



DICOM Conformance Statement

Version 3.6

12.2019, Bitnethic Srl

1st revision

1. CONFORMANCE STATEMENT OVERVIEW

D360 Server supports several DICOM Service Classes to allowing modalities to:

- send study for archiving and indexing;
- query and retrieve study;
- query for worklist of procedures to be performed.

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3. INTRODUCTION

3.1. Revision history

Version	Rev. Date	Rev. Author	Rev. description
3.2	25.06.2018	Marco Bavassano	First revision
3.6	19.12.2019	Marco Bavassano	New Transfer Syntaxes in 6.2

3.2. Audience

This document is written for the people that need to understand how D360 Server will integrate into their healthcare facility. This includes both those responsible for overall imaging network policy and architecture, as well as integrators who need to have a detailed understanding of the DICOM features of the product.

This document contains some basic DICOM definitions so that any reader may understand how this product implements DICOM features.

However, integrators are expected to fully understand all the DICOM terminology, how the tables in this document relate to the product's functionality, and how that functionality integrates with other devices that support compatible DICOM features.

3.3. Remarks

The scope of this DICOM Conformance Statement is to facilitate integration between D360 SERVER and other DICOM products. The Conformance Statement should be read and understood in conjunction with the DICOM Standard. DICOM by itself does not guarantee interoperability.

The Conformance Statement does, however, facilitate a first-level comparison for interoperability between different applications supporting compatible DICOM functionality.

This Conformance Statement is not supposed to replace validation with other DICOM equipment to ensure proper exchange of intended information. In fact, the user should be aware of the following important issues:

- The comparison of different Conformance Statements is just the first step towards assessing interconnectivity and interoperability between the product and other DICOM conformant equipment.
- Test procedures should be defined and executed to validate the required level of interoperability with specific compatible DICOM equipment, as established by the healthcare facility.

3.4. Terms and definitions

Informal definitions are provided for the following terms used in this Conformance Statement. The DICOM Standard is the authoritative source for formal definitions of these terms.

Abstract Syntax

The information agreed to be exchanged between applications, generally equivalent to a Service/Object Pair (SOP) Class. Examples: Verification SOP Class, Modality Worklist Information Model Find SOP Class, Computed Radiography Image Storage SOP Class.

Application Entity (AE)

An end point of a DICOM information exchange, including the DICOM network or media interface software; i.e., the software that sends or receives DICOM information objects or messages. A single device may have multiple Application Entities.

Application Entity Title

The externally known name of an Application Entity, used to identify a DICOM application to other DICOM applications on the network.

Application Context

The specification of the type of communication used between Application Entities. Example: DICOM network protocol.

Association

A network communication channel set up between Application Entities.

Attribute

A unit of information in an object definition; a data element identified by a tag. The information may be a complex data structure (Sequence), itself composed of lower level data elements. Examples: Patient ID (0010,0020), Accession Number (0008,0050), Photometric Interpretation (0028,0004), Procedure Code Sequence (0008,1032).

Information Object Definition (IOD)

The specified set of Attributes that comprise a type of data object; does not represent a specific instance of the data object, but rather a class of similar data objects that have the same properties. The Attributes may be specified as Mandatory (Type 1), Required but possibly unknown (Type 2), or Optional (Type 3), and there may be conditions associated with the use of an Attribute (Types 1C and 2C). Examples: MR Image IOD, CT Image IOD, Print Job IOD.

Module

A set of Attributes within an Information Object Definition that are logically related to each other. Example: Patient Module includes Patient Name, Patient ID, Patient Birth Date, and Patient Sex.

Negotiation

First phase of Association establishment that allows Application Entities to agree on the types of data to be exchanged and how that data will be encoded.

Presentation Context

The set of DICOM network services used over an Association, as negotiated between Application Entities; includes Abstract Syntaxes and Transfer Syntaxes.

Protocol Data Unit (PDU)

A packet (piece) of a DICOM message sent across the network. Devices must specify the maximum size packet they can receive for DICOM messages.

Security Profile

A set of mechanisms, such as encryption, user authentication, or digital signatures, used by an Application Entity to ensure confidentiality, integrity, and/or availability of exchanged DICOM data.

Service Class Provider (SCP)

Role of an Application Entity that provides a DICOM network service; typically, a server that performs operations requested by another Application Entity (Service Class User). Examples: Picture Archiving and Communication System (image storage SCP, and image query/retrieve SCP), Radiology Information System (modality worklist SCP).

Service Class User (SCU)

Role of an Application Entity that uses a DICOM network service; typically, a client. Examples: imaging modality (image storage SCU, and modality worklist SCU), imaging workstation (image query/retrieve SCU)

Service/Object Pair (SOP) Class

The specification of the network or media transfer (service) of a particular type of data (object); the fundamental unit of DICOM interoperability specification. Examples: Ultrasound Image Storage Service, Basic Grayscale Print Management.

Service/Object Pair (SOP) Instance

An information object; a specific occurrence of information exchanged in a SOP Class. Examples: a specific x-ray image.

Tag

A 32-bit identifier for a data element, represented as a pair of four digit hexadecimal numbers, the

“group” and the “element”. If the “group” number is odd, the tag is for a private (manufacturer-specific) data element. Examples: (0010,0020) [Patient ID], (07FE,0010) [Pixel Data], (0019,0210) [private data element].

Transfer Syntax

The encoding used for exchange of DICOM information objects and messages. Examples: JPEG compressed (images), little endian explicit value representation.

Unique Identifier (UID)

A globally unique “dotted decimal” string that identifies a specific object or a class of objects; an ISO-8824 Object Identifier. Examples: Study Instance UID, SOP Class UID, SOP Instance UID.

Value Representation (VR)

The format type of an individual DICOM data element, such as text, an integer, a person’s name, or a code. DICOM information objects can be transmitted with either explicit identification of the type of each data element (Explicit VR), or without explicit identification (Implicit VR); with Implicit VR, the receiving application must use a DICOM data dictionary to look up the format of each data element.

3.5. BASICS OF DICOM COMMUNICATION

This section describes terminology used in this Conformance Statement for the non-specialist. This section is not a substitute for training about DICOM, and it makes many simplifications about the meanings of DICOM terms.

Two Application Entities (devices) that want to communicate with each other over a network using DICOM protocol must first agree on several things during an initial network “handshake”. One of the two devices must initiate an Association (a connection to the other device), and ask if specific services, information, and encoding can be supported by the other device (Negotiation).

DICOM specifies a number of network services and types of information objects, each of which is called an Abstract Syntax for the Negotiation. DICOM also specifies a variety of methods for encoding data, denoted Transfer Syntaxes. The Negotiation allows the initiating Application Entity to propose combinations of Abstract Syntax and Transfer Syntax to be used on the Association; these combinations are called Presentation Contexts. The receiving Application Entity accepts the Presentation Contexts it supports.

For each Presentation Context, the Association Negotiation also allows the devices to agree on Roles – which one is the Service Class User (SCU - client) and which is the Service Class Provider (SCP - server). Normally the device initiating the connection is the SCU, i.e., the client system calls the server, but not always.

The Association Negotiation finally enables exchange of maximum network packet (PDU) size, security information, and network service options (called Extended Negotiation information). The Application Entities, having negotiated the Association parameters, may now commence exchanging data. Common data exchanges include queries for worklists or studies. Each exchangeable unit of data is formatted by the sender in accordance with the appropriate Information Object Definition, and sent using the negotiated Transfer Syntax. There is a Default Transfer Syntax that all systems must accept, but it may not be the most efficient for some use cases. Each transfer is explicitly acknowledged by the receiver with a Response Status indicating success, failure, or that query or retrieve operations are still in process.

3.6. ABBREVIATIONS

AE Application Entity

AET	Application Entity Title
DICOM	Digital Imaging and Communications in Medicine
IOD	Information Object Definition
ISO	International Organization for Standards
MWL	Modality Worklist
PDU	Protocol Data Unit
RIS	Radiology Information System.
SCP	Service Class Provider
SCU	Service Class User
SOP	Service-Object Pair
SPS	Scheduled Procedure Step
TCP/IP	Transmission Control Protocol/Internet Protocol
VR	Value Representation

3.7. REFERENCES

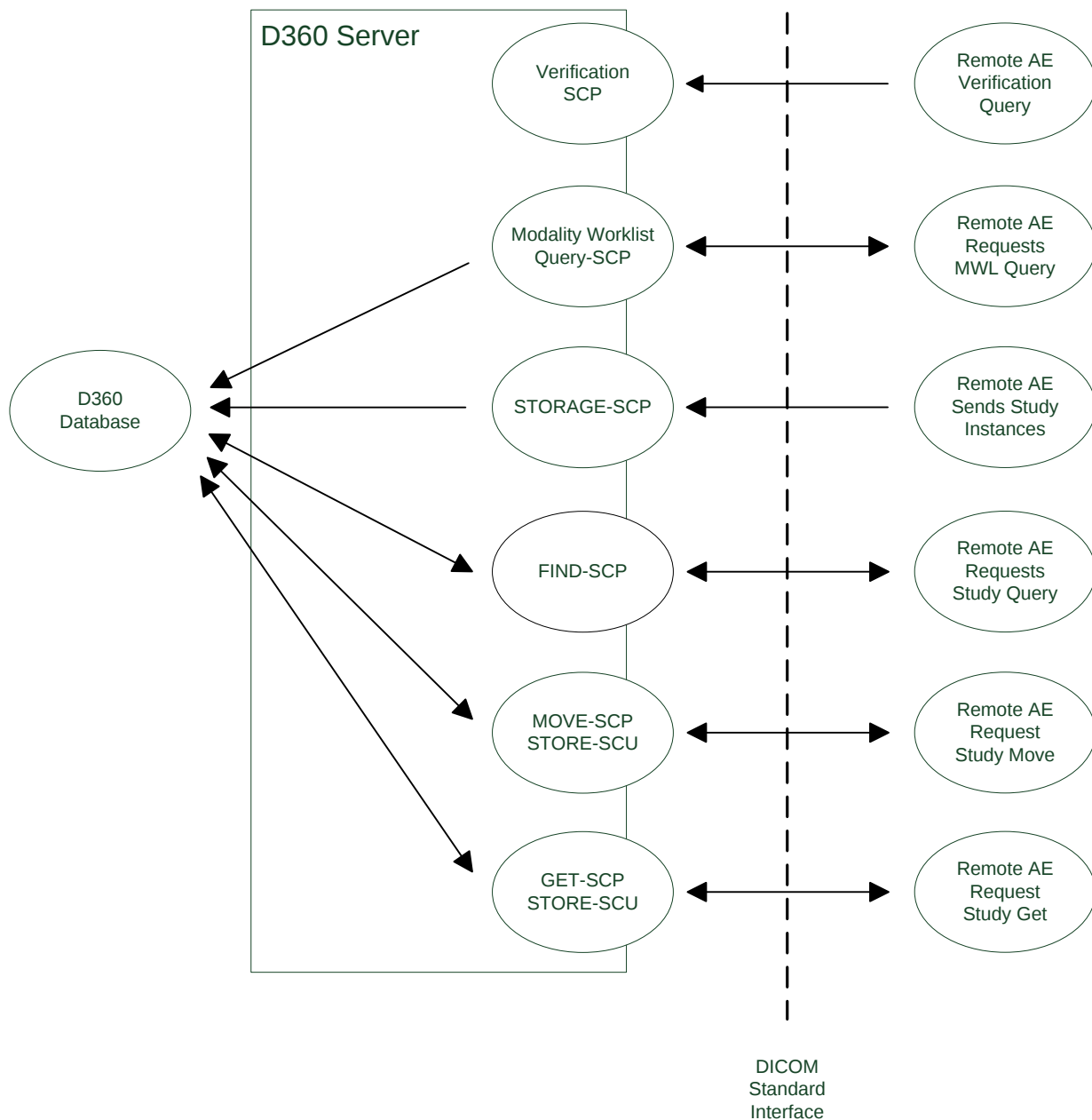
NEMA PS3

Digital Imaging and Communications in Medicine (DICOM) Standard, available free at <http://medical.nema.org/>

4. NETWORK CONFORMANCE STATEMENT

4.1. Implementation model

4.1.1. Application Data Flow



The D360 SERVER application provides access to Scheduled Procedure information and Archived Studies. The various flows in the diagram above are described as follows:

D360 SERVER accepts association for Verification from Verification SCUs and responds automatically with Success status.

D360 SERVER accepts Association Requests for Modality Worklist from MWL SCUs and responds to queries from these SCUs. When a query is received, D360 SERVER performs a Scheduled Procedure Query. This results in a set of matching responses that D360 SERVER returns to the MWL SCU.

D360 SERVER accepts Association Requests as a STORAGE-SCP AE from STORAGE-SCU AE for receive incoming DICOM studies from these SCUs. When the receiving of a study is completes, the images are stored in the PACS database.

D360 SERVER accepts Association Requests as a FIND-SCP AE from FIND-SCU AE and returns information on matching studies.

D360 SERVER accepts Association Requests as a MOVE-SCP AE from MOVE-SCU AE and sends study instances as STORE-SCU.

D360 SERVER accepts Association Requests as a GET-SCP AE from GET-SCU AE and sends study instances as STORE-SCU.

4.1.2. Functional Definition of D360 SERVER Application Entity

D360 SERVER is a background process running on a Microsoft Windows server. A single instance of D360 SERVER is started at System boot. The application may be started/restarted interactively via an O/S utility. Events are logged to application-specific log files with a time stamp.

D360 SERVER will accept Presentation Contexts for the Verification, C-STORE, C-FIND, C-MOVE and C-GET Classes.

D360 SERVER listens for connection requests at the Presentation Address configured for its AE Title. This application is an implementation of a concurrent threads; it create a new thread for each request.

4.1.2.1. Modality Worklist Query SCP

D360 SERVER accepts Presentation Contexts for the Modality Worklist SOP Classes.

When a MWL query is received, D360 SERVER will query the database for a list of Scheduled Procedure Setp matching the query and will returns a pending C-Find response for each match.

4.1.2.2. Storage SCP

D360 SERVER accepts Presentation Contexts for the C-STORE SOP Classes.

4.1.2.3. Query/Retrieve SCP

D360 SERVER accepts Presentation Contexts for the C-FIND and C-MOVE SOP Classes.

When a Find query is received, D360 SERVER queries its database for a list of studies matching the query and will returns a C-Find response for each match.

When a Move or Get request is received, D360 SERVER will act as CSTORE-SCU sending the requested study to the remote AE.

4.1.2.4. Move SCP

D360 SERVER accepts Presentation Contexts for the C-MOVE SOP Classes.

When a Move query is received, D360 SERVER queries its database for a list of instances matching the query and will sends them to the requested remote AE.

4.1.2.5. Get SCP

D360 SERVER accepts Presentation Contexts for the C-GET SOP Classes.

When a Get query is received, D360 SERVER queries its database for a list of instances matching the query and will sends them to requesting remote AE.

4.1.3. Sequencing of Real World Activities

Not Applicable.

4.2. Standard specifications

4.2.1. SOP Classes

4.2.1.1. Verification

D360 SERVER provides Standard Conformance to the following DICOM V3.0 SOP Classes:

SOP Class Name	SOP Class UID	SCU	SCP
Verification	1.2.840.10008.1.1	No	Yes

4.2.1.2. Modality Worklist Query

D360 SERVER provides Standard Conformance to the following DICOM V3.0 SOP Classes:

SOP Class Name	SOP Class UID	SCU	SCP
Modality Worklist	1.2.840.10008.5.1.4.31	No	Yes

4.2.1.3. Storage

D360 SERVER provides Standard Conformance to the following DICOM V3.0 SOP Classes:

SOP Class Name	SOP Class UID	SCU	SCP
Ambulatory Ecg Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.3	No	Yes
Arterial Pulse Waveform Storage	1.2.840.10008.5.1.4.1.1.9.5.1	No	Yes
Autorefraction Measurements Storage	1.2.840.10008.5.1.4.1.1.78.2	No	Yes
Basic Structured Display Storage	1.2.840.10008.5.1.4.1.1.131	No	Yes
Basic Text Sr	1.2.840.10008.5.1.4.1.1.88.11	No	Yes
Basic Voice Audio Waveform Storage	1.2.840.10008.5.1.4.1.1.9.4.1	No	Yes
Blending Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.4	No	Yes
Breast Tomosynthesis Image Storage	1.2.840.10008.5.1.4.1.1.13.1.3	No	Yes
Cardiac Electrophysiology Waveform Storage	1.2.840.10008.5.1.4.1.1.9.3.1	No	Yes
Chest Cad Sr	1.2.840.10008.5.1.4.1.1.88.65	No	Yes
Colon Cad Sr	1.2.840.10008.5.1.4.1.1.88.69	No	Yes
Color Palette Storage	1.2.840.10008.5.1.4.39.1	No	Yes
Color Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.2	No	Yes
Comprehensive Sr	1.2.840.10008.5.1.4.1.1.88.33	No	Yes
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	No	Yes
Ct Image Storage	1.2.840.10008.5.1.4.1.1.2	No	Yes
Deformable Spatial Registration Storage	1.2.840.10008.5.1.4.1.1.66.3	No	Yes
Digital Intraoral Xray Image Storage For Presentation	1.2.840.10008.5.1.4.1.1.1.3	No	Yes
Digital Intraoral Xray Image Storage For Processing	1.2.840.10008.5.1.4.1.1.1.3.1	No	Yes
Digital Mammography Image	1.2.840.10008.5.1.4.1.1.1.2	No	Yes
Digital Mammography Image Storage For Processing	1.2.840.10008.5.1.4.1.1.1.2.1	No	Yes
Digital Xray Image Storage For Presentation	1.2.840.10008.5.1.4.1.1.1.1	No	Yes
Digital Xray Image Storage For Processing	1.2.840.10008.5.1.4.1.1.1.1.1	No	Yes
Display Iod Rt Image Storage	1.2.840.10008.5.1.4.1.1.481.1	No	Yes
Encapsulated Cda Storage	1.2.840.10008.5.1.4.1.1.104.2	No	Yes
Encapsulated Pdf Storage	1.2.840.10008.5.1.4.1.1.104.1	No	Yes
Enhanced Ct Image Storage	1.2.840.10008.5.1.4.1.1.2.1	No	Yes

Enhanced Mr Color Image Storage	1.2.840.10008.5.1.4.1.1.4.3	No	Yes
Enhanced Mr Image Storage	1.2.840.10008.5.1.4.1.1.4.1	No	Yes
Enhanced Pet Image Storage	1.2.840.10008.5.1.4.1.1.130	No	Yes
Enhanced Sr	1.2.840.10008.5.1.4.1.1.88.22	No	Yes
Enhanced Us Volume Storage	1.2.840.10008.5.1.4.1.1.6.2	No	Yes
Enhanced Xa Image Storage	1.2.840.10008.5.1.4.1.1.12.1.1	No	Yes
Enhanced Xrf Image Storage	1.2.840.10008.5.1.4.1.1.12.2.1	No	Yes
General Audio Waveform Storage	1.2.840.10008.5.1.4.1.1.9.4.2	No	Yes
General Ecg Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.2	No	Yes
Generic Implant Template Storage	1.2.840.10008.5.1.4.43.1	No	Yes
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1	No	Yes
Hanging Protocol Storage	1.2.840.10008.5.1.4.38.1	No	Yes
Hemodynamic Waveform Storage	1.2.840.10008.5.1.4.1.1.9.2.1	No	Yes
Implant Assembly Template Storage	1.2.840.10008.5.1.4.44.1	No	Yes
Implant Template Group Storage	1.2.840.10008.5.1.4.45.1	No	Yes
Implantation Plan Sr Document Storage	1.2.840.10008.5.1.4.1.1.88.70	No	Yes
Instruction Generic Implant Template Storage	1.2.840.10008.5.1.4.43.1	No	Yes
Intraocular Lens Calculations Storage	1.2.840.10008.5.1.4.1.1.78.8	No	Yes
Intravascular Optical Coherence Tomography Image Storage For Presentation	1.2.840.10008.5.1.4.1.1.14.1	No	Yes
Intravascular Optical Coherence Tomography Image Storage For Processing	1.2.840.10008.5.1.4.1.1.14.2	No	Yes
Keratometry Measurements Storage	1.2.840.10008.5.1.4.1.1.78.3	No	Yes
Key Object Selection	1.2.840.10008.5.1.4.1.1.88.59	No	Yes
Lead12 Ecg Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.1	No	Yes
Lensometry Measurements Storage	1.2.840.10008.5.1.4.1.1.78.1	No	Yes
Macular Grid Thickness And Volume Report	1.2.840.10008.5.1.4.1.1.79.1	No	Yes
Mammography Cad Sr	1.2.840.10008.5.1.4.1.1.88.50	No	Yes
Media Storage Directory Storage	1.2.840.10008.1.3.10	No	Yes
Mr Image Storage	1.2.840.10008.5.1.4.1.1.4	No	Yes
Mr Spectroscopy Storage	1.2.840.10008.5.1.4.1.1.4.2	No	Yes
Multiframe Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2	No	Yes
Multiframe Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3	No	Yes
Multiframe Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.1	No	Yes
Multiframe True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	No	Yes
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	No	Yes
Ophthalmic Axial Measurements Storage	1.2.840.10008.5.1.4.1.1.78.7	No	Yes
Ophthalmic Photography 16 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.2	No	Yes
Ophthalmic Photography 8 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.1	No	Yes
Ophthalmic Tomography Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.4	No	Yes
Ophthalmic Visual Field Static Perimetry Measurements Storage	1.2.840.10008.5.1.4.1.1.80.1	No	Yes
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	No	Yes
Procedure Log	1.2.840.10008.5.1.4.1.1.88.40	No	Yes
Pseudocolor Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.3	No	Yes
Raw Data Storage	1.2.840.10008.5.1.4.1.1.66	No	Yes

Real World Value Mapping Storage	1.2.840.10008.5.1.4.1.1.67	No	Yes
Respiratory Waveform Storage	1.2.840.10008.5.1.4.1.1.9.6.1	No	Yes
Rt Beams Delivery Instruction Storage	1.2.840.10008.5.1.4.34.7	No	Yes
Rt Beams Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.4	No	Yes
Rt Brachy Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.6	No	Yes
Rt Dose Storage	1.2.840.10008.5.1.4.1.1.481.2	No	Yes
Rt Image Storage	1.2.840.10008.5.1.4.1.1.481.1	No	Yes
Rt Ion Beams Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.9	No	Yes
Rt Ion Plan Storage	1.2.840.10008.5.1.4.1.1.481.8	No	Yes
Rt Plan Storage	1.2.840.10008.5.1.4.1.1.481.5	No	Yes
Rt Structure Set Storage	1.2.840.10008.5.1.4.1.1.481.3	No	Yes
Rt Treatment Summary Record Storage	1.2.840.10008.5.1.4.1.1.481.7	No	Yes
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	No	Yes
Segmentation Storage	1.2.840.10008.5.1.4.1.1.66.4	No	Yes
Spatial Fiducials Storage	1.2.840.10008.5.1.4.1.1.66.2	No	Yes
Spatial Registration Storage	1.2.840.10008.5.1.4.1.1.66.1	No	Yes
Spectacle Prescription Report Storage	1.2.840.10008.5.1.4.1.1.78.6	No	Yes
Sr Iod Key Object Selection	1.2.840.10008.5.1.4.1.1.88.59	No	Yes
Stereometric Relationship Storage	1.2.840.10008.5.1.4.1.1.77.1.5.3	No	Yes
Subjective Refraction Measurements Storage	1.2.840.10008.5.1.4.1.1.78.4	No	Yes
Surface Segmentation Storage	1.2.840.10008.5.1.4.1.1.66.5	No	Yes
Template Implant Assembly Template Storage	1.2.840.10008.5.1.4.44.1	No	Yes
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	No	Yes
Ultrasound Multiframe Image Storage	1.2.840.10008.5.1.4.1.1.3.1	No	Yes
Video Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1.1	No	Yes
Video Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2.1	No	Yes
Video Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4.1	No	Yes
Visual Acuity Measurements Storage	1.2.840.10008.5.1.4.1.1.78.5	No	Yes
VI Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	No	Yes
VI Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	No	Yes
VI Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	No	Yes
VI Slidecoordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	No	Yes
VI Whole Slide Microscopy Image Storage	1.2.840.10008.5.1.4.1.1.77.1.6	No	Yes
Xa Xrf Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.5	No	Yes
Xray 3d Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.13.1.1	No	Yes
Xray 3d Craniofacial Image Storage	1.2.840.10008.5.1.4.1.1.13.1.2	No	Yes
Xray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	No	Yes
Xray Radiation Dose Sr	1.2.840.10008.5.1.4.1.1.88.67	No	Yes
Xray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	No	Yes

4.2.1.4. Query/Retrieve

D360 SERVER provides Standard Conformance to the following DICOM V3.0 SOP Classes:

SOP Class Name	SOP Class UID	SCU	SCP
FIND Study Root Query Retrieve Information Model	1.2.840.10008.5.1.4.1.2.2.1	No	Yes
FIND Patient Root Query Retrieve Information Model	1.2.840.10008.5.1.4.1.2.1.1	No	Yes

4.2.1.5. Move

D360 SERVER provides Standard Conformance to the following DICOM V3.0 SOP Classes:

SOP Class Name	SOP Class UID	SCU	SCP
MOVE Patient Root Query Retrieve Information Model	1.2.840.10008.5.1.4.1.2.1.2	No	Yes
MOVE Study Root Query Retrieve Information Model	1.2.840.10008.5.1.4.1.2.2.2	No	Yes
Ambulatory Ecg Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.3	Yes	No
Arterial Pulse Waveform Storage	1.2.840.10008.5.1.4.1.1.9.5.1	Yes	No
Autorefraction Measurements Storage	1.2.840.10008.5.1.4.1.1.78.2	Yes	No
Basic Structured Display Storage	1.2.840.10008.5.1.4.1.1.131	Yes	No
Basic Text Sr	1.2.840.10008.5.1.4.1.1.88.11	Yes	No
Basic Voice Audio Waveform Storage	1.2.840.10008.5.1.4.1.1.9.4.1	Yes	No
Blending Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.4	Yes	No
Breast Tomosynthesis Image Storage	1.2.840.10008.5.1.4.1.1.13.1.3	Yes	No
Cardiac Electrophysiology Waveform Storage	1.2.840.10008.5.1.4.1.1.9.3.1	Yes	No
Chest Cad Sr	1.2.840.10008.5.1.4.1.1.88.65	Yes	No
Colon Cad Sr	1.2.840.10008.5.1.4.1.1.88.69	Yes	No
Color Palette Storage	1.2.840.10008.5.1.4.39.1	Yes	No
Color Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.2	Yes	No
Comprehensive Sr	1.2.840.10008.5.1.4.1.1.88.33	Yes	No
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	Yes	No
Ct Image Storage	1.2.840.10008.5.1.4.1.1.2	Yes	No
Deformable Spatial Registration Storage	1.2.840.10008.5.1.4.1.1.66.3	Yes	No
Digital Intraoral Xray Image Storage For Presentation	1.2.840.10008.5.1.4.1.1.1.3	Yes	No
Digital Intraoral Xray Image Storage For Processing	1.2.840.10008.5.1.4.1.1.1.3.1	Yes	No
Digital Mammography Image	1.2.840.10008.5.1.4.1.1.1.2	Yes	No
Digital Mammography Image Storage For Processing	1.2.840.10008.5.1.4.1.1.1.2.1	Yes	No
Digital Xray Image Storage For Presentation	1.2.840.10008.5.1.4.1.1.1.1	Yes	No
Digital Xray Image Storage For Processing	1.2.840.10008.5.1.4.1.1.1.1.1	Yes	No
Display Iod Rt Image Storage	1.2.840.10008.5.1.4.1.1.481.1	Yes	No
Encapsulated Cda Storage	1.2.840.10008.5.1.4.1.1.104.2	Yes	No
Encapsulated Pdf Storage	1.2.840.10008.5.1.4.1.1.104.1	Yes	No
Enhanced Ct Image Storage	1.2.840.10008.5.1.4.1.1.2.1	Yes	No
Enhanced Mr Color Image Storage	1.2.840.10008.5.1.4.1.1.4.3	Yes	No
Enhanced Mr Image Storage	1.2.840.10008.5.1.4.1.1.4.1	Yes	No
Enhanced Pet Image Storage	1.2.840.10008.5.1.4.1.1.130	Yes	No
Enhanced Sr	1.2.840.10008.5.1.4.1.1.88.22	Yes	No
Enhanced Us Volume Storage	1.2.840.10008.5.1.4.1.1.6.2	Yes	No
Enhanced Xa Image Storage	1.2.840.10008.5.1.4.1.1.12.1.1	Yes	No
Enhanced Xrf Image Storage	1.2.840.10008.5.1.4.1.1.12.2.1	Yes	No
General Audio Waveform Storage	1.2.840.10008.5.1.4.1.1.9.4.2	Yes	No
General Ecg Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.2	Yes	No
Generic Implant Template Storage	1.2.840.10008.5.1.4.43.1	Yes	No
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1	Yes	No
Hanging Protocol Storage	1.2.840.10008.5.1.4.38.1	Yes	No
Hemodynamic Waveform Storage	1.2.840.10008.5.1.4.1.1.9.2.1	Yes	No
Implant Assembly Template Storage	1.2.840.10008.5.1.4.44.1	Yes	No

Implant Template Group Storage	1.2.840.10008.5.1.4.45.1	Yes	No
Implantation Plan Sr Document Storage	1.2.840.10008.5.1.4.1.1.88.70	Yes	No
Instruction Generic Implant Template Storage	1.2.840.10008.5.1.4.43.1	Yes	No
Intraocular Lens Calculations Storage	1.2.840.10008.5.1.4.1.1.78.8	Yes	No
Intravascular Optical Coherence Tomography Image Storage For Presentation	1.2.840.10008.5.1.4.1.1.14.1	Yes	No
Intravascular Optical Coherence Tomography Image Storage For Processing	1.2.840.10008.5.1.4.1.1.14.2	Yes	No
Keratometry Measurements Storage	1.2.840.10008.5.1.4.1.1.78.3	Yes	No
Key Object Selection	1.2.840.10008.5.1.4.1.1.88.59	Yes	No
Lead12 Ecg Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.1	Yes	No
Lensometry Measurements Storage	1.2.840.10008.5.1.4.1.1.78.1	Yes	No
Macular Grid Thickness And Volume Report	1.2.840.10008.5.1.4.1.1.79.1	Yes	No
Mammography Cad Sr	1.2.840.10008.5.1.4.1.1.88.50	Yes	No
Media Storage Directory Storage	1.2.840.10008.1.3.10	Yes	No
Mr Image Storage	1.2.840.10008.5.1.4.1.1.4	Yes	No
Mr Spectroscopy Storage	1.2.840.10008.5.1.4.1.1.4.2	Yes	No
Multiframe Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2	Yes	No
Multiframe Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3	Yes	No
Multiframe Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.1	Yes	No
Multiframe True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	Yes	No
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	Yes	No
Ophthalmic Axial Measurements Storage	1.2.840.10008.5.1.4.1.1.78.7	Yes	No
Ophthalmic Photography 16 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.2	Yes	No
Ophthalmic Photography 8 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.1	Yes	No
Ophthalmic Tomography Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.4	Yes	No
Ophthalmic Visual Field Static Perimetry Measurements Storage	1.2.840.10008.5.1.4.1.1.80.1	Yes	No
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	Yes	No
Procedure Log	1.2.840.10008.5.1.4.1.1.88.40	Yes	No
Pseudocolor Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.3	Yes	No
Raw Data Storage	1.2.840.10008.5.1.4.1.1.66	Yes	No
Real World Value Mapping Storage	1.2.840.10008.5.1.4.1.1.67	Yes	No
Respiratory Waveform Storage	1.2.840.10008.5.1.4.1.1.9.6.1	Yes	No
Rt Beams Delivery Instruction Storage	1.2.840.10008.5.1.4.34.7	Yes	No
Rt Beams Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.4	Yes	No
Rt Brachy Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.6	Yes	No
Rt Dose Storage	1.2.840.10008.5.1.4.1.1.481.2	Yes	No
Rt Image Storage	1.2.840.10008.5.1.4.1.1.481.1	Yes	No
Rt Ion Beams Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.9	Yes	No
Rt Ion Plan Storage	1.2.840.10008.5.1.4.1.1.481.8	Yes	No
Rt Plan Storage	1.2.840.10008.5.1.4.1.1.481.5	Yes	No
Rt Structure Set Storage	1.2.840.10008.5.1.4.1.1.481.3	Yes	No
Rt Treatment Summary Record Storage	1.2.840.10008.5.1.4.1.1.481.7	Yes	No
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Yes	No
Segmentation Storage	1.2.840.10008.5.1.4.1.1.66.4	Yes	No

Spatial Fiducials Storage	1.2.840.10008.5.1.4.1.1.66.2	Yes	No
Spatial Registration Storage	1.2.840.10008.5.1.4.1.1.66.1	Yes	No
Spectacle Prescription Report Storage	1.2.840.10008.5.1.4.1.1.78.6	Yes	No
Sr Iod Key Object Selection	1.2.840.10008.5.1.4.1.1.88.59	Yes	No
Stereometric Relationship Storage	1.2.840.10008.5.1.4.1.1.77.1.5.3	Yes	No
Subjective Refraction Measurements Storage	1.2.840.10008.5.1.4.1.1.78.4	Yes	No
Surface Segmentation Storage	1.2.840.10008.5.1.4.1.1.66.5	Yes	No
Template Implant Assembly Template Storage	1.2.840.10008.5.1.4.44.1	Yes	No
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Yes	No
Ultrasound Multiframe Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Yes	No
Video Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1.1	Yes	No
Video Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2.1	Yes	No
Video Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4.1	Yes	No
Visual Acuity Measurements Storage	1.2.840.10008.5.1.4.1.1.78.5	Yes	No
VI Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	Yes	No
VI Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	Yes	No
VI Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	Yes	No
VI Slidecoordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	Yes	No
VI Whole Slide Microscopy Image Storage	1.2.840.10008.5.1.4.1.1.77.1.6	Yes	No
Xa Xrf Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.5	Yes	No
Xray 3d Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.13.1.1	Yes	No
Xray 3d Craniofacial Image Storage	1.2.840.10008.5.1.4.1.1.13.1.2	Yes	No
Xray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	Yes	No
Xray Radiation Dose Sr	1.2.840.10008.5.1.4.1.1.88.67	Yes	No
Xray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Yes	No

4.2.1.6. Get

D360 SERVER provides Standard Conformance to the following DICOM V3.0 SOP Classes:

SOP Class Name	SOP Class UID	SCU	SCP
GET Patient Root Query Retrieve Information Model	1.2.840.10008.5.1.4.1.2.1.3	No	Yes
GET Study Root Query Retrieve Information Model	1.2.840.10008.5.1.4.1.2.2.3	No	Yes
Ambulatory Ecg Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.3	Yes	No
Arterial Pulse Waveform Storage	1.2.840.10008.5.1.4.1.1.9.5.1	Yes	No
Autorefraction Measurements Storage	1.2.840.10008.5.1.4.1.1.78.2	Yes	No
Basic Structured Display Storage	1.2.840.10008.5.1.4.1.1.131	Yes	No
Basic Text Sr	1.2.840.10008.5.1.4.1.1.88.11	Yes	No
Basic Voice Audio Waveform Storage	1.2.840.10008.5.1.4.1.1.9.4.1	Yes	No
Blending Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.4	Yes	No
Breast Tomosynthesis Image Storage	1.2.840.10008.5.1.4.1.1.13.1.3	Yes	No
Cardiac Electrophysiology Waveform Storage	1.2.840.10008.5.1.4.1.1.9.3.1	Yes	No
Chest Cad Sr	1.2.840.10008.5.1.4.1.1.88.65	Yes	No
Colon Cad Sr	1.2.840.10008.5.1.4.1.1.88.69	Yes	No
Color Palette Storage	1.2.840.10008.5.1.4.39.1	Yes	No
Color Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.2	Yes	No
Comprehensive Sr	1.2.840.10008.5.1.4.1.1.88.33	Yes	No
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	Yes	No

Ct Image Storage	1.2.840.10008.5.1.4.1.1.2	Yes	No
Deformable Spatial Registration Storage	1.2.840.10008.5.1.4.1.1.66.3	Yes	No
Digital Intraoral Xray Image Storage For Presentation	1.2.840.10008.5.1.4.1.1.1.3	Yes	No
Digital Intraoral Xray Image Storage For Processing	1.2.840.10008.5.1.4.1.1.1.3.1	Yes	No
Digital Mammography Image	1.2.840.10008.5.1.4.1.1.1.2	Yes	No
Digital Mammography Image Storage For Processing	1.2.840.10008.5.1.4.1.1.1.2.1	Yes	No
Digital Xray Image Storage For Presentation	1.2.840.10008.5.1.4.1.1.1.1	Yes	No
Digital Xray Image Storage For Processing	1.2.840.10008.5.1.4.1.1.1.1.1	Yes	No
Display Iod Rt Image Storage	1.2.840.10008.5.1.4.1.1.481.1	Yes	No
Encapsulated Cda Storage	1.2.840.10008.5.1.4.1.1.104.2	Yes	No
Encapsulated Pdf Storage	1.2.840.10008.5.1.4.1.1.104.1	Yes	No
Enhanced Ct Image Storage	1.2.840.10008.5.1.4.1.1.2.1	Yes	No
Enhanced Mr Color Image Storage	1.2.840.10008.5.1.4.1.1.4.3	Yes	No
Enhanced Mr Image Storage	1.2.840.10008.5.1.4.1.1.4.1	Yes	No
Enhanced Pet Image Storage	1.2.840.10008.5.1.4.1.1.130	Yes	No
Enhanced Sr	1.2.840.10008.5.1.4.1.1.88.22	Yes	No
Enhanced Us Volume Storage	1.2.840.10008.5.1.4.1.1.6.2	Yes	No
Enhanced Xa Image Storage	1.2.840.10008.5.1.4.1.1.12.1.1	Yes	No
Enhanced Xrf Image Storage	1.2.840.10008.5.1.4.1.1.12.2.1	Yes	No
General Audio Waveform Storage	1.2.840.10008.5.1.4.1.1.9.4.2	Yes	No
General Ecg Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.2	Yes	No
Generic Implant Template Storage	1.2.840.10008.5.1.4.43.1	Yes	No
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1	Yes	No
Hanging Protocol Storage	1.2.840.10008.5.1.4.38.1	Yes	No
Hemodynamic Waveform Storage	1.2.840.10008.5.1.4.1.1.9.2.1	Yes	No
Implant Assembly Template Storage	1.2.840.10008.5.1.4.44.1	Yes	No
Implant Template Group Storage	1.2.840.10008.5.1.4.45.1	Yes	No
Implantation Plan Sr Document Storage	1.2.840.10008.5.1.4.1.1.88.70	Yes	No
Instruction Generic Implant Template Storage	1.2.840.10008.5.1.4.43.1	Yes	No
Intraocular Lens Calculations Storage	1.2.840.10008.5.1.4.1.1.78.8	Yes	No
Intravascular Optical Coherence Tomography Image Storage For Presentation	1.2.840.10008.5.1.4.1.1.14.1	Yes	No
Intravascular Optical Coherence Tomography Image Storage For Processing	1.2.840.10008.5.1.4.1.1.14.2	Yes	No
Keratometry Measurements Storage	1.2.840.10008.5.1.4.1.1.78.3	Yes	No
Key Object Selection	1.2.840.10008.5.1.4.1.1.88.59	Yes	No
Lead12 Ecg Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.1	Yes	No
Lensometry Measurements Storage	1.2.840.10008.5.1.4.1.1.78.1	Yes	No
Macular Grid Thickness And Volume Report	1.2.840.10008.5.1.4.1.1.79.1	Yes	No
Mammography Cad Sr	1.2.840.10008.5.1.4.1.1.88.50	Yes	No
Media Storage Directory Storage	1.2.840.10008.1.3.10	Yes	No
Mr Image Storage	1.2.840.10008.5.1.4.1.1.4	Yes	No
Mr Spectroscopy Storage	1.2.840.10008.5.1.4.1.1.4.2	Yes	No
Multiframe Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2	Yes	No
Multiframe Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3	Yes	No
Multiframe Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.1	Yes	No

Multiframe True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	Yes	No
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	Yes	No
Ophthalmic Axial Measurements Storage	1.2.840.10008.5.1.4.1.1.78.7	Yes	No
Ophthalmic Photography 16 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.2	Yes	No
Ophthalmic Photography 8 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.1	Yes	No
Ophthalmic Tomography Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.4	Yes	No
Ophthalmic Visual Field Static Perimetry Measurements Storage	1.2.840.10008.5.1.4.1.1.80.1	Yes	No
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	Yes	No
Procedure Log	1.2.840.10008.5.1.4.1.1.88.40	Yes	No
Pseudocolor Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.3	Yes	No
Raw Data Storage	1.2.840.10008.5.1.4.1.1.66	Yes	No
Real World Value Mapping Storage	1.2.840.10008.5.1.4.1.1.67	Yes	No
Respiratory Waveform Storage	1.2.840.10008.5.1.4.1.1.9.6.1	Yes	No
Rt Beams Delivery Instruction Storage	1.2.840.10008.5.1.4.34.7	Yes	No
Rt Beams Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.4	Yes	No
Rt Brachy Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.6	Yes	No
Rt Dose Storage	1.2.840.10008.5.1.4.1.1.481.2	Yes	No
Rt Image Storage	1.2.840.10008.5.1.4.1.1.481.1	Yes	No
Rt Ion Beams Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.9	Yes	No
Rt Ion Plan Storage	1.2.840.10008.5.1.4.1.1.481.8	Yes	No
Rt Plan Storage	1.2.840.10008.5.1.4.1.1.481.5	Yes	No
Rt Structure Set Storage	1.2.840.10008.5.1.4.1.1.481.3	Yes	No
Rt Treatment Summary Record Storage	1.2.840.10008.5.1.4.1.1.481.7	Yes	No
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Yes	No
Segmentation Storage	1.2.840.10008.5.1.4.1.1.66.4	Yes	No
Spatial Fiducials Storage	1.2.840.10008.5.1.4.1.1.66.2	Yes	No
Spatial Registration Storage	1.2.840.10008.5.1.4.1.1.66.1	Yes	No
Spectacle Prescription Report Storage	1.2.840.10008.5.1.4.1.1.78.6	Yes	No
Sr Iod Key Object Selection	1.2.840.10008.5.1.4.1.1.88.59	Yes	No
Stereometric Relationship Storage	1.2.840.10008.5.1.4.1.1.77.1.5.3	Yes	No
Subjective Refraction Measurements Storage	1.2.840.10008.5.1.4.1.1.78.4	Yes	No
Surface Segmentation Storage	1.2.840.10008.5.1.4.1.1.66.5	Yes	No
Template Implant Assembly Template Storage	1.2.840.10008.5.1.4.44.1	Yes	No
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Yes	No
Ultrasound Multiframe Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Yes	No
Video Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1.1	Yes	No
Video Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2.1	Yes	No
Video Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4.1	Yes	No
Visual Acuity Measurements Storage	1.2.840.10008.5.1.4.1.1.78.5	Yes	No
VI Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	Yes	No
VI Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	Yes	No
VI Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	Yes	No
VI Slidecoordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	Yes	No
VI Whole Slide Microscopy Image Storage	1.2.840.10008.5.1.4.1.1.77.1.6	Yes	No
Xa Xrf Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.5	Yes	No
Xray 3d Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.13.1.1	Yes	No
Xray 3d Craniofacial Image Storage	1.2.840.10008.5.1.4.1.1.13.1.2	Yes	No

Xray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	Yes	No
Xray Radiation Dose Sr	1.2.840.10008.5.1.4.1.1.88.67	Yes	No
Xray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Yes	No

4.2.2. Association Policies

4.2.2.1. General

The Application Context Name for DICOM 3.0 is the only Application Context proposed.

Application Context Name	1.2.840.10008.3.1.1.1
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4.2.2.2. Number of Associations

The number of simultaneous associations that D360 SERVER can accept is limited only to the capacity of the operating environment.

4.2.2.3. Asynchronous Nature

Asynchronous communication (multiple outstanding transactions over a single association) is not supported.

4.2.2.4. Implementation Identifying Information

Implementation class UID	1.3.6.1.4.1.35672.0.3.6
Implementation Version Name	D360-3-6

4.2.3. Association Initiation Policy

D360 SERVER can initiate association establishment only to remote AEs defined in a Remote AE list.

Maximum PDU Length	65534
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4.2.4. Association Acceptance Policy

D360 SERVER accepts associations for the Verification, Modality Worklist, Store, Find, Get and Move SOP Classes as an SCP. The processes are run in background with a single Presentation Address configured for a single AE Title.

4.2.5. Extended negotiation

D360 SERVER does not support extended negotiation.

Maximum PDU Length	65534
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4.3. Communication profiles

4.3.1. Physical Network Interface

The D360 SERVER application are indifferent to the physical medium over which TCP/IP executes.

4.3.2. Additional Protocols

The D360 SERVER does not supports DNS for address resolution.

4.3.3. IPv4 Support

This product supports only IPv4.

4.4. Configuration

4.4.1. Local AE Title

The AE Title and ports of D360 SERVER are configurable by the configuration file.

4.4.2. Remote AE Title/Presentation Address Mapping

The AE Titles and port numbers of remote applications are configurable by the user by script command line or web service call.

4.4.3. Parameters

Following parameters are configurable by the configuration file.

Parameter	Default value
Ip Address	127.0.0.1
TCP Port number	104
AET	D360PACS

4.5. Support of character sets

D360 SERVER support only the ISO_IR 100 character set.

4.6. Security

D360 SERVER does not implements any DICOM Security Profile. It is assumed that the system is used within a secured environment that includes at a minimum firewall or router protection to ensure that only approved external hosts have network access to the system.

5. MODALITY WORKLIST QUERY SERVICE CLASS CONFORMANCE STATEMENT

5.1. Description and sequencing of activities

When Modality Worklist SCUs query D360 SERVER, the query run against the Scheduled Procedure Step Worklist in the database.

A Requested Procedure may map to 1 or more Scheduled Procedure Steps. The relation between Accession Number (0008,0050) and Requested Procedure ID (0040,1001) is 1-to-1 or more. Scheduled Procedure Step entries are added and removed from the Worklist using script command line or web service call.

5.2. Acceptable presentation contexts

The Modality Worklist Query AE will accept presentation contexts for all of the supported SOP Classes specified in 4.2.1.2 using any of the following transfer syntaxes:

Presentation Context Table		
Transfer Syntax		Role
Name	UID	
Implicit VR Little Endian	1.2.840.10008.1.2	SCP
Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP
Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP

5.2.1. Presentation Context Acceptance Criterion

D360 SERVER may accept multiple Presentation Contexts containing the same Abstract Syntax.

5.2.1.1. Transfer Syntax Selection Policy

D360 SERVER accepts all of transfer syntaxes specified in 5.2.

5.2.2. SOP specific conformance for Modality Worklist Query Service Class

5.2.2.1. Request Search Keys

D360 SERVER supports matching only on the following Value Representation elements:

Attribute Name	Attribute Tag	Matching
Accession Number	(0008,0050)	Single value
Admission ID	(0038,0010)	Single value
Referring Physicians Name	(0008,0090)	Single value
Requesting Physician	(0032,1032)	Single value
Patient identification		
Patient Name	(0010,0010)	Wildcard
Patient ID	(0010,0020)	Single value
Patient Birth Date	(0010,0030)	Range
Patient Sex	(0010,0040)	Single value
Scheduled Procedure Step Sequence		
Modality	(0008,0060)	Single value
Scheduled Station AET	(0040,0001)	Single value

SPS Start Date	(0040,0002)	Range
SPS Start Time	(0040,0003)	Range
Performing Physician Name	(0040,0006)	Single value
Requested Procedure		
Requested procedure ID	(0040,1001)	Single value
Requested procedure Priority	(0040,1003)	Single value

5.2.2.2. Result attributes

D360 SERVER supports the following return attributes:

Attribute Name	Attribute Tag
AccessionNumber	(0008,0050)
ReferringPhysiciansName	(0008,0090)
PatientsName	(0010,0010)
PatientID	(0010,0020)
PatientsBirthDate	(0010,0030)
PatientsSex	(0010,0040)
OtherPatientIDs	(0010,1000)
PatientsMothersBirthName	(0010,1060)
IdentifierToFindPatientsExistingMedicalRecord	(0010,1090)
PatientsAge	(0010,1010)
Occupation	(0010,2180)
ConfidentialityConstraintOnPatient	(0040,3001)
PatientsBirthTime	(0010,0032)
BranchOfService	(0010,1081)
CountryOfResidence	(0010,2150)
RegionOfResidence	(0010,2152)
PatientsTelephoneNumbers	(0010,2154)
PatientsReligiousPreference	(0010,21F0)
ResponsiblePerson	(0010,2297)
ResponsiblePersonRole	(0010,2298)
ResponsibleOrganization	(0010,2299)
PatientSpeciesDescription	(0010,2201)
PatientBreedDescription	(0010,2292)
Allergies	(0010,2110)
PatientsSexNeutered	(0010,2203)
OtherPatientNames	(0010,1001)
PatientsSize	(0010,1020)
PatientsWeight	(0010,1030)
PatientsAddress	(0010,1040)
MilitaryRank	(0010,1080)
MedicalAlerts	(0010,2000)
EthnicGroup	(0010,2160)
SmokingStatus	(0010,21a0)
AdditionalPatientHistory	(0010,21b0)
PregnancyStatus	(0010,21c0)
LastMenstrualDate	(0010,21d0)

PatientComments	(0010,4000)
StudyInstanceUID	(0020,000d)
RequestingPhysician	(0032,1032)
RequestedProcedureDescription	(0032,1060)
AdmissionID	(0038,0010)
SpecialNeeds	(0038,0050)
CurrentPatientLocation	(0038,0300)
PatientState	(0038,0500)
RequestedProcedureID	(0040,1001)
RequestedProcedurePriority	(0040,1003)
PatientTransportArrangements	(0040,1004)
ScheduledProcedureStepSequence	
Modality	(0008,0060)
RequestedContrastAgent	(0032,1070)
ScheduledStationAETitle	(0040,0001)
ScheduledProcedureStepStartDate	(0040,0002)
ScheduledProcedureStepStartTime	(0040,0003)
ScheduledProcedureStepEndDate	(0040,0004)
ScheduledProcedureStepEndTime	(0040,0005)
ScheduledProcedureStepID	(0040,0009)
ScheduledStationName	(0040,0010)
ScheduledProcedureStepLocation	(0040,0011)
PreMedication	(0040,0012)

5.2.3. SOP specific conformance for Storage Service Class

5.2.3.1. Response statuses

D360 Server returns C-STORE response statuses as specified below.

Service Status	Further Meaning	Error Code
Success	Process is complete	0000
Failure	Refused out of resource	A700
	Refused SOP Class not supported	0122
	Error cannot understand	C000
	Dataset does not match SOP Class	A900
Warning	Coercion of data elements	B000
	Dataset does not match SOP Class	B007
	Elements discarded	B006

6. STORAGE SERVICE CLASS CONFORMANCE STATEMENT

6.1. Description and sequencing of activities

D360 Server accepts associations from remote AE SCU that wish to store images in the D360 Server database for archiving and indexing purposes.

6.2. Acceptable presentation contexts

D360 Server will accept presentation contexts for all of the supported SOP Classes specified in 4.2.1.3 using any of the following transfer syntaxes:

Presentation Context Table		
Transfer Syntax		Role
Name	UID	
Implicit VR Little Endian	1.2.840.10008.1.2	SCP
Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP
Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP
Baseline JPEG Compression	1.2.840.10008.1.2.4.50	SCP
Extended JPEG Compression	1.2.840.10008.1.2.4.51	SCP
Lossless, non-hierarchical JPEG Compression	1.2.840.10008.1.2.4.57	SCP
Lossless, non-hierarchical, first-order prediction JPEG Compression	1.2.840.10008.1.2.4.70	SCP
Lossless JPEG-LS Compression	1.2.840.10008.1.2.4.80	SCP
Near-lossless JPEG-LS Compression	1.2.840.10008.1.2.4.81	SCP
Lossless JPEG 2000 Part 1 Compression	1.2.840.10008.1.2.4.90	SCP
Lossless or Lossy JPEG 2000 Part 1 Compression	1.2.840.10008.1.2.4.91	SCP
Lossless JPEG 2000 Part 2 Compression	1.2.840.10008.1.2.4.92	SCP
Lossless or Lossy JPEG 2000 Part 2 Compression	1.2.840.10008.1.2.4.93	SCP
MP@ML option MPEG2 Compression	1.2.840.10008.1.2.4.100	SCP
MP@HL option MPEG2 Compression	1.2.840.10008.1.2.4.101	SCP
AVC/H.264 High Profile / Level 4.1 MPEG4 Compression	1.2.840.10008.1.2.4.102	SCP
AVC/H.264 BD-compatible High Profile / Level 4.1 MPEG4 Compression	1.2.840.10008.1.2.4.103	SCP
AVC/H.264 High Profile / Level 4.2 MPEG4 Compression	1.2.840.10008.1.2.4.104	SCP
AVC/H.264 High Profile / Level 4.2 MPEG4 for 3D Image Compression	1.2.840.10008.1.2.4.105	SCP
AVC/H.264 Stereo High Profile / Level 4.2 MPEG4 Image Compression	1.2.840.10008.1.2.4.106	SCP

6.2.1. Presentation Context Acceptance Criterion

D360 Server may accepts multiple Presentation Contexts containing the same Abstract Syntax.

6.2.1.1. Transfer Syntax Selection Policy

D360 Server accepts all of transfer syntaxes specified in 6.2.

6.2.1.2. Response statuses

D360 Server returns C-FIND response statuses as specified below.

Service Status	Further Meaning	Error Code
Success	Matching is complete	0000
Failure	Out of resources	A700
	Identifier does not match SOP class	A900
	Unable to process	C000
Canceled	Matching terminated due to cancel request	FE00
Pending	Status between sub operations	FF00
	Status between sub operations with warning condition	FF01

7. QUERY/RETRIEVE SERVICE CLASS CONFORMANCE STATEMENT

7.1. Description and sequencing of activities

D360 Server accepts associations from remote AE SCU that wish to find and get DICOM Instances.

7.2. Accepted presentation contexts

D360 Server will accept presentation contexts for all of the supported SOP Classes specified in 4.2.1.4 using any of the following transfer syntaxes:

Presentation Context Table		
Transfer Syntax		Role
Name	UID	
Implicit VR Little Endian	1.2.840.10008.1.2	SCP
Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP
Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP

7.2.1. Presentation Context Acceptance Criterion

D360 Server may accept multiple Presentation Contexts containing the same Abstract Syntax.

7.2.1.1. Transfer Syntax Selection Policy

D360 Server accepts all of transfer syntaxes specified in 7.2.

7.2.2. SOP specific conformance for Query/Retrieve Service Class

D360 Server supports a DICOM Query both at Patient Root and Study Root Models as specified in 4.2.1.4, and returns the found data in C-FIND response.

D360 Server supports the following Query Retrieve Level (0008,0052):

PATIENT
STUDY
SERIES
IMAGE

7.2.2.1. Request Search Keys

In case of PATIENT Query Retrieve Level D360 Server supports matching only on the following Value Representation elements:

Attribute Name	Attribute Tag	Matching	Type
Patient Name	(0010,0010)	Wildcard	O
Patient ID	(0010,0020)	Single value	O
Patient Birth Date	(0010,0030)	Range	O
Patient Sex	(0010,0040)	Single value	O

In case of STUDY Query Retrieve Level D360 Server supports matching only on the following Value Representation elements:

Attribute Name	Attribute Tag	Matching	Type
Accession Number	(0008,0050)	Single value	O
Patient Name	(0010,0010)	Wildcard	O
Patient ID	(0010,0020)	Single value	O
Patient Birth Date	(0010,0030)	Range	O
Patient Sex	(0010,0040)	Single value	O
Study ID	(0020,0010)	Single value	O
Study Instance UID	(0020,000D)	Single value	O
Study Date	(0008,0020)	Range	O
Study Time	(0008,0030)	Range	O
Modalities In Study	(0008,0061)	Single value	O
Study Description	(0008,1030)	Wildcard	O

In case of SERIES Query Retrieve Level D360 Server supports matching only on the following Value Representation elements:

Attribute Name	Attribute Tag	Matching	Type
Study Instance UID	(0020,000D)	Single value	R
Series Instance UID	(0020,000E)	Single value	O
Series Number	(0020,0011)	Single value	O
Modality	(0008,0060)	Single value	O

In case of IMAGE Query Retrieve Level D360 Server supports matching only on the following Value Representation elements:

Attribute Name	Attribute Tag	Matching	Type
Study Instance UID	(0020,000D)	Single value	R
Series Instance UID	(0020,000E)	Single value	O
SOP Instance UID	(0008,0018)	Single value	O
SOP Class UID	(0008,0016)	Single value	O
Instance Number	(0020,0013)	Single value	O

7.2.2.2. Result attributes

In case of PATIENT Query Retrieve Level D360 Server supports the following return attributes:

Attribute Name	Attribute Tag
Patient Name	(0010,0010)
Patient ID	(0010,0020)
Patient Birth Date	(0010,0030)
Patient Sex	(0010,0040)
Number of Patient Related Studies	(0020,1200)
Number of Patient Related Series	(0020,1202)
Number of Patient Related Instances	(0020,1204)

In case of STUDY Query Retrieve Level D360 Server supports the following return attributes:

Attribute Name	Attribute Tag
Accession Number	(0008,0050)

Patient Name	(0010,0010)
Patient ID	(0010,0020)
Patient Birth Date	(0010,0030)
Patient Sex	(0010,0040)
Study ID	(0020,0010)
Study Instance UID	(0020,000D)
Study Date	(0008,0020)
Study Time	(0008,0030)
Modalities In Study	(0008,0061)
Study Description	(0008,1030)
Number of Study Related Series	(0020,1206)
Number of Study Related Instances	(0020,1208)

In case of SERIES Query Retrieve Level D360 Server supports the following return attributes:

Attribute Name	Attribute Tag
Study Instance UID	(0020,000D)
Series Instance UID	(0020,000E)
Series Description	(0008,103E)
Series Number	(0020,0011)
Modality	(0008,0060)
Series Date	(0008,0021)
Series Time	(0008,0031)
Laterality	(0020,0060)
Body Part Examined	(0018,0015)
Patient Position	(0018,5100)
Anatomical Orientation Type	(0010,2210)
Number of Series Related Instances	(0020,1209)

In case of IMAGE Query Retrieve Level D360 Server supports the following return attributes:

Attribute Name	Attribute Tag
Study Instance UID	(0020,000D)
Series Instance UID	(0020,000E)
SOP Instance UID	(0008,0018)
SOP Class UID	(0008,0016)
Instance Number	(0020,0013)
Instance Creation Date	(0008,0012)
Instance Creation Time	(0008,0013)

7.2.2.3. Response statuses

D360 Server returns C-FIND response statuses as specified below.

Service Status	Further Meaning	Error Code
Success	Matching is complete	0000
Failure	Out of resources	A700
	Identifier does not match SOP class	A900

	Unable to process	C000
Canceled	Matching terminated due to cancel request	FE00
Pending	Status between sub operations	FF00
	Status between sub operations with warning condition	FF01

8. MOVE SERVICE CLASS CONFORMANCE STATEMENT

8.1. Description and sequencing of activities

D360 Server accepts associations from remote AE SCU that wish to request to send DICOM Instances.

8.2. Accepted presentation contexts

D360 Server will accepts presentation contexts for all of the supported SOP Classes specified in 4.2.1.4 using any of the following transfer syntaxes:

Presentation Context Table		
Transfer Syntax		Role
Name	UID	
Implicit VR Little Endian	1.2.840.10008.1.2	SCP/SCU
Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP/SCU
Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP/SCU
JPEG Lossless, Nonhierarchical, First- Order Prediction	1.2.840.10008.1.2.4.70	SCU

8.2.1. Presentation Context Acceptance Criterion

D360 Server may accepts multiple Presentation Contexts containing the same Abstract Syntax.

8.2.1.1. Transfer Syntax Selection Policy

D360 Server accepts all of transfer syntaxes specified in 8.2.

8.2.2. SOP specific conformance for Query/Retrieve Service Class

D360 Server supports a DICOM Query both at Patient Root and Study Root Models as specified in 4.2.1.5, and returns the found data in C-MOVE response.

D360 Server supports the following Query Retrieve Level (0008,0052):

PATIENT
STUDY
SERIES
IMAGE

8.2.2.1. Request Search Keys

In case of PATIENT Query Retrieve Level D360 Server supports matching only on the following Value Representation elements:

Attribute Name	Attribute Tag	Matching	Type
Patient ID	(0010,0020)	Single value	R

In case of STUDY Query Retrieve Level D360 Server supports matching only on the following Value Representation elements:

Attribute Name	Attribute Tag	Matching	Type
Study Instance UID	(0020,000D)	Single value	R

In case of SERIES Query Retrieve Level D360 Server supports matching only on the following Value Representation elements:

Attribute Name	Attribute Tag	Matching	Type
Study Instance UID	(0020,000D)	Single value	O
Series Instance UID	(0020,000E)	Single value	O

In case of IMAGE Query Retrieve Level D360 Server supports matching only on the following Value Representation elements:

Attribute Name	Attribute Tag	Matching	Type
Study Instance UID	(0020,000D)	Single value	O
Series Instance UID	(0020,000E)	Single value	O
SOP Instance UID	(0008,0018)	Single value	O

8.2.2.2. Response statuses

D360 Server returns C-MOVE response statuses as specified below.

Service Status	Further Meaning	Error Code
Success	Process is complete	0000
Failure	Out of resources, unable to calculate matches	A701
	Out of resources, unable to perform sub operations	A702
	Identifier does not match SOP class	A900
	Move destination unknown	C001
	Unable to process	C000
Canceled	Operation terminated due to cancel request	FE00
Warning	Warning condition	B000
Pending	Status between sub operations	FF00

9. GET SERVICE CLASS CONFORMANCE STATEMENT

9.1. Description and sequencing of activities

D360 Server accepts associations from remote AE SCU that wish to get DICOM Instances.

9.2. Accepted presentation contexts

D360 Server will accept presentation contexts for all of the supported SOP Classes specified in 4.2.1.4 using any of the following transfer syntaxes:

Presentation Context Table		
Transfer Syntax		Role
Name	UID	
Implicit VR Little Endian	1.2.840.10008.1.2	SCP/SCU
Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP/SCU
Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP/SCU
JPEG Lossless, Nonhierarchical, First- Order Prediction	1.2.840.10008.1.2.4.70	SCU

9.2.1. Presentation Context Acceptance Criterion

D360 Server may accept multiple Presentation Contexts containing the same Abstract Syntax.

9.2.1.1. Transfer Syntax Selection Policy

D360 Server accepts all of transfer syntaxes specified in 9.2.

9.2.2. SOP specific conformance for Query/Retrieve Service Class

D360 Server supports a DICOM Query both at Patient Root and Study Root Models as specified in 4.2.1.6, and returns the found data in C-GET response.

D360 Server supports the following Query Retrieve Level (0008,0052):

PATIENT
STUDY
SERIES
IMAGE

9.2.2.1. Request Search Keys

In case of PATIENT Query Retrieve Level D360 Server supports matching only on the following Value Representation elements:

Attribute Name	Attribute Tag	Matching	Type
Patient ID	(0010,0020)	Single value	R

In case of STUDY Query Retrieve Level D360 Server supports matching only on the following Value Representation elements:

Attribute Name	Attribute Tag	Matching	Type
Study Instance UID	(0020,000D)	Single value	R

In case of SERIES Query Retrieve Level D360 Server supports matching only on the following Value Representation elements:

Attribute Name	Attribute Tag	Matching	Type
Study Instance UID	(0020,000D)	Single value	O
Series Instance UID	(0020,000E)	Single value	O

In case of IMAGE Query Retrieve Level D360 Server supports matching only on the following Value Representation elements:

Attribute Name	Attribute Tag	Matching	Type
Study Instance UID	(0020,000D)	Single value	O
Series Instance UID	(0020,000E)	Single value	O
SOP Instance UID	(0008,0018)	Single value	O

9.2.2.2. Response statuses

D360 Server returns C-GET response statuses as specified below.

Service Status	Further Meaning	Error Code
Success	Process is complete	0000
Failure	Out of resources, unable to calculate matches	A701
	Out of resources, unable to perform sub operations	A702
	Identifier does not match SOP class	A900
	Unable to process	C000
Canceled	Operation terminated due to cancel request	FE00
Warning	Warning condition	B000
Pending	Status between sub operations	FF00