

# DICOM Correction Proposal

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Date of Last Update	2019/03/07
Person Assigned	
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Correction Number	CP-1882
Log Summary: Handling of private attributes in C-FIND and QIDO-RS	
Name of Standard Sup 183 / PS 3.18	
Rationale for Correction: QIDO-RS doesn't specify how private attributes should be handled as either search parameters or includefield parameters. This may just involve treating the QIDO request as a dataset and including private attributes in accordance with data set rules. e.g. /studies?00230010=CreatorName&00231001=001239&includefield=00231002&includefield=00231003	
Correction Wording:	

*Update PS 3.18 Section **8.3.4.1 Attribute Matching** as follows*

### 8.3.4.1 Attribute Matching

The syntax of the match Query Parameter shall be:

```

match           = normal-match / uid-list-match
normal-match    = 1*("&" attribute "=" value)
uid-list-match  = 1*("&" attribute "=" 1#value)
attribute       = (attribute-id) *("." attribute-id)
attribute-id    = tag *("." tag) / keyword *("." keyword)
tag             = 8HEXDIG
keyword        = ; A keyword from PS3.6 Table 6-1.
    
```

Zero or more DICOM attribute/values pairs specify the matching criteria for the search.

Each search transaction defines which attributes are required or permitted.

**Note**

DICOM attributes should not be confused with XML attributes. The Tags and Keywords for DICOM attributes are defined in PS3.6, Table 6-1.

DICOM Attribute/Values pairs shall satisfy the following requirements:

1. Each attribute-id shall be a Data Element Tag or Keyword.
2. Each attribute in the Query Parameter shall be not be repeated
3. Each attribute in the Query Parameter shall have a single value, unless the associated DICOM Attribute allows UID List matching (see PS3.4 Section C.2.2.2.2), in which case the value is a comma-separated list of UIDs.

4. **If a tag represents a Private Data Element the query must also include a corresponding Private Creator Element (see PS 3.5 Section 7.8.1)**

5. The acceptable values are determined by the types of matching allowed by C-FIND for its associated attribute. See PS3.4 Section C.2.2.2. All characters in values that are not qp-chars shall be percent-encoded. In particular, all non-ASCII characters shall be percent encoded. See [RFC3986] for details.

The following US-ASCII characters "#", "[", "]", "&", "=", and "," shall be percent encoded in any Query Parameter.

*Update PS 3.18 Section 8.3.4.3 Attributes Included in the Response as follows*

### **8.3.4.3 Attributes Included in the Response**

A parameter specifies the attributes that should be included in the response. The value is either a comma-separated list of attributes, or the single keyword "all", which means that all available attributes of the object should be included in the response.

```
include = *("includefield" "=" (1#attribute / "private-attribute" / "all"))
```

The request may contain one or more include parameters; however, if a parameter with the value of "all" is present, then no other include parameters shall be present.

### **If an include parameter represents a Private Data Element a corresponding Private Creator Element must be specified as an additional include parameter (see PS 3.5 Section 7.8.1).**

If an attribute is a value of an includefield parameter, it is equivalent to C-FIND Universal matching for that attribute. See PS3.4 Section C.2.2.2.3.

*Update PS 3.18 Section 10.6.1.2.1 Attribute / Value Pair Requirements as follows*

### **10.6.1.2.1 Attribute / Value Pair Requirements**

DICOM Attribute/Value pairs included as Query Parameters in the request shall satisfy the requirements in Section 8.3.4.1.

The user agent may include the following attributes in the request:

- Patient IE attributes
- Study IE attributes (only allowed if the resource is All Studies, All Series, All Instances)
- Series IE attributes (only allowed if the resource is Study's Series, All Series, Study's Instances, or All Instances)
- Composite Instance IE attributes (only allowed if the resource is Study's Instances, Study Series' Instances, or All Instances)
- Additional Query/Retrieve Attributes (see PS3.4 Section C.3.4)
- **Private Data Element Tags and their corresponding Private Creator Element Tags**
- Timezone Offset From UTC (0008,0201)

The following are examples of Search URIs with valid attribute/value pairs:

```
/studies?PatientID=11235813  
/studies?PatientID=11235813&StudyDate=20130509  
/studies?00100010=SMITH*&00101002.00100020=11235813&limit=25  
/studies?00100010=SMITH*&OtherPatientIDsSequence.00100020=11235813  
/studies?PatientID=11235813&includefield=00081048,00081049,00081060  
/studies?PatientID=11235813&includefield=00081048&includefield=00081049  
&includefield=00081060  
/studies?PatientID=11235813&StudyDate=20130509-20130510  
/studies?StudyInstanceUID=1.2.392.200036.9116.2.2.2.2162893313.1029997326.94587,  
1.2.392.200036.9116.2.2.2.2162893313.1029997326.94583  
/studies?00230010=CreatorName&00231001=001239&includefield=00231002&includefield=00231003
```

*Update PS 3.18 Section 10.6.3.3.1 Study Resource as follows*

### **10.6.3.3.1 Study Resource**

For each matching Study, the origin server response shall contain attributes in accordance with Table 10.6.3-3. The "Type" column in the table below refers to the Query/Retrieve Attribute Types defined in PS3.4, Section C.2.2.1. The unique key for a Study resource search response is the Study Instance UID (0020,000D).

...

In addition, the response shall contain:

- All other Study level attributes passed as match or include parameters in the request that are supported by the origin server
- If the include parameter has been specified in the request, and its value is "all", all available Study Level attributes
- **If a Private Data Element has been specified as an include parameter and it is supported by the origin server the Private Data Element and its corresponding Private Creator Element**

The origin server shall not return any Series or Instance Level attributes contained in include parameters.

*Update PS 3.18 Section 10.6.3.3.2 Series Resources as follows*

### **10.6.3.3.2 Series Resources**

For each matching Series, the origin server shall return all attributes listed in Table 10.6.3-4. The "Type" column in the table below refers to the Query/Retrieve Attribute Types defined in PS3.4, Section C.2.2.1. The unique key for a Series resource search response is the Series Instance UID (0020,000E).

...

In addition, the response shall contain:

- All other Series Level attributes passed as match or include parameters in the request that are supported by the origin server.
- If the "includefield" parameter has been specified in the request and its value is "all",
  - If the resource is Study's Series include all available Series Level attributes
  - If the resource is All Series, include all available Study and Series Level attributes
- If the Target Resource is the All Series resource, then include all Study level attributes specified in Section 11.6.3.3.1.
- **If a Private Data Element has been specified as an include parameter and it is supported by the origin server the Private Data Element and its corresponding Private Creator Element**

Instance Level attributes contained in include parameters shall not be returned.

*Update PS 3.18 Section 10.6.3.3.3 Instance Resources as follows*

### **10.6.3.3.3 Instance Resources**

For each matching Instance, the origin server shall return all attributes listed in Table 10.6.3-5, if present in the Instance. The Type column in the table below refers to the Query/Retrieve Attribute Types defined in PS3.4, Section C.2.2.1. The unique key for an Instance resource search response is the SOP Instance UID (0008,0018).

...

In addition, the response shall contain:

- All other Instance Level attributes passed as match or include parameters that are supported by the origin server.
- if the "includefield" parameter has been specified in the request and its value is "all",
  - If the resource is Study's Instances include all available Series Level attributes
  - If the resource is Study Series' Instances, include all Instance Level attributes
  - If the resource is All Instances, include all available Study and Series Level attributes

- If the Target Resource is the All Instances or Series' Instances resource, then include all Study level attributes specified in Section 10.6.3.3.1.
- If the Target Resource is the All Instances or Study's Instances resource, then include all Series level attributes specified in Section 10.6.3.3.2.
- **If a Private Data Element has been specified as an include parameter and it is supported by the origin server the Private Data Element and its corresponding Private Creator Element**