DicomStar

A Google for DICOM Files

Motivation

- ... you need **special** DICOM images and DICOM files ...

- ... finding of images in archives takes a **long** time ...

- ... you need to apply **special** search queries ...

- ... you want to **see** thumbnails for visual selecting ...

- ... you want to download matching files (DICOM, JPEG, WebPage) ...

- ... you want download the whole **series** belonging to a found image ...

- ... you **don't** want a large pool of unsorted images on your PC ...

- ... quick and easy to use **Web** interface ...

- ... **access** to DICOM data *and* images from everywhere ...

- ... you want to customize your **own** view to data ...

- ... you want to see a **Movie** from series or Multiframe ...

- ... you want to do a **quick** fulltext search ...

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Solution

DicomStar

DicomStar is a _fast_ database driven Search Engine for DICOM images and files (e.g. structured reports, waveforms, ...).

"A Google for DICOM!"

DicomStar is a Client-Server-Application for archiving and retrieving DICOM files and images.

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some Features

- Search and **find** DICOM files and images

- **Web** based (accessible from everywhere)

- User Interface for **simple** search

- True **SQL** queries

- Thumbnail **preview**

- Downloadable **hits** (DICOM, JPEG and Web Page)

- Collect all images from same **series**

- File system access for **full** loading of series

- **Large** image archive, many modalities and formats

- Fulltext search

- Patient Search

- WADO Access …

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some Applications

- Image Pool
- Archive
- Consulting
- Publications
- Research & Development
- Education & Training
- Structured File share
- Quality Control
- Test Resources
- Marketing and Sales support
- Data mining
- References
- Tele-Portal… …

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Process Flow:

... Results

Query ...

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Detail: Query Results presentation I

The DicomStar found 50 Hits. Page 5 of 9   First Previous Next Last

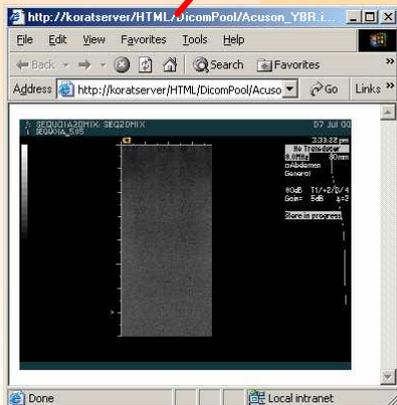| Download JPEG	Download DICOM	Web Page	Size	Study Date	Image Type	Modality	Manufacturer	Search whole Series
	\DicomPool\Acuson_YBR.img		925432	20000707	ORIGINAL\PRIMARY\\0001	US	ACUSON	

Image View and Download

File information (some possible tags shown)
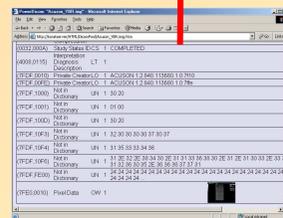
This view is an example only.

View is online configurable by user!

Web Page

File Download

Search whole series to this image (see next page)

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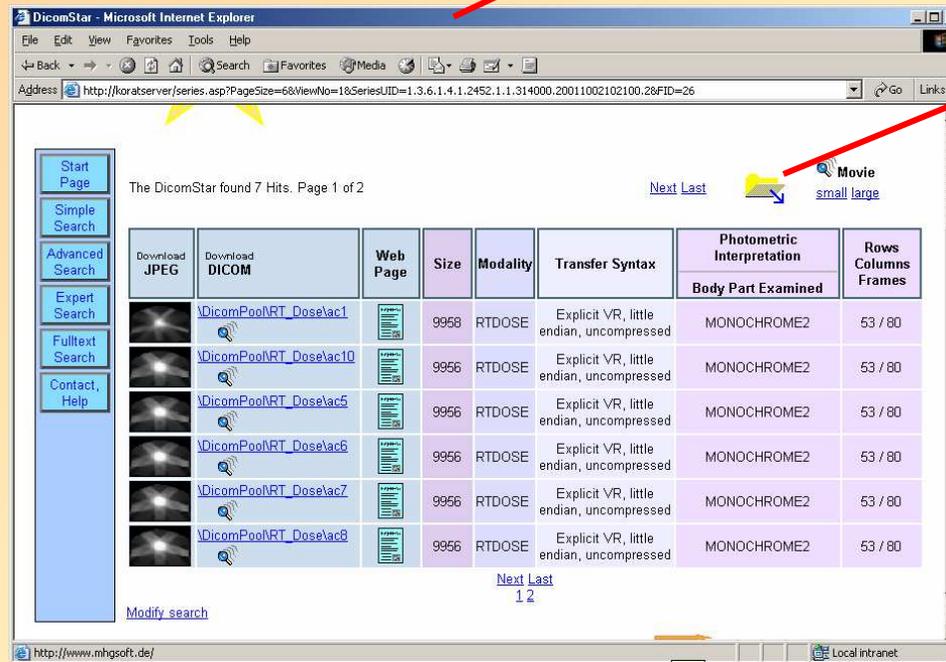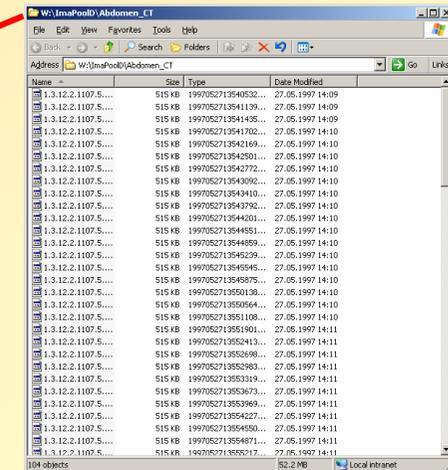
Detail: Query Results presentation II
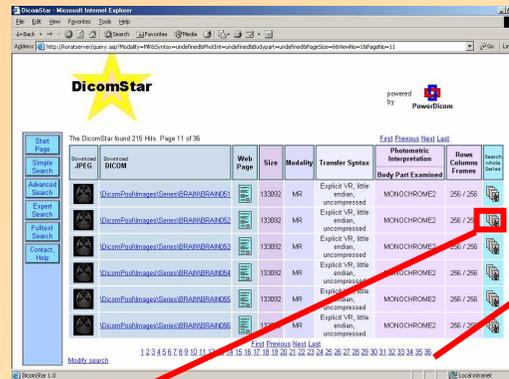
Hit list Navigation

File system access

All Images of same series

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Detail: Simple Search

Easy user interface – looking for images

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Detail: Advanced Search

Choose tags from a list and build your own query with your specific conditions!

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Detail: Expert Search

Type in SQL statements! Very detailed search possible.

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Detail: Patient Query

Type in the first letters of Patient's name.

Patients list

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Detail: Patient Navigation

Navigate ...

... from Patient ...

... to studies ...

... to series ...

... to images.

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Detail: WADO Access

WADO is a fast transfer protocol for accessing DICOM Objects over HTTP.

DicomStar supports multiple MIME types.

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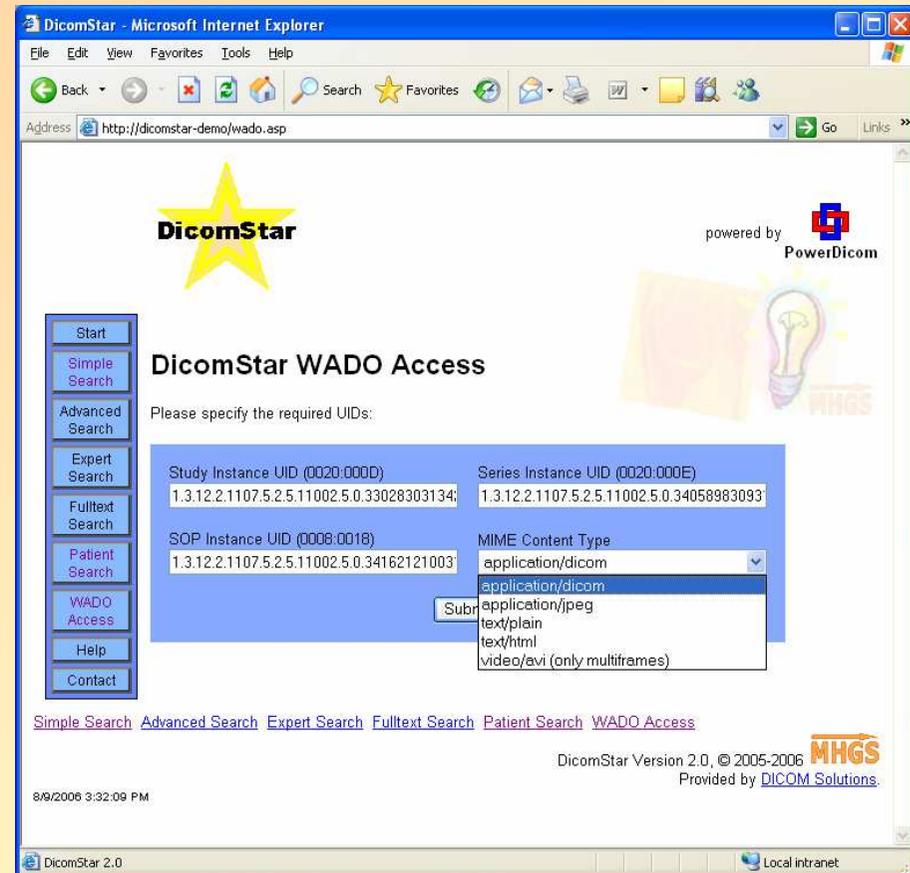
Detail: True Fulltext Search

All files are indexed for a quick Fulltext search, including wildcards

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Detail: Web Page

HTML formatted DICOM file for easy data exchange

Nested Sequences are supported

Image preview

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Detail: Integrated Movie Player

1. Perform a query, open full series

2. Play Movie ...

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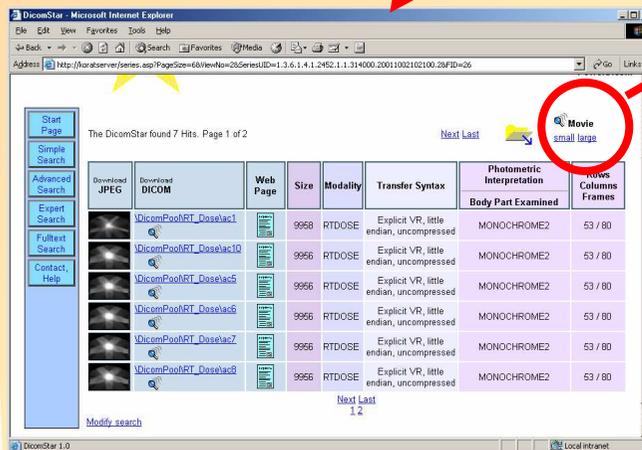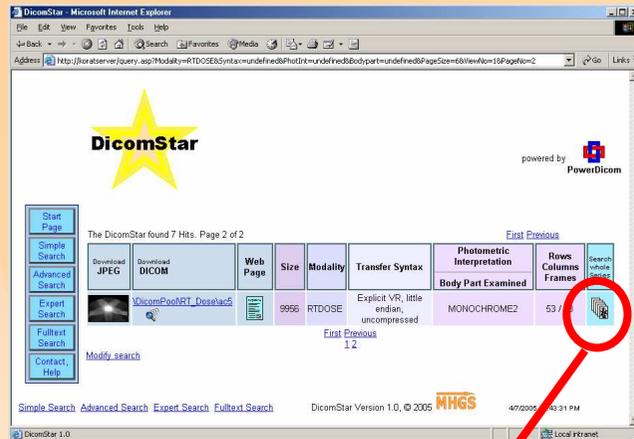
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More user interfaces ...
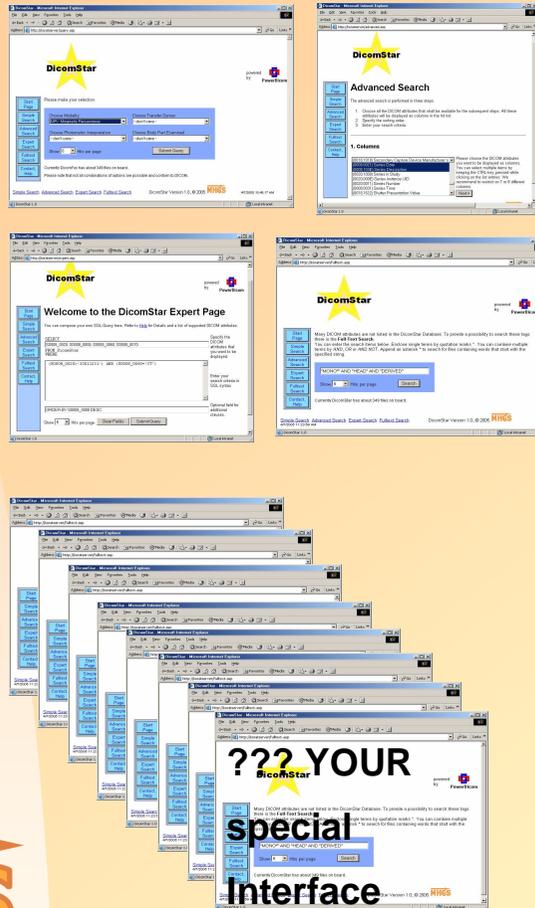
Simple Search, Advanced Search, Expert Search, Fulltext Search, Patient Search, WADO Access ....

These are only **examples** for YOUR view to database queries.

Please keep in mind:

A well sorted database is the basic layer for many different user interfaces – input masks AND result presentation.

For YOUR special view to data please contact us.

??? YOUR special Interface

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Maintenance:

- **Easy!**
- **Main work for inserting new files into database is automated by scripts**
- **'Few click' solution**

Performance:

■ **Productive system is running at customer!**

■ **Typical query:**
less than 2 seconds
Host: Windows 2000 Server @ Pentium II, 800 MHz, 512 MByte RAM, IIS, approx. 60.000 DICOM files on board Client: Windows XP @ Pentium IV, 1.5 GHz, 1 GByte RAM

Note:

Performance depends on traffic and connection speed.

Number of DICOM files loaded into database is only limited by database capacity and available disk space – not by DicomStar.

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Technical Overview:

Fulltext

JPEG

HTML

Tags

Data base
SQL Server

Server/
Host

Automation Script

SQL Query

Results

DicomStar

Automation Server for
DICOM processing

Client

DicomStar

Advanced Search

The advanced search is performed in three steps.

1. Choose all the DICOM attributes that shall be available for the subsequent steps. All these attributes will be displayed as columns in the hit list.
2. Specify the sorting order.
3. Enter your search criteria.

1. Columns

Frontend

Desciption:
DICOM files from the file system are
automatically processed by DicomStar via
script. The Database is filled with DICOM
attribute values. Additional files like
Thumbnails are created automatically, too.
The Web interfaces communicate with the
database, present results, and support
further navigation (e.g. Image -> series).

File system (Disk,
Network) with
DICOM files to be
processed

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System Requirements:

- Web Service (HTTP Protocol)
- Client-Server Architecture

Host:

- Windows Server
- Internet Information Server (IIS)
- Database (SQL Server)

Client:

- Internet Browser
- **No additional Software necessary !!!**

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