mim Maestro™ unlimited

Radiation Oncology Department Solution

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Why MIM?

Leading radiation oncology centers around the world are switching to MIM® to maximize efficiency and take advantage of cutting-edge tools throughout their entire workflow.

Whether it's to unify an environment with multiple vendors or to fill the holes left by a single treatment planning system, these departments are experiencing the benefits of a best in class, vendor-neutral solution.

Having access to MIM Maestro™ throughout your department will allow you to realize the full benefits of recent advancements in treatment delivery, evaluation, and adaptation – all without increasing your workload.

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We love MIM and wouldn't know what to do without it

"We love MIM and wouldn't know what to do without it at this point. Contour CoPilot has made my life easier. It anticipates what I want to draw from slice to slice and cuts down on our physician workload. MIMcloud has made it possible for us to share our planning workload between centers located hours away."

JIM CLARKE, MD
Radiation Oncologist
Gamma West Cancer Services
St. George, Utah

Unlimited Access

When visiting our users, we noticed that many sites had calendars for scheduling time on their MIM workstations. The arrival of MIMcloudTM and remote access to the software increased the use of MIM even more. It became apparent that most of our users would benefit from additional MIM Maestro licenses.

We've responded by creating the MIM Maestro Unlimited Department Solution. Now, no matter where you are or which of your colleagues is using MIM, you'll have access to the tools you need.

The benefits are substantial. Imagine using Contour CoPilotTM (Patent Pending) on even the simplest of plans. Now, with MIM Maestro Unlimited, you don't need to worry about tying up your licenses.

PET Edge

In response to the many difficulties in performing PET tumor segmentation using visual delineation or SUV threshold tools, we developed PET Edge™, an innovative gradient-based segmentation method.

Visual tumor delineation is limited by the user's selected image contrast and level of expertise with PET, as well as variability between users. SUV threshold tools are subject to a number of limiting factors, including the tumor uptake relative to the background, heterogeneous uptake within the tumor (e.g., areas of necrosis), tumor size, and partial volume effects. PET Edge avoids all of these pitfalls by robustly identifying the boundary between tumor and background using the maximum change in SUV value.

PET Edge is the tool radiation oncologists have been waiting for to truly experience the full value of functional imaging in their treatment plans.
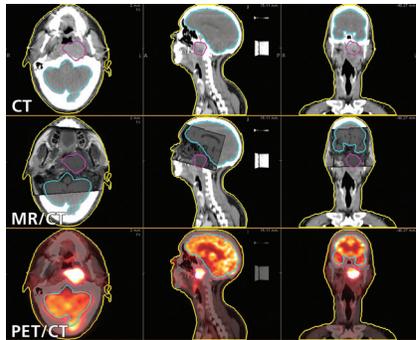
PET EDGE™

GTV Contouring

Accurate target volume definition often requires the integration of multi-modality images.

MIM Software Inc., which began as an image fusion company over a decade ago, has developed unparalleled tools for the integration of diagnostic images into treatment plans. Multiple images, modalities, MR acquisitions, and planes can be fused simultaneously, and contours can be edited dynamically on any plane and any modality.

MIM also provides tools to address problems with incorporating PET/CT into treatment plans. PET/CTs not in treatment position can be deformably registered to simulation CTs, thereby correcting for changes in position. Additionally, PET Edge, MIM's gradient-based segmentation technique, accurately defines PET positive GTVs, helping to take the guesswork out of PET contouring.

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The Contour CoPilot tool is amazing

Auto-Contouring

MIM Software's auto-contouring tools have consistently led the industry for years.

MIM Maestro was one of the first commercial software solutions with atlas-based segmentation. And with user-defined atlas librar-ies, automatic atlas subject selection, and the VoxAlign Deformation Engine™, it's still the best solution on the market.

Contour CoPilot is another milestone in our history of innovation, providing an auto-contouring solution for both CT and MR. Instead of pre-contouring an entire structure that you must then adjust slice by slice, Contour CoPilot fits into the editing workflow, saving you time along the way while learning from your edits.

Experience the best way to contour on any plane, on any modality, and with any contour.

4D Binning

With MIM Maestro, you can take full advantage of your exist-ing 4D hardware capability and realize the benefits of recent advancements in deformable image registration, therapy evaluation, adaptation, and dose accumulation. Now you can view and accumulate dose planned on multiple systems and take advantage of multiple modalities such as PET and MR. You can also reduce dependency on acquisition work-stations by consolidating all your image processing in MIM, eliminating OEM-workstation service contracts.

The Assistant

Working from within MIMpacs RT™, The Assistant™ automates all series tasks by providing clear and concise control of functions that are traditionally manual and error-prone.

The Assistant Manager screen shows you in simple terms what automatic processing is scheduled and what has already occurred. Simple-to-use filters automatically direct actions by referencing DICOM tags. Easy-to-write rules can be time-based or event-based to handle all incoming series. This gives you the flexibility to routinely control actions by any specific day and time or to automatically respond to incoming series.

The Assistant interfaces directly with MIM Workflows™ to provide auto-contouring and atlas-based segmentation automatically on multiple series. Thanks to The Assistant, contours can be ready in advance, saving time and effort.

The Assistant™

Deformable Innovations

VoxAlign™

The VoxAlign Deformation Engine includes the first commercially available deformable registration algorithm tuned for CT-CT registration. This algorithm harnesses more information from the images to guide the registration to a more accurate result.

Unlike a mutual information approach, our intensity-based method uses the entire CT contrast window for matching the two scans. Additionally, by providing millions of degrees of freedom for the registration, both local and global changes in anatomy can be captured. While most algorithms with this level of accuracy would require hours to execute, our implementation typically takes just seconds.

The power of the VoxAlign Deformation Engine is behind all of MIM's innovative deformable tools.

PET/CT

MIM Software was one of the first companies to recognize the true power of PET in RT planning and we have diligently worked to bring its use to clinicians.

By leveraging the CT-CT deformable registration of VoxAlign, PET/CTs can now be more accurately aligned to the treatment position.

4DCT

Along with our suite of 4D tools, such as 4D ciné and MIP & average CT generation, MIM's deformable 4DCT contour and dose tools maximize the benefit of 4DCT with little more effort than a traditional CT simulation.

CONTOUR CoPilot™

Contour CoPilot deforms a contour from one slice of a CT or MR to the next, offering predictions on how you would contour the next slice. Seamlessly fitting into any contour editing workflow, Contour CoPilot has become an indispensable timesaver for creating contours in any part of the body.

2006   **2008**   **2010**

Adaptive Re-contouring

With MIM, adaptive replanning became a practical clinical reality for many centers. MIM was the first software tool to automatically generate entire structure sets, including target volumes, on mid-treatment planning CTs. Now replanning takes minutes instead of hours.
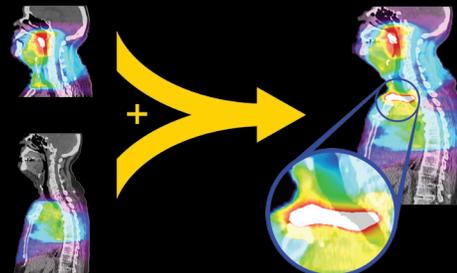
Atlas-based

Atlas-based segmentation in MIM was among the first automatic contouring tools of its kind to reduce the contouring time brought on by IMRT. As the only truly customizable solution, MIM allows users to build their own atlas libraries, ensuring the utmost in timesavings and consistency for your department.

Dose Accumulation

As combined therapy and retreatments became common-place in RT planning, MIM introduced the first method for deformable dose summation.

This innovation has made the careful evaluation of overlap-ping dose fields practical. With the recent introduction of biological effective dose (BED) conversion, dose from multiple treatment modalities can be even more accurately combined.
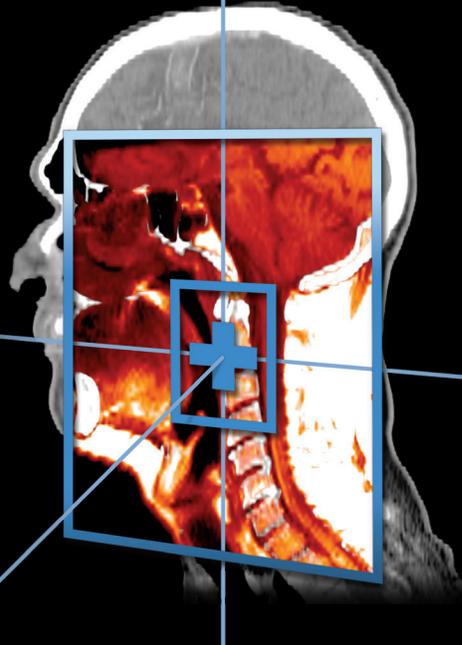
⌖ Reg Reveal™ & ⊕ Reg Refine™

Deformable registration is now well-established as a major improvement over rigid methods, but techniques to evaluate the accuracy of deformable registration have been lacking. The next frontier in deformable registration is ensuring its efficacy for each patient. To meet this essential goal, MIM Software has introduced Reg Reveal, the first and only environment for deformable registration quality assurance and reporting.

Reg Refine takes this important advancement a major step forward by allowing you to not only detect any areas where a deformation is less than optimal, but to correct them.

The unique ability to repeatedly perform deformable evaluation and correction has fundamentally changed how deformable regis-tration can be implemented for critical tasks such as dose accumulation or diagnostic image registration to planning CTs.

Now, virtually any pair of images can be registered to one another, and you can have confidence in the accuracy of the results – for every patient. For example, registering HDR planning CTs that contain an applicator to EBRT CTs for dose accumulation can be done with impressive accuracy.

With Reg Reveal and Reg Refine, now even the most challenging of image registration tasks can be accomplished.

2012

⊶ ART Assist™

ART Assist is MIM's fully customizable automated processing and reporting tool designed to automatically quantify changes to a patient over the course of radiation delivery.

Previously, the process for determining if and when to adapt a patient's plan was limited by the time required to generate relevant quantitative information based on daily imaging.

Now, changes in critical structures and dose constraints can be tracked over the course of treatment, compared to the original plan, and plotted in automatically generated reports. ART Assist makes true dose-guided adaptive radiation therapy possible.

⊶ MR/CT Deformable

Accurate multi-modality deformable registration is not an easy problem to solve. Before the introduction of Reg Reveal, an even more challenging dilemma was knowing when it worked and when it didn't.

Now, with Reg Reveal and Reg Refine, we've provided a platform where you can be confident in the accuracy of MR to planning CT deformable registration.

Local Storage

MIM Software's oncology PACS solution, MIMpacs RT ensures that your data is available locally and quickly. Since MIM is committed to IHE-RO conformance, you can rest assured that your DICOM RT objects and other data will be easily accessible for as long as you need.
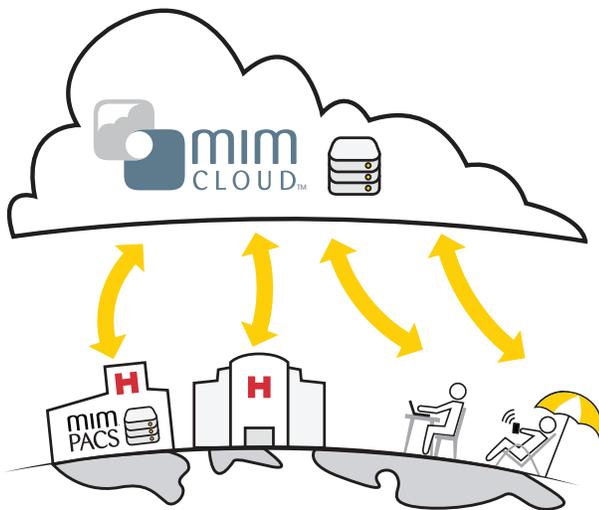
Global Storage

MIMcloud provides off-site storage and backup through a secure and economical Internet-based medical imaging service. MIMcloud integrates seamlessly into MIM Maestro installations as a data source and introduces a host of new collaborative opportunities. All image data is fully encrypted to support HIPAA compliance policies.

Remote Access

An unlimited number of MIM Maestro licenses combined with MIMcloud means that you can access your patients' plans from anywhere in the world – and fast.

Contour and review plans using the same state-of-the-art tools that you use at the office. With compressed transfers and the MIM Maestro thick client, you get the performance you need without the hassle of configuring VPN clients.

Your plans can even be reviewed on the go with the first ever diagnostic medical imaging app, Mobile MIM™ for the iPad®, iPhone®, and iPod touch®.

MIMcloud

MIMcloud is a secure, Internet-based imaging service that expands the capabilities of your practice.

- Get planning information from other institutions without the shipping delays of CDs
- Collaborate with sister centers
- Enable physicians to contour, review, and collaborate from anywhere
- Facilitate clinical trials between facilities, across the country, or around the world
- Give patients access to their scans without CDs
- Support HIPAA compliance with off-site redundant storage and military grade encryption

MIMcloud integrates seamlessly into MIM Maestro as a data source, just like MIMpacs RT. Alternatively, you can access the data through MIMcloud by launching MIMviewer® directly from a web browser or using Mobile MIM for the iPad and iPhone.
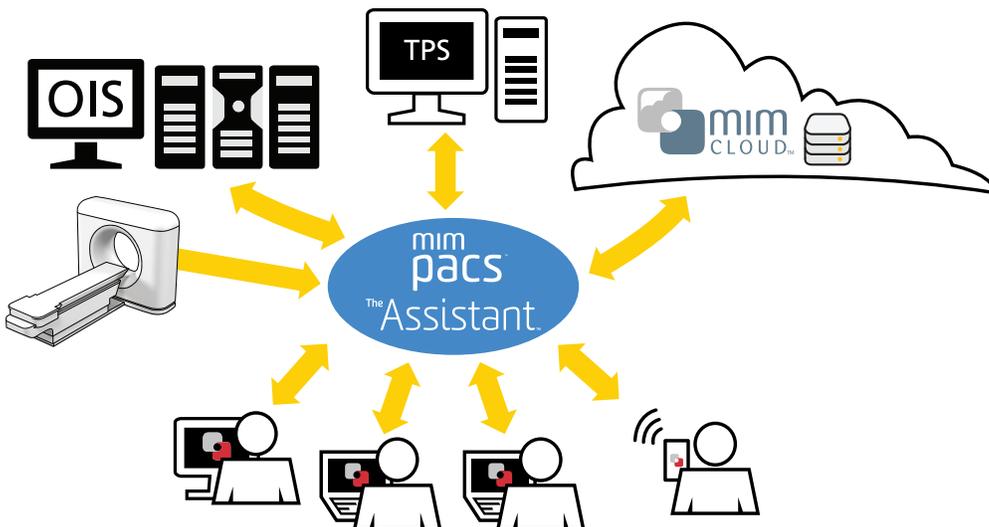
Data Management

The MIM Maestro Unlimited Department Solution is designed to get patient data to where it needs to be, when it needs to be there.

MIMpacs RT, included in the Department Solution, provides tools such as automatic querying for diagnostic images, automatic syncing to MIMcloud, and compressed data transfer to ensure fast access to the data you need.

With The Assistant, user-defined workflows with MIM Maestro functionality can process multiple series automatically. For example, atlas-based segmentation can be automated for all patients, so contours are ready for editing the moment you sit down.

No longer are you restricted to working on one patient at a time. With multiple sessions, you can preload one patient to review with a colleague while you work on another. Also, multiple people can contour the same patient at the same time and simply merge their results when finished.

MIM is fully compatible with every major treatment planning system, which means physicians only need to contour on one workstation. With MIM, the TPS is no longer a bottleneck. The TPS can be used for what it's best at – plan optimization and dose calculation – while MIM handles the rest.

Upgrades & Support

With the MIM Maestro Unlimited Department Solution, you're not just buying a product, you're making an investment.
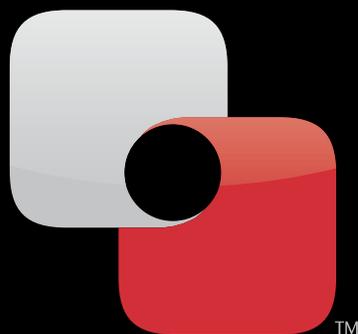
We pride ourselves on our history of innovation and our commitment to providing resources to meet the needs of our customers. Many significant enhancements are added as upgrades to our existing products without having to be purchased separately. And with MIM's unparalleled customer support, you have the help you need to keep your department running at peak efficiency.

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> *A fundamental goal of our company is to provide superior customer service*

> *"A fundamental goal for our company is to provide superior customer service. I never, ever, want to leave a customer unsatisfied. Our sales people and applications specialists work very closely with our engineers; and together they all work in customer service. All our people know our products of course, but just as important, they know our customers' needs and problems."*
>
> **DENNIS NELSON, PhD**
> **Founder & President**
> **MIM Software Inc.**