**Log Summary:**  Handling of private attributes in C-FIND and QIDO-RS

**Name of Standard**
PS3.18 2019c

**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:

```plaintext
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.
```

One 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 shall also include a corresponding Private Creator Element (see PS3.5 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 shall be specified as an additional match parameter (see PS3.5 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&00700002.00100020=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=AcmeCompany&includefield=00231002&includefield=00231003
/studies?00230010=AcmeCompany&00231001=001239&includefield=00231002&includefield=00231003
```

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10.6.3.1 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.

10.6.3.2 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.

10.6.3.3 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