

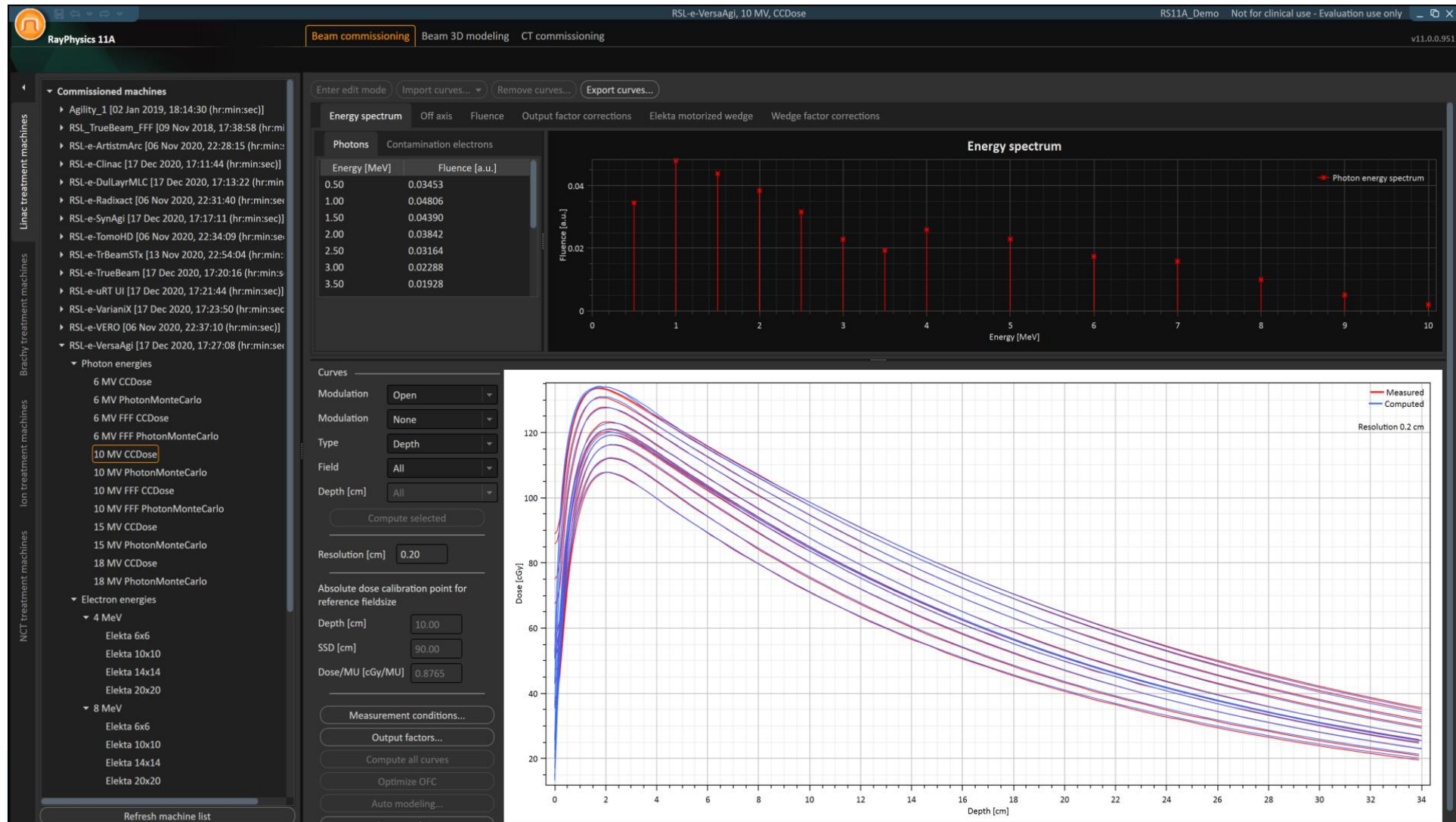
ADVANCING
CANCER
TREATMENT

RAYPHYSICS INTRODUCTION

RayStation 11B



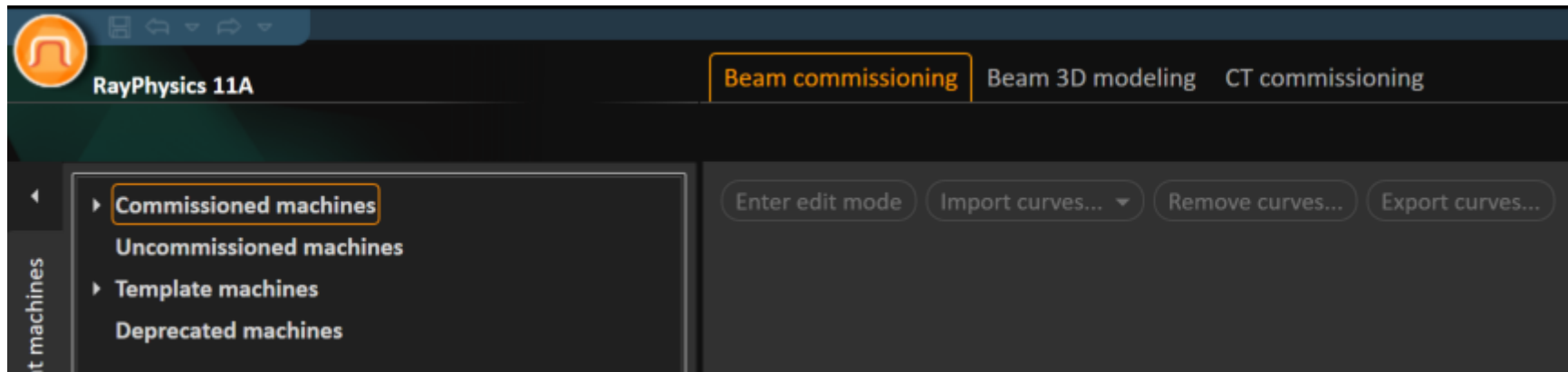
RAYPHYSICS APPLICATION



MODULES

3 workspaces:

- Beam Commissioning module
- Beam 3D Modeling module
- CT Commissioning module



EDUCATIONAL MATERIAL

MODULES

Beam Commissioning module

- Creating a virtual linac that can be used for treatment planning in RayStation
- Defining general machine constraints used during planning
- Adapt beam model to measured data by adjusting model parameters

Beam 3D Modeling module

- QA phantom handling
- Test fields

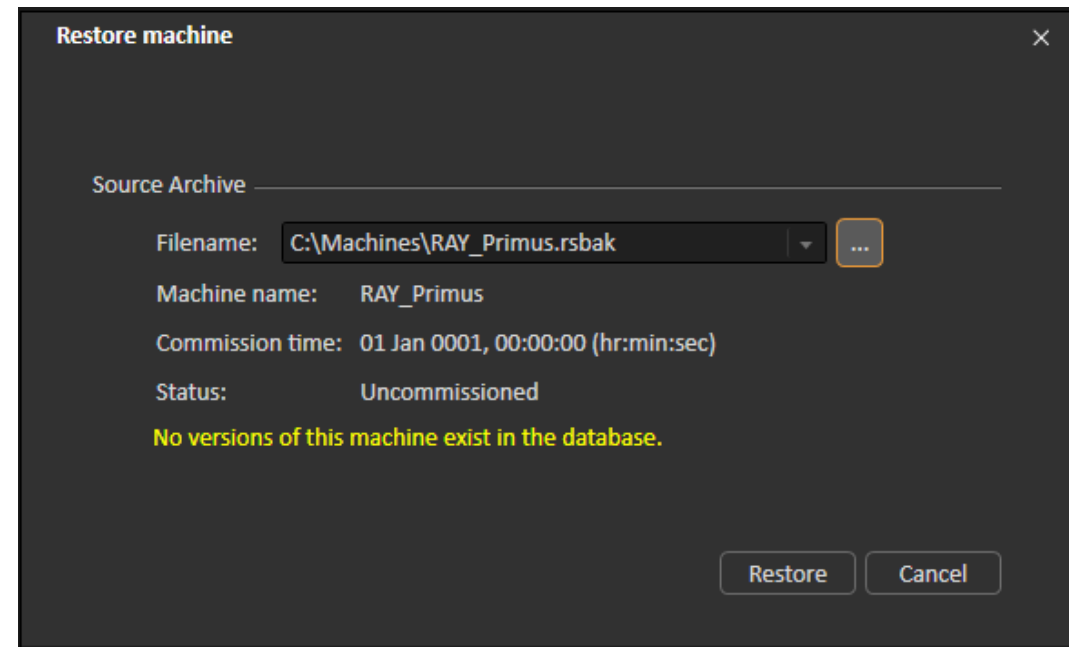
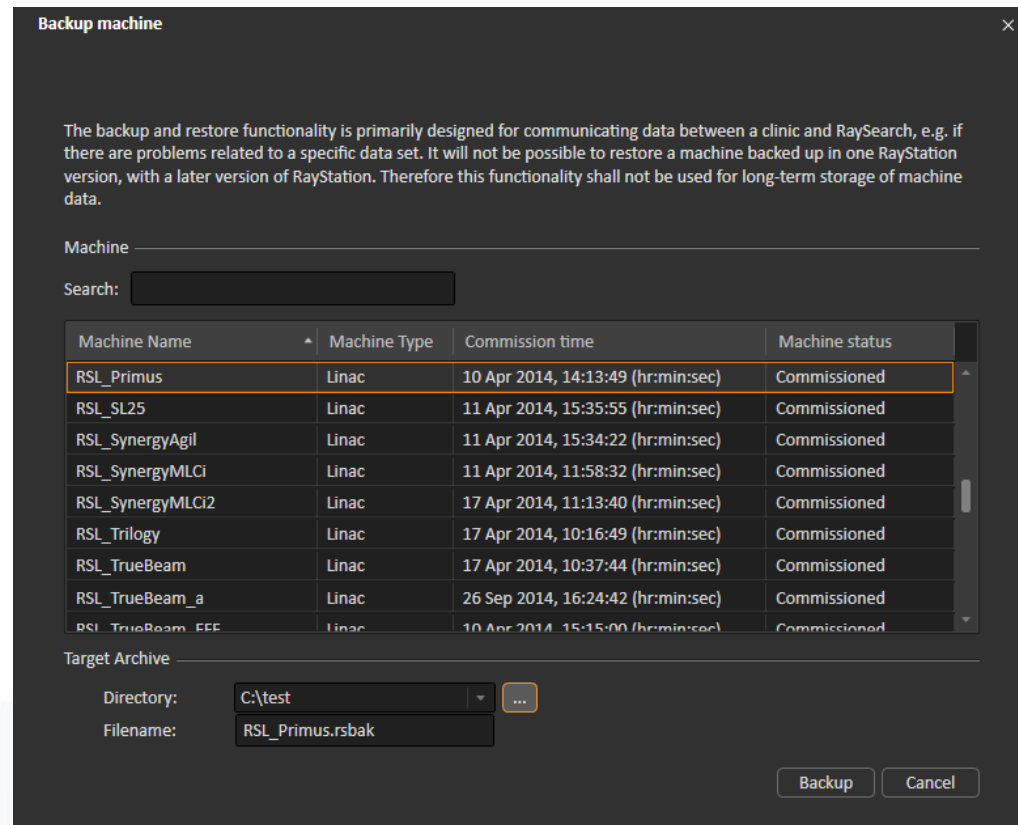
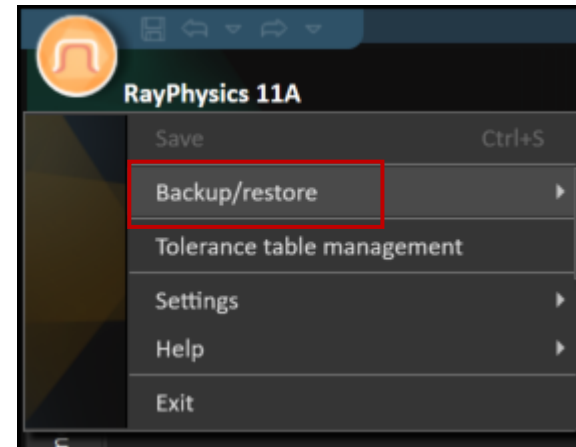
CT Commissioning module

- Commission CT and CBCT machines

EDUCATIONAL MATERIAL

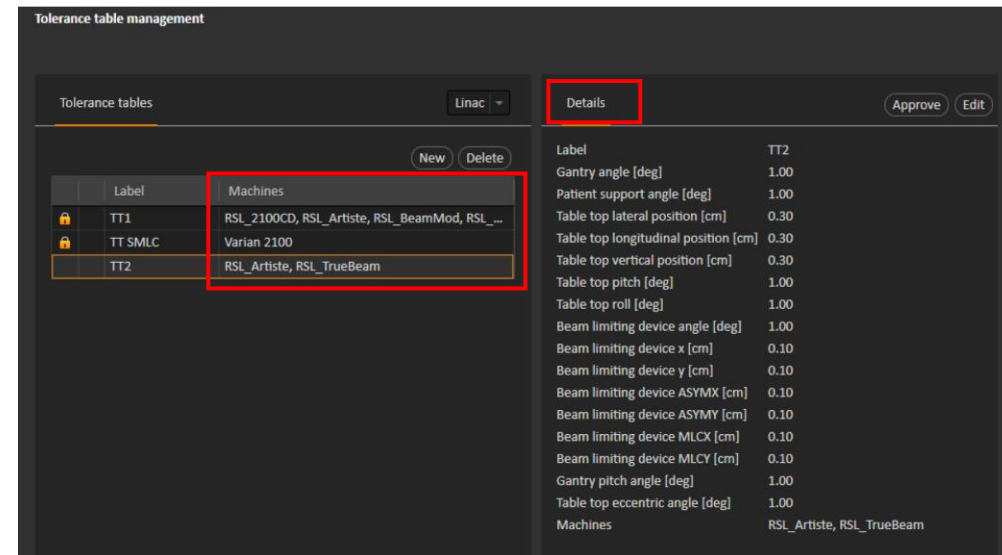
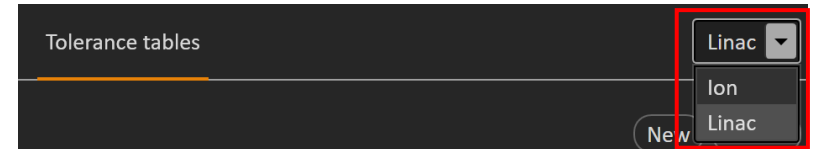
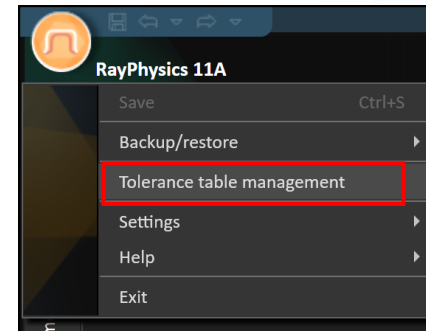
BACKUP AND RESTORE

- Backup and Restore functionality
- Used primarily for communicating data



TOLERANCE TABLE MANAGEMENT

- It is possible to administrate tolerance tables from RayPhysics.
- Tolerance tables are defined separately for Ion and C-arm linacs.
- By selecting on a tolerance table (TT), users will be able to see for which treatment machine that TT is available for as well as the details of the desired tolerance.
 - One TT can be associated to multiple machines
 - One machine can have multiple TTs associated to it



TOLERANCE TABLE MANAGEMENT

Create or Edit a tolerance table:

1. Select the type of machine modality:
Linac or **Ion**
2. Click the **New** or **Edit** button
3. Edit the desired tolerances. Select which treatment machines the tolerance table should be available for.
4. **Save** or **Cancel** the changes
5. For tolerance table to be available for use in RayStation, click the **Approve** button.

Tolerance table management

Tolerance tables

Linac

New Delete

Label	Machines
TT1	

Details

Approve Edit

Label Machines

TT1

Details

Label TT1

Gantry angle [deg]

Patient support angle [deg]

Table top lateral position [cm]

Table top longitudinal position [cm]

Table top vertical position [cm]

Table top pitch [deg]

Table top roll [deg]

Beam limiting device angle [deg]

Beam limiting device x [cm]

Beam limiting device y [cm]

Beam limiting device ASYMX [cm]

Beam limiting device ASYMY [cm]

Beam limiting device MLCX [cm]

Beam limiting device MLCY [cm]

Gantry pitch angle [deg]

Table top eccentric angle [deg]

Machines

- ☐ Agility_1
- ☐ RSL_TrueBeam_FFF
- ☐ RSL-e-ArtismArc
- ☐ RSL-e-Clinac
- ☐ RSL-e-DuLLayrMLC
- ☐ RSL-e-SynAgi
- ☐ RSL-e-TrBeamSTx
- ☐ RSL-e-TrueBeam
- ☐ RSL-e-uRT UI
- ☐ RSL-e-VarianIX
- ☐ RSL-e-VERO
- ☐ RSL-e-VersaAgi
- ☐ RSL-e-VersaCone

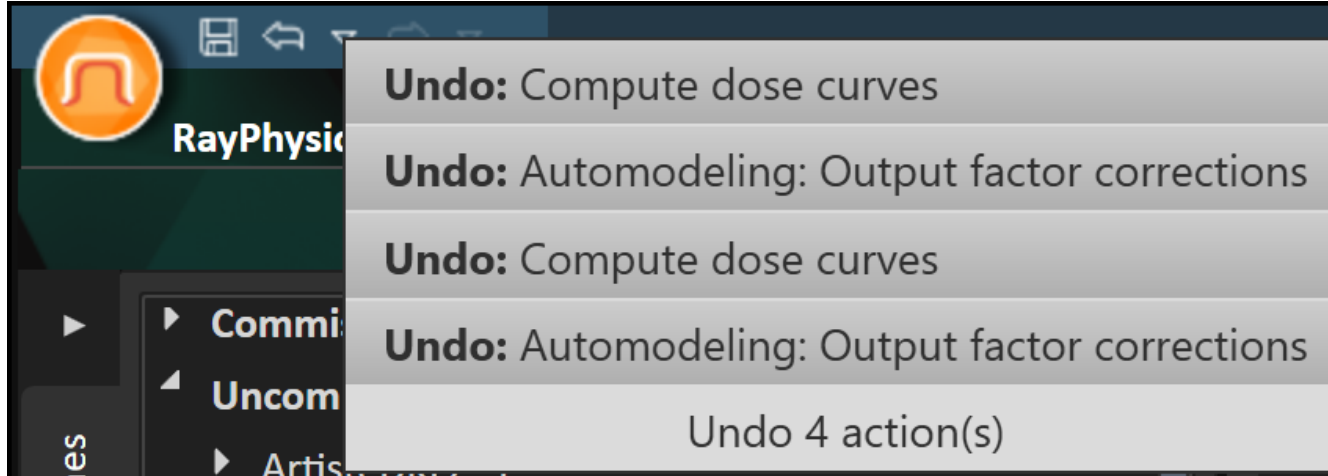
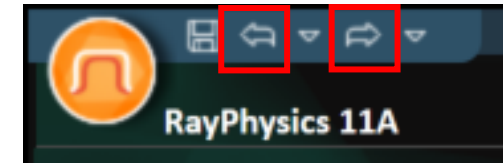
Save Cancel

TOLERANCE TABLE MANAGEMENT (FOR RAYTREAT USERS)

- For users of RayTreat 4B onwards, it is possible to administrate tolerance tables from RayPhysics. For further information, refer to the Tolerance table management section in the *RSL-D-RS-XXX-RTIFU*, *RayStation XXX RayTreat XX Instructions for use manual*.

EDUCATIONAL MATERIAL

UNDO/REDO BUTTON



- The Undo button will allow you to always undo actions taken during modelling.
- When you press “save” or leave “Edit mode”, the undo/redo stack is emptied.
- The undo button is also available when working in RayStation
- Shortcut:
 - Undo: Ctrl-Z
 - Redo: Ctrl-Y

USEFUL SHORTCUTS

- A – Auto-zoom all curves
- CTRL-C – Copy plot to clipboard
- CTRL+ALT+R – Write plot report to clipboard
- CTRL-V – Paste plot or plot report to external document

- CTRL-D – Compute all curves

- CTRL-W – Optimize OFC

Curves

Modulation

Type

Field size [cm]

Depth [cm]

Resolution [cm]

Absolute dose calibration point for reference fieldsize

Depth [cm]

SSD [cm]

Dose/MU [cGy/MU]

GPU SETTINGS

- Computation of CC, MC photon and proton dose, carbon and helium Ion PB dose and Deformable Registrations are done using GPU
 - Photon contamination part of Electron MC dose calculation also done on GPU
- GPU settings is only available from the RayPhysics and RayStation menu
- Select which GPUs to use for computation if there are more than one GPU installed in the computer
 - Note: Not all GPUs are supported for computations
- It is possible to restrict the number of GPUs that should be used for a single computation
 - Multi-GPU computation is only supported for proton and photon Monte Carlo dose computation

