

PHILIPS

SmartCT

The next leap in **simplifying** **and advancing 3D imaging**

To enhance interventional confidence





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The Philips Image Guided Therapy clinical application software SmartCT,* part of the Azurion image guided therapy platform, enriches our exceptional 3D interventional tools with clear guidance that is designed to remove the barriers to acquiring 3D images in the interventional lab. It allows any clinical user** to perform 3D imaging with SmartCT, regardless of their level of experience.

SmartCT



Intuitive and easy to learn

100% of customers found that controlling SmartCT is intuitive and easy to learn¹



Empowers you to deliver the right treatment

88% believe that with SmartCT they can be confident that they provide the right treatment by having all relevant information at hand¹



Helps you focus on your patient

88% believe they can have more focus on their patient - thanks to full table side control with the touch screen module¹



Supports you in providing high quality care

100% think SmartCT technology brings valuable insights to support them in providing high quality care¹



Supports you to adopt 3D imaging

82% think that the ease of using SmartCT will increase their utilization of 3D imaging in interventional procedures¹

Key benefits

Superb care

Increase clinical confidence with advanced 3D imaging, visualization and measurement tools

Lab performance

Easily control advanced 3D visualization and measurements at table side on the touch screen module

Outstanding user experience

Simplifies 3D acquisition so any clinical user can easily perform 3D imaging

Increase economic value

Increases economic value by helping you free up the CT scanner for diagnostics and enabling upgrades to new clinical capabilities

* SmartCT is not yet CE marked, and is not yet available for delivery. The product is not available in the U.S.A. and this document cannot be distributed in the U.S.A.

** As described in the Instructions for Use

¹ Evaluated with clinical users in a simulated lab environment with a total of 17 teams consisting of a physician and a radio-tech with different levels of experience



Provide **superb care**

SmartCT increases clinical confidence with advanced 3D imaging, visualization and measurement tools.

Studies have shown that 3D CT-like imaging in the Angio lab can enhance diagnostic accuracy^{2,3,4}, improve patient outcomes^{5,6,7} and increase procedural efficiency⁸. SmartCT is designed to make 3D imaging accessible to all users** regardless of their level of expertise empowering them to deliver superior care.¹

All SmartCT advanced 3D visualization and measurement features are controlled at table side on the intuitive touch screen:



SmartCT Vessel segmentation

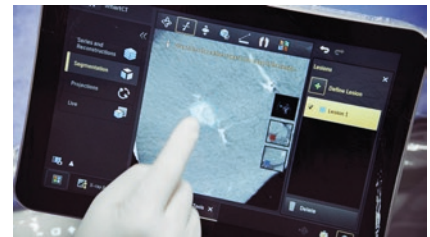
You can quickly define a vessel path on a SmartCT 3D volume at table side on the TSM by simply selecting two points of a vessel. The path is automatically detected and can be rendered in a centerline, tube or outline view. Edit the path by just moving one of the points. This supports you in determining the optimal projection angle for vessel analysis and catheterization.



SmartCT Vessel Analysis for advanced 3D measurements

Vessel Analysis offers the following features to allow easy inspection of the vessel and device positioning during treatment planning:

- Straightened, curved and cross-section reformats. The straightened reformat view of the vessel segment also contains a graph showing the vessel diameter along the segment. The straightened cross-section view displays an indication of the minimum and maximum diameters at the pointer location as you move it over the curved, reformat or straightened reformat view.



SmartCT Segmentation to quickly define any structure of interest

The semi-automatic lesion segmentation tool allows you to easily define any structure of interest, measure its volume and highlight anatomy to improve visualization. With one touch you can hide the skull on SmartCT Vaso volumes and easily edit contours.

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1 Evaluated with clinical users in a simulated lab environment with a total of 17 teams consisting of a physician and a radio-tech with different levels of experience

Improve visibility of anatomy with clinically tailored acquisition and roadmap protocols



SmartCT Angio

Improve visibility of vasculature in cerebral, abdominal, cardiac and peripheral anatomies

SmartCT Angio is an X-ray acquisition technique that generates a complete high-resolution 3D visualization of cerebral, abdominal, cardiac and peripheral vasculature from a single rotational angiography run – all controlled via the touch screen at the table. This can improve visibility of tortuous anatomy that may not be seen on a 2D or DSA images, such as angulation, overlap and vessel bifurcations. After acquisition, you can quickly render volumes, segment lesions and vessels, perform measurements and mark vessel paths to assess the size and location of pathology and thereby plan the optimal treatment angle.



SmartCT Soft Tissue

CT-like visualization of soft tissue, bone and vascular structures

SmartCT Soft Tissue is an X-ray acquisition technique that generates a CT-like visualization of soft tissue in relation to other structures during procedures – all controlled via the touch screen at the table. You can use the CT-like images to assess soft tissue, bone structure and stent deployment before, during and after interventional procedures. This technique is particularly useful for oncology and neurology procedures because it aids you in better assessing the tissue of structures affected by the vasculature of interest.



SmartCT Roadmap

Real-time 3D view aids guidewire and catheter navigation through complex vessel structures

SmartCT Roadmap provides a live 3D image overlay that can be segmented to emphasize the targeted vessel and lesions, supporting fast catheter navigation. The SmartCT Roadmap overlays a 3D reconstruction of the vessel tree, vessel segments, or annotations with live fluoro images. You can adapt the transparency and contrast of the 3D image to enhance visibility of details.



SmartCT Vaso

Visualize sub-millimeter flow diverter deployment during neuro procedures

SmartCT Vaso is an X-ray acquisition technique based on a 3D rotational scan and an intra-arterial contrast injection which produces a high-contrast, high-resolution visualization of cerebral vasculature. The intra-arterial acquisition technique enhances visualization of endovascular stents, flow diverters, and other devices and of vessel morphology down to the perforator level. It is increasingly used for follow-up of aneurysms treated with flow-diverter stents, to check device positioning.





Optimize lab performance

Easily control advanced 3D acquisition, visualization and measurements at table side to improve lab flexibility and efficiency

To make it easier to benefit from 3D imaging in the lab, all acquisition, visualization and measurement tools can be accessed on the touch screen. This offers total control of 3D imaging within the sterile field that can save time during procedures. Many tasks, such as 3D lesion segmentation, center line and vessel contour detection, are semi-automated to speed up your 3D image analysis.



Quickly perform two-point measurements on screen

With SmartCT, you can perform two-point measurements on 3D images on the touch screen. This can help you quickly check the trajectory to a target vessel, measure distances for stent deployment, measure the size of anatomy or identify a discrepancy to speed up planning of the optimal treatment angle and aid navigation.



Choose and store the projection angles for your treatment

With SmartCT you can rotate your 3D image and store the corresponding projection angle you would like to use during your treatment. With Azurion's full system automatic position control (APC), you can recall any of the stored positions.



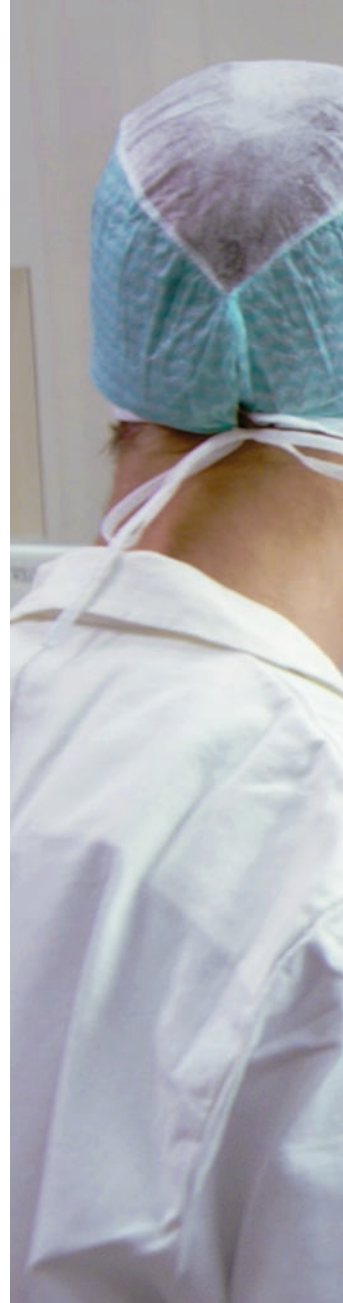
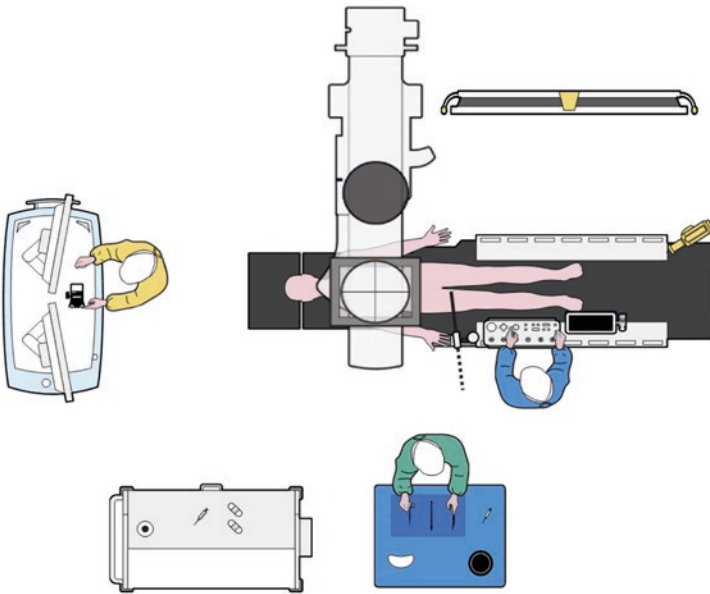
Cut away structures that obstruct the 3D visualization of the anatomy of interest

With SmartCT cut anatomy tool you can quickly and easily remove the structure that could obstruct the 3D visualisation of your region of interest.



Outstanding user experience

With the touch screen, you can easily acquire 3D images and interact with all SmartCT 3D features in a more natural and effortless way.

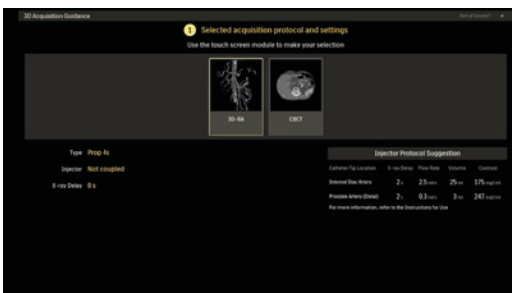


- **Easy room preparation**

Room preparation tasks can be shown on the FlexVision to help you position equipment and the Azurion system so that you can acquire 3D images any time needed during your procedure.

- **Easy protocol selection**

To help you easily select the required protocol, SmartCT's acquisition guidance displays pictorials showing the type of 3D image you can select, without the need to memorize the name of the protocol.



- **Injection protocol suggestion⁹**

To help you have a consistent image quality of your contrast enhanced 3D images, SmartCT displays a suggestion of injection protocol that is totally customizable to your standards.

- **Easy isocentering**

With SmartCT you can perform zero dose table isocentering by giving you visual feed back of the field of view position in both AP and lateral previously acquired projections.





- **Easy 3D acquisition**

In order to prevent you from releasing the acquisition button too early, SmartCT guides you once you press the acquisition button by giving you countdown visual feedback on the time, remaining for X-ray delay and actual 3D acquisition. It will prompt you to release the button once the rotational scan is completed.

- **Easy 3D interaction on the TSM**

Once acquired the 3D image appears within a few seconds on the TSM and the FlexVision, prompting you with the corresponding rendering mod, ready for you to review and analyze on the TSM.







Increase economic value through lifecycle

CT-like 3D imaging in the interventional lab could potentially free up the CT scanner for diagnostic purposes

SmartCT provides CT-like 3D images in the interventional lab to support diagnosis, planning, treatment and follow-up for interventional radiology procedures. The 3D image data can be visualized, segmented and processed as a regular CT image with advanced 3D visualization and measurement tools. The ability to access CT-like imaging in the lab can free up the CT scanner for diagnostic purposes and thereby save time and prevent additional risk to patient.

Stay clinically and operationally relevant over complete lifecycle

To keep the Azurion platform and clinical tools state-of-art clinically and operationally, subscribe to IGT Technology Maximizer - Plus, Pro or Premium offer.

Technology Maximizer is offered for a standard duration of 4 years at point of sale to keep the lab state-of-art.

With Technology Maximizer (TM) Plus offer, Azurion platform with SmartCT continues to receive upgrades for existing functionality on the complete Lab. TM Plus also keeps the Azurion Lab at state-of-art security and protects it from Obsolescence w.r.t computing hardware and associated software (including operating system e.g. Win10).

With TM Pro and Premium offer, Azurion platform with SmartCT continues to receive new clinical innovations in the selected clinical suite and selected clinical domain respectively.

For more information, refer to Technology Maximizer offer details.

For more information about how SmartCT can simplify your 3D acquisitions and enhance clinical decision making during procedures, please contact your Philips representative or go to the SmartCT website.



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² Loffroy R et al. Comparing the Detectability of Hepatocellular Carcinoma by C-arm Dual-Phase Cone-Beam Computed Tomography During Hepatic Arteriography With Conventional Contrast-Enhanced Magnetic Resonance Imaging *Cardiovasc Intervent Radiol*. 2012, 35 (1), 97-104,

³ Berman et al. The use of threedimensional rotational angiography to assess the pulmonary circulation following cavopulmonary connection in patients with single ventricle. <https://www.ncbi.nlm.nih.gov/pubmed/22419358> *Catheter Cardiovasc Interv*. 2012 Nov 15;80(6):922-30.

⁴ https://pubmed.ncbi.nlm.nih.gov/?term=Schernthaner+RE&cauthor_id=25476872 Schernthaner et al., Delayed-Phase Cone-Beam CT Improves Detectability of Intrahepatic Cholangiocarcinoma

During Conventional Transarterial Chemoembolization *Cardiovasc Intervent Radiol* , 38 (4), 929-36, 2015

⁵ Miyayama et al., Comparison of Local Control in Transcatheter Arterial Chemoembolization of Hepatocellular Carcinoma ≤ 6 Cm With or Without Intraprocedural Monitoring of the Embolized Area Using Cone-Beam Computed Tomography *Cardiovasc Intervent Radiol* , 2014, 37 (2), 388-95,

⁶ Hans Lindgren & Mats Bläckberg, Introduction of prostate artery embolization (PAE) in Sweden, *Scandinavian Journal of Urology*, 2019, 53:2-3, 151-155,

⁷ Goertz et al., Preoperative Three-Dimensional Angiography May Reduce Ischemic Complications During Clipping of Ruptured Intracranial Aneurysms *World Neurosurg*, 2018, 120, e1163-e1170,

⁸ Ribo et al, Direct Transfer to Angiosuite to Reduce Door-To-Puncture Time in Thrombectomy for Acute Stroke, *J Neurointerv Surg* , 2018, 10 (3), 221-224..

⁹ The injector protocols shown by SmartCT are suggestions that the user can tailor as desired. Philips does not endorse the use of the injector protocols.