# Storage Commitment in DICOMweb

## SUBMITTED BY Jeroen Medema

## On Behalf of Working Group WG27

(Web Services for DICOM)

## Introduction/Scope

## The Storage service is meant to store images and/or imaging related data on another system. There is, however, no guarantee that this receiving system will keep this data. That behavior is on purpose and makes sense for example for analysis workstations or AI algorithms that get studies pushed to them.

## A data creating system – say an acquisition modality or an AI algorithm – regularly will need to delete locally stored data to limit resource usage, in this case disk space. To prevent the re-creation of that data (which, for instance, increases cost, and possibly requires a patient to be subjected to radiation again), a system that needs to delete local data must ensure that this data is in safe hands: another system is to be made responsible for keeping it. The Storage service, however, does not guarantee safe storage.

## The Storage Commitment service gives a system, that wants to hand over the responsibility of keeping certain data, the means to say to another system “I want you to be responsible for safely keeping this data. Can you do that?” When acknowledged, the responsibility of safekeeping has been transferred. The system that no longer has the responsibility for keeping the data can then safely delete it.

## Limitations of Current Standard

DICOMweb covers the classic DICOM Storage and Query/Retrieve services with the same semantics: data is being copied. For DICOMweb the need to be able to rely on the fact that other systems will safely keep copied data safely is also applicable. However, there is no Storage Commitment service in DICOMweb to achieve that; there is an inconsistent set of services in DICOMweb compared to classic DICOM. Solutions will have to fall back to other mechanisms to achieve safekeeping.

A use case can be imagined where a medical enterprise has multiple remote locations, and studies from modalities are to be stored safely in a cloud PACS/VNA. In this configuration, modalities still want to offload their data and ensure safekeeping but cannot do that using DICOMweb. Classic DICOM cannot be used either. So how is this to be done? The same would hold if there were local PACSs that would use the cloud VNA for sharing. How to offload the data from the local PACSs when not storage commitment is possible? Also, workstations (creating evidence) would have the same issue.
In general: when RESTful storage commitment is not possible, we cannot deploy DICOMweb properly. A final observation is that it is currently also not possible to create an IHE profile in a DICOMweb-oriented way, like for instance Scheduled Workflow, as storage commitment is not available in DICOMweb.

## Description of Proposal

Define the Storage Commitment service in DICOMweb given the described safekeeping need.

It needs to be determined what mechanisms are to be defined/selected for achieving this functionality. Even though Storage Commitment in classic DICOM supports both synchronous and asynchronous approaches, where the latter seems to be deployed more often, this does not necessarily need to be the way this is to be done in a RESTful way. Security aspects and existing non-standard solutions will play a role in determining how to achieve this functionality.

## Parts of Standard Affected

This work item will affect Parts 2 and 18 of the DICOM standard.

## Resources & Timeline

About 12 people are active in Working Group 27. Jeroen Medema from Philips and Dieter Krotz from Siemens have volunteered to work on writing this supplement. It is estimated that this work will take only a few months. A first draft should be available by June 2022.

Members of WG27 anticipate that two to four hours of Working Group Six meeting time will be required on four occasions during 2022/2023 to review and approve an early draft as well as public comment, letter ballot, and final text versions of the supplement.