DentalEye 3 Image Management Software

Imagin Systems Corp., 815 Cherry Lane, San Carlos, CA 94070; www.dentaleye.com. Contact: Bob Seawell, 888-478-4624, ext. 11.

Reviewed by:
Eugene A. Pantera, Jr., D.D.S., M.S., Clinical Associate Professor, Department of Periodontics and Endodontics, and Assistant Dean, Continuing Dental Education, School of Dental Medicine, University of Buffalo; epantera@buffalo.edu

DentalEye 3 is a Windows-based image management system for dental practice created and sold by DentalEye AB, located in Sweden. Not to be confused with Yashica’s Dental Eye 3, a 35 mm camera system, DentalEye 3 provides for the capture, storage, retrieval, and modification of digital radiographs, scanned images, and intraoral camera images. This software integrates with most digital x-ray sensors, image plate systems, intraoral cameras, digital panoramic devices, digital cameras, image scanners, and video and DV sources. DentalEye 3 retrieves patient images by date or quadrant and allows for comparative review and analysis. It includes a Cosmetic Imaging module that can facilitate patient education regarding smile design, bleaching, and tooth replacement. An earlier version of this software has been available in Sweden since 1993 and was recently upgraded to the current release. DentalEye 3 is an open architecture, 32-bit SQL-based program.

DentalEye 3 reportedly accepts input from most major manufacturers of digital radiographic sensors, video cameras, and scanners or Twain sources that can be used for image capture. A listing of compatible hardware is not available, but the company can be contacted for information. DentalEye 3 supports Microsoft Access and Microsoft SQL Server-based databases. The latter is recommended for more than ten users on a single server.

I evaluated a single-user DentalEye DEMO V. 3.0.471 and assumed (though not confirmed) it to be a full working version of the software limited to the import of thirty images. The software was installed on a Dell P4 Dimension 8250 (3.06 GHz, 512 RAM) running Windows XP and a WinBook P3 Z1 Mobile (850 MHz, 392 RAM) running Windows 2000.

Software installation on both systems was uneventful and straightforward for the average user. The CD installer allowed for English or Swedish. The English install process followed usual Windows standards with some minor language mistranslations.

The DentalEye 3 CD menu offers several tutorials, but use of the CD menu was quirky. Tutorials were accessible at times; at other times the CD menu would crash. This was the case on both computers. All menu items could be accessed by going into the CD and opening and sorting through the help folder and subfolders. Two tutorials were particularly helpful. A Windows video audio file gives a pleasant overview of the software showing the program in use. Another, a Lotus ScreenCam 97 presentation, was helpful, at least until there was loss of synchronization between the player and the audio. There are also PowerPoint.html presentations that were informational. All help files on the CD are also available at the company’s website.

Once loaded, DentalEye 3 started without problems. While there is a learning curve, the more familiar a user is with Windows operating systems and graphic programs in general, and image manipulation software specifically, the shorter the curve. DentalEye 3 has two principal functions: the capture, storage, and retrieval of digital radiographs and still video images, and cosmetic imaging. DentalEye 3 can import and export several standard image formats including DICOM™, a standard with a long history of use in medical imaging systems, but only now being implemented in dentistry.

One compelling feature of the software is the user-defined templates. The template consists of frames arranged on an image card analogous to ra-
diographs and 35 mm slides on a view box. The image card is the work area of DentalEye and can be saved, printed, or exported as necessary or desired. When capturing digital radiographs, a template can be created and saved, then used to automatically place the digital image in an appropriate frame. For example, if the user were exposing a full set of periapical radiographs, the template could be set to begin with the maxillary right posterior, sequentially progressing around the maxillary arch to the mandibular left quadrant and ending with the mandibular right quadrant. All that is required is for the user to place the sensor, activate the x-ray machine, and repeat the process. The software is activated by the sensor being exposed to x-rays and the image captured and placed in the next sequential frame. The user does not have to touch the computer or mouse. Images can be adjusted with regards to exposure, annotation, rotation (in 90˚ increments), positioning, and notes if needed before being stored. Images are categorized by tooth groups, such as “Molar right upper,” “Molar left lower,” and so on. This allows the user to quickly retrieve and compare patient radiographs chronologically onto an image card.

Images (grayscale and color) are manipulated by changes in contrast and brightness. An innovative feature is DentalEye’s brightness/contrast tool which uses a “red spot” held by the mouse simultaneously changing brightness and contrast as it moves over a matrix. This is a significant improvement over dragging one slide bar, then the other. There are other tools that attenuate and optimize selected areas and can colorize radiographs. While these are interesting functions of DentalEye and other dental imaging software, objective evaluations of these tools with regard to diagnosis remain to be reported. Requested supporting documentation was not available by the time this review was completed. There is also a collection of annotation tools for images that allow the user to draw lines, shapes, create pointers, write notes, and measure angles and lengths.

The cosmetic imaging functions have tools for whitening, cloning (pick up color and structure in one place and paint it on another part of the image), diffusing (or blending), color manipulation, and inserting clip art smiles. DentalEye facilitates selection of teeth in an image that can create a “quick and simple” whitening result. Creating and optimally manipulating color images digitally takes practice and knowledge of properties of color, hue, saturation, and value. The software provides for full control over colors with a variety of slide bars that remove or add colors and change saturation, brightness, and contrast. More precise control of drawing and selection is possible by using a graphic tablet and pen (not included) rather than a mouse.

The manual in Adobe PDF format indicates the DentalEye 3 can function within any practice management system, provided a link is written by the practice management system company. New patient registrations would be made in that system and transferred to DentalEye 3. This integration was not evaluated. Many vendors advertise this capability as “bridging,” which is a very poor method of integrating two software programs, because the user must contend with two very different user interfaces, incur navigational overhead (clicking, scrolling, etc.), and most often maintain two different databases.

Problems I encountered during evaluation included images freezing on the image card and the demo version expiring after only a few images. The expiration problem was resolved by uninstalling then reinstalling the
DentalEye trial software. The problem with the image card went unresolved. While image processing may not be as sophisticated as when using programs such as Adobe Photoshop, DentalEye 3 facilitates image manipulation readily enough to arrive at an acceptable end result. Missing were RGB values for color recording. Though probably not used that often, every once in a while it is nice to have them available.

I also had some disappointment in the help material. While the included video is good, the DentalEye 3 manual, available in PDF format, could have been better. The PDF manual did not have any interactivity, which would have made navigating and finding information within the document much easier. There are also quick guides for radiographs and cosmetic imaging in MS Word that are helpful. It would be beneficial if these were expanded with more detail. The DentalEye 3 website had support information, but not much more than what is included in the demo CD disk. Support from DentalEye AB is available by email or with an international phone call. There was no information provided for phone support in North America.

DentalEye performed the same on both computer systems it was installed on, including the problems described. There was no certainty that the difficulties encountered were a software problem, the result of safeguards built into the demonstration version, or user inexperience. Despite the different processing and operating systems between both test computers, there was no observable difference in time to complete tasks. Since the number of images included in the demo program and the number that could be imported were limited, there was no way to evaluate searching capability within a large database.

Overall, I found that DentalEye 3 performed well. The experienced user will not have difficulty learning or using the software, though the inexperienced user will probably require a learning period. This demo version was installed for a single user without any difficulties. If DentalEye is considered for use in a multi-user workstation environment, an experienced administrator should perform the installation and integration of the software into the dental practice.