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Image Archive

General

Unlike the backup function, which is designed to help you restore the last backup level (working status) in the event of a total system failure, the purpose of the archive module is to build a long-term archive of the video and X-ray images and to permit direct access (random access) to the images archived.

On the one hand, such a long-term archive reduces the storage requirements on the working partition while, on the other hand, it fulfills the legal requirements regarding the obligation to preserve X-ray images for a specified period.



A long-term archive should be created on a separate storage medium (e.g. MO drive, CD recorder). If you create a long-term archive on the working partition of a hard disk which also holds the operating system and other applications, there is a risk that the storage capacity for the operating system and other programs will be insufficient. This may result in problems during program execution.

You must back up the DBSDATA database directory immediately before or after an archiving operation to assure that all data can be properly restored after an irreversible disk crash!

Suitable archiving drives and storage media

Based on the present state-of-the-art engineering, a magneto-optical drive, abbreviated MO drive, is to be recommended for long-term archiving. The manufacturer should guarantee data readability for up to 30 years. The file access times of this medium are acceptable.

CD recorders are less suitable since the manufacturers can only guarantee a max. medium readability period of 10 years. Moreover, the life of a CD greatly depends on ambient conditions. Note that only CD recorders with suitable software (e.g. Adaptec Direct-CD > V2.0) permit direct file access. The storage medium must be formatted before using.



While hard disk drives are a possible storage medium, they should only be used in cases of emergency or for testing since they are not suitable for long-term archiving!



Tape drives are unsuitable for long-term archiving since they do not support direct access to data.

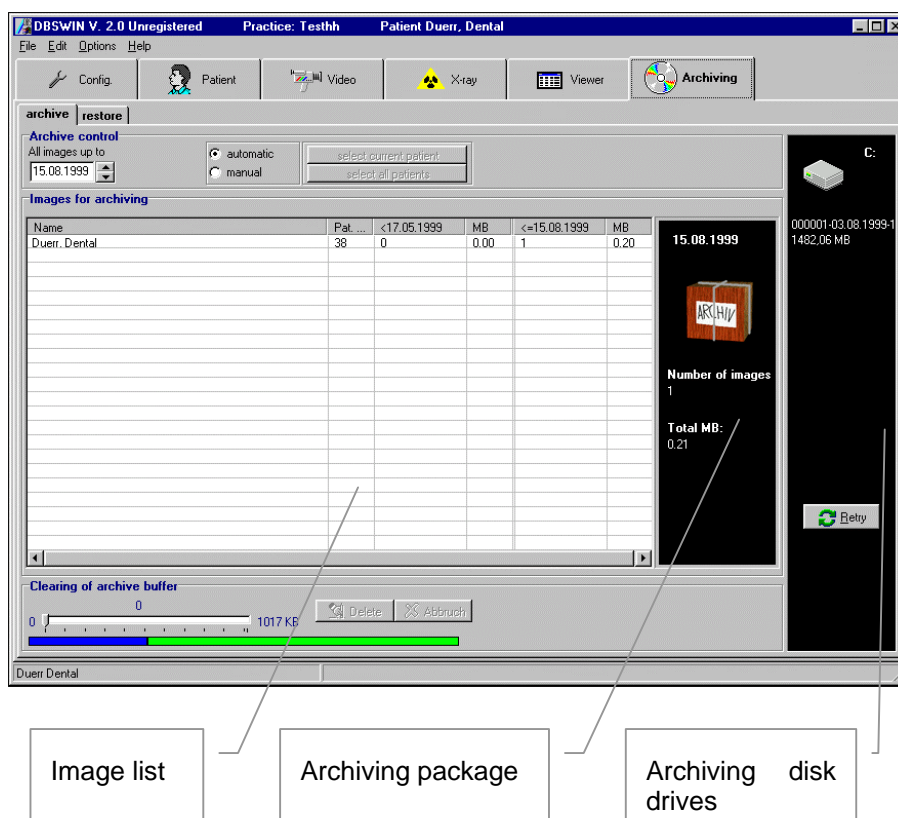
Archive management

The tabs *Archive* and *Restore* are arranged at the top of the archive module page. The Archive control field is located underneath these tabs. It includes the *All images up to* input field, the archiving mode buttons (automatic/manual) and the *select current patient* and *select all patients* pushbuttons.



The archiving system must be configured properly before you can start an archiving operation (Menu/Configuration/Modules/Archive).

Archiving



Automatic creation of archive image list

In the automatic mode, the *select current patient* and *select all patients* pushbuttons are disabled, and the date limit between the *green* and *red* areas of the configuration setting in the *All images up to date* field is displayed as the default value.

This is the mode of operation that should generally be used.




In the above-mentioned automatic mode, the program determines the images to be archived based on the configuration setting. However, you can change the time period in the *All images up to date* field for this archiving operation.



Any change in date must be confirmed by clicking the *Date OK?* pushbutton, so that the image list can be updated.

The image list *Images for archiving* is displayed underneath this field. This image list shows all the images that match the selection criteria.

If at least one image to be archived is displayed, the archive module creates a package  in the first black field on the right. Pick up this package by clicking on it and move it to the archival disk drive contained in the black field to the right using the *drag & drop* technique. If no archival disk drive is present, then this must be configured under *Configuration/Module/Archive/Drive*.

Manual creation of archive image list

The manual procedure is distinguished from the automatic archiving procedure only by the fact that you determine the patient images to be archived yourself by selection from the list. This mode of operation should only be used for patient-specific archiving!

In this mode, the two options *select current patient* and *select all patients* are also available.

If the *select current patient* option is deselected, you either have not selected a patient (Patient module), or there are no images that can be archived for the patient during the selected period of time.

Procedure

- Patients are selected using the customary Explorer procedures, e.g. with the mouse, the Shift or Ctrl key or the above-mentioned pushbuttons.
- If at least one patient has been selected, an archive package containing the corresponding images is created. Use the drag & drop function to move this package to the desired archive drive.
- The rest of the procedure is identical to the automatic archiving procedure.

Closing of archive media

The program automatically closes each medium if the medium becomes full after or during an archival operation. If you wish to close the medium beforehand (e.g. to make a copy), select *Close* in the context menu of the medium. Display the context menu by clicking on the medium symbol in the drive display area with the right mouse button.

Once a medium has been closed, it can no longer be used for archiving!

Labelling of archive media

Always label a new medium immediately after the first successful archiving operation with the archiving number displayed below the medium in the field to the right.

The first 6 numbers (from the left) are unique and should be recorded.

Copying of archive media

The archiving medium you wish to copy must have been closed in order to guarantee data consistency. Copies should be made for protection against data loss (due to mechanical destruction or disappearance of the original medium).

Archive disk drive

The second black field contains the drive symbols of the existing archiving drives and indicates their current state:

Closed: Each drive on which at least one archive has been stored can be closed. If this is the case, click on it with the right mouse button to open a context menu which enables you to obtain additional information on the drive or to close the drive. Closed means that no further archiving to this medium is possible.

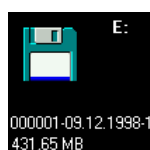
Not from this practice: The DBSWIN archive storage medium inserted contains an archive that is not from this practice.



No write access!

The currently inserted storage medium does not permit write access. Any data already present on one of the archive medium can be read!

In the case of an MO disk or similar storage medium, this means that the write protection function has been activated. A recordable CD has been closed using the file system, or a CD-ROM drive has been configured.



Indication of media ID and free storage capacity of medium

This medium may be used as the first medium for the next archiving operation. Should the capacity remaining be insufficient to hold all the data to be archived, you will need additional media to continue the archiving operation. The number of media required is estimated before the archiving operation starts. The number of media indicated is the maximum number of media needed; this number will never be exceeded.



No medium

If an archiving drive does not contain a medium (e.g. no CD in CD-ROM drive), a thick red diagonal line indicates that this drive is not present for archiving.



Refresh drives

Click on this field to refresh the drive display (e.g. after a medium change).

Archive buffer

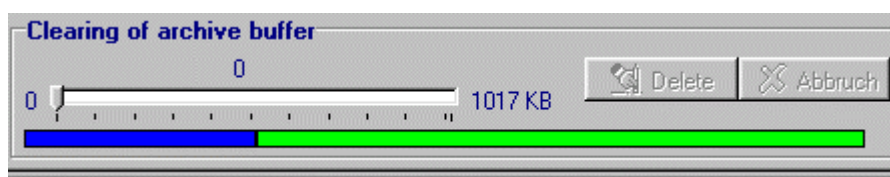
Long-term archiving is based on a two-phase procedure. During the first phase the images are copied to the archiving medium and remain in the image directory (these images are the so-called archive buffer) from which they can be loaded into DBSWIN whenever needed.

In the second phase images of the archive buffer are deleted. Now they are only located on the archive media (long term image archive)! To do this, move the slide control to the right to determine the size of the storage space to be cleared. Press the *Delete* pushbutton to complete this procedure.

The colour bar indicates the current storage space usage of the hard disk holding the practice image data.

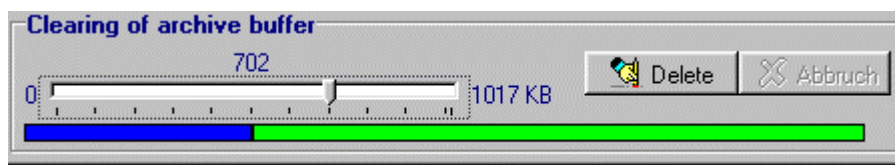
This bar consists of three sections identified by different colours:

- Blue = unusable hard disk space
- Olive green = storage space occupied by archive buffer
- Green = usable hard disk space

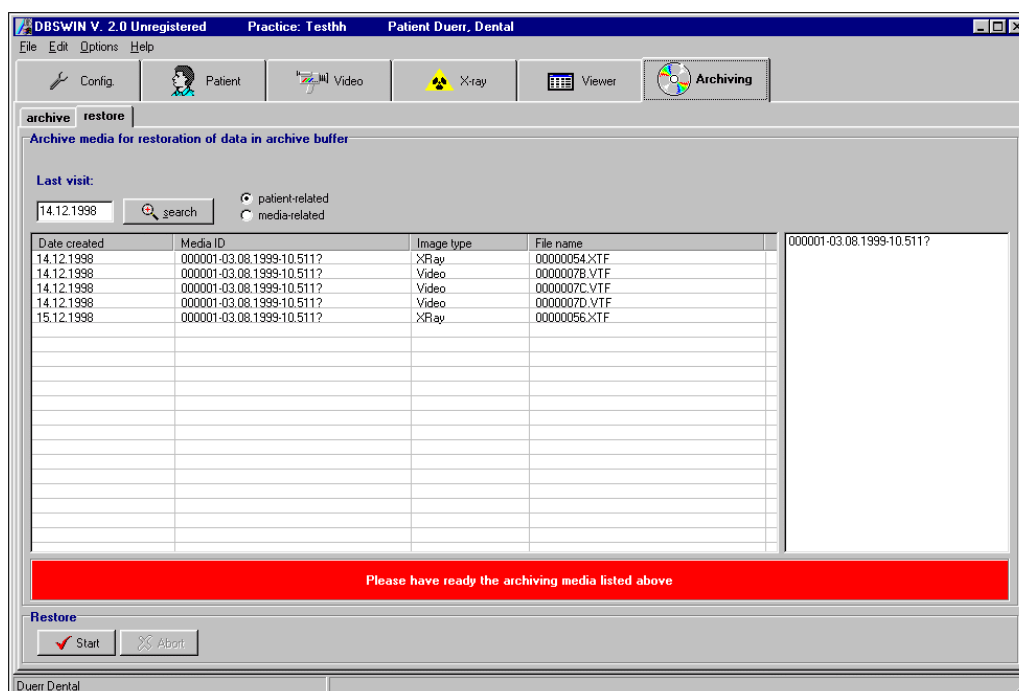


The images in the archive buffer should only be erased when more storage capacity is needed (e.g. for new X-rays).

In the following example, the slide control was moved to the right to clear 1023 Kbytes of the 1390 Kbyte archive buffer. This storage space is released (cleared) by pressing the *Delete* pushbutton.



Retrieve archived images



Archived images can be restored by medium or patient. If a medium restore is to be performed, the archive module searches all drives configured for archive media.

In the case of a patient restore, all archive media pertaining to the currently selected patient are displayed in the *Select a medium* field next to the list box and can be selected there.

To limit the selection, a day (e.g. day of last visit) can be entered in the date field to specify the date up to which the images are to be restored. Once a medium has been selected, all matching images are displayed. The recording date, media ID, image type and file name are displayed for each image.

When you have selected a medium, click the *Start* field to restore all the images displayed in the list to the archive buffer.



The patient restore procedure is to be used to prepare for the visits of the next day(s). This will guarantee that all the images required can be quickly accessed on the hard disk and do not need to be read from an archive - possibly spanning several media - during a visit, which would be very time-consuming!!

