

## Avreo DICOM Conformance Statement

interWORKS provides Standard Conformance to the following DICOM 3.0 SOP classes. This table lists each SOP class associated with this AE, its Unique Identifier (UID), and its service role (as an SCP or SCU).

SOP Class	UID	Service Role
Verification	1.2.840.10008.1.1	SCP
Basic Grayscale Print	1.2.840.10008.5.1.1.9	SCU
CR Image Storage	1.2.840.10008.5.1.4.1.1.1	SCP and SCU
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	SCP and SCU
USMF Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	SCP and SCU
USMF Image Storage	1.2.840.10008.5.1.4.1.1.3.1	SCP and SCU
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	SCP and SCU
NM Image Storage	1.2.840.10008.5.1.4.1.1.20	SCP and SCU
NM Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.5	SCP and SCU
US Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	SCP and SCU
US Image Storage	1.2.840.10008.5.1.4.1.1.6.1	SCP and SCU
SC Image Storage	1.2.840.10008.5.1.4.1.1.7	SCP and SCU
Digital Mammography Storage For Processing	1.2.840.10008.5.1.4.1.1.1.2.1	SCP and SCU
Digital Mammography Storage For Presentation	1.2.840.10008.5.1.4.1.1.1.2	SCP and SCU
Digital XRay Image Storage For Presentation	1.2.840.10008.5.1.4.1.1.1.1	SCP and SCU
Digital XRay Image Storage For	1.2.840.10008.5.1.4.1.1.1.1.1	SCP and

Processing		SCU
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	SCP and SCU
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	SCP and SCU
X-Ray Radiofluoroscopic BiPlane Image Storage	1.2.840.10008.5.1.4.1.1.12.3	SCP and SCU
Positron Emission Tomography (PET)	1.2.840.10008.5.1.4.1.1.128	SCP and SCU
Standalone PET Curve	1.2.840.10008.5.1.4.1.1.129	SCP and SCU
Patient Root Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.1.1	SCP and SCU
Patient Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.1.2	SCP and SCU
Patient Root Query/Retrieve Information Model - GET	1.2.840.10008.5.1.4.1.2.1.3	SCP and SCU
Study Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.2.1	SCP and SCU
Study Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.2.2	SCP and SCU
Study Root Query/Retrieve Information Model - GET	1.2.840.10008.5.1.4.1.2.2.3	SCP and SCU
Patient/Study Only Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.3.1	SCP and SCU
Patient/Study Only Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.3.2	SCP and SCU
Patient/Study Only Query/Retrieve Information Model - GET	1.2.840.10008.5.1.4.1.2.3.3	SCP and SCU
Modality Worklist	1.2.840.10008.5.1.4.31	SCP and SCU

## Number of Associations

interWORKS AE supports multiple associations (both accepted and requested). The actual number of associations is limited only by the amount of memory installed.

## Asynchronous Nature

Asynchronous operations are not supported by this version of the AE.

## Implementation Identifying Information

This section presents the Implementation Class UID and Implementation Version Name for the interWORKS AE.

The Implementation Class UID sent in the interWORKS AE association follows:  
1.2.840.114093.1.1

The Implementation Version Name for the interWORKS AE follows:

VV.vv.ff.bb

Where the variables are defined as follows:

Variable	Definition
VV	Major version number
vv	Minor version number
ff	Bug fix number
Bb	Build number

For example, 2.00.03.05 indicates that the major version number is 2, the minor version number is 0, the bug fix number is 3, and the build number is 5.

## Association Initiation Policy

interWORKS can initiate associations to send images.

## Sample interWORKS Real-World Activity

This section explains how the sample interWORKS AE initiates associations in response to HTTP queries.

An Internet browser can request images that are stored in the local database. The interWORKS AE then attempts to retrieve the images from its local database.

The [Presentation Context table](#) lists the abstract syntax, service role (SCP or SCU), and extended negotiation capabilities, if any, for each of the SOP classes involved in HTTP queries for the interWORKS AE. Transfer syntaxes for the SOP classes are described in the table, "[Transfer Syntaxes for Presentation Contexts.](#)"

**Presentation Context Table**

Abstract Syntax		Service Role	Ext. Neg.
Name	UID		
CR Image Storage	1.2.840.10008.5.1.4.1.1.1	SCU and SCP	None
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	SCU and SCP	None
USMF Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	SCU and SCP	None
USMF Image Storage	1.2.840.10008.5.1.4.1.1.3.1	SCU and SCP	None
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	SCU and SCP	None
NM Image Storage	1.2.840.10008.5.1.4.1.1.20	SCU and SCP	None
NM Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.5	SCU and SCP	None
US Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	SCU and SCP	None
US Image Storage	1.2.840.10008.5.1.4.1.1.6.1	SCU and SCP	None
SC Image Storage	1.2.840.10008.5.1.4.1.1.7	SCU and SCP	None
Patient Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.1.1	SCU	None
Patient Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.1.2	SCU	None
Patient Root Query/Retrieve Information Model - GET	1.2.840.10008.5.1.4.1.2.1.3	SCU	None
Study Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.2.1	SCU	None
Study Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.2.2	SCU	None
Study Root Query/Retrieve Information Model - GET	1.2.840.10008.5.1.4.1.2.2.3	SCU	None

This table describes the Transfer Syntaxes you can use with all of the Presentation Contexts from the Presentation Contexts table above.

## Transfer Syntaxes for Presentation Contexts

Transfer Syntax	Transfer Syntax UID
Implicit VR Little Endian	1.2.840.10008.1.2
Explicit VR Little Endian	1.2.840.10008.1.2.1
Explicit VR Big Endian	1.2.840.10008.1.2.2

This AE stores images in their entirety, including private data elements when the images are not compressed. When the original image is received using the Implicit VR Little Endian transfer syntax, private data elements are lost, because unknown, implicit elements cannot be converted without the private data dictionary.

The configuration of the interWORKS AE determines the acceptance of a presentation context. You can configure the AE to accept or deny requests for a particular SOP and/or transfer syntax.

This release of the interWORKS supports these transfer syntaxes:

- Implicit VR Little Endian (default)
- Explicit VR Little Endian
- Explicit VR Big Endian

# Communication Profiles

This section explains communication profiles supported by interWORKS

## Supported Communication Stacks

TCP/IP is the only supported communication stack in this implementation of the interWORKS.

interWORKS provides TCP/IP support for network communication.

- Application Programming Interface (API) The interWORKS AE uses the native socket library as the API to the TCP/IP stack.
- Physical Media Support. The physical media supported by the interWORKS AE is dependent on the network hardware installed in the computer.

# Extensions / Specializations / Privatizations

This implementation of the interWORKS AE does not support extended, specialized, or private SOPs.

## Private Transfer Syntax

None.

## Configuration

This section describes the standard configuration for interWORKS. You can modify this configuration with a Windows® program (DAccessConfig.exe) that ships with interWORKS. With this program, you can design configurations that match configurations of your other products.

You must set the environment variable DICOM\_CONFIG\_FILE to point to the configuration file. For example, you can set the file to point to a DICOM directory on the C: drive by typing this:

DICOM\_CONFIG\_FILE=C:\program files\riptide\dicom\_server. DAccessConfig.exe uses this environment variable if it is set.

## AE Title/Presentation Address Mapping

AE Titles are mapped to presentation addresses in the configuration file. A [Remote AE] section appears for each remote AE that is configured. This remote AE section contains these fields:

- User name
- Official DICOM AE title
- IP address
- Port number

The user name is optional, and you can use it to provide a custom name for the remote AE. For example, a better name for an AE officially titled CT1 might be BODY\_CT.

## Configuration Options

You can set various configuration options in the configuration file, which looks like a Windows® INI file. Options should appear under the appropriate section name. The section name uses the syntax [SectionName]. The syntax for setting options is name=value. You can include multiple values separated by commas. Note that leading and trailing spaces are significant.

This table describes the Network configuration options.

Option Name	Default Value	Description
port	104	TCP/IP port the server will use.

maxpdu	65530	Maximum size of the DICOM protocol data unit (PDU).
readTimeout	60	Timeout (in seconds) used when waiting for a response; use zero (0) to disable time-out.
idleTimeout	300	Timeout (in seconds) used when a connection is open but idle; Use zero (0) to disable time-out.  The idle timeout value applies only to a server waiting for requests; it does not apply to clients.
socketSndBuf	16384	Size of the socket send buffer.
socketRcvBuf	131072	Size of the socket receive buffer.

This table describes the Memory configuration options.

Option Name	Default Value	Description
dimseSize	1048576	Size of the DIMSE (DICOM message service element) buffer to allocate; this buffer stores DIMSE messages and images

This table describes the Local AE configuration options.

Option Name	Default Value	Description
aeTitle	None	Official DICOM AE Title of the local server

This table describes the Options configuration options. Note that the verify fields are intended to help debug connections. They should always be on in a clinical (production) environment.

Option Name	Default Value	Description
debug	Off	Prints debugging information
debugFile	None	Redirects debugging information to this file
pduDump	Off	Dumps binary protocol data units (PDUs) to disk; use pdudump to examine)
dimseDump	Off	Dumps binary DIMSE (DICOM message service element) messages to disk; use pdudump -d to examine
verifyProtocol	On	Validates the protocol field in the associated request
verifyLocalAe	On	Validates the local AE (Called-AE-Title for servers, Calling-AE-Title for clients) field in the associated request
verifyRemoteAe	On	Validates the remote AE (Calling-AE-Title for servers, Called-AE-Title for clients) field in the associated request
verifyAppContext	On	Validates the application context field in the associated request
verifyIPAddr	On	Validates the remote AE's IP address. This option provides some security for server configurations.

		<p>If this option is enabled, the remote AE's IP address must be listed in the configuration (in the accept parameter in the Server section).</p> <p>If the remote AE's IP address does not match one in the configuration, the connection is terminated.</p>
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This table describes the Transfer Syntax configuration options.

Option	Default Value	Format	Description
trSyn	None	Transfer syntax: implicitLittle, explicitLittle, or explicitBig	Specifies a supported transfer syntax. You can specify multiple values in this section, creating a default list of supported transfer syntaxes for all IODs. You can override these settings in the Server and Remote AE Configuration sections; see the following tables.

This table describes the Server configuration options.

Option Name	Default Value	Format	Description
scu	None	SOP Class UID, transfer syntax  (may use abbreviations*)	Accepts the role of Service Class User for the specified SOP Class; this is required for the C-GET service because the SCU/SCP roles are reversed. Transfer syntax is optional.
scp	None	SOP Class UID, transfer syntax  (may use abbreviations*)	Accepts the role of Service Class Provider for the specified SOP Class. Transfer syntax is optional.
scuscpc	None	SOP Class UID, transfer syntax  (may use abbreviations*)	Accepts the role of Service Class User and Service Class Provider for the specified SOP Class. Transfer syntax is optional.
accept	None	DICOM_AE_TITLE, IP_ADDRESS	Accepts associations from the specified AE title at the specified IP address.
trSynOrder	Server	Server or client	Base the transfer syntax acceptance order on the order specified by the server, or on the order received by the client.
trSyn	None	Transfer syntax: implicitLittle, explicitLittle, or explicitBig	Specifies a supported transfer syntax. This setting overrides the default list specified in the <a href="#">Transfer Syntax section</a> .



**\* The valid abbreviations for scu, scp, and scuscp configuration options follow: echo, cr, ct, usmf, mr, nm, us, sc, patFind, patMove, patGet, studyFind, studyMove, studyGet, patStudyFind, patStudyMove, patStudyGet, basicGrayPrint, and basicColorPrint.**

This table describes the RemoteAE configuration options.

Option Name	Default Value	Description
userName	None	Custom user name for the remote AE
aetitle	None	Official DICOM AE title of the remote AE
ip	None	IP address
port	None	Port number
scu	None	Requests a presentation context for the specified SOP Class as a Service Class User
scp	None	Requests a presentation context for the specified SOP Class as a Service Class Provider; this request is required for the C-GET service, because the SCU/SCP roles are reversed
scuscp	None	Requests a presentation context for the specified SOP Class as an SCU and an SCP
comment	None	A comment field
trSyn	None	Specifies a supported transfer syntax. This setting overrides the default list specified in the <a href="#">Transfer Syntax section</a> .

*Note:* There may be multiple [RemoteAE] sections (one for every remote DICOM AE).

## Support of Extended Character Sets

None.