



Using New Features in CDR 2.6 Software

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1. New Features in CDR[®] 2.6 Software

1.1 Introduction

Version 2.6 software provides several new features and improvements designed to maximize your productivity when using CDR. Changes that are most likely to be of interest to you are listed below and described in detail in this document.

- Revealer [™]
- Automatic Firmware Upgrade
- Enhanced Upgrade Utility
- Enhanced Diagnostic Utility
- Search Criteria for Copy In/Copy Out
- Adding Archive Databases

1.2 For More Information

Refer to the Contents page and follow the page references for more detailed information on each of these topics.

For general instructions on installing CDR software, please refer to “Installing CDR Software,” Schick Part Number B1051011.

2. Revealer

2.1 What Does It Do?

Revealer is the latest addition to CDR's suite of X-ray image enhancement tools. It is designed to display a greater level of detail than the Maximize Contrast feature and to maintain that clarity with a minimum of image noise and artifacting. (*Image noise can occur when adjacent pixels have very different gray values; artifacting can occur when pixels respond in unexpected ways to X-rays.*)

While contrast tools provide appropriate means for distinguishing dark and light differences in an image, the strategy itself—making light pixels whiter and dark pixels blacker — frequently sacrifices mid-tone values, which are typically washed out and lost.

Revealer was created to expand the advantages provided by contrast tools and to also minimize their limitations. Revealer takes the large volume of data in the X-ray image and enhances it pixel-by-pixel. By processing each pixel individually, Revealer is able to capture more visual information and display it in such a way that subtle differences in the image are more perceptible to the human eye. **Figure 1** provides an example.

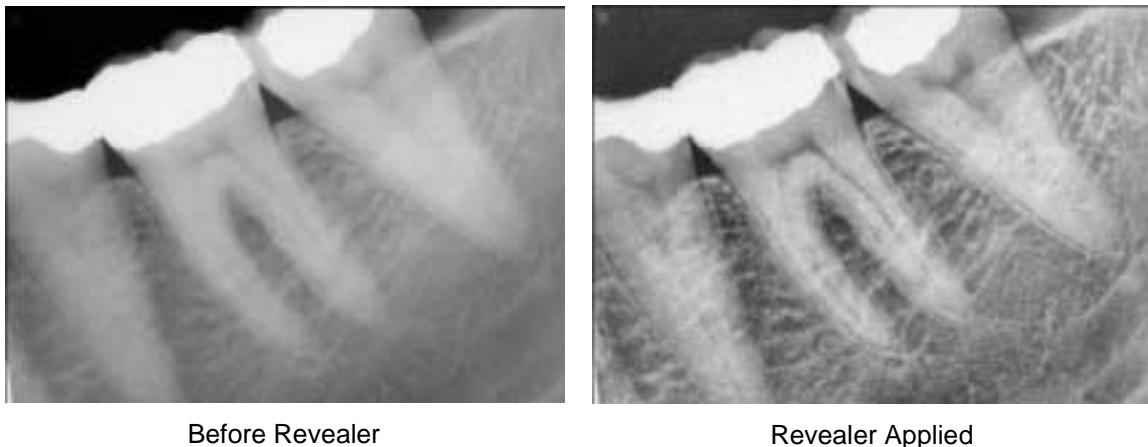


Figure 1. Applying the Revealer Feature

2.2 Where Can I Find It?

Revealer can be selected whenever an image is viewable in a zoom window. A button for this feature has been added to the zoom window for both the large and small toolbars. Revealer can also be enabled using the shortcuts keys [CTRL] + [R]. It can also be applied to an image by opening the **Enhance** menu and selecting **Revealer**.

2.3 Revealer Takes a Few Seconds to Show Enhancements. Is this OK?

Yes. Revealer's image processing is intensive, and, as a result, a very brief delay will occur before the results are displayed on the screen. While Revealer is processing the image, a progress meter appears on the screen to let you know that the feature is active.

Because Revealer treats each pixel equally, image size is a factor during processing. Panoramic images, in particular, are worth mentioning here. PCs that tend to run slowly may also experience a slightly longer delay.

2.4 What Types of Images Should I Use with Revealer?

Revealer is intended for radiographic images, both intraoral and panoramic. Video images cannot be enhanced using Revealer.

NOTE: When you save an image with Revealer applied, the enhancement process will run each time you open that X-ray.

3. Enhanced Remote Module Upgrade

3.1 What Does It Do?

When you upgrade your Remote Module, you launch a utility designed to install firmware into specific memory areas inside the Remote Module. Having the right firmware for the version of CDR on your system is a critical part of having CDR perform optimally. Although the upgrade utility is not a new feature, we have made several important changes to it in CDR 2.6.

- First, you will no longer need to disconnect and then reconnect the Remote Module and the USB cable at any time during the upgrade process.
- Second, the upgrade utility verifies that the new firmware was installed successfully
- Third, the upgrade utility automatically detects when the firmware is finished loading.

3.2 What Do You Mean by Firmware?

When we talk about firmware, we are referring to special instructions in the Remote Module that help CDR software acquire and display X-ray images correctly. As we expand CDR's capabilities, it is sometimes necessary to include new firmware along with our software. *AutoTake™*, introduced in CDR 2.5, is one example of how changes in both software and firmware were needed to fully implement this feature. In CDR 2.6, we are providing new firmware for more efficient operation within CDR.

3.3 How Do I Install New Firmware?

To install new firmware in the Remote Module currently connected to your computer, click **Start > Programs > CDR > Upgrade CDR 2000 Remote**, or use a shortcut on your desktop to accomplish the same task.

3.4 Some Reminders about Upgrading Remotes

When upgrading Remote Modules, whether you are prompted to do so by CDR or if you choose to run the upgrade utility yourself, there are a few steps to follow to ensure the upgrade occurs properly.

1. Install new CDR software *on every workstation* before upgrading the Remote Module(s).
2. Install new firmware *for every Remote Module* used in the practice.
3. When installing new firmware, make sure you connect the sensor to the Remote Module.
4. Make sure you connect the Remote Module to the USB cable connected to your computer.
5. Make sure you close all other applications running on your system.
6. Do not unplug the sensor or Remote Module while the new firmware is loading.

3.5 Verifying that New Firmware was Installed

When the upgrade is complete, firmware is automatically verified. If you receive the CDR message, "Firmware verified. No errors found", new firmware was loaded into the Remote Module and was not corrupted during the upgrade. If you receive the message, "The content of your Remote Module does not match firmware revision. Do you want to repeat the test," we recommend that you click **Yes** and CDR will automatically repeat the firmware installation process.

You can also verify the firmware version manually, at any time, by doing the following:

1. Make sure your sensor, Remote Module, and USB cable (between the Remote Module and the computer) are connected.
2. Click **Start > Programs > CDR > Upgrade CDR 2000 Remote**.
3. At the start screen, click on the **Verify** menu.

If you receive the message, "Firmware verified. No errors found", new firmware was loaded into the Remote Module and was not corrupted during the upgrade. If you receive the message, "The content of your Remote Module does not match firmware revision," we recommend that you click **OK** and then repeat the upgrade to re-install new firmware.

3.6 Firmware and Software Compatibility Table

The following table describes which firmware versions are compatible with the various versions of CDR software.

CDR Software Version	Recommended Firmware Revision
Versions between 1.84 and 2.1	17
CDR 2.1	19
CDR 2.5	27
CDR 2.6	29

3.7 Verifying that You Have the Correct Firmware

Use the Diagnostic Utility to verify that the connected Remote Module has the correct firmware for the version of CDR software running on your system.

1. Make sure that CDR software is installed before running the CDR Diagnostic Utility.
2. From the Windows Start menu, click **Programs > CDR > CDR Diagnostic Utility**.
3. Click the **Check CDR USB System** button.
4. Click the **Next** button until the Remote/Sensor screen is displayed.
5. If the checkmark next to "Firmware Revision" is green, you have the correct firmware for your version of CDR.
6. If the checkmark next to "Firmware Revision" is red or yellow, click the **Program Remote** button to install firmware compatible with your current version of CDR.

4. Automatic Firmware Upgrade

4.1 What Does It Do?

To help ensure that versions of CDR software and firmware are compatible in your system, we have added a new automatic firmware upgrade feature with CDR 2.6. As a result, a message will be displayed if a mismatch between the software and firmware is detected when the CDR program is started. A picture of the message is shown in **Figure 2**.

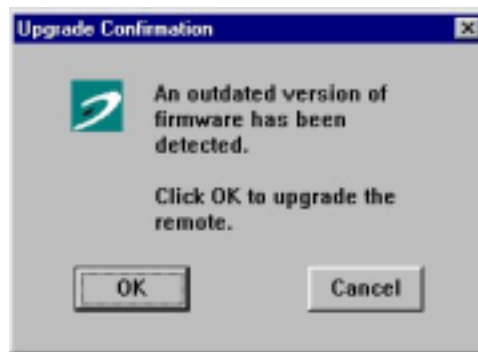


Figure 2. Firmware Upgrade Message

At this dialog box, click **OK** to upgrade the firmware in your Remote Module.

4.2 What Will Happen if I Don't Upgrade the Remote?

First, we want to emphasize that *you should* upgrade the Remote Module whenever you receive this message. If you receive this dialog box after starting the CDR program, it indicates that a potential mismatch between CDR software and firmware has been detected. Clicking **OK** enables CDR to install new firmware and resolve configuration problems that could occur as a result of incompatible software and firmware. If you disregard this message by clicking **Cancel**, CDR may not be able to acquire X-rays.

5. Enhanced Diagnostic Utility

5.1 What Does It Do?

The Diagnostic Utility is a software tool that probes the resources of the computer running CDR (or NCDR) and compares that information with CDR's own performance requirements. The Diagnostic Utility also verifies whether CDR is configured correctly and if critical files and settings are up-to-date.

Like the upgrade utility, the Diagnostic Utility is not a new feature, but we have made several important changes to it in CDR 2.6.

- First, the Start screen has been simplified.
- Second, the Install Device Driver button is always available for CDR USB systems running Windows 98. This function can help resolve USB problems by enabling users to perform a clean reload of the USB driver.
- Third, a new Test Remote button has been added. (*Full integration coming soon.*)

5.2 How Do I Start the Diagnostic Utility?

Before starting the Diagnostic Utility, make sure you connect all the CDR hardware you would normally use to take X-rays at the workstation, including:

- Sensor
- Remote Module
- USB cable from computer to Remote Module
- Footpedal

To start the utility, click **Start > Programs > CDR > CDR Diagnostic Utility**, or use a shortcut on your desktop to accomplish the same task.

5.3 What Do the Checkmarks Mean?

As the utility collects information, it reports the results on a series of screens. When a result is correct, a *green checkmark* is placed next to it. If configuration problems are detected, a specific message is reported, and the item receives a yellow or red checkmark. The meaning of these checkmarks is described below.

An error, indicated by a *red checkmark*, means a problem has been detected that will prevent CDR from operating normally. Additional information about the error condition is also listed, and users are directed to a recovery button on that screen.

A warning, indicated by a *yellow checkmark*, is less severe, but is an important notice of a potential problem. As with errors, a recovery button is available to assist in clearing this problem.

6. Copy In/Copy Out

6.1 What Does It Do?

Copy In and Copy Out are features that enable users to copy exams between the current patient database and another connected drive. Unlike CDR's Import and Export features, which are intended for images, Copy In and Copy Out are tools for copying exams from one location to another.

Copy In and Copy Out have been updated, as follows, in CDR 2.6.

- First, you can use the new Search button on the dialog box and CDR will search your patient database for the exams you wish to copy in or out.
- Second, you have the option of suppressing the message that CDR displays whenever an exam is about to be copied in or out.

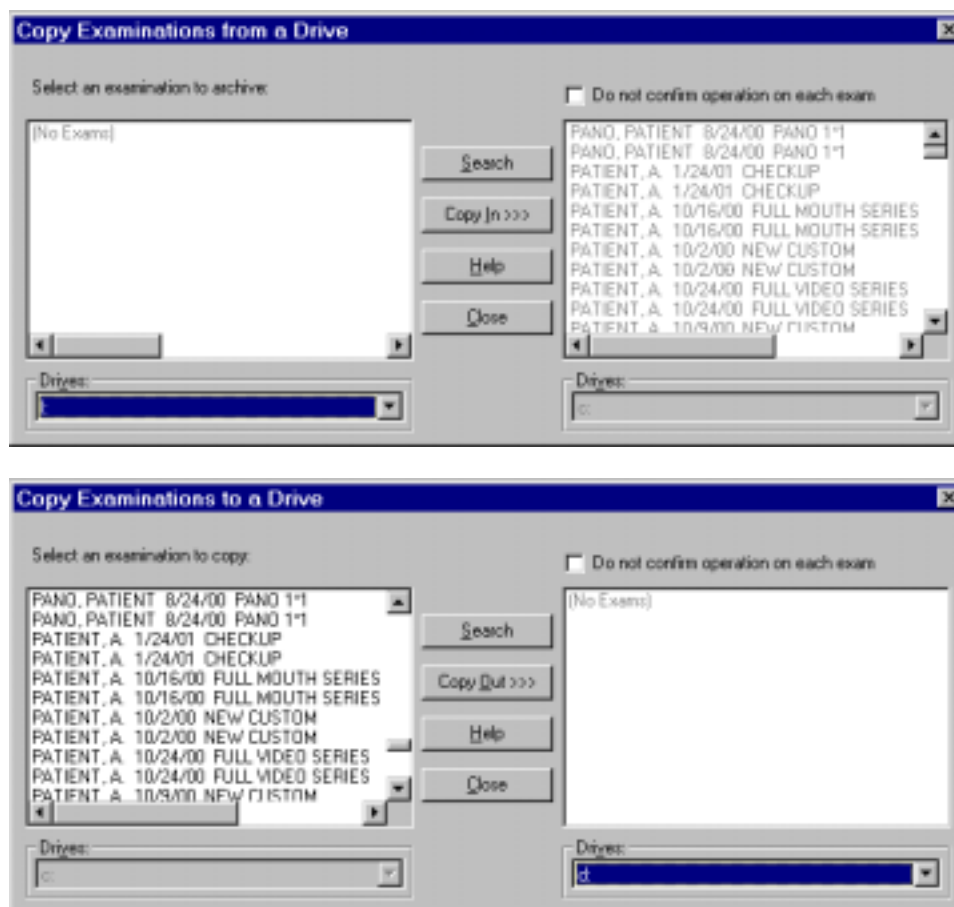


Figure 3. Copy In/Copy Out Dialog Boxes

6.2 Where Can I Find It?

To find either the Copy In or Copy Out dialog box, do the following.

1. Start CDR.
2. At the exam window, click **File > File Maintenance > Copy In**, or
3. At the exam window, click **File > File Maintenance > Copy Out**.

6.3 How Do I Use the Search Feature?

Clicking the **Search** button displays a small dialog box with several specific fields to help you refine the search process. Entering data in these fields — Last Name, First Name, Patient ID, First Date, and Second Date — tells CDR to search the patient database and locate exams that fit those descriptions. You can use any or all of these fields to narrow your search of exams, although if you choose to search by date, you must enter dates in both the First and Second Date fields.

When CDR finds suitable exams, it highlights them. You have the option of adding to or removing from the list of selected exams at this point by doing the following. Clicking on a highlighted exam de-selects it. Clicking on a non-highlighted exam adds it to the list of exams to be copied.

Once you're sure of which exams to copy, select their destination (the connected drive that will receive the exams) using the scroll arrow next to the **Drives** section of the dialog box. A checkbox labeled, "Do not confirm operation on each exam," can be set to suppress CDR's short confirmation message before it copies the exam. As CDR copies a particular exam, it deselects it and moves to the next highlighted exam. When all the exams have been copied, they will be listed on the destination drive, along with any other exams already on that drive.

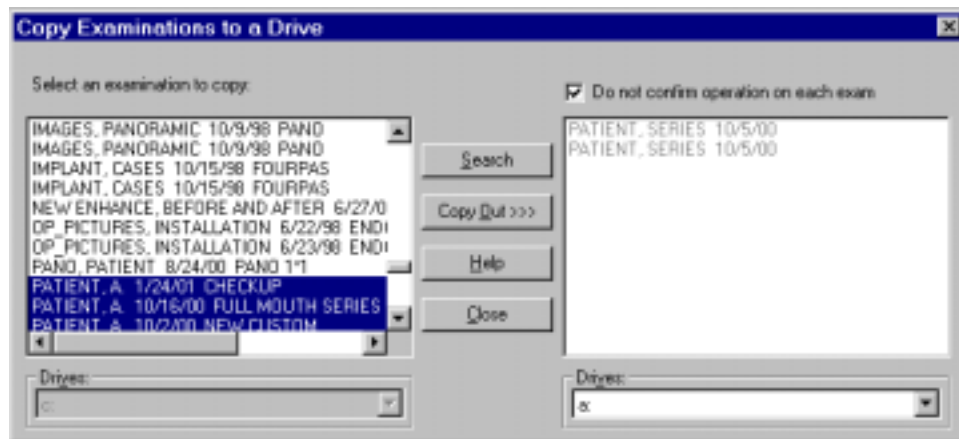


Figure 4. Highlighted Exams

7. Configuring Archived Exams

7.1 What Does It Do?

Finding patient exams is a typical CDR operation, and CDR performs this task by following a defined route, called a *path*, to a database on a workstation, server, or other location where patient exams are stored. Over a period of time, as new patients are added, it is often necessary to expand the amount of disk space allocated for exams. Frequently, this means adding or defining new storage locations in an existing system.

When exams are stored in different locations, CDR needs to know where to find all the exams for each patient — even if those exams are stored (*archived*) in different folders on different drives. To give users greater flexibility in configuring these archive locations, the new Patient Path dialog box (shown below) was developed for CDR.



Figure 5. Patient Path Dialog Box

7.2 New Changes in Listing Patient Exams

In CDR 2.6, clicking the **Open** toolbar button (or selecting **File > Open**) and checking the "Show all exams for all patients" checkbox produces the following results. If the selected drive is the default or an archive exam path, you will see only the exams *for the currently selected drive*. However, opening a specific exam will display every exam for that patient in tab format (if exam tabs are active).

If you select a drive and no exams appear in the dialog box window, it means that: (a) There are no exams on that drive, or (b) You need to specify a path to the archived exams on that drive. To add an archive path, follow the steps in **Section 7.4**.

It is important to note that the default path of patient exams, as specified by XDRIVE and XPATH in the CDR.INI file, cannot be changed in the new Patient Path Dialog box. The new dialog box is intended to give users a more efficient way of directing CDR to additional exam locations. The default XDRIVE and XPATH locations will continue to be defined, as they have in the past, during CDR's installation process.

7.3 Where Can I Find It?

To find the Patient Path Dialog box, do the following.

1. Start CDR.
2. At the exam window, click **File > File Maintenance > Setup Archived Databases**.

7.4 How Do I Use It?

Use the Patient Path Dialog box anytime you want CDR to configure archived locations for patient exams. For example, if you store current exams on your "C" drive and have archived exams on your "F" drive, you could add a path to your archived exams by doing the following:

Please Note: The following steps apply only to archived exams. Users wishing to add exams from CD-ROM should click **File > File Maintenance > Setup CD-ROM** and follow those instructions.

1. Start CDR.
2. Click **File > File Maintenance > Setup Archived Databases**.
3. Click **Add Paths**.
4. Browse the "F" drive and folder location for CDR X-ray exams (for example F:\CDR\XRAYS).
5. Click **OK** to close the Browse Folder dialog box. The new path appears in the Patient Path Dialog box list and is also added to the CDR.INI under a new section called [ARCHIVE].
6. Click **OK** to close the Patient Path Dialog box.

7.5 Removing and Rebuilding Paths

By removing a path you essentially undo the steps described in **Section 7.4** To remove a path, open the Patient Path Dialog box, select the path you want to remove, and click the **Remove Path** button. This also removes the path from the CDR.INI.

Rebuilding a path, and rebuilding all paths, perform the same operation for archived databases as **Rebuild Database** (also found in the **File Maintenance** submenu) does for default databases. To rebuild a particular archive path, select it from the path list on the Patient Path Dialog box, and click the **Rebuild Path** button. To rebuild all the archived paths, click the **Rebuild All** button.

7.6 Setting Default Archive Paths

The **Set Default** button on the Patient Path Dialog box will scan the connected drives for paths where CDR exams might be located. When a valid path is found, it is listed in the path list on the dialog box.