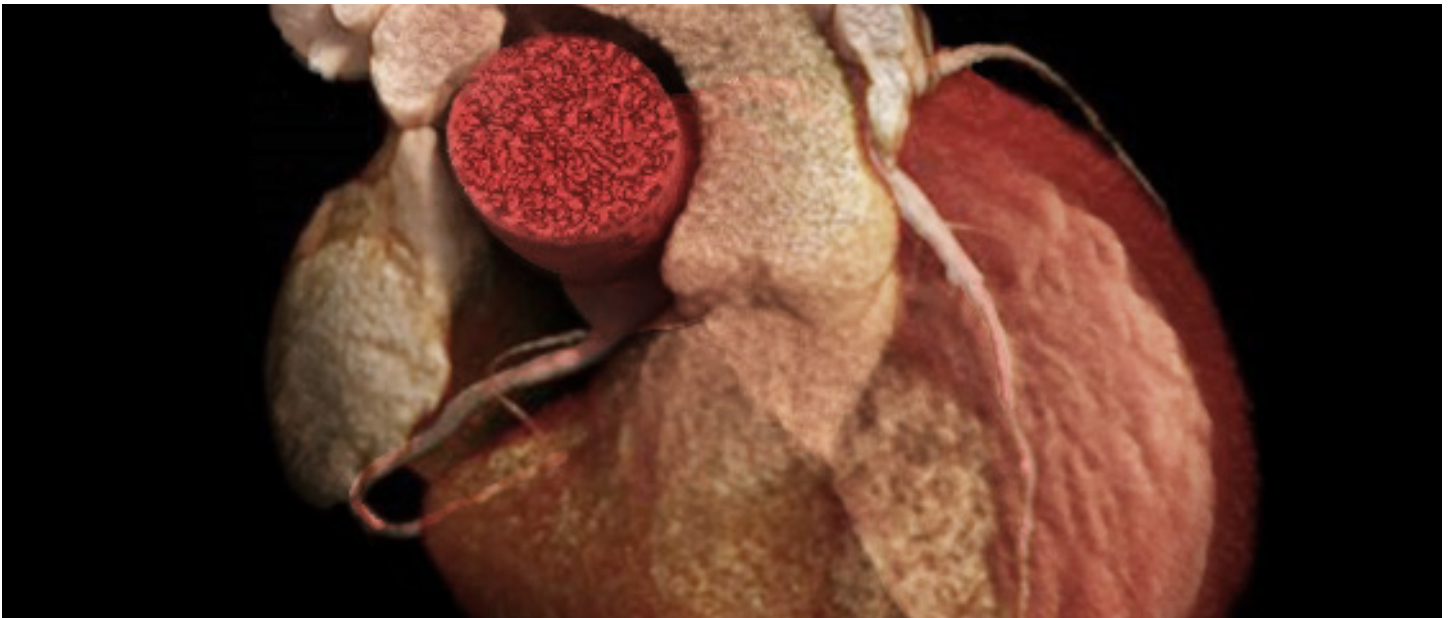# What's New in Vitrea® Advanced Visualization Version 7.12

In addition to our current Vitrea Advanced Visualization applications, we continue to improve and enrich our clinical offerings across all modalities.

New Features and Enhancements

Spectral Analysis

- Bone/water basis material addition[1]
- Iodine concentration value - ROI to show both HU and Concentration [mg/ml]
- Visualize two monochromatic images side by side
- Average/MIP/MinIP projections now supported
- Adjust the number of demographics shown
- Tilted gantry support
- ROI now shown on the scatter diagram
  □ Highlight pixels on the patient images relevant to an ROI drawn on a scatter diagram
- Oblique viewing mode
- Save pre-sets of Batch MPR format for regular export
- Input and display two different reconstruction kernels simultaneously

Note: The Spectral Analysis application is only compatible with data acquired from Canon scanners using the Canon Rapid kV switching method. Bone/water pair addition bullet is not available in the US.

Global Illumination Rendering (GIR)

Global Illumination rendering extends the new rendering technique to the most common Vitrea application set. GIR is now available in the following protocols via combo presets:

- Cardiac: Arteries CT*
- Cardiac: EP Planning CT*
- Cardiac: Functional CT
- Cardiac: Myocardial CT†

CT Brain Perfusion

- The Tmax map is now available in v7.12, and it replaces the Delay map (Tmax is computed as a combination of Delay and MTT values). The Tmax map in CT Brain Perfusion aligns with current studies/literature.
- Bayesian summary maps now use Tmax and CBV maps. Summary maps computed in SVD and SVD+ will continue to use TTP and CBV.
- Enhancements to the Brain ventricular and cerebrospinal fluid (CSF) segmentation
- In previous versions, the Yellow/Red mismatch ratio was calculated as Yellow volume divided by Red volume. In version 7.12, the Yellow/Red mismatch ratio is calculated as (Yellow volume + Red volume)/Red volume. This ensures that the ratio is at least 1 (if there is no Yellow volume) or higher, depending on the extent of the yellow area.
- Enhancements to default window/level values and color map display.
- Artery and Vein Selection enhancements
- Added support for the Aquilion Prime Jog Enhanced (Multi-frame) CT Brain Perfusion data for the Aquilion Prime CT Scanners

Multi-Monitor Support for Vitrea Advanced Visualization

Multi-monitor support provides the ability to launch Vitrea on identical dual monitors with basic multi-monitor functionality.[2,3]

- Ability to use two monitors if they are of the exact same configuration (resolution).
- Users can drag a clinical application tab to a second monitor to enter two monitor mode.
- Two monitor mode is remembered across sessions on a per user basis.
- Users can show the Study List and applications side-by-side.

Multi Modality Viewer

- PET-CT Enhancements
  The Multi Modality Viewer workflow enhancements include:
  - 4D PET
  - Additional measurements (Rectangle/Freehand/Voi Sphere with/without Threshold)
  - Measurements on Fusion MPR/2D
  - SUV reference value
  - Extended manual registration
  - Batch image generation
  - Export of SUV images
  - MPR layout
- Workflow Enhancements
  The Multi Modality Viewer workflow enhancements include:
  - Snapshots on a single 2D and 3D image
  - Hanging protocols from the new Canon CT scanner are used if received for a study. The process includes a hanging protocol is found by the viewer. If present, it is automatically used during launch to the layout study.
  - Users can now view a set of window-level (W/L) presets. Presets are available per modality, and users have the ability to configure a W/L preset.
- Segmentation Enhancements
  The Multi Modality Viewer segmentation enhancements include:
  - Auto Bone Removal runs auto-bone Thorax and Abdomen segmentation algorithm
  - Restore tool (Trim) restores vessels in the bone object
  - Bone Removal tool removes fragmented bone (from base to bone) (or trash)
  - Cutting tool (needs 2D interpolated cutting)
  - Remove Fragments – useful for cleaning up the CTA image
- Multi Modality Viewer Spectral enhancements (for Canon only)
  The enhancements include improved labeling of the various sequences: Mono, VNC, Water (Iodine), Iodine (Water) and Iodine.

Integration Client

Enhancements to the Integration Client for Vitrea launching are now available:

- Series level Query/Retrieve
- Multi-study snapshot restore
- Smart "Pick list" for selecting study and series level data

Enterprise Performance and Scalability

The following options are available for version 7.12:

- 30 concurrent Vitrea Advanced Visualization users and Multi Modality Viewer (1:1), or
- 22 concurrent Vitrea Advanced Visualization users with Multi Modality Viewer dedicated nodes with four users each, for a total of eight

Data Handling
Data handling changes for lower memory usage, increased stability, and greater capacity for handling complex DICOM types.

Deployment Update

MS SQL Server 2017 and MS Windows Server 2019 Support
Vitrea Advanced Visualization deployments now support MS SQL Server 2017 and MS Windows Server 2019.

Default SQL Instance Support
Version 7.12 supports the ability to deploy using the default SQL instance.

Olea Sphere™

Olea Sphere version 3.0 SP17 is integrated into Vitrea Advanced Visualization version 7.12.

Partner Integration Applications

All partner applications are available from all deployments (workstation, extend, enterprise – including enterprise single server). Vital integrates the latest versions from its partners.

Features	Version
4DM by INVIA	2018.0.0.158
Cedars Cardiac Suite	2017.2
iCAD VeraLook® CT Colon CAD	1.0.10/1.1.5
Medis® Suite Cardiovascular MR	Medis Suite 3.2.36.2 QFlow 8.1.74.2 QMass 8.1.74.2 4D Flow 1.1.2.2
Mirada Nuclear Medicine	4.4.2
Mirada Oncology Fusion	3.6
Mirada RTx	1.8
TOMTEC	2.31
Visia™ CT Lung CAD by MeVis Medical Solutions	5.8

Partner Integration Enhancements

The following enhancements are now included within our partner integrated versions in Vitrea Advanced Visualization:

Medis® Suite Cardiovascular MR

DICOM Reading and Sorting Performance Improvements
- The performance of the reading and sorting of DICOM images has been improved. This improvement has impact on how fast images are imported into a Medis Suite repository and how fast images are loaded and viewed by Medis Suite. The improvement applies to all DICOM images, but it is especially noticeable in larger MR and CT studies.

4D Flow
4D Flow is a new separately licensed option and provides visualization tools and a quantitative analysis of 4D flow MR data.
- Simple MPR tool
- Single click noise removal
- Background corrections in a single click
- Color overlay for speed, streamlines and vectors
- Allow launching of QFlow to measure volumes, regurgitant fraction and peak flow velocity
- Review flow as overlay on Cine SSFPs in 2D

Note: The Medis 4D Flow option is only compatible with data acquired with MR 4D Flow sequencing.

TOMTEC‡

The following enhancements are available in the integrated version of TomTec within Vitrea Advanced Visualization:
- 4D LV-Analysis
  - □ Improved alignment of LV view planes in the LV Tracking Revision.
- 4D MV-Assessment
  - □ Coordinates of landmarks and manual measurements are available as part of text results export.
- 4D RV-Function
  - □ TAPSE results for TEE datasets are no longer calculated due to orientation of the dataset.
- Data Maintenance
  - □ Improved overview on the archive locations. It is more easily detectable on which Local Archive(s) and Long-Term Archive(s) the DICOM objects are located.
- Image-Com
  - □ Default user setting – limit the playback to the R-R cycle.
  - □ Pre-selection of measurements on studies from mixed modalities.

Visia™ CT Lung CAD

The following enhancements are available in the integrated version of Visia CT Lung CAD within Vitrea Advanced Visualization:
- MeVis Lung CAD Server now provides more flexibility to decide which studies to retrieve and combine with a received study.
- MeVis Lung CAD Server now ignores irrelevant differences in patent names so that studies with such differences are assigned to the same patient.
- Missing references were added to GSPS output objects because they only contained the first slice.
- Better handling of incoming files with missing but required DICOM tags
- Stability and performance enhancements in the LungCAD algorithm

4DM by INVIA

The following enhancements are available in the integrated version of 4DM by INVIA within Vitrea Advanced Visualization.
- MUGA Screen support for Regional EF Quantification, RV/LV simultaneous EF Quantification
- Reserve Screen
  - □ Automatic motion correction for dynamic blood flow protocols
  - □ Support for MPI surface processing using a fixed voxel dimension, e.g. 2.4mm, 4.8mm
  - □ Entropy estimates for dyssynchrony histograms
  - □ Support for Inflammatory screen using mu-maps in addition to standard CT

New Applications

CT Dynamic Myocardial Perfusion§

The CT Dynamic Myocardial Perfusion application is now integrated into Vitrea Advanced Visualization. It is an intuitive and user-friendly format, and it enables the qualitative and quantitative assessment of dynamic stress and rest CT examinations. The application provides multiple quantifiable results such as myocardial blood flow and coronary flow reserve.

- Automatic left ventricle contour detection
- Quantifiable results
  - Rest MBF
  - Stress MBF
  - Coronary Flow Reserve (the ratio of stress MBF to rest MBF)
- Overlay of perfusion results onto MPR images
- Fusion of perfusion map onto 3D heart images

CT Respiratory Analysis§

The CT Respiratory Analysis application is now integrated into Vitrea Advanced Visualization. It provides an easy-to-use and intuitive user interface to analyze both 3D and 4D CT datasets to assess respiratory conditions.

- 4D airway assessment
  - Airway - Area, diameter, volume and percentage change
- 3D airway assessment
  - Airway - Area, diameter and volume
  - Inspiration and Expiratory datasets able to provide percentage change
- 3D Lung density and volume assessment
  - Low attenuation area calculation
  - Low attenuation volume calculation
  - Right, left and total lung volume measurement