

Anonymization Conformance Statement

1. DOCUMENT REVISION

Version	Change Description	Change Date
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2. PURPOSE

This document outlines the DICOM Anonymization Filter conformance claims to the Basic Application Level Confidentiality Profile for patient anonymization for version 2022b of the DICOM standard.

3. BASIC APPLICATION LEVEL CONFIDENTIALITY OPTIONS

Following table provides an overview of the Basic Application Level Confidentiality Options supported.

Basic Application Level Confidentiality Option	Supported
Clean Pixel Data Option	NO
Clean Recognizable Visual Features Option	NO
Clean Graphics Option	NO
Clean Structured Content Option	NO
Clean Descriptors Option	NO
Retain Longitudinal Temporal Information with Full Dates Option	NO
Retain Longitudinal Temporal Information with Modified Dates Option	NO
Retain Patient Characteristics Option	NO
Retain Device Identity Option	NO
Retain Institution Identity Option	NO
Retain UIDs	NO
Retain Safe Private Option	NO

4. DE-IDENTIFIER

Falcon MD does not claim conformance to an Application Level Confidentiality Profile and Options as a de-identifier.

5. ANONYMIZATION

The anonymization process is fully automated, and therefore cannot be customized. Falcon MD is using the GDCM library for anonymization (version 3.1.0).

5.1. ATTRIBUTES REMOVED DURING ANONYMIZATION

See **§7. Appendix** for the full list of Attributes anonymized during the De-Identification Process.

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5.2. ATTRIBUTES INSERTED DURING ANONYMIZATION

Falcon MD does not insert any new tag during anonymization.

5.3. ATTRIBUTES REPLACED DURING ANONYMIZATION

All attributes listed in **§5. Appendix** have a default removal action that determines how to treat the given attribute if it appears in the DICOM data set to be anonymized. Falcon MD replaces all UID tags with a new generated UID that conforms to the DICOM protocol. To generate dummy values Falcon MD is using GDCM DummyValueGenerator. To generate dummy data it is using the MD5 hash algorithm.

5.4. GENERATING NEW UIDS

A new UID is generated using the UIDGenerator utility provided in the GDCM library. This helps mitigate the potential for collisions by helping ensure uniqueness. GDCM handles that for the same studies and series it generates the same unique IDs to keep them consistent.

5.5. PRIVATE ATTRIBUTES

Falcon MD removes all private DICOM attributes during anonymization.

5.6. RETIRED ATTRIBUTES

Falcon MD removes all retired DICOM attributes during anonymization.

5.7. GROUP LENGTH ATTRIBUTES

Falcon MD removes all group length DICOM attributes during anonymization.

6. RE-IDENTIFIER

Falcon MD does not claim conformance to an Application Level Confidentiality Profile and Options as a re-identifier.

7. APPENDIX

The following action codes are used in the table:

- D - replace with a non-zero length value that may be a dummy value and consistent with the VR
- Z - replace with a zero length value, or a non-zero length value that may be a dummy value and consistent with the VR
- X - remove

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- K - keep (unchanged for non-sequence attributes, cleaned for sequences)
- C - clean, that is replace with values of similar meaning known not to contain identifying information and consistent with the VR
- U - replace with a non-zero length UID that is internally consistent within a set of Instances
- Z/D - Z unless D is required to maintain IOD conformance (Type 2 versus Type 1)
- X/Z - X unless Z is required to maintain IOD conformance (Type 3 versus Type 2)
- X/D - X unless D is required to maintain IOD conformance (Type 3 versus Type 1)
- X/Z/D - X unless Z or D is required to maintain IOD conformance (Type 3 versus Type 2 versus Type 1)
- X/Z/U* - X unless Z or replacement of contained instance UIDs (U) is required to maintain IOD conformance (Type 3 versus Type 2 versus Type 1 sequences containing UID references)

Attribute Name	Tag	Basic Profile
Accession Number	(0008,0050)	Z
Acquisition Comments	(0018,4000)	X
Acquisition Context Sequence	(0040,0555)	X
Acquisition Date	(0008,0022)	X/Z
Acquisition DateTime	(0008,002A)	X/D
Acquisition Device Processing Description	(0018,1400)	X/D
Acquisition Protocol Description	(0018,9424)	X
Acquisition Time	(0008,0032)	X/Z
Actual Human Performers Sequence	(0040,4035)	X
Additional Patient's History	(0010,21B0)	X
Admission ID	(0038,0010)	X
Admitting Date	(0038,0020)	X
Admitting Diagnoses Code Sequence	(0008,1084)	X
Admitting Diagnoses Description	(0008,1080)	X
Admitting Time	(0038,0021)	X
Affected SOP Instance UID	(0000,1000)	X
Allergies	(0010,2110)	X
Arbitrary	(4000,0010)	X
Author Observer Sequence	(0040,A078)	X
Branch of Service	(0010,1081)	X
Cassette ID	(0018,1007)	X
Comments on the Performed Procedure Step	(0040,0280)	X
Concatenation UID	(0020,9161)	U
Confidentiality Constraint on Patient Data Description	(0040,3001)	X
Content Creator's Name	(0070,0084)	Z
Content Creator's Identification Code Sequence	(0070,0086)	X

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Content Date	(0008,0023)	Z/D
Content Sequence	(0040,A730)	X
Content Time	(0008,0033)	Z/D
Context Group Extension Creator UID	(0008,010D)	U
Contrast Bolus Agent	(0018,0010)	Z/D
Contribution Description	(0018,A003)	X
Country of Residence	(0010,2150)	X
Creator Version UID	(0008,9123)	U
Current Patient Location	(0038,0300)	X
Curve Data	(50xx,xxxx)	X
Curve Date	(0008,0025)	X
Curve Time	(0008,0035)	X
Custodial Organization Sequence	(0040,A07C)	X
Data Set Trailing Padding	(FFFC,FFFC)	X
Derivation Description	(0008,2111)	X
Detector ID	(0018,700A)	X/D
Device Serial Number	(0018,1000)	X/Z/D
Device UID	(0018,1002)	U
Digital Signature UID	(0400,0100)	X
Digital Signatures Sequence	(FFFA,FFFA)	X
Dimension Organization UID	(0020,9164)	U
Discharge Diagnosis Description	(0038,0040)	X
Distribution Address	(4008,011A)	X
Distribution Name	(4008,0119)	X
Dose Reference UID	(300A,0013)	U
Ethnic Group	(0010,2160)	X
Failed SOP Instance UID List	(0008,0058)	U
Fiducial UID	(0070,031A)	U
Filler Order Number / Imaging Service Request	(0040,2017)	Z
Frame Comments	(0020,9158)	X
Frame of Reference UID	(0020,0052)	U
Gantry ID	(0018,1008)	X
Generator ID	(0018,1005)	X
Graphic Annotation Sequence	(0070,0001)	D
Human Performers Name	(0040,4037)	X
Human Performers Organization	(0040,4036)	X
Icon Image Sequence(see Note 12)	(0088,0200)	X
Identifying Comments	(0008,4000)	X

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Image Comments	(0020,4000)	X
Image Presentation Comments	(0028,4000)	X
Imaging Service Request Comments	(0040,2400)	X
Impressions	(4008,0300)	X
Instance Creator UID	(0008,0014)	U
Institution Address	(0008,0081)	X
Institution Code Sequence	(0008,0082)	X/Z/D
Institution Name	(0008,0080)	X/Z/D
Institutional Department Name	(0008,1040)	X
Insurance Plan Identification	(0010,1050)	X
Intended Recipients of Results Identification Sequence	(0040,1011)	X
Interpretation Approver Sequence	(4008,0111)	X
Interpretation Author	(4008,010C)	X
Interpretation Diagnosis Description	(4008,0115)	X
Interpretation ID Issuer	(4008,0202)	X
Interpretation Recorder	(4008,0102)	X
Interpretation Text	(4008,010B)	X
Interpretation Transcriber	(4008,010A)	X
Irradiation Event UID	(0008,3010)	U
Issuer of Admission ID	(0038,0011)	X
Issuer of Patient ID	(0010,0021)	X
Issuer of Service Episode ID	(0038,0061)	X
Large Palette Color Lookup Table UID	(0028,1214)	U
Last Menstrual Date	(0010,21D0)	X
MAC	(0400,0404)	X
Media Storage SOP Instance UID	(0002,0003)	U
Medical Alerts	(0010,2000)	X
Medical Record Locator	(0010,1090)	X
Military Rank	(0010,1080)	X
Modified Attributes Sequence	(0400,0550)	X
Modified Image Description	(0020,3406)	X
Modifying Device ID	(0020,3401)	X
Modifying Device Manufacturer	(0020,3404)	X
Name of Physician(s) Reading Study	(0008,1060)	X
Names of Intended Recipient of Results	(0040,1010)	X
Occupation	(0010,2180)	X
Operators' Identification Sequence	(0008,1072)	X/D
Operators' Name	(0008,1070)	X/Z/D

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Original Attributes Sequence	(0400,0561)	X
Order Callback Phone Number	(0040,2010)	X
Order Entered By	(0040,2008)	X
Order Enterer Location	(0040,2009)	X
Other Patient IDs	(0010,1000)	X
Other Patient IDs Sequence	(0010,1002)	X
Other Patient Names	(0010,1001)	X
Overlay Comments	(60xx,4000)	X
Overlay Data	(60xx,3000)	X
Overlay Date	(0008,0024)	X
Overlay Time	(0008,0034)	X
Palette Color Lookup Table UID	(0028,1199)	U
Participant Sequence	(0040,A07A)	X
Patient Address	(0010,1040)	X
Patient Comments	(0010,4000)	X
Patient ID	(0010,0020)	Z
Patient Sex Neutered	(0010,2203)	X/Z
Patient State	(0038,0500)	X
Patient Transport Arrangements	(0040,1004)	X
Patient's Age	(0010,1010)	X
Patient's Birth Date	(0010,0030)	Z
Patient's Birth Name	(0010,1005)	X
Patient's Birth Time	(0010,0032)	X
Patient's Institution Residence	(0038,0400)	X
Patient's Insurance Plan Code Sequence	(0010,0050)	X
Patient's Mother's Birth Name	(0010,1060)	X
Patient's Name	(0010,0010)	Z
Patient's Primary Language Code Sequence	(0010,0101)	X
Patient's Primary Language Modifier Code Sequence	(0010,0102)	X
Patient's Religious Preference	(0010,21F0)	X
Patient's Sex	(0010,0040)	Z
Patient's Size	(0010,1020)	X
Patient's Telephone Numbers	(0010,2154)	X
Patient's Weight	(0010,1030)	X
Performed Location	(0040,0243)	X
Performed Procedure Step Description	(0040,0254)	X
Performed Procedure Step End Date	(0040,0250)	X
Performed Procedure Step End Time	(0040,0251)	X

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Performed Procedure Step ID	(0040,0253)	X
Performed Procedure Step Start Date	(0040,0244)	X
Performed Procedure Step Start Time	(0040,0245)	X
Performed Station AE Title	(0040,0241)	X
Performed Station Geographic Location Code Sequence	(0040,4030)	X
Performed Station Name	(0040,0242)	X
Performed Station Name Code Sequence	(0040, 4028)	X
Performing Physician Identification Sequence	(0008,1052)	X
Performing Physicians' Name	(0008,1050)	X
Person Address	(0040,1102)	X
Person Identification Code Sequence	(0040,1101)	D
Person Name	(0040,A123)	D
Person Telephone Numbers	(0040,1103)	X
Physician Approving Interpretation	(4008,0114)	X
Physician(s) Reading Study Identification Sequence	(0008,1062)	X
Physician(s) of Record	(0008,1048)	X
Physician(s) of Record Identification Sequence	(0008,1049)	X
Placer Order Number / Imaging Service Request	(0040,2016)	Z
Plate ID	(0018,1004)	X
Pre-Medication	(0040,0012)	X
Pregnancy Status	(0010,21C0)	X
Private attributes	(gggg,eeee) where gggg is odd	X
Protocol Name	(0018,1030)	X/D
Reason for the Imaging Service Request	(0040,2001)	X
Reason for Study	(0032,1030)	X
Referenced Digital Signature Sequence	(0400,0402)	X
Referenced Frame of Reference UID	(3006,0024)	U
Referenced General Purpose Scheduled Procedure Step Transaction UID	(0040,4023)	U
Referenced Image Sequence	(0008,1140)	X/Z/U*
Referenced Patient Alias Sequence	(0038, 0004)	X
Referenced Patient Sequence	(0008,1120)	X
Referenced Performed Procedure Step Sequence	(0008,1111)	X/Z/D
Referenced SOP Instance MAC Sequence	(0400,0403)	X
Referenced SOP Instance UID	(0008,1155)	U
Referenced SOP Instance UID in File	(0004,1511)	U
Referenced Study Sequence	(0008,1110)	X/Z
Referring Physician's Address	(0008,0092)	X

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Referring Physician's Identification Sequence	(0008,0096)	X
Referring Physician's Name	(0008,0090)	Z
Referring Physician's Telephone Numbers	(0008,0094)	X
Region of Residence	(0010,2152)	X
Related Frame of Reference UID	(3006,00C2)	U
Request Attributes Sequence	(0040,0275)	X
Requested Contrast Agent	(0032,1070)	X
Requested Procedure Comments	(0040,1400)	X
Requested Procedure Description	(0032,1060)	X/Z
Requested Procedure ID	(0040,1001)	X
Requested Procedure Location	(0040,1005)	X
Requested SOP Instance UID	(0000,1001)	U
Requesting Physician	(0032,1032)	X
Requesting Service	(0032,1033)	X
Responsible Organization	(0010,2299)	X
Responsible Person	(0010,2297)	X
Results Comments	(4008,4000)	X
Results Distribution List Sequence	(4008,0118)	X
Results ID Issuer	(4008,0042)	X
Reviewer Name	(300E,0008)	X/Z
Scheduled Human Performers Sequence	(0040,4034)	X
Scheduled Patient Institution Residence	(0038,001E)	X
Scheduled Performing Physician Identification Sequence	(0040,000B)	X
Scheduled Performing Physician Name	(0040,0006)	X
Scheduled Procedure Step End Date	(0040,0004)	X
Scheduled Procedure Step End Time	(0040,0005)	X
Scheduled Procedure Step Description	(0040,0007)	X
Scheduled Procedure Step Location	(0040,0011)	X
Scheduled Procedure Step Start Date	(0040,0002)	X
Scheduled Procedure Step Start Time	(0040,0003)	X
Scheduled Station AE Title	(0040,0001)	X
Scheduled Station Geographic Location Code Sequence	(0040,4027)	X
Scheduled Station Name	(0040,0010)	X
Scheduled Station Name Code Sequence	(0040,4025)	X
Scheduled Study Location	(0032,1020)	X
Scheduled Study Location AE Title	(0032,1021)	X
Series Date	(0008,0021)	X/D
Series Description	(0008,103E)	X

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Series Instance UID	(0020,000E)	U
Series Time	(0008,0031)	X/D
Service Episode Description	(0038,0062)	X
Service Episode ID	(0038,0060)	X
Smoking Status	(0010,21A0)	X
SOP Instance UID	(0008,0018)	U
Source Image Sequence	(0008,2112)	X/Z/U*
Special Needs	(0038,0050)	X
Station Name	(0008,1010)	X/Z/D
Storage Media File-set UID	(0088,0140)	U
Study Comments	(0032,4000)	X
Study Date	(0008,0020)	Z
Study Description	(0008,1030)	X
Study ID	(0020,0010)	Z
Study ID Issuer	(0032,0012)	X
Study Instance UID	(0020,000D)	U
Study Time	(0008,0030)	Z
Synchronization Frame of Reference UID	(0020,0200)	U
Template Extension Creator UID	(0040,DB0D)	U
Template Extension Organization UID	(0040,DB0C)	U
Text Comments	(4000,4000)	X
Text String	(2030,0020)	X
Timezone Offset From UTC	(0008,0201)	X
Topic Author	(0088,0910)	X
Topic Keywords	(0088,0912)	X
Topic Subject	(0088,0906)	X
Topic Title	(0088,0904)	X
Transaction UID	(0008,1195)	U
UID	(0040,A124)	U
Verifying Observer Identification Code Sequence	(0040,A088)	Z
Verifying Observer Name	(0040,A075)	D
Verifying Observer Sequence	(0040,A073)	D
Verifying Organization	(0040,A027)	X
Visit Comments	(0038,4000)	X