# IHE Radiation Oncology

# Test Tools Scenario Descriptions

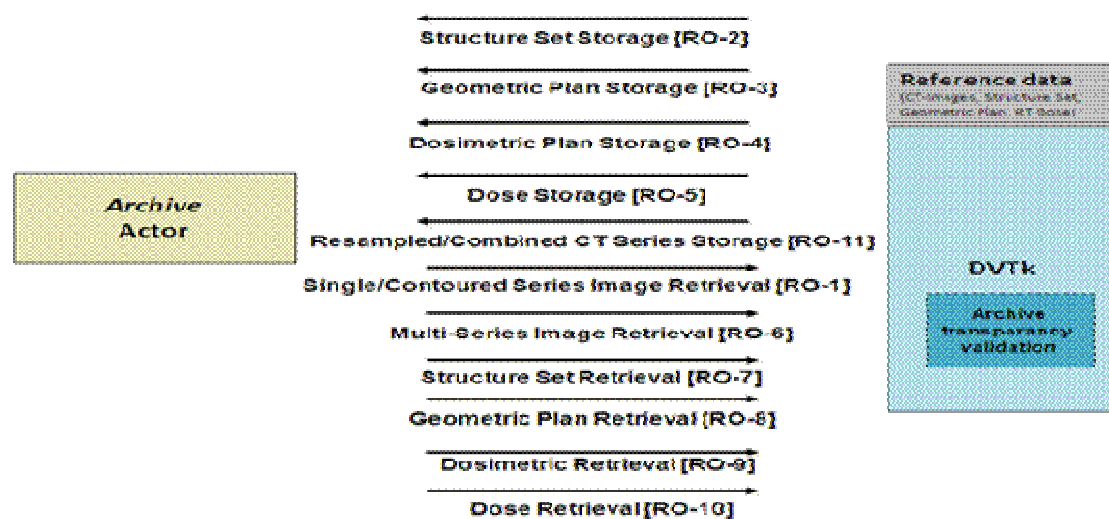# Index

# Test Scenario 1 Archive actor

## Description:

This test scenario provides the archive actor with all data objects and receives the data objects.
- Storage of the reference test data objects to the archive
- Retrieval of the reference test data object from the archive
- Comparison of the test data objects received, with the original reference data.
- Checks ensuring level 2 SCP conformance.



## Transactions sent to actor:

RO-2 (Structure Set Storage)
RO-3 (Geometric Plan Storage)
RO-4 (Dosimetric Plan Storage)
RO-5 (Dose Storage)
RO-11 (Resampled/Combined CT Series Storage) *

## Expected transactions from actor:

RO-1 (Single/Contoured Series Image Retrieval)
RO-7 (Structure Set Retrieval)
RO-8 (Geometric Plan Retrieve)
RO-9 (Dosimetric Plan Retrieve)
RO-10 (Dose Retrieve)

## Used scenario dataset:
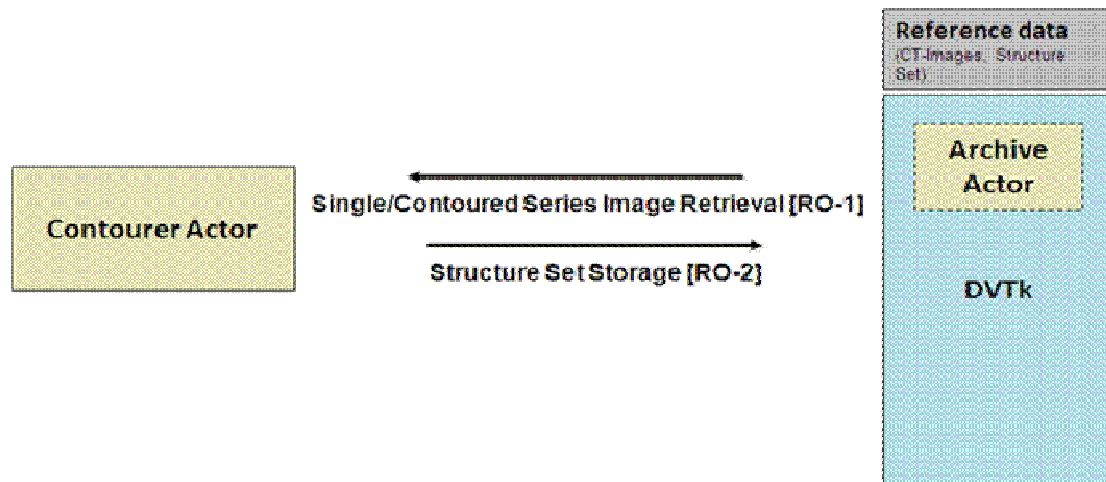
This scenario uses the reference test dataset.

* The single CT-Image series is used as Resampled/Combined CT Series

# Test Scenario 1 Contourer actor

## Description:

This test scenario provides the contourer actor with RO-1 and receives RO-2
- Checks the correct storage of Single Series CT dataset (DICOM association & interaction level)
- Validation of the created Structure set (RO-2) (including RO critical modules)
- Verifies the critical attribute mapping requirements



## Transactions sent to actor:

RO-1 (Single/Contoured Series Image Retrieval)

## Expected transactions from actor:

RO-2 (Structure Set Storage)

## Used scenario dataset:

This scenario uses the reference test dataset.

# Test Scenario 2 Contourer actor

## Description:

This test scenario provides the contourer actor with RO-6 and receives RO-11 and RO-2
- Checks the correct storage of Multi Series CT dataset (DICOM association & interaction level)
- Validation of the created Structure set (RO-2) (including RO critical modules)
- Validation of the resampled CT dataset (RO-11)
- Verifies the critical attribute mapping requirements

## Transactions sent to actor:

RO-6 (Multi Series Image Retrieval)

## Expected transactions from actor:

RO-11 (Resampled/Combined CT Series Storage)
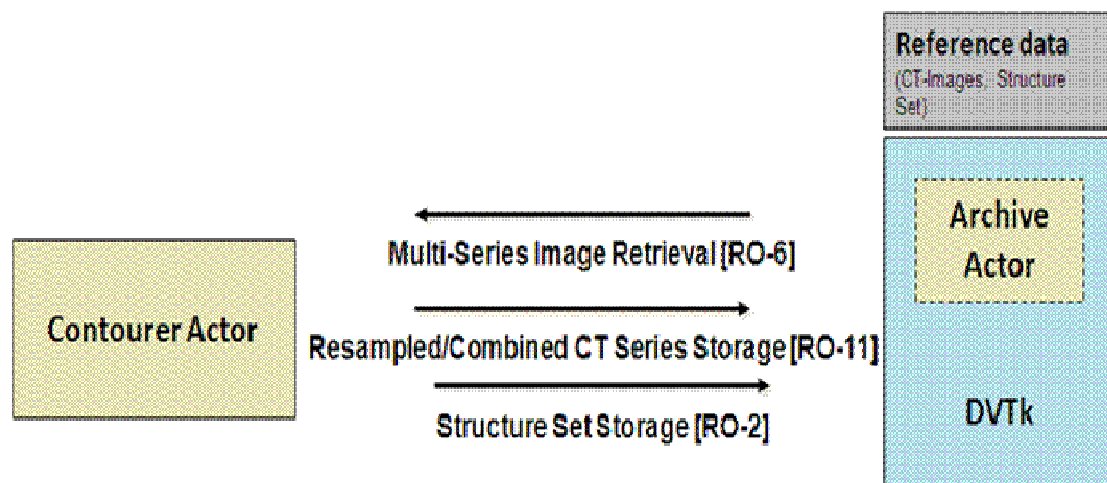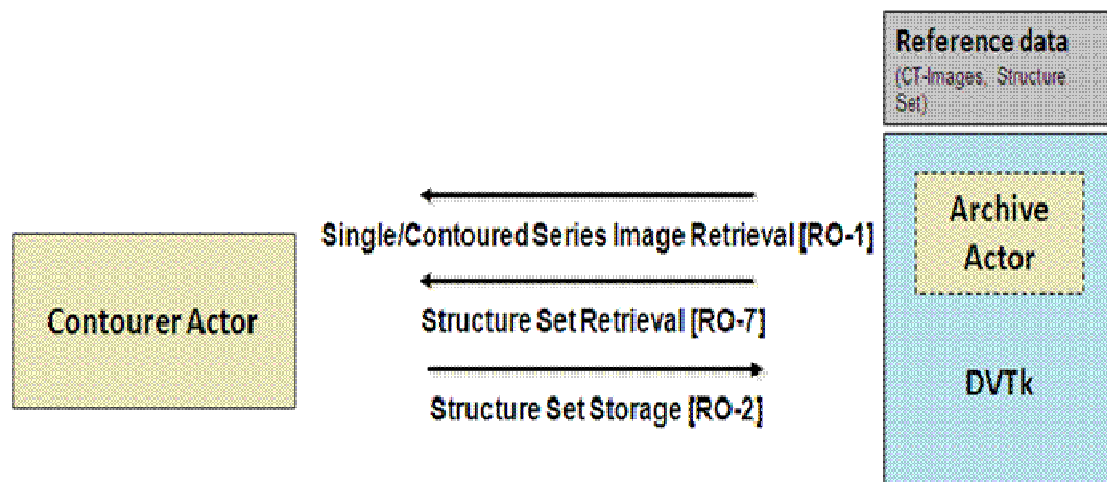RO-2 (Structure Set Storage)

## Used scenario dataset:

This scenario uses the reference test dataset.

# Test Scenario 3 Contourer actor

## Description:

This test scenario provides the contourer actor with RO-1 and RO-7 and receives RO-2
- Checks the correct storage of Single Series CT dataset (DICOM association & interaction level)
- Validation of the created Structure set (RO-2) (including RO critical modules)
- Verifies the critical attribute mapping requirements



## Transactions sent to actor:

RO-1 (Single/Contoured Series Image Retrieval)
RO-7 (Structure Set Retrieval)

## Expected transactions from actor:

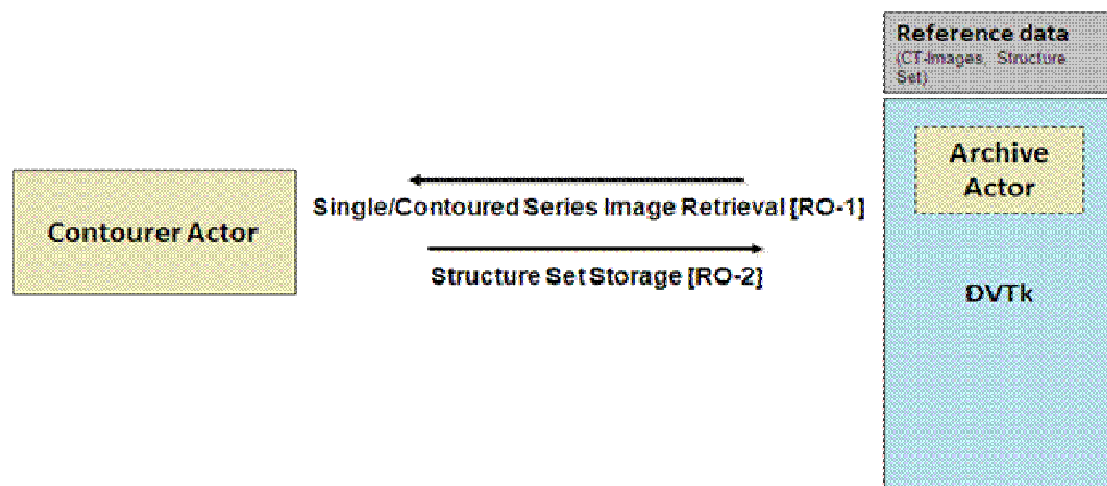RO-2 (Structure Set Storage)

## Used scenario dataset:

This scenario uses the reference test dataset.

# Equidistant Scenario 1 Contourer actor

## Description:

This test scenario provides the contourer actor with RO-1 and receives RO-2
- Checks the correct storage of Single Series CT dataset (DICOM association & interaction level)
- Validation of the created Structure set (RO-2) (including RO critical modules)
- Verifies the critical attribute mapping requirements



## Transactions sent to actor:

RO-1 (Single/Contoured Series Image Retrieval)

## Expected transactions from actor:

RO-2 (Structure Set Storage)

## Used scenario dataset:
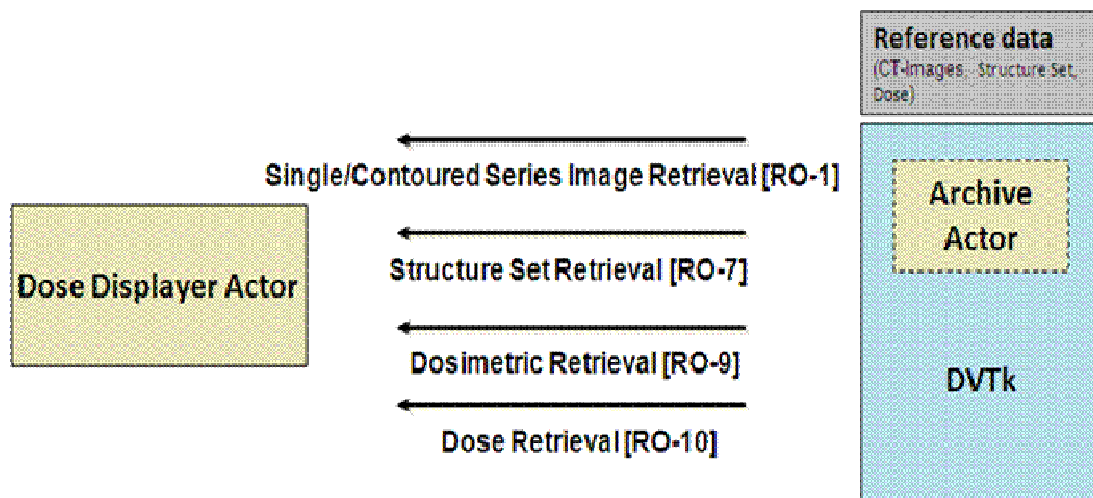
This scenario uses the equidistant reference test dataset.
Note: This test data is not clinically correct.

# Test Scenario 1 Dose Displayer

## Description:

This test scenario provides the dose displayer with RO-1, RO-7, RO-9 and RO-10
- Checks the correct storage of Single/contoured CT series dataset (DICOM assoc. & interaction level)
- Checks the correct storage of the Structure set (DICOM association & interaction level)
- Checks the correct storage of the (Dosimetric) Plan (DICOM association & interaction level)
- Checks the correct storage of RT Dose (DICOM association & interaction level)



## Transactions sent to actor:

RO-1 (Single/Contoured Series Image Retrieval)
RO-7 (Structure Set Retrieval)
RO-9 (Dosimetric Retrieval)
RO-10 (Dose Retrieval)

## Expected transactions from actor:
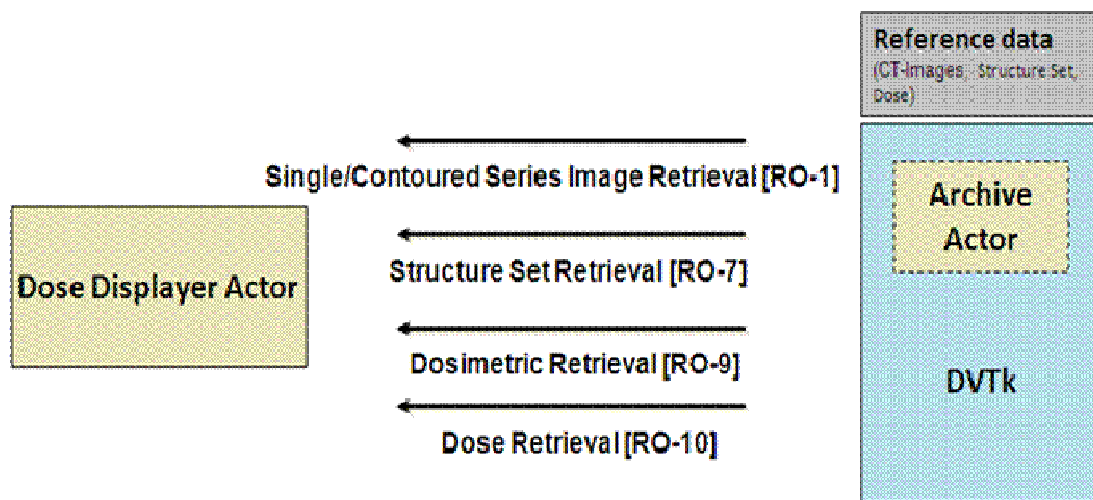
n.a.

## Used scenario dataset:

This scenario uses the reference test dataset.

# Test Scenario 2 Dose Displayer

## Description:

This test scenario provides the dose displayer with RO-1, RO-7, RO-9 and RO-10 (with minimal attributes in reference dataset (NO U modules and optional attributes)
- Checks the correct storage of Single/contoured CT series dataset (DICOM assoc. & interaction level)
- Checks the correct storage of the Structure set (DICOM association & interaction level)
- Checks the correct storage of the (Dosimetric) Plan (DICOM association & interaction level)
- Checks the correct storage of RT Dose (DICOM association & interaction level)



## Transactions sent to actor:

RO-1 (Single/Contoured Series Image Retrieval)
RO-7 (Structure Set Retrieval)
RO-9 (Dosimetric Retrieval)
RO-10 (Dose Retrieval)

## Expected transactions from actor:
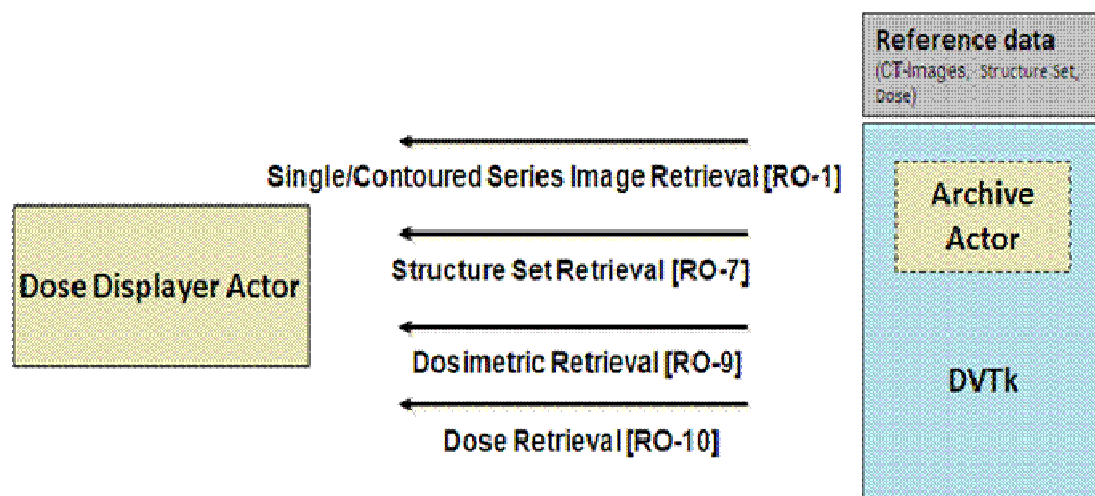
n.a.

## Used scenario dataset:

This scenario uses the minimal reference test dataset.

# Equidistant Test Scenario 1 Dose Displayer

## Description:

This test scenario provides the dose displayer with RO-1, RO-7, RO-9  and RO-10
- Checks the correct storage of Single/contoured CT series dataset (DICOM assoc. & interaction level)
- Checks the correct storage of the Structure set  (DICOM association & interaction level)
- Checks the correct storage of the (Dosimetric) Plan (DICOM association & interaction level)
- Checks the correct storage of RT Dose (DICOM association & interaction level)



## Transactions sent to actor:

RO-1 (Single/Contoured Series Image Retrieval)
RO-7 (Structure Set Retrieval)
RO-9 (Dosimetric Retrieval)
RO-10 (Dose Retrieval)

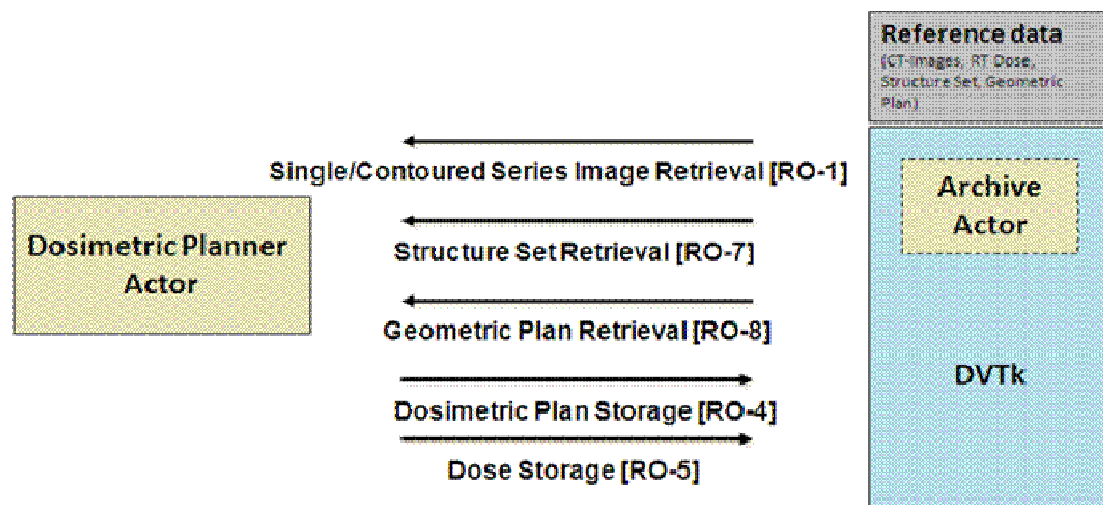## Expected transactions from actor:

n.a.

## Used scenario dataset:

This scenario uses equidistance CT-set and non-equidistance dose

## Description:

This test scenario provides the dosimetric planner with RO-1, RO-7 and RO-8 and receives RO-4 and RO-5
- Checks the correct storage of Single/contoured CT series dataset (DICOM assoc. & interaction level)
- Checks the correct storage of the Structure set  (DICOM association & interaction level)
- Checks the correct storage of the (Geometric) Plan (DICOM association & interaction level)
- Validation of the created Dosimetric Plan (RO-4) (including RO critical modules)
- Verifies the critical attribute mapping requirements



## Transactions sent to actor:

RO-1 (Single/Contoured Series Image Retrieval)
RO-7 (Structure Set Retrieval)
RO-8 (Geometric Plan Retrieval)

## Expected transactions from actor:

RO-4 (Dosimetric Plan Storage)
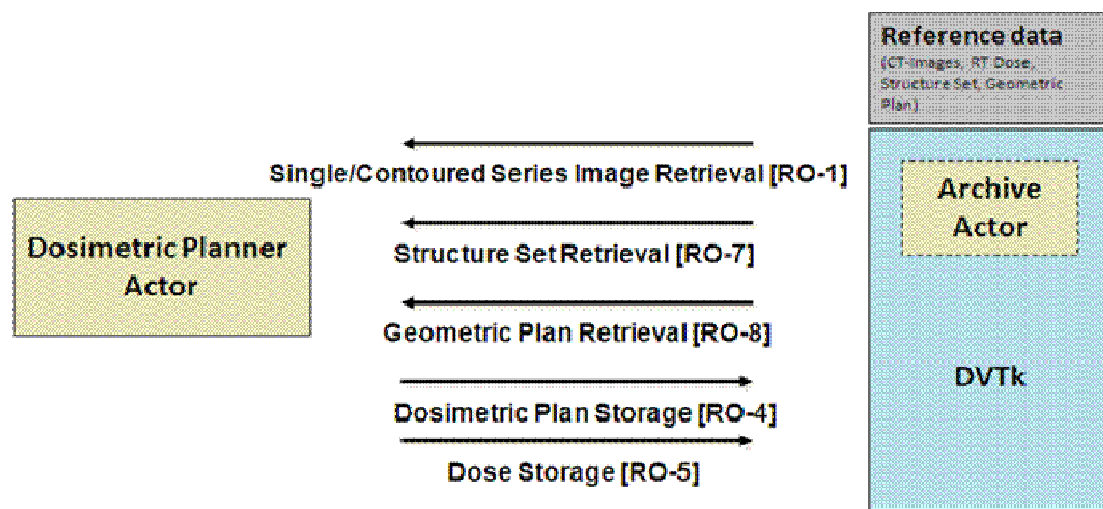RO-5 (Dose Storage)

## Used scenario dataset:

This scenario uses the reference test dataset.

# Test Scenario 2 Dosimetric Planner

## Description:

This test scenario provides the dosimetric planner with RO-1, RO-7 and RO-8 and receives RO-4 and RO-5 (with minimal attributes in reference dataset (NO U modules and optional attributes)
- Checks the correct storage of Single/contoured CT series dataset (DICOM assoc. & interaction level)
- Checks the correct storage of the Structure set  (DICOM association & interaction level)
- Checks the correct storage of the (Geometric) Plan (DICOM association & interaction level)
- Validation of the created Dosimetric Plan (RO-4) (including RO critical modules)
- Verifies the critical attribute mapping requirements

## Transactions sent to actor:

> RO-1 (Single/Contoured Series Image Retrieval)
> RO-7 (Structure Set Retrieval)
> RO-8 (Geometric Plan Retrieval)

## Expected transactions from actor:

> RO-4 (Dosimetric Plan Storage)
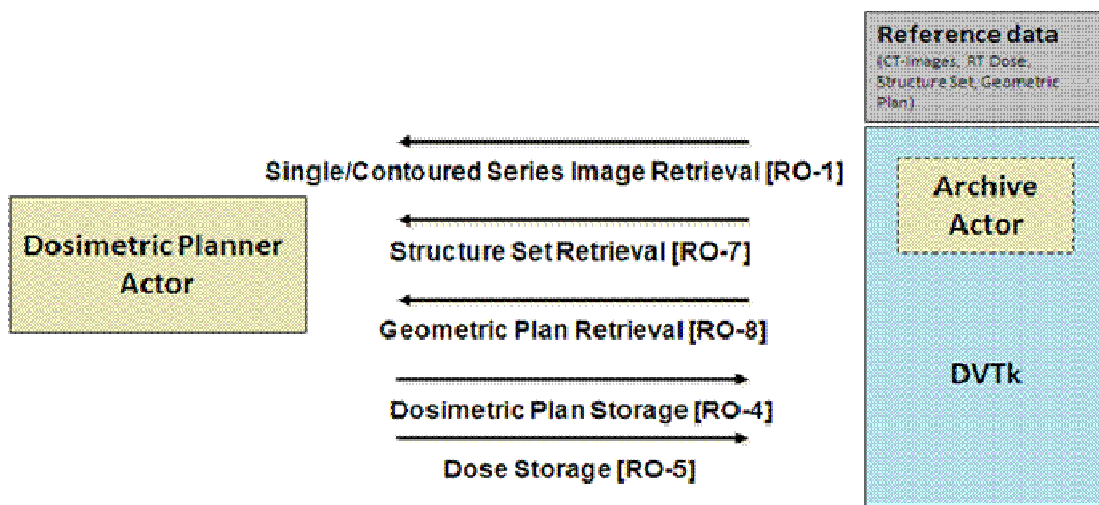> RO-5 (Dose Storage)

## Used scenario dataset:

This scenario uses the minimal reference test dataset.

# Equidistant Test Scenario 1 Dosimetric Planner

## Description:

This test scenario provides the dosimetric planner with RO-1, RO-7 and RO-8 and receives RO-4 and RO-5
- Checks the correct storage of Single/contoured CT series dataset (DICOM assoc. & interaction level)
- Checks the correct storage of the Structure set  (DICOM association & interaction level)
- Checks the correct storage of the (Geometric) Plan (DICOM association & interaction level)
- Validation of the created Dosimetric Plan (RO-4) (including RO critical modules)
- Verifies the critical attribute mapping requirements

## Transactions sent to actor:

RO-1 (Single/Contoured Series Image Retrieval)
RO-7 (Structure Set Retrieval)
RO-8 (Geometric Plan Retrieval)

## Expected transactions from actor:

RO-4 (Dosimetric Plan Storage)
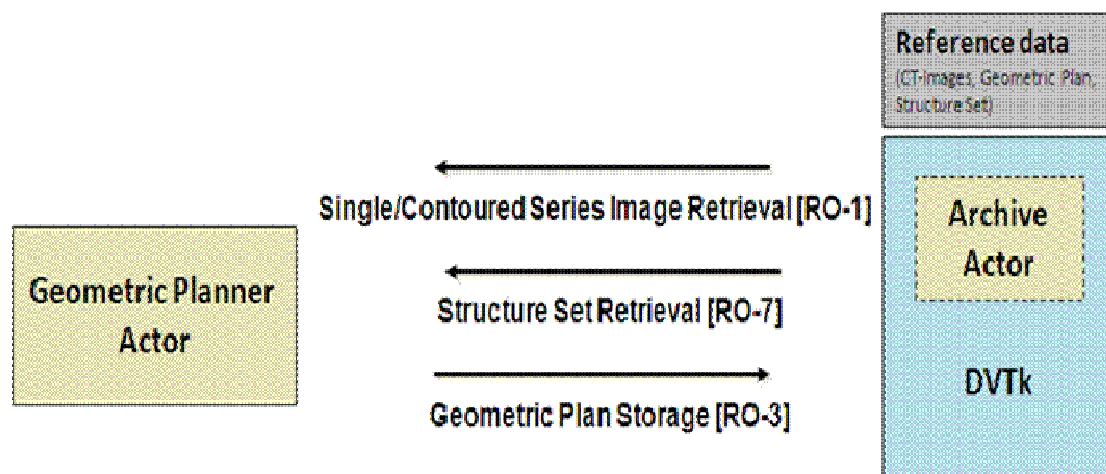RO-5 (Dose Storage)

## Used scenario dataset:

This scenario uses the equidistant reference test dataset.
Note: This test data is not clinically correct.

# Test Scenario 1 Geometric Planner

## Description:

This test scenario provides the geometric planner with RO-1 and RO-7 and receives RO-3
- Checks the correct storage of Single/contoured CT series dataset (DICOM assoc. & interaction level)
- Checks the correct storage of the Structure set (DICOM association & interaction level)
- Validation of the created Geometric Plan (RO-3) (including RO critical modules)
- Verifies the critical attribute mapping requirements



## Transactions sent to actor:

RO-1 (Single/Contoured Series Image Retrieval)
RO-7 (Structure Set Retrieval)

## Expected transactions from actor:

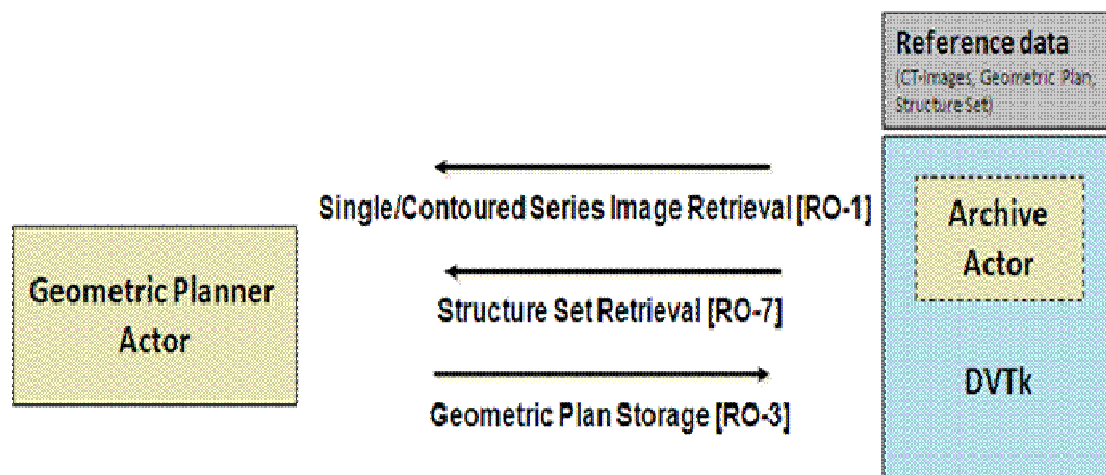RO-3 (Geometric Plan Storage)

## Used scenario dataset:

This scenario uses the reference test dataset.

# Test Scenario 2 Geometric Planner

## Description:

This test scenario provides the geometric planner with RO-1 and RO-7 and receives RO-3 (with minimal attributes in reference dataset (NO U modules and optional attributes)
- Checks the correct storage of Single/contoured CT series dataset (DICOM assoc. & interaction level)
- Checks the correct storage of the Structure set  (DICOM association & interaction level)
- Validation of the created Geometric Plan (RO-3) (including RO critical modules)
- Verifies the critical attribute mapping requirements



## Transactions sent to actor:

RO-1 (Single/Contoured Series Image Retrieval)
RO-7 (Structure Set Retrieval)

## Expected transactions from actor:

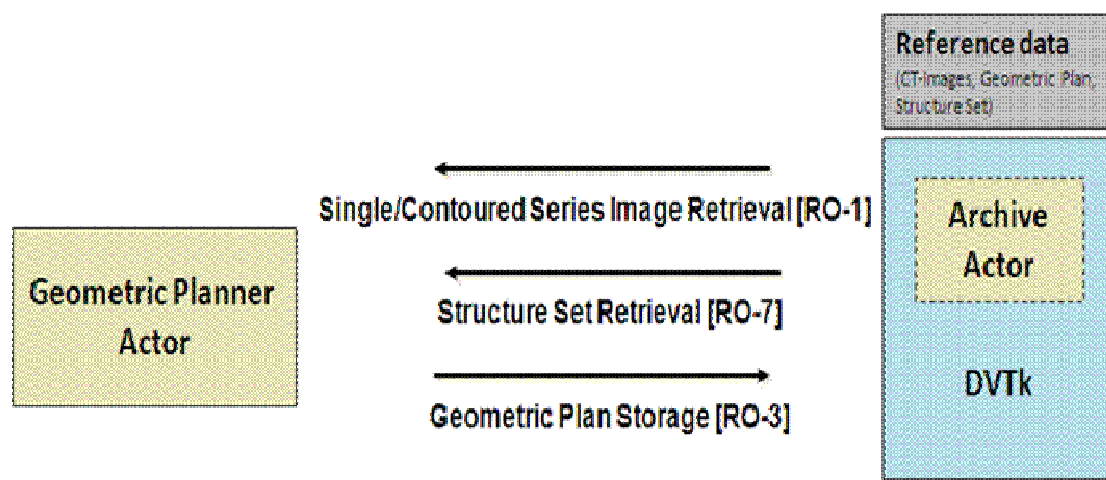RO-3 (Geometric Plan Storage)

## Used scenario dataset:

This scenario uses the minimal reference test dataset.

# Equidistant Test Scenario 1 Geometric Planner

## Description:

This test scenario provides the geometric planner with RO-1 and RO-7 and receives RO-3
- Checks the correct storage of Single/contoured CT series dataset (DICOM assoc. & interaction level)
- Checks the correct storage of the Structure set  (DICOM association & interaction level)
- Validation of the created Geometric Plan (RO-3) (including RO critical modules)
- Verifies the critical attribute mapping requirements



## Transactions sent to actor:

RO-1 (Single/Contoured Series Image Retrieval)
RO-7 (Structure Set Retrieval)

## Expected transactions from actor:

RO-3 (Geometric Plan Storage)

## Used scenario dataset:

This scenario uses the equidistant reference test dataset.
Note: This test data is not clinically correct.