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Health informatics — Messages and communication — Web access reference manifest

Informatique de santé — Messages et communication — Manifeste de référence d'accès à Internet



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Foreword

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Introduction

Web access technology is increasingly being used to enable clinicians to share clinical documents, including the results of healthcare procedures such as diagnostic imaging procedures, which can reference image data objects. This can be supported by means of one or more document and data object repositories which enable clinical documents, and any data objects that they reference, to be made available to authorized clinicians who are subject to the same governance rules regarding access to such clinical documents and referenced data objects. A clinician might wish to make clinical documents available to other clinicians whose systems have access to the servers to which his or her system has access.

Several different use cases exist regarding the way in which a clinical document, in the form of e.g. a web page, can be made available by a source clinician to clinicians within a target computational domain in such a way that any objects referenced by the clinical document can be retrieved and presented to the target clinicians. Different use cases exist, depending on whether or not the target clinicians reside in the same computational domain as the clinician who wishes to share documents, which determines whether or not the target clinicians have access to the same servers as the source clinician. The following are some examples.

a) The clinicians work in the same computational domain.

The source clinician makes the document available to the target domain clinician by making a pointer to the clinical document available to them. The systems used by the target clinicians can display the clinical document text content and any referenced data objects since they have access to the same servers as the source clinician.

b) The target domain clinicians work in another computational domain with indirect access to the originating computational domain servers by means of agreed mechanisms.

The clinician in the originating computational domain makes the document available to the target clinicians by means of a pointer to the clinical document. The system used by the target clinician can display the clinical document text content and the referenced objects since it has indirect access to the servers referenced by the pointers within the document by agreed means.

c) The target clinicians work in another computational domain within which no access to the originating computational domain servers has yet been implemented.

In this case, the clinical document can be made available to the target clinicians so that the data objects and clinical document text can be displayed in similar ways to those available in the originating computational domain only by sending copies of the clinical document and referenced objects to the target computational domain where they are stored in target computational domain servers.

Since the pointers in the clinical document point to servers that are not accessible in the target computational domain, the system that receives the copy files in the target computational domain will be unable to display the referenced files unless some appropriate provisions are made.

There are two possibilities:

- 1) the pointers in the clinical document are changed to point to the appropriate servers in the target computational domain;
- 2) the clinical document cannot be changed since it has been digitally signed and requires that a mechanism be implemented to enable the pointers to be changed in real time, i.e. some mechanism to detect pointers that will fail and replace them with the appropriate pointers for use in the target computational domain.

The provisions of this International Standard provide a logical data structure that can support a solution in the case of c) 2) above, in which the original document and the referenced information objects stored in files are sent to the target computational domain together with a manifest of referenced information objects. This manifest consists of a table with one row per referenced object, which includes columns for certain key information as follows:

- the URI as it appears in the original document;
- the Globally Unique Identifier of the information object to be used in the source computational domain (see 3.1.5);
- the Globally Unique Identifier of the information object to be used in the target computational domain;
- the name of the information object;
- the name of the file that contains the information object;
- a security text string containing references to security policies for the control of access to the document, as agreed by the communicating parties;
- a checksum of the content of the file;
- the URI to be used in the source computational domain;
- the URI to be used in the target computational domain, when known;
- a patient identifier to be used in the target computational domain.

Applications in the target computational domain could work in such a way that the URIs within the document are changed from that in the original document to the appropriate value before being sent on to the network. This can be done by looking up the URI value in column 7 of the manifest found in the row having a column 1 URI value equal to the one stored in the original document. Those URIs in documents that have been created in the target computational domain do not have entries in a manifest and are sent unchanged. This functionality could be incorporated within the server application. The standard provisions can be used to enable sharing of documents that are referenced by an IHE XDS Document Registry without the need for further provisions, since referenced data objects are retrieved directly from the server.

The method of using the information in the manifest to overcome the problem of broken links in a particular situation is outside the scope of this International Standard. It is important that institutions adapt their procedures in the way which is most appropriate for them to manage the sharing of documents and information objects referenced by them between different computational domains. The maintenance of the locally stored copies of manifest content could be enabled through the use of the demographics information contained in the header section of the manifest.

This International Standard presumes that the enabling governance agreements and mechanisms to allow sharing of manifests (and their embedded URIs) have already been established. The methods described here are simply for the purpose of ensuring that "packages" of related documents can be copied to a target destination and the original URIs in the referencing document can be redirected to the target URIs in the target computational domain.

It should be understood that the original URIs are not used in the target domain. The source domain will, of course, not fill in the target items of the manifest. It should also be understood that the transformation of the source domain URIs to the target domain URIs does not necessarily require the target URIs be stored in the manifest. It is anticipated that the manifest could constitute a source of traceability for the transformation of the URI references from source to target. If the target URIs are recorded in the manifest after the transformation, then the content of the manifest can be used to assist in addressing any problems of access or presentation that arise during use in the target domain. In this case, the manifest is not a temporary object, but something retained for these purposes and the recording of the destination URIs is helpful. It is also the case that a method for handling the translation of URIs could depend on a persistent manifest. It is necessary to support

the case that it is not possible to amend the original referencing document, e.g. if it has been digitally signed. Should the target organization have other methods for traceability of the transformation, then of course the destination manifest need not persist.

This International Standard expresses a logical data structure.