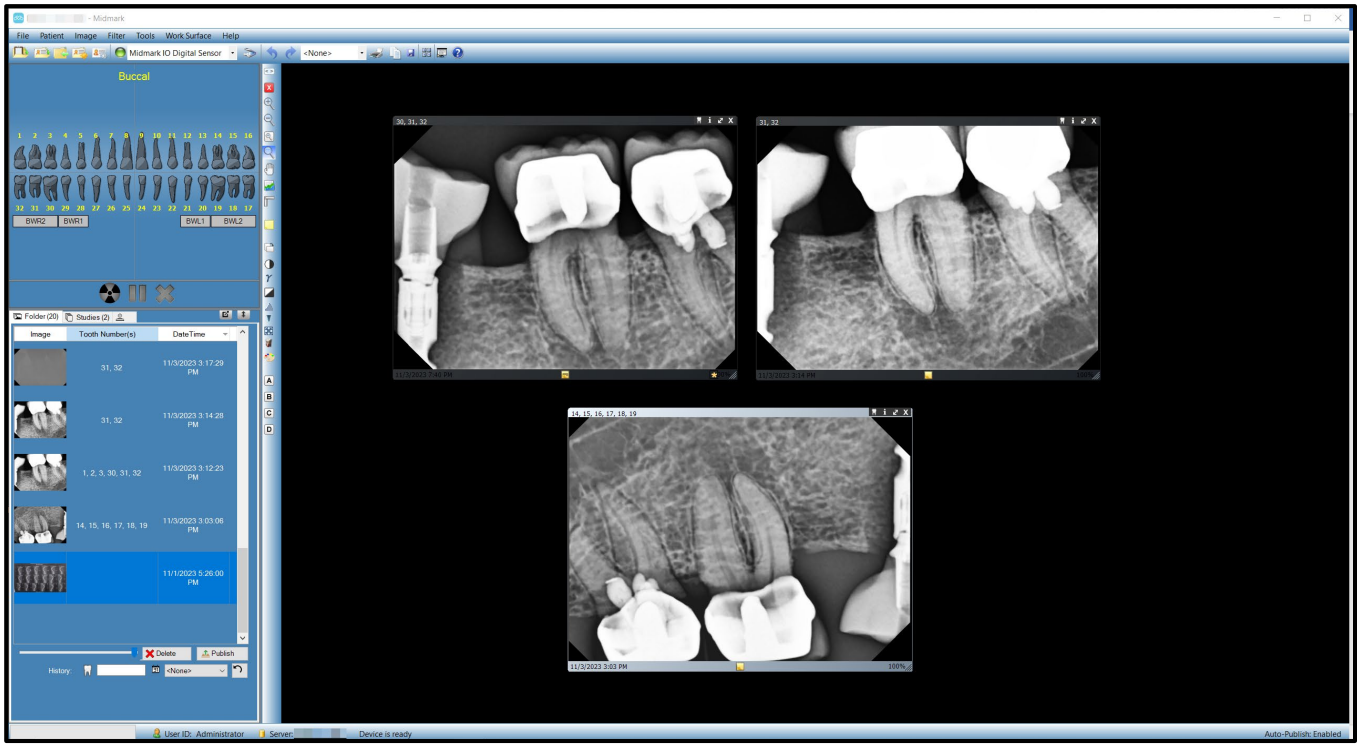
Midmark Imaging Software



User and Installation Manual

003-10678-00
Revision AB1
March 2024

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Contents

Introduction

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About This Manual

Welcome to intraoral dental imaging technology from Midmark.

This manual describes the Midmark Imaging software and how to use it to acquire and work with intraoral radiographs. This manual will also guide the user through installing Midmark Imaging and the image acquisition devices (sensors) that work with it. From logging in through data backup, this guide contains all the information and procedures needed to install and use the software.

Please note that the Midmark Imaging software was formerly known as Progeny Imaging. The Progeny Imaging name still appears in some places, such as file paths. Midmark Imaging and Progeny Imaging are the same software, just with different branding.

Safety-Related Notation

⚠WARNING	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
⚠CAUTION	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
NOTICE	Addresses practices and issues not related to personal injury.

Text Conventions

The following typographic conventions are used in this manual.

Type of Information	Convention	Example
Menu selection	Bold font, menus in path connected by “>”	Select **Tools > User Management**
User interface objects and controls	Bold font	Click **Next**
Program information and information typed by the user	Fixed-width font	Change directories to `C:/program_files/MidmarkDental`
User-specific information typed by the user	Fixed-width font with italics and “< >”	Type `C:/program_files/<user_database>`, substituting the name of the desired database for *<user_database>*

Related Manuals

Title	Description
003-10565-00: Midmark Intraoral Digital Sensor User and Installation Manual	Describes the Midmark Intraoral Digital Sensors, how to use them and how to install them.
003-10565-26: Manuel d'utilisation et d'installation du capteur numérique intrabuccal	Manual 003-10565-00 translated into Canadian French.
003-10566-00: Midmark Preva Dental X-Ray System User Manual	Describes the Midmark Preva Dental X-ray System, including how to use it, clean it and quality control.
003-10567-00: Midmark Preva Installation and Service Manual	Identifies requirements for installation and servicing for Preva Dental X-ray System.

Indications for Use

The intended use of Midmark Imaging is to be used as a display of intraoral radiographic images in dental radiography. Midmark Imaging stores digital sensor images in Digital Imaging and Communications in Medicine (DICOM) format.

Midmark Imaging can be used to:

- Acquire, manipulate, and communicate images
- Manage patient records
- Create login IDs for users of Midmark Imaging

This software is specifically designed to provide easy access to digital image acquisition, simplified storage and image recall, as well as many tools useful for image evaluation.

Guidelines for Patient Selection

Refer to the *Preva Dental X-Ray System User Manual*, *003-10566-00*.

Contraindications

None known.

Adverse Reactions

None known.

Indications of Sterility

This product is not provided sterile.

Warnings and Precautions

Read the following warnings and precautions before operating the software. Not following the instructions in this manual may cause harm to the patient, operator or others.

Midmark Imaging must be used by a dental practitioner skilled in the art of applying radiography in dentistry.

Examine radiological images and consider whether the diagnostic information sufficiently supports the diagnosis or planned treatment. If its information is insufficient, use supplemental information from other X-ray modalities or acquire additional images.

⚠WARNING	Do not modify the software configuration without manufacturer authorization. Modifying the software could result in previously unidentified risks to operators, patients, and third parties.

Radiation Safety

⚠WARNING	X-rays may be dangerous to patient and operator unless safe exposure factors, operating instructions, and maintenance schedules are observed. Only qualified and authorized personnel may operate radiation-emitting devices, observing all laws and regulations concerning radiation protection.

- Stand at least 2 m (approx. 7 ft) away from the focal spot and out of the X-ray beam path during radiography. No significant zone of occupancy is defined.
- Make full use of all radiation safety equipment features, accessories, and procedures available to protect the patient and operator from X-ray radiation.

Imaging Software

The DICOM Conformance Statement for this software is available on Midmark's website. Search for document number 00-02-1611.

⚠CAUTION	Incorrect patient name and tooth number identification may lead to diagnosis or treatment errors. Verify and correct the marking on the image.

Workstation Requirements and Recommendations

The below table shows the recommended system requirements. The amount of RAM and storage memory available to the system for the acquisition, displaying, storing, and printing of digital X-ray images affects the performance of Midmark Imaging software. The recommendations below are only a guide.

Note that varying patient volumes and the specific demands of the practice may require that these guidelines be adjusted. The system requirements of other programs operating on the same computer or network may affect them as well.

⚠CAUTION The software may not function properly on systems below the recommended specifications.

Parameter	Recommended	Minimum
Windows Operating System	Windows 11 Pro or Enterprise	Windows 10 Pro or Enterprise
Apple Support	Intel®-based Apple® hardware running native Windows Platform using Boot Camp	
Processor	Intel i5 (or better)	Intel i3
Memory	16 GB RAM (or greater)	8 GB RAM
Storage*	512 GB Hard Drive (or greater)	256 GB Hard Drive
Video	32 bit, 1920 × 1080 resolution capable	32 bit, 1024 × 768 resolution capable
Display	1920 × 1080, 32 true bit color	1024 × 768, 32 true bit color
USB Ports	High Speed USB 3.0	High Speed USB 2.0

*A back-up storage device is recommended (DVD, external hard drive, etc.)

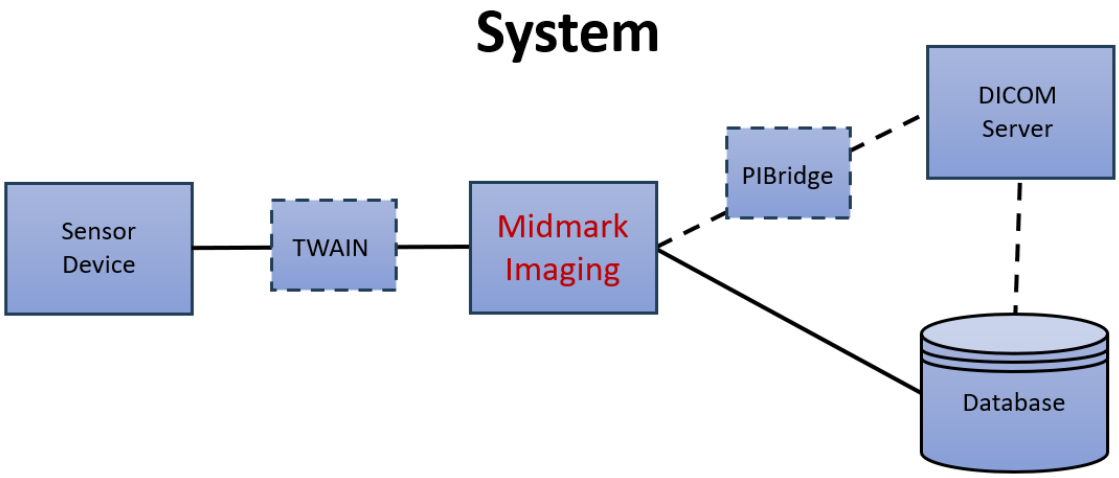
⚠WARNING Do not modify the software configuration without manufacturer authorization. Modifying the software could result in previously unidentified risks to operators, patients, and third parties.

Microsoft 8, Microsoft 8 RT, Microsoft Window 7® Home Premium, Microsoft Windows Vista® Home Basic or Home Premium, and Microsoft XP® Home are no longer supported by Microsoft and are not recommended for use with Midmark Imaging software.

Tablet PC editions are supported by Microsoft but are not recommended for use with Midmark Imaging software.

Connectivity to IT Networks

Midmark Imaging is part of a system as illustrated below. Midmark Imaging connects to the components of this system by way of the user's IT network.



System connection to a local area network (LAN) that includes equipment not provided by Midmark may result in a previously unidentified risk to patients, operators or third parties.

The owner (Responsible Organization) must identify, analyze, evaluate and control these risks, for example, by following the guidance provided by IEC 80001-1. The owner must follow the instructions provided by the manufacturers of the sensor device.

Units of Measure

Numeric indications of parameters in the software are expressed in International System of Units (SI) units. Symbols ′ and ″ may be used for marking the angle units, minute and second of angle. When provided, approximate converted values in English units are listed in parentheses. The distances in customary units use the abbreviations "ft" and "in" to denote foot and inch units.

Disclaimer

Midmark pursues a policy of continual product development. Although every effort is made to produce up-to-date product documentation, this publication should not be regarded as an infallible guide to current specifications. Midmark reserves the right to make changes without prior notice.

The original language of this manual is English. Translations to other languages are also available.

Refer to Appendix D of this manual beginning on page 205 for the End User License Agreement.

Obtaining Technical Support

Upon request, qualified installation and service personnel can obtain part lists, descriptions and additional Midmark Imaging information from Midmark. Contact Midmark for a list of authorized installers.

Midmark Corporation

60 Vista Drive, Versailles, OH 45380 U.S.A.

Phone: 1.800.MIDMARK (1.800.643.6275)
Direct: 1.844.856.1231

imagingtechsupport@midmark.com

Hours: 8:00AM to 5:00PM Central Time

To facilitate a service call, please have this information available:

- Computer operating system and version (example: Windows 10)
- Version of Midmark Imaging software. To determine the version, in Midmark Imaging, select **Help > About Midmark Imaging…** from the **Main Menu Bar**.
- Serial number of the Sensor (attached to the Sensor cable).
- Type of Midmark Imaging installation (standalone, peer-to-peer network, client-server network).

When calling, please ensure that the Midmark Imaging software and digital sensor are available.

Symbols Glossary

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Symbol	Description
⚠WARNING	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
⚠CAUTION	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
NOTICE	Addresses practices and issues not related to personal injury.
	General warning sign.
	Warns of ionizing radiation.
	Signifies that the instruction manual must be read.
	Identifies the location where the operator's manual is stored. Identifies information that relates to the operating instructions. Indicates that the operating instructions should be considered when operating the device or control close to where the symbol is placed.
	Appearance of the device indicator when a sensor is not connected to the computer and/or is not active or ready to accept images.
	Appearance of the device indicator when a sensor is connected to the computer, active, and ready to accept images.
	Button within Midmark Imaging which the user clicks to begin acquisition of the selected sequence(s) of teeth. Clicking this button readies the sensor to receive X-ray radiation and begins the countdown on the sensor timeout period.
	Button within Midmark Imaging which the user clicks to cancel an image acquisition that is in process. (This button is displayed only during an acquisition.)
	Button within Midmark Imaging which the user can click to pause an acquisition between sequences.
	Button within Midmark Imaging which the user can click to resume an acquisition they had previously paused.
	Button within Midmark Imaging which the user can click to deselect all teeth and sequences that were previously selected for acquisition.
	Identifies an image that has been manipulated by the user, such as by applying a filter or flipping it.

Symbol	Description
	Identifies an image that does not have any user-added notes.
	Identifies an image that has user-added notes.
	Identifies the manufacturer of a product.

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Glossary of Terms

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Term	Meaning
Exposure (of an object)	See [Irradiation] below.
Exposure (of an X-ray tube)	See [Loading] below.
Exposure Time (to radiation)	See [Irradiation Time] below.
Irradiation	In radiology, exposing a living being or matter to ionizing radiation.
Irradiation Time	The duration of irradiation determined according to specific methods, usually the time a rate of a radiation quantity exceeds a specified level.
Loading	In an X-ray generator, the act of supplying electrical energy to the anode of an X-ray tube.
Loading Factors	A factor influencing by its value the X-ray tube load, such as X-ray tube current, loading time, continuous anode input power, X-ray tube voltage, and percentage ripple.
Sensor Timeout Period	The set number of seconds during which a digital sensor is receptive to an X-ray exposure from the X-ray source.
Technique Factors	See [Loading Factors] above.
X-ray Tube	An electron tube, which is designed for the conversion of electrical energy into X-ray energy.

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Overview of Midmark Imaging

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Features and Functions

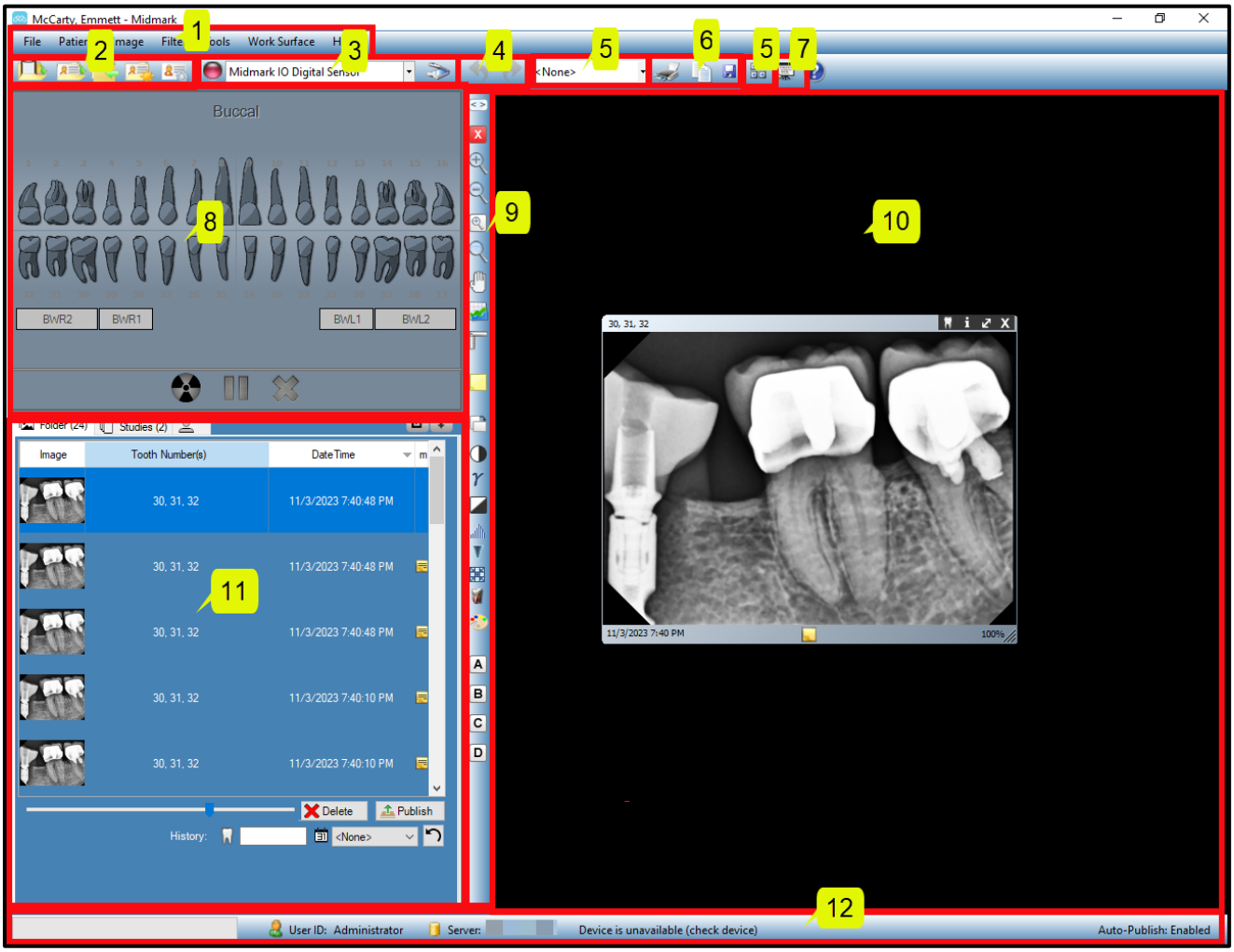
Midmark Imaging acquires, displays and stores digital dental X-rays and intraoral video images. It stores digital sensor images in DICOM format, which assures that each image contains patient identification and acquisition information.

Midmark Imaging can be used to:

- Create login IDs for users of Midmark Imaging
- Manage patient records
- Acquire, manipulate and communicate images
- Configure devices to work with Midmark Imaging

Screen Layout

Midmark Imaging's screen layout is divided into intuitive sections, which are pictured below and described in the table below the image.



(Numbered) Area	Description
(1) **Main Menu Bar**	Commands for all Midmark Imaging functions.
(2) **Patient Controls Toolbar**	Opens, closes, creates, and views/modifies patient records.
(3) **Device Controls Toolbar**	Select image acquisition modules (e.g., a sensor).
(4) **Undo & Redo Toolbar**	**Undo** reverses the last action performed, and **Redo** undoes the last **Undo** action. Used for working with filters applied to an image.
(5) **Template Controls Toolbars**	The dropdown list selects a template; the button opens the **Template Manager**.
(6) **Image Operations Toolbar**	Print, copy to clipboard, or save an image.
(7) **Slideshow View Button**	Provides an enlarged image display that includes a thumbnail carousel.
(8) **Tooth Panel**	Used to select sequences of teeth to image and to start, stop, and pause image acquisition.
(9) **Filter Toolbar**	Manipulates the way an image is displayed. Also used to open the **Annotate & Estimate toolbar**.
(10) **Work Surface**	A space for displaying images, where the images can then be filtered and annotated.
(11) **Patient Panel**	Stores images, studies and files in a patient record.
(12) **Progress and Status Bar**	Shows image acquisition progress, sensor readiness and current user and server.

System Components

Midmark Imaging works in several related contexts:

- Midmark imaging components
- Image acquisition modules
- Thirty-party applications such as practice management software

Midmark Imaging Components

Midmark Imaging consists of three main components: a graphical user interface, a database and application folders. The graphical user interface is used to view and manipulate images. The database, which runs on MS SQL Server 2019, stores user and patient information. The application folders store system settings, device configurations and patient images.

Midmark Imaging must be installed on each computer that will be used to view, acquire and store images. By default, the Midmark Imaging database is installed on the computer on which the graphical user interface is installed. This is the standalone (application) configuration.

The graphical user interface can also be connected to a central database on another computer in the office network. This is the networked (application) configuration.

Image Acquisition Modules

Midmark Imaging works with Midmark Intraoral Digital Sensors digital X-ray image acquisition modules.

Bridge to Third-Party Applications

PIBridge is an additional software application which enables Midmark Imaging to be used with third-party applications, such as practice management software. With PIBridge, Midmark Imaging's image acquisition and analysis capability can be added seamlessly to practice management software. After accessing a patient's records in the practice management application, use PIBridge commands to "call" Midmark Imaging. Midmark Imaging opens to acquire images and create studies. See section *PIBridge Application* beginning on page 187 of this manual for details.

For more information about using third-party applications with Midmark Imaging, contact Midmark Technical Support.

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Installation – Basic Procedures

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Before Installation

NOTICE It is recommended that the installing technician review the complete instructions before attempting to install or upgrade any component.

If using a laptop that was purchased from Midmark as part of a combination sensor/laptop catalogue number, installation of the Midmark Device Suite and Midmark Imaging has already been completed at the factory. In this scenario, skip this section and proceed to section *Launching Midmark Imaging* beginning on page 47 of this manual.

If it is desired to upgrade Midmark Imaging or install it on a new computer, first confirm that the computer complies with the requirements listed in section *Workstation Requirements and Recommendations* beginning on page 12 of this manual.

Next, confirm that previous versions of the Midmark Device Suite and Midmark Imaging are not already present on the computer. If they are, they will need to be uninstalled.

NOTICE Proper operation requires any previous version of Midmark Device Suite and Midmark Imaging to be removed (uninstalled) prior to the installation process to begin.

IMPORTANT: If both Midmark Device Suite and Midmark Imaging are installed, Midmark Imaging must be uninstalled BEFORE Midmark Device Suite is uninstalled. Uninstalling Midmark Device Suite first will cause an error that prevents Midmark Imaging from being uninstalled.

To uninstall on Windows 10, from the Windows Start menu, select **Settings > Apps > Apps & features**. From there, scroll down to the programs of interest. Click on a program, then click the **Uninstall** button that appears. This will need to be done first for Midmark Imaging and then for each of the two Midmark Device Suites (x64 and x86).

NOTICE For computers with legacy programs installed, Progeny Imaging may be present instead of Midmark Imaging, and there may be only one Midmark Device Suite instead of two. These should still be uninstalled as applicable.

Install Midmark Imaging on every computer that will be used to view, acquire or store images.

Installation Configurations

Two configurations – standalone and networked – are available for installing the Midmark Imaging database. A USB-enabled image acquisition module (i.e., sensor) must be physically connected to the machine on which it will be used.

Standalone Configuration

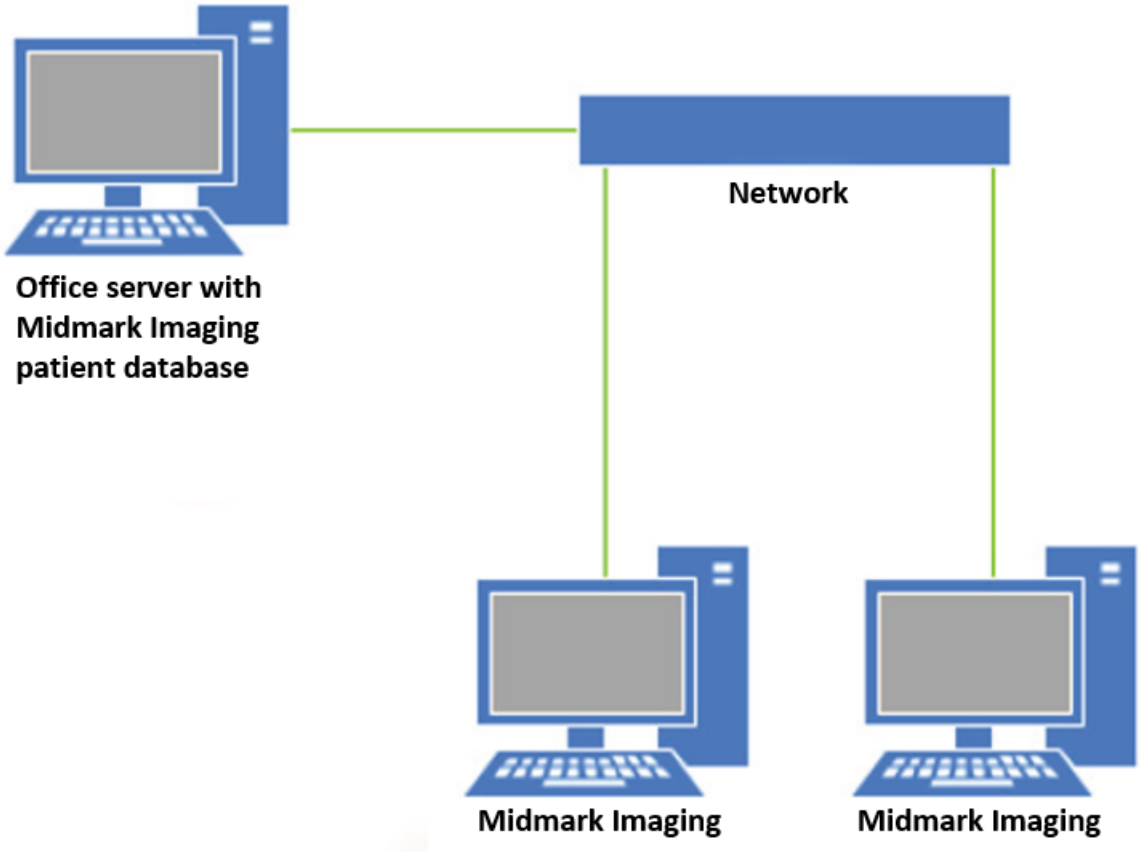
When the Midmark Imaging application, database and application folders are located on the same computer, install Midmark Imaging in the standalone configuration.

In the standalone configuration, the computer uses the Midmark Imaging database and application folders located on the computer. The computer has an image acquisition module (i.e., sensor) connected to it.

Networked Configuration

When the application, database and application folders are located in a central location on an office server or a computer designated to act as a server, and the graphical user interfaces on other computers are pointing to a central location, Midmark Imaging is installed in networked mode. All of the computers with the application use the same centrally-located database and can view the centrally-located patient images. In the networked configuration, all computers are on the office network and can access the Internet if the network provides access.

In the networked configuration shown below, Midmark Imaging is installed on each computer and on the office server. All computers use the Midmark Imaging database on the office server and the image acquisition module (i.e., sensor) connected to the network hub.



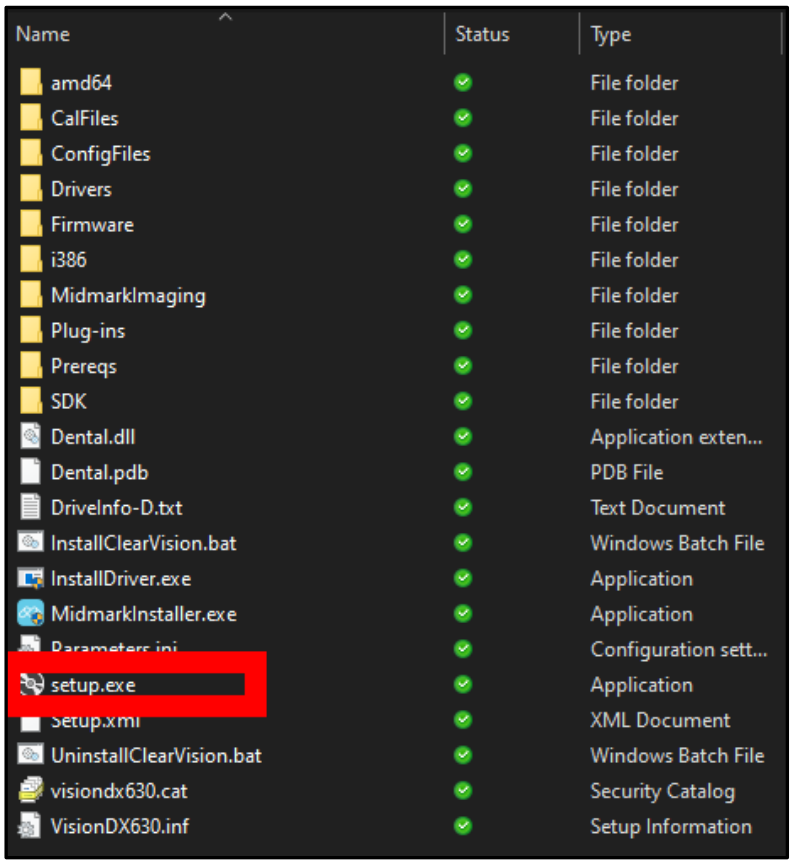
About the Midmark USB Flash Drive

Midmark Imaging is installed from the Midmark flash drive. The drive also contains the help file and the database software, MS SQL Server 2019. If MS SQL server is not already installed on the computer, the Midmark Software Installer will install it.

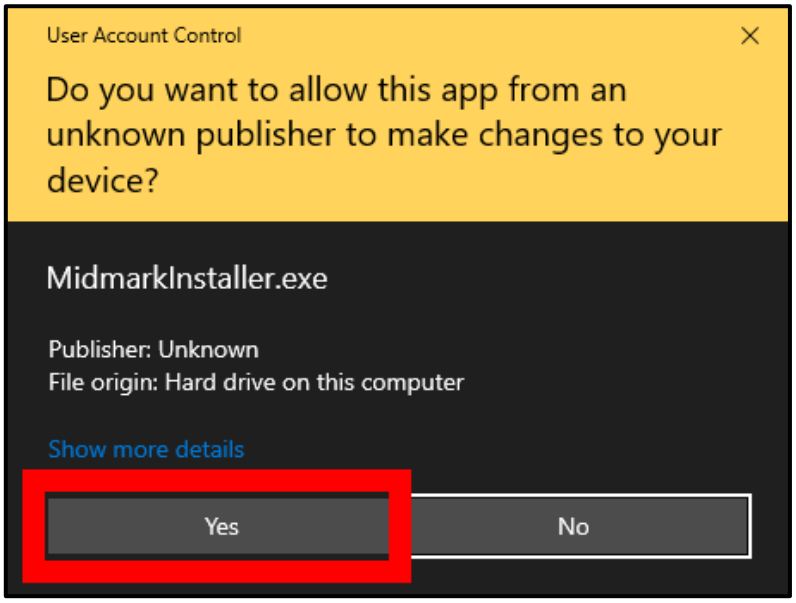
Installation Procedure

NOTICE It is recommended that the installing technician review the complete instructions before attempting to install or upgrade any component.

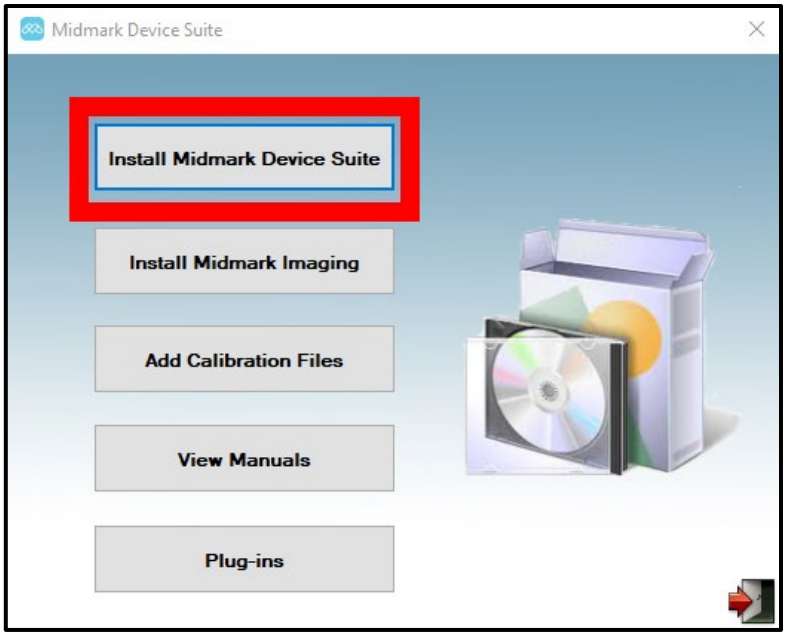
1. Log on to the Windows computer with administrator privileges (or ensure that the administrator is available to enter admin credentials).
2. Insert the Midmark USB flash drive into an available USB port on the computer and allow the computer to recognize it. If the software on the USB flash drive does not start automatically, navigate to Windows Explorer™ and select the **MIDMARK** drive letter. Browse to the content of the flash drive and double-click on **setup.exe**. This step begins the installation process.



3. A “User Account Control” pop-up window appears confirming the choice to make changes to the device. Click **Yes**.



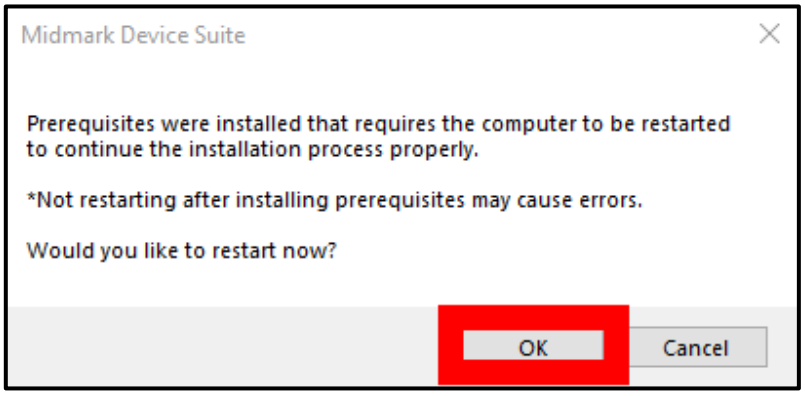
4. The main window of the Midmark Device Suite installation software opens. Click on the **Install Midmark Device Suite** button.



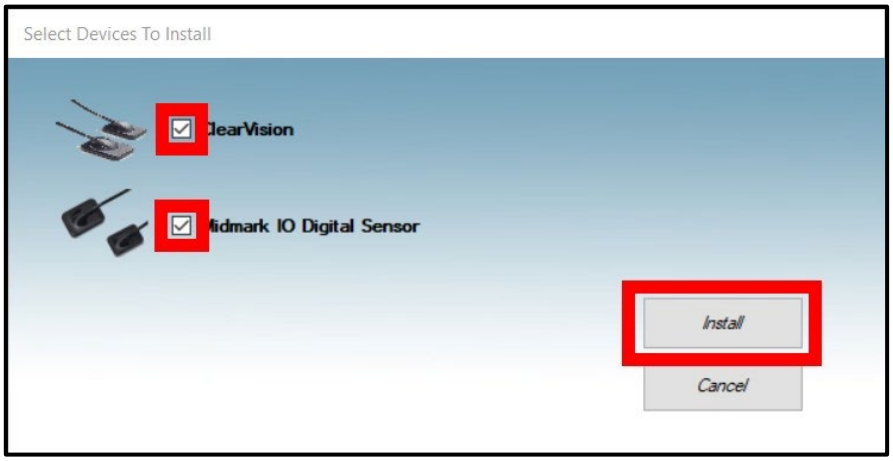
NOTICE

The installed software requires multiple software components that may already be available in the system. These components will be installed if they are not yet present. Follow all on-screen prompts. See below for an example.

If a step requires the computer to be restarted and the installation process does not automatically resume upon restart, navigate to **setup.exe** as previously described and double-click on it again. Repeat the previous steps as necessary.

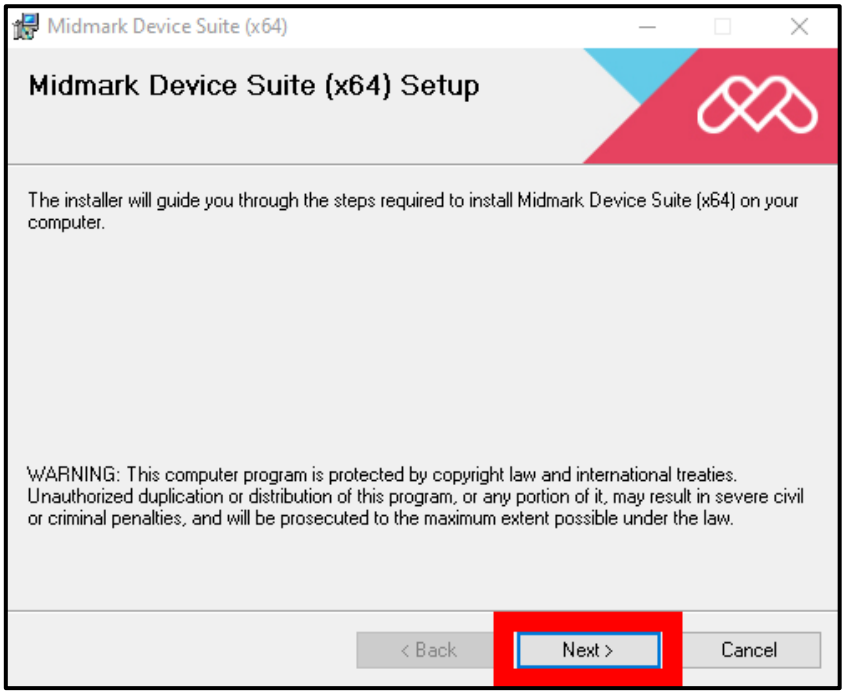


5. After clicking on the **Install Midmark Device Suite** button, the **Select Devices To Install** pop-up will be displayed. Check all available options. An ***Install*** button will appear. Click that.



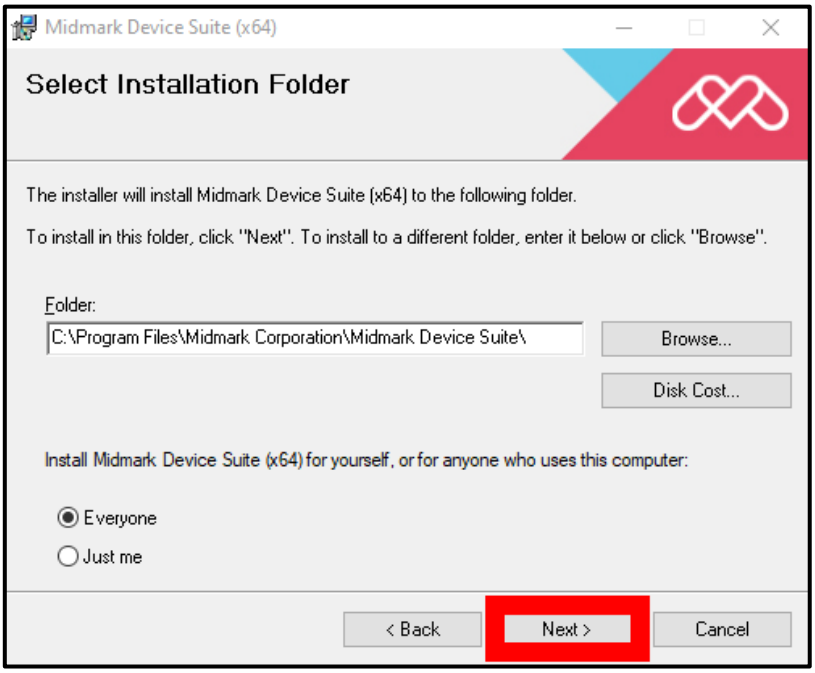
6. The “Driver Installation” window appears with a green progress bar that loads from left to right as installation occurs. Wait for the bar to finish loading.

7. When the green bar has fully loaded, the driver installation window will automatically close, and the setup wizard pictured below will appear. Click **Next >**.

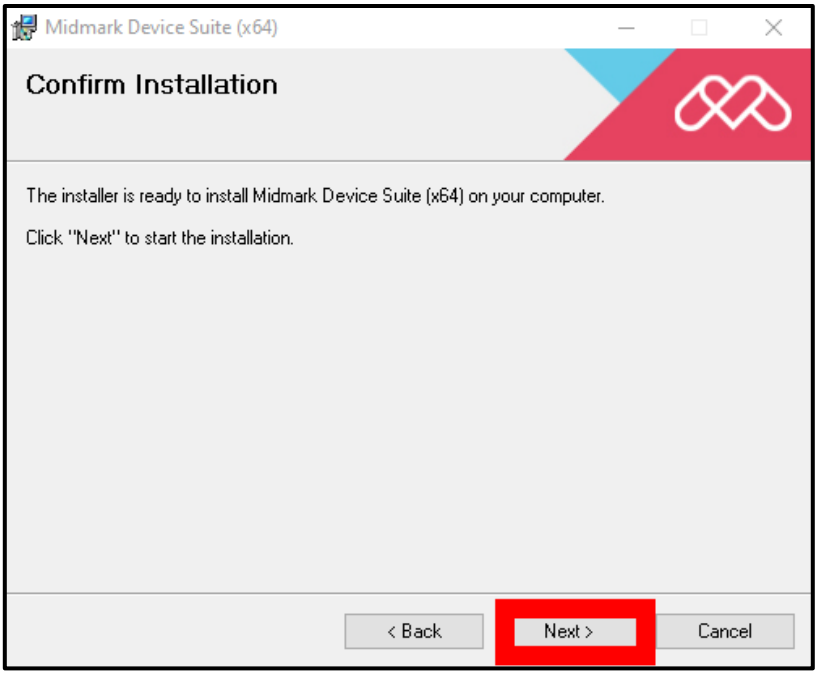


8. A license agreement appears with the default of “I Do Not Agree” selected and the **Next >** button grayed out. Scroll through the agreement and read it by clicking the downward arrow towards the right-side edge of the window. If you accept the terms, click the radio button next to “I Agree,” then click the **Next >** button.

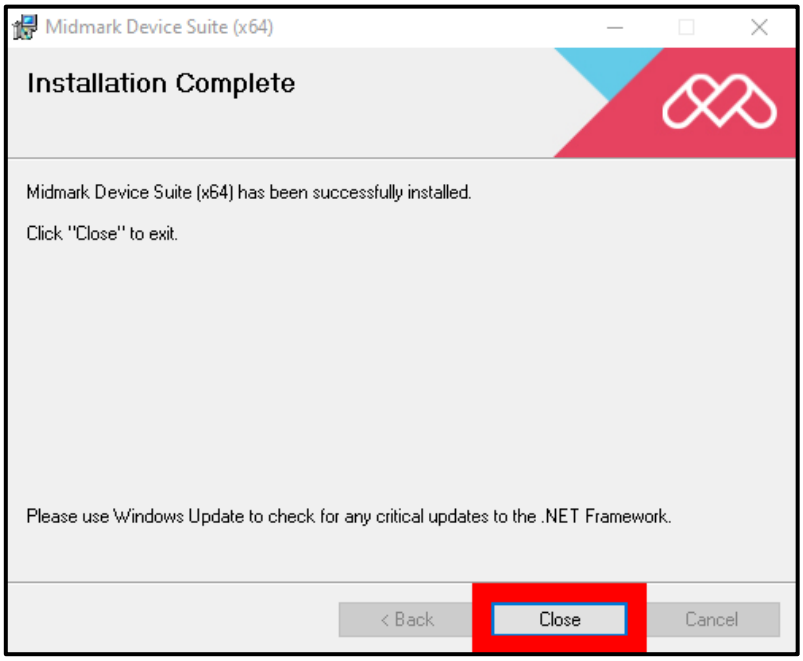
9. The window pictured below appears. Default options are populated automatically as shown below. These options can be changed according to user preference. When satisfied with the selections, click the **Next >** button.



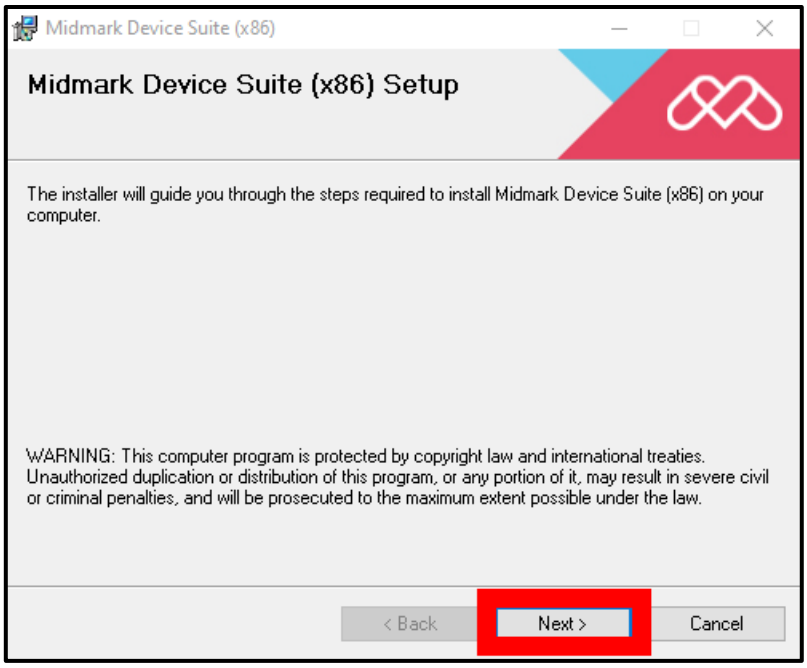
10. The “Confirm Installation” window appears. Click the **Next >** button.



11. A window showing a loading bar indicating the progress of the installation may briefly appear. When the installation is complete, the loading bar window closes and the “Installation Complete” window appears. Click the **Close** button.



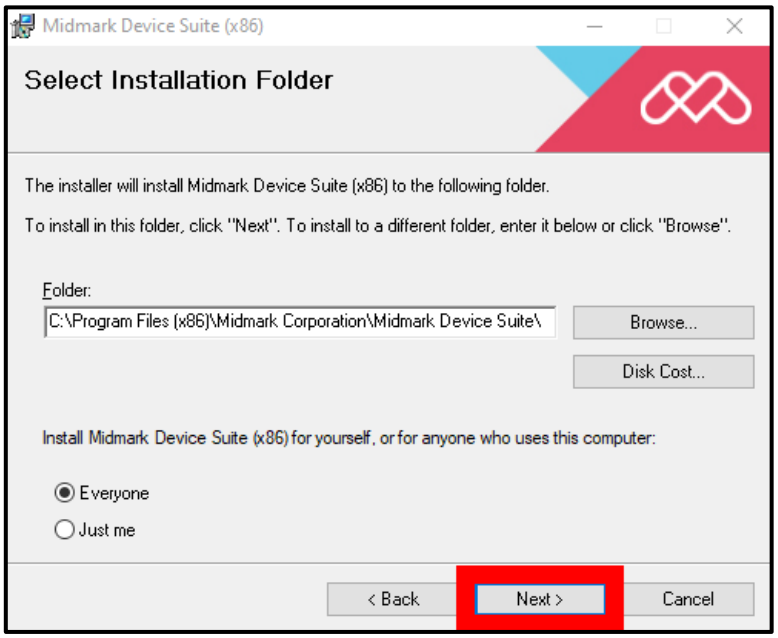
12. The setup wizard pictured below appears. Click **Next >**.



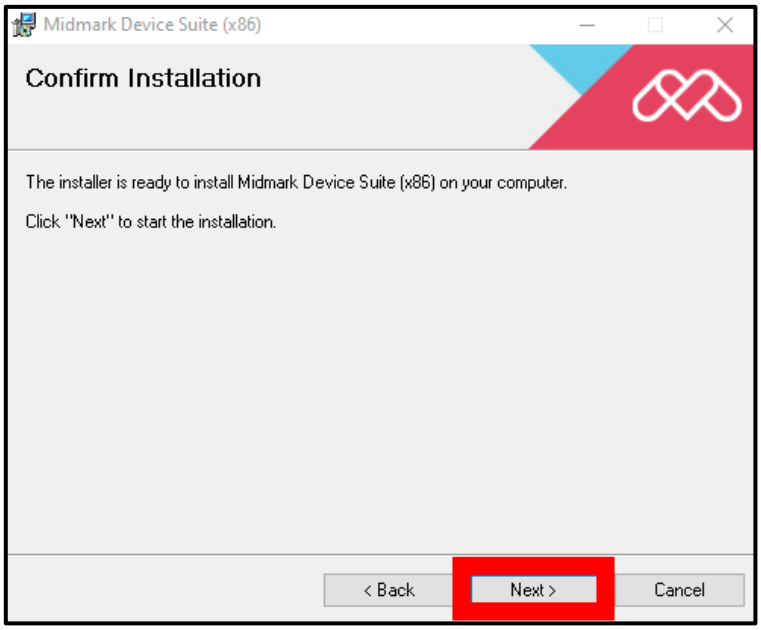
13. A license agreement appears with the default of “I Do Not Agree” selected and the **Next >** button grayed out. Scroll through the agreement and read it by clicking the downward

arrow towards the right-side edge of the window. If you accept the terms, click the radio button next to “I Agree,” then click the **Next >** button.

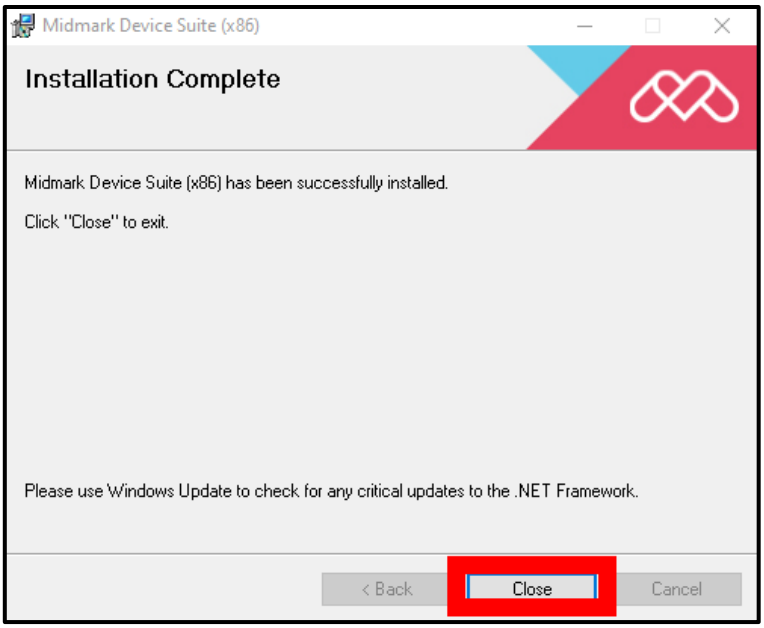
14. The window pictured below appears. Default options are populated automatically as shown below. These options can be changed according to user preference. When satisfied with the selections, click the **Next >** button.



15. The “Confirm Installation” window appears. Click the **Next >** button.

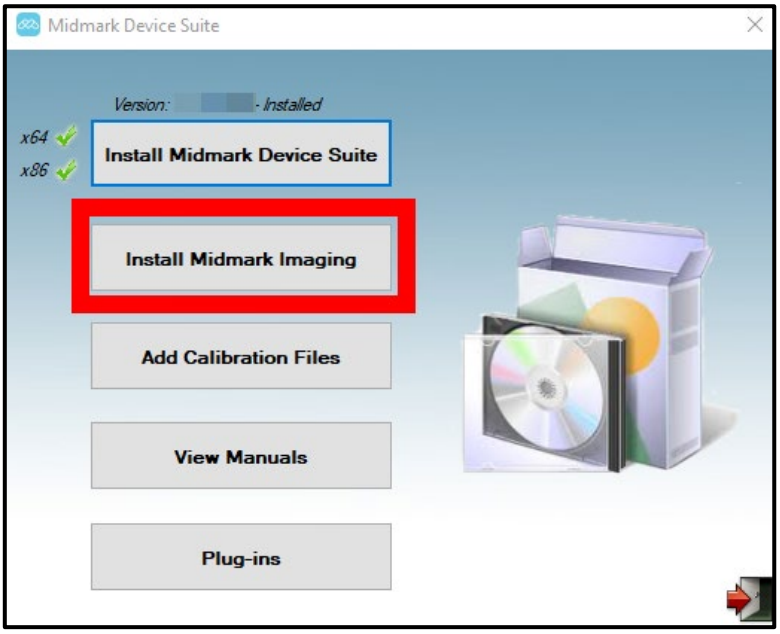


16. A window showing a loading bar indicating the progress of the installation may briefly appear. When the installation is complete, the loading bar window closes and the “Installation Complete” window appears. Click the **Close** button.

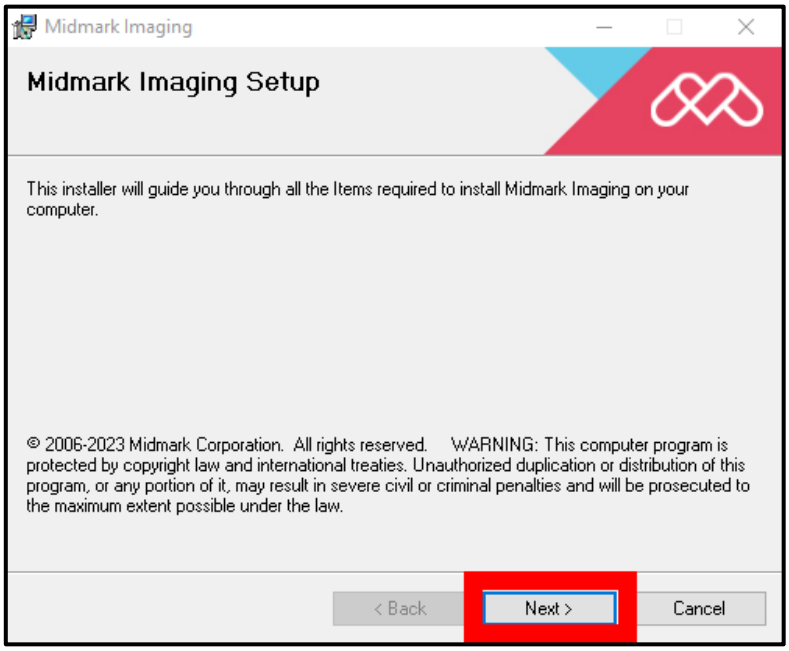


17. On the main installation screen, there will now be two green check marks next to the **Install Midmark Device Suite** button, indicating that installation of the device suite is

complete. Continue by clicking on the **Install Midmark Imaging** button to install Midmark Imaging software.



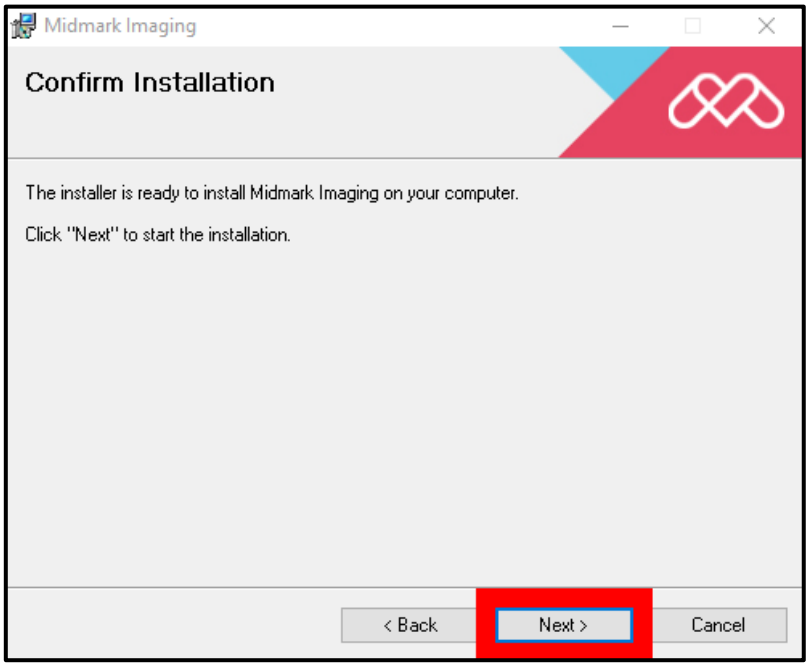
18. The “Midmark Imaging Setup” window appears. Click the **Next >** button.



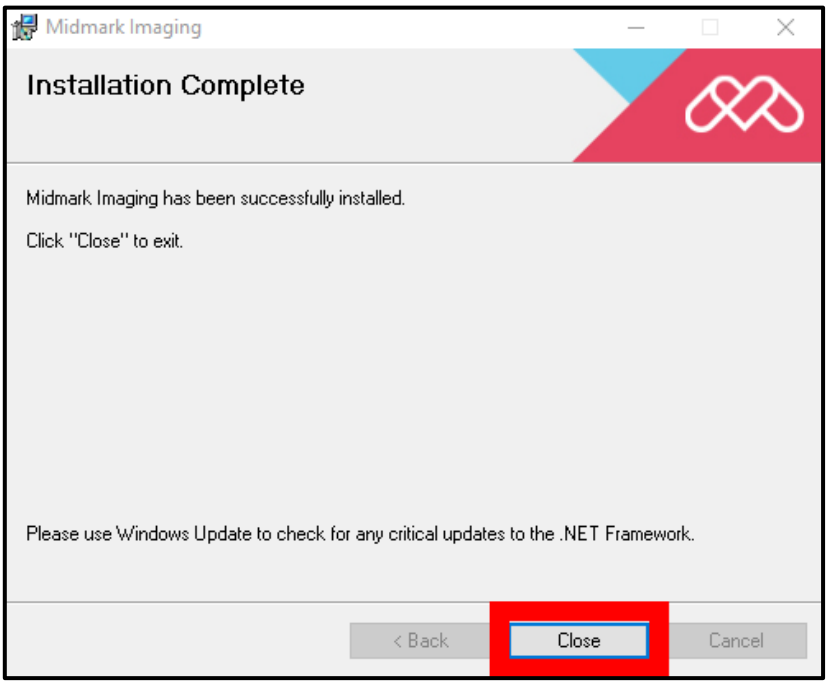
19. A license agreement appears with the default of “I Do Not Agree” selected and the **Next >** button grayed out. Scroll through the agreement and read it by clicking the downward arrow

towards the right-side edge of the window. If you accept the terms, click the radio button next to “I Agree,” then click the **Next >** button.

20. The “Confirm Installation” window appears. Click the **Next >** button.



21. A window showing a loading bar indicating the progress of the installation may briefly appear. When the installation is complete, the loading bar window closes and the “Installation Complete” window appears. Click the **Close** button.



22. The main installation screen will now show a green checkmark next to the **Install Midmark Imaging** button to indicate that Midmark Imaging has been successfully installed. Click on the door icon in the lower-right corner to close out the window.

NOTICE Do not discard or reuse the USB flash drive. It contains the operation instructions and the sensor support software. Save and store the USB flash drive in a convenient location to allow future references to its content.

Launching Midmark Imaging

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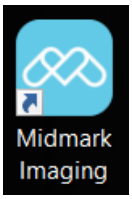
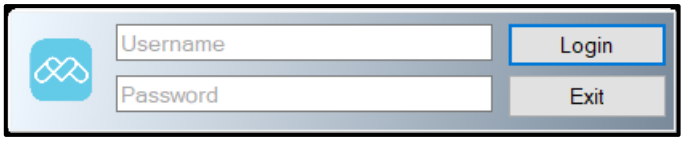
Logging in for the First Time

Midmark Imaging allows both administrator users and ordinary users. Immediately after installing Midmark Imaging, log in as Administrator. The Administrator can then use the **User Manager window** to create user IDs and passwords for other administrators and ordinary users.

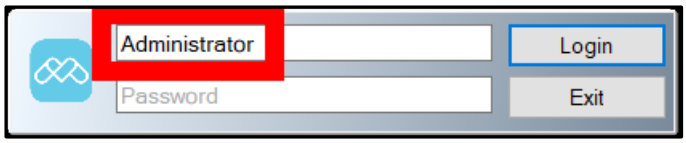
1. Ensure that the Windows account in use has Windows computer Administrator privileges.
2. Double-click the **Midmark Imaging icon** on the computer desktop (pictured below). Alternatively, select Midmark Imaging from the Windows Start menu.



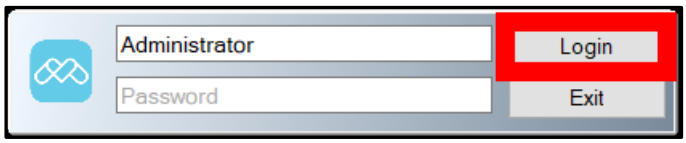
3. Midmark Imaging opens and displays the **login window** shown below.



4. In the **username field**, type `Administrator`. (If logging into the application in another language, use the localized operating system's version of the "Administrator" login.) Leave the **password field** blank.



5. Click **Login**.



6. A message may appear with the notice that a new version of Midmark Imaging is available. There is an option to prevent the message from being displayed again if desired. After reading the message, dismiss it by clicking **OK**.

Overview of Login Modes

Login mode determines how Midmark Imaging starts when it is launched from the desktop or Windows Start menu. The login mode also determines the level of security for patient records. Midmark Imaging has two login modes: Open User Mode and Secure Mode.

NOTICE Midmark Imaging is not designed to run simultaneous instances.

Open User Mode

Open User Mode allows users to start Midmark Imaging without having to log in. In Open User Mode, Midmark Imaging opens immediately whenever anyone clicks the Midmark Imaging icon, and all users have access to all patient records.

Secure Mode

In Secure Mode, each user has his or her own user ID and password, and all users must log in to use Midmark Imaging. In Secure Mode, an Administrator creates user IDs for users, and users have access only to the patient records assigned to them. Administrators have access to all patient records.

Choosing a Login Mode

The first time that Midmark Imaging is launched after installation, the user logs in as Administrator. The user can then select the login mode that best suits the needs of the practice. If it is desired to use Open User Mode, that mode is enabled by modifying the desktop shortcut for starting Midmark Imaging. If it is desired to use Secure Mode, the **User Manager window** is used to set up user IDs and passwords for users. These procedures are explained in detail in subsequent sections of this manual.

Launching in Open User Mode

About Open User Mode

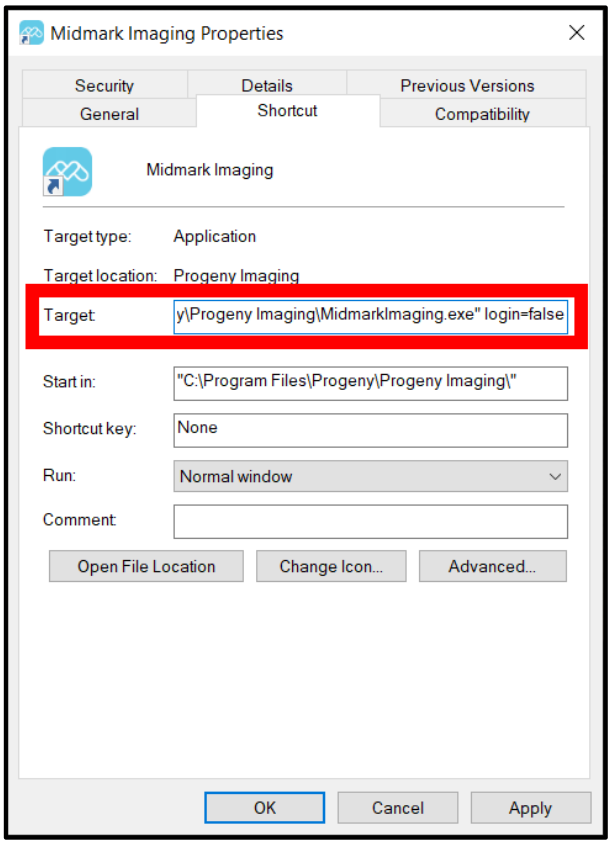
By default, every time Midmark Imaging is launched, the **Login window** appears. If it is desired that Midmark Imaging should launch without the **Login window** appearing, Open User Mode will have to be enabled. Open User Mode allows users to start Midmark Imaging without having to log in.

Open User Mode treats all users as Administrator. In Open User Mode, all users have access to all patient records, and there is no need to create users.

Enabling Open User Mode

1. If Midmark Imaging is currently open, exit out of the program.
2. Right-click on the **Midmark Imaging icon** and select **Properties**.

3. In the “Properties” dialog box, select the **Shortcut** tab if it is not already selected.
4. In the “Target” text field, place the cursor to the right of the last character.
5. Type a `space`, and then type `login=false`. Click on an open area of the form.



6. Click **Apply**.
7. Click **OK**.

Starting Midmark Imaging in Open User Mode

1. Ensure that the Windows account in use has Windows computer Administrator privileges.
2. After enabling Open User Mode using the steps in the previous section, simply double-click the **Midmark Imaging shortcut** on the computer's desktop. Midmark Imaging will then open with no prompt for login credentials.

Launching and Working with Secure Mode

About Secure Mode

When Midmark Imaging is first installed, only one account, the Administrator, is available for login. Secure Mode allows for the creation of additional accounts. Login and patient access privileges can then be extended to those other users. In Secure Mode, each user has his or her own username and password, and all users must log in to use Midmark Imaging.

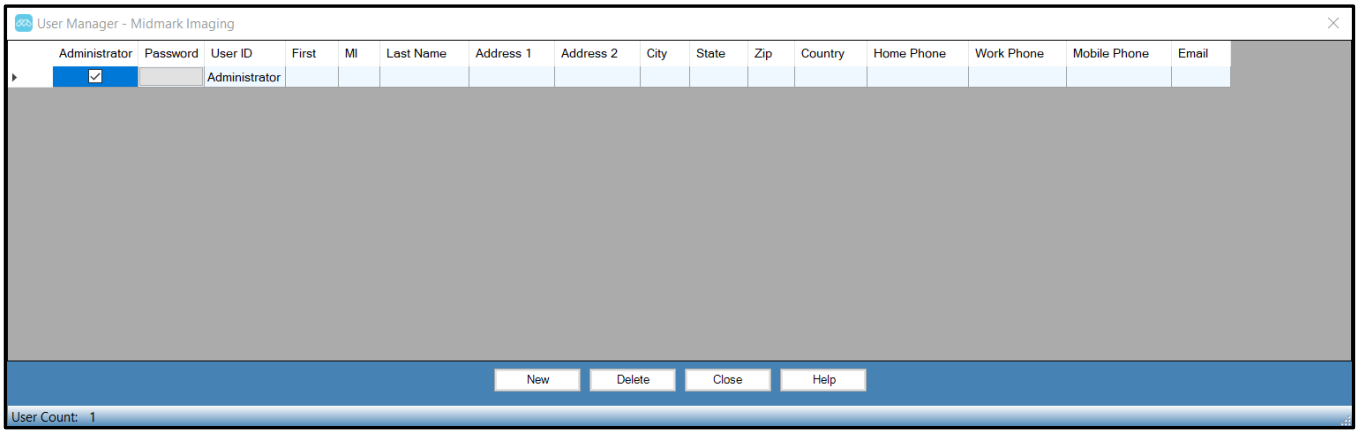
Midmark Imaging permits two types of users:

- Administrator:
  - Administrator is the default user that comes with Midmark Imaging. The Administrator can create and manage other users and access all patient records.
  - Midmark Technical Services uses the Administrator user in the event that technical support is required.
  - The Administrator is not modifiable and will not have the First and Last name fields filled.
- Users:
  - Users create and manage only their own patients' records.
  - Any number of users can be created.
  - Any user can also act as Administrator when the **Administrator box** is checked in the **User Manager window**.
  - All Users are required to have both the First and Last name fields filled.

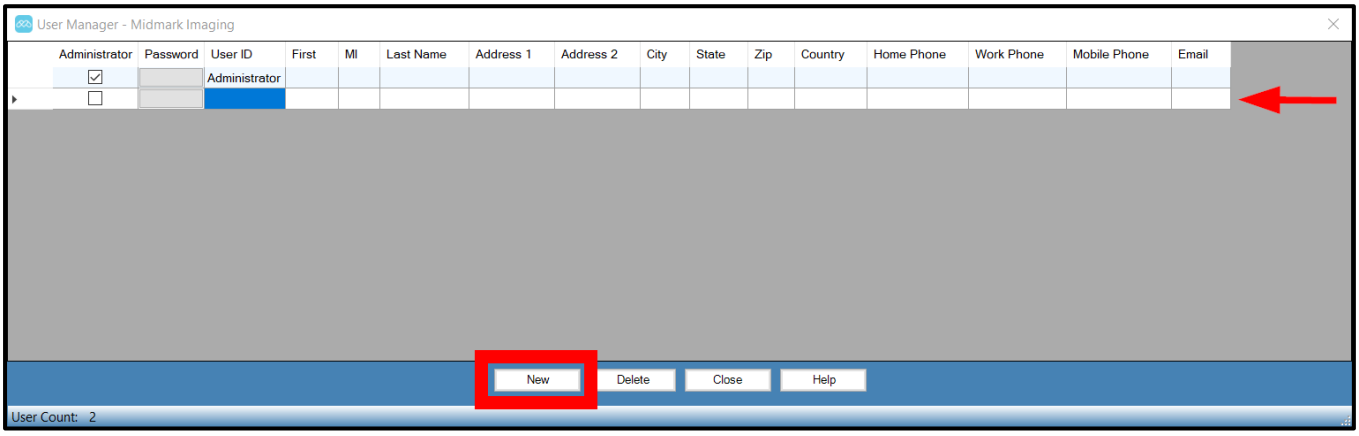
In order to implement Secure Mode, the **User Manager window** must be used to create users.

To Create a User

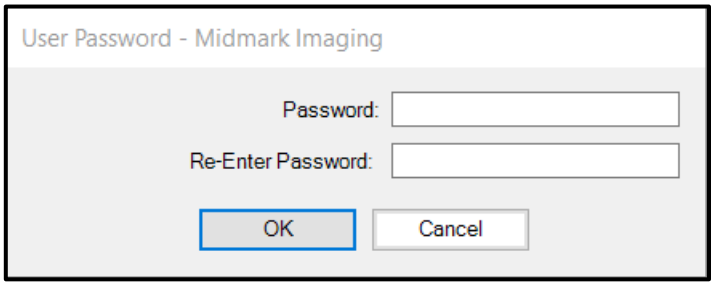
1. Log into Midmark Imaging as Administrator.
2. Select **File > User Manager**. (Alternatively, press **Ctrl + U** on the keyboard.) The **User Manager window** shown below opens.



3. In the **User Manager window**, click **New**. A blank row is added to the list of users as shown below.



4. To allow the user to act as an Administrator, with access to all patient records, check the **Administrator box** in the "Administrator" column. Leaving the **Administrator box** unchecked means that the user will only have access to the patient records he or she creates.
5. Setting a password is optional. If a password is needed, click within the **Password** box corresponding to the applicable user. The **User Password window** opens as shown below. In this window, enter the password twice as directed and click **OK**.



NOTICE Passwords are case-sensitive and must be at least five characters long.

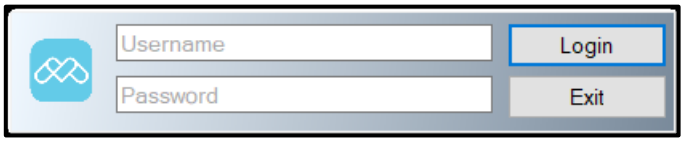
6. Click within the **User ID** box and type a unique identifier for the user. This is the username that the user will enter to log in to his or her account.
7. Enter the user's first and last names (required fields) and other optional information as desired.
8. Click **Close** to save the information and close the **User Manager window**.

To Log In

If Midmark Imaging is being run in Secure Mode, the login screen appears every time Midmark Imaging is launched.

1. Before logging in, obtain the appropriate username (i.e., User ID) and password (if applicable) from the Administrator. Also, ensure that the Windows account has Windows computer Administrator privileges.
2. Double-click the **Midmark Imaging icon** on the computer desktop (pictured below). Alternatively, select Midmark Imaging from the Windows Start menu.

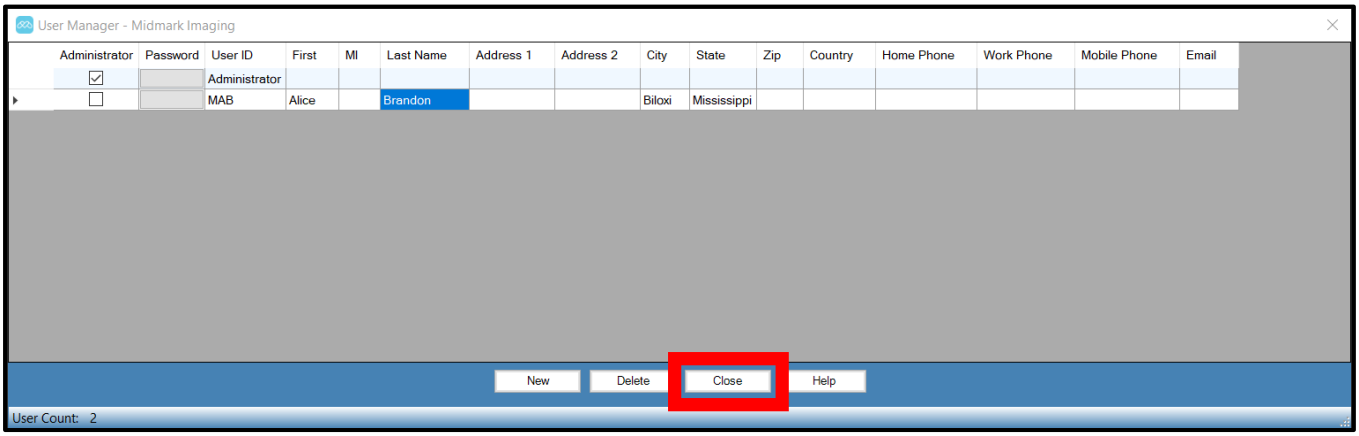
3. Midmark Imaging opens and displays the **login window** shown below.



4. In the **login window**, enter the *<username>* (i.e., User ID) and *<password>* (if applicable). Passwords are case sensitive.
5. Click **Login**.

To Modify User Information

1. Log into Midmark Imaging as an Administrator.
2. Select **File > User Manager**. (Alternatively, press **Ctrl + U** on the keyboard.) The **User Manager window** opens.
3. In the User Manager screen, click on the user whose information requires modification. This will select the user.
4. Type the new information within the box it is desired to modify.
5. Click the **Close** button. This will both save the updated user information and close the **User Manager window**.

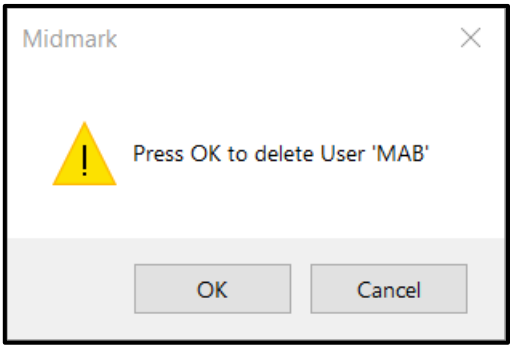


NOTICE It is not recommended to modify the original, default Administrator account that comes with Midmark Imaging. That Administrator account is not intended to be assigned a first or last name.

To Delete Users

1. Log into Midmark Imaging as an Administrator.

2. If the user to be deleted has patients assigned to him or her, the patients must first be assigned to another user. Refer to section *Reassigning Patient Records* beginning on page 83 of this manual and complete applicable steps before proceeding further.
3. Select **File > User Manager**. (Alternatively, press **Ctrl + U** on the keyboard.) The **User Manager window** opens.
4. In the **User Manager window**, select the user to be deleted by clicking on them.
5. Click the **Delete** button. A window such as the one pictured below will open to confirm the action. Click **OK** to proceed with deleting the user or **Cancel** to abort the deletion process and retain the user.



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Setting up Midmark Imaging

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About Application Settings

Once installed, Midmark Imaging is ready to use. The following software settings can be customized.

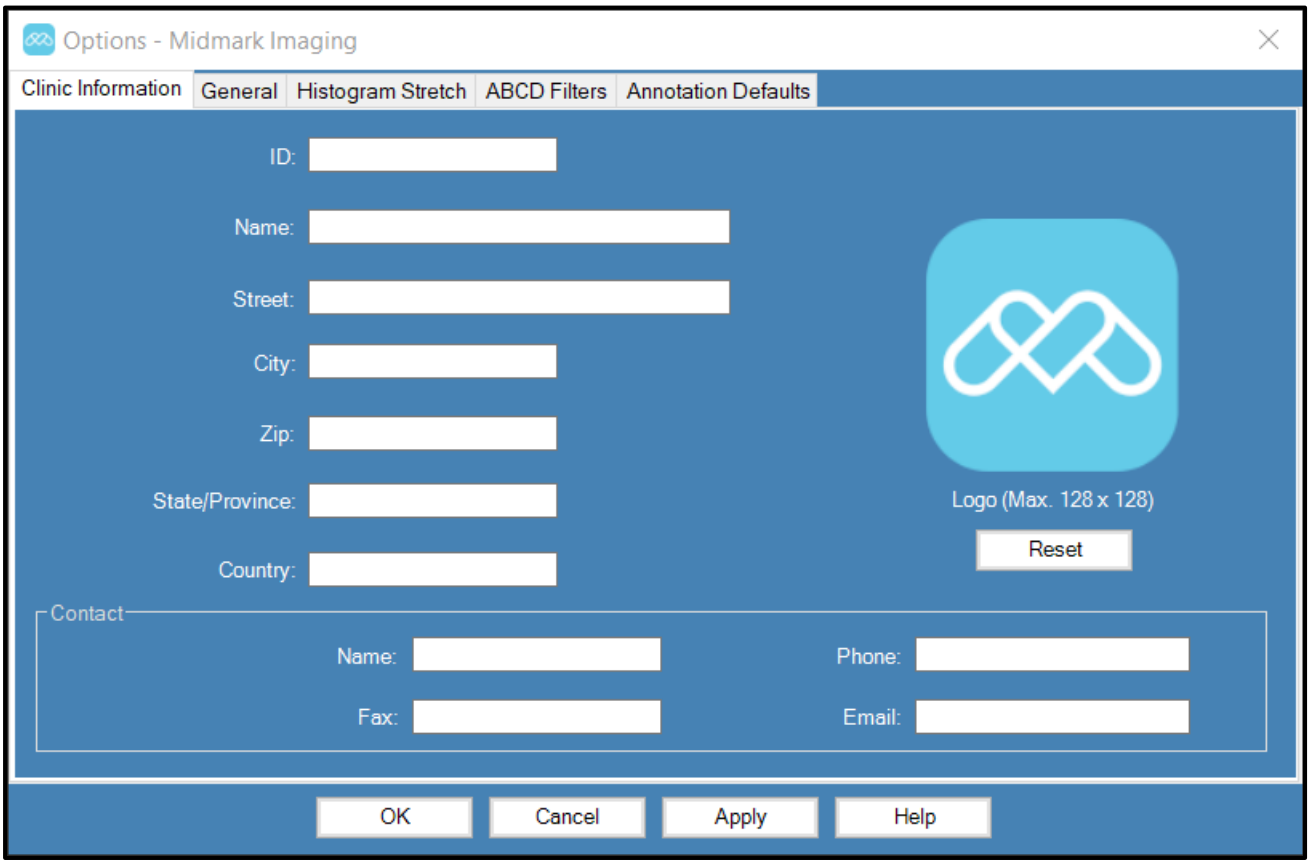
- Clinic information
- Language
- Tooth numbering scheme
- Image acquisition sound

The next sections of the manual explain how to customize those settings and more.

Entering Clinic Information

Clinic information must be entered in order for it to appear in the DICOM image information and printouts.

1. From the **Main Menu Bar**, select **Tools > Options**. The window shown below will open.



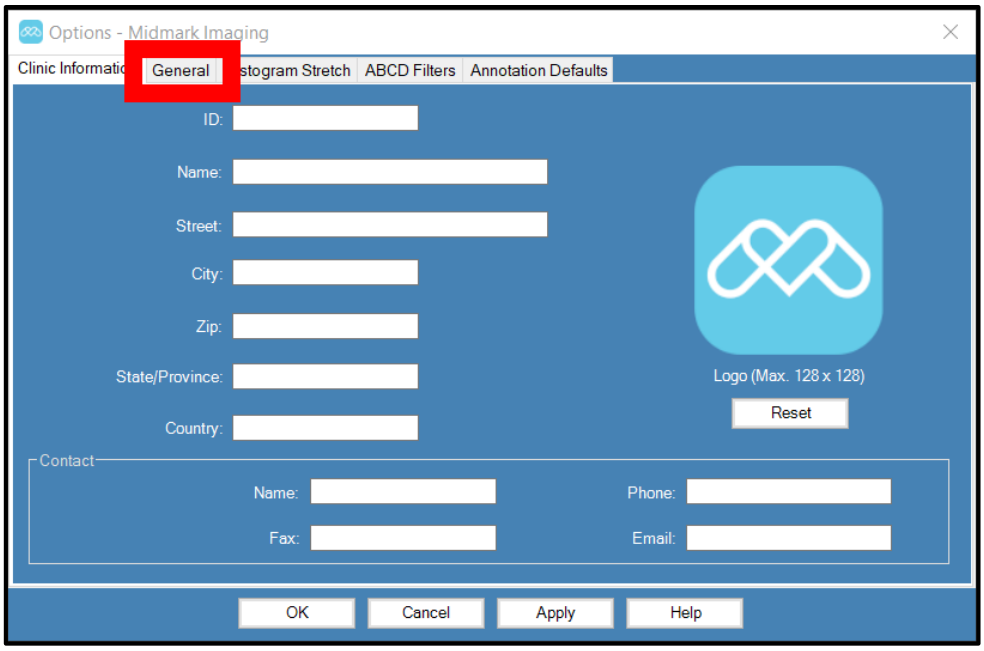
2. The **Clinic Information** tab should be selected by default, but if it is not, select it now.
3. Enter information for the clinic in the appropriate fields. Clicking on the logo image will open a browser through which the user can navigate to and select an image to use.
4. Click **OK**.

Selecting the Language

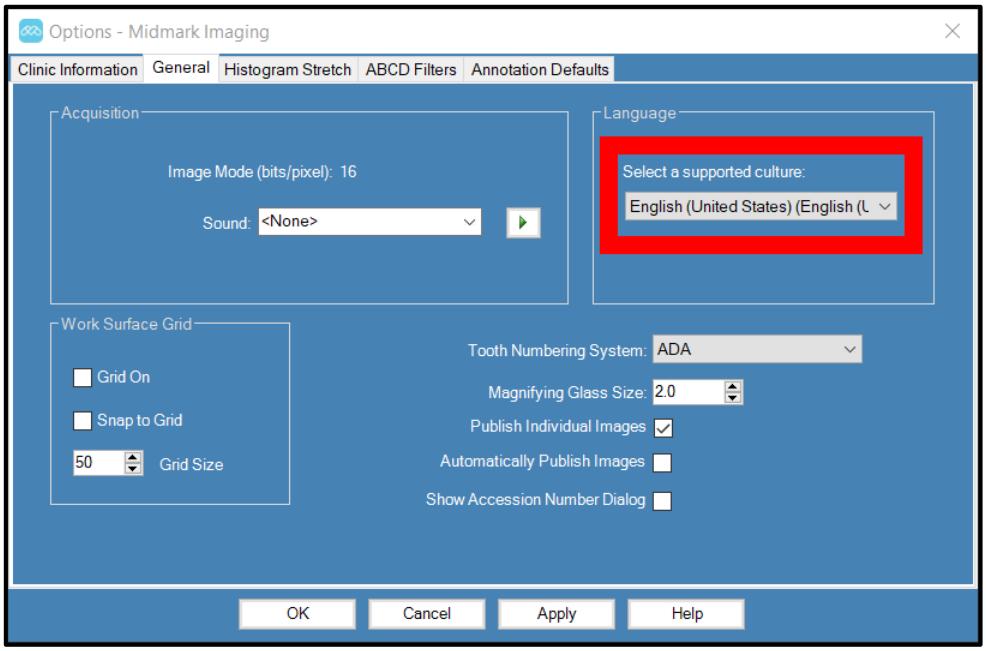
Midmark Imaging can be configured to display in a chosen localized language for the application. If the installed version of Windows is also localized, added image notes and annotations will appear in the chosen language.

By default, Midmark Imaging is configured for English (United States). Follow the steps below to change the language.

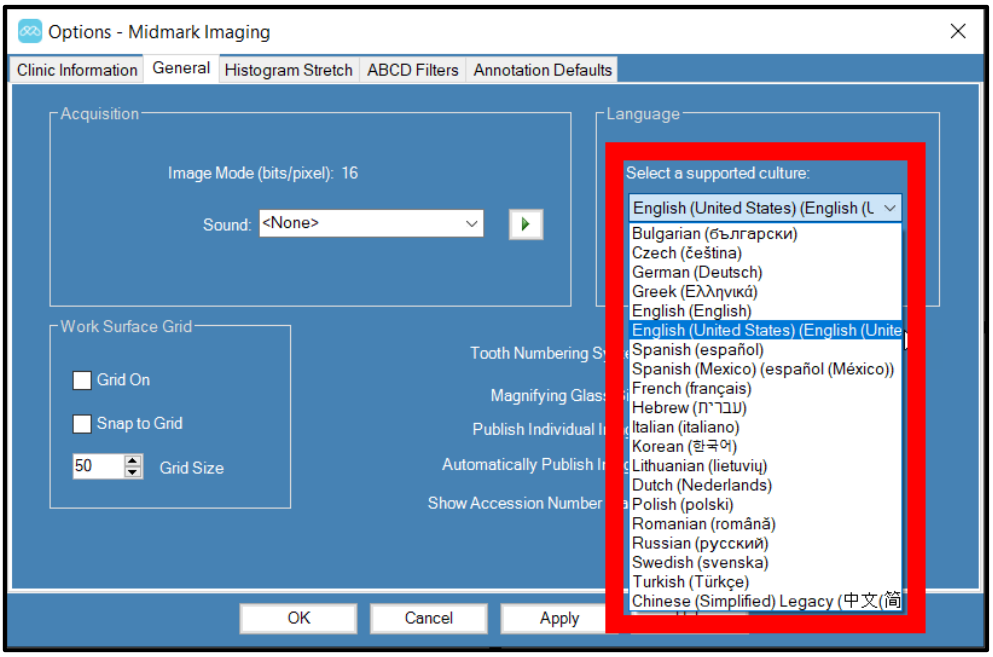
1. In the **Main Menu Bar**, select **Tools > Options**. The **Options window** opens.
2. Click the **General** tab.



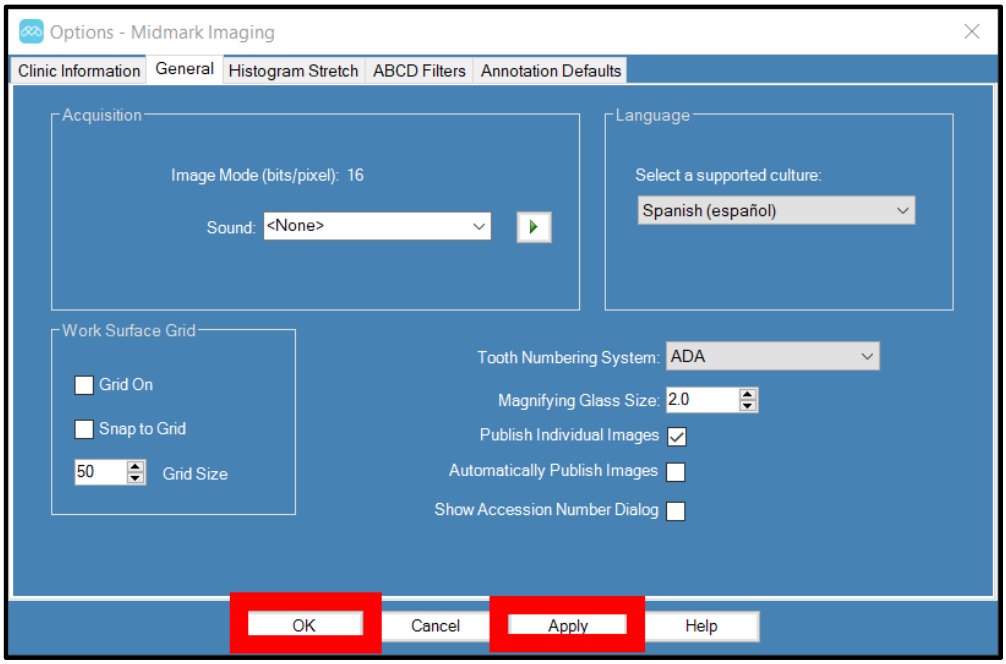
3. The **Options window** takes on the following appearance. Click on the drop-down list within the **Language** section.



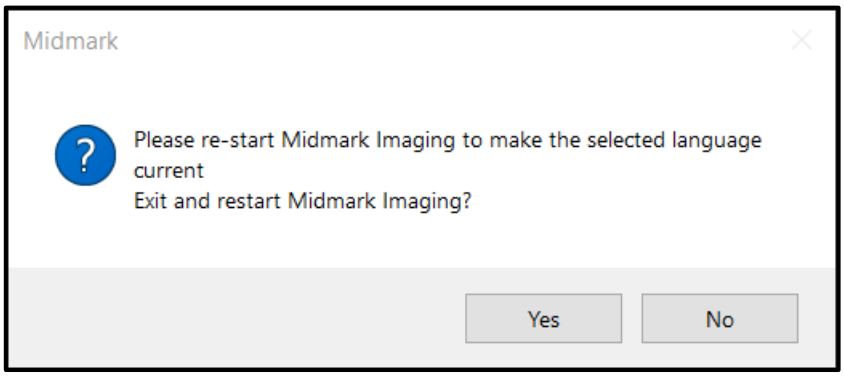
4. The list of languages shown below appears. Click on the desired language.



5. Click on either **OK** or **Apply** if it is desired to configure Midmark Imaging to the selected language.



6. A window opens advising that Midmark Imaging needs to be exited and re-started in order to implement the new language. Click either **Yes** or **No** depending on whether it is desired to proceed at that time.



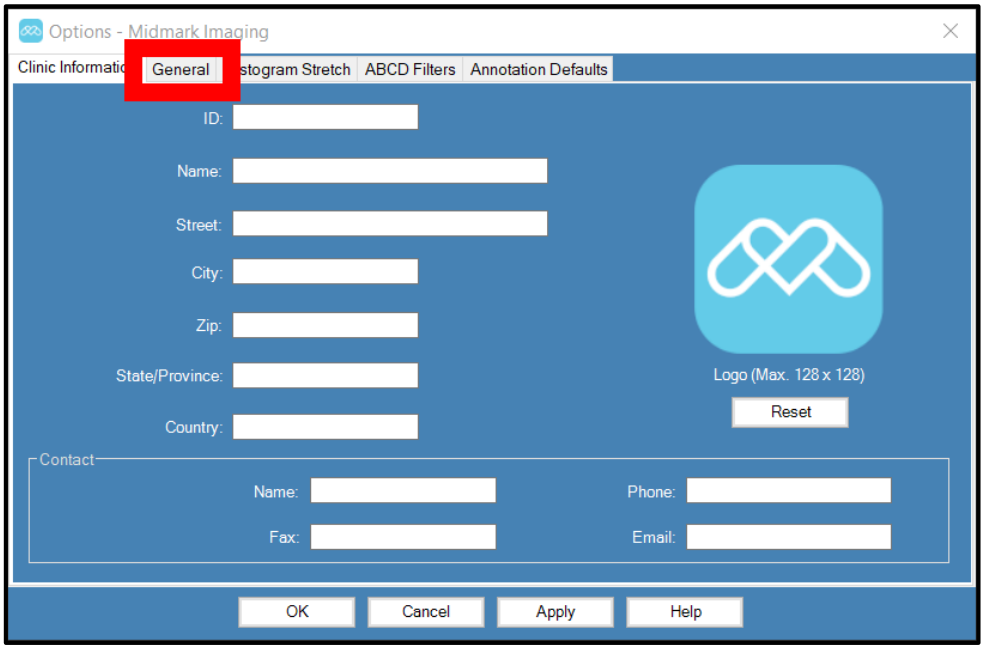
Selecting the Tooth Numbering Scheme

Midmark Imaging allows for use of either the American Dental Association (ADA) or FDI World Dental Federation Two-Digit Notation (FDI) for identifying the patient's teeth in the **Tooth Panel** and image information.

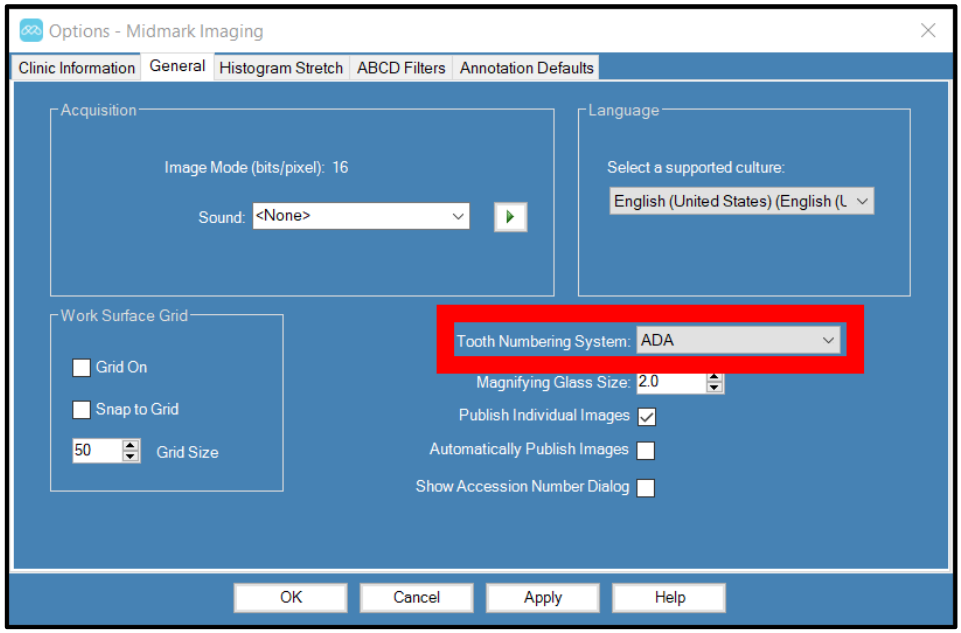
> **NOTICE** The ADA tooth numbering scheme supports both a "Patient View" and a "Lingual View" while the FDI scheme supports "Patient View" only.

Follow the steps below to select the tooth numbering scheme.

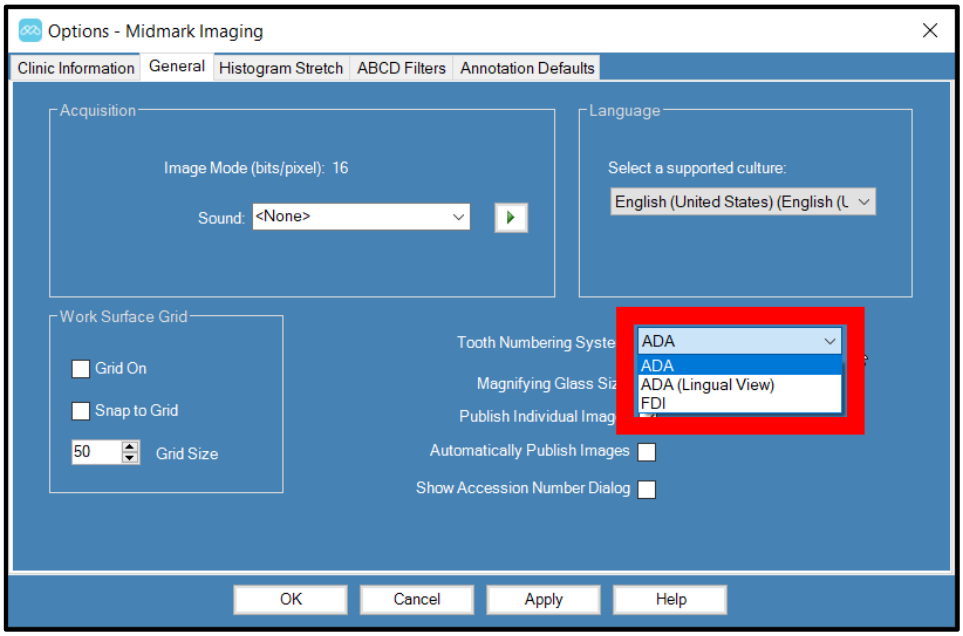
1. In the **Main Menu Bar**, select **Tools > Options**. The **Options window** opens.
2. Click the **General** tab.



3. The **Options window** takes on the following appearance. Click on the drop-down list beside **Tooth Numbering System**.



4. Click on a numbering scheme on the drop-down list.



5. Click either **OK** or **Apply**.

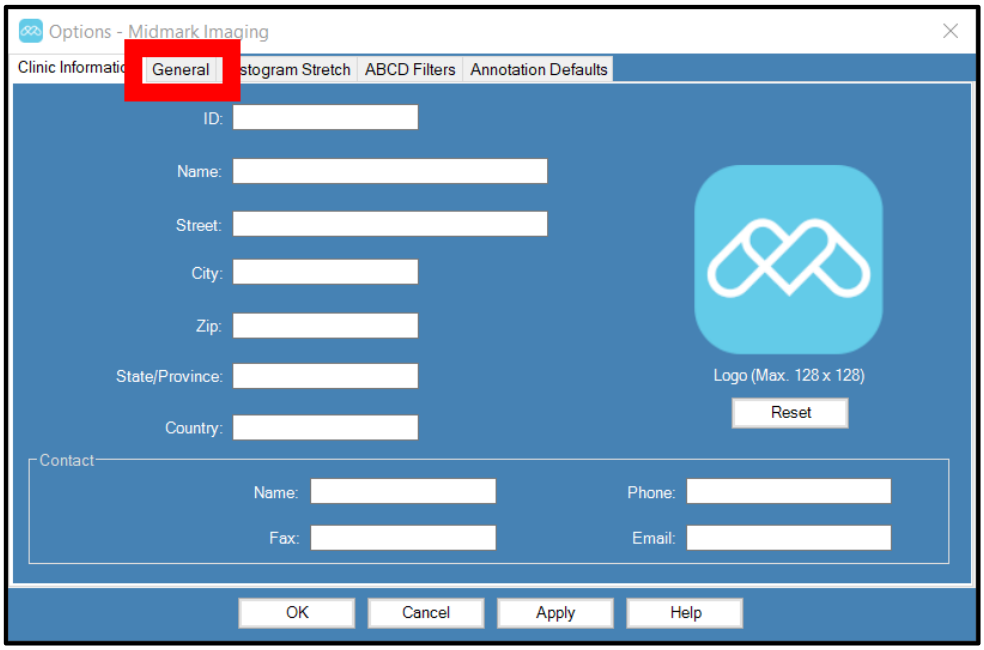
Accession Number Dialog

The accession number dialog allows the user to type in an accession number after a study is completed. This allows the images to be tagged to multiple procedures in a PACS server.

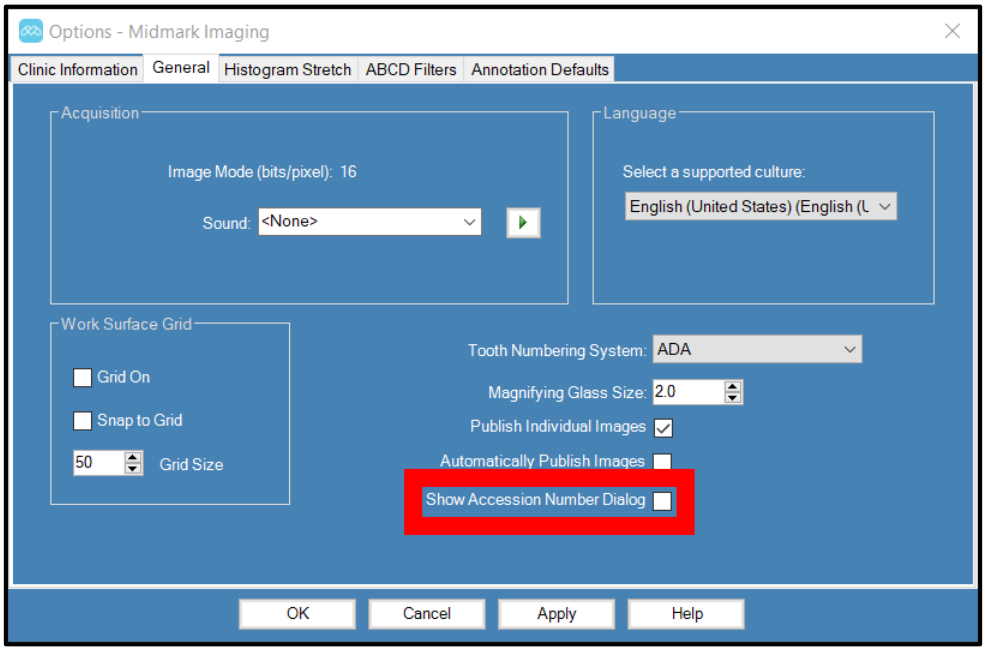
Follow the steps below to control the accession number dialog.

1. In the **Main Menu Bar**, select **Tools > Options**. The **Options window** opens.

2. Click the **General** tab.



3. The **Options window** takes on the following appearance. Click on the checkbox beside **Show Accession Number Dialog**.



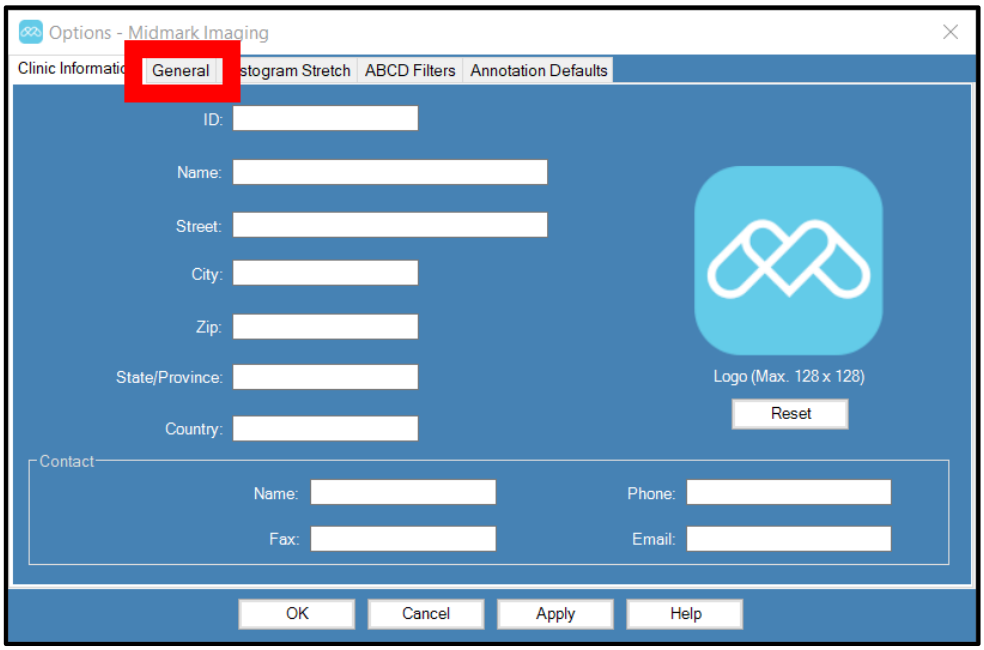
4. Click either **OK** or **Apply**.

Setting an Acquisition Sound

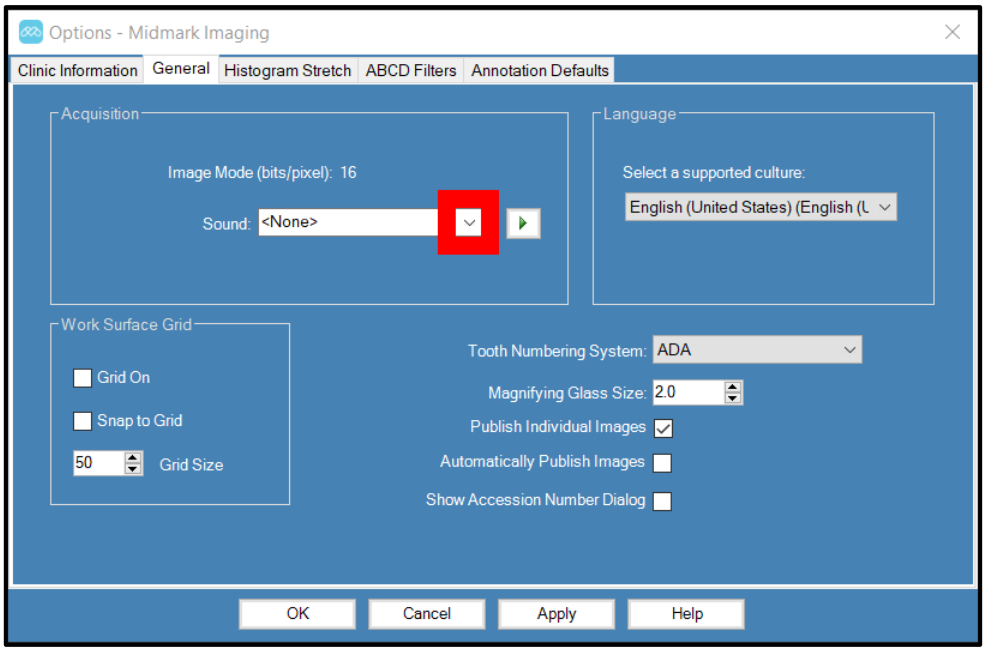
If the computer has a sound card and speakers, Midmark Imaging can play a sound during image acquisition. By default, no sound will play. A sound can be selected from Midmark Imaging's library of more than a dozen sounds.

Follow the steps below to set an image acquisition sound.

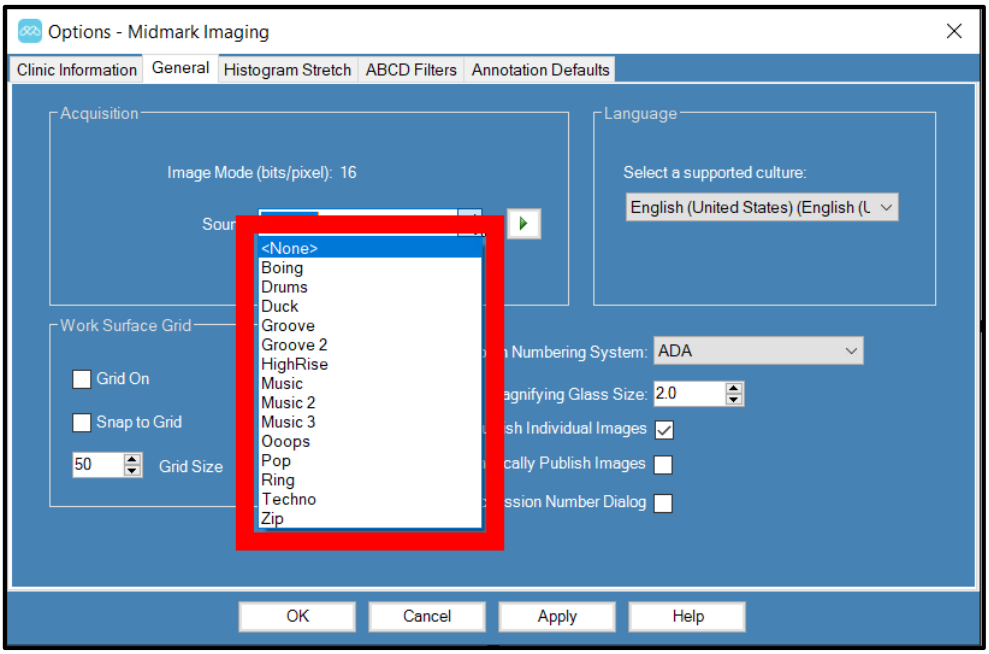
1. In the **Main Menu Bar**, select **Tools > Options**. The **Options window** opens.
2. Click the **General** tab.



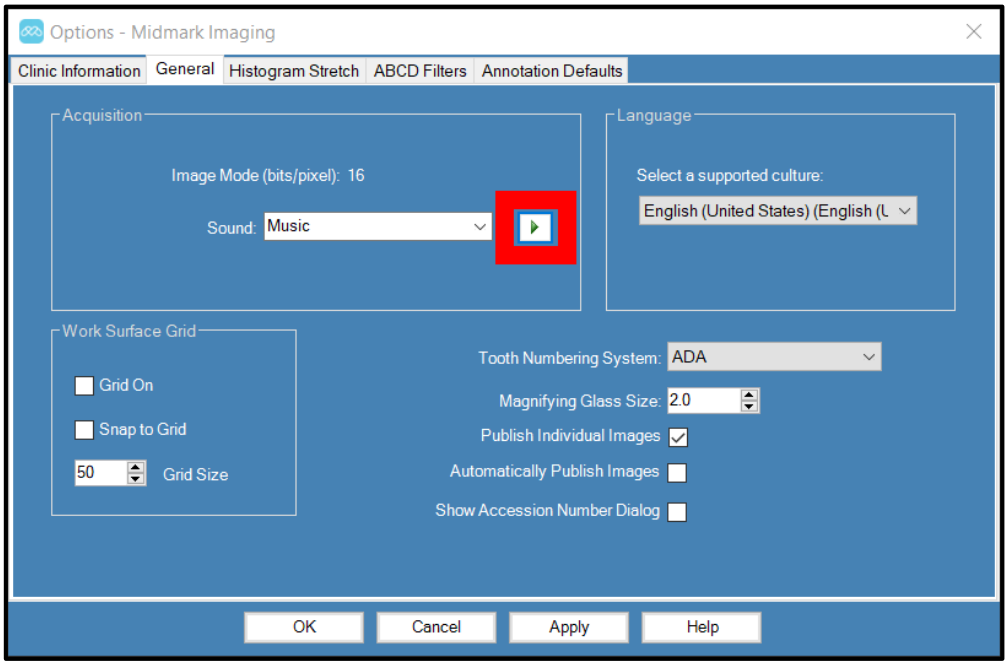
3. The **Options window** takes on the following appearance. Click on the **arrow** beside the **Sound** drop-down list.



4. Click on a sound in the drop-down list.



5. When a sound is displayed in the **Sound** field, the **arrow** to the right of the field can be clicked to preview the sound.



6. When satisfied with the sound, click either **OK** or **Apply**.

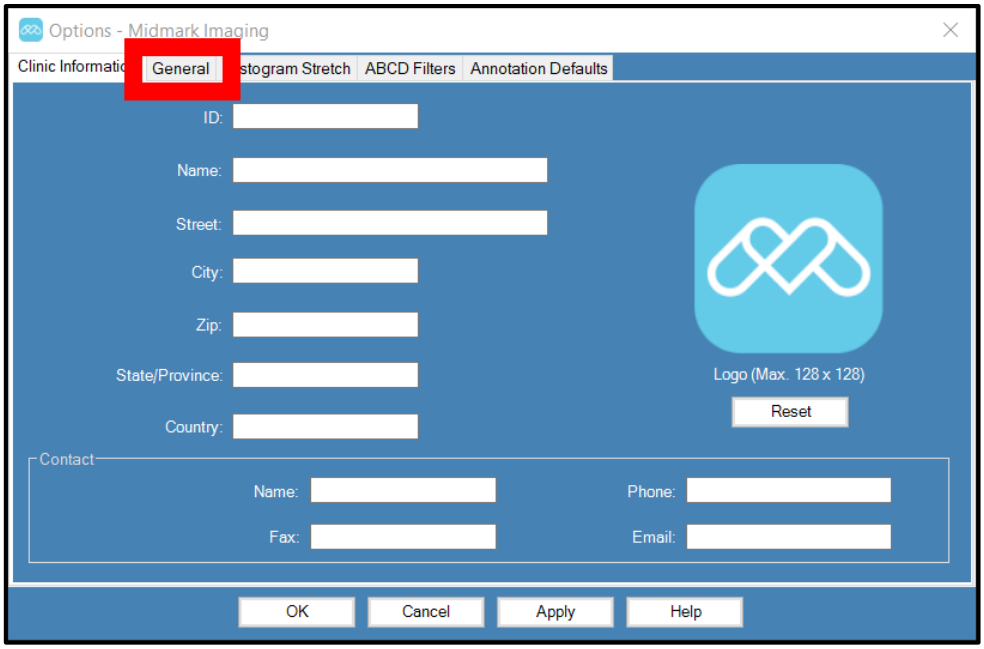
Setting Auto-Publish for DICOM Studies

Midmark Imaging provides the ability for DICOM studies to be automatically sent to a DICOM store location. When an image acquisition is completed, Midmark Imaging will automatically

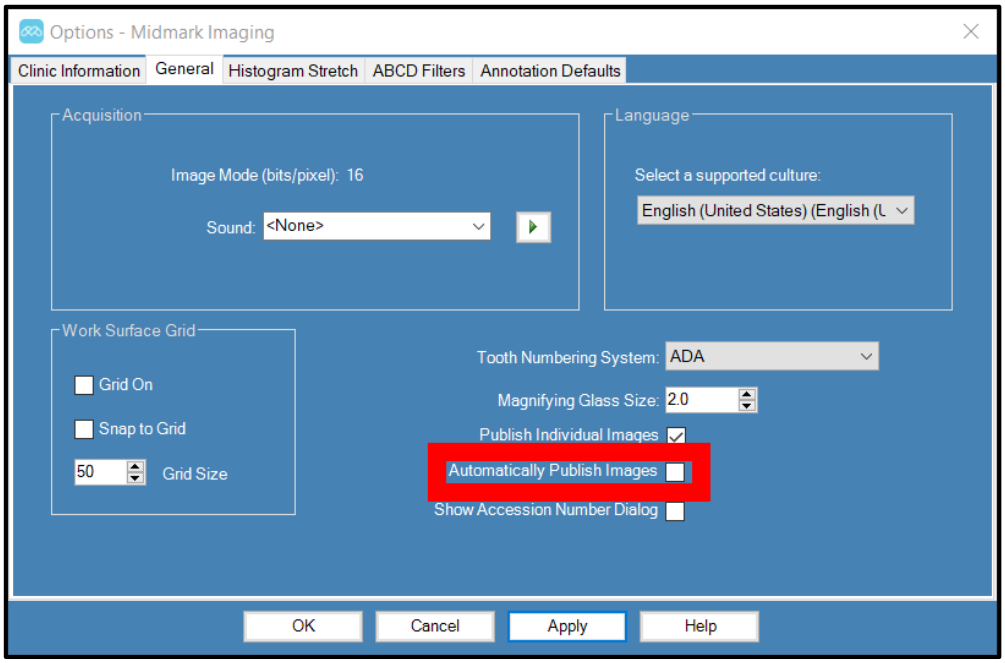
publish the images of a study to a set DICOM store location if the **Automatically Publish Images box** is selected.

Follow the steps below to control the auto-publish setting.

1. In the **Main Menu Bar**, select **Tools > Options**. The **Options window** opens.
2. Click the **General** tab.

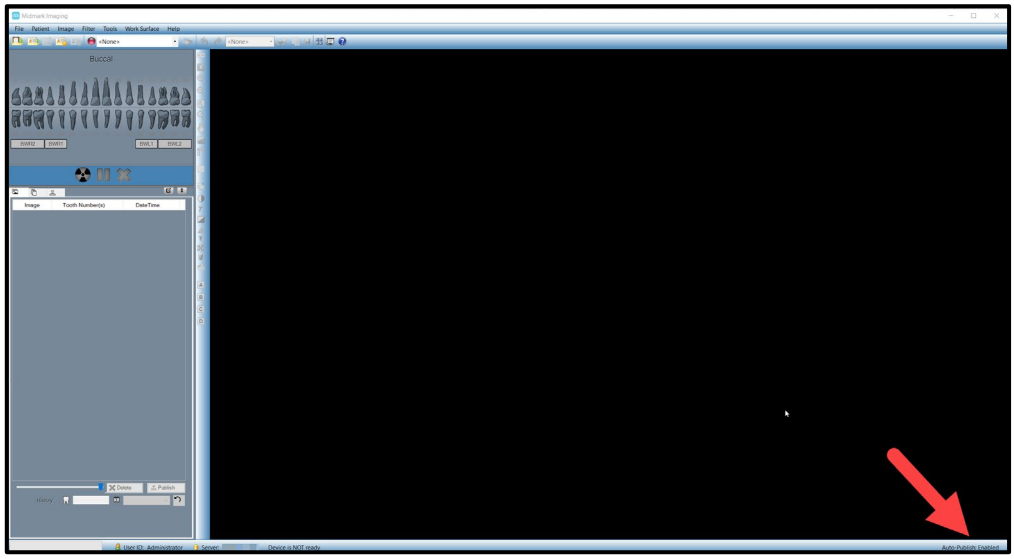


3. The **Options window** takes on the following appearance. Click on the checkbox beside **Automatically Publish Images**.



4. Click either **OK** or **Apply**.

5. When Auto-Publish is enabled, there will be an “Auto-Publish: Enabled” status in the bottom right of the Midmark Imaging screen.



Setting up Sensor Settings with Midmark Imaging

Once installed, the digital sensor is ready to acquire images. However, the sensor timeout period and default filters can be configured through Midmark Imaging. The procedures for these configurations will be explained in this section. For both procedures, the sensor of interest must be available to connect to the laptop (either directly by plugging the USB into the laptop or indirectly by way of the X-ray emitting device if using a 1.5-meter sensor with an integrated system).

Setting the Sensor Timeout Period

Each digital sensor has a set number of seconds during which it is receptive to an X-ray exposure from the X-ray source. This period, known as the sensor timeout, begins when the **Acquire button** (☢) is selected in Midmark Imaging. When the sensor timeout period is over, the sensor can no longer acquire an X-ray, even if the X-ray source has been activated. The factory-set default for the sensor timeout is 300 seconds, which is Midmark’s recommendation. However, the timeout period can be increased or decreased in accordance with user preference.

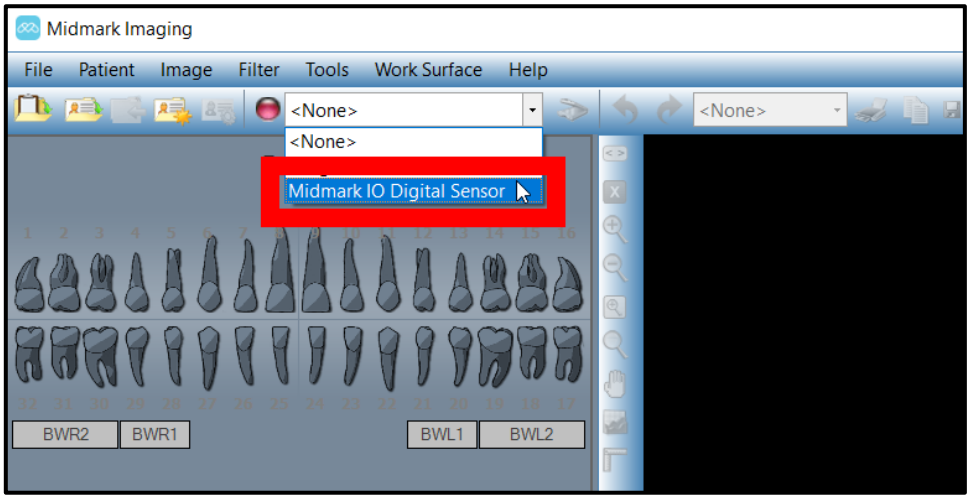
⚠CAUTION	To minimize patient exposure to X-ray radiation, it is important to ensure that the sensor timeout period is long enough to complete all the steps of image acquisition.

The timeout that is set will be used for all images acquired with the sensor. Use the **Device Configuration window** for each sensor to set its timeout.

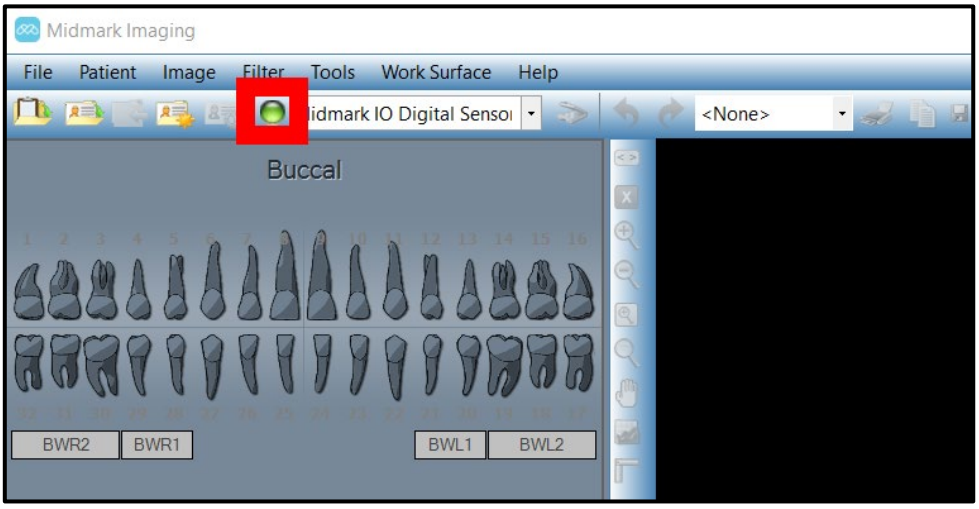
Follow the steps below to set the sensor timeout period.

1. Connect the sensor to the laptop. (Either plug the USB directly into the laptop or indirectly by way of the X-ray emitting device if using a 1.5-meter sensor with an integrated system.)

2. Select the sensor of interest in the device drop-down list. (The below image is an example for illustration purposes only. The name of the sensor may vary for different users.)

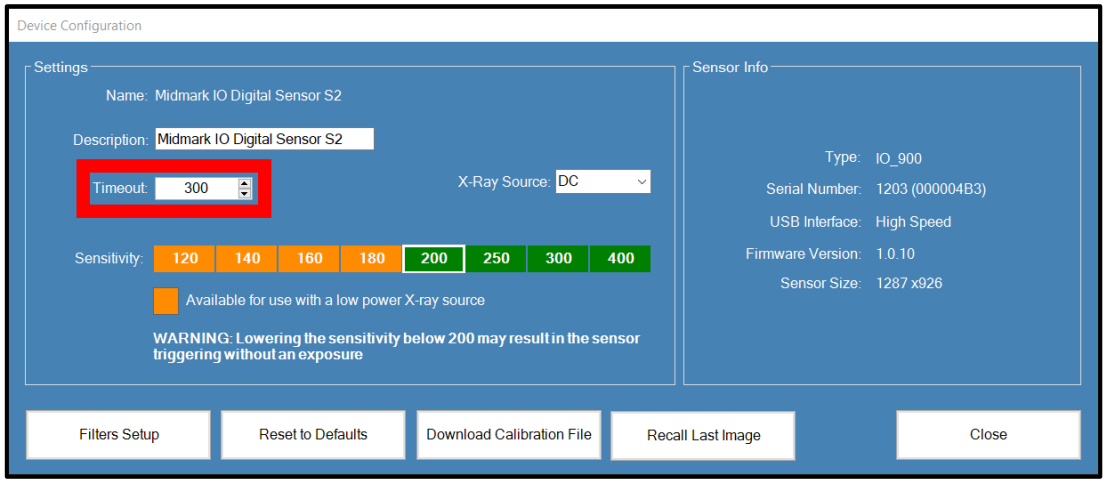


3. Wait for the indicator to turn green, indicating that the sensor is active. (This may take several seconds, during which a notice that the calibration file is being downloaded may appear.)

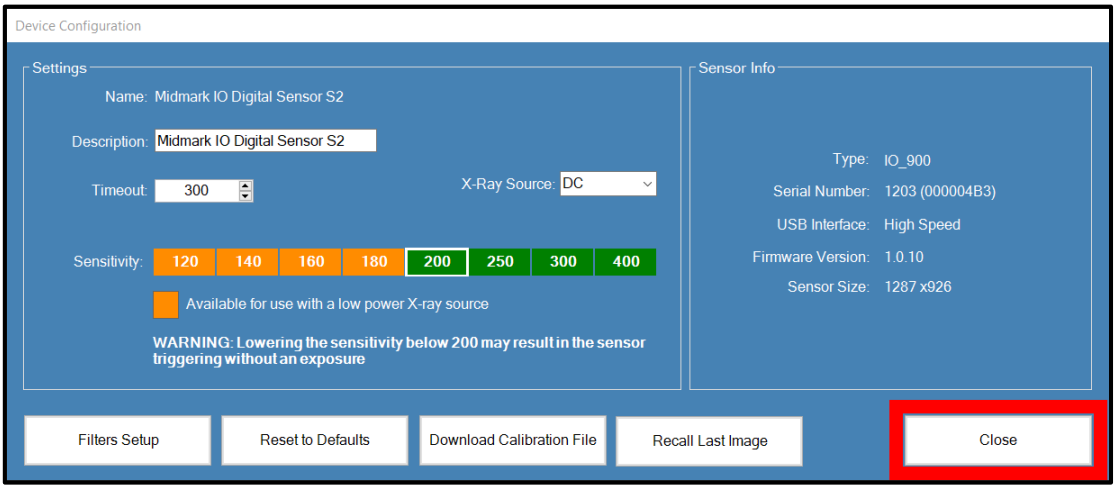


4. From the **Main Menu Bar**, select **Tools > Devices > Device Configuration**. The **Device Configuration window** will open.

5. Adjust the value in the **Timeout** field. This can be accomplished either by using the **up and down arrows** or by typing in a number and pressing **Enter** on the keyboard.



6. Click **Close**.



Configuring Filters

A default filter is an image transformation that is applied automatically to an image upon acquisition. Unlike filters that are manually applied to the image (see section *Applying Image Filters* beginning on page 149 of this manual), a default filter cannot be removed from the image.

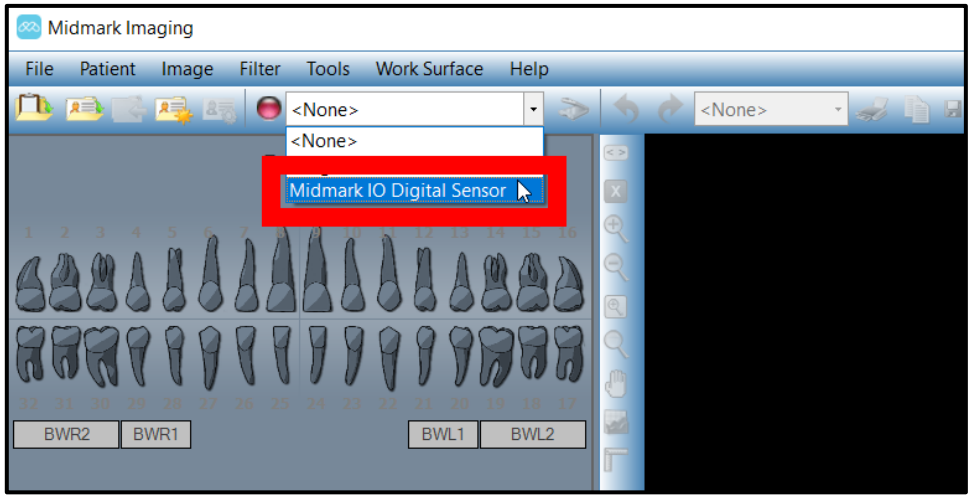
Default filters can change factors such as contrast, brightness and fuzziness. The user must choose from one of two options for a default filter. For the Midmark Intraoral Digital Sensor, the options are Midmark Clarity or Midmark Clarity Plus. For the ClearVision Sensor, the options are Progeny Clarity or Progeny Clarity Plus. The filter options are very similar to each other with the main difference being that the “Plus” versions bring slightly more sharpness to the image than the non-“Plus” versions.

By default, the configured filter is either Midmark Clarity or Progeny Clarity depending upon the model of sensor.

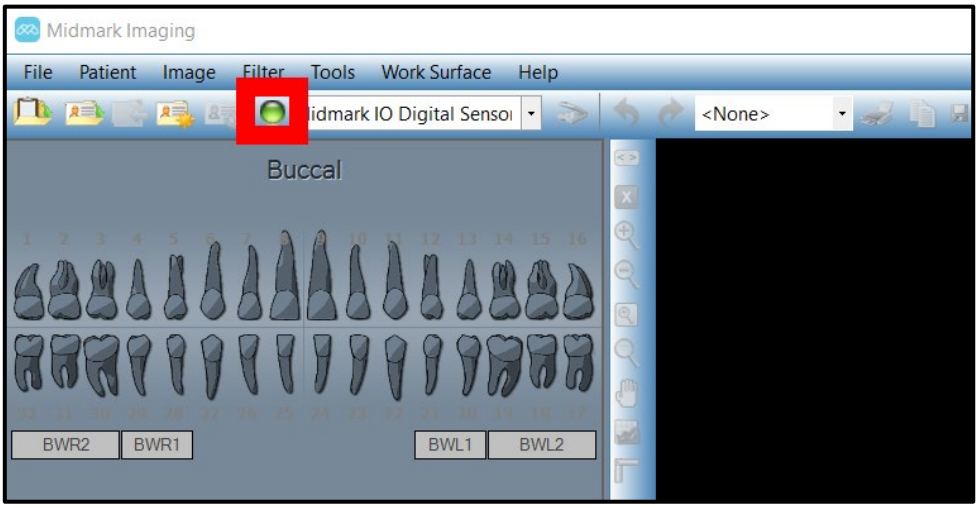
The default filter that is configured will be used for all images acquired with the sensor.

Follow the steps below to configure a filter.

1. Connect the sensor to the laptop. (Either plug the USB directly into the laptop or indirectly by way of the X-ray emitting device if using a 1.5-meter sensor with an integrated system.)
2. Select the sensor of interest in the device drop-down list. (The below image is an example for illustration purposes only. The name of the sensor may vary for different users.)

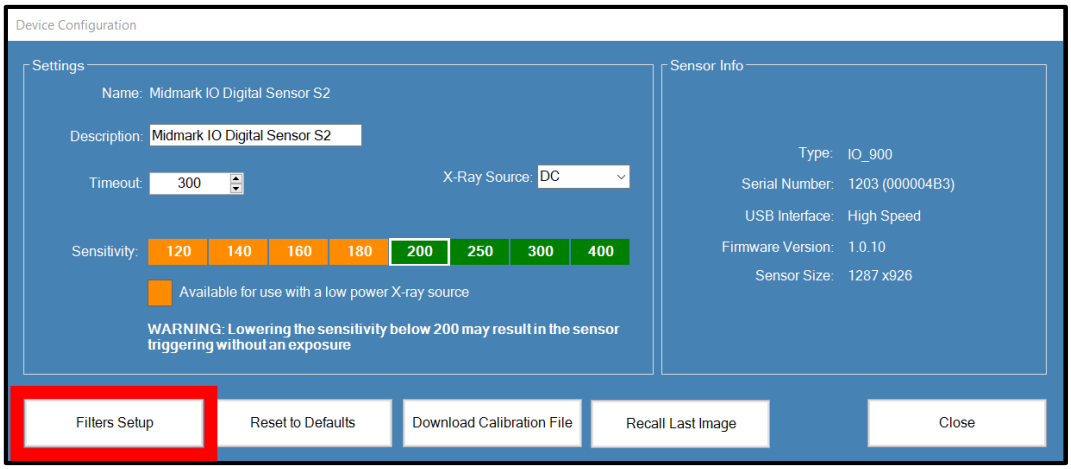


3. Wait for the indicator to turn green, indicating that the sensor is active. (This may take several seconds.)

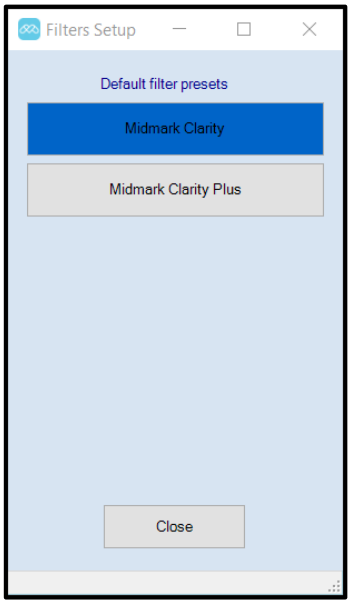


4. From the **Main Menu Bar**, select **Tools > Devices > Device Configuration**. The **Device Configuration window** will open.

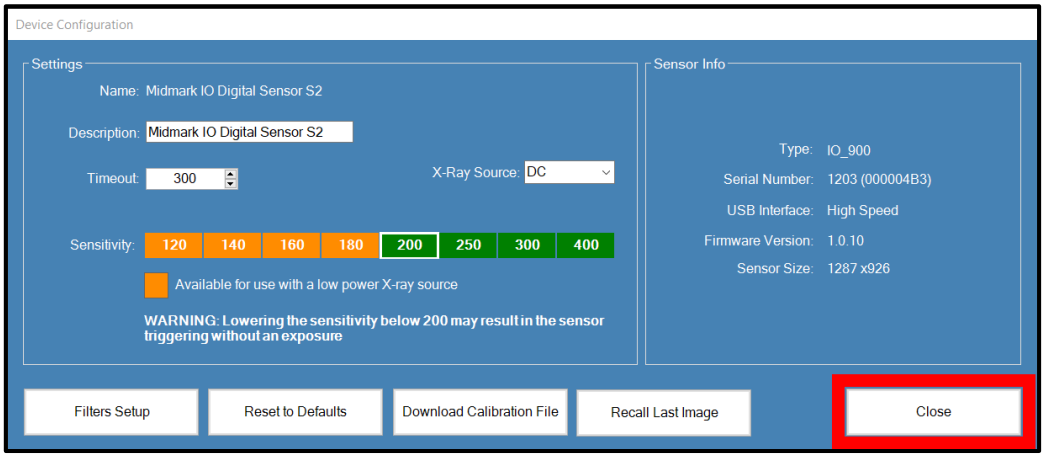
5. Click **Filters Setup** to open the **Filters Setup window**.



6. Click the button corresponding to the desired filter preset. (Options for the Midmark Intraoral Digital Sensor are shown as an example. Options may vary for other sensors.)



7. Click **Close** in the **Filters Setup window**.
8. Click **Close** in the **Device Configuration window**.



Working with Patient Records

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About Patient Records

Midmark Imaging associates X-ray images and other patient files with a patient record. A record is required for each patient for whom images will be acquired. When a patient record is open, the Midmark Imaging title bar displays the patient's name, and the **Patient Panel** shows images and other files within the patient's record.

NOTICE

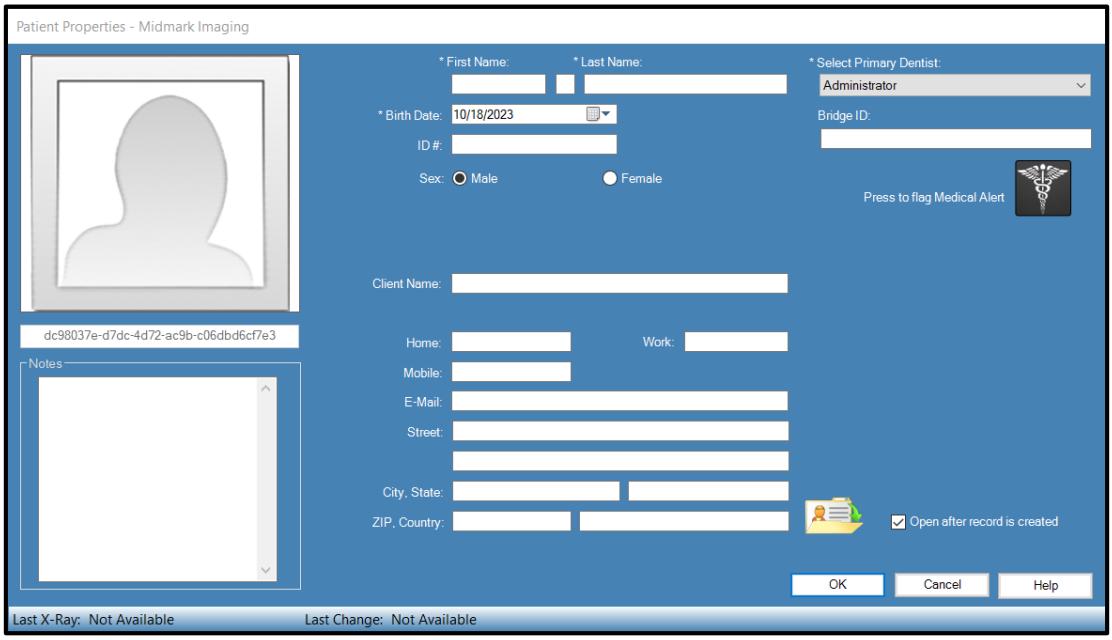
If the **Patient Panel** is not displayed, from the **Main Menu Bar**, select **Patient**. If the **Patient Panel** does not then appear, select **Show Patient Panel** from the menu. Alternatively, press **Alt + 2** on the keyboard.

Creating a Patient Record

Prior to creating a patient record, ensure that the primary dentist for that patient already exists as a user in the system. When a patient record is created, a primary dentist must be assigned to the patient, and the primary dentist must already be set up as a user of Midmark Imaging.

Follow the steps below to create a patient record.

1. From the **Main Menu Bar**, select **Patient > New**. Alternatively, click the **New Patient** icon towards the top of the screen ( ) or press **Alt + N** on the keyboard. Any of these methods will open the **Patient Properties window**.
2. In the **Patient Properties window**, enter patient and client information. Fields marked with an asterisk (*) are required.



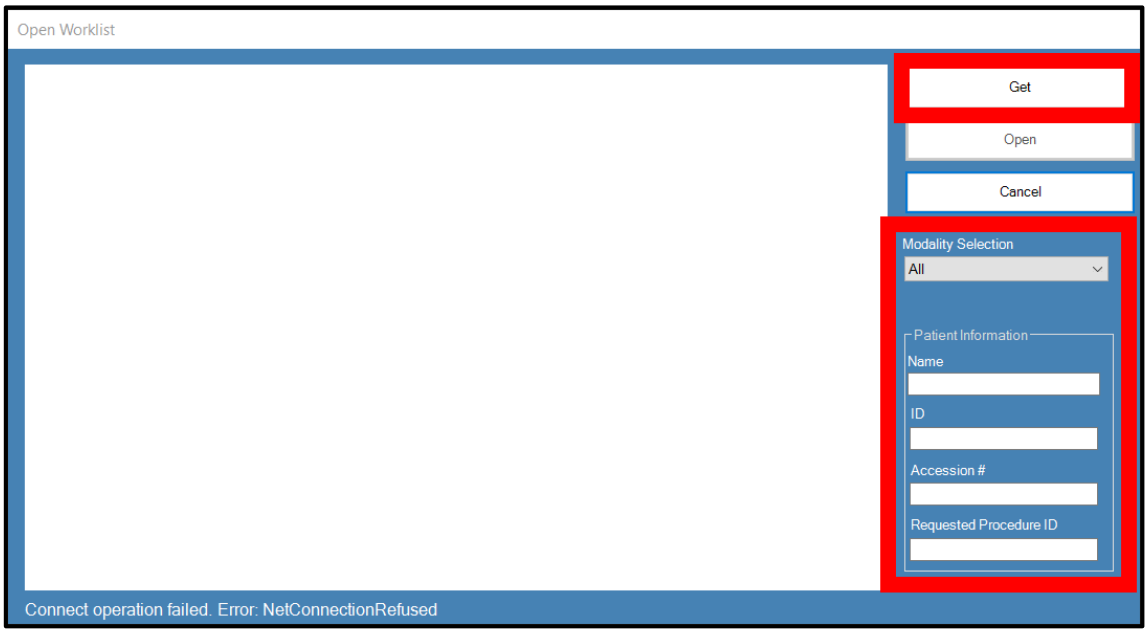
3. If desired, click on the **silhouette image** to browse for and upload a picture of the patient. Pictures can be JPG or TIF image files.
4. By default, the patient will automatically open after the **OK** button is clicked. If this is not desired, uncheck the **Open after record is created checkbox**.
5. Click **OK** to save the entered information and to close the **Patient Properties window**.

Creating a Patient with Modality Worklist

This section is applicable to practices that use a worklist server on their network. In this setup, Midmark Imaging connects and queries the worklist server. When the procedure is done, the worklist item is published back to the worklist server as completed.

In order to create a patient using the worklist server, the worklist server must first be configured by IT personnel. Refer to section *Configuring a Modality Worklist Server* beginning on page 184 of this manual.

1. From the **Main Menu Bar**, select **Patient > Open Worklist**. Alternatively, click the **Open Worklist** button towards the top of the screen ( ). Either method will open the **Open Worklist window**.
2. Search for records from the assigned server. For a basic search, use the **Get** button. Optionally, narrow the search by selecting a specific modality and/or patient criteria prior to clicking **Get**.



3. If a record is found, the list will become populated. Select the desired record by either double-clicking on it or highlighting it and clicking the **Open** button.
4. The patient is now open and ready to receive images.

Accessing Patient Records

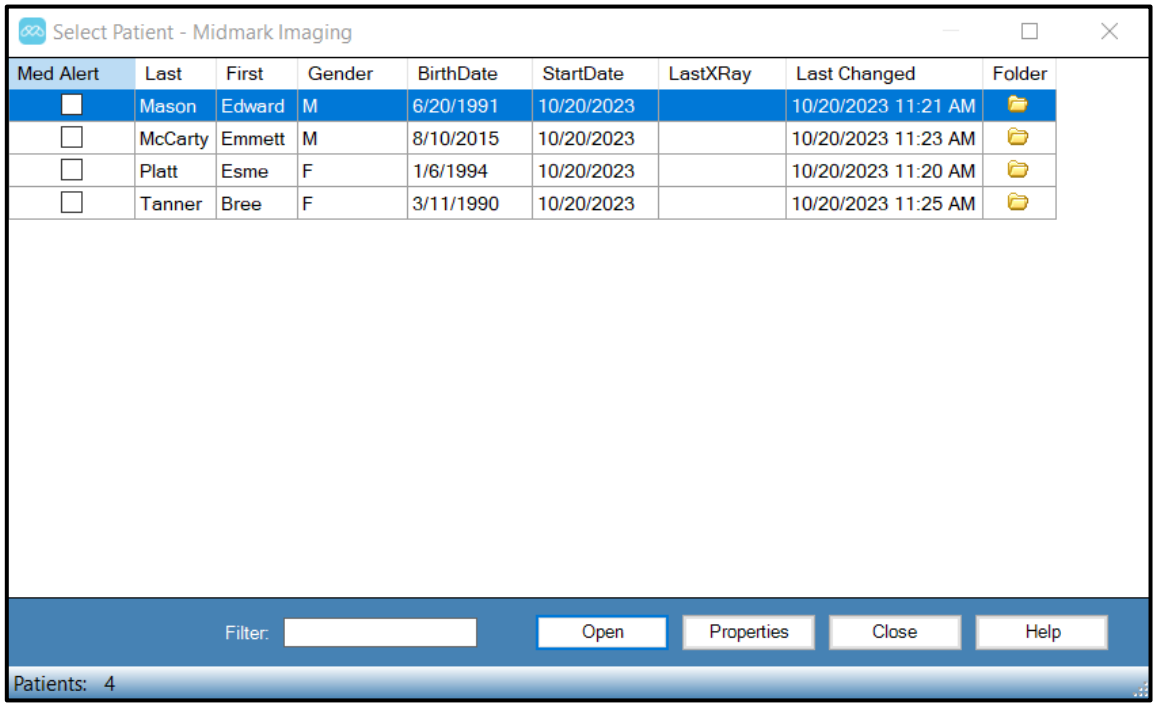
A patient record must be open in order to acquire or display images.

NOTICE

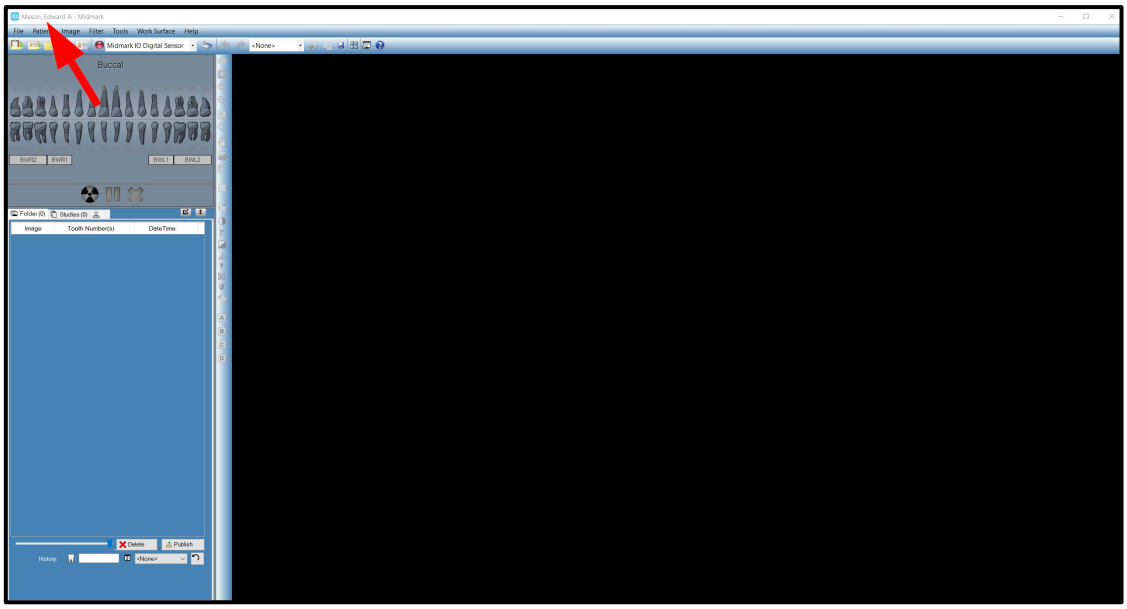
Users logged in as users will see only their own patients in the **Select Patient window**. Users logged in as an Administrator will see all patients. In Open User Mode, all users see all patients.

Opening a Patient Record

1. From the **Main Menu Bar**, select **Patient > Open**. Alternatively, click the **Open Patient icon** towards the top of the screen () or press **Alt + O** on the keyboard. Any of these methods will open the **Select Patient window**.



2. Click on the row that contains the patient it is desired to open. (Optional: The **Filter** field can be used to search for a patient by narrowing the number of patients displayed. Simply type all or part of the patient's name, patient ID number or bridge ID in the **Filter** field.)
3. Click the **Open** button at the bottom of the window or double-click the row that contains the patient's information.
4. The **Select Patient window** closes, and the name of the selected patient appears in the heading of the Midmark Imaging window, indicating that that patient is open.



Closing a Patient Record

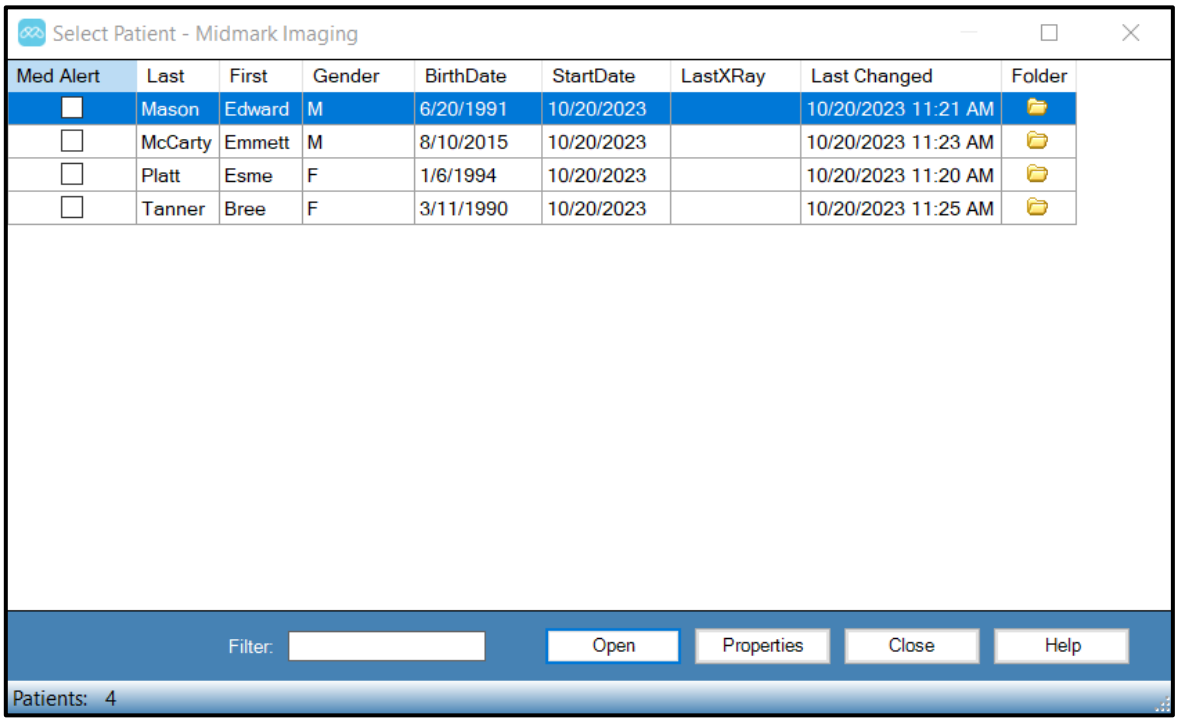
When a patient record is open, select **Patient > Close** from the **Main Menu Bar** to close it. Alternatively, click the **Close Patient** icon towards the top of the screen ( ).

NOTICE Opening another patient record, logging off or exiting Midmark Imaging automatically closes any patient record that is open.

Modifying a Patient Record

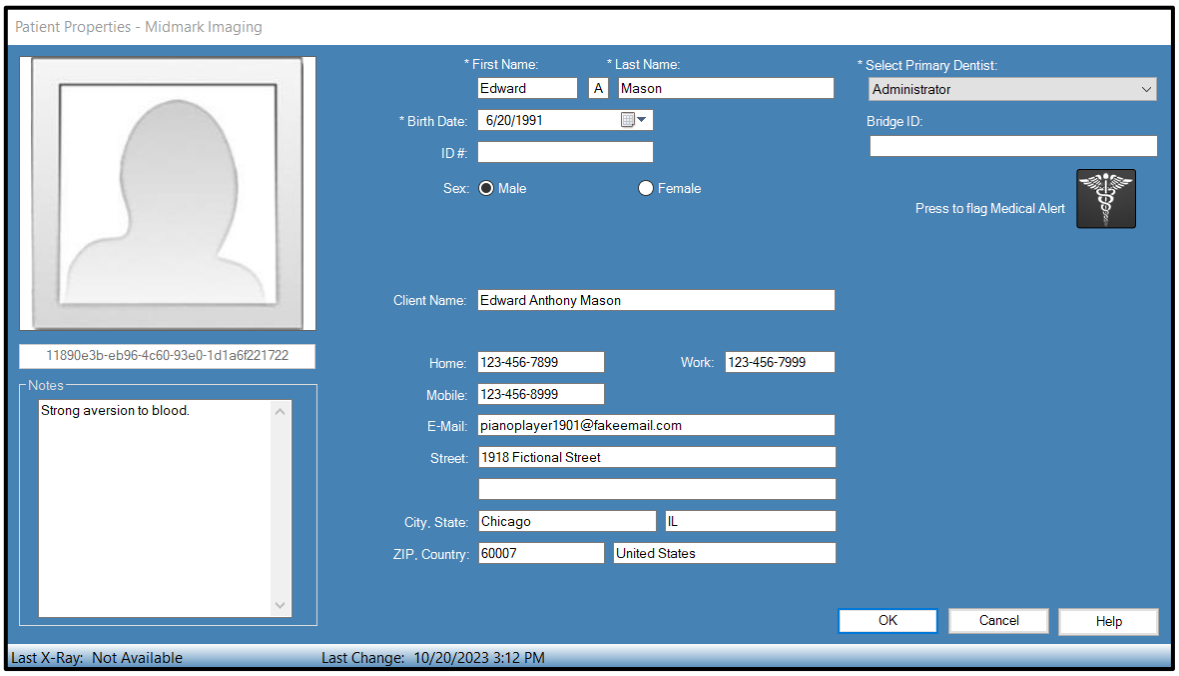
NOTICE Users logged in as users will see only their own patients in the **Select Patient window**. Users logged in as an Administrator will see all patients. In Open User Mode, all users see all patients.

1. From the **Main Menu Bar**, select **Patient > Open**. Alternatively, click the **Open Patient** icon towards the top of the screen ( ) or press **Alt + O** on the keyboard. Any of these methods will open the **Select Patient window**.



2. Click on the row that contains the patient it is desired to modify. The selected row will be highlighted in blue. (Optional: The **Filter** field can be used to search for a patient by narrowing the number of patients displayed. Simply type all or part of the patient's name, patient ID number or bridge ID in the **Filter** field.)
3. Click the **Properties** button at the bottom of the **Select Patient** window. Alternatively, if the patient record is already open and the **Select Patient** window is not, select **Patient > Properties** from the **Main Menu Bar**, click the **Patient Properties** icon towards the top of the

screen () or press **Ctrl + Alt + P** on the keyboard. Any of these methods will open the **Patient Properties window**.



4. In the **Patient Properties window**, modify the patient's information as desired.
5. Click the **OK** button to save the changes and close the screen.

> **NOTICE** If the Bridge ID field is modified, it will automatically propagate to all images in the patient's folder.

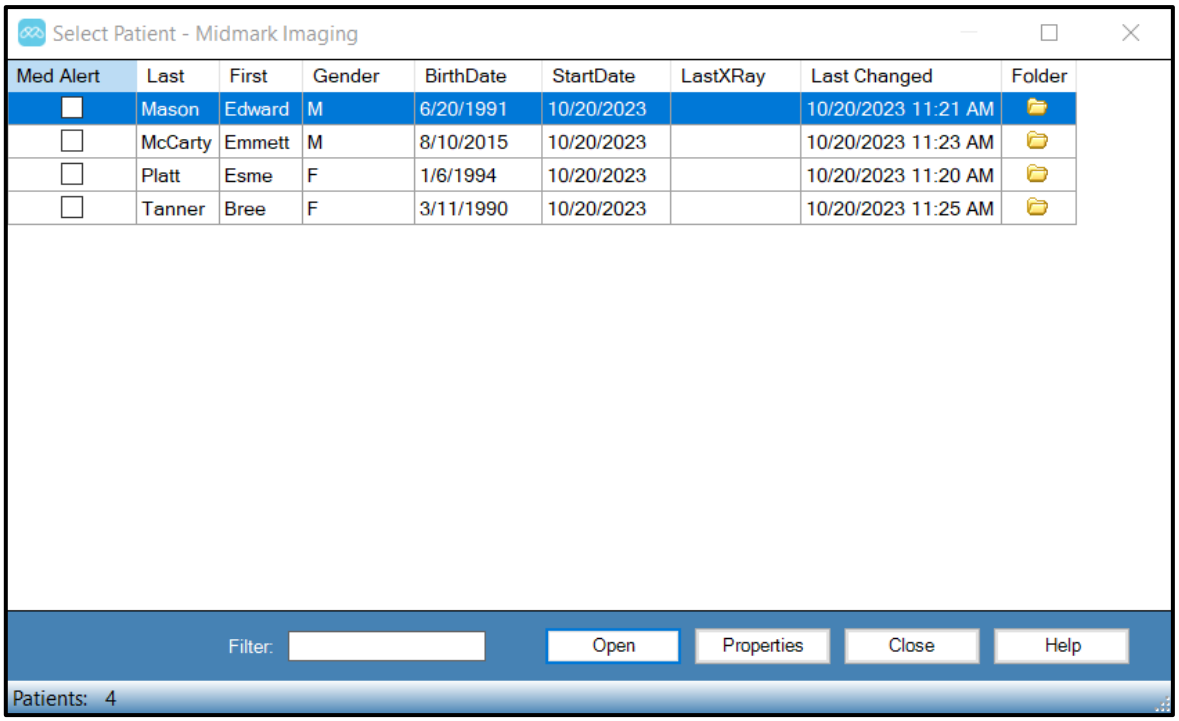
Deleting Patient Records

Patient records contain patient images and any additional files that may have been added for the patient. Deleting a patient's record removes all images and files associated with the patient.

> **⚠CAUTION** To preserve patient data, be sure to back up the patient database before deleting patients. For more information, see section *Backing Up and Restoring Patient Data* beginning on page 168 of this manual.

The patient record must be open in order to delete it. Follow the steps below to delete a patient record.

1. From the **Main Menu Bar**, select **Patient > Open**. Alternatively, click the **Open Patient** icon towards the top of the screen () or press **Alt + O** on the keyboard. Any of these methods will open the **Select Patient window**.



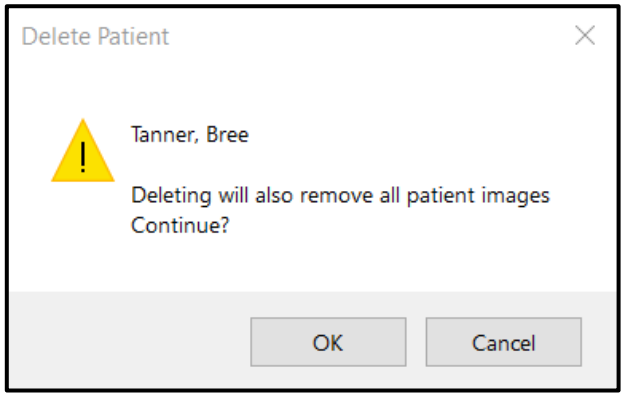
2. Click on the row that contains the patient it is desired to delete. (Optional: The **Filter** field can be used to search for a patient by narrowing the number of patients displayed. Simply type all or part of the patient's name, patient ID number or bridge ID in the **Filter** field.)

NOTICE

Users logged in as users will see only their own patients in the **Select Patient window**. Users logged in as an Administrator will see all patients. In Open User Mode, all users see all patients.

3. Click the **Open** button at the bottom of the window or double-click the row that contains the patient's information.
4. The **Select Patient window** closes, and the name of the selected patient appears in the heading of the Midmark Imaging window, indicating that that patient is open.

5. From the **Main Menu Bar**, select **Patient > Delete Patient**. Midmark Imaging will ask to confirm the decision to delete the patient record, including all images.



6. Click **OK**.

Reassigning Patient Records

If Midmark Imaging is being run in Secure Mode, all patients are assigned to a primary dentist. Occasionally, it may be necessary to reassign patient records to a different dentist. For example, if a new dentist joins the practice, some patients may be reassigned from an existing dentist to the new dentist.

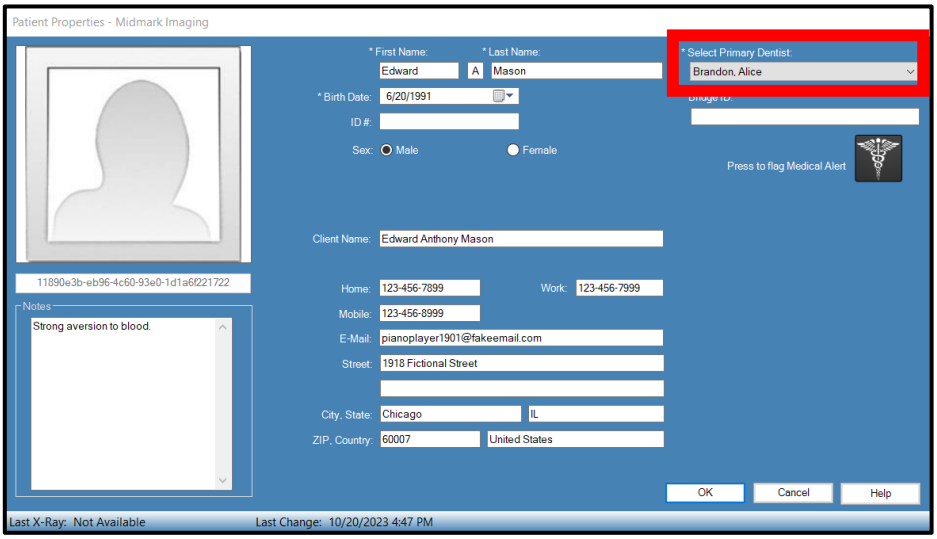
Reassigning a patient is simply a form of patient record modification. Therefore, most of the steps will be the same as making any other change to a patient record.

1. Identify the patient(s) to be reassigned from one dentist to another.

NOTICE

If reassigning a large number of patients (e.g., in the event that a dentist is leaving the practice and all of their patients need to be reassigned), it may be helpful to write down a list of all those patients. To accomplish this, it is suggested to first log in to Midmark Imaging as the user whose patients are being reassigned, then select **Patient > Open** from the **Main Menu Bar** to see the list of patients assigned to that user.

2. Log into Midmark Imaging as an Administrator user.
3. Follow the steps in section *Modifying a Patient Record* beginning on page 80 of this manual to open the **Patient Properties window** of the patient to be reassigned.
4. In the **Patient Properties** window, use the **Select Primary Dentist** drop-down field to select the new dentist.



5. Click the **OK** button at the bottom of the **Patient Properties window**. This will save the change and close that patient's **Patient Properties window**.
6. If there are additional patients to be reassigned, repeat the applicable steps to open their **Patient Properties** windows and change their **Select Primary Dentist** field as desired.
7. When finished reassigning patients, click the **Close** button at the bottom of the **Select Patient window**.

Adding Files to a Patient Record

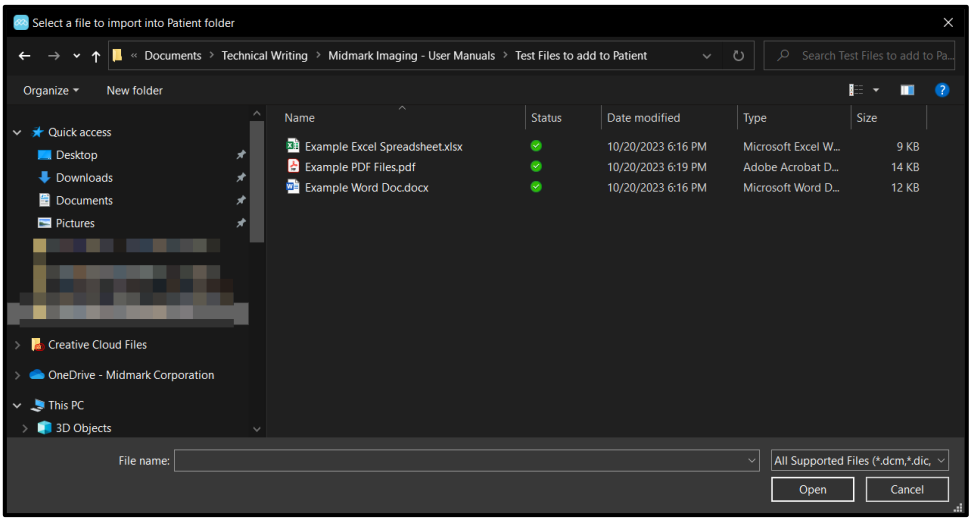
Most images in a patient's records will be X-rays. However, files created in other applications can also be added to patients' records. Adding files allows all information pertaining to the patient to be kept in one location. For example, an intraoral video of the patient, a Web page or PDF file can be stored in a patient's record along with their X-ray images.

Storing files in a patient's record creates a copy of the file. When these files are opened from the **Patient Panel**, they are opened with the associated application. In order to open and edit files from the **Patient Panel**, the application associated with the file must be available on the computer.

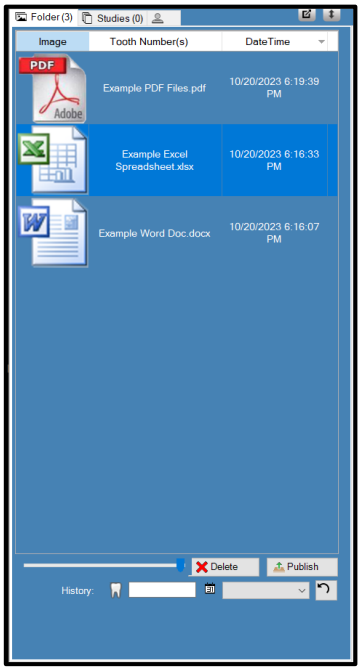
Follow the steps below to add files to a patient record.

1. Open the desired patient record by following the steps in the section *Opening a Patient Record* beginning on page 79 of this manual.

2. In the **Main Menu Bar**, select **Image > Import**. A file selection box will open.



3. Navigate to the location of the file(s) which it is desired to add to the patient's record.
4. Select the file(s).
5. Click the **Open** button at the bottom of the file selection box. The file(s) will be added to the patient's record. An icon representing the file type and the file name appear in the **Folder tab** of the **Patient Panel**.



Acquiring Images

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About X-ray Image Acquisition

X-ray images are acquired with Midmark Imaging, the patient, an X-ray source and a digital sensor. The process begins in Midmark Imaging by the selection of the patient, teeth to image and the imaging sensor. This section of the manual describes concepts of image acquisition in Midmark Imaging including sensor timeout, sequences of teeth and the **Tooth Panel**.

The selection of teeth to image can be accomplished by using either the **Tooth Panel** or a template. Each of these methods are described in a separate sub-section within this section of this manual. Images acquired using the **Tooth Panel** will be saved under the **Folder tab** of the **Patient Panel**. Images acquired using a template will be saved as a group under the **Studies tab** of the **Patient Panel**, and the individual images within that group will be saved under the **Folder tab**.

Sensor Timeout Period

Each digital sensor has a set number of seconds during which it is receptive to an X-ray exposure from the X-ray source. This period, known as the sensor timeout, begins when the exposure button is selected in Midmark Imaging. When the sensor timeout period is over, the sensor can no longer acquire an X-ray, even if the X-ray source has been activated. To minimize patient exposure to X-ray radiation, it is important to ensure that the sensor timeout period is long enough to complete all the steps of image acquisition.

The factory-set default for the sensor timeout is 300 seconds, which is in accordance with Midmark recommendation. However, the timeout period can be increased or decreased if desired. Refer to section *Setting the Sensor Timeout Period* beginning on page 69 of this manual for instructions on setting the timeout period.

Sequences of Teeth

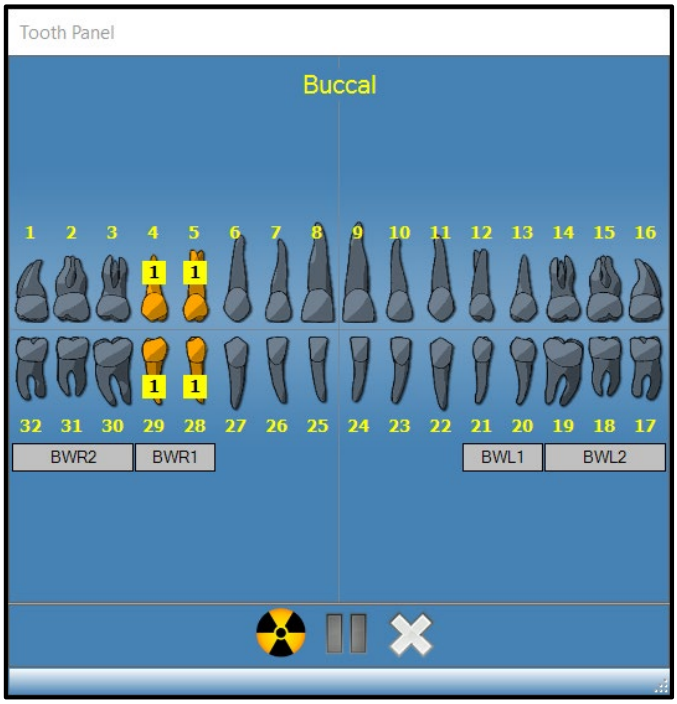
The sequence of teeth defines the tooth or teeth that will be imaged and the order in which the images will be acquired. All teeth included in a sequence appear in a single image. More than one sequence for a patient can be defined if, for example, moving the sensor is required to image the teeth in the sequence. When acquiring multiple sequences, Midmark Imaging allows time between each sequence for repositioning of the sensor and X-ray source. If more time is needed, acquisition of the next sequence can be paused.

The same tooth can be imaged in more than one sequence (for example, to acquire images of the stages of a procedure). During the first stage of the procedure, acquire the image of the first sequence. Image acquisition can be paused until the next stage of the procedure to acquire the image of the next sequence.

The Tooth Panel

The **Tooth Panel** is Midmark Imaging's interface for acquiring images. Use the **Tooth Panel** to create sequences by selecting individual teeth and/or bitewing sequences. When teeth are included in a sequence, the number of the sequence appears on the teeth. As shown in the image below, for example, the teeth with a number 1 will be imaged in the first sequence.

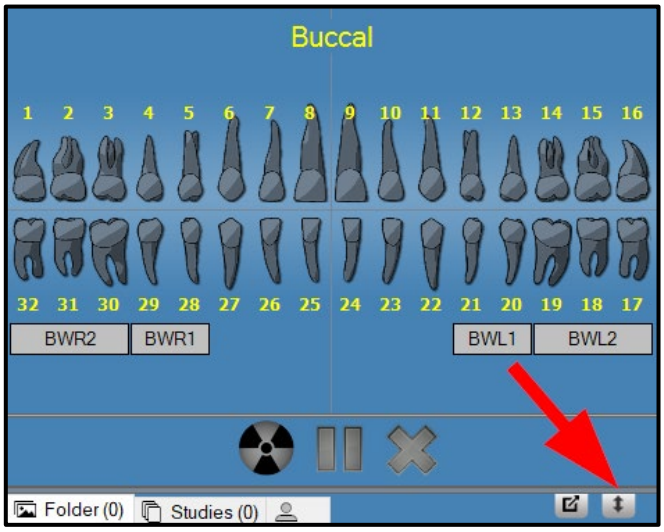
NOTICE To use the **Tooth Panel**, a patient record must be open and an image acquisition module (e.g., sensor) must be connected to the computer, selected and active.



Teeth included in a sequence are highlighted in orange. The color of the teeth in the sequence changes during image acquisition. Green indicates that the image acquisition for the sequence is complete. Purple indicates that acquisition for the sequence has been paused.

The **Tooth Panel** can be either shown or hidden by any of the following methods.

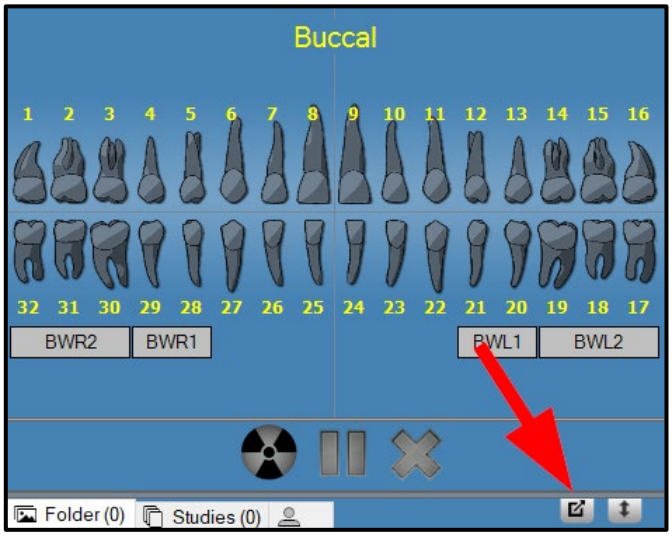
- Click the **Hide** icon ( ).



- In the **Main Menu Bar**, select **File > Toggle Tooth Panel**.
- On the keyboard, press **Alt + 1**.

The **Tooth Panel** can either be docked in place on the left side of the Midmark Imaging window, or it can be a floating self-standing window of its own. The **Tooth Panel** can be toggled between docked and floating position by any of the following methods.

- Click the **Float** icon ( ).



- In the **Main Menu Bar**, select **File > Float Tooth Panel**.
- On the keyboard, press **Ctrl + F**.
- If the **Tooth Panel** is floating, it can also be docked by double-clicking its window borders.

The table below describes the controls in the **Tooth Panel**.

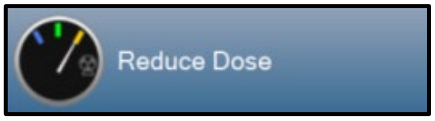
Item	Description
Teeth	Select teeth to add to an image sequence. Selected teeth are highlighted.
BWR2, BWR1, BWL1, BWL2	Selects predefined bitewing sequences. Teeth that are included in the sequence are highlighted. The number of the sequence appears on the teeth.
	Starts acquisition of the selected sequence(s) of teeth. This button is grayed out when no sequence is selected. During acquisition, this button changes to a cancel acquisition button.
	Cancels the acquisition that is in progress. This button is displayed only during an acquisition.
	Pauses image acquisition between sequences. When acquisition is paused, this button changes to a resume button. (Grayed out when fewer than two sequences are selected.)
	Resume acquisition with the next sequence. This button is displayed only after pausing acquisition between sequences.
	Deselects all sequences of teeth that were previously highlighted for acquisition. (Grayed out when there are no

Item	Description
	sequences to deselect.) (Note: Individual sequences of teeth can be deselected by right-clicking on them and choosing **Remove Sequence** from the resulting context menu.)

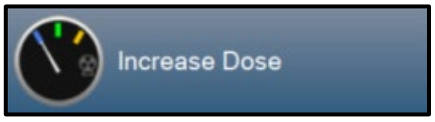
Under/Over Exposure Indicator

The under/over exposure indicator guides the user as to whether the intraoral sensor has received an appropriate dose from the X-ray source. If the sensor receives a level of X-ray radiation that is outside of the optimum range, an indicator will appear at the top of the work surface after an image is acquired from the sensor.

- **Reduce Dose**: Indicates that a decrease in dose would not degrade image quality.



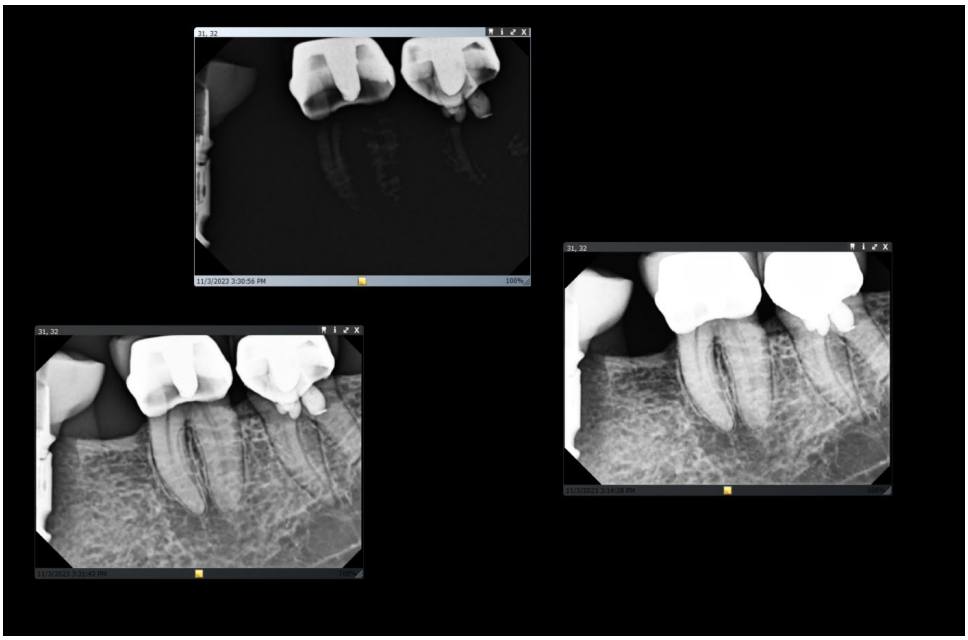
- **Increase Dose**: Indicates that an increase in dose would improve image quality.



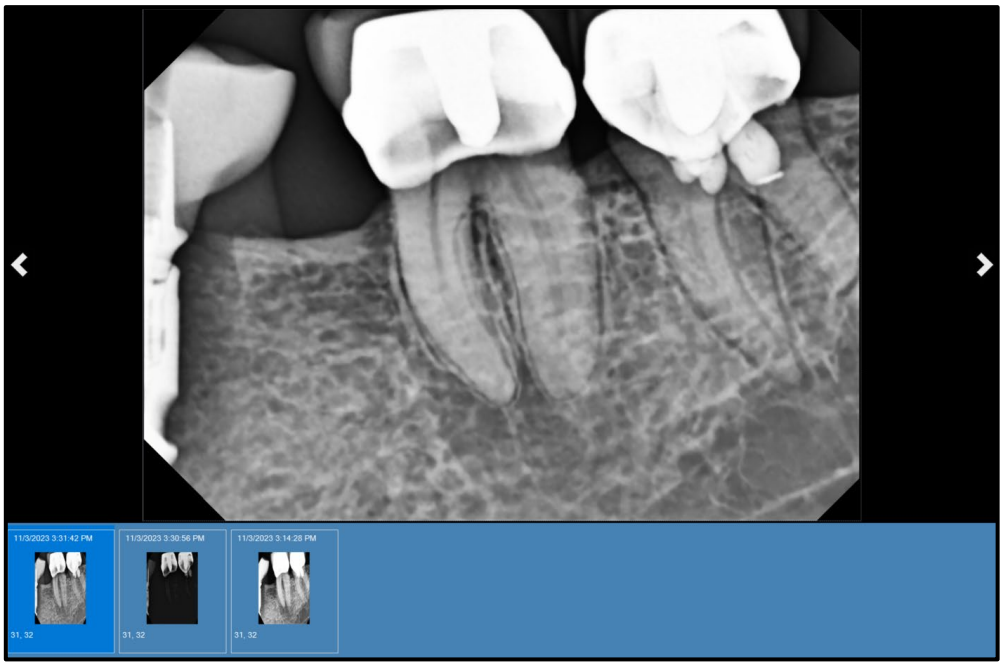
Work Surface Views

The Midmark Imaging interface provides for two distinct **Work Surface** views: Default and Slideshow.

The Default View Work Surface provides an area where acquired X-ray images for a patient are displayed, manipulated or reviewed. In the default view, images are displayed in floating windows which the user can re-size and re-position to their liking.



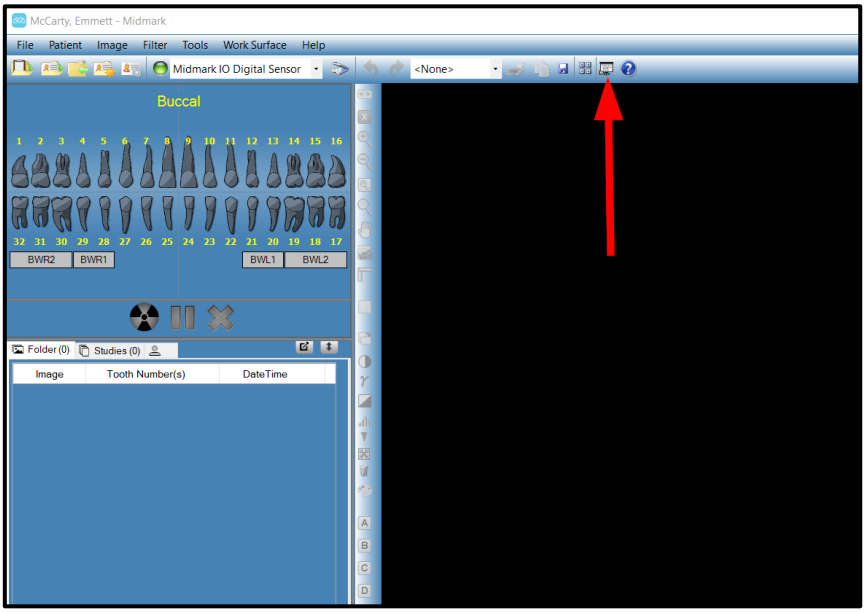
The Slideshow View provides an enlarged image display that includes a thumbnail carousel where acquired X-ray images for a patient are displayed, manipulated or reviewed. One image at a time is enlarged, and the user can change which image is enlarged by either clicking on the thumbnails at the bottom of the screen or by clicking the arrows to either side of the enlarged image.



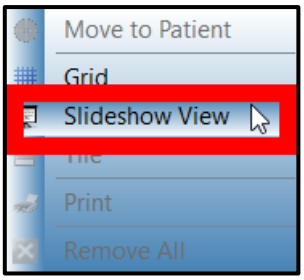
Any of the following methods can be used to toggle between Default View and Slideshow View. For all methods, a patient record must first be opened.

- In the **Main Menu Bar**, select **Work Surface > Slideshow View**.

- On the **Application Toolbar**, click the **Slide Show Viewer button** ().



- Using the mouse, right-click on an open area of the **Work Surface** and select **Slideshow View** from the resulting context menu.



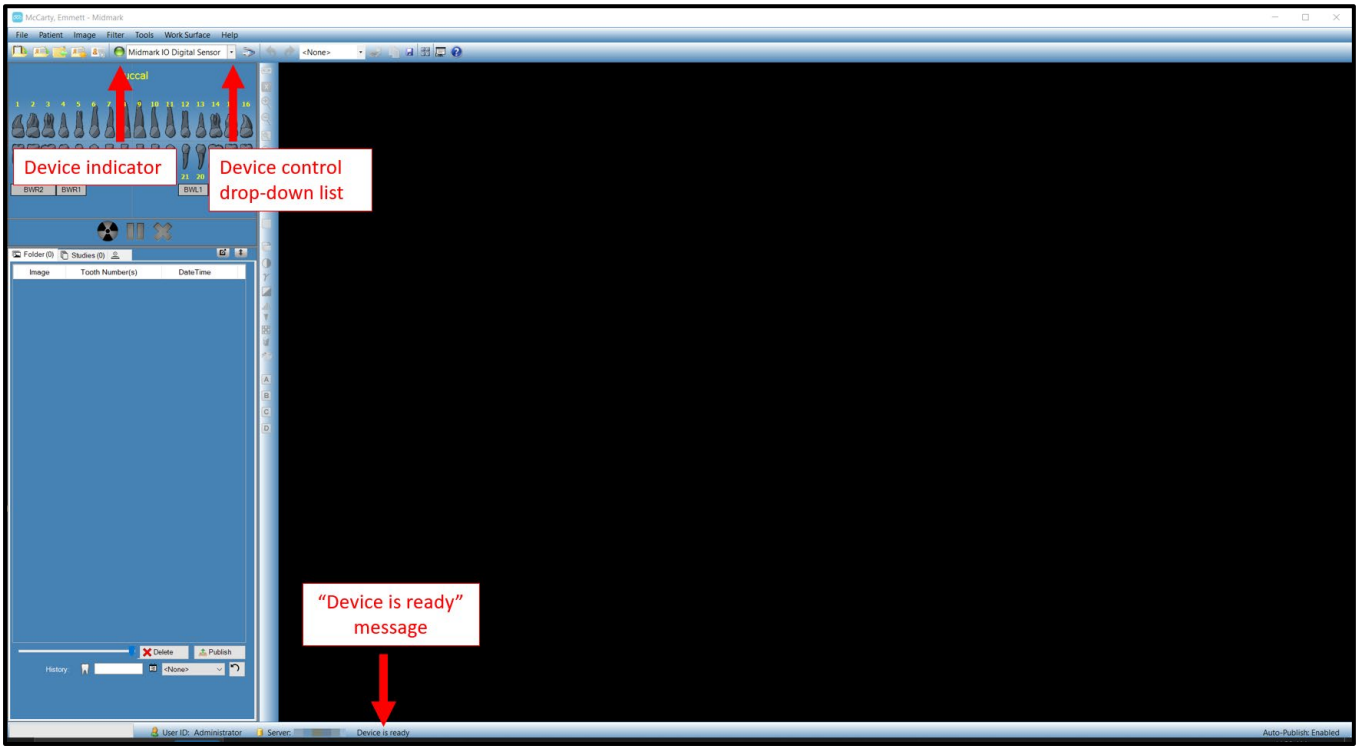
Acquiring Images Using Tooth Panel Sequences

The procedures in this section are guides for acquiring images for either a single sequence or for multiple sequences defined using the **Tooth Panel**. Both procedures work on either the Default View Work Surface and Slideshow View. Images acquired using this method will be saved as individual images under the **Folder tab** in the **Patient Panel**.

Imaging a Single Sequence of Teeth

1. After opening Midmark Imaging and logging in if applicable, open a patient record. (Refer to section *Opening a Patient Record* beginning on page 79 for details.)
2. Verify that Midmark Imaging recognizes that the digital sensor is installed and ready. The **device indicator** should be green, and the message “**Device is ready**” should be present

in the **Progress and Status Bar** at the bottom of the window. If the sensor is not ready, connect it to the computer and select it from the **Device control drop-down list**.



3. Use the **Tooth Panel** to select a tooth or teeth to image. This can be accomplished by any of the following methods:

    - Click on a single tooth to select just one tooth.
    - Click **BWR2**, **BWR1**, **BWL1**, or **BWL2** to select a predefined image to sequence.
    - To include user-defined contiguous teeth in a single sequence, click and hold the mouse button down on the first tooth, then move the mouse cursor over the teeth it is desired to include before releasing.

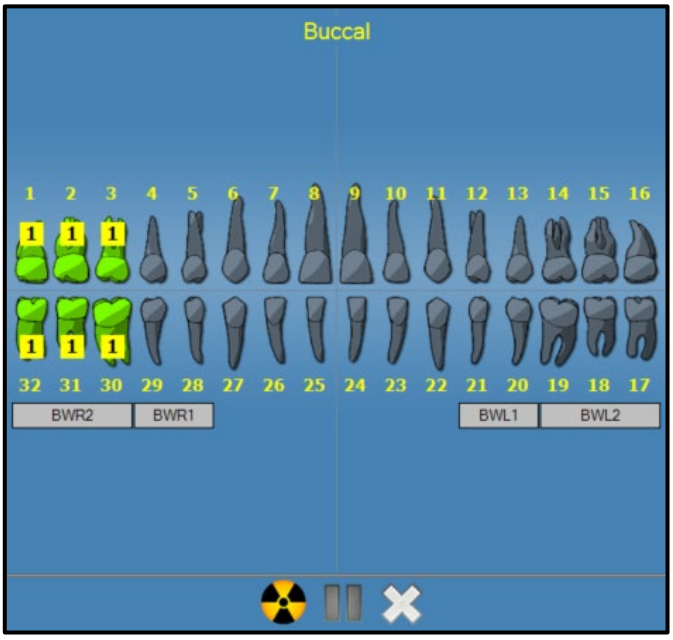
    The teeth that are included in the sequence will turn orange to indicate that they are now part of a sequence. A small number "1" will appear on the tooth or teeth to indicate that they are part of the sequence.

To remove the sequence, click the **Remove All Sequences button** ( ).

4. Insert the X-ray sensor into a protective sheath.
5. Select the technique factors on the X-ray source and prepare the X-ray source to produce the selected X-ray exposure.
6. Position the X-ray sensor in the patient's mouth.
7. Align the X-ray source with the X-ray sensor as appropriate for the desired radiographic technique.
8. Confirm again that Midmark Imaging, the X-ray sensor and the X-ray source are ready for an X-ray exposure.
9. Click the **Acquire button** ( ). For the duration of the sensor timeout period, the teeth in the sequence will flash to indicate that Midmark Imaging is ready to accept an image from the X-ray sensor. The **Acquire button** changes to a **Cancel button** ( ).

⚠CAUTION	If the X-ray source is activated after the sensor times out, the patient will be unnecessarily exposed to X-ray radiation. To avoid this situation, Midmark recommends that the sensor timeout in the **Device Configuration window** is set to a duration of 300 seconds. This is the factory-set default; however, if more time is needed, this can be changed. Refer to section *Setting the Sensor Timeout Period* beginning on page 69 for details. During acquisition, the X-ray sensor is active and waiting for X-ray exposure for the number of seconds set in the sensor timeout in the **Device Configuration window**. At the end of the timeout period, the sensor times out, requiring the procedure to be restarted.

10. Activate the X-ray source to expose the sensor.
11. When the acquisition is complete, the teeth change shade to green and the image is automatically saved. The image appears on the **Work Surface** and in the **Folder tab** of the **Patient Panel**.

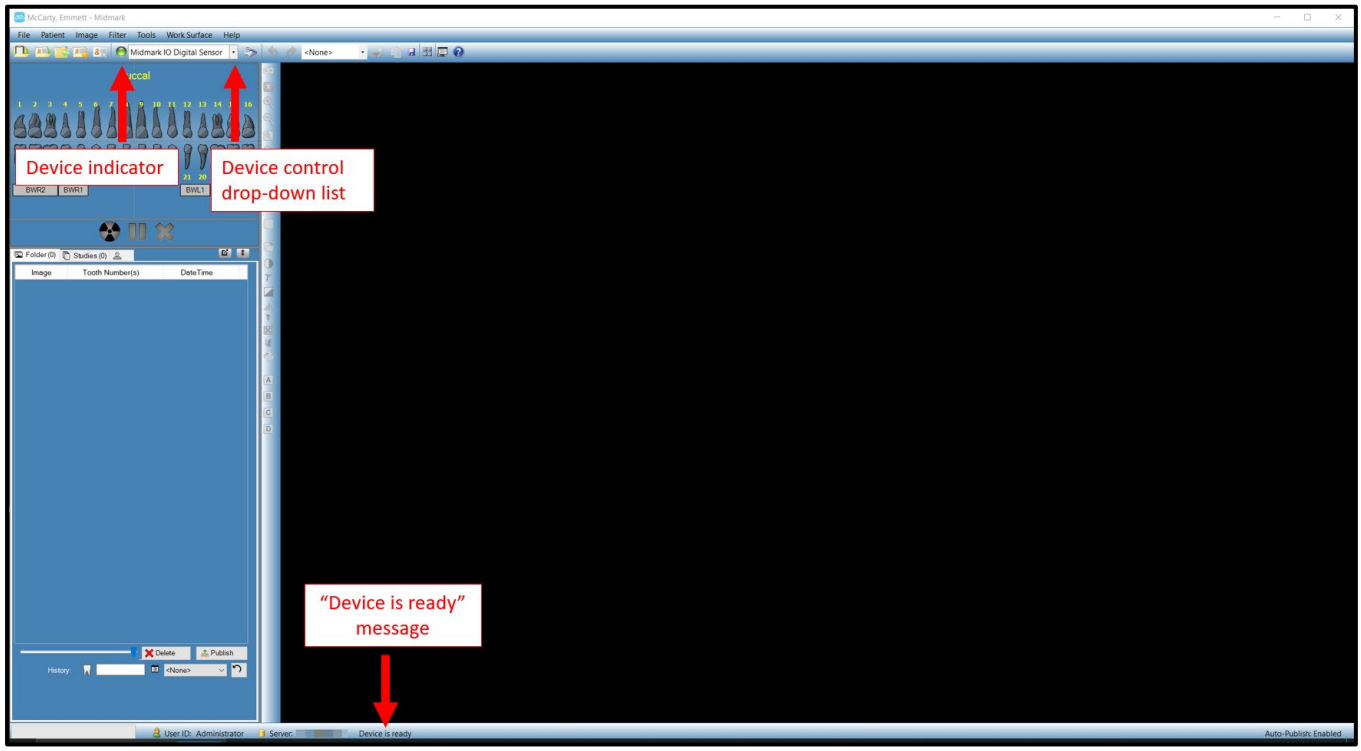


12. In the **Tooth Panel**, click the **Remove All Sequences button** ( ).

> **⚠CAUTION** Incorrect patient name and tooth number identification may lead to diagnosis or treatment errors. Verify accuracy of this information after images are generated.

Imaging Multiple Sequences of Teeth

1. After opening Midmark Imaging and logging in if applicable, open a patient record. (Refer to section *Opening a Patient Record* beginning on page 79 for details.)
2. Verify that Midmark Imaging recognizes that the digital sensor is installed and ready. The **device indicator** should be green, and the message "**Device is ready**" should be present in the **Progress and Status Bar** at the bottom of the window. If the sensor is not ready, connect it to the computer and select it from the **Device control drop-down list**.



3. Use the **Tooth Panel** to select the tooth or teeth for the first sequence. This can be accomplished by any of the following methods:
   - Click on a single tooth to select just one tooth.
   - Click **BWR2**, **BWR1**, **BWL1**, or **BWL2** to select a predefined image to sequence.
   - To include user-defined contiguous teeth in a single sequence, click and hold the mouse button down on the first tooth, then move the mouse cursor over the teeth it is desired to include before releasing.

The teeth that are included in the sequence will turn orange to indicate that they are now part of a sequence. A small number “1” will appear on the tooth or teeth to indicate that they are part of the sequence.

To remove the sequence, click the **Remove All Sequences button** ( ), or right-click on the sequence and select **Remove Sequence** from the resulting context menu.

4. Repeat the previous step until the second and all additional desired sequences have been selected. The teeth that are included in the sequences will turn orange to indicate that they are now part of a sequence. Small numbers will appear on the tooth or teeth to indicate the sequence to which they belong. (In the example shown below, three sequences have been defined.)

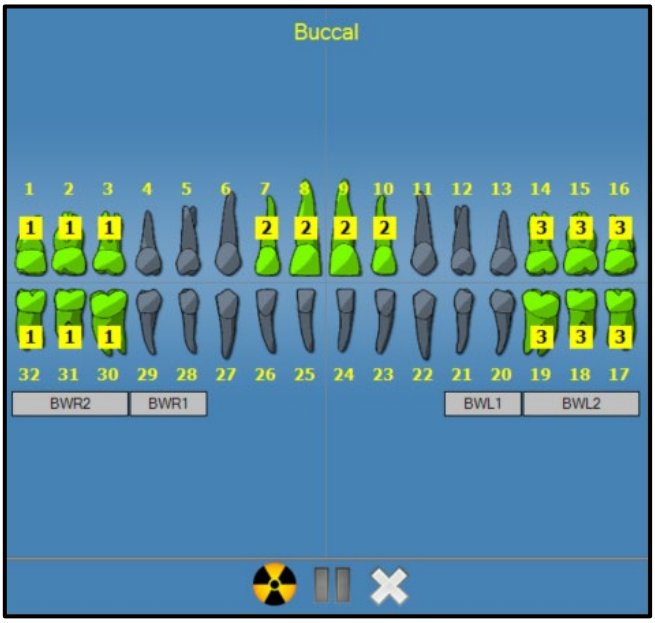
5. Insert the X-ray sensor into a protective sheath.
6. Select the technique factors on the X-ray source and prepare the X-ray source to produce the X-ray exposure for the first sequence.
7. Position the X-ray sensor in the patient’s mouth for the first sequence.
8. Align the X-ray source with the X-ray sensor as appropriate for the desired radiographic technique for the first sequence.
9. Confirm again that Midmark Imaging, the X-ray sensor and the X-ray source are ready for an X-ray exposure.

10. Click the **Acquire button** ( ). For the duration of the sensor timeout period, the teeth in the sequence will flash to indicate that Midmark Imaging is ready to accept an image from the X-ray sensor. The **Acquire button** changes to a **Cancel button** ( ).

> **⚠CAUTION** If the X-ray source is activated after the sensor times out, the patient will be unnecessarily exposed to X-ray radiation. To avoid this situation, Midmark recommends that the sensor timeout in the **Device Configuration window** is set to a duration of 300 seconds. This is the factory-set default; however, if more time is needed, this can be changed. Refer to section *Setting the Sensor Timeout Period* beginning on page 69 for details. During acquisition, the X-ray sensor is active and waiting for X-ray exposure for the number of seconds set in the sensor timeout in the **Device Configuration window**. At the end of the timeout period, the sensor times out, requiring the procedure to be restarted.

11. Activate the X-ray source to expose the sensor for the first sequence.
12. When the acquisition is complete, the teeth change shade to green and the image is automatically saved. The image appears on the **Work Surface** and in the **Folder tab** of the **Patient Panel**. When acquisition is complete for the first sequence, Midmark Imaging will reset the timeout period and automatically begin to acquire the next sequence.

13. If more time is needed between sequences (for example, to reposition the sensor), click the **Pause button** ( ) when the sequence it is desired to pause is flashing orange. Repeat steps 5 thru 9, if necessary, for the next sequence. When the **Resume button** ( ) is clicked, Midmark Imaging resets the timeout interval and begins acquisition of the paused sequence. Refer to section *Pausing Image Acquisition between Sequences* beginning on page 107 of this manual for more information on pausing an acquisition.
14. Activate the X-ray source to expose the sensor for the next sequence.
15. Repeat until all sequences are complete. (All should be highlighted in green in the **Tooth Panel**.)



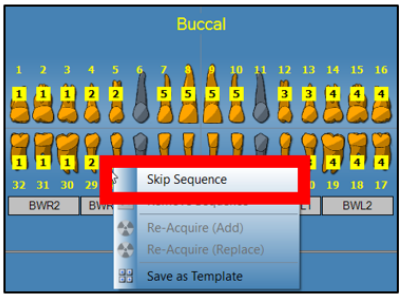
16. When all sequences are complete, in the **Tooth Panel**, click the **Remove All Sequences** button ( ).

> **⚠CAUTION** Incorrect patient name and tooth number identification may lead to diagnosis or treatment errors. Verify accuracy of this information after images are generated.

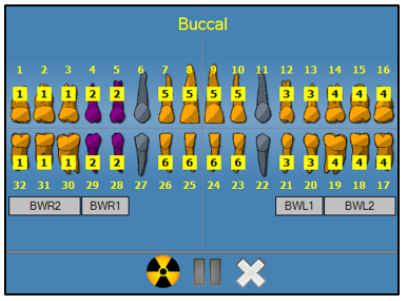
Skipping a Sequence During Acquisition

After sequences have been selected, right-click on a sequence in the **Tooth Panel** window and select **Skip Sequence** from the resulting context menu. This will cause the selected sequence to be skipped. In the **Tooth Panel**, the applicable teeth will be highlighted in purple to identify the teeth and sequence(s) that are being skipped.

Before skipping sequence 2



After skipping sequence 2



Acquiring Images Using Templates

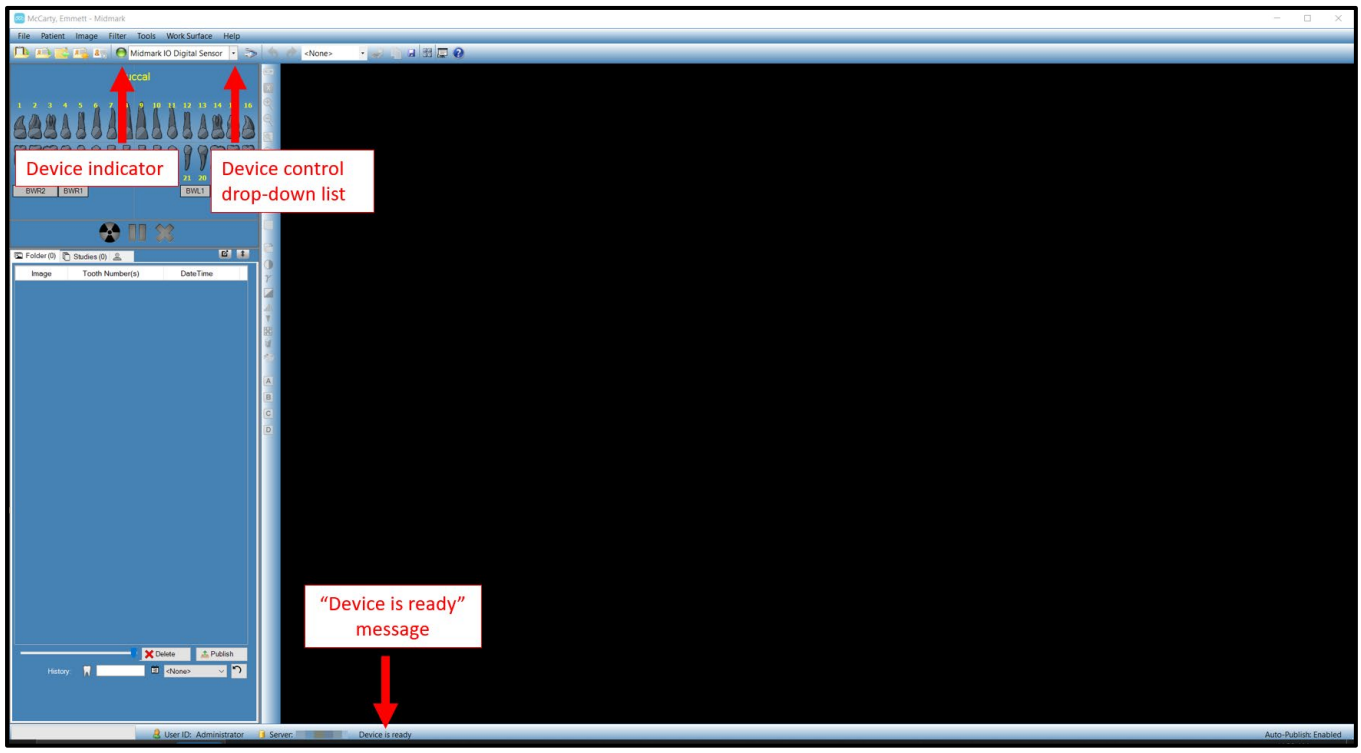
Templates are pre-defined groupings of image acquisition sequences that can be used to streamline image acquisition. Midmark Imaging is equipped with several templates. In addition, custom templates can be created and modified. (Refer to section *Creating and Modifying Image*

Acquisition Templates beginning on page 111 of this manual.) Templates can also be imported and exported for use in Midmark Imaging on other computers.

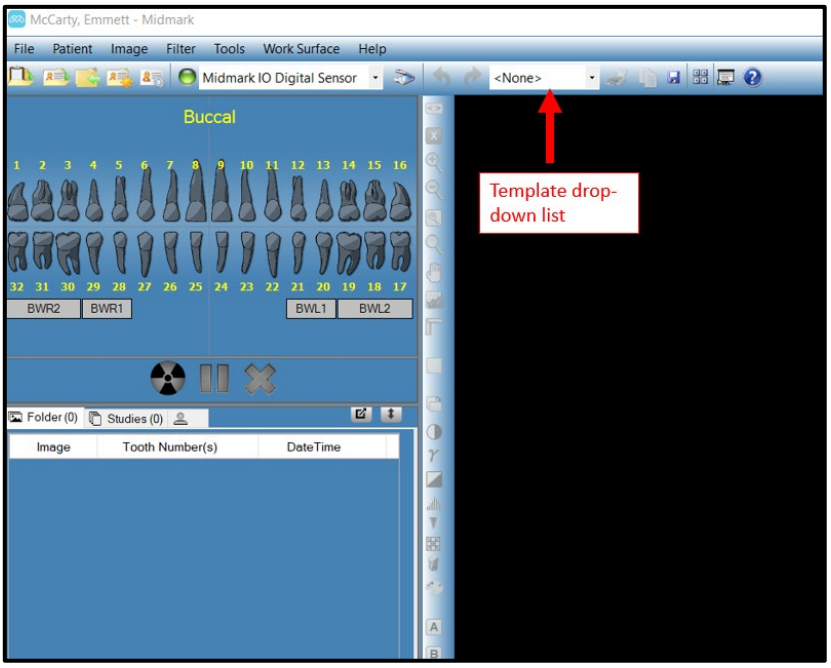
When a template is selected, the template is displayed on the **Work Surface** and the sequences are added in the **Tooth Panel**. When acquiring images using the template, Midmark Imaging acquires the images in the sequence order defined in the template. The images appear in the template on the **Work Surface** and are saved as a study.

Acquisition Steps Using a Template

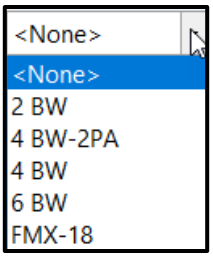
1. After opening Midmark Imaging and logging in if applicable, open a patient record. (Refer to section *Opening a Patient Record* beginning on page 79 for details.)
2. Verify that Midmark Imaging recognizes that the digital sensor is installed and ready. The **device indicator** should be green, and the message "**Device is ready**" should be present in the **Progress and Status Bar** at the bottom of the window. If the sensor is not ready, connect it to the computer and select it from the **Device control drop-down list**.



3. In the **Template toolbar**, select the template from the **template drop-down list**.

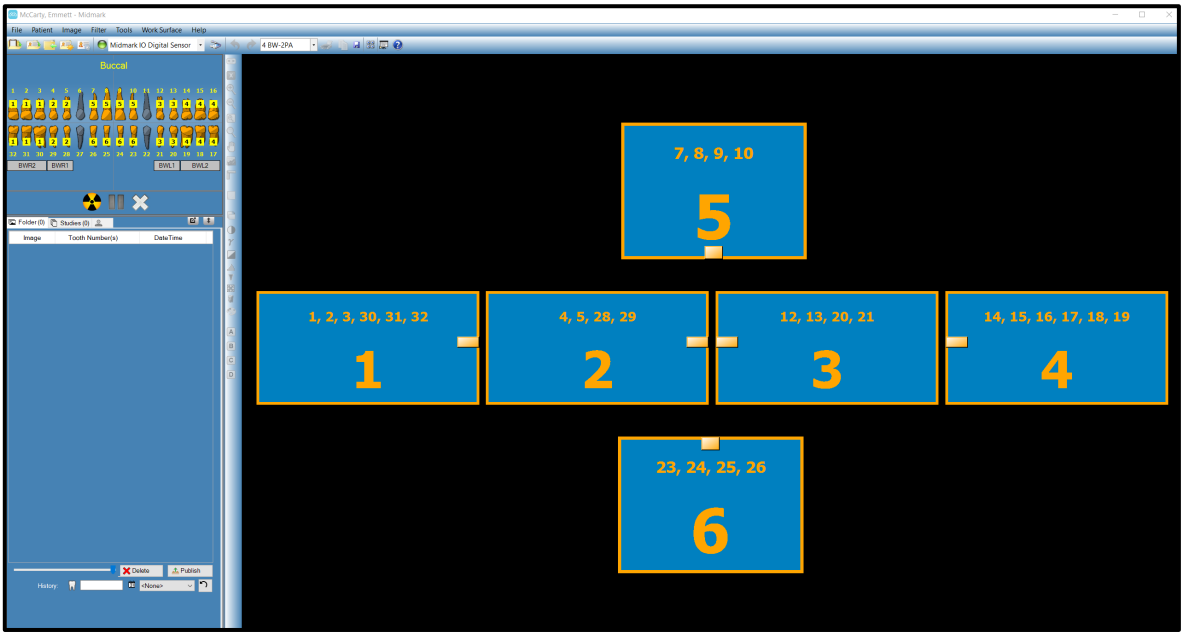


4. By default, the template options shown below are available. (BW stands for “bitewing,” PA stands for “periapical”, and FMX stands for “full mouth.” The numbers denote the quantity of each type of sequence.) Click on the desired template option.



5. The sequences of the chosen template appear on the **Work Surface**. Each sequence is represented by a colored rectangle. The large numbers within the rectangles indicate the order of the sequences while the smaller numbers indicate the teeth included within that sequence. The small rectangles indicate the location of the bottom of the digital sensor relative to the teeth. In the **Tooth Panel**, the teeth in the template sequences are highlighted in

orange. Small numbers appear on the included teeth showing the sequences of which they are a part.



6. Insert the X-ray sensor into a protective sheath.
7. Select the technique factors on the X-ray source and prepare the X-ray source to produce the X-ray exposure for the first sequence.
8. Position the X-ray sensor in the patient's mouth for the first sequence.
9. Align the X-ray source with the X-ray sensor as appropriate for the desired radiographic technique for the first sequence.
10. Confirm again that Midmark Imaging, the X-ray sensor and the X-ray source are ready for an X-ray exposure.
11. Click the **Acquire button** ( ). For the duration of the sensor timeout period, the template and the teeth in the first sequence will flash to indicate that Midmark Imaging is ready to accept an image from the X-ray sensor. The **Acquire button** changes to a **Cancel button** ( ).

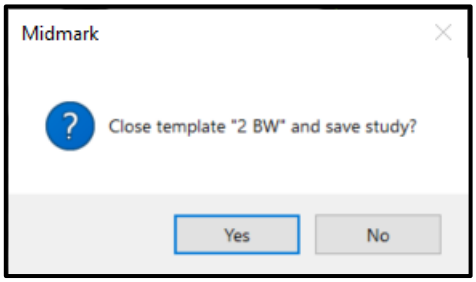
⚠CAUTION

If the X-ray source is activated after the sensor times out, the patient will be unnecessarily exposed to X-ray radiation. To avoid this situation, Midmark recommends that the sensor timeout in the **Device Configuration window** is set to a duration of 300 seconds. This is the factory-set default; however, if more time is needed, this can be changed. Refer to section *Setting the Sensor Timeout Period* beginning on page 69 for details. During acquisition, the X-ray sensor is active and waiting for X-ray exposure for the number of seconds set in the sensor timeout in the **Device Configuration window**. At the end of the timeout period, the sensor times out, requiring the procedure to be restarted.

12. Activate the X-ray source to expose the sensor for the first sequence.
13. When the acquisition is complete, the template sequence and the teeth change shade to green. The image replaces the sequence in the template and appears in the **Folder** tab of

the **Patient Panel**. When acquisition is complete for the first sequence, Midmark Imaging will reset the timeout period and automatically begin to acquire the next sequence.

14. If more time is needed between sequences (for example, to reposition the sensor), click the **Pause button** ( ) when the sequence it is desired to pause is flashing orange. Repeat steps 7 thru 10, if necessary, for the next sequence. When the **Resume button** ( ) is clicked, Midmark Imaging resets the timeout interval and begins acquisition of the paused sequence. Refer to section *Pausing Image Acquisition between Sequences* beginning on page 107 of this manual for more information on pausing an acquisition.
15. Activate the X-ray source to expose the sensor for the next sequence.
16. Repeat until all sequences are complete.
17. When all images for the template have been acquired, Midmark Imaging will ask whether it is desired to close the template. Closing the template removes the sequences from the **Tooth Panel**. Click **Yes** to close the template or **No** to leave the sequences selected.



18. When the template is closed, a study (which includes all the images specified by the template) is saved in the **Patient Panel Studies tab**. The study is named for the template used and the date and time of acquisition.

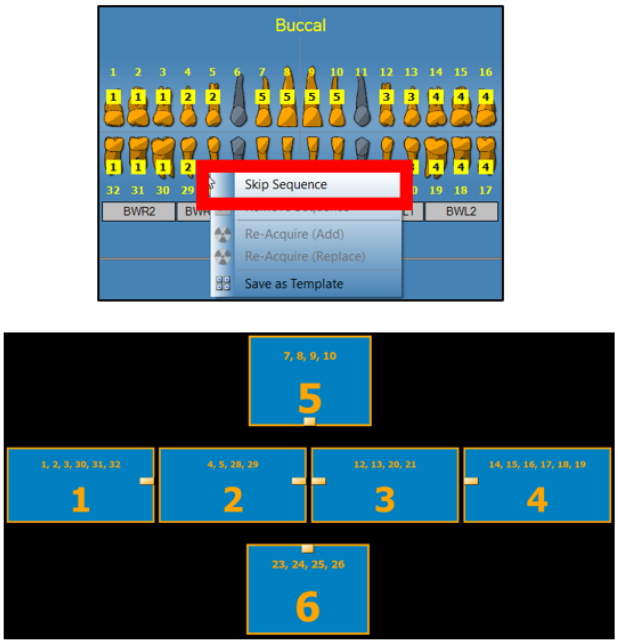
⚠CAUTION	Incorrect patient name and tooth number identification may lead to diagnosis or treatment errors. Verify accuracy of this information after images are generated.

Skipping a Sequence in a Template

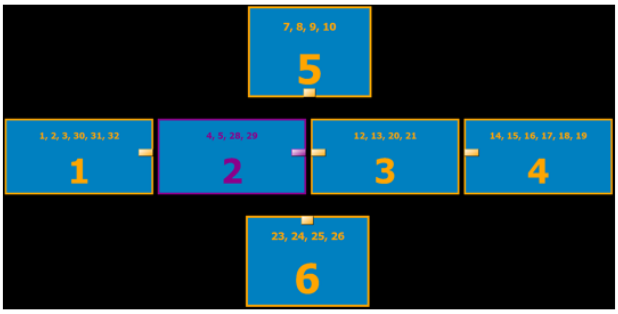
After opening a template for a patient, right-click on a sequence in the **Tooth Panel** window and select **Skip Sequence** from the resulting context menu. This will cause the selected sequence to be skipped. In the **Tooth Panel**, the applicable teeth will be highlighted in purple, and on the

Work Surface, the yellow frame and numbers of the applicable rectangle change to purple as well. The purple color identifies the teeth and sequence(s) that are being skipped.

Before skipping sequence 2



After skipping sequence 2

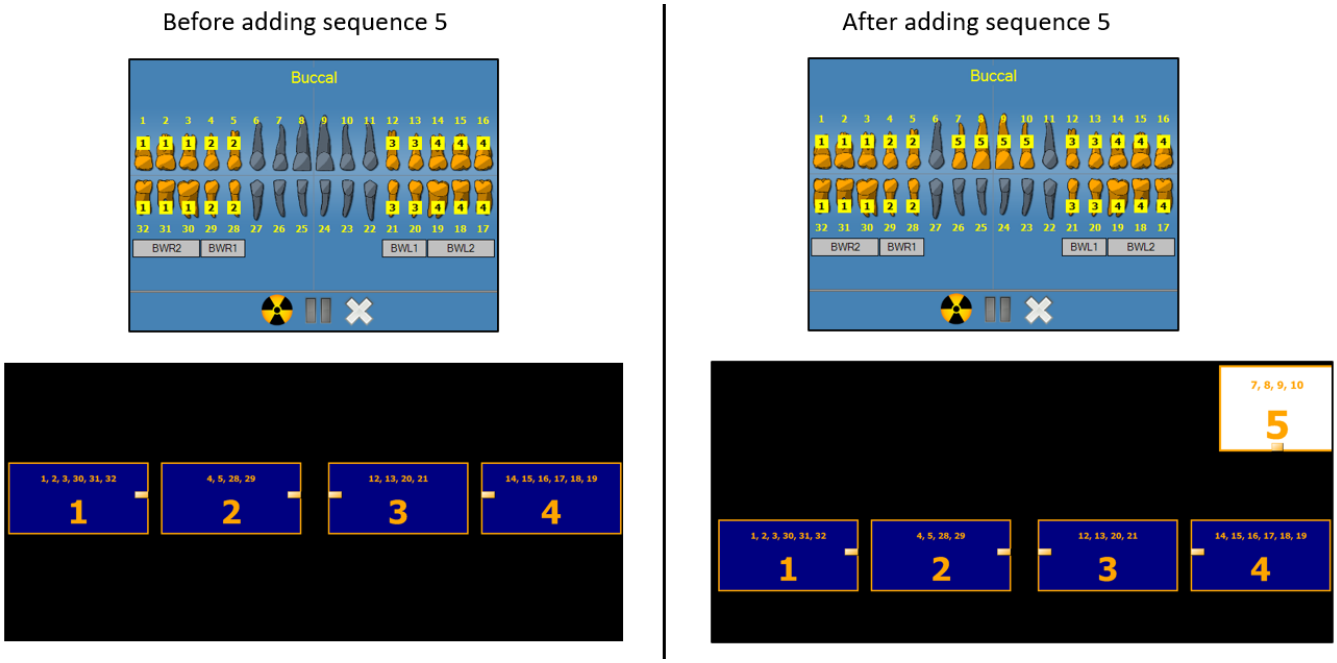


Adding a Sequence to Existing Template

After opening a template for a patient, add a sequence of teeth to the template by placing the cursor in the **Tooth Panel**, left-clicking, and holding and dragging the mouse over the teeth of interest. The selected teeth will be added to the existing template sequences upon release of the mouse. (Note: Alternatively, clicking on the gray buttons for **BWR2**, **BWR1**, **BWL1**, and **BWL2** will also add those respective sequences to the template.)

In the **Tooth Panel**, the added teeth will be highlighted in orange. On the **Work Surface**, a new rectangle will appear to represent the added sequence.

NOTICE	In order to add a sequence, the user must not be in Image Acquisition Mode.

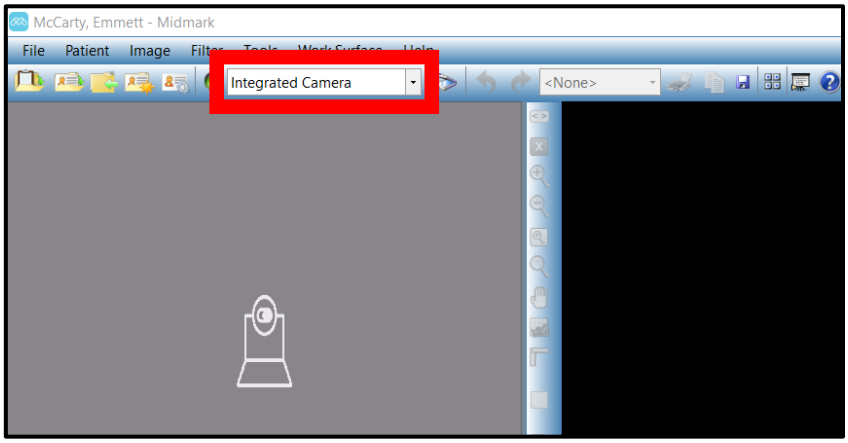


Acquiring Still Video Images

If a USB video or web camera is installed on the computer, still video images can be acquired.

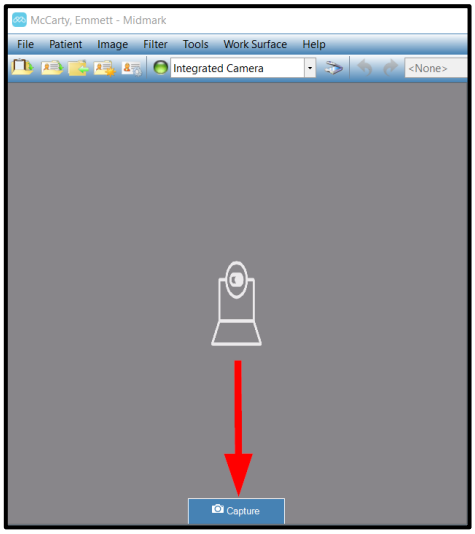
Follow the steps below to acquire a still video image.

1. In Midmark Imaging, open the patient record to which it is desired to add the still video image. (Refer to section *Opening a Patient Record* beginning on page 79 of this manual.)
2. From the **Device control drop-down list**, select the video camera. (It will typically be named “Integrated Camera” on the list.)

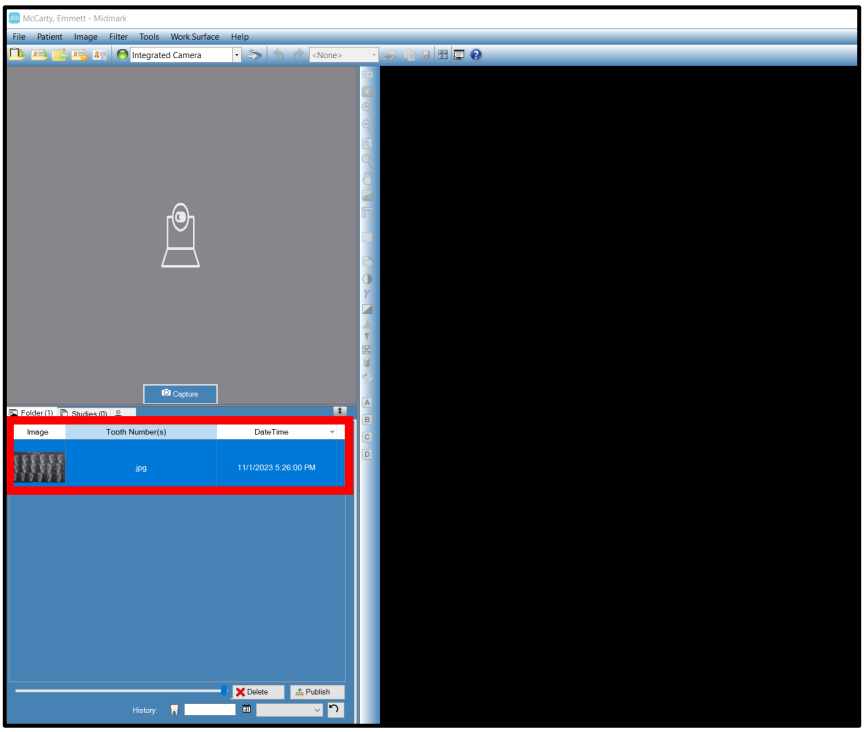


3. Wait for the **Device indicator** to turn green ().
4. Check the camera and verify that it is ready to begin acquiring video. A live preview of what the camera is “seeing” should be present in the area where the **Tooth Panel** formerly was. (Note: if the webcam cover is closed, the preview will show as a large gray square with this icon in the center:  .)
5. Use either of the following methods to capture a still image:

- Press **Ctrl + Alt + C** on the keyboard.
- Press the **Capture button** at the bottom of the **video pane**.



6. The captured image will appear in a floating window on the **Work Surface** area.
7. When finished viewing the image, closing out the floating window will save the image under the **Folder tab** of the **Patient Panel**.

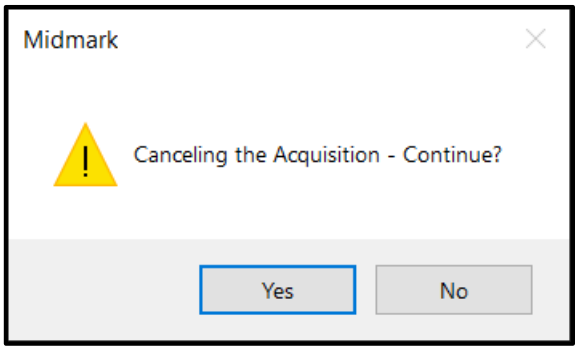


Cancelling and Pausing Image Acquisition

When Midmark Imaging is acquiring an image, the acquisition can be stopped. If imaging multiple sequences, acquisition can be paused between the sequences.

Cancelling Image Acquisition

Once the **Acquire button** ( ) has been clicked in Midmark Imaging, the button changes to a stop sign – i.e., the **Cancel button** ( ). Clicking the **Cancel button** stops the acquisition of the current sequence. A window will first pop up confirming that it is desired to cancel. Click **Yes** to confirm cancellation.



When ready to resume acquisition, click the **Acquire button**. The timeout period then begins again, and the image can be acquired as before.

If the **Cancel button** is clicked after the X-ray source has been activated and before the end of the sensor timeout period, the X-ray image of the sequence will still appear in Midmark Imaging.

⚠CAUTION	The patient will be unnecessarily exposed to X-ray radiation if the X-ray source is activated after cancelling acquisition. After clicking the **Cancel button** to stop the acquisition, discontinue the image acquisition procedure to ensure that the patient will not be unnecessarily exposed to X-ray radiation.

Pausing Image Acquisition between Sequences

The **Pause button** ( ) is only active during the acquisition of multiple sequences of teeth and can only be used to pause the acquisition between sequences.

To pause the acquisition between two sequences, click the **Pause button** after acquisition of the first sequence but before acquisition of the second sequence begins (i.e., when the second

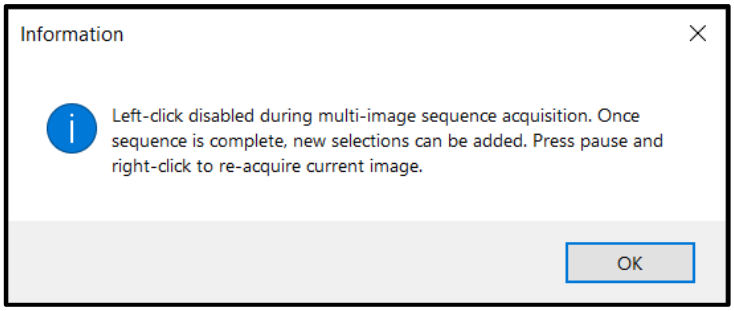
sequence has begun flashing orange). The teeth in the next sequence will flash purple to indicate that acquisition has been paused.

⚠CAUTION The patient may be exposed to unnecessary radiation if the **Pause button** is clicked prematurely. If the **Pause button** is clicked immediately after irradiation of a sequence, the sensor will be disarmed and the image may not be delivered. This may create a need for the patient to be irradiated a second time to re-take the image that was not delivered. To avoid this scenario, ensure that the image has been delivered and wait until the next sequence has begun flashing orange to click the **Pause button**.

To resume acquisition, click the **Resume button** ( ). When the **Resume button** is clicked, Midmark Imaging resets the timeout interval and begins acquisition of the next sequence.

If a Tooth is Left-Clicked during Acquisition

If the user left-clicks a tooth after acquisition has begun, the pop-up message below appears. If it is desired to add another tooth, the user can do so when not in Image Acquisition Mode.



Re-acquiring Images

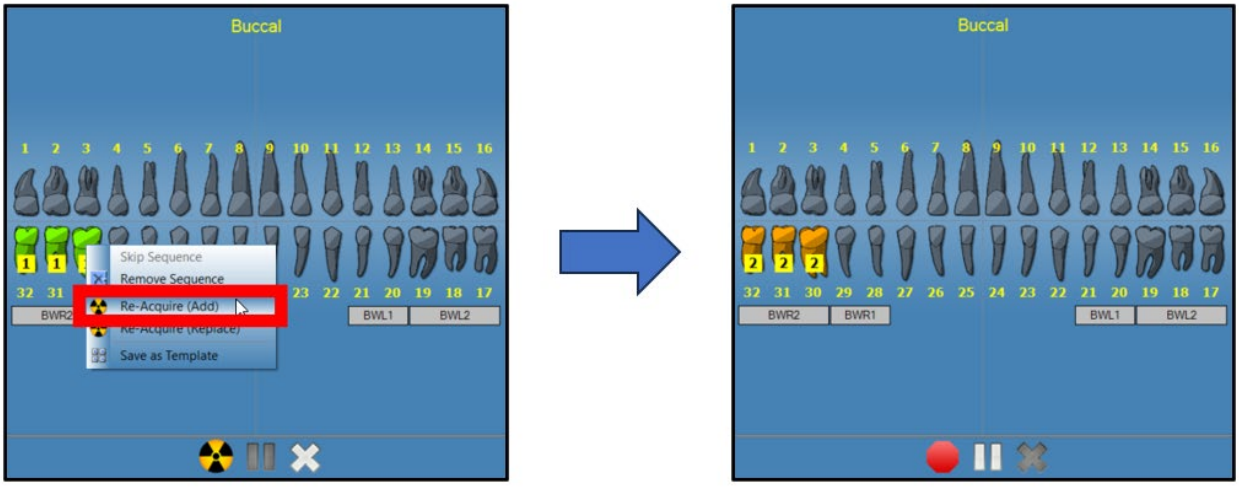
Re-acquiring images can be performed while using either Tooth Panel Sequence acquisition or Template acquisition. Immediately after acquiring an image, but before removing the sequence (i.e., while the teeth are still highlighted in green in the **Tooth Panel)**, the images can be reacquired. Two different methods can be used:

- Re-Acquire (Add)
    - This function acquires an additional image and retains the original.
- Re-Acquire (Replace)
    - This function acquires an additional image and replaces the original.

These methods will be discussed in detail in the sections that follow.

Re-Acquire (Add)

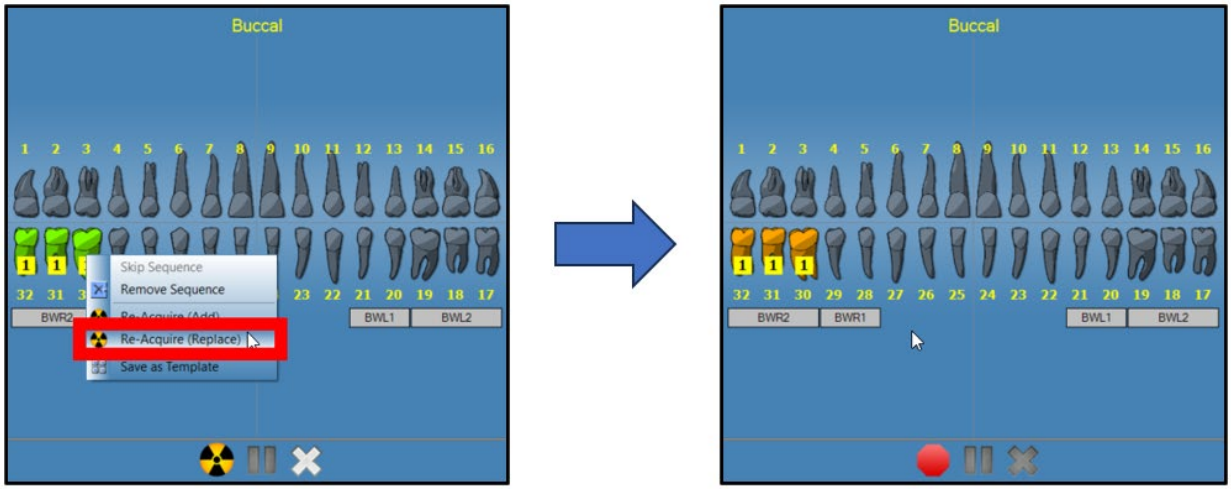
1. Start acquiring images using either the Tooth Panel or Template method. Sequences that have been acquired will be highlighted in green.
2. During the acquisition process, click the **Pause button** ( ). The paused tooth/teeth will be highlighted in purple. (Note: This step is not necessary and should be skipped if only one sequence is being acquired.)
3. Right-click on the green-highlighted sequence it is intended to re-acquire.
4. From the context menu that appears, select **Re-Acquire (Add)**. The selected sequence will turn back to orange, the sequence number is incremented to the next number and Midmark Imaging begins the acquisition process to re-acquire the image.



5. Activate the X-ray source to expose the sensor.
6. When complete, the selected sequence will again turn green. The originally acquired image is retained and an additional image is added.
7. Repeat the steps as necessary to re-acquire additional sequences.
8. When finished, click the **Remove All Sequences button** ( ).

Re-Acquire (Replace)

1. Start acquiring images using either the Tooth Panel or Template method. Sequences that have been acquired will be highlighted in green.
2. During the acquisition process, click the **Pause button** ( ). The paused tooth/teeth will be highlighted in purple. (Note: This step is not necessary and should be skipped if only one sequence is being acquired.)
3. Right-click on the green-highlighted sequence it is intended to re-acquire.
4. From the context menu that appears, select **Re-Acquire (Replace)**. The selected sequence will turn back to orange, and Midmark Imaging begins the acquisition process to re-acquire the image.

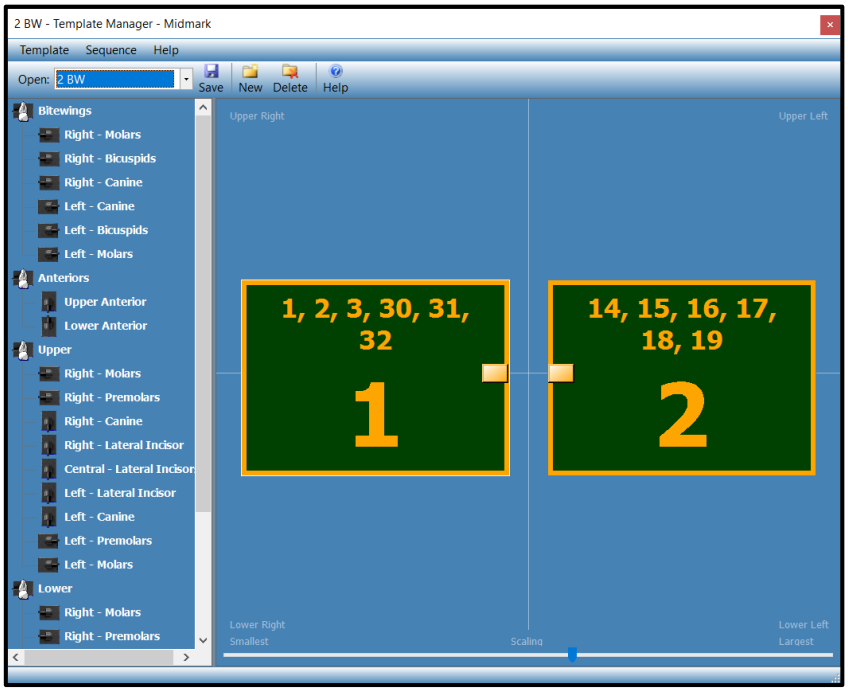


5. Activate the X-ray source to expose the sensor.
6. When complete, the selected sequence will again turn green. The re-acquired image replaces the originally acquired image.
7. Repeat the steps as necessary to re-acquire additional sequences.
8. When finished, click the **Remove All Sequences button** ( ).

Creating and Modifying Image Acquisition Templates

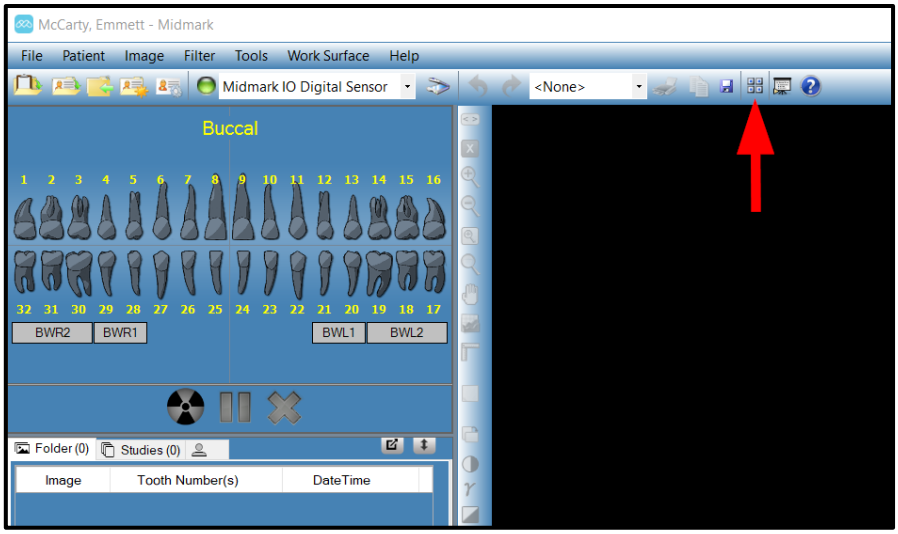
Acquisition templates can be created by using either the **Template Manager** or the **Tooth Panel**. Both methods will be discussed in this section, but first, an overview of the **Template Manager** is given. (An overview of the **Tooth Panel** was previously given in section *The Tooth Panel* beginning on page 88 of this manual.)

Use the **Template Manager** to create, modify and delete custom image acquisition templates. On the left side of the **Template Manager** are sequences of teeth to include in the template. On the right side of the **Template Manager** is the **design surface** where sequences for the template are assembled. The design surface is oriented from the patient's point of view.



The **Template Manager** can be opened by either of the following methods:

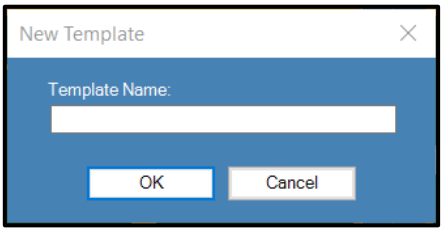
- In the **Main Menu Bar**, select **Tools > Templates…**.
- Click the **Template Manager button** ( ) located towards the top of the screen.



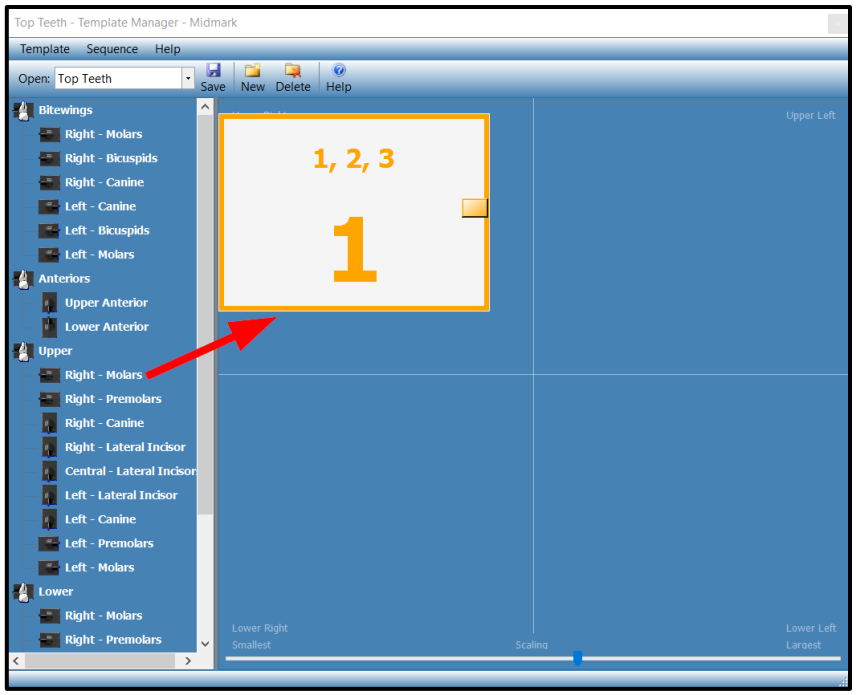
Creating a Template from the Template Manager

1. Open the **Template Manager** using either of the methods described above.
2. In the **Template Manager** window, either select **Template > New** from the top toolbar or click the **New Template button** (

).
3. The **New Template window** opens, prompting the user to designate a name for the new template. Type in the desired template name and click **OK**. The new template name will then appear at the top of the **Template Manager** window.



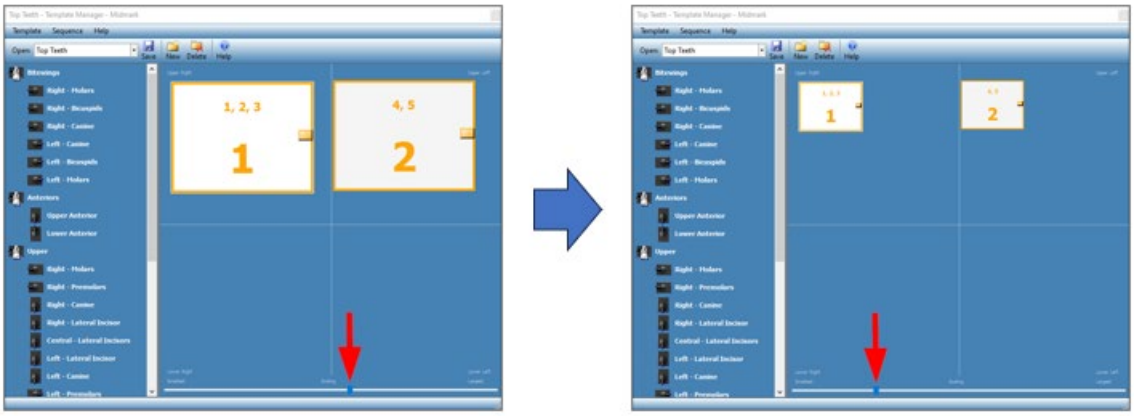
4. Drag sequences of teeth from the left side of the **Template Manager** to the **design surface**, positioning the sequences in the order in which they are intended to be acquired. On the **design surface**, each sequence is represented by a rectangle containing the numbers of the teeth included in the sequence as well as a large number indicating the sequence's place in the acquisition order. In the example shown below, the Right Molars sequence has been dragged onto the design space.



- By default, the order in which the sequences are placed on the **design surface** determines the sequences' place in the acquisition order. E.g., the first sequence placed will be acquired first, the second sequence placed will be acquired second, etc. However, this order can be changed if needed. Refer to section *Modifying a Template* beginning on page 115 of this manual for details.
- The **design surface** is divided into quadrants corresponding to the anatomy of the mouth (e.g., upper right, lower right, etc.). When a sequence is first dragged onto the

design surface, it must be dragged to the quadrant corresponding to the part of the mouth to which those teeth belong. The software will not permit a sequence to be initially dropped into a different quadrant. However, once the sequence has been placed on the **design surface**, it can subsequently be dragged to other quadrants.

- At the bottom of the **Template Manager** window is a **scaling slider bar**. The **scaling slider bar** allows the user to adjust the size of the rectangles that represent the sequences so that they will all fit within the design surface. In the example below, the **scaling slider bar** has been moved to the left, which has made the sequence rectangles smaller.

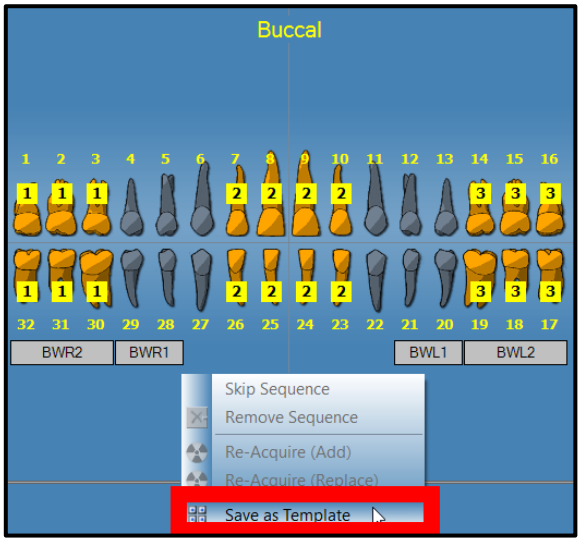


5. If it is desired to remove any sequences that have been placed on the design surface, any of the following methods can be used:
   - Click on the sequence to select it, then select **Sequence > Remove** from the toolbar at the top of the **Template Manager** window.
   - Right-click on the sequence to be removed and select **Remove** from the resulting context menu.
   - If it is desired to remove all sequences, select **Template > Remove All Sequences** from the top toolbar of the **Template Manager** window.
6. When satisfied with the sequences and their positions within the template, save the template. This can be accomplished using either of the following methods:
   - Select **Template > Save** from the toolbar at the top of the **Template Manager** window.
   - Click the **Save button** () towards the top of the **Template Manager** window.
7. Close the **Template Manager** by either selecting **Template > Exit** from the top toolbar or by clicking the **Close button** () in the upper-right corner of the **Template Manager**.

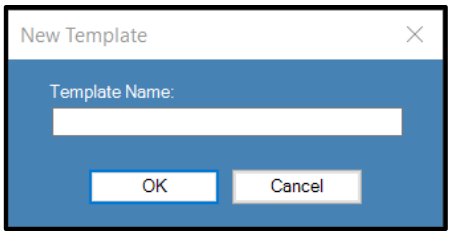
Creating a Template from the Tooth Panel

1. Ensure that a patient record is open and that a digital sensor is connected to the computer and active in Midmark Imaging.
2. In the **Tooth Panel**, select the sequence(s) that are desired to be included in the template. This can be accomplished by any combination of clicking on individual teeth, clicking and dragging the mouse over multiple teeth at once, and/or clicking the **BWR2**, **BWR1**, **BWL1**, or **BWL2** buttons.

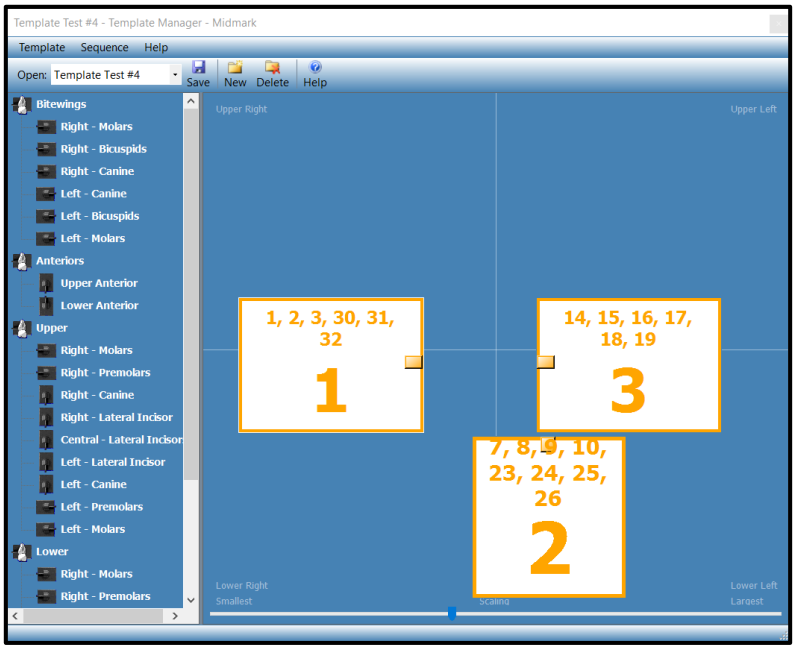
3. Right-click anywhere within the **Tooth Panel** and select **Save as Template** from the resulting context menu.



4. The **New Template** window opens, prompting the user to designate a name for the new template. Type in the desired template name and click **OK**.

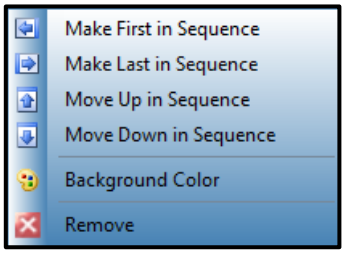


5. The **Template Manager** then opens, displaying the new template's name at the top of the window and showing the selected sequences on the **design surface**.



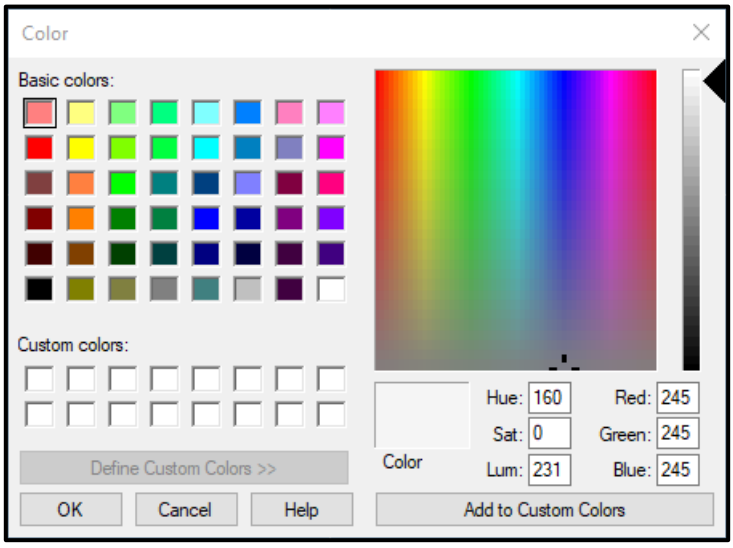
Modifying a Template

1. Open the **Template Manager** using either of the methods described earlier in this section.
2. In the **Template Manager**, us the drop-down list to select the template to modify.
3. In the **design surface**, right-click on the sequence which it is desired to modify. This will display the context menu shown below.



4. Click on an action to perform on the sequence. The following options are available in the context menu:

   - **Make First in Sequence**: Reorders the sequences in the template so that the selected sequence will be acquired first.
   - **Make Last in Sequence**: Reorders the sequences in the template so that the selected sequence will be acquired last.
   - **Move Up in Sequence**: Increases the sequence number, which reorders the sequences in the template so that the selected sequence will be acquired after the immediately following sequence.
   - **Move Down in Sequence**: Decreases the sequence number, which reorders the sequences in the template so that the selected sequence will be acquired before the immediately preceding sequence.
   - **Background Color**: Displays a color palette from which the user can select or define a custom color for the background of the rectangle representing the sequence.



   - **Remove**: Removes the selected sequence from the template.

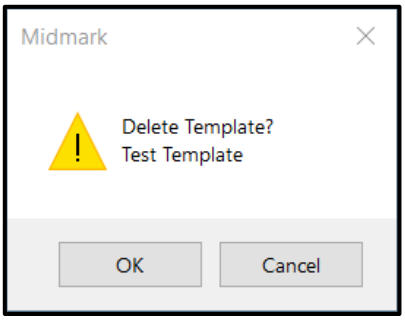
5. When satisfied with the modifications, save the template. This can be accomplished using either of the following methods:

- Select **Template > Save** from the toolbar at the top of the **Template Manager** window.
- Click the **Save button** () towards the top of the **Template Manager** window.

6. Close the **Template Manager** by either selecting **Template > Exit** from the top toolbar or by clicking the **Close button** () in the upper-right corner of the **Template Manager**.

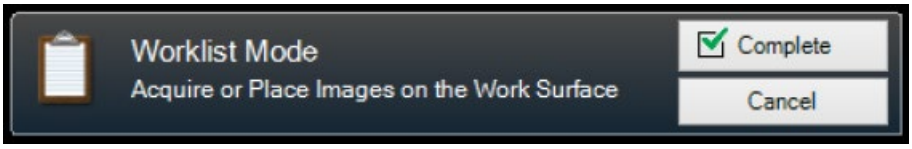
Deleting a Template

1. Open the **Template Manager** using either of the methods described earlier in this section.
2. In the **Template Manager**, use the drop-down list to select the template to delete.
3. Once the desired template is displayed within the **Template Manager**, it can be deleted by either of the following methods:
   - Select **Template > Delete** from the toolbar at the top of the **Template Manager** window.
   - Click the **Delete button** () towards the top of the **Template Manager** window.
4. A window will appear to confirm the intention to delete the template. Click **OK** to proceed with the deletion.



Assigning Images to a Worklist Patient

1. Open a worklist patient as outlined in section *Creating a Patient with Modality Worklist* beginning on page 78 of this manual.
2. Worklist Mode is now enabled. Acquire or place all applicable images on the **Work Surface**.
3. Press the **Complete** button to assign the worklist data into the images on the **Work Surface**.



NOTICE If Worklist Mode is cancelled, the patient will need to be re-opened to start over.

4. (Optional) If a PACS server is enabled, a confirmation prompt will appear before publishing the images. Choose either **OK** or **Cancel** to complete the process.

Displaying Existing Images

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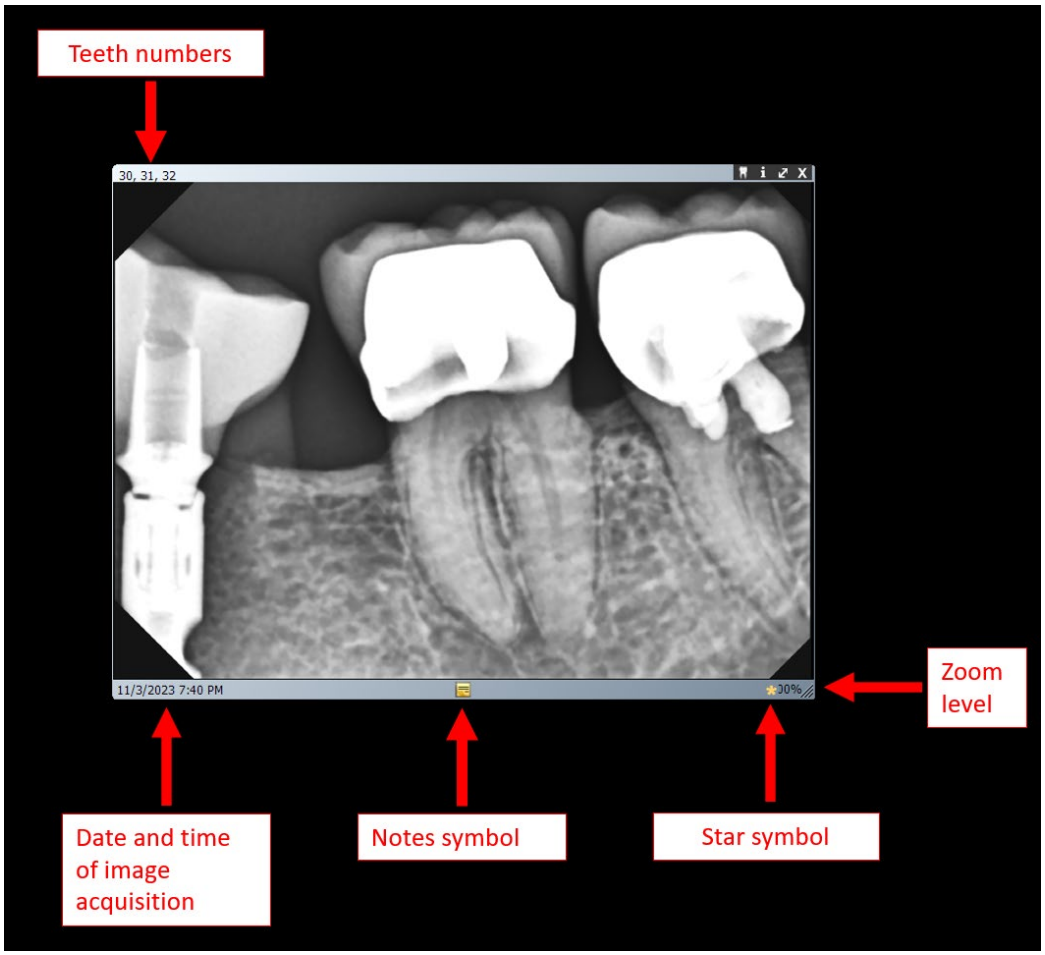
About Displaying Images

X-ray images acquired for a patient are saved with the patient record. Images to be manipulated or reviewed are displayed on the **Work Surface**. As previously described in section *Work Surface Views* beginning on page 91 of this manual, the **Work Surface** can be set to either Default View or Slideshow View. Much of the information in this section of the manual assumes that the **Work Surface** is set to the Default View. Some features discussed are not available in Slideshow View.

By default, images display with top and bottom borders as shown below. The numbers in the top border are the numbers of the teeth in the image. The bottom border shows the date and time of acquisition as well as the zoom level. A star symbol ( ) is present if a filter has been applied to the image. The notes symbol indicates the presence of user-added image notes. If no notes have been added, this symbol appears as a blank square ( ). If notes have been added, the symbol contains black lines ( ).



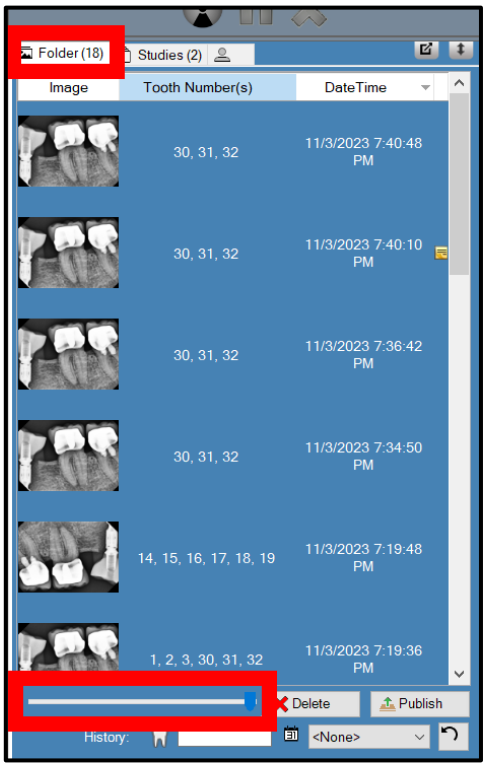
Opening and Closing Images

Images are opened and closed from the **Patient Panel Folder tab** in the current patient record.

Displaying Previously Saved Images

1. Open the patient record with image(s) it is desired to view. For details, refer to section *Opening a Patient Record* beginning on page 79 of this manual.

2. In the **Patient Panel Folder tab**, locate the image(s) to display. If needed, use the horizontal slider to adjust the view of the **Patient Panel** to help find the image. (Also see section *Filtering the Image List* beginning on page 122 of this manual.)



3. Double-click the image to be displayed, or select and drag the image to the **Work Surface**. Alternatively, click on the image to highlight it, then right-click on it and select **Open** from the resulting context menu. To select and display multiple images, use any of the following methods:

   - Click and hold down the mouse while dragging over multiple consecutive images, then drag the mouse over to the **Work Surface** area. All highlighted images will be displayed.
   - Press and hold the **Shift** key on the keyboard and click on two different images. Without releasing the mouse after clicking the second image, drag the mouse over to the **Work Surface** area. The two images clicked as well as all images between those two images will be displayed.
   - To display nonconsecutive images, press and hold the **Ctrl** key on the keyboard and click on the images of interest. Without releasing the mouse after clicking on the last image, drag the mouse over to the **Work Surface** area. Each image clicked on will be displayed.

Closing Images

When an image is closed, Midmark Imaging automatically resaves the image. The image can be reopened.

1. Display one or more images on the **Work Surface**.

2. Select the image to close by clicking on it. The currently selected image is indicated by top and bottom borders which are a lighter gray than those of the images that are not currently selected.
3. Use any of the following methods to close the image:
    - Click the small “X” icon in the upper-right corner of the image ( ).
    - Click the small red “X” icon on the **Filter Toolbar** ( ).
    - Right-click on the image and select **Close Image** from the resulting context menu.
    - From the **Main Menu Bar**, select **Image > Close**.
    - On the keyboard, press **Alt + C**.
    - To close all images on the **Work Surface**, select **Work Surface > Remove All** from the **Main Menu Bar**.

Opening Multiple Copies of an Image

In some instances, it may be desired to open multiple copies of an image. For example, it may be desired to compare the same image with different filters applied. The image can be cloned to create multiple copies.

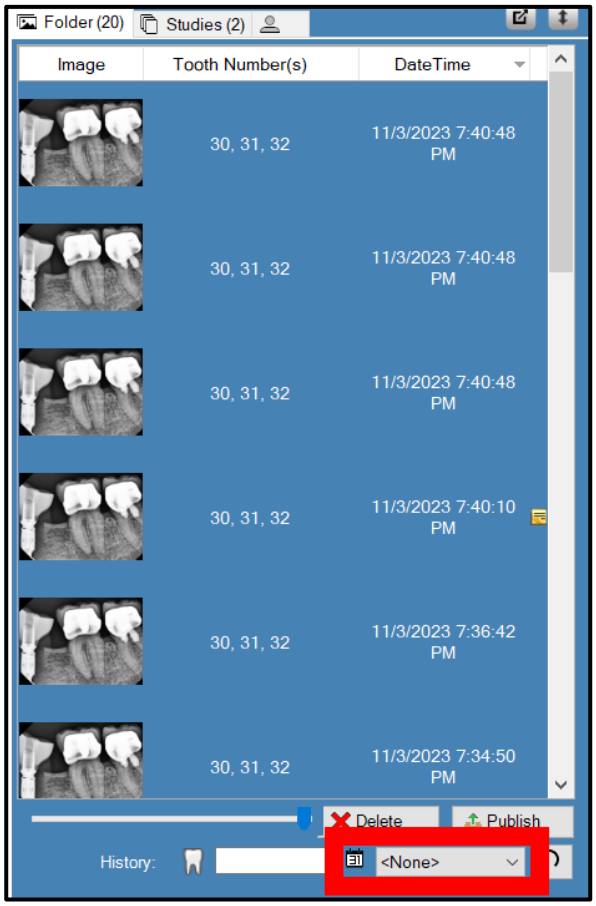
1. Display the image to be copied on the **Work Surface**.
2. From the **Main Menu Bar**, select **Image > Clone**.
3. The copy of the image appears on the **Work Surface** and in the **Patient Panel Folder tab**.

Filtering the Image List

Filtering Images by Date

1. Open the patient record with image(s) it is desired to view.

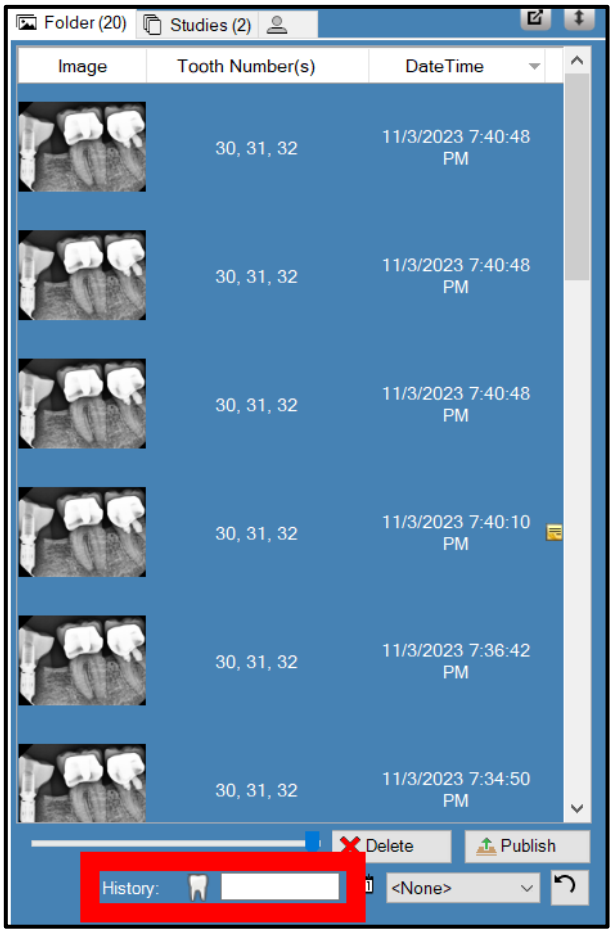
2. Select the desired date from the drop-down to filter the list by acquisition date.



Filtering Images by History of Tooth Number

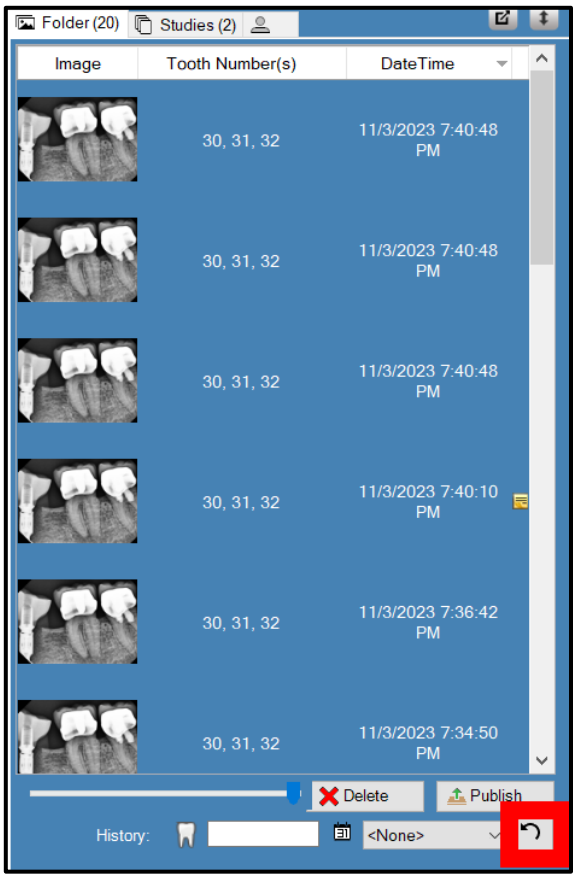
1. Open the patient record with image(s) it is desired to view.

2. Input the desired tooth number to filter the list.



Resetting the Filter(s)

1. Click the **Reset button** ( ) to clear both the acquisition date and tooth history filter.



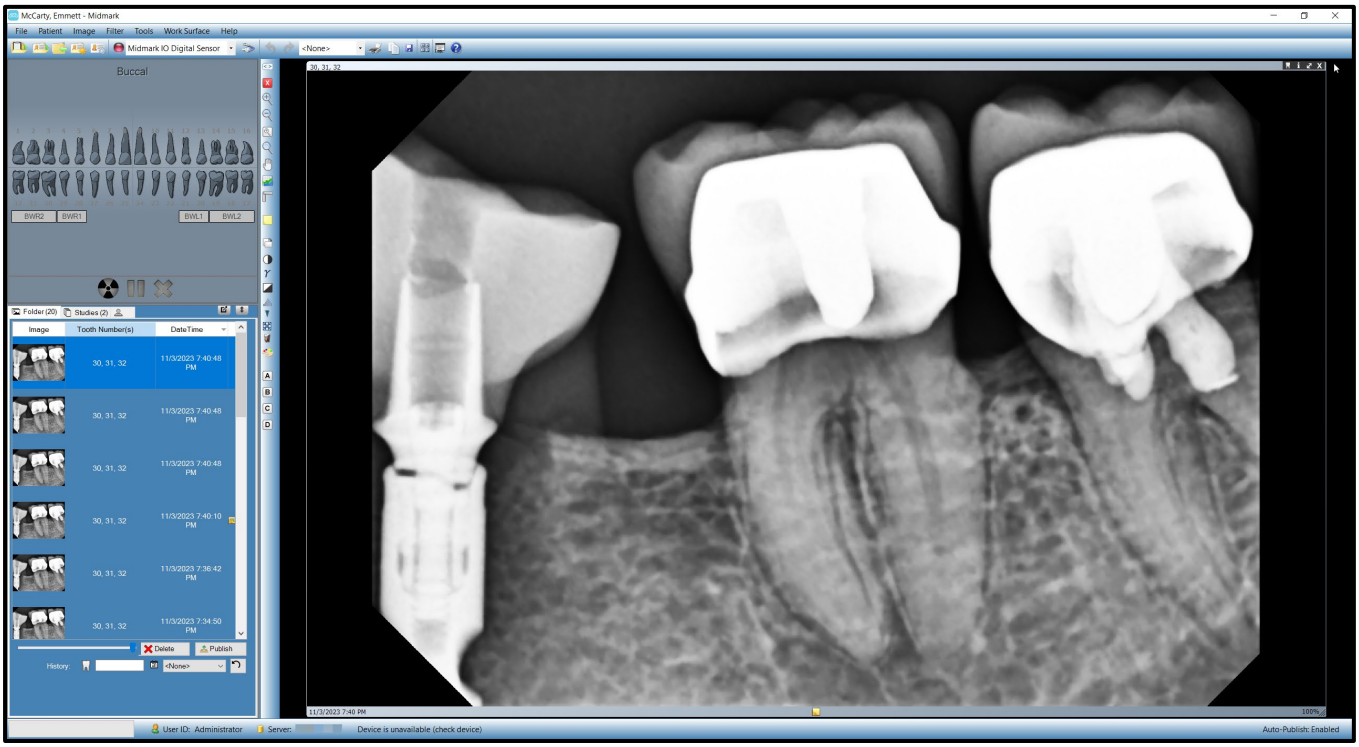
Arranging Images on the Work Surface

Midmark Imaging allows for several ways to arrange images on the **Work Surface**. For example, an image can be maximized to fill the **Work Surface**, and multiple images can be arranged in rows referred to as “tiling.” It is also possible to hide image borders. (Note: these features are not available in Slideshow View.)

Displaying a Full-Screen Image

1. Display the image of interest on the **Work Surface**.
2. Click on the image to select it.
3. Display the full-screen image using any of the following methods:
   - From the **Main Menu Bar**, select **Image > Full Screen**.
   - On the keyboard, press **Alt + F**.
   - Click on the double-ended arrow icon in the upper-right corner of the image ( ).
   - Double-click on the image (this method may not work if the **Annotate & Estimate toolbar** is open).

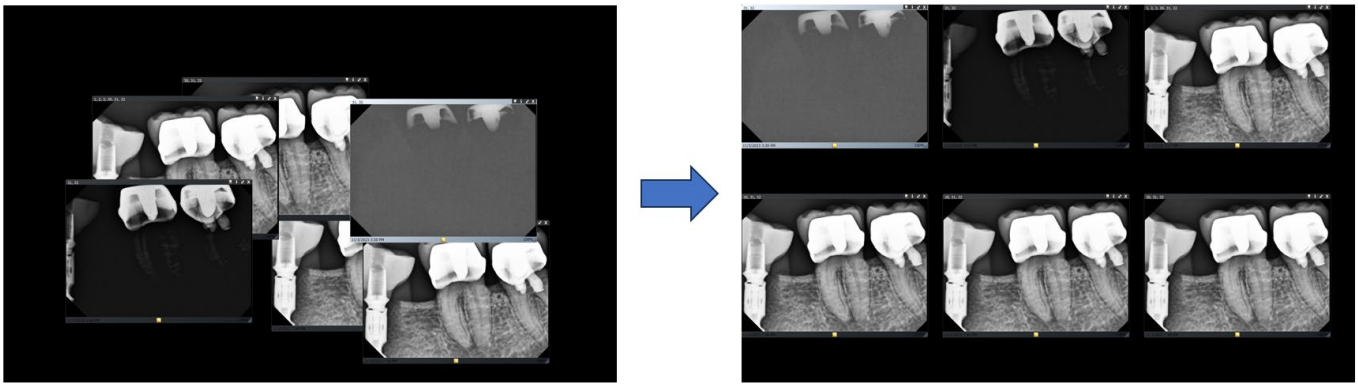
4. The image will fill the **Work Surface**.



5. To return the image to its default display size, repeat any of the methods listed above.

Tiling Images on the Work Surface

1. Display multiple images on the **Work Surface.**
2. Either select **Work Surface > Tile** from the **Main Menu Bar** or press **Alt + T** on the keyboard. Images will be arranged in rows.



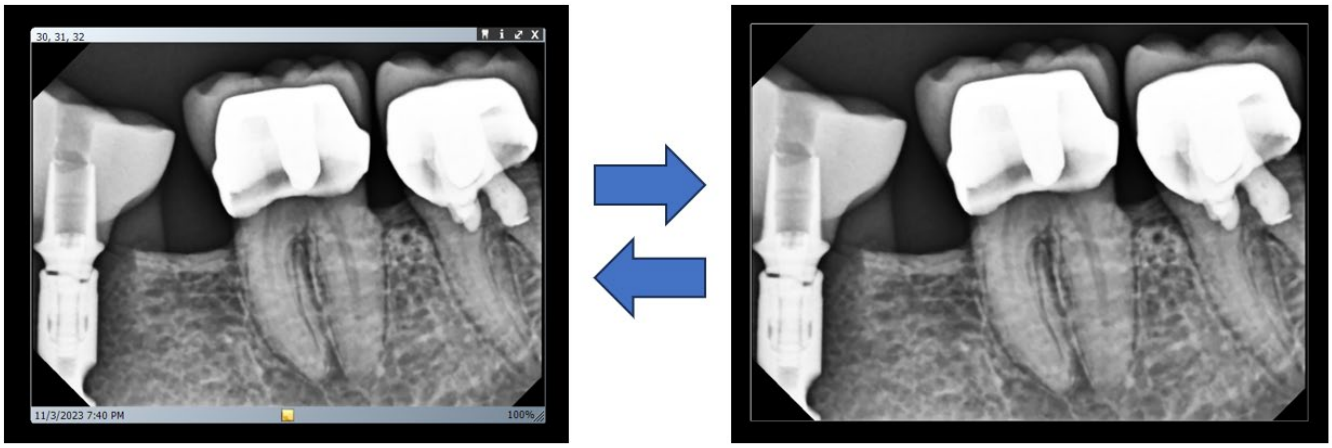
Hiding Image Borders

Images displayed on the **Work Surface** have borders at the top and bottom of the image. Hiding the borders slightly enlarges the image.

To toggle between showing or hiding the borders on a single image, click on the image to select it and then use either of the following methods:

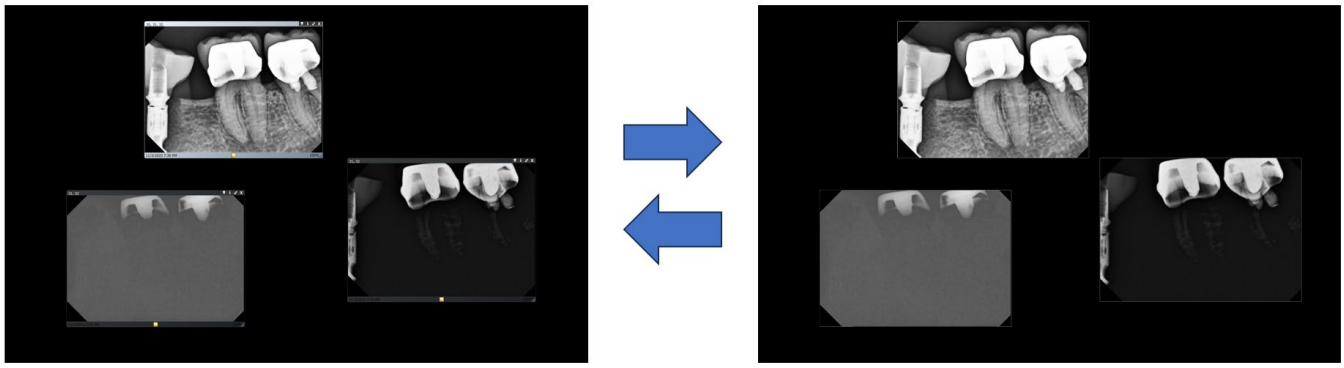
- From the **Main Menu Bar**, select **Image > Expanded View**.

- On the keyboard, press **Alt + E**.



To toggle between showing or hiding the borders on all images currently displayed on the **Work Surface**, use either of the following methods:

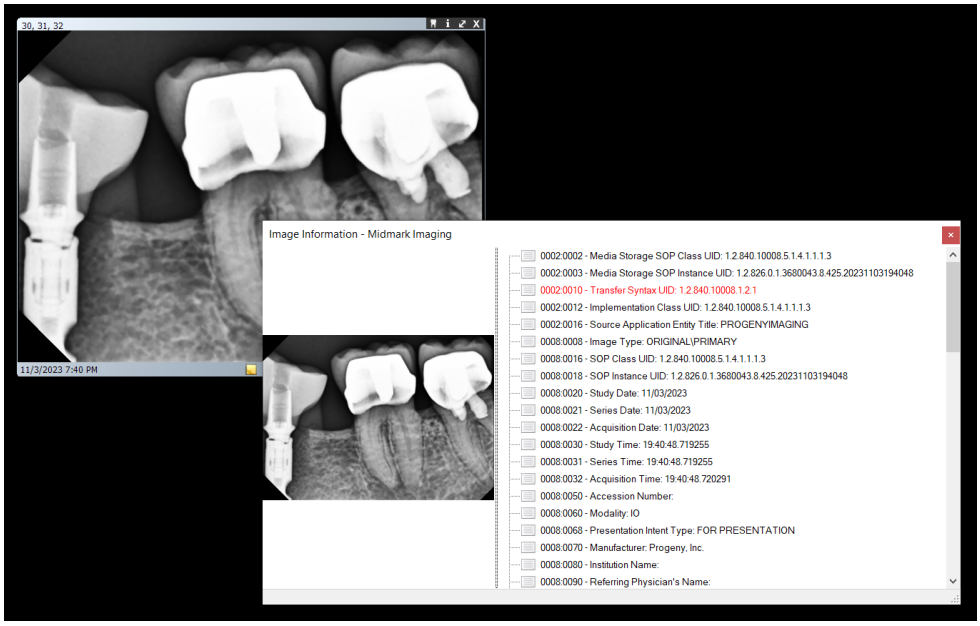
- From the **Main Menu Bar**, select **Work Surface > Expanded View**.
- On the keyboard, press **Ctrl + Alt + E**.



Displaying an Image's DICOM Information

X-ray images acquired with Midmark Imaging are stored in DICOM format. Users can view an image's DICOM information by following these steps.

1. Display an image on the **Work Surface**.
2. Click on the image to select it.
3. With the image selected, either of the following actions will open a box with the image information:
    - From the **Main Menu Bar**, select **Image > Show Image Information**.
    - Click the small **i** icon in the top border of the image (ℹ).



4. When finished viewing the image information, close the image information box by clicking the small “x” in the upper-right corner of the box ( ).

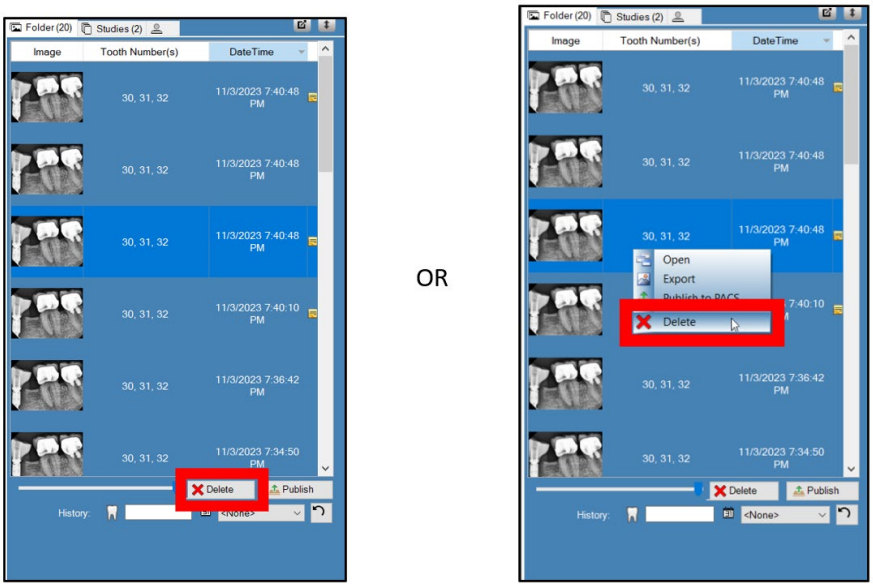
Deleting Images

Images can be deleted from the **Patient Panel**. An image does not have to be displayed on the **Work Surface** in order to delete it. Deleting images permanently removes the image.

> **⚠CAUTION** Do not delete images if jurisdictional regulations require that all X-ray exposures be retained.

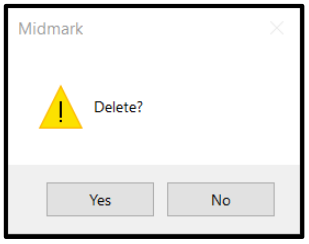
Follow the steps below to delete an image.

1. Select the image either on the **Work Surface** or in the **Patient Panel Folder tab**.
2. In the **Patient Panel Folder tab**, either click the **Delete button** at the bottom of the panel (Delete), or right-click within the **Patient Panel** and select **Delete** from the resulting context menu.



> **NOTICE** If deleting by way of the context menu, note that the image deleted will be whichever one is currently selected (as indicated by the brighter blue highlighting), not the image that is right-clicked, if the two are different.

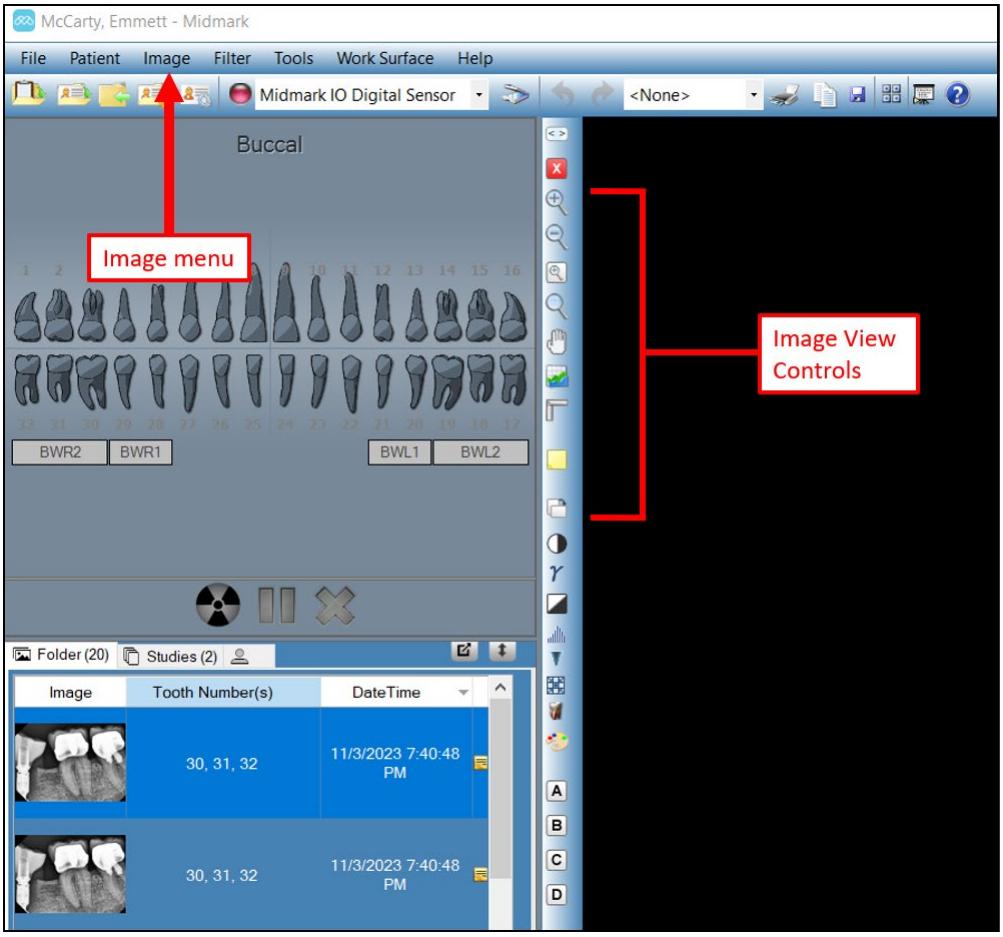
3. A window appears confirming the intent to delete the image. Click **Yes** if it is desired to delete.



Controlling the Image View

Once an image is displayed on the **Work Surface**, the view of the image can be controlled using the **image view controls** on the **Filter toolbar** or the **Image menu** in the **Main Menu Bar**.

The **image view controls** are located on the **Filter toolbar** and in the **Image menu** as shown below. Hovering the cursor over an icon on the **Filter toolbar** will bring up a tooltip explaining what it does.



Overview of Image View Controls

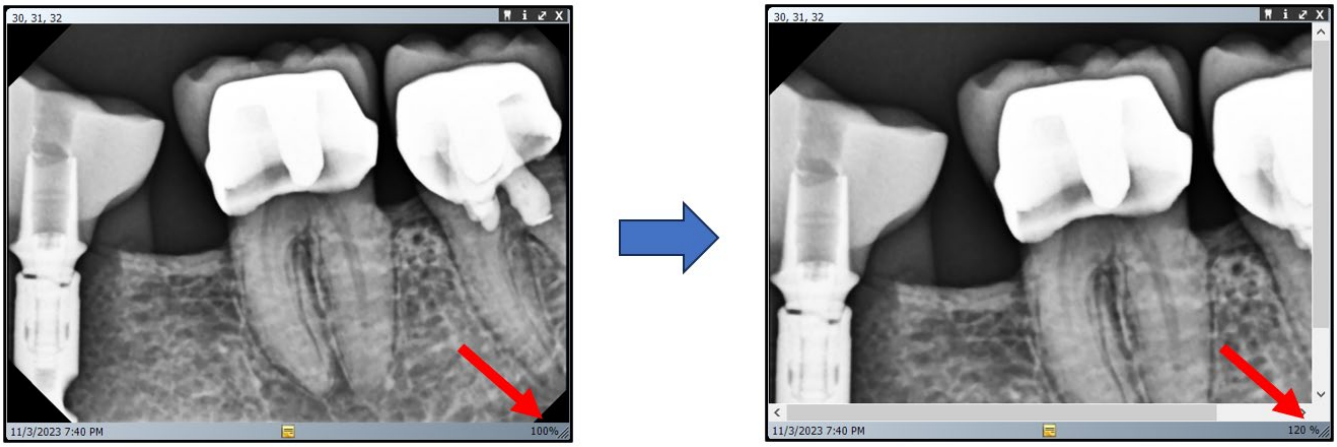
Image view controls on the **Filter toolbar** are shown below. These controls, as well as the ones in the **Image menu**, are explained in further detail in the subsections following the table.

Item	Icon	Description
Zoom In		Enlarges the view of the image.
Zoom Out		Reduces the view of the image.
Zoom To		Enlarges a user-selected area of the image.
Magnifying Glass		Displays a virtual magnifying glass. Set the level of magnification for the Magnifying Glass tool by selecting **Tools > Options**, then clicking the **General** tab.

Item	Icon	Description
Pan		On an image that is zoomed in, moves the image so that different parts can be viewed.
UnZoom All		Restores the selected enlarged or reduced image to its original view.
Rotate 90°		Changes the orientation of an image 90 ° in the clockwise direction.

To Zoom In

1. Display an image on the **Work Surface** or click on an image already on the **Work Surface** to select it.
2. On the **Filter Toolbar**, click the **Zoom In** icon ( ). (Alternatively, hover the cursor over the image and scroll the mouse wheel up.)
3. Midmark Imaging enlarges the image. The zoom percentage appears in the information area at the bottom of the image.

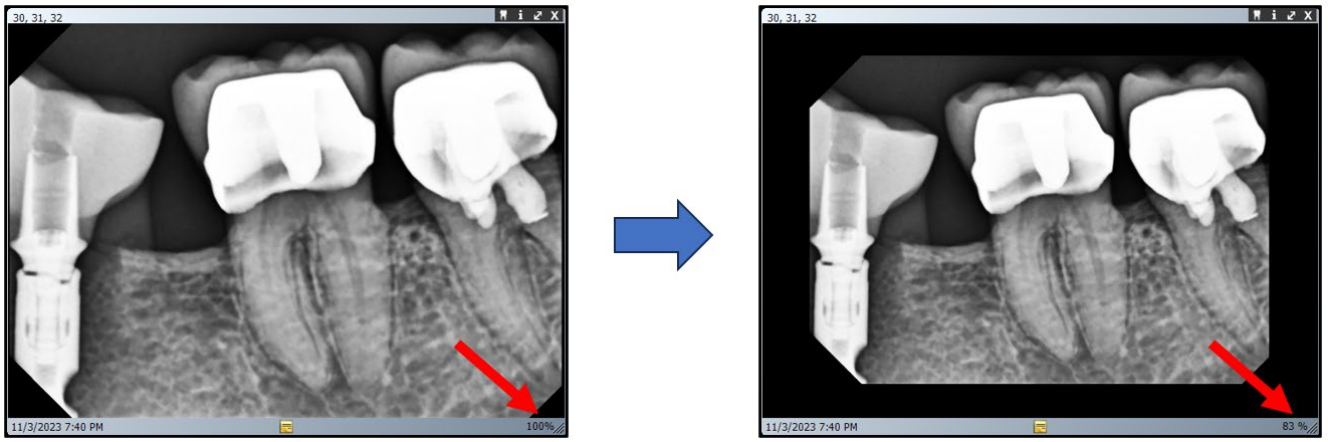


4. Click again on the **Zoom In** icon to continue enlarging it.
5. To again view the image at 100%, click the **Zoom Out** ( ) or **UnZoom All** ( ) icon.

To Zoom Out

1. Display an image on the **Work Surface** or click on an image already on the **Work Surface** to select it.
2. On the **Filter Toolbar**, click the **Zoom Out** icon ( ). (Alternatively, hover the cursor over the image and scroll the mouse wheel down.)

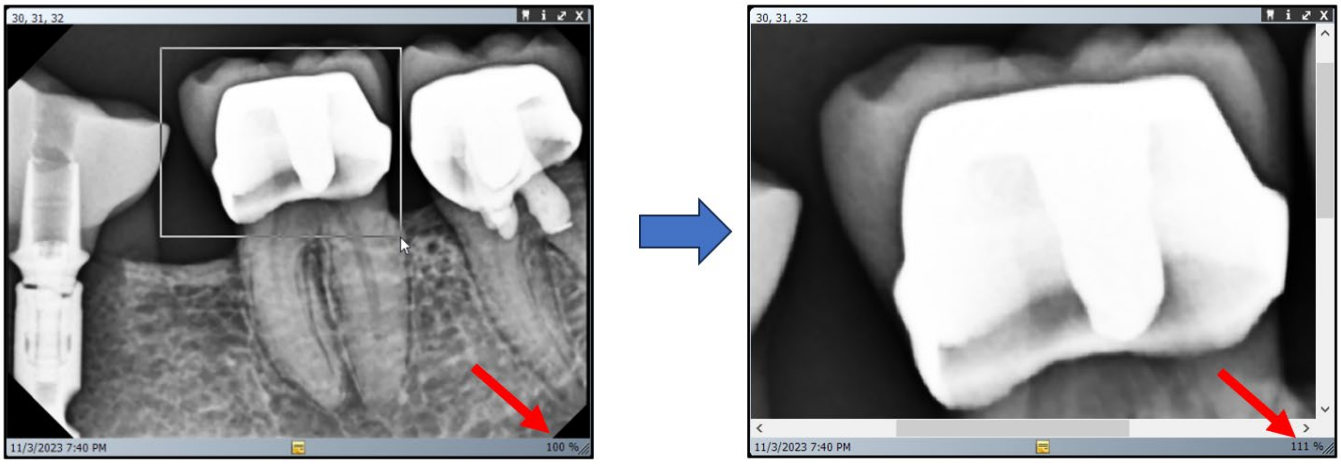
3. Midmark Imaging reduces the image. The zoom percentage appears in the information area at the bottom of the image.



4. Click again on the **Zoom Out** icon to continue reducing it.
5. To again view the image at 100%, click the **Zoom In** ( ) or **UnZoom All** ( ) icon.

To Enlarge a Specific Area of an Image

1. Display an image on the **Work Surface**, or click on an image already on the **Work Surface** to select it.
2. On the **Filter Toolbar**, click the **Zoom To** icon ( ).
3. On the image, hold the left mouse button down and drag to outline the area of the image to enlarge. When the mouse button is released, Midmark Imaging enlarges and centers the selected area. The zoom percentage appears in the information area at the bottom of the image.

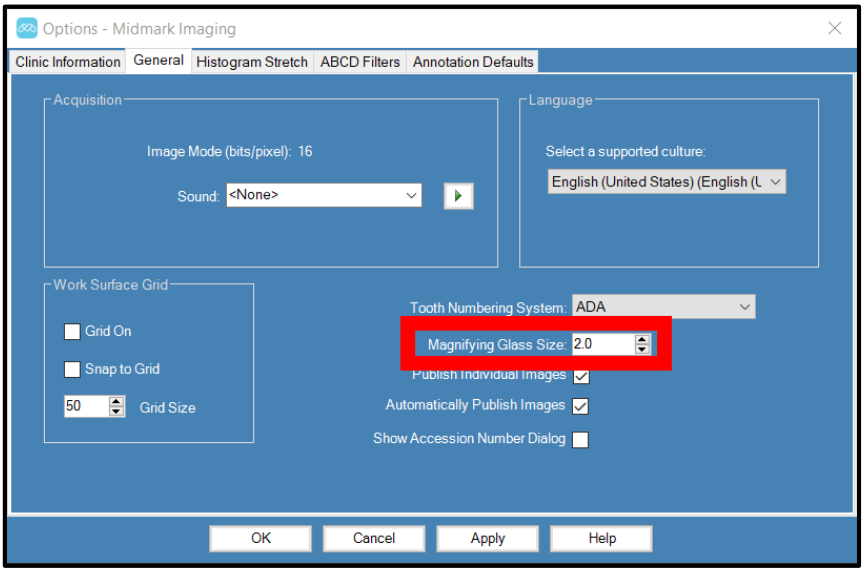


4. To again view the image at 100%, click the **UnZoom All** icon ( ).

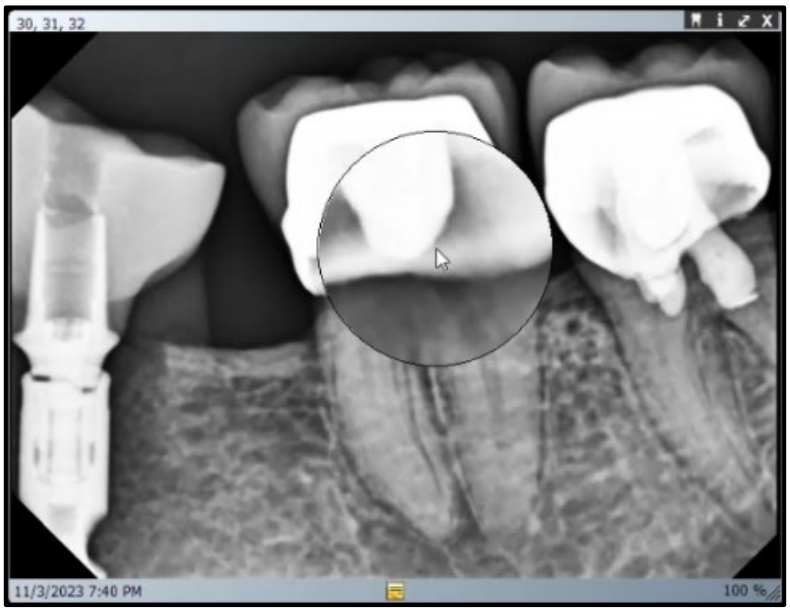
To Magnify an Area of the Image

The Magnifying Glass tool allows any part of the X-ray image to be viewed at a user-defined level of magnification.

1. In the **Main Menu Bar**, select **Tools > Options**. In the resulting **Options** window, click on the **General** tab.
2. Adjust the **Magnifying Glass Size** field to the desired setting. When finished, click **OK**.



3. Display an image on the **Work Surface**.
4. On the **Filter Toolbar**, click the **Magnifying Glass** icon ( ).
5. On the image, hold down the left mouse button and drag the magnifying glass to the areas of the image it is desired to examine.

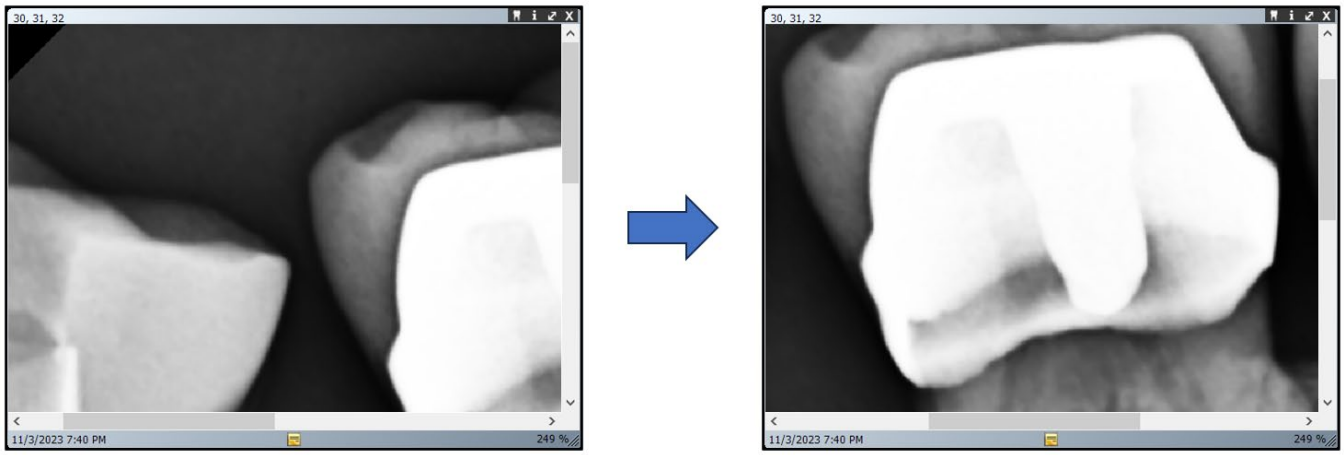


6. When finished using the **Magnifying Glass** tool, release the mouse button and click the **Magnifying Glass** icon again to turn it off.

To Pan the Image View

With an area of an image zoomed in or enlarged, use the Pan tool to view another area of the enlarged image. (Note: Utilizing the scroll bars at the bottom and side of the image accomplishes the same purpose.)

1. Display an image on the **Work Surface** or click on an image already on the **Work Surface** to select it.
2. Zoom in on the image or enlarge a specific area of the image.
3. On the **Filter Toolbar**, click the **Pan** icon ( ).
4. On the image, hold the left mouse button and drag to move the image. (Note how the positions of the scrolling bars at the bottom and side change to show the location of the visible portion of the image relative to the whole image.)



5. Release the mouse button when satisfied with the view of the image.
6. When finished, click the **Pan** icon again to turn the tool off.

To Rotate an Image

Rotating an image changes its orientation on the **Work Surface** in the direction and by the number of degrees specified.

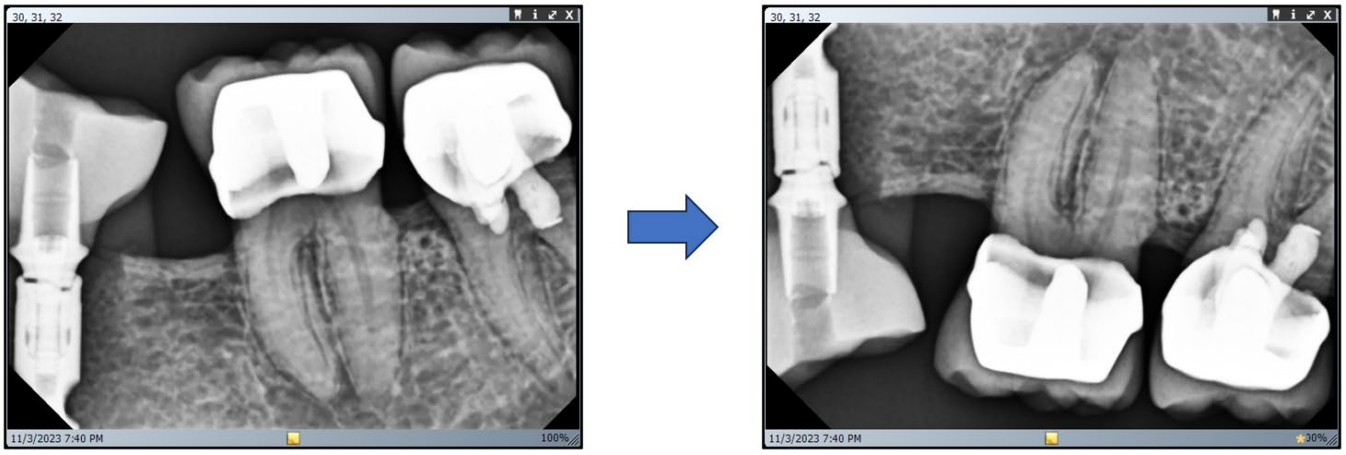
1. Display an image on the **Work Surface**, or click on an image already on the **Work Surface** to select it.
2. Rotate the image using either of the following methods:
   - On the **Filter Toolbar**, click the **Rotate 90°** icon ( ). This option rotates the selected image 90° clockwise with each click.
   - From the **Main Menu Bar**, select **Image > Rotate**. Within that menu are options to rotate to either the right or the left by either 90° or 180°.

To Flip an Image

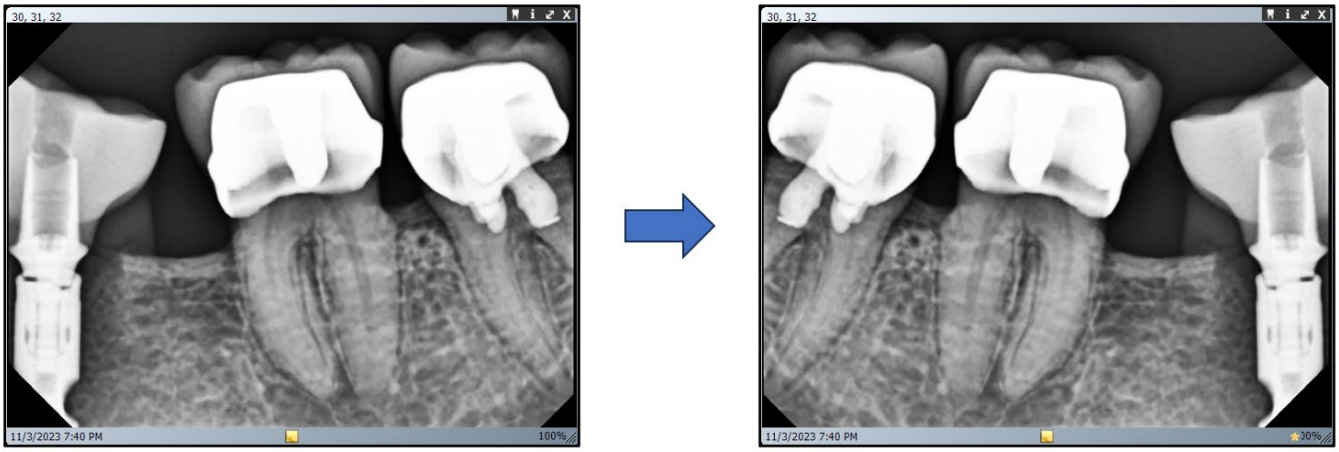
Flipping an image displays its mirror image on the **Work Surface**. An image can be flipped along the vertical or horizontal axis.

1. Display an image on the **Work Surface** or click on an image already on the **Work Surface** to select it.

2. From the **Main Menu Bar**, select **Image > Flip Vertical** to mirror the image along the horizontal axis or **Image > Flip Horizontal** to mirror the image along the vertical axis.
    - Example of a vertical flip



    - Example of a horizontal flip



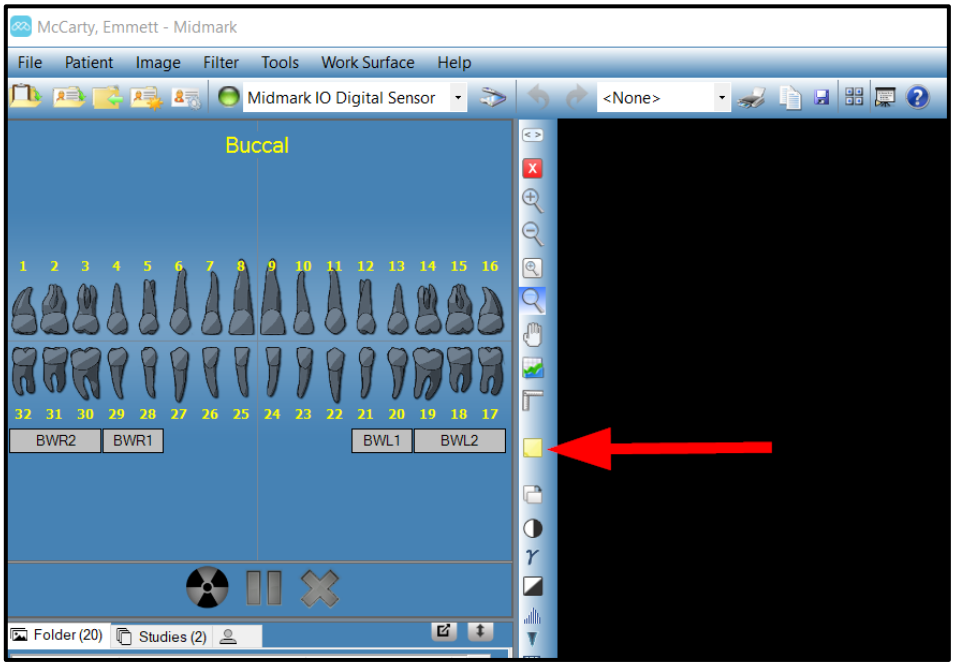
Adding a Note to an Image

All images acquired with Midmark Imaging contain an area for image notes. Notes allow for information to be added or edited. For example, the X-ray exposure parameters or other information related to the acquired image can be included as an image note. When the image is closed, the notes are automatically saved with the image.

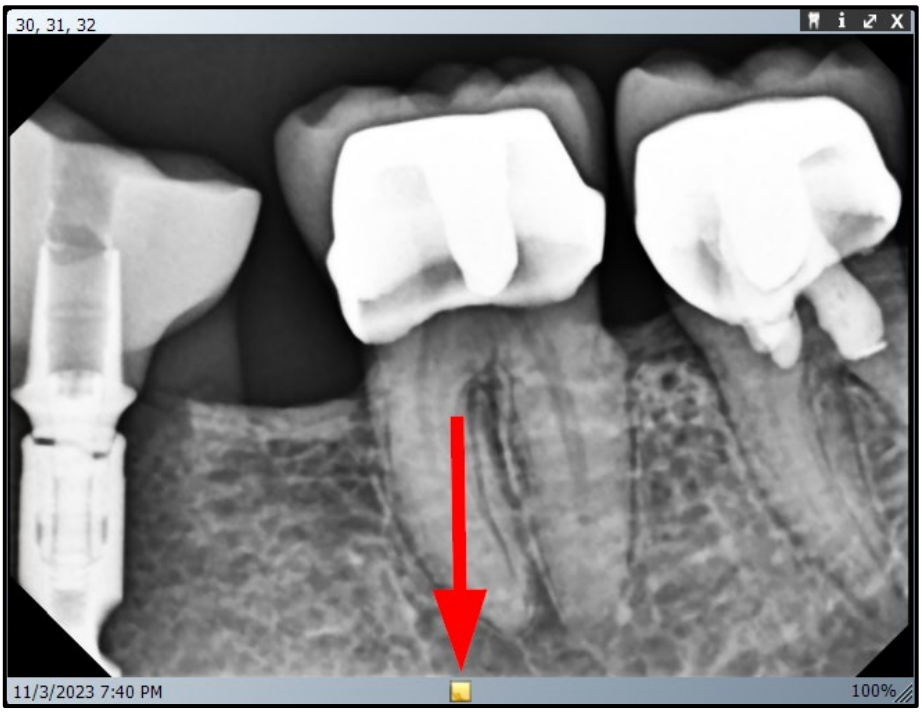
Follow the steps below to add or edit a note.

1. Display an image on the **Work Surface** or click on an image already on the **Work Surface** to select it.
2. Toggle the notes area open and closed by using any of the following methods:

- Click the **Show/Hide Notes** icon ( ) on the **Filter toolbar**.



- From the **Main Menu Bar**, select **Image > Notes**.
- Click the yellow note icon in the bottom border of the image itself (not available in Slideshow View or if the image is displayed in expanded view)



NOTICE

If the image is displayed in Expanded View, the note icon on the image will not be visible. However, the note area can still be displayed by either of the other two methods listed above.

3. In the yellow-colored space that opens open at the bottom of the image, enter text for the note or edit existing text. Below is an example.

4. Close the notes area using any of the methods outlined above. The notes are automatically saved.

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Manipulating Existing Images

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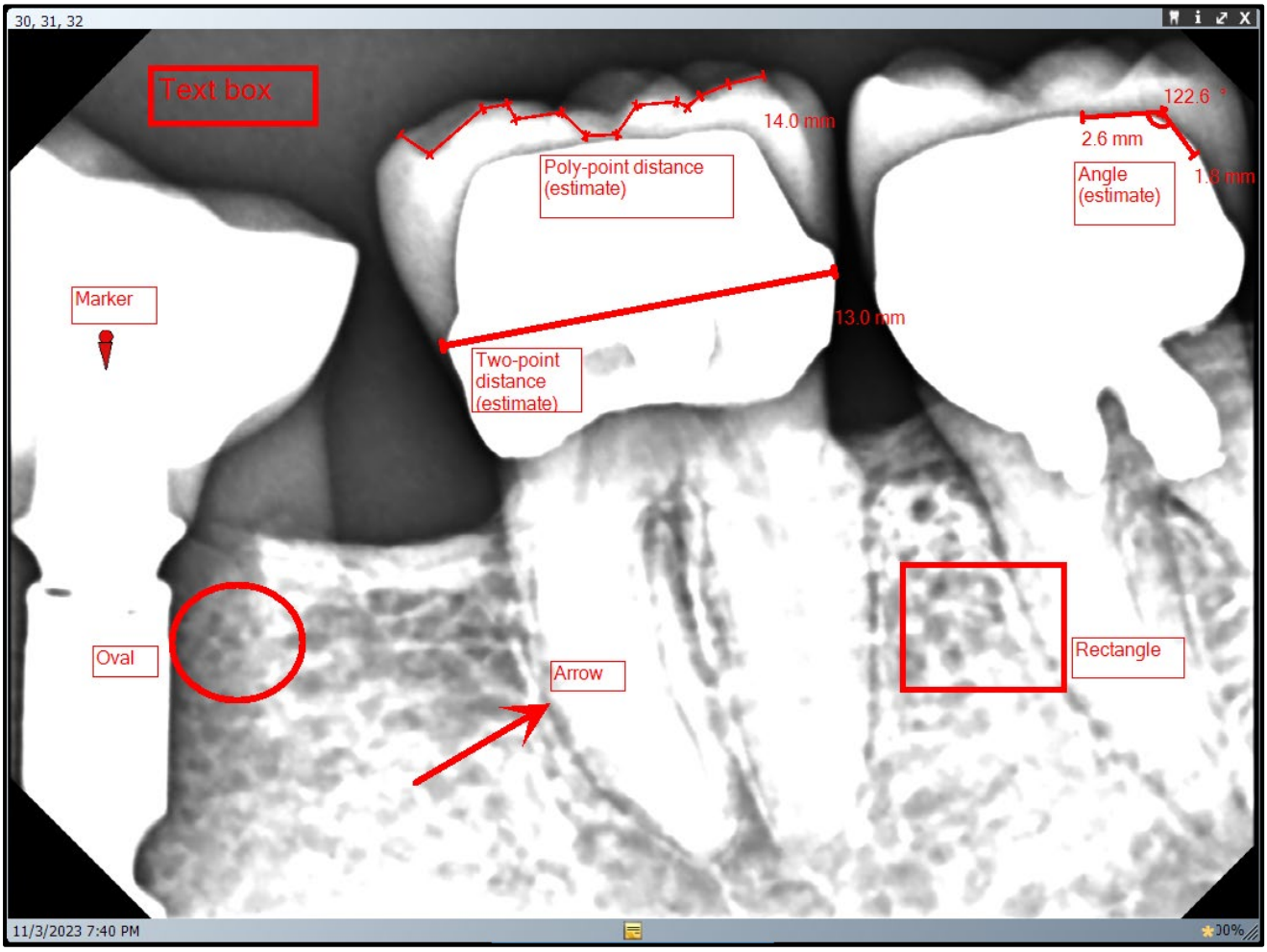
About Image Manipulation

Filtering and annotating images assists in analyzing image information and communicating findings. Midmark Imaging offers a number of filters and annotation tools to manipulate images.

When a filter is added to an image, a star symbol ( ) appears in the bottom right of the image border to make it immediately visible that the image has been manipulated with the user of a filter. Image manipulations can be removed at any time by clicking on the star.

Annotating Images

Annotations are markers, arrows and text that can be added to provide detailed information about the images. The image below illustrates several of the annotations that are available in Midmark Imaging. (Note: In the example below, the size/thickness of many annotations has been increased from their defaults for better visibility.)



When an image is annotated, Midmark Imaging stores the annotations in separate files accompanying the image, leaving the original image intact.

Annotation Tools

Midmark Imaging's annotation tools are located on the **Annotate & Estimate toolbar**, shown below.

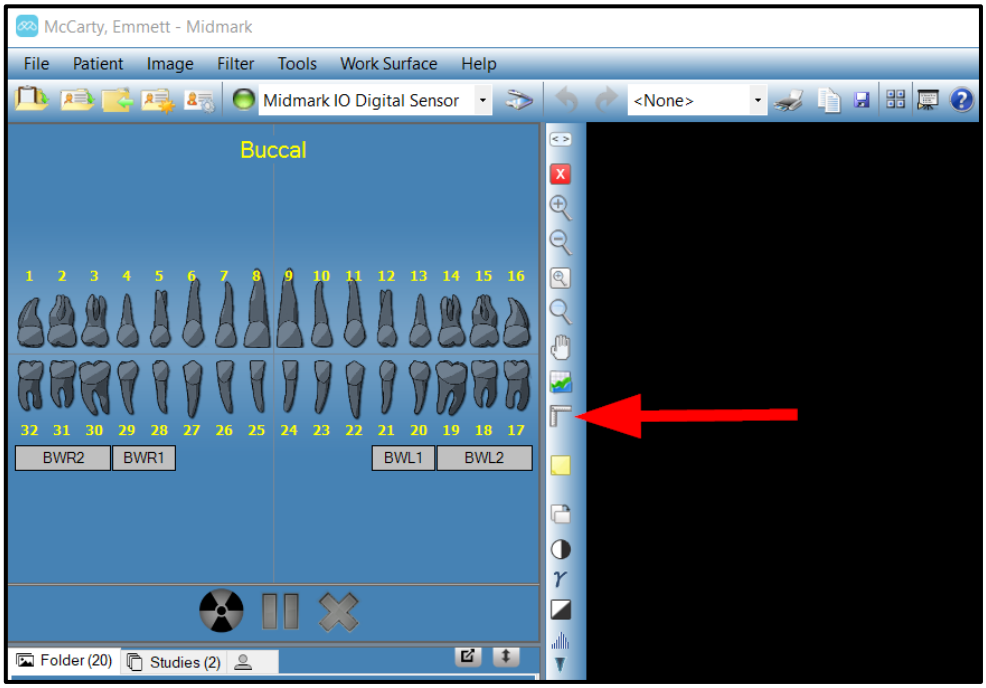
Subsequent sections of this manual will describe how to access and use the tools. The table below provides an overview of the tools.

Tool	Icon	Description
Select		Allows for easy selection of any annotation applied to an image.
Reference line and two-point distance (estimated length)		Allows the user to define a reference length to serve as the calibration for the estimated distance and estimated angle tools. Once a reference line is established, this same tool can also be used to generate an estimate of the distance between two points.
Poly-point distance (estimated length)		Estimates the distance between a series of user-defined points based upon the user-defined reference line. (Note: This tool is grayed out and unusable until the reference line is established.)
Angle (estimated)		Estimates the magnitude of a user-defined angle based upon the user-defined reference line. (Note: This tool is grayed out and unusable until the reference line is established.)
Marker		Marks a point on an image.
Text		Adds an editable text box to an image, allowing the user to make a note on the image.
Arrow		Adds a line with an arrowhead to an image.
Rectangle		Adds a rectangular shape to an image.
Oval		Adds an oval shape to an image.
Exit		Closes the **Annotate & Estimate toolbar**.

To Annotate an Image

1. Display an image or study on the **Work Surface** or click on an image already on the **Work Surface** to select it.
2. Use any of the following methods to open the **Annotate & Estimate toolbar**:

- In the **Filter toolbar**, click the **Annotate & Estimate** icon ( ).

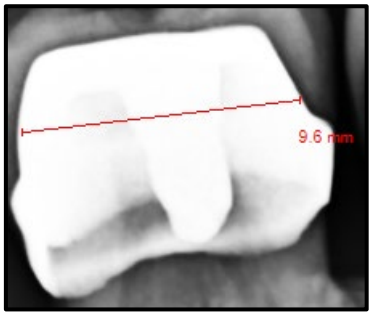


- On the keyboard, press **Alt + A**.
- In the **Main Menu Bar**, select **Image > Annotate**.
- Right-click on the image and select **Annotate** from the resulting context menu.

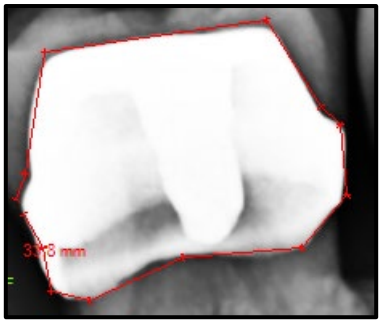
3. Click a tool on the **Annotate & Estimate toolbar** to annotate the image. Whichever tool is currently selected is highlighted in a dark blue rectangle to indicate that it is active. Each tool operates differently.

- **Reference Line and Two-Point Distance (estimated length) ( )**
    - The reference line is drawn against a known quantity, such as an endodontic file. Click on the image to establish the first point of the reference line. Move the mouse to end point of the reference line and double-click to establish the final point of the reference line. By default, the reference line is drawn in bright green and will be tagged with the “REF” designator as well as the estimated distance in millimeters. If it is necessary to adjust the calibrated length, use the Select Tool to double-click on the line, then adjust the value in the **Calibrated Lenth (mm) field** of the **Annotation Properties** window that opens.
    - Once the reference line has been established, a two-point distance can be estimated. Simply click the mouse at the start of the line, hold down the mouse, move the cursor to the end point of the line, and release the

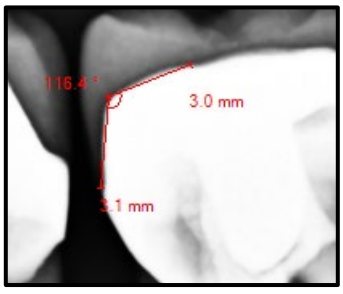
mouse. By default, a red line will appear with the estimated distance in millimeters near the end point.



- **Poly-Point Distance (estimated length) (**  **)** – Simply click the mouse on the points of interest on the image. Midmark Imaging places a marker at each point clicked and draws lines connecting the markers, keeping a previewed total of the estimated distance thus far. Double-click when finished defining the line. Midmark Imaging will place a final marker at that point, and the total estimated distance will appear in millimeters near the final point.



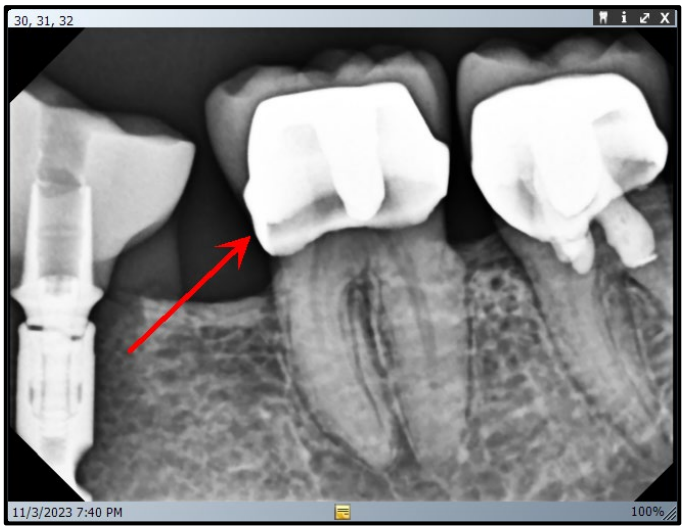
- **Angle (estimated) (**  **)** – Simply click the mouse at three points on the image. The second point clicked will define the vertex of the angle, and the first and third points will connect to the second point to define the arms of the angle. When the three points have been defined, Midmark Imaging will display the estimated magnitude of the angle as well as the estimated lengths of the two arms.



- **Marker (**  **)** – After selecting the **Marker tool**, simply click on the image to place the marker.

- **Text (**  **)** – After selecting the **Text tool**, hold down the left mouse button and draw a text box on the image. Enter text in the text box. Text will be formatted according to settings in the menu **Tools > Options** > **Annotation Defaults tab**.

- **Arrow (**  **)** – After selecting the **Arrow tool**, click on the image where the arrow-head should appear and hold down the left mouse button. Drag the line to the desired length and release the mouse when satisfied.



- **Rectangle (**  **)** – After selecting the **Rectangle tool**, click on the image where the shape should begin. Hold down the left mouse button and drag the shape to the desired size, releasing the mouse when satisfied.

- **Oval (**  **)** – After selecting the **Oval tool**, click on the image where the shape should begin. Hold down the left mouse button and drag the shape to the desired size, releasing the mouse when satisfied.

Modifying Annotations in an Image

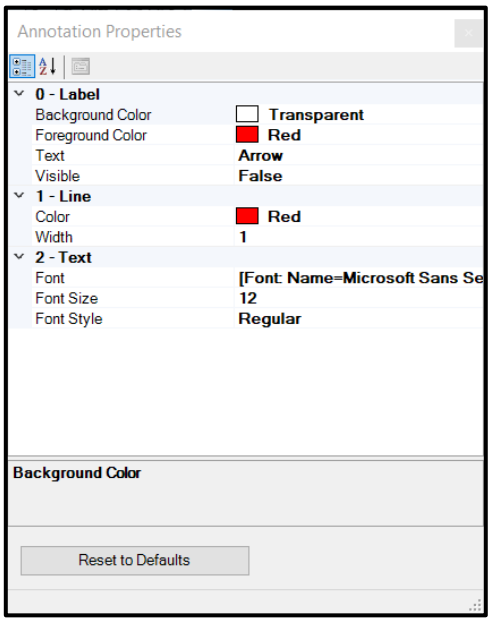
Annotations are created using default settings. These settings include parameters such as the color of the annotation, the line thickness of the annotation, labels visible for the annotation, and font size (if applicable). To change how all new annotations will appear going forward, change the settings available through the menu options **Tools > Options > Annotation Defaults tab**.

To modify the properties of annotations that have already been added to an image, follow the steps below.

1. Display an image containing at least one annotation on the **Work Surface**.
2. Use either of the following methods to open the **Annotation Properties** window for the annotation of interest:

   - In the **Annotate & Estimate toolbar**, click the **Select tool** () if it is not already active. Then, in the image, use the left mouse button to double-click on the annotation to modify.
   - Right-click anywhere on the image; then, from the resulting context menu, select **Annotations**, then select the annotation to modify. (Note: This approach works best if no more than one annotation of any given type is present, as otherwise it can be difficult to distinguish between different annotations of the same type. E.g., all arrows will be listed as “Arrow” within this menu.)

3. In the **Annotation Properties** window, modify properties for the annotation as desired. (Note: The image below is shown as an example only. The properties available for modification may vary depending upon the type of annotation being modified.)



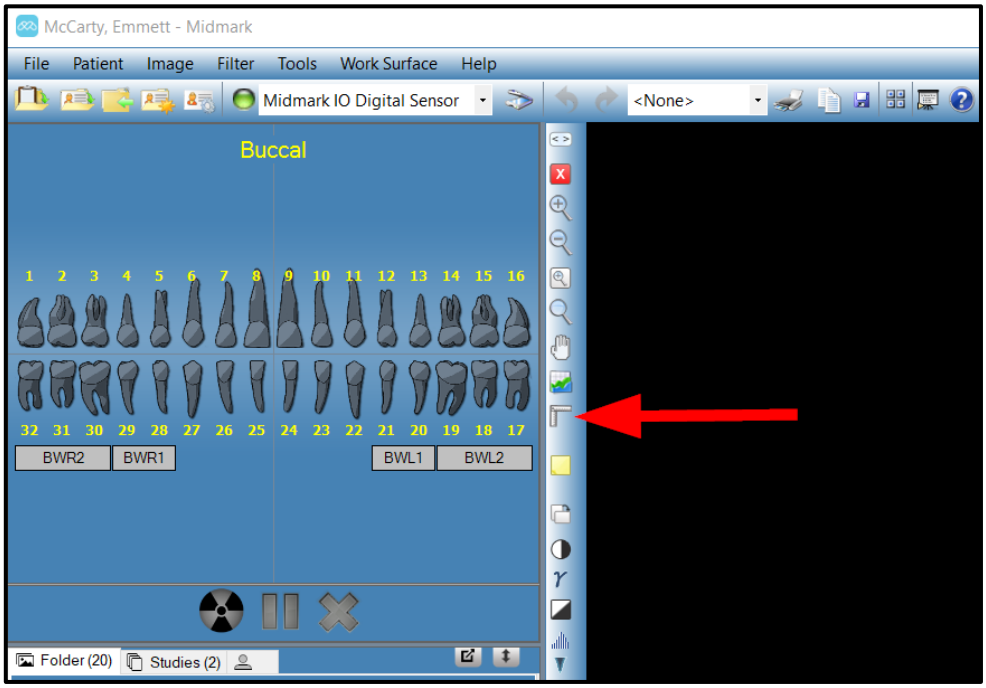
4. Click the small “x” icon () at the top of the **Annotation Properties** window to close out of the window. Any modifications will be automatically applied.

Note: In addition to the modifications available through the **Annotation Properties** window, it is also possible to reposition and re-size most annotations as well as altering their shapes as applicable. To accomplish this, click on an annotation with the **Select tool** to select it, then click and drag one of the defining points to alter the size/shape of the annotation. To reposition it, click and drag the annotation by one of its connecting lines rather than by a defining point.

Removing Annotations from an Image

1. Display an image containing at least one annotation on the **Work Surface**.
2. Use any of the following methods to open the **Annotate & Estimate toolbar**:

- In the **Filter toolbar**, click the **Annotate & Estimate** icon ( ).



- On the keyboard, press **Alt + A**.
- In the **Main Menu Bar**, select **Image > Annotate**.
- Right-click on the image and select **Annotate** from the resulting context menu.

3. In the **Annotate & Estimate toolbar**, click the **Select tool** ( ).
4. In the image, click on the annotation that it is desired to delete.
5. With the annotation selected, press the **Delete** key on the keyboard.

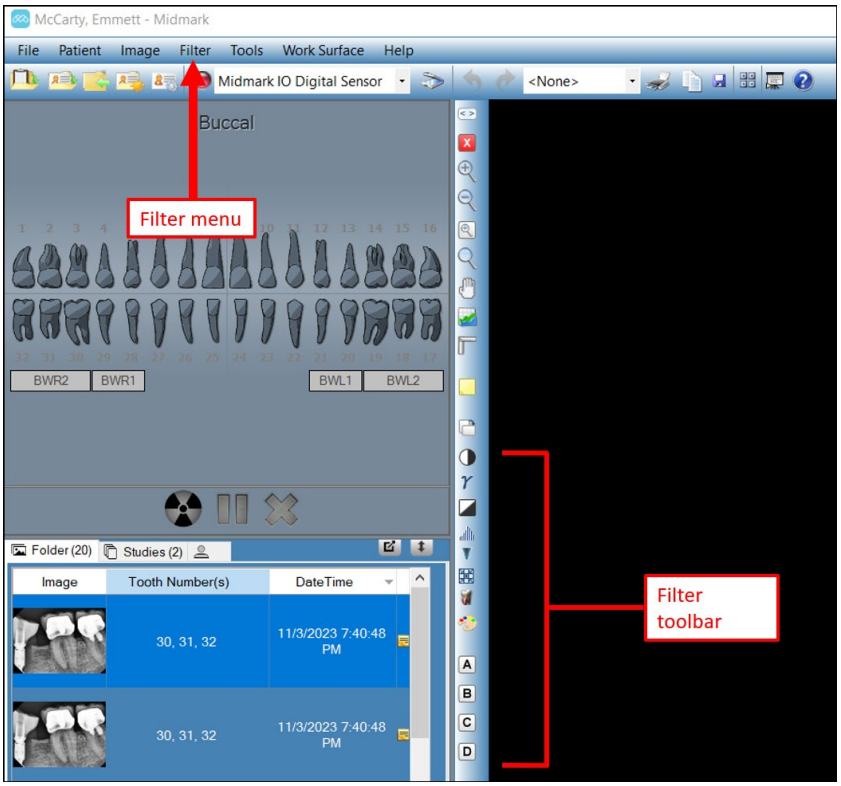
Applying Image Filters

Filters allow for the modification of images in order to improve image quality or highlight information. When using filters, the original image remains intact. A filter can be removed at any time. More than one filter can be simultaneously applied to an image. Images can be cloned and filters applied individually to each cloned copy of the image.

⚠CAUTION	Applying filters alters the view of the original image. For diagnosis of questionable areas (for example, a suspected demineralization), always use the raw image.

Available Filters

Descriptions of Midmark Imaging's filters are shown below. Access the filters on the **Filter toolbar** and the **Filter menu**. An image must be displayed and selected on the **Work Surface** in order for the filter icons to be clickable.



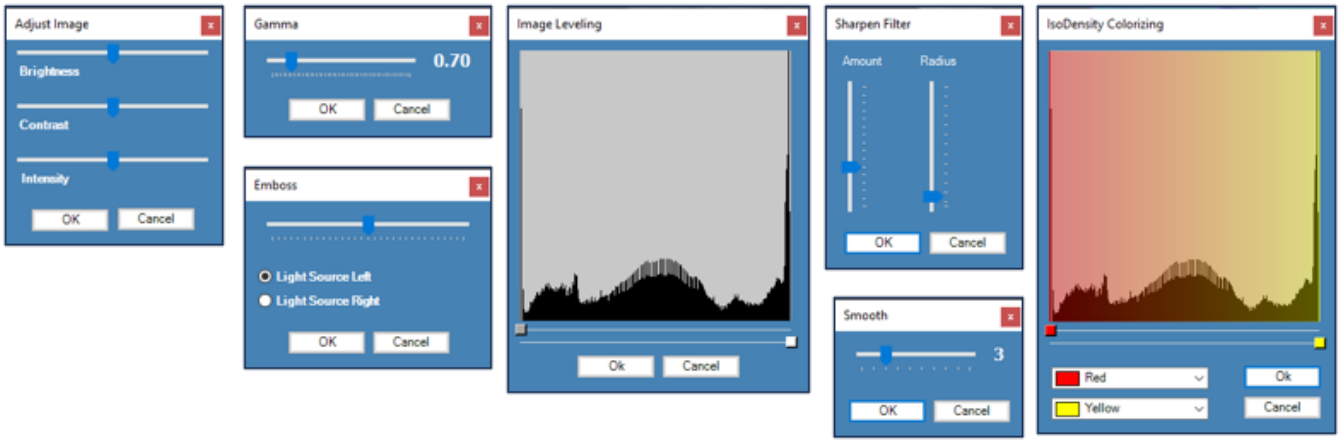
Item	Icon	Description
Adjust Brightness, Contrast, Intensity		Displays a filter with controls to adjust the brightness, contrast or intensity of an image. Use the Adjust Brightness, Contrast and Intensity Filter to improve image quality when the exposure is not optimal for diagnostic purposes. For example, adjusting this filter may be helpful to distinguish hard and soft tissues during endodontic or periodontal evaluations.
Gamma		Displays a filter to make changes to the overall brightness and intensity of an image. Use the Gamma filter to lighten an image that is too dark.
Invert		Reverses the color (white/black), saturation, and brightness values of the pixels in the image. This filter may be useful to diagnose demineralization (cavities).
Image Leveling		Displays the image's histogram with controls that allow for the limiting of the histogram to a useful range. When extraneous information is removed from the image, image quality improves. If this filter is used in conjunction with the Adjust Brightness, Contrast and Intensity Filter, apply this filter first.
Sharpen		The Sharpen Filter enhances the edges of anatomical structures such as dentine boundaries or bones. Clicking the Sharpen icon displays the Sharpen Filter dialog with settings to configure the Sharpen

Item	Icon	Description
		Filter. The Amount slider increases and decreases the strength of the filter. The Radius slider determines the surface area that will be analyzed by the edge detection algorithm. Increasing the values on the Amount and Radius sliders sharpens the image.
Smooth		Displays a filter to soften the anatomical boundaries visible in the image. Removes noise in a granulated image.
Emboss		Displays a filter to create a pseudo three-dimensional image. This filter can be useful in cavity diagnosis. The light source location can be selected to determine the direction of shadows in the image.
IsoDensity Colorization		Uses histogram information to change the saturation and hue. The filter allows for the selection of colors and the portion of the histogram to colorize. The filter is useful for diagnosis in situations where gray scale distinctions are not easily visible.
Custom Filters		Apply user-configurable filters, A, B, C and D. The A, B, C and D filters are configured by selecting **Tools > Options** from the **Main Menu Bar** and clicking the **ABCD Filters tab**.

To Apply Filters

This is the general procedure to apply filters for an existing image.

1. Display an image or study on the **Work Surface**. Click on the image to select it.
2. Select a filter by either clicking on one of the filter icons in the **Filter toolbar** or by choosing from the **Filter menu**. Some filters are applied automatically, but most will display a box with filter controls such as the ones shown below.

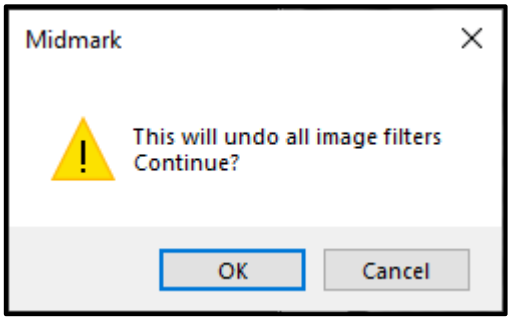


3. If applicable for the filter selected, adjust the filter controls as desired. The filter's effect appears in the image.
4. If satisfied, click **OK** to apply the filter and close the filter controls. The bottom border of the image includes a small star () to indicate that the image has a filter applied. Click **Cancel** to close the filter without applying it.

Removing Filters

To remove the most recent filter from an image, click the **Undo top image latest filter button**. (The **Redo top image previous filter button** will reapply the removed filter.) These buttons are located in the **Application Toolbar** near the top of the screen.

To remove all filters from an image, click the star at the bottom of the image (). Midmark Imaging will open a window to confirm the removal of all filters.



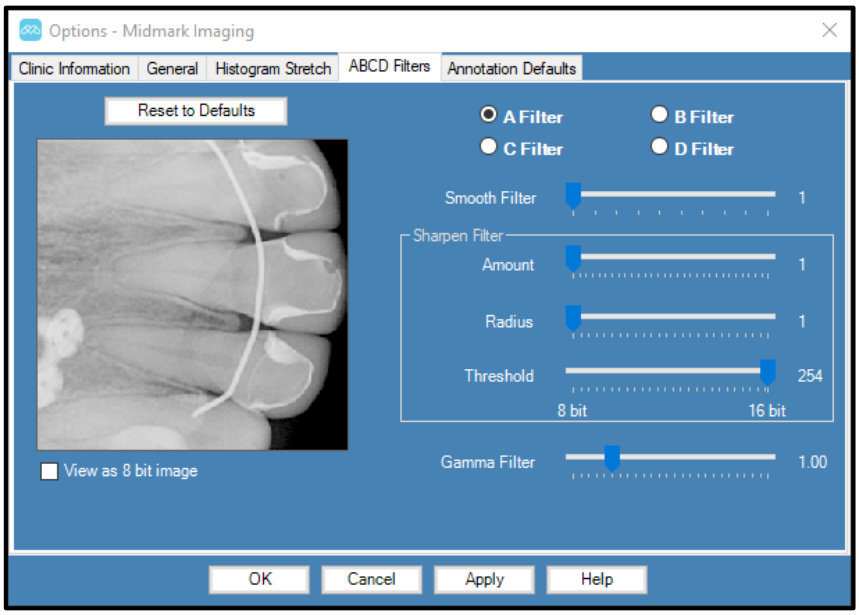
Creating Custom Filters

Custom filters allow for the combination of the Smooth, Sharpen and Gamma filter setting preferences to be reused for a selected application. For example, the A filter setting can be configured with the specific filter preferences for endodontic examinations, and the A filter can then be applied when viewing endodontic images.

To Create a Custom Filter

1. From the **Main Menu Bar**, select **Tools > Options** to open the **Options window**.
2. In the **Options window**, click on the **ABCD Filters tab**.

3. Click the radio button corresponding to the filter to be defined (for example, the A Filter). If the filter was previously set, the sliders will not be in the default position. Click **Reset to Defaults** to return the sliders to the default position.



4. Adjust the Smooth, Sharpen, and Gamma Filter controls to the desired settings. The image thumbnail to the left previews the effects of the filter settings.
5. Click **Apply** to save the custom filter and continue working in the **Options window**. Click **OK** to save the custom filter and close the **Options window**. Click **Reset to Defaults** to cancel and redefine the custom filter.

To Apply a Custom Filter

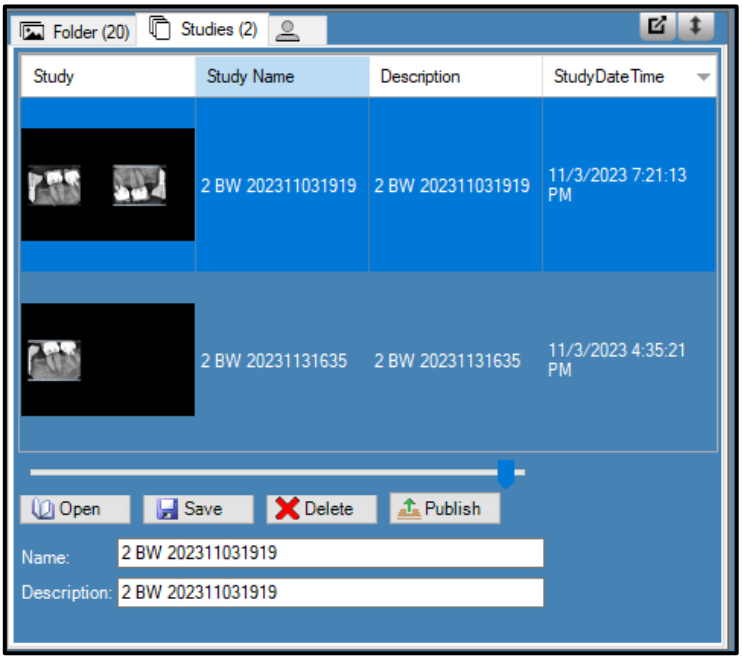
1. Display an image or study on the **Work Surface**. Click on the image to select it.
2. In either the **Filter toolbar** or the **Filter menu**, click on the **A**, **B**, **C** or **D** filter icon.

Creating Image Studies

Studies are collections of images that can be saved and named. Images acquired using a template automatically appear as a study named for the template used and date and time of acquisition. In addition, any image(s) that are displayed on the **Work Surface** can be saved as a study. A study may be created to track the development of a particular pathology over several encounters with the patient.

Patient Panel: Studies Tab

Studies are saved to the **Studies tab** located in the **Patient Panel** in a patient record. The number in the **Studies tab** header is the number of studies in the patient's record. The **Studies tab** shows a thumbnail image of the study and provides the name or number of the study, a description of the study and the date on which the study was created. If not all studies are visible in the **Studies tab**, a scroll bar displays to allow all items to be viewed. The slider at the bottom of the **Studies tab** adjusts the view to more easily find studies.



To Save a Study

1. Open the patient record to create the study. Refer to section *Opening a Patient Record* beginning on page 79 of this manual for details.
2. On the **Work Surface**, display the image or images to be included in the study.
3. (Optional) Use filters and/or annotations to modify the image(s).
4. In the **Patient Panel**, select the **Studies tab**.
5. In the **Studies tab**, enter a name and description for the study in the respective text fields and save the study using any of the following methods:
    - Click the **Save** button in the **Patient Panel**.
    - From the **Main Menu Bar**, select **Work Surface > Save as Study**.
    - On the keyboard, press **Alt + S**.

To Load a Previously Saved Study

1. Open the patient record.
2. In the **Patient Panel**, select the **Studies tab**.
3. Select the study to open by clicking on it. If needed, use the horizontal slider to adjust the view of the **Patient Panel** to help view the study.
4. Click the **Open** button. (Alternatively, double-click on the study in the **Patient** Panel.) The study images will appear on the **Work Surface**. (Note: Only one study can be displayed at a time. Opening a study will automatically close out any other study or image(s) currently being displayed.)

To Remove a Previously Saved Study

1. Open the patient record.
2. In the **Patient Panel**, select the **Studies tab**.
3. Select the study to delete by clicking on it. If needed, use the horizontal slider to adjust the view of the **Patient Panel** to help view the study.

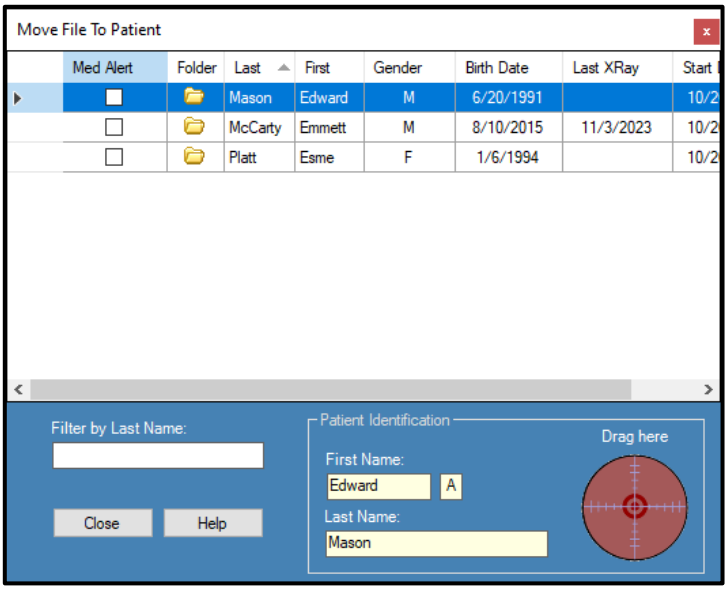
4. Click the **Delete** button.

Moving Images to Another Patient Record

Midmark Imaging stores X-ray images in the patient record that is open during acquisition. However, images can be moved to another patient record. When an image is moved, the image is deleted from the open patient record and added to the selected patient record. Any filters, annotations or notes associated with the image are also moved.

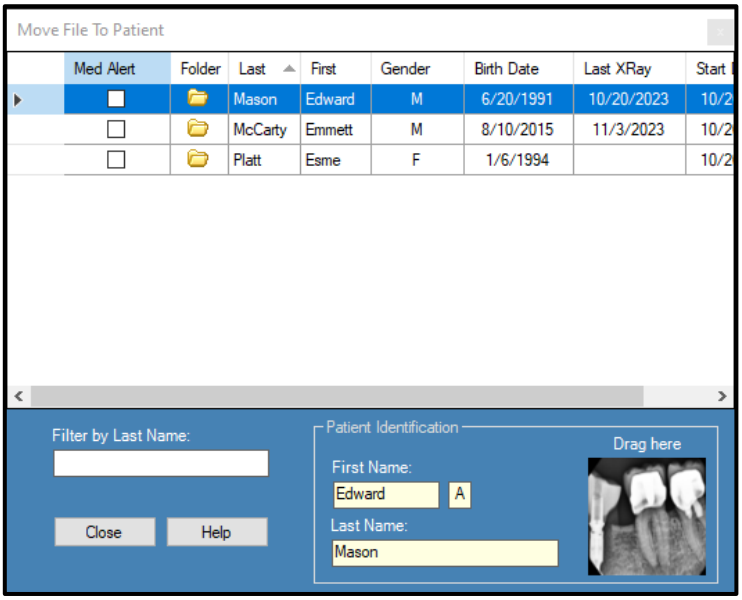
Follow the steps below to move an image.

1. Open the record of the patient that contains the image(s) to be moved.
2. Use any of the following methods to open the **Move File to Patient window**:
   - From the **Main Menu Bar**, select **Image > Move to Patient**.
   - On the keyboard, press **Alt + M**.
   - Right-click on the **Work Surface** and select **Move to Patient** from the resulting context menu. (This option available only if an image is already displayed on the **Work Surface**.)

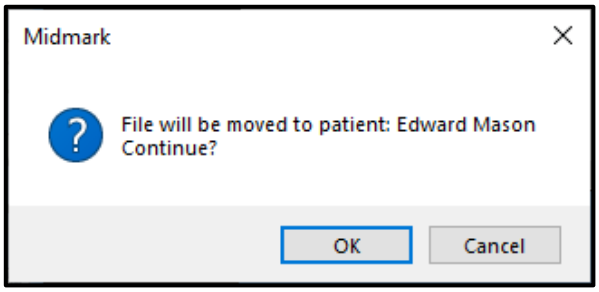


3. In the **Move File to Patient window**, select the patient whose record will contain the image.
4. In the **Patient Panel Folder tab**, select the image to move. Hold down the **Shift** or **Ctrl** keys to select multiple images.

5. Drag the image(s) from the **Patient Panel Folder tab** to the **Drag here** icon in the **Move File to Patient window**. A thumbnail of the image will take the place of the **Drag here** icon.



6. When the image is dropped on **Drag here** icon, Midmark Imaging opens a window to confirm moving the image to the selected patient's record. Click **OK** to proceed with moving the image. If multiple images are moved, Midmark Imaging will open a confirmation window for each image.

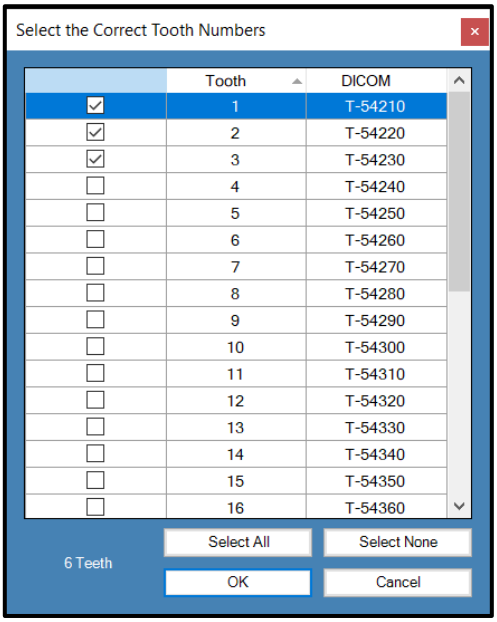


Correcting Tooth Numbering on Images

Midmark Imaging records the number of the tooth or teeth that were selected in the **Tooth Panel** in the DICOM information format associated with each X-ray image. In the event that a tooth or teeth selected in the **Tooth Panel** were not the tooth or teeth that were imaged, the correct tooth number(s) can be assigned to the image's DICOM information by following the below steps.

1. Display the image with the incorrect tooth number(s) on the **Work Surface** or click on an already-displayed image to select it.
2. From the **Main Menu Bar**, select **Image > Correct Tooth Numbers…**. Alternatively, click the tooth icon ( ) in the upper-right corner of the image. The window **Select the Correct Tooth Numbers**, shown below, will display with a check mark beside the tooth number(s)

that was/were selected when the image was acquired. If desired, click the column headings to reverse the order of the teeth.



3. Uncheck the incorrect tooth number(s).
4. Check the correct tooth number(s).
5. Click **OK**. The correct tooth number(s) will appear on the image in the **Patient Panel Folder tab** and in the image's DICOM information.

Emailing, Exporting, Importing and Printing Images

About Communicating Images

Midmark Imaging provides multiple methods of making patient images available outside the application. Image files can be exported, printed, sent to a PACS server and emailed. Midmark Imaging allows for the selection of the image type when exporting the image. Images can be exported in DICOM or JPEG format, as well as other formats such as BMP.

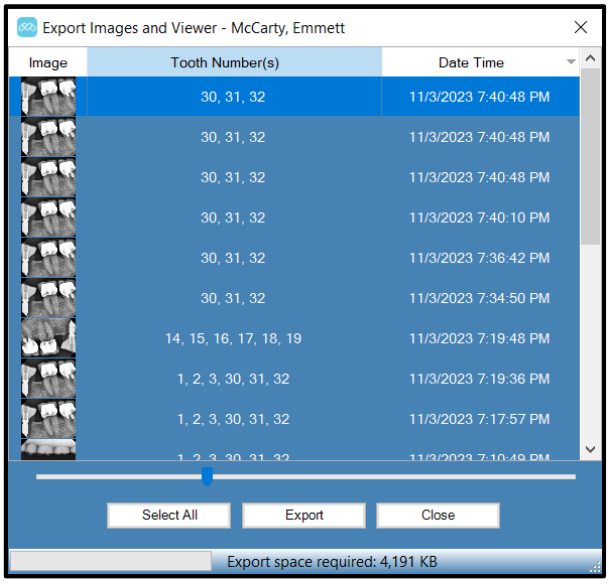
Images can also be imported into Midmark Imaging.

Exporting DICOM Images

Images can be exported in DICOM format from a patient record to a folder on the computer or to an external hard drive or network location. When exporting patient images, Midmark Imaging creates a Midmark Imaging Export folder in a designated location. The folder contains copies of the image files that have been exported. Midmark Imaging names the DICOM image files with the name of the patient and a number indicating the order in which the images were exported. The folder also contains the Image J Viewer, a DICOM-compliant image viewer. Using Image J, the recipient of images from Midmark Imaging can view the DICOM image information.

Follow the steps below to export DICOM images.

1. In Midmark Imaging, open a patient record.
2. From the **Main Menu Bar**, select **Patient > Export Patient Images…**. This will open the **Export Images and Viewer Window**, which shows all the images in the patient's record.



3. In the **Export Images and Viewer Window**, select the images which it is desired to export.
   - The slider at the bottom of the screen adjusts the size of the image thumbnails to more easily view images.
   - To select several images, hold down the **Ctrl** key while selecting the images. To select all images, click **Select All**.
   - When images are selected, the **status bar** shows the amount of space that will be required in the target location for the selected image(s).
4. Click **Export**.

5. In the **Browse for Folder** window, select the location for the exported images.
6. Click **OK**. The **status bar** of the **Export Images and Viewer Window** shows the progress of the export operation and indicates when the export is complete.
7. When the export is complete, click **Close**.

Exporting JPEG Images

All images displayed on the **Work Surface** can be exported in one export operation. When exporting the images, Midmark Imaging copies the images as JPEG files to the location specified on the computer, on a removable media or on the office network. Midmark Imaging names the JPEG image files with the name of the patient and a number indicating the order in which the images were exported.

Follow the steps below to export JPEG images.

1. In Midmark Imaging, open a patient record and display images on the **Work Surface**.
2. From the **Main Menu Bar**, select **Work Surface > Export All…**. The **Browse for Folder** window opens.
3. In the **Browse for Folder** window, select the location to copy the files.
4. Click **OK**.
5. A window opens confirming the desire to create a new folder with the default name. Click **Yes** to proceed.
6. The images will be copied to the location that was specified.

Exporting Other Image Formats

Images can be exported in other image formats, such as BMP, to a location on the computer, on a removable media or on the office network. When exporting an image, Midmark Imaging copies the image to the location specified. With this export option, the file name and the image format can be assigned.

Follow the steps below to export other image formats.

1. In Midmark Imaging, open a patient record and display an image on the **Work Surface**.
2. From the **Main Menu Bar**, select **Image > Export > Other Format…**.
3. The **Save As** window opens. In this window, select the location to copy the image.
4. In the **Save As** window's **File name** field, type the desired name of the image. (A default is suggested, which can either be used or changed.)
5. In the **Save As** window's **Save as type** drop-down list, select the desired image format.
6. Click **Save**. The image will be saved in the specified location and with the specified name.

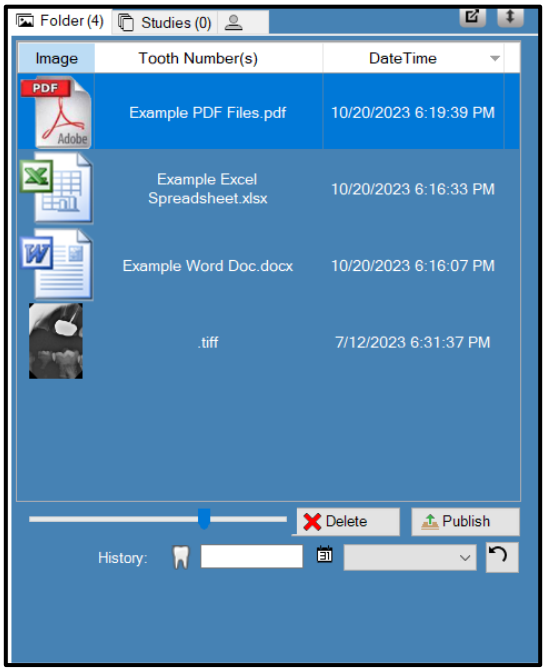
Importing Images

Images of various types (for example, DICOM, JPEG or BMP) can be imported into the **Patient Panel Folder tab** in a patient's record.

NOTICE To add a picture of a patient to the patient's record, select **Patient > Add Patient Photo…** from the **Main Menu Bar**.

Follow the steps below to import images.

1. In Midmark Imaging, open a patient record. Refer to section *Opening a Patient Record* beginning on page 79 of this manual for details.
2. From the **Main Menu Bar**, select **Image > Import…**. This opens a **file selection box**.
3. In the **file selection box**, locate the file to add to the patient's record. Click on the file to select it.
4. Click **Open**.
5. The file is added to the patient's record, and a thumbnail or an icon representing that file type and the name of the file appear in the **Folder tab** of the **Patient Panel**.



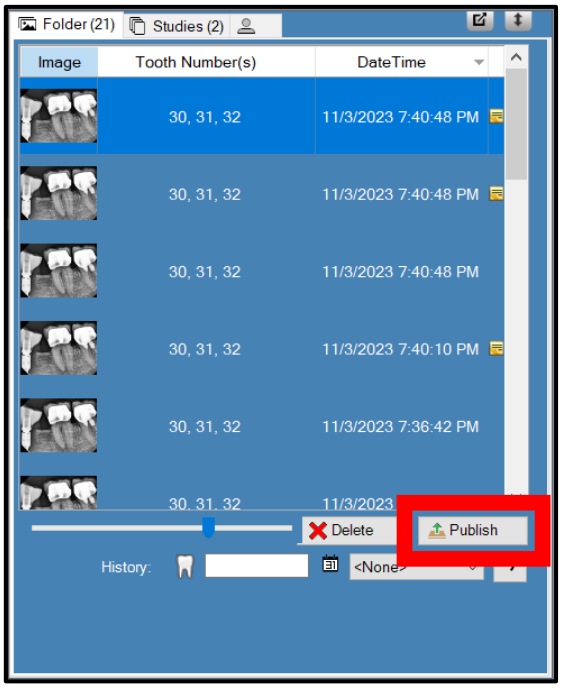
Publishing to a PACS Server

If a Midmark Imaging system is configured to publish to a PACS server, images and studies can be sent to the PACS server directly from the **Patient Panel** in a patient's record. For information about configuring Midmark Imaging with a PACS server, refer to section *Configuring a PACS Server* beginning on page 184 of this manual.

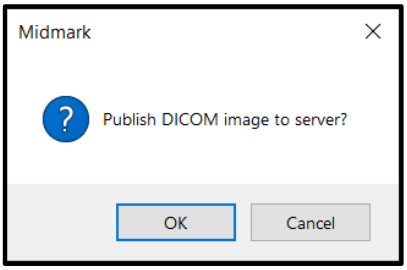
Publishing Images to a PACS Server

1. In Midmark Imaging, open a patient record.
2. In the **Patient Panel Folder tab**, select an image.

3. Click **Publish**.



4. A message appears confirming the desire to publish the image. Click **OK** to proceed.

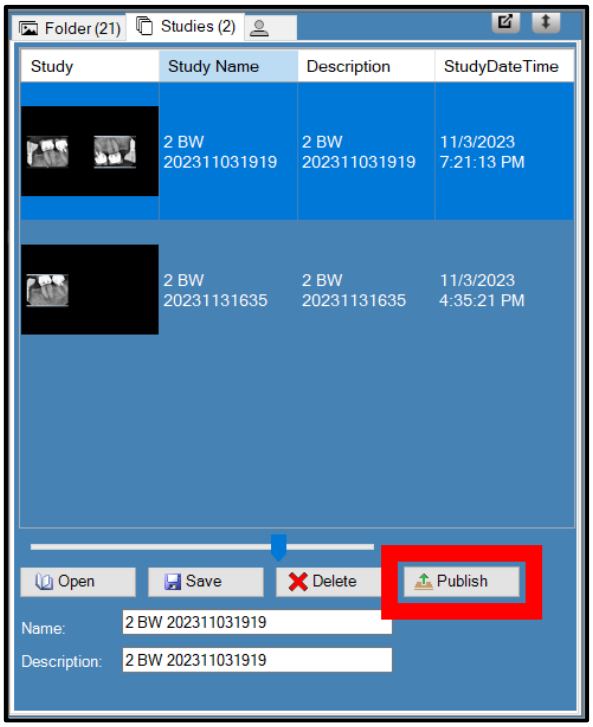


5. Midmark Imaging will upload a copy of the image to the server. The **status bar** will display messages as the publishing progresses.

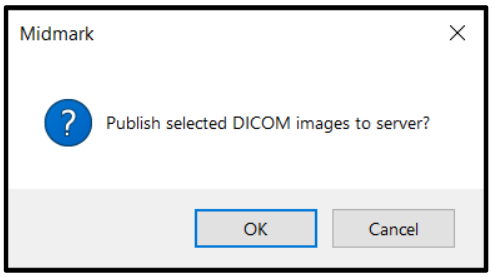
Publishing Studies to a PACS Server

1. In Midmark Imaging, open a patient record.
2. In the **Patient Panel Studies tab**, select a study.

3. Click **Publish**.



4. A message appears confirming the desire to publish the images. Click **OK** to proceed.



5. Midmark Imaging will upload a copy of the study to the server. The **status bar** will display messages as the publishing progresses.

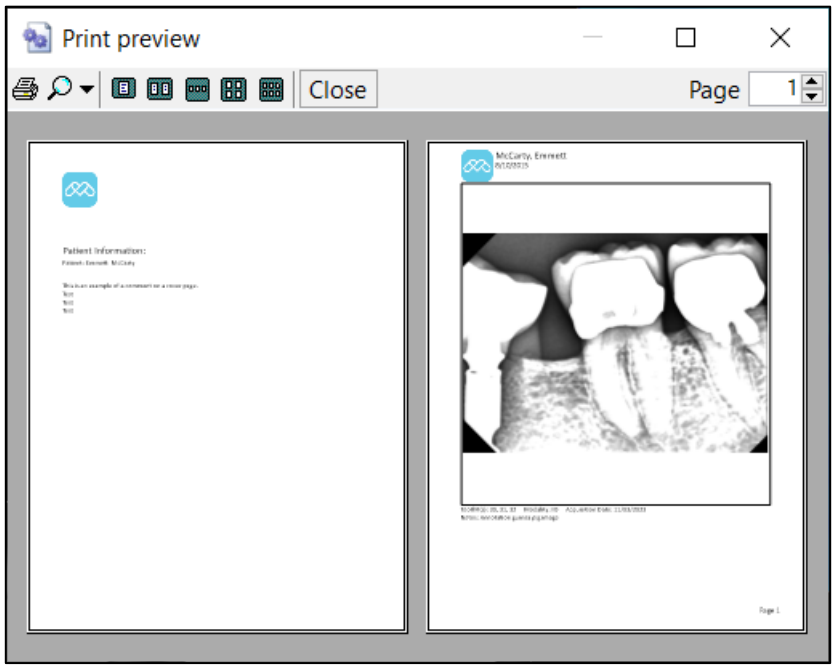
Printing Images

Images displayed in the **Work Surface** can be printed to the computer's default printer using Midmark Imaging's **Print Preview window**. Printed images are labelled with patient, clinic and tooth information. Notes associated with an image can be included below the image.

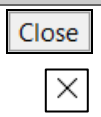
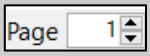
NOTICE	Any panoramic DICOM file will automatically print on a single page (in landscape orientation).

About the Print Preview Window

Use the **Print Preview window** to preview and print an image. The **Print Preview window** also allows a zoom view of the image.



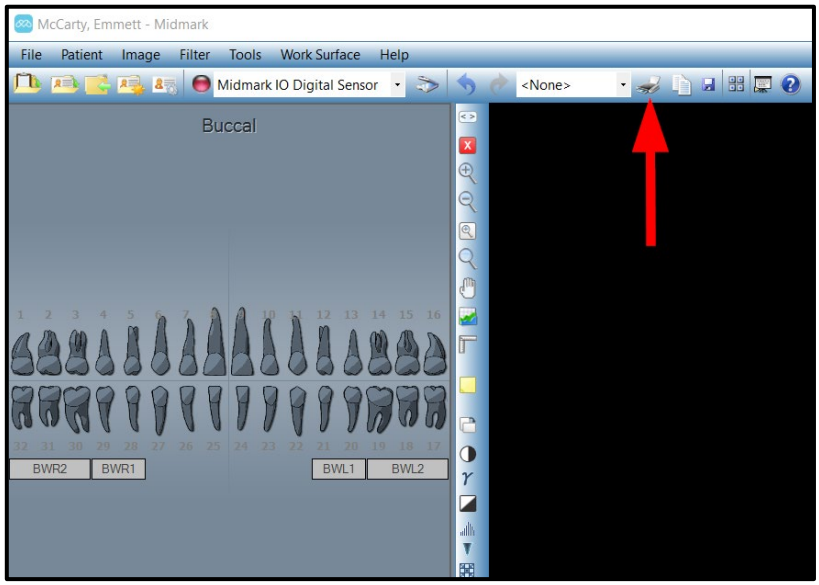
The table below describes the controls in the **Print Preview window**.

Item	Icon	Description
Print		Opens the printer selection window, from which the user can select a printer and send the image(s) to it.
Zoom		Magnifies the image by the percentage the user selects in the drop-down menu.
Page icons		Selects the number of pages to display in the **Print Preview window**.
Maximize		Causes the **Print Preview window** to expand to the full size of the computer screen.
Restore Down		Causes the expanded **Print Preview window** to shrink to a smaller size so that it no longer takes up the full size of the computer screen.
Close	 or	Closes the **Print Preview window** without printing.
Page field		Selects which page(s) to display in the **Print Preview window**.

To Print Image(s)

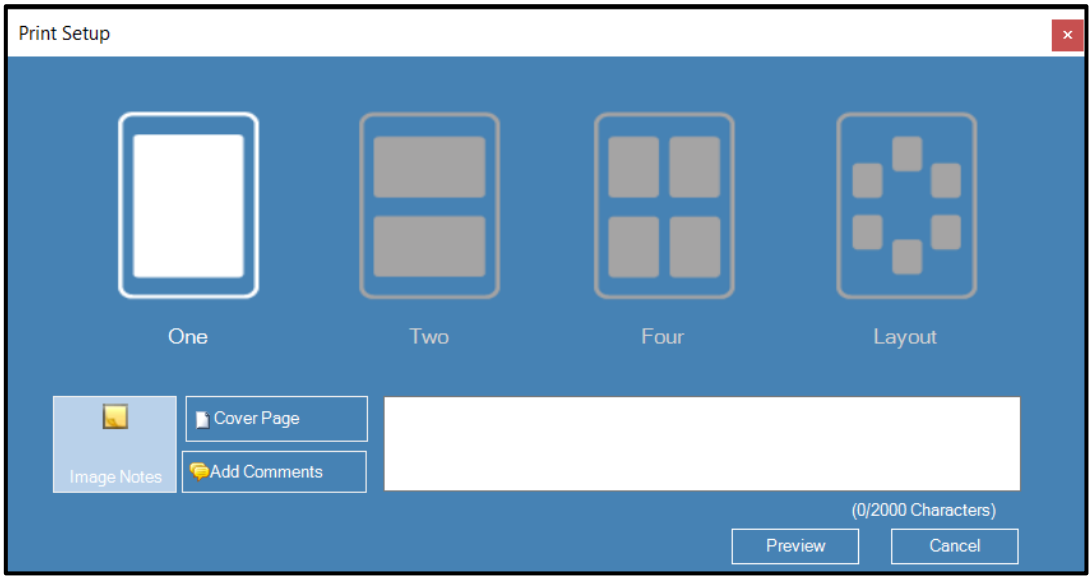
1. In Midmark Imaging, display one or more images on the **Work Surface**.
2. Open the **Print Setup window** using any of the following methods:

- Click the **Print** icon () on the **Image Operations Toolbar**. (This option will print all images currently displayed on the **Work Surface**.)



- From the **Main Menu Bar**, select **Image > Print**. (This option will print only whichever image is currently selected.)
- From the **Main Menu Bar,** select **Work Surface > Print**. (This option will print all images currently displayed on the **Work Surface**.)
- On the keyboard, press **Ctrl + P**. (This option will print only whichever image is currently selected.)

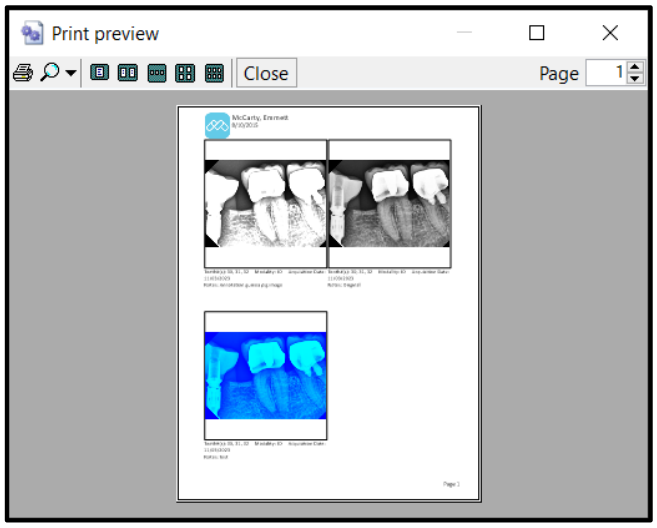
3. On the **Print Setup window**, select the desired settings.



- The top row of icons (**One**, **Two**, **Four** or **Layout**) determines the number and arrangement of images that will be printed on each page. (Note that if the **Print Setup window** was accessed by way of either **Image > Print** or **Ctrl + P**, the only option available will be **One** because only the selected image can be printed.)

- The **Image Notes** button can be selected to include the notes associated with an image below each image or deselected to not show the notes.
- The **Cover Page** button can be selected to include a cover page with patient and other information or deselected in order to not include a cover page.
- The **Add Comments** button can be selected to add additional comments to the cover page if applicable. If it is desired to add comments to the cover page, type the comments in the text box to the right of this button.

4. Click **Preview**. A loading screen will appear explaining that the preview is being generated and indicating the progress out of the total number of pages. When the preview has been fully generated, the loading screen will close automatically.
5. The **Print Preview window** will be displayed. The appearance will depend upon the options selected in the **Print Setup Window**, but an example is shown below for illustrative purposes. It may be helpful to click the **maximize button** in the upper-right corner of the screen so that the preview will be easier to see. Other controls were described in detail in the chart earlier in this section of the manual (such as the **Zoom** button, which can be used to magnify or reduce the preview image).



6. Click on the **Print** icon ( ) to bring up the printer selection window.
7. Select a printer and click the **OK** button to complete the print operation.

Emailing Images

To email images from a patient's record in Midmark Imaging, first export the image in the desired format. The image file can then be attached to any email message.

Midmark Imaging allows for the selection of the image file format when exporting the image. Images can be exported in DICOM or JPEG format, or other file formats such as BMP.

- For more information, see *Exporting DICOM Images* on page 159 of this manual.
- For more information, see *Exporting JPEG Images* on page 160 of this manual.
- For more information, see *Exporting Other Image Formats* on page 160 of this manual.

Backing Up and Restoring Patient Data

About Backing Up and Restoring Patient Data

Midmark Imaging stores patient data on the computer where Midmark Imaging is installed in a Microsoft SQL Server database, or on another computer on the same network. A backup of the database can be performed to safeguard the data. In the event of data loss, the data can be restored. Backup and restore functions are also useful to archive patient records or to move patient records among multiple offices.

The Backup/Restore Wizard is the series of windows that steps through Midmark Imaging's backup and restore functions. Use the Backup/Restore Wizard to choose backup or restore, select the backup media, and start the backup or restore operation. The Backup/Restore Wizard allows the backup to and restore from CD-ROM, DVD, or to a hard drive or network location.

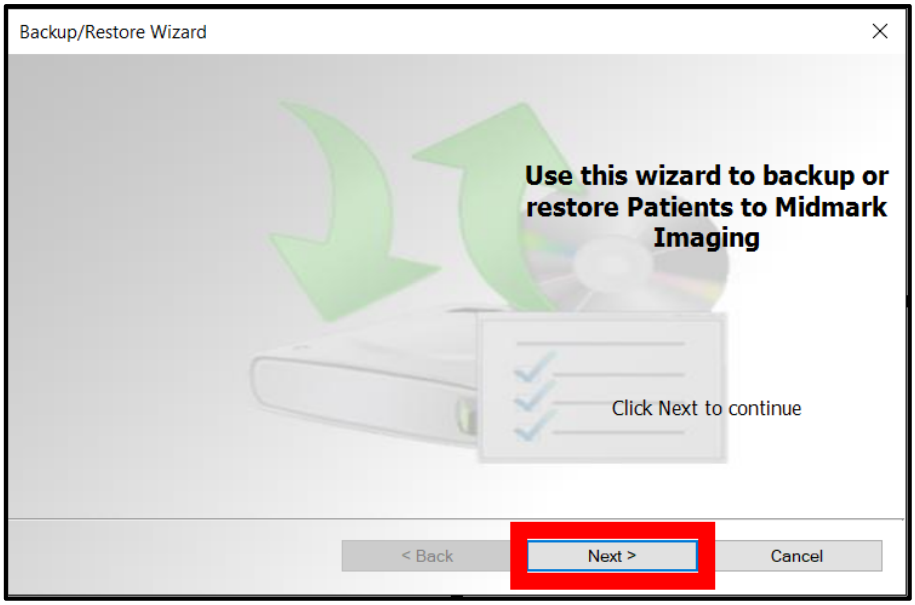
Backing up a Patient Database

Backing up the patient database regularly is important to ensure that patient data are not lost in case of computer failure. To keep the Midmark Imaging patient database at multiple locations up-to-date, back up the patient database in one office and restore it in additional offices.

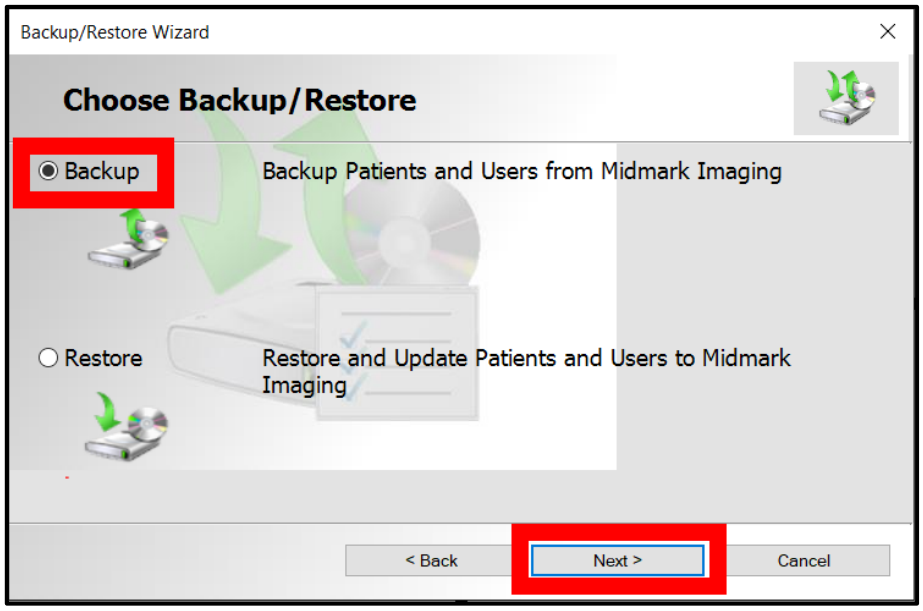
When backing up patient data, the Backup/Restore Wizard creates a Progeny Backup folder in the location designated. The folder contains a sub-folder for each patient in the database. The patient folders contain the images and other files that are part of the patients' records.

Backing up the Patient Database to a Hard Drive, Network Location or USB

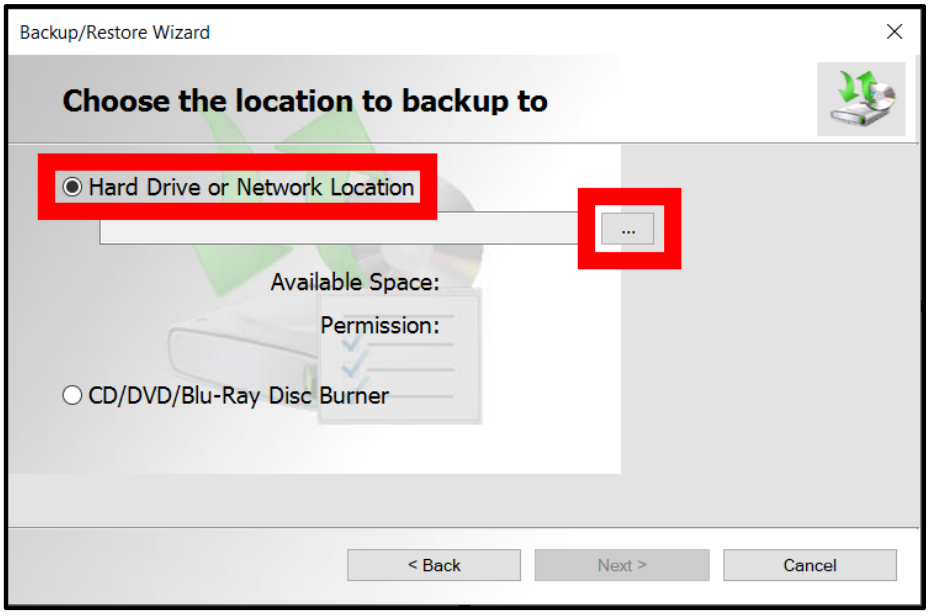
1. From the **Main Menu Bar**, select **File > Backup and Restore…**. This opens the Backup/Retore Wizard.
2. In the Backup/Restore Wizard welcome window, click **Next**.



3. When asked to choose Backup or Restore, select **Backup**. Then click **Next**.



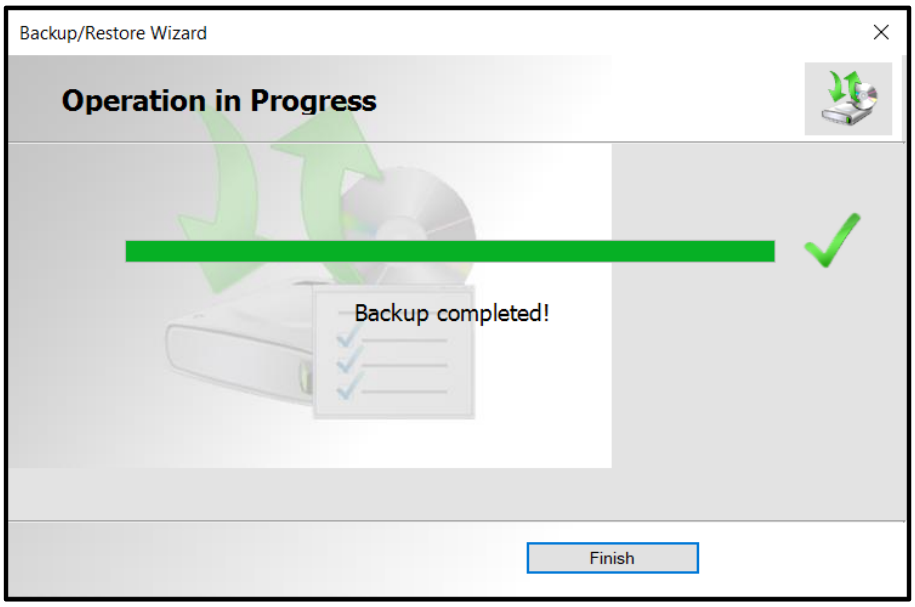
4. When asked to choose the location for the backup, select **Hard Drive or Network Location**, then click the **browse button** (...).



5. In the **Browse for Folder dialog box**, select the location for the backup.
   The Backup/Restore Wizard displays the space available for the backup. If the location does not have sufficient space to back up the entire patient database, the Backup/Restore Wizard will not allow the backup operation to begin.

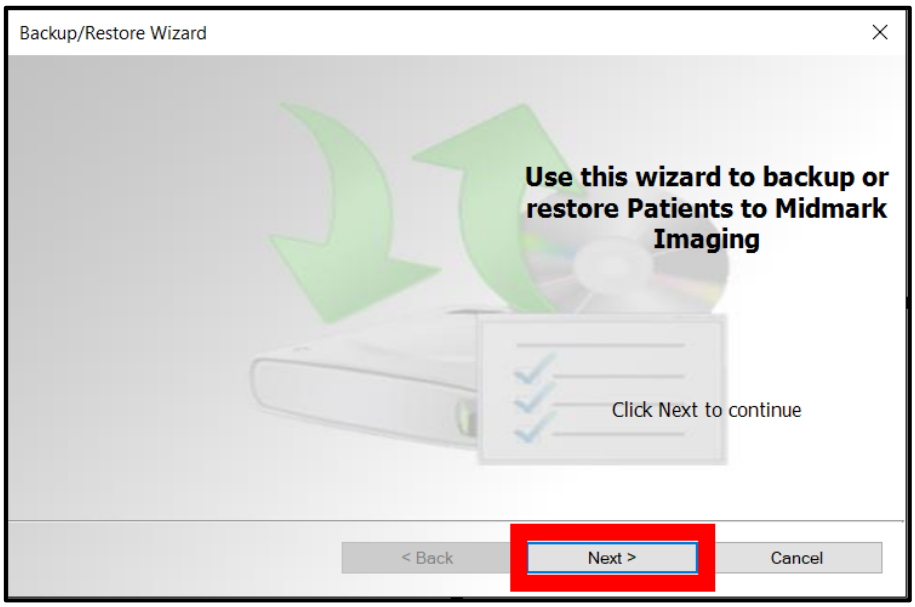
NOTICE If a location is selected that already has a Progeny Backup folder, the Backup/Restore Wizard allows the overwriting of the existing backup. Click **Yes** to overwrite, or click **No** and select another location for the backup.

6. Click **Next**. The Backup/Restore Wizard displays a summary of the backup operation.
7. Click **Next** to begin the backup. A status bar will show the progression to completion.
8. When the backup is completed, click **Finish**.

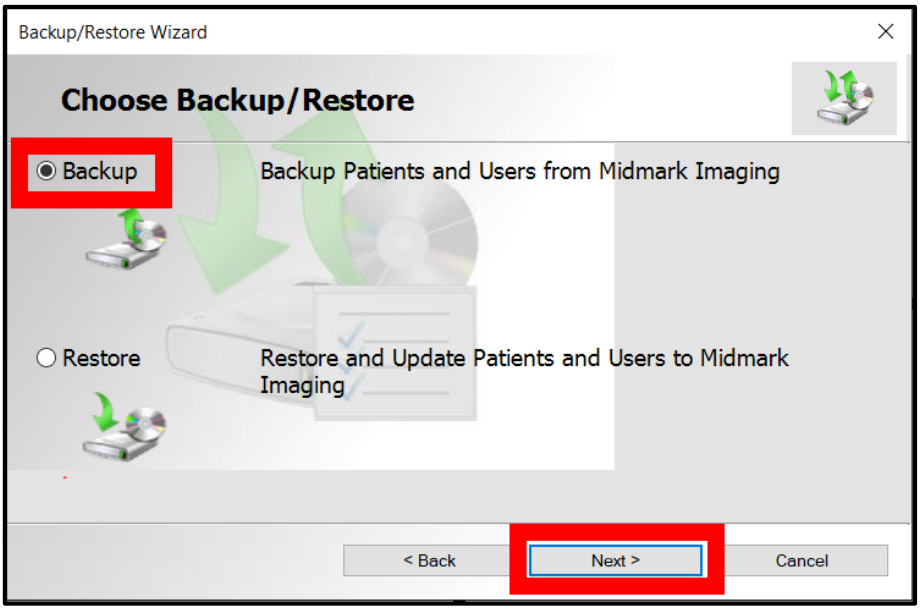


Backing up the Patient Database to a CD/DVD/Blu-Ray Disc Burner

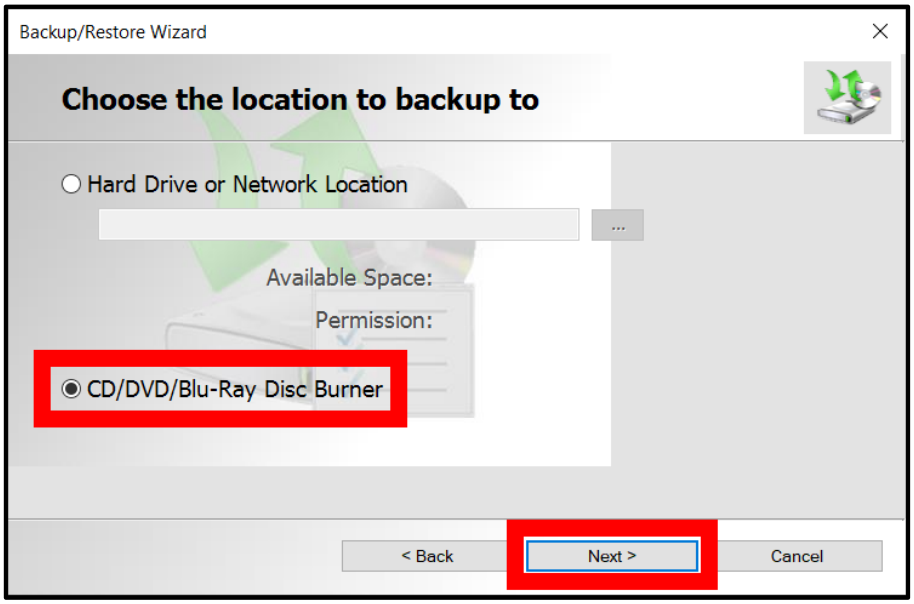
1. From the **Main Menu Bar**, select **File > Backup and Restore…**. This opens the Backup/Retore Wizard.
2. In the Backup/Restore Wizard welcome window, click **Next**.



3. When asked to choose Backup or Restore, select **Backup**. Then click **Next**.



4. When asked to choose the location for the backup, select **CD/DVD/Blu-Ray Disc Burner**. Then click **Next**.



5. Be sure that blank backup media is in the drive, then select the drive where the backup media is located. The Backup/Restore Wizard displays the selected media and calculates how many discs will be needed to back up the entire patient database.
6. Click **Start Burning** to begin the backup. If additional discs are needed, the Backup/Restore Wizard will prompt to insert them.
7. When the backup is completed, click **Finish**.

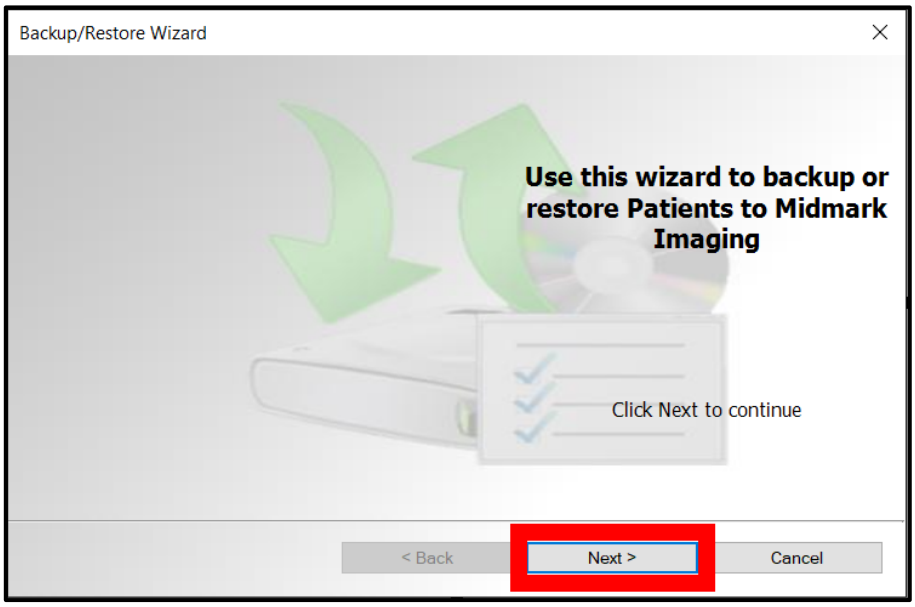
Restoring a Patient Database

A patient database can be restored from a backup file that was created by Midmark Imaging. The backup file must exist on the computer where Midmark Imaging has been installed, on another computer on the same network or on media, such as a CD-ROM or DVD.

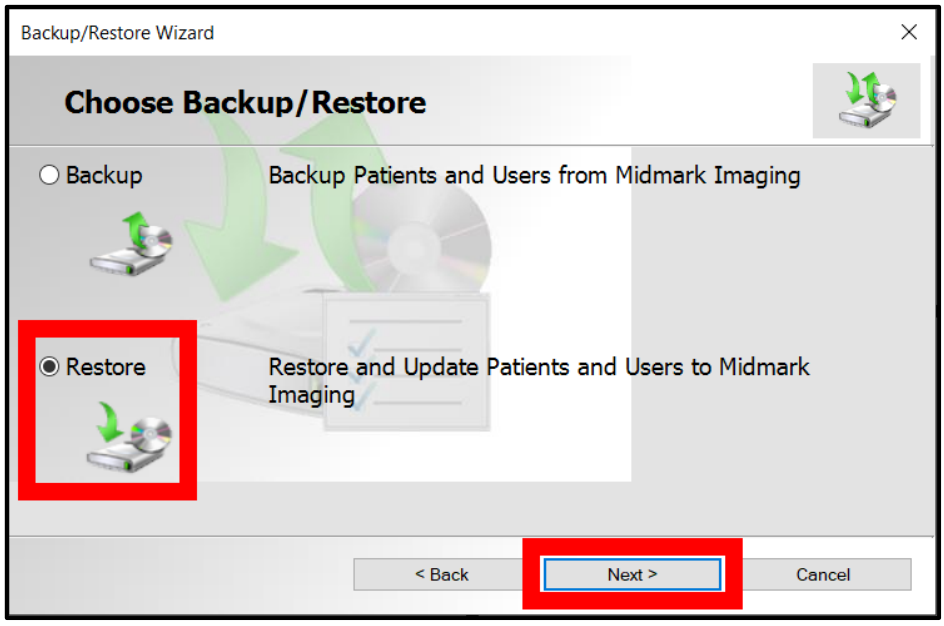
When restoring the patient database, the Backup/Restore application identifies duplicate records in the patient database. If the patient record in the backup differs from the record in the database, the record will be updated to the most recent file. This is useful to maintain up-to-date patient records in multiple office locations.

Restoring the Patient Database from a Hard Drive, Network Location or USB

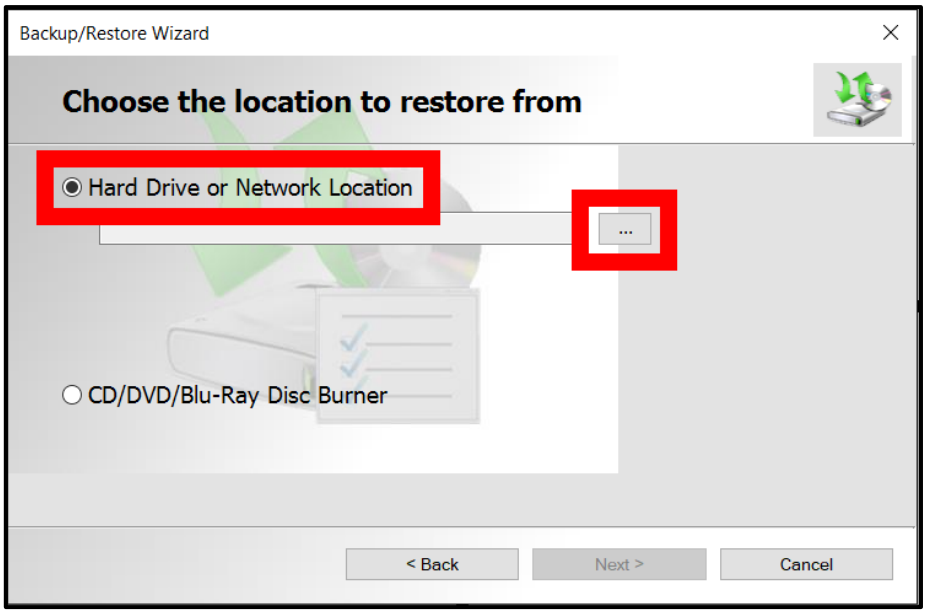
1. From the **Main Menu Bar**, select **File > Backup and Restore…**. This opens the Backup/Retore Wizard.
2. In the Backup/Restore Wizard welcome window, click **Next**.



3. When asked to choose Backup or Restore, select **Restore**. Then click **Next**.

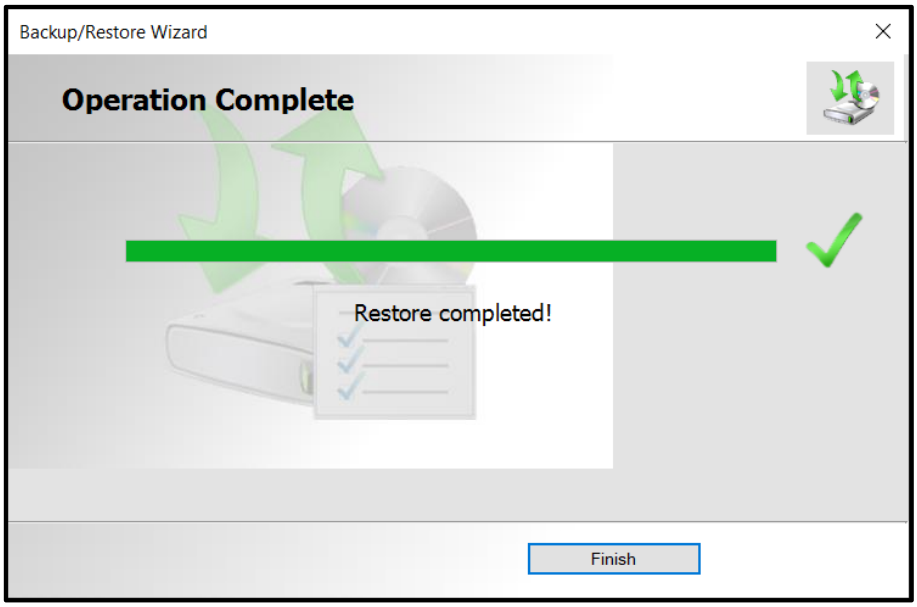


4. When prompted to choose the location to restore from, select **Hard Drive or Network Location**. Then click the **browse button** (...).



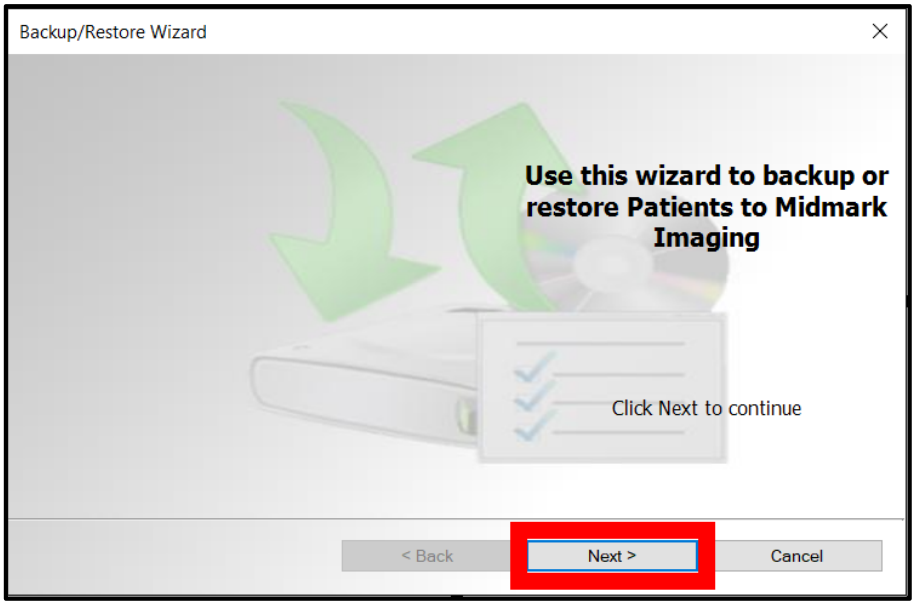
5. In the **Browse For Folder dialog box**, find and select the Progeny Backup folder.
6. Click **Next**. The Backup/Restore Wizard displays a summary of the restore operation.
7. Click **Next** to begin the restore. A status bar will show the progression to completion.

8. When the restore is complete, click **Finish**.

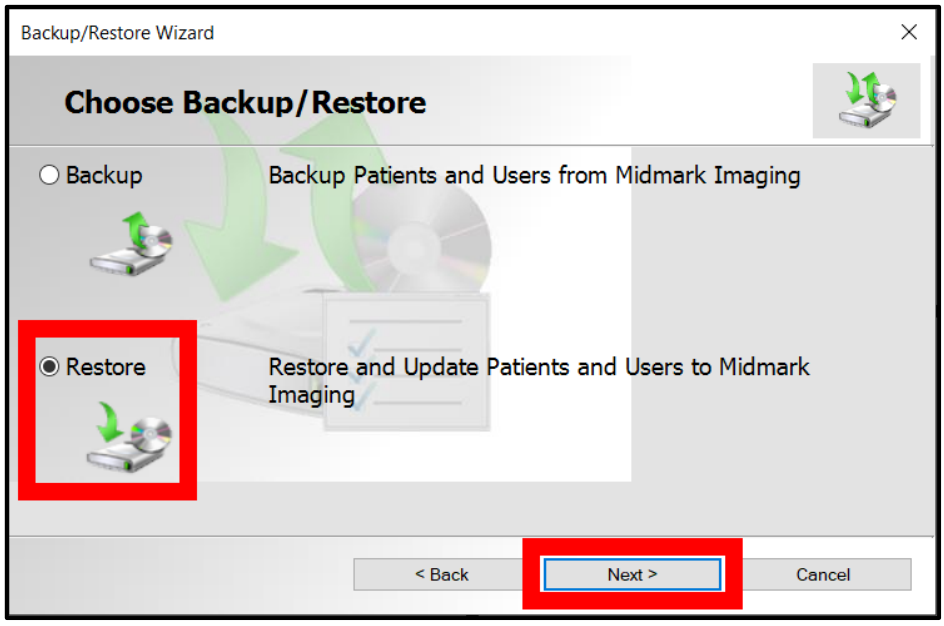


Restoring the Patient Database from a CD/DVD/Blu-Ray Disc Burner

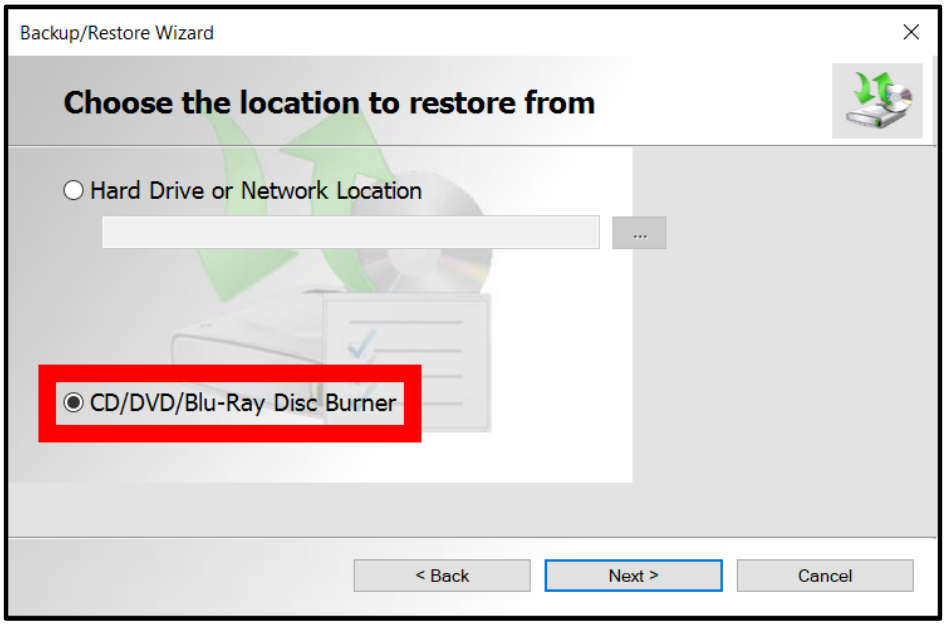
1. From the **Main Menu Bar**, select **File > Backup and Restore…**. This opens the Backup/Retore Wizard.
2. In the Backup/Restore Wizard welcome window, click **Next**.



3. When asked to choose Backup or Restore, select **Restore**. Then click **Next**.



4. When prompted to choose the location to restore from, select **CD/DVD/Blu-Ray Disc Burner**.



5. Be sure that the media with the backup of the patient database is in the media drive. Click **Next**. The restore operations will begin automatically. If additional discs were used to back up the patient database, the Backup/Restore Wizard will prompt their insertion.
6. When the restore is complete, click **Finish**.

Appendices

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Appendix A: Installation – Advanced Procedures

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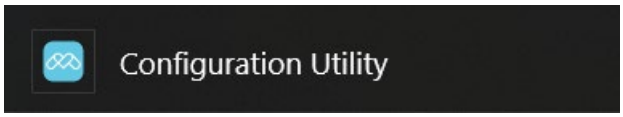
Using the Configuration Utility

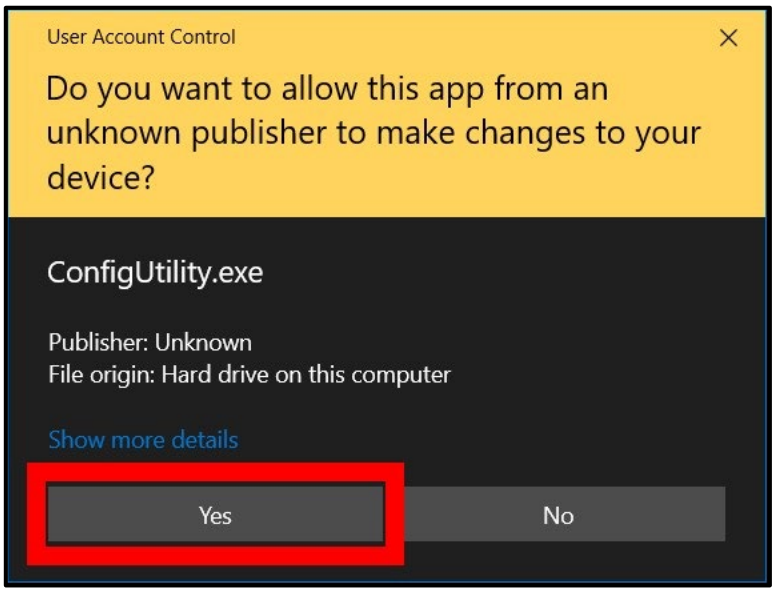
Aspects of Midmark Imaging can be configured utilizing the Configuration Utility. This is a separate application that can be accessed only when Midmark Imaging is closed.

Complete the following steps to access the Configuration Utility.

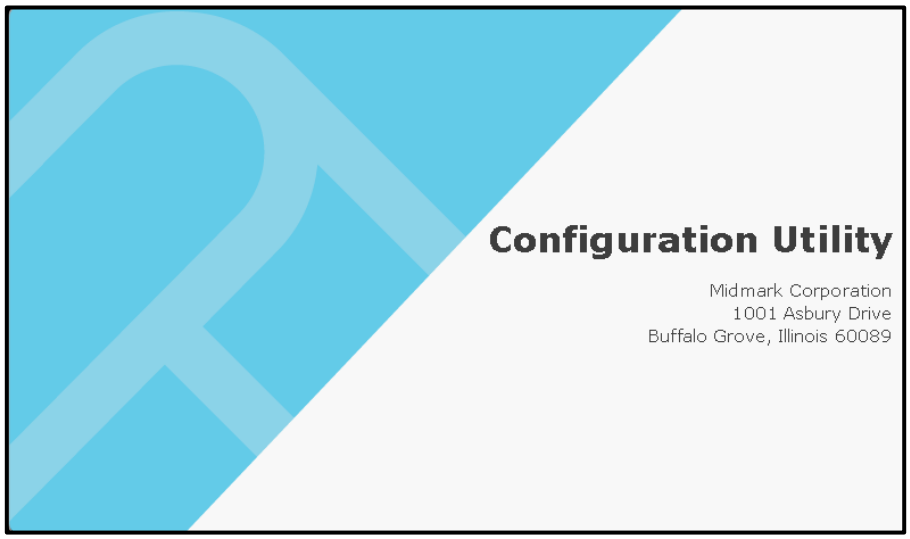
1. If Midmark Imaging is open, save any work and close the application.
2. In the Windows **Start Menu**, type `Configuration Utility` to search for it. Click on the app that appears in the search.



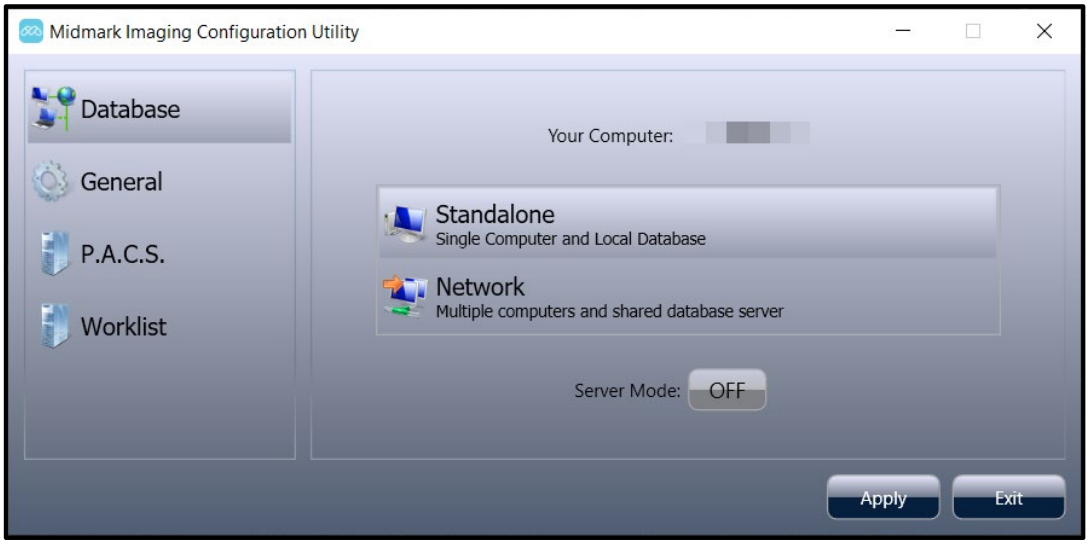
3. A window appears asking for permission to make changes to the device. Click **Yes**.



4. The Configuration Utility splash screen displays. This splash screen may show for several moments as the Configuration Utility loads.

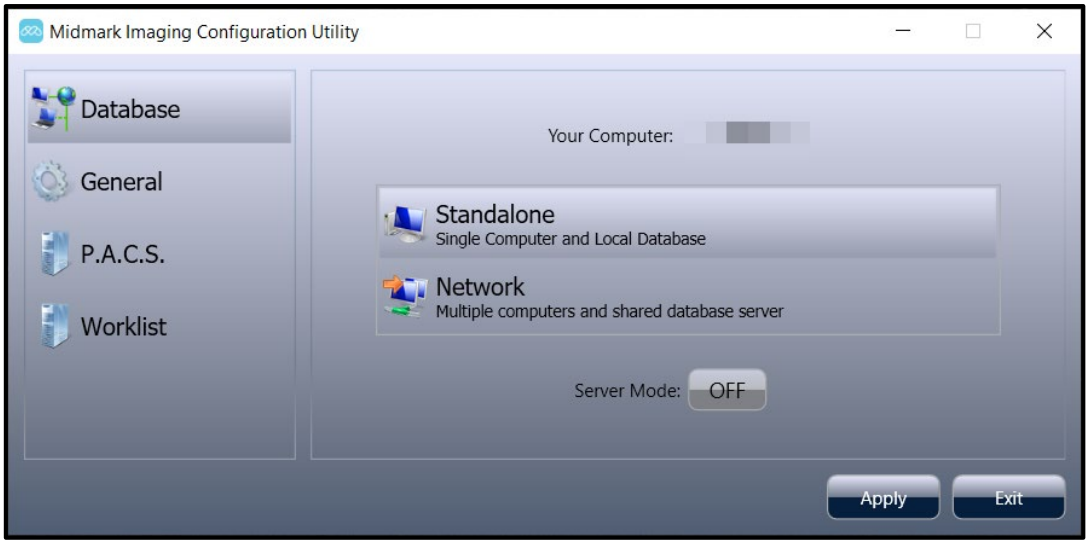


5. When the Configuration Utility is finished loading, the splash screen automatically disappears and the Configuration Utility opens.



The next several sections of the manual will describe the options available in the Configuration Utility.

Configuring Database Options



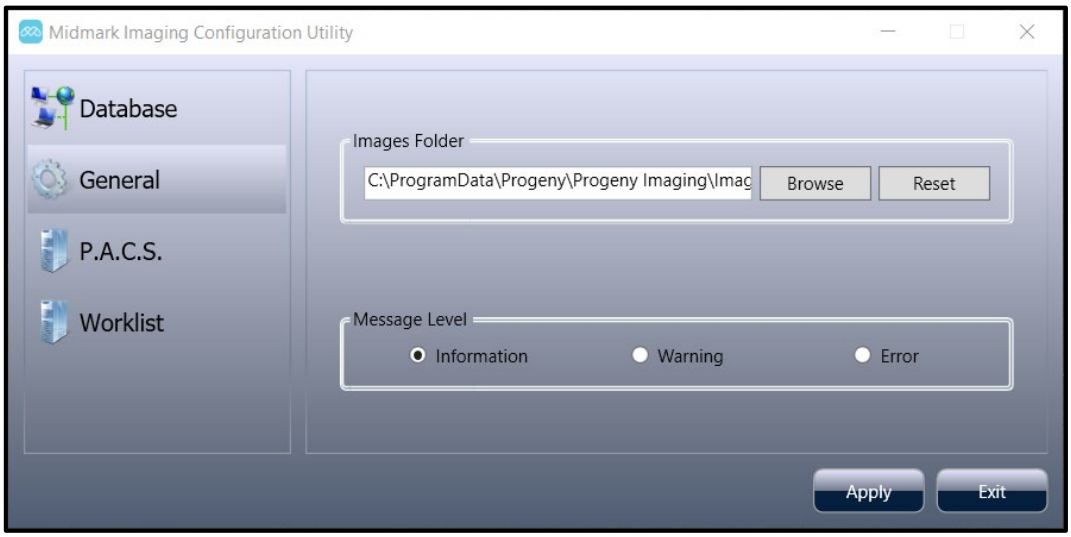
Your Computer: Displays the local computer's name.

Settings:

- **Database Type:** Determines whether the machine will be storing images locally (Standalone) or will be connecting to another Midmark Imaging instance over a network (Network).
- **Server Mode:** Determines whether the local computer will act as a Midmark Imaging server (available only in Standalone Mode).

NOTICE Midmark Imaging requires that the office network be set up as a workgroup (peer-to-peer or P2P) or Windows domain (client-server) network. In a workgroup or domain network, all users must have appropriate privileges on all clients in the network. On a domain network, a domain server is required for authentication.

Configuring General Options



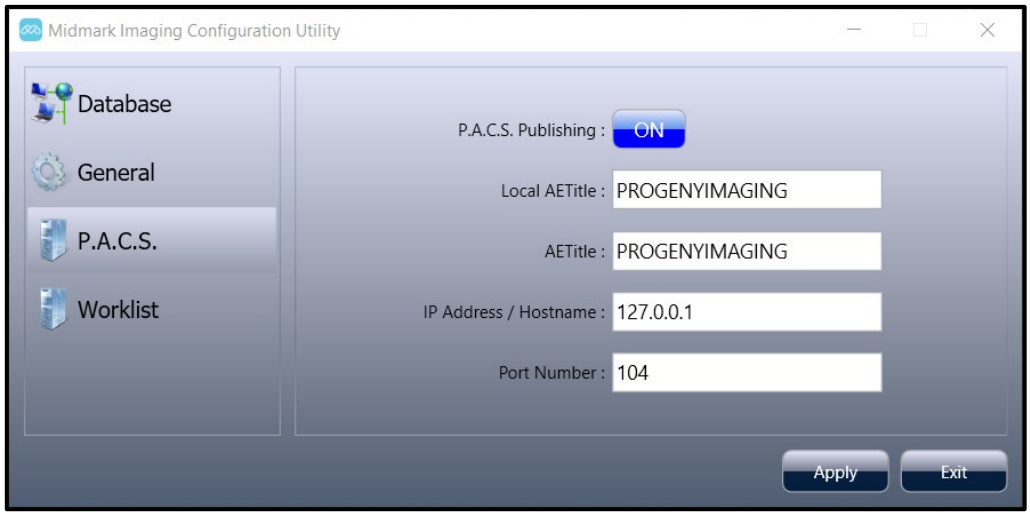
Settings:

- **Images Folder:** This is where the patient images are stored. A new location can be selected by using the **Browse** or **Reset** button to move them to their default location.

NOTICE The software will prevent the application's root folder from being selected.

- **Message Level:** Determines the level at which to report errors. **Information** applies essentially no filter to log messages, and **Error** applies the greatest message filter, allowing only application errors to be logged.

Configuring a PACS Server

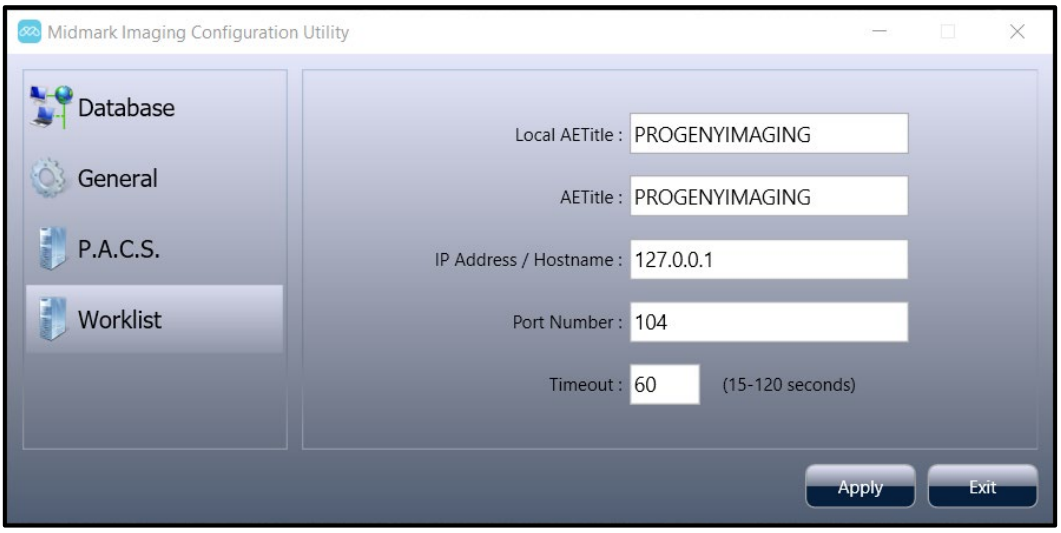


Patient images acquired in Midmark Imaging can be published (sent) to a PACS server. Midmark Imaging acts in accordance with the DICOM SCP standard. It can transmit images and studies to a PACS server over a TCP/IP connection but does not support receiving images, studies or image information. Midmark Imaging receives no return communication from the PACS server indicating that the images were received.

Settings:

- **P.A.C.S. Publishing:** Option for “Publish” button
- **Local AETitle:** DICOM Local Application Entity Title (Calling Application)
- **AETitle:** DICOM Application Entity Title
- **IP Address/Hostname:** IP Address or Hostname of the destination PACS server
- **Port Number:** Destination port on the PACS server

Configuring a Modality Worklist Server



Settings:

- **Local AETitle:** DICOM Local Application Entity Title (Calling Application)
- **AETitle:** DICOM Application Entity Title
- **IP Address/Hostname:** IP Address or Hostname of the destination Worklist server
- **Port Number:** Destination port on the Worklist server
- **Timeout:** The limit to the amount of time for which Midmark Imaging will attempt to communicate with the worklist server before it will quit if communication cannot be established.

Applying Changes

To implement the change to the database, click the **Apply** button. If there is any issue with the configuration, a red X will be displayed in the background. If the configuration is successful, a checkmark will be displayed. When finished, close the **Configuration Utility** and launch **Midmark Imaging**.

Command Line Arguments

Database

Command Line	Function
OPTION_NETWORKTYPE	• **Single :** (Default) The computer will connect to the local database. • **NetworkClient :** The computer will connect to a remote database.
OPTION_SERVERNAME	• In network type “Single,” this value defaults to the computer’s name. • If network type “NetworkClient,” it defines the server name that the computer will connect to.

General

Command Line	Function
OPTION_ACCESSION	• **True:** Show accession number dialog when the user performs a template acquisition or saves a study. • **False:** (Default) Do not show dialog
OPTION_PUBLISHINDIVIDUAL	• **True:** (Default) Allow the publishing of individual images into a PACS server • **False:** Only allow full study publishing
OPTION_HUMAN_VET	• **True:** (Default) Human Mode • **False:** Veterinary Mode

PACS Settings

Command Line	Function
PACS_ALLOWPUBLISH	• **True:** (Default) Allow PACS publishing including studies and individual images. • **False:** Do not allow PACS publishing
PACS_IPHOSTNAME	Defines the IP address or hostname of the PACS server. (*e.g., 192.168.1.5*)
PACS_AETITLE	Defines the AETitle (Application Entity Title) for the destination PACS server.
PACS_LOCALAETITLE	Defines the local AETitle (Application Entity Title) for the destination PACS server.
PACS_PORTNUMBER	Defines the port number of the destination PACS server.

MWL Settings

Command Line	Function
MWL_IPHOSTNAME	Defines the IP address or hostname of the Worklist server. (*e.g., 192.168.1.5*)
MWL_AETITLE	Defines the AETitle (Application Entity Title) for the destination Worklist server.
MWL_LOCALAETITLE	Defines the local AETitle (Application Entity Title) for the destination Worklist server.
MWL_PORTNUMBER	Defines the port number of the destination Worklist server.
MWL_TIMEOUT	Defines connection timeout in seconds with Worklist server.

Examples

1. Set up a remote connection
   ConfigUtility.exe OPTION_NETWORKTYPE=NetworkClient OPTION_SERVERNAME=MYSERVER
   Sets up a remote connection to a database where the computer name is MYSERVER.

2. Choose general options
   ConfigUtility.exe OPTION_ACCESSION=true OPTION_PUBLISHINDIVIDUAL=false
   Allow the accession number dialog to be shown and do not allow publishing individual images.

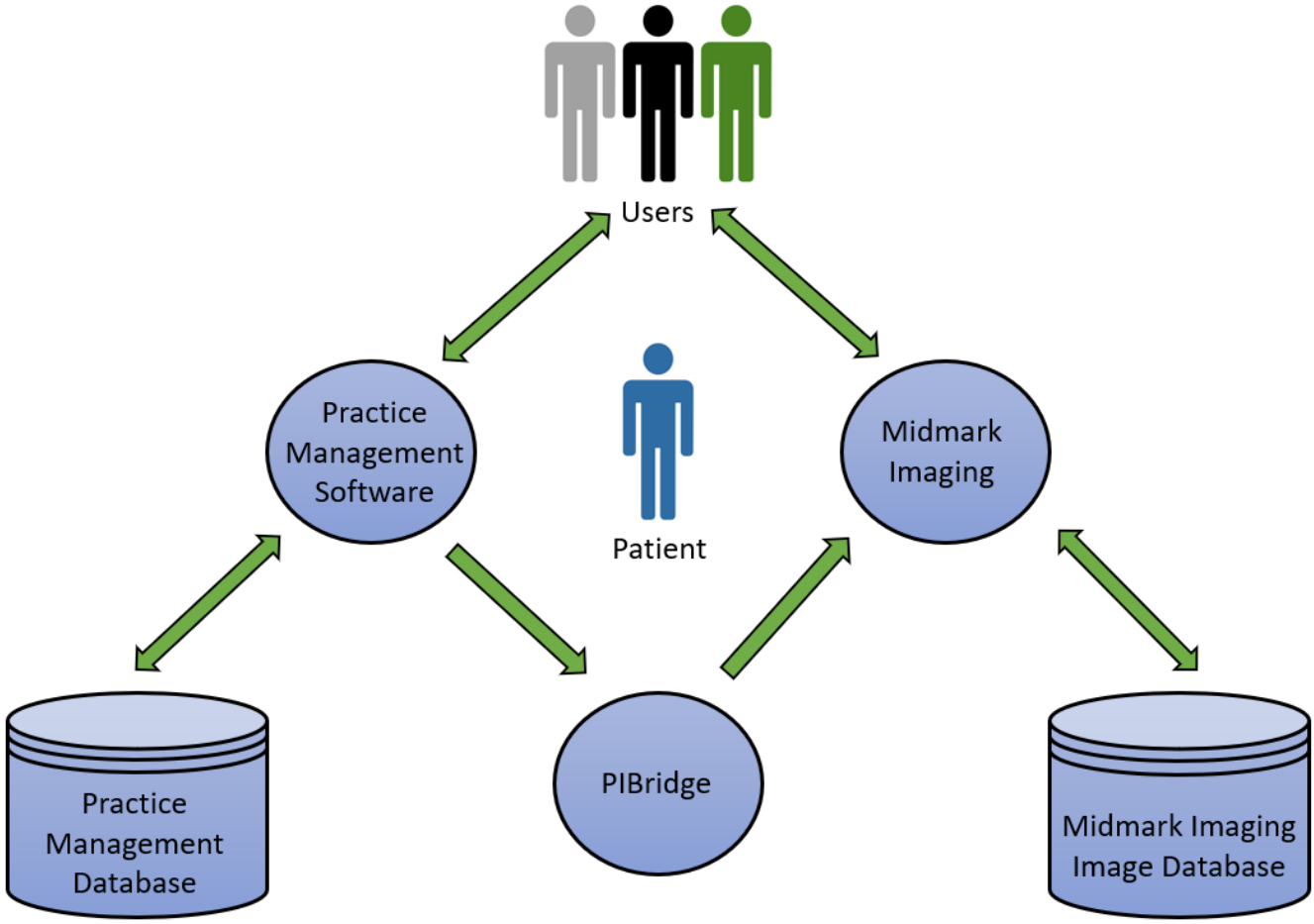
3. Allow and set up PACS publishing
   ConfigUtility.exe PACS_ALLOWPUBLISH=true PACS_IPHOSTNAME=192.168.1.5 PACS_AETITLE=PROGENYIMAGING PACS_LOCALAETITLE=PROGENY1 PACS_PORTNUMBER=2001
   Configure a PACS server at 192.168.1.5 with port 2001 and set up appropriate AETitles.

PIBridge Application

This section describes the PIBridge.exe interface. Midmark has built PIBridge and Midmark Imaging as an open system that will be widely used by third-party software developers, integrators and dental imaging device manufacturers.

PIBridge Model

The cooperation of the practice management software and the Midmark Imaging software is illustrated in the following diagram.



In this model, Midmark Imaging handles all the image acquisition and analysis. All the operations related to patient/practice data (including patient selection) and interactions are handled by third-party practice management software.

The PIBridge command line interface integrates Midmark Imaging with any practice management software.

The practice management software starts Midmark Imaging and either minimizes or hides it at the start of a session. To acquire or access patient images, use PIBridge to show Midmark Imaging, then enter the patient ID to open the patient. Midmark Imaging's interface will then display all the patient images.

PIBridge System Details

PIBridge for Midmark Imaging is supported on the Windows 10 and Windows 11 platforms.

PIBridge has been available starting with Progeny Imaging 1.0.1.4. (Note: Progeny Imaging was the former name for the Midmark Imaging software.)

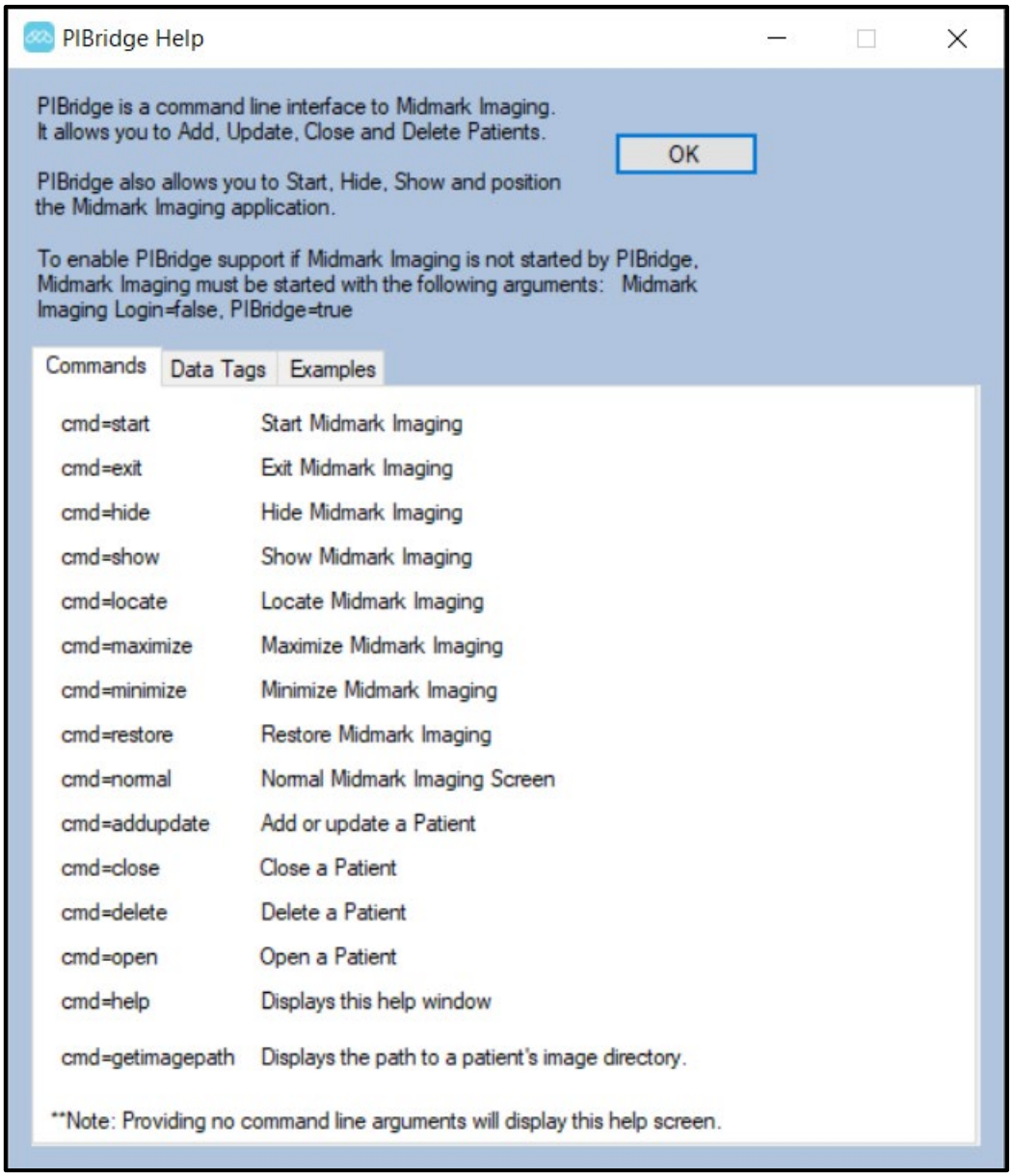
PIBridge and Midmark Imaging are compatible with Unicode.

The user interface of the Midmark Imaging software is restricted when used via the PIBridge system. Redundant or conflicting functionality with the patient management system is disabled.

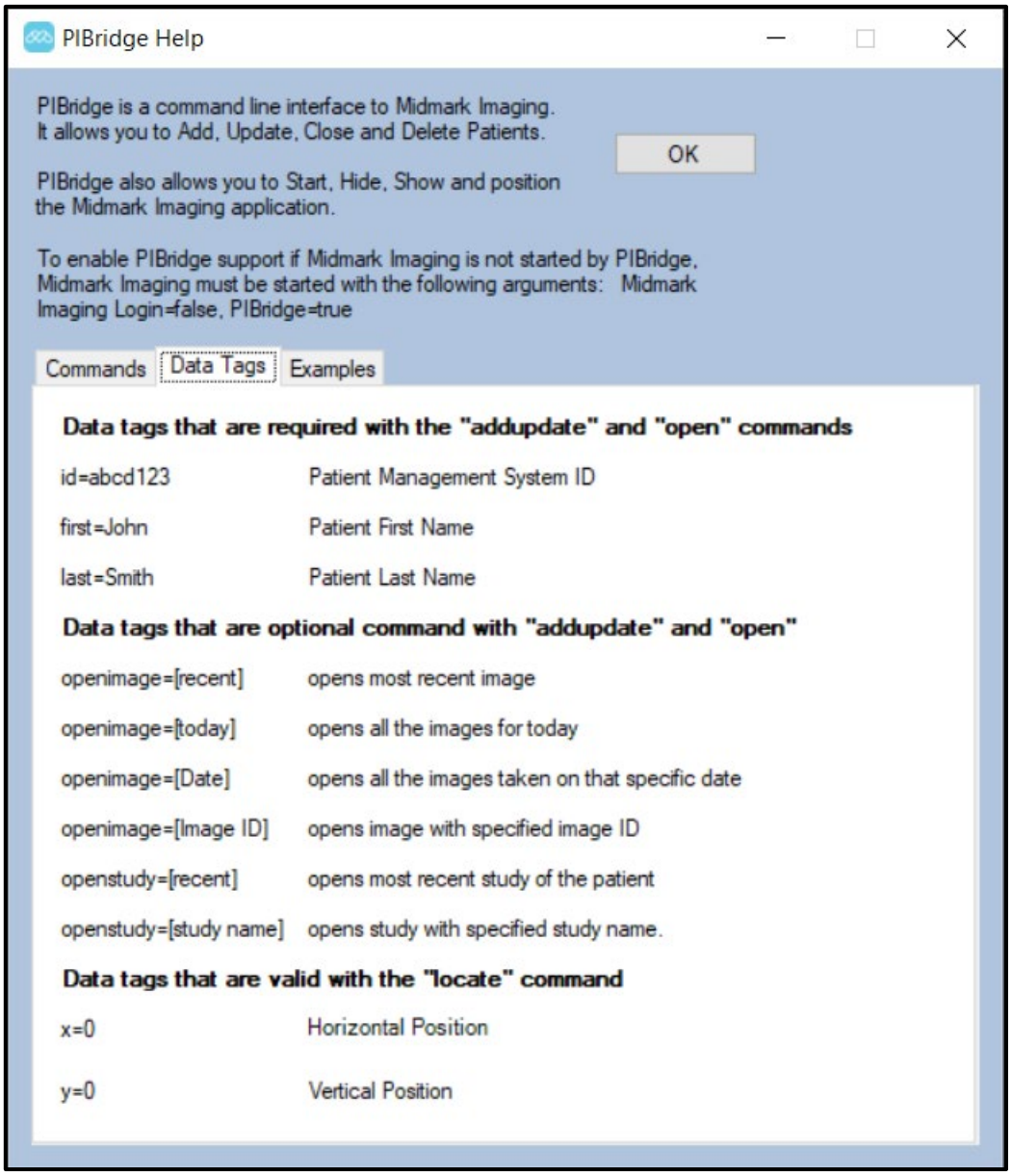
Putting Midmark Imaging in Bridge Mode:

`cmd=start` Start Midmark Imaging with login=false, pibridge=true

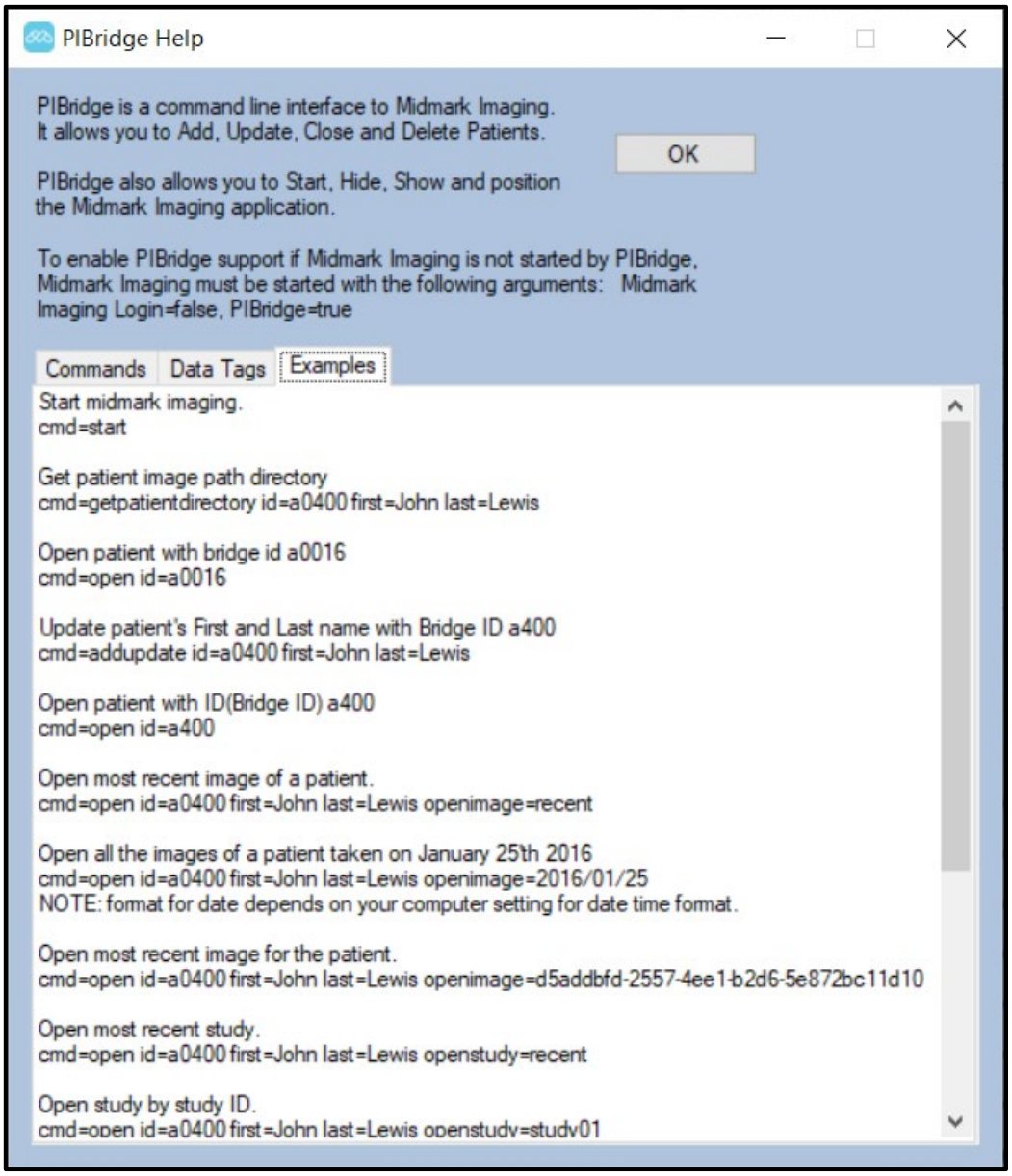
PIBridge Help Commands

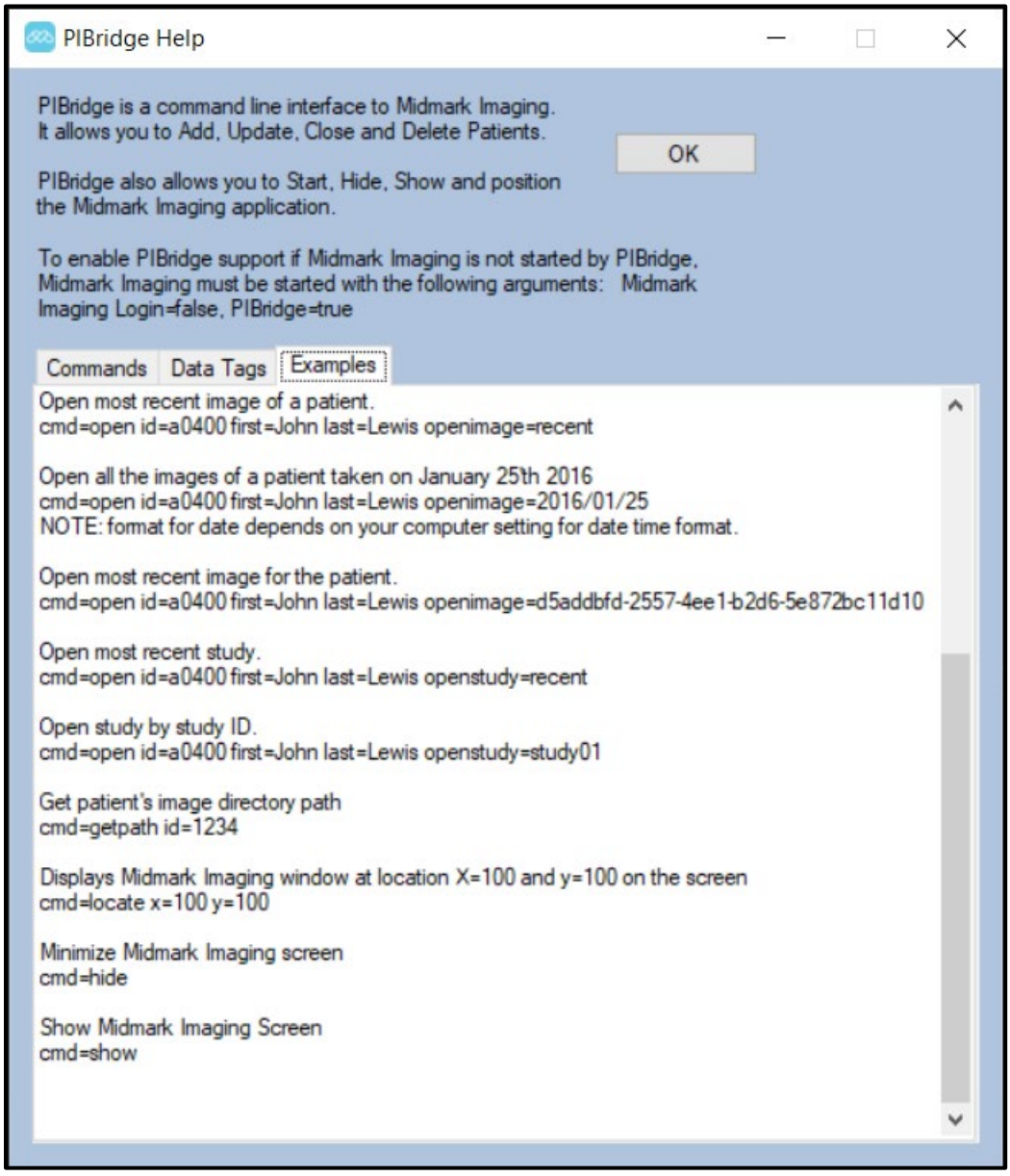


The PIBridge Data Tags



Use Case Examples




PIBridge Help
PIBridge is a command line interface to Midmark Imaging.
It allows you to Add, Update, Close and Delete Patients.
OK
PIBridge also allows you to Start, Hide, Show and position the Midmark Imaging application.
To enable PIBridge support if Midmark Imaging is not started by PIBridge, Midmark Imaging must be started with the following arguments: Midmark Imaging Login=false, PIBridge=true
Commands
Data Tags
Examples
Open most recent image of a patient.
cmd=open id=a0400 first=John last=Lewis openimage=recent
Open all the images of a patient taken on January 25th 2016
cmd=open id=a0400 first=John last=Lewis openimage=2016/01/25
NOTE: format for date depends on your computer setting for date time format.
Open most recent image for the patient.
cmd=open id=a0400 first=John last=Lewis openimage=d5addbfd-2557-4ee1-b2d6-5e872bc11d10
Open most recent study.
cmd=open id=a0400 first=John last=Lewis openstudy=recent
Open study by study ID.
cmd=open id=a0400 first=John last=Lewis openstudy=study01
Get patient's image directory path
cmd=getpath id=1234
Displays Midmark Imaging window at location X=100 and y=100 on the screen
cmd=locate x=100 y=100
Minimize Midmark Imaging screen
cmd=hide
Show Midmark Imaging Screen
cmd=show

Upgrading Midmark Imaging

NOTICE

Plan for the installation to take anywhere between 10 to 60 minutes depending on the speed of the computer.

This section of the manual outlines the procedure for upgrading Midmark Imaging. However, the installation instructions in the downloadable package should be consulted for more information, as should the “Midmark Imaging Read Me Guide” that is included in the USB drive that came with the product.

If assistance is needed, contact Midmark Technical Service. Refer to section *Obtaining Technical Support* beginning on page 15 of this manual.

1. Determine whether updates are available by selecting **Help > Check for Updates…** from the **Main Menu Bar**.
2. If an update is available, go to Biscom and register or log in at Http://download.midmark.com/biscom/Main.do
3. Once registration is completed, Midmark Technical Service will be notified of new users and will send an email via Biscom with the required software upgrade version.
4. Check the Biscom account inbox for the latest software version package link. (If not a new user, find previous inbox email from Technical Service; the link should be updated to the latest version.)
5. Download the software package link to the local computer drive. It will download as a zip file. Allow the download to complete.
6. Run any required operating system (e.g., Windows) updates.
7. Make note of the PACS and Worklist data within the Configuration Utility for later use. Refer to section *Using the Configuration Utility* beginning on page 181 of this manual for more information.
8. Back up patient data. Refer to section *Backing Up and Restoring Patient Data* beginning on page 168 of this manual.

⚠CAUTION

- Do not proceed with the next steps until the download package is available.
- The order of the next two steps is very important. If both Midmark Device Suite and Midmark Imaging are installed, Midmark Imaging must be uninstalled BEFORE Midmark Device Suite is uninstalled. Uninstalling Midmark Device Suite first will cause an error that prevents Midmark Imaging from being uninstalled.

9. Uninstall Midmark Imaging. (To uninstall on Windows 10, from the Windows Start menu, select **Settings > Apps > Apps & features**. From there, scroll down to the programs of interest. Click on a program, then click the **Uninstall** button that appears.)
10. Uninstall Midmark Device Suite using the same method outlined in the previous step. If two Midmark Devices Suites are present (e.g., x64 and x86), uninstall them both.

NOTICE

- For computers with legacy programs installed, Progeny Imaging and Progeny Device Suite may be present instead of Midmark Imaging and Midmark Device Suite, and there may be only one Midmark Device Suite instead of two. These should still be uninstalled as applicable.
- Uninstalling Midmark Imaging and the Midmark Device Suite does not remove the Midmark Imaging database or MS SQL Server 2019. These components will be used when reinstalling Midmark Imaging.

11. Right-click on the downloaded file and select **Extract**.
12. Go to the folder where the installation files were extracted. Locate **setup.exe**, right-click on it, and select **Run as administrator**.
13. Complete the steps outlined in section *Installation Procedure* beginning on page 35 of this manual.
14. As needed or desired, complete any additional steps from section *Enabling Open User Mode* beginning on page 51 of this manual and/or section *Using the Configuration Utility* beginning on page 181 of this manual.

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Appendix B: Frequently Asked Questions

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Frequently Asked Questions

The Tooth Panel is not visible. How do I display it?

The **Patient Panel** must be displayed in order to view the **Tooth Panel**. If the **Patient Panel** is visible but the **Tooth Panel** is hidden, use any of the following methods to open the **Tooth Panel**: click the **Hide** icon ( ), select **File > Toggle Tooth Panel** from the **Main Menu Bar**, or press **Alt + 1** on the keyboard. If the **Patient Panel** is not displayed, select **Patient > Show Panel** from the **Main Menu Bar**, then use one of the aforementioned methods to open the **Tooth Panel**.

The Tooth Panel is not responding when I try to select a tooth to image. What should I do?

A patient file must be open. Also, a sensor must be connected to the computer, selected and ready, as shown by the green ready indicator ( ).

I got a gray scale image instead of an X-ray image. What happened?

Each digital sensor device is configured to allow a certain number of seconds between the time the **Acquire button** ( ) is selected in Midmark Imaging and the time the X-ray source is activated. At the end of the timeout period, if no X-ray exposure has been made, the digital sensor may generate a gray-scale image. Review the time-out settings by selecting **Tools > Devices > Device Configuration**. Refer to section *Setting the Sensor Timeout Period* beginning on page 69 of this manual for more information.

The wrong tooth was selected when the image was acquired and now the tooth number is wrong in the image information. How do I correct it?

First, display the image with the incorrect tooth information on the **Work Surface**. Select **Image > Correct Tooth Numbers**. The **Correct Tooth Numbers window** will have a checkmark beside the tooth number(s) that was/were selected when the image was acquired. Remove the checkmark(s) and check the correct tooth number(s). Then click **OK**. For more information, see section *Correcting Tooth Numbering on Images* beginning on page 156 of this manual.

I can rotate an image from the Filter toolbar, but how do I flip the image?

Use **Image > Flip Horizontal** and **Image > Flip Vertical** commands from the **Main Menu Bar**.

I want to delete the annotation measurements from the image. How do I select them so I can delete them?

With the image on the **Work Surface**, select **Image > Annotate** to open the **Annotate & Estimate toolbar**. Click the left mouse button on the annotation to select it. Then press the **Delete key** on the keyboard. For more information, see section *Removing Annotations from an Image* beginning on page 148 of this manual.

How do I reacquire an image?

Right-click on the sequence number of the tooth to be re-acquired and select either **Re-Acquire (Add)** or **Re-Acquire (Replace)** from the resulting context menu. For more information, see section *Re-acquiring Images* beginning on page 109 of this manual.

Can I export images in DICOM format?

With the patient record open, select **Patient > Export Patient Images…**. All of the patient's images or individual images can be selected. After selection, the images can be exported to any location on the computer. All images will be exported in a DICOM format. For more information, see section *Exporting DICOM Images* beginning on page 159 of this manual.

Can I export images in any other format?

Images can be exported in jpg, png, gif, tif and bmp formats. With an image on the **Work Surface**, select **Image > Export > Other Format**. Name the file and select the required format. For more information, see section *Exporting Other Image Formats* beginning on page 160 of this manual.

Can I back up my data? How and how often?

Select **File > Backup and Restore…**. This will launch the Backup/Restore Wizard, which will step through the backup and restore process. Backing up patient data should be performed after new images have been added. It is also recommended to perform a back-up prior to upgrading Midmark Imaging. Back-up data should be stored on a server or an external drive. Storing the back-up file in multiple locations will ensure that all patient images and data can be restored on new or additional computers or in the event of a hard drive failure. For more information, see section *Backing Up and Restoring Patient Data* beginning on page 168 of this manual.

How do I delete an image?

Images are automatically saved after the acquisition is complete. To delete an image, select the image within the **Patient Panel** and then press the **Delete button**. An image can be identified as being selected when the image and image information in the **Patient Panel** are highlighted in dark blue. For more information, see section *Deleting Images* beginning on page 129 of this manual.

Can I have Midmark Imaging launch without having to enter a user name and password?

Midmark Imaging can be operated in Open User Mode. To enable Open User Mode, right-click on the **Midmark Imaging desktop icon** and select **Properties** from the context menu. In the **Target field**, place the cursor to the right of the last character. Type a `space`, and then type `login=false`. Click **Apply** and then **OK**. For more information, see section *Enabling Open User Mode* beginning on page 51 of this manual.

How can I obtain manuals for Midmark Imaging and digital sensors?

User Manuals are installed during the installation of Midmark Imaging. Manuals can be accessed by selecting **Start > Midmark Imaging > User Manuals** or by loading the Midmark Imaging flash drive and selecting **View Manuals** in the Midmark Software Installer Window.

If paper copies of the manual are needed, please contact Midmark Customer Experience at:

- Phone: 1.800.MIDMARK (800.643.6275) in the US and Canada
- Phone: 1.937.526.3662 outside of the US
- Email: orders-dental@midmark.com

What other resources are available for obtaining technical information on Midmark Imaging user functions?

Online help in Midmark Imaging provides Midmark Imaging user and technical functions, including installation and networking information. Help can be accessed within Midmark Imaging by selecting **Help > Contents** or **Help > Index**.

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Appendix C: Keyboard Shortcuts

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Keyboard Command Sequences

Use the commands below for efficient access to Midmark Imaging functions.

File Menu

Shortcut Key	Command
Alt + 1	Show or hide the **Tooth Panel**
Ctrl + U	Open the **User Manager**
Alt + L	Log out of Midmark Imaging and redisplay the login screen
Alt + X	Exit Midmark Imaging
Alt + F	Float the **Tooth Panel**

Patient Menu

Shortcut Key	Command
Alt + 2	Show or hide the **Patient Panel**
Alt + O	Open the **Select Patient window**
Alt + N	Open the **Patient Properties window** to create a new patient record
Ctrl + Alt + P	Open the **Patient Properties window** for a patient whose record is open

Image Menu

Shortcut Key	Command
Alt + U	Undo filter
Alt + R	Redo filter
Alt + A	Open the **Annotate & Estimate toolbar**
Ctrl + P	Open the **Print Setup window** for the selected image
Alt + F	Full-screen display of an image on the **Work Surface**
Alt + M	Open the **Move to Patient window**
Alt + E	Hide and display an expanded view of the image on the **Work Surface**
Alt + C	Close an image on the **Work Surface**

Work Surface Menu

Shortcut Key	Command
Alt + T	Tile (reposition) images on the **Work Surface**
Ctrl + Alt + E	Hide and display an expanded view of all images on the **Work Surface**
Ctrl + Shift + P	Open the **Print Setup window** for all images currently on the **Work Surface**
Alt + S	Save images on the **Work Surface** as a study (user must first define a name and description for the study)

Help Menu

Shortcut Key	Command
Alt + H	Display Midmark Imaging help

Shortcuts not listed under a Menu

Shortcut Key	Command
Alt + D	Delete study that is selected in the **Patient Panel Studies tab**
Alt + V	Display the **Video screen** if a video capture device is available

Appendix D: End User License Agreement

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End User License Agreement (EULA)

Software License Agreement

IMPORTANT: THIS IS A CONTRACT BETWEEN YOU AND MIDMARK CORPORATION ("Midmark"). READ IT CAREFULLY BEFORE PROCEEDING. BY SELECTING THE "I AGREE" BUTTON AND DOWNLOADING, INSTALLING, AND/OR USING THIS SOFTWARE, INCLUDING ANY AND ALL ACCOMPANYING DOCUMENTATION AND/OR DATA (COLLECTIVELY, THE "SOFTWARE"), YOU AGREE TO ALL THE TERMS AND CONDITIONS IN THIS AGREEMENT. IF YOU DO NOT AGREE TO ALL THE TERMS AND CONDITIONS IN THIS AGREEMENT, SELECT THE "I DO NOT AGREE" BUTTON AND DO NOT DOWNLOAD, INSTALL, AND/OR USE THIS SOFTWARE. YOU ARE ENTITLED TO RECEIVE A FULL REFUND OF ANY PAYMENT MADE FOR THE PRODUCT AND ASSOCIATED SOFTWARE BY SO REQUESTING AND RETURNING THE PRODUCT IN CONNECTION WITH WHICH THIS SOFTWARE WAS PROVIDED TOGETHER WITH ANY MEDIA AND MATERIALS IN AN UNUSED CONDITION WITHIN 5 DAYS AFTER PURCHASE.

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