TRISTAN
TRANSLATIONAL IMAGING IN DRUG SAFETY ASSESSMENT

Additional Application Notes

Thank you for your interest in performing free-breathing, dynamic, 3D T1 mapping and DCE sequences. The downloaded sequences, related Word document and following instructions should guide you through the TRISTAN IMI WP2's methods.

Provided Sequences

- 1. “Provided Imaging Sequences.zip” folder contains:
  - TRISTAN IG FLASH 12Apr2018
    - One repetition of T1W sequence for DCE
  - T2 TurboRARE
    - Anatomical sequence
  - vFAIgFLASH
    - T1 mapping sequence

Series Acquisition List and Order

1. Localizer
2. Localizer Multislice
3. TRISTAN IG FLASH 12Apr2018
   - Run with new shims/GOP mode OFF
   - T1W to check position, artifacts for T1 mapping and DCE
4. T2 TurboRARE
   - Run in GOP mode, copy slice orientation from #3 (first option in pop-up)
5. vFAIgFLASH
   - Run in GOP mode, copy slice orientation from #3
6. TRISTAN IG FLASH 12Apr2018
   - Option 1: adjust #3 to have GOP mode ON, and increase # of repetitions to 30
   - Option 2: pull over second TRISTAN IG FLASH 12Apr2018 provided, and adjust slice orientation to be same as #3

Animal Model and Preparation

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- Bolus of contrast agent
  - Tail vein catheter in place using P50 tubing
  - Gadoxetate prepared by diluting 1:5 in saline and 0.5 mL/kg of diluted agent delivered, rather than 0.1 mL of stock agent
  - User must account for/know amount of volume of diluted solution needed for tubing, and prepare enough diluted agent
  - Bolus administered over 30 seconds using MR-conditional infusion pump
  - No flush administered, given lead-in from P50 tubing
  - Inject bolus 4 min and 45 seconds after dynamic sequence initiates; this is 5 baselines followed by contrast.

- As a control, place a glass vial of saline on animal's back or side to include in FOV if desired

Rat Anatomy—T1W DCE and T1 Mapping Sequences (α = 20°)

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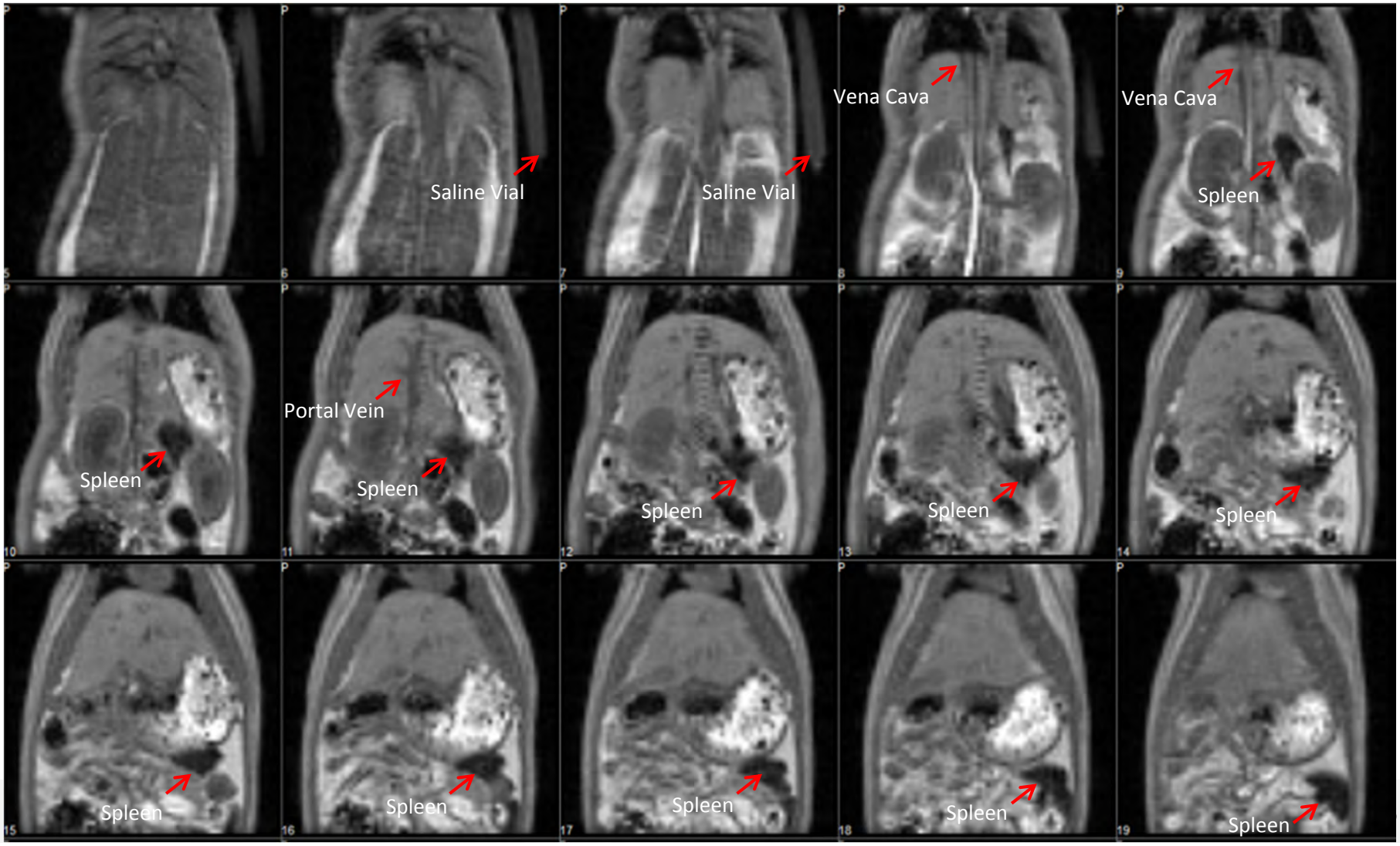

Rat Anatomy—T2W

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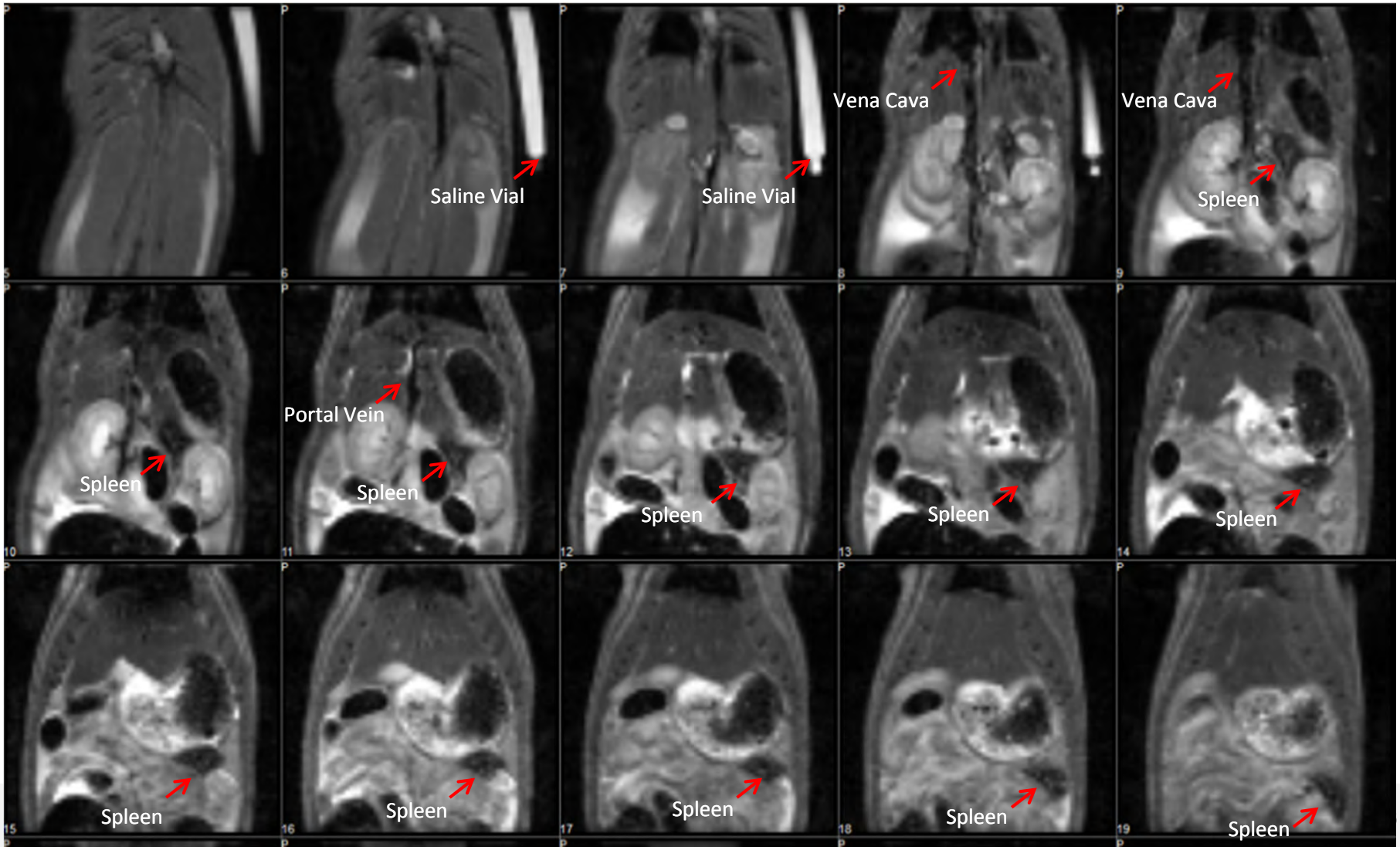
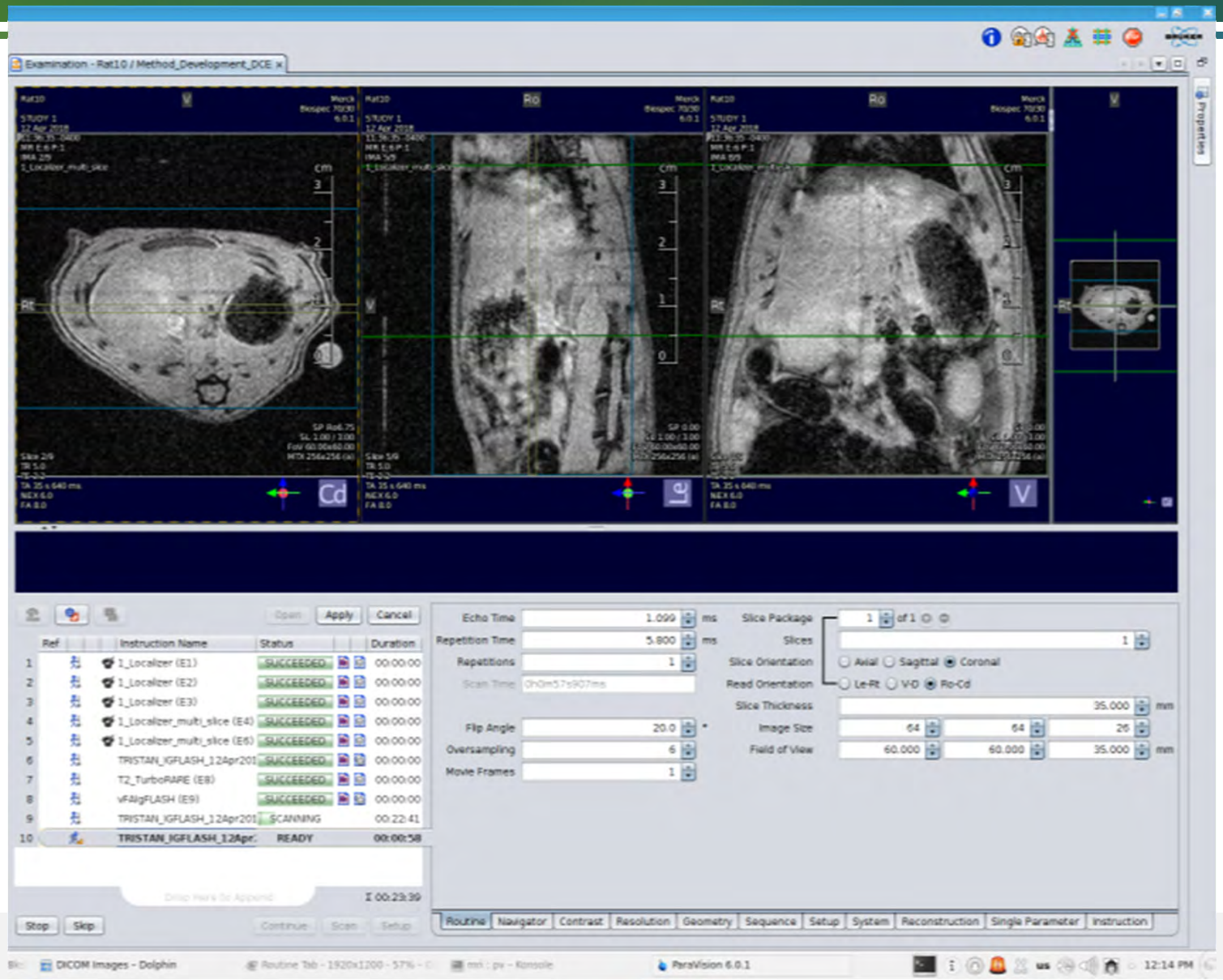


Routine Tab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Cancel
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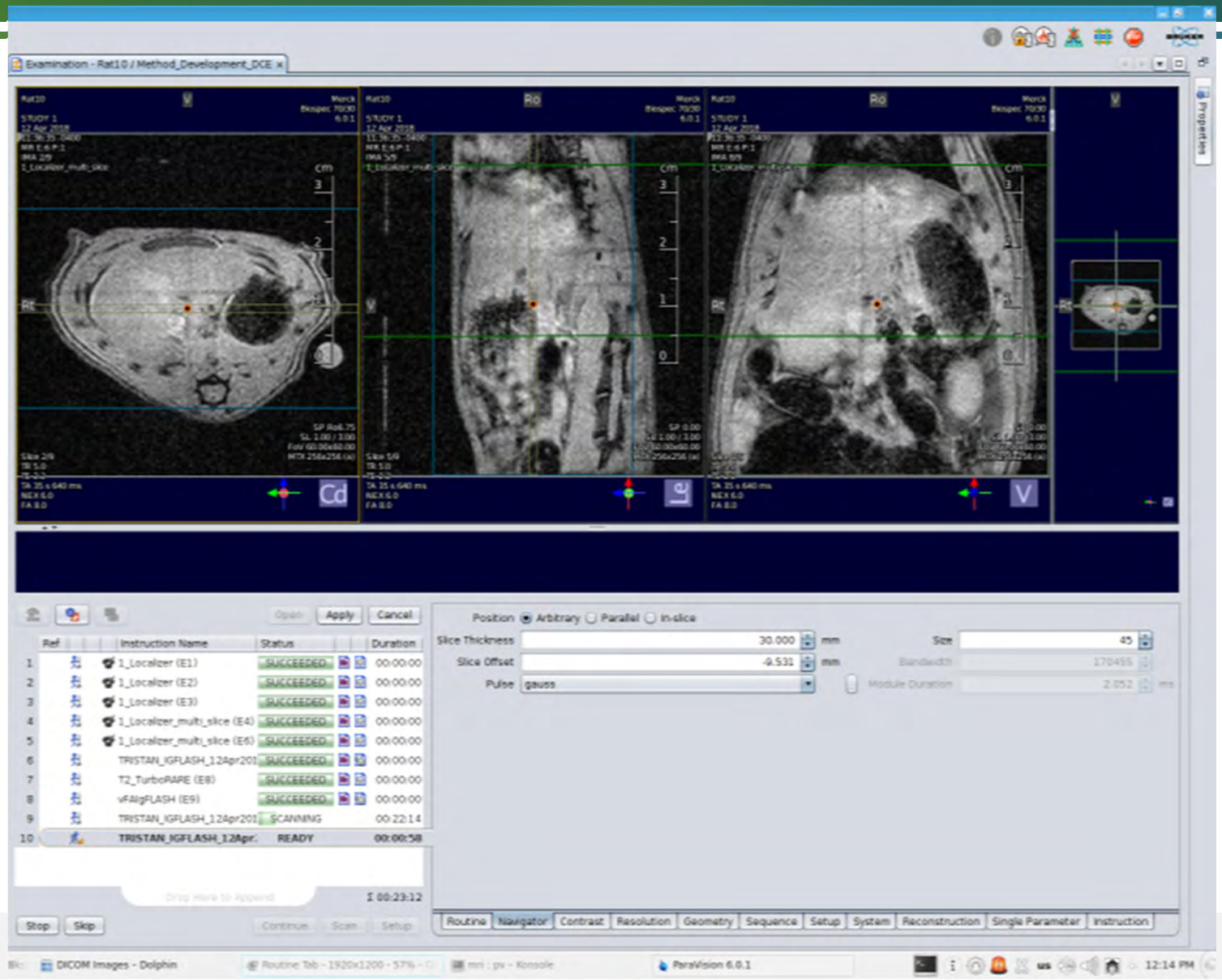
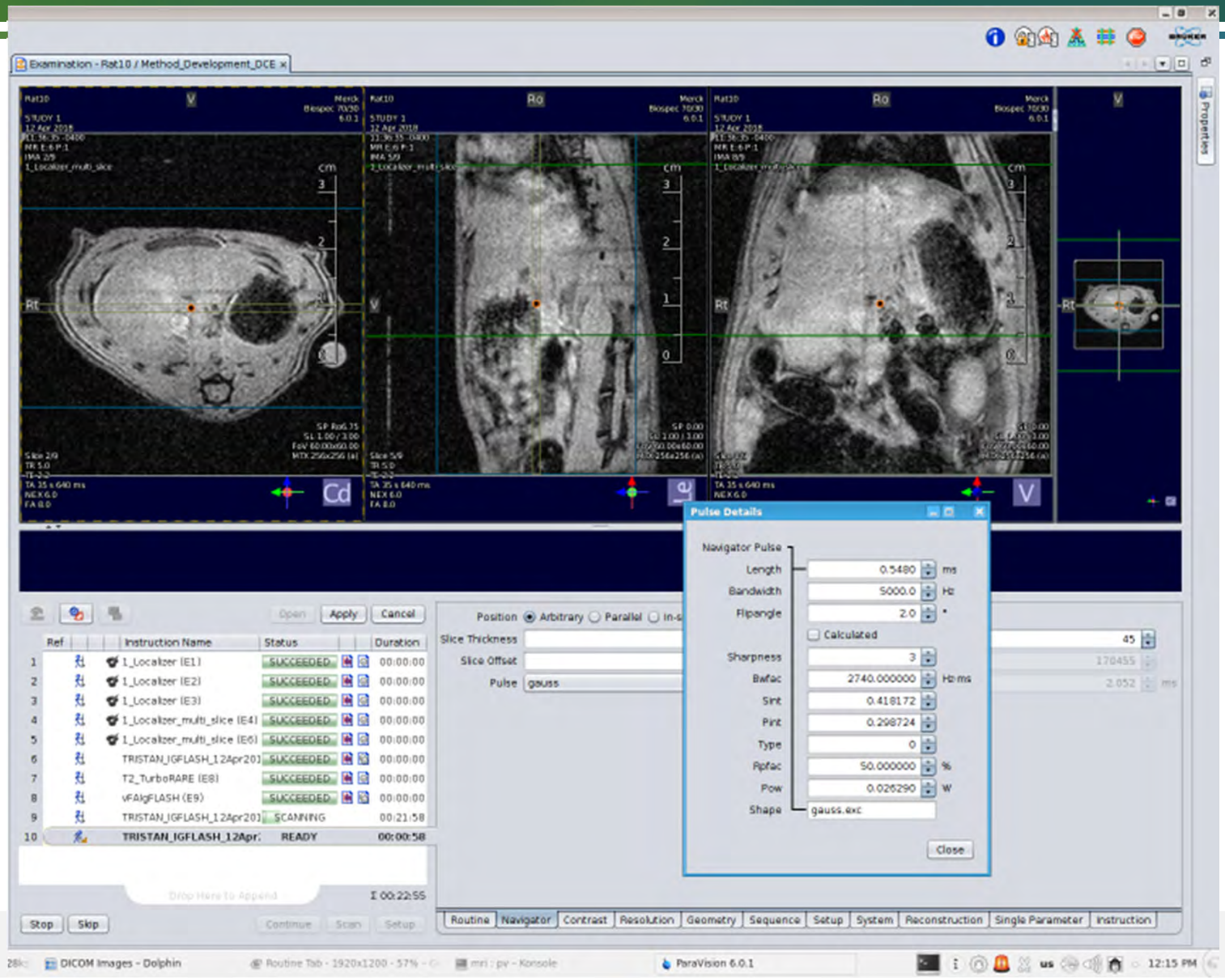
Status
Duration
1_Localizer (E1)
1_Localizer (E2)
1_Localizer (E3)
1_Localizer_multi_slice (E4)
1_Localizer_multi_slice (E6)
TRISTAN_IGFLASH_12Apr201
T2_TurboRARE (E8)
vFAIgFLASH (E9)
TRISTAN_IGFLASH_12Apr201
SCANNING
TRISTAN_IGFLASH_12Apr
READY
Stop
Skip
Echo Time
Repetition Time
Repetitions
Flip Angle
Oversampling
Movie Frames
Slice Package
Slices
Slice Orientation
Read Orientation
Slice Thickness
Image Size
Field of View
Axial
Sagittal
Coronal
Le-Rt
V-D
Ro-Cd
Routine
Navigator
Contrast
Resolution
Geometry
Sequence
Setup
System
Reconstruction
Single Parameter
Instruction
DICOM Images - Dolphin
ParaVision 6.0.1

Navigator Tab #1

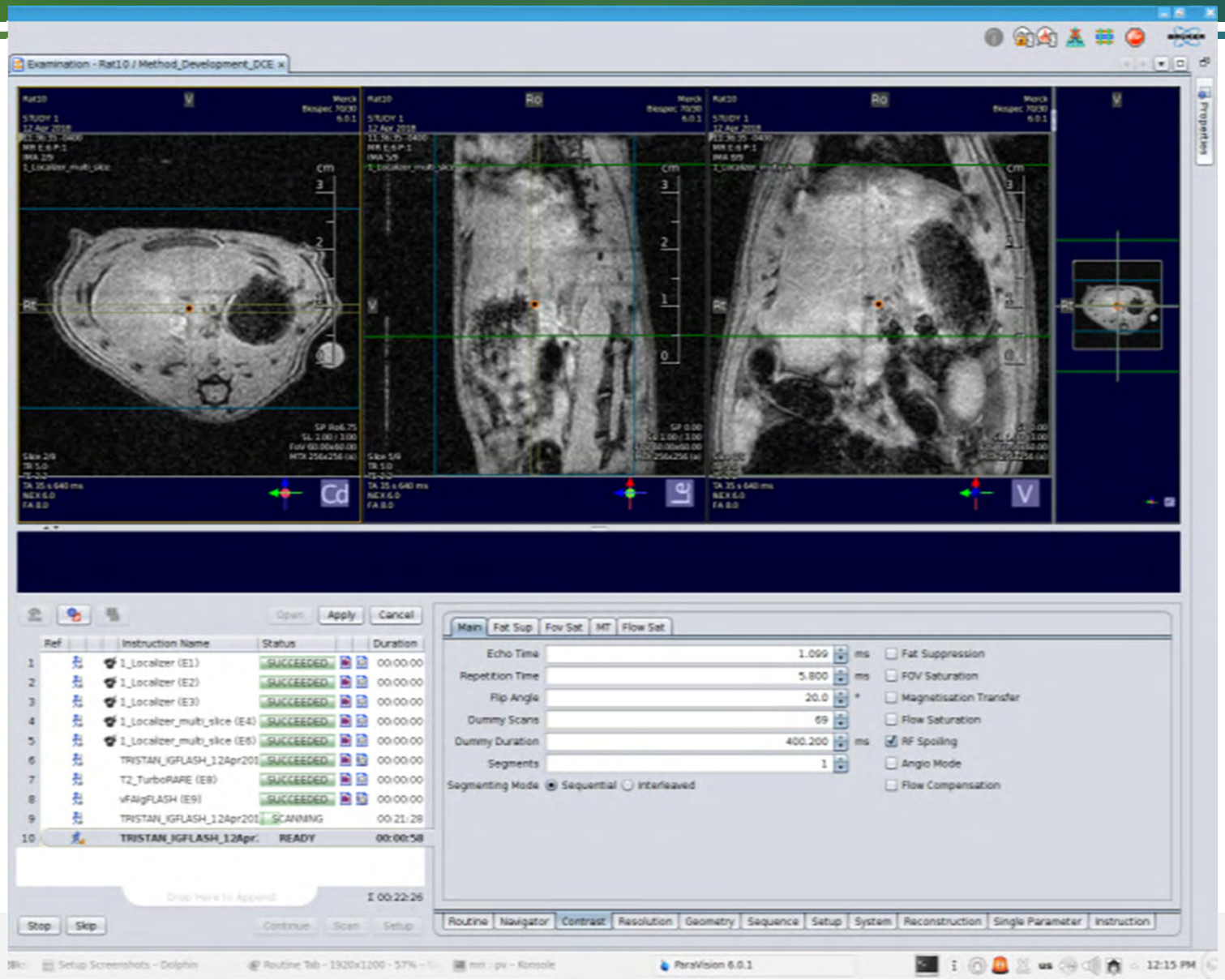


Navigator Tab #2

TRISTAN
TRANSLATIONAL IMAGING IN DRUG SAFETY ASSESSMENT



Contrast Tab



Resolution Tab

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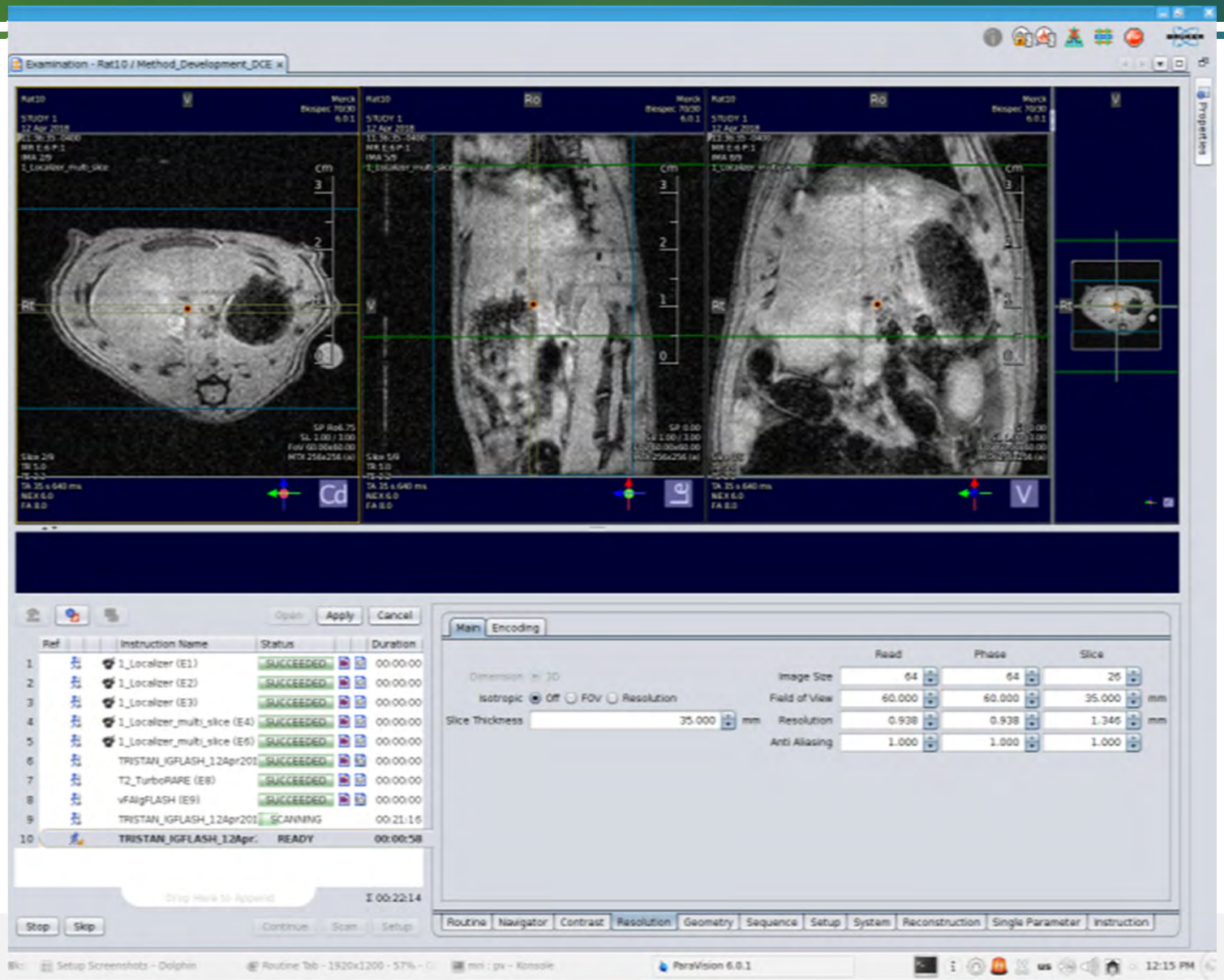
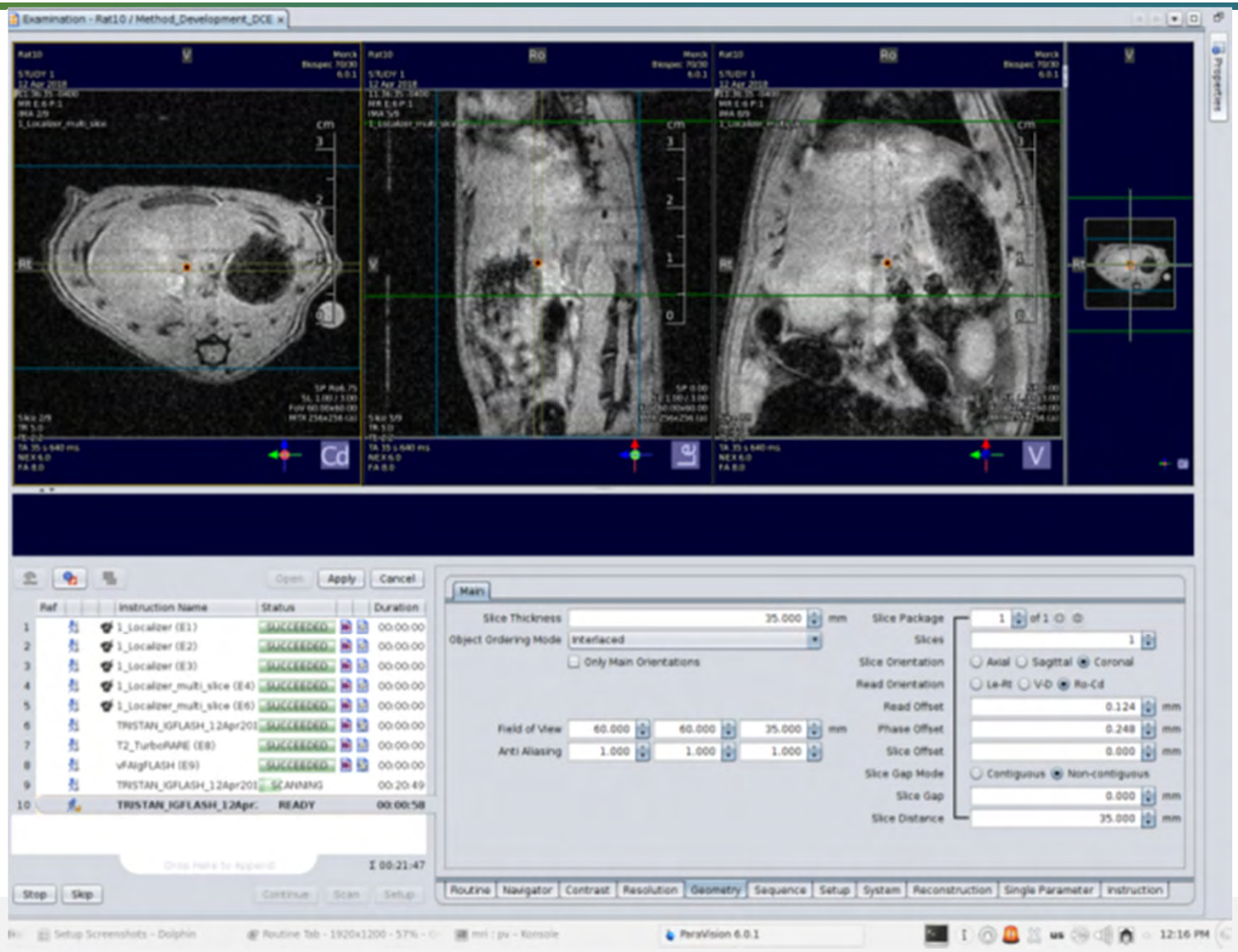
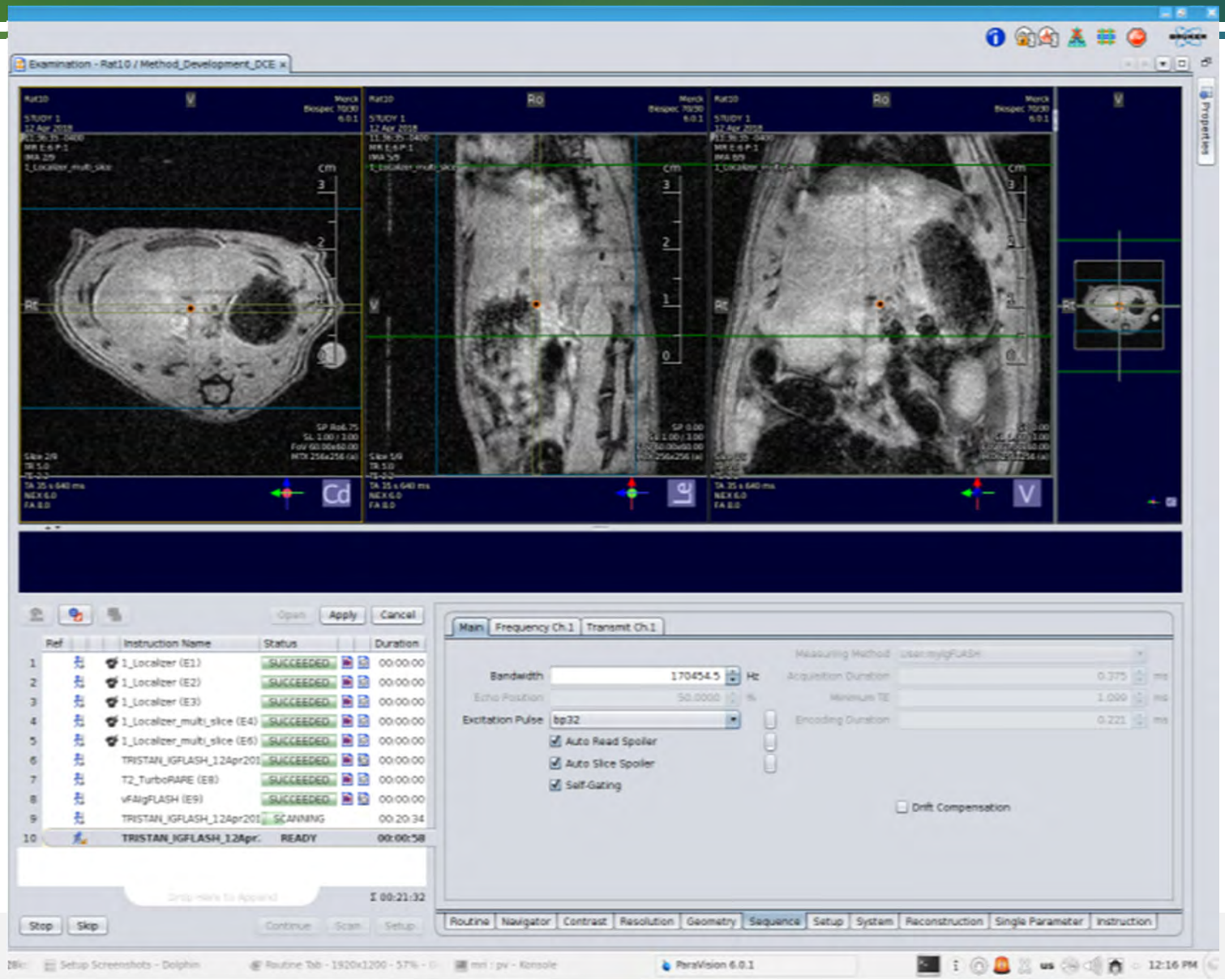


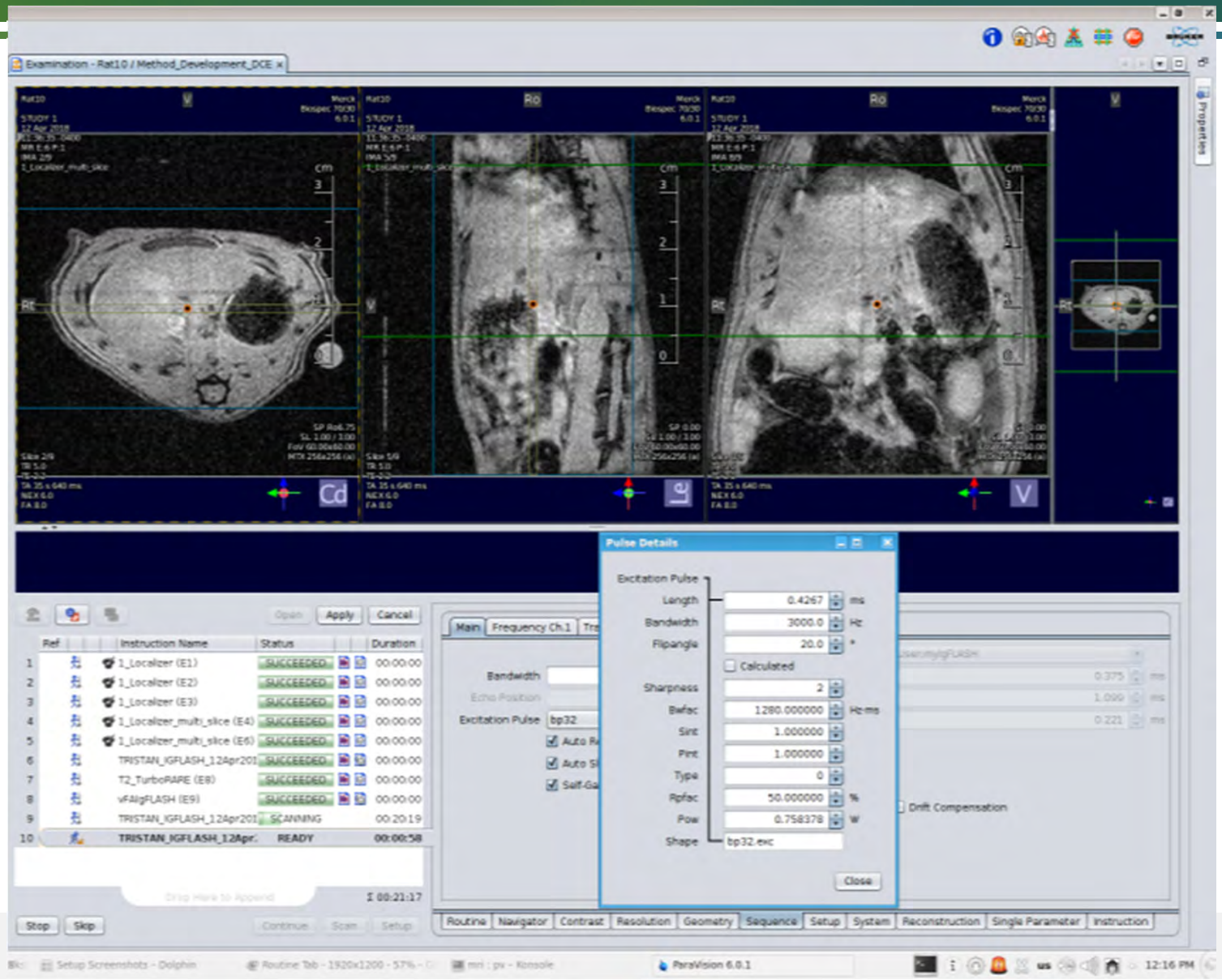
Geometry Tab



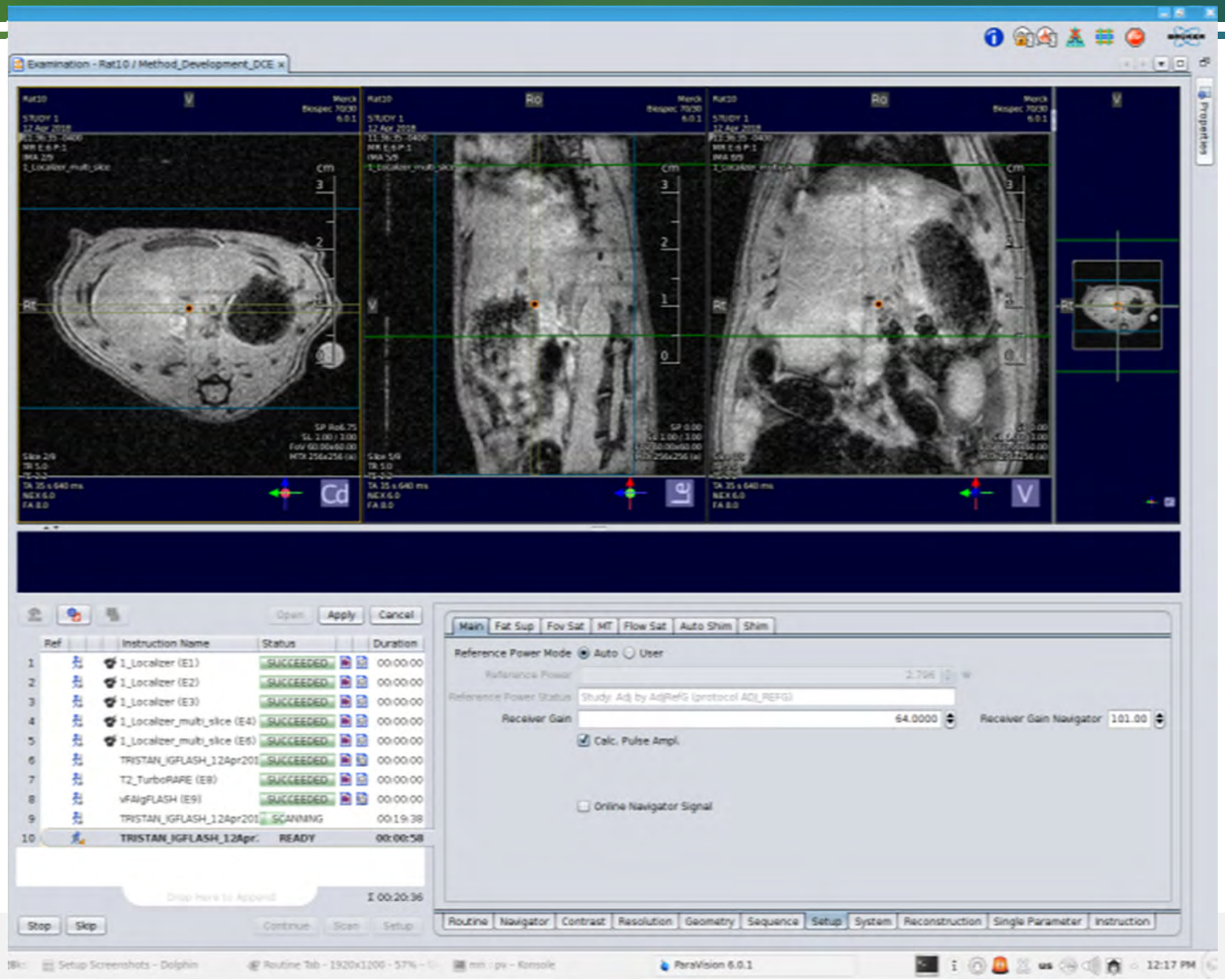
Sequence Tab #1



Sequence Tab #2



Setup Tab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Cancel
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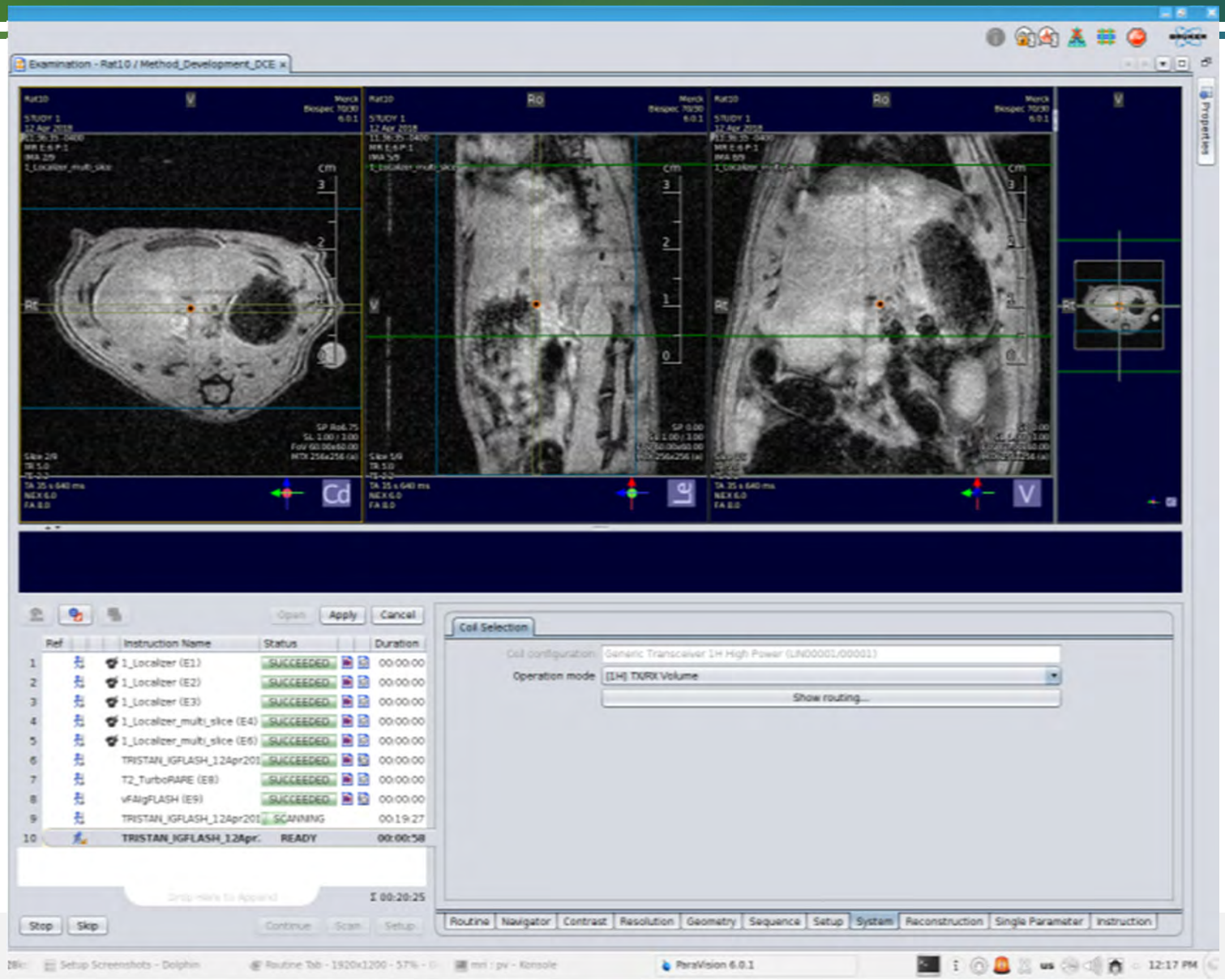
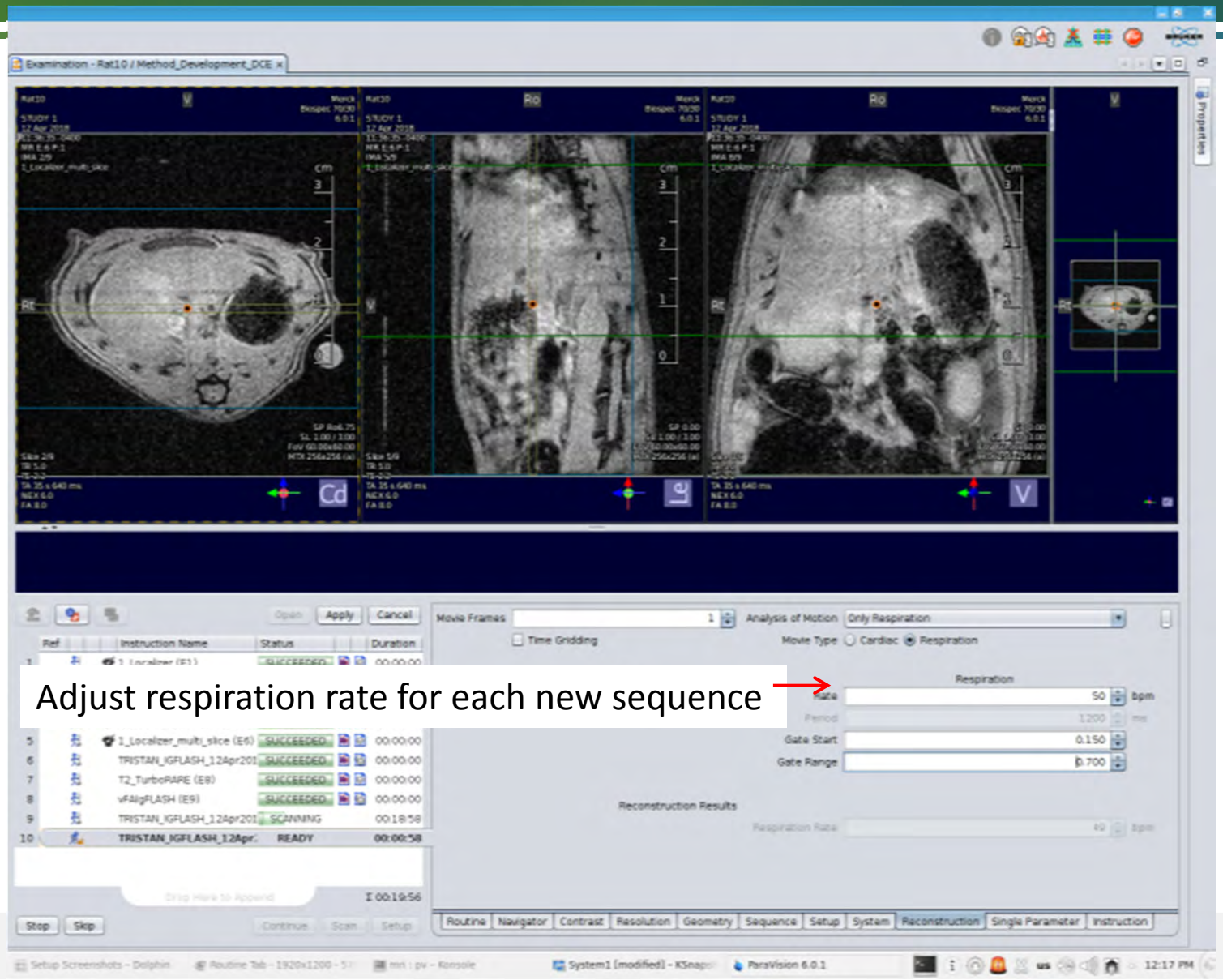
1_Localizer (E2)
1_Localizer (E3)
1_Localizer_multi_slice (E4)
1_Localizer_multi_slice (E6)
TRISTAN_IGFLASH_12Apr201
T2_TurboRARE (E8)
vFAIgFLASH (E9)
TRISTAN_IGFLASH_12Apr201
SCANNING
TRISTAN_IGFLASH_12Apr.
READY
Main
Fat Sup
Fov Sat
MT
Flow Sat
Auto Shim
Shim
Reference Power Mode
Auto
User
Receiver Gain
64.0000
Receiver Gain Navigator
101.00
Calc. Pulse Ampl.
Online Navigator Signal
Stop
Skip
Routine
Navigator
Contrast
Resolution
Geometry
Sequence
Setup
System
Reconstruction
Single Parameter
Instruction

System Tab

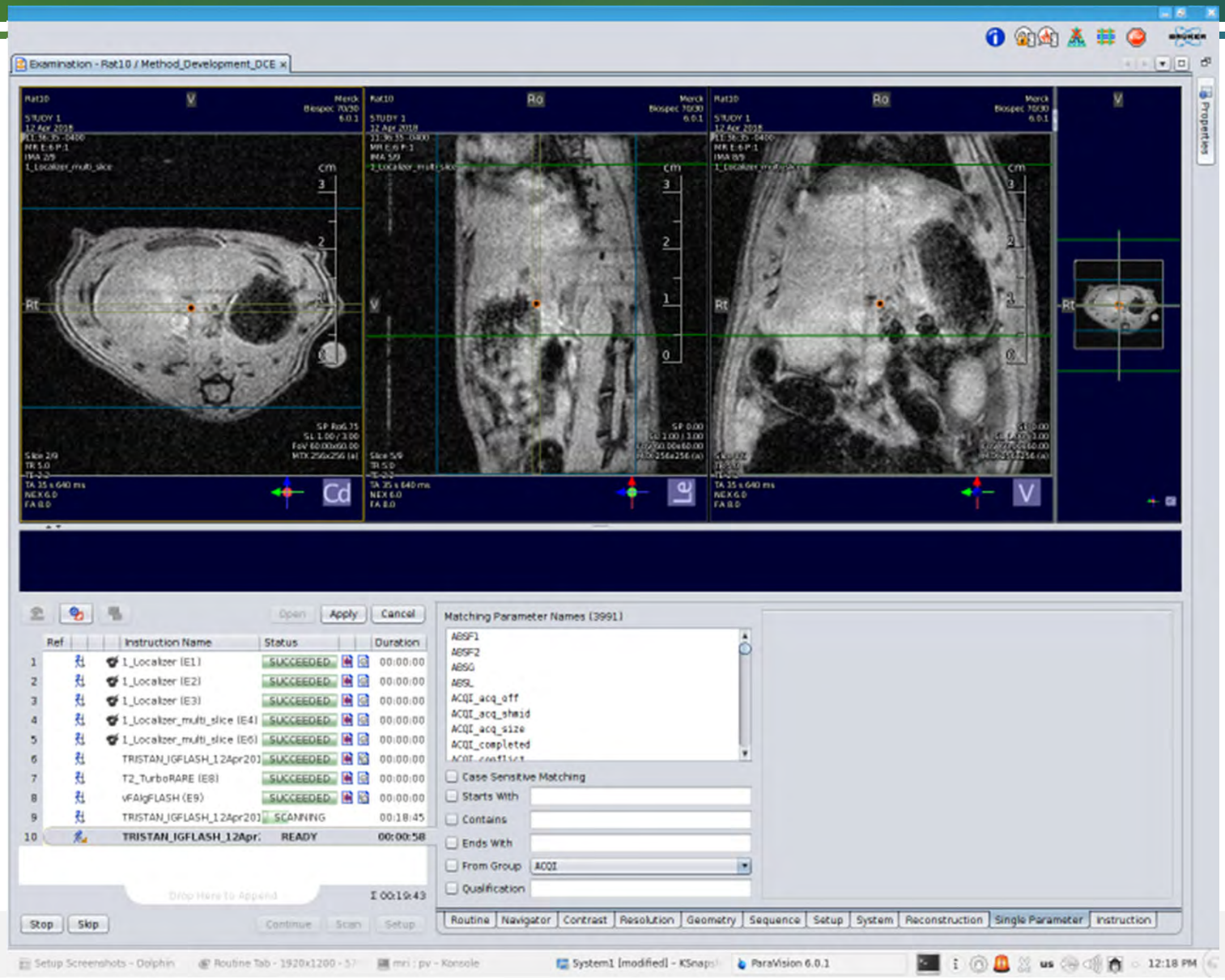
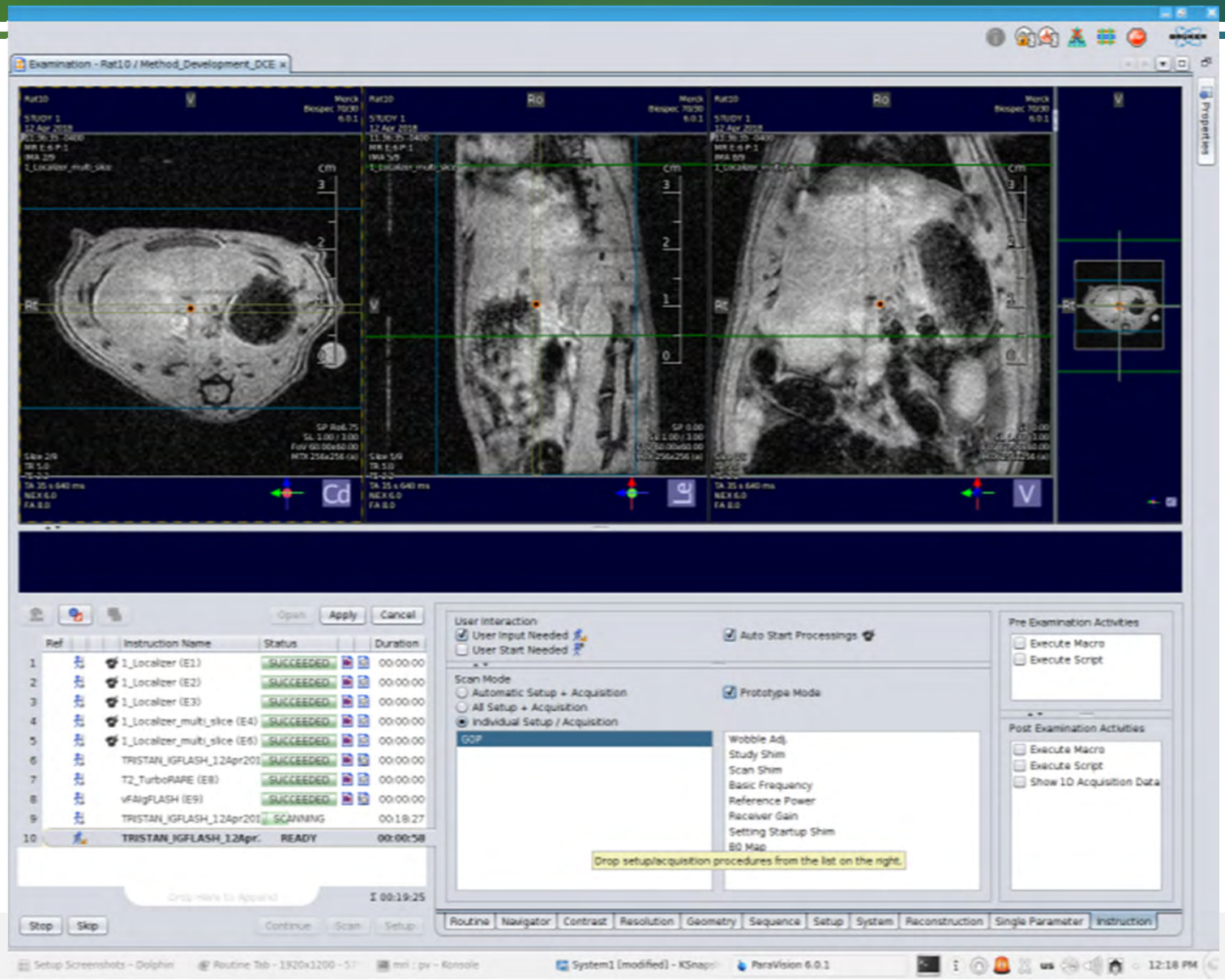

Examination - Rat10 / Method_Development_DCE
Apply
Cancel
Ref
Instruction Name
Status
Duration
1_Localizer (E1)
1_Localizer (E2)
1_Localizer (E3)
1_Localizer_multi_slice (E4)
1_Localizer_multi_slice (E6)
TRISTAN_IGFLASH_12Apr201
T2_TurboRARE (E8)
vFAIgFLASH (E9)
TRISTAN_IGFLASH_12Apr201
SCANNING
TRISTAN_IGFLASH_12Apr.
READY
Coil Selection
Operation mode
Show routing...
Stop
Skip
Routine
Navigator
Contrast
Resolution
Geometry
Sequence
Setup
System
Reconstruction
Single Parameter
Instruction

Reconstruction Tab



Adjust respiration rate for each new sequence

Single Parameter Tab



Instruction Tab