DICOM Correction Proposal

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Correction Number   CP1507
Log Summary: WADO-URI region parameter forbidden when Presentation State
Name of Standard PS3.18 2015c
Rationale for Correction: Currently the region parameter seems to be allowed to be used with Presentation States. This could cause medical errors, for example if the specified region does not contain the entire "displayed area selection" of the Presentation State, then there might be something significant that is not visible in the returned image. In any case it should be clarified, and if we allow it, we should include a warning. (Users might be unaware that there is more to the image than meets the eye). Sup174 Restful Rendering did not allow a region of a presentation state to be selected – the entire "displayed area selection" was returned. This CP will bring URI, WS, and RS into congruence with respect to this issue. It will also simplify the re-documentation.
Correction Wording:

Update PS3.18 Section 8.2.4 as follows:

8.2.4 Region of the Image

5 This parameter allows selection of a rectangular region of an image matrix to be retrieved. The purpose of this parameter is to allow a user to view a selected area of the image matrix, for example at higher magnification.

The parameter is OPTIONAL for the URI based mode and the WS mode "Rendered Requester" transaction. It shall not be present for other WS mode transactions.

The parameter name shall be "region" for URI based mode, and "Region" for the WS mode.

10 It shall ~~not~~ **only** be present if **the Acceptable Media Types are Rendered Media Types. See Section 6.1.1.3.** ~~contentType is application/dicom.~~

It shall not be present if the Unique Identifier of the Presentation Object parameter is present.

The value shall be expressed as a list of four positive decimal strings, separated by the ',' character, representing the region of the source images to be returned. These decimal values shall be values in a normalized coordinate system
15 relative to the size of the original image matrix measured in rows and columns, with values ranging from 0.0 to 1.0, and representing in the following order:

- the x position of the top left hand corner of the region to be retrieved, 0.0 corresponding to the first column of the image matrix. In the WS mode, this value is encoded into an XML element "XMin".

- the y position of the top left hand corner of the region to be retrieved, 0.0 corresponding to the top row of the image matrix. In the WS mode, this value is encoded into an XML element "YMin".

- the x position of the bottom right hand extent of the region, 1.0 corresponding to the last column of the image matrix, 0.0 being forbidden. In the WS mode, this value is encoded into an XML element "XMax".

- the y position of the bottom right hand extent of the region, 1.0 corresponding to the last row of the image matrix, 0.0 being forbidden. In the WS mode, this value is encoded into an XML element "YMax".

Note

The Server may or may not support this parameter.

If this parameter is supported, an image matrix corresponding to the specified region shall be returned with size corresponding to the specified normalized coordinate values otherwise the complete image matrix shall be returned. If the presentationUID parameter is present, the region shall be selected after the corresponding presentation state has been applied on the images.

> *Update PS3.18 Section 8.2.10 as follows:*

8.2.9 Unique Identifier of the Presentation Object

The parameter name shall be "presentationUID" for URI based mode, and "PresentationUID" for the WS mode.

SOP Instance UID of the presentation state storage object to be applied to the images. This parameter is OPTIONAL for the URI based mode and the WS mode "Rendered Requester" transaction. ~~It shall not be present if contentType is application/dico~~m. **It shall only be present if the Acceptable Media Types are Rendered Media Types. See Section 6.1.1.3.**

The value shall be encoded as a unique identifier (UID) string, as specified in PS3.5, except that it shall not be padded to an even length with a NULL character.

~~If this parameter is combined with region and/or annotation parameter(s), the presentation state shall be applied to the images prior to selecting a region and burning in annotations.~~

If this parameter is present, then the Region of the Image parameter shall not be present. See Section 8.2.4.

If the Presentation Size Mode in the presentation state is SCALE TO FIT or TRUE SIZE, then the displayed area specified in the presentation shall be scaled to fit the size specified by the rows and columns parameters if present, otherwise the displayed area selected in the presentation state will be returned without scaling.

Note

1. The intent of the TRUE SIZE mode in the presentation state cannot be satisfied, since the physical size of the pixels displayed by the web browser is unlikely to be known. If the Presentation Size Mode in the presentation state is MAGNIFY, then the displayed area specified in the presentation shall be magnified (scaled) as specified in the presentation state. It will then be cropped to fit the size specified by the rows and columns parameters, if present.

2. Any Displayed Area relative annotations specified in the presentation state are rendered relative to the Specified Displayed Area within the presentation state, not the size of the returned image.

Though the output of the presentation state is defined in DICOM to be in P-Values (grayscale values intended for display on a device calibrated to the DICOM Grayscale Standard Display Function PS3.14), the grayscale or color space for the images returned by the request is not defined by this standard.

> *Update PS3.18 Section 8.2.10 as follows:*

8.2.10 Unique Identifier of the Series Containing T̶the Presentation Object

The parameter name shall be "presentationSeriesUID" for URI based mode, and "PresentationSeriesUID" for the WS mode.

Series Instance UID of the series containing the presentation state storage object to be applied on the images. This parameter is REQUIRED and shall only be present if "presentationUID" is present.

If this parameter is present, then the Region of the Image parameter shall not be present. See Section 8.2.4.

65   The value shall be encoded as a unique identifier (UID) string, as specified in PS3.5, except that it shall not be padded to an even length with a NULL character.

    Note

    As specified in DICOM, the Presentation State will be in the same study as the images it applies to.