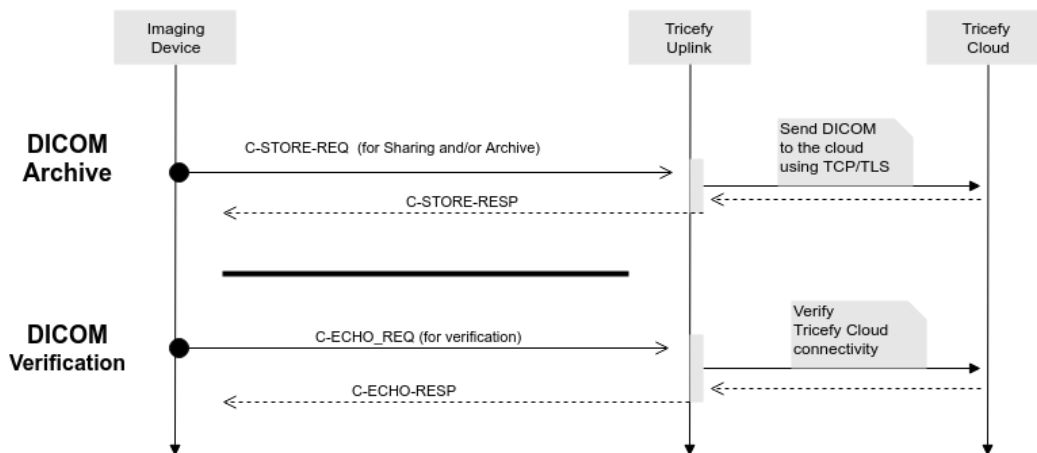


Tricefy DICOM Conformance Statement

This is the DICOM conformance statement for Tricefy and Tricefy Uplink. Tricefy Uplink is the lightweight software agent that runs on customer networks for the purpose of storing images (C-STORE SCP), verifying DICOM communications (C-ECHO SCP), querying for and then retrieving DICOM instances (C-FIND SCP, C-MOVE SCP, C-STORE SCU), and Modality Worklist DICOM queries (C-FIND SCP).

Storage Server Application Entity



The STORAGE-SCP AE will accept Associations with Presentation Contexts for SOP Classes of the Verification and Storage Service Classes. DICOM Instances received in a Storage Request are securely sent to Tricefy for processing and archival. The sequence diagram above depicts the communication that comprises these two service classes.

C-Store SCP Specifics and Conformance

The associated Activity with the Storage service is the storage/archival of medical DICOM data received over the network for a specific Tricefy account. Tricefy Uplink will return a failure status if it is unable to securely and completely store the received instance(s). A successful return is a guarantee that the data has been received by Tricefy and that all processing jobs are durably enqueued.

Storage Server AE does not have any dependencies on the number of Associations used to send images to it. Images belonging to more than one Study or Series can be sent over a single or multiple Associations. Images belonging to a single Study or Series can also be sent over different Associations. There is no limit on either the number of SOP Instances or the maximum amount of total SOP Instance data that can be transferred over a single Association. All AE Titles are accepted (maximum 16 characters in length per DICOM standard). Tricefy will retain the original DICOM data in DICOM Part 10 compliant file format.

If the received instance is a duplicate of a previously received instance, the old file and database information will not be overwritten with the new one.

The Tricefy Storage Server AE is Level 2 (Full) conformant as a Storage SCP. Consequently, all Type 1, Type 2, and Type 3 Attributes defined in the Information Object Definition associated with the SOP Class, as well as any Standard Extended Attributes (including Private Attributes) included in the SOP Instance, will be stored.

Tricefy supports the following SOP Classes as an SCP for C-Store:

- RETIRED_StoredPrintStorage 1.2.840.10008.5.1.1.27
- RETIRED_HardcopyGrayscaleImageStorage 1.2.840.10008.5.1.1.29
- RETIRED_HardcopyColorImageStorage 1.2.840.10008.5.1.1.30
- ComputedRadiographylmageStorage 1.2.840.10008.5.1.4.1.1.1
- DigitalXRayImageStorageForPresentation 1.2.840.10008.5.1.4.1.1.1.1
- DigitalXRayImageStorageForProcessing 1.2.840.10008.5.1.4.1.1.1.1.1
- DigitalMammographyXRayImageStorageForPresentation 1.2.840.10008.5.1.4.1.1.1.2
- DigitalMammographyXRayImageStorageForProcessing 1.2.840.10008.5.1.4.1.1.1.2.1
- DigitalIntraOralXRayImageStorageForPresentation 1.2.840.10008.5.1.4.1.1.1.3
- DigitalIntraOralXRayImageStorageForProcessing 1.2.840.10008.5.1.4.1.1.1.3.1
- CTImageStorage 1.2.840.10008.5.1.4.1.1.2
- EnhancedCTImageStorage 1.2.840.10008.5.1.4.1.1.2.1
- LegacyConvertedEnhancedCTImageStorage 1.2.840.10008.5.1.4.1.1.2.2
- RETIRED_UltrasoundMultiframeImageStorage 1.2.840.10008.5.1.4.1.1.3
- UltrasoundMultiframeImageStorage 1.2.840.10008.5.1.4.1.1.3.1
- MRIImageStorage 1.2.840.10008.5.1.4.1.1.4
- EnhancedMRIImageStorage 1.2.840.10008.5.1.4.1.1.4.1
- MRSpectroscopyStorage 1.2.840.10008.5.1.4.1.1.4.2
- EnhancedMRColorImageStorage 1.2.840.10008.5.1.4.1.1.4.3
- LegacyConvertedEnhancedMRIImageStorage 1.2.840.10008.5.1.4.1.1.4.4
- RETIRED_NuclearMedicineImageStorage 1.2.840.10008.5.1.4.1.1.5
- RETIRED_UltrasoundImageStorage 1.2.840.10008.5.1.4.1.1.6
- UltrasoundImageStorage 1.2.840.10008.5.1.4.1.1.6.1
- EnhancedUSVolumeStorage 1.2.840.10008.5.1.4.1.1.6.2
- SecondaryCaptureImageStorage 1.2.840.10008.5.1.4.1.1.7
- MultiframeSingleBitSecondaryCaptureImageStorage 1.2.840.10008.5.1.4.1.1.7.1
- MultiframeGrayscaleByteSecondaryCaptureImageStorage 1.2.840.10008.5.1.4.1.1.7.2
- MultiframeGrayscaleWordSecondaryCaptureImageStorage 1.2.840.10008.5.1.4.1.1.7.3
- MultiframeTrueColorSecondaryCaptureImageStorage 1.2.840.10008.5.1.4.1.1.7.4
- RETIRED_StandaloneOverlayStorage 1.2.840.10008.5.1.4.1.1.8
- RETIRED_StandaloneCurveStorage 1.2.840.10008.5.1.4.1.1.9
- TwelveLeadECGWaveformStorage 1.2.840.10008.5.1.4.1.1.9.1.1
- GeneralECGWaveformStorage 1.2.840.10008.5.1.4.1.1.9.1.2
- AmbulatoryECGWaveformStorage 1.2.840.10008.5.1.4.1.1.9.1.3
- HemodynamicWaveformStorage 1.2.840.10008.5.1.4.1.1.9.2.1
- CardiacElectrophysiologyWaveformStorage 1.2.840.10008.5.1.4.1.1.9.3.1
- BasicVoiceAudioWaveformStorage 1.2.840.10008.5.1.4.1.1.9.4.1
- GeneralAudioWaveformStorage 1.2.840.10008.5.1.4.1.1.9.4.2
- ArterialPulseWaveformStorage 1.2.840.10008.5.1.4.1.1.9.5.1
- RespiratoryWaveformStorage 1.2.840.10008.5.1.4.1.1.9.6.1
- RETIRED_StandaloneModalityLUTStorage 1.2.840.10008.5.1.4.1.1.10
- RETIRED_StandaloneVOILUTStorage 1.2.840.10008.5.1.4.1.1.11
- GrayscaleSoftcopyPresentationStateStorage 1.2.840.10008.5.1.4.1.1.11.1

- ColorSoftcopyPresentationStateStorage 1.2.840.10008.5.1.4.1.1.11.2
- PseudoColorSoftcopyPresentationStateStorage 1.2.840.10008.5.1.4.1.1.11.3
- BlendingSoftcopyPresentationStateStorage 1.2.840.10008.5.1.4.1.1.11.4
- XAXRFGrayscaleSoftcopyPresentationStateStorage 1.2.840.10008.5.1.4.1.1.11.5
- XRayAngiographicImageStorage 1.2.840.10008.5.1.4.1.1.12.1
- EnhancedXAImageStorage 1.2.840.10008.5.1.4.1.1.12.1.1
- XRayRadiofluoroscopicImageStorage 1.2.840.10008.5.1.4.1.1.12.2
- EnhancedXRFImageStorage 1.2.840.10008.5.1.4.1.1.12.2.1
- RETIRED_XRayAngiographicBiPlaneImageStorage 1.2.840.10008.5.1.4.1.1.12.3
- XRay3DAngiographicImageStorage 1.2.840.10008.5.1.4.1.1.13.1.1
- XRay3DCraniofacialImageStorage 1.2.840.10008.5.1.4.1.1.13.1.2
- BreastTomosynthesisImageStorage 1.2.840.10008.5.1.4.1.1.13.1.3
- IntravascularOpticalCoherenceTomographyImageStorageForPresentation 1.2.840.10008.5.1.4.1.1.14.1
- IntravascularOpticalCoherenceTomographyImageStorageForProcessing 1.2.840.10008.5.1.4.1.1.14.2
- NuclearMedicineImageStorage 1.2.840.10008.5.1.4.1.1.20
- RawDataStorage 1.2.840.10008.5.1.4.1.1.66
- SpatialRegistrationStorage 1.2.840.10008.5.1.4.1.1.66.1
- SpatialFiducialsStorage 1.2.840.10008.5.1.4.1.1.66.2
- DeformableSpatialRegistrationStorage 1.2.840.10008.5.1.4.1.1.66.3
- SegmentationStorage 1.2.840.10008.5.1.4.1.1.66.4
- SurfaceSegmentationStorage 1.2.840.10008.5.1.4.1.1.66.5
- RealWorldValueMappingStorage 1.2.840.10008.5.1.4.1.1.67
- SurfaceScanMeshStorage 1.2.840.10008.5.1.4.1.1.68.1
- SurfaceScanPointCloudStorage 1.2.840.10008.5.1.4.1.1.68.2
- RETIRED_VLImageStorage 1.2.840.10008.5.1.4.1.1.77.1
- VLEndoscopicImageStorage 1.2.840.10008.5.1.4.1.1.77.1.1
- VideoEndoscopicImageStorage 1.2.840.10008.5.1.4.1.1.77.1.1.1
- VLMicroscopicImageStorage 1.2.840.10008.5.1.4.1.1.77.1.2
- VideoMicroscopicImageStorage 1.2.840.10008.5.1.4.1.1.77.1.2.1
- VLSlideCoordinatesMicroscopicImageStorage 1.2.840.10008.5.1.4.1.1.77.1.3
- VLPhotographicImageStorage 1.2.840.10008.5.1.4.1.1.77.1.4
- VideoPhotographicImageStorage 1.2.840.10008.5.1.4.1.1.77.1.4.1
- OphthalmicPhotography8BitImageStorage 1.2.840.10008.5.1.4.1.1.77.1.5.1
- OphthalmicPhotography16BitImageStorage 1.2.840.10008.5.1.4.1.1.77.1.5.2
- StereometricRelationshipStorage 1.2.840.10008.5.1.4.1.1.77.1.5.3
- OphthalmicTomographyImageStorage 1.2.840.10008.5.1.4.1.1.77.1.5.4
- VLWholeSlideMicroscopyImageStorage 1.2.840.10008.5.1.4.1.1.77.1.6
- RETIRED_VLMultiframeImageStorage 1.2.840.10008.5.1.4.1.1.77.2
- LensometryMeasurementsStorage 1.2.840.10008.5.1.4.1.1.78.1
- AutorefractionMeasurementsStorage 1.2.840.10008.5.1.4.1.1.78.2
- KeratometryMeasurementsStorage 1.2.840.10008.5.1.4.1.1.78.3
- SubjectiveRefractionMeasurementsStorage 1.2.840.10008.5.1.4.1.1.78.4
- VisualAcuityMeasurementsStorage 1.2.840.10008.5.1.4.1.1.78.5
- SpectaclePrescriptionReportStorage 1.2.840.10008.5.1.4.1.1.78.6
- OphthalmicAxialMeasurementsStorage 1.2.840.10008.5.1.4.1.1.78.7
- IntraocularLensCalculationsStorage 1.2.840.10008.5.1.4.1.1.78.8
- MacularGridThicknessAndVolumeReportStorage 1.2.840.10008.5.1.4.1.1.79.1
- OphthalmicVisualFieldStaticPerimetryMeasurementsStorage 1.2.840.10008.5.1.4.1.1.80.1
- OphthalmicThicknessMapStorage 1.2.840.10008.5.1.4.1.1.81.1
- BasicTextSRStorage 1.2.840.10008.5.1.4.1.1.88.11
- EnhancedSRStorage 1.2.840.10008.5.1.4.1.1.88.22
- ComprehensiveSRStorage 1.2.840.10008.5.1.4.1.1.88.33

- Comprehensive3DSRStorage 1.2.840.10008.5.1.4.1.1.88.34
- ProcedureLogStorage 1.2.840.10008.5.1.4.1.1.88.40
- MammographyCADSRStorage 1.2.840.10008.5.1.4.1.1.88.50
- KeyObjectSelectionDocumentStorage 1.2.840.10008.5.1.4.1.1.88.59
- ChestCADSRStorage 1.2.840.10008.5.1.4.1.1.88.65
- XRayRadiationDoseSRStorage 1.2.840.10008.5.1.4.1.1.88.67
- ColonCADSRStorage 1.2.840.10008.5.1.4.1.1.88.69
- ImplantationPlanSRDocumentStorage 1.2.840.10008.5.1.4.1.1.88.70
- EncapsulatedPDFStorage 1.2.840.10008.5.1.4.1.1.104.1
- EncapsulatedCDAStorage 1.2.840.10008.5.1.4.1.1.104.2
- PositronEmissionTomographyImageStorage 1.2.840.10008.5.1.4.1.1.128
- LegacyConvertedEnhancedPETImageStorage 1.2.840.10008.5.1.4.1.1.128.1
- RETIRED_StandalonePETCurveStorage 1.2.840.10008.5.1.4.1.1.129
- EnhancedPETImageStorage 1.2.840.10008.5.1.4.1.1.130
- BasicStructuredDisplayStorage 1.2.840.10008.5.1.4.1.1.131
- RTImageStorage 1.2.840.10008.5.1.4.1.1.481.1
- RTDoseStorage 1.2.840.10008.5.1.4.1.1.481.2
- RTStructureSetStorage 1.2.840.10008.5.1.4.1.1.481.3
- RTBeamsTreatmentRecordStorage 1.2.840.10008.5.1.4.1.1.481.4
- RTPlanStorage 1.2.840.10008.5.1.4.1.1.481.5
- RTBrachyTreatmentRecordStorage 1.2.840.10008.5.1.4.1.1.481.6
- RTTreatmentSummaryRecordStorage 1.2.840.10008.5.1.4.1.1.481.7
- RTIonPlanStorage 1.2.840.10008.5.1.4.1.1.481.8
- RTIonBeamsTreatmentRecordStorage 1.2.840.10008.5.1.4.1.1.481.9
- RTBeamsDeliveryInstructionStorage 1.2.840.10008.5.1.4.34.7

Tricefy will accept and negotiate presentation contexts for all of the abovementioned supported SOP Classes using any of the following transfer syntaxes:

- LittleEndianImplicitTransferSyntax 1.2.840.10008.1.2
- LittleEndianExplicitTransferSyntax 1.2.840.10008.1.2.1
- Deflated Explicit VR Little Endian 1.2.840.10008.1.2.1.99
- BigEndianExplicitTransferSyntax 1.2.840.10008.1.2.2
- JPEGProcess1TransferSyntax 1.2.840.10008.1.2.4.50
- JPEGProcess2_4TransferSyntax 1.2.840.10008.1.2.4.51
- JPEGProcess14SV1TransferSyntax 1.2.840.10008.1.2.4.70
- JPEGLSLosslessTransferSyntax 1.2.840.10008.1.2.4.80
- JPEGLSLossyTransferSyntax 1.2.840.10008.1.2.4.81
- JPEG2000LosslessOnlyTransferSyntax 1.2.840.10008.1.2.4.90
- JPEG2000TransferSyntax 1.2.840.10008.1.2.4.91
- RLELosslessTransferSyntax 1.2.840.10008.1.2.5

Tricefy Uplink returns the following return codes for DICOM C-Store:

- 0000 meaning that the DICOM has been successfully received and durably enqueued by Tricefy
- C000-CFFF meaning that the DICOM transfer has not been successful; The client Association should be aborted, and the job should be marked as failed. This includes all possible failure scenarios.

C-Echo SCP Specifics and Conformance

Tricefy supports the following SOP Classes as an SCP for C-Echo:

- Verification SOP Class 1.2.840.10008.1.1

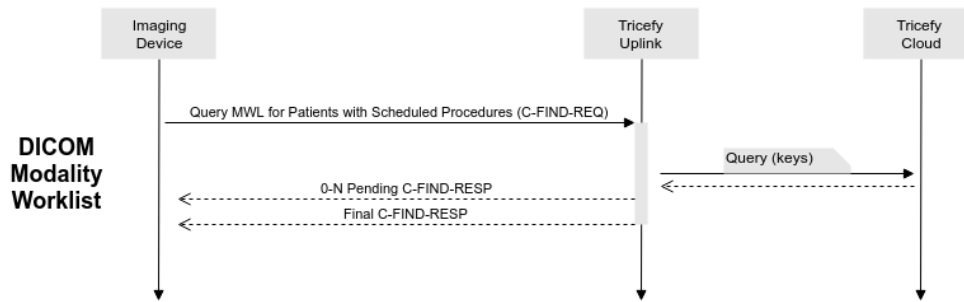
Tricefy uses the following return codes and logic for DICOM C-Echo:

- 0000 meaning the C-ECHO request is accepted locally on the customer network and the cloud is reachable.
- C000 if the local connection is verifiable but the cloud connection is not. Additionally the release of the client's C-Echo association will fail if the cloud connection cannot be verified.

Query/Retrieve Server Application Entity

Uplink does not currently support Associations with Presentation Contexts for SOP Classes of the Query/Retrieve Service Classes (C-FIND, C-MOVE).

Modality Worklist Server Application Entity



The Modality Worklist Server AE will accept Associations with Presentation Contexts for SOP Classes of Modality Worklist Service Classes. When a Modality Worklist C-Find request is received, Modality Worklist Server AE will query Tricefy for procedure steps (that match query elements sent by the SCU) and return a pending C-Find response for each. In some scenario's Tricefy will query a remote system or database to respond to the query. Other times, it will query its internal application database for results. The above sequence diagram details the DICOM Modality Worklist AE flow.

MWL C-Find Specifics and Compliance

Tricefy supports the following SOP Classes as an SCP for C-Find:

- FINDModalityWorklistInformationModel 1.2.840.10008.5.1.4.31

C-Find SCP supports the following transfer syntaxes:

- LittleEndianImplicitTransferSyntax 1.2.840.10008.1.2
- LittleEndianExplicitTransferSyntax 1.2.840.10008.1.2.1
- BigEndianExplicitTransferSyntax 1.2.840.10008.1.2.2

C-Find SCP Supported Elements

Query Elements:

- (0008,0050) AccessionNumber
- (0010,0010) PatientName - **wild-card support**
- (0010,0020) PatientID
- (0010,0030) PatientBirthDate
- (0040,0100) ScheduledProcedureStepSequence
 - (0008,0060) > Modality
 - (0040,0001) > ScheduledStationAETitle
 - (0040,0002) > ScheduledProcedureStepStartDate - combined range matching
 - (0040,0003) > ScheduledProcedureStepStartTime - combined range matching

All Possible Return Elements:

- (0008,0005) [ISO_IR 192](always returned)

- (0008,0050) AccessionNumber
- (0008,0090) ReferringPhysicianName
- (0008,1080) AdmittingDiagnosesDescription
- (0008,0090) ReferringPhysicianName
- (0008,0092) ReferringPhysicianAddress
- (0008,0094) ReferringPhysicianTelephoneNumbers
- (0008,1050) PerformingPhysicianName
- (0008,1030) StudyDescription
- (0008,103E) SeriesDescription
- (0010,0010) PatientName
- (0010,0020) PatientID
- (0010,0030) PatientBirthDate
- (0010,0040) PatientSex
- (0010,1000) OtherPatientIDs
- (0010,1001) OtherPatientNames
- (0010,1040) PatientAddress
- (0020,000d) StudyInstanceUID
- (0032,1032) RequestingPhysician
- (0040,1400) RequestedProcedureComments
- (0040,2016) PlacerOrderNumberImagingServiceRequest
- (0040,2017) FillerOrderNumberImagingServiceRequest
- (0040,2400) ImagingServiceRequestComments
- (0040,0100) ScheduledProcedureStepSequence
 - (0008,0060) > Modality
 - (0040,0001) > ScheduledStationAETitle
 - (0040,0002) > ScheduledProcedureStepStartDate
 - (0040,0003) > ScheduledProcedureStepStartTime
 - (0040,0006) > ScheduledPerformingPhysicianName
 - (0040,0400) > CommentsOnTheScheduledProcedureStep
- (0x6301, 0x1010) GE Patient Email (GE private tag)
- (0x6301, 0x1024) GE Patient Phone (GE Private tag)
- (0x6301, 0x1012) GE Performing Physician Email (GE Private tag)
- (0x6301, 0x1022) GE Performing Physician Phone (GE Private tag)
- (0x6301, 0x1011) GE Referring Physician Email (GE Private tag)
- (0x6301, 0x1025) GE Referring Physician Phone (GE Private tag)
- (0x6301, 0x1013) GE Sonographer Email (GE Private tag)
- (0x6301, 0x1023) GE Sonographer Phone (GE Private tag)

Tricefy Uplink returns the following return codes for DICOM C-Find:

- 0000 meaning that Matching is complete. No final identifier is supplied.
- FE00 meaning that The C-Find SCU sent a Cancel Request. This has been acknowledged and the search for matches has been halted.
- FF00 meaning that the search for further matches is continuing. This is returned when each successful match is returned and when further matches are forthcoming.