			represented. Enumerated values are: SIGNED_INT8 SIGNED_INT16 SIGNED_INT32 UNSIGNED_INT8 UNSIGNED_INT16 UNSIGNED_INT32 FLOAT32 FLOAT64
>>minValue	O	A	The minimum value that this component takes on. If this XML Attribute is missing, this is the minimum value that can be represented by the Datatype.
>>maxValue	O	A	The maximum value that this component takes on. If this XML Attribute is missing, this is the maximum value that can be represented by the Datatype.
>>Semantics	R	1	A coded value describing what this component represents.
>>> *Include 'Coded Terminology Macro' Table 10.1-1*			Defined Context ID is 7180.
>>Unit	R	1	A coded value describing what units this dimension is in.
>>> *Include 'Coded Terminology Macro' Table 10.1-1*			Defined Context ID is 7181.
>Dimension	R	1-n	Describes a dimension.
>>idNumber	R	A	Identifies this particular dimension, with numbering starting from 1. Dimensions with a lower idNumber vary faster than those with a higher idNumber.
>>numberOfSamples	R	A	The number of samples in this dimension, for example: the number of columns along the X-axis, the number of rows along the Y-axis, the number of slices along the Z-axis, the number of qualitative descriptions.
>>Semantics	R	1	A coded value describing what this dimension represents.
>>> *Include 'Coded Terminology Macro' Table 10.1-1*			Defined Context ID is 7182
>> Regular	C	1	Used to describe regularly spaced samples in this dimension. Required if neither Irregular nor Qualitative are present. Shall not be present otherwise.

>>>width	R	A	The sample width.
>>>spacing	R	A	The sample spacing.
>>>Unit	R	1	A coded value describing what units the sample width and spacing are in.
>>>> *Include 'Coded Terminology Macro' Table 10.1-1*			Defined Context ID is 7183.
>>>AxisDirection	O	1	The direction of the axis of this dimension. Note: This XML Element might only be applicable to spatial dimensions, such as those dealing with linear displacement. Typically this is in relationship to the patient.
>>>> *Include 'Coded Terminology Macro' Table 10.1-1*			Defined Context ID is 7184
>>>AxisOrientation	O	1	The orientation of the axis of this dimension along which values are increasing. Note: This XML Element might only be applicable to spatial dimensions, such as those dealing with linear displacement. Typically this is in relationship to the patient.
>>>> *Include 'Coded Terminology Macro' Table 10.1-1*			Defined Context ID is 7185
>>Irregular	C	1	Used to describe irregularly spaced samples in this dimension. Required if neither Regular nor Qualitative are present. Shall not be present otherwise.
>>>origin	R	A	The reference location from which each of the sample locations are measured.
>>>SampleLocation	R	1-n	Describes the locations of each sample as an offset from the origin. There shall be numberOfSamples SampleLocation XML Elements in this sequence.
>>>>index	R	A	The index value of this sample location, with numbering starting from 1 and increating to numberOfSamples.
>>>>width	R	A	The sample width.
>>>>distanceToOrigin	R	A	The distance of this sample location from the Origin location.
>>>Unit	R	1	A coded value describing what units the sample widths and locations are in.
>>>> *Include 'Coded Terminology Macro' Table 10.1-1*			Defined Context ID is 7183.

>>>AxisDirection	O	1	The direction of the axis of this dimension.
			Note: This XML Element might only be applicable to spatial dimensions, such as those dealing with linear displacement. Typically this is in relationship to the patient.
>>>> *Include 'Coded Terminology Macro' Table 10.1-1*			Defined Context ID is 7184
>>>AxisOrientation	O	1	The orientation of the axis of this dimension along which values are increasing.
			Note: This XML Element might only be applicable to spatial dimensions, such as those dealing with linear displacement. Typically this is in relationship to the patient.
>>>> *Include 'Coded Terminology Macro' Table 10.1-1*			Defined Context ID is 7185
>>Qualitative	C	1	Used to describe a qualitative dimension. Required if neither Regular nor Irregular are present. Shall not be present otherwise.
>>>Sample	R	1-n	Description of what each sample along this dimension represents. There shall be numberOfSamples Sample XML Elements in this sequence.
>>>>index	R	A	The index value of this sample, with numbering starting from 1 and increasing to numberOfSamples.
>>>>Semantics	R	1	A coded value describing what this sample represents.
>>>>> *Include 'Coded Terminology Macro' Table 10.1-1*			Defined Context ID is 7186
>>Origin	O	0-n	Specifies the spatial position in the coordinate system of the Abstract Multi-Dimensional Image Model of the spatial frames or volumes of image data values. Different frames or volumes may either share an origin, or have a different origin for each frame or volume. If there is only a single Origin XML element within this Dimension, then this Origin applies to all samples along this Dimension. Otherwise, there shall be numberOfSamples Origin XML elements, one for each sample along this Dimension. Sample index values for Dimensions whose idNumbers are less than this Dimension's idNumber, are all equal to 1.

>>>index	R	A	Index of the sample to which this Origin,. If this is a single Origin that applies to all samples along this Dimension, then index shall either be left out or given a value of "0" (zero). Otherwise, the value shall be the appropriate number between 1 and nubmerOfSamles.
>>>xCoord	R	A	The X position of this Origin in the coordinate system of the Abstract Multi-Dimensional Image Model.
>>>yCoord	R	A	The Y position of this Origin in the coordinate system of the Abstract Multi-Dimensional Image Model.
>>>zCoord	R	A	The Z position of this Origin in the coordinate system of the Abstract Multi-Dimensional Image Model.
>>DirectionCosines	O	0-n	Specifies the direction in the coordinate system of the Abstract Multi-Dimensional Image Model of the Dimension whose idNumber is given in concernedSpatialDimension. The idNumber of the concernedSpatialDimension shall be less than the idNumber of this Dimension. If there is only a single DirectionCosines XML element within this Dimension XML element with a particular concernedSpatialDimension, then this Direction Cosine applies to all samples along this Dimension. Otherwise, there shall be numberOfSamples DirectionCosines XML elements with this particular concernedSpatialDimension, one for each sample along this Dimension.
>>>concernedSpatialDimension	R	A	The idNumber of the particular Dimension for which this DirectionCosines XML element applies. The value of concernedSpatialDimension shall be less than the idNumber of this Dimension.
>>>index	C	A	Index of this direction specification, with numbering starting from 1. If this is a single-valued DirectionCosines that applies to all samples along this Dimension then index shall either be left out or given a value of "0" (zero). Otherwise, the value of index refers to the DirectionCosines of a particular sample value along this Dimension.

>>>cosAlongX	R	A	The direction cosine along the X axis of the coordinate system of the Abstract Multi-Dimensional Image Model for this concernedSpatialDimension.
>>>cosAlongY	R	A	The direction cosine along the Y axis of the coordinate system of the Abstract Multi-Dimensional Image Model for this concernedSpatialDimension.
>>>cosAlongZ	R	A	The direction cosine along the Z axis of the coordinate system of the Abstract Multi-Dimensional Image Model for this concernedSpatialDimension.
>PixelData	R	1	Structure that defines where the pixel data is located, organized along dimensional lines.
>>*Include 'Dimensional Data Macro' Table A.2.5-2*			
>PixelMapOfValidData	O	0-1	A pixel map that identifies which pixels either belong in or out of the Data Set. The dimensions of the pixel map match the dimensions of the image data, i.e., there is a one-to-one correspondence between samples in the image data and samples in the pixel map. The pointers to the pixel map data are included one of the Dimension XML elements.
>>datatype	R	A	Describes how samples in the pixel map are encoded. Enumerated values are: BIT1 UNSIGNED_INT8 For BIT1, the bit ordering starts from the least significant bit going to the most significant bit within an UNSIGNED_INT8 (i.e. 8 bit) byte. The bits are zero-padded to make a full 8-bit byte at the end of the most rapidly changing dimension (i.e. the Dimension whose idNumber is 1).
>>inValue	C	A	The value within the pixel map that indicates that this sample shall be considered as part of the Data Set. All samples whose pixel map values do not match inValue shall not be considered as part of the Data Set. Required if outValue is not present. Shall not be present if outValue is present.
>>outValue	C	A	The value within the pixel map that indicates that this sample shall not be considered as part of the Data Set. All

			samples whose pixel map values do not match outValue shall be considered as part of the Data Set. Required if inValue is not present. Shall not be present if inValue is present.
>>*Include 'Dimensional Data Macro' Table A.2.5-2*			

1170

Table A.2.5-2 Dimensional Data Macro

DimensionalData	R	1	A nested tree structure that organizes the data for each dimension. The top level of the tree structure should refer to the Dimension with the highest idNumber.
>dimensionID	R	A	The idNumber of the Dimension in this AbstractImageDataSet to which this DimensionalData refers.
>DataAt	O	1-n	References to where the image data is located. Only one Dimension XML Element within this AbstractImageDataSet shall have UUIDs for bulk pixel data (i.e. all bulk data references are at the same dimensional level). Note: If the source of the data, as part of the model preparation, creates a single file for pixel data from multiple smaller native objects, then in order to provide the descriptorUUID XML Attributes the source may need to create multiple bulkDataUUIDs referring to different offsets within that single pixel data file.
>>indexWithinDimension	R	A	The ordinal position (e.g. index number) of this sample point in the array of data at this level. Numbering starts from 1.
>>descriptorUUID	C	A	A UUID that refers to the ObjectDescriptor from which this data is drawn, formatted in the hexadecimal representation defined by ITU-T Recommendation X.667,. Required at the level of the nested tree structure where the source added the data from the descriptorUUID into the Abstract Multi-Dimensional Image Model.
>>bulkDataUUID	C	A	The identifier that the recipient of the data may use in a getData() call to gain access to the bulk pixel data formatted as a UUID using the hexadecimal representation defined in ITU-T Recommendation

			X.667,. Required if the Dimensional Data Macro is not present at this level of the nested tree structure. Shall not be present otherwise.
>>*Conditionally include the Dimensional Data Macro' Table A.2.5-2*			Only one of bulkDataUUID or Dimensional Data shall be included at each level. If Dimensional Data is included, it shall be the next lower level of the nested tree structure, that is the Dimension with an idNumber one less than the Dimension referred to by the enclosing DimensionalData.

A.2.6   Schema

The Relax NG Compact schema for the Abstract Multi-Dimensional Image Model follows:

```
        default namespace = "http://dicom.nema.org/PS3.19/models/AbstractImage"
1175
        start = AbstractImageDataSet
        AbstractImageDataSet =

         element AbstractImageDataSet {
1180        element Component{
              attribute idNumber { xsd:positiveInteger },
              attribute datatype { ComponentDatatype },
              attribute minValue { xsd:double }?,
              attribute maxValue { xsd:double }?,
1185         element Semantics { CodedTerm },
              element Unit { CodedTerm  },
              element RealWordMapping {
                attribute rescaleSlope { xsd:double },
                attribute rescaleIntercept { xsd:double },
1190           element Unit { CodedTerm },
                element Semantics { CodedTerm }
              }*
           }+,
           element Dimension {
1195         attribute idNumber { xsd:positiveInteger },
              attribute numberOfSamples { xsd:positiveInteger },
              element Semantics { CodedTerm },
              (element Regular {
                attribute width { xsd:double },
1200           attribute spacing { xsd:double },
                element Unit { CodedTerm  },
                element AxisDirection { CodedTerm  }?,
                element AxisOrientation { CodedTerm  }?
               }
1205         | element Irregular {
                  element origin { xsd:double },
                  element SampleLocation {
                    attribute index { xsd:positiveInteger },
                    attribute width { xsd:double },
```

```
1210              attribute distanceToOrigin { xsd:double }
              }+,
          element Unit { CodedTerm  },
          element AxisDirection { CodedTerm  }?,
          element AxisOrientation { CodedTerm  }?
1215          }
        | element Qualitative {
            element Sample {
              attribute index { xsd:positiveInteger },
              element Semantics { CodedTerm }
1220          }+
          }),
        element Origin {
          attribute index { xsd:positiveInteger }?,
          attribute xCoord { xsd:double },
1225          attribute yCoord { xsd:double },
          attribute zCoord { xsd:double }
        }*,
        element DirectionCosines {
          attribute concernedSpatialDimension { xsd:positiveInteger },
1230          attribute index { xsd:positiveInteger }?,
          attribute cosAlongX { xsd:double },
          attribute cosAlongY { xsd:double },
          attribute cosAlongZ { xsd:double }
        }*
1235      }+,
      element PixelData { DimensionalData },
      element PixelMapOfValidData {
        attribute datatype { PixelMapDatatype },
        (
1240          attribute inValue { xsd:positiveInteger }
          | attribute outValue { xsd:positiveInteger }
        ),
        DimensionalData
      }?
1245    }

    ComponentDatatype =
        "SIGNED_INT8"
        | "SIGNED_INT16"
1250    | "SIGNED_INT32"
        | "UNSIGNED_CHAR8"
        | "UNSIGNED_INT16"
        | "UNSIGNED_INT32"
        | "FLOAT32"
1255    | "FLOAT64"

    PixelMapDatatype =
        "BIT1"
        | "UNSIGNED_INT8"
1260
    DimensionalData =
      element DimensionalData {
        attribute dimensionID { xsd:positiveInteger },
        element DataAt
1265      {
          attribute sampleNumber { xsd:positiveInteger },
          attribute descriptorUUID { xsd:string }?,
          ( DimensionalData | BulkDataPointer )
        }+
1270    }
```

```
BulkDataPointer =
    attribute UUID { xsd:string }

1275 CodedTerm =
    element CodeValue { xsd:string },
    element CodingSchemeDesignator { xsd:string },
    element CodingSchemeVersion { xsd:string }?,
    element CodeMeaning { xsd:string }?,
1280 (
      element ContextIdentifier { xsd:string },
      element MappingResource { xsd:string },
      element ContextGroupVersion { xsd:string }
    )?,
1285 (
      element ContextGroupExtensionFlag { xsd:string },
      element ContextGroupLocalVersion { xsd:string }?,
      element ContextGroupExtensionCreatorUID { xsd:string }?
    )?
1290
```

A.2.7   Examples

A.2.7.1   Simple 3D Volume
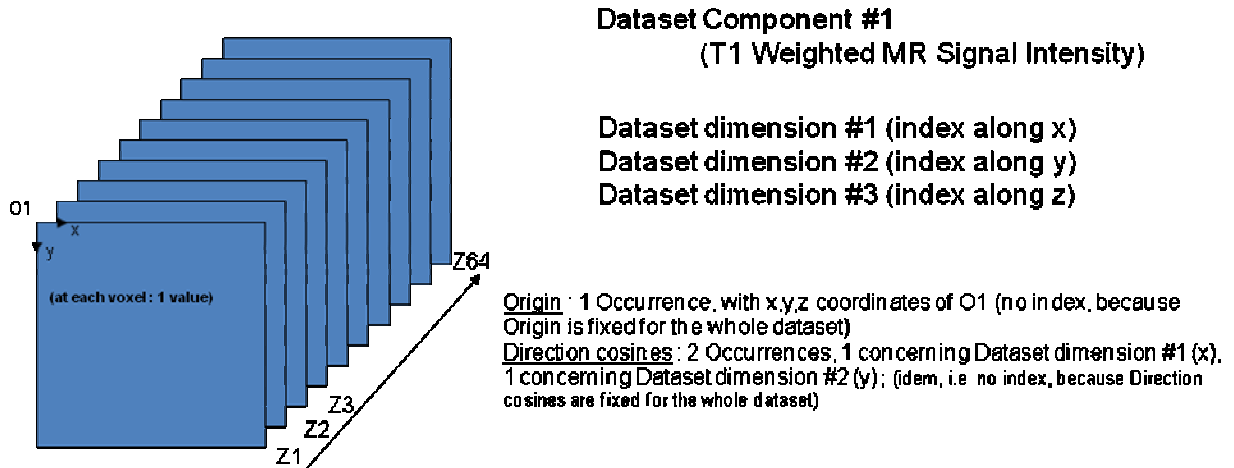
Example of 3D Gray Scale Volume

Figure A.2.7.1-1 Simple 3D Volume Example

1295 **A.2.7.2   Simple 4D Volume**

Example of 4D data

Dataset Component #1
      (T1 Weighted MR Signal Intensity)

Dataset dimension #1 (index along x)
Dataset dimension #2 (index along y)
Dataset dimension #3 (index along z)
Dataset dimension #4 (index along time)

Origin : 1 Occurrence, with x,y,z coordinates of O1 (no index, because Origin is fixed for the whole dataset)
Direction cosines : 2 Occurrences, 1 concerning Dataset dimension #1 (x), 1 concerning Dataset dimension #2 (y) ; (idem, i.e. no index, because Direction cosines are fixed for the whole dataset)
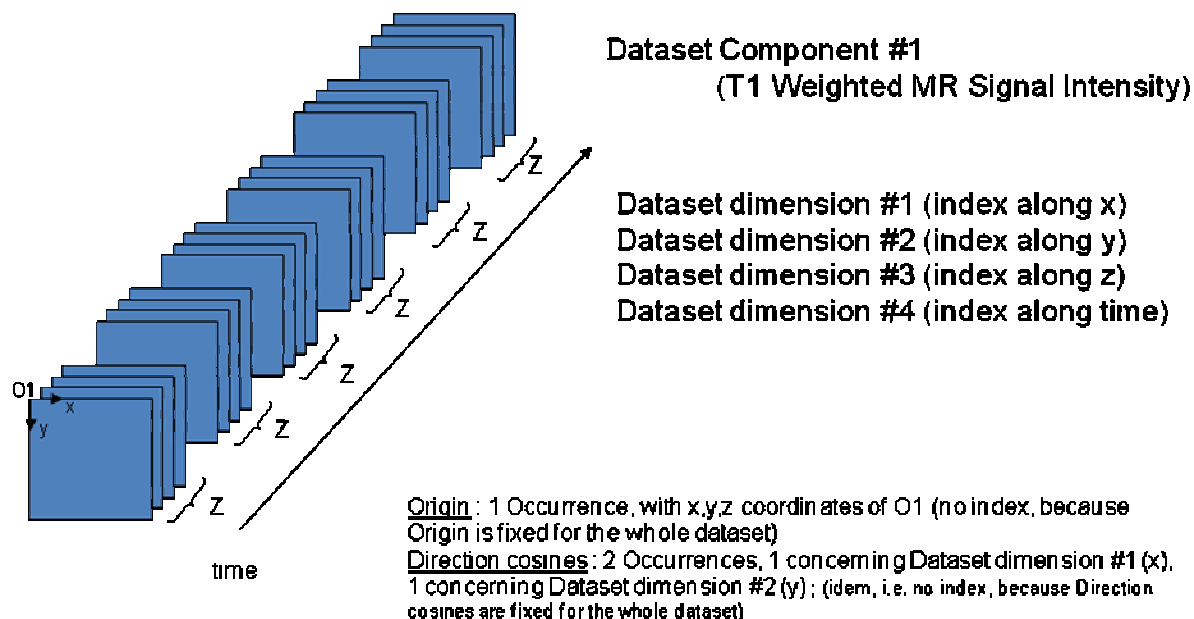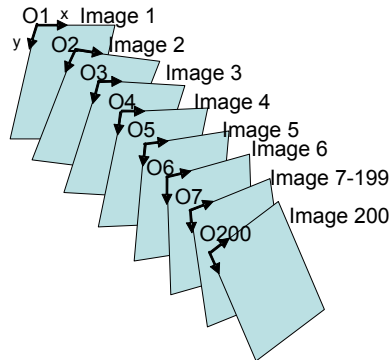
Figure A.2.7.2-1 Simple 4D Volume Example

A.2.7.3   2D Ultrasound

Example of a 2D series of ultrasound images (non-parallel)

O1 x Image 1
y O2 Image 2
O3 Image 3
O4 Image 4
O5 Image 5
O6 Image 6
O7 Image 7-199
O200 Image 200

Dataset component #1 (echo)

Dataset dimension #1 (index   along x)
Dataset dimension #2 (index   along y)
Dataset dimension #3 (index   along t)

Origin : 200 Occurrences with x,y,z coordinates of O1,O2, .., O200, indexed by Dataset dimension #3 (corresponding to t1, t2, …, t200)
Direction cosines : 400 Occurrences with 200 concerning Dataset dimension #1 (x) indexed by Dataset dimension #3 (idem t1, t2,.., t200) and 200 concerning Dataset dimension #2 (y) indexed by Dataset dimension #3 (idem t1, t2,.., t200)

1300   **Figure A.2.7.3-1 2D Ultrasound Example**

-   In this particular case, we have three dimensions, numbered #1 for displacements along X, #2 for displacements along Y, and #3 to index the time series. If we have 200 images along time (i.e., the *numberOfSamples* XML Attribute is set to 200), we will then have 400 occurrences of the *DirectionCosines* XML Element within the *Dimension* XML Element whose *idNumber* XML
1305   Attribute is set to #3 (the dimension referring to time). The 200 first occurrences will have the XML Attribute *concernedSpatialDimension* with value #1 (to specify direction cosines along the X axis) and will be indexed by the XML Attribute *index* varying from 1 to 200 corresponding to the 200 images along time. The 200 following occurrences will have the XML Attribute *concernedSpatialDimension* with value #2 (to specify direction cosines along the Y axis), and will
1310   also be indexed by the XML Attribute *index* varying from 1 to 200.

-   Similarly, in this example we will have 200 occurrences of the *Origin* XML Element within the Dimension XML Element that has the *idNumber* XML Attribute set to the value 3, and of course by the XML Attribute *index* varying from 1 to 200.
1315

A.2.7.4   3D MR Metabolite Map – Single Component

Example of 3D MR spectro data (using 1 single component)

Dataset Component #1 (Metabolite concentration)

Dataset dimension #1 (index along x)
Dataset dimension #2 (index along y)
Dataset dimension #3 (index along metabolite)
Dataset dimension #4 (index along z)

Origin : 1 Occurrence, with x,y,z coordinates of O1 (no index, because Origin is fixed for the whole dataset)
Direction cosines : 2 Occurrences, 1 concerning Dataset dimension #1 (x), 1 concerning Dataset dimension #2 (y) ; (idem, i.e. no index, because Direction cosines are fixed for the whole dataset)
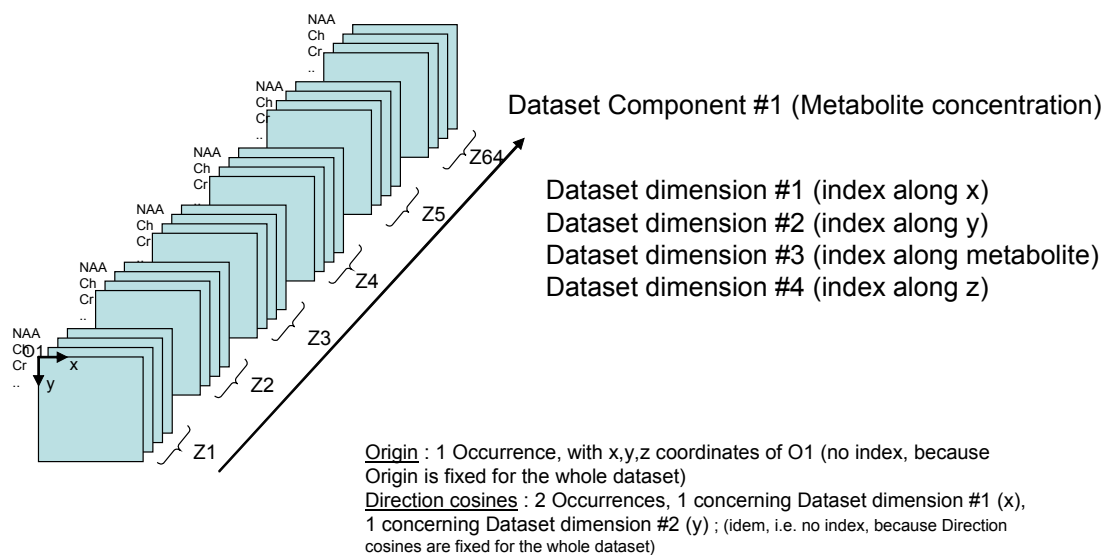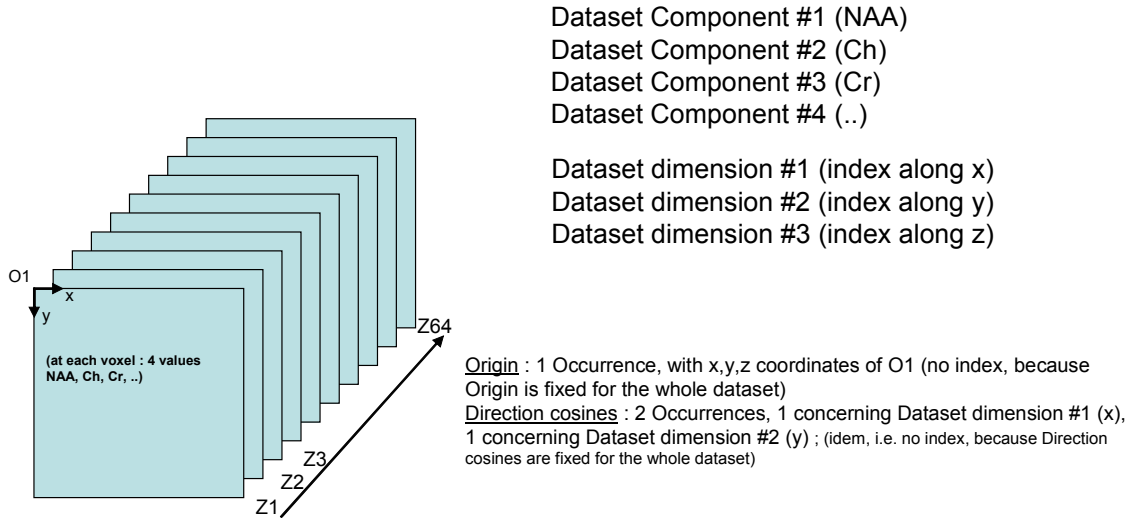
Figure A.2.7.4-1 Single Component 3D MR Metabolite Example

A.2.7.5   **3D MR Metabolite Map – Multiple Component**

Example of 3D MR spectro data (using 4 components)

Dataset Component #1 (NAA)
Dataset Component #2 (Ch)
Dataset Component #3 (Cr)
Dataset Component #4 (..)

Dataset dimension #1 (index along x)
Dataset dimension #2 (index along y)
Dataset dimension #3 (index along z)

O1

x

y

Z64

(at each voxel : 4 values
NAA, Ch, Cr, ..)

Z3
Z2
Z1

Origin : 1 Occurrence, with x,y,z coordinates of O1 (no index, because
Origin is fixed for the whole dataset)
Direction cosines : 2 Occurrences, 1 concerning Dataset dimension #1 (x),
1 concerning Dataset dimension #2 (y) ; (idem, i.e. no index, because Direction
cosines are fixed for the whole dataset)

1320

Figure A.2.7.5-1 Multiple Component 3D MR Metabolite Map Example

Annex B Interface Definitions

B.1 APPLICATION INTERFACE – VERSION 20100825

B.1.1 WSDL Definition of the Interface

1325 The following is the content of ApplicationService-20100825.wsdl:

```
<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions name="ApplicationService-20100825"
  targetNamespace="http://dicom.nema.org/PS3.19/ApplicationService-20100825"
  xmlns:tns="http://dicom.nema.org/PS3.19/ApplicationService-20100825"
1330  xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
  xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-
utility-1.0.xsd"
  xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:wsam="http://www.w3.org/2007/05/addressing/metadata"
1335  xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
  xmlns:wsp="http://schemas.xmlsoap.org/ws/2004/09/policy"
  xmlns:wsap="http://schemas.xmlsoap.org/ws/2004/08/addressing/policy"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:msc="http://schemas.microsoft.com/ws/2005/12/wsdl/contract"
1340  xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl"
  xmlns:soap12="http://schemas.xmlsoap.org/wsdl/soap12/"
  xmlns:wsa10="http://www.w3.org/2005/08/addressing"
  xmlns:wsx="http://schemas.xmlsoap.org/ws/2004/09/mex"
  xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/">
1345  <wsdl:types>
    <xsd:schema
targetNamespace="http://dicom.nema.org/PS3.19/Imports/ApplicationService-20100825">
      <xsd:import namespace="http://dicom.nema.org/PS3.19/ApplicationService-20100825"
        schemaLocation="./ApplicationService-20100825.xsd"/>
1350     <xsd:import namespace="http://schemas.microsoft.com/2003/10/Serialization/"
        schemaLocation="./Types.xsd"  />
      <xsd:import namespace="http://schemas.microsoft.com/2003/10/Serialization/Arrays"
        schemaLocation="./ArrayOfString.xsd" />
      <xsd:import namespace="http://schemas.datacontract.org/2004/07/System.Xml.XPath"
1355     schemaLocation="./XPathNodeType.xsd" />
    </xsd:schema>
  </wsdl:types>
  <wsdl:message name="IApplicationService_GetState_InputMessage">
    <wsdl:part name="parameters" element="tns:GetState"/>
1360  </wsdl:message>
  <wsdl:message name="IApplicationService_GetState_OutputMessage">
    <wsdl:part name="parameters" element="tns:GetStateResponse"/>
  </wsdl:message>
  <wsdl:message name="IApplicationService_SetState_InputMessage">
1365   <wsdl:part name="parameters" element="tns:SetState"/>
  </wsdl:message>
  <wsdl:message name="IApplicationService_SetState_OutputMessage">
    <wsdl:part name="parameters" element="tns:SetStateResponse"/>
  </wsdl:message>
1370  <wsdl:message name="IApplicationService_BringToFront_InputMessage">
    <wsdl:part name="parameters" element="tns:BringToFront"/>
  </wsdl:message>
  <wsdl:message name="IApplicationService_BringToFront_OutputMessage">
    <wsdl:part name="parameters" element="tns:BringToFrontResponse"/>
1375  </wsdl:message>
```

```
      <wsdl:message name="IApplicationService_NotifyDataAvailable_InputMessage">
        <wsdl:part name="parameters" element="tns:NotifyDataAvailable"/>
      </wsdl:message>
      <wsdl:message name="IApplicationService_NotifyDataAvailable_OutputMessage">
1380    <wsdl:part name="parameters" element="tns:NotifyDataAvailableResponse"/>
      </wsdl:message>
      <wsdl:message name="IApplicationService_GetData_InputMessage">
        <wsdl:part name="parameters" element="tns:GetData"/>
      </wsdl:message>
1385  <wsdl:message name="IApplicationService_GetData_OutputMessage">
        <wsdl:part name="parameters" element="tns:GetDataResponse"/>
      </wsdl:message>
      <wsdl:message name="IApplicationService_ReleaseData_InputMessage">
        <wsdl:part name="parameters" element="tns:ReleaseData"/>
1390  </wsdl:message>
      <wsdl:message name="IApplicationService_ReleaseData_OutputMessage">
        <wsdl:part name="parameters" element="tns:ReleaseDataResponse"/>
      </wsdl:message>
      <wsdl:message name="IApplicationService_GetAsModels_InputMessage">
1395    <wsdl:part name="parameters" element="tns:GetAsModels"/>
      </wsdl:message>
      <wsdl:message name="IApplicationService_GetAsModels_OutputMessage">
        <wsdl:part name="parameters" element="tns:GetAsModelsResponse"/>
      </wsdl:message>
1400  <wsdl:message name="IApplicationService_ReleaseModels_InputMessage">
        <wsdl:part name="parameters" element="tns:ReleaseModels"/>
      </wsdl:message>
      <wsdl:message name="IApplicationService_ReleaseModels_OutputMessage">
        <wsdl:part name="parameters" element="tns:ReleaseModelsResponse"/>
1405  </wsdl:message>
      <wsdl:message name="IApplicationService_QueryModel_InputMessage">
        <wsdl:part name="parameters" element="tns:QueryModel"/>
      </wsdl:message>
      <wsdl:message name="IApplicationService_QueryModel_OutputMessage">
1410    <wsdl:part name="parameters" element="tns:QueryModelResponse"/>
      </wsdl:message>
      <wsdl:message name="IApplicationService_QueryInfoSet_InputMessage">
        <wsdl:part name="parameters" element="tns:QueryInfoSet"/>
      </wsdl:message>
1415  <wsdl:message name="IApplicationService_QueryInfoSet_OutputMessage">
        <wsdl:part name="parameters" element="tns:QueryInfoSetResponse"/>
      </wsdl:message>
      <wsdl:portType name="IApplicationService-20100825">
        <wsdl:operation name="GetState">
1420      <wsdl:input
    wsaw:Action="http://dicom.nema.org/PS3.19/IApplicationService/GetState"
          message="tns:IApplicationService_GetState_InputMessage"/>
        <wsdl:output
    wsaw:Action="http://dicom.nema.org/PS3.19/IApplicationService/GetStateResponse"
1425      message="tns:IApplicationService_GetState_OutputMessage"/>
      </wsdl:operation>
      <wsdl:operation name="SetState">
        <wsdl:input
    wsaw:Action="http://dicom.nema.org/PS3.19/IApplicationService/SetState"
1430      message="tns:IApplicationService_SetState_InputMessage"/>
        <wsdl:output
    wsaw:Action="http://dicom.nema.org/PS3.19/IApplicationService/SetStateResponse"
          message="tns:IApplicationService_SetState_OutputMessage"/>
      </wsdl:operation>
1435  <wsdl:operation name="BringToFront">
```

```
             <wsdl:input
     wsaw:Action="http://dicom.nema.org/PS3.19/IApplicationService/BringToFront"
             message="tns:IApplicationService_BringToFront_InputMessage"/>
           <wsdl:output
1440
     wsaw:Action="http://dicom.nema.org/PS3.19/IApplicationService/BringToFrontResponse"
             message="tns:IApplicationService_BringToFront_OutputMessage"/>
         </wsdl:operation>
         <wsdl:operation name="NotifyDataAvailable">
1445       <wsdl:input
     wsaw:Action="http://dicom.nema.org/PS3.19/IApplicationService/NotifyDataAvailable"
             message="tns:IApplicationService_NotifyDataAvailable_InputMessage"/>
           <wsdl:output

1450 wsaw:Action="http://dicom.nema.org/PS3.19/IApplicationService/NotifyDataAvailableRespon
     se"
             message="tns:IApplicationService_NotifyDataAvailable_OutputMessage"/>
         </wsdl:operation>
         <wsdl:operation name="GetData">
1455       <wsdl:input
     wsaw:Action="http://dicom.nema.org/PS3.19/IApplicationService/GetData"
             message="tns:IApplicationService_GetData_InputMessage"/>
           <wsdl:output
     wsaw:Action="http://dicom.nema.org/PS3.19/IApplicationService/GetDataResponse"
1460         message="tns:IApplicationService_GetData_OutputMessage"/>
         </wsdl:operation>
         <wsdl:operation name="ReleaseData">
           <wsdl:input
     wsaw:Action="http://dicom.nema.org/PS3.19/IApplicationService/ReleaseData"
1465         message="tns:IApplicationService_ReleaseData_InputMessage"/>
           <wsdl:output

     wsaw:Action="http://dicom.nema.org/PS3.19/IApplicationService/ReleaseDataResponse"
             message="tns:IApplicationService_ReleaseData_OutputMessage"/>
1470     </wsdl:operation>
         <wsdl:operation name="GetAsModels">
           <wsdl:input
     wsaw:Action="http://dicom.nema.org/PS3.19/IApplicationService/GetAsModels"
             message="tns:IApplicationService_GetAsModels_InputMessage"/>
1475       <wsdl:output

     wsaw:Action="http://dicom.nema.org/PS3.19/IApplicationService/GetAsModelsResponse"
             message="tns:IApplicationService_GetAsModels_OutputMessage"/>
         </wsdl:operation>
1480     <wsdl:operation name="ReleaseModels">
           <wsdl:input
     wsaw:Action="http://dicom.nema.org/PS3.19/IApplicationService/ReleaseModels"
             message="tns:IApplicationService_ReleaseModels_InputMessage"/>
           <wsdl:output
1485
     wsaw:Action="http://dicom.nema.org/PS3.19/IApplicationService/ReleaseModelsResponse"
             message="tns:IApplicationService_ReleaseModels_OutputMessage"/>
         </wsdl:operation>
         <wsdl:operation name="QueryModel">
1490       <wsdl:input
     wsaw:Action="http://dicom.nema.org/PS3.19/IApplicationService/QueryModel"
             message="tns:IApplicationService_QueryModel_InputMessage"/>
           <wsdl:output
     wsaw:Action="http://dicom.nema.org/PS3.19/IApplicationService/QueryModelResponse"
1495         message="tns:IApplicationService_QueryModel_OutputMessage"/>
         </wsdl:operation>
```

```
      <wsdl:operation name="QueryInfoSet">
        <wsdl:input
    wsaw:Action="http://dicom.nema.org/PS3.19/IApplicationService/QueryInfoSet"
1500        message="tns:IApplicationService_QueryInfoSet_InputMessage"/>
        <wsdl:output

    wsaw:Action="http://dicom.nema.org/PS3.19/IApplicationService/QueryInfoSetResponse"
          message="tns:IApplicationService_QueryInfoSet_OutputMessage"/>
1505    </wsdl:operation>
    </wsdl:portType>
    <wsdl:binding name="ApplicationService-20100825Binding"
    type="tns:IApplicationService-20100825">
      <soap:binding transport="http://schemas.xmlsoap.org/soap/http"/>
1510    <wsdl:operation name="GetState">
        <soap:operation
    soapAction="http://dicom.nema.org/PS3.19/IApplicationService/GetState"
          style="document"/>
        <wsdl:input>
1515        <soap:body use="literal"/>
        </wsdl:input>
        <wsdl:output>
          <soap:body use="literal"/>
        </wsdl:output>
1520    </wsdl:operation>
      <wsdl:operation name="SetState">
        <soap:operation
    soapAction="http://dicom.nema.org/PS3.19/IApplicationService/SetState"
          style="document"/>
1525      <wsdl:input>
          <soap:body use="literal"/>
        </wsdl:input>
        <wsdl:output>
          <soap:body use="literal"/>
1530      </wsdl:output>
      </wsdl:operation>
      <wsdl:operation name="BringToFront">
        <soap:operation
    soapAction="http://dicom.nema.org/PS3.19/IApplicationService/BringToFront"
1535      style="document"/>
        <wsdl:input>
          <soap:body use="literal"/>
        </wsdl:input>
        <wsdl:output>
1540      <soap:body use="literal"/>
        </wsdl:output>
      </wsdl:operation>
      <wsdl:operation name="NotifyDataAvailable">
        <soap:operation
1545
    soapAction="http://dicom.nema.org/PS3.19/IApplicationService/NotifyDataAvailable"
          style="document"/>
        <wsdl:input>
          <soap:body use="literal"/>
1550    </wsdl:input>
        <wsdl:output>
          <soap:body use="literal"/>
        </wsdl:output>
      </wsdl:operation>
1555    <wsdl:operation name="GetData">
        <soap:operation
    soapAction="http://dicom.nema.org/PS3.19/IApplicationService/GetData"
```

```
              style="document"/>
            <wsdl:input>
1560          <soap:body use="literal"/>
            </wsdl:input>
            <wsdl:output>
              <soap:body use="literal"/>
            </wsdl:output>
1565      </wsdl:operation>
          <wsdl:operation name="ReleaseData">
            <soap:operation
      soapAction="http://dicom.nema.org/PS3.19/IApplicationService/ReleaseData"
              style="document"/>
1570        <wsdl:input>
              <soap:body use="literal"/>
            </wsdl:input>
            <wsdl:output>
              <soap:body use="literal"/>
1575        </wsdl:output>
          </wsdl:operation>
          <wsdl:operation name="GetAsModels">
            <soap:operation
      soapAction="http://dicom.nema.org/PS3.19/IApplicationService/GetAsModels"
1580          style="document"/>
            <wsdl:input>
              <soap:body use="literal"/>
            </wsdl:input>
            <wsdl:output>
1585          <soap:body use="literal"/>
            </wsdl:output>
          </wsdl:operation>
          <wsdl:operation name="ReleaseModels">
            <soap:operation
1590  soapAction="http://dicom.nema.org/PS3.19/IApplicationService/ReleaseModels"
              style="document"/>
            <wsdl:input>
              <soap:body use="literal"/>
            </wsdl:input>
1595        <wsdl:output>
              <soap:body use="literal"/>
            </wsdl:output>
          </wsdl:operation>
          <wsdl:operation name="QueryModel">
1600        <soap:operation
      soapAction="http://dicom.nema.org/PS3.19/IApplicationService/QueryModel"
              style="document"/>
            <wsdl:input>
              <soap:body use="literal"/>
1605        </wsdl:input>
            <wsdl:output>
              <soap:body use="literal"/>
            </wsdl:output>
          </wsdl:operation>
1610      <wsdl:operation name="QueryInfoSet">
            <soap:operation
      soapAction="http://dicom.nema.org/PS3.19/IApplicationService/QueryInfoSet"
              style="document"/>
            <wsdl:input>
1615          <soap:body use="literal"/>
            </wsdl:input>
            <wsdl:output>
              <soap:body use="literal"/>
```

```
            </wsdl:output>
1620      </wsdl:operation>
        </wsdl:binding>
        <wsdl:service name="ApplicationService-20100825">
          <wsdl:port name="ApplicationServiceBinding" binding="tns:ApplicationService-
    20100825Binding">
1625        <soap:address location="http://localhost/Service"/>
          </wsdl:port>
        </wsdl:service>
    </wsdl:definitions>
```

<h2>1630 B.1.2   Definition of Data Structures Used</h2>

<h3>B.1.2.1   Primary Definitions</h3>

The following is the content of ApplicationService-20100825.xsd

```
    <?xml version="1.0" encoding="utf-8"?>
    <xs:schema xmlns:tns="http://dicom.nema.org/PS3.19/ApplicationService-20100825"
1635 elementFormDefault="qualified"
      targetNamespace="http://dicom.nema.org/PS3.19/ApplicationService-20100825"
    xmlns:xs="http://www.w3.org/2001/XMLSchema">
      <xs:import namespace="http://schemas.microsoft.com/2003/10/Serialization/Arrays"/>
      <xs:import namespace="http://schemas.datacontract.org/2004/07/System.Xml.XPath"/>
1640  <xs:element name="GetState">
        <xs:complexType>
          <xs:sequence/>
        </xs:complexType>
      </xs:element>
1645  <xs:element name="GetStateResponse">
        <xs:complexType>
          <xs:sequence>
            <xs:element minOccurs="0" name="GetStateResult" type="tns:State"/>
          </xs:sequence>
1650      </xs:complexType>
      </xs:element>
      <xs:simpleType name="State">
        <xs:restriction base="xs:string">
          <xs:enumeration value="IDLE"/>
1655        <xs:enumeration value="INPROGRESS"/>
          <xs:enumeration value="SUSPENDED"/>
          <xs:enumeration value="COMPLETED"/>
          <xs:enumeration value="CANCELED"/>
          <xs:enumeration value="EXIT"/>
1660      </xs:restriction>
      </xs:simpleType>
      <xs:element name="State" nillable="true" type="tns:State"/>
      <xs:element name="SetState">
        <xs:complexType>
1665      <xs:sequence>
            <xs:element minOccurs="0" name="state" type="tns:State"/>
          </xs:sequence>
        </xs:complexType>
      </xs:element>
1670  <xs:element name="SetStateResponse">
        <xs:complexType>
          <xs:sequence>
            <xs:element minOccurs="0" name="SetStateResult" type="xs:boolean"/>
          </xs:sequence>
1675      </xs:complexType>
```

```
           </xs:element>
           <xs:element name="BringToFront">
             <xs:complexType>
               <xs:sequence>
1680             <xs:element minOccurs="0" name="location" nillable="true"
       type="tns:Rectangle"/>
               </xs:sequence>
             </xs:complexType>
           </xs:element>
1685   <xs:complexType name="Rectangle">
             <xs:sequence>
               <xs:element minOccurs="0" name="Height" type="xs:int"/>
               <xs:element minOccurs="0" name="Width" type="xs:int"/>
               <xs:element minOccurs="0" name="RefPointX" type="xs:int"/>
1690           <xs:element minOccurs="0" name="RefPointY" type="xs:int"/>
             </xs:sequence>
           </xs:complexType>
           <xs:element name="Rectangle" nillable="true" type="tns:Rectangle"/>
           <xs:element name="BringToFrontResponse">
1695         <xs:complexType>
               <xs:sequence>
                 <xs:element minOccurs="0" name="BringToFrontResult" type="xs:boolean"/>
               </xs:sequence>
             </xs:complexType>
1700   </xs:element>
           <xs:element name="NotifyDataAvailable">
             <xs:complexType>
               <xs:sequence>
                 <xs:element minOccurs="0" name="data" nillable="true"
1705 type="tns:AvailableData"/>
                 <xs:element minOccurs="0" name="lastData" type="xs:boolean"/>
               </xs:sequence>
             </xs:complexType>
           </xs:element>
1710   <xs:complexType name="AvailableData">
             <xs:sequence>
               <xs:element minOccurs="0" name="ObjectDescriptors" nillable="true"
                 type="tns:ArrayOfObjectDescriptor"/>
               <xs:element minOccurs="0" name="Patients" nillable="true"
1715 type="tns:ArrayOfPatient"/>
             </xs:sequence>
           </xs:complexType>
           <xs:element name="AvailableData" nillable="true" type="tns:AvailableData"/>
           <xs:complexType name="ArrayOfObjectDescriptor">
1720       <xs:sequence>
               <xs:element minOccurs="0" maxOccurs="unbounded" name="ObjectDescriptor"
       nillable="true"
                 type="tns:ObjectDescriptor"/>
             </xs:sequence>
1725   </xs:complexType>
           <xs:element name="ArrayOfObjectDescriptor" nillable="true"
       type="tns:ArrayOfObjectDescriptor"/>
           <xs:complexType name="ObjectDescriptor">
             <xs:sequence>
1730           <xs:element minOccurs="0" name="ClassUID" nillable="true" type="tns:UID"/>
               <xs:element minOccurs="0" name="MimeType" nillable="true" type="tns:MimeType"/>
               <xs:element minOccurs="0" name="Modality" nillable="true" type="tns:Modality"/>
               <xs:element minOccurs="0" name="TransferSyntaxUID" nillable="true"
       type="tns:UID"/>
1735           <xs:element minOccurs="0" name="DescriptorUuid" nillable="true" type="tns:UUID"/>
             </xs:sequence>
```

```
                 </xs:complexType>
                 <xs:element name="ObjectDescriptor" nillable="true" type="tns:ObjectDescriptor"/>
                 <xs:complexType name="UID">
1740               <xs:sequence>
                     <xs:element minOccurs="0" name="Uid" nillable="true" type="xs:string"/>
                   </xs:sequence>
                 </xs:complexType>
                 <xs:element name="UID" nillable="true" type="tns:UID"/>
1745             <xs:complexType name="MimeType">
                   <xs:sequence>
                     <xs:element minOccurs="0" name="Type" nillable="true" type="xs:string"/>
                   </xs:sequence>
                 </xs:complexType>
1750             <xs:element name="MimeType" nillable="true" type="tns:MimeType"/>
                 <xs:complexType name="Modality">
                   <xs:sequence>
                     <xs:element minOccurs="0" name="Modality" nillable="true" type="xs:string"/>
                   </xs:sequence>
1755             </xs:complexType>
                 <xs:element name="Modality" nillable="true" type="tns:Modality"/>
                 <xs:complexType name="UUID">
                   <xs:sequence>
                     <xs:element minOccurs="0" name="Uuid" nillable="true" type="xs:string"/>
1760             </xs:sequence>
                 </xs:complexType>
                 <xs:element name="UUID" nillable="true" type="tns:UUID"/>
                 <xs:complexType name="ArrayOfPatient">
                   <xs:sequence>
1765               <xs:element minOccurs="0" maxOccurs="unbounded" name="Patient" nillable="true"
                       type="tns:Patient"/>
                   </xs:sequence>
                 </xs:complexType>
                 <xs:element name="ArrayOfPatient" nillable="true" type="tns:ArrayOfPatient"/>
1770             <xs:complexType name="Patient">
                   <xs:sequence>
                     <xs:element minOccurs="0" name="AssigningAuthority" nillable="true"
             type="xs:string"/>
                     <xs:element minOccurs="0" name="DateOfBirth" type="xs:dateTime"/>
1775               <xs:element minOccurs="0" name="ID" nillable="true" type="xs:string"/>
                     <xs:element minOccurs="0" name="Name" nillable="true" type="xs:string"/>
                     <xs:element minOccurs="0" name="ObjectDescriptors" nillable="true"
                       type="tns:ArrayOfObjectDescriptor"/>
                     <xs:element minOccurs="0" name="Sex" nillable="true" type="xs:string"/>
1780               <xs:element minOccurs="0" name="Studies" nillable="true"
             type="tns:ArrayOfStudy"/>
                   </xs:sequence>
                 </xs:complexType>
                 <xs:element name="Patient" nillable="true" type="tns:Patient"/>
1785             <xs:complexType name="ArrayOfStudy">
                   <xs:sequence>
                     <xs:element minOccurs="0" maxOccurs="unbounded" name="Study" nillable="true"
             type="tns:Study"
                     />
1790             </xs:sequence>
                 </xs:complexType>
                 <xs:element name="ArrayOfStudy" nillable="true" type="tns:ArrayOfStudy"/>
                 <xs:complexType name="Study">
                   <xs:sequence>
1795               <xs:element minOccurs="0" name="ObjectDescriptors" nillable="true"
                       type="tns:ArrayOfObjectDescriptor"/>
```

```
         <xs:element minOccurs="0" name="Series" nillable="true"
     type="tns:ArrayOfSeries"/>
         <xs:element minOccurs="0" name="StudyUID" nillable="true" type="tns:UID"/>
1800     </xs:sequence>
     </xs:complexType>
     <xs:element name="Study" nillable="true" type="tns:Study"/>
     <xs:complexType name="ArrayOfSeries">
       <xs:sequence>
1805     <xs:element minOccurs="0" maxOccurs="unbounded" name="Series" nillable="true"
           type="tns:Series"/>
       </xs:sequence>
     </xs:complexType>
     <xs:element name="ArrayOfSeries" nillable="true" type="tns:ArrayOfSeries"/>
1810  <xs:complexType name="Series">
       <xs:sequence>
         <xs:element minOccurs="0" name="ObjectDescriptors" nillable="true"
           type="tns:ArrayOfObjectDescriptor"/>
         <xs:element minOccurs="0" name="SeriesUID" nillable="true" type="tns:UID"/>
1815     </xs:sequence>
     </xs:complexType>
     <xs:element name="Series" nillable="true" type="tns:Series"/>
     <xs:element name="NotifyDataAvailableResponse">
       <xs:complexType>
1820     <xs:sequence>
           <xs:element minOccurs="0" name="NotifyDataAvailableResult" type="xs:boolean"/>
         </xs:sequence>
       </xs:complexType>
     </xs:element>
1825  <xs:element name="GetData">
       <xs:complexType>
         <xs:sequence>
           <xs:element minOccurs="0" name="objects" nillable="true"
     type="tns:ArrayOfUUID"/>
1830       <xs:element minOccurs="0" name="acceptableTransferSyntaxes" nillable="true"
             type="tns:ArrayOfUID"/>
           <xs:element minOccurs="0" name="includeBulkData" type="xs:boolean"/>
         </xs:sequence>
       </xs:complexType>
1835  </xs:element>
     <xs:complexType name="ArrayOfUUID">
       <xs:sequence>
         <xs:element minOccurs="0" maxOccurs="unbounded" name="UUID" nillable="true"
     type="tns:UUID"/>
1840     </xs:sequence>
     </xs:complexType>
     <xs:element name="ArrayOfUUID" nillable="true" type="tns:ArrayOfUUID"/>
     <xs:complexType name="ArrayOfUID">
       <xs:sequence>
1845     <xs:element minOccurs="0" maxOccurs="unbounded" name="UID" nillable="true"
     type="tns:UID"/>
       </xs:sequence>
     </xs:complexType>
     <xs:element name="ArrayOfUID" nillable="true" type="tns:ArrayOfUID"/>
1850  <xs:element name="GetDataResponse">
       <xs:complexType>
         <xs:sequence>
           <xs:element minOccurs="0" name="GetDataResult" nillable="true"
             type="tns:ArrayOfObjectLocator"/>
1855     </xs:sequence>
       </xs:complexType>
     </xs:element>
```

- Standard -

```
        <xs:complexType name="ArrayOfObjectLocator">
          <xs:sequence>
1860        <xs:element minOccurs="0" maxOccurs="unbounded" name="ObjectLocator"
      nillable="true"
            type="tns:ObjectLocator"/>
          </xs:sequence>
        </xs:complexType>
1865    <xs:element name="ArrayOfObjectLocator" nillable="true"
      type="tns:ArrayOfObjectLocator"/>
        <xs:complexType name="ObjectLocator">
          <xs:sequence>
            <xs:element minOccurs="0" name="Length" type="xs:long"/>
1870        <xs:element minOccurs="0" name="Offset" type="xs:long"/>
            <xs:element minOccurs="0" name="TransferSyntax" nillable="true" type="tns:UID"/>
            <xs:element minOccurs="0" name="URI" nillable="true" type="xs:anyURI"/>
            <xs:element minOccurs="0" name="Locator" nillable="true" type="tns:UUID"/>
            <xs:element minOccurs="0" name="Source" nillable="true" type="tns:UUID"/>
1875      </xs:sequence>
        </xs:complexType>
        <xs:element name="ObjectLocator" nillable="true" type="tns:ObjectLocator"/>
        <xs:element name="ReleaseData">
          <xs:complexType>
1880        <xs:sequence>
              <xs:element minOccurs="0" name="objects" nillable="true"
      type="tns:ArrayOfUUID"/>
            </xs:sequence>
          </xs:complexType>
1885    </xs:element>
        <xs:element name="ReleaseDataResponse">
          <xs:complexType>
            <xs:sequence/>
          </xs:complexType>
1890    </xs:element>
        <xs:element name="GetAsModels">
          <xs:complexType>
            <xs:sequence>
              <xs:element minOccurs="0" name="objects" nillable="true"
1895  type="tns:ArrayOfUUID"/>
              <xs:element minOccurs="0" name="classUID" nillable="true" type="tns:UID"/>
              <xs:element minOccurs="0" name="supportedInfoSetTypes" nillable="true"
                type="tns:ArrayOfMimeType"/>
            </xs:sequence>
1900      </xs:complexType>
        </xs:element>
        <xs:complexType name="ArrayOfMimeType">
          <xs:sequence>
            <xs:element minOccurs="0" maxOccurs="unbounded" name="MimeType" nillable="true"
1905        type="tns:MimeType"/>
          </xs:sequence>
        </xs:complexType>
        <xs:element name="ArrayOfMimeType" nillable="true" type="tns:ArrayOfMimeType"/>
        <xs:element name="GetAsModelsResponse">
1910      <xs:complexType>
          <xs:sequence>
            <xs:element minOccurs="0" name="GetAsModelsResult" nillable="true"
              type="tns:ModelSetDescriptor"/>
          </xs:sequence>
1915      </xs:complexType>
        </xs:element>
        <xs:complexType name="ModelSetDescriptor">
          <xs:sequence>
```

```
          <xs:element minOccurs="0" name="FailedSourceObjects" nillable="true"
1920 type="tns:ArrayOfUUID"/>
          <xs:element minOccurs="0" name="InfosetType" nillable="true"
     type="tns:MimeType"/>
          <xs:element minOccurs="0" name="Models" nillable="true" type="tns:ArrayOfUUID"/>
        </xs:sequence>
1925   </xs:complexType>
     <xs:element name="ModelSetDescriptor" nillable="true" type="tns:ModelSetDescriptor"/>
     <xs:element name="ReleaseModels">
       <xs:complexType>
         <xs:sequence>
1930        <xs:element minOccurs="0" name="models" nillable="true"
     type="tns:ArrayOfUUID"/>
         </xs:sequence>
       </xs:complexType>
     </xs:element>
1935   <xs:element name="ReleaseModelsResponse">
       <xs:complexType>
         <xs:sequence/>
       </xs:complexType>
     </xs:element>
1940   <xs:element name="QueryModel">
       <xs:complexType>
         <xs:sequence>
           <xs:element minOccurs="0" name="models" nillable="true"
     type="tns:ArrayOfUUID"/>
1945        <xs:element minOccurs="0" name="xPaths" nillable="true"
             xmlns:q1="http://schemas.microsoft.com/2003/10/Serialization/Arrays"
             type="q1:ArrayOfstring"/>
         </xs:sequence>
       </xs:complexType>
1950   </xs:element>
     <xs:element name="QueryModelResponse">
       <xs:complexType>
         <xs:sequence>
           <xs:element minOccurs="0" name="QueryModelResult" nillable="true"
1955          type="tns:ArrayOfQueryResult"/>
         </xs:sequence>
       </xs:complexType>
     </xs:element>
     <xs:complexType name="ArrayOfQueryResult">
1960     <xs:sequence>
         <xs:element minOccurs="0" maxOccurs="unbounded" name="QueryResult"
     nillable="true"
           type="tns:QueryResult"/>
       </xs:sequence>
1965   </xs:complexType>
     <xs:element name="ArrayOfQueryResult" nillable="true" type="tns:ArrayOfQueryResult"/>
     <xs:complexType name="QueryResult">
       <xs:sequence>
         <xs:element minOccurs="0" name="Model" nillable="true" type="tns:UUID"/>
1970       <xs:element minOccurs="0" name="Result" nillable="true"
     type="tns:ArrayOfXPathNode"/>
         <xs:element minOccurs="0" name="XPath" nillable="true" type="xs:string"/>
       </xs:sequence>
     </xs:complexType>
1975   <xs:element name="QueryResult" nillable="true" type="tns:QueryResult"/>
     <xs:complexType name="ArrayOfXPathNode">
       <xs:sequence>
         <xs:element minOccurs="0" maxOccurs="unbounded" name="XPathNode" nillable="true"
           type="tns:XPathNode"/>
```

```
1980        </xs:sequence>
          </xs:complexType>
          <xs:element name="ArrayOfXPathNode" nillable="true" type="tns:ArrayOfXPathNode"/>
          <xs:complexType name="XPathNode">
            <xs:sequence>
1985          <xs:element minOccurs="0" name="NodeType"
                xmlns:q2="http://schemas.datacontract.org/2004/07/System.Xml.XPath"
     type="q2:XPathNodeType"/>
              <xs:element minOccurs="0" name="Value" nillable="true" type="xs:string"/>
            </xs:sequence>
1990      </xs:complexType>
          <xs:element name="XPathNode" nillable="true" type="tns:XPathNode"/>
          <xs:element name="QueryInfoSet">
            <xs:complexType>
              <xs:sequence>
1995            <xs:element minOccurs="0" name="models" nillable="true"
     type="tns:ArrayOfUUID"/>
                <xs:element minOccurs="0" name="xPaths" nillable="true"
                  xmlns:q3="http://schemas.microsoft.com/2003/10/Serialization/Arrays"
                  type="q3:ArrayOfstring"/>
2000          </xs:sequence>
            </xs:complexType>
          </xs:element>
          <xs:element name="QueryInfoSetResponse">
            <xs:complexType>
2005          <xs:sequence>
                <xs:element minOccurs="0" name="QueryInfoSetResult" nillable="true"
                  type="tns:ArrayOfQueryResultInfoSet"/>
              </xs:sequence>
            </xs:complexType>
2010      </xs:element>
          <xs:complexType name="ArrayOfQueryResultInfoSet">
            <xs:sequence>
              <xs:element minOccurs="0" maxOccurs="unbounded" name="QueryResultInfoSet"
     nillable="true"
2015            type="tns:QueryResultInfoSet"/>
            </xs:sequence>
          </xs:complexType>
          <xs:element name="ArrayOfQueryResultInfoSet" nillable="true"
     type="tns:ArrayOfQueryResultInfoSet"/>
2020      <xs:complexType name="QueryResultInfoSet">
            <xs:sequence>
              <xs:element minOccurs="0" name="Model" nillable="true" type="tns:UUID"/>
              <xs:element minOccurs="0" name="Result" nillable="true"
     type="tns:ArrayOfXPathNodeInfoSet"/>
2025          <xs:element minOccurs="0" name="XPath" nillable="true" type="xs:string"/>
            </xs:sequence>
          </xs:complexType>
          <xs:element name="QueryResultInfoSet" nillable="true" type="tns:QueryResultInfoSet"/>
          <xs:complexType name="ArrayOfXPathNodeInfoSet">
2030        <xs:sequence>
              <xs:element minOccurs="0" maxOccurs="unbounded" name="XPathNodeInfoSet"
     nillable="true"
                type="tns:XPathNodeInfoSet"/>
            </xs:sequence>
2035      </xs:complexType>
          <xs:element name="ArrayOfXPathNodeInfoSet" nillable="true"
     type="tns:ArrayOfXPathNodeInfoSet"/>
          <xs:complexType name="XPathNodeInfoSet">
            <xs:sequence>
```

```
2040        <xs:element minOccurs="0" name="InfoSetValue" nillable="true"
     type="xs:base64Binary"/>
          <xs:element minOccurs="0" name="NodeType"
            xmlns:q4="http://schemas.datacontract.org/2004/07/System.Xml.XPath"
     type="q4:XPathNodeType"
2045       />
        </xs:sequence>
      </xs:complexType>
      <xs:element name="XPathNodeInfoSet" nillable="true" type="tns:XPathNodeInfoSet"/>
     </xs:schema>
```

2050

B.1.2.2   Referenced Definitions

The following is the content of XPathNodeType.xsd:

```
     <?xml version="1.0" encoding="utf-8"?>
     <xs:schema xmlns:tns="http://schemas.datacontract.org/2004/07/System.Xml.XPath"
2055 elementFormDefault="qualified"
     targetNamespace="http://schemas.datacontract.org/2004/07/System.Xml.XPath"
     xmlns:xs="http://www.w3.org/2001/XMLSchema">
       <xs:simpleType name="XPathNodeType">
         <xs:restriction base="xs:string">
2060       <xs:enumeration value="Root" />
           <xs:enumeration value="Element" />
           <xs:enumeration value="Attribute" />
           <xs:enumeration value="Namespace" />
           <xs:enumeration value="Text" />
2065       <xs:enumeration value="SignificantWhitespace" />
           <xs:enumeration value="Whitespace" />
           <xs:enumeration value="ProcessingInstruction" />
           <xs:enumeration value="Comment" />
           <xs:enumeration value="All" />
2070     </xs:restriction>
       </xs:simpleType>
       <xs:element name="XPathNodeType" nillable="true" type="tns:XPathNodeType" />
     </xs:schema>
```

2075 The following is the content of Types.xsd:

```
     <?xml version="1.0" encoding="utf-8"?>
     <xs:schema xmlns:tns="http://schemas.microsoft.com/2003/10/Serialization/"
     attributeFormDefault="qualified" elementFormDefault="qualified"
     targetNamespace="http://schemas.microsoft.com/2003/10/Serialization/"
2080 xmlns:xs="http://www.w3.org/2001/XMLSchema">
       <xs:element name="anyType" nillable="true" type="xs:anyType" />
       <xs:element name="anyURI" nillable="true" type="xs:anyURI" />
       <xs:element name="base64Binary" nillable="true" type="xs:base64Binary" />
       <xs:element name="boolean" nillable="true" type="xs:boolean" />
2085   <xs:element name="byte" nillable="true" type="xs:byte" />
       <xs:element name="dateTime" nillable="true" type="xs:dateTime" />
       <xs:element name="decimal" nillable="true" type="xs:decimal" />
       <xs:element name="double" nillable="true" type="xs:double" />
       <xs:element name="float" nillable="true" type="xs:float" />
2090   <xs:element name="int" nillable="true" type="xs:int" />
       <xs:element name="long" nillable="true" type="xs:long" />
       <xs:element name="QName" nillable="true" type="xs:QName" />
       <xs:element name="short" nillable="true" type="xs:short" />
       <xs:element name="string" nillable="true" type="xs:string" />
2095   <xs:element name="unsignedByte" nillable="true" type="xs:unsignedByte" />
```

```
        <xs:element name="unsignedInt" nillable="true" type="xs:unsignedInt" />
        <xs:element name="unsignedLong" nillable="true" type="xs:unsignedLong" />
        <xs:element name="unsignedShort" nillable="true" type="xs:unsignedShort" />
        <xs:element name="char" nillable="true" type="tns:char" />
2100    <xs:simpleType name="char">
          <xs:restriction base="xs:int" />
        </xs:simpleType>
        <xs:element name="duration" nillable="true" type="tns:duration" />
        <xs:simpleType name="duration">
2105      <xs:restriction base="xs:duration">
            <xs:pattern value="\-?P(\d*D)?(T(\d*H)?(\d*M)?(\d*(\.\d*)?S)?)?" />
            <xs:minInclusive value="-P10675199DT2H48M5.4775808S" />
            <xs:maxInclusive value="P10675199DT2H48M5.4775807S" />
          </xs:restriction>
2110    </xs:simpleType>
        <xs:element name="guid" nillable="true" type="tns:guid" />
        <xs:simpleType name="guid">
          <xs:restriction base="xs:string">
            <xs:pattern value="[\da-fA-F]{8}-[\da-fA-F]{4}-[\da-fA-F]{4}-[\da-fA-F]{4}-[\da-
2115 fA-F]{12}" />
          </xs:restriction>
        </xs:simpleType>
        <xs:attribute name="FactoryType" type="xs:QName" />
        <xs:attribute name="Id" type="xs:ID" />
2120    <xs:attribute name="Ref" type="xs:IDREF" />
      </xs:schema>
```

The following is the content of ArrayOfString.xsd

```
<?xml version="1.0" encoding="utf-8"?>
2125 <xs:schema xmlns:tns="http://schemas.microsoft.com/2003/10/Serialization/Arrays"
    elementFormDefault="qualified"
    targetNamespace="http://schemas.microsoft.com/2003/10/Serialization/Arrays"
    xmlns:xs="http://www.w3.org/2001/XMLSchema">
      <xs:complexType name="ArrayOfstring">
2130    <xs:sequence>
          <xs:element minOccurs="0" maxOccurs="unbounded" name="string" nillable="true"
    type="xs:string" />
        </xs:sequence>
      </xs:complexType>
2135    <xs:element name="ArrayOfstring" nillable="true" type="tns:ArrayOfstring" />
      </xs:schema>
```

B.2   HOST INTERFACE – VERSION 20100825

B.2.1   WSDL Definition of the Interface

2140 The following is the content of HostService-20100825.wsdl:

```
<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions name="HostService-20100825"
  targetNamespace="http://dicom.nema.org/PS3.19/HostService-20100825"
  xmlns:tns="http://dicom.nema.org/PS3.19/HostService-20100825"
2145  xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
  xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-
utility-1.0.xsd"
  xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:wsam="http://www.w3.org/2007/05/addressing/metadata"
2150  xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addressing"
  xmlns:wsp="http://schemas.xmlsoap.org/ws/2004/09/policy"
```

```
          xmlns:wsap="http://schemas.xmlsoap.org/ws/2004/08/addressing/policy"
          xmlns:xsd="http://www.w3.org/2001/XMLSchema"
          xmlns:msc="http://schemas.microsoft.com/ws/2005/12/wsdl/contract"
2155      xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl"
          xmlns:soap12="http://schemas.xmlsoap.org/wsdl/soap12/"
          xmlns:wsa10="http://www.w3.org/2005/08/addressing"
          xmlns:wsx="http://schemas.xmlsoap.org/ws/2004/09/mex"
          xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/">
2160      <wsdl:types>
            <xsd:schema targetNamespace="http://dicom.nema.org/PS3.19/Imports/HostService-
      20100825">
              <xsd:import namespace="http://dicom.nema.org/PS3.19/HostService-20100825"
                schemaLocation="./HostService-20100825.xsd"/>
2165          <xsd:import namespace="http://schemas.microsoft.com/2003/10/Serialization/"
                schemaLocation="./Types.xsd"  />
              <xsd:import namespace="http://schemas.microsoft.com/2003/10/Serialization/Arrays"
                schemaLocation="./ArrayOfString.xsd" />
              <xsd:import namespace="http://schemas.datacontract.org/2004/07/System.Xml.XPath"
2170            schemaLocation="./XPathNodeType.xsd"/>
            </xsd:schema>
          </wsdl:types>
          <wsdl:message name="IHostService_GenerateUID_InputMessage">
            <wsdl:part name="parameters" element="tns:GenerateUID"/>
2175      </wsdl:message>
          <wsdl:message name="IHostService_GenerateUID_OutputMessage">
            <wsdl:part name="parameters" element="tns:GenerateUIDResponse"/>
          </wsdl:message>
          <wsdl:message name="IHostService_GetAvailableScreen_InputMessage">
2180        <wsdl:part name="parameters" element="tns:GetAvailableScreen"/>
          </wsdl:message>
          <wsdl:message name="IHostService_GetAvailableScreen_OutputMessage">
            <wsdl:part name="parameters" element="tns:GetAvailableScreenResponse"/>
          </wsdl:message>
2185      <wsdl:message name="IHostService_GetOutputLocation_InputMessage">
            <wsdl:part name="parameters" element="tns:GetOutputLocation"/>
          </wsdl:message>
          <wsdl:message name="IHostService_GetOutputLocation_OutputMessage">
            <wsdl:part name="parameters" element="tns:GetOutputLocationResponse"/>
2190      </wsdl:message>
          <wsdl:message name="IHostService_NotifyStateChanged_InputMessage">
            <wsdl:part name="parameters" element="tns:NotifyStateChanged"/>
          </wsdl:message>
          <wsdl:message name="IHostService_NotifyStateChanged_OutputMessage">
2195        <wsdl:part name="parameters" element="tns:NotifyStateChangedResponse"/>
          </wsdl:message>
          <wsdl:message name="IHostService_NotifyStatus_InputMessage">
            <wsdl:part name="parameters" element="tns:NotifyStatus"/>
          </wsdl:message>
2200      <wsdl:message name="IHostService_NotifyStatus_OutputMessage">
            <wsdl:part name="parameters" element="tns:NotifyStatusResponse"/>
          </wsdl:message>
          <wsdl:message name="IHostService_NotifyDataAvailable_InputMessage">
            <wsdl:part name="parameters" element="tns:NotifyDataAvailable"/>
2205      </wsdl:message>
          <wsdl:message name="IHostService_NotifyDataAvailable_OutputMessage">
            <wsdl:part name="parameters" element="tns:NotifyDataAvailableResponse"/>
          </wsdl:message>
          <wsdl:message name="IHostService_GetData_InputMessage">
2210        <wsdl:part name="parameters" element="tns:GetData"/>
          </wsdl:message>
          <wsdl:message name="IHostService_GetData_OutputMessage">
```

```
          <wsdl:part name="parameters" element="tns:GetDataResponse"/>
        </wsdl:message>
2215    <wsdl:message name="IHostService_ReleaseData_InputMessage">
          <wsdl:part name="parameters" element="tns:ReleaseData"/>
        </wsdl:message>
        <wsdl:message name="IHostService_ReleaseData_OutputMessage">
          <wsdl:part name="parameters" element="tns:ReleaseDataResponse"/>
2220    </wsdl:message>
        <wsdl:message name="IHostService_GetAsModels_InputMessage">
          <wsdl:part name="parameters" element="tns:GetAsModels"/>
        </wsdl:message>
        <wsdl:message name="IHostService_GetAsModels_OutputMessage">
2225      <wsdl:part name="parameters" element="tns:GetAsModelsResponse"/>
        </wsdl:message>
        <wsdl:message name="IHostService_ReleaseModels_InputMessage">
          <wsdl:part name="parameters" element="tns:ReleaseModels"/>
        </wsdl:message>
2230    <wsdl:message name="IHostService_ReleaseModels_OutputMessage">
          <wsdl:part name="parameters" element="tns:ReleaseModelsResponse"/>
        </wsdl:message>
        <wsdl:message name="IHostService_QueryModel_InputMessage">
          <wsdl:part name="parameters" element="tns:QueryModel"/>
2235    </wsdl:message>
        <wsdl:message name="IHostService_QueryModel_OutputMessage">
          <wsdl:part name="parameters" element="tns:QueryModelResponse"/>
        </wsdl:message>
        <wsdl:message name="IHostService_QueryInfoSet_InputMessage">
2240      <wsdl:part name="parameters" element="tns:QueryInfoSet"/>
        </wsdl:message>
        <wsdl:message name="IHostService_QueryInfoSet_OutputMessage">
          <wsdl:part name="parameters" element="tns:QueryInfoSetResponse"/>
        </wsdl:message>
2245    <wsdl:portType name="IHostService-20100825">
        <wsdl:operation name="GenerateUID">
          <wsdl:input wsaw:Action="http://dicom.nema.org/PS3.19/IHostService/GenerateUID"
            message="tns:IHostService_GenerateUID_InputMessage"/>
          <wsdl:output
2250  wsaw:Action="http://dicom.nema.org/PS3.19/IHostService/GenerateUIDResponse"
            message="tns:IHostService_GenerateUID_OutputMessage"/>
        </wsdl:operation>
        <wsdl:operation name="GetAvailableScreen">
          <wsdl:input
2255  wsaw:Action="http://dicom.nema.org/PS3.19/IHostService/GetAvailableScreen"
            message="tns:IHostService_GetAvailableScreen_InputMessage"/>
          <wsdl:output

      wsaw:Action="http://dicom.nema.org/PS3.19/IHostService/GetAvailableScreenResponse"
2260        message="tns:IHostService_GetAvailableScreen_OutputMessage"/>
        </wsdl:operation>
        <wsdl:operation name="GetOutputLocation">
          <wsdl:input
      wsaw:Action="http://dicom.nema.org/PS3.19/IHostService/GetOutputLocation"
2265        message="tns:IHostService_GetOutputLocation_InputMessage"/>
          <wsdl:output
      wsaw:Action="http://dicom.nema.org/PS3.19/IHostService/GetOutputLocationResponse"
            message="tns:IHostService_GetOutputLocation_OutputMessage"/>
        </wsdl:operation>
2270    <wsdl:operation name="NotifyStateChanged">
          <wsdl:input
      wsaw:Action="http://dicom.nema.org/PS3.19/IHostService/NotifyStateChanged"
            message="tns:IHostService_NotifyStateChanged_InputMessage"/>
```

```
            <wsdl:output
2275
    wsaw:Action="http://dicom.nema.org/PS3.19/IHostService/NotifyStateChangedResponse"
            message="tns:IHostService_NotifyStateChanged_OutputMessage"/>
        </wsdl:operation>
        <wsdl:operation name="NotifyStatus">
2280       <wsdl:input wsaw:Action="http://dicom.nema.org/PS3.19/IHostService/NotifyStatus"
            message="tns:IHostService_NotifyStatus_InputMessage"/>
          <wsdl:output
    wsaw:Action="http://dicom.nema.org/PS3.19/IHostService/NotifyStatusResponse"
            message="tns:IHostService_NotifyStatus_OutputMessage"/>
2285       </wsdl:operation>
        <wsdl:operation name="NotifyDataAvailable">
          <wsdl:input
    wsaw:Action="http://dicom.nema.org/PS3.19/IHostService/NotifyDataAvailable"
            message="tns:IHostService_NotifyDataAvailable_InputMessage"/>
2290       <wsdl:output

    wsaw:Action="http://dicom.nema.org/PS3.19/IHostService/NotifyDataAvailableResponse"
            message="tns:IHostService_NotifyDataAvailable_OutputMessage"/>
        </wsdl:operation>
2295     <wsdl:operation name="GetData">
          <wsdl:input wsaw:Action="http://dicom.nema.org/PS3.19/IHostService/GetData"
            message="tns:IHostService_GetData_InputMessage"/>
          <wsdl:output
    wsaw:Action="http://dicom.nema.org/PS3.19/IHostService/GetDataResponse"
2300       message="tns:IHostService_GetData_OutputMessage"/>
        </wsdl:operation>
        <wsdl:operation name="ReleaseData">
          <wsdl:input wsaw:Action="http://dicom.nema.org/PS3.19/IHostService/ReleaseData"
            message="tns:IHostService_ReleaseData_InputMessage"/>
2305       <wsdl:output
    wsaw:Action="http://dicom.nema.org/PS3.19/IHostService/ReleaseDataResponse"
            message="tns:IHostService_ReleaseData_OutputMessage"/>
        </wsdl:operation>
        <wsdl:operation name="GetAsModels">
2310       <wsdl:input wsaw:Action="http://dicom.nema.org/PS3.19/IHostService/GetAsModels"
            message="tns:IHostService_GetAsModels_InputMessage"/>
          <wsdl:output
    wsaw:Action="http://dicom.nema.org/PS3.19/IHostService/GetAsModelsResponse"
            message="tns:IHostService_GetAsModels_OutputMessage"/>
2315     </wsdl:operation>
        <wsdl:operation name="ReleaseModels">
          <wsdl:input wsaw:Action="http://dicom.nema.org/PS3.19/IHostService/ReleaseModels"
            message="tns:IHostService_ReleaseModels_InputMessage"/>
          <wsdl:output
2320 wsaw:Action="http://dicom.nema.org/PS3.19/IHostService/ReleaseModelsResponse"
            message="tns:IHostService_ReleaseModels_OutputMessage"/>
        </wsdl:operation>
        <wsdl:operation name="QueryModel">
          <wsdl:input wsaw:Action="http://dicom.nema.org/PS3.19/IHostService/QueryModel"
2325       message="tns:IHostService_QueryModel_InputMessage"/>
          <wsdl:output
    wsaw:Action="http://dicom.nema.org/PS3.19/IHostService/QueryModelResponse"
            message="tns:IHostService_QueryModel_OutputMessage"/>
        </wsdl:operation>
2330     <wsdl:operation name="QueryInfoSet">
          <wsdl:input wsaw:Action="http://dicom.nema.org/PS3.19/IHostService/QueryInfoSet"
            message="tns:IHostService_QueryInfoSet_InputMessage"/>
          <wsdl:output
    wsaw:Action="http://dicom.nema.org/PS3.19/IHostService/QueryInfoSetResponse"
```

```
2335           message="tns:IHostService_QueryInfoSet_OutputMessage"/>
         </wsdl:operation>
       </wsdl:portType>
       <wsdl:binding name="HostService-YYYYNNDDBinding" type="tns:IHostService-20100825">
         <soap:binding transport="http://schemas.xmlsoap.org/soap/http"/>
2340      <wsdl:operation name="GenerateUID">
           <soap:operation
     soapAction="http://dicom.nema.org/PS3.19/IHostService/GenerateUID"
             style="document"/>
           <wsdl:input>
2345          <soap:body use="literal"/>
           </wsdl:input>
           <wsdl:output>
             <soap:body use="literal"/>
           </wsdl:output>
2350      </wsdl:operation>
         <wsdl:operation name="GetAvailableScreen">
           <soap:operation
     soapAction="http://dicom.nema.org/PS3.19/IHostService/GetAvailableScreen"
             style="document"/>
2355          <wsdl:input>
             <soap:body use="literal"/>
           </wsdl:input>
           <wsdl:output>
             <soap:body use="literal"/>
2360          </wsdl:output>
         </wsdl:operation>
         <wsdl:operation name="GetOutputLocation">
           <soap:operation
     soapAction="http://dicom.nema.org/PS3.19/IHostService/GetOutputLocation"
2365          style="document"/>
           <wsdl:input>
             <soap:body use="literal"/>
           </wsdl:input>
           <wsdl:output>
2370          <soap:body use="literal"/>
           </wsdl:output>
         </wsdl:operation>
         <wsdl:operation name="NotifyStateChanged">
           <soap:operation
2375 soapAction="http://dicom.nema.org/PS3.19/IHostService/NotifyStateChanged"
             style="document"/>
           <wsdl:input>
             <soap:body use="literal"/>
           </wsdl:input>
2380      <wsdl:output>
             <soap:body use="literal"/>
           </wsdl:output>
         </wsdl:operation>
         <wsdl:operation name="NotifyStatus">
2385        <soap:operation
     soapAction="http://dicom.nema.org/PS3.19/IHostService/NotifyStatus"
             style="document"/>
           <wsdl:input>
             <soap:body use="literal"/>
2390      </wsdl:input>
           <wsdl:output>
             <soap:body use="literal"/>
           </wsdl:output>
         </wsdl:operation>
2395      <wsdl:operation name="NotifyDataAvailable">
```

```
            <soap:operation
      soapAction="http://dicom.nema.org/PS3.19/IHostService/NotifyDataAvailable"
            style="document"/>
            <wsdl:input>
2400          <soap:body use="literal"/>
            </wsdl:input>
            <wsdl:output>
              <soap:body use="literal"/>
            </wsdl:output>
2405      </wsdl:operation>
          <wsdl:operation name="GetData">
            <soap:operation soapAction="http://dicom.nema.org/PS3.19/IHostService/GetData"
              style="document"/>
            <wsdl:input>
2410          <soap:body use="literal"/>
            </wsdl:input>
            <wsdl:output>
              <soap:body use="literal"/>
            </wsdl:output>
2415      </wsdl:operation>
          <wsdl:operation name="ReleaseData">
            <soap:operation
      soapAction="http://dicom.nema.org/PS3.19/IHostService/ReleaseData"
            style="document"/>
2420        <wsdl:input>
              <soap:body use="literal"/>
            </wsdl:input>
            <wsdl:output>
              <soap:body use="literal"/>
2425        </wsdl:output>
          </wsdl:operation>
          <wsdl:operation name="GetAsModels">
            <soap:operation
      soapAction="http://dicom.nema.org/PS3.19/IHostService/GetAsModels"
2430        style="document"/>
            <wsdl:input>
              <soap:body use="literal"/>
            </wsdl:input>
            <wsdl:output>
2435          <soap:body use="literal"/>
            </wsdl:output>
          </wsdl:operation>
          <wsdl:operation name="ReleaseModels">
            <soap:operation
2440 soapAction="http://dicom.nema.org/PS3.19/IHostService/ReleaseModels"
            style="document"/>
            <wsdl:input>
              <soap:body use="literal"/>
            </wsdl:input>
2445        <wsdl:output>
              <soap:body use="literal"/>
            </wsdl:output>
          </wsdl:operation>
          <wsdl:operation name="QueryModel">
2450        <soap:operation soapAction="http://dicom.nema.org/PS3.19/IHostService/QueryModel"
            style="document"/>
            <wsdl:input>
              <soap:body use="literal"/>
            </wsdl:input>
2455        <wsdl:output>
              <soap:body use="literal"/>
```

```
           </wsdl:output>
        </wsdl:operation>
        <wsdl:operation name="QueryInfoSet">
2460       <soap:operation
     soapAction="http://dicom.nema.org/PS3.19/IHostService/QueryInfoSet"
           style="document"/>
        <wsdl:input>
          <soap:body use="literal"/>
2465       </wsdl:input>
        <wsdl:output>
          <soap:body use="literal"/>
        </wsdl:output>
      </wsdl:operation>
2470   </wsdl:binding>
      <wsdl:service name="HostService-20100825">
        <wsdl:port name="HostServiceBinding" binding="tns:HostService-YYYYNNDDBinding">
          <soap:address location="http://localhost/Service"/>
        </wsdl:port>
2475   </wsdl:service>
     </wsdl:definitions>
```

B.2.2 Definition of Data Structures Used

B.2.2.1 Primary Definitions

2480 The following is the the contents of HostService-20100825.xsd:

```
<?xml version="1.0" encoding="utf-8"?>
<xs:schema xmlns:tns="http://dicom.nema.org/PS3.19/HostService-20100825"
elementFormDefault="qualified"
   targetNamespace="http://dicom.nema.org/PS3.19/HostService-20100825"
2485 xmlns:xs="http://www.w3.org/2001/XMLSchema">
     <xs:import namespace="http://schemas.microsoft.com/2003/10/Serialization/Arrays"/>
     <xs:import namespace="http://schemas.datacontract.org/2004/07/System.Xml.XPath"/>
     <xs:element name="GenerateUID">
       <xs:complexType>
2490       <xs:sequence/>
       </xs:complexType>
     </xs:element>
     <xs:element name="GenerateUIDResponse">
       <xs:complexType>
2495       <xs:sequence>
           <xs:element minOccurs="0" name="GenerateUIDResult" nillable="true"
   type="tns:UID"/>
         </xs:sequence>
       </xs:complexType>
2500   </xs:element>
     <xs:complexType name="UID">
       <xs:sequence>
         <xs:element minOccurs="0" name="Uid" nillable="true" type="xs:string"/>
       </xs:sequence>
2505   </xs:complexType>
     <xs:element name="UID" nillable="true" type="tns:UID"/>
     <xs:element name="GetAvailableScreen">
       <xs:complexType>
         <xs:sequence>
2510         <xs:element minOccurs="0" name="preferredScreen" nillable="true"
   type="tns:Rectangle"/>
         </xs:sequence>
       </xs:complexType>
     </xs:element>
```

```
2515    <xs:complexType name="Rectangle">
          <xs:sequence>
            <xs:element minOccurs="0" name="Height" type="xs:int"/>
            <xs:element minOccurs="0" name="Width" type="xs:int"/>
            <xs:element minOccurs="0" name="RefPointX" type="xs:int"/>
2520        <xs:element minOccurs="0" name="RefPointY" type="xs:int"/>
          </xs:sequence>
        </xs:complexType>
        <xs:element name="Rectangle" nillable="true" type="tns:Rectangle"/>
        <xs:element name="GetAvailableScreenResponse">
2525      <xs:complexType>
            <xs:sequence>
              <xs:element minOccurs="0" name="GetAvailableScreenResult" nillable="true"
                type="tns:Rectangle"/>
            </xs:sequence>
2530      </xs:complexType>
        </xs:element>
        <xs:element name="GetOutputLocation">
          <xs:complexType>
            <xs:sequence>
2535          <xs:element minOccurs="0" name="preferredProtocols" nillable="true"
                xmlns:q1="http://schemas.microsoft.com/2003/10/Serialization/Arrays"
                type="q1:ArrayOfstring"/>
            </xs:sequence>
          </xs:complexType>
2540    </xs:element>
        <xs:element name="GetOutputLocationResponse">
          <xs:complexType>
            <xs:sequence>
              <xs:element minOccurs="0" name="GetOutputLocationResult" nillable="true"
2545 type="xs:anyURI"/>
            </xs:sequence>
          </xs:complexType>
        </xs:element>
        <xs:element name="NotifyStateChanged">
2550      <xs:complexType>
            <xs:sequence>
              <xs:element minOccurs="0" name="state" type="tns:State"/>
            </xs:sequence>
          </xs:complexType>
2555    </xs:element>
        <xs:simpleType name="State">
          <xs:restriction base="xs:string">
            <xs:enumeration value="IDLE"/>
            <xs:enumeration value="INPROGRESS"/>
2560        <xs:enumeration value="SUSPENDED"/>
            <xs:enumeration value="COMPLETED"/>
            <xs:enumeration value="CANCELED"/>
            <xs:enumeration value="EXIT"/>
          </xs:restriction>
2565    </xs:simpleType>
        <xs:element name="State" nillable="true" type="tns:State"/>
        <xs:element name="NotifyStateChangedResponse">
          <xs:complexType>
            <xs:sequence/>
2570      </xs:complexType>
        </xs:element>
        <xs:element name="NotifyStatus">
          <xs:complexType>
            <xs:sequence>
2575          <xs:element minOccurs="0" name="status" nillable="true" type="tns:Status"/>
```

```
          </xs:sequence>
        </xs:complexType>
      </xs:element>
      <xs:complexType name="Status">
2580     <xs:sequence>
          <xs:element minOccurs="0" name="StatusType" type="tns:StatusType"/>
          <xs:element minOccurs="0" name="CodeValue" type="xs:int"/>
          <xs:element minOccurs="0" name="CodingSchemeDesignator" nillable="true"
     type="xs:string"/>
2585       <xs:element minOccurs="0" name="CodeMeaning" nillable="true" type="xs:string"/>
          <xs:element minOccurs="0" name="ContextIdentifier" nillable="true"
     type="xs:string"/>
          <xs:element minOccurs="0" name="MappingResource" nillable="true"
     type="xs:string"/>
2590       <xs:element minOccurs="0" name="ContextGroupVersion" nillable="true"
     type="xs:string"/>
          <xs:element minOccurs="0" name="ContextGroupExtensionFlag" nillable="true"
     type="xs:string"/>
          <xs:element minOccurs="0" name="ContextGroupLocalVersion" nillable="true"
2595 type="xs:string"/>
          <xs:element minOccurs="0" name="ContextGroupExtensionCreatorUID" nillable="true"
     type="xs:string"/>
        </xs:sequence>
      </xs:complexType>
2600   <xs:element name="Status" nillable="true" type="tns:Status"/>
      <xs:simpleType name="StatusType">
        <xs:restriction base="xs:string">
          <xs:enumeration value="INFORMATION"/>
          <xs:enumeration value="WARNING"/>
2605       <xs:enumeration value="ERROR"/>
          <xs:enumeration value="FATALERROR"/>
        </xs:restriction>
      </xs:simpleType>
      <xs:element name="StatusType" nillable="true" type="tns:StatusType"/>
2610   <xs:element name="NotifyStatusResponse">
        <xs:complexType>
          <xs:sequence/>
        </xs:complexType>
      </xs:element>
2615   <xs:element name="NotifyDataAvailable">
        <xs:complexType>
          <xs:sequence>
            <xs:element minOccurs="0" name="data" nillable="true"
     type="tns:AvailableData"/>
2620         <xs:element minOccurs="0" name="lastData" type="xs:boolean"/>
          </xs:sequence>
        </xs:complexType>
      </xs:element>
      <xs:complexType name="AvailableData">
2625     <xs:sequence>
          <xs:element minOccurs="0" name="ObjectDescriptors" nillable="true"
            type="tns:ArrayOfObjectDescriptor"/>
          <xs:element minOccurs="0" name="Patients" nillable="true"
     type="tns:ArrayOfPatient"/>
2630     </xs:sequence>
      </xs:complexType>
      <xs:element name="AvailableData" nillable="true" type="tns:AvailableData"/>
      <xs:complexType name="ArrayOfObjectDescriptor">
        <xs:sequence>
2635       <xs:element minOccurs="0" maxOccurs="unbounded" name="ObjectDescriptor"
     nillable="true"
```

```
                    type="tns:ObjectDescriptor"/>
            </xs:sequence>
        </xs:complexType>
2640    <xs:element name="ArrayOfObjectDescriptor" nillable="true"
    type="tns:ArrayOfObjectDescriptor"/>
        <xs:complexType name="ObjectDescriptor">
            <xs:sequence>
                <xs:element minOccurs="0" name="ClassUID" nillable="true" type="tns:UID"/>
2645            <xs:element minOccurs="0" name="MimeType" nillable="true" type="tns:MimeType"/>
                <xs:element minOccurs="0" name="Modality" nillable="true" type="tns:Modality"/>
                <xs:element minOccurs="0" name="TransferSyntaxUID" nillable="true"
    type="tns:UID"/>
                <xs:element minOccurs="0" name="DescriptorUuid" nillable="true" type="tns:UUID"/>
2650        </xs:sequence>
        </xs:complexType>
        <xs:element name="ObjectDescriptor" nillable="true" type="tns:ObjectDescriptor"/>
        <xs:complexType name="MimeType">
            <xs:sequence>
2655            <xs:element minOccurs="0" name="Type" nillable="true" type="xs:string"/>
            </xs:sequence>
        </xs:complexType>
        <xs:element name="MimeType" nillable="true" type="tns:MimeType"/>
        <xs:complexType name="Modality">
2660        <xs:sequence>
                <xs:element minOccurs="0" name="Modality" nillable="true" type="xs:string"/>
            </xs:sequence>
        </xs:complexType>
        <xs:element name="Modality" nillable="true" type="tns:Modality"/>
2665    <xs:complexType name="UUID">
            <xs:sequence>
                <xs:element minOccurs="0" name="Uuid" nillable="true" type="xs:string"/>
            </xs:sequence>
        </xs:complexType>
2670    <xs:element name="UUID" nillable="true" type="tns:UUID"/>
        <xs:complexType name="ArrayOfPatient">
            <xs:sequence>
                <xs:element minOccurs="0" maxOccurs="unbounded" name="Patient" nillable="true"
                    type="tns:Patient"/>
2675        </xs:sequence>
        </xs:complexType>
        <xs:element name="ArrayOfPatient" nillable="true" type="tns:ArrayOfPatient"/>
        <xs:complexType name="Patient">
            <xs:sequence>
2680            <xs:element minOccurs="0" name="AssigningAuthority" nillable="true"
    type="xs:string"/>
                <xs:element minOccurs="0" name="DateOfBirth" type="xs:dateTime"/>
                <xs:element minOccurs="0" name="ID" nillable="true" type="xs:string"/>
                <xs:element minOccurs="0" name="Name" nillable="true" type="xs:string"/>
2685            <xs:element minOccurs="0" name="ObjectDescriptors" nillable="true"
                    type="tns:ArrayOfObjectDescriptor"/>
                <xs:element minOccurs="0" name="Sex" nillable="true" type="xs:string"/>
                <xs:element minOccurs="0" name="Studies" nillable="true"
    type="tns:ArrayOfStudy"/>
2690        </xs:sequence>
        </xs:complexType>
        <xs:element name="Patient" nillable="true" type="tns:Patient"/>
        <xs:complexType name="ArrayOfStudy">
            <xs:sequence>
2695            <xs:element minOccurs="0" maxOccurs="unbounded" name="Study" nillable="true"
    type="tns:Study"
                />
```

- Standard -

```
        </xs:sequence>
      </xs:complexType>
2700    <xs:element name="ArrayOfStudy" nillable="true" type="tns:ArrayOfStudy"/>
      <xs:complexType name="Study">
        <xs:sequence>
          <xs:element minOccurs="0" name="ObjectDescriptors" nillable="true"
            type="tns:ArrayOfObjectDescriptor"/>
2705      <xs:element minOccurs="0" name="Series" nillable="true"
    type="tns:ArrayOfSeries"/>
          <xs:element minOccurs="0" name="StudyUID" nillable="true" type="tns:UID"/>
        </xs:sequence>
      </xs:complexType>
2710    <xs:element name="Study" nillable="true" type="tns:Study"/>
      <xs:complexType name="ArrayOfSeries">
        <xs:sequence>
          <xs:element minOccurs="0" maxOccurs="unbounded" name="Series" nillable="true"
            type="tns:Series"/>
2715      </xs:sequence>
      </xs:complexType>
      <xs:element name="ArrayOfSeries" nillable="true" type="tns:ArrayOfSeries"/>
      <xs:complexType name="Series">
        <xs:sequence>
2720      <xs:element minOccurs="0" name="ObjectDescriptors" nillable="true"
            type="tns:ArrayOfObjectDescriptor"/>
          <xs:element minOccurs="0" name="SeriesUID" nillable="true" type="tns:UID"/>
        </xs:sequence>
      </xs:complexType>
2725    <xs:element name="Series" nillable="true" type="tns:Series"/>
      <xs:element name="NotifyDataAvailableResponse">
        <xs:complexType>
          <xs:sequence>
            <xs:element minOccurs="0" name="NotifyDataAvailableResult" type="xs:boolean"/>
2730      </xs:sequence>
        </xs:complexType>
      </xs:element>
      <xs:element name="GetData">
        <xs:complexType>
2735      <xs:sequence>
            <xs:element minOccurs="0" name="objects" nillable="true"
    type="tns:ArrayOfUUID"/>
            <xs:element minOccurs="0" name="acceptableTransferSyntaxes" nillable="true"
              type="tns:ArrayOfUID"/>
2740        <xs:element minOccurs="0" name="includeBulkData" type="xs:boolean"/>
          </xs:sequence>
        </xs:complexType>
      </xs:element>
      <xs:complexType name="ArrayOfUUID">
2745      <xs:sequence>
          <xs:element minOccurs="0" maxOccurs="unbounded" name="UUID" nillable="true"
    type="tns:UUID"/>
        </xs:sequence>
      </xs:complexType>
2750    <xs:element name="ArrayOfUUID" nillable="true" type="tns:ArrayOfUUID"/>
      <xs:complexType name="ArrayOfUID">
        <xs:sequence>
          <xs:element minOccurs="0" maxOccurs="unbounded" name="UID" nillable="true"
    type="tns:UID"/>
2755      </xs:sequence>
      </xs:complexType>
      <xs:element name="ArrayOfUID" nillable="true" type="tns:ArrayOfUID"/>
      <xs:element name="GetDataResponse">
```

```
        <xs:complexType>
2760      <xs:sequence>
            <xs:element minOccurs="0" name="GetDataResult" nillable="true"
              type="tns:ArrayOfObjectLocator"/>
          </xs:sequence>
        </xs:complexType>
2765  </xs:element>
      <xs:complexType name="ArrayOfObjectLocator">
        <xs:sequence>
          <xs:element minOccurs="0" maxOccurs="unbounded" name="ObjectLocator"
  nillable="true"
2770        type="tns:ObjectLocator"/>
        </xs:sequence>
      </xs:complexType>
      <xs:element name="ArrayOfObjectLocator" nillable="true"
  type="tns:ArrayOfObjectLocator"/>
2775  <xs:complexType name="ObjectLocator">
        <xs:sequence>
          <xs:element minOccurs="0" name="Length" type="xs:long"/>
          <xs:element minOccurs="0" name="Offset" type="xs:long"/>
          <xs:element minOccurs="0" name="TransferSyntax" nillable="true" type="tns:UID"/>
2780      <xs:element minOccurs="0" name="URI" nillable="true" type="xs:anyURI"/>
          <xs:element minOccurs="0" name="Locator" nillable="true" type="tns:UUID"/>
          <xs:element minOccurs="0" name="Source" nillable="true" type="tns:UUID"/>
        </xs:sequence>
      </xs:complexType>
2785  <xs:element name="ObjectLocator" nillable="true" type="tns:ObjectLocator"/>
      <xs:element name="ReleaseData">
        <xs:complexType>
          <xs:sequence>
            <xs:element minOccurs="0" name="objects" nillable="true"
2790 type="tns:ArrayOfUUID"/>
          </xs:sequence>
        </xs:complexType>
      </xs:element>
      <xs:element name="ReleaseDataResponse">
2795    <xs:complexType>
          <xs:sequence/>
        </xs:complexType>
      </xs:element>
      <xs:element name="GetAsModels">
2800    <xs:complexType>
          <xs:sequence>
            <xs:element minOccurs="0" name="objects" nillable="true"
  type="tns:ArrayOfUUID"/>
            <xs:element minOccurs="0" name="classUID" nillable="true" type="tns:UID"/>
2805        <xs:element minOccurs="0" name="supportedInfoSetTypes" nillable="true"
              type="tns:ArrayOfMimeType"/>
          </xs:sequence>
        </xs:complexType>
      </xs:element>
2810  <xs:complexType name="ArrayOfMimeType">
        <xs:sequence>
          <xs:element minOccurs="0" maxOccurs="unbounded" name="MimeType" nillable="true"
            type="tns:MimeType"/>
        </xs:sequence>
2815  </xs:complexType>
      <xs:element name="ArrayOfMimeType" nillable="true" type="tns:ArrayOfMimeType"/>
      <xs:element name="GetAsModelsResponse">
        <xs:complexType>
          <xs:sequence>
```

```
2820          <xs:element minOccurs="0" name="GetAsModelsResult" nillable="true"
                 type="tns:ModelSetDescriptor"/>
            </xs:sequence>
          </xs:complexType>
        </xs:element>
2825    <xs:complexType name="ModelSetDescriptor">
          <xs:sequence>
            <xs:element minOccurs="0" name="FailedSourceObjects" nillable="true"
      type="tns:ArrayOfUUID"/>
            <xs:element minOccurs="0" name="InfosetType" nillable="true"
2830  type="tns:MimeType"/>
            <xs:element minOccurs="0" name="Models" nillable="true" type="tns:ArrayOfUUID"/>
          </xs:sequence>
        </xs:complexType>
        <xs:element name="ModelSetDescriptor" nillable="true" type="tns:ModelSetDescriptor"/>
2835    <xs:element name="ReleaseModels">
          <xs:complexType>
            <xs:sequence>
              <xs:element minOccurs="0" name="models" nillable="true"
      type="tns:ArrayOfUUID"/>
2840        </xs:sequence>
          </xs:complexType>
        </xs:element>
        <xs:element name="ReleaseModelsResponse">
          <xs:complexType>
2845        <xs:sequence/>
          </xs:complexType>
        </xs:element>
        <xs:element name="QueryModel">
          <xs:complexType>
2850        <xs:sequence>
              <xs:element minOccurs="0" name="models" nillable="true"
      type="tns:ArrayOfUUID"/>
              <xs:element minOccurs="0" name="xPaths" nillable="true"
                 xmlns:q2="http://schemas.microsoft.com/2003/10/Serialization/Arrays"
2855             type="q2:ArrayOfstring"/>
            </xs:sequence>
          </xs:complexType>
        </xs:element>
        <xs:element name="QueryModelResponse">
2860      <xs:complexType>
            <xs:sequence>
              <xs:element minOccurs="0" name="QueryModelResult" nillable="true"
                 type="tns:ArrayOfQueryResult"/>
            </xs:sequence>
2865      </xs:complexType>
        </xs:element>
        <xs:complexType name="ArrayOfQueryResult">
          <xs:sequence>
            <xs:element minOccurs="0" maxOccurs="unbounded" name="QueryResult"
2870  nillable="true"
               type="tns:QueryResult"/>
          </xs:sequence>
        </xs:complexType>
        <xs:element name="ArrayOfQueryResult" nillable="true" type="tns:ArrayOfQueryResult"/>
2875    <xs:complexType name="QueryResult">
          <xs:sequence>
            <xs:element minOccurs="0" name="Model" nillable="true" type="tns:UUID"/>
            <xs:element minOccurs="0" name="Result" nillable="true"
      type="tns:ArrayOfXPathNode"/>
2880        <xs:element minOccurs="0" name="XPath" nillable="true" type="xs:string"/>
```

```
          </xs:sequence>
        </xs:complexType>
        <xs:element name="QueryResult" nillable="true" type="tns:QueryResult"/>
        <xs:complexType name="ArrayOfXPathNode">
2885      <xs:sequence>
            <xs:element minOccurs="0" maxOccurs="unbounded" name="XPathNode" nillable="true"
              type="tns:XPathNode"/>
          </xs:sequence>
        </xs:complexType>
2890    <xs:element name="ArrayOfXPathNode" nillable="true" type="tns:ArrayOfXPathNode"/>
        <xs:complexType name="XPathNode">
          <xs:sequence>
            <xs:element minOccurs="0" name="NodeType"
              xmlns:q3="http://schemas.datacontract.org/2004/07/System.Xml.XPath"
2895 type="q3:XPathNodeType"/>
            <xs:element minOccurs="0" name="Value" nillable="true" type="xs:string"/>
          </xs:sequence>
        </xs:complexType>
        <xs:element name="XPathNode" nillable="true" type="tns:XPathNode"/>
2900    <xs:element name="QueryInfoSet">
          <xs:complexType>
            <xs:sequence>
              <xs:element minOccurs="0" name="models" nillable="true"
    type="tns:ArrayOfUUID"/>
2905          <xs:element minOccurs="0" name="xPaths" nillable="true"
                xmlns:q4="http://schemas.microsoft.com/2003/10/Serialization/Arrays"
                type="q4:ArrayOfstring"/>
            </xs:sequence>
          </xs:complexType>
2910    </xs:element>
        <xs:element name="QueryInfoSetResponse">
          <xs:complexType>
            <xs:sequence>
              <xs:element minOccurs="0" name="QueryInfoSetResult" nillable="true"
2915            type="tns:ArrayOfQueryResultInfoSet"/>
            </xs:sequence>
          </xs:complexType>
        </xs:element>
        <xs:complexType name="ArrayOfQueryResultInfoSet">
2920      <xs:sequence>
            <xs:element minOccurs="0" maxOccurs="unbounded" name="QueryResultInfoSet"
    nillable="true"
              type="tns:QueryResultInfoSet"/>
          </xs:sequence>
2925    </xs:complexType>
        <xs:element name="ArrayOfQueryResultInfoSet" nillable="true"
    type="tns:ArrayOfQueryResultInfoSet"/>
        <xs:complexType name="QueryResultInfoSet">
          <xs:sequence>
2930        <xs:element minOccurs="0" name="Model" nillable="true" type="tns:UUID"/>
            <xs:element minOccurs="0" name="Result" nillable="true"
    type="tns:ArrayOfXPathNodeInfoSet"/>
            <xs:element minOccurs="0" name="XPath" nillable="true" type="xs:string"/>
          </xs:sequence>
2935    </xs:complexType>
        <xs:element name="QueryResultInfoSet" nillable="true" type="tns:QueryResultInfoSet"/>
        <xs:complexType name="ArrayOfXPathNodeInfoSet">
          <xs:sequence>
            <xs:element minOccurs="0" maxOccurs="unbounded" name="XPathNodeInfoSet"
2940 nillable="true"
              type="tns:XPathNodeInfoSet"/>
```

```
        </xs:sequence>
      </xs:complexType>
      <xs:element name="ArrayOfXPathNodeInfoSet" nillable="true"
2945  type="tns:ArrayOfXPathNodeInfoSet"/>
      <xs:complexType name="XPathNodeInfoSet">
        <xs:sequence>
          <xs:element minOccurs="0" name="InfoSetValue" nillable="true"
      type="xs:base64Binary"/>
2950      <xs:element minOccurs="0" name="NodeType"
            xmlns:q5="http://schemas.datacontract.org/2004/07/System.Xml.XPath"
      type="q5:XPathNodeType"
            />
        </xs:sequence>
2955  </xs:complexType>
      <xs:element name="XPathNodeInfoSet" nillable="true" type="tns:XPathNodeInfoSet"/>
    </xs:schema>
```

B.2.2.2   Referenced Definitions

2960   The following is the content of XPathNodeType.xsd:

```
      <?xml version="1.0" encoding="utf-8"?>
      <xs:schema xmlns:tns="http://schemas.datacontract.org/2004/07/System.Xml.XPath"
      elementFormDefault="qualified"
      targetNamespace="http://schemas.datacontract.org/2004/07/System.Xml.XPath"
2965  xmlns:xs="http://www.w3.org/2001/XMLSchema">
        <xs:simpleType name="XPathNodeType">
          <xs:restriction base="xs:string">
            <xs:enumeration value="Root" />
            <xs:enumeration value="Element" />
2970        <xs:enumeration value="Attribute" />
            <xs:enumeration value="Namespace" />
            <xs:enumeration value="Text" />
            <xs:enumeration value="SignificantWhitespace" />
            <xs:enumeration value="Whitespace" />
2975        <xs:enumeration value="ProcessingInstruction" />
            <xs:enumeration value="Comment" />
            <xs:enumeration value="All" />
          </xs:restriction>
        </xs:simpleType>
2980    <xs:element name="XPathNodeType" nillable="true" type="tns:XPathNodeType" />
      </xs:schema>
```

    The following is the content of Types.xsd:

```
      <?xml version="1.0" encoding="utf-8"?>
2985  <xs:schema xmlns:tns="http://schemas.microsoft.com/2003/10/Serialization/"
      attributeFormDefault="qualified" elementFormDefault="qualified"
      targetNamespace="http://schemas.microsoft.com/2003/10/Serialization/"
      xmlns:xs="http://www.w3.org/2001/XMLSchema">
        <xs:element name="anyType" nillable="true" type="xs:anyType" />
2990    <xs:element name="anyURI" nillable="true" type="xs:anyURI" />
        <xs:element name="base64Binary" nillable="true" type="xs:base64Binary" />
        <xs:element name="boolean" nillable="true" type="xs:boolean" />
        <xs:element name="byte" nillable="true" type="xs:byte" />
        <xs:element name="dateTime" nillable="true" type="xs:dateTime" />
2995    <xs:element name="decimal" nillable="true" type="xs:decimal" />
        <xs:element name="double" nillable="true" type="xs:double" />
        <xs:element name="float" nillable="true" type="xs:float" />
        <xs:element name="int" nillable="true" type="xs:int" />
```

```
      <xs:element name="long" nillable="true" type="xs:long" />
3000  <xs:element name="QName" nillable="true" type="xs:QName" />
      <xs:element name="short" nillable="true" type="xs:short" />
      <xs:element name="string" nillable="true" type="xs:string" />
      <xs:element name="unsignedByte" nillable="true" type="xs:unsignedByte" />
      <xs:element name="unsignedInt" nillable="true" type="xs:unsignedInt" />
3005  <xs:element name="unsignedLong" nillable="true" type="xs:unsignedLong" />
      <xs:element name="unsignedShort" nillable="true" type="xs:unsignedShort" />
      <xs:element name="char" nillable="true" type="tns:char" />
      <xs:simpleType name="char">
        <xs:restriction base="xs:int" />
3010  </xs:simpleType>
      <xs:element name="duration" nillable="true" type="tns:duration" />
      <xs:simpleType name="duration">
        <xs:restriction base="xs:duration">
          <xs:pattern value="\-?P(\d*D)?(T(\d*H)?(\d*M)?(\d*(\.\d*)?S)?)?" />
3015      <xs:minInclusive value="-P10675199DT2H48M5.4775808S" />
          <xs:maxInclusive value="P10675199DT2H48M5.4775807S" />
        </xs:restriction>
      </xs:simpleType>
      <xs:element name="guid" nillable="true" type="tns:guid" />
3020  <xs:simpleType name="guid">
        <xs:restriction base="xs:string">
          <xs:pattern value="[\da-fA-F]{8}-[\da-fA-F]{4}-[\da-fA-F]{4}-[\da-fA-F]{4}-[\da-
fA-F]{12}" />
        </xs:restriction>
3025  </xs:simpleType>
      <xs:attribute name="FactoryType" type="xs:QName" />
      <xs:attribute name="Id" type="xs:ID" />
      <xs:attribute name="Ref" type="xs:IDREF" />
    </xs:schema>
3030
```

The following is the content of ArrayOfString.xsd:

```
      <?xml version="1.0" encoding="utf-8"?>
      <xs:schema xmlns:tns="http://schemas.microsoft.com/2003/10/Serialization/Arrays"
      elementFormDefault="qualified"
3035  targetNamespace="http://schemas.microsoft.com/2003/10/Serialization/Arrays"
      xmlns:xs="http://www.w3.org/2001/XMLSchema">
        <xs:complexType name="ArrayOfstring">
          <xs:sequence>
            <xs:element minOccurs="0" maxOccurs="unbounded" name="string" nillable="true"
3040  type="xs:string" />
          </xs:sequence>
        </xs:complexType>
        <xs:element name="ArrayOfstring" nillable="true" type="tns:ArrayOfstring" />
      </xs:schema>
3045
```