

Kolloquium Wissensinfrastruktur
Aktuelle Themen aus Informationsmanagement und
Wissenschaftskommunikation

20.11.2009

Aggregation verteilter Online-Server mit
strukturierten Metadaten

am Beispiel von BASE und DRIVER

Friedrich Summann

OAI-PMH = **Open Archives Initiative –** **Protocol for Metadata Harvesting**

- HTTP-basiert
- Einfach und robust
- Viele Freiheiten/Unschärfen
- Simple DC Standard-Metadaten-Format, weitere Formate optional
- Gruppierung von Repositories
- Inkrementelle Datenabholung
- Lieferung von Löschinformationen optional

Harvesting – Im Prinzip ganz einfach

#<http://bieson.ub.uni-bielefeld.de/phpoai/oai2.php> UBBielefeld
#<http://ubopenac.ub.uni-bielefeld.de/diglib/phpoai/oai2.php> UBBielefeld-
BIETAS
#<http://ubmysql.ub.uni-bielefeld.de/diglib/phpoai/oai2.php> UBBielefeld-Test
#<http://ubmysql.ub.uni-bielefeld.de/gutenberg/phpoai/oai2.php> UBBielefeld-
Gutenberg
#<http://repositories.ub.uni-bielefeld.de/escholarship/oai2/oai2.php>
UBBielefeld-ERepos
#<http://biecoll.ub.uni-bielefeld.de/oai2/oai2.php> UBBielefeld-BIECOLL

Das Protokoll

https://elearning.uni-bielefeld.de/wikifarm/fields/ub_edv/field.php/Main/OAI-PMH

The screenshot shows a web browser window with the following content:

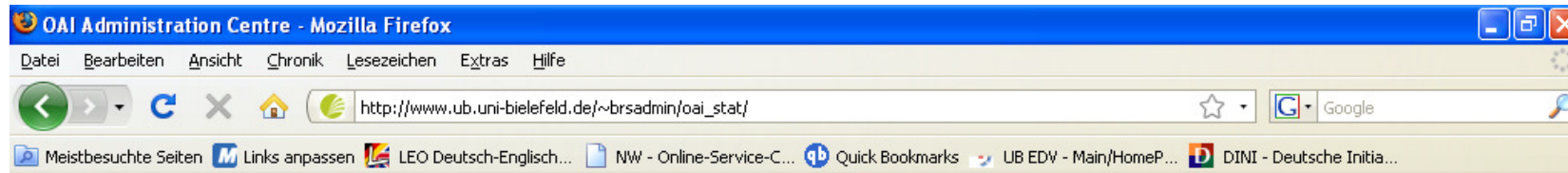
- Browser Tabs:** UB EDV - Main/OAI-PMH, Webmail Uni-/ FH Bielefeld
- Address Bar:** https://elearning.uni-bielefeld.de/wikifarm/fields/ub_edv/field.php/Main/OAI-PMH
- Page Header:** Universität Bielefeld UB EDV
- Navigation:** HomePage, Inhalt, Suche, Hilfe, Logout
- Left Sidebar (Menu):**
 - Maschinenumgebung
 - Anwendungen
 - UNIBI-Entwicklungen
 - Externe-Schnittstellen
 - Programmierung
 - Research
 - Unix
 - Formate
 - Protokolle
 - OAI-PMH
 - OAI-ORE
 - OpenURL
- Main Content:**
 - Protokolle » OAI-PMH
 - OAI-PMH**
 - Wikipedia-Artikel:
http://de.wikipedia.org/wiki/Open_Archives_Initiative
 - Protokollbeschreibung:**
<http://www.openarchives.org/OAI/openarchivesprotocol.html>
 - Näheres zu den OAI-Calls: [OAI-Verbs](#)
 - DINI** hat Empfehlungen für die OAI-Nutzung definiert, die für die Vergabe des DINI-Zertifikats umgesetzt werden müssen.
 - Im DRIVER-Projekt wurden die sogenannten DRIVER Guidelines erarbeitet (unter Mitwirk. der UB Bielefeld), die Empfehlungen für die Nutzung von OAI-PMH festlegen:
http://www.driver-support.eu/documents/DRIVER_Guidelines_v2_Final_2008-11-13.pdf

OAI-Harvesting

- Kommandozeilen-orientiert
- Perl-Harvester
- Konfigurationsdatei (basicurl, Name, set)
- Ergebnisse als Dateien im Dateisystem
- Cronjob-Konfiguration
- Sonderbehandlung (BSZ Aggr., Diss-Online)
- Zahlreiche Analyse-Routinen (Repository-Analyse, Feldanalysen, Statistiken)

- Aggregation erfolgt im BASE-Umfeld
(FAST Preprocessing)

OAI Administration Centre



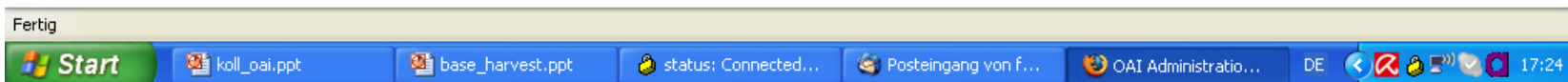
OAI Administration Center

- [Harvest Watcher](#)
- [Map of Repositories](#)
 - [List Broken Harvest Processes](#)
 - [List Metadata Formats](#)
- [Registry Watcher](#)
- **Observed registries:**
 - [Openarchives.org Registry](#)
 - [EPrints Registry](#)
 - [Dspace OAI list](#)
 - [Directory of Open Access Repositories](#)
 - [OAIster](#)
 - [ScientificCommons](#)
 - [SHERPA](#)
 - [Univ. of Illinois Experimental Registry](#)
 - [DigitalCommons Institutions](#)
 - [ContentDM installations](#)

[BASE list of repositories](#)
[OAI resources in Bielefeld UL OPAC](#)



Bielefeld University Library, 2009



Harvest Watcher

Mozilla Firefox

http://www.ub.uni-bielefeld.de/~brsadmin/oai_stat/oai_stat.html

Meistbesuchte Seiten Links anpassen LEO Deutsch-Englisch... NW - Online-Service-C... Quick Bookmarks UB EDV - Main/HomeP... DINI - Deutsche Initia...

000718 000000	Identify --- Records - Info Activate Update Edit Profile	(1693) (53)	se	Eprints 2.3.13.1	●				BASE ●	
000000 000118 000000	YaexjoeUniv Identify --- Records - Info Activate Update Edit Profile	2646 (2503) (2)	se	Divva	●				BASE ●	
000000 000118 000000	Mittuniv Identify --- Records - Info Activate Update Edit Profile	915 (871)	se	Divva	●				BASE ●	
000000 000118 000000	IdrottsHoegskola Identify --- Records - Info Activate Update Edit Profile	460 (430)	se	Divva	●				BASE ●	
000000 000118 000000	KalmarHoegskola Identify --- Records - Info Activate Update Edit Profile	1138 (1104)	se	Divva	●				BASE ●	
000000 000118 000000	SkoevdeHoegskola Identify --- Records - Info Activate Update Edit Profile	1967 (1597) (1)	se	Divva	●				BASE ●	
000000 000117 000000	HoegskolanGaevle Identify --- Records - Info Activate Update Edit Profile	1863 (1803)	se	Divva	●				BASE ●	
000000 000118 000000	SoedertoernsHoegskola Identify --- Records - Info Activate Update Edit Profile	1010 (1003) (1)	se	Divva	●				BASE ●	
000000 000117 000000	MaclardalensHoegskola Identify --- Records - Info Activate Update Edit Profile	1726 (1697) (1)	se	Divva	●				BASE ●	
000000 000119 000000	Joenkoeping Univ Identify --- Records - Info Activate Update Edit Profile	1842 (1838) (1)	se	Divva	●				BASE ●	
000000	NTNUTrondheim	2420								

Fertig

Start Microsoft PowerPo... status: Connected... Posteingang von f... Eigene Dateien Mozilla Firefox DE 17:20

BASE (Bielefeld Academic Search Engine)

Europe in detail (675 in total)



Über 2000 Repositories
→ 24,000,000 metadata
records
Harvested/analyzed

1379 Repositories →
21,800,000
aggregated/indexed

Ermittlung neuer OAI-Schnittstellen

- Beobachtung der Registries
- Beobachtung der Service Provider
- BASE-Kontaktmails
- Community-Listen
- Länder-Listen
- Kontakte (z.B. Verbände)

Registry Watcher

The screenshot shows a web browser window with the following content:

- Browser tabs: UB EDV - Main/OAI-PMH, Registry Watcher
- Address bar: http://www.ub.uni-bielefeld.de/~brsadmin/oai_stat/list_reg.html
- Navigation buttons: Back, Forward, Refresh, Home, Stop
- Bookmarks bar: Kostenlose Hotmail, Links anpassen, Windows Media, Windows, LEO Deutsch-Englisch..., NW - Online-Service..., EDV-Wiki, Weitere Lesezeichen
- Page content:
 - Registry Watcher**
 - [Repositories not covered in BASE](#)**
 - [OAI calls from Google](#)**
 - [Repositories not covered by Scientific Commons](#)**
 - Openarchives**
 - [New entries last 2 weeks](#)
 - [New entries last month](#)
 - [New entries last 2 monthes](#)
 - [New entries last 3 monthes](#)
 - Eprints Registry**
 - [New entries last 2 weeks](#)
 - [New entries last month](#)
 - [New entries last 2 monthes](#)
 - [New entries last 3 monthes](#)
 - Univ. of Ill. Registry**
 - [New entries last 2 weeks](#)
 - [New entries last month](#)

Windows taskbar at the bottom shows the Start button, taskbar buttons for 'koll_oai.ppt', 'summann_casin20...', 'Registry Watcher ...', 'web'n'walk Manager', and 'Posteingang von f...', and system tray icons for network, volume, and clock (21:23).

BASE Admin Datenbank

BASE: Admin Interface - Mozilla Firefox

http://www.ub.uni-bielefeld.de/baseadmin/ListeQuellen.php?

OAI Administration Centre BASE: Admin Interface

BASE
Bielefeld Academic Search Engine

[Übernahme der Daten ins Live-System](#) | [XML Export \(Land\)](#) | [Alle Einträge anzeigen](#) | [20 Einträge p](#)

Crt.	Datum	Datenlieferant (orig.)	Drilldown (orig.)	Harvestername	System	Land	Bundesstaat	Collection (virtuell)	Collection (FAST)	lir.	Phase 1
1	29.08.2007	Ciência da Informação (E-Journal)	Ciência da Informação (E-Journal)	JRevcom	OJS	br		ftjrevcom	www.oaimeta	508	0
2	18.11.2009	Universitäts- und Landesbibliothek ...	Darmstadt ULB: Digitale Sammlungen	ULBDarmstadt-Digit		de	dehe			0	1
3	17.11.2009	Diponegoro University: Institutiona...	Diponegoro Univ.: Inst. Repository (UNDIP-IR)	DiponegoroUniv	DiponegoroUniv	id				0	1
4	16.11.2009	École Polytechnique de Montréal: Po...	Montreal École Polytechnique: PolyPublie	EcolePMontreal	EPrints 3.1.1	ca				0	1
5	16.11.2009	Spectrum: Concordia University Rese...	Concordia Univ.: Spectrum	ConcordiaUniv	EPrints 3.1.3	ca				0	1
6	10.11.2009	Staats- und Universitätsbibliothek ...	Hamburg University Press (HUP)	SUBHamburg-HUP	Wordpress	de	dehh			0	1
7	09.11.2009	Selçuk Üniversitesi: SÜ Sosyal Bili...	Selçuk Univ.: Dergisi Açık Arşivi	SelcukUniv	Eprints 3	tr				0	1
8	09.11.2009	Sycamore Scholars at Indiana State ...	Indiana State Univ.: Sycamore Scholars	IndianaStateUniv	DSpace	us				0	1
9	09.11.2009	Bucks New University: Bucks Knowled...	Bucks New Univ.: Knowledge Archive	BucksNewUniv	DSpace	uk				0	1
10	07.11.2009	Universidad de Las Palmas de Gran C...	Las Palmas Univ.: ACCEDA	UnivLasPalmas	DSpace	es				0	1
11	26.10.2009	ARCA - IGC Repository (Access to Re...	Inst. Gulbenkian de Ciência (ARCA IGC)	InstGulbenkian	DSpace	pt				0	1
12	26.10.2009	University of Cincinnati: Ohio Digi...	Cincinnati Univ.: Ohio Digital Resource Commons	UnivCincinnati	DSpace	us				0	1

Fertig


BASE Admin Datenbank

BASE: Admin Interface - Mozilla Firefox

http://www.ub.uni-bielefeld.de/baseadmin/FormQuellen.php?&IdxQuelle=1514&iSeite=1

Meistbesuchte Seiten Links anpassen LEO Deutsch-Englisch... NW - Online-Service-C... Quick Bookmarks UB EDV - Main/HomeP... DINI - Deutsche Initia...

OAI Administration Centre BASE: Admin Interface

 **BASE**
Bielefeld Academic Search Engine

[Phase 1](#) | [Phase 2](#) | [Phase 3](#) | [Phase 4](#) [zurück zur Liste](#)

Phase 1

Einstellungsdatum*:	16.11.2009	Datum auswählen
Wer:	Friedrich Summann	
Quellenname:	Dépôt PolyPublie	
Harvestername (OAI)*:	EcolePMontreal	
System:	EPrints 3.1.1	
Herkunftsland:	ca	
Bundesstaat:		
URL (Applikation-Startseite):	http://publications.polymtl.ca/	
Kontakt:		
Typ:	Elektronische Hochschulpublikationen	
Beschreibung:		
Kommentar:		
Phase 1 beendet:	<input checked="" type="checkbox"/>	

Fertig

Start koll_oai.ppt base_harvest.ppt status: Connected... Posteingang von f... BASE: Admin Inter... DE 17:27

Aggregation – warum ?

- Daten sind teilweise problematisch
- Fehlerhafte Sätze entfernen
- Inhalte normalisieren (language, type, date)
- Feldzuordnung korrigieren
- Feldinhalte korrigieren
- Funktionierenden Link erzeugen
- DDC-Information extrahieren

DRIVER-Ziel: Verbesserung der Repository- Infrastruktur

Harvesting verbessern
Aggregation vermindern

- DRIVER Guidelines
- DRIVER Validator
- DRIVER Helpdesk

DRIVER Harvesting/Aggregating

- DRIVER Service
- Erste Version Perl-basiert
- GUI für Harvesting/Aggregation/Analyse
- Ergebnisse abgelegt durch MDStore Service
- Damit abrufbar durch OAI-PMH-Publisher

Neue Repositories in DRIVER

- Initial: 51-Liste
- Eigenmächtige Ergänzungen
- Country Correspondants
- Registrierung
- Helpdesk Request

DRIVER Aggregator

Aggregator Service - User Interface - Mozilla Firefox

http://129.70.xxxxxx4/cgi-bin/ASmanager.pl

DRIVER - Digital Repository Infrastruc... Aggregator Service - User Interf...

Your location: Aggregator Interface > List of repositories Login

DIGITAL REPOSITORIES INFRASTRUCTURE VISION FOR EUROPEAN RESEARCH

Home Tools

Welcome Search

List of repositories

Nr.	Repository	Status	Lock Status	Last HarvestingDate
1	AUP publications	inactive		2008-05-04T20:24:20Z
2	Alma Mater Digital Library	inactive		2008-05-19T15:21:58Z
3	AperTo	inactive		2008-05-30T22:26:26Z
4	Archimer, Archive Institutionnelle de l'Ifremer	inactive		2008-05-29T19:18:54Z
5	Archivio Eprints Universita di Firenze	inactive		2008-05-21T11:39:28Z
6	Archivo Digital UPM	inactive		2008-05-04T21:03:29Z
7	Aristotle University of Thessaloniki	active		2008-05-28T10:27:45Z
8	BICTEL/e: Thèses et e-prints	inactive		2008-06-03T20:04:28Z
9	BORA@UIB	active		2008-05-28T07:57:46Z
10	BURJC-DIGITAL Universidad Rey Juan Carlos	inactive		2008-05-03T09:02:57Z
11	Bibliotheque Numerique RERO DOC	inactive		2008-05-04T17:55:20Z
12	BieSON - Bielefelder Server fuer Online-Publikationen (University of Bielefeld, GERMANY)	active		2008-06-01T22:13:08Z

Fertig

Start Microsoft PowerPoint ... Aggregator Service - ... DE 08:49

DRIVER Aggregator - Harvesting

The screenshot shows a web browser window with three tabs: 'LIB EDV - Main/OAI-PMH', 'Registry Watcher', and 'Aggregator Service - User ...'. The address bar shows the URL: `http://212.87.15.95:9001/cgi-bin/ASmanager.pl?func=dunt&id=7-07e5fc34-1958-4632-a0c4-d48ee0de4007_SGFydmVzdGluZ0luc3RhbmNIRFNSZXNvdXJjZXMvSGFydmVzdGluZ0luc3RhbmNIRFNSZXNvdXJjZVR5cGU=`. The browser's taskbar at the bottom shows the Start button and several open applications: 'koll_oai.ppt', 'summann_caslin20...', 'Aggregator Servic...', 'web'n'walk Manager', and 'Posteingang von f...'. The system clock shows 21:47.

The main content area displays the configuration for a harvesting instance:

Repository:	Alma Mater Digital Library
Repository ID:	2-b49377b0-3097-4c5d-89e8-17f93f24bfaa_UmVwb3NpdG9yeVlncnZpY2VSZXNvdXJjZXMvUmVwb3NpdG9yeVlncnZpY2VSZXNvdXJjZVR5cGU=
Harvesting Instance ID:	7-07e5fc34-1958-4632-a0c4-d48ee0de4007_SGFydmVzdGluZ0luc3RhbmNIRFNSZXNvdXJjZXMvSGFydmVzdGluZ0luc3RhbmNIRFNSZXNvdXJjZVR5cGU= Show Log
Basicurl:	<code>http://diglib.cib.unibo.it/oai/oai2.php</code>
OAI-PMH panel	Identify ListSets ListMetadataFormats ListRecords

Harvesting

[Start Harvesting](#) [Test Mapping](#) [Test Mapping \(Subset\)](#)

Format:	oai_dc
Last Harvestingdate:	2009-10-08T19:27:38Z
MDStore ID:	3-06d7aa32-382d-4052-af64-a72300487698_TURtdG9yZURtUmVzb3VyY2VzL01EU3RvcmluZ0luc3RhbmNIRFNSZXNvdXJjZVR5cGU= Records: 121 Show Log Show MDStore (Subset) Analyze MDStore Analyze Tag Contents
Current status	<input type="radio"/> ACTIVE <input checked="" type="radio"/> INACTIVE
Harvesting Type	<input checked="" type="radio"/> INCREMENTAL <input type="radio"/> REFRESH
Scheduling Definition	<input type="radio"/> DAILY <input checked="" type="radio"/> WEEKLY <input type="radio"/> BIWEEKLY <input type="radio"/> MONTHLY
Set restrictions	
Set	Delete this set

DRIVER – Aggregator

Aggregator Service - User Interface - Mozilla Firefox

http://129.70.12.28:8004/cgi-bin/ASmanager.pl?fnc=rep&id=9-798ee103-310b-4464-90fc-dc1

Nr.	Format unit	Status	Last Harvesting Date	Harvestingtype	Harvesting schedule
1	oai_dc	active	2008-05-30T07:23:48Z	INCREMENTAL	WEEKLY

Aggregating

Start Aggregating Test Mapping Test Mapping (Subset) Re-Index

Metadata Format: DMF

Last Aggregating date: 2008-05-30T07:39:04Z

Target MDStore ID: 8-9c4842f2-f25a-4c75-a604-cd074b725fea_TURTDg9yZURUmVzb3VyY2VzL01EU3RvcmluZS91cmNlVHlwZQ==
Records: 3998

Show Log Show MDStore (Subset) Analyze Tag Contents

Status: ACTIVE INACTIVE

Type: INCREMENTAL REFRESH

Schedule: DAILY WEEKLY BIWEEKLY MONTHLY

Transformation rules

Rule:	Delete this rule	dc:creator := assign (dc:contributor)	Edit this rule
Rule:	Delete this rule	dc:contributor := remove	Edit this rule

Fertig

Start Microsoft PowerPoint ... Aggregator Service - ... DE 08:52

DRIVER Aggregator

The screenshot displays the DRIVER Aggregator Manager interface, split into two main sections. The left section shows the configuration for a repository, and the right section shows a metadata analysis table.

Repository Configuration:

- Repository:** Univ. Konstanz: Konstanzer
- Repository ID:** 33-8655f853-211a-4814-b1
- Harvesting Instance ID:** 38-24e0adc9-ff04-4d45-b8c (with [Show Log](#) button)
- Basicurl:** http://www.ub.uni-konstanz
- OAI-PMH panel:** (with [Identify](#) and [ListSets](#) buttons)

Harvesting Section:

- [Start Harvesting](#) button
- Format:** oai_dc
- Last Harvestingdate:** 2008-06-05T06:00:00
- MDStore ID:** 34-82bf2737-b2 (with [Show Log](#) button)
- Current status:** ACTIVE INACTIVE
- Harvesting Type:** INCREMENTAL FULL
- Scheduling Definition:** DAILY WEEKLY
- Set restrictions:** (empty)
- [Set](#) button and [Delete this set](#) button

Metadata Analysis Table:

Field	Value
dc:creator	13484
dc:description	5816
dc:format	4946
dc:subject	26715
dc:source	2924

Values Section:

Field	Value	Count
dc:language	fre	1
	mul	7
	rus	1
	mis	4
	ger	1619
	eng	3315

Field	Value	Count
dc:type	Book	34
	Paper	7
	Misc	7
	OrganisationInfo	48
	Preprint	175
	CourseMaterial	9
	InBook	69
	TechReport	49
	Thesis.Habilitation	4
	Article	2481
	Festschrift	1
	Proceedings	8
	InProceedings	201
	Thesis.Bachelor	17

The interface also shows a Windows taskbar at the bottom with the Start button and several open applications: Microsoft PowerPoint, VPN Client, web'n'walk M..., Firefox, and Status von D... The system clock shows 07:09.

DRIVER Aggregation

- Standard-Normalisierung (date, type, language)
- Rules
 - Const
 - Substitute
 - Remove
 - Join
 - Switch
 - Split
- Scripts

DRIVER Aggrator – Rules Editor

The screenshot displays two overlapping browser windows. The top window, titled 'Aggregator Service - User ...', shows a table of harvesting rules:

Nr.	Format unit	Status	Last Harvesting Date	Harvestingtype	Harvesting schedule
1	oai_dc	active	2009-11-15T01:31:54Z	REFRESH	WEEKLY

The bottom window, titled 'Aggregator Service - User Interface - Google Chrome', shows the 'Rule Editor' interface. It features a header with the text 'DIGITAL REPOSITORIES INFRASTRUCTURE VISION FOR EUROPEAN RESEARCH' and the DRIVER logo. The main area contains two dropdown menus for selecting metadata fields (e.g., dc:creator, dc:title) and a central dropdown for selecting operations (join, switch, remove, split). An 'Add Rule' button is located below the operation dropdown. At the bottom of the interface, there are buttons for 'Delete this rule' and 'Edit this rule'. A footer contains the text 'Copyright © 2007 Progetto Driver | All Rights Reserved'. Below the browser windows, a taskbar shows the Windows Start button and several open applications, including 'koll_oai.ppt', 'fsu_driver_oai...', and 'Aggregator Se...'. The system tray shows the date '08:29' and the language 'DE'.

Neue Repositories in DRIVER

- Initial: 51-Liste
- Eigenmächtige Ergänzungen
- Country Correspondants
- Registrierung
- Helpdesk Request

Neue Repositories in DRIVER

- Initial: 51-Liste
- Eigenmächtige Ergänzungen
- Country Correspondants
- Registrierung
- Helpdesk Request

DRIVER Information Space

The screenshot displays the DRIVER Information Space website in a web browser. The browser's address bar shows the URL <https://admin1.driver.research-infrastructures.eu/IS/RepositoryMap>. The page header includes the text "DIGITAL REPOSITORIES INFRASTRUCTURE VISION FOR EUROPEAN RESEARCH" and the DRIVER logo. A navigation menu contains "Home", "Repositories", "Network", and "Collections". A "Show Map" link is also present. The main content area features a map of Europe with colored dots representing the number of records in various repositories. A legend at the top of the map indicates the following categories: < 50 (green), 50 - 500 (orange), 500 - 1000 (purple), and > 1000 (red). The map shows a high concentration of red dots in Central Europe, particularly in Germany and France. A sidebar on the left lists several repositories, including "IT Aisberg - Archivio Istituzionale Università di Bergamo", "IT Alma Mater Digital Library", "FI Ammattikorkeakoulujen verkkokirjasto Theseus", "IT AperTo", "DE ArchiMeD - Elektronische Publikationen der Universität Mainz", "FR Archimer, Archive Institutionnelle de l'Ifremer", "IT Archivio Eprints Università di Firenze", "ES Archivo Digital UPM", "ES Arias Montano: Repositorio Institucional de la Universidad de Huelva", "GR Aristotle University of Thessaloniki", "IE ARROW@DIT", "DE ART-Dok Publikationsplattform Kunstgeschichte", and "DE ask23 repository (lkw, ...)". The browser's taskbar at the bottom shows the Start button, several open applications, and the system tray with the time 21:58.

Number of records

- < 50
- 50 - 500
- 500 - 1000
- > 1000

Repositories

- IT Aisberg - Archivio Istituzionale Università di Bergamo
- IT Alma Mater Digital Library
- FI Ammattikorkeakoulujen verkkokirjasto Theseus
- IT AperTo
- DE ArchiMeD - Elektronische Publikationen der Universität Mainz
- FR Archimer, Archive Institutionnelle de l'Ifremer
- IT Archivio Eprints Università di Firenze
- ES Archivo Digital UPM
- ES Arias Montano: Repositorio Institucional de la Universidad de Huelva
- GR Aristotle University of Thessaloniki
- IE ARROW@DIT
- DE ART-Dok Publikationsplattform Kunstgeschichte
- DE ask23 repository (lkw, ...)

Karte Satellit Hybrid

Folie 19 von 20 Standarddesign Deutsch (Deutschland) 21:58