

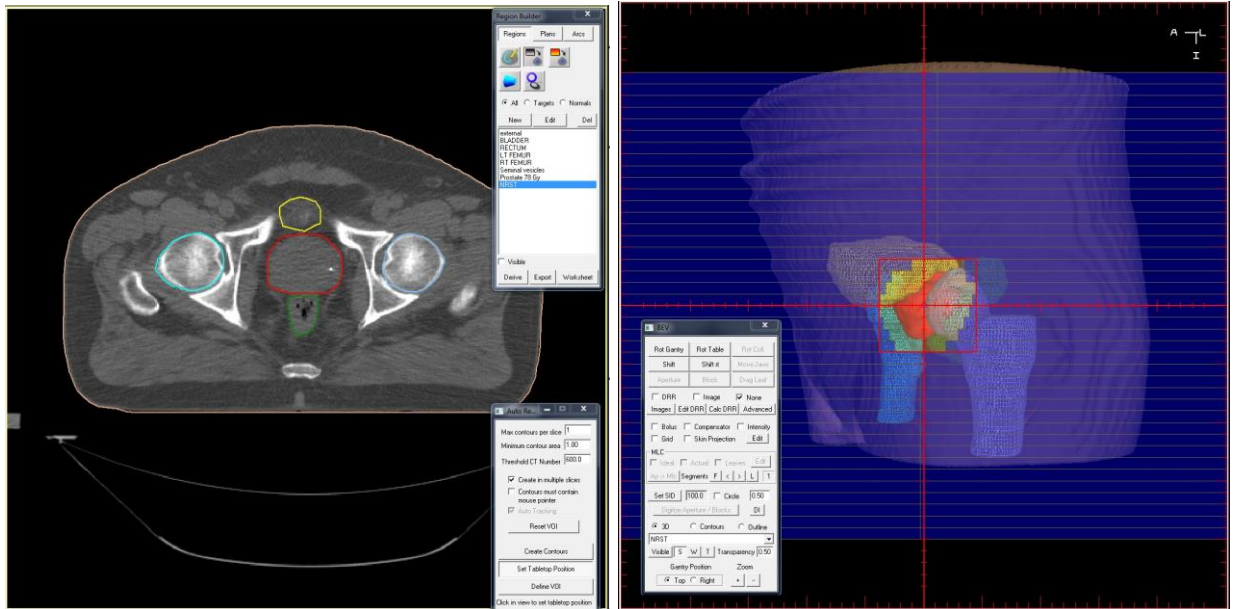
ODYSSEY®



Intuitive Treatment Planning

System Overview

Intuitive Treatment Planning Software



Odyssey is an intuitive, comprehensive, and powerful treatment planning software. Initially designed by clinical users for proton treatment planning, Odyssey also offers users photon and electron support. The single-screen user interface allows for quick and easy access to proton, photon, electron, Stereotactic Radiosurgery (SRS), Intensity-Modulated Radiation Therapy (IMRT), Virtual Simulation, Image-Guided Radiation Therapy (IGRT) and Intensity-Modulated Arc Therapy (IMAT) planning.

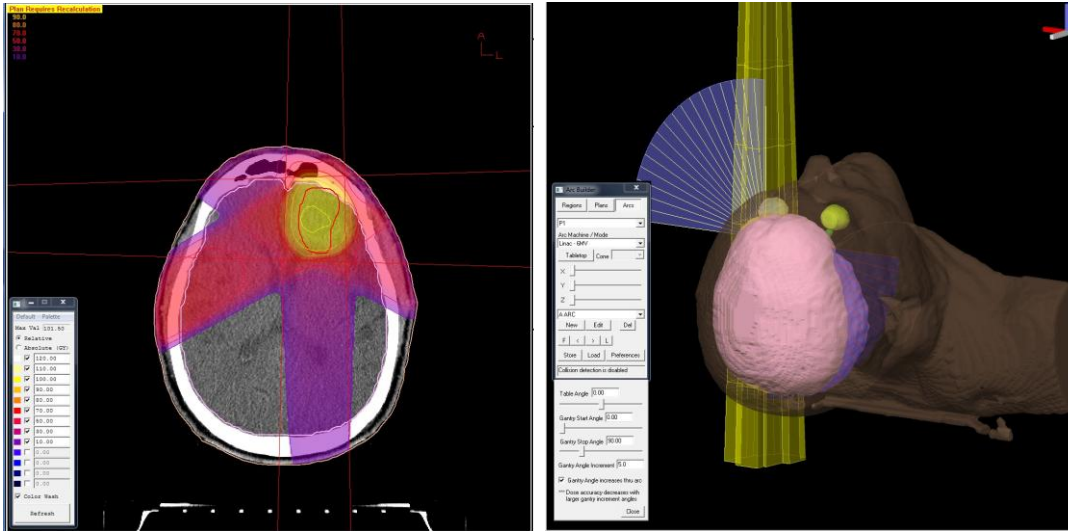
Key Customer Benefits

- **Cost Effective** – Odyssey planning software can often be obtained for the cost of other planning systems' annual maintenance fees.
- **Highly Intuitive** – Single-screen user interface allows for quick and easy access to proton, photon, electron, SRS, IMRT and IGRT planning.
- **User Customizable** – Odyssey's user designed interface results in high user satisfaction as well as high patient throughput.
- **Built for Networking** – Odyssey allows for multiple networking options such as Citrix and Remote Desktop.
- **PC-Based** – Odyssey is compatible with Windows XP, Vista and Server operating systems, allowing for flexible customer deployment options.

Odyssey's remote planning capabilities allow for fast and secure planning from any location. The Radiation Oncologist is able to review, contour and evaluate patient studies from within the clinic or from any location with high-speed internet access.

PerMedics is continually collaborating with various organizations, including Loma Linda University Medical Center and engineering teams at California State University, San Bernardino, to provide innovative and intuitive tools for treatment planning.

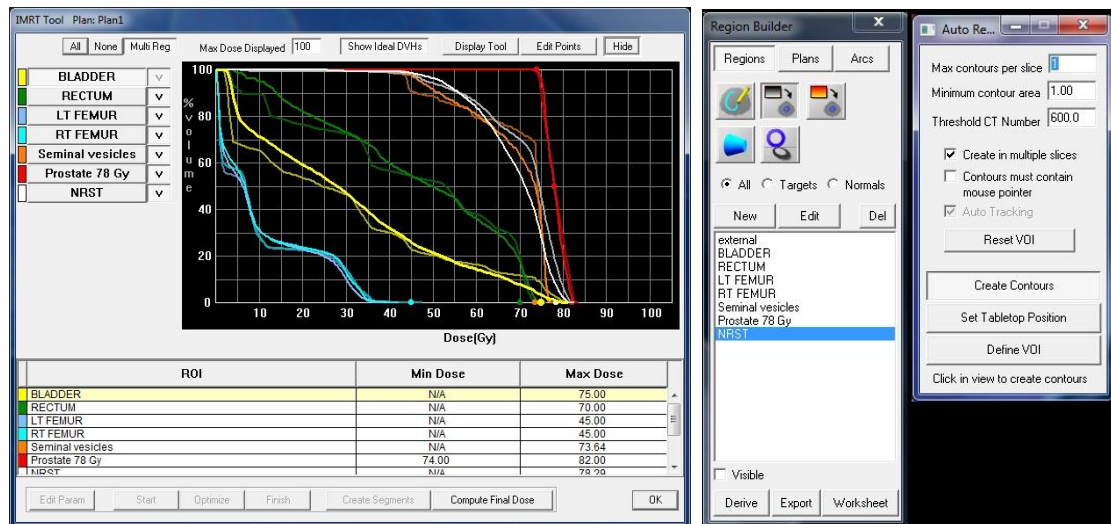
Core Features



Odyssey's standard features include the following:

- CT, Cone Beam CT, MRI and PET image study import (DICOM)
- Manual and Automatic study registration
- Automatic and Manual tissue contouring on both primary and alternate study
- Contour Interpolation and Region Derivation Multi-Planar Reconstruction (MPR)
- Multiple Prescription Modality
- Volumetric Prescription modality
- Multiple Isocenter Treatment Capability
- 3D Conformal plan creation tools
- Beam's Eye BEV (BEV)
- Digital Composite Radiographs (DCR) "Enhanced DRR"
- Real-Time 3D Display in Room's Eye View (REV)
- Mobile Laser System File export for Virtual Simulation support
- 3D conformal Proton, photon and electron beams
- MLC support (2-bank and 4-bank)
- Support for wedges, blocks, apertures, and bolus
- Compensation for uncertainties and organ motion
- Rapid 3D Dose Convolution Calculations in all modalities
- Scatter Convolution Dose Algorithm for photons
- Depth-dependant scatter convolution algorithm for electrons
- Synchronized image display and plan comparison
- TCP/NTCP Biological Analysis Mode
- DICOM Import and Export
- Digital Jacket DICOM 3 Server Module for image registration (including CT, MRI and PET)
- Biological model
- X-Ray Machine definition for portal images

Intuitive Tools

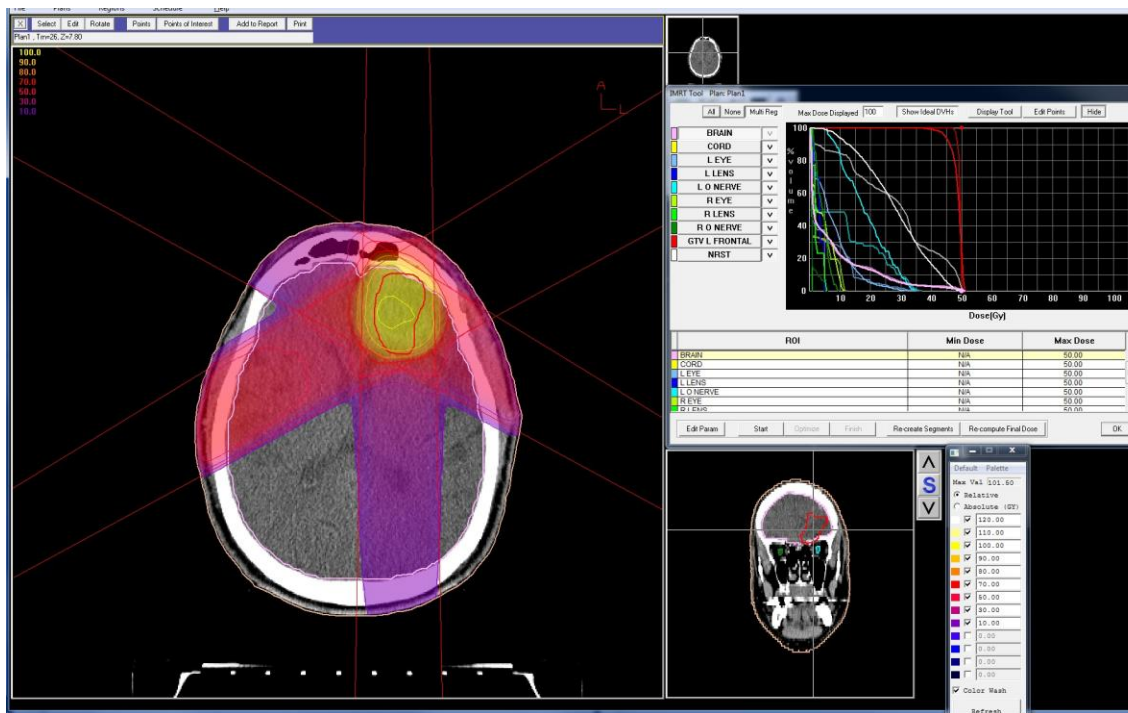


Odyssey provides a plethora of easy-to-use tools, including:

- Single-level single user interface
- Supports multiple plan comparison
- Plan/Prescription/Beam architecture
- Image and tissue volume driven
- Automated for planning efficiency
- Template-based planning
- Uncertainty compensation
- Motion compensation
- Automatic lateral and distal blocking
- Automatic range modulator selection
- IMRT for MLC, MMLC and Compensators
- Automated Custom Blocking
- Virtual Simulation
- Image Fusion

Intensity-Modulated Radiation Therapy (IMRT) and Inverse Planning

Odyssey delivers an advanced optimization algorithm and interventional tools to ensure the optimal beam requirements, as defined by clinical requirement input. Comparison of deliverable DVH to planned DVH allows the user to determine if the delivery device and segmentation/sequencing are optimal for that target and patient. Odyssey offers user-definable segmenting and constraints, allowing for plan “complexity” control resulting in increased efficiency—as well as efficacy—of delivery. The speed of Odyssey’s intuitive planning process allows the clinician time to review multiple strategies and determine the optimal treatment parameters



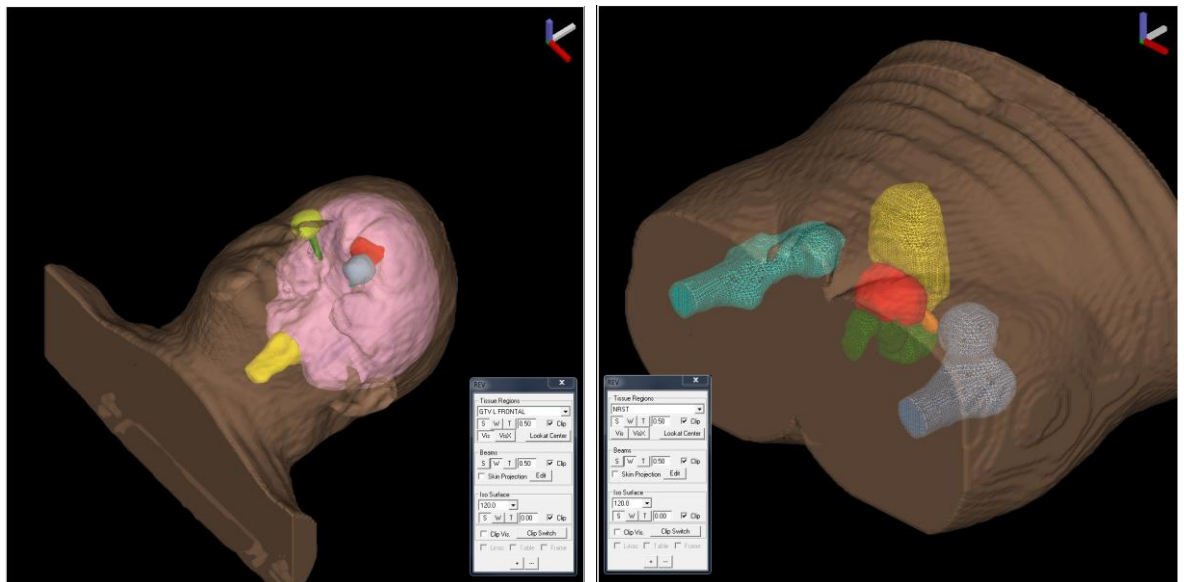
PerMedics has explored many different delivery systems for IMRT and will continue to develop interfaces to those systems as desired by our users and prospects. Unique techniques of planning and segmenting are in development to ensure the best and most efficient path of leaf travel for MultiLeaf Collimators. Evolution of these processes will ensure solutions closest to the "optimized" dose.

Odyssey provides many robust features for IMRT planning and optimization, including:

- Inverse Planned IMRT creation tools
- DVH Based Tissue constraints definition tools
- DVH-driven optimized Intensity map creation and display
- MLC Segment Creation / Display
- DVH comparison (ideal vs. segment-based dose distribution)
- Segment export (DICOM RT Plan, RTP link)
- Conformal plus IMRT prescription as well as multiple
- IMRT prescriptions support
- Secondary Target definition
- Automatic artificial structure definition to inhibit "hot spots"

Forward Planning and Virtual Simulation

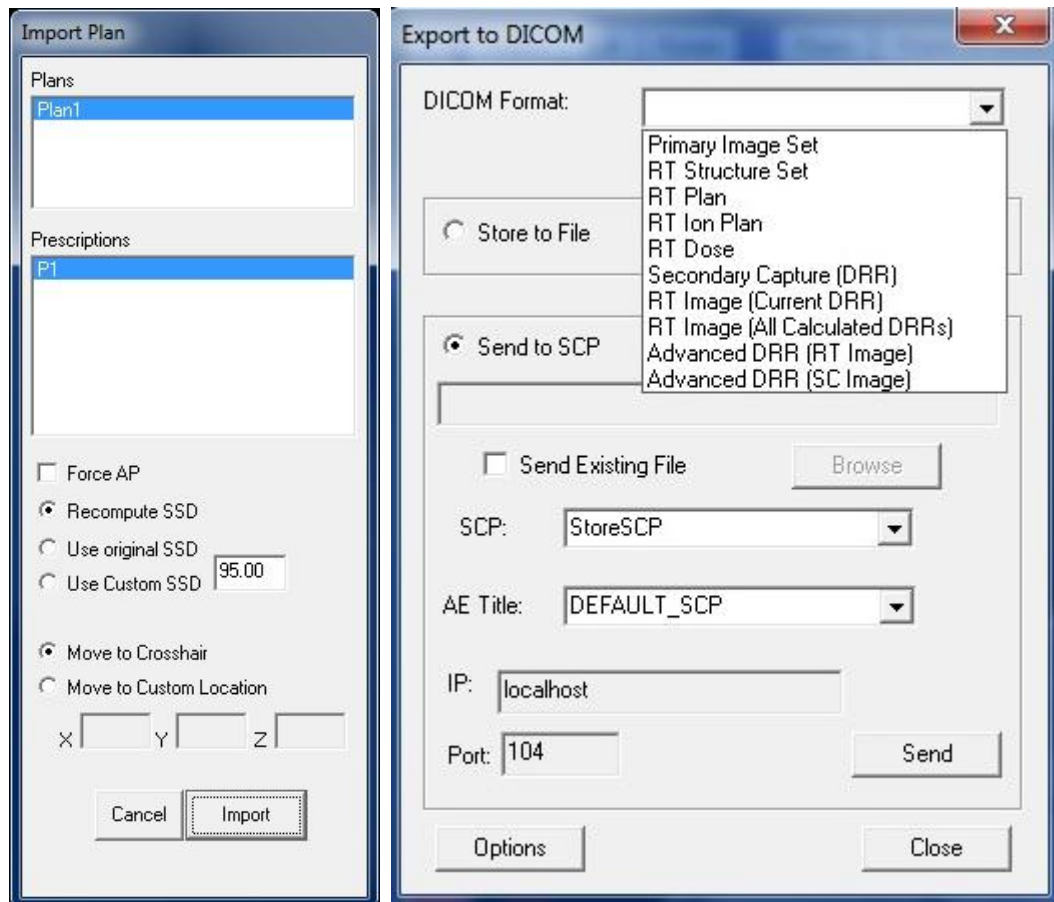
Odyssey possesses advanced CT simulation tools, which are imbedded within the basic planning system. The user can quickly simulate the patient setup with these high performance tools. Beyond Digitally Reconstructed Radiographs (DRR), Odyssey allows for multi-tissue opacity enhancement through Digital Composite Radiograph (DCR). These images can then be output to a variety of printers for hardcopy.



Advanced forward planning tools in Odyssey host connectivity to commercially available laser systems on rails that position to relative orientations from virtual planning to the patients' surface.

Odyssey was developed to be modular and work within a network environment allowing for unique functions to be hosted at specified nodes while allowing a flow of patient planning data to process down the clinical pipeline.

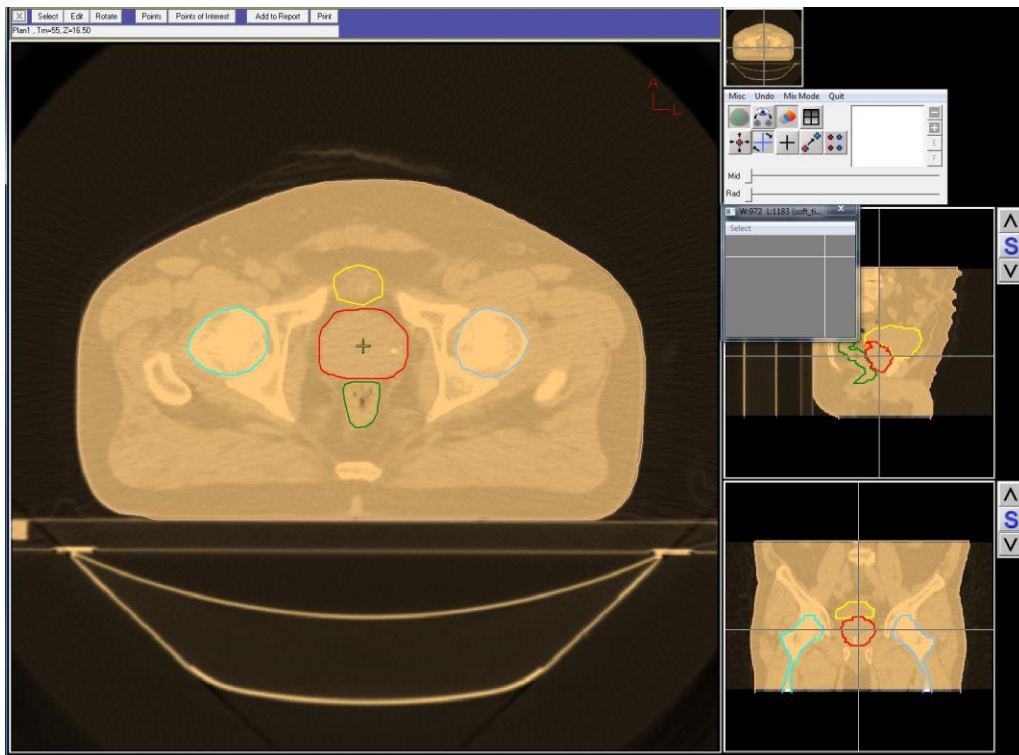
Quality Control



Exporting dose maps and DICOM RT Dose are invaluable tools for Quality Control in complex IMRT planning and delivery. Odyssey provides the user with the capability to import calculated plans to a selection of preferred phantoms, allowing for absolute and relative dose comparison and verification. Odyssey sends dose maps to several commercial Quality Control systems, integrating and simplifying treatment plan “relative” and “absolute” dose parameters. Export of the dose maps is essential to verify planning to deliverable doses.

PerMedics believes that planning and verification are integral parts of quality radiation therapy delivery. Odyssey is designed to make this process as seamless, safe, and efficient as possible through integration and validation with effective Quality Control systems.

Image Fusion



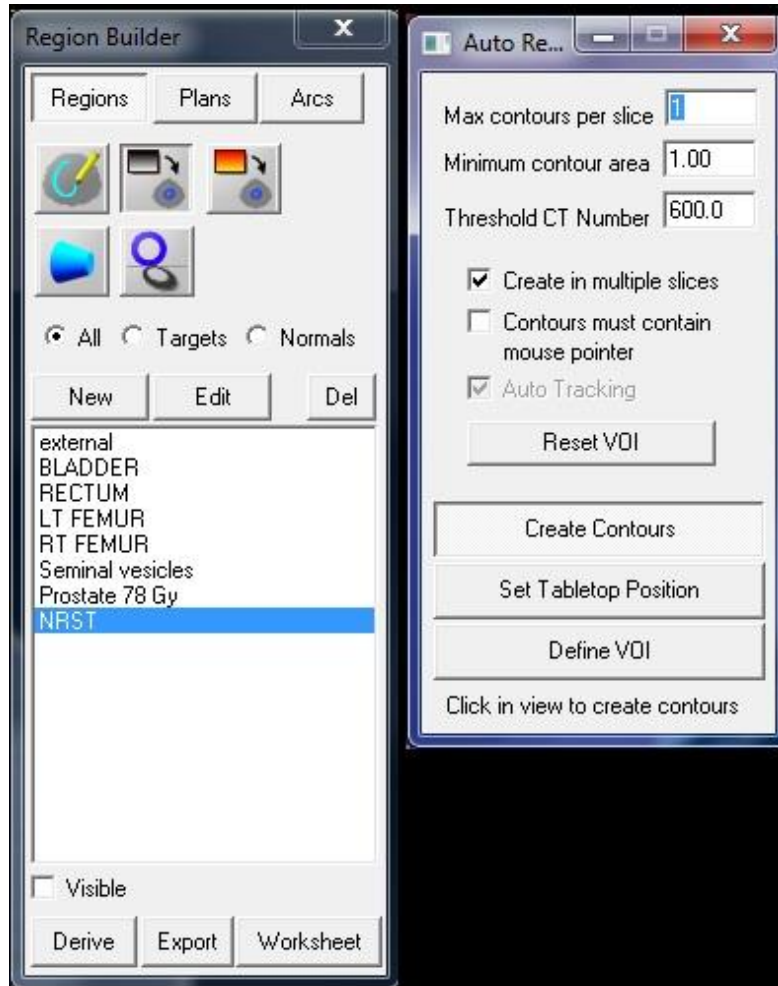
Many of the most significant advancements in oncology have been related to diagnostic imaging. The ability to identify probable malignancies with studies from PET has helped in the early detection of several tumor pathologies.

PerMedics has recognized the value of these studies and how they relate to the localization and treatment for more definitive radiotherapy.

Unlike automatic processes, where errors are common due to motion and position changes in each study, our systems allow the user to utilize studies with differing fixation systems and from varied times and places. These processes also give the clinician the tools and the confidence needed to perform precise target definitions. The target contours, as well as other critical structures, can be delineated on alternate studies and transposed onto the primary study.

Odyssey can import CT, MRI and PET studies in DICOM format. Treatment Planning can be performed on MRI if clinically accepted and where inhomogeneities are of no consequence.

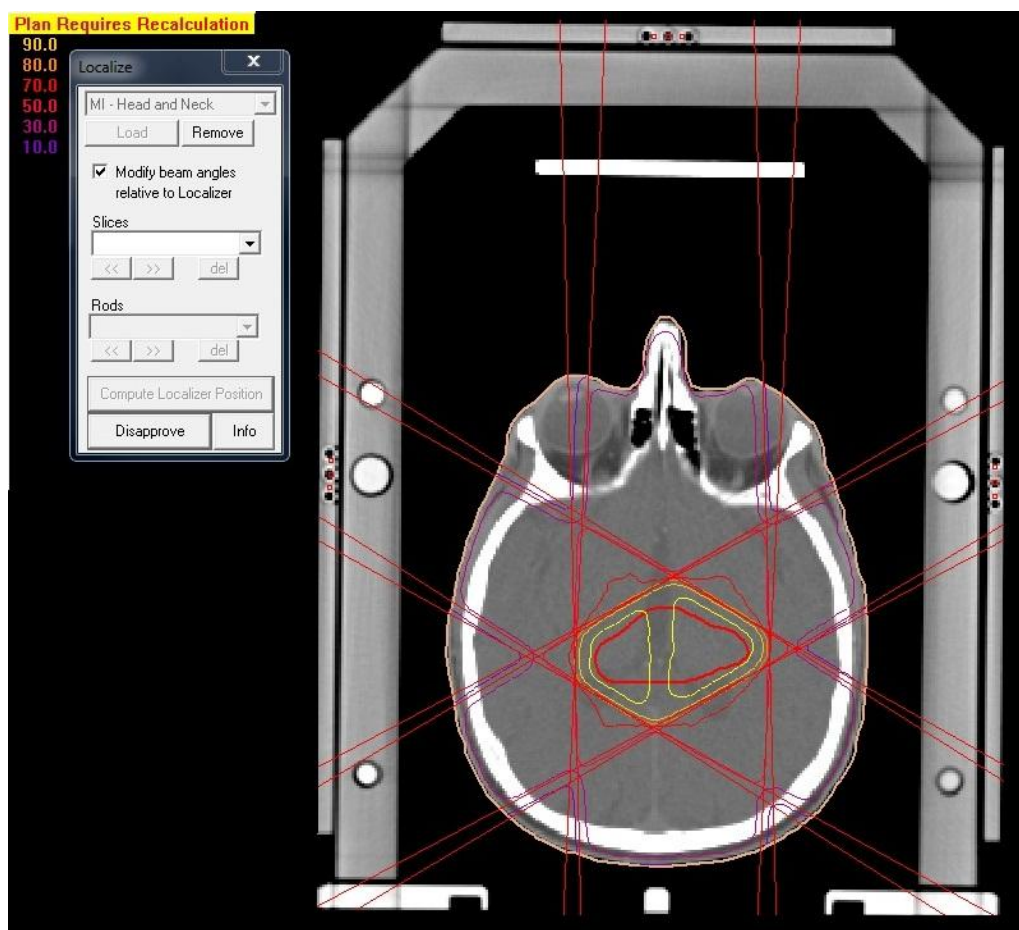
Advanced Localization and Contouring



Odyssey adheres to the industry ICRU specifications to ensure CTV, PTV and GTV regions are easily created. Motion and fixation uncertainties can be accounted for in 6 degrees of margining. Creation of bifurcated structures, such as Bronchus and Seminal Vesicles, can be easily performed and evaluated. Multiple Targets can also be created allowing for up to 6 targets within a single contour. This offers better visualization, optimization, and evaluation.

Stereotactic Radiosurgery

Odyssey Stereotactic Radiosurgery software is the combination of Fiducial Localization and Dynamic Arc Therapy Modules. The first module supports most SRS head-frames and SBRT frames, which allows for stereotactic localization of more complex intracranial and extracranial treatment sites. The second module allows planning for a fast and highly accurate delivery in dynamic fashion.



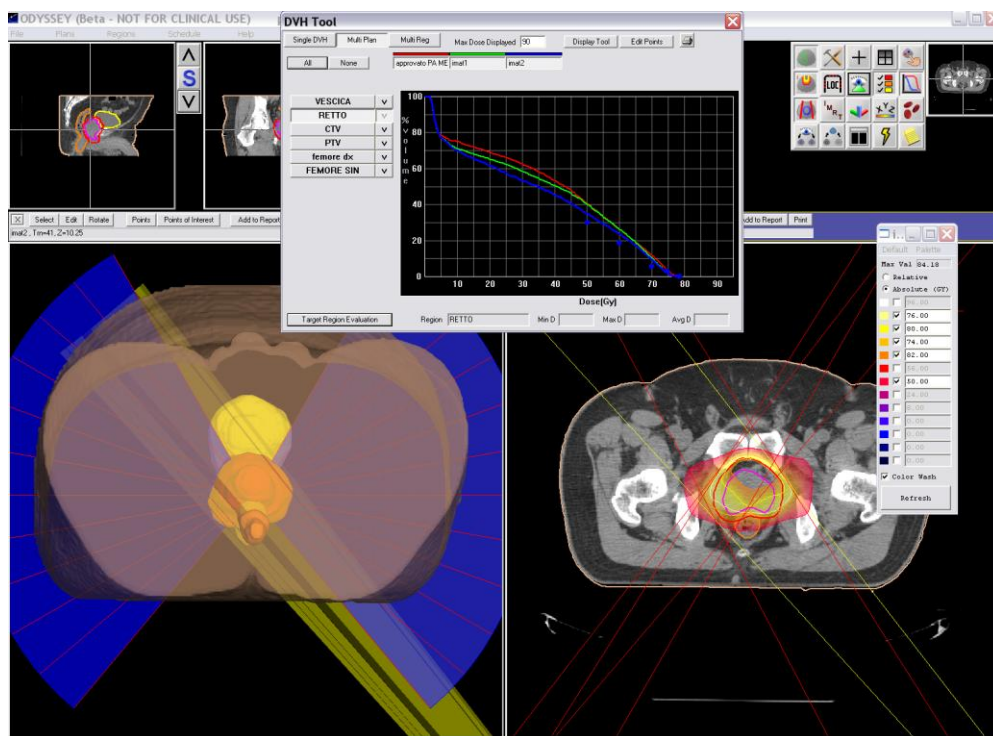
Odyssey's fiducial localization module offers the following capability:

- Fiducial Localization module
- Support of Static SRS delivery
- MLC, MMLC, and cone beam support
- Fiducial Localization Registration Module for Stereotactic Localization Systems
- Frame Misalignment correction
- Dynamic Arc Therapy module
- MLC (2-bank and 4-bank) and cone based arc beam support

Intensity-Modulated Arc Therapy (IMAT) Planning

Odyssey's Dynamic Machine Parameter Evaluation (DMPE) allows treatments to be delivered in uninterrupted sweeping arcs. Machine parameters are precisely controlled within these arcs to insure the optimum dose delivery, tissue sparing and patient safety. Odyssey's flexible planning architecture allows for treatment planning and dose delivery on all modern linacs regardless of manufacturer or model.

PerMedics has continually strived to develop advanced, cost effective cancer care solutions and, once again, offers clinicians access to the most advanced cancer treatment modalities in radiation oncology.



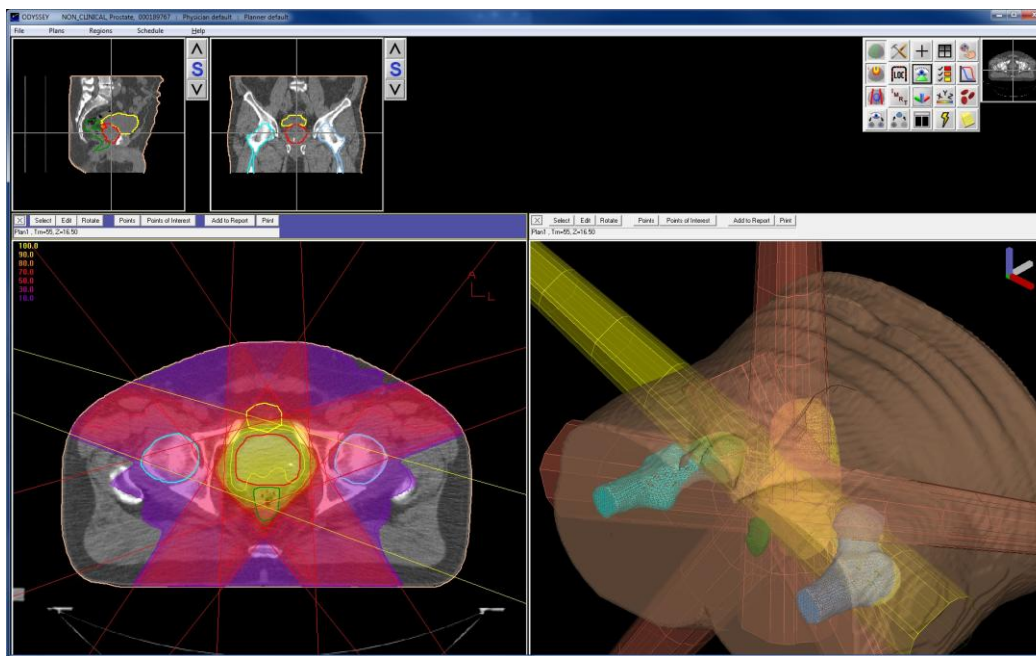
Odyssey's IMAT module offers the following features:

- IMAT Plan creation tools
- DVH Based Tissue constraint definition tools
- Automatic multiple arcs creation tools
- Integrated or add on MLC (2-bankS and 4-bankS) definition
- Multiple Arc Optimization process (DVH driven optimization)
- Manual adjustment of final MUs
- Anti Collision Detection Module

Proton Therapy Treatment Planning

Odyssey (formerly OptiRad) was the first planning system in clinical use to be FDA cleared for Proton Therapy. Loma Linda University Medical Center, home to the world's first hospital-based proton treatment center, has used Odyssey for over 10,000 patient plans since 1994. Odyssey also supports combined proton, photon and electron planning.

Protons are positively charged and have a mass 1,800 times that of an electron. These characteristics allow significant control over where radiation can be delivered within the body. Unlike photons (x-rays), which deposit maximum energy near the skin surface, proton dose reaches a sharp maximum deep within the body at a point called the Bragg peak. Protons penetrate with little entrance dose and virtually no exit dose. By varying beam energy the Bragg peak can be placed at any depth within the tissue, spreading the peak over the thickness of the tumor. This allows proton radiation to be conformed to the Planning Target Volume (PTV) shape in all 3 dimensions, thereby maximizing dose to the tumor and minimizing dose to normal tissue. Proton Therapy is particularly valuable for tumors near critical structures.



Odyssey takes the following factors into consideration for proton treatment planning:

- Depth In Tissue (cm)
- Relative Dose
- Proton Bragg Peak
- Target
- 22 MV X-ray dose
- Spread Out
- Proton Peak
- spinal cord
- tumor

Lessons learned in nearly 20 years of proton patient treatments at LLUMC have been incorporated into Odyssey over time. Tools such as automatic bolus design and energy selection have continually kept Odyssey on the cutting edge of proton radiation treatment planning. In addition, Odyssey's templates, embedded workflow collaboration tools, network integration, simple user interface and unique plan/prescription/beam architecture enhance operational efficiency in high-workload radiation therapy “centers of excellence”, such as those offering proton therapy.

Current developments include the treatment of large, complex, irregularly shaped and multi-target volumes through the development of 3D Intensity Modulated Proton Therapy (IMPT), in which proton radiation is delivered to small treatment volumes as voxels or as a swept beam.



ODYSSEY®

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