Distributed Archive Networks in the Open Archives Initiative

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Implementing OAI at German Universities

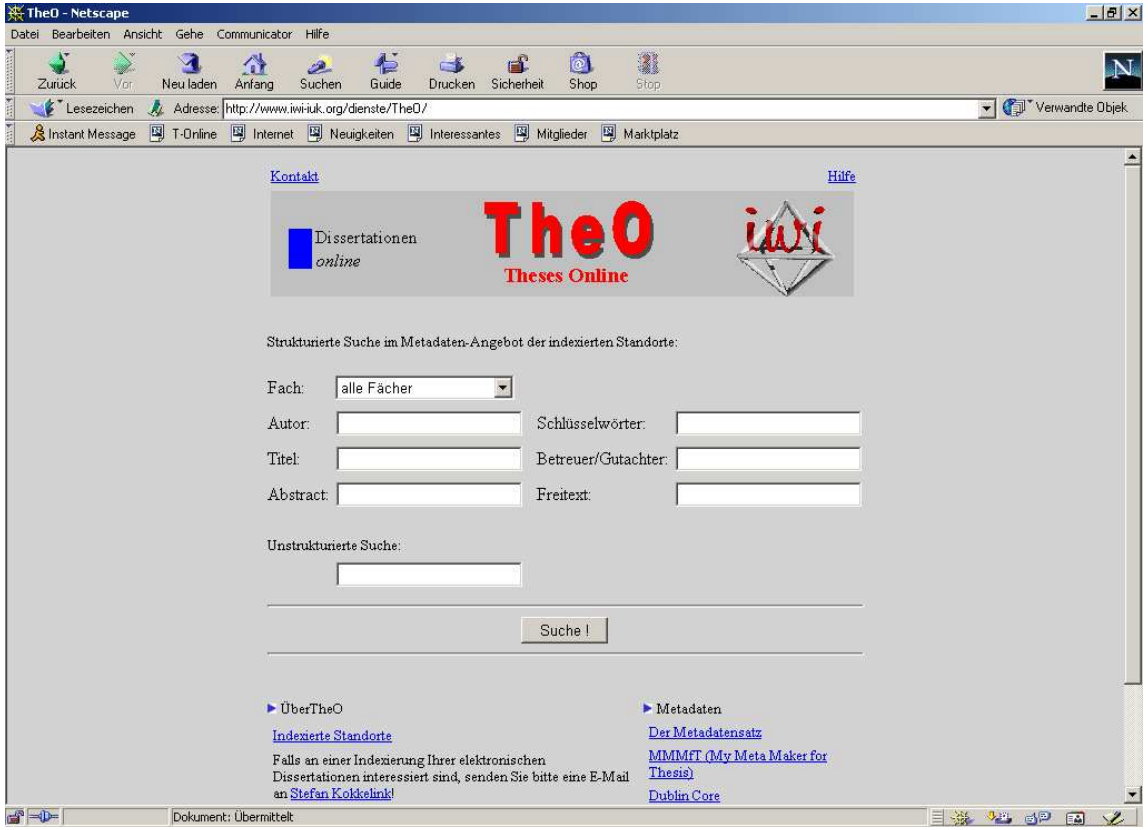
- DINI: (http://www.dini.org)
  - German Initiative for Networked Information
  - carries out guidance for implementations all over Germany
  - develop a strategy to cover German universities (libraries with document servers)
- Aim:
  - Serving a distributed archive network
  - Setting up a contact point for OAI in Germany

Collections Represented

- PhysDoc:
  - Distributed document Database for Physics worldwide
  - using HARVEST as Retrieval mechanism
- Universities document servers
  - Humboldt-University as one example
  - small number of documents (up to 500)
  - document formats: PDF
  - DissOnline.de Initiative
  - Part of NDLTD

Why OAI?

- DissOnline.de Retrieval interface TheO
  - http://www.iwi-iuk.org/dienste/TheO/
  - using Dublin Core Set for Theses and Diss.



Why OAI?

- Interface to NDLTD and others
- Using Dublin Core Metadata Set for Theses and Dissertations
- Platform for integration
  - within subject specific gateways as PhysDoc, MathDiss,
  - Within local services (German library consortia)

Context & Motivation

- OAI – different strategies emerge
  - incorporate existing repositories by implementing OAI compliant wrapper
  - fits for larger centers, institutions with active computer/library centers
  - unrealistic for large number of small places or even individual authors

Strategy for OAI Compliance

- Most dissertation archives use
  - Harvest for Retrieval / HTML-Titlepages / HTML coded Dublin Core or
  - Databases for metadata storage
    - Sybase (Humboldt-University)
    - Oracle
    - mysql ...
- Implementing OAI protocol
  - scripts: perl / php4 or 3
  - supporting Dublin Core

OAI Compliance

- Humboldt University of Berlin, GERMANY, Document Server
  - OAI 1.0 compliant repository
  - since Feb. 16th 2001
  - http://dochost.rz.hu-berlin.de/OAI-script
    - ?verb=identify/ListRecords/...
  - original implementation (Uwe Müller) took a few hours
  - some problems with XML encoding
    - (UNICODE/UTF-8) not (ISO-8859-1) of German „Umlaute“ ä ö ü ß and XML-characters < >
    - -> php4 library for conversion used

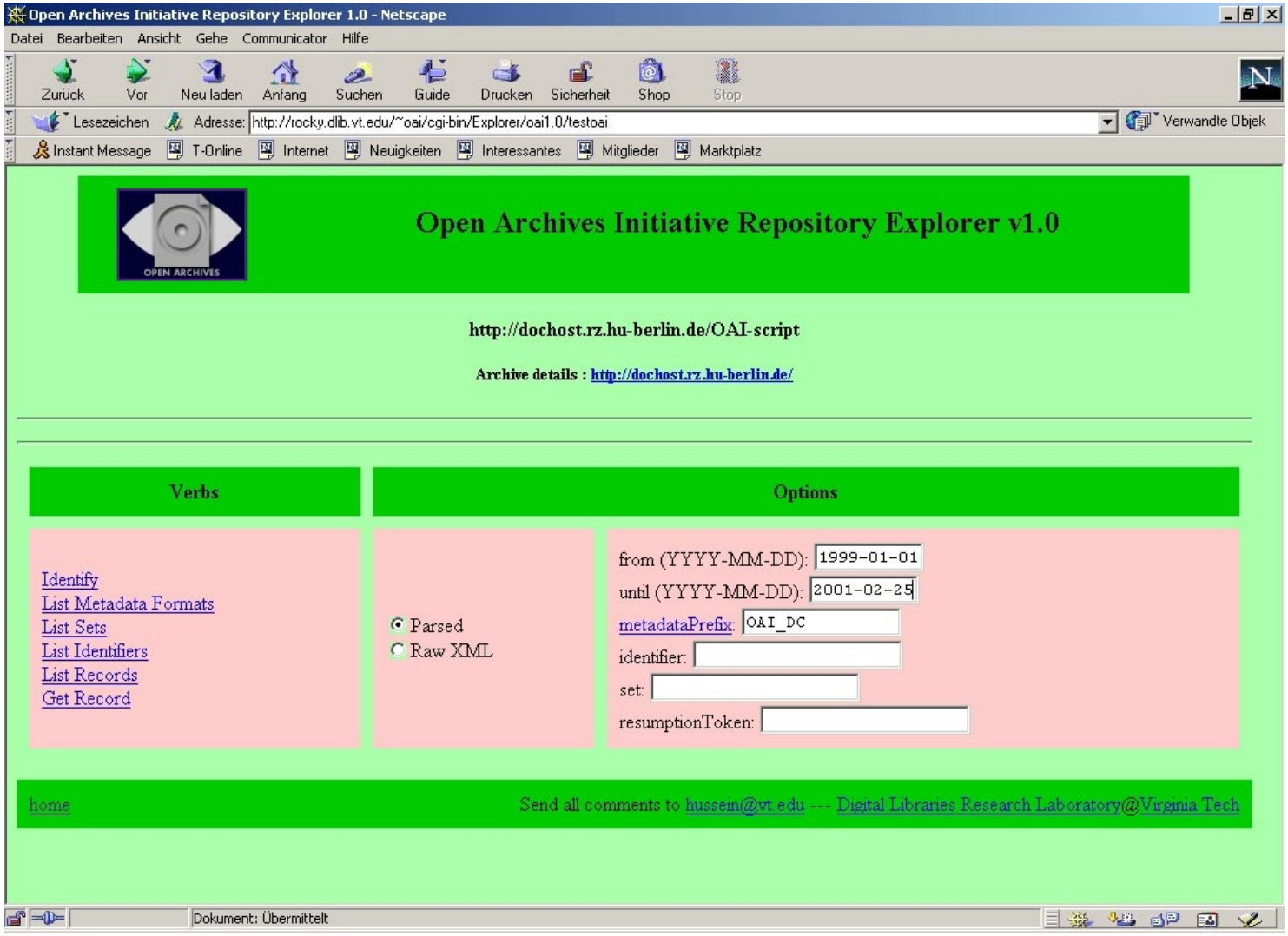
OAI Compliance of HUBerlin

- Header
  - Unique Identifier: HUBerlin
  - Datestamp: response date
- protocol requests implemented:
  - GetRecord
  - Identify
  - ListIdentifiers
  - ListMetadataFormats: OAI_DC
  - ListRecords
  - ListSets
- Resumption token (100 items)

OAI _Identify

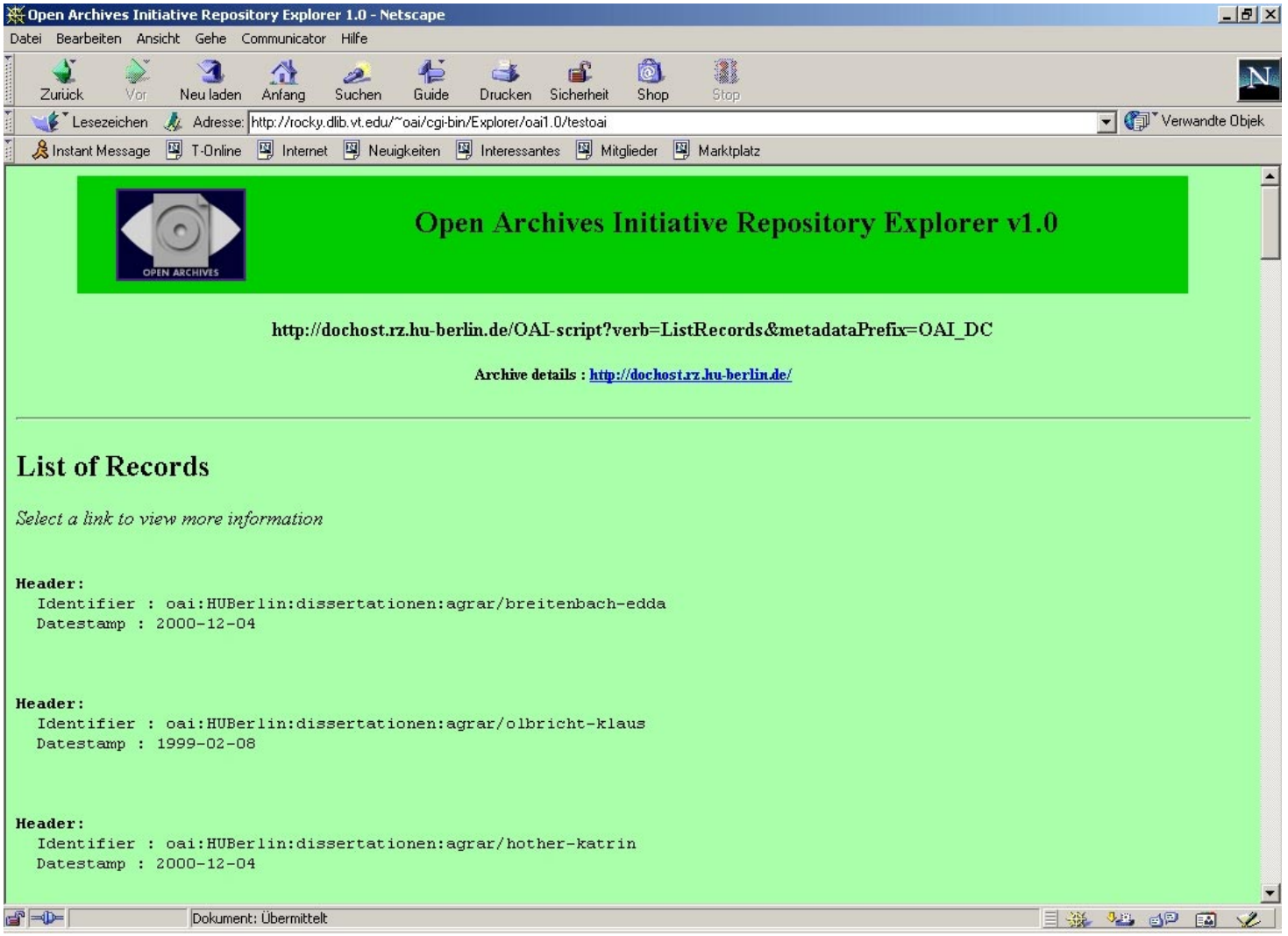
```
<?xml version="1.0" encoding="UTF-8" ?>
- <Identify xmlns="http://www.openarchives.org/OAI/1.0/OAI_Identify"
    xmlns:xsi="http://www.w3.org/2000/10/XMLSchema-instance"
    xsi:schemaLocation="http://www.openarchives.org/OAI/1.0/OAI_Identify
    http://www.openarchives.org/OAI/1.0/OAI_Identify.xsd">
    <responseDate>2001-02-25T13:45:15+01:00</responseDate>
    <requestURL>http%3A%2F%2Fdochost.rz.hu-berlin.de%2FOAI-script%3Fverb%
      3DIdentify</requestURL>
    <repositoryName>Humboldt University of Berlin, GERMANY, Document Server</repositoryName>
    <baseURL>http://dochost.rz.hu-berlin.de/OAI-script</baseURL>
    <protocolVersion>1.0</protocolVersion>
    <adminEmail>mailto:oai@rz.hu-berlin.de</adminEmail>
  - <description>
    - <oai-identifier xmlns="http://www.openarchives.org/OAI/oai-identifier"
        xmlns:xsi="http://www.w3.org/2000/10/XMLSchema-instance"
        xsi:schemaLocation="http://www.openarchives.org/OAI/oai-identifier
        http://www.openarchives.org/OAI/oai-identifier.xsd">
        <scheme>oai</scheme>
        <repositoryIdentifier>HUBerlin</repositoryIdentifier>
        <delimiter>:</delimiter>
        <sampleIdentifier>oai:HUBerlin:dissertationen:kemps-christoph-2000-06-
          18</sampleIdentifier>
      </oai-identifier>
    </description>
  </Identify>
```

OAI_ListRecords / Resumption Token



Using Virginia Tech Repository Explorer at http://purl.org/net/oai_explorer

OAI_ListRecords / Resumption Token



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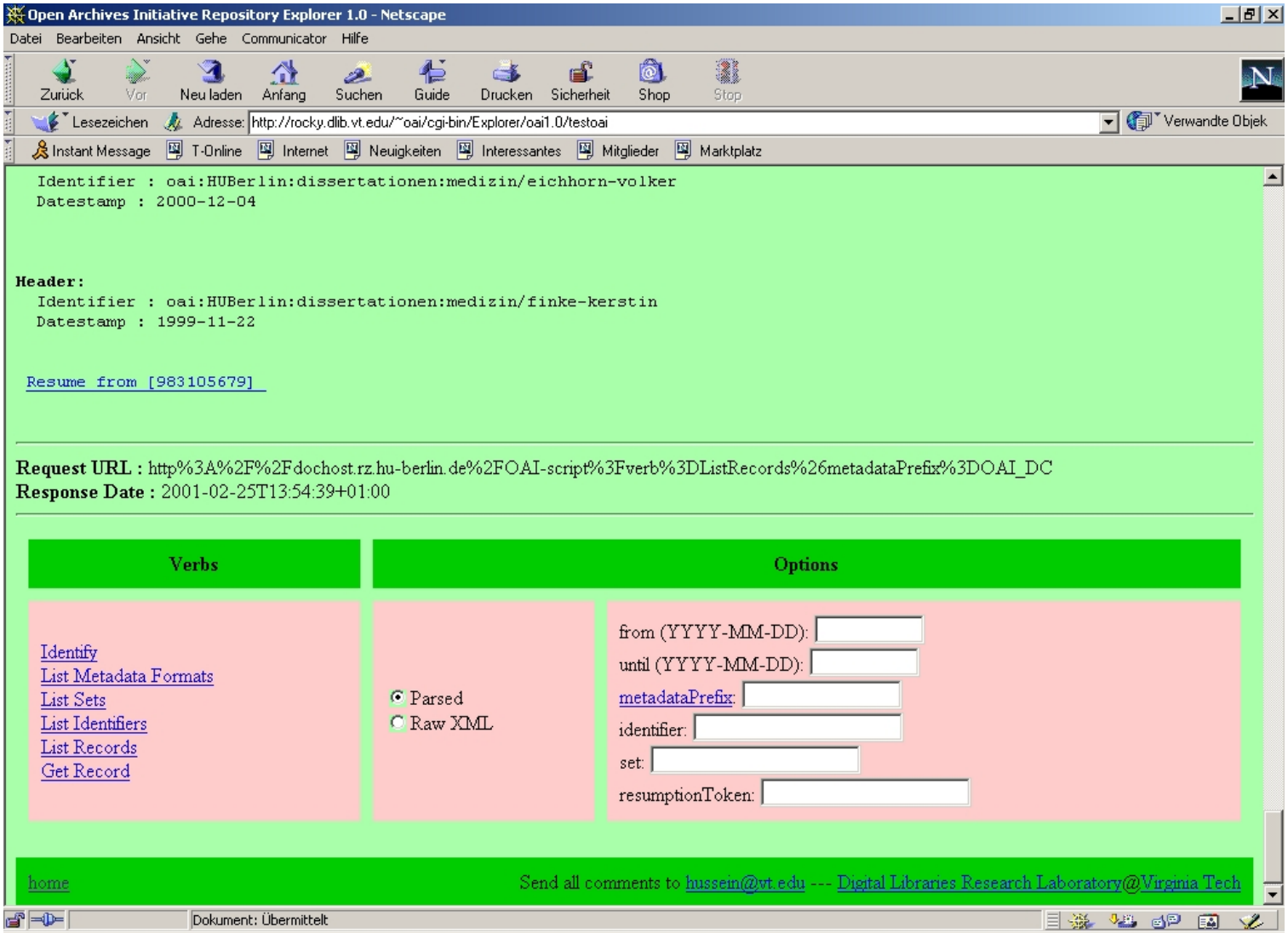
OAI_ListRecords / Resumption Token



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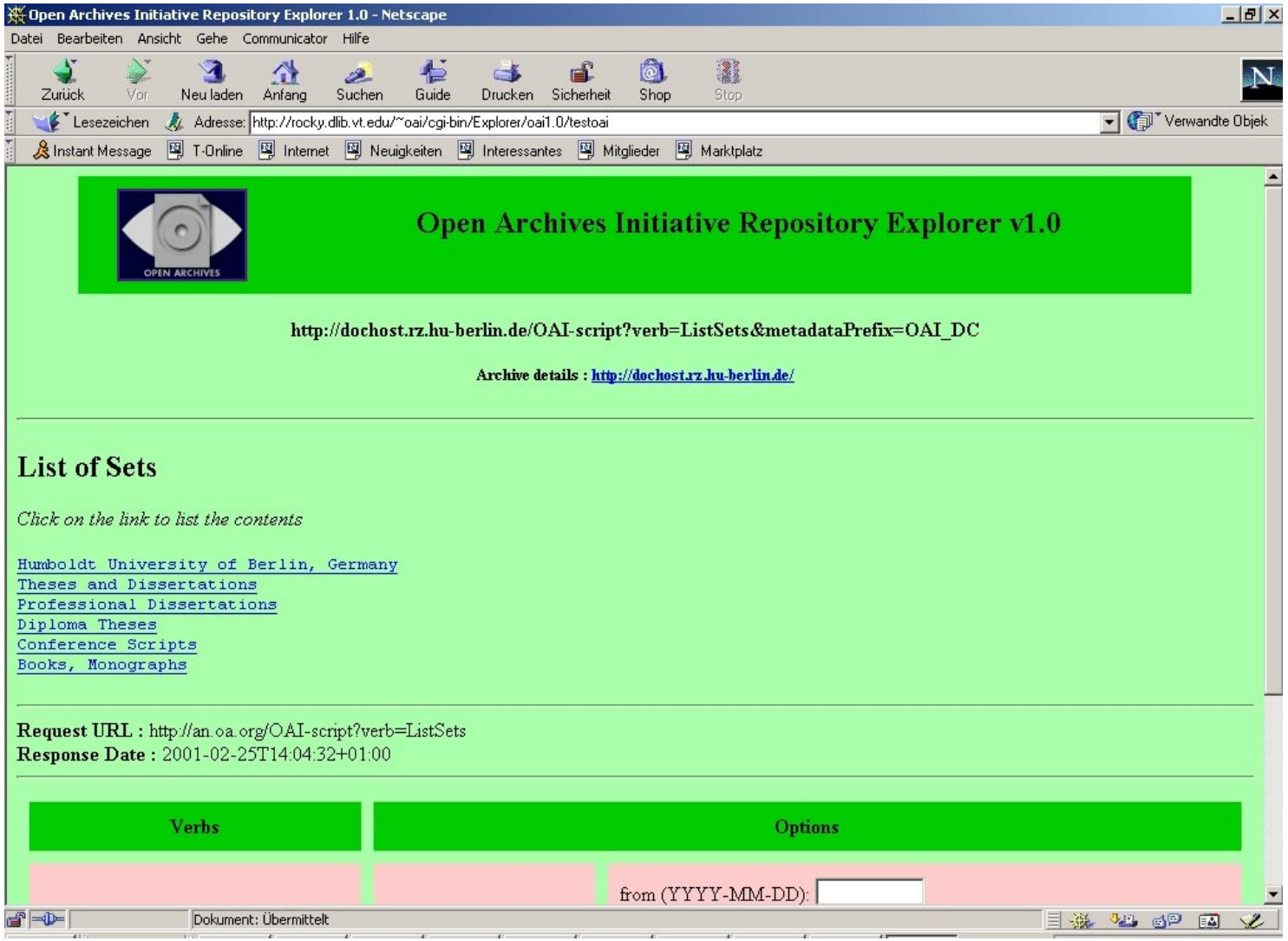
OAI_ListSets



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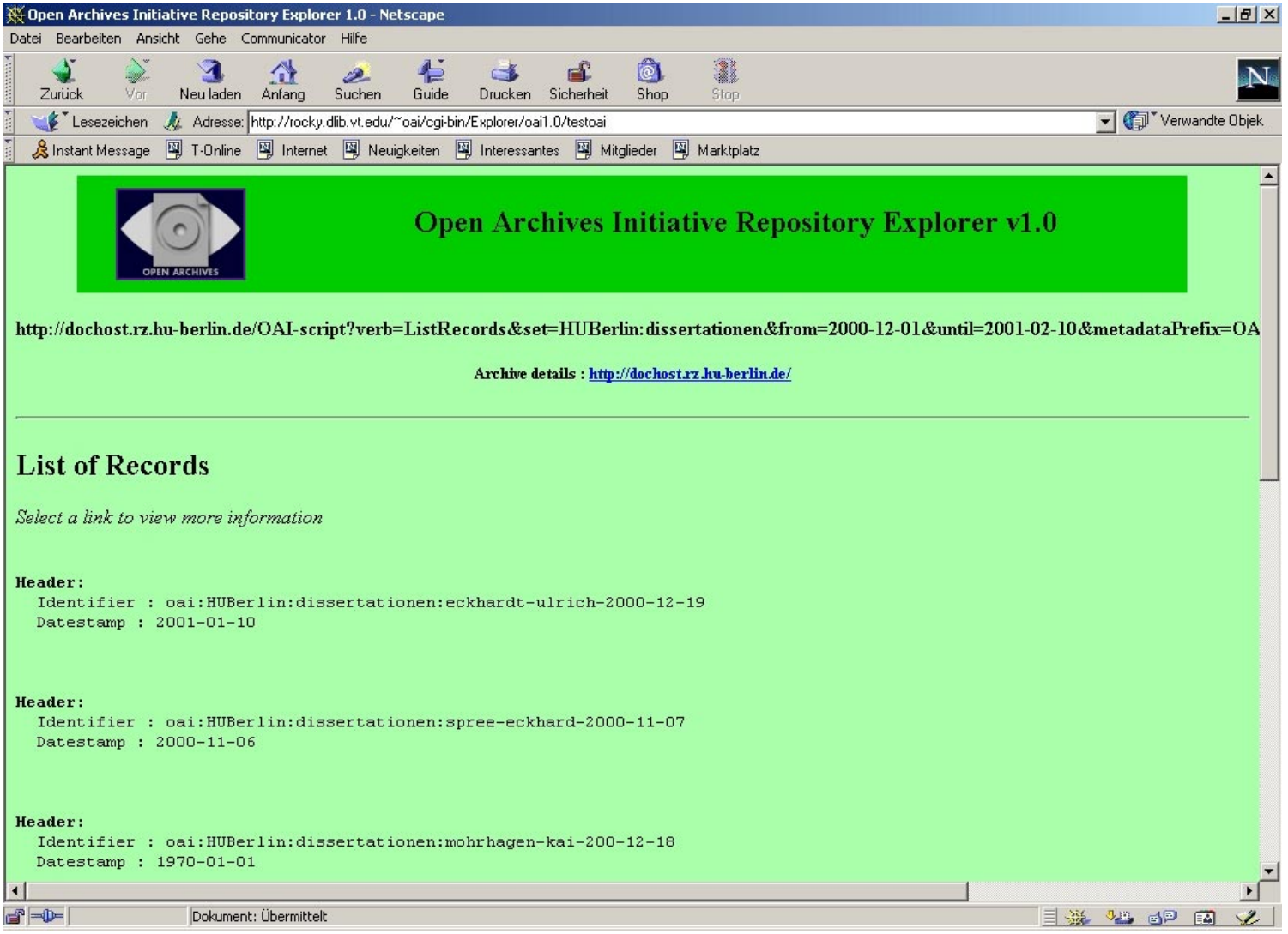
OAI_ListRecords



Using Virginia Tech Repository Explorer at http://purl.org/net/oai_explorer

Experiences at HUBerlin

- Use Databases
  - agree to datamodel for Dublin Core for theses and dissertations
  - php4 from HUBerlin scripts can be used
- Next:
  - Integration into NDLTD and PhysDis
  - within DINI: usage e.g. for educational materials
- Protocol may be not sufficient for specific user domains

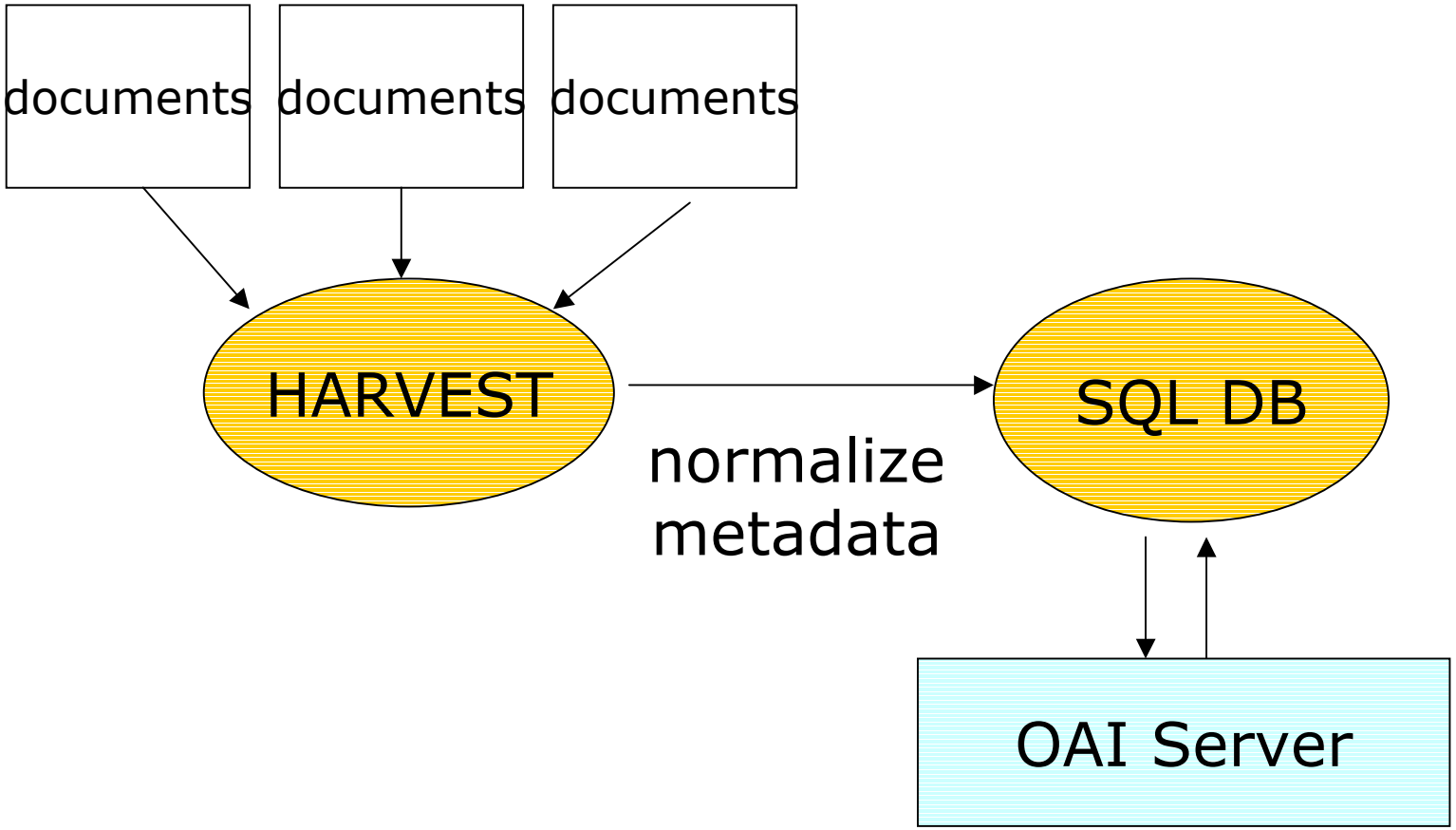
PhysDoc

- PhysDoc is itself a distributed document database network, started in 1995
- Especially for individual authors, smaller departments and institutions
- HARVEST gatherer collects documents and its metadata from linklists of document collections
- 40000 documents used in alpha test

OAI Implementation

- modified HARVEST holds SOIF and DC metadata in local text files
- storage size no problem
- decision to convert data offline and store structured data in SQL database (mysql)
- use DC when possible, otherwise map SOIF to DC

OAI Implementation



OAI Implementation

- software written in PHP
- protocol
  - easy because it uses modified implementation of HU Berlin
- metadata converter
  - maps SOIF to DC
  - converts different DC representations to one common one

Metadata quality

- good quality important
- currently 988 documents out of 40000 provide DC metadata
- DC is not DC...
  - different representations for languages
  - GER ←→ de
  - different representations for dates
  - 26.2.2001 ←→ 2001-02-26

Future work

- improve metadata converter
  - improve summarizers
  - closer look at different DC representations
- tell people to use metadata
  - OAI workshops
- ease production of metadata

OAI in Germany

- Supported by DINI
- First Implementation Workshop
  - June 2001
  - by
    - Humboldt-University Berlin, Computing Centre (Peter Schirmbacher)
    - University Library of Oldenburg (Han Wätjen)
    - Institute for Science Networking, Univ. Oldenburg (Prof. Hilf)

Thank You!

- OAI-project page at RZ HU Berlin:
  http://dochost.rz.hu-berlin.de/oai
  /OAI-Script
- OAI at Institute of Science Networking, Oldenburg:
  http://physnet.uni-oldenburg.de/oai/oai.php

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