



PHILIPS

SmartCT makes advanced 3D imaging accessible

**Increase 3D adoption in the Angio suite
for superb patient care**

SmartCT R3.0 is subject to regulatory clearance and may not be available in all markets. Contact your sales representative for more details.

SmartCT makes advanced 3D imaging accessible

Increase 3D adoption in the Angio suite

Phillips Image Guided Therapy clinical application software SmartCT improves our outstanding 3D interventional tools environment with clear workflow guidance and streamlined access to 3D images in the Angio suite. It simplifies 3D acquisitions to empower all clinical users¹ to easily perform 3D imaging, regardless of their experience.² Once acquired, 3D images are automatically displayed within seconds on the touchscreen module in the corresponding rendering mode. On the same touchscreen, the user can easily control and interact with advanced 3D visualizations and measurement tools.

Seamless workflow and ease of use

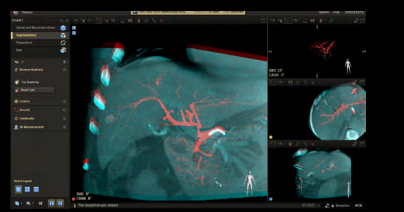
Over the years, we have noticed that acquiring 3D CT-like imaging is still considered difficult to perform in the Angio suite, and that 3D visualization and measurement tools have been somewhat limited and not easily accessible at tableside. With our previous systems, you needed to return to the control room to look at acquired volumes and perform advanced measurements. With SmartCT, these challenges are now solved. It is now extremely easy to perform a 3D acquisition without error because you are guided through simple steps for acquisition. 3D visualization and interactions are now integrated on the tableside tablet. If you know how to use a smartphone, you know how to use SmartCT. With that improved ease of use, we now also bring 3D visualization and measurement tools and image quality comparable to CT to your fingertips in the angio lab.

Guided 3D acquisition



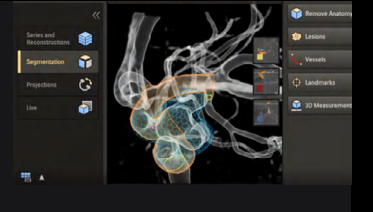
Make 3D CT-like imaging easy to perform in the Angio lab

Advanced CT-like 3D tools



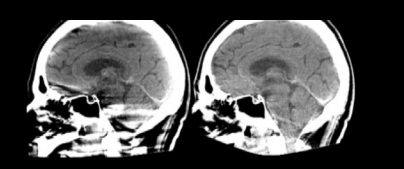
3D visualization and measurement tools comparable to CT in the Angio lab

Easy tableside control



3D visualization and measurement tools are easily accessible at tableside

Improved CBCT



High CBCT image quality sufficient for high-quality diagnosis in neurovascular care

SmartCT values



Intuitive and easy to learn
100% of users found that controlling SmartCT is intuitive and easy to learn³



Empowers you to deliver the right treatment
88% believe that with SmartCT they can be confident that they are providing the right treatment by having all relevant information at hand³



Helps you focus on your patient
88% believe they can have more focus on their patient - thanks to full tableside control with the touchscreen module³



Supports you in providing high-quality care
100% think SmartCT technology brings valuable insights to support them in providing high-quality care³



Supports you in adopting 3D imaging
82% think that the ease of using SmartCT will increase their utilization of 3D imaging in interventional procedures³

Key benefits

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

Optimize lab performance
Easily control advanced 3D visualization and measurements at tableside on the touchscreen module

Outstanding user experience
Simplifies 3D acquisition so clinical users 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

Provide superb care

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

Studies have shown that 3D CT-like imaging can enhance diagnostic accuracy.⁴⁻⁸

All SmartCT advanced 3D visualization and measurement features are controlled at tableside on the intuitive touchscreen.



SmartCT Vessel Segmentation

You can quickly define a vessel path on a SmartCT 3D volume at tableside on the touchscreen module 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 just by 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 reformat. 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. Working on the touchscreen module, identifying and modifying the segmented region of interest can be done with a touch of a finger, tableside. The final segmentation can be constantly monitored in 3D.

Clinically tailored applications and roadmap protocols



SmartCT Angio

Improves 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 touchscreen at tableside. This can improve visibility of tortuous or complex anatomies. 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 treatment angle.



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. 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 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 touchscreen at tableside. You can use the CT-like images to assess soft tissue, bone structure and vascular structures before, during and after interventional procedures. This technique is particularly useful for oncology and neurology procedures.



SmartCT Vaso

Visualizes sub-millimeter structures and vasculature 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.



SmartCT Soft Tissue Helical

Cone Beam CT imaging with Helical acquisition trajectory for head imaging with improved image appearance to identify soft tissue changes in the Azurion suite

SmartCT Soft Tissue Helical creates CT-like cone beam CT images (CBCT) to help spot soft tissue changes in the Angio suite. The advanced protocol with dual-axis acquisition trajectory and improved reconstruction software results in improved image appearance, compared to conventional cone beam acquisition techniques, based on the overall assessment of cone beam and bone beam artifacts, grey/white matter differentiation, subarachnoid space sharpness, ventricular margins and distinctiveness of posterior fossa.



SmartCT Dual Phase Cerebral

Acquisition of two consecutive contrast enhanced CBCT scans of the brain

The Dual Phase Cerebral acquisition offers two consecutive contrast-enhanced CBCT scans of the brain. In the case of a stroke patient with a suspected large vessel occlusion, this type of acquisition allows the identification of the vessel occlusion in the first phase, and the presence of collateral vessels in the second phase. This acquisition can be done with an intra-arterial as well as with intravenous contrast injection.



SmartCT Dual Viewer

3D fusion imaging of 3D-RA and CBCT datasets during the procedure to support assessment and diagnosis

SmartCT Dual Viewer can take any two volumes from the Azurion System, display them side by side and overlay them to create fusion images to support the physician in assessment and diagnosis. Dual Viewer in SmartCT allows the user to view and manipulate the volumes at tableside without breaking sterility using the touchscreen module or mouse and keyboard. There is also no need to switch applications because the entire workflow from 3D acquisition protocol selection to image viewing, manipulation, image overlay and postprocessing can be done in SmartCT and on the touchscreen.



Optimize lab performance

Easily control advanced 3D acquisition, visualization and measurements at tableside 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 touchscreen. 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 support your 3D image analysis.



Quickly perform two-point measurements onscreen

With SmartCT, you can perform two-point measurements on 3D images on the touchscreen. 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 support 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 the Azurion full system automatic position control (APC), you can recall any of the stored positions.

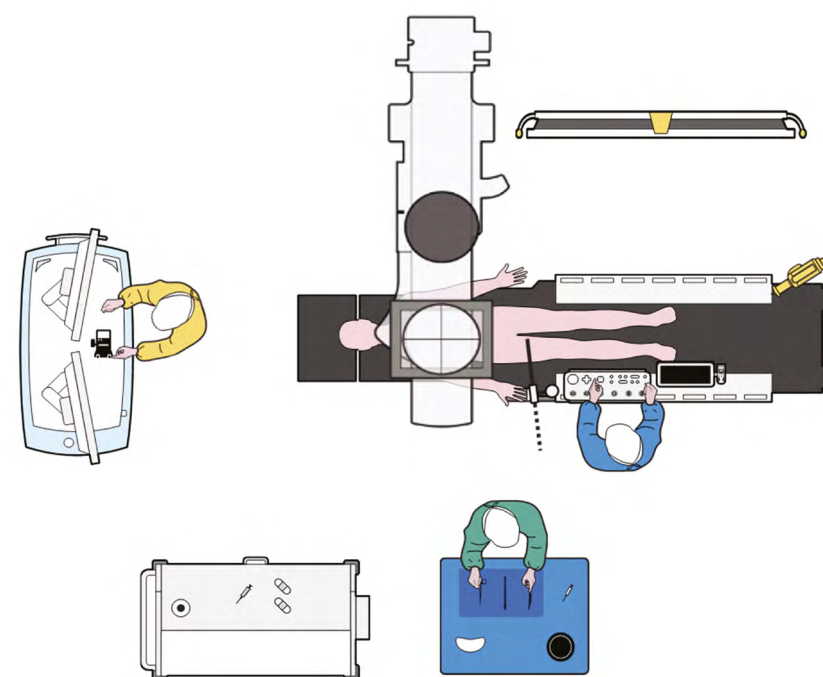


Cut away structures that obstruct 3D visualization of the anatomy of interest

With the SmartCT Cut Anatomy tool, you can quickly and easily remove a structure that could obstruct the 3D visualization of your region of interest.

Outstanding user experience

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



- **Easy room preparation**

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

- **Easy protocol selection**

To help you easily select the required protocol, the SmartCT 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 achieve consistent image quality for your contrast-enhanced 3D images, SmartCT displays a suggested injection protocol that is completely customizable to your standards.

- **Easy isocentering**

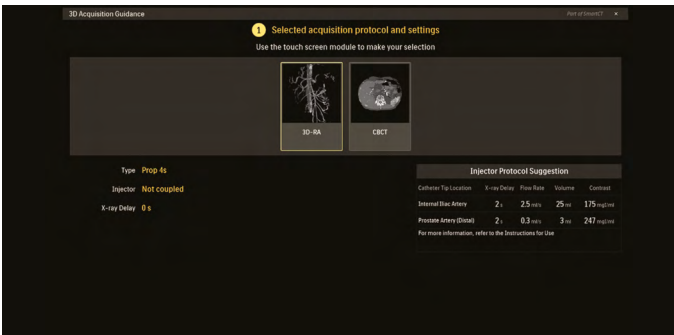
With SmartCT, you can perform zero-dose table isocentering through visual feedback on the field of view in both AP and lateral projections.

- **Easy 3D acquisition**

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

- **Easy 3D interaction on the touchscreen module**

Once acquired, the 3D image appears within a few seconds on the touchscreen module and FlexVision in the default rendering mode, ready for you to review and analyze.





Increase economic value throughout the 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 help prevent additional risk to patient.

Maximize your imaging investments with Technology Maximizer

Designed to boost the clinical capability and operational performance of your imaging equipment, Technology Maximizer will keep your imaging system up-to-date with a full system upgrade. Safe, secure and timely upgrades are vital to maintaining and maximizing your system’s performance and operational value. Technology Maximizer is a cost-effective and easy-to-use upgrade service, available across all Philips Azurion Systems.¹⁰

How Technology Maximizer for your Philips Azurion System works

Technology Maximizer provides support and upgrade core system functionality, cybersecurity controls, operating system, purchased clinical applications as well as new clinical innovations. Depending on the plan selected, upgrades and trainings can include:

- System upgrades to latest Azurion release
- Clinical applications upgrade to latest
- Promotions to receive future clinical innovations
- Advanced clinical training

Structured upgrades delivered upon release include:

	Maintenance Contract	Technology Maximizer			
		Essential	Plus	Pro	Premium
Mandatory safety/cybersecurity fixes	✓	✓	✓	✓	✓
Software update to fix bugs	✓	✓	✓	✓	✓
Core software upgrade, including: Operating system update, cybersecurity patches, licensed software features and workflow enhancements	–	✓	✓	✓	✓
Computer hardware replacement to support software upgrade	–	As needed	✓	✓	✓
Training for upgraded and new software functionality	–	As needed	✓	✓	✓
Enhancements to purchased clinical software options/ applications	–	–	✓	✓	✓
Advanced training for new clinical features and/or applications	–	–	–	✓	✓
New clinical features and/or applications in a selected clinical suite	–	–	–	✓	✓
New clinical features and/or applications across clinical suites	–	–	–	–	✓



- ¹ The user level of expertise required is described in the Instructions for Use as the Intended Operator Profile.
- ² Evaluated with clinical users in a simulated lab environment with a total of 17 teams consisting of a physician and a radio-tech, and 1 physician without a radio-tech, with different levels of experience.
- ³ 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.
- ⁴ Loffroy R, Lin M, Rao P, 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 Feb;35(1):97-104. doi: 10.1007/s00270-011-0118-x. Epub 2011 Feb 17. PMID: 21328023.
- ⁵ Akkkrisee SA, Hongsakul KR, Percutaneous transthoracic needle biopsy for pulmonary nodules: a retrospective study of a comparison between C-arm cone-beam computed tomography and conventional computed tomography guidance. *Pol J Radiol*. 2020; 85(-):e309–e315
- ⁶ Saito, Y., et al., A pilot study of intraoperative localization of peripheral small pulmonary tumors by cone-beam computed tomography: sandwich marking technique. *J Thorac Dis*, 2022. 14(8): p. 2845-2854.
- ⁷ Xiong, F., et al., Xper-CT combined with laser-assisted navigation radiofrequency thermocoagulation in the treatment of trigeminal neuralgia. *Front Neurol*, 2022. 13: p. 930902.
- ⁸ Scherthaner RE, Lin M, Duran R, et al. Delayed-phase cone-beam CT improves detectability of intrahepatic cholangiocarcinoma during conventional transarterial chemoembolization. *Cardiovasc Intervent Radiol*. 2015 Aug;38(4):929-36. doi: 10.1007/s00270-014-1026-7. Epub 2014 Dec 5. PMID: 25476872; PMCID: PMC4457721.
- 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.
- ¹⁰ Certain products or features are subject to regulatory clearances and may not be available in all markets. Contact your sales representative for more details.