# New work item request for DX and RF Modality Protocol Storage

## SUBMITTED BY Heinz Blendinger

## On Behalf of Working Group 02

(Projection Radiography and Angiography)

## Introduction/Scope

Consecutive to introducing Protocol Storage for CT and XA X-Ray modalities, similar aspects for recording modality acquisition protocols are mandated to achieve a complete quality assurance for the remaining modalities in Radiology. Only the Modality Protocol Storage Objects enable protocol details to leave the individual modality system.

There are a number of use cases that would benefit from the ability to store and retrieve modality protocols.

* Sites or networks with more than one system of a particular model could edit protocols on one system then easily distribute then to the other systems of the same model
* The protocol used for a particular study could be stored in the study so it was necessary to repeat the study, or perform an easily comparable follow-up study, the protocol could be retrieved and used.
* A clinical trial trying to maintain consistency could distribute a general protocol or even specific protocols for a variety of systems
* Best practice protocols could be distributed electronically
* A radiologist reviewing a study could get access to more detailed information about the acquisition protocol used.
* The medical physicist and/or the radiation safety office could export the defined protocols from all the devices to a central repository to facilitate their management within a site for consistency and dose management.

## Limitations of Current Standard

The existing standard has now a well-defined method for the storage and retrieval of CT and XA acquisition protocols. MR modalities pending. The DX and RF modalities are not yet supported.

The various Image objects include only a few protocol-related attributes, typically related to the appearance of the images. There are a number of use cases that would benefit from the ability to store and retrieve modality protocols.

## Description of Proposal

The envisioned approach to encode DX and RF acquisition parameters and values includes:

* Create new IODs for DX and RF protocols (based on commonalities with the existing protocol management IODs)
* (Optional) Enhance the current image IODs with a protocol module
* Some issues to consider will include: how much of the DX and RF protocol details will remain “vendor private” and how much cross-vendor/cross-model interoperability is feasible/reasonable/useful; what is the best way to manage the introduction of new details in the face of ongoing innovation in acquisition capabilities of the equipment and the protocols that drive them.

The impact on the PACS side would be pretty low, as this type of IOD is already established for CT and XA and an IHE Profile “Management of Acquisition Protocols” (MAP) is in Trial Implementation state.

## Parts of Standard Affected

PS3.2, PS3.3, PS3.4, PS3.6, PS3.16, PS3.17.

## Resources & Time Line

Due to the already existing solution for CT and XA protocols, the overall workload is medium. The WG-28 (Physics) will support the WG-02 in identifying the ‘mission critical’ information for appropriate use of DX and RF protocol storage objects.

WG-02 will develop one supplement introducing both IODs and based on the experience with the updates to the Standard by XA Protocol Supplement, a first draft is envisioned by end of the year 2023.

The WG-02 will need to ensure sufficient participation of DX and RF equipment vendors for contributing details on DX and RF protocols. The support by WG-28 (Physics) will assure contribution of users and user organizations (e.g., EFOMP, AAPM).

Based on the experience with existing CT and XA protocol definitions, WG-02 expects 5 meetings with WG-06 of 4 hours each for First Read, Public Comment prep (x 2), Letter Ballot and Final Text prep.

## Security Considerations

Protocol exchange has the possibility of tampering.

Performed protocols will contain PHI.