descriptions of the records created in the EDRMS, in addition to the 8194 documents (records) represented as (mostly) PDF/A files. The overall size is 5 GB.

Data set characterization: Scenario 3

- Data used in this pilot originated from an archival producer called Direktoratet for Naturforvaltning, a no longer existing directorate related to environmental administration. The period of data creation was 1985-01-01 to 1999-12-30.
- The data set is a register, originating from an old database made in the 1980s. The data is represented as a set of 10 CSV files, containing 338.500 registrations. The size is 105 MB.

Data set characterization: Real-world additional scenario

 Data used in this pilot originated from a private archival producer, consisting of 12.252 element, 10 135 files in 2116 directories. The overall size of the content is 2.1 GB.

Summary of pilot results/experiences

- The tools we evaluated were able to produce satisfactory results (output).
- The time consumption on the automated parts of EPP, ESSArch Production Platform, was 1 hour 50 minutes for the largest of the original scenario
 - time consumption was not measured on the additional scenarios

A few words about software risks...

- In general, (negative) risiks associated with software aqusitions, are high...
- If the software has few users
- If few people have deep knowledge about and are able to maintain the software

Software risks continued

- Additionally, for long-term preservation and access software, where data need to undergo many format transformations over time
 - Proprietary software will make quality assurance difficult due to lack of transparency, while
 - Free and open source software will reduce these negative risks, through transparency (open code/open community)
- This is the main reason for many leading archival institutions worldwide to use free and open source software as a principle

Concluding remarks about the ESSArch products...

- The ESSArch tools coming out of the E-ARK project is of better quality than the tools brought into the project three years ago
- The software has become open source software, allowing any technically skilled person to gain knowledge about the software/source code
- Hence, the challenge for ESSArch is to attract enough external software developers and users (user organisations)

Concluding remarks about the ESSArch products

- In order to do so at least one improvement has to be done, as soon as possible: Providing (good) user documentation!
- Additionally, to integrate, one way or another, with market leading products in order to form an holistic approach based on OAIS

Concluding remarks about E-ARK

- The field of digital long-term preservation and access is about to move from its early phases into a higher level of maturity
- E-ARK and other similar projects play an important role in this, by bringing together many stakeholders and approaches, producing fewer approaches and standardisation as an output
- This was appreciated by the EU appointed reviewers
- The European Commission's Year 3 Review of the E-ARK Project has rated it as "Excellent" and have described it in their initial feedback as a "A European Showcase Project"
- But follow-up projects are needed!