Development Kit for the Kodak Dental Imaging Software
Programmer's guide

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Eastman Kodak Company
Trophy Radiologie S.A.
A subsidiary of Eastman Kodak Company
4, Rue F. Pelloutier
Croissy Beauboug
77437 Marne-la-Vallée Cedex2
France

Tel: +33 1 64 80 85 00
Fax: +33 1 64 80 84 93

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CONTENTS

SCOPE

This document is written to be used as a programmer's guide. The reader is assumed to be experienced with programming under Microsoft Windows. This document explains the major components provided with the Development Kit (SDK) for the Kodak Dental Imaging Software.

VERSION

Version 1.3

VERSION HISTORY

Historique.dll's version evolution.

- Version 1.0

This version provides two exported functions:

- nAfficheHistorique
- HistoCatImg

- Version 1.1 and version 1.2

These versions no longer support the exported function "HistoCatImg".
Its exported functions are:

- nAfficheHistorique
- HistoMultiImgType

PACKING LIST

Files distributed with the History dll :

- Dlls:
  - historique.dll,
  - prefere.dll,
  - ModuleFichier.dll
  - FilesV5.dll
  - FmsContexts.dll
  - language dll files: Tw*.dll (ex : twfra.dll),
  - mfc70.dll,
  - msvcr70.dll.
  - msvcp70.dll
  - msxml4.dll : use XML\ MsXML4.msi available on the Kodak Dental Imaging Software CDROM for installation of the Microsoft XML4 package.
- Applications:
  - tw.exe, needed if launching the software from the History dll
  - testHisto.exe, Windows test application of functionality available with History dll.

1. MAIN DESCRIPTION

The dynamic-link library (DLL) "Historique.dll" is an independent module of the Kodak dental imaging software. It makes it possible to visualize various presentations of the images stored in a particular directory (equivalent to an image browser).

History DLL presents two main user interfaces:

- a window containing the complete image list stored in a particular directory following various criteria of selection and where the images are gathered by category,
- a second interface presents a window containing the same image list without any reference to the various image categories.

Different image categories are distinguished:

1. RVG images (file name R__.tif or R__.rvg)
2. PANO images (file name P__.tif or P__.pano)
3. CEPH images (file name H__.ceph)
4. Intraoral video images (file name S__.tif or S__.stv)
5. SCAN images (file name T__.tif, C__.tif or C__.sc)
6. DX images (file name __.dx): extraoral X-ray images, non Kodak
7. IO images (file name __.io): intraoral X-ray images, non Kodak

The history module can also present other types of patient associated documents:

1. FMS (file name X__.tif, F__.tif, Y__.tif, H__.tif, N__.tif or F__.fms)
2. Contexts (file name __.ctw)
3. Other documents (.doc, .ppt …)

The two History module interfaces use dialog-based windows on which, in small size, the directory's images are displayed. If available, image information is displayed on the image preview. Image information includes the acquisition date, tooth number and user comments, displayed as tooltips.

From these interfaces, a user can select one or more images either for visualization or to apply specific treatments. In the later case, the images are sent to the Kodak dental imaging software.

2. FIRST INTERFACE: FULL HISTORY

2.1. General overview

This interface appears as a dialog box, it consists of five tabs. Each page allows users to sort images according to specific criteria:

- Page **List** (*Fig 1*): it shows image files in detail: File name, acquisition date, tooth number, comments… a thumbnail image of the selected file also appears.

- Page **Intra-Oral** (*Fig 2*): it displays previews of intra-oral images. The page contains three areas corresponding to the following image types:
    - Intra-oral X-ray images
    - FMS
    - Other Kodak images registered as intra-oral (color or scanned images)

- Page **Extra-Oral** (*Fig 3*): it displays extra-oral images' previews. The page contains two areas corresponding to the following image types:
    - Panoramic and cephalometric images
    - Other Kodak images registered as extra-oral (color and scanned images)

- Page **Context** (*Fig 4*): this page consists of two parts. The first one is an explorer window displaying information about the context files. The second one shows a preview of the selected context file.

- Page **Other** (*Fig 5*): this page consists of two parts. The first one displays previews of scanned and color images, that were not saved as intra or extra-oral images. The second one is an explorer window displaying information about "document" files (.doc, .ppt…) contained in the directory.

This interface can be customized, with more or less options, depending on the exported functions used.

2.2. Exported Function: nAfficheHistorique

This exported function makes it possible to customize:

- The tooth number to which images must be associated
- The maximum number of images that can be selected
- The first page displayed on calling the module
- The color used to select images

The graphical interface of this window can be seen in *Fig 6*.

2.2.1. Function signature

int **nAfficheHistorique**(
char *pszPathDir,
char * pszImagingSoftwarePath,
char *pszPatientName,
char *pszFirstName,
HWND hWnd,
char *pszNumDent,
int nPage,
int nMaxSel,
bool bOpenTW,
COLORREF color,
bool bListeNomFic,
Path *ppListeNomFichier)

where Path is defined as:

typedef char Path[MAX_PATH] (MAX_PATH is a standard Windows constant).

2.2.2. Input Parameters Description

The following table describes all the input parameters and indicates if they are optional or not:

pszPathDir	Directory containing the images to be displayed. Must be set.
pszImagingSoftwarePath	Directory containing the Kodak dental imaging software (i.e.: C:\program files\Kodak\). Must be set if the Kodak dental imaging software is to be started from the History module (if the bOpenTW variable is set to true).
pszPatientName	Patient name. Must be set if the images need to be opened with the Kodak dental imaging software. If this parameter is not used it does not need to be set (empty string).
pszFirstName	Patient first name. Must be set if the images need to be opened with the Kodak dental imaging software. If this parameter is not used it does not need to be set (empty string).

hWnd	Handle of parent window of the history dialog box. If NULL, the parent window will be the current application's main window.
pszNumDent	Indicates if the module must display all images or only the images saved with a tooth number. You must set one of the following values: pszNumDent = "0" -> display all images pszNumDent = "-1" -> display only images saved with a tooth number pszNumDent > "0" -> display all images saved with tooth number pszNumDent

nPage	Tab of the dialog box to be displayed in the first position when loading the module.
	
	The tab numbers are:
	if pszNumDent = 0:
	0: tab "List"
	1: tab "Intra-Oral"
	2: tab "Extra-Oral"
	3: tab "Context"
	4: tab "Other"
	else:
	0 : page "List"
	1 : page "Intra-Oral"
	In all cases, the default value is 0.

nMaxSel	Sets the maximum number of selected images allowed.
bOpenTW	Flag indicating if user selected images must be opened with the Kodak dental imaging software or not. Opening of the images is started by clicking the OK button or double clicking on one of the selected images. true: opening of the images selected in the imaging module false: the imaging module is not called Default value is false
color	Color of image selection frame for the pages under the "Intra-Oral", "Extra-Oral" and "Other" tabs. Default color value is green, if this variable is not set (null value). ***Note***: if the selection frame color is too close to white, the user might not see which images are selected.
bListeNomFic	Flag indicating that the selected file names need to be loaded in the ppListeNomFic (see further) array. true: an image file name array will be loaded in this array. false: an image file name array will not be loaded Default value is false
ppListeNomFic	An array where "the software using the history module" can get the file names of the user selected images. After use, this table must be destroyed calling the DeleteTabFileName function (cf. 4.1) If the bListeNomFic flag is set to false, this parameter can be NULL, otherwise an error will occur.

2.2.3. Output Parameters Description

nAfficheHistorique function returns an integer representing the number of user-selected images.

2.2.4. Error Messages

Error messages may be generated by using the **nAfficheHistorique** function, as described below:

Error message: *"Cannot open file: PREFERE.DLL".*
This error occurs when the History module fails to load the “prefere.dll” file. Module execution fails and returns 0.

Error message: *"Wrong version of PREFERE.DLL"*
The “prefere.dll” module was loaded but does not contains the desired information. Module execution fails and returns 0.

Error message: *"Cannot open file: TW*.DLL"*
The software could read the file name of the language dll file that will be used as a resource for the history module, but could not open it. Module execution fails and returns 0.

Error message: *"Cannot find the directory"*
The directory “pszPathDir” passed on to the **nAfficheHistorique** function is not valid. Module execution fails and returns 0.

Error message: *"An error occurred during files research."*
Problem on reading one or several images from the “pszPathDir” directory.

Error message: *"You can't select more than N image(s)"*
The user has selected nMaxSel images. The program does not allow to select more images but will not halt.

2.3. Exported function: DisplayFullHistoric

This exported function allows the customization of:

- The tooth number of which images that need to be accessed
- The maximum number of images that can be selected
- The page to be displayed first on calling the module
- The frame color used to select images

but also:

- The interface's background color
- The pages to be displayed, among the five available ones
- The displaying (or not) of "document" files in the "Other" page

This window's graphical user interface is shown in the attachments, *Fig 1* to *Fig 5*.

2.3.1. Function signature

```
SFileName* DisplayFullHistoric  ( char * pcDirectory,
                                  char *  pcTWAppPath,
                                  char *  pcPatientName,
                                  char *pcFirstName,
                                  HWND hWnd,
                                  char *pcTooth,
                                  int nMaxSel,
                                  int nPage,
                                  COLORREF crbkgndColor,
                                  COLORREF crSelectColor,
                                  bool bOpenTW,
                                  bool bSelFileList,
                                  long lDispPage;
                                  bool bOnlyTrophyFiles)
```

2.3.2. Input parameters description

The following table describes all input parameters mentioning whether it is optional or not.[1]

pcDirectory	Directory containing the images to be displayed. Must be set.
pcTWAppPath	Directory containing the Kodak dental imaging software (i.e.: c:\program files\Kodak\), used to manipulate the selected images. Must be set if the software is to be used from the History module, if the bOpenTW variable is set to true.
pcPatientName	Patient name. This parameter must be set if opening the selected images in the Kodak dental imaging software (bOpenTW variable set to true). Otherwise this parameter is not used and does not need to be set (empty string).

[1] Note: New functions follow new coding conventions. Variable names are thus not homogeneous with old functions.

pcFirstName	Patient first name. This parameter must be set if opening the selected images in the Kodak dental imaging software. Otherwise this parameter is not used and does not need to be set (empty string).
hWnd	Handle of the window that will be the parent of the history dialog box. If set to NULL, the parent window will be the main window of the current application.
pcTooth	Indicates if the module should display all images or only images that were saved with a tooth number. You must set one of the following values: pcTooth = “0” -> all images will be displayed pcTooth = “-1” -> only images saved with a tooth number are displayed pcTooth > “0” -> only images saved with the pcTooth tooth number are displayed
nMaxSel	Sets the maximum number of selected images allowed.
nPage	Page of the dialog box to be displayed first when loading the module. The values are: If pcTooth = 0 : 0 : tab “List” 1 : tab “Intra-Oral” 2 : tab “Extra-Oral” 3 : tab “Context” 4 : tab “Other” Sinon : 0 : tab “List” 1 : tab “Intra-Oral” Default value is 0. If the tab number is not compatible with the value of lDispPage, the default page of the available pages is presented first.
crbkgndColor	Interface background color. If set to NULL, the background default color will be the one used by the nAfficheHistorique function, being RGB(247, 243, 233).
crSelectColor	Frame color used for image selection for the “Intra-Oral”, “Extra-Oral” and “Other” pages. If this variable is not set (value NULL), the default color value is green. ***Note***: if the selection frame color is too close to white, the user might not see which images are selected.
bOpenTW	Flag indicating if user selected images must be opened with the Kodak dental imaging software or not. Opening of the images is started by clicking the OK button or double clicking on one of the selected images. true: opening of the images selected in the imaging module false: the imaging module is not called Default value is false

bSelFileList	Flag indicating a list of file names of selected images must be returned by this module (cf. § 2.3.3). true: the list will be filled out false: this list will be empty Default value is false.
lDispPage	Page(s) of the History that must be displayed. It can have the value 0xFFFF (display all pages) or it can be a combination of the following ones : Page List : 0x0001 Page Intra-Oral : 0x0002 Page Extra-Oral : 0x0004 Page Context : 0x0008 Page Other : 0x0010
bOnlyTrophyFiles	Flag indicating if all files of the directory need to be displayed, or if only the files managed by Kodak need to be displayed. True: only files (and FMS, contexts) managed by Kodak are displayed (the document list of the “Other” page is empty). False: all files in the directory are displayed (including document files).

2.3.3. Output parameters description

DisplayFullHistoric() builds a chained list of SFileName structures containing the names of files selected in the History. It returns a pointer to the top of this list.

```
typedef struct SFileName
{
        _TCHAR pcFileName[_MAX_PATH];
        SFileName* psNext;
} SFileName;
```

After use, this chained list must be destroyed calling the DeleteFileNameList function (cf. 4.2).

If the flag bSelFileList is set to false, or if no file is selected, this pointer will be null.

2.3.4. Error Messages Description

The function **DisplayFullHistoric** displays the same error messages as **nAfficheHistorique** described previously (cf. 2.2.4).

3. SECOND INTERFACE OF THE HISTORY MODULE: MULTITYPE HISTORY

3.1. Description

This interface is displayed as a dialog box containing images of one or several categories. Each time an image is selected, a preview window can be displayed outside the thumbnails window. This preview window is closed when an image selection is cancelled, when clicking on the side of the dialog box or after launching the Kodak dental imaging software.

If the Kodak dental imaging software is installed and its launch is allowed, you can start it by double clicking on the image or its preview, or by clicking on the start button of the Kodak dental imaging software program (top-right corner of the dialog box).

This window size is calculated according to the number of images to be displayed and especially the category of images. The largest size will be chosen by default. If only one image type is required, the dimensions of the window are calculated from this image type's preset dimensions. On the other hand, if several types are necessary, the one whose images are the largest will determine the dimensions of the History window (cf. *Fig 7*).

The preview window dimensions are calculated according to the current user selected image type. Images are zoomed in at 2x for a 800*600 screen resolution and at 3x for a higher resolution.

The History window will always remain visible for user and on top of all the other application windows.

This interface makes it possible to the software using it to set a maximum of properties of the window where the images will be visualized, with more or less options, depending on the exported functions used.

3.2. Exported Function : HistoMultiImgType

This exported function makes it possible to customize:

- The image type(s) to be displayed: RVG images and/or intraoral video images and/or PANO images and/or SCAN images and/or CEPH images and/or FMS and/or Contexts
- The tooth number of which images will be displayed
- The screen position of the history window
- The orientation of the history window: horizontal or vertical (cf. *Fig 7*)

3.2.1. Function signature

```
HWND HistoMultiImgType (    char *pszPathDir,
                            Char *pszImagingSoftwarePath,
                            char *pszPatientName,
                            char *pszFirstName,
                            HWND hWnd,
                            int xPos,
                            int yPos,
                            short sImageType,
                            int nNbVisibleImg,
                            int nMaxSel,
                            char *pszNumDent,
                            bool bIsVerticalWnd,
                            bool bOpenTW )
```

3.2.2. Input Parameters Description

The following table describes each input parameters and indicates if they are optional or not:

pszPathDir	Directory containing the images to be displayed. Must be set.
pszImagingSoftwarePath	Directory containing the Kodak dental imaging software (i.e.: C:\program files\Kodak\). Must be set if the Kodak dental imaging software is to be started from the History module (if the bOpenTW variable is set to true).
pszPatientName	Patient name. Must be set if the images need to be opened with the Kodak dental imaging software. If this parameter is not used it does not need to be set (empty string).
pszFirstName	Patient first name. Must be set if the images need to be opened with the Kodak dental imaging software. If this parameter is not used it does not need to be set (empty string).
hWnd	Handle of parent window of the history dialog box. If NULL, the parent window will be the current application's main window.
xPos	Specifies the horizontal position of the left top corner of the History window according to the screen window. ***Note***: as the dimensions of the history window cannot be changed nor can it be moved, this parameter should be used with caution.
yPos	Specifies the vertical position of the left top corner of the History window according to the screen window. ***Note***: as the dimensions of the history window cannot be changed nor can it be moved, this parameter should be used with caution.
sImageType	Image type(s) to be displayed in the History window. This parameter can be a combination of the following values: RVG image: 0x0001 intraoral video image: 0x0002 PANO image: 0x0004 SCAN image : 0x0008 CEPH image: 0x0010 FMS: 0x0020 Context: 0x0040
nNbVisibleImg	Number of images to be displayed in the History window. This parameter is recalculated by the history module to determine its validity according to the coordinates of the window, the image type displayed and the current screen resolution.
nMaxSel	Sets the maximum number of selected images allowed.

pszNumDent	Indicates if the module must display all images or only images saved with a tooth number. The different values are: pszNumDent = “0” -> all images will be displayed pszNumDent = “-1” -> only images saved with a tooth number are displayed pszNumDent > “0” -> only images saved with the pszNumDent tooth number are displayed
bIsVerticalWnd	Indicates the History window orientation. true: vertical window false: horizontal window
bOpenTW	Flag indicating if user selected images must be opened with the Kodak dental imaging software or not. Opening of the images is started by clicking the OK button or double clicking on one of the selected images. true: opening of the images selected in the imaging module false: the imaging module is not called Default value is false

3.2.3. Output Parameters Description

The **HistoMultiImgType** function returns the new History window handle to the software using it. This handle will be used by the calling application to manage the History window and to be able to manipulate it at any moment (moving, closing, …).

Note: The History module is not unloaded when the **HistoMultiImgType** function terminates, otherwise it would destroy the History window. Instead, this window remains visible and can be used at the same time as the calling application. It is necessary to unload this module and free up the memory as soon as the History window is closed.

3.2.4. Error Messages Description

The **HistoMultiImgType** function displays the same error messages as the **nAfficheHistorique** function described above (§. 2.2.4).

3.3. Exported function: HistoMultiImgBar

This exported function makes it possible to customize:

- The image types to be displayed: RVG images and/or intraoral video images and/or PANO images and/or SCAN images and/or CEPH images and/or FMS and/or Contexts
- The tooth number of which images will be displayed
- The screen position of the history window
- The orientation of the history window: horizontal or vertical (cf. *Fig 7*)

But also:

- The image categories to be displayed (more extended than image types)
- The window background color
- The frame color used to select images
- The displaying or not in large size of the preview of the selected image

3.3.1. Function signature

```
HWND HistoMultiImgBar (
        char *pszImagesPathDir,
        char *pszTWAppPath,
        char *pszPatientName,
        char *pszFirstName,
        HWND hParentWnd,
        short sImageType,
        char* sImageCategory,
        int nxPos,
        int nyPos,
        int nNbVisibleImg,
        int nMaxSel,
        char *pszTooth,
        bool bIsVerticalWnd,
        bool bIsStaticWnd,
        bool bDisplayPreview,
        COLORREF crSelectColor,
        COLORREF crbkgndColor,
        bool bOpenTW)
```

3.3.2. Input parameters description

3.3.2.1. Input parameters

The following table describes all the input parameters indicating if they are optional or not.

pszImagesPathDir	Directory containing the images to be displayed. Must be set.
pszTWAppPath	Directory containing the Kodak dental imaging software (i.e.: C:\program files\Kodak\). Must be set if the Kodak dental imaging software is to be started from the History module (if the bOpenTW variable is set to true).

pszPatientName	Patient name. Must be set if the images need to be opened with the Kodak dental imaging software. If this parameter is not used it does not need to be set (empty string).
pszFirstName	Patient first name. Must be set if the images need to be opened with the Kodak dental imaging software. If this parameter is not used it does not need to be set (empty string).
hWnd	Handle of parent window of the history dialog box. If NULL, the parent window will be the current application's main window.
sImageType	Image type(s) to be displayed in the history window. This parameter can be a combination of the following values : RVG image: 0x0001 Intraoral video image: 0x0002 PANO image: 0x0004 SCAN image : 0x0008 CEPH image: 0x0010 FMS: 0x0020 Context : 0x0040 If images are selected by category, this parameter can be set to 0x0000 and set the sImageCategory parameter.
sImageCategory	Image categories to be displayed in the history window. This character string can contain the following values : - "IMAGES" - "IMAGESCONTEXTES" - "XRAY" - "XRAYIO" - "XRAYEO" - "OTHER" - "OTHERIO" - "OTHEREO" - "OTHERNOTIOEO" - "INTRAORAL" - "EXTRAORAL" - "COLOR" - "DIGICAM" The meaning of the different strings is given in § 3.3.2.2. If images to be displayed are selected by type (using the sImageType parameter), this parameter must be set to the value "NONE".

xPos	Specifies the horizontal position of the left top corner of the History window according to the screen window. ***Note***: as the dimensions of the history window cannot be changed nor can it be moved, this parameter should be used with caution.
yPos	Specifies the vertical position of the left top corner of the History window according to the screen window. ***Note***: as the dimensions of the history window cannot be changed nor can it be moved, this parameter should be used with caution.
nNbVisibleImg	Number of images to be displayed in the History window. This parameter is recalculated by the history module to determine its validity according to the coordinates of the window, the image type displayed and the current screen resolution.
nMaxSel	Sets the maximum number of selected images allowed.
pszTooth	Indicates if the module must display all images or only images saved with a tooth number. The different values are: pszNumDent = “0” -> all images will be displayed pszNumDent = “-1” -> only images saved with a tooth number are displayed pszNumDent > “0” -> only images saved with the pszNumDent tooth number are displayed
bIsVerticalWnd	Indicates the History window orientation. true: vertical window false: horizontal window
bIsStaticWnd	Determines if the window is static (user cannot move it) or not. True: the position of the window cannot be changed by the end-user False: the position of the window can be changed by the end-user
bDisplayPreview	Flag that indicates if large format preview must be used to displayed a selected image. True: the large format preview is used False: the large format preview is not used
crSelectColor	Color of image selection frame for the “Intra-Oral”, “Exrta-Oral and “Other” tabs. Default color value is green if this variable is not set (NULL value). ***Note***: if the selection frame color is too close to white, the user might not see which images are selected.
crbkgndColor	Interface background color. If set to NULL, the background default color will be the one used by the nAfficheHistorique function, being RGB(247, 243, 233).

bOpenTW	Flag indicating if user selected images must be opened with the Kodak dental imaging software or not. Opening of the images is started by clicking the OK button or double clicking on one of the selected images. true: opening of the images selected in the imaging module false: the imaging module is not called Default value is false

3.3.2.2. Image categories definition

The multi-type history can be called with the following image categories:

- "**IMAGES**": this category gathers all image types managed by the Kodak dental imaging software (RVG, PANO, CEPH, intraoral video image, Scanned, DX, IO and FMS). Context files are not included here.

- "**IMAGESCONTEXTES**": this category gathers all the image types mentioned above as well as context files.

- "**XRAY**": this category gathers all the X-ray images
  - RVG (old R__.tif and new R__ .rvg)
  - PANO (old P__.tif and new P__ .pano)
  - CEPH (H__ .ceph)
  - DX (.dx)
  - IO (.io)

- "**XRAYIO**": this category gathers all intra-oral X-ray images
  - RVG (old R__.tif and new R__.rvg)
  - IO (.io)

- "**XRAYEO**": this category gathers all extra-oral X-ray images
  - PANO (old P__.tif and new P__.pano),
  - CEPH (H__.ceph),
  - DX (.dx)

- "**OTHER**": this category gathers all not X-Ray images or scanned images
  - VL (color images) (.vl)
  - Intraoral video image (old S__.tif and new S__.stv)
  - Scanned (.sc, C__.tif and T__.tif) color or black and white

- "**OTHERIO**": this category gathers all not X-Ray images or scanned images, registered as intra-oral
  - Scanned (.sc) saved as intra-oral
  - VL (.vl) saved as intra-oral
  - Intraoral video image (.stv) saved as intra-oral

- « **OTHEREO**» : this category gathers all not X-Ray images or scanned images, registered as extra-oral
  - Scanned (.sc) saved as extra-oral
  - VL (.vl) saved as extra-oral
  - Intraoral video image (.stv) saved as extra-oral

- « **OTHERNOTIOEO** »: this category gathers all not X-Ray images or scanned images (intraoral video image, VL or SC), not registered as intra or extra-oral.

- **"INTRAORAL**": this category gathers all intra-oral images (X-ray or not)
  - RVG (old R__.tif and new R__.rvg)
  - IO (.io)
  - Scanned (.sc) saved as intra-oral
  - VL (.vl) saved as intra-oral
  - Intraoral video image (.stv) saved as intra-oral

- "**EXTRAORAL**": this category gathers all extra-oral images (X-ray or not)
  - PANO (old P__.tif and new P__.pano)
  - CEPH (H__.ceph)
  - DX (.dx)
  - Scanned (.sc) saved as extra-oral
  - VL (.vl) saved as extra-oral
  - Intraoral video image (.stv) saved as extra-oral

- "**COLOR**": this category gathers all color images
  - Intraoral video image (old S__.tif and new format S__.stv)
  - VL (.vl)
  - Scanned color (C__.tif et .sc)

- "**DIGICAM**": this a specific category for one image type
  - scanned images (.sc) from Digital Camera import

3.3.3. Output parameters description

The **HistoMultiImgBar** function returns the handle of the window it has just created to the calling software.

This handle enables the calling software to manage the history window and to manipulate it as needed (moving, closing…).

Note: The History module is not unloaded when the **HistoMultiImgBar** function terminates, as it would destroy the History window. Instead, this window remains visible and can be used at the same time as the calling application. It is necessary to unload this module and free memory as soon as the History window is closed.

3.3.4. Error messages description

The **HistoMultiImgBar** function displays the same error messages as the **nAffficheHistorique** function described above (§. 2.2.4).

4. OTHER INTERFACES FOR THE HISTORY MODULE

4.1. Exported function: DeleteTabFileName

4.1.1. Description

The **nAfficheHistoric** function gives the possibility of returning a table of character strings containing the name of each file selected by the user. Memory allocation of this table is made by the History DLL. The purpose of the **DeleteTabFileName** function is to release this memory without the calling program having to worry about the method used for allocation.

4.1.2. Function signature

void **DeleteTabFileName**(Path **ppListeNomFic)

Path is defined as follows:

typedef char Path[MAX_PATH] (MAX_PATH is a standard Windows constant)

4.1.3. Input Parameters Description

ppListeNomFic pointer to the table containing a list of images files that were selected using the History module.

4.1.4. Output Parameters Description

ppListeNomFic is set to null after freeing memory.

4.2. Exported function: DeleteFileNameList

4.2.1. Description

The **DisplayFullHistoric** function makes it possible to return a chained list containing selected file names selected by the user. The memory allocation for this list is handled by the History dll. With the DeleteFileNameList function, the calling program can free this memory without needing to know how it has been allocated.

4.2.2. Function signature

void **DeleteFileNameList** (SFileName* psHeadFile),

where psHeadFile is a pointer to the top of the chained list.

4.2.3. Input parameters description

psHeadFile: pointer to the SFileName structure at the top of the chained list of file names (cf. SFileName structure definition in § 2.3.3).

4.2.4. Output parameters description

psHeadFile is set to NULL after the list destruction.

4.3. Exported function: FindDirectoryToothNumber

4.3.1. Description

This exported function adds additional functionality to the History dll. It fills out a table with all tooth numbers that can be found in the files of a specific directory being analyzed.

4.3.2. Function signature

bool **FindDirectoryToothNumbers** (
char* pszPathDir,
bool bAmericanNotation,
char pcToothNb[NB_ADULT_TEETH+NB_CHILD_TEETH][SIZE_TOOTH],
int* pnNbToothNb)

4.3.3. Input parameters description

This table describes all the input parameters.

pszPathDir	Directory containing the files in which tooth numbers must be found. Must be set.
bAmericanNotation	Flag indicating tooth numbering system. True: American tooth numbering system False: European tooth numbering system
pcToothNb	Table containing tooth numbers found in the files. The size of the table is fixed and contains the tooth numbers found in the files in the directory, in the same order they have been found. ***Note***: NB_ADULT_TEETH = 32, NB_CHILD_TEETH = 20 and SIZE_TOOTH = 3.
pnNbToothNb	Number of tooth numbers returned in the table.

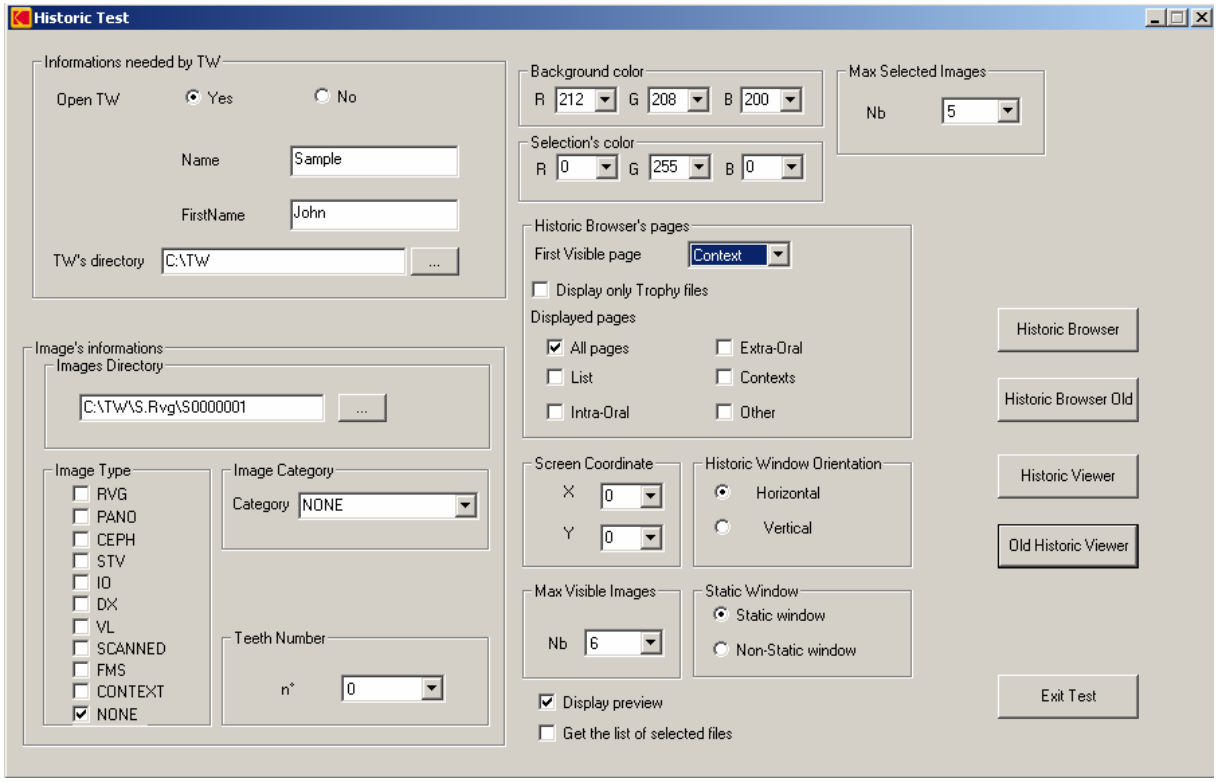
4.3.4. Output parameters description

This function returns a Boolean, set to true if the search succeeds, false if an error occurred.

ATTACHMENTS

All the screen shots presented below are obtained through the History test application (testHisto.exe).

This is the control panel of the test application which makes it possible to customize and initialize all History module parameters.



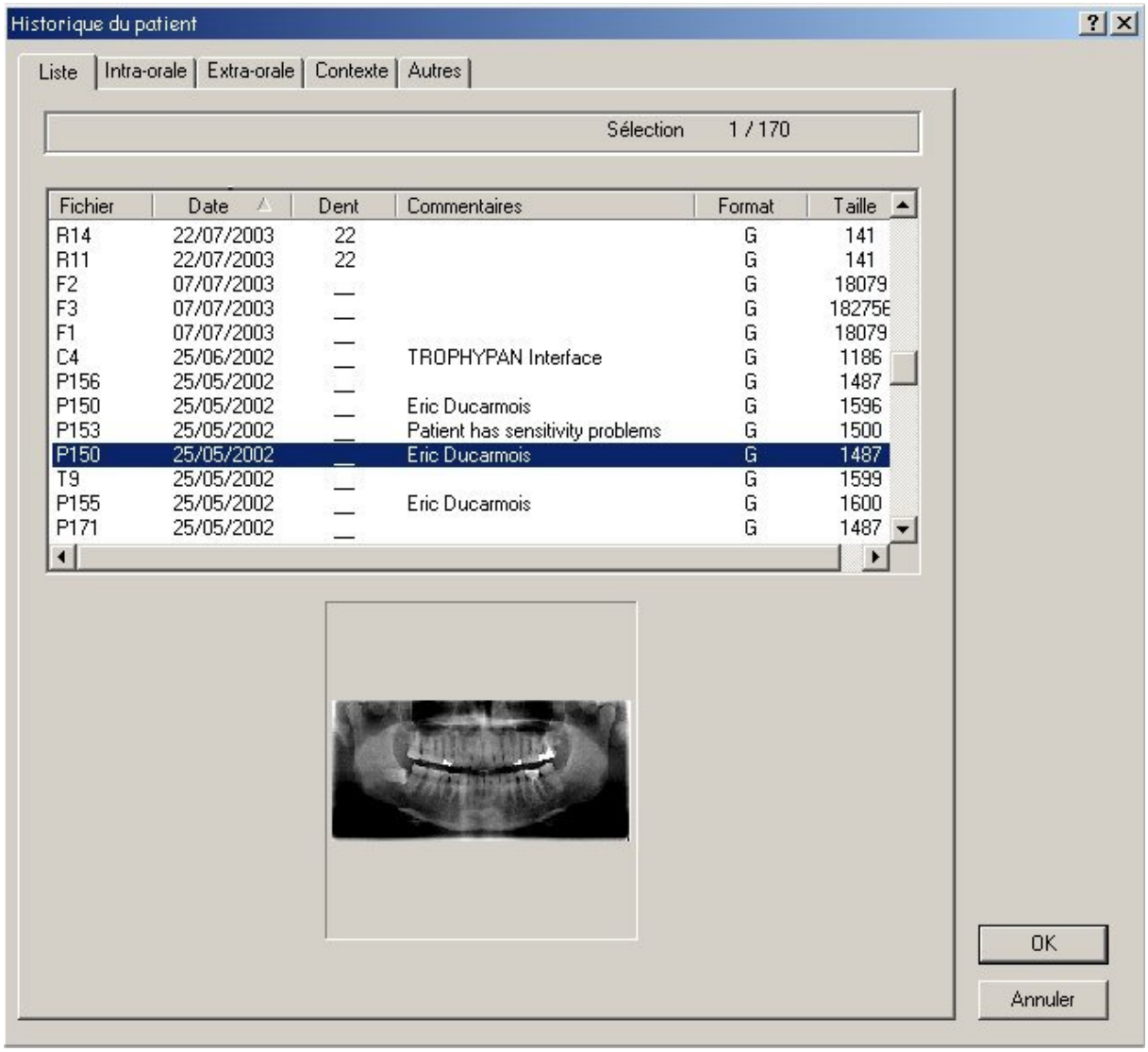


Fig 1: "List" tab of the full History

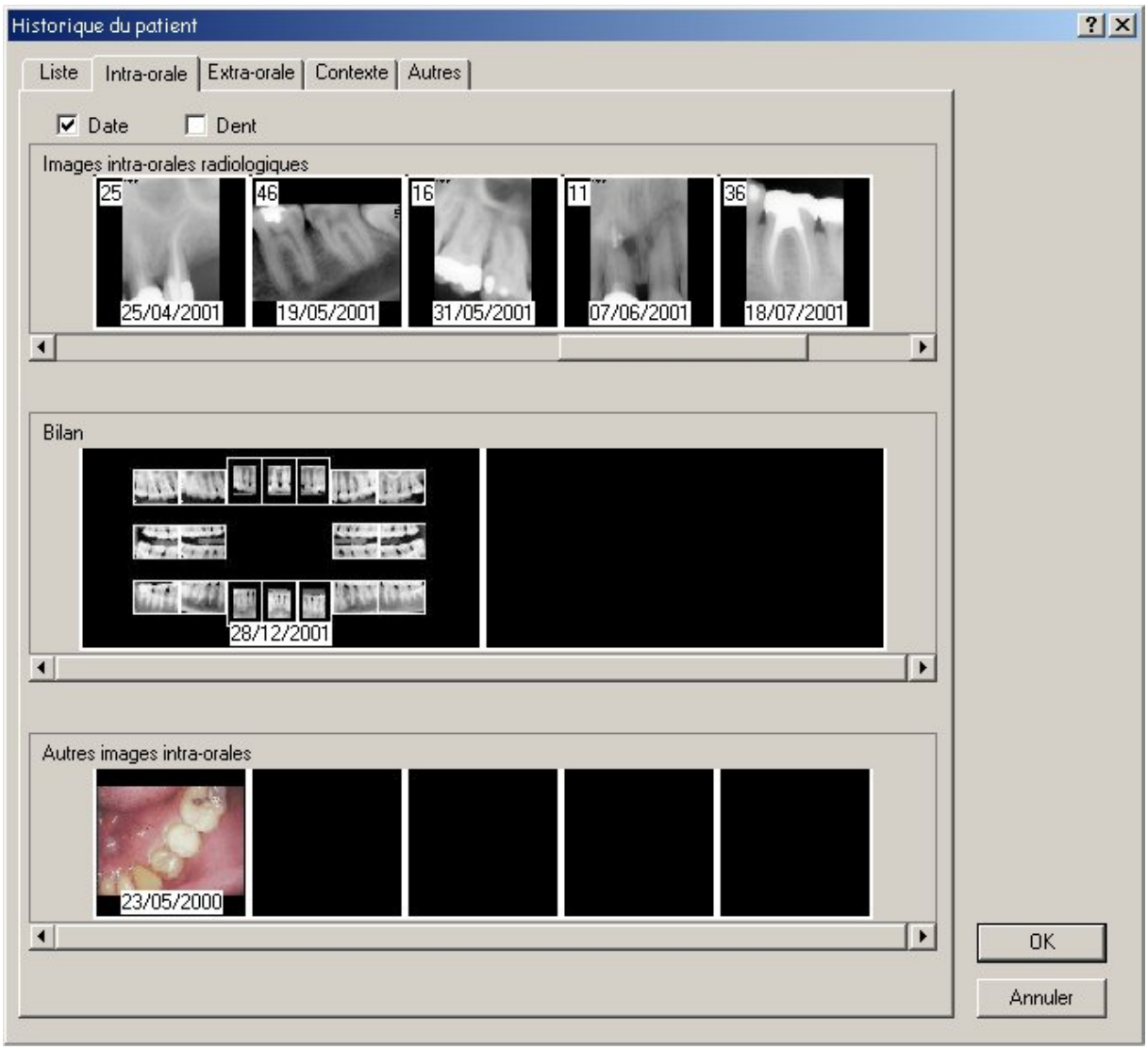


Fig 2: "Intra-Oral" tab of the full History

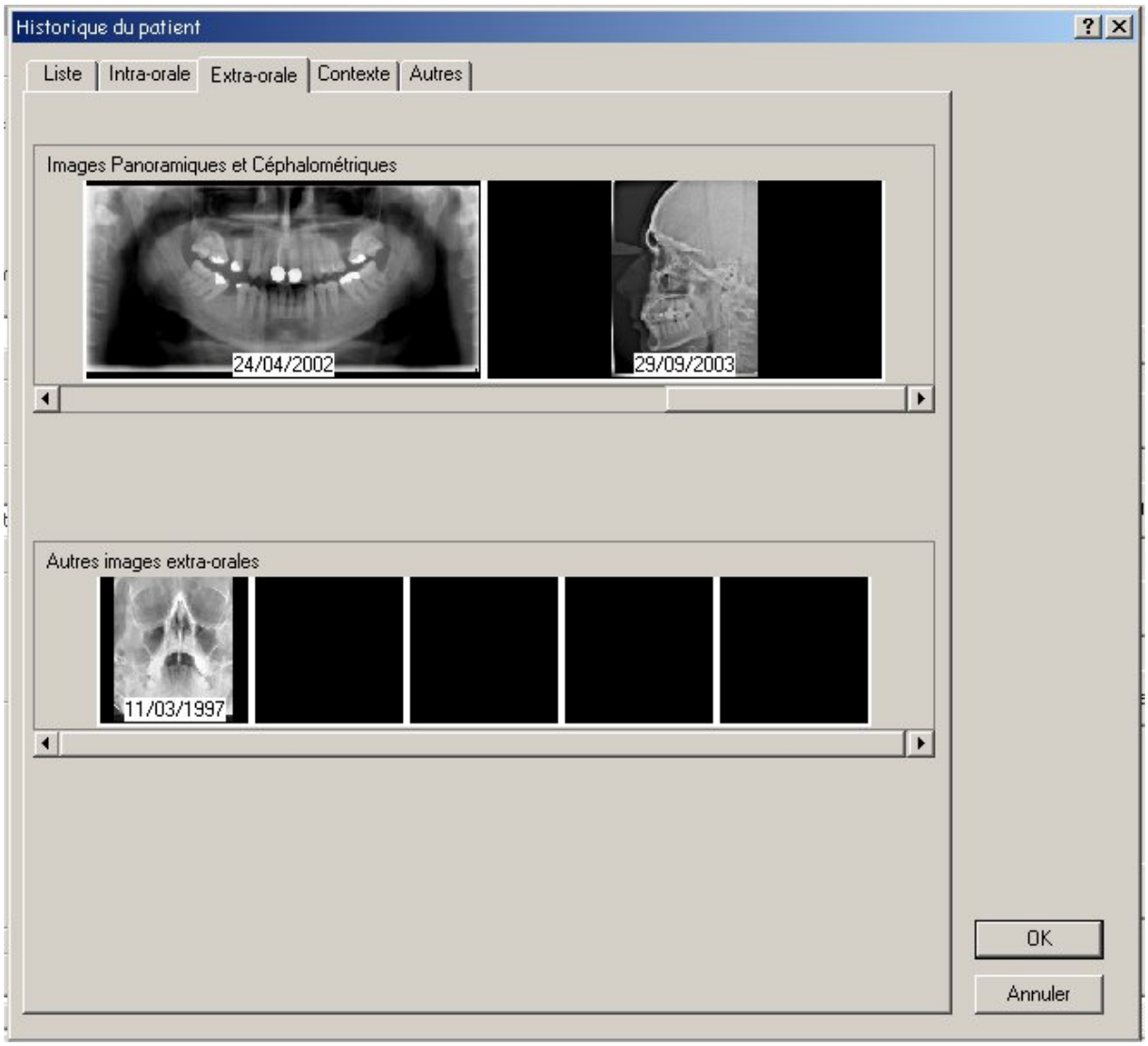


Fig 3: "Extra-Oral" tab of the full History

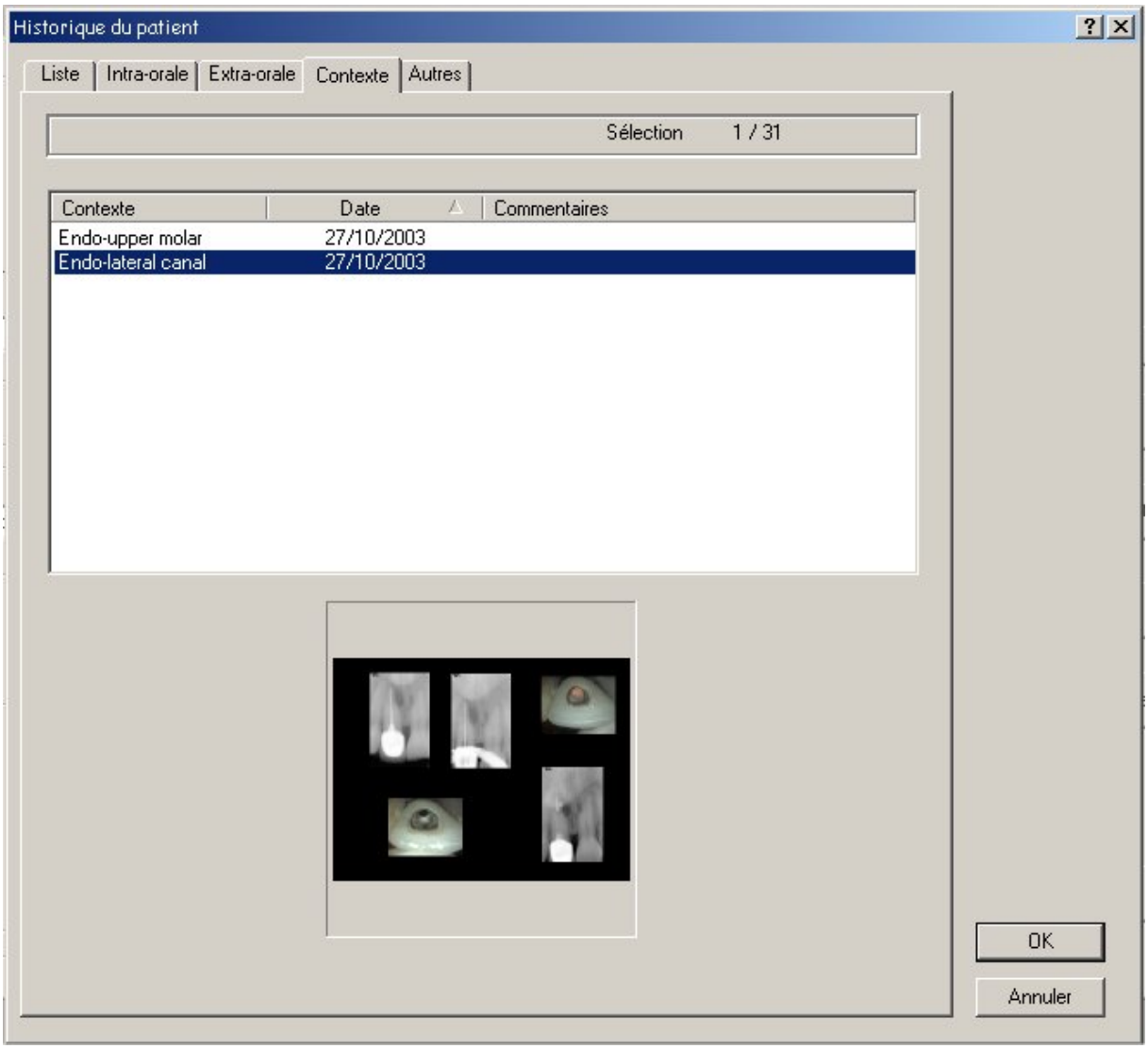


Fig 4: "Context" tab of the full History

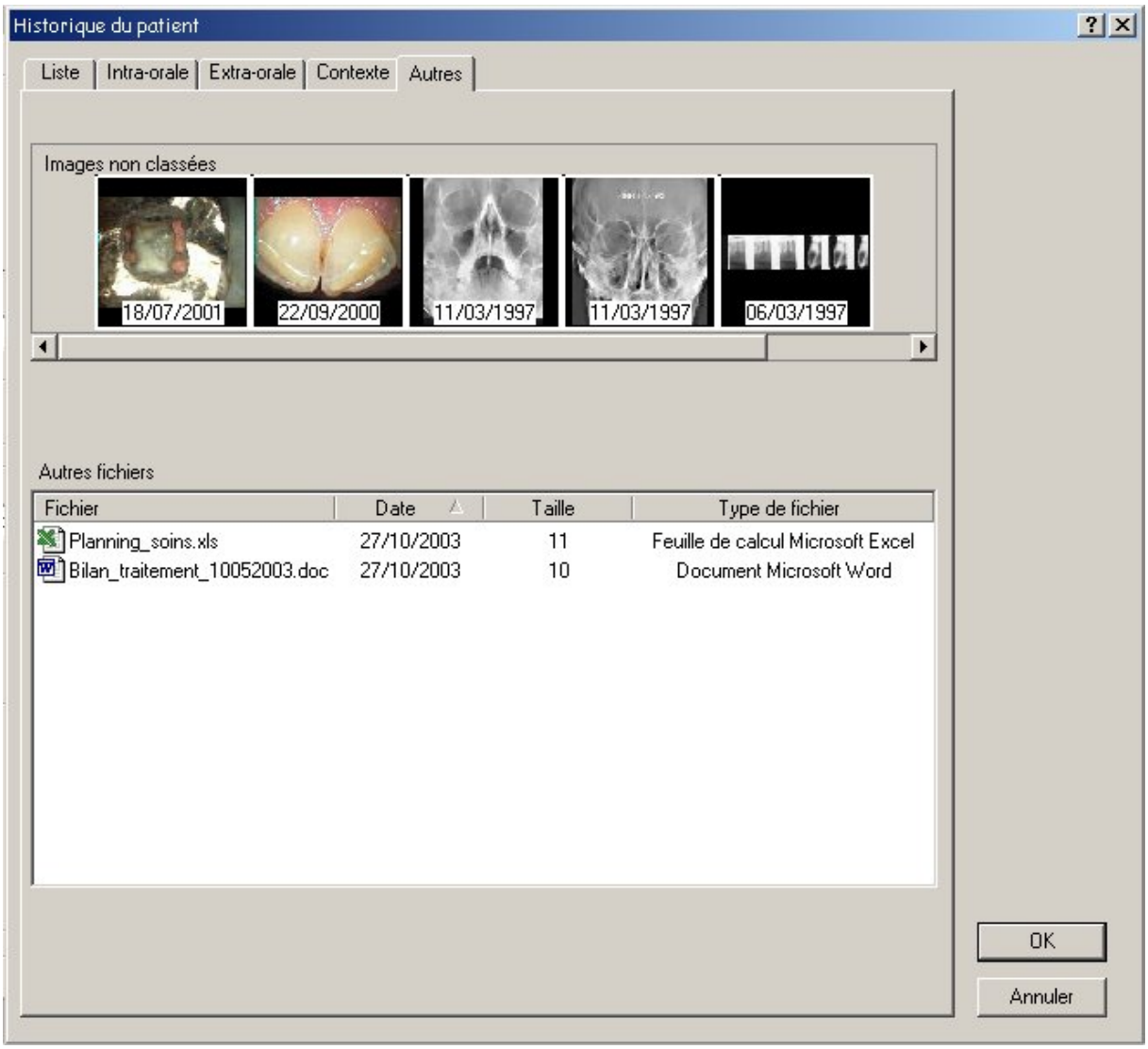


Fig 5: "Other" tab of the full History

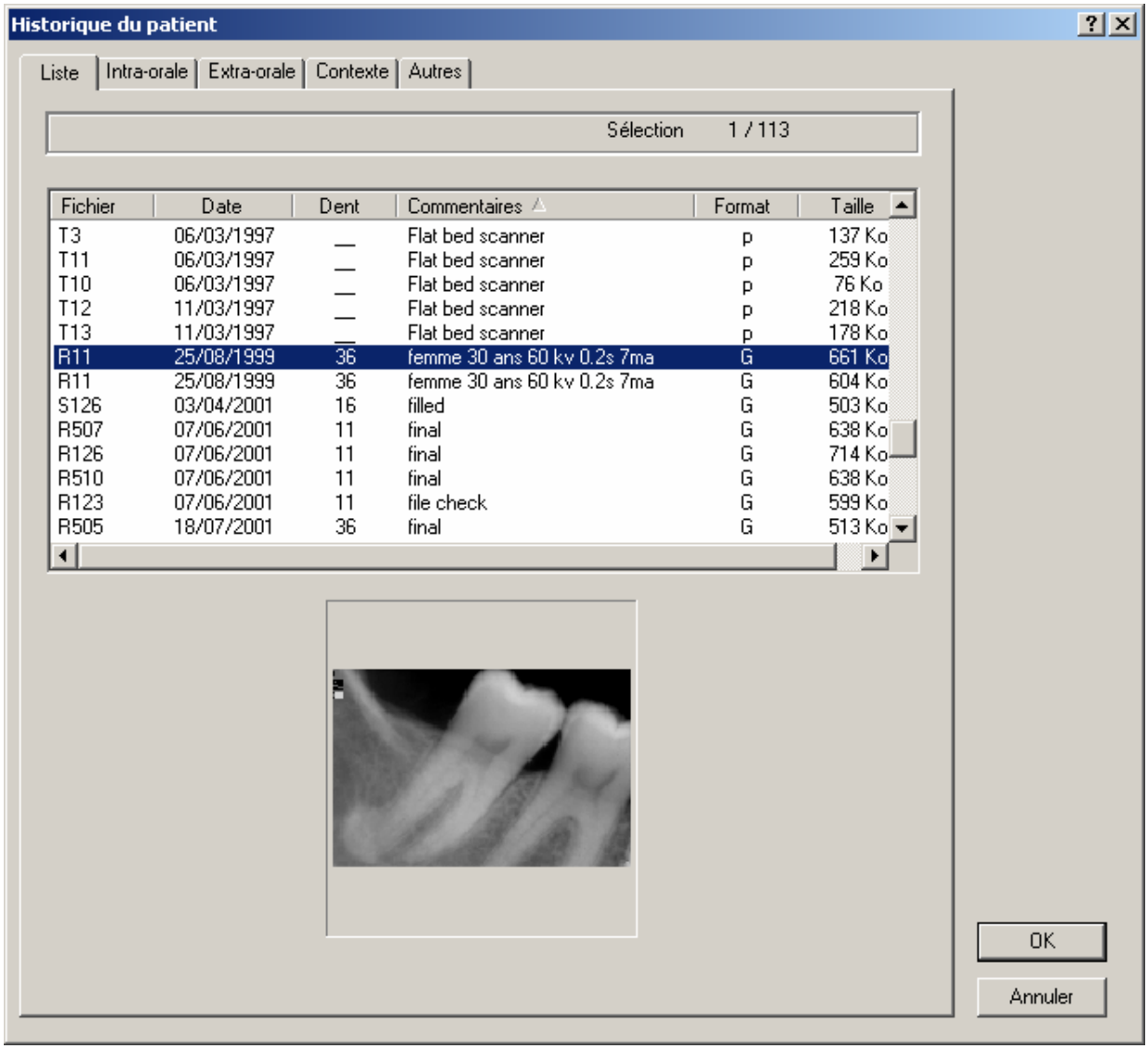


Fig 6: Interface obtained through the use of the "nAfficheHistorique" function.
Background color is RGB = (247,243,233)

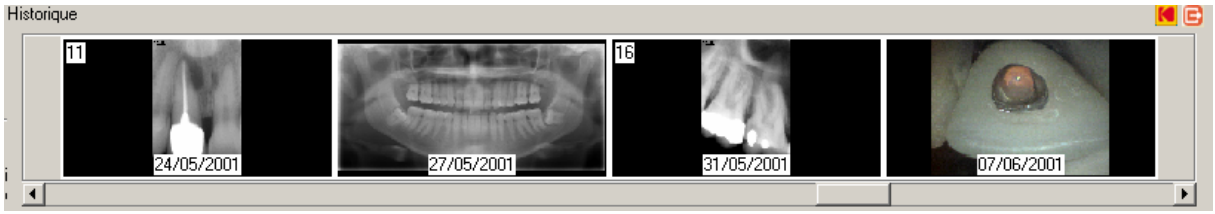


Fig 7: Multi-type history (Horizontal with 4 visible images)

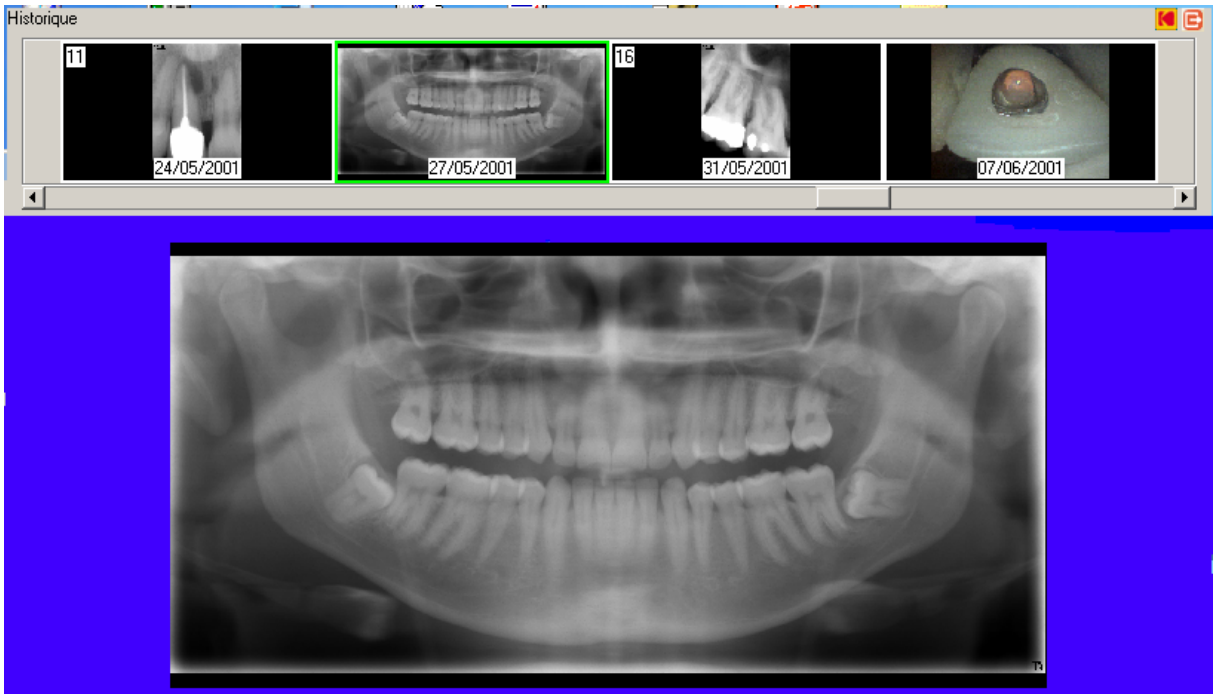


Fig 8: Multi-type history with large format preview of selected image