

Analyze 10.0

Analyze Basics

Welcome to the Analyze 10.0 Essential Training Guide. This document provides an overview of Analyze 10.0 core functionality through 56 exercises that guide new users step-by-step through basic and advanced Analyze procedures. A fully comprehensive overview of all Analyze 10.0 module functionality can be found in the User's Guide and Tutorials located under the Help menu within the software. If you have not installed Analyze 10.0, please refer to the Analyze 10.0 Installation Instructions provided with the software.

Installing Tutorial Data

In order to work through the Essential Training Guide exercises and Analyze Tutorials, you need to install the tutorial Data from the Resources CD. To install the tutorial Data:

1. Insert the **Analyze Resources CD** into your computer.
2. Open **Analyze 10.0** and choose **Help > Tutorials**.
3. Click **Install Tutorial Data** at the bottom of the Tutorials window. Note, if the tutorial data has already been installed this button will not appear.
4. In the window returned, specify the path to the tutorial data, for example **D:\TutorialData** (where D:\ is equal to your CD-ROM drive).
5. Click **Install**. All of the tutorial data will be copied from the Resources disk to the **\$_\BIR\images\TutorialData** folder (where \$ is the install directory, e.g. C:\ on a Windows system).

Quick Reference

Button Reference: Displays PowerBar button or tool button referenced in that exercise step. The button will be next to the step that it refers to. Often, the step only mentions the file path, but the button is displayed as a shortcut. Example:

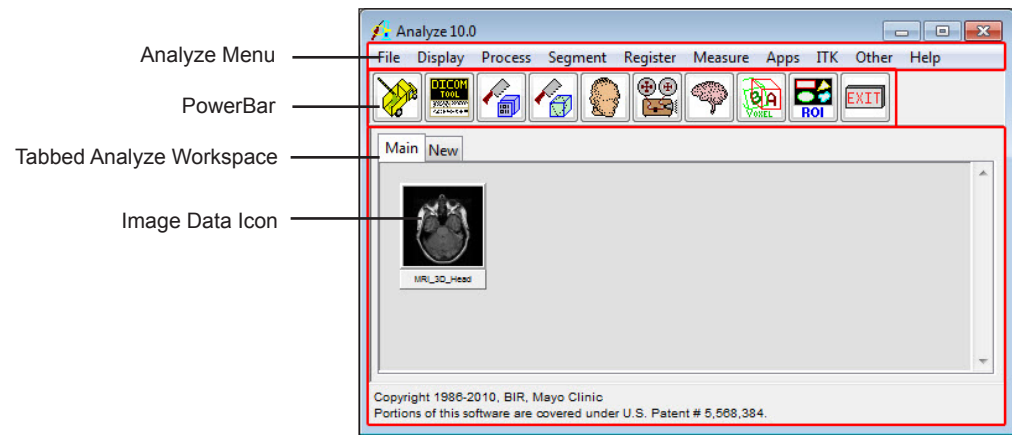


Open the **DICOM Tool (File > DICOM Tool)**.

Analyze Basics

The Main Analyze Window

The main Analyze window is the first operational window that appears when Analyze is opened. The main Analyze window does not perform any imaging functions, but it does coordinate all the modules within the Analyze package and acts as a file manager for loaded data. It consists of three major components: **the Analyze workspace**, where all of the loaded data, represented as icons are managed; **the Analyze menu**, where individual Analyze modules are selected; and the **Analyze PowerBar**, which provides icon-based shortcuts to the most frequently used Analyze modules



Loading Data into Analyze

Image data is loaded into Analyze using one of the load modules (Load, Load As, DICOM Tool, or Import/Export) from the 'File' menu in the main Analyze window. Most of the individual Analyze modules also support data loading directly within the module (**File > Load** within the module).

To load DICOM data, use the DICOM module, for more information on how to use this module, please refer to Exercises 1-2 of this Guide.

To load all other data into Analyze, refer to Exercises 3-6 of this Guide.

The tutorial data used in the Essential Training Guide exercises can be loaded into Analyze using the **Load** module (**File > Load**). It is assumed that the data was installed to **\$_\BIR\images\TutorialData** (where \$ is the install directory, e.g. C:\ on a Windows system) according to the "**Installing Tutorial Data**" instructions on page 6.

The Analyze Workspace

Once data is loaded into Analyze it will appear as an icon in the Analyze workspace and is available to all of the modules in the Analyze package. To load data into a module, select the image icon in the Analyze workspace (the icon will appear framed in red when selected) and open the desired module from the Analyze menu or PowerBar. If multiple icons are selected at the time the module is opened, one of the two actions will occur:

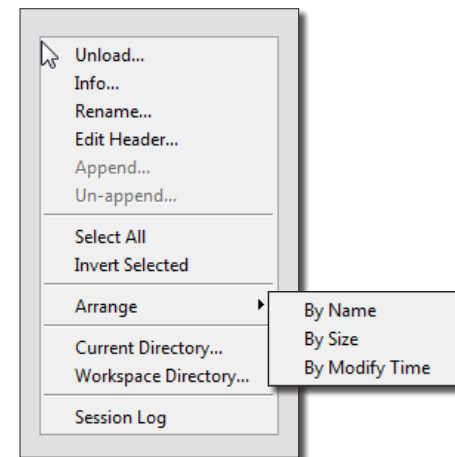
1. If the opened module supports or requires multiple volumes, the volumes are used in the order selected.
2. If multiple loaded volumes are not supported, then multiple instances of the module are invoked.

note To select multiple data sets hold down the <Ctrl> key while making selections with the mouse. Alternatively use the left mouse button to select the first data set and the middle button (if available) to select additional data sets.

Right Mouse Button Menu

The Analyze workspace is an area with additional options. When the right mouse button is clicked in the workspace, a menu will appear. The menu provides the following options:

- **Unload:** Unload selected data from the Analyze workspace
- **Info:** Display the header information for a selected data set
- **Rename:** Change the name of a selected data set
- **Edit Header:** Modify the header information of a selected data set
- **Append:** Append selected data
- **Unappend:** Unappend 4D multi-volume data sets, or RGB data sets
- **Select All:** Select all data sets in the Analyze workspace
- **Invert Selected:** Invert your selection of data in the Analyze workspace
- **Arrange:** Arrange data sets by Name, Size or Modify Time
- **Current Directory:** View and modify the Current Directory location
- **Workspace Directory:** View and modify the Workspace Directory location
- **Session Log:** Stores information that might be useful to the Analyze support team and software developers, should a problem ever arise with one of the modules.



Main Analyze Window Quick Keys

<Ctrl><a> Selects all of the files in the workspace.

<Shift><Left Mouse Click> Selects all files between first and shifted selections.

Double clicking on a data set in the workspace restarts the last module used with that data. If there is not a module associated with the data, the Multiplanar Sections module will open by default.

The Analyze Menu

The **File** menu contains the modules that are used to input and output data, as well as the standard 'Save', 'Save As' and 'Exit' options.

The **Display** menu contains the Analyze modules that involve the display, visualization, and manipulation of image data:

- Multiplanar Sections
- Oblique Sections
- Volume Compare
- Volume Render
- Surface Render
- Virtual Endoscopy
- Movie

The **Process** menu contains the Analyze modules that are used for processing and classifying image data:

- Image Calculator
- Image Algebra
- Histogram Ops
- Spatial Filters
- Filter Designer
- 3-D FFT

The **Segment** menu provides facilities for image segmentation:

- Image Edit
- Morphology
- Watershed
- Multispectral Classification
- Object Extractor
- Surface Extractor

The **Register** menu contains all of the Analyze tools for image registration:

- 2-D Registration
- 2-D Non-rigid Registration
- Point to Surface
- 3-D Surface Registration
- 3-D Voxel Registration
- 3-D Non-rigid Registration

The **Measure** menu contains an extensive selection of measurement modules:

- Line Profile
- Region of Interest
- Stereology
- Object Counter
- Tree Analysis

The **Apps** menu option contains add-on modules available for Analyze:

- SISCOM
- Mayo 3-D Brain Atlas*
- DTI*
- T2 Projection*
- Volume Metrics*

The **ITK** menu contains modules that provide access to the Insight Toolkit (ITK):

- Filter
- Segment 2-D
- Segment 3-D
- Registration

*These modules require the purchase of an additional license

The Analyze Menu

Additional items available in the Analyze menu include:

The **Other** menu contains utilities and modules for configuration and resource monitoring.

- **Resources:** The Resource Monitor assists in maintaining system resources at a level that does not impede proper execution of Analyze. The resources being monitored and displayed are Swap space, Workspace, and user specified directory Disk space. For all three, the Resource Monitor reports the amount of space used, space available or free, and total capacity.
- **PowerBar Editor:** the PowerBar Editor is an option that appears in all Analyze modules that contain PowerBar options.
- **Options:** The Options item allows you to switch on and off workspace features such as the PowerBar, and the pop-up icon names which are shown when the mouse cursor is moved over an image in the workspace. You can also configure Add-On modules to be switched on or off.
- **AppDefaults Editor:** The AppDefaults Editor provides several tools for managing and changing defaults or user preferences for the Analyze workspace and specific Analyze modules. For further information about the AppDefaults Editor please reference the User's Guide (**Help > User's Guide**).

The **Help** menu provides access to several important Analyze resources:

- **User's Guide:** Provides detailed information on each Analyze module.
- **Tip of the Day:** Can be set to display an Analyze "tip" each time Analyze is opened.
- **Tutorials:** Tutorial exercises covering some of the main Analyze functions. Note, you must have selected to install the Tutorials during initial Analyze installation.
- **Analyze Update:** Checks to make sure Analyze is up-to-date, also will download and install any necessary updates.
- **Online Support:** Provides a direct link to the AnalyzeDirect Support home page.
- **Analyze Demos:** Provides a direct link to a list of Help Movies
- **Copyrights:** Documentation of Analyze Copyrights.
- **About:** Provides version, system, and environment information.

Analyze Basics

Main Analyze PowerBar

Directly below the menu bar in the main Analyze window you will find the **PowerBar** of icons. The icons on this main Analyze PowerBar provide shortcuts to the most commonly used Analyze modules. By default, the main Analyze PowerBar contains icons for:

Load As, DICOM Tool, Multiplanar Sections, Oblique Sections, Volume Render, Movie, Object Extractor, 3D Voxel Registration, Region of Interest, and Exit.



Module-Specific PowerBars

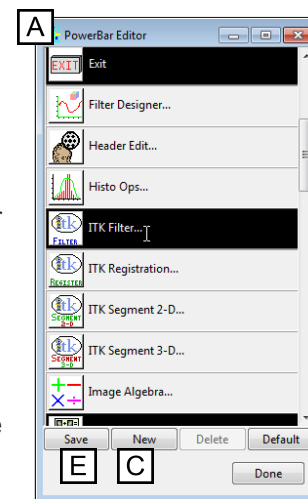
In addition to the main Analyze window, you can also find a **PowerBar** in each Analyze module. The icons included on the PowerBar of each Analyze module provide shortcuts to the most commonly used tools and options within that specific module.

PowerBar Editor - Customizing PowerBars

Customizing Analyze PowerBars is a quick and easy way to streamline your work flows and routine processes. To customize the PowerBar displayed within any Analyze window, you can use the **PowerBar Editor** found under the window's 'Other' menu (**Other > PowerBar Editor**).

Using the PowerBar Editor [A], you can:

- **Add/Remove PowerBar icons:** To add an icon to the PowerBar, select it in the PowerBar Editor list (selected icons appear highlighted in black). To remove an icon, deselect it in the PowerBar Editor list.
- **Change the order of PowerBar icons [B]:** With the PowerBar Editor open, drag-and-drop an icon on the PowerBar to a new location.
- **Create additional PowerBars:** To create multiple PowerBars for the main Analyze window or an Analyze module, click the New button [C] in the PowerBar Editor and then select the desired icons for the new PowerBar. You can scroll through the PowerBars using the up/down arrow buttons added to the far left of the PowerBar [D].



note Be sure to press Save [E] in the PowerBar Editor if you wish to keep your PowerBar changes for future sessions. Otherwise, changes will be lost upon exiting the Analyze module, or Analyze.

