Analyze 8.1: New Features and Enhancements

Module Specific Enhancements

DICOM Tool Module

New server-based database architecture providing support for:

- **Automatic database updates**: The DICOM Tool can be configured to automatically check the DICOM Database for new images. The update frequency or poling interval can be specified by the user. If new images are received into the database by the DICOM Receiver, the DICOM Tool is automatically updated with the new image data.

- **Multiple client communications to database**: DICOM Databases can be configured to add a database server process. When selected, the Database Server controls access to the database through the system name and port number of the Receiver, rather than the actual database file. This configuration provides access to the database to any client systems on the network without exporting or sharing the file system where the database is installed.

- **Improved support for large databases**: Enhancements to the DICOM Tool architecture allows for more efficient management of large DICOM databases.

- **Support for 4-D data**: The DICOM Tool now supports selection of multiple compatible volumes to be loaded into the main Analyze workspace as a single 4-D multivolume, i.e. different time-point data or data from different series (T1 and T2).

Volume Render Module

- **Interpolated Rays option:** The 'Interpolated Rays' option improves the quality of visualizations generated when anisotropic volumes are being scaled interactively, for data in oblique orientations, and for thin object. Rendering rays are cast using floating point calculations to interpolate the voxel contributions along each ray by weighting the contributions of voxels in each voxel neighborhood. This will significantly increase rendering computation time.

- **Fix Tool Related Volume Correction option**: The Fix tool in the Volume Render module has been enhanced with a new slice correction option. The new option 'Copy from Related Volume' provides the ability to use a related volume as input for the Fix Tool, allowing images to be copied from the Related Volume to the Loaded Volume.

Registration Modules

- **Support for simultaneous transformation of associated object maps**: Object maps associated with the match data set can be loaded and registered simultaneously with the data.

Tree Analysis Module

- **Improved Tree Analysis algorithm**: The algorithm has been updated with an increased tree level limit. The enhancement increases the tree level limit from 702 to 2054.

Diffusion Tensor Imaging (DTI) Add-On Module

- **Extended support for reading gradient directions**: When the volumes are loaded into the DTI module, Analyze will attempt to read the gradient directions from the header. If the gradient directions are found, they will be displayed on the volume selection button. If they are not found, gradients can be entered either in the interface or by importing a text file with the encoding directions.

- **4-D mulitvolume support**: Multivolume input support has been added to the DTI module to allow for easier loading of mulitple directional gradient diffusion volumes.

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- **White matter fiber tracking and visualization (tractography)**: The DTI module has been enhanced with Fiber Tractography, which provides the ability to visualize white matter tracts.

- **Tracking specific anatomy via use of object maps (ROIs)**: The DTI module now provides the ability to load object maps in order to specify regions of interest for fiber tracking.

- **Visualization with multiple orthogonal slices**: The DTI module provides interactive display of intersecting orthogonal sections with 3-D display of fibers.

New Platform Support

- **Intel-based Mac platform support**: The Analyze 8.1 release is the first version of

Analyze available with full Intel Mac support. This port of Analyze runs with MacOS X 10.4+.

- **Windows 64-bit platform support**: The Analyze 8.1 release is the first version of Analyze available with true Windows 64-bit platform support. This port of Analyze runs with Windows Vista, XP x64.

- **New Windows Vista platform support**: The Analyze 8.1 release is the first version of Analyze available for the Windows Vista operating system.