

## XdsObjects

### Easy to use toolkit for XDS, XDS-I, XDR & XDM

Following the success of DicomObjects for DICOM, Medical Connections introduced XdsObjects, a similar toolkit to simplify the development of applications which conform to the IHE Cross Enterprise Sharing (XDS) family of profiles, including Cross Community Access (XCA).

XdsObjects is designed to make XDS development very simple, hiding most of the complexities within the toolkit, giving the developer a simple high-level API which can be used for almost all XDS applications. Examples of such applications are available for download.

XdsObjects can be used with any development tools which support the Windows .NET framework.

#### Examples of use:

- Creation and publication of documents
- Retrieval and viewing of documents
- XDS-I image manifest creation
- Viewing images using XDS-I
- Initiating and Receiving Gateways
- Document Repositories
- Sending and receiving documents for point to point use
- Writing documents to and reading from portable media and e-mail

The support staff at Medical Connections are happy to help those “new” to XDS, and pride themselves on introducing new developers to the subtleties of the protocols.

The XDS-I support includes specific facilities for all the methods of image retrieval, including DICOM C-MOVE, WADO and “Rad-69”. Many supporting transactions are also supported, including Audit Logging for ATNA, and PIX V3. All transactions may use TLS, and they have successfully been tested by Medical Connections or by customers at the last 3 European IHE Connectathons.

XdsObjects is licensed on a “royalty-only” basis, so there is no “up-front” fee, and you only need to buy licenses as and when you sell copies of products to your customers. A free 60 day trial is available from: [www.medicalconnections.co.uk/XdsObjects](http://www.medicalconnections.co.uk/XdsObjects).

#### + Other services:

##### Support, consultancy and development

We are happy to use our skills to assist anyone else needing help using the XDS family of profiles, whether using XdsObjects or not. Commercial consultancy, and custom program development are available – contact us as overleaf for details.

##### DicomObjects

The DicomObjects toolkits have allowed developers around the world easily to incorporate DICOM into their programs since 1999. They are available for both the ActiveX/COM environment, and as native .NET DLLs.



## XdsObjects technical details

### Profiles Supported

- XDS.b & XDS-I.b
- XDR & XDR-I
- XDM
- XCA & XCA-I
- PIX V3
- ATNA

### Actors

- Document Source
- Image Document Source
- Document Consumer
- Image Document Consumer
- Document Repository
- Initiating and Receiving Gateway (XCA)
- Document Recipient (XDR)
- Portable Media Creator/Importer (XDM)

### Security Facilities

- Transport Layer Security (TLS) for network operations
- Simple interface for audit record creation, allowing BSD or TLS submission

### API Overview

The model used in XdsObjects is very high level allowing “documents” and their associated meta-data to be created and/or used without the need for developers to implement any of the low level web service and XML details which are so important but so complicated within the XDS protocols. All data is packaged into/from simple, documented .NET classes, hiding the complexities of the ebXML model, such as classification schemes, slots and associations. This includes simplified interfaces for otherwise difficult processes such as the formatting of parameters to registry queries, and placing documents within folders. The various errors which may be received are similarly translated to straightforward exception objects which may be used directly or “thrown” as needed.

A viewer control is included, which allows simple viewing of most XDS content, including DICOM key object notes, which can automatically trigger retrieval of the associated DICOM images, for use with XDS-I.

### DICOM interface

Whilst the API integrates especially well with our DicomObjects toolkit, all the DICOM functionality has been abstracted in a format neutral manner to allow usage with other toolkits if necessary. The XdsObjects package include support for the “Rad-69” transaction, and when used with DicomObjects, WADO and DICOM C-MOVE can easily be incorporated as well, allowing even “per-endpoint” choice of retrieval protocol if desired.

### Presentation

XdsObjects is available as both CLR 3.5 and CLR 4.0 (client) DLLs, which are architecture neutral, allowing use on both 32 and 64 bit machines.



*BridgeHead Software has successfully partnered with Medical Connections for around 4 years. After our initial engagement, we quickly realised that they added a lot of value to our business proposition. Not only do we benefit from the quality of their software toolkits (both DicomObjects and, more recently, XdsObjects), but also from their expertise and insight around how these technologies should be implemented. They are always proactive in their service and provide comprehensive support throughout the lifecycle of a project.*

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