



SICAT ENDO VERSION 1.4

Instructions for use | English

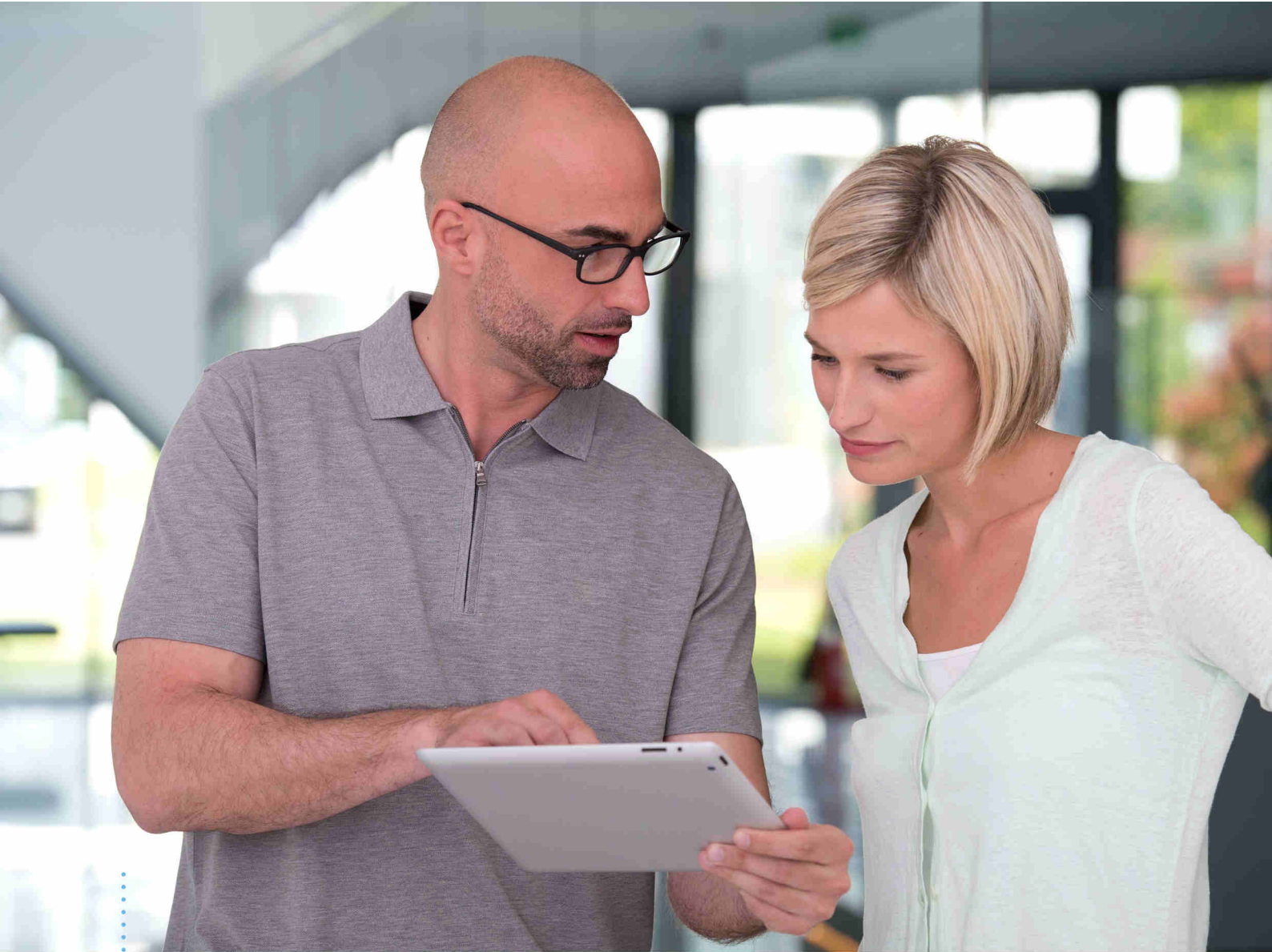
STRUCTURE OF THESE INSTRUCTIONS FOR USE

This document contains three different versions of the SICAT Endo instructions for use:

- One version for SICAT Endo as a SIDEXIS 4 module
- One version for SICAT Endo as a SIDEXIS XG plug-in
- One version for SICAT Endo as a stand-alone version

Each set of instructions for use contains all information that you need for a specific version. For example, if you exclusively use SICAT Endo as a SIDEXIS 4 module, you only need to read the corresponding section of these instructions for use.

The only exceptions are the explanations of labeling and the reverse side containing the manufacturer and support information and the article number of the instructions for use. This information is only stated once at the end of the entire document.



SICAT ENDO *VERSION 1.4*

Instructions for use | English | SIDEXIS 4

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1 INTENDED USE AND INDICATIONS FOR USE

SICAT Endo is a software application for the visualization of imaging information of the oral-maxillofacial region. The imaging data originates from medical scanners such as CT or CBCT scanners. SICAT Endo is also used as a software system to aid dentists with the planning, the evaluation and the comparison of treatment options and the access planning for an endodontic treatment. The dentists' planning data may be exported from SICAT Endo and used for the realization of the planned therapy.

INDICATIONS FOR USE

SICAT Endo is a software application for:


- Aiding diagnosis in the oral-maxillofacial region
- Aiding comparisons of different treatment options
- Aiding endodontic treatment planning
- Aiding treatment planning using endodontic surgical guides

2 *VERSION HISTORY*

VERSION 1.4

- Initial release

3 SYSTEM REQUIREMENTS



CAUTION

If your system does not fulfill the system requirements, this may mean that the software will not start or will not function as intended.

Check whether your system meets the minimum software and hardware requirements before installing the software.

Processor	Quad Core 2.3 GHz
RAM	8 GB
Graphics card	Dedicated* DirectX 11 or higher 2 GB graphics memory Current driver with at least WDDM 1.0 support
Screen	Resolution at least 1920x1080 pixels for 100 to 125 percent scale** Maximum resolution 3840x2160 pixels for 100 to 200 percent scale
Free disk space on hard disk	20 GB plus additional storage space for patient records
Storage media	Access to external storage media containing installation files.
Input devices	Keyboard, mouse
Network	Ethernet, 100 Mbit/s, 1000 Mbit/s recommended
Printer for patient information	At least 300 dpi Paper format DIN A4 or US letter
Operating system	Windows 7 SP1 (64 Bit) with KB2670838 Windows 8 (64 Bit, Desktop) Windows 8.1 (64 Bit, Desktop) Windows 10 (64 Bit, Desktop)
Web browser	Microsoft Internet Explorer 11 or higher Mozilla Firefox 39 or higher Google Chrome 44 or higher JavaScript must be activated. A standard browser must be set.
PDF viewer	Adobe Reader DC or higher, for example
SIDEXIS XG with SICAT Suite as a plug-in	Version 2.6.1 (64 Bit)

SIDEXIS 4 with SICAT Suite as a module	Version 4.2 SiPlanAPI V4
SIDEXIS 4 with SICAT Suite as a plug-in	Version 4.1.2 (64 Bit)



*SICAT Suite supports only dedicated graphics cards from the NVIDIA GeForce 960 GTX level of performance. Integrated graphics cards are not supported.

** The combination of a low monitor resolution and a high level of scaling may mean that the software displays certain parts of the user interface incompletely. The monitor must be configured so that it displays the SMPTE test image correctly. Information on this can be found in the section *Monitor calibration with the SMPTE test image* [▶ Page 184 - SIDEXIS 4]

SOFTWARE PREREQUISITES

SICAT Suite requires the following software components and installs them if they are not already available:

- Microsoft .NET Framework 4.5
- CodeMeter license management software 6.30d
- SQL Server Compact Edition 4.0
- SICAT WebConnector

The SICAT WebConnector requires specific ports for communication with the SICAT server. The ports must be unblocked in your firewall:

PROTOCOL	DIRECTION OF TRANSMISSION	PORT
HTTP	Outgoing	80
HTTPS	Outgoing	443
FTPS - Management	Outgoing	21
FTPS - Data transmission	Outgoing	49152 -65534



You can also place orders without SICAT WebConnector. Information on this can be found in the section *Ordering process* [▶ Page 168 - SIDEXIS 4].

4 SAFETY INFORMATION

It is important that you read the following safety-related chapters:

- *Definition of the danger levels* [▶ Page 13 - SIDEXIS 4]
- *Qualifications of operating personnel* [▶ Page 14 - SIDEXIS 4]
- *Safety instructions* [▶ Page 199 - SIDEXIS 4]

4.1 DEFINITION OF THE DANGER LEVELS

These instructions for use use the following safety labels to prevent injuries to operating personnel or patients, as well as material damages:



CAUTION

Labels a dangerous situation, which could result in smaller injuries if not prevented.

NOTICE

Labels information deemed important, but not relevant to safety.

4.2 QUALIFICATIONS OF OPERATING PERSONNEL



The use of this software by unqualified personnel may result in an incorrect diagnosis and treatment.

The use of the software is restricted to qualified professionals.

Only educated or properly trained personnel may use the software.

If you are undergoing education or training or if you are using this software within the scope of general training, you may use the software only under the constant supervision of a qualified person.

You must meet the following prerequisites to use the software:

- You have read the instructions for use.
- You are familiar with the basic structure and functions of the software.
- You are able to identify software malfunctions and take suitable steps where necessary.

CAUTION! Federal Law (USA) restricts use of this device to or on the order of a physician, dentist or licensed practitioner.

5 USED ICONS AND HIGHLIGHTING

ICONS

The following icons are used in these instructions for use:



The note icon labels additional information, such as alternative methods.

HIGHLIGHTING

Text and labels of elements shown by SICAT Suite are highlighted in **bold**. This includes the following objects in the user interface:

- Area labels
- Button labels
- Icon labels
- Text in notes and messages on the screen

HANDLING INSTRUCTIONS

Handling instructions are written as numbered lists:

- ☑ Prerequisites are marked with this icon.
- 1. Steps are labeled with numbers.
 - ▶ Interim results are marked with this icon and indented.
- 2. Further steps will follow after the interim results.
 - ▶ Final results are marked with this icon.
 - Instructions consisting of just one step are marked with this icon.

6 OVERVIEW OF THE INSTRUCTIONS FOR USE

SICAT Endo is part of SICAT Suite in addition to other applications.

SICAT Suite forms the framework, in which the SICAT applications run. The applications are therefore installed along with SICAT Suite. Information on this can be found in the section *Installing SICAT Suite* [▶ Page 19 - SIDEXIS 4].

SICAT Suite is currently available in three versions. Some operating steps vary, depending on the version used. Therefore, these instructions for use deal with the versions separately:

- SIDEXIS 4 module
- SIDEXIS XG plug-in
- Stand-alone version

You do not need to decide on a version when you install SICAT Suite.

The applications are also uninstalled along with SICAT Suite. Information on this can be found in the section *Uninstalling SICAT Suite* [▶ Page 197 - SIDEXIS 4].

7 OVERVIEW OF SICAT SUITE

SICAT Suite comprises the following parts:

- SICAT Function – the intended use of SICAT Function is indicated in the SICAT Function instructions for use.
- SICAT Air – the intended use of SICAT Air is indicated in the SICAT Air instructions for use.
- SICAT Endo – the intended use of SICAT Endo is indicated in the SICAT Endo instructions for use.

LANGUAGES:

SICAT Suite supports the following languages in the user interface:

- English
- German
- French
- Japanese
- Spanish
- Italian
- Dutch
- Portuguese
- Russian

LICENSING

The following steps are required to activate SICAT applications or individual functions:

- You contact your local sales partner.
- You receive a voucher code.
- Using the voucher code, you generate a license key on the SICAT portal (which can be accessed via SICAT home page).
- SICAT adds the license key to your activation key.
- You use your activation key to activate SICAT applications or individual functions on computers on which SICAT Suite is installed.

FULL VERSION AND VIEWER MODE

SICAT Suite can start in one of two modes:

- If you have activated the Viewer license of at least one SICAT application, SICAT Suite will start in Viewer mode.
- If you have activated the full version license of at least one SICAT application, SICAT Suite will start as full version.

In general, the following is true:

- Applications with an activated full version license will start in the full version.
- Applications with activated Viewer license will start in Viewer mode.
- Applications without an activated license will not start.
- You do not need to choose a mode when you install SICAT Suite.

8 INSTALLING SICAT SUITE



Changes to the software may mean that the software will not start or will not function as intended.

1. Do not make any changes to the software installation.
2. Do not delete or change any of the components in the software installation directory.



Damaged installation media may result in the failure of the installation.

Handle the installation media with care and store them appropriately.



If your system does not fulfill the system requirements, this may mean that the software will not start or will not function as intended.

Check whether your system meets the minimum software and hardware requirements before installing the software.



Insufficient authorizations may mean that the software installation or software update fails.

Make sure you have sufficient privileges on your system if you install or update the software.



The **Auto play** function of Windows on your computer could be deactivated. In this case, you can open the optical medium in the Windows file Explorer and start the file **SICATSuiteSetup.exe** manually. The file name contains the version of SICAT Suite.

To install SICAT Suite, proceed as follows:

- Your computer fulfills the system requirements. Information on this can be found in the section *System requirements* [▶ *Page 10 - SIDEXIS 4*].

1. Insert the SICAT Suite installation medium into the optical drive of your computer.

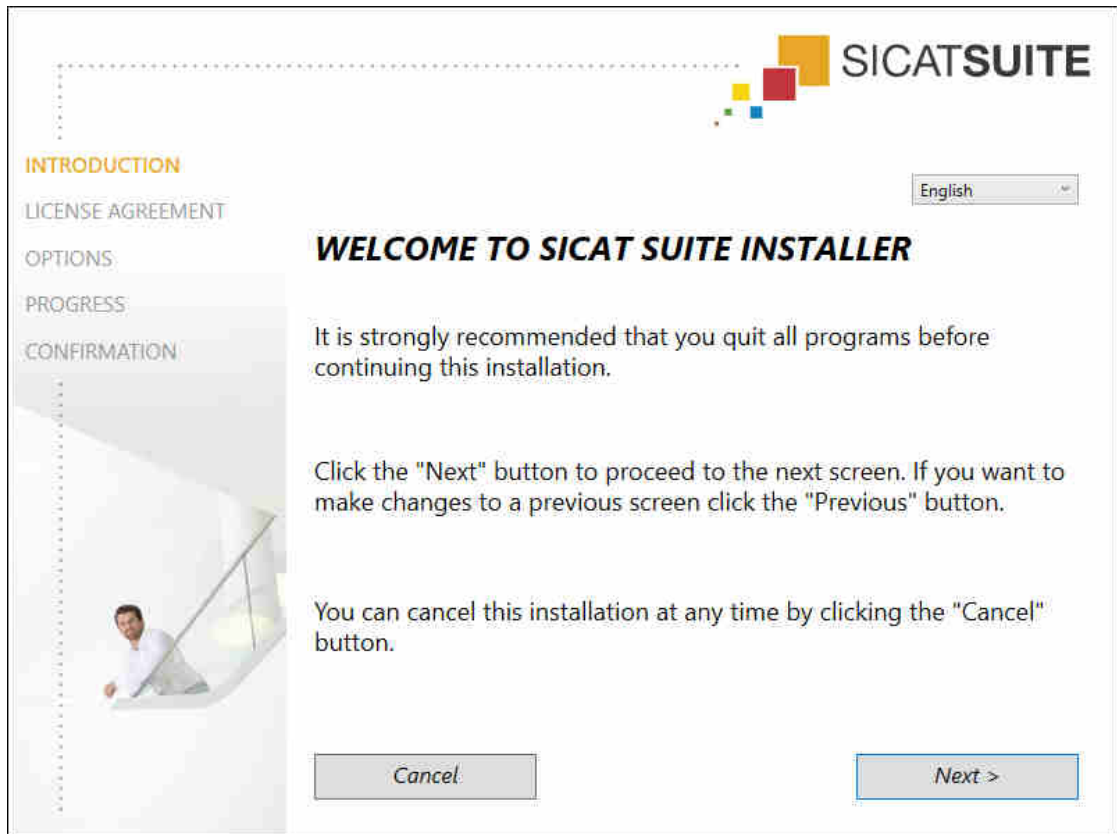
▶ The **Auto play** window opens.

2. Select the option **Execute SICATSuiteSetup.exe** in the **Auto play** window. The file name contains the version of SICAT Suite.

▶ The software prerequisites are installed if they are not already available on your computer.



- ▶ The SICAT Suite installation program will start and the **INTRODUCTION** window opens:



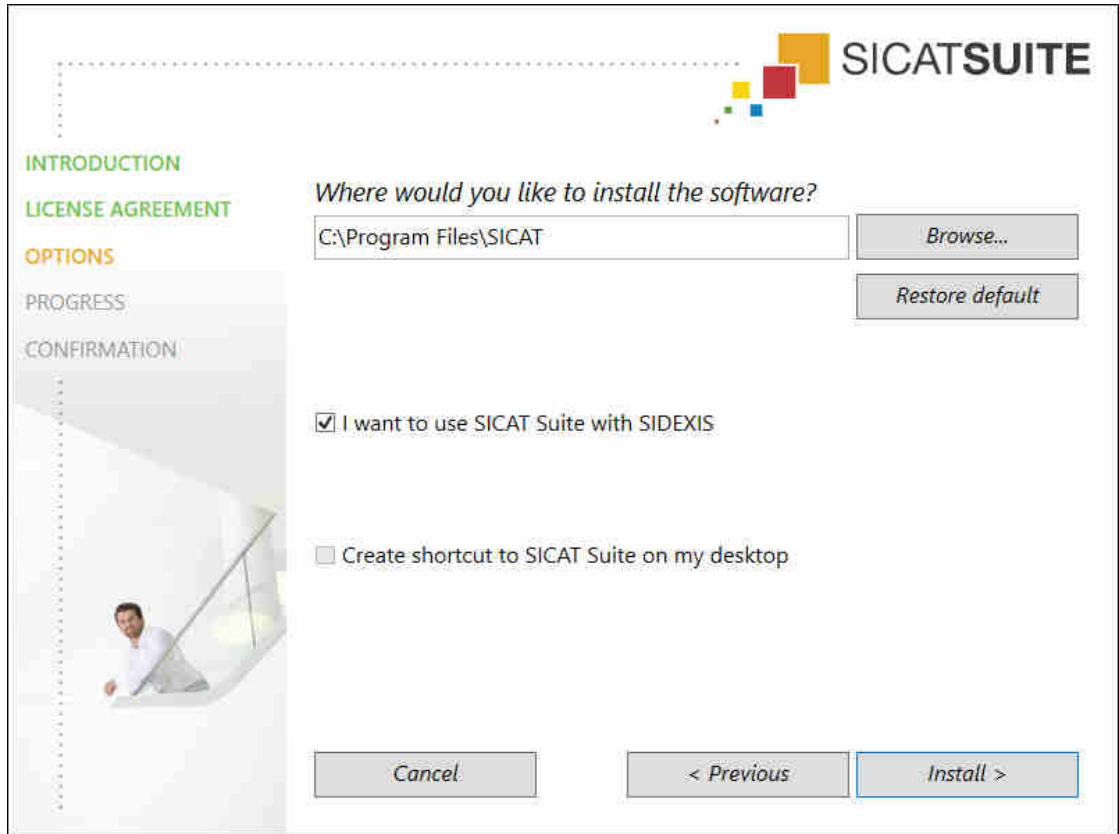
3. Select the desired language for the SICAT Suite installation program in the top right-hand corner of the **INTRODUCTION** window and click on **Next**.

► The **LICENSE AGREEMENT** window opens:



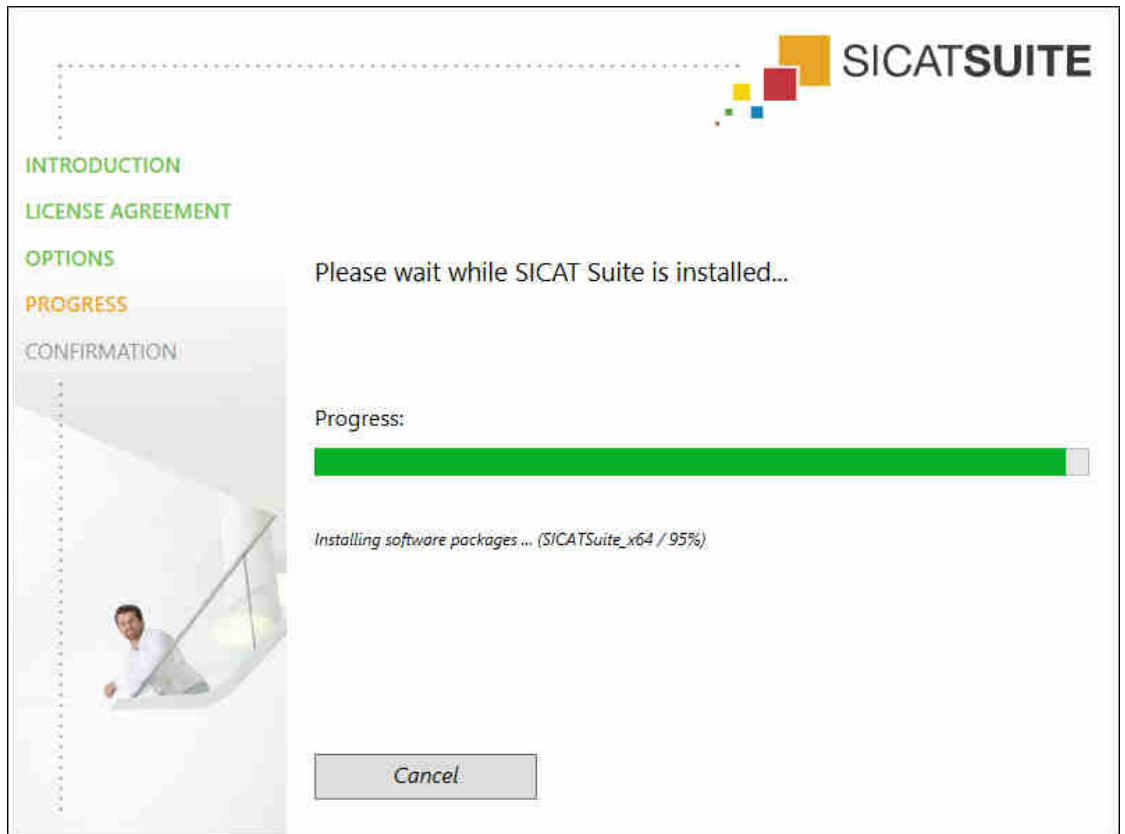
4. Read the end-user licensing agreement in full, select the **I accept the terms of the License Agreement** check box and click on **Next**.

► The **OPTIONS** window opens:

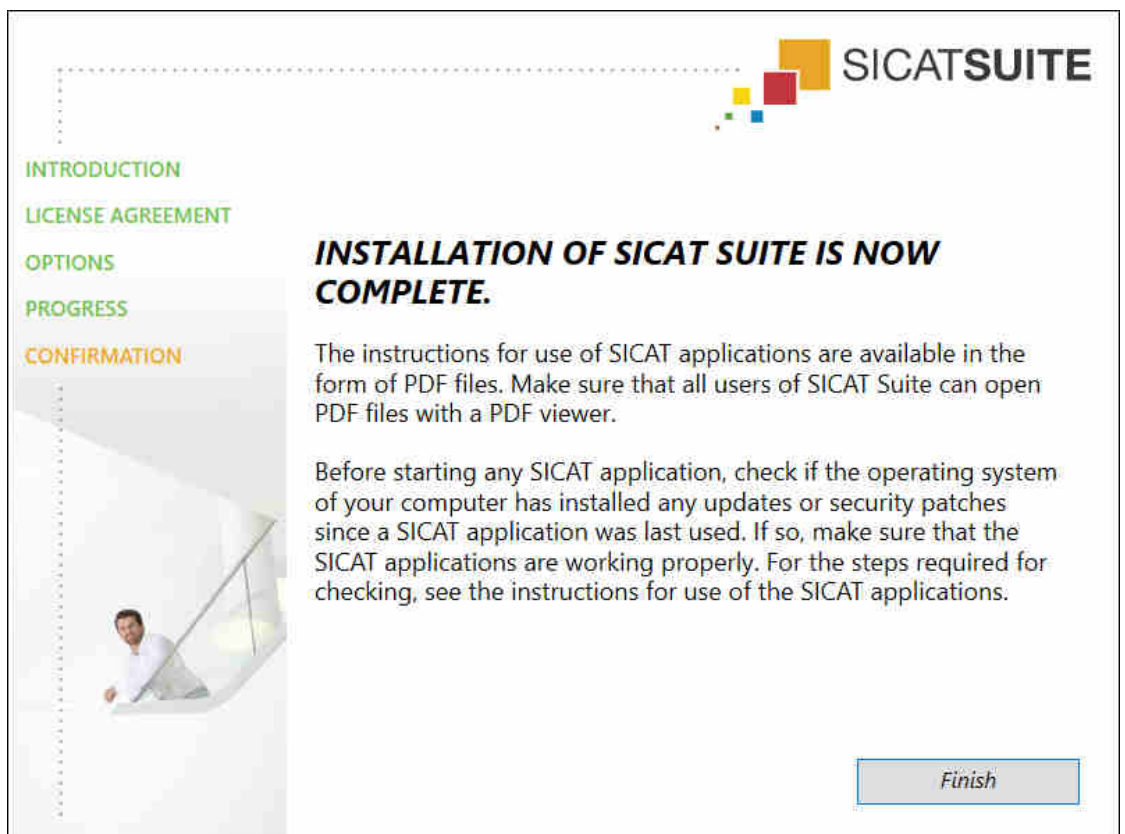


5. To change the folder on the hard disk in which the SICAT Suite installation program will install SICAT Suite click on the **Browse** button.
 - The **Select folder** window opens.
6. Browse to the desired folder in which the SICAT Suite installation program is to create the “SICAT Suite” directory and click on **OK**.
 - The SICAT Suite installation program will enter the directory for the selected folder in the **Where would you like to install the software** field.
7. If SIDEXIS XG or SIDEXIS 4 is installed on your computer, the **I want to use SICAT Suite with SIDEXIS** check box will be available. You can register SICAT Suite during the installation or register it manually as a SIDEXIS XG plug-in or SIDEXIS 4 module later.
 - If the **I want to use SICAT Suite with SIDEXIS** check box is activated, the **Create shortcut to SICAT Suite on my desktop** check box will not be available.
8. If available, activate or deactivate the **Create shortcut to SICAT Suite on my desktop** check box.
9. Click on the **Install** button.

- ▶ The **PROGRESS** window opens:



- ▶ SICAT Suite and the remaining software prerequisites will be installed.
- ▶ After the installation is complete, the **CONFIRMATION** window opens:



10. Click on the **Finish** button.

▶ The SICAT Suite installation program will close.

9 PERFORMING TEST STEPS AFTER OPERATING SYSTEM UPDATE



Changes to the operating system may mean that the SICAT applications will not start or will not function as intended.

1. Prior to starting the SICAT applications, always check whether the operating system of your computer has installed updates or security updates since you last used the SICAT applications.
2. If the operating system of your computer has installed updates or security updates, perform the steps required for testing the SICAT applications as described in the instructions for use.
3. If the behavior of the SICAT applications differs from the behavior described in the instructions for use, stop using of the software and contact SICAT support immediately.

If the operating system of your computer has installed updates, you must ensure that SICAT Endo operates without any errors. Perform the following test steps. If you notice deviation during a test step, prevent further use of SICAT Endo on the computer in question and contact SICAT support.

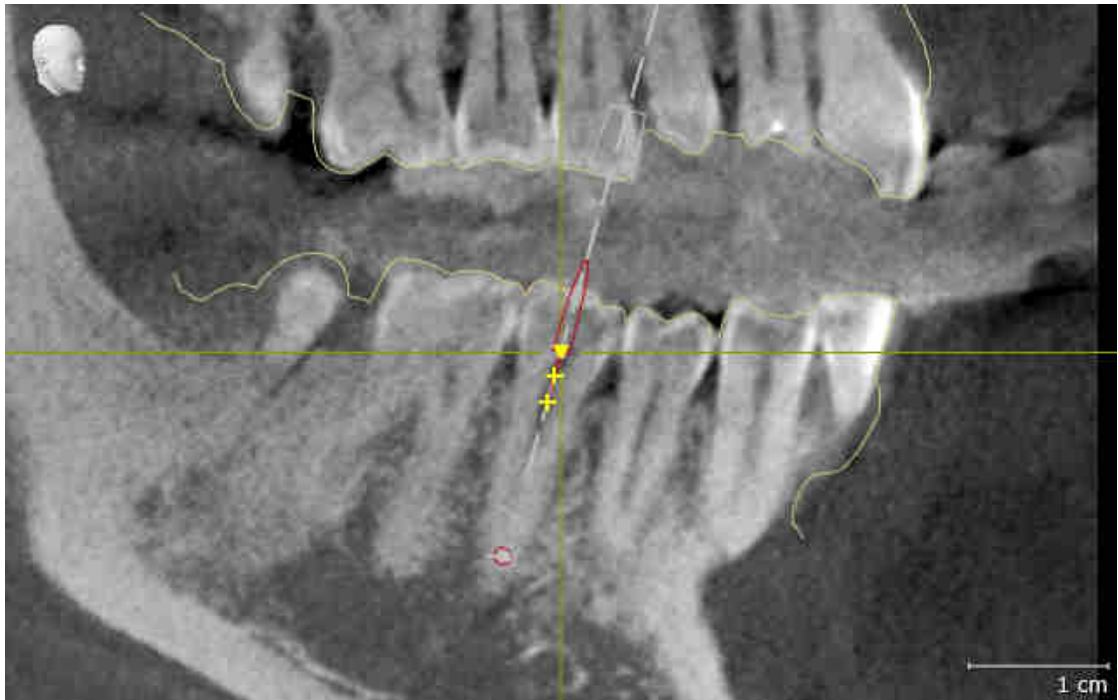
PREPARATIONS

1. To ensure that nobody has made unintended changes, delete the “Patient Axx” patient.
2. Import the reference data record from the “SICATSuite_ReferenceDataset_1.4.zip” file. You will find the data record on the SICAT Suite installation medium.
3. Open the “Patient Axx” reference data record in SICAT Endo.

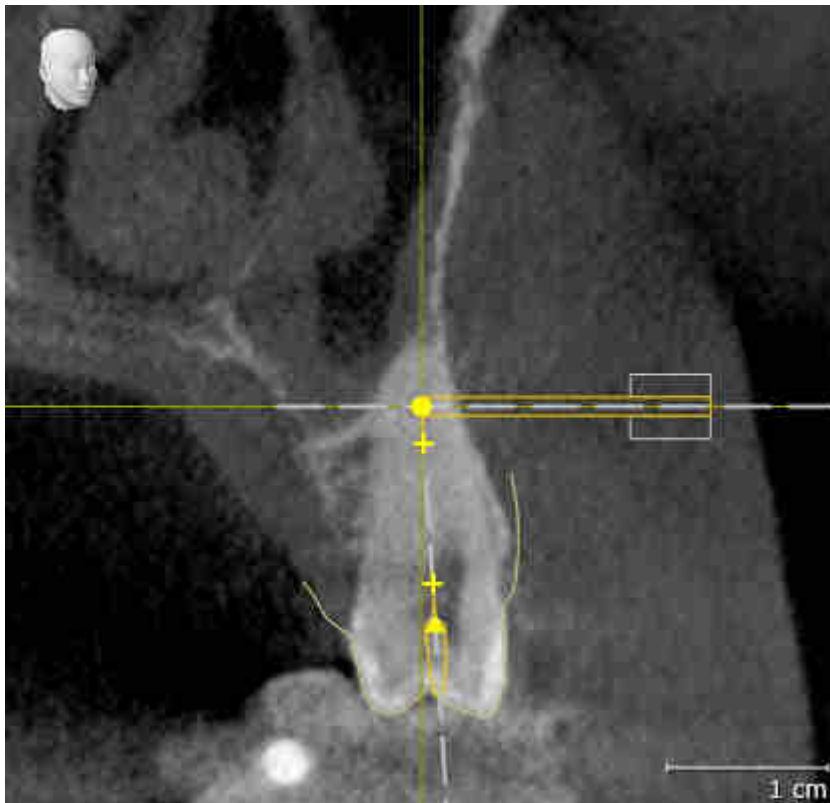
ENDOLINE

1. Make sure that the **FDI** tooth scheme is active. Information on this can be found in the section *Using general settings* [▶ Page 182 - SIDEXIS 4].
2. Make sure that the **Panorama** workspace is active.
3. Reset the views to their default values.
4. In the **Object browser**, expand the "**Tooth 45**" group.
5. In the **Object browser**, select the "15.24 mm Tooth No. 45" element and focus on it.

6. Compare the **Tangential** view with the following screenshot:



7. In the **Object browser**, expand the "Tooth 25" group.
8. In the **Object browser**, select the "13.63 mm Tooth No. 25" element and focus on it.
9. Compare the **Cross-Sectional** view with the following screenshot:



10 UPDATING OR REPAIRING SICAT SUITE

UPDATING SICAT SUITE

You can update SICAT Suite by starting the SICAT Suite installation program and clicking on the **Refresh** button. The installation program will first uninstall the old version of SICAT Suite. All data and settings will be maintained.



A new version of the stand-alone version of SICAT Suite requires updated patient record depots. When first starting the new version or if you are activating an old patient record depot, SICAT Suite will ask if you want to update the patient record depot. SICAT Suite will update the patient record depot automatically when you confirm the message. **CAUTION! You can no longer use updated patient record depots with older versions of SICAT Suite.**



If you update SIDEXIS XG to SIDEXIS 4.1.3 or higher and then update SICAT Suite, the SICAT Suite installer will register SICAT Suite as a SIDEXIS 4 module. When you open a 3D X-ray scan, SICAT Suite will check whether there are studies in SIDEXIS XG for this 3D X-ray scan and transfer these from SIDEXIS XG to SIDEXIS 4.

REPAIRING SICAT SUITE

You can repair SICAT Suite by starting the SICAT Suite installation program and clicking on the **Repair** button. All data and settings will be maintained.

Both updates to and repairs of SICAT Suite use the SICAT Suite installation program. Information on this can be found in the section *Installing SICAT Suite* [▶ Page 19 - SIDEXIS 4].

UPDATING FROM PLUG-IN TO MODULE IN SIDEXIS 4

From version 1.3 onwards, SICAT Suite supports SIDEXIS 4 from version 4.1.3 as a module, but no longer as a plug-in. If you install the update to SICAT Suite 1.3 after SIDEXIS 4, SICAT Suite will automatically be registered as a module. If you update SIDEXIS 4 after updating SICAT Suite, you have to register manually. Information on this can be found in the section *Registering and removing SICAT Suite as a SIDEXIS 4 module* [▶ Page 35 - SIDEXIS 4].

11 SPECIAL FEATURES IN THIS VERSION

Depending on whether you use SICAT Endo as stand-alone version or connected to other software, there are differences in certain areas.

MANUAL REGISTRATION AS A SIDEXIS 4 MODULE

In addition to the automatic connection during installation, you can also manually register and remove SICAT Suite as a SIDEXIS 4 module. Information on this can be found in the section *Registering and removing SICAT Suite as a SIDEXIS 4 module* [▶ Page 35 - SIDEXIS 4].

PROGRAM START

SICAT Suite will start as a SIDEXIS 4 module within SIDEXIS 4 in the **Plan & Treat** phase. You can find information about how to start SICAT Suite as a SIDEXIS 4 module in the section *Starting SICAT Suite* [▶ Page 39 - SIDEXIS 4].

PATIENT DATA AND VOLUME DATA

The version of SICAT Endo connected to SIDEXIS uses the SIDEXIS patient data and volume data. The data is therefore backed up via the processes intended for SIDEXIS.



You should also back up the user settings of the SICAT applications in addition to the patient data. You can find the user settings for each user in two directories separately. You can open the directories by entering **%appdata%\SICAT GmbH & Co. KG** and **%localappdata%\SICAT GmbH & Co. KG** into the address bar of Windows Explorer.

SETTINGS

You can find the SICAT Suite settings as a category in the SIDEXIS 4 settings.

In the version connected to SIDEXIS, SICAT Suite will only display the values of some settings, as these are imported from SIDEXIS.

LICENSES

The stand-alone version and versions of SICAT Suite connected to other software use the same licenses. You do not need to choose a version when you install SICAT Suite.

DATA SYNCHRONIZATION BETWEEN SICAT ENDO AND SIDEXIS 4

SICAT Endo and SIDEXIS 4 synchronize the volume orientation and panoramic region in both directions. The following restrictions apply here:

- SICAT Endo only supports rotations of the volume orientation up to a maximum of 30 degrees.
- If the synchronization of the volume orientation influences previously added diagnosis objects or planning objects which are based on a different volume orientation, SICAT Endo will open a message window. The message window will inform you of the exact impacts of the synchronization and you can select between the following options:
 - **Synchronize**
 - **Not now**
 - **Never** for the current 3D X-ray scan and the current volume orientation in SIDEXIS 4
- If the synchronization of the panoramic region influences previously added diagnosis objects or planning objects which are based on a differently set panoramic region, SICAT Endo will open a message window. In the message window, you can select one of two options:
 - **OK** - SICAT Endo performs the synchronization and removes the objects.
 - **Cancel** - SICAT Endo does not perform the synchronization and keeps the objects.
- SICAT Endo supports only standard panoramic curves of SIDEXIS 4, not the shifting of individual points.
- SICAT Endo supports only panoramic curves that are at least 10 mm thick.
- SICAT Endo supports only panoramic curves that have not been rotated in SIDEXIS 4.

If at least one of the restrictions applies, SICAT Endo and SIDEXIS 4 no longer synchronize the volume orientation and panoramic region or just the panoramic region.

In addition, SICAT Endo adopts the focus point and viewing direction of **3D** view from SIDEXIS 4 when you open a 3D X-ray scan in SICAT Endo for the first time.

DATA EXPORT

If SICAT Suite runs as a SIDEXIS 4 module, the data export will take place via the corresponding SIDEXIS 4 functions. For more information, please refer to the SIDEXIS 4 installation instructions.

ADDING SCREENSHOTS TO A SIDEXIS 4 OUTPUT

You can add screenshots of views and workspaces to a SIDEXIS 4 output. Following this, you can use the 2D output options of SIDEXIS 4. For more information, please refer to the SIDEXIS 4 installation instructions.

SHOPPING CART

You can find the shopping cart in SICAT Suite and in the **Output** phase of SIDEXIS 4.

OPENING STUDIES WITH OR WITHOUT WRITE PERMISSIONS



If the computers, on which SIDEXIS 4 and SICAT Suite are running, are in a network environment and where permitted by SIDEXIS 4 and the network configuration, SIDEXIS 4 could be part of a multi-workstation installation. This means, amongst other things, that other workstations can withdraw your write permissions for open records. If this occurs, SIDEXIS 4 will close the record immediately and you cannot save changes to SICAT Endo studies.

The following conditions must be met in order to make changes to SICAT Endo studies and save these changes:

- A SICAT Endo full version license must be activated.

The following table shows which functions are available in each case:

FUNCTION	FULL VERSION LICENSE ACTIVATED	VIEWER LICENSE ACTIVATED	NO LICENSE ACTIVATED
Support area	Yes	Yes	Yes
General settings	Yes	Yes	Yes
Making changes	Yes	No	No
Viewing data without saving changes	No	Yes	No
Help	Yes	Yes	Yes

In the following cases, you can view SICAT Endo studies without a Viewer license:

- In SIDEXIS 4, export SICAT Endo studies and import the data to SIDEXIS on another computer. SICAT Endo must be installed on this computer.
- In SIDEXIS 4, create a Wrap&Go package which contains SICAT Endo studies. Install the Wrap&Go package on another computer. Then, install SICAT Endo.

In both cases you cannot make or save any changes to the planning.

Under certain circumstances you cannot make or save changes to SICAT Endo studies even if the application license is activated. An ongoing ordering process may, for example, be one cause for this.

Further information is available in the section *Opening read-only data* [▶ Page 193 - SIDEXIS 4].

12 THE STANDARD WORKFLOW OF SICAT ENDO



The shared use of SICAT Suite and the SICAT applications contained therein with other devices within a computer network or a storage area network could result in previously unknown risks for patients, users and other persons.

Ensure that rules are compiled within your organization to determine, analyze and assess risks in relation to your network.



Saving SICAT application data in an unreliable or incompatible network file system could result in data loss

Together with your network administrator, make that SICAT application data can be safely stored in the desired network file system.



Changes to your network environment may result in new risks for your network environment. Examples include changes to your network configuration, the connection of additional devices or components to your network, the disconnection of devices or components from your network and the updating or upgrading of network devices or components.

Perform a network risk analysis after any changes to the network.



Problems in terms of cyber-security could result in unauthorized access to your patient data and risks in relation to the security or integrity of your patient data.

If you suspect problems in relation to the cyber-security of your SICAT application, contact support immediately.



Security leaks in your information system environment could result in unauthorized access to your patient data and put the privacy or integrity of your patient data at risk.

1. Make sure policies are established within your organization to prevent security threats to your information system environment.
2. Install and run an up-to-date virus scanner.
3. Make sure the pattern files of the virus scanner are updated on a regular basis.



Unauthorized access to your workstation could result in risks to the privacy and integrity of your patient data.

Limit the access to your workstation to authorized individuals only.



Before starting work with SICAT Suite, it is important that you have read these instructions for use and in particular all safety information in full. Keep these instructions for use at hand for use when information is needed in future.

INSTALLATION

Information on how to install SICAT Suite can be found in the section *Installing SICAT Suite* [▶ Page 19 - SIDEXIS 4].

Information on how to manually register SICAT Suite as SIDEXIS 4 module can be found in the section *Registering and removing SICAT Suite as a SIDEXIS 4 module* [▶ Page 35 - SIDEXIS 4].

ACTIVATING FULL VERSION

- If you have purchased a license for SICAT Endo, activate the license to unlock the full version. Information on this can be found in the section *Licenses* [▶ Page 44 - SIDEXIS 4].



If you have not purchased a license for SICAT Endo, open a 3D X-ray scan in Viewer mode. Information on this is available in the section *Opening read-only data* [▶ Page 193 - SIDEXIS 4].

SETTINGS

Change the desired settings in the **Settings** area. Information on this can be found in the section *Settings* [▶ Page 181 - SIDEXIS 4].

DATA RECORDS

SICAT Endo combines three different data types:

- 3D X-ray scans, for example, from Sirona GALILEOS
- Intraoral scans, for example, from Sirona XIOS XG
- Digital optical impressions, for example, from Sirona CEREC

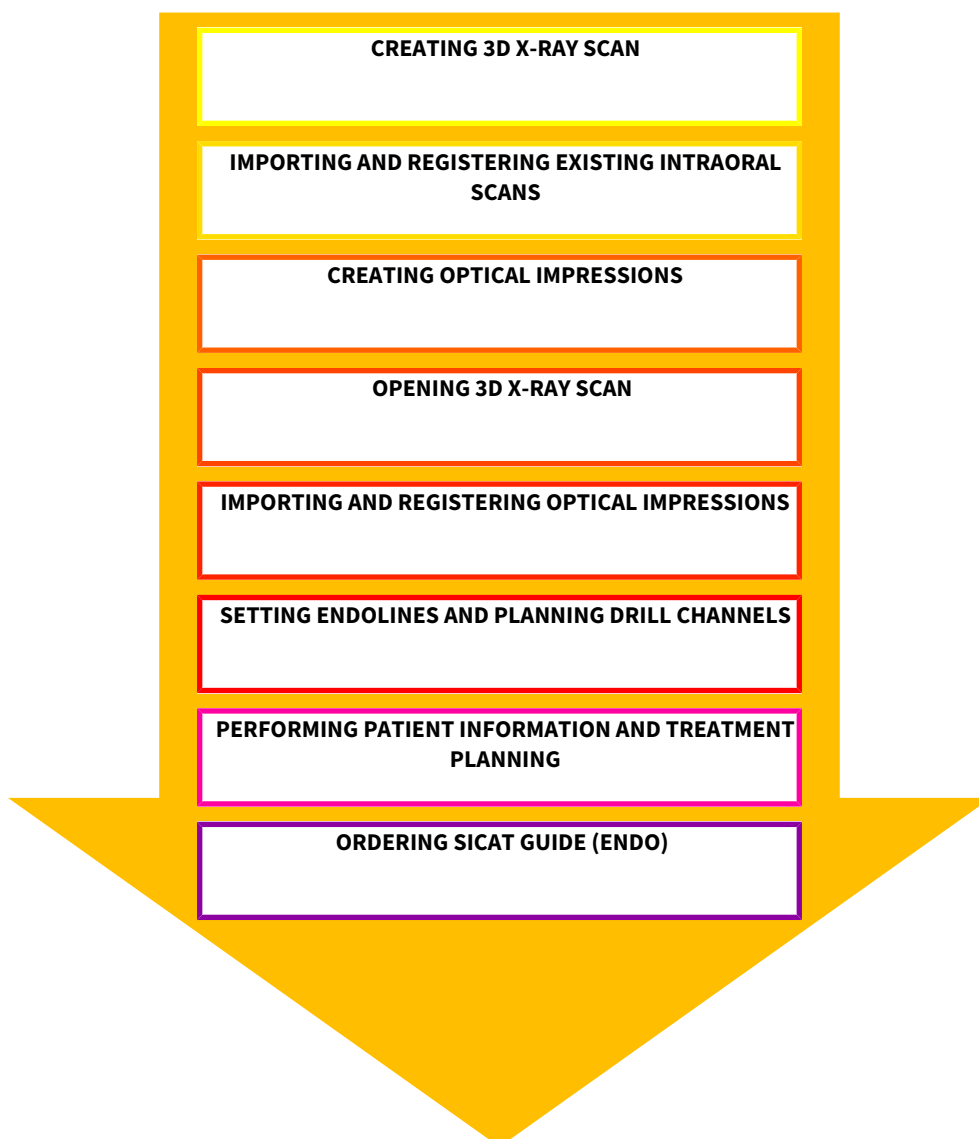
ACQUIRING DATA RECORDS

1. Create an intraoral scan of the patient where required. For more information, please refer to the instructions for use for the respective device.
2. Create a 3D X-ray scan of the patient. For more information, please refer to the instructions for use for the respective device.
3. Create digital optical impressions of the maxilla or mandible. For more information, please refer to the instructions for use for the respective device.

OPENING A DATA RECORD

1. Select a 3D X-ray scan or a SICAT Endo study in the timeline.
2. Start SICAT Endo. Information on this can be found in the section *Starting SICAT Suite* [▶ Page 39 - SIDEXIS 4].

TYPICAL DIGITAL ENDODONTIC WORKFLOW



WORK STEPS IN SICAT ENDO

1. If necessary, adjust the volume orientation and panoramic region. Information on this can be found in the section *Volume orientation and panoramic region* [▶ Page 92 - SIDEXIS 4].
2. Import and register existing intraoral scans in SICAT Endo. For further information see section *Importing intraoral scans and allocating them to teeth* [▶ Page 115 - SIDEXIS 4] and section *Registering intraoral scan* [▶ Page 121 - SIDEXIS 4].
3. Import and register the optical impressions with the 3D X-ray data. Information on this can be found in the section *Importing and registering optical impressions* [▶ Page 104 - SIDEXIS 4].
4. Set EndoLines and plan drill channels. For further information see *Pre-aligning a tooth region* [▶ Page 138 - SIDEXIS 4], *Placing EndoLines* [▶ Page 140 - SIDEXIS 4] and *Planning drill channels* [▶ Page 149 - SIDEXIS 4].
5. Examine the Endo planning objects in the **Radiograph** workspace. Information on this can be found in the section *Overview of the intraoral scan workspace* [▶ Page 68 - SIDEXIS 4].

6. Inform the patient and create a handout for the patient based on this. Information on this can be found in the section *Patient information* [▶ Page 160 - SIDEXIS 4].
7. Order a SICAT GUIDE (ENDO) surgical guide. Information on this can be found in the section *Ordering process* [▶ Page 168 - SIDEXIS 4].
8. Export data, for example, to obtain a second opinion. Information on this can be found in the section *Data export* [▶ Page 167 - SIDEXIS 4].

ENDING OR PAUSING WORK ON THE DATA RECORD

- To end or pause your work, save it by closing SICAT Suite within SIDEXIS 4. Information on this can be found in the section *Closing SICAT Suite* [▶ Page 195 - SIDEXIS 4].

INSTRUCTIONS FOR USE AND SUPPORT

The instructions for use can be found in the **SICAT Suite Help** window. Information on this can be found in the section *Opening the instructions for use* [▶ Page 43 - SIDEXIS 4].

Further support is available in the **Support** area. Information on this can be found in the section *Support* [▶ Page 189 - SIDEXIS 4].

13 REGISTERING AND REMOVING SICAT SUITE AS A SIDEXIS 4 MODULE

General information on using SICAT Suite with SIDEXIS 4 can be found under Special features in this version



If you install SICAT Suite after SIDEXIS 4, the SICAT Suite installation program will automatically register it as a SIDEXIS 4 module. Information on this can be found in the section *Installing SICAT Suite* [▶ Page 19 - SIDEXIS 4].

OPENING THE "SIDEXIS 4" WINDOW

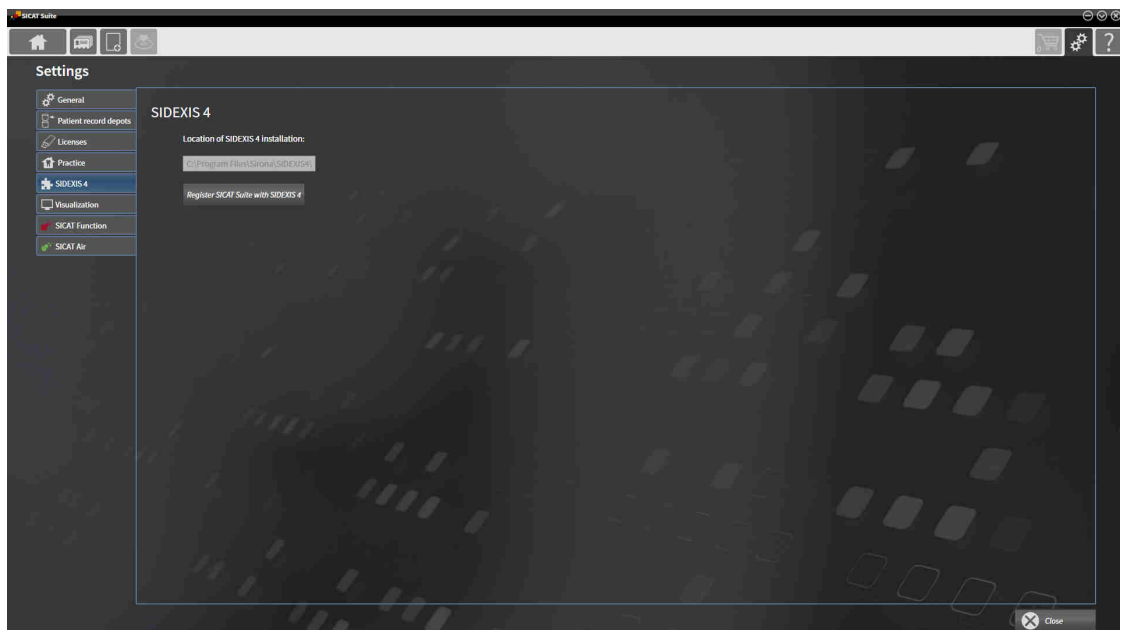
1. Start the stand-alone version of SICAT Suite. Information on this can be found in the section *Starting SICAT Suite* [▶ Page 39 - SIDEXIS 4].



2. Click on the **Settings** icon.
▶ The **Settings** window opens.



3. Click the **SIDEXIS 4** tab.
▶ The **SIDEXIS 4** window opens:



REGISTERING SICAT SUITE AS A SIDEXIS 4 MODULE

- ☑ SICAT Suite has already been successfully installed. Information on this can be found in the section *Installing SICAT Suite* [▶ Page 19 - SIDEXIS 4].
- ☑ SIDEXIS 4 is not open.
- ☑ The stand-alone version of SICAT Suite has already been started.
- ☑ The **SIDEXIS 4** window is already open.

1. Click on the **Register SICAT Suite with SIDEXIS 4** button.

2. Start SIDEXIS 4.

- ▶ SICAT Suite is registered as a SIDEXIS 4 module. Registration in SIDEXIS 4 has been successful if the **Plan & Treat** phase is visible:



REMOVING SICAT SUITE AS A SIDEXIS 4 MODULE

- ☑ SICAT Suite is already registered as a SIDEXIS 4 module.
- ☑ SIDEXIS 4 is not open.
- ☑ The stand-alone version of SICAT Suite has already been started.
- ☑ The **SIDEXIS 4** window is already open.

1. Click on the **Remove SICAT Suite from SIDEXIS 4** button.

2. Start SIDEXIS 4.

- ▶ SICAT Suite is no longer available as a SIDEXIS 4 module

14 SICAT ENDO STUDIES IN SIDEXIS 4



CAUTION

Insufficient visualization quality could result in incorrect diagnosis and treatment.

Before using a SICAT application, for example with the SMPTE test image, check whether the display quality is sufficient.



CAUTION

Insufficient environmental visualization conditions could result in incorrect diagnosis and treatment.

1. Only perform planning if the environmental conditions allow for sufficient visualization quality. For example, check for appropriate lighting.
2. Check whether the display quality is sufficient using the SMPTE test image.



CAUTION

X-ray devices without DICOM conformity could result in incorrect diagnosis and treatment.

Only use 3D volume data from X-ray devices with DICOM conformity declared.



CAUTION

Unsuitable 3D X-ray scans may result in an incorrect diagnosis and treatment.

Always verify the quality, integrity, and correct orientation of the displayed 3D data.



CAUTION

Unsuitable X-ray devices may result in an incorrect diagnosis and treatment.

Only use 3D X-ray scans from X-ray devices that are cleared as medical equipment.

If SICAT Suite is running as a SIDEXIS4 module, the patient data will be managed in SIDEXIS4.

SIDEXIS4 displays preview images of SICAT Endo studies if the following conditions have been fulfilled:

- You are using SICAT Suite as a SIDEXIS4 module.
- A SICAT Endo study is available for the selected patient.



- | | |
|------------------------------|--------------------------|
| 1 Drill channels | 4 Intraoral scans |
| 2 EndoLines | 5 Plan |
| 3 Optical impressions | 6 Order |

The preview pictures contain the following information:

- Availability of registered intraoral scans
- Availability of optical impressions
- Availability of a planning for root canal treatment
- Availability of an order with status and date
- Availability of a report

If an icon is shown in bright colors, that means that the respective element is available in a study.

15 STARTING SICAT SUITE



Incorrect assignment of patient name or 3D scan could result in confusion of patient scans.

Verify that the 3D scan that is to be imported or already loaded in a SICAT Suite application is associated with the correct name of the patient and the correct scan information.



Unsuitable X-ray devices may result in an incorrect diagnosis and treatment.

Only use 3D X-ray scans from X-ray devices that are cleared as medical equipment.



Unsuitable 3D X-ray scans may result in an incorrect diagnosis and treatment.

Always verify the quality, integrity, and correct orientation of the displayed 3D data.

To start SICAT Endo, you must first start SICAT Suite.

To start SICAT Suite as a SIDEXIS 4 module, proceed as follows:

- ☑ SICAT Suite has already been successfully installed. Information on this can be found in the section *Installing SICAT Suite* [▶ Page 19 - SIDEXIS 4].
- ☑ SICAT Suite has already been registered as a SIDEXIS 4 module. Information on this can be found in the section *Registering and removing SICAT Suite as a SIDEXIS 4 module* [▶ Page 35 - SIDEXIS 4]. If SICAT Suite is installed after SIDEXIS 4, registration can take place automatically.
- ☑ You have already selected a 3D X-ray scan or a study in SIDEXIS 4.
- ☑ Optionally, you have selected other data records in SIDEXIS 4. This may always be an intraoral image. In case of a 3D X-ray scan, it may also be a corresponding study.



1. Click on the **Show in** icon on the right of the **Show in 3D study** button.



2. In the **Show in** window, click on the **SICAT Suite** icon.

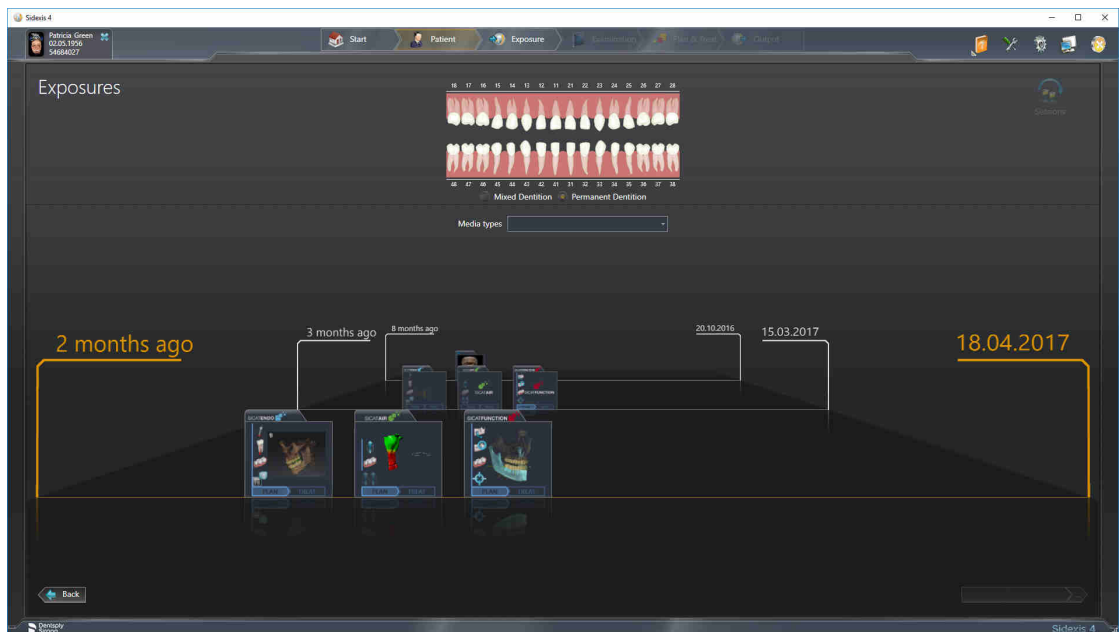
- ▶ SIDEXIS 4 switches to the **Plan & Treat** phase.
- ▶ SICAT Suite opens the 3D X-ray scan in a SICAT application.



If you open a 3D X-ray scan without the corresponding study and have only activated the license of one SICAT application, that SICAT application will start. If you open a 3D X-ray scan with several corresponding studies and you have activated the licenses for multiple SICAT applications, the application with the most recently changed study will open.

You can change to another SICAT application after opening a 3D X-ray scan. Information on this can be found in the section *Switching between SICAT applications* [▶ Page 42 - SIDEXIS 4].

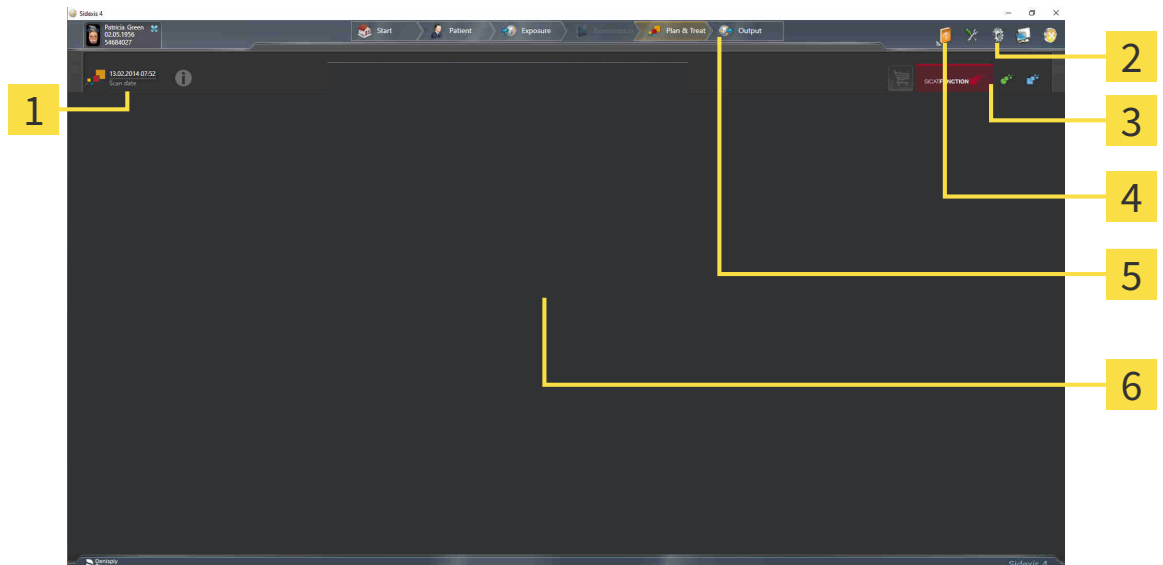
If you have saved an application-specific study, you can select it directly in the **Scans** window and open it in the corresponding SICAT application. If you already have an item in your shopping cart which is based on that study, the shopping cart will open.



SIDEXIS 4 also shows the studies in the **Patient details** window in the **Last scans** area. Information on this can be found in the section *SICAT Endo studies in SIDEXIS 4* [▶ [Page 37 - SIDEXIS 4](#)].

16 THE USER INTERFACE OF SICAT SUITE

The SICAT Suite user interface comprises the following parts:



1 Currently opened study

2 Settings

3 Buttons to change applications and **Shopping cart** button

4 Help

5 SIDEXIS 4 phase bar

6 Application area

- Currently opened study – here you will find information on the currently opened study and a button to close SICAT Suite.
- **Settings** - Information on this can be found in the section *Settings* [▶ Page 181 - SIDEXIS 4].
- Buttons to change applications and **Shopping cart** button – Information on this can be found in the sections *Switching between SICAT applications* [▶ Page 42 - SIDEXIS 4] and *Ordering process* [▶ Page 168 - SIDEXIS 4].
- **Help** - Information on this can be found in the section *Opening the instructions for use* [▶ Page 43 - SIDEXIS 4].
- The **Application area**, which is located in the remaining part of SICAT Suite, shows the user interface of the active SICAT application.

17 SWITCHING BETWEEN SICAT APPLICATIONS

To switch between SICAT applications, proceed as follows:

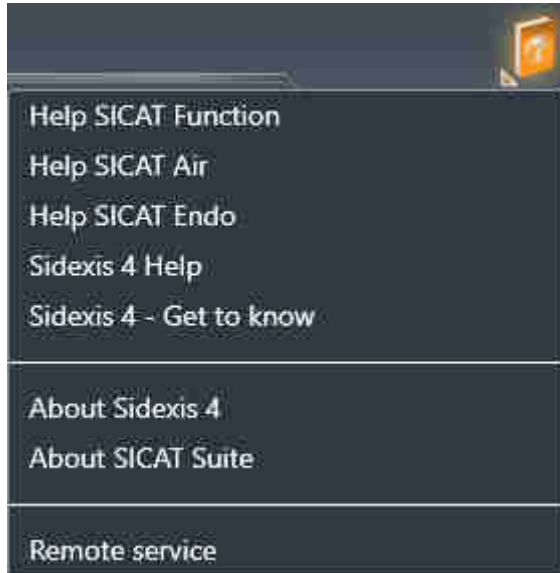


- Click on the button with the label matching the desired SICAT application.
- ▶ SICAT Suite will switch to the selected application.

18 OPENING THE INSTRUCTIONS FOR USE

The **Help** menu in SIDEXIS 4 contains the instructions for use for the SICAT applications in the form of PDF files. To open the instructions for use of a SICAT application, proceed as follows:

1. Click on the **Help** icon.
 - ▶ A list of the available instructions for use opens:



2. Click the desired instructions for use.
 - ▶ The selected instructions for use open.

If a SICAT application is open, you can also press the F1 key to open the corresponding help.

19 LICENSES

SICAT Suite shows only SICAT applications for which you have activated a license.



In the SICAT Suite version which is connected to SIDEXIS, you can view SICAT Endo plans even without activated SICAT Endo license.

The following license types exist:

- A Viewer license, through which you can use an application in Viewer mode for an unlimited period of time.
- A demo license, through which you will receive temporary access to the full version of one or more SICAT applications.
- A full version license, through which you will receive access to the full version of one or more SICAT applications for an unlimited period of time.

The following steps are required to activate SICAT applications or individual functions:

- You contact your local sales partner.
- You receive a voucher code.
- Using the voucher code, you generate a license key on the SICAT portal (which can be accessed via SICAT home page).
- SICAT adds the license key to your activation key.
- You use your activation key to activate SICAT applications or individual functions on computers on which SICAT Suite is installed.

The following applies for activating and deactivating licenses:

- You will only receive license keys for SICAT applications that are approved in your country.
- If you activate an activation key on a computer, one license of all included SICAT applications or included functions will be linked to that computer. The licenses will be no longer available for activation on another computer.
- You may deactivate licenses for each SICAT application or individual function separately. Returned licenses are available for renewed activation on the same or another computer.
- If you return a full version license for a SICAT application, you will automatically receive a Viewer license provided the application is approved in your country.
- If you activate a full version license, you will automatically receive Viewer licenses for all applications that are approved in your country.

Information on how to convert a voucher code into an activation key can be found in section *Redeeming voucher codes* [▶ Page 53 - SIDEXIS 4].

The **License Overview** window gives an overview of the licenses which are activated on your computer. If you are using a demo license, SICAT Suite will display the expiry date of the licenses. Information on this can be found in the section *Opening the “Your licenses at a glance” window* [▶ Page 46 - SIDEXIS 4].

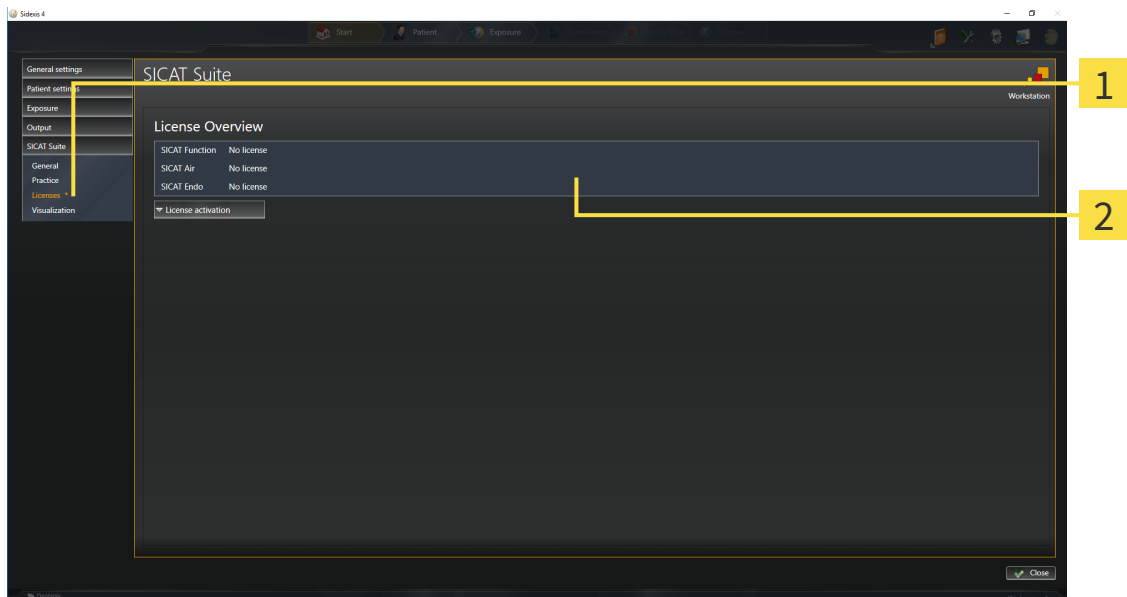
You can activate licenses in two ways:

- If the computer on which SICAT Suite is running has an active Internet connection, the license can be activated automatically. Information on this can be found in the section *Activating licenses using an active Internet connection* [▶ Page 47 - SIDEXIS 4].
- Upon request or if the computer on which SICAT Suite is running has no active Internet connection, the license can be activated manually using the license request files. You have to upload such license request files on the SICAT website. In return, you will receive a license activation file, which you have to activate in SICAT Suite. Information on this can be found in the section *Activating licenses manually or without an active Internet connection*. [▶ Page 49 - SIDEXIS 4].

You can deactivate licenses for each application or function individually. After you have deactivated a license, you can enter the same or another activation key. Returned licenses are available for activation on the same or another computer. Information on this can be found in the section *Returning licenses to the license pool* [▶ Page 51 - SIDEXIS 4].

19.1 OPENING THE “YOUR LICENSES AT A GLANCE” WINDOW

1. Click on the **Settings** icon in the title bar of SIDEXIS 4.
 - ▶ The **Settings** window opens.
2. Click on the **SICAT Suite** group.
 - ▶ The **SICAT Suite** group opens.
3. Click on the **Licenses** button.
 - ▶ The **License Overview** window opens:



1 Licenses tab

2 License Overview window

Continue with one of the following actions:

- *Activating licenses using an active Internet connection* [▶ Page 47 - SIDEXIS 4]
- *Activating licenses manually or without an active Internet connection.* [▶ Page 49 - SIDEXIS 4]
- *Returning licenses to the license pool* [▶ Page 51 - SIDEXIS 4]

19.2 ACTIVATING LICENSES USING AN ACTIVE INTERNET CONNECTION

NOTICE

Patient record must be closed

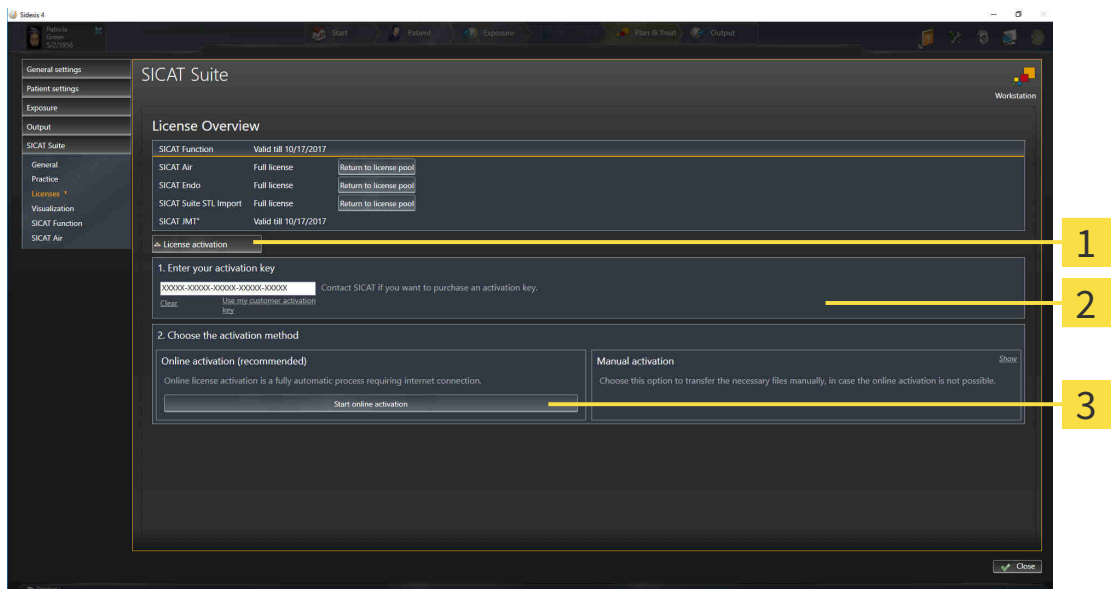
You must close the active patient record before making changes to the licenses.

To start the activation process, proceed as follows:

- ✓ At least one SICAT application or one individual function is missing an active license.
- ✓ The computer on which SICAT Suite is running has an active Internet connection.
- ✓ The **License Overview** window is already open. Information on this can be found in the section *Opening the “Your licenses at a glance” window* [▶ Page 46 - SIDEXIS 4].

1. Click the **License activation** button in the **License Overview** window.

▶ The **License Overview** area expands:



1 License activation button

2 Enter your activation key area

3 Start online activation button

2. Enter your activation key in the **Enter your activation key** field.

3. Click on the **Start online activation** button.

4. If a **Windows Firewall** window opens, allow SICAT Suite to access the Internet.

▶ Licenses acquired for installed applications or individual functions are removed from your license pool and activated in SICAT Suite on the current computer.

▶ The message window opens and shows the following message: **License was successfully activated.**

NOTICE**Restart required**

If a version of a SICAT application which is connected to SIDEXIS requires a restart after a license change, SICAT Suite will open a corresponding message window.



To activate a SICAT application again, you can use your customer activation key by clicking on the **Use my customer activation key** button in the **Enter your activation key** area. To clear the field with the current license key, you can click on the **Clear** button.

19.3 ACTIVATING LICENSES MANUALLY OR WITHOUT AN ACTIVE INTERNET CONNECTION.

NOTICE

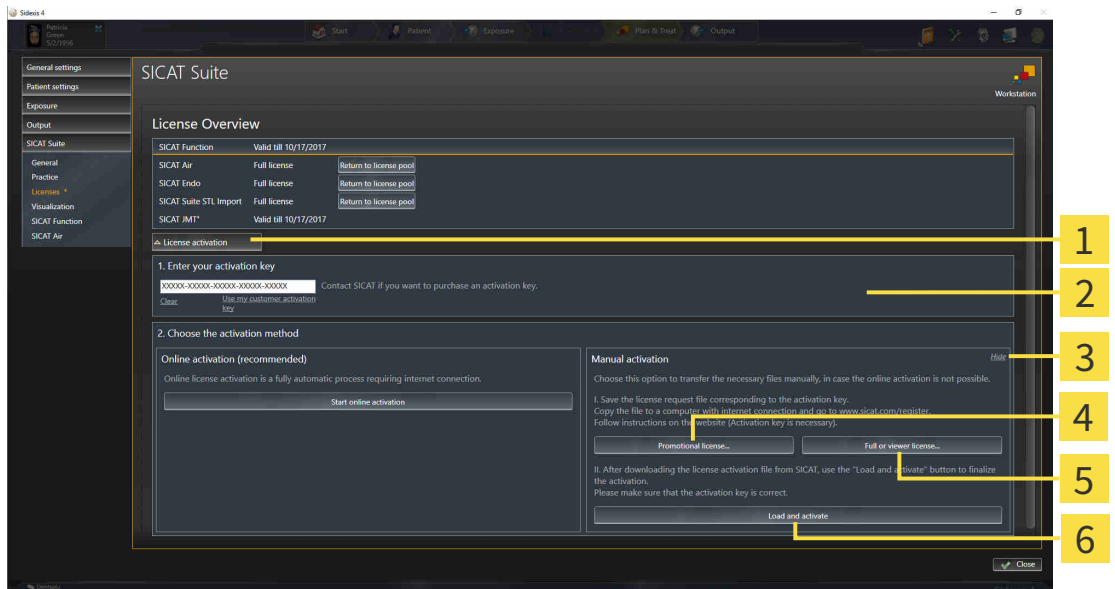
Patient record must be closed

You must close the active patient record before making changes to the licenses.

To activate licenses manually or without an active Internet connection, proceed as follows:

- ✓ At least one SICAT application or one individual function is missing an active license.
- ✓ The **License Overview** window is already open. Information on this can be found in the section *Opening the “Your licenses at a glance” window* [▶ Page 46 - SIDEXIS 4].

1. Click on **License activation** in the **License Overview** window.
 - ▶ The **License activation** area expands.
2. Click on **Display** in the **Manual activation** area.
 - ▶ The **Manual activation** area expands:



- | | |
|---|--|
| 1 License activation | 4 Promotional license button |
| 2 Enter your activation key area | 5 Full or viewer license button |
| 3 Display | 6 Load and activate button |

3. If you wish to activate a full license, click the **Full or viewer license** button.
4. If you wish to activate a demo license, click the **Promotional license** button.
 - ▶ A Windows Explorer window opens.
5. Select the desired folder for the license request file and click **OK**.
 - ▶ A license request file with the **WibuCmRaC** file extension is generated and saved in the selected folder.

6. Copy the license request file on a computer with an active Internet connection, for example using a USB stick.
7. Open a web browser on the computer with the active Internet connection and open the <http://www.sicat.com/register> web page.
8. Follow the instructions on the activation page.
 - ▶ Licenses acquired for installed applications or individual functions are removed from your license pool.
 - ▶ The SICAT license server generates a license activation file with the **WibuCmRaU** file extension which you need to download onto your computer.
9. Copy the downloaded license activation file onto the computer on which SICAT Suite is running.
10. Check that the correct key is in the **Enter your activation key** field.
11. Click the **Load and activate** button in the **License Overview** window.
 - ▶ A Windows Explorer window opens.
12. Browse to find the license activation file, select it and click **OK**.
 - ▶ The license in the license activation file is installed on the current computer.
 - ▶ The message window opens and shows the following message: **License was successfully activated.**

NOTICE	<p>Restart required</p> <p>If a version of a SICAT application which is connected to SIDEXIS requires a restart after a license change, SICAT Suite will open a corresponding message window.</p>
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19.4 RETURNING LICENSES TO THE LICENSE POOL

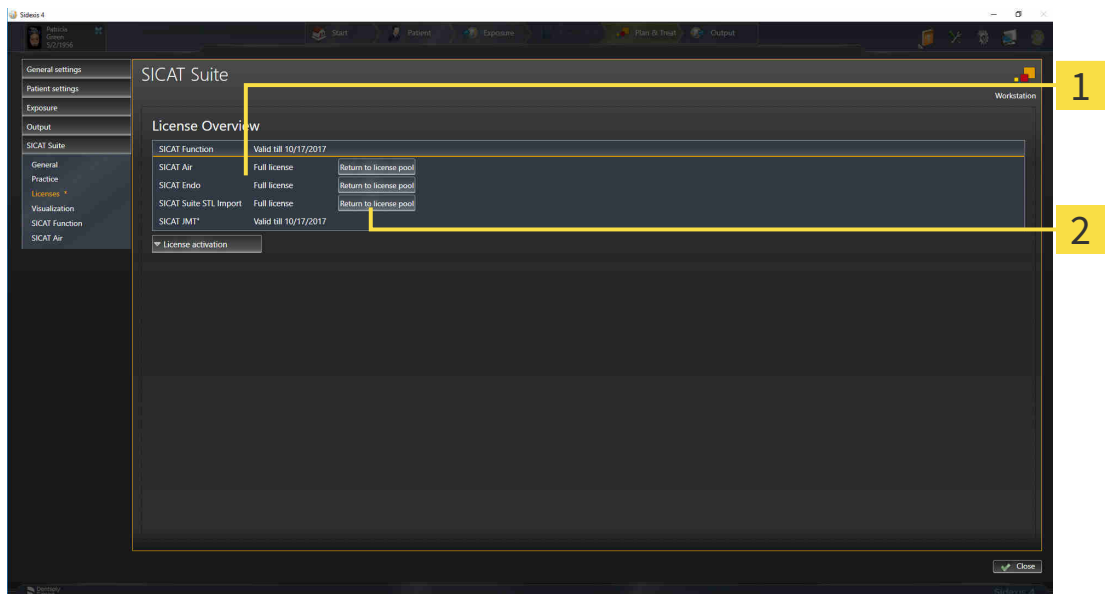
NOTICE

Patient record must be closed

You must close the active patient record before making changes to the licenses.

To deactivate a full license and return it to the license pool, proceed as follows:

- ☑ You have already installed the full license of a SICAT application.
- ☑ The computer on which SICAT Suite is running has an active Internet connection.
- ☑ The **License Overview** window is already open. Information on this can be found in the section *Opening the “Your licenses at a glance” window [▶ Page 46 - SIDEXIS 4].*



1 License status of SICAT applications and individual functions

2 Return to license pool button

- In the **License Overview** window, click on the **Return to license pool** button in the row of the desired SICAT application or individual function.
- ▶ The selected license is returned to your license pool and will be ready for activation again.
- ▶ The message window opens and shows the following message: **License was successfully returned to the license pool.**
- ▶ Without a license, an application will only be available in Viewer mode. If the licenses for all SICAT applications have been returned to your license pool, SICAT Suite will switch entirely to Viewer mode.

NOTICE

Restart required

If a version of a SICAT application which is connected to SIDEXIS requires a restart after a license change, SICAT Suite will open a corresponding message window.



If you wish to deactivate a license on a computer without an active Internet connection, please contact SICAT support.

19.5 REDEEMING VOUCHER CODES

1. Open a web browser on the computer with the active Internet connection and open the <http://www.sicat.com> web page.
2. Select the link for the SICAT portal.
 - ▶ The SICAT portal opens.
3. Register or log in to the SICAT portal using your username and password if you have not already done so.
4. Click on the entry to manage your licenses in the account management section.
5. Enter your voucher code and confirm the code.
 - ▶ The SICAT Portal will generate a license key and add the license key to your activation key.
6. Start SICAT Suite and activate the license.

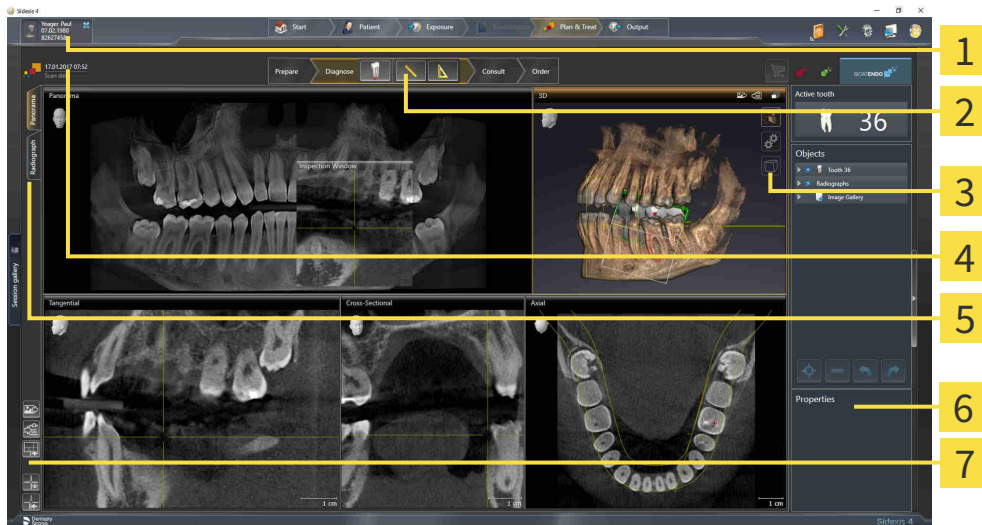
For further information about this see *Activating licenses using an active Internet connection* [▶ Page 47 - SIDEXIS 4] and *Activating licenses manually or without an active Internet connection*. [▶ Page 49 - SIDEXIS 4].



See the FAQ on the SICAT portal for more help.

20 THE SICAT ENDO USER INTERFACE

The SICAT Endo user interface comprises the following parts:



- | | |
|---|--|
| 1 Active Patient Record tab | 5 Buttons for toggling between workspaces |
| 2 Workflow toolbar | 6 Object bar |
| 3 View toolbar | 7 Workspace toolbar |
| 4 Information about the open 3D X-ray scan | |

- The **Active patient record** tab shows the attributes of the active patient record.
- The **Workflow toolbar** consists of various workflow steps, which include the main tools of the application workflow. This includes tools that you can use to add and import diagnosis objects and planning objects. Information on this can be found in the section *Workflow toolbar* [▶ Page 55 - SIDEXIS 4].
- The **Workspace area** is the part of the user interface below the **Workflow toolbar**. It displays the active workspace of SICAT Endo. Each workspace contains a specific combination of views. Information on this can be found in the section *Workspaces* [▶ Page 65 - SIDEXIS 4].
- Only the active view shows the **View toolbar**. It contains tools to adjust the display to the corresponding view. For further information about this see *Adjusting the views* [▶ Page 73 - SIDEXIS 4] and *Adjusting the 3D view* [▶ Page 86 - SIDEXIS 4].
- The **Object bar** contains tools for the management of diagnosis objects and planning objects. For further information, see section *Object bar* [▶ Page 57 - SIDEXIS 4] and section *SICAT Endo objects* [▶ Page 61 - SIDEXIS 4].
- The **Workspace toolbar** contains tools for changing the general settings of workspaces and all of the views they contain and for documenting the contents of workspaces. For further information about this, see *Moving, hiding and showing crosshairs and frames* [▶ Page 81 - SIDEXIS 4], *Resetting views* [▶ Page 84 - SIDEXIS 4], *Adjusting and resetting the layout of workspaces* [▶ Page 70 - SIDEXIS 4] and *Creating screenshots of workspaces* [▶ Page 71 - SIDEXIS 4].

20.1 WORKFLOW TOOLBAR

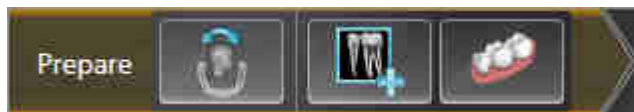
The **Workflow toolbar** in SICAT Endo consists of four workflow steps:

1. **Prepare**
2. **Diagnose**
3. **Consult**
4. **Order**

EXPANDING AND COLLAPSING WORKFLOW STEPS

You can expand and collapse workflow steps by clicking on them.

1. “PREPARE” WORKFLOW STEP



The following tools are available in the **Prepare** workflow step:



- **Adjust volume orientation and panoramic region** - For further information see *Adjusting the volume orientation* [▶ Page 95 - SIDEXIS 4] and *Adjusting the panoramic region* [▶ Page 100 - SIDEXIS 4].



- **Administer and register radiographs** - For further information see *Importing intraoral scans and allocating them to teeth* [▶ Page 115 - SIDEXIS 4], *Pre-positioning intraoral scans* [▶ Page 119 - SIDEXIS 4] and *Registering intraoral scan* [▶ Page 121 - SIDEXIS 4].



- **Import and register optical impressions** - Information on this can be found in the section *Importing and registering optical impressions* [▶ Page 104 - SIDEXIS 4].

2. “DIAGNOSE” WORKFLOW STEP



The following tools are available in the **Diagnose** workflow step:



- **Plan root canal treatment using EndoLines and drill canals** - For further information see *Pre-aligning a tooth region* [▶ Page 138 - SIDEXIS 4], *Placing EndoLines* [▶ Page 140 - SIDEXIS 4] and *Planning drill channels* [▶ Page 149 - SIDEXIS 4].



- **Add distance measurement (D)** - Information on this can be found in the section *Adding distance measurements* [▶ Page 155 - SIDEXIS 4].



- **Add angle measurement (A)** - Information on this can be found in the section *Adding angle measurements* [▶ Page 156 - SIDEXIS 4].

3. “INFORM” WORKFLOW STEP



The following tools are available in the **Consult** workflow step:



- **Draw Arrow** - Information on this can be found in the section *Creating images and screenshots* [▶ Page 161 - SIDEXIS 4].

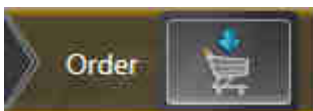


- **Draw Circle** - Information on this can be found in the section *Creating images and screenshots* [▶ Page 161 - SIDEXIS 4].



- **Create report** - Information on this can be found in the section *Preparing handouts* [▶ Page 164 - SIDEXIS 4].

4. "ORDER" WORKFLOW STEP

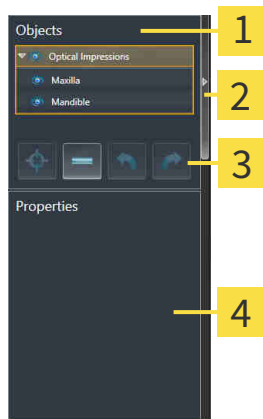


The following tools are available in the **Order** workflow step:



- **Order SICAT GUIDE (ENDO)** - Information on this can be found in the section *Placing surgical guides in the shopping cart* [▶ Page 169 - SIDEXIS 4].

20.2 OBJECT BAR



1 Object browser

2 Hide object bar button or Show object bar button

3 Object toolbar

4 Properties area

The **Object bar** contains the following elements:

- The **Object browser** shows a categorized list of all diagnosis objects and planning objects that you have added or imported to the current study. The **Object browser** groups objects automatically. For example, the **Measurements** group contains all measurement objects. You can expand or collapse object groups, activate objects and object groups and show or hide objects and object groups. Information on this can be found in the section *Managing objects with the object browser* [▶ Page 58 - *SIDEXIS 4*].
- The **Object toolbar** contains tools for focusing objects, removing objects or object groups and undoing or redoing object actions or object group actions. Information on this can be found in the section *Managing objects with the object toolbar* [▶ Page 60 - *SIDEXIS 4*].
- The **Properties** area shows the details of the active object.

You can change the visibility of the **Object bar** using two buttons on the right side of the **Object bar**: **Hide object bar** and **Show object bar**

The objects available in SICAT Endo can be found in the section *SICAT Endo objects* [▶ Page 61 - *SIDEXIS 4*].

20.3 MANAGING OBJECTS WITH THE OBJECT BROWSER

COLLAPSING AND EXPANDING OBJECT GROUPS

To collapse or expand an object group, proceed as follows:



The desired object group is currently expanded.



1. Click on the **Collapse** icon next to the desired object group.
 - ▶ The object group collapses.



2. Click on the **Expand** icon next to the desired object group.
 - ▶ The object group expands.

ACTIVATING OBJECTS AND OBJECT GROUPS

Some tools are only available for active objects or object groups.

To activate an object or object group, proceed as follows:

The desired object or the desired object group is currently deactivated.

- Click the desired object or the desired object group.
 - ▶ SICAT Endo deactivates a previously activated object or object group.
 - ▶ SICAT Endo activates the desired object or the desired object group.
 - ▶ SICAT Endo highlights the object or object group in **Object browser** and the views in a certain color.



In the 2D views, you can activate certain objects by clicking on the objects.

HIDING AND SHOWING OBJECTS AND OBJECT GROUPS



This function is available only for certain object types.

To hide and show an object or object group, proceed as follows:

- ☑ The desired object or the desired object group is currently shown.



1. Click on the **Shown** icon or **Some Shown** icon next to the desired object or object group.



- ▶ SICAT Endo hides the object or object group.
- ▶ SICAT Endo displays the **Hidden** icon next to the object or object group.



2. Click on the **Hidden** icon next to the desired object or object group.

- ▶ SICAT Endo shows the object or object group.
- ▶ SICAT Endo displays the **Shown** icon next to the object or object group.

20.4 MANAGING OBJECTS WITH THE OBJECT TOOLBAR



These functions are available only for certain object types.

FOCUSING ON OBJECTS

Use this function to find objects in the views.

To focus objects, proceed as follows:

- ☑ The desired object is already active. Information on this can be found in the section *Managing objects with the object browser* [▶ Page 58 - SIDEXIS 4].



- Click on the **Focus active object (F)** icon.
- ▶ SICAT Endo moves the focus point of the views to the active object.
- ▶ SICAT Endo displays the active object in the views.



You can also focus objects by double clicking on them in **Object browser** or in a view with the exception of the **3D** view.

REMOVING OBJECTS AND OBJECT GROUPS

To remove an object or object group, proceed as follows:

- ☑ The desired object or the desired object group is already active. Information on this can be found in the section *Managing objects with the object browser* [▶ Page 58 - SIDEXIS 4].



- Click on the **Remove active object/group (Del)** icon.
- ▶ SICAT Endo removes the object or object group.

UNDOING AND REDOING OBJECT ACTIONS

To undo and redo the last object action or group action, proceed as follows:



1. Click on the **Undo last object/group action (Ctrl+Z)** icon.
 - ▶ SICAT Endo undoes the last object action or group action.



2. Click on the **Redo object/group action (Ctrl+Y)** icon.
 - ▶ SICAT Endo redoes the last undone object action or group action.



Undo and redo are only available as long as a study is open in a SICAT application.

20.5 SICAT ENDO OBJECTS

SICAT Endo groups application-specific object groups and objects in the **Object browser** as follows:

- **Radiographs**
- **Optical impressions**
- **Endo planning object**
 - **EndoLine**
 - **Drill canal**
- **Image Gallery**
 - **Image**
 - **Screenshot**

INTRAORAL SCANS OBJECT GROUP



After you have imported and registered intraoral scans, SICAT Endo displays a **Radiographs** object group in the **Object browser**. A **Radiographs** object group always consists of at least one intraoral scan. SICAT Endo displays the scan date and the scan time for each intraoral scan.

OPTICAL IMPRESSION OBJECT GROUP



After you have imported and registered at least one optical impression, SICAT Endo displays an **Optical impressions** object group in the **Object browser**. An **Optical impressions** object group may contain the following objects:

- **Maxilla**
- **Mandible**

If you focus on one object, SICAT Endo will focus all 2D views on the selected object.

If you remove a **Maxilla** or a **Mandible** object, SICAT Endo deletes all existing optical impressions from the study.

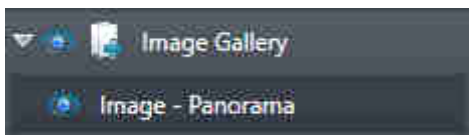
ENDO PLANNING OBJECT GROUP



After you have planned EndoLines and drill channels, SICAT Endo shows **Endo planning object groups** in the **Object browser**. An **Endo planning object group** is always tooth-specific and contains the results from the EndoLine wizard in form of EndoLines and drill channels. An **Endo planning object group** contains as objects EndoLines and as sub-objects drill channels. Drill channels are always linked to an EndoLine. You can use drill channels to plan your endodontic treatment.

If you focus on one of the objects or sub-objects, SICAT Endo will focus all 2D views on the selected object.

PICTURE GALLERY OBJECT GROUP

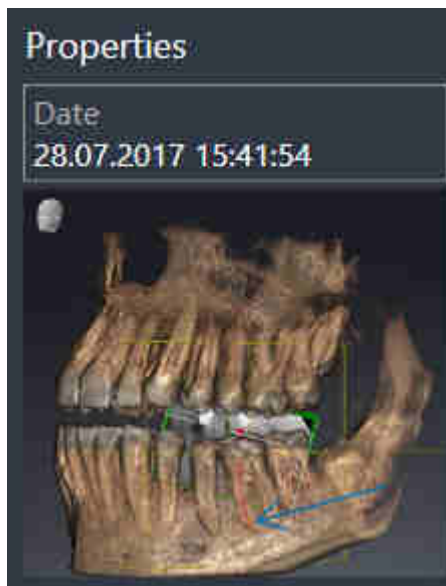


The following applies for **Image Gallery** object groups:



- If you move the mouse pointer over an **Image Gallery** object group, SICAT Endo will display a gear icon. Click on the gear icon and SICAT Endo will open the **Report Generation** window.
- You can use the **Remove active object/group (Del)** function to remove an **Image Gallery** object group. SICAT Endo removes all associated **Image** objects and **Screenshot** objects.

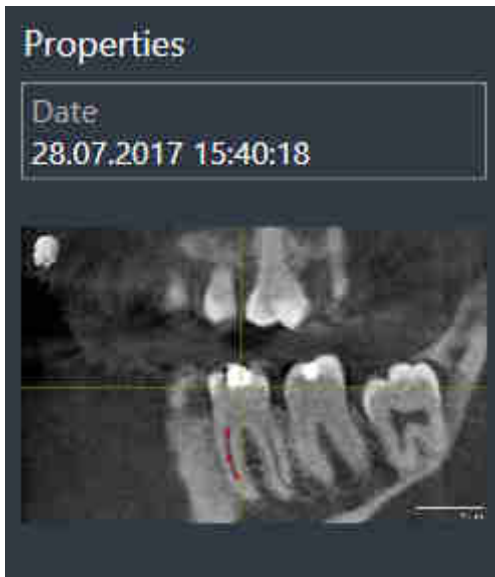
IMAGE OBJECTS



The following applies for **Image** objects:

- **Image** objects are below **Image Gallery** object groups.
- SICAT Endo combines all drawing objects of a slice in a workspace for each 2D view and creates a **Image** object from this.
- SICAT Endo combines all drawing objects of a certain viewing direction and zoom factor in a workspace for the 3D view and creates an **Image** object from this.
- After you have created and activated an **Image** object, the **Object browser** will display the following in the **Properties** area:
 - Creation time of the object
 - Preview of the object
- You can use the **Undo last object/group action (Ctrl+Z)** and **Redo object/group action (Ctrl+Y)** functions for individual annotations.
- You can use the **Remove active object/group (Del)** function to remove a **Image** object and thus all annotations contained in it at once. SICAT Endo removes **Image** objects both from the **Object browser** and from the **Report Generation** window.
- If you focus on an **Image** object, SICAT Endo restores the corresponding view for the time at which you have created the last annotation contained therein.

SCREENSHOT OBJECTS



The following applies for **Screenshot** objects:

- **Screenshot** objects are below **Image Gallery** object groups.
- SICAT Endo creates one **Screenshot** object per screenshot.
- After you have created and activated a **Screenshot** object, the **Object browser** will display the following in the **Properties** area:
 - Creation time of the object
 - Preview of the object
- You can use the **Remove active object/group (Del)** function to remove a **Screenshot** object. SICAT Endo removes **Screenshot** objects both from the **Object browser** and from the **Report Generation** window.
- If you focus on a **Screenshot** object, SICAT Endo restores the corresponding view for the time at which you have created the object.
- The show and hide functions are not available.

21 WORKSPACES

SICAT applications constitute studies in various views and assign combinations of views in workspaces.

SICAT Endo features two different workspaces:

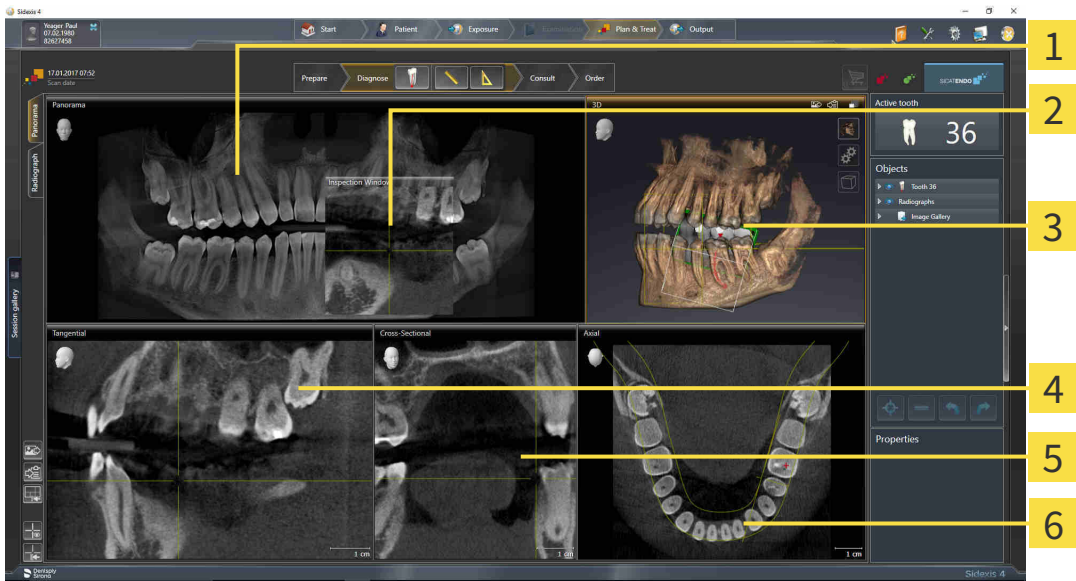


- **Panorama** workspace- Information on this can be found in the section *Overview of the panoramic workspace* [▶ Page 66 - SIDEXIS 4].
- **Intraoral image** workspace- Information on this can be found in the section *Overview of the intraoral scan workspace* [▶ Page 68 - SIDEXIS 4].

The following actions are available for workspaces and the views they contain:

- *Switching the active workspace* [▶ Page 69 - SIDEXIS 4].
- *Adjusting and resetting the layout of workspaces* [▶ Page 70 - SIDEXIS 4].
- *Adjusting the views* [▶ Page 73 - SIDEXIS 4].
- There are additional possibilities to adjust the **3D** view. Information on this can be found in the section *Adjusting the 3D view* [▶ Page 86 - SIDEXIS 4].
- You can document the contents of the active workspace. Information on this can be found in the section *Creating screenshots of workspaces* [▶ Page 71 - SIDEXIS 4].

21.1 OVERVIEW OF THE PANORAMIC WORKSPACE



- 1** Panorama view
- 4** Tangential view
- 2** Inspection Window
- 5** Cross-Sectional view
- 3** 3D view
- 6** Axial view

PANORAMA VIEW

The **Panorama** view corresponds to a virtual orthopantomogram (OPG). It shows an orthogonal projection onto the panoramic curve with a certain thickness. You can adjust the panoramic curve and the thickness to both jaws. Information on this can be found in the section *Adjusting the panoramic region* [▶ Page 100 - SIDEXIS 4].

INSPECTION WINDOW

The **Inspection Window** is embedded in the **Panorama** view. It adds the third dimension to the **Panorama** view by showing slices parallel to the panoramic curve. You can hide and show the **Inspection Window**. Information on this can be found in the section *Moving, hiding and showing the inspection window* [▶ Page 82 - SIDEXIS 4].

3D VIEW

The **3D** view shows a 3D representation of the opened study.

TANGENTIAL VIEW

The **Tangential** view shows slices that are tangential to the panoramic curve.

CROSS-SECTIONAL VIEW

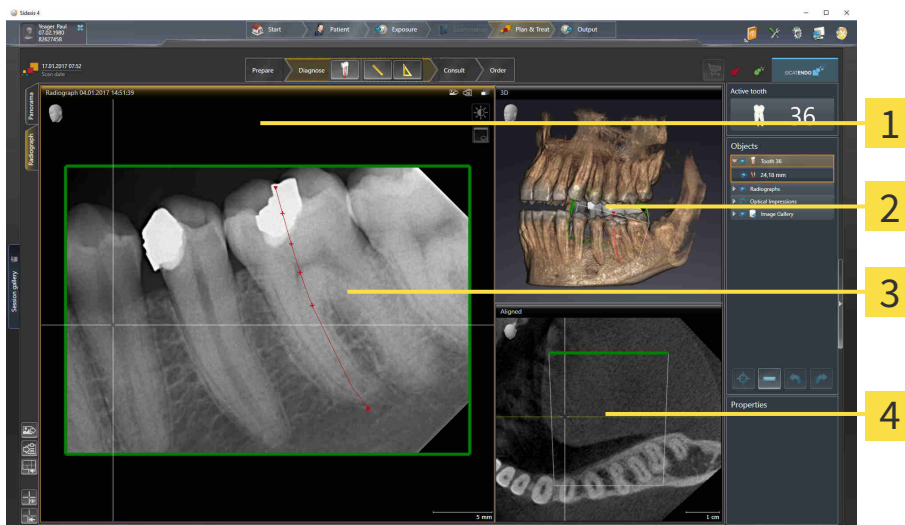
The **Cross-Sectional** view shows slices that are orthogonal to the panoramic curve.

AXIAL VIEW

By default, the **Axial** view shows slices from above. You can switch the viewing direction of the **Axial** view. Information on this can be found in the section *Changing visualization settings* [▶ Page 187 - *SIDEXIS 4*].

You can find information on the functions of the views in the sections *Adjusting the views* [▶ Page 73 - *SIDEXIS 4*] and *Adjusting the 3D view* [▶ Page 86 - *SIDEXIS 4*].

21.2 OVERVIEW OF THE INTRAORAL SCAN WORKSPACE



1 Radiograph view

2 3D view

3 Inspection window

4 Aligned view

RADIOGRAPH VIEW

The **Radiograph** view shows the intraoral scan selected in the object browser.

INSPECTION WINDOW

The **Inspection Window** is embedded in the **Radiograph** view. It adds the third dimension to the **Radiograph** view by showing slices parallel to the intraoral scan. You can hide and show the **Inspection Window** and use it to verify the registration or assess root canals.

3D VIEW

The **3D** view shows a 3D representation of the opened study.

ALIGNED VIEW

By default, the **Aligned** view shows a slice through the intraoral scan that is defined by the position of the crosshairs in the **Radiograph** view.

21.3 SWITCHING THE ACTIVE WORKSPACE

To change the active workspace, proceed as follows:



- Click on the tab of the desired workspace in the upper left corner of the workspace region.
- ▶ The selected workspace opens.

21.4 ADJUSTING AND RESETTING THE LAYOUT OF WORKSPACES

ADJUSTING THE LAYOUT OF THE ACTIVE WORKSPACE

To adjust the layout of the active workspace, proceed as follows:

1. Move the mouse pointer over the border between two or more views.
 - ▶ The mouse pointer changes:



2. Click and hold the left mouse button.
3. Move the mouse.
 - ▶ The position of the border will change.
 - ▶ The sizes of the views on all sides of the border will change.
4. Release the left mouse button.
 - ▶ SICAT Endo maintains the current position of the border and the current sizes of the views on all sides of the border.

RESETTING THE LAYOUT OF THE ACTIVE WORKSPACE

To reset the layout of the active workspace, proceed as follows:



- Click on the **Reset layout of active workspace** icon in the **Workspace toolbar**.
- ▶ SICAT Endo resets the active workspace to the default layout. This means that the software displays all views in their default sizes.

21.5 CREATING SCREENSHOTS OF WORKSPACES

You can copy screenshots of the workspaces to the Windows clipboard for documentation purposes.

ADDING A SCREENSHOT OF A WORKSPACE TO THE SIDEXIS 4 OUTPUT

To add a screenshot of a workspace to a SIDEXIS 4 output, proceed as follows:

- ☑ The desired workspace is already active. Information on this can be found in the section *Switching the active workspace* [▶ *Page 69 - SIDEXIS 4*].



- Click on the **Add screenshot of active workspace to SIDEXIS 4 output** icon in the workspace toolbar.

- ▶ SICAT Endo adds a screenshot of the workspace to the SIDEXIS 4 output.

COPYING A SCREENSHOT OF A WORKSPACE TO THE WINDOWS CLIPBOARD

To copy a screenshot of a workspace to the Windows clipboard, proceed as follows:

- ☑ The desired workspace is already active. Information on this can be found in the section *Switching the active workspace* [▶ *Page 69 - SIDEXIS 4*].



- Click on the **Copy screenshot of active workspace to clipboard** icon in the workspace toolbar.

- ▶ SICAT Endo copies a screenshot of a workspace to the Windows clipboard.



You can add screenshots from the clipboard to several applications, such as image processing software and word processors. In most applications, the paste shortcut key is Ctrl+V.

22 VIEWS

Views are contained in workspaces. A description of the various workspaces and views can be found under *Workspaces* [▶ *Page 65 - SIDEXIS 4*].

You can adjust the views. For further information about this see *Adjusting the views* [▶ *Page 73 - SIDEXIS 4*] and *Adjusting the 3D view* [▶ *Page 86 - SIDEXIS 4*].

22.1 ADJUSTING THE VIEWS

Some tools to adjust the views are only available for the active view. Information on how to activate a view can be found under *Changing the active view* [▶ Page 75 - SIDEXIS 4].

An active view contains the following elements:



- 1 Title bar
- 2 Orientation head
- 3 View toolbar
- 4 Crosshairs
- 5 Scale

2D slice views display crosshairs. Crosshairs are lines of intersection with other slice views. SICAT Endo synchronizes all slice views with each other. This means that all crosshairs show the same position within the 3D X-ray data. You can use this to match anatomical structures beyond the views.

The **3D** view shows frames, which illustrate the current position of the 2D slice views.

The following actions are available to adjust the views:

- *Changing the active view* [▶ Page 75 - SIDEXIS 4]
- *Maximizing and restoring views* [▶ Page 76 - SIDEXIS 4]
- *Adjusting and resetting the brightness and contrast of the 2D views* [▶ Page 77 - SIDEXIS 4]
- *Zooming views and panning views* [▶ Page 79 - SIDEXIS 4]
- *Scrolling through slices in the 2D slice views* [▶ Page 80 - SIDEXIS 4]
- *Moving, hiding and showing crosshairs and frames* [▶ Page 81 - SIDEXIS 4]
- *Moving, hiding and showing the inspection window* [▶ Page 82 - SIDEXIS 4]
- *Resetting views* [▶ Page 84 - SIDEXIS 4]

There are additional possibilities to adjust the **3D** view. Information on this can be found in the section *Adjusting the 3D view* [▶ Page 86 - SIDEXIS 4].

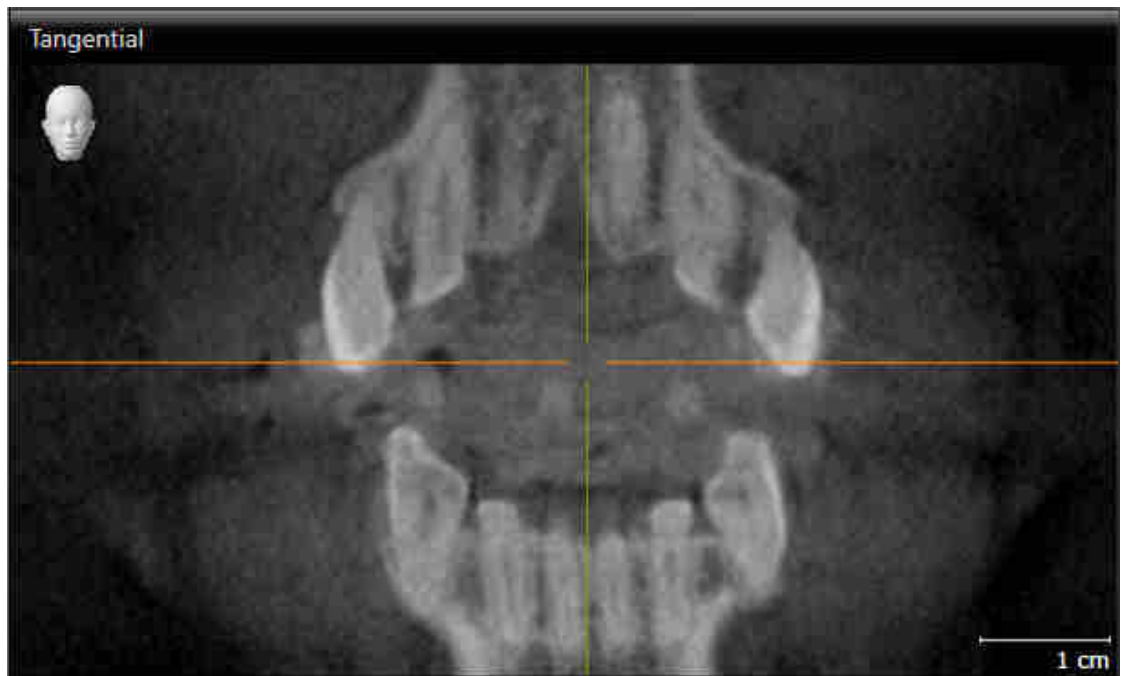
You can document the content of an active view. Information on this can be found in the section *Creating screenshots of views* [▶ Page 85 - SIDEXIS 4].

22.2 CHANGING THE ACTIVE VIEW

Only the active view shows the **View toolbar** and the title bar.

To activate a view, proceed as follows:

1. Place the mouse pointer over the desired view:



2. Click the desired view.

► SICAT Endo activates the view:



You can identify the activated view by the orange title bar.

22.3 MAXIMIZING AND RESTORING VIEWS

To maximize a view and restore it to its previous size, proceed as follows:

- ☑ The desired view is already active. Information on this can be found in the section *Changing the active view* [▶ Page 75 - SIDEXIS 4].
- ☑ The desired view is not maximized.



1. Click on the **Maximize** icon in the title bar of the desired view.

▶ SICAT Endo maximizes the view.



2. Click on the **Restore** icon in the title bar of the maximized view.

▶ SICAT Endo restores the view to its previous size.



The following alternatives are available to maximize views and restore them to their previous size:

- To maximize a view, you can also double click on the title bar of the view you require.
- To restore a view to its previous size, you can also double click on the title bar of the maximized view.

22.4 ADJUSTING AND RESETTING THE BRIGHTNESS AND CONTRAST OF THE 2D VIEWS

To adjust the brightness and contrast of a 2D view, proceed as follows:

- ☑ The desired 2D view is already active. Information on this can be found in the section *Changing the active view* [▶ Page 75 - SIDEKIS 4].



1. Place the mouse pointer over the **Adjust brightness and contrast** icon in the **View toolbar** of the 2D view.

▶ The transparent **Adjust brightness and contrast** window opens:



2. Move the mouse pointer over the **Brightness** slider.
3. Click and hold the left mouse button and move the mouse up or down.
 - ▶ SICAT Endo adjusts the brightness of the 2D view according to the position of the **Brightness** slider.
4. Release the left mouse button.
 - ▶ SICAT Endo maintains the current brightness of the 2D view.



5. Move the mouse pointer over the **Contrast** slider.
6. Click and hold the left mouse button and move the mouse up or down.
 - ▶ SICAT Endo adjusts the contrast of the 2D view according to the position of the **Contrast** slider.
7. Release the left mouse button.
 - ▶ SICAT Endo maintains the current contrast of the 2D view.
8. Move the mouse pointer out of the transparent **Adjust brightness and contrast** window.
 - ▶ The transparent **Adjust brightness and contrast** window closes.



To reset the brightness and contrast of the 2D view to the default values, click on the **Reset brightness and contrast** icon.



The brightness and contrast of all 2D slice views are linked together.

22.5 ZOOMING VIEWS AND PANNING VIEWS

ZOOMING A VIEW

Zooming magnifies or shrinks the contents of a view.

To zoom a view, proceed as follows:

1. Place the mouse pointer over the desired view.

2. Move the mouse wheel forwards.

▶ The view will zoom in.

3. Move the mouse wheel backwards.

▶ The view will zoom out.



Alternatively, you can click on the mouse wheel and move the mouse up and down to zoom in or out.

PANNING A VIEW

To move a section in a view, proceed as follows:

1. Place the mouse pointer over the desired view.

2. Press and hold down the right mouse button.

▶ The mouse pointer changes.

3. Move the mouse.

▶ The section in the view will move according to the movement of the mouse pointer.

4. Release the right mouse button.

▶ SICAT Endo maintains the current position of the view.

22.6 SCROLLING THROUGH SLICES IN THE 2D SLICE VIEWS

To scroll through slices in a 2D slice view, proceed as follows:

1. Move the mouse pointer over the desired 2D slice view.
2. Click and hold the left mouse button.
 - ▶ The mouse pointer becomes a two-way arrow.
3. Move the mouse up or down as desired.
 - ▶ With the exception of the **Cross-Sectional** slice, all slices move in parallel.
 - ▶ The **Cross-Sectional** slice moves along the panoramic curve.
 - ▶ SICAT Endo adjusts the slices and crosshairs of other views according to the current focus point.
 - ▶ SICAT Endo adjusts the frames of the **3D** views according to the current focus point.
4. Release the left mouse button.
 - ▶ SICAT Endo maintains the current slice.

22.7 MOVING, HIDING AND SHOWING CROSSHAIRS AND FRAMES

MOVING A CROSSHAIR

To move the crosshair in a 2D slice view, proceed as follows:

All crosshairs and frames are currently shown.

1. Move the mouse pointer in the view you require to the middle of the crosshair.

▶ The mouse pointer becomes a crosshair:



2. Click and hold the left mouse button.

3. Move the mouse.

▶ The crosshair in the view will track the movements of the mouse.

▶ SICAT Endo adjusts the slices and crosshairs of other views according to the current focus point.

▶ SICAT Endo adjusts the frames of the **3D** views according to the current focus point.

4. Release the left mouse button.

▶ SICAT Endo maintains the current position of the crosshair.



To immediately move the crosshair to the position of the mouse pointer, you can also double click in a 2D view.

HIDING AND SHOWING CROSSHAIRS AND FRAMES

To hide and show all crosshairs and frames, proceed as follows:

All crosshairs and frames are currently shown.



1. Click on the **Hide crosshairs and frames** icon in the **Workspace toolbar**.

▶ SICAT Endo hides the crosshairs in all 2D slice views.

▶ SICAT Endo hides the frames in the **3D** view.



2. Click on the **Show crosshairs and frames** icon.

▶ SICAT Endo shows the crosshairs in all 2D slice views.

▶ SICAT Endo shows the frames in the **3D** view.

22.8 MOVING, HIDING AND SHOWING THE INSPECTION WINDOW

MOVING THE INSPECTION WINDOW

To move the **Inspection Window**, proceed as follows:

- ☑ The **Panorama** workspace or the **Radiograph** workspace is already open. Information on this can be found in the section *Switching the active workspace* [▶ Page 69 - SIDEXIS 4].
- ☑ The **Inspection Window** is already shown:



1. Place the mouse pointer on the **Inspection Window** title bar in the **Panorama** view or the **Radiograph** view.
 - ▶ The mouse pointer becomes a hand.
2. Click and hold the left mouse button.
3. Move the mouse.
 - ▶ The **Inspection Window** tracks the movement of the mouse pointer.
 - ▶ SICAT Endo adjusts the slices and crosshairs of other views according to the current focus point.
 - ▶ SICAT Endo adjusts the frames of the **3D** view according to the current focus point.
4. Release the left mouse button.
 - ▶ SICAT Endo maintains the current **Inspection Window** position.

HIDING AND SHOWING THE INSPECTION WINDOW



The icon that displays whether the **Inspection Window** is hidden or shown, is simultaneously a status display and a switch.

To hide and show the **Inspection Window**, proceed as follows:

- ✓ The **Panorama** workspace or the **Radiograph** workspace is already open. Information on this can be found in the section *Switching the active workspace* [▶ Page 69 - SIDEXIS 4].
- ✓ The **Inspection Window** is already shown.



1. Click on the **Hide inspection window** icon in the **View toolbar** of the **Panorama** view or the **Radiograph** view.

▶ SICAT Endo hides the **Inspection Window**.



2. Click on the **Show inspection window** icon in the **View toolbar** of the **Panorama** view or the **Radiograph** view.

▶ SICAT Endo shows the **Inspection Window**.

22.9 RESETTING VIEWS

To reset all views, proceed as follows:



- Click on the **Reset views** icon in the **Workspace toolbar**.
- ▶ SICAT Endo resets all views to the default values for zoom, panning, scrolling, moving the crosshairs and moving the **Inspection Window**.
- ▶ SICAT Endo resets the viewing direction of the **3D** view to the default value.

22.10 CREATING SCREENSHOTS OF VIEWS

You can take screenshots of the views to document them and output screenshots in the following ways:

- Adding to the SIDEXIS 4 output.
- Copying to the Windows clipboard.

ADDING A SCREENSHOT OF A VIEW TO THE SIDEXIS 4 OUTPUT

- ☑ You have started SICAT Endo from SIDEXIS 4.
- ☑ The desired view is already active. Information on this can be found in the section *Changing the active view* [▶ *Page 75 - SIDEXIS 4*].



- Click on the **Add screenshot to SIDEXIS 4 output** icon in the title bar of the view.
- ▶ SICAT Endo adds a screenshot of the view to the SIDEXIS 4 output.

COPYING A SCREENSHOT OF A VIEW TO THE WINDOWS CLIPBOARD

To copy a screenshot of a view to the Windows clipboard, proceed as follows:

- ☑ The desired view is already active. Information on this can be found in the section *Changing the active view* [▶ *Page 75 - SIDEXIS 4*].



- Click on the **Copy screenshot to clipboard (Ctrl+C)** icon in the title bar of the view.
- ▶ SICAT Endo copies a screenshot of the view to the Windows clipboard.



You can add screenshots from the clipboard to several applications, such as image processing software and word processors. In most applications, the paste shortcut key is Ctrl+V.

23 ADJUSTING THE 3D VIEW

You can change the direction of the **3D** view at any time. Information on this can be found in the section *Changing the direction of the 3D view* [▶ Page 87 - SIDEXIS 4].

The following actions are available to configure the **3D** view:

- *Switching the display mode of the 3D view* [▶ Page 88 - SIDEXIS 4]
- *Configuring the active display mode of the 3D view* [▶ Page 89 - SIDEXIS 4]
- *Rotating the 3D view* [▶ Page 146 - SIDEXIS 4]

23.1 CHANGING THE DIRECTION OF THE 3D VIEW

There are two ways to change the direction of the **3D** view:

- Interactive changes
- Selecting a standard viewing direction

INTERACTIVELY CHANGING THE DIRECTION OF THE 3D VIEW

To interactively change the direction of the **3D** view, proceed as follows:

1. Place the mouse pointer on the **3D** view.
2. Click and hold the left mouse button.
 - ▶ The mouse pointer becomes a hand.
3. Move the mouse.
 - ▶ The viewing direction changes according to the movement of the mouse.
4. Release the left mouse button.
 - ▶ SICAT Endo keeps the current viewing direction of the **3D** view.

SELECTING A STANDARD VIEWING DIRECTION

To select a standard viewing direction in the **3D** view, proceed as follows:



1. Place the mouse pointer over the Orientation head icon in the top left corner of the **3D** view.
 - ▶ The transparent **Viewing direction** window opens:



- ▶ In the middle of the transparent **Viewing direction** window, the highlighted Orientation head shows the current viewing direction.
2. Click on the Orientation head icon that shows the desired standard viewing direction.
 - ▶ The direction of the **3D** view changes according to your selection.
 3. Move the mouse pointer out of the transparent **Viewing direction** window.
 - ▶ The transparent **Viewing direction** window closes.

23.2 SWITCHING THE DISPLAY MODE OF THE 3D VIEW

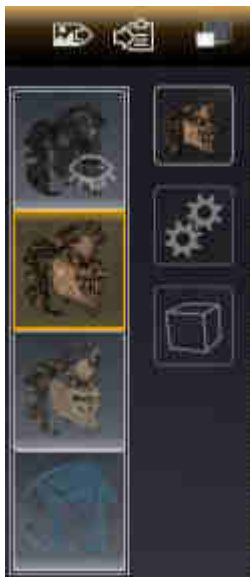


All display modes are available in all workspaces.

To change the display mode of the **3D** view, proceed as follows:

- ☑ The **3D** view is already active. Information on this can be found in the section *Changing the active view* [▶ Page 75 - *SIDEXIS 4*].

1. Place the mouse pointer over the **Switch display mode** icon in the **View toolbar** of the **3D** view.
 - ▶ The transparent **Switch display mode** window opens:



2. Click on the icon for the desired display mode.
 - ▶ SICAT Endo activates the desired display mode.
3. Move the mouse pointer out of the transparent **Switch display mode** window.
 - ▶ The transparent **Switch display mode** window closes.

23.3 CONFIGURING THE ACTIVE DISPLAY MODE OF THE 3D VIEW



Only configurable display modes show the **Configure active display mode** icon. The transparent **Configure active display mode** window only shows the settings that are relevant for the active display mode.

To configure the active display mode of the **3D** view, proceed as follows:

- ☑ The **3D** view is already active. Information on this can be found in the section *Changing the active view* [▶ Page 75 - SIDEXIS 4].
- ☑ The desired display mode is already active. Information on this can be found in the section *Switching the display mode of the 3D view* [▶ Page 88 - SIDEXIS 4].
- ☑ The active display mode is configurable.



1. Place the mouse pointer over the **Configure active display mode** icon in the **View toolbar** of the **3D** view.

▶ The transparent **Configure active display mode** window opens:



2. Move the slider you require.
 - ▶ SICAT Endo adjusts the **3D** view according to the position of the slider.
3. Where available, click on the arrow icon next to **.Advanced options**.
 - ▶ The **Advanced options** area expands.
4. Activate or deactivate the available check box.
 - ▶ SICAT Endo adjusts the **3D** view according to the status of the check box.
5. Move the slider you require.
 - ▶ SICAT Endo adjusts the **3D** view according to the position of the slider.
6. Move the mouse pointer out of the transparent **Configure active display mode** window.
 - ▶ The transparent **Configure active display mode** window closes.



You can reset to the default settings by clicking the **Reset configuration of active display mode to default values** button.



You can save the current settings as default settings by clicking the **Save configuration of active display mode as default values** button.

23.4 CHANGING THE CLIPPING MODE OF THE 3D VIEW

To change the clipping mode of the **3D** view, proceed as follows:

☑ The **3D** view is already active. Information on this can be found in the section *Changing the active view* [▶ Page 75 - *SIDEXIS 4*].

1. Place the mouse pointer over the **Switch clipping mode** icon in the **View toolbar** of the **3D** view.

▶ The transparent **Switch clipping mode** window opens:



2. Click on the icon of the desired clipping mode.

▶ SICAT Endo activates the desired clipping mode.

3. Move the mouse pointer out of the transparent **Switch clipping mode** window.

▶ The transparent **Switch clipping mode** window closes.

24 VOLUME ORIENTATION AND PANORAMIC REGION



If an adjustment of the volume orientation is required, perform this when starting work on the 3D X-ray scan. If you adjust the volume orientation later, you may have to repeat your diagnosis or planning under certain circumstances.

VOLUME ORIENTATION

You can adjust the volume orientation for all views by rotating the volume around the three principal axes. This may be necessary in the following cases:

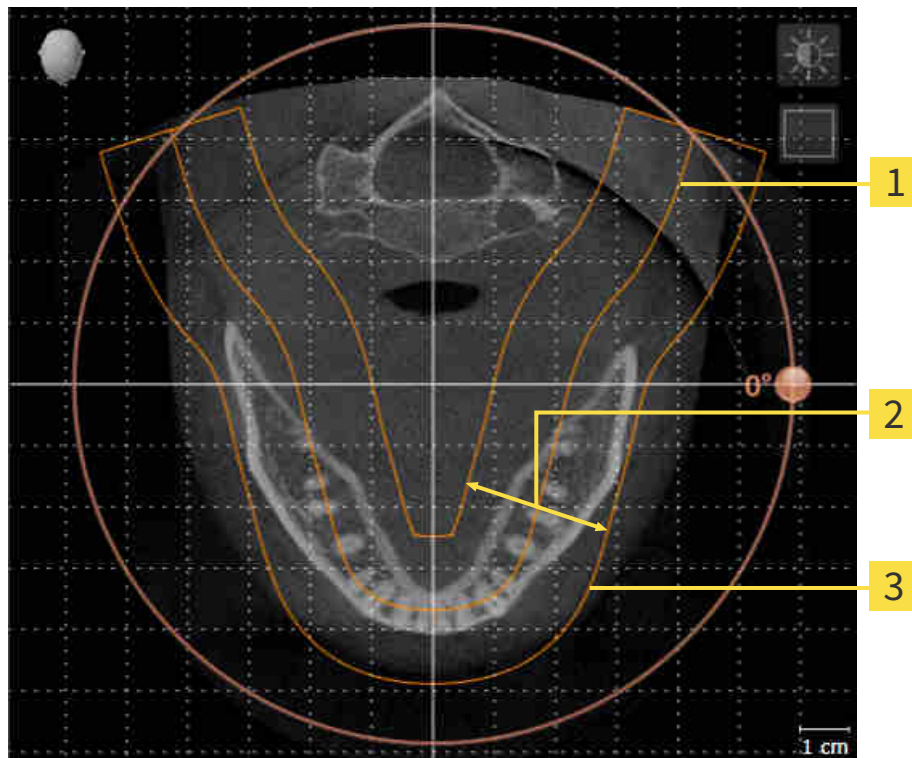
- Sub-optimal positioning of the patient during the 3D X-ray scan
- Orientation according to case, for example orientation of the axial slices parallel to the Frankfurt plane or parallel to the bite plane
- Optimizing the panorama view

If you adjust the volume orientation in SICAT Endo, all other SICAT applications adopt your changes.

Information on how to adjust the volume orientation can be found in the section *Adjusting the volume orientation* [▶ Page 95 - SIDEXIS 4].

PANORAMIC REGION

SICAT Endo calculates the **Panorama** view on the basis of the volume and panoramic region. To optimize the **Panorama** view, you should adjust the panoramic region to both jaws of the patient. This is vital for effective and efficient diagnosis and treatment planning.



1 Panoramic curve

2 Thickness

3 Panoramic region

The panoramic region is defined by the two following components:

- Shape and position of the panoramic curve
- Thickness of the panoramic region

Both of the following conditions must be met to optimally adjust the panoramic region:

- The panoramic region must contain all teeth and both jaws in full.
- The panoramic region should be as thin as possible.

If you adjust the panoramic region in SICAT Endo, all other SICAT applications adopt your changes.

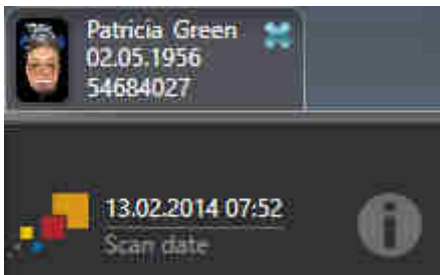
Information on adjusting the panoramic region can be found in the section *Adjusting the panoramic region* [►Page 100 - SIDEXIS 4].

DATA SYNCHRONIZATION BETWEEN SICAT ENDO AND SIDEXIS 4

SICAT Endo and SIDEXIS 4 synchronize the volume orientation and panoramic region in both directions. The following restrictions apply here:

- SICAT Endo only supports rotations of the volume orientation up to a maximum of 30 degrees.
- If the synchronization of the volume orientation influences previously added diagnosis objects or planning objects which are based on a different volume orientation, SICAT Endo will open a message window. The message window will inform you of the exact impacts of the synchronization and you can select between the following options:
 - **Synchronize**
 - **Not now**
 - **Never** for the current 3D X-ray scan and the current volume orientation in SIDEXIS 4
- If the synchronization of the panoramic region influences previously added diagnosis objects or planning objects which are based on a differently set panoramic region, SICAT Endo will open a message window. In the message window, you can select one of two options:
 - **OK** - SICAT Endo performs the synchronization and removes the objects.
 - **Cancel** - SICAT Endo does not perform the synchronization and keeps the objects.
- SICAT Endo supports only standard panoramic curves of SIDEXIS 4, not the shifting of individual points.
- SICAT Endo supports only panoramic curves that are at least 10 mm thick.
- SICAT Endo supports only panoramic curves that have not been rotated in SIDEXIS 4.

If at least one of the restrictions applies, SICAT Endo and SIDEXIS 4 no longer synchronize the volume orientation and panoramic region or just the panoramic region.



In this case, SICAT Endo shows an information icon next to the information on the current 3D X-ray scan. If you move the mouse pointer over this information icon, you will receive information about which data is no longer synchronized and instructions for how to synchronize the data again.

24.1 ADJUSTING THE VOLUME ORIENTATION

General information on volume orientation can be found in the section *Volume orientation and panoramic region* [▶ Page 92 - SIDEXIS 4].

The adjustment of the volume orientation consists of the following steps:

- Opening the **Adjust Volume Orientation and Panoramic Region** window
- Rotating volumes in the **Coronal** view
- Rotating volumes in the **Sagittal** view
- Rotating volumes in the **Axial** view

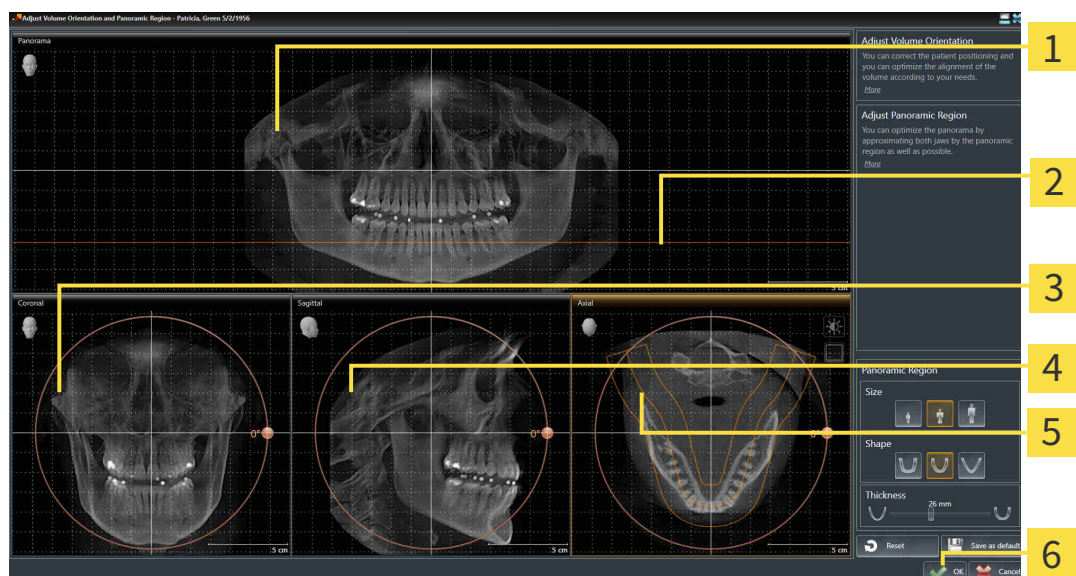
OPENING THE "ADJUST VOLUME ORIENTATION AND PANORAMIC REGION" WINDOW

- ☑ The **Prepare** workflow step is already expanded.



- Click on the **Adjust volume orientation and panoramic region** icon.

- ▶ The **Adjust Volume Orientation and Panoramic Region** window opens:



1 Panorama view

2 Axial reference line

3 Coronal view with **Rotation** slider

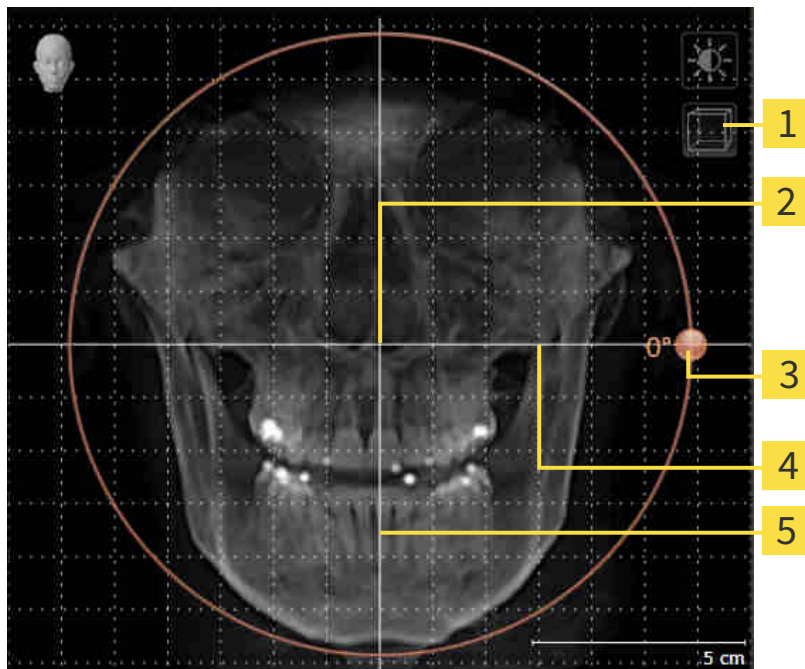
4 Sagittal view with **Rotation** slider

5 Axial view with **Rotation** slider

6 OK button

ROTATING VOLUMES IN THE CORONAL VIEW

1. Activate the **Coronal** view:

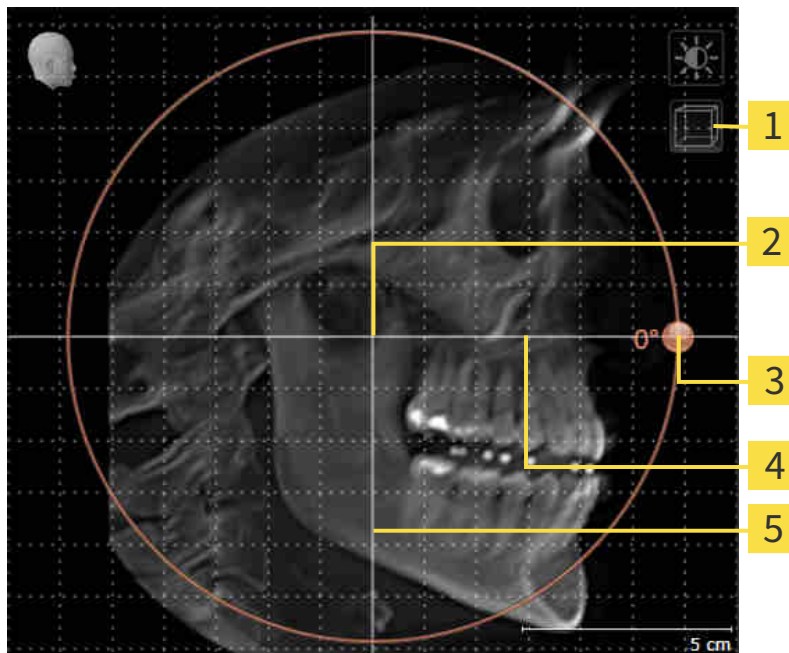


- | | |
|---|------------------------------------|
| 1 Enable slices mode icon or Enable projection mode icon | 4 Horizontal reference line |
| 2 Center of rotation | 5 Vertical reference line |
| 3 Rotation slider | |

2. Make sure that the projection mode is active. Click on the **Enable projection mode** icon if necessary.
3. Place the mouse pointer on the **Rotation** slider.
4. Click and hold the left mouse button.
5. Move the **Rotation** slider along the circle in the desired direction.
 - ▶ SICAT Endo rotates the volume in the **Coronal** view in a circle around the center of rotation and in the other views accordingly.
6. Release the left mouse button when you have reached the desired rotation of the volume. Orientate yourself using the horizontal reference lines, the vertical reference lines and the grid.

ROTATING VOLUMES IN THE SAGITTAL VIEW

1. Activate the **Sagittal** view:

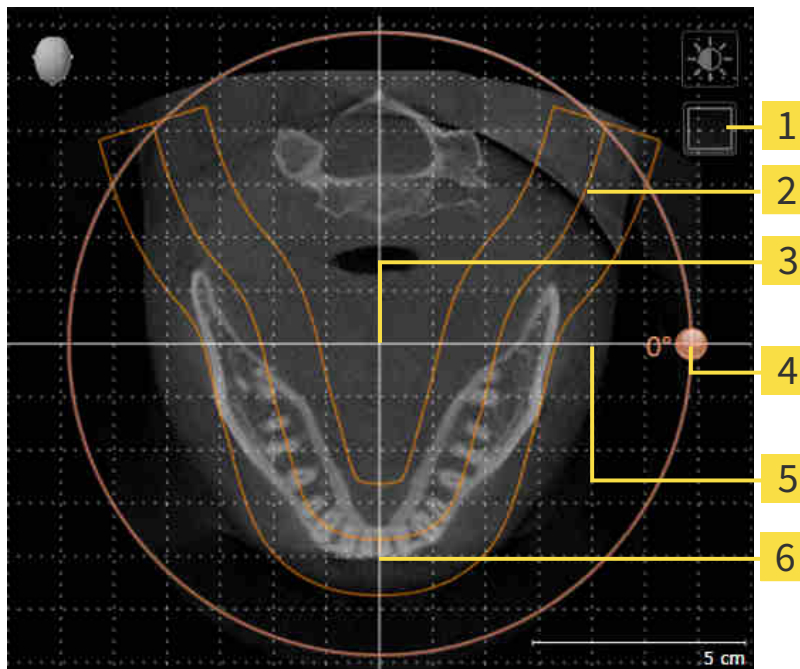


- | | |
|---|------------------------------------|
| 1 Enable slices mode icon or Enable projection mode icon | 4 Horizontal reference line |
| 2 Center of rotation | 5 Vertical reference line |
| 3 Rotation slider | |

2. Make sure that the projection mode is active. Click on the **Enable projection mode** icon if necessary.
3. Place the mouse pointer on the **Rotation** slider.
4. Click and hold the left mouse button.
5. Move the **Rotation** slider along the circle in the desired direction.
 - SICAT Endo rotates the volume in the **Sagittal** view in a circle around the center of rotation and in the other views accordingly.
6. Release the left mouse button when you have reached the desired rotation of the volume. Orientate yourself using the horizontal reference lines, the vertical reference lines and the grid.

ROTATING VOLUMES IN THE AXIAL VIEW

1. Activate the **Axial** view:



- | | |
|---|------------------------------------|
| 1 Enable projection mode icon or Enable slices mode icon | 4 Rotation slider |
| 2 Panoramic region | 5 Horizontal reference line |
| 3 Center of rotation | 6 Vertical reference line |

2. Make sure that the slice mode is active. Click on the **Enable slices mode** icon if necessary.
3. Scroll to a slice with the roots of the mandibular teeth, for example by left clicking on the axial reference lines in the panorama view and hold the left button as you move the mouse up or down as desired.
4. Where necessary, move the panoramic region in the **Axial** view by left clicking on the panorama view and holding the left button as you move the mouse. SICAT Endo moves the center of rotation, the horizontal reference lines and the vertical reference lines accordingly.
5. Place the mouse pointer on the **Rotation** slider.
6. Click and hold the left mouse button.
7. Move the **Rotation** slider along the circle in the desired direction.
 - ▶ SICAT Endo rotates the volume in the **Axial** view in a circle around the center of rotation and in the other views accordingly.
8. Release the left mouse button when you have reached the desired rotation of the volume. Orientate yourself using the panoramic region, the horizontal reference lines, vertical reference lines and the grid.
9. To save your changes, click **OK**.

- ▶ If the change of the volume orientation affects existing objects in SICAT applications, SICAT Endo opens a message window which states the exact impact.
10. If you still want to adjust the volume orientation, click on the **Adjust** button in the message window.
- ▶ SICAT Endo saves the altered volume orientation and displays the volume with the corresponding orientation in all views.



In addition to the described process, the following actions are available in the **Adjust Volume Orientation and Panoramic Region** window:

- You can adjust the brightness and contrast of a 2D image by activating the desired view and clicking the **Adjust brightness and contrast** icon. Information on this can be found in the section *Adjusting and resetting the brightness and contrast of the 2D views* [▶ Page 77 - SIDEXIS 4].
- You can zoom in the views. SICAT Endo synchronizes the zoom between the views with the exception of the **Axial** view.
- To reset the volume orientation and panoramic region, click on the **Reset** button.
- To save the current volume orientation and panoramic region as a default, click on the **Save as default** button.
- If you do not want to save your changes, click **Cancel**.

24.2 ADJUSTING THE PANORAMIC REGION

General information on the panoramic region can be found in the section *Volume orientation and panoramic region* [▶ Page 92 - SIDEXIS 4].

The adjustment of the panoramic region consists of the following steps:

- Opening the **Adjust Volume Orientation and Panoramic Region** window
- Adjusting the slice position of the **Axial** view
- Moving the panoramic region
- Rotating volumes in the **Axial** view
- Adjusting **Size**, **Shape** and **Thickness** of the panoramic region

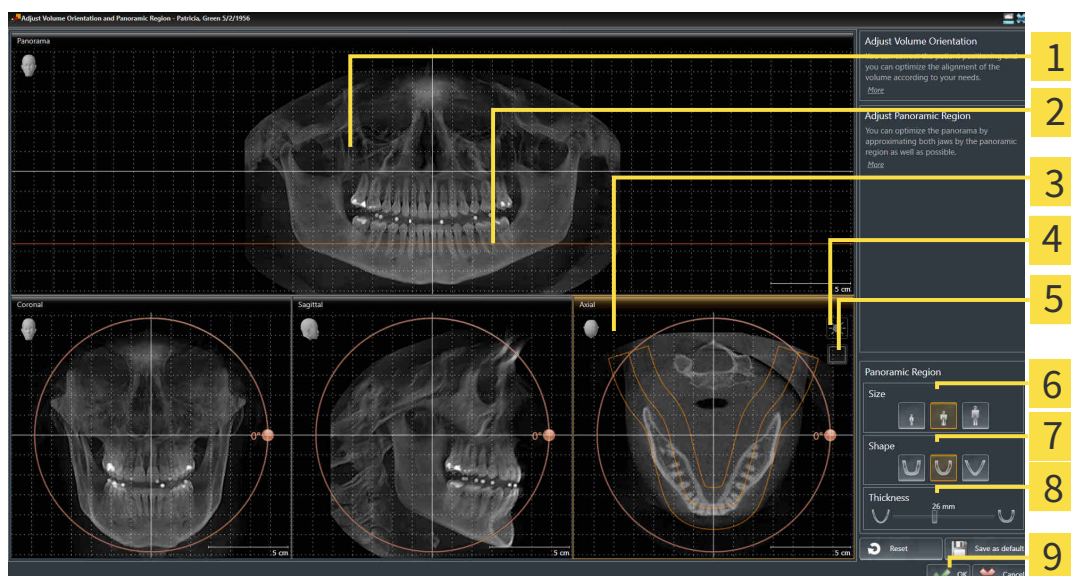
OPENING THE "ADJUST VOLUME ORIENTATION AND PANORAMIC REGION" WINDOW

- ☑ The **Prepare** workflow step is already expanded.



- Click on the **Adjust volume orientation and panoramic region** icon.

- ▶ The **Adjust Volume Orientation and Panoramic Region** window opens:



1 Panorama view

2 Axial reference line

3 Axial view with **Rotation** slider

4 **Adjust brightness and contrast** icon

5 **Enable projection mode** icon or **Enable slices mode** icon

6 Size buttons

7 Shape buttons

8 Thickness slider

9 OK button

ADJUSTING THE SLICE POSITION OF THE AXIAL VIEW



1. Make sure that the slice mode of the **Axial** view is active. Click on the **Enable slices mode** icon if necessary.
2. Place the mouse pointer on the axial reference line in the **Panorama** view. The axial reference line illustrates the current slice position of the **Axial** view.
3. Click and hold the left mouse button.
4. Move the mouse up or down as desired.
 - ▶ The slice in the **Axial** view will change according to the position of the axial reference lines in the **Panorama** view.
5. When the axial reference line is on the roots of the mandibular teeth, release the left mouse button.
 - ▶ The **Axial** view maintains the current slice.

MOVING THE PANORAMIC REGION

1. Place the mouse pointer on the panoramic region in the **Axial** view.
2. Click and hold the left mouse button.
 - ▶ The mouse pointer changes.
3. Move the mouse.
 - ▶ SICAT Endo moves the panoramic region according to the position of the mouse pointer.
4. When the central curve of the panoramic region is on the roots of the mandibular teeth, release the left mouse button.
 - ▶ The panoramic region will remain in its current position.

ROTATING VOLUMES IN THE AXIAL VIEW

1. Place the mouse pointer on the **Rotation** slider in the **Axial** view.
2. Click and hold the left mouse button.
3. Move the **Rotation** slider along the circle in the direction you require.
 - ▶ SICAT Endo rotates the volume in the **Axial** view in a circle accordingly around the center of rotation and in the other views accordingly.
4. When the roots of the mandibular teeth follow the central curve of the panoramic region, release the left mouse button.

ADJUSTING THE SIZE, SHAPE AND THICKNESS OF THE PANORAMIC REGION



1. Select the **Size** of the panoramic region that best reflects the mandible of the patient by clicking on the corresponding **Size** button.



2. Select the **Shape** of the panoramic region that best reflects the mandible of the patient by clicking on the corresponding **Shape** button.



3. Make sure that the projection mode of the **Axial** view is active. Click on the **Enable projection mode** icon if necessary.



4. Select the **Thickness** of the panoramic region by moving the **Thickness** slider. Make sure that the panoramic region contains all teeth and both jaws in full. Keep the thickness as low as possible.

5. To save your changes, click **OK**.

- SICAT Endo saves the altered volume orientation and altered panoramic region and displays the **Panorama** view accordingly.

In addition to the described process, the following actions are available in the **Adjust Volume Orientation and Panoramic Region** window:



- You can adjust the brightness and contrast of a 2D image by activating the desired view and clicking the **Adjust brightness and contrast** icon. Information on this can be found in the section *Adjusting and resetting the brightness and contrast of the 2D views* [► Page 77 - SIDEXIS 4].
- You can zoom in the views. SICAT Endo synchronizes the zoom between the views with the exception of the **Axial** view.
- To reset the volume orientation and panoramic region, click on the **Reset** button.
- To save the current volume orientation and panoramic region as a default, click on the **Save as default** button.
- If you do not want to save your changes, click **Cancel**.

25 OPTICAL IMPRESSIONS



You can import and register optical impressions only for X-ray data that has been created by Sirona 3D-X-ray devices.

SICAT Endo can show matching X-ray data and optical impressions for the same patient simultaneously. The combined illustration provides additional information for analysis and diagnosis. In addition, the treatment implementation is based on optical impressions.

The following actions are required to use data with optical impressions in SICAT Endo:

- Registering optical impressions on X-ray data

SICAT Endo supports the following file formats for optical impressions:

- SIXD files which contain an optical impression of the maxilla and an optical impression of the mandible
- SSI files which contain an optical impression of the maxilla and an optical impression of the mandible
- STL files which contain an optical impression of the maxilla or an optical impression of the mandible (**SICAT Suite STL Import** license required)

The following tools are available for optical impressions:

- *Importing and registering optical impressions* [▶ Page 104 - SIDEXIS 4]
- *Re-using optical impressions from other SICAT applications* [▶ Page 110 - SIDEXIS 4]
- *Activating, hiding and showing optical impressions* - Information on this can be found in the section *Managing objects with the object browser* [▶ Page 58 - SIDEXIS 4].
- *Focusing on optical impressions and removing optical impressions* - Information on this can be found in the section *Managing objects with the object toolbar* [▶ Page 60 - SIDEXIS 4].

Optical impressions in STL format require additional steps during import. Information on this can be found in the section *Additional steps for optical impressions in STL format* [▶ Page 109 - SIDEXIS 4].

25.1 IMPORTING AND REGISTERING OPTICAL IMPRESSIONS



The use of other data as 3D X-ray scans as a lone source of information may result in an incorrect diagnosis and treatment.

1. Use 3D X-ray scans as a preferred source of information for diagnosis and planning.
2. Use other data, such as optical impressions, only as an auxiliary source of information.



Inappropriate optical impression devices could result in incorrect diagnosis and treatment.

Only use optical impression data from devices cleared as medical devices.



Optical impression data that does not match patient and date of 3D X-ray data could result in incorrect diagnosis and treatment.

Make sure the patient and date of the imported optical impression data match the patient and date of the visualized 3D X-ray data.



Insufficient integrity or quality of optical impressions may result in an incorrect diagnosis and treatment.

Check the integrity and quality of the optical impressions imported.



Insufficient integrity and precision of optical impressions may result in an incorrect diagnosis and treatment.

Only use optical impressions of a sufficient quality and precision for the intended diagnosis and treatment.



Excessive artifacts, insufficient resolution or the lack of points for registration may mean that the registration process for optical impressions fails. Examples of excessive artifacts in 3D X-ray scans include movement artifacts and metal artifacts.

Only use optical impression data and 3D X-ray data that allow for an adequate registration.



The selection of markings in the registration process for optical impressions that do not correspond to one another may result in an incorrect diagnosis and treatment.

When you register optical impressions, carefully select corresponding markings in the 3D X-ray scans and optical impressions.



The incorrect registration of optical impressions for 3D X-ray scans may result in an incorrect diagnosis and treatment.

Check that the registered optical impressions are correctly aligned to the 3D X-ray scans.



To enable you to check whether 3D X-ray data and optical impressions match, the **Import and register optical impressions** wizard always shows the patient data and ignores the **Anonymize** setting.



You can use the **Inspection Window** to check whether an optical impression is precisely aligned to the X-ray data. You can move the **Inspection Window** and scroll through the slices in the **Inspection Window**.

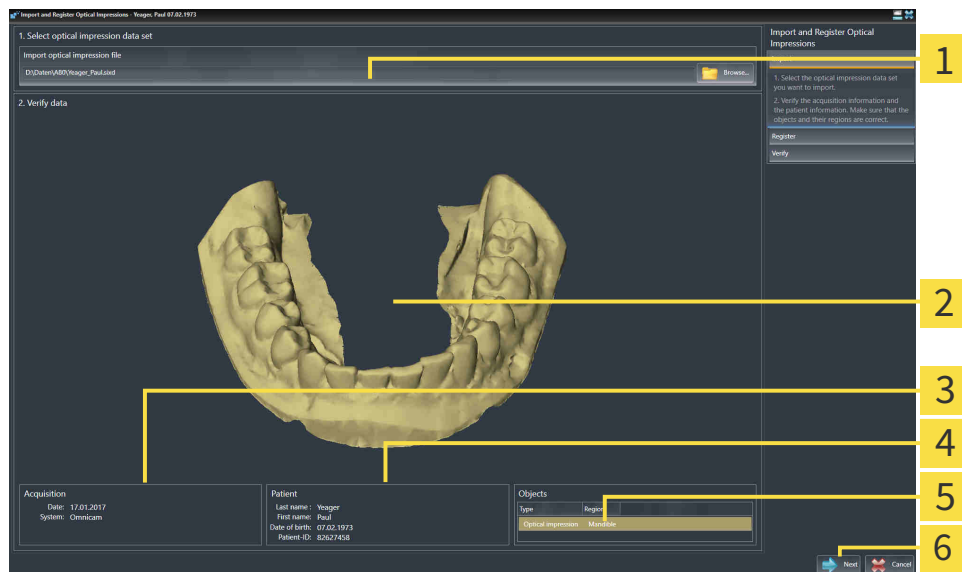
General information on optical impressions can be found in the section *Optical impressions* [▶ Page 103 - SIDEXIS 4].

To import and register an optical impression, proceed as follows:

- ☑ The **Prepare** workflow step is already expanded.



1. Click on the **Import and register optical impressions** icon.
 - ▶ The **Import and register optical impressions** wizard opens with the **Import** step.
2. Click on the **Browse** button.
 - ▶ The **Open Optical Impression File** window opens.
3. In the **Open Optical Impression File** window, select the desired optical impression file and click on **Open**.
 - ▶ The **Open Optical Impression File** window closes.
 - ▶ SICAT Endo opens the selected optical impression file:

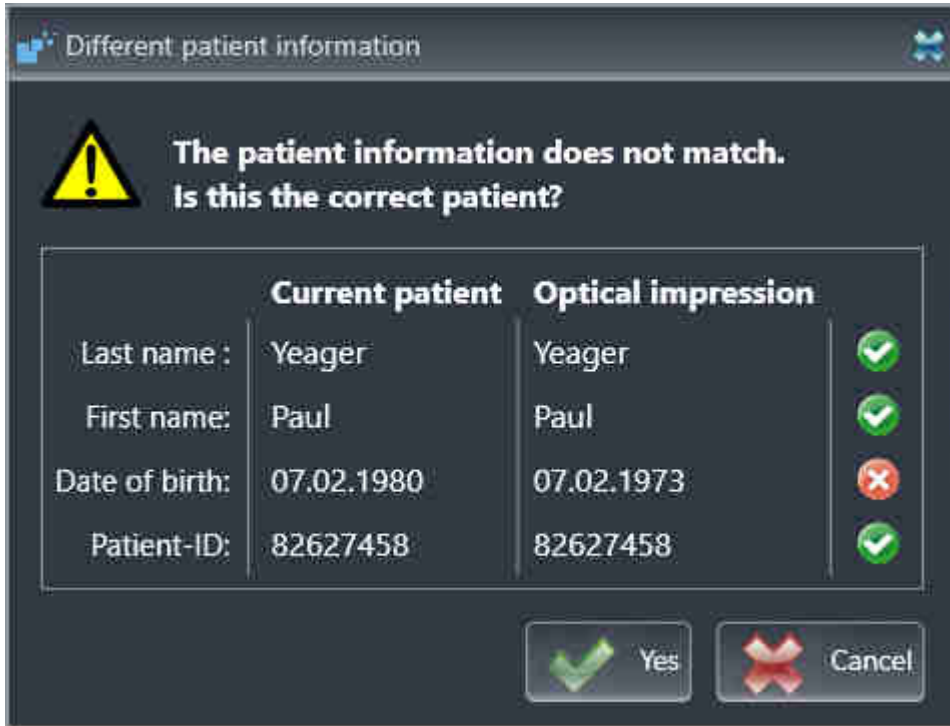


- | | |
|--|------------------------------|
| 1 Import optical impression file area | 4 Patient information |
| 2 3D view of optical impression | 5 List of objects |
| 3 Scan information | 6 Next button |

4. Check the scan information and patient information.
5. Make sure that the objects and their regions are correct. The background color in the list of objects matches the color of the objects in the **3D** view.

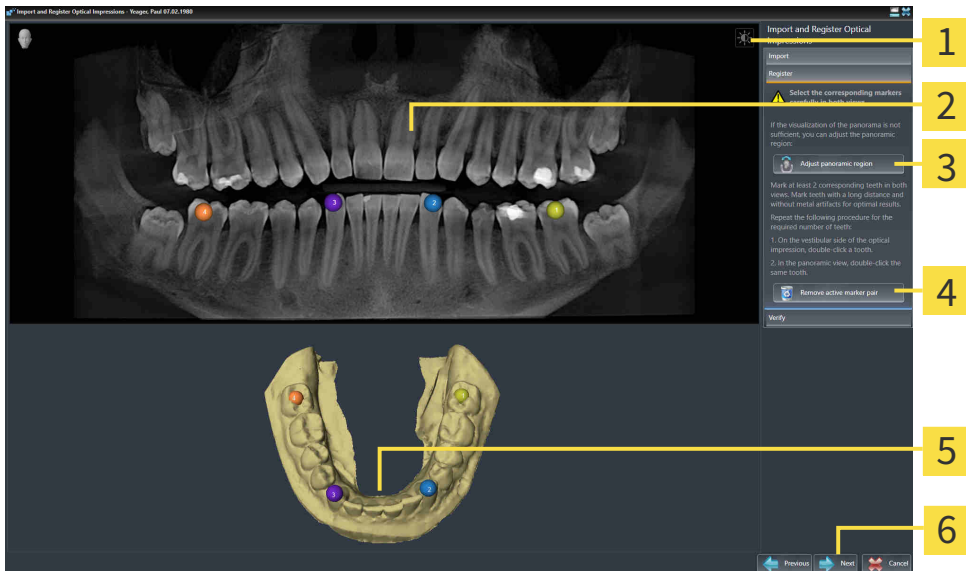
6. Click **Next**.

► If the patient data in the 3D X-ray scan and in the optical impression differ, SICAT Endo will open the **Different patient information** window:



7. Compare the patient information. If you are sure that the optical impression matches the current patient, click on the **Yes** button.

► The **Register** step opens:



1 Adjust brightness and contrast icon

4 Remove active marker pair button

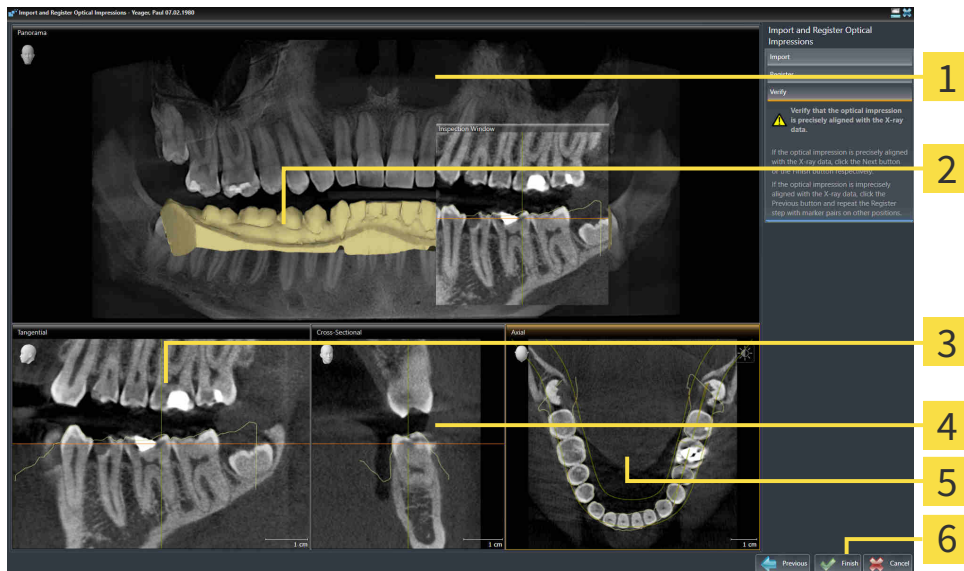
2 Panorama view

5 3D view that shows the optical impression

3 Adjust panoramic region button

6 Next button

8. For the optical impression, use the left mouse key to double click the same tooth both in the **Panorama** view and on the vestibular side of the optical impression in the **3D** view. Make sure that there is a large distance between individual teeth and mark only teeth without metal artifacts. Repeat this step until you have marked at least two matching teeth in both views.
 - ▶ Markings with different colors and numbers in both views will display corresponding teeth in the optical impression.
9. Click **Next**.
 - ▶ SICAT Endo calculates the registration of the optical impression with the X-ray data.
 - ▶ The **Verify** step opens:



1 Panorama view

2 Inspection Window

3 Tangential view

4 Cross-Sectional view

5 Axial view

6 Finish button

10. Check whether the optical impression is precisely aligned to the X-ray data in the 2D slice views. Scroll through the slices and check the contours shown.
11. If the optical impression is imprecisely aligned to the X-ray data, click on the **Previous** button and repeat the **Register** step with marker pairs in different positions if necessary.
12. If the optical impression is precisely aligned to the X-ray data, click on the **Finish** button.
 - ▶ The **Import and register optical impressions** wizard closes.
 - ▶ SICAT Endo adds the selected optical impression to the **Object browser**.
 - ▶ SICAT Endo displays the registered optical impression.



In addition to the described process, the following actions are available in the **Import and register optical impressions** wizard:

- You can adjust the brightness and contrast of a 2D image by clicking the **Adjust brightness and contrast** icon. Information on this can be found in the section *Adjusting and resetting the brightness and contrast of the 2D views* [▶ Page 77 - SIDEXIS 4].
- You can adjust the panoramic area by clicking the **Adjust panoramic region** icon. Information on this can be found in the section *Adjusting the panoramic region* [▶ Page 100 - SIDEXIS 4].
- If you wish to remove a certain marker pair in the **Register** step, you can select a marker from the pair and click on the **Remove active marker pair** button.
- If you want to cancel importing and registering optical impressions, click **Cancel**.

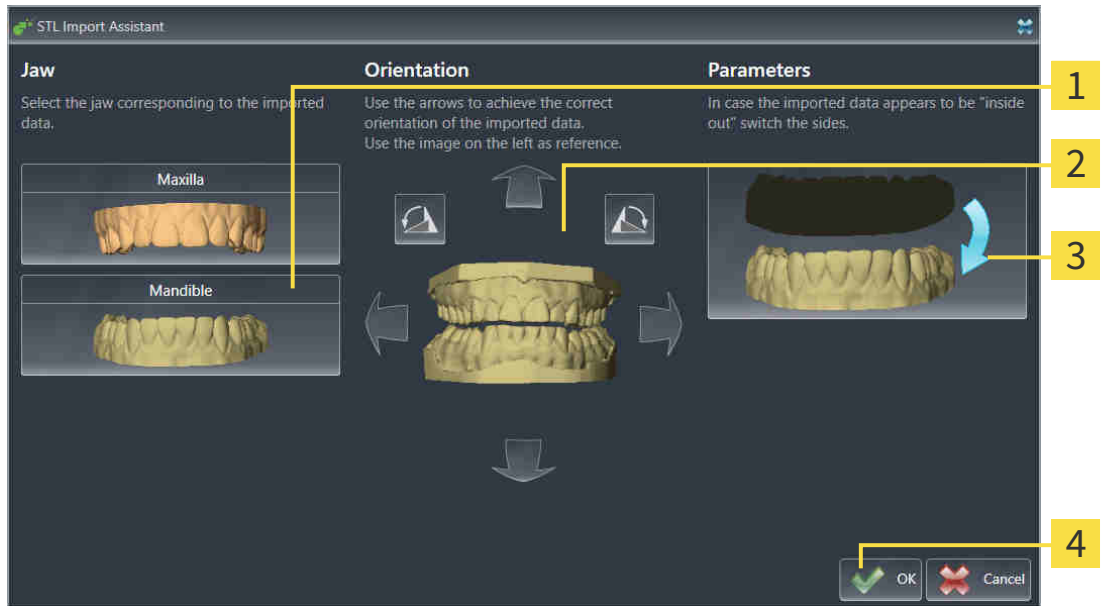
25.2 ADDITIONAL STEPS FOR OPTICAL IMPRESSIONS IN STL FORMAT

STL files do not contain information regarding the position and orientation of optical impressions. Therefore, you need to adjust position and orientation if required.

You have already activated a **SICAT Suite STL import** license.

1. Open the optical impressions in a file in STL format. Information on this can be found in the section Importing and registering optical impressions.

► The **STL import wizard** window opens:



- | | |
|-----------------------------------|---------------------------------------|
| 1 Selection of the jaw | 3 Switching inside and outside |
| 2 Changing the orientation | 4 OK button |

2. In the **jaw** area, select whether the optical impression contains the **maxilla** or the **mandibula** by clicking on the corresponding symbol.



3. If required, change the orientation of the optical impressions for rough pre-positioning by clicking on the arrow symbols or the rotation symbols in the **orientation** area.
4. If required, switch the inside and the outside of the optical impressions by clicking on the representation of the optical impression in the **parameter** area.
5. Click on the **OK** button.
6. If required, repeat those steps for a second STL file. SICAT Endo automatically attributes the second STL file to the other jaw.
 - SICAT Endo displays the imported optical impressions in the **Import and register optical impressions** wizard.
7. Continue with the registration of the optical impressions. Information on this can be found in the section Importing and registering optical impressions.

25.3 RE-USING OPTICAL IMPRESSIONS FROM OTHER SICAT APPLICATIONS



The use of other data as 3D X-ray scans as a lone source of information may result in an incorrect diagnosis and treatment.

1. Use 3D X-ray scans as a preferred source of information for diagnosis and planning.
2. Use other data, such as optical impressions, only as an auxiliary source of information.



Inappropriate optical impression devices could result in incorrect diagnosis and treatment.

Only use optical impression data from devices cleared as medical devices.



Optical impression data that does not match patient and date of 3D X-ray data could result in incorrect diagnosis and treatment.

Make sure the patient and date of the imported optical impression data match the patient and date of the visualized 3D X-ray data.



Insufficient integrity or quality of optical impressions may result in an incorrect diagnosis and treatment.

Check the integrity and quality of the optical impressions imported.



Insufficient integrity and precision of optical impressions may result in an incorrect diagnosis and treatment.

Only use optical impressions of a sufficient quality and precision for the intended diagnosis and treatment.



The incorrect registration of optical impressions for 3D X-ray scans may result in an incorrect diagnosis and treatment.

Check that the registered optical impressions are correctly aligned to the 3D X-ray scans.



To enable you to check whether 3D X-ray data and optical impressions match, the **Import and register optical impressions** wizard always shows the patient data and ignores the **Anonymize** setting.

General information on the optical impressions can be found in the section *Optical impressions* [▶ Page 103 - SIDEXIS 4].

To re-use optical impressions from another SICAT application, proceed as follows:

- The **Prepare** workflow step is already expanded.
- You have already imported optical impressions for the opened study in another SICAT application, which you have not yet used in SICAT Endo.



1. Click on the **Import and register optical impressions** icon.
 - ▶ The **Import and register optical impressions** wizard opens with the **Import** step.

2. Click on the row with the desired optical impressions in the **Reuse optical impressions from other SICAT applications** area.
 3. SICAT Endo displays the optical impressions selected.
 4. Check the scan information and patient information. Make sure that the objects and their regions are correct. The background color in the list of objects matches the color of the objects in the **3D** view.
 5. Click on the **Finish** button.
- ▶ The **Import and register optical impressions** wizard closes.
 - ▶ SICAT Endo adds the selected optical impressions to the **Object browser**.
 - ▶ SICAT Endo displays the optical impressions selected.

If you want to cancel the transfer of optical impressions from another SICAT application, click **Cancel**.

26 INTRAORAL SCANS



CAUTION

Devices for intraoral scans that are not certified as a medical device may result in incorrect diagnosis and treatment.

Make sure to use only devices that are certified as a medical device for intraoral scans.



CAUTION

Insufficient integrity or quality of intraoral scans may result in an incorrect diagnosis and treatment.

Check the integrity and quality of the imported intraoral scans.



CAUTION

Intraoral scans that have not been registered correctly with the 3D X-ray scans may result in an incorrect diagnosis and treatment.

Check that the intraoral records have been correctly registered with the 3D X-ray scans.



CAUTION

Intraoral scans that do not match the patient and the 3D X-ray scan or whose record time is too far away from the record time of the 3D X-ray scan may result in an incorrect diagnosis and treatment.

Make sure that the patient and 3D X-ray scan of an intraoral scan match and that their record time is not too far away from the record time of the 3D X-ray scan.



CAUTION

Insufficient quality of the intraoral records or 3D X-ray scans may cause the mechanism for registering the intraoral records to fail.

Only use intraoral scans and 3D X-ray scans that allow for a correct registration.



CAUTION

Insufficient quality and precision of intraoral scans may result in an incorrect diagnosis and treatment.

Only use intraoral scans of sufficient quality and precision for the intended diagnosis and treatment.



CAUTION

Incorrect positions or orientations of the intraoral scans may result in an incorrect diagnosis and treatment.

After registration, check for correct position and orientation of the intraoral scans on the teeth in the 3D X-ray scan.



CAUTION

Incorrect orientation of the intraoral records relative to the 3D X-ray scan may result in an incorrect diagnosis and treatment.

1. Check that the registered intraoral scans are correctly aligned to the 3D X-ray scans.
2. If required, rotate the intraoral scans to orient them correctly.

**CAUTION****Incorrect tooth number allocation could result in incorrect diagnosis and treatment.**

Check that the selected tooth numbers and the actual anatomical tooth numbers match.

You can use intraoral scans to prepare the diagnosis and for treatment planning in SICAT Endo. You can import and manage the intraoral scans in the **Radiograph Manager** window.

The following actions are required to use intraoral scans in SICAT Endo:

- Importing DICOM files containing intraoral scans
- Allocating tooth numbers to intraoral scans
- Registering the intraoral scans

SICAT Endo supports the following file formats for intraoral scans:

- DICOM data that is available as single-frame file

A list of compatible recording systems can be found in the section *Compatible intraoral scan sensors* [▶ Page 114 - SIDEXIS 4].

The following actions are available for intraoral scans:

- *Importing intraoral scans and allocating them to teeth* [▶ Page 115 - SIDEXIS 4]
- *Pre-positioning intraoral scans* [▶ Page 119 - SIDEXIS 4]
- *Registering intraoral scan* [▶ Page 121 - SIDEXIS 4]

26.1 COMPATIBLE INTRAORAL SCAN SENSORS

SICAT Endo supports the following intraoral record sensors:

- XIOS XG Supreme, manufacturer: Sirona Dental Systems GmbH, Germany
- XIOS XG Select, manufacturer: Sirona Dental Systems GmbH, Germany
- XIOS Plus, manufacturer: Sirona Dental Systems GmbH, Germany
- Schick 33, manufacturer: Sirona Dental Inc., USA
- Schick Elite, manufacturer: Sirona Dental Inc., USA

26.2 IMPORTING INTRAORAL SCANS AND ALLOCATING THEM TO TEETH

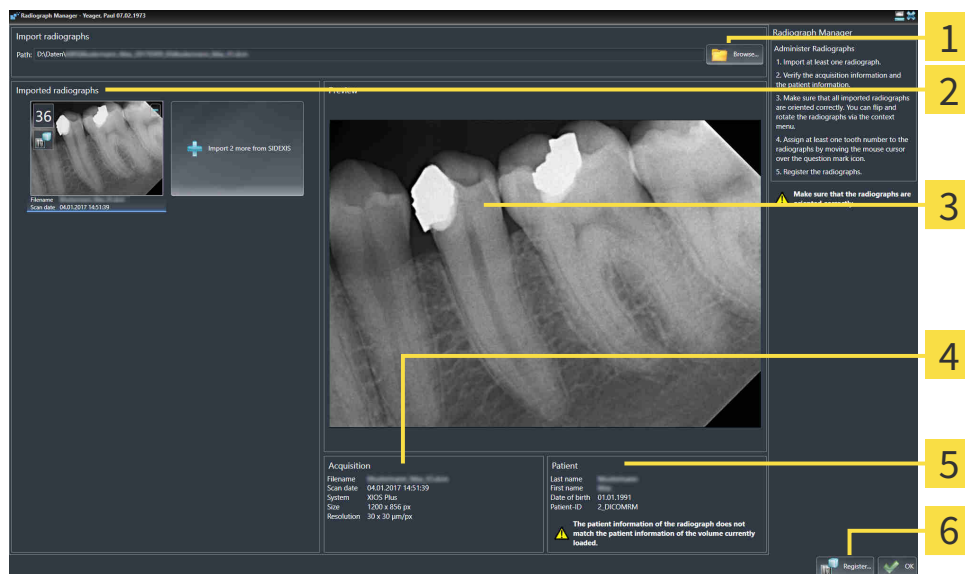
General information on intraoral scans can be found in the section *Intraoral scans* [▶ Page 112 - SIDEXIS 4].

To import intraoral scans and allocate them to one or several teeth, proceed as follows:

- ✓ The **Prepare** workflow step is already expanded. Information on this can be found in the section *Workflow toolbar* [▶ Page 55 - SIDEXIS 4].
- ✓ The intraoral scan is not yet available in SICAT Endo. You can only import each intraoral scan once.
- ✓ The intraoral scan is available as DICOM file in single-frame format.
- ✓ The intraoral scan was created using a compatible intraoral recording device. Information on this can be found in the section *Compatible intraoral scan sensors* [▶ Page 114 - SIDEXIS 4].



1. Click on the **Administer and register radiographs** icon.
 - ▶ The **Radiograph Manager** window opens.
2. Click on the **Browse** button.
 - ▶ The **Open radiograph** window opens.
3. In the **Open radiograph** window, switch to the desired intraoral scan file and select at least one file. You can import several scans at once by keeping the **Ctrl** key pressed while selecting several files one after another.
4. Click **Open**.
 - ▶ The **Open radiograph** window closes.
 - ▶ SICAT Endo displays the intraoral scans imported:

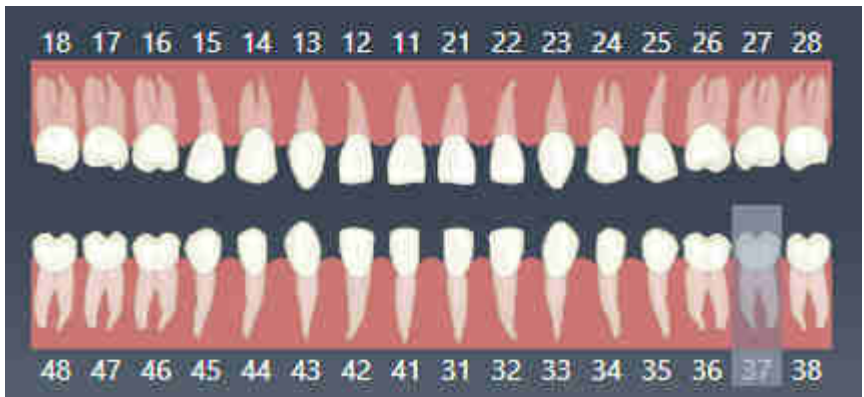


- | | |
|--|--|
| <p>1 Browse button</p> <p>2 Imported radiographs area</p> <p>3 Preview area</p> | <p>4 Patient Information</p> <p>5 Scan information</p> <p>6 Register button</p> |
|--|--|

5. To select an imported intraoral scan, click on a scan in the **Imported radiographs** area.
 - ▶ SICAT Endo displays the selected scan in the **Preview** area.
6. Check the information on the patient and the information on the scan. Make sure that the scan and the patient match and that the record dates of the 3D X-ray scan and the intraoral scan are not more than 90 days apart.
7. Make sure that the imported intraoral scan's orientation is anatomically correct.
8. If an imported intraoral scan's orientation is not anatomically correct, use the right mouse key to click on the scan in the **Imported radiographs** area and select one of the **Flip horizontally**, **Flip vertically**, **Rotate counter clockwise** or **Rotate clockwise** entries in the context menu.
 - ▶ SICAT Endo flips the scan across the horizontal or vertical image axis.
 - ▶ SICAT Endo rotates the scan in 90 degree increments towards the left or the right.



9. Place the mouse pointer over the question mark icon in a scan.
 - ▶ The **Tooth number** window opens:



10. Allocate up to four tooth numbers to the scan by clicking on the anatomically correct tooth numbers one after the other.
11. To close the **Tooth number** window, position the mouse pointer outside of the window.
 - ▶ SICAT Endo closes the **Tooth number** window.
 - ▶ SICAT Endo displays the allocated tooth numbers in the intraoral scans.
 - ▶ SICAT Endo saves all changes that are made when the Radiograph Manager is closed.



To import intraoral scans from SIDEXIS 4, click on the **Import more from SIDEXIS** button in the **Imported radiographs** area. The **Import more from SIDEXIS** button shows how many intraoral scans you can import from SIDEXIS 4.



You can select the following functions using the context menu in the **Imported radiographs** area:

- **Flip horizontally**
- **Flip vertically**
- **Rotate counter clockwise**
- **Rotate clockwise**
- **Tooth number**
- **Register**
- **Remove**



The following options are available to remove intraoral scans from the **Imported radiographs** area,

- Click on the **Remove radiograph from planning project** icon in a scan.
- Use the right mouse key to click on a scan and select the **Remove** entry in the context menu.
- In the **Imported radiographs** area, select a scan and press the **Del** key.

To register an imported intraoral scan, proceed with the following section:

- *Registration wizard* [▶ *Page 118 - SIDEXIS 4*]

27 REGISTRATION WIZARD

The registration wizard provides functions for registering intraoral scans.

To be able to use the registration wizard, you must have imported intraoral records and allocated tooth numbers. Information on this can be found in the section *Importing intraoral scans and allocating them to teeth* [▶ Page 115 - SIDEXIS 4].

Before starting to work with the registration wizard, you have to select the intraoral scan that you want to register.

In the registration wizard, you can pre-orient the intraoral scan on the panoramic curve. You can use the **3D Projection** view to further adjust the orientation before SICAT Endo automatically registers the intraoral scan.

The registration wizard comprises the following steps:

- *Pre-positioning intraoral scans* [▶ Page 119 - SIDEXIS 4]
- *Registering intraoral scan* [▶ Page 121 - SIDEXIS 4]

If pre-positioning in the **Panorama** view is not sufficient, you can also adjust the orientation in the **Register Radiograph** step using the **Cross-Sectional** view or the **Axial** view. Information on this can be found in the section *Adjusting pre-orientation in the transversal and axial view* [▶ Page 124 - SIDEXIS 4].

If an intraoral scan contains areas that could cause problems during registration, you can provide these areas with a mask by coloring them and exclude them from registration in the **Register Radiograph** step. Information on this can be found in the section *Masking areas* [▶ Page 127 - SIDEXIS 4].

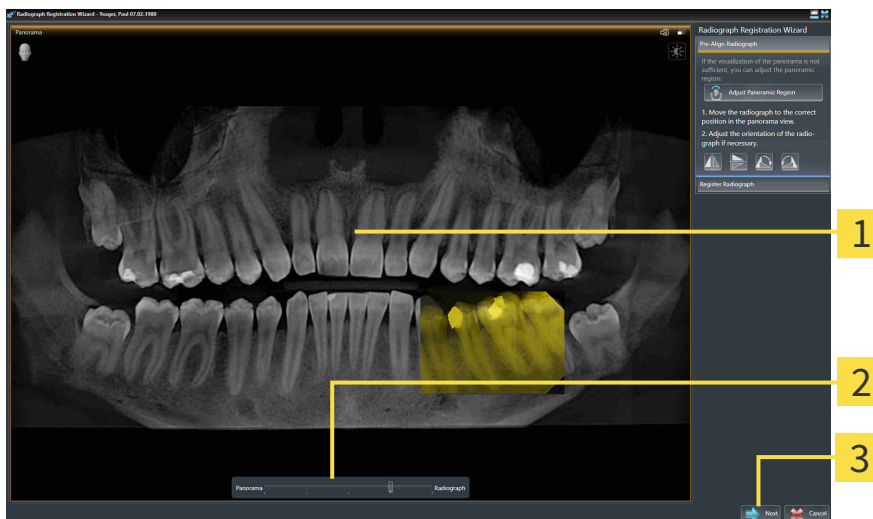
27.1 PRE-POSITIONING INTRAORAL SCANS

General information on the registration wizard can be found in the section *Registration wizard* [▶ Page 118 - SIDEXIS 4].

In the **Pre-Align Radiograph** step, you can orient the intraoral scan on the panoramic curve such that the 3D X-ray scan and the intraoral scan are overlaid in the best possible way.

- ☑ The **Prepare** workflow step is already expanded. Information on this can be found in the section *Workflow toolbar* [▶ Page 55 - SIDEXIS 4].
- ☑ You have imported at least one intraoral scan and allocated at least one tooth number to the intraoral scan. Information on this can be found in the section *Importing intraoral scans and allocating them to teeth* [▶ Page 115 - SIDEXIS 4].

1. Click on the **Administer and register radiographs** icon.
 - ▶ The **Radiograph Manager** window opens.
2. To select an intraoral scan for registration, use the left mouse key to click on the scan.
 - ▶ SICAT Endo marks the scan.
3. Click on the **Register** button.
 - ▶ The **Pre-Align Radiograph** step opens:



1 Panorama window

3 Next button

2 Transparency slider

- ▶ SICAT Endo displays the intraoral scan on the panoramic curve in the **Panorama** window.
4. To move the intraoral scan, position the mouse pointer on the scan.
 5. Click and hold the left mouse button.
 6. Move the intraoral scan to the desired position.
 7. Release the left mouse button.
 - ▶ SICAT Endo maintains the current position of the intraoral scan.

8. If required, you can adjust the orientation of the intraoral scan using the **Flip horizontally**, **Flip vertically**, **Rotate clockwise** or **Rotate counter clockwise** in the **Pre-Align Radiograph** area.
9. To proceed with the next step of the registration, click on the **Next** button.

► The **Register Radiograph** step opens.



To start registration of an intraoral scan, you can also proceed as follows:

- Double-click on the intraoral scan in the **Imported radiographs** area.
- Mark the intraoral scan in the **Imported radiographs** area and press the **Enter key**.
- Use the right mouse key to click on a scan in the **Imported radiographs** area and select the **Register** entry in the context menu.



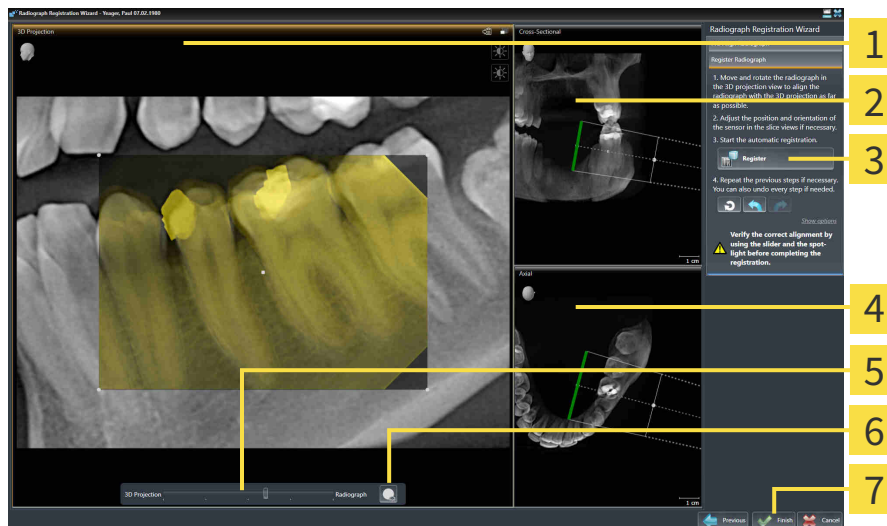
The check correct overlay of intraoral scan and panorama, you can adjust the transparency using the **transparency** slider.

Continue with the section *Registering intraoral scan* [► *Page 121 - SIDEXIS 4*].

27.2 REGISTERING INTRAORAL SCAN

General information on the registration wizard can be found in the section *Registration wizard* [▶ Page 118 - *SIDEXIS 4*].

In the **Register Radiograph** step, you can fine-align the initial position of the intraoral scan before performing the automatic registration.



1 3D Projection view

2 Cross-Sectional view

3 Register button

4 Axial view

5 Transparency slider

6 Spotlight button

7 Finish button

To adjust the overlay of the intraoral scan and the **3D Projection** view, proceed as follows:



1. Position the mouse pointer on the intraoral scan in the **3D Projection** view.
 - ▶ The mouse pointer changes.

2. Click and hold the left mouse button.
3. Move the intraoral scan to the desired position.
4. Release the left mouse button.

- ▶ SICAT Endo maintains the current rotation of the intraoral scan.
- ▶ SICAT Endo adjusts the **Cross-Sectional** view and the **Axial** view accordingly.



5. To rotate the intraoral scan, position the mouse pointer on one of the control points at the corners of the scan in the **3D Projection** view.
 - ▶ The mouse pointer changes.
6. Click and hold the left mouse button.
7. Move the intraoral scan in the desired direction.

8. Release the left mouse button.
 - ▶ SICAT Endo maintains the current position of the intraoral scan.
 - ▶ SICAT Endo adjusts the **Cross-Sectional** view and the **Axial** view accordingly.

SWITCHING SPOTLIGHT ON AND OFF

To check the correct overlay of the intraoral scan and the 3D projection, you can display a spotlight in the **3D Projection** view.



1. Click on the **Spotlight** button.
2. Position the mouse pointer on the intraoral scan.
 - ▶ SICAT Endo shows a spotlight.
3. Move the mouse pointer to the position of the intraoral scan that you want to check.
4. Repeat this step for all spots that you want to check.



5. To hide the spotlight, click on the **Spotlight** button again.
 - ▶ SICAT Endo hides the spotlight.

ADJUSTING ORIENTATION IN THE TRANSVERSAL OR AXIAL VIEW

If the orientation of the intraoral scan in the **3D Projection** view is not sufficient, you can additionally adjust the orientation in the **Cross-Sectional** view or the **Axial** view. Information on this can be found in the section *Adjusting pre-orientation in the transversal and axial view* [▶ Page 124 - SIDEXIS 4].

MASKING AREAS IN THE INTRAORAL SCAN

If you want to exclude certain areas of the intraoral scan from automatic registration, you can provide these areas with a mask by coloring them. SICAT Endo does not take these masked areas into account during automatic registration. Information on this can be found in the section *Masking areas* [▶ Page 127 - SIDEXIS 4].

PERFORMING AUTOMATIC REGISTRATION

- To perform automatic registration, click on the **Register** button in the **Register Radiograph** area.
 - ▶ SICAT Endo registers the intraoral scan with the 3D X-ray scan.
 - ▶ SICAT Endo closes the registration wizard.
 - ▶ SICAT Endo displays the result of the registration in the **Radiograph Manager** window.

CHECKING REGISTRATION

1. Check the result of the registration using the **3D Projection** view, the **Cross-Sectional** view and the **Axial** view.

2. If you are not satisfied with the result, you can adjust the position of the intraoral scan by moving the intraoral scan with the mouse using the drag&drop function.
3. To finish registration, click on the **Finish** button.

▶ The **Radiograph Registration Wizard** closes.

▶ The **Radiograph Manager** window opens.



▶ SICAT Endo shows the intraoral scan as registered in the **Imported radiographs** area in the **Radiograph Manager**.



The check correct overlay of intraoral scan and panorama, you can adjust the transparency using the **transparency** slider.



To reset the last adjustment, click on the **Undo the last step** button. To reset all adjustments, click on the **Reset all steps** button.

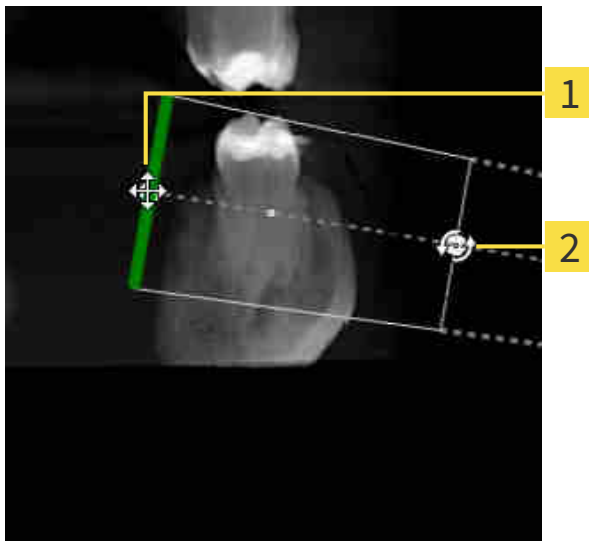
27.3 ADJUSTING PRE-ORIENTATION IN THE TRANSVERSAL AND AXIAL VIEW

For general information on the adjustment of the overlay of the intraoral scan and the 3D projection, please refer to section *Registering intraoral scan* [▶ *Page 121 - SIDEXIS 4*].

Even if you are able to orient the intraoral scan in an anatomically correct manner in the **3D Projection** view, SICAT Endo may not be able to automatically register the intraoral scan with the 3D X-ray scan for certain scans.

If this is the case, adjust the positioning of the intraoral scan in the **Cross-Sectional** view or in the **Axial** view:

MOVING THE ORIENTATION IN THE TRANSVERSAL VIEW



1 Control point **one**

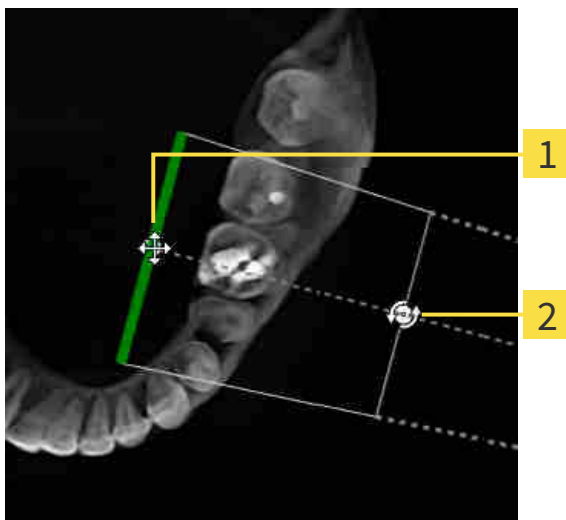
2 Control point **two**

1. To move the orientation of the recording device and the sensor in the 3D X-ray scan, position the mouse pointer on control point **one** in the **Cross-Sectional** view.
 - ▶ The mouse pointer becomes a cross with four arrows.
2. Click and hold the left mouse button.
3. Move the orientation in the desired direction.
4. Release the left mouse button.
 - ▶ SICAT Endo maintains the current orientation.
 - ▶ SICAT Endo adjusts the **3D Projection** view and the **Axial** view accordingly.

ROTATING THE ORIENTATION IN THE TRANSVERSAL VIEW

1. To rotate the orientation of the recording device and the sensor in the 3D X-ray scan, position the mouse pointer on control point **two** in the **Cross-Sectional** view.
 - ▶ The mouse pointer becomes a circle with two rotating arrows.
2. Click and hold the left mouse button.
3. Rotate the orientation in the desired direction.
4. Release the left mouse button.
 - ▶ SICAT Endo maintains the current orientation.
 - ▶ SICAT Endo adjusts the **3D Projection** view and the **Axial** view accordingly.

MOVING THE ORIENTATION IN THE AXIAL VIEW



1 Control point **one**

2 Control point **two**

1. To move the orientation of the recording device and the sensor in the 3D X-ray scan, position the mouse pointer on control point **one** in the **Cross-Sectional** view.
 - ▶ The mouse pointer becomes a cross with four arrows.
2. Click and hold the left mouse button.
3. Move the orientation in the desired direction.
4. Release the left mouse button.
 - ▶ SICAT Endo maintains the current orientation.
 - ▶ SICAT Endo adjusts the **3D Projection** view and the **Cross-Sectional** view accordingly.

ROTATING THE ORIENTATION IN THE AXIAL VIEW

1. To rotate the orientation of the recording device and the sensor in the 3D X-ray scan, position the mouse pointer on control point **two** in the **Axial** view.
 - ▶ The mouse pointer becomes a circle with two rotating arrows.
2. Click and hold the left mouse button.
3. Rotate the orientation in the desired direction.
4. Release the left mouse button.
 - ▶ SICAT Endo maintains the current orientation.
 - ▶ SICAT Endo adjusts the **3D Projection** view and the **Cross-Sectional** view accordingly.

27.4 MASKING AREAS

An intraoral scan may contain areas which may cause problems during automatic registration. This includes:

- Metal artifacts
- Teeth of the opposite jaw
- Edges in the intraoral scan that do not belong to the scan

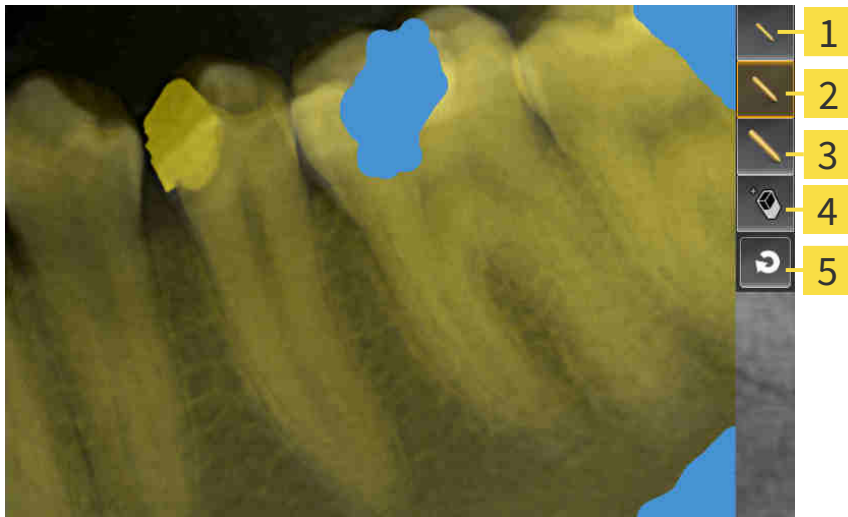
To avoid problems during automatic registration, you can mask such areas. SICAT Endo excludes all masked areas from automatic registration.

To mask individual sections in a intraoral scan, proceed as follows:

1. Click on the **Show options** button in the **Register Radiograph** area.
 - ▶ SICAT Endo displays the **Edit mask** button.



2. Click on the **Edit mask** button.
 - ▶ SICAT Endo displays the mask toolbar to the right of the intraoral scan.



1 Use a small paintbrush button

4 Use an eraser button

2 Use a medium paintbrush button

5 Reset mask button

3 Use a large paintbrush button

3. To color an area, click on the **Use a small paintbrush** button, the **Use a medium paintbrush** button or the **Use a large paintbrush** button.
 - ▶ The mouse pointer becomes a circle.
4. Position the mouse pointer on the area of the intraoral scan that you want to color.
5. Click and hold the left mouse button.
6. Move the mouse pointer over the area that you want to color.
7. Release the left mouse button.

- ▶ SICAT Endo shows the marked area colored in blue.
- 8. Repeat these steps if required to mask additional areas of the intraoral scan where needed.
- 9. To remove an area marked in blue, click on the **Use an eraser** button.
 - ▶ The mouse pointer becomes an eraser.
- 10. Use the left mouse key to click on the marked blue area that you want to remove.
 - ▶ SICAT Endo removes the marked area from the intraoral scan.
- 11. To remove all markings, click on the **Reset mask** button.
 - ▶ SICAT Endo removes all areas marked in blue from the intraoral scan.
- 12. To apply all changes that you have made, click on the **Finish editing** button in the **Register Radiograph** area.
 - ▶ SICAT Endo displays the masked areas in the **3D Projection** view.
 - ▶ SICAT Endo excludes the masked areas from automatic registration.



To hide the **Edit mask** button again, click on the **Hide options** button in the **Register Radiograph** area.

28 ENDOLINE WIZARD

The EndoLine wizard provides functions for diagnosis and treatment planning.

You can perform the following actions prior to using the EndoLine wizard:

- *Importing intraoral scans and allocating them to teeth* [▶ Page 115 - SIDEXIS 4].
- *Registering intraoral scan* [▶ Page 121 - SIDEXIS 4]
- *Selecting a tooth for treatment planning* [▶ Page 137 - SIDEXIS 4]

In the EndoLine wizard, you can use a line of intersection to define the area that you want to treat. You can place EndoLines in the root canals in this area.

EndoLines are measuring lines that you can use to mark the root canal that is to be treated and to locate the root apices. EndoLines serve as the basis for the planning and placing of drill channels.

SICAT Endo uses different views to represent EndoLines. Information on this can be found in the section *Views in the EndoLine wizard* [▶ Page 130 - SIDEXIS 4].

SICAT Endo attributes all objects that you create during the planning to the selected tooth. These objects can be EndoLines or drill channels. You can view these objects in the **Panorama** workspace and in the **Radiograph** workspace and manage and edit them in the **Object browser**.

You can use different views and combinations of views are in the workspaces of SICAT Endo to view the objects that you have created. Information on this can be found in the section *Workspaces* [▶ Page 65 - SIDEXIS 4].

The EndoLine wizard comprises the following steps:

- *Pre-aligning a tooth region* [▶ Page 138 - SIDEXIS 4]
- *Placing EndoLines* [▶ Page 140 - SIDEXIS 4]
- *Planning drill channels* [▶ Page 149 - SIDEXIS 4]

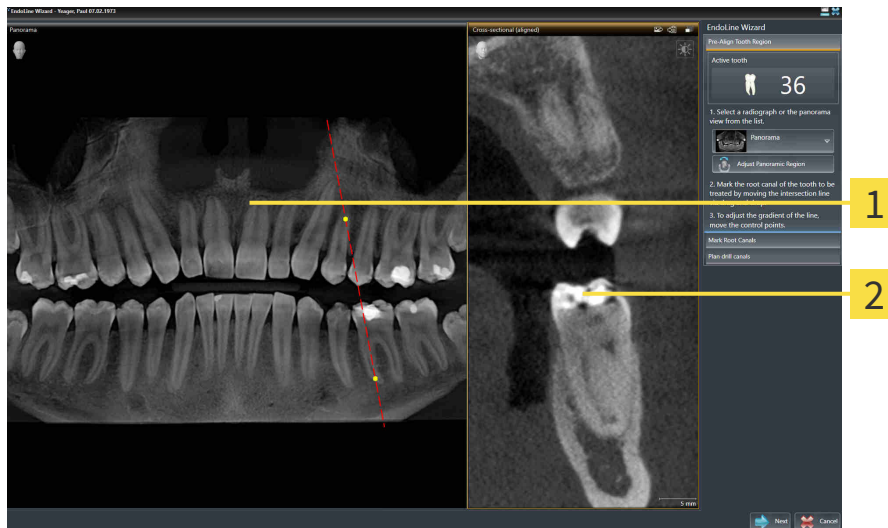
28.1 VIEWS IN THE ENDOLINE WIZARD

Each step in the EndoLine wizard features several views.

General information on adjusting the views can be found in the section *Adjusting the views* [▶ Page 73 - SIDEXIS 4] and *Adjusting the 3D view* [▶ Page 86 - SIDEXIS 4].

“PRE-ALIGN TOOTH REGION” STEP

The following views are available in the **Pre-Align Tooth Region** step:



1 Panorama view or Radiograph view

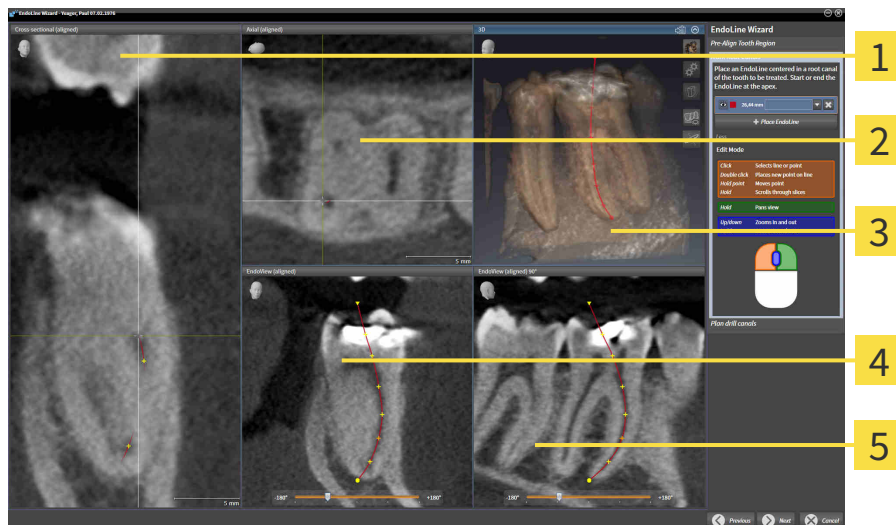
2 Cross-sectional (aligned) view

In the **Panorama** view or the **Radiograph** view, you can use a line of intersection to pre-align the view of the root canal that is to be treated. The **Radiograph** view is only available if you have registered at least one intraoral scan for the active tooth. For information on how to select an active tooth, please refer to *Selecting a tooth for treatment planning* [▶ Page 137 - SIDEXIS 4].

In the **Cross-sectional (aligned)** view, the tooth that has been marked in the **Panorama** view or in the **Radiograph** view is shown from the side and aligned to the line of intersection previously created.

“PLACE ENDOLINES” STEP

The following views are available in the **Place EndoLines** step:



1 Cross-sectional (aligned) view

2 Axial (aligned) view

3 3D view

4 EndoView (aligned) view

5 EndoView (aligned) 90° view

The **Cross-sectional (aligned)** view in the **Place EndoLines** step corresponds to the **Cross-sectional (aligned)** view in the **Pre-Align Tooth Region** step. It shows the tooth marked in the **Pre-Align Tooth Region** step diagonally from the outside to the inside and aligned to the line of intersection previously created.

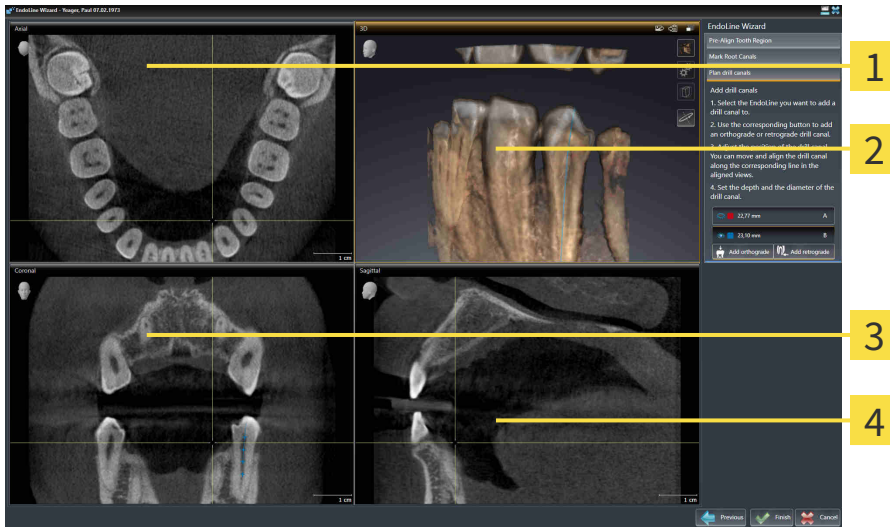
The **Axial (aligned)** view shows the tooth marked in the **Pre-Align Tooth Region** step from the top and aligned to the line of intersection previously created.

The **3D** view shows the EndoLine in the 3D X-ray scan. Information on adjusting the **3D** view can be found in the section *Adjusting the 3D view* [▶ Page 86 - SIDEXIS 4].

The **EndoView (aligned)** is a view that is aligned to the EndoLine and shows the selected EndoLine projected onto a 2D plane. The **EndoView (aligned) 90°** is the **EndoView (aligned)** rotated by 90 degrees. The two views will only be shown if you have already set an EndoLine. Information on EndoView can be found in the section *EndoView* [▶ Page 135 - SIDEXIS 4].

“PLAN DRILL CHANNELS” STEP

The following views are available in the **Plan drill canals** step:



1 Axial view

3 Coronal view

2 3D view

4 Sagittal view

The **Axial** view shows the EndoLine from the top.

The **3D** view shows the EndoLine in the 3D X-ray scan. Information on adjusting the **3D** view can be found in the section *Adjusting the 3D view* [▶ Page 86 - *SIDEXIS 4*].

The **Coronal** view shows the EndoLine from the front.

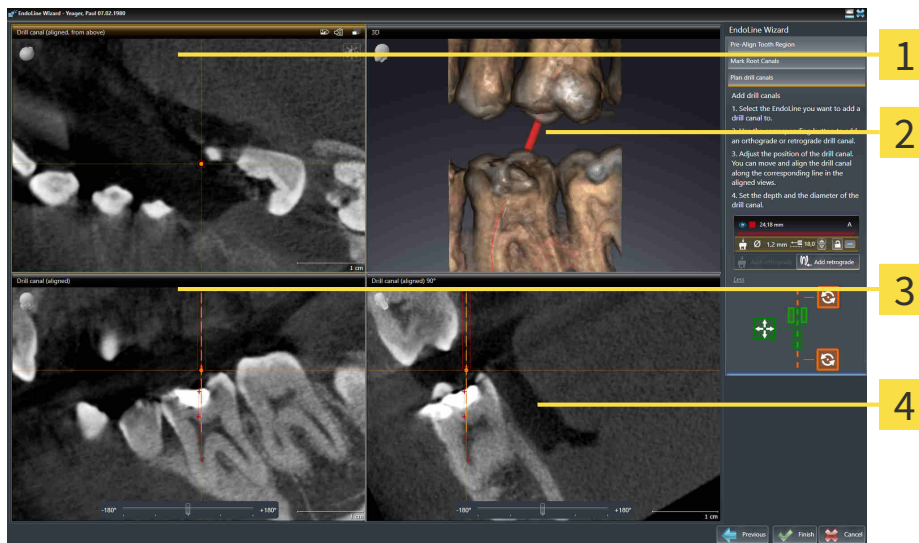
The **Sagittal** view shows the EndoLine from the right.



If you have not yet planned any drill channels, SICAT Endo displays the **Axial** view, the **3D** view, the **Coronal** view and the **Sagittal** view when you open the **Plan drill canals** step in the EndoLine wizard.

VIEWS WHEN PLANNING ORTHOGRADE DRILL CHANNELS

The following views are available when planning orthograde drill channels:



1 Drill canal (aligned, from above) view

3 Drill canal (aligned) view

2 3D view

4 Drill canal (aligned) 90° view

The **Drill canal (aligned, from above)** view shows the drill channel aligned to the EndoLine from the top.

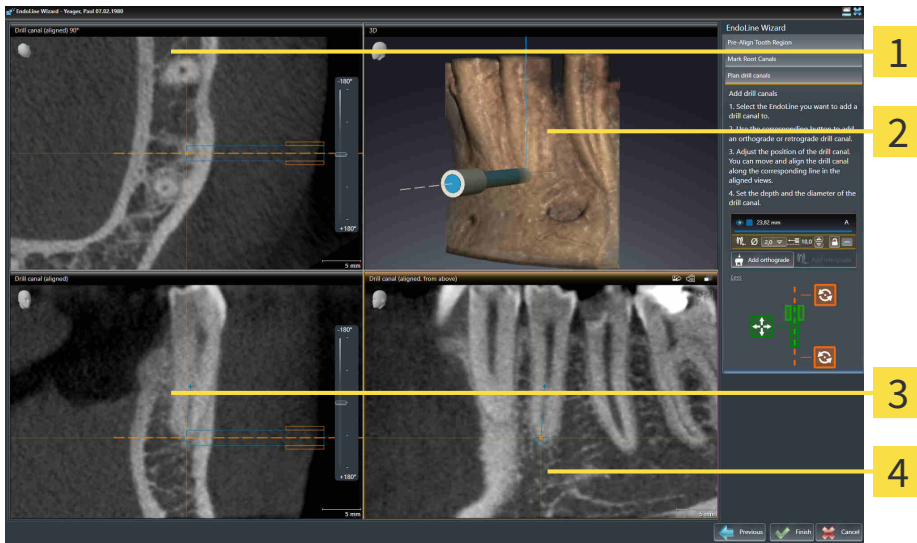
The **3D** view shows the drill channel that you have set in the 3D X-ray scan. Information on adjusting the **3D** view can be found in the section *Adjusting the 3D view* [▶ Page 86 - SIDEXIS 4].

The **Drill canal (aligned)** view shows the drill channel aligned to the EndoLine from the front.

The **Drill canal (aligned) 90°** view shows the drill channel aligned to the EndoLine from the side.

VIEWS WHEN PLANNING RETROGRADE DRILL CHANNELS

The following views are available when planning retrograde drill channels:



1 Drill canal (aligned) 90° view

3 Drill canal (aligned) view

2 3D view

4 Drill canal (aligned, from above) view

The **Drill canal (aligned) 90°** view shows the drill channel aligned to the EndoLine from the side.

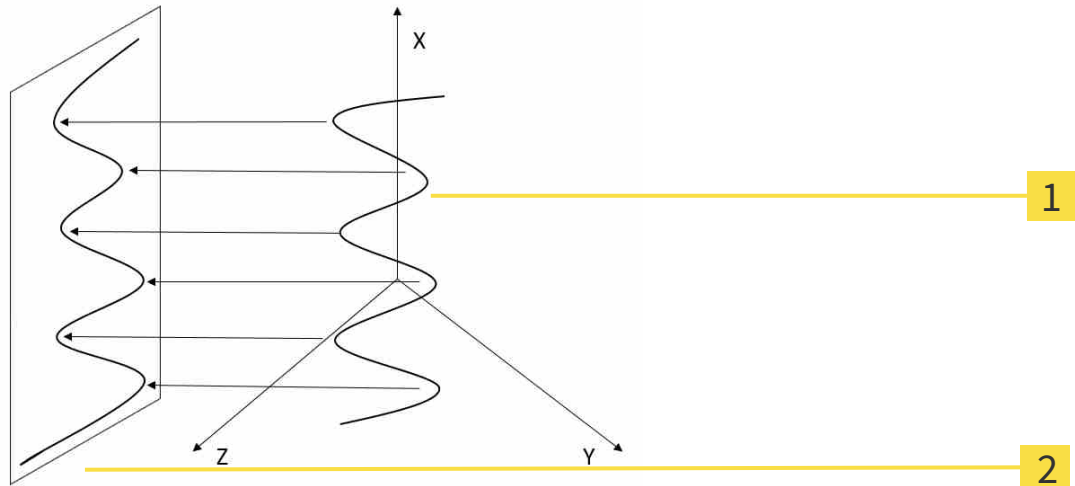
The **3D** view shows the drill channel that you have set in the 3D X-ray scan. Information on adjusting the **3D** view can be found in the section *Adjusting the 3D view* [▶ Page 86 - *SIDEXIS 4*].

The **Drill canal (aligned)** view shows the drill channel aligned to the EndoLine from the front.

The **Drill canal (aligned, from above)** view shows the drill channel aligned to the EndoLine from the top.

28.1.1 ENDOVIEW

EndoView in SICAT Endo visualizes the anatomy of complex tooth structures of a patient with the software application projecting and showing a curved EndoLine from a 3D scan on a 2D plane. This technique is called Curved Planar Reformation (CPR). It enables the visualization of curved structures reconstructed in a plane.



1 3D scan

2 2D plane

Visualizing an EndoLine in the 2D plane helps you to assess the details of the anatomical teeth structures and to identify anomalies more easily. At the same time, EndoView improves the accuracy of diagnostic decisions and facilitates the creation of a customized treatment plan for your patient.

28.1.2 ROTATING ENDOVIEW

Information on EndoView can be found in the section *EndoView* [▶ Page 135 - SIDEKIS 4].

In the **EndoView (aligned)** and **EndoView (aligned) 90°** view, you can use a slider to rotate the image sections.

- ☑ The **Place EndoLines** step is already open. Information on this can be found in the section *Placing EndoLines* [▶ Page 140 - SIDEKIS 4].
- ☑ You have set at least one EndoLine.
- ☑ You have selected an EndoLine.

1. Enable the **EndoView (aligned)** view or the **EndoView (aligned) 90°** view by clicking into the desired view.

▶ SICAT Endo activates the view.



2. Position the mouse pointer on the slider.
3. Click and hold the left mouse button.
4. Move the slider to the desired position.
5. Release the mouse button.

▶ SICAT Endo rotates the image section.

▶ SICAT Endo adjusts the **EndoView (aligned)** view and the **EndoView (aligned) 90°** view.



Alternatively, you can also rotate the image section by using the left mouse key to click on any position in **EndoView (aligned)** or in **EndoView (aligned) 90°** and keep the mouse key pressed to rotate the image section in the desired direction.



The slider ranges from -180 degrees to +180 degrees and is divided into 90 degree segments. You can use the slider to set an angle for rotating the view.

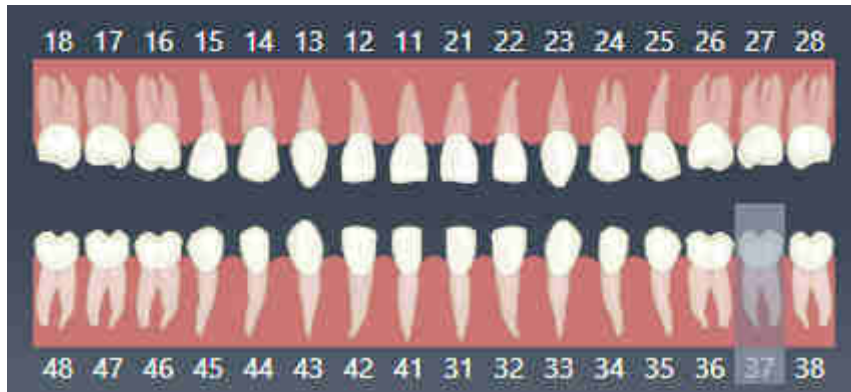
28.2 SELECTING A TOOTH FOR TREATMENT PLANNING

Before being able to plan EndoLines and drill channels you must select the tooth that you want to treat.

- ☑ You have opened the **Radiograph** workspace or the **Panorama** workspace. Information on this can be found in the section *Workspaces* [▶ Page 65 - SIDEXIS 4].



1. Place the mouse pointer over the **Active tooth** section in the **Object bar**.
 - ▶ The **Tooth number** window opens:



2. Move the mouse pointer over the tooth that you want to treat.
 - ▶ SICAT Endo highlights the tooth number.
3. To select the highlighted tooth, left click on the tooth.
 - ▶ SICAT Endo marks the tooth in blue.
 - ▶ SICAT Endo displays the tooth number in the **Object bar** in the **Active tooth** area.
4. To close the **Tooth number** window, move the mouse pointer out of the **Active tooth** area.
 - ▶ SICAT Endo closes the **Tooth number** window.

28.3 PRE-ALIGNING A TOOTH REGION

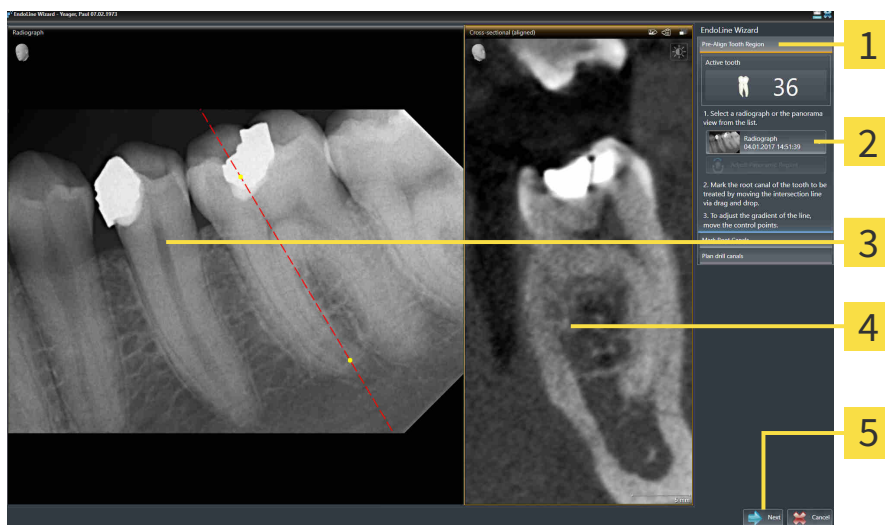
General information on the EndoLine wizard can be found in the section *EndoLine wizard* [▶ Page 129 - *SIDEXIS 4*].

In the **Pre-Align Tooth Region** step, you can use a line of intersection to adjust the views so as to be able to clearly see the tooth and the roots that you want to treat.

- ☑ You have selected the tooth that you want to treat in the **Radiograph** workspace or in the **Panorama** workspace using the **Tooth number** schema in the **Object bar**. Information on this can be found in the section *Selecting a tooth for treatment planning* [▶ Page 137 - *SIDEXIS 4*].
- ☑ The **Diagnose** workflow step is already expanded. Information on this can be found in the section *Workflow toolbar* [▶ Page 55 - *SIDEXIS 4*].



1. Click on the **Plan root canal treatment using EndoLines and drill canals** icon.
 - ▶ The **Pre-Align Tooth Region** step opens:



- | | |
|---|---|
| 1 Pre-Align Tooth Region area | 4 Cross-sectional (aligned) view |
| 2 List of Panorama view and intraoral scans | 5 Next button |
| 3 Panorama view or Radiograph view | |

2. In the **Pre-Align Tooth Region** area, select an intraoral scan or the panorama from the list.
 - ▶ SICAT Endo shows a line of intersection with two yellow control points in the **Intraoral scan** view or in the **Panorama** view.



3. To move the line of intersection, position the mouse pointer on the line of intersection.
 - ▶ The mouse pointer changes.
4. Click and hold the left mouse button.
5. Move the line of intersection to the desired position.
6. Release the left mouse button.
 - ▶ SICAT Endo maintains the current position of the line of intersection.
 - ▶ SICAT Endo adjusts the **Cross-sectional (aligned)** view according to the changed position of the line of intersection.

7. To rotate the line of intersection, position the mouse pointer on one of the two yellow control points.
 - ▶ The mouse pointer changes.
8. Click and hold the left mouse button.
9. Rotate the line of intersection in the desired direction.
10. Release the left mouse button.
 - ▶ SICAT Endo maintains the current rotation of the line of intersection.
 - ▶ SICAT Endo adjusts the **Cross-sectional (aligned)** view according to the changed position of the line of intersection.
11. Click **Next**.
 - ▶ SICAT Endo applies the adjustment of the views.
 - ▶ The **Place EndoLines** step opens.

Continue with the section *Placing EndoLines* [▶ *Page 140 - SIDEXIS 4*].




To be able to choose between an intraoral scan and the **Panorama** view for pre-alignment, you must have registered at least one intraoral scan for the selected tooth.



You can adjust the panoramic area by clicking the **Adjust panoramic region** icon. Information on this can be found in the section *Adjusting the panoramic region* [▶ *Page 100 - SIDEXIS 4*].

28.4 PLACING ENDOLINES


CAUTION

Using the 3D view to display measurements and planning objects may result in incorrect diagnosis and treatment.

Use the 3D view for guidance only and regard it as an additional source of information.

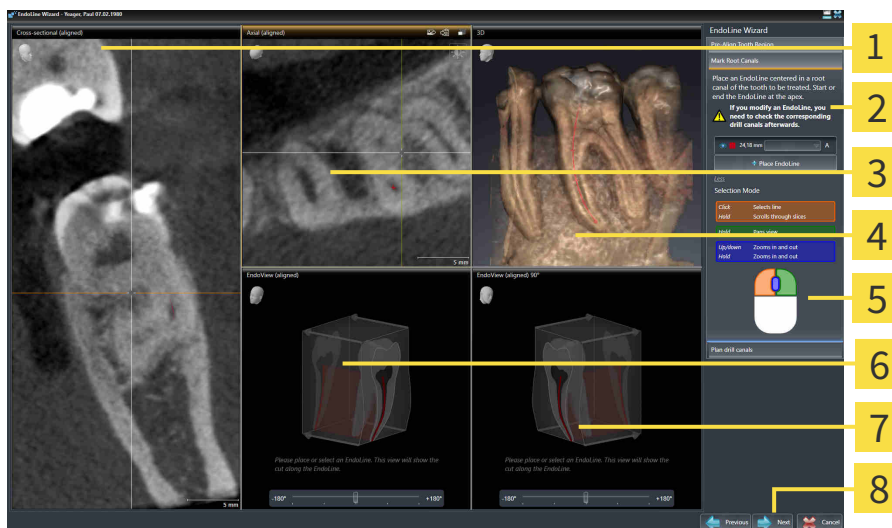
General information on the EndoLine wizard can be found in the section *EndoLine wizard* [▶ Page 129 - SIDEXIS 4].

In the **Place EndoLines** step, you can mark the root canals that you want to treat in the aligned views using EndoLines.

SICAT Endo marks the start point with a triangle and the end point with a circle when an EndoLine is inserted.

The order of the points depends of the tooth number that was previously selected and the position of the tooth in the patient’s jaw. In the upper jaw, the start point is below the end point and in the lower jaw, the start point is above the end point.

- You have finished the **Pre-Align Tooth Region** step. Information on this can be found in the section *Pre-aligning a tooth region* [▶ Page 138 - SIDEXIS 4].
- The **Place EndoLines** step is already open.



- | | |
|---|--|
| <ul style="list-style-type: none"> 1 Cross-sectional (aligned) view 2 Place EndoLines area 3 Axial (aligned) view 4 3D view | <ul style="list-style-type: none"> 5 Infographic 6 EndoView (aligned) 7 EndoView (aligned) 90° 8 Next button |
|---|--|



1. Click on the **Place EndoLine** button in the **Place EndoLines** area.
 - ▶ SICAT Endo highlights the **Cross-sectional (aligned)** view and the **Axial (aligned)** view.
 - ▶ The mouse pointer changes.
2. Position the mouse pointer in the **Cross-sectional (aligned)** view or the **Axial (aligned)** view.

3. Use the left mouse key to click on the apex or the start point.
 - ▶ SICAT Endo sets a control point.
4. Add further control points to mark the root paths by left-clicking on additional positions on the root path.
5. To finish marking the root paths, double-click on the apex or the start point.
 - ▶ SICAT Endo sets a control point.
 - ▶ SICAT Endo displays all control points and a connection between the points in form of an EndoLine.
 - ▶ SICAT Endo aligns the **EndoView (aligned)** view and the **EndoView (aligned) 90°** view to the EndoLine.
6. If required, repeat the steps to mark additional root canals.
7. Verify the EndoLines set in the **EndoView (aligned)** view or the **EndoView (aligned) 90°** view.
8. Click **Next**.
 - ▶ The **Plan drill canals** step opens.

Continue with the section *Planning drill channels* [▶ Page 149 - SIDEXIS 4].

You can modify the color and the text for the description and the position of an EndoLine. Information on this can be found in the section *Adjusting color and text* [▶ Page 142 - SIDEXIS 4].

You can modify an EndoLine by moving, adding or deleting control points. Information on this can be found in the section *Adding, moving and deleting control points* [▶ Page 143 - SIDEXIS 4].

You can use a rotation mode in the **3D** view. Information on this can be found in the section *Rotating the 3D view* [▶ Page 146 - SIDEXIS 4].

You can view imported and registered optical impressions in the **3D** view. Information on this can be found in the section *Displaying optical impressions in the 3D view* [▶ Page 147 - SIDEXIS 4].

You can use different functions when inserting an EndoLine with the mouse keys. Information on this can be found in the section *Using mouse keys* [▶ Page 148 - SIDEXIS 4].



To select an EndoLine, you can left-click on the line in one of the aligned views or select it in the **Place EndoLines** area.



To delete an EndoLine, highlight the EndoLine in the **Place EndoLines** area and click on the **Delete EndoLine** button at the end of the row of the selected EndoLine.



To adjust representation in **EndoView (aligned)** or in **EndoView (aligned) 90°**, you can use the slider in these views. You can rotate the views by any angle to the left or to the right using the slider.

28.5 ADJUSTING COLOR AND TEXT

ADJUSTING THE COLOR

To change the color of an EndoLine, proceed as follows:

1. Click the **Change color** button in the row for the EndoLine.
 - ▶ SICAT Endo changes the color of the EndoLine.
2. If the color is not the desired color, click again on the **Change color** button until SICAT Endo shows the desired color.
 - ▶ SICAT Endo shows the new color for the EndoLine.

ADJUSTING TEXT FOR DESCRIPTION OR POSITION SPECIFICATION

To change the description text or position specification text of the EndoLine, proceed as follows:

1. To enter a description for the EndoLine, click on the **Description/Position** field in the EndoLine row.
 - ▶ The mouse pointer blinks at the enter position.
2. Enter the desired EndoLine description.
 - ▶ SICAT Endo displays the description.
3. To select a text for the EndoLine position specification, click on the arrow icon in the **Description/Position** field in the EndoLine row.
 - ▶ SICAT Endo displays a list with position specifications.
4. Click on the desired position specification in the list.
 - ▶ SICAT Endo shows the position specification in the **Description/Position** field.
5. To apply the changes and to close the **Description/Position** field, left-click on a position outside of the **Description/Position** field.
 - ▶ SICAT Endo displays the new description or position specification.

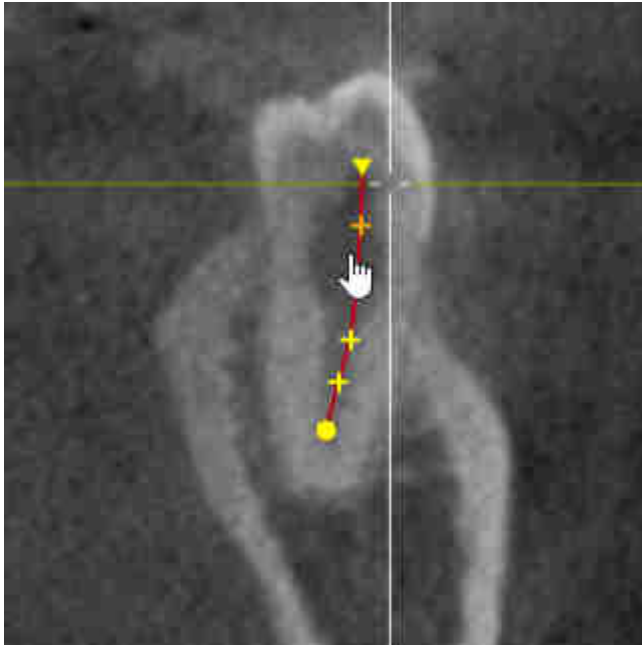


28.6 ADDING, MOVING AND DELETING CONTROL POINTS

ADDING CONTROL POINTS TO AN ENDOLINE

To add a control point to an EndoLine, proceed as follows:

1. Position the mouse pointer at the position of an EndoLine where you want to add a control point

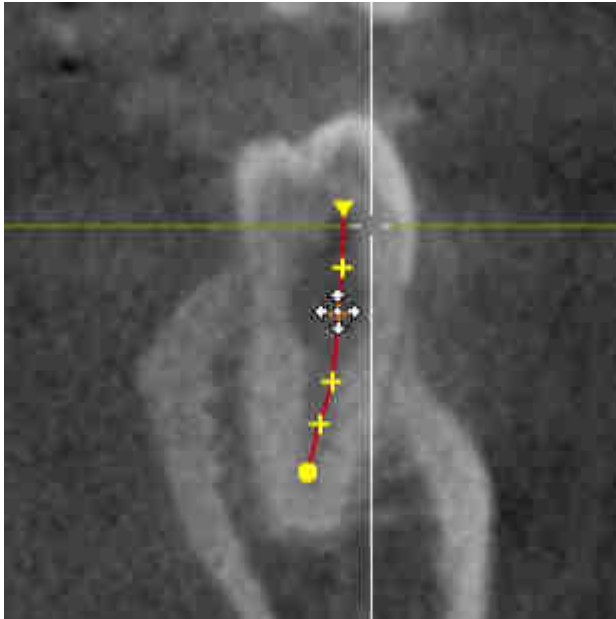


- ▶ The mouse pointer changes.
2. Double-click on the desired position.
- ▶ SICAT Endo adds a control point in the shape of a cross.

MOVING CONTROL POINTS OF AN ENDOLINE

To move control points of an EndoLine, proceed as follows:

1. Position the mouse pointer on the control point of the EndoLine that you want to move.

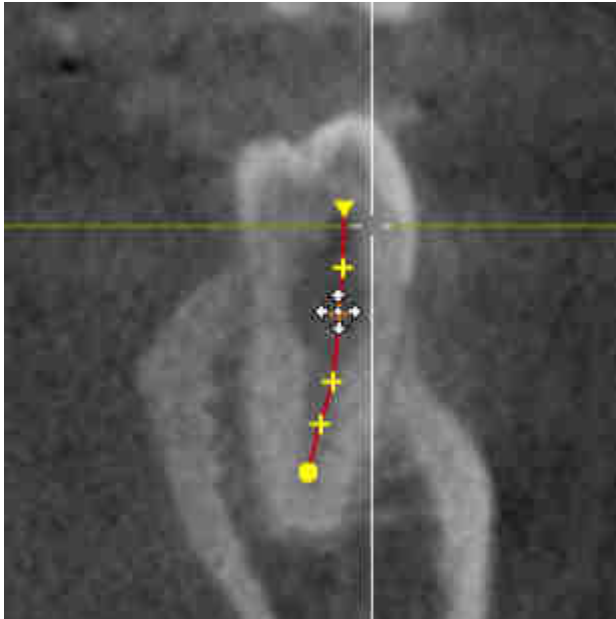


- ▶ The mouse pointer changes.
2. Click and hold the left mouse button.
3. Move the mouse.
 - ▶ The control point tracks the movement of the mouse pointer.
 - ▶ SICAT Endo adjusts the EndoLine according to the new position of the control point.
4. Release the left mouse button.
 - ▶ SICAT Endo maintains the current position of the control point.
 - ▶ SICAT Endo displays the new path of the EndoLine.

DELETING CONTROL POINTS FROM AN ENDOLINE

To delete a control point from an EndoLine, proceed as follows:

1. Position the mouse pointer on the control point of the EndoLine that you want to delete.



- ▶ The mouse pointer changes.
2. Left-click on the control point.
 - ▶ SICAT Endo marks the control point.
3. Press the **Del** key.
 - ▶ SICAT Endo deletes the control point.
 - ▶ SICAT Endo adjusts the EndoLine accordingly.



Please note that the EndoLine will be deleted completely as soon as you delete the penultimate control point.

28.7 ROTATING THE 3D VIEW

General information on the **3D** view can be found in the section *Adjusting the 3D view* [▶ Page 86 - *SIDEXIS 4*].

You can use the **Spin 3D view** function to switch on and off a rotation mode for the 3D X-ray scan in the EndoLine wizard. If the rotation mode is switched on, SICAT Endo rotates the 3D X-ray scan clockwise.

To use the rotation mode, proceed as follows:

You have already activated the **3D** view. Information on this can be found in the section *Views* [▶ Page 72 - *SIDEXIS 4*].

1. Adjust the representation of the 3D X-ray scan in such a way that the desired section of the image is shown.
2. Make sure that you have selected the desired display mode. Information on this can be found in the section *Switching the display mode of the 3D view* [▶ Page 88 - *SIDEXIS 4*].
3. Make sure that you have selected the desired clipping mode. Information on this can be found in the section *Changing the clipping mode of the 3D view* [▶ Page 91 - *SIDEXIS 4*].



4. Click on the **Spin 3D view** button.
 - ▶ SICAT Endo rotates the 3D X-ray scan about the vertical axis of the selected section.
5. To exit rotation mode, click on the **Spin 3D view** button again.
 - ▶ SICAT Endo stops the rotation of the 3D X-ray scan.



To stop the rotation mode, you can also click anywhere in the **3D** view.

28.8 DISPLAYING OPTICAL IMPRESSIONS IN THE 3D VIEW

General information on the **3D** view can be found in the section *Adjusting the 3D view* [▶ Page 86 - *SIDEXIS 4*].

If you have already imported and registered optical impressions, you can show and hide these optical impressions in the **3D** view.

To show and hide the optical impressions, proceed as follows:

- ☑ You have already activated the **3D** view. Information on this can be found in the section *Views* [▶ Page 72 - *SIDEXIS 4*].
- ☑ You have already imported and registered at least one optical impression. Information on this can be found in the section *Importing and registering optical impressions* [▶ Page 104 - *SIDEXIS 4*].



1. To show the optical impressions, click on the **Show object** button.
 - ▶ SICAT Endo shows the optical impressions.
 - ▶ SICAT Endo updates the representation of the 3D X-ray scan.



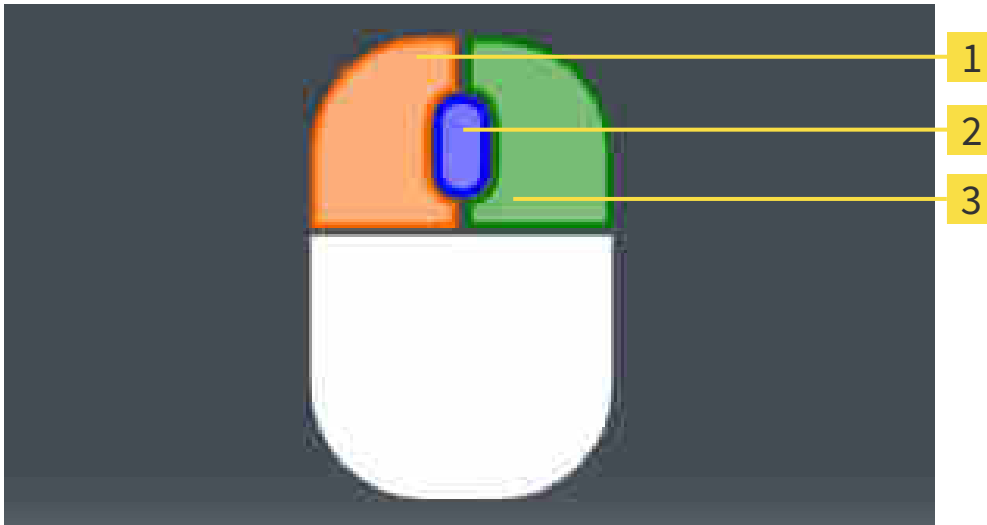
2. To hide the optical impressions, click on the **Hide object** button.
 - ▶ SICAT Endo hides the optical impressions.
 - ▶ SICAT Endo updates the representation of the 3D X-ray scan.



If you have not yet imported and registered optical impressions, SICAT Endo does not show the **Show object** button in the **3D** view.

28.9 USING MOUSE KEYS

SICAT Endo shows a picture explaining how to use the mouse keys when setting an EndoLine:



1 Left mouse key

3 Right mouse key

2 Mouse wheel

If you activate a mouse key, SICAT Endo highlights the mouse key in the picture. The action that is associated with a mouse key depends on the editing mode.

SICAT Endo distinguishes the following editing modes:

- Create
- Edit
- Select

Depending on the editing mode, different actions are available. Available actions are shown in a table above the picture and are highlighted in the color of the associated mouse key.

You can show and hide the picture as needed.

28.10 PLANNING DRILL CHANNELS



An incorrect drilling depth might lead to the wrong treatment.

Make sure that the planned drilling depth and the selected drill match.

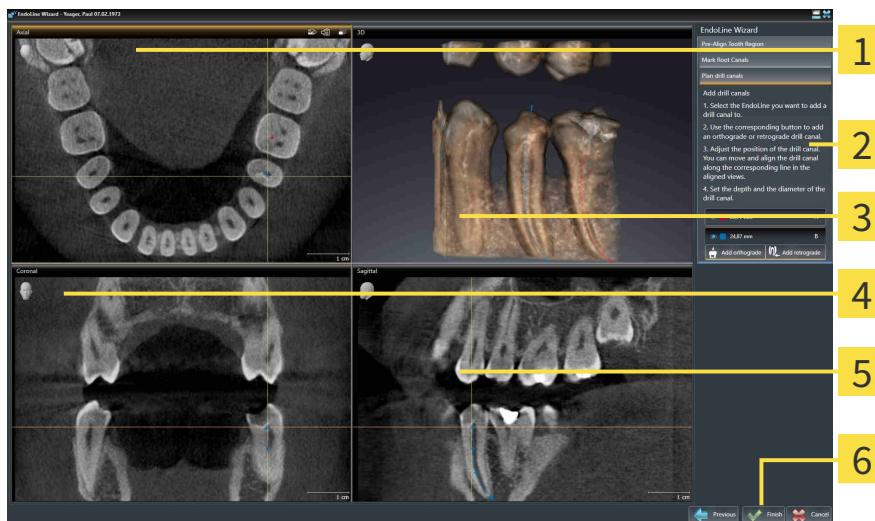
General information on the EndoLine wizard can be found in the section *EndoLine wizard* [▶ Page 129 - SIDEXIS 4].

In the **Plan drill canals** step, you can add orthograde and retrograde drill channels to EndoLines and edit them. You can add an orthograde drill channel and a retrograde drill channel. A drill channel is always in the same color as the Endoline associated with the drill channel.

OPENING THE PLAN DRILL CANALS STEP

- ☑ You have finished the **Place EndoLines** step. Information on this can be found in the section *Placing EndoLines* [▶ Page 140 - SIDEXIS 4].
- ☑ The **Place EndoLines** step is open.
 - Click on the **Next** button in the **Place EndoLines** step.

▶ The **Plan drill canals** step opens:



1 Axial view

4 Coronal view

2 Add drill canals area

5 Sagittal view

3 3D view

6 Finish button

PLANNING ORTHOGRADE DRILL CHANNELS

1. In the **Add drill canals** area, select the EndoLine to which you want to add an orthograde drill channel.

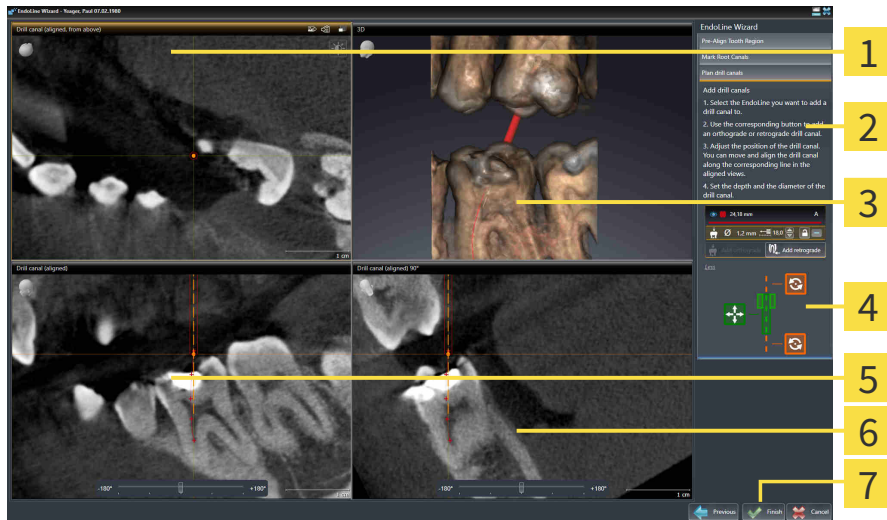
- ▶ SICAT Endo marks the EndoLine.



2. Click on the **Add orthograde** button.

- ▶ SICAT Endo adds an orthograde drill channel to the marked EndoLine.

- ▶ SICAT Endo adjusts the views as follows:



1 Drill canal (aligned, from above) view

5 Drill canal (aligned) view

2 Add drill canals area

6 Drill canal (aligned) 90° view

3 3D view

7 Finish button

4 Infographic



3. To adjust the position of the drill channel along the EndoLine, position the mouse pointer on the drill channel in the **Drill canal (aligned)** view or in the **Drill canal (aligned) 90°** view.

- ▶ The mouse pointer changes.

4. Click and hold the left mouse button.

5. Move the drill channel to the desired position.

6. Release the left mouse button.

- ▶ SICAT Endo maintains the current position of the drill channel.

- ▶ SICAT Endo adjusts the other views according to the changed position of the drill channel.



7. To adjust the rotation of the drill channel, position the mouse pointer on the EndoLine outside of the drill channel in the **Drill canal (aligned)** view or in the **Drill canal (aligned) 90°** view.

- ▶ The mouse pointer changes.

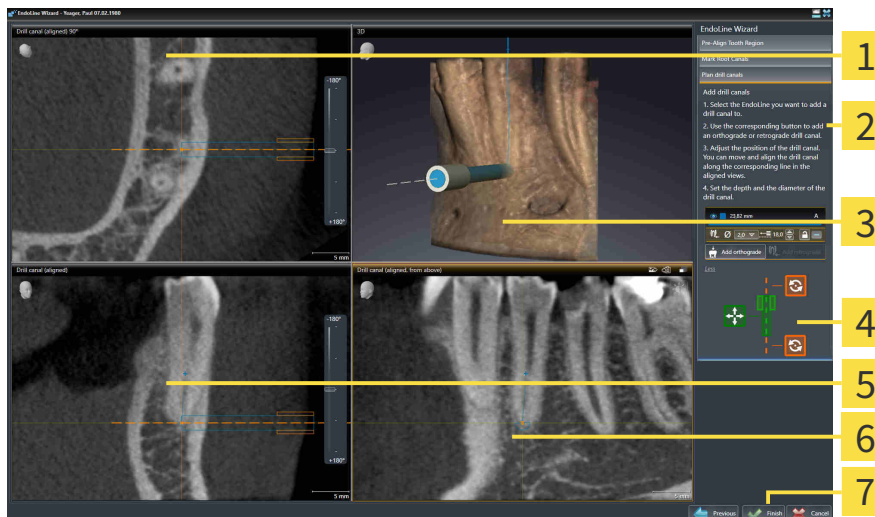
8. Click and hold the left mouse button.

9. Rotate the EndoLine with the drill channel in the desired direction.
10. Release the left mouse button.
 - ▶ SICAT Endo maintains the current rotation of the EndoLine and the drill channel.
 - ▶ SICAT Endo adjusts the other views according to the changed position of the drill channel.
11. If required, you can adjust the position of the drill sleeve by clicking on the arrow keys next to the **Depth [mm]** field.
 - ▶ SICAT Endo displays the new depth of the drill sleeve.
12. To finish the planning of drill channels, click on the **Finish** button.
 - ▶ The EndoLine wizard closes.
 - ▶ The **Radiograph** workspace opens.
 - ▶ SICAT Endo shows the planned drill channels.



PLANNING RETROGRADE DRILL CHANNELS

1. In the **Add drill canals** area, select the EndoLine that you want to add a retrograde drill channel to.
 - ▶ SICAT Endo marks the EndoLine.
2. Click on the **Add retrograde** button.
 - ▶ SICAT Endo adds a retrograde drill channel to the marked EndoLine.
 - ▶ SICAT Endo adjusts the views as follows:



- | | |
|--|---|
| <p>1 Drill canal (aligned) 90° view</p> <p>2 Add drill canals area</p> <p>3 3D view</p> <p>4 Infographic</p> | <p>5 Drill canal (aligned) view</p> <p>6 Drill canal (aligned, from above) view</p> <p>7 Finish button</p> |
|--|---|



3. To adjust the position of the drill channel along the EndoLine, position the mouse pointer on the drill channel in the **Drill canal (aligned)** view or in the **Drill canal (aligned) 90°** view.
 - ▶ The mouse pointer changes.
4. Click and hold the left mouse button.
5. Move the drill channel to the desired position.
6. Release the left mouse button.
 - ▶ SICAT Endo maintains the current position of the drill channel.
 - ▶ SICAT Endo adjusts the other views according to the changed position of the drill channel.



7. To adjust the rotation of the drill channel, position the mouse pointer on the EndoLine outside of the drill channel in the **Drill canal (aligned)** view or in the **Drill canal (aligned) 90°** view.
 - ▶ The mouse pointer changes.
8. Click and hold the left mouse button.
9. Rotate the EndoLine with the drill channel in the desired direction.
10. Release the left mouse button.
 - ▶ SICAT Endo maintains the current rotation of the EndoLine and the drill channel.
 - ▶ SICAT Endo adjusts the other views according to the changed position of the drill channel.



11. If required, you can adjust the position of the drill sleeve by clicking on the arrow keys next to the **Depth [mm]** field.
 - ▶ SICAT Endo displays the new depth of the drill sleeve.



12. If required, you can adjust the diameter of the retrograde drill channel by clicking on the arrow icon next to the **Diameter [mm]** field.
 - ▶ SICAT Endo displays a list with available diameters.
13. Click on the desired diameter.
 - ▶ SICAT Endo displays the new diameter of the drill channel.
14. To finish the planning of drill channels, click on the **Finish** button.
 - ▶ The EndoLine wizard closes.
 - ▶ The **Radiograph** workspace opens.
 - ▶ SICAT Endo shows the planned drill channels.

BLOCKING DRILL CHANNELS

Use this function to protect drill channels from modification.

To block a drill channel, proceed as follows:

- ☑ The drill channel has already been marked.



- Click on the **Lock object** icon.
- ▶ SICAT Endo blocks the drill channel for editing.
- ▶ SICAT Endo blocks the associated EndoLine.

UNBLOCKING DRILL CHANNELS

To unblock a drill channel, proceed as follows:

- ☑ The drill channel has been blocked.
- ☑ The drill channel has already been activated.



- Click on the **Unlock object** icon.
- ▶ SICAT Endo unblocks the drill channel.
- ▶ SICAT Endo unblocks the associated EndoLine.

DELETING DRILL CHANNELS

To delete a drill channel, proceed as follows:

1. In the **Add drill canals** area, click on the Endo planning object containing the drill channel that you want to delete.
 - ▶ SICAT Endo marks the Endo planning object.
2. In the Endo planning object, click on the drill channel that you want to delete.
 - ▶ SICAT Endo marks the drill channel.
3. Click on the **Delete drill canal** button at the end of the row.
 - ▶ SICAT Endo deletes the drill channel.



If you have blocked a drill channel for editing, you will not be able to edit the associated EndoLine either. To be able to edit the EndoLine, you have to unblock the associated drill channel.

29 DISTANCE AND ANGLE MEASUREMENTS

SICAT Endo features two different types of measurement:



- Distance measurements



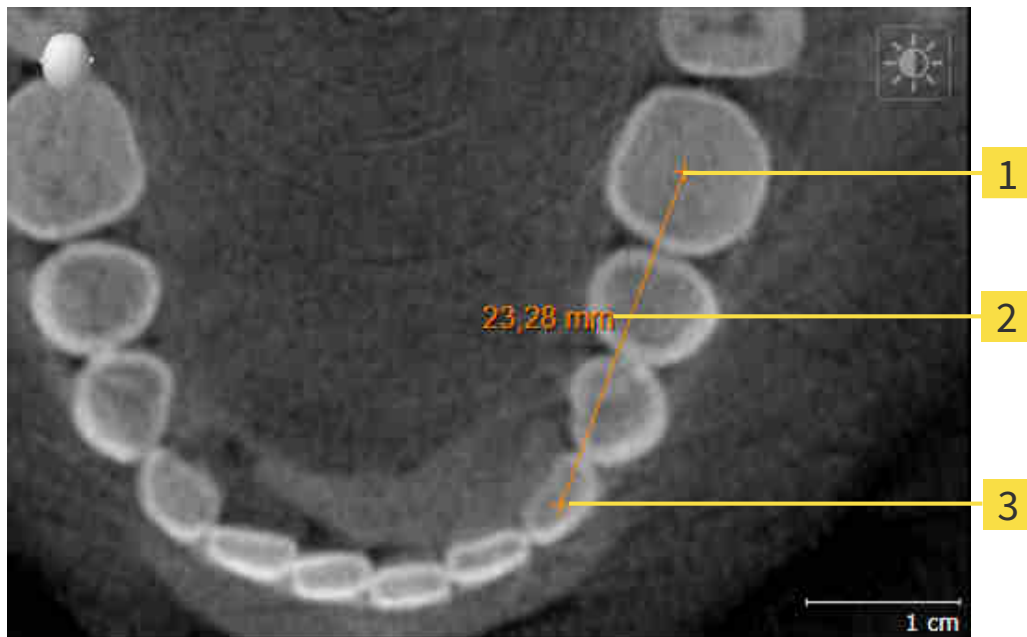
- Angle measurements

The tools to add measurements are available in the **Diagnose** step of the **Workflow toolbar**. You can add measurements in all 2D slice views. Every time you add a measurement, SICAT Endo will also add it to the **Measurements** group in the **Object browser**.

The following actions are available for measurements:

- *Adding distance measurements* [[▶ Page 155 - SIDEXIS 4](#)]
- *Adding angle measurements* [[▶ Page 156 - SIDEXIS 4](#)]
- *Moving measurements, individual measuring points and measured values* [[▶ Page 158 - SIDEXIS 4](#)]
- *Activating, hiding and showing measurements* - Information on this can be found in the section *Managing objects with the object browser* [[▶ Page 58 - SIDEXIS 4](#)].
- *Focusing on measurements, removing measurements and undoing and redoing measurement actions* – Information on this can be found in the section *Managing objects with the object toolbar* [[▶ Page 60 - SIDEXIS 4](#)].

29.1 ADDING DISTANCE MEASUREMENTS



1 Starting point

2 Measured value

3 End point

To add a distance measurement, proceed as follows:

The **Diagnose** workflow step is already expanded.

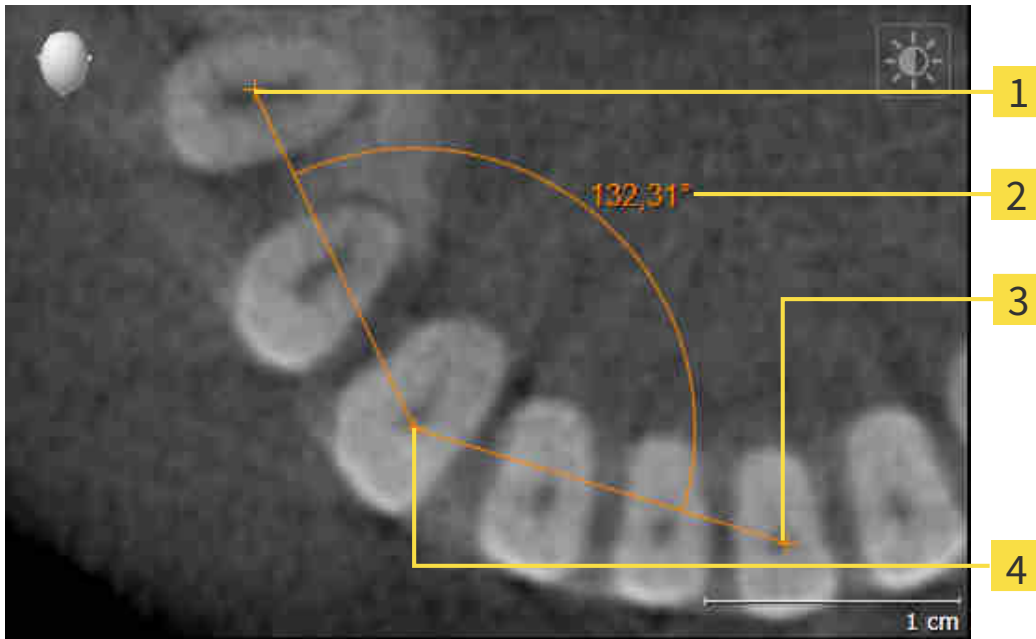


1. In the **Diagnose** workflow step, click the **Add distance measurement (D)** icon.
 - ▶ SICAT Endo adds a new distance measurement to the **Object browser**.
2. Move the mouse pointer over the desired 2D slice view.
 - ▶ The mouse pointer becomes a cross.
3. Click on the starting point of the distance measurement.
 - ▶ SICAT Endo illustrates the starting point using a small cross.
 - ▶ SICAT Endo shows a distance line between the starting point and the mouse pointer.
 - ▶ SICAT Endo shows the current distance between the starting point and the mouse pointer in the middle of the distance line and in the **Object browser**.
4. Move the mouse pointer to the end point of the distance measurement and left-click.
 - ▶ SICAT Endo illustrates the end point using a small cross.



You can cancel adding measurements at any time by pressing **ESC**.

29.2 ADDING ANGLE MEASUREMENTS



- 1** Starting point
- 2** Measured value
- 3** End point
- 4** Vertex

To add an angle measurement, proceed as follows:

- The **Diagnose** workflow step is already expanded.



1. In the **Diagnose** workflow step, click the **Add angle measurement (A)** icon.
 - ▶ SICAT Endo adds a new angle measurement to the **Object browser**.
2. Move the mouse pointer over the desired 2D slice view.
 - ▶ The mouse pointer becomes a cross.
3. Click on the starting point of the angle measurement.
 - ▶ SICAT Endo illustrates the starting point using a small cross.
 - ▶ SICAT Endo shows the first side of the angle measurement by means of a line from the starting point to the mouse pointer.
4. Move the mouse pointer to the vertex of the angle measurement and left-click.
 - ▶ SICAT Endo illustrates the vertex using a small cross.
 - ▶ SICAT Endo shows the second side of the angle measurement by a line from the vertex to the mouse pointer.
 - ▶ SICAT Endo shows the current angle between both sides of the angle measurement and in the **Object browser**.

5. Move the mouse pointer to the end point of the second side and left-click.

▶ SICAT Endo illustrates the end point using a small cross.



You can cancel adding measurements at any time by pressing **ESC**.

29.3 MOVING MEASUREMENTS, INDIVIDUAL MEASURING POINTS AND MEASURED VALUES

MOVING MEASUREMENTS

To move a measurement, proceed as follows:

SICAT Endo shows the desired measurement already in a 2D slice view. For further information about this see *Managing objects with the object browser* [▶ Page 58 - SIDEXIS 4] and *Managing objects with the object toolbar* [▶ Page 60 - SIDEXIS 4].

1. Place the mouse pointer on one of the measurement lines.
 - ▶ The mouse pointer becomes a cross.
2. Click and hold the left mouse button.
3. Place the mouse pointer on the desired position of the measurement.
 - ▶ The measurement tracks the movement of the mouse pointer.
4. Release the left mouse button.
 - ▶ SICAT Endo maintains the current position of the measurement.

MOVING INDIVIDUAL MEASURING POINTS

To move an individual measuring point, proceed as follows:

SICAT Endo shows the desired measurement already in a 2D slice view. For further information about this see *Managing objects with the object browser* [▶ Page 58 - SIDEXIS 4] and *Managing objects with the object toolbar* [▶ Page 60 - SIDEXIS 4].

1. Place the mouse pointer on the desired measuring point.
 - ▶ The mouse pointer becomes a cross.
2. Click and hold the left mouse button.
3. Place the mouse pointer on the desired position of the measuring point.
 - ▶ The measuring point tracks the movement of the mouse pointer.
 - ▶ The measured value changes as you move the mouse.
4. Release the left mouse button.
 - ▶ SICAT Endo maintains the current position of the measuring point.

MOVING MEASURED VALUES

To move a measured value, proceed as follows:

- ☑ SICAT Endo shows the desired measurement already in a 2D slice view. For further information about this see *Managing objects with the object browser* [▶ Page 58 - SIDEXIS 4] and *Managing objects with the object toolbar* [▶ Page 60 - SIDEXIS 4].
- 1. Place the mouse pointer on the desired measured value.
 - ▶ The mouse pointer becomes a cross.
- 2. Click and hold the left mouse button.
- 3. Place the mouse pointer on the desired position of the measured value.
 - ▶ The measured value tracks the movement of the mouse pointer.
 - ▶ SICAT Endo shows a dotted line between the measured value and the corresponding measurement.
- 4. Release the left mouse button.
 - ▶ SICAT Endo maintains the current position of the measured value.



After you have moved the value of a measurement, the SICAT Endo will define the value at an absolute position. To position the value again relative to the measurement, double click on the value.

30 PATIENT INFORMATION



CAUTION

Using the handout for diagnosis purposes may result in an incorrect diagnosis and treatment.

Only use the visualization functions for medical images of the software user interface to perform a diagnosis on medical images and to plan the treatment.

You can explain your diagnosis and highlight the effects of the treatment to the patient through illustrations customized for the patient. The patient information consists of two steps:

1. In your practice within SICAT Endo
2. By way of a patient information via the handout

You can compile the contents of the handouts during your explanations on the monitor.

The patient can better understand the results you have discussed and also better discuss this with others using the handout.

Creating the handout consists of the following steps:

- *Creating images and screenshots* [▶ Page 161 - SIDEXIS 4]
- *Preparing handouts* [▶ Page 164 - SIDEXIS 4]
- *Generating handouts* [▶ Page 166 - SIDEXIS 4]

30.1 CREATING IMAGES AND SCREENSHOTS

General information on patient information can be found in the section *Patient information* [▶ Page 160 - *SIDEXIS 4*].

General information on managing images and screenshots can be found in the section *SICAT Endo objects* [▶ Page 61 - *SIDEXIS 4*].

There are two drawing tools:

- **Draw Arrow**
- **Draw Circle**

DRAWING ARROWS

To draw an arrow, proceed as follows:

- ☑ You have already aligned the volume according to your requirements. Information on this can be found in the section *Adjusting the volume orientation* [▶ Page 95 - *SIDEXIS 4*].
- ☑ The **Consult** workflow step is already expanded. Information on this can be found in the section *Workflow toolbar*.



1. In the **Consult** workflow step, click the **Draw Arrow** icon.
2. Place the mouse pointer over the desired view.
 - ▶ The mouse pointer becomes a pen.
3. Click and hold the left mouse button on the desired arrow tip position.
4. Move the mouse.
 - ▶ SICAT Endo shows an arrow in the view.
 - ▶ The end of the arrow will now match the position of the mouse pointer.
5. Move the mouse pointer to the desired arrow end position and release the left button.
 - ▶ SICAT Endo shows the finished arrow in the view.
 - ▶ If not yet available, SICAT Endo will create the structures required for the **Image** object in the **Object browser**.
 - ▶ The image will be available in the **Report Generation** window.
6. Click on the **Draw Arrow** icon.
 - ▶ SICAT Endo closes the mode for drawing arrows.

DRAWING CIRCLES

To draw a circle, proceed as follows:

- ☑ You have already aligned the volume according to your requirements, for example according to the Frankfurt plane. Information on this can be found in the section *Adjusting the volume orientation* [▶ Page 95 - *SIDEXIS 4*].
- ☑ The **Consult** workflow step is already expanded. Information on this can be found in the section *Workflow toolbar*.



1. In the **Consult** workflow step, click the **Draw Circle** icon.
2. Place the mouse pointer over the desired view.
 - ▶ The mouse pointer becomes a pen.
3. Click and hold the left mouse button on the desired position for the center of the circle.
4. Move the mouse.
 - ▶ SICAT Endo shows a circle in the view.
 - ▶ The radius of the circle will now match the distance between the center and the position of the mouse pointer.
5. Move the mouse pointer to achieve the desired radius and release the left button.
 - ▶ SICAT Endo shows the finished circle in the view.
 - ▶ If not yet available, SICAT Endo will create the structures required for the **Image** object in the **Object browser**.
 - ▶ The image will be available in the **Report Generation** window.
6. Click on the **Draw Circle** icon.
 - ▶ SICAT Endo closes the mode to draw circles.



As long as the **Draw Arrow** drawing tool or **Draw Circle** drawing tool is active, you can create several drawing objects one after another. You can cancel the use of a drawing tool by clicking on a point outside the view in question or by pressing the **ESC** key.

CONFIGURING DRAWING TOOLS

You can configure the **Draw Arrow** drawing tool or the **Draw Circle** drawing tool separately. Changes to the settings will only affect drawing objects created after that point.

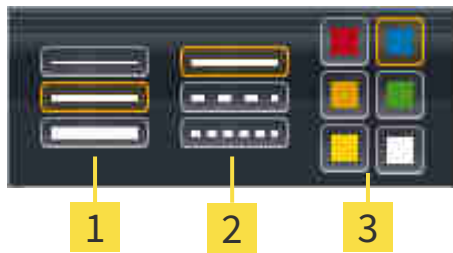
To configure a drawing tool, proceed as follows:

- The **Consult** workflow step is already expanded. Information on this can be found in the section **Workflow toolbar**.



1. In the **Consult** workflow step, click on the corresponding **Configure drawing tool** icon next to the **Draw Arrow** icon or **Draw Circle** icon.

► The transparent **Configure drawing tool** window opens:



1 Icons for the **Line thickness**

2 Icons for the **Line type**

3 Icons for the **Line color**

2. Click the desired icons to configure the **Line thickness**, **Line type** and **Line color** of the drawing tool.
 3. Click on any point outside the transparent **Configure drawing tool** window.
- SICAT Endo closes the transparent **Configure drawing tool** window.
 - SICAT Endo saves the settings in your user profile.
 - SICAT Endo uses the new settings for drawing objects created from then on.

ADDING SCREENSHOTS TO THE “GENERATE HANDOUT” WINDOW

You can create screenshots of any view in any workspace and any window as long as the respective view contains the **Copy screenshot to clipboard (Ctrl+C)** icon.

To add screenshots to the handout, proceed as follows:

1. To create a screenshot of a view, click on the **Copy screenshot to clipboard (Ctrl+C)** icon in the **View toolbar** of the desired view.
 2. To create a screenshot of the entire workspace, click on the **Copy screenshot to clipboard (Ctrl+C)** icon in the **Workspace toolbar**.
- SICAT Endo will create the structures that are required for the **Screenshot** object in the **Object browser** and will activate the object.
 - The screenshot will be available in the **Report Generation** window.
 - SICAT Endo copies a screenshot to the clipboard.

Continue with the section *Preparing handouts* [► Page 164 - SIDEXIS 4].

30.2 PREPARING HANDOUTS

General information on patient information can be found in the section *Patient information* [▶ Page 160 - *SIDEXIS 4*].

The following actions are available for preparing handouts:

- Opening the **Report Generation** window
- Changing handout settings
- Preparing elements

OPENING THE “REPORT GENERATION” WINDOW

- ☑ You have created at least one **Image** object or one **Screenshot** object.
- ☑ The **Consult** workflow step is already expanded. Information on this can be found in the section *Workflow toolbar*.



- Click on the **Create Patient Information Report** icon.
- ▶ The **Report Generation** window opens:

CHANGING HANDOUT SETTINGS

- ☑ The **Report Generation** window is already open.
1. Click on the icon for the desired arrangement of the images in the **Image Gallery Settings** area.
 - ▶ SICAT Endo shows the images according to the selected settings.
 2. Click on the row with the button with the desired paper size in the **Global Settings** area.
 - ▶ SICAT Endo changes the paper size according to the selected setting.
 3. Activate or deactivate the **Anonymize patient information** check box.
 - ▶ SICAT Endo shows the actual patient information or anonymized patient information according to the selected setting.

PREPARING ELEMENTS FOR HANDOUTS

The **Report Generation** window shows screenshots from **Image** objects and screenshots from **Screenshot** objects. Information on this can be found in the section *Creating images and screenshots* [▶ Page 161 - *SIDEXIS 4*].

To prepare elements for handouts, proceed as follows:

- ☑ The **Report Generation** window is already open.



1. If you want to hide an element on the handout, deactivate the corresponding check box for the element.
 - ▶ SICAT Endo hides the element on the handout.



2. If you want SICAT Endo to show an image alone on a page, click on the **Show image on single page** icon.



3. If you want to add a description to an element, click on the **Edit image description** icon of the element.
 - ▶ SICAT Endo displays an enlarged version of the element and a text input field:
4. Enter text into the text input field.
 - ▶ If the text you have entered is part of an existing text block, SICAT Endo will display the list of text blocks.
5. Click on the desired text block.
 - ▶ SICAT Endo adds the text block to the text input field.
6. If the desired text is not available as a text block, enter a new text.
7. Click on the **OK** button.
 - ▶ SICAT Endo saves the text as a description of the screenshot.
 - ▶ If the text you have entered is not available as a text block, SICAT Endo will save the description as a new text block in your user profile.
8. If you wish to change the order of elements on the handout, adjust them using drag & drop.



If you place the mouse pointer on a text block, SICAT Endo will display the **Remove this auto complete text from the list** icon. If you click on the **Remove this auto complete text from the list** icon, SICAT Endo will remove the text block from your user profile.



You can switch between the elements in the window showing the enlarged versions of the elements by clicking on the **Next item** button and **Previous item** button.

You can completely remove elements from the handout using the **Object browser**. Information on this can be found in the section *Managing objects with the object toolbar* [▶ Page 60 - SIDEXIS 4].

Continue with the section *Generating handouts* [▶ Page 166 - SIDEXIS 4].



SICAT Endo takes the practice logo and practice information text from the general settings. Information on this can be found in the section *Using practice information* [▶ Page 186 - SIDEXIS 4].

30.3 GENERATING HANDOUTS

The following actions are available for producing handouts:

- Saving a handout as a PDF file
- Printing handouts

SAVING A HANDOUT AS A PDF FILE

☑ The **Report Generation** window is already open.



1. Click on the **Export PDF** button in the **output** area.
 - ▶ A Windows Explorer window opens.
2. Switch to the directory in which you wish to save the handout.
3. Enter a name in the **File name** field and click on **Save**.
 - ▶ The Windows Explorer window closes.
 - ▶ SICAT Endo saves the handout as a PDF file.

PRINTING HANDOUTS



Handouts of a suitable quality require a printer that meets certain requirements. Information on this can be found in the section *System requirements* [▶ *Page 10 - SIDEXIS 4*].



☑ The **Report Generation** window is already open.

1. Click on the **Print** button.
 - ▶ The **Print** window opens.
2. Select the desired printer and adjust the print settings where necessary.
3. Click **Print**.
 - ▶ SICAT Endo sends the handout to the printer.

31 DATA EXPORT

You can export data.

If SICAT Suite runs as a SIDEXIS 4 module, please use the corresponding SIDEXIS 4 functions for the data export. For more information, please refer to the SIDEXIS 4 installation instructions.

32 ORDERING PROCESS

To order the desired product, proceed as follows:

- Place the desired planning data for surgical guides in the shopping cart in SICAT Endo. Information on this can be found in the section *Placing surgical guides in the shopping cart* [▶ Page 169 - SIDEXIS 4].
- Check the shopping cart and start the order. Information on this can be found in the section *Checking the shopping cart and completing the order* [▶ Page 173 - SIDEXIS 4].
- Complete the order either directly on the computer on which SICAT Suite is running or on another computer with an active Internet connection. For further information see section *Completing an order using an active Internet connection* [▶ Page 174 - SIDEXIS 4] or section *Completing an order without an active Internet connection* [▶ Page 178 - SIDEXIS 4].



You can add orders to the shopping cart, which are part of the same 3D X-ray scan.

32.1 PLACING SURGICAL GUIDES IN THE SHOPPING CART



Incorrect data in an order may result in an incorrect order.

If you complete an order, ensure that you select and transfer the correct data for the order.



An incorrect order might lead to the wrong treatment.

1. Check your order before sending it.
2. Confirm the correct planning of your order.

General information on the ordering process can be found in the section *Ordering process* [▶ Page 168 - SIDEXIS 4].

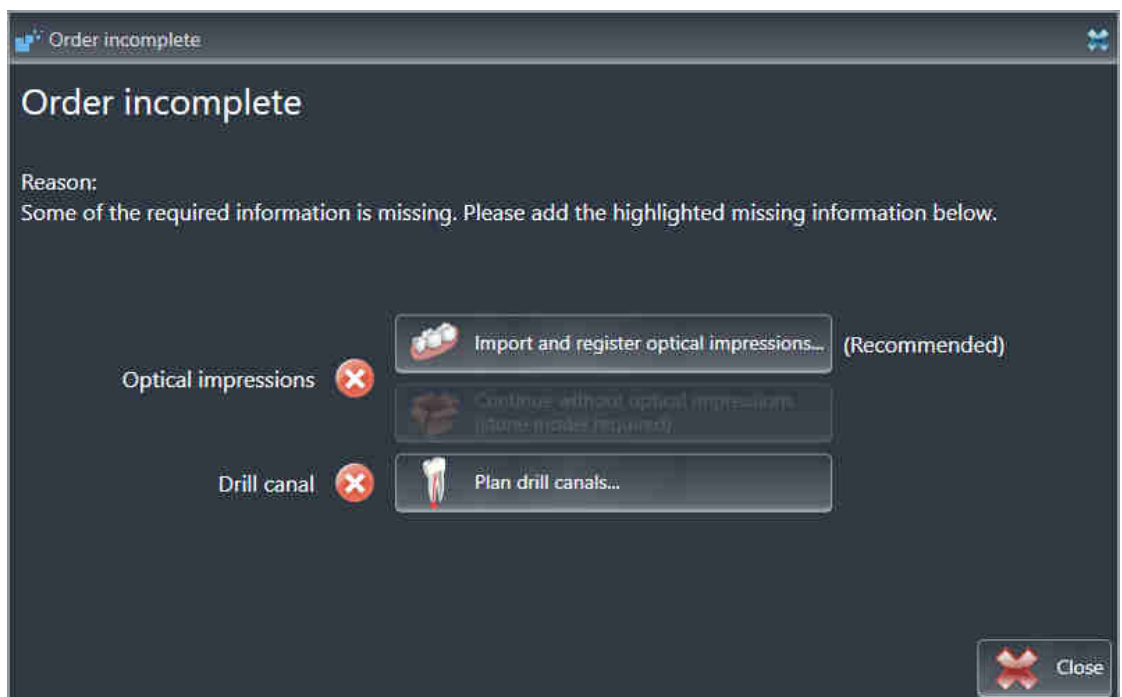
In SICAT Endo, you can place a **SICAT GUIDE (ENDO)** surgical guide in the shopping cart in the first part of the ordering process. Certain prerequisites must be met so that you can place a **SICAT GUIDE (ENDO)** in the shopping cart. SICAT Endo will notify you if you have not fulfilled all of the prerequisites.

IF THE PREREQUISITES ARE NOT FULFILLED

- The **Order** workflow step is already expanded. Information on this can be found in the section *Workflow toolbar* [▶ Page 55 - SIDEXIS 4].



1. Click on the **Order SICAT GUIDE (ENDO)** icon.
 - ▶ The **Order incomplete** window opens:



2. If you have not yet registered any optical impression, click on the **Import and register optical impressions** button and import an optical impression corresponding to the 3D X-ray scan. Information on this can be found in the section *Optical impressions* [▶ Page 103 - SIDEXIS 4].
3. If you have not yet planned a drill channel, click on the **Plan drill canals** button and set at least one drill channel. Information on this can be found in the section *Planning drill channels* [▶ Page 149 - SIDEXIS 4].

i You may have to adjust the orientation of the volume and the panoramic curve, before importing optical impressions. You can access the **Adjust Volume Orientation and Panoramic Region** window directly from the **Import and register optical impressions** window by clicking on the **Adjust panoramic region** button in the **Register** step. Information on this can be found in the section *Adjusting the panoramic region* [▶ Page 100 - SIDEXIS 4].

i If you wish to send plaster casts to SICAT instead of optical impressions, you can place surgical guides in the shopping cart without optical impressions by pressing the **Continue without optical impressions (stone model required)** button in the **Order incomplete** window. After this, the **Order Drill Guide** step will display the following information: **This order will be placed without optical impression data. The stone model must be sent to the SICAT Lab**

IF THE PREREQUISITES ARE FULFILLED

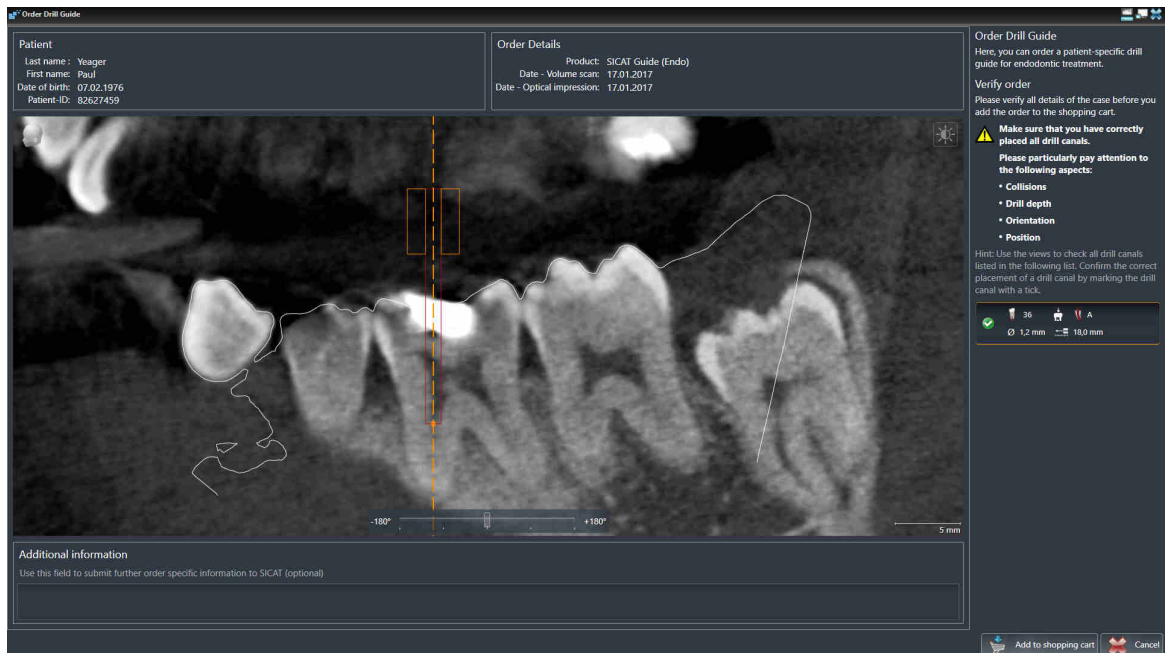
- You have imported at least one optical impression.
- You have already set EndoLines.
- You have already set drill channels.
- The **Order** workflow step is already expanded. Information on this can be found in the section *Workflow toolbar* [▶ Page 55 - SIDEXIS 4].



- Click on the **Order SICAT GUIDE (ENDO)** icon.
- ▶ The **Order Drill Guide** window opens.

VALIDATE YOUR ORDER IN THE ORDER DRILL GUIDE WINDOW

- The **Order Drill Guide** window is already open.



1. Check in the **Patient** section and **Order Details** section whether the patient information and scan information are correct.
2. Verify that you have correctly placed all drill channels.

3. To validate verification of a drill channel, mark the corresponding Endo planning object in the **Verify order** area.
 - ▶ SICAT Endo marks the Endo planning object.
4. Place a check mark.
 - ▶ SICAT Endo shows a green check mark.
5. Repeat the steps for all drill channels that are included in your order.
6. If desired, enter additional information for SICAT in the **Additional information** field.



7. Click on the **Add to shopping cart** button.
 - ▶ SICAT Endo places the desired planning data for the **SICAT GUIDE (ENDO)** in the SICAT shopping cart.
 - ▶ The **Order Drill Guide** window closes.
 - ▶ SICAT Endo opens the SICAT Suite shopping cart.



You can only add an order to the shopping cart if you have verified all planned drill channels and validated verification for each drill channel.



If you find a fault when verifying the drill channels but you have already validated verification by setting at least one check mark, please click on the **Cancel** button and repeat the order verification steps.



As long as there is an order in the shopping cart, you can no longer overwrite optical impressions, EndoLines and the drill channels of a plan. This is only possible once more when you have completed or deleted the order. If you overwrite or delete optical impressions, EndoLines or drill channels of a plan, you cannot re-order the same surgical guide.



You can cancel the order by clicking on **Cancel**.

Continue with the section *Checking the shopping cart and completing the order* [▶ Page 173 - SIDEXIS 4].

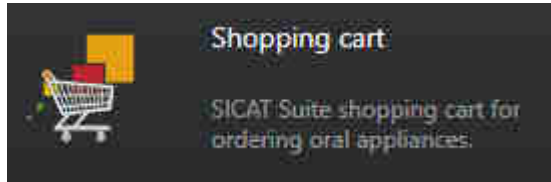
32.2 OPENING THE SHOPPING CART

- ☑ The shopping cart contains at least one product.
- ☑ You have activated the display of the shopping cart in the **Output** phase. For more information, please refer to the SIDEXIS 4 instructions for use.



- If the shopping cart is not yet open, click the **Shopping cart** button on the **Navigation bar**.
- ▶ The **Shopping cart** window opens.

Alternatively, you can also click on the **Shopping cart** button in the **Output** phase:



Continue with the following action:

- *Checking the shopping cart and completing the order* [▶ Page 173 - SIDEXIS 4]

32.3 CHECKING THE SHOPPING CART AND COMPLETING THE ORDER

☑ The **Shopping cart** window is already open. Information on this can be found in the section *Opening the shopping cart* [▶ Page 172 - SIDEXIS 4].

1. Check in the **Shopping cart** window whether the desired products are included.

2. Click on the **Finalize Order** button.

▶ SICAT Suite sets the status of the orders to **Preparing** and establishes a connection to the SICAT server via the SICAT WebConnector.

▶ Changes to the order are only possible in the SICAT Portal with an active Internet connection.

Continue with one of the following actions:

■ *Completing an order using an active Internet connection* [▶ Page 174 - SIDEXIS 4]

■ *Completing an order without an active Internet connection* [▶ Page 178 - SIDEXIS 4]

32.4 COMPLETING AN ORDER USING AN ACTIVE INTERNET CONNECTION



In certain versions of Windows, you have to set a standard browser in order for the ordering process to work.

- ☑ The computer on which SICAT Suite is running has an active Internet connection.
- ☑ The SICAT Portal was automatically opened in your browser.
- 1. Register or log in to the SICAT portal using your username and password if you have not already done so.
 - ▶ The ordering overview opens and shows the products contained in the order, along with the corresponding prices, grouped according to patients.
- 2. Follow the instructions in the section *Performing ordering steps in the SICAT Portal* [▶ Page 175 - *SIDEXIS 4*].
 - ▶ SICAT Suite prepares the order data for uploading.
 - ▶ As soon as the preparations are complete, SICAT WebConnector will transfer the order data via an encrypted connection to the SICAT server.
 - ▶ The status of the order in the shopping cart will change to **Uploading**.

In addition, the symbol of the study will change in the SIDEXIS 4 timeline and the **Treat** entry will be highlighted.



SICAT Suite will display orders until they are fully uploaded. This also applies to orders that are uploaded on other computers if several computers are using the same SIDEXIS server. You can pause, continue and cancel the uploading of orders in the shopping cart that have been started on the current computer.



If you log off from Windows while uploading the orders, SICAT WebConnector will pause the process. The software will continue uploading automatically after you log back on.

32.5 PERFORMING ORDERING STEPS IN THE SICAT PORTAL

After you have performed ordering steps in SICAT Suite, the SICAT Portal will open in your standard web browser. In the SICAT Portal, you can change your orders, select qualified providers for production and view the prices of the products.

To perform ordering steps in the SICAT Portal, proceed as follows:

1. Register or log in to the SICAT portal using your username and password if you have not already done so.
2. Check whether the desired products are included.
3. If necessary, remove specific patients along with all corresponding products from the ordering overview. When completing the order, SICAT Suite will apply changes that you have made in the SICAT Portal.
4. Check whether the billing address and delivery address are correct. Change these where necessary.
5. Select the desired shipping method.
6. Accept the general terms and conditions and send off the order.



You can remove patients and all corresponding appliances from the SICAT Portal by selecting a patient and clicking on the button to remove the patient. In the shopping cart, you will again have full access to the composition of the products.

32.6 THE SICAT WEBCONNECTOR

i The SICAT WebConnector requires specific ports for communication with the SICAT server. Information on this can be found in the section *System requirements* [▶ Page 10 - SIDEXIS 4].

i In certain versions of Windows, you have to set a standard browser in order for the ordering process to work.

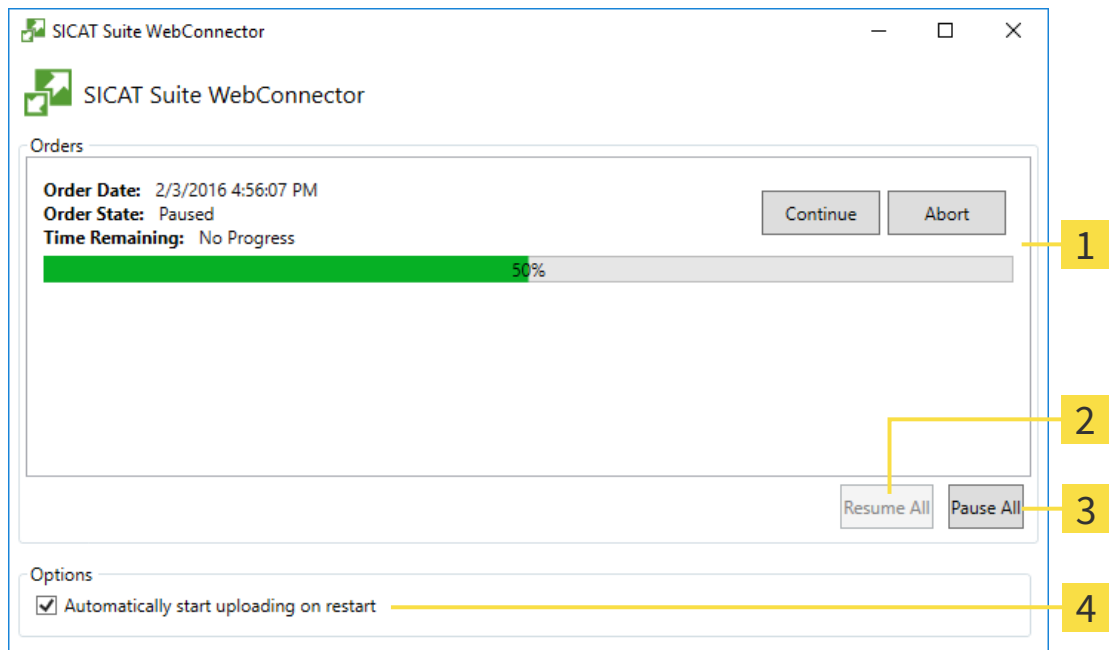
If the computer, on which SICAT Suite is running, has an active Internet connection, SICAT Suite will transfer your orders in the background in encrypted format via the SICAT WebConnector. SICAT Endo will show the status of the transfer directly in the shopping cart and can pause the SICAT WebConnector. The SICAT WebConnector will continue the transfer even if you have closed SICAT Suite. If the order cannot be uploaded as desired, you can open the user SICAT WebConnector interface.

OPENING THE “SICAT SUITE WEBCONNECTOR” WINDOW



- In the notifications area, click the **SICAT Suite WebConnector** icon in the task bar.

▶ The **SICAT Suite WebConnector** window opens:



- 1** Orders list
- 2** Continue all button
- 3** Stop all button
- 4** Continue uploading automatically after restart check box

The **Orders** list shows the queue of orders.

PAUSING AND CONTINUING THE UPLOAD

You can pause the upload process. This may be sensible, for example, if your Internet connection is overloaded. The settings only affect upload processes in the SICAT WebConnector. Upload processes via a web browser are not affected.

The **SICAT Suite WebConnector** window is already open.

1. Click on the **Stop all** button.

▶ The SICAT WebConnector pauses the uploading of all orders.

2. Click on the **Continue all** button.

▶ The SICAT WebConnector continues the uploading of all of the orders.

DEACTIVATING AUTOMATIC CONTINUATION AFTER A RESTART

You can prevent the SICAT WebConnector from automatically continuing uploads after restarting Windows.

The **SICAT Suite WebConnector** window is already open.

▪ Deactivate the **Continue uploading automatically after restart** check box.

▶ If you restart your computer, the SICAT WebConnector will no longer automatically continue uploading your orders.

32.7 COMPLETING AN ORDER WITHOUT AN ACTIVE INTERNET CONNECTION

If the computer on which SICAT Suite is running cannot connect to the SICAT server, SICAT Suite will open the **Unable to connect to the SICAT server** window. The window will indicate one of the following causes for the problem:

- **There is no Internet connection. SICAT WebConnector cannot connect to the SICAT server**
- **SICAT Portal is not available**
- **The "SICATWebConnector" service is not installed**
- **The "SICATWebConnector" service is not running**
- **An unknown error has occurred. SICAT WebConnector cannot connect to the SICAT server**

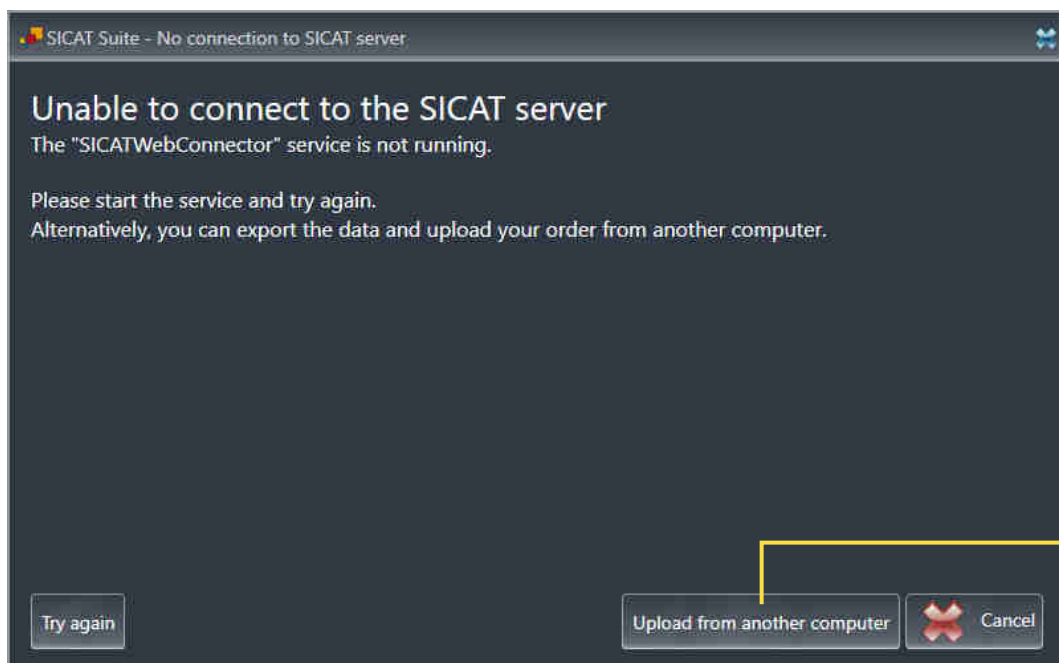
This chapter only shows screenshots for the scenario that no Internet connection is available.

Below the cause, possible steps for solving the problem will be shown.

As an alternative to eliminating the problem, you can upload an order using another computer with an active Internet connection via a web browser. For orders via web browser, SICAT Suite will export all products in the shopping cart at once and create one sub-folder per patient. Each sub-folder contains one XML file with the information regarding the order and a ZIP archive with the data SICAT needs for production. In the SICAT Portal, you can then successively upload the XML file and the ZIP archive. The transfer will be encrypted.

To complete the order without an active Internet connection, proceed as follows:

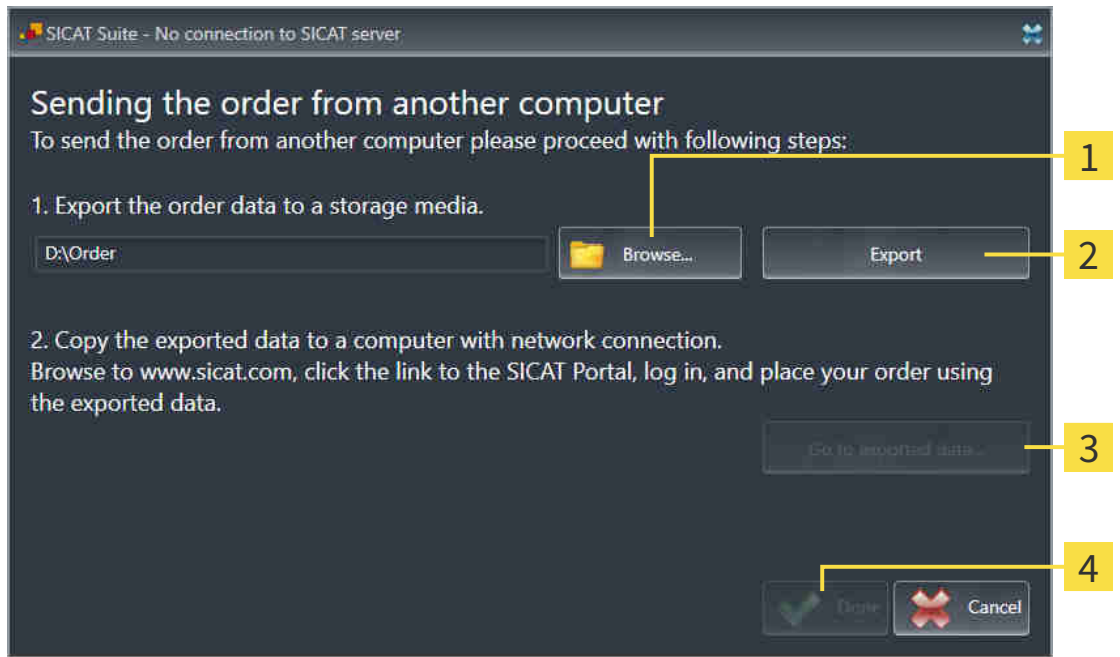
- The computer on which SICAT Suite is running does not have an active Internet connection.
- A window will appear with the following message: **Unable to connect to the SICAT server**



1 Upload from another computer button

1. Click on the **Upload from another computer** button.

► The **Sending the order from another computer** window opens:



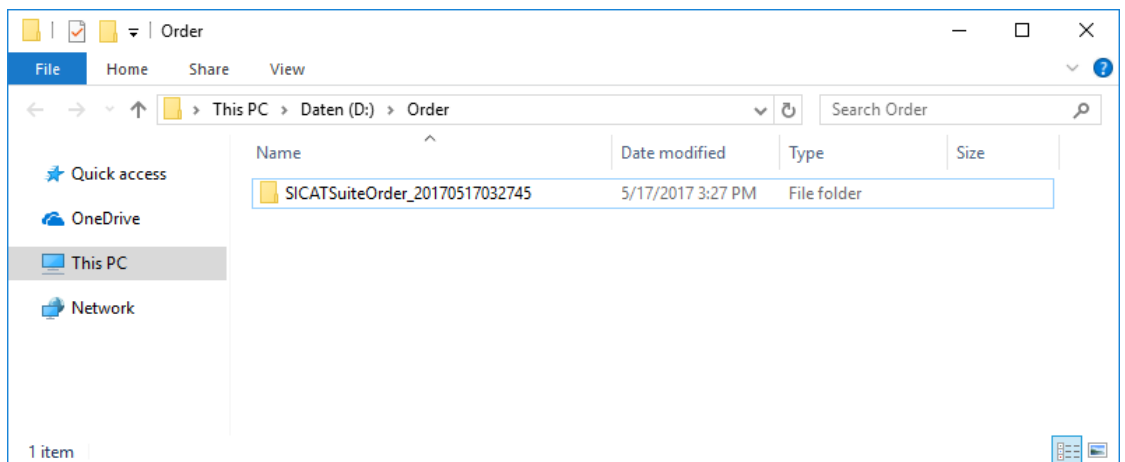
1 Browse button

3 Go to exported data button

2 Export button

4 Done button

2. Click on the **Browse** button.
 - A Windows Explorer window opens.
3. Select an existing directory or create a new directory and click on **OK**. Please note that the path to the directory must not be longer than 160 characters.
4. Click on the **Export** button.
 - SICAT Suite will export all data required for ordering the shopping cart contents to the selected folder. SICAT Suite will create a sub-folder for each patient.
5. Click on the **Go to exported data** button.
 - A Windows Explorer window opens and shows the directory with the exported data:



6. Copy the folder that contains the data of the required appliances to a computer with an active Internet connection, for example using a USB stick.
7. Click on **Done** in the **Sending the order from another computer** window.
 - ▶ SICAT Suite closes the **Sending the order from another computer** window.
 - ▶ SICAT Suite removes all products included in the order from the shopping cart.
8. Open a web browser on the computer with the active Internet connection and open the <http://www.sicat.de> web page.
9. Select the link for the SICAT portal.
 - ▶ The SICAT portal opens.
10. Register or log in to the SICAT portal using your username and password if you have not already done so.
11. Click on the link to upload the order.
12. Select the desired order on the computer with the active Internet connection. This is an XML file whose name starts with **SICATSuiteOrder**.
 - ▶ The ordering overview opens and shows the patients contained therein, the corresponding product and the price.
13. Follow the instructions in the section *Performing ordering steps in the SICAT Portal* [▶ *Page 175 - SIDEXIS 4*].
14. Click on the link to upload the planning data for the product.
15. Select the corresponding product data on the computer with the active Internet connection. This is a Zip archive that is located in the same folder as the previously uploaded XML file and whose file name starts with **SICATSuiteExport**.
 - ▶ Once you have executed the order, your browser will transfer the archive with the product data to the SICAT server via an encrypted connection.



SICAT Suite does not automatically delete exported data. When an ordering process is completed, you should delete exported data manually for security reasons.

33 SETTINGS



The versions of SICAT Suite connected to SIDEXIS adopt several settings from SIDEXIS. You can view the values of such settings in SICAT Endo, but only make changes in the SIDEXIS settings.

You can change or view general settings in the **Settings** window. After you have clicked on the **Settings** group, the menu will show the following buttons on the left-hand side:


- **General** - Information on this can be found in the section *Using general settings* [▶ Page 182 - SIDEXIS 4].
- **Licenses** - Information on this can be found in the section *Licenses* [▶ Page 44 - SIDEXIS 4].
- **Practice** - Viewing or changing the logo and the information text of your practice, for example for use on print-outs. Information on this can be found in the section *Using practice information* [▶ Page 186 - SIDEXIS 4].
- **Visualization** - Changing general visualization settings. Information on this can be found in the section *Changing visualization settings* [▶ Page 187 - SIDEXIS 4].

If you change the settings, SICAT Endo will apply the changes immediately and saves the settings in your user profile.



The settings in SICAT Suite are valid for the active user of the current workstation. SICAT Suite applies all changes in the settings immediately. If you switch to another category in the settings, SICAT Suite will also save changes to the settings permanently.

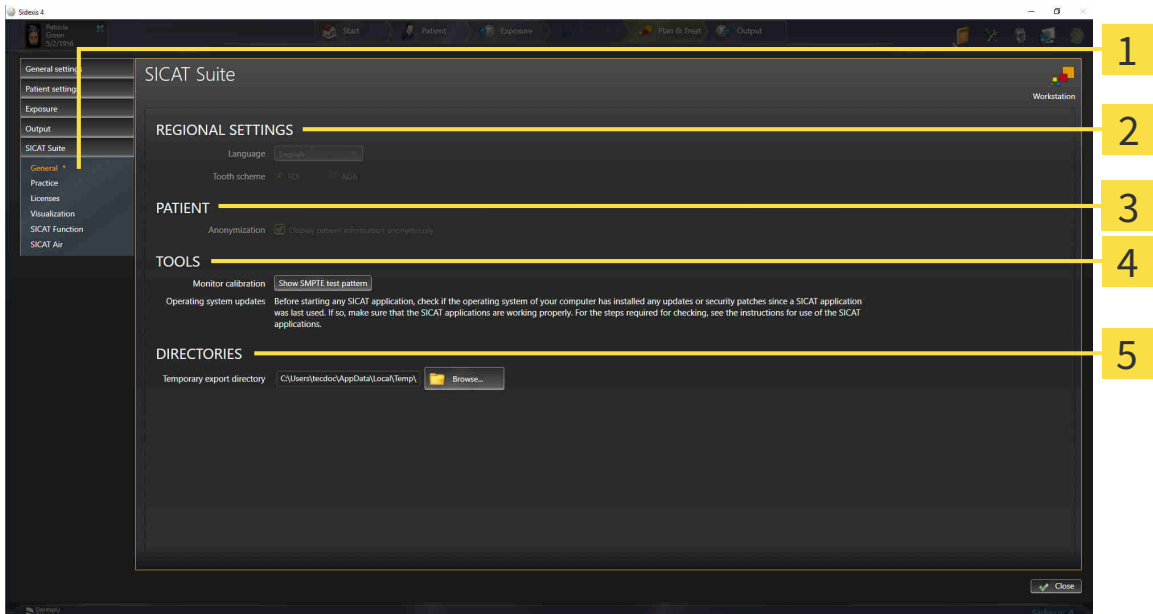
33.1 USING GENERAL SETTINGS



The versions of SICAT Suite connected to SIDEXIS adopt several settings from SIDEXIS. You can view the values of such settings in SICAT Endo, but only make changes in the SIDEXIS settings.

To open the general settings, proceed as follows:

1. Click on the **Settings** icon in the title bar of SIDEXIS 4.
 - ▶ The **Settings** window opens.
2. Click on the **SICAT Suite** group.
 - ▶ The **SICAT Suite** group opens.
3. Click on the **General** button.
 - ▶ The **General** window opens:



- | | |
|---|---|
| <p>1 General tab</p> <p>2 REGIONAL SETTINGS area</p> <p>3 PATIENT area</p> | <p>4 TOOLS area</p> <p>5 DIRECTORIES area</p> |
|---|---|

SICAT Endo applies the following settings from SIDEXIS, which you can view here:

- You can view the language of the user interface in the **Language** list in the **REGIONAL SETTINGS** section.
- You can view the current tooth scheme in the **REGIONAL SETTINGS** area under **Tooth scheme**.
- You can view the status of the **Display patient information anonymously** check box in the **PATIENT** area. If the check box is activated, SICAT Endo will apply the anonymized patient data from SIDEXIS.

You can change the following settings:

- In the **DIRECTORIES** area, you can enter a folder in the **Temporary export directory** field in which SICAT Suite is to save order information. You must have full access to this folder.

Besides viewing or changing general settings, you can open the SMPTE test image to calibrate your monitor:

- Click on the **Show SMPTE test pattern** button under **TOOLS, Monitor calibration** to calibrate your monitor. Information on this can be found in the section *Monitor calibration with the SMPTE test image* [▶ Page 184 - SIDEXIS 4].




If you select a language in SIDEXIS Selecting, which SICAT Endo does not support, SICAT Endo will display English text in the user interface.



The supported tooth schemes are FDI and ADA.

33.2 MONITOR CALIBRATION WITH THE SMPTE TEST IMAGE

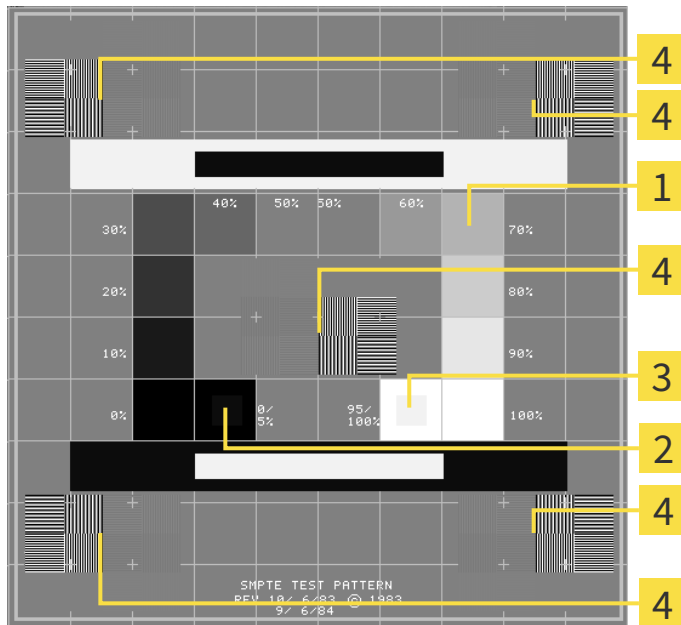
CAUTION  **Insufficient environmental visualization conditions could result in incorrect diagnosis and treatment.**

1. Only perform planning if the environmental conditions allow for sufficient visualization quality. For example, check for appropriate lighting.
2. Check whether the display quality is sufficient using the SMPTE test image.

The suitability of your monitor for displaying data in SICAT applications depends on four key properties:

- Brightness
- Contrast
- Local resolution (linearity)
- Distortion (aliasing)

The SMPTE test image is a reference image, which helps you check the following properties of your monitor:



1 Gray scale squares

3 100% square

2 0% square

4 Squares containing a sample bar with a high contrast

CHECKING BRIGHTNESS AND CONTRAST

In the middle of an SMPTE test image there is a series of squares, showing the gray scale progression from black (0% brightness) to white (100% brightness):

- The 0% square contains a smaller square to show the difference in brightness between 0% and 5%.
- The 100% square contains a smaller square to show the difference in brightness between 95% and 100%.

To check or configure your monitor, proceed as follows:

- The SMPTE test image is already open.
- Check whether you can see the visual difference between the inner square and outer square in the 0% square and 100% square. Change the settings of your monitor where necessary.



Several monitors can only show the difference in brightness in the 100% square, but not the 0% square. You can reduce ambient light to improve the ability to distinguish between the different brightness levels in the 0% square.

CHECKING THE LOCAL RESOLUTION AND DISTORTION

In the corners and the middle of the SMPTE test image, there are 6 squares showing a sample bar with a high contrast. In terms of local resolution and distortion, you should be able to differentiate between horizontal and vertical lines with different widths, which change between black and white:

- From wide to narrow (6 pixels, 4 pixels, 2 pixels)
- Horizontal and vertical

To check or configure your monitor, proceed as follows:

- Check in the 6 squares containing a sample bar with a high contrast whether you can see the differences between all of the lines. Change the settings of your monitor where necessary.

CLOSING THE SMPTE TEST IMAGE

To close the SMPTE test image, proceed as follows:

- Press the **ESC** key.
- ▶ The SMPTE test image closes.

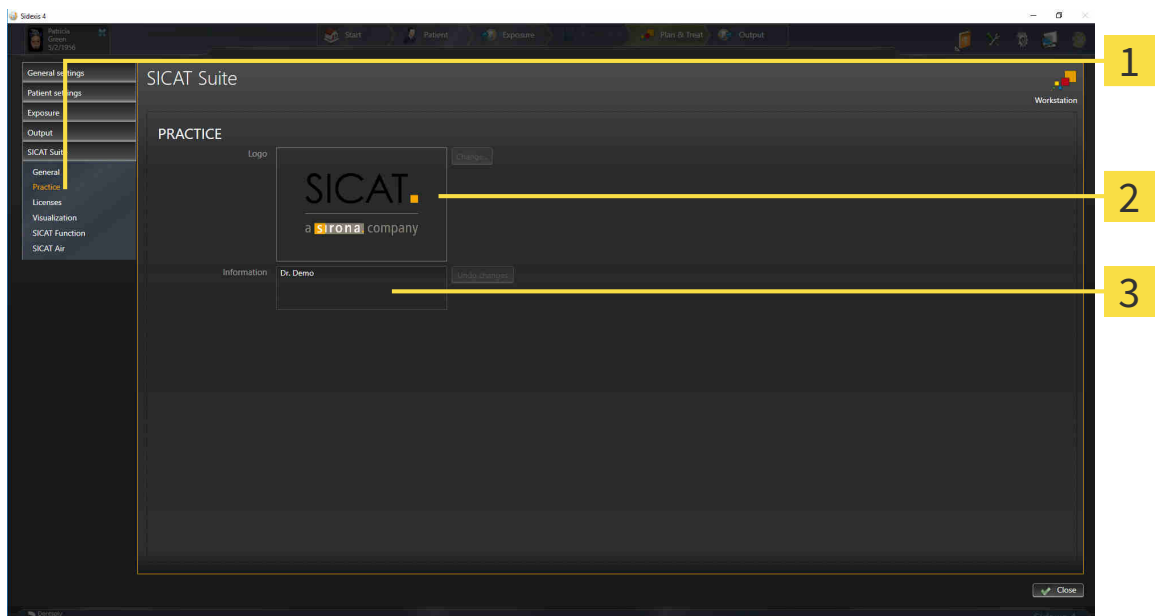
33.3 USING PRACTICE INFORMATION

The versions of SICAT Suite connected to SIDEXIS adopt the practice logo and the information text from SIDEXIS. Therefore, you can only view the values of these settings in the SICAT Suite settings. Please make the desired changes to these settings in SIDEXIS.

The applications in SICAT Suite use the information displayed here to customize outputs or PDF files.

To open the practice information, proceed as follows:

1. Click on the **Settings** icon in the title bar of SIDEXIS 4.
▶ The **Settings** window opens.
2. Click on the **SICAT Suite** group.
▶ The **SICAT Suite** group opens.
3. Click on the **Practice** button.
▶ The **PRACTICE** window opens:




- 1 Practice** tab
- 2 Logo** area
- 3 Information** area


You can view the following settings:

- You can view the logo of your practice in the **Logo** section.
- You can view a text, which identifies your practice, for example the name and address, in the **Information** section.

33.4 CHANGING VISUALIZATION SETTINGS

CAUTION  **Insufficient visualization quality could result in incorrect diagnosis and treatment.**

Before using a SICAT application, for example with the SMPTE test image, check whether the display quality is sufficient.

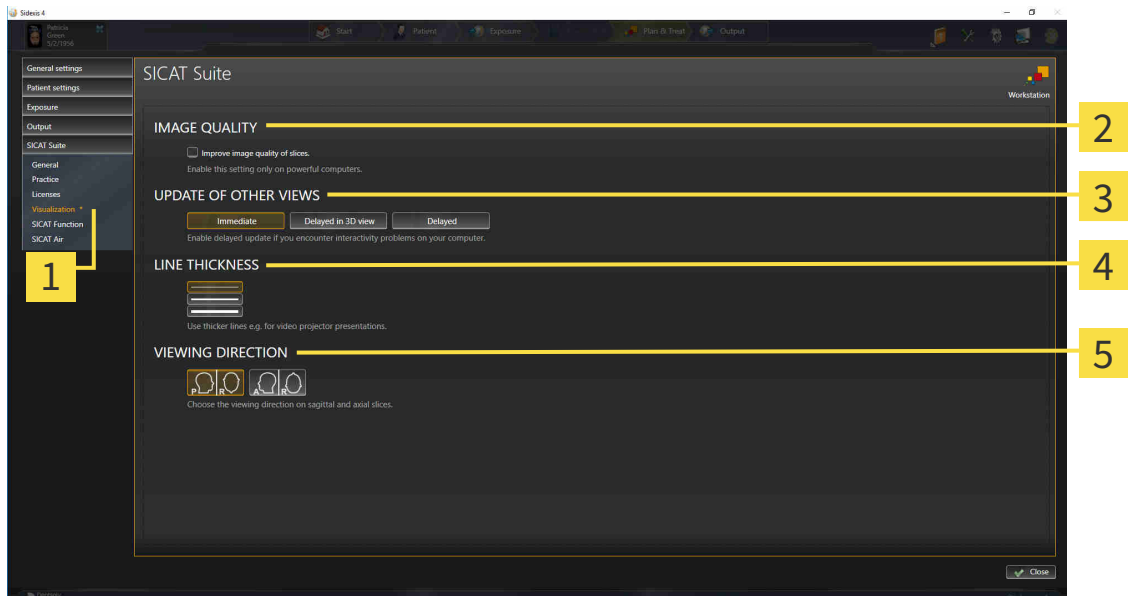
CAUTION  **Insufficient environmental visualization conditions could result in incorrect diagnosis and treatment.**

1. Only perform planning if the environmental conditions allow for sufficient visualization quality. For example, check for appropriate lighting.
2. Check whether the display quality is sufficient using the SMPTE test image.

Visualization settings determine the visualization of the volume, diagnosis objects and planning objects in all SICAT applications.

To open the **Visualization** window, proceed as follows:

1. Click on the **Settings** icon in the title bar of SIDEXIS 4.
 - ▶ The **Settings** window opens.
2. Click on the **SICAT Suite** group.
 - ▶ The **SICAT Suite** group opens.
3. Click on the **Visualization** button.
 - ▶ The **Visualization** window opens:



1 Visualization tab

4 LINE THICKNESS area

2 IMAGE QUALITY area

5 VIEWING DIRECTION area

3 UPDATE OF OTHER VIEWS area

The settings are:

- **Improve image quality of slices** – Improves the image quality of slices as the software averages adjacent slices. Activate this setting only on high-performance computers.
- **UPDATE OF OTHER VIEWS** – Delayed updates improve the interactivity of the active view but causes delays in the updating of other views. Activate delayed updates only if you detect interactivity problems on your computer.
- **LINE THICKNESS** – Changes the thickness of lines. Thicker lines are useful for presentations on projectors.
- **VIEWING DIRECTION** – Switches the viewing directions of the **Axial** slice view and **Sagittal** slice view.

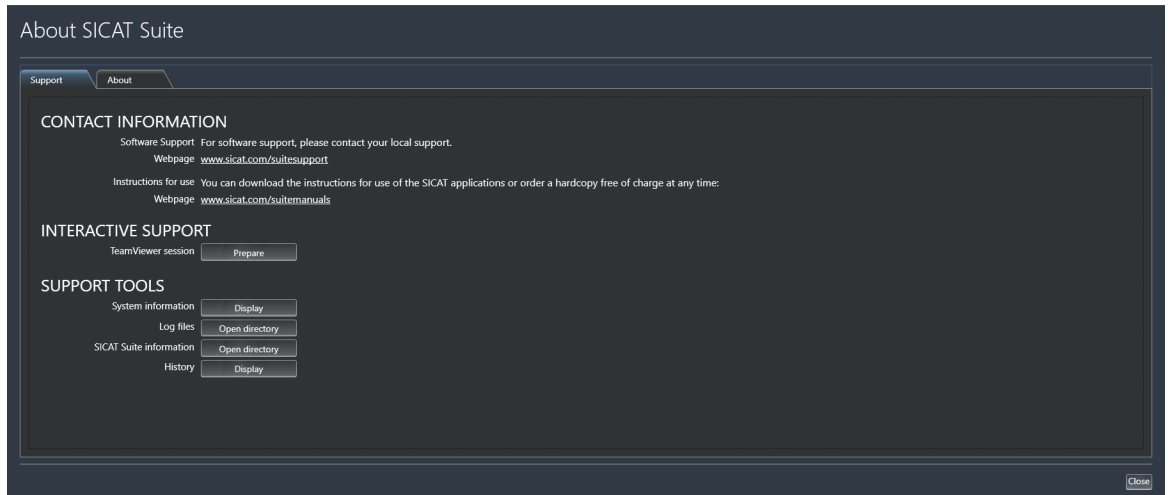
34 SUPPORT

SICAT offers you the following support options:

- PDF documents
- Contact information
- Information on the installed SICAT Suite and SICAT applications

Continue with the following action:

- *Opening the support options* [▶ Page 190 - SIDEXIS 4]



34.1 OPENING THE SUPPORT OPTIONS

To open the **SICAT Suite information** window, proceed as follows:

1. Click on the **Help** icon.
2. Click on the **SICAT Suite information** entry.

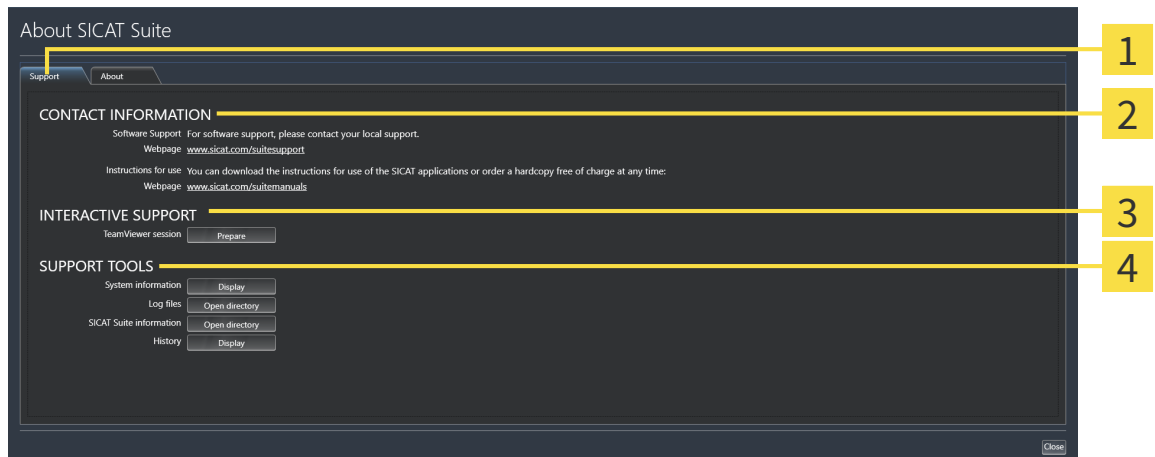
► The **SICAT Suite information** window opens.

The **SICAT Suite information** window comprises the following tabs:

- **Support** - Information on this can be found in the section *Support* [► *Page 189 - SIDEXIS 4*].
- **About** - Information on this can be found in the section *Info* [► *Page 192 - SIDEXIS 4*].

34.2 CONTACT INFORMATION AND SUPPORT TOOLS

The **Support** window contains all of the relevant information and tools to enable SICAT Support to help you:



1 Support tab

3 INTERACTIVE SUPPORT area

2 CONTACT INFORMATION area

4 SUPPORT TOOLS area

The **CONTACT INFORMATION** area contains information about where you can find the instructions for use.

The following tools are available in the **INTERACTIVE SUPPORT** area:

- Click on the **Prepare** button in the **TeamViewer session** area and SICAT Endo will open a TeamViewer session.

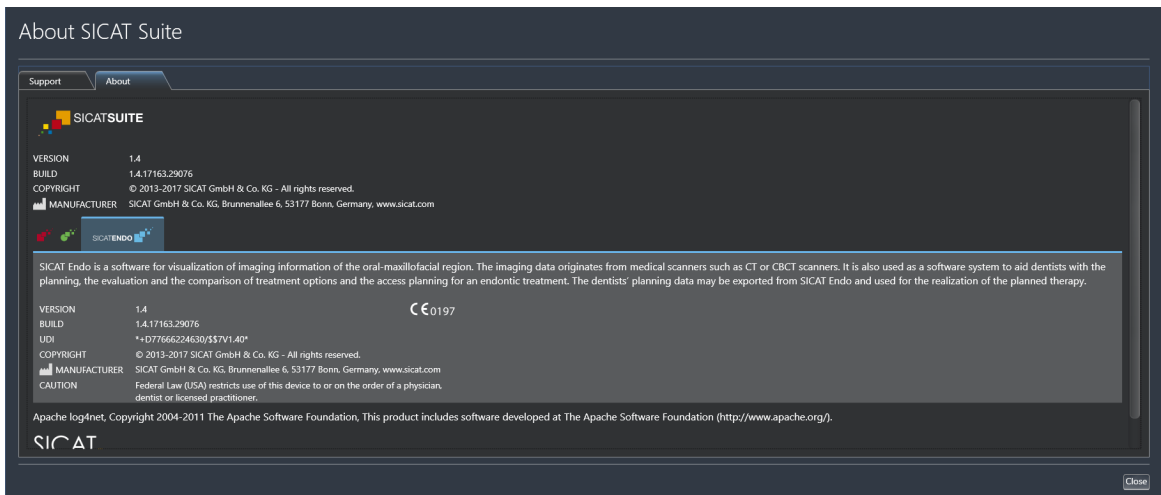
TeamViewer is software that allows mouse and keyboard commands to be remotely controlled and to transfer the contents of a computer's monitor via an active Internet connection. TeamViewer will only establish a connection if you explicitly consent. To do so, provide the SICAT support team with a TeamViewer ID and a password. This allows the SICAT support team to help you directly on-site.

The following tools are available in the **SUPPORT TOOLS** area:

- Click on the **Display** button in the **System information** area and SICAT Endo will open the system information of the operating system.
- Click on the **Open directory** button in the **Log files** area and SICAT Endo will open the log directory of SICAT Suite in a Windows Explorer window.
- Click on the **Open directory** button in the **SICAT Suite information** area and **SICAT Suite information** will export information on the current installation in a text file.
- Click on **Show messages** in the **SICAT Suite information** area and SICAT Endo will show the message window.

34.3 INFO

The **About** window displays information on SICAT Suite and all installed SICAT applications on several tabs:



35 OPENING READ-ONLY DATA

You can open data as read-only.

The data you can view in SICAT Endo as a SIDEXIS 4 module without being able to make and save changes depends on the status of your license:

TYPE OF SICAT ENDO LICENSE	VIEWING WITHOUT CHANGES POSSIBLE?
None	No
Viewer	Yes
Full version	No

In the following cases, you can view SICAT Endo studies without a Viewer license:

- In SIDEXIS 4, export SICAT Endo studies and import the data to SIDEXIS on another computer. SICAT Endo must be installed on this computer.
- In SIDEXIS 4, create a Wrap&Go package which contains SICAT Endo studies. Install the Wrap&Go package on another computer. Then, install SICAT Endo.

In both cases you cannot make or save any changes to the planning.



If the computers, on which SIDEXIS 4 and SICAT Suite are running, are in a network environment and where permitted by SIDEXIS 4 and the network configuration, SIDEXIS 4 could be part of a multi-workstation installation. This means, amongst other things, that other workstations can withdraw your write permissions for open records. If this occurs, SIDEXIS 4 will close the record immediately and you cannot save changes to SICAT Endo studies.

To open data without being able to make and save changes, proceed as follows:

- Start SICAT Suite with a 3D X-ray scan from Sirona SIDEXIS 4. Information on this can be found in the section *Starting SICAT Suite* [▶ Page 39 - SIDEXIS 4].
- ▶ SICAT Suite opens the 3D X-ray scan and planning project from the current SIDEXIS 4 examination.
- ▶ Unless there are reasons preventing this, SICAT Endo applies the volume orientation and panoramic curve from SIDEXIS 4. Information on this can be found in the section *Volume orientation and panoramic region* [▶ Page 92 - SIDEXIS 4].



The following conditions must be met for you to be able to adjust volume orientation and panoramic curve.

- You have activated a license which allows you to open 3D X-ray scans or SICAT Endo studies. Information on this can be found in the section *Licenses* [▶ Page 44 - SIDEXIS 4].
- No other corresponding study of SICAT Function or any other SICAT application contains objects relating to the 3D X-ray scan which would be affected by a change in the volume orientation or the panoramic curve.

If the conditions are not met, SICAT Endo deactivates the buttons and control elements that you can use for changing volume orientation or panoramic curves in the **Adjust Volume Orientation and Panoramic Region** window.

36 CLOSING SICAT ENDO

To close SICAT Endo, proceed as follows:



- Click on the **Close** button in the area of the active patient record.
- ▶ SICAT Suite saves the active patient record.
- ▶ SICAT Suite closes all SICAT applications.
- ▶ SICAT Suite closes the active patient record.

37 CLOSING SICAT SUITE



- Click the **Close** button in the top left-hand corner of the currently opened study.
- ▶ SICAT Suite closes.
- ▶ SICAT Suite stores the changed planning projects of all SICAT applications that are running as a full version in SIDEXIS 4.

38 KEYBOARD SHORTCUTS



If you move the mouse pointer over certain functions, SICAT Endo displays the keyboard shortcut in brackets next to the designation of the function.

The following keyboard shortcuts are available in all SICAT applications:

KEYBOARD SHORTCUTS	DESCRIPTION
A	Add an angle measurement
D	Add a distance measurement
F	Focus on an active object
Ctrl + C	Copy the contents of the active view to the clipboard
Ctrl + Z	Undo the last object action
Ctrl + Y	Redo the most recently undone object action
Del	Remove the active object or active object group
ESC	Cancel the current action (such as adding a measurement)
F1	Open the Support window, if a SICAT application is active, open the instructions for use

39 UNINSTALLING SICAT SUITE



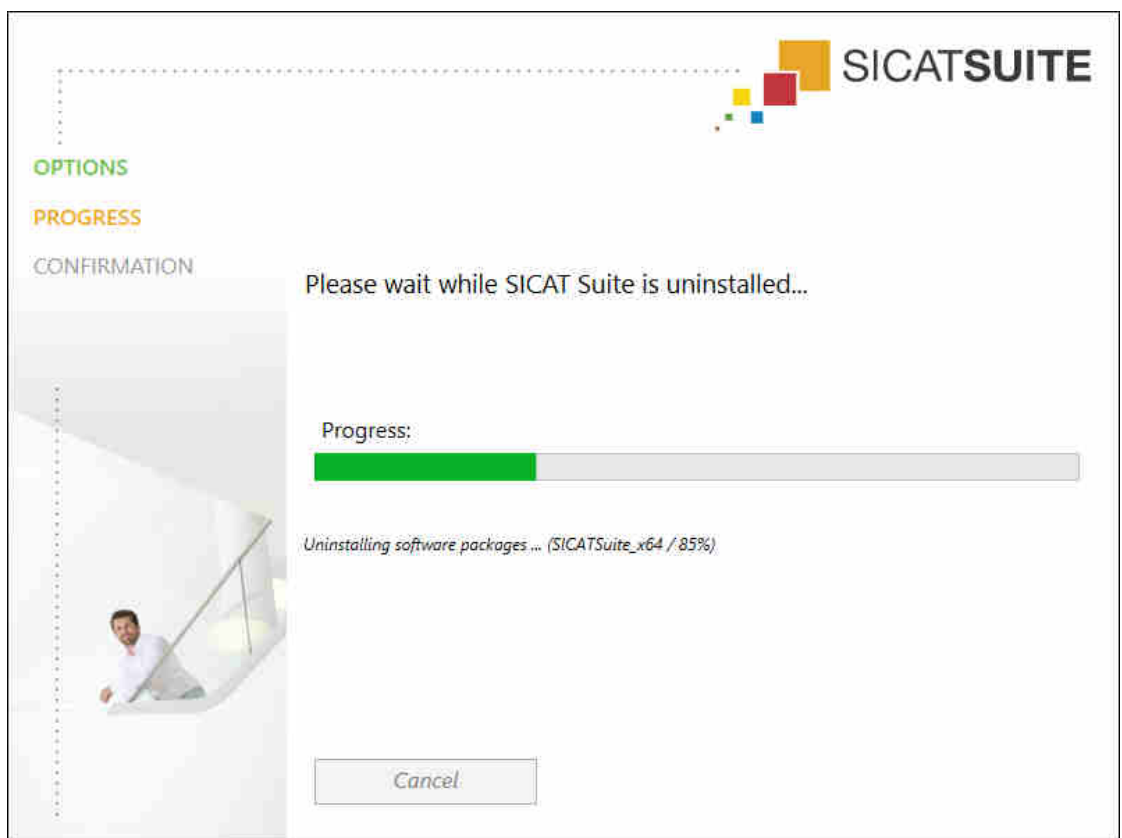
The SICAT Suite uninstallation program maintains active licenses on your computer. Therefore, SICAT Suite warns you that it will not automatically delete licenses before the uninstallation. If you no longer wish to use SICAT Suite on this computer, deactivate the licenses before uninstallation. Information on this can be found in the section *Returning licenses to the license pool* [▶ Page 51 - SIDEXIS 4].



Before uninstalling SICAT Suite, make sure that the SICAT WebConnector has uploaded all orders in full as the uninstallation program will automatically close the SICAT WebConnector. Information on this can be found in the section *The SICAT WebConnector* [▶ Page 176 - SIDEXIS 4].

To uninstall SICAT Suite, proceed as follows:

- The SICAT WebConnector has successfully uploaded all orders.
- 1. Click on **Programs and features** in the Windows **Control panel**.
 - ▶ The **Programs and features** window opens.
- 2. Select the **SICAT Suite** entry, which contains the version of SICAT Suite, from the list.
- 3. Click on the **Uninstall** button.
 - ▶ The uninstallation program will start and the **PROGRESS** window opens:



► After the uninstallation is complete, the **CONFIRMATION** window opens.



4. Click on the **Finish** button.

► The SICAT Suite uninstallation program will close.



To open the SICAT Suite uninstallation program, you can also start the SICAT Suite installation program on a computer, on which SICAT Suite is already installed.



The SICAT Suite uninstallation program will call the uninstallation programs of some software prerequisites, which were installed together with SICAT Suite. If other installed applications still need the software prerequisites, they will be retained.

40 SAFETY INSTRUCTIONS

3D X-RAY SCANS

**CAUTION**

Unsuitable X-ray devices may result in an incorrect diagnosis and treatment.

Only use 3D X-ray scans from X-ray devices that are cleared as medical equipment.

**CAUTION**

Unsuitable 3D X-ray scans may result in an incorrect diagnosis and treatment.

Always verify the quality, integrity, and correct orientation of the displayed 3D data.

**CAUTION**

X-ray devices without DICOM conformity could result in incorrect diagnosis and treatment.

Only use 3D volume data from X-ray devices with DICOM conformity declared.

**CAUTION**

The use of other data than 3D X-ray scans as source of information for planning a measurement-based therapy may result in an incorrect diagnosis and treatment.

Use 3D X-ray scans for diagnosis and planning when using the measurement feature.

INTRAORAL SCANS

**CAUTION**

3D X-ray scans that are unsuitable for registering intraoral scans may result in an incorrect diagnosis and treatment.

1. Only use 3D X-ray scans containing little or no artefacts.
2. Only use 3D X-ray scans with sufficiently high resolution.

**CAUTION**

Intraoral scans that do not match the patient and the 3D X-ray scan or whose record time is too far away from the record time of the 3D X-ray scan may result in an incorrect diagnosis and treatment.

Make sure that the patient and 3D X-ray scan of an intraoral scan match and that their record time is not too far away from the record time of the 3D X-ray scan.

**CAUTION**

Incorrect orientation of the intraoral records relative to the 3D X-ray scan may result in an incorrect diagnosis and treatment.

1. Check that the registered intraoral scans are correctly aligned to the 3D X-ray scans.
2. If required, rotate the intraoral scans to orient them correctly.



Intraoral scans that have not been registered correctly with the 3D X-ray scans may result in an incorrect diagnosis and treatment.

Check that the intraoral records have been correctly registered with the 3D X-ray scans.



Devices for intraoral scans that are not certified as a medical device may result in incorrect diagnosis and treatment.

Make sure to use only devices that are certified as a medical device for intraoral scans.



Insufficient integrity or quality of intraoral scans may result in an incorrect diagnosis and treatment.

Check the integrity and quality of the imported intraoral scans.



Insufficient quality of the intraoral records or 3D X-ray scans may cause the mechanism for registering the intraoral records to fail.

Only use intraoral scans and 3D X-ray scans that allow for a correct registration.



Insufficient quality and precision of intraoral scans may result in an incorrect diagnosis and treatment.

Only use intraoral scans of sufficient quality and precision for the intended diagnosis and treatment.



Incorrect positions or orientations of the intraoral scans may result in an incorrect diagnosis and treatment.

After registration, check for correct position and orientation of the intraoral scans on the teeth in the 3D X-ray scan.

DISPLAY CONDITIONS



Insufficient visualization quality could result in incorrect diagnosis and treatment.

Before using a SICAT application, for example with the SMPTE test image, check whether the display quality is sufficient.



Insufficient environmental visualization conditions could result in incorrect diagnosis and treatment.

1. Only perform planning if the environmental conditions allow for sufficient visualization quality. For example, check for appropriate lighting.
2. Check whether the display quality is sufficient using the SMPTE test image.

DATA MANAGEMENT



Incorrect assignment of patient name or 3D scan could result in confusion of patient scans.

Verify that the 3D scan that is to be imported or already loaded in a SICAT Suite application is associated with the correct name of the patient and the correct scan information.



Deleting original data may result in data being lost.

Do not delete the original data following the import.



The absence of a backup mechanism for the patient record depots could result in patient data being irreversibly lost.

Make sure that a regular data backup is created of all patient record depots.



When deleting patient records, all 3D scans, planning projects and PDF files contained in these patient records will be deleted as well.

Only delete patient records if you are sure you will never need any contained 3D scans, planning projects and PDF files again.



Deleted patient records, studies, 3D scans, and planning projects cannot be recovered.

Only delete patient records, studies, 3D scans, and planning projects if you are sure you will never need those data again.



When deleting 3D scans, all dependent planning projects will be deleted as well.

Only delete 3D scans if you are sure you will never need any dependent planning project again.

QUALIFICATIONS OF OPERATING PERSONNEL



The use of this software by unqualified personnel may result in an incorrect diagnosis and treatment.

The use of the software is restricted to qualified professionals.

SAFETY



Security leaks in your information system environment could result in unauthorized access to your patient data and put the privacy or integrity of your patient data at risk.

1. Make sure policies are established within your organization to prevent security threats to your information system environment.
2. Install and run an up-to-date virus scanner.
3. Make sure the pattern files of the virus scanner are updated on a regular basis.



Unauthorized access to your workstation could result in risks to the privacy and integrity of your patient data.

Limit the access to your workstation to authorized individuals only.



Problems in terms of cyber-security could result in unauthorized access to your patient data and risks in relation to the security or integrity of your patient data.

If you suspect problems in relation to the cyber-security of your SICAT application, contact support immediately.

SOFTWARE INSTALLATION



Changes to the software may mean that the software will not start or will not function as intended.

1. Do not make any changes to the software installation.
2. Do not delete or change any of the components in the software installation directory.



Damaged installation media may result in the failure of the installation.

Handle the installation media with care and store them appropriately.



If your system does not fulfill the system requirements, this may mean that the software will not start or will not function as intended.

Check whether your system meets the minimum software and hardware requirements before installing the software.



Insufficient authorizations may mean that the software installation or software update fails.

Make sure you have sufficient privileges on your system if you install or update the software.

**Changes to the operating system may mean that the SICAT applications will not start or will not function as intended.**

1. Prior to starting the SICAT applications, always check whether the operating system of your computer has installed updates or security updates since you last used the SICAT applications.
2. If the operating system of your computer has installed updates or security updates, perform the steps required for testing the SICAT applications as described in the instructions for use.
3. If the behavior of the SICAT applications differs from the behavior described in the instructions for use, stop using of the software and contact SICAT support immediately.

ORDERS

**Incorrect data in an order may result in an incorrect order.**

If you complete an order, ensure that you select and transfer the correct data for the order.

**An incorrect order might lead to the wrong treatment.**

1. Check your order before sending it.
2. Confirm the correct planning of your order.

OPTICAL IMPRESSIONS

**The use of other data as 3D X-ray scans as a lone source of information may result in an incorrect diagnosis and treatment.**

1. Use 3D X-ray scans as a preferred source of information for diagnosis and planning.
2. Use other data, such as optical impressions, only as an auxiliary source of information.

**Inappropriate optical impression devices could result in incorrect diagnosis and treatment.**

Only use optical impression data from devices cleared as medical devices.

**Optical impression data that does not match patient and date of 3D X-ray data could result in incorrect diagnosis and treatment.**

Make sure the patient and date of the imported optical impression data match the patient and date of the visualized 3D X-ray data.

**Insufficient integrity or quality of optical impressions may result in an incorrect diagnosis and treatment.**

Check the integrity and quality of the optical impressions imported.



Insufficient integrity and precision of optical impressions may result in an incorrect diagnosis and treatment.

Only use optical impressions of a sufficient quality and precision for the intended diagnosis and treatment.



Excessive artifacts, insufficient resolution or the lack of points for registration may mean that the registration process for optical impressions fails. Examples of excessive artifacts in 3D X-ray scans include movement artifacts and metal artifacts.

Only use optical impression data and 3D X-ray data that allow for an adequate registration.



The selection of markings in the registration process for optical impressions that do not correspond to one another may result in an incorrect diagnosis and treatment.

When you register optical impressions, carefully select corresponding markings in the 3D X-ray scans and optical impressions.



The incorrect registration of optical impressions for 3D X-ray scans may result in an incorrect diagnosis and treatment.

Check that the registered optical impressions are correctly aligned to the 3D X-ray scans.

NETWORK



Saving SICAT application data in an unreliable or incompatible network file system could result in data loss

Together with your network administrator, make that SICAT application data can be safely stored in the desired network file system.



The shared use of SICAT Suite and the SICAT applications contained therein with other devices within a computer network or a storage area network could result in previously unknown risks for patients, users and other persons.

Ensure that rules are compiled within your organization to determine, analyze and assess risks in relation to your network.



Changes to your network environment may result in new risks for your network environment. Examples include changes to your network configuration, the connection of additional devices or components to your network, the disconnection of devices or components from your network and the updating or upgrading of network devices or components.

Perform a network risk analysis after any changes to the network.

TOOTH SCHEME



CAUTION

Incorrect tooth number allocation could result in incorrect diagnosis and treatment.

Check that the selected tooth numbers and the actual anatomical tooth numbers match.

DRILL DEPTH



CAUTION

An incorrect drilling depth might lead to the wrong treatment.

Make sure that the planned drilling depth and the selected drill match.

PLANNING OBJECTS



CAUTION

Using the 3D view to display measurements and planning objects may result in incorrect diagnosis and treatment.

Use the 3D view for guidance only and regard it as an additional source of information.

41 ACCURACY

The following table shows the accuracy values in all SICAT applications:

Measurement accuracy for distance measurements	< 100 μm
Measurement accuracy for angle measurements	< 1 degree
Representation accuracy	< 20 μm

GLOSSARY

ADA

American Dental Association

Application

SICAT applications are programs belonging to SICAT Suite.

CPR

Curved Planar Reformation, two-dimensional image reconstruction from 3D X-ray scans that is used for the simplified representation of complex structures.

Crosshairs

Crosshairs are lines of intersection with other slice views.

Drill channel

Path for drilling planned on the basis of the EndoLine that can be visualized and edited in the software application.

EndoLine

An EndoLine is a multi-functional measuring line, which serves to mark the root canal to be treated and to locate the root apex.

FDI

Fédération Dentaire Internationale, World Dental Federation

Frames

In the 3D view, frames show the positions of the 2D slice views.

Intraoral scan

An intraoral scan is a 2D X-ray scan of individual teeth that is recorded using a dental film behind the tooth and an X-ray source outside of the mouth and features a high level of detail.

Message window

The message window shows messages on completed procedures in the bottom right corner of the screen.

Optical impressions

An optical impression is the result of a 3D surface scan of teeth, impression material or plaster casts.

Registration

Spatial leveling

SICAT Portal

SICAT Portal is a website, which you can use to order appliances from SICAT, amongst other things.

SIXD

File format to exchange optical impressions.

SMPTE

Society of Motion Picture and Television Engineers

Spotlight

Circular highlighting of an image area for checking the overlay of intraoral scan and 3D projection during the registration of intraoral scans.

SSI

File format to exchange optical impressions.

STL

Surface Tessellation Language, standard file format to exchange mesh data, which may contain optical impressions, for example.

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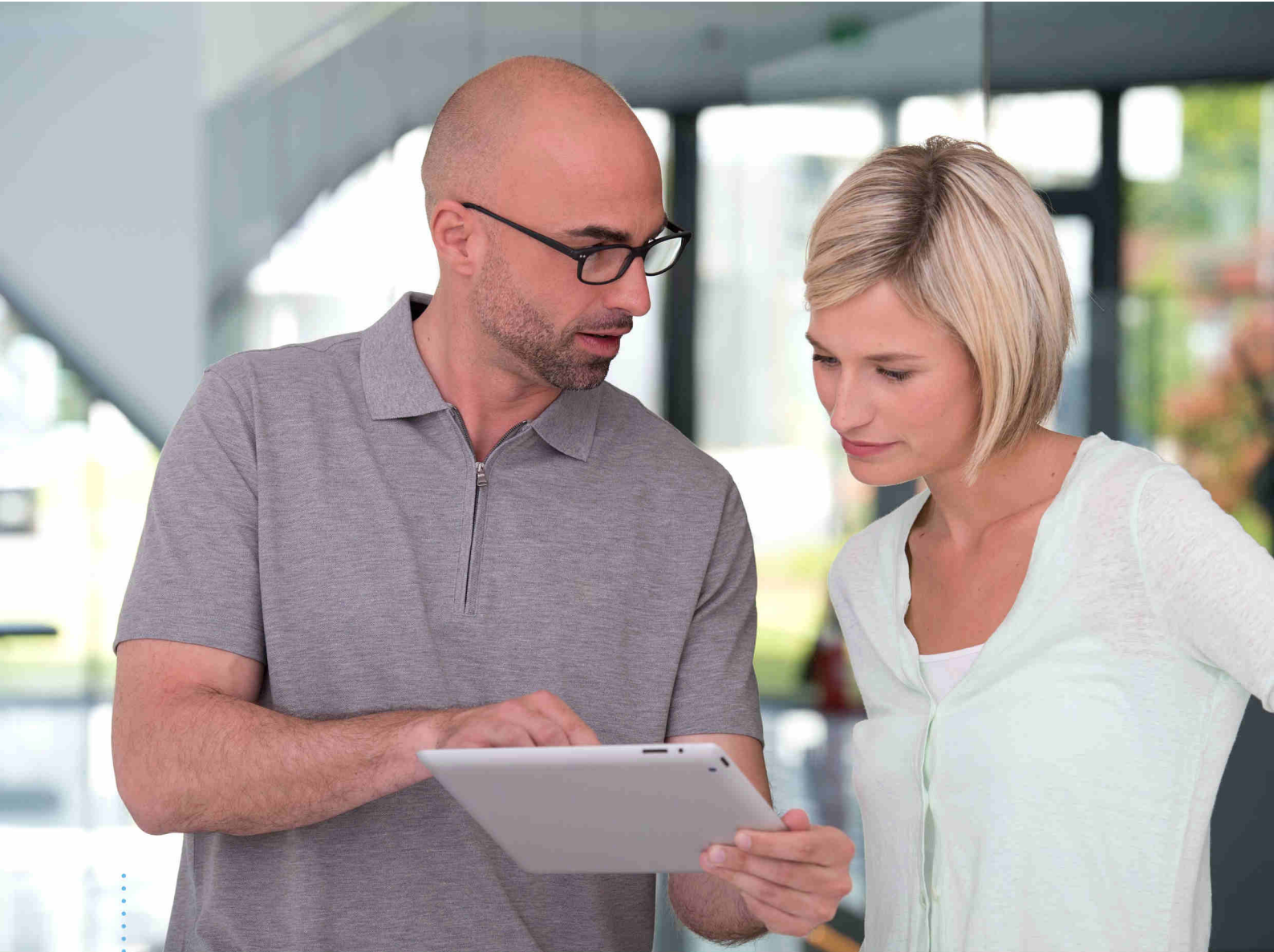
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SICAT ENDO *VERSION 1.4*

Instructions for use | English | SIDEXIS XG

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1 INTENDED USE AND INDICATIONS FOR USE

SICAT Endo is a software application for the visualization of imaging information of the oral-maxillofacial region. The imaging data originates from medical scanners such as CT or CBCT scanners. SICAT Endo is also used as a software system to aid dentists with the planning, the evaluation and the comparison of treatment options and the access planning for an endodontic treatment. The dentists' planning data may be exported from SICAT Endo and used for the realization of the planned therapy.

INDICATIONS FOR USE

SICAT Endo is a software application for:

- Aiding diagnosis in the oral-maxillofacial region
- Aiding comparisons of different treatment options
- Aiding endodontic treatment planning
- Aiding treatment planning using endodontic surgical guides

2 *VERSION HISTORY*

VERSION 1.4

- Initial release

3 SYSTEM REQUIREMENTS



If your system does not fulfill the system requirements, this may mean that the software will not start or will not function as intended.

Check whether your system meets the minimum software and hardware requirements before installing the software.

Processor	Quad Core 2.3 GHz
RAM	8 GB
Graphics card	Dedicated* DirectX 11 or higher 2 GB graphics memory Current driver with at least WDDM 1.0 support
Screen	Resolution at least 1920x1080 pixels for 100 to 125 percent scale** Maximum resolution 3840x2160 pixels for 100 to 200 percent scale
Free disk space on hard disk	20 GB plus additional storage space for patient records
Storage media	Access to external storage media containing installation files.
Input devices	Keyboard, mouse
Network	Ethernet, 100 Mbit/s, 1000 Mbit/s recommended
Printer for patient information	At least 300 dpi Paper format DIN A4 or US letter
Operating system	Windows 7 SP1 (64 Bit) with KB2670838 Windows 8 (64 Bit, Desktop) Windows 8.1 (64 Bit, Desktop) Windows 10 (64 Bit, Desktop)
Web browser	Microsoft Internet Explorer 11 or higher Mozilla Firefox 39 or higher Google Chrome 44 or higher JavaScript must be activated. A standard browser must be set.
PDF viewer	Adobe Reader DC or higher, for example
SIDEXIS XG with SICAT Suite as a plug-in	Version 2.6.1 (64 Bit)

SIDEXIS 4 with SICAT Suite as a module	Version 4.2 SiPlanAPI V4
SIDEXIS 4 with SICAT Suite as a plug-in	Version 4.1.2 (64 Bit)



*SICAT Suite supports only dedicated graphics cards from the NVIDIA GeForce 960 GTX level of performance. Integrated graphics cards are not supported.

** The combination of a low monitor resolution and a high level of scaling may mean that the software displays certain parts of the user interface incompletely. The monitor must be configured so that it displays the SMPTE test image correctly. Information on this can be found in the section *Monitor calibration with the SMPTE test image* [▶ Page 182 - SIDEXIS XG]

SOFTWARE PREREQUISITES

SICAT Suite requires the following software components and installs them if they are not already available:

- Microsoft .NET Framework 4.5
- CodeMeter license management software 6.30d
- SQL Server Compact Edition 4.0
- SICAT WebConnector

The SICAT WebConnector requires specific ports for communication with the SICAT server. The ports must be unblocked in your firewall:

PROTOCOL	DIRECTION OF TRANSMISSION	PORT
HTTP	Outgoing	80
HTTPS	Outgoing	443
FTPS - Management	Outgoing	21
FTPS - Data transmission	Outgoing	49152 -65534



You can also place orders without SICAT WebConnector. Information on this can be found in the section *Ordering process* [▶ Page 166 - SIDEXIS XG].

4 SAFETY INFORMATION

It is important that you read the following safety-related chapters:

- *Definition of the danger levels* [▶ Page 11 - SIDEXIS XG]
- *Qualifications of operating personnel* [▶ Page 12 - SIDEXIS XG]
- *Safety instructions* [▶ Page 198 - SIDEXIS XG]

4.1 DEFINITION OF THE DANGER LEVELS

These instructions for use use the following safety labels to prevent injuries to operating personnel or patients, as well as material damages:



CAUTION

Labels a dangerous situation, which could result in smaller injuries if not prevented.

NOTICE

Labels information deemed important, but not relevant to safety.

4.2 QUALIFICATIONS OF OPERATING PERSONNEL



The use of this software by unqualified personnel may result in an incorrect diagnosis and treatment.

The use of the software is restricted to qualified professionals.

Only educated or properly trained personnel may use the software.

If you are undergoing education or training or if you are using this software within the scope of general training, you may use the software only under the constant supervision of a qualified person.

You must meet the following prerequisites to use the software:

- You have read the instructions for use.
- You are familiar with the basic structure and functions of the software.
- You are able to identify software malfunctions and take suitable steps where necessary.

CAUTION! Federal Law (USA) restricts use of this device to or on the order of a physician, dentist or licensed practitioner.

5 USED ICONS AND HIGHLIGHTING

ICONS

The following icons are used in these instructions for use:



The note icon labels additional information, such as alternative methods.

HIGHLIGHTING

Text and labels of elements shown by SICAT Suite are highlighted in **bold**. This includes the following objects in the user interface:

- Area labels
- Button labels
- Icon labels
- Text in notes and messages on the screen

HANDLING INSTRUCTIONS

Handling instructions are written as numbered lists:

- ☑ Prerequisites are marked with this icon.
- 1. Steps are labeled with numbers.
 - ▶ Interim results are marked with this icon and indented.
- 2. Further steps will follow after the interim results.
 - ▶ Final results are marked with this icon.
 - Instructions consisting of just one step are marked with this icon.

6 OVERVIEW OF THE INSTRUCTIONS FOR USE

SICAT Endo is part of SICAT Suite in addition to other applications.

SICAT Suite forms the framework, in which the SICAT applications run. The applications are therefore installed along with SICAT Suite. Information on this can be found in the section *Installing SICAT Suite* [▶ Page 17 - SIDEXIS XG].

SICAT Suite is currently available in three versions. Some operating steps vary, depending on the version used. Therefore, these instructions for use deal with the versions separately:

- SIDEXIS 4 module
- SIDEXIS XG plug-in
- Stand-alone version

You do not need to decide on a version when you install SICAT Suite.

The applications are also uninstalled along with SICAT Suite. Information on this can be found in the section *Uninstalling SICAT Suite* [▶ Page 196 - SIDEXIS XG].

7 OVERVIEW OF SICAT SUITE

SICAT Suite comprises the following parts:

- SICAT Function – the intended use of SICAT Function is indicated in the SICAT Function instructions for use.
- SICAT Air – the intended use of SICAT Air is indicated in the SICAT Air instructions for use.
- SICAT Endo – the intended use of SICAT Endo is indicated in the SICAT Endo instructions for use.

LANGUAGES:

SICAT Suite supports the following languages in the user interface:

- English
- German
- French
- Japanese
- Spanish
- Italian
- Dutch
- Portuguese
- Russian

LICENSING

The following steps are required to activate SICAT applications or individual functions:

- You contact your local sales partner.
- You receive a voucher code.
- Using the voucher code, you generate a license key on the SICAT portal (which can be accessed via SICAT home page).
- SICAT adds the license key to your activation key.
- You use your activation key to activate SICAT applications or individual functions on computers on which SICAT Suite is installed.

FULL VERSION AND VIEWER MODE

SICAT Suite can start in one of two modes:

- If you have activated the Viewer license of at least one SICAT application, SICAT Suite will start in Viewer mode.
- If you have activated the full version license of at least one SICAT application, SICAT Suite will start as full version.

In general, the following is true:

- Applications with an activated full version license will start in the full version.
- Applications with activated Viewer license will start in Viewer mode.
- Applications without an activated license will not start.
- You do not need to choose a mode when you install SICAT Suite.

8 INSTALLING SICAT SUITE



Changes to the software may mean that the software will not start or will not function as intended.

1. Do not make any changes to the software installation.
2. Do not delete or change any of the components in the software installation directory.



Damaged installation media may result in the failure of the installation.

Handle the installation media with care and store them appropriately.



If your system does not fulfill the system requirements, this may mean that the software will not start or will not function as intended.

Check whether your system meets the minimum software and hardware requirements before installing the software.



Insufficient authorizations may mean that the software installation or software update fails.

Make sure you have sufficient privileges on your system if you install or update the software.



The **Auto play** function of Windows on your computer could be deactivated. In this case, you can open the optical medium in the Windows file Explorer and start the file **SICATSuiteSetup.exe** manually. The file name contains the version of SICAT Suite.

To install SICAT Suite, proceed as follows:

- Your computer fulfills the system requirements. Information on this can be found in the section *System requirements* [▶ *Page 8 - SIDEXIS XG*].

1. Insert the SICAT Suite installation medium into the optical drive of your computer.

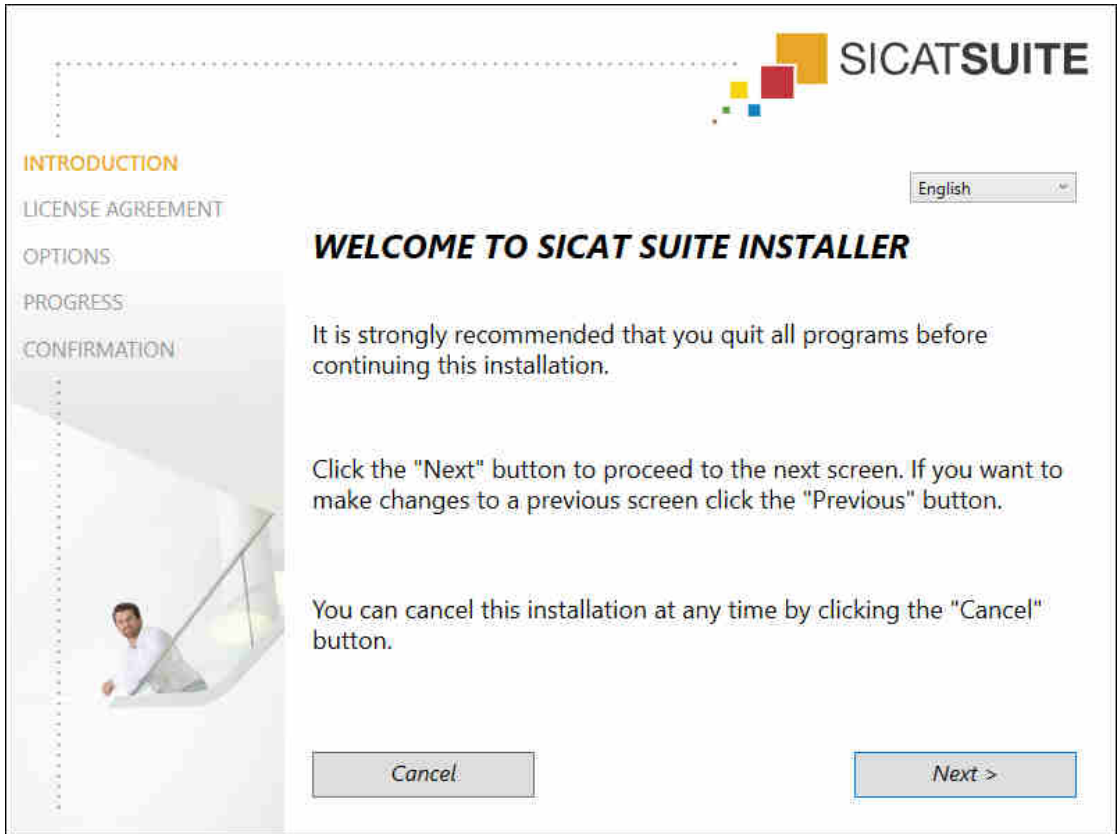
▶ The **Auto play** window opens.

2. Select the option **Execute SICATSuiteSetup.exe** in the **Auto play** window. The file name contains the version of SICAT Suite.

▶ The software prerequisites are installed if they are not already available on your computer.



► The SICAT Suite installation program will start and the **INTRODUCTION** window opens:



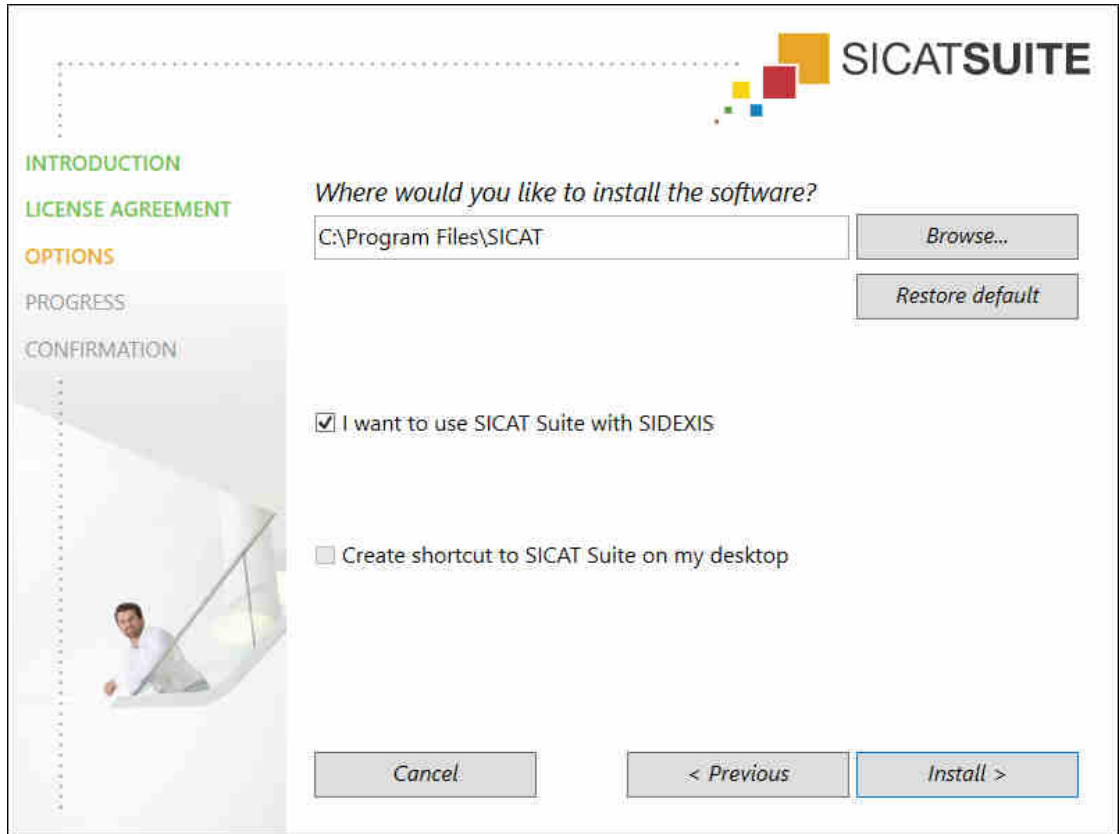
3. Select the desired language for the SICAT Suite installation program in the top right-hand corner of the **INTRODUCTION** window and click on **Next**.

► The **LICENSE AGREEMENT** window opens:



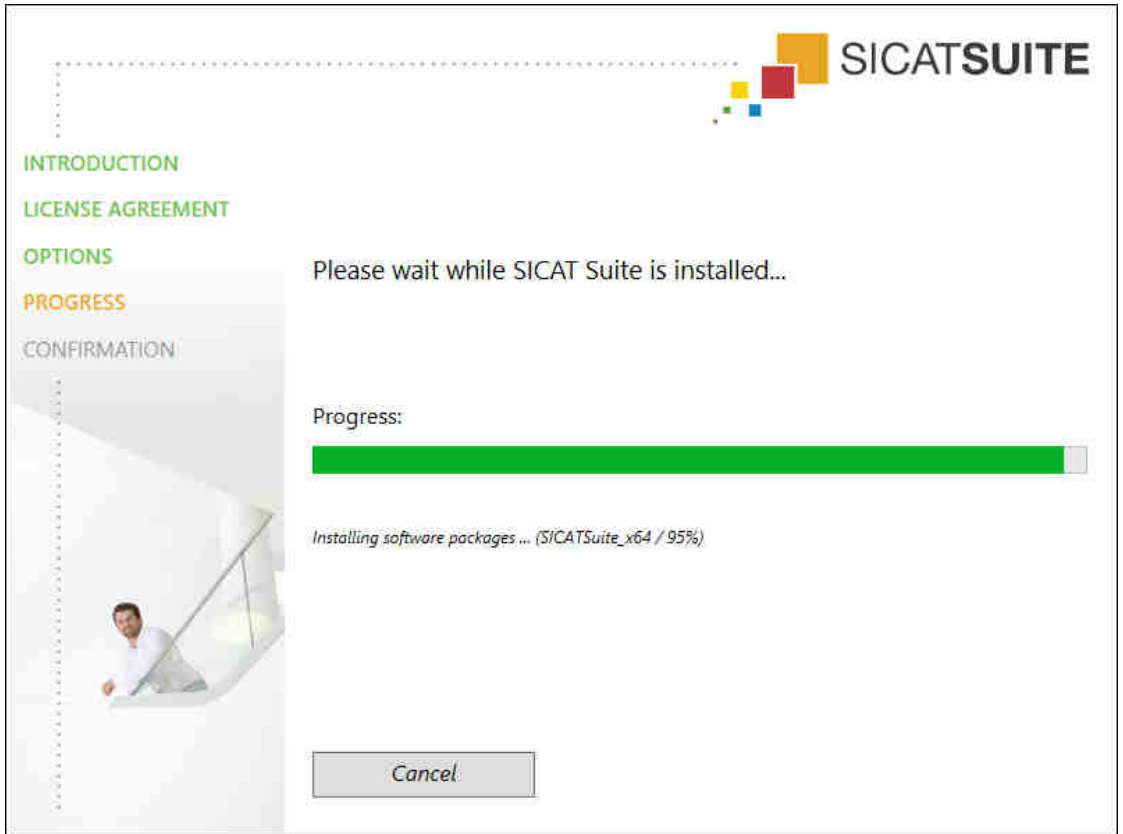
4. Read the end-user licensing agreement in full, select the **I accept the terms of the License Agreement** check box and click on **Next**.

► The **OPTIONS** window opens:

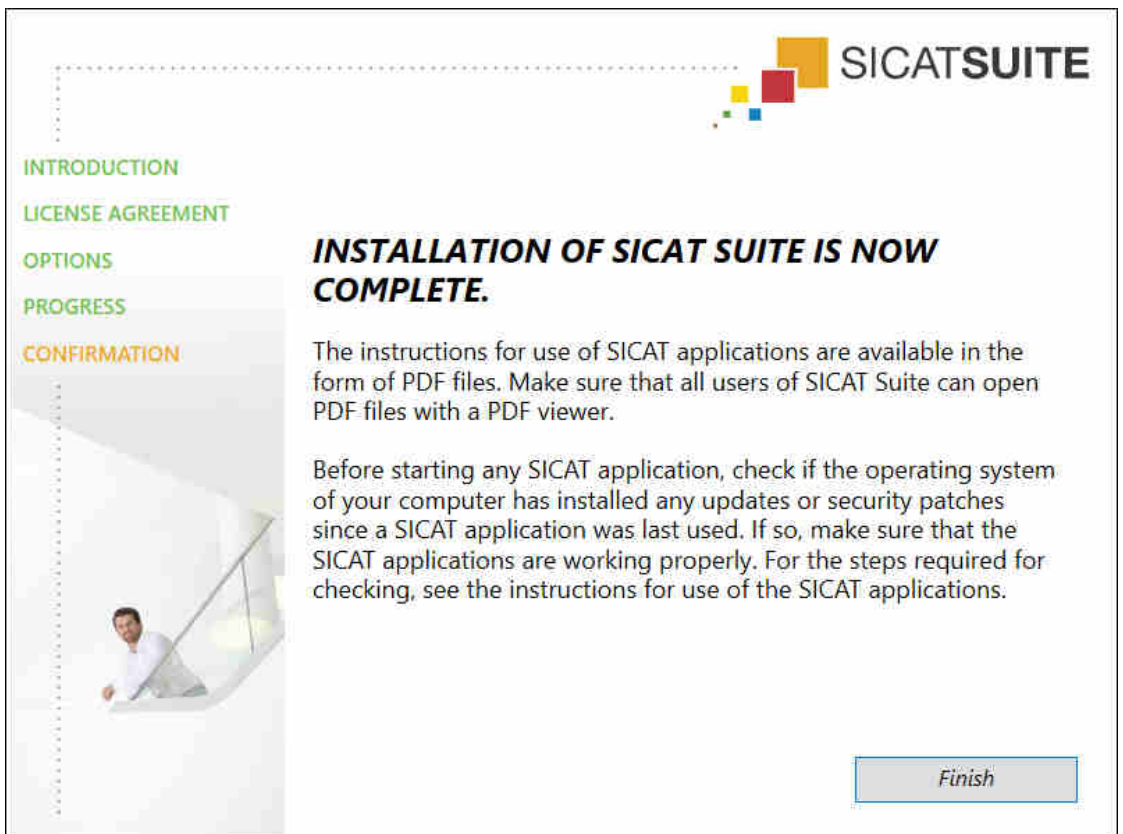


5. To change the folder on the hard disk in which the SICAT Suite installation program will install SICAT Suite click on the **Browse** button.
 - The **Select folder** window opens.
6. Browse to the desired folder in which the SICAT Suite installation program is to create the “SICAT Suite” directory and click on **OK**.
 - The SICAT Suite installation program will enter the directory for the selected folder in the **Where would you like to install the software** field.
7. If SIDEXIS XG or SIDEXIS 4 is installed on your computer, the **I want to use SICAT Suite with SIDEXIS** check box will be available. You can register SICAT Suite during the installation or register it manually as a SIDEXIS XG plug-in or SIDEXIS 4 module later.
 - If the **I want to use SICAT Suite with SIDEXIS** check box is activated, the **Create shortcut to SICAT Suite on my desktop** check box will not be available.
8. If available, activate or deactivate the **Create shortcut to SICAT Suite on my desktop** check box.
9. Click on the **Install** button.

- ▶ The **PROGRESS** window opens:



- ▶ SICAT Suite and the remaining software prerequisites will be installed.
- ▶ After the installation is complete, the **CONFIRMATION** window opens:



10. Click on the **Finish** button.

▶ The SICAT Suite installation program will close.

9 PERFORMING TEST STEPS AFTER OPERATING SYSTEM UPDATE



Changes to the operating system may mean that the SICAT applications will not start or will not function as intended.

1. Prior to starting the SICAT applications, always check whether the operating system of your computer has installed updates or security updates since you last used the SICAT applications.
2. If the operating system of your computer has installed updates or security updates, perform the steps required for testing the SICAT applications as described in the instructions for use.
3. If the behavior of the SICAT applications differs from the behavior described in the instructions for use, stop using of the software and contact SICAT support immediately.

If the operating system of your computer has installed updates, you must ensure that SICAT Endo operates without any errors. Perform the following test steps. If you notice deviation during a test step, prevent further use of SICAT Endo on the computer in question and contact SICAT support.

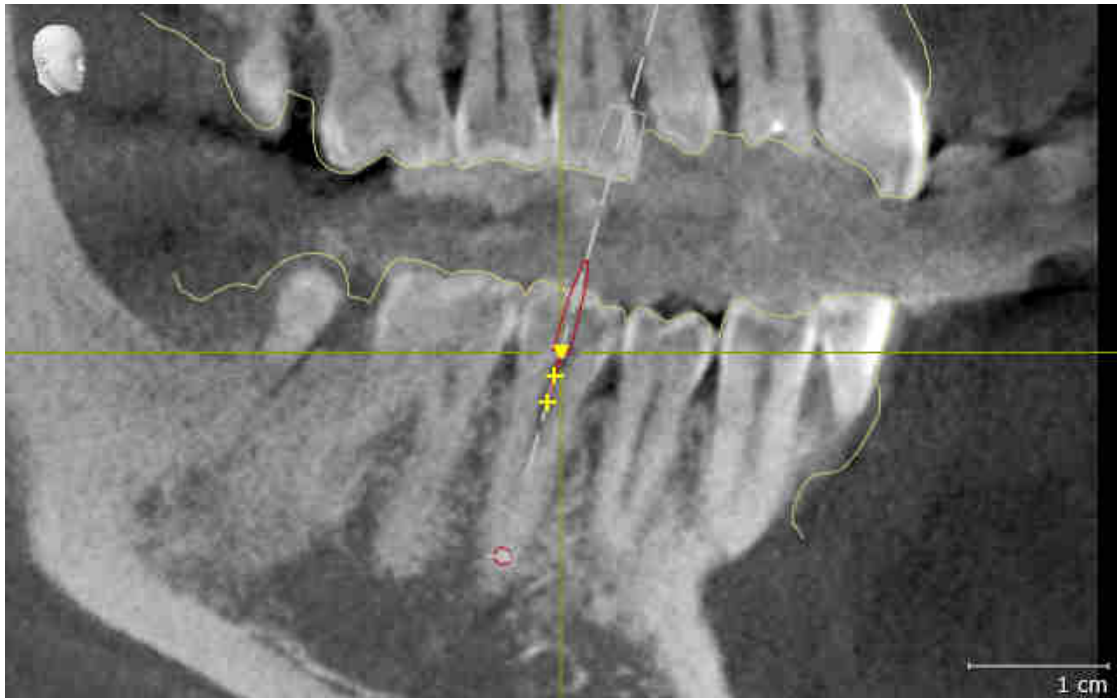
PREPARATIONS

1. To ensure that nobody has made unintended changes, delete the “Patient Axx” patient.
2. Import the reference data record from the “SICATSuite_ReferenceDataset_1.4.zip” file. You will find the data record on the SICAT Suite installation medium.
3. Open the “Patient Axx” reference data record in SICAT Endo.

ENDOLINE

1. Make sure that the **FDI** tooth scheme is active. Information on this can be found in the section *Using general settings* [▶ Page 180 - SIDEXIS XG].
2. Make sure that the **Panorama** workspace is active.
3. Reset the views to their default values.
4. In the **Object browser**, expand the “**Tooth 45**” group.
5. In the **Object browser**, select the “15.24 mm Tooth No. 45” element and focus on it.

6. Compare the **Tangential** view with the following screenshot:



7. In the **Object browser**, expand the "Tooth 25" group.
8. In the **Object browser**, select the "13.63 mm Tooth No. 25" element and focus on it.
9. Compare the **Cross-Sectional** view with the following screenshot:



10 UPDATING OR REPAIRING SICAT SUITE

UPDATING SICAT SUITE

You can update SICAT Suite by starting the SICAT Suite installation program and clicking on the **Refresh** button. The installation program will first uninstall the old version of SICAT Suite. All data and settings will be maintained.



A new version of the stand-alone version of SICAT Suite requires updated patient record depots. When first starting the new version or if you are activating an old patient record depot, SICAT Suite will ask if you want to update the patient record depot. SICAT Suite will update the patient record depot automatically when you confirm the message. **CAUTION! You can no longer use updated patient record depots with older versions of SICAT Suite.**



If you update SIDEXIS XG to SIDEXIS 4.1.3 or higher and then update SICAT Suite, the SICAT Suite installer will register SICAT Suite as a SIDEXIS 4 module. When you open a 3D X-ray scan, SICAT Suite will check whether there are studies in SIDEXIS XG for this 3D X-ray scan and transfer these from SIDEXIS XG to SIDEXIS 4.

REPAIRING SICAT SUITE

You can repair SICAT Suite by starting the SICAT Suite installation program and clicking on the **Repair** button. All data and settings will be maintained.

Both updates to and repairs of SICAT Suite use the SICAT Suite installation program. Information on this can be found in the section *Installing SICAT Suite* [▶ Page 17 - SIDEXIS XG].

11 SPECIAL FEATURES IN THIS VERSION

Depending on whether you use SICAT Endo as stand-alone version or connected to other software, there are differences in certain areas.

MANUAL REGISTRATION AS A SIDEXIS XG PLUG-IN

In addition to the automatic connection during installation, you can also manually register and remove SICAT Suite as a SIDEXIS XG plug-in. Information on this can be found in the section *Registering and removing SICAT Suite as a SIDEXIS XG plug-in* [▶ Page 32 - SIDEXIS XG].

PROGRAM START

As a SIDEXIS XG plug-in, SICAT Suite starts as an external application. You can find information about how to start SICAT Suite as a SIDEXIS XG plug-in in the section *Starting SICAT Suite* [▶ Page 34 - SIDEXIS XG].

PATIENT DATA AND VOLUME DATA

The version of SICAT Endo connected to SIDEXIS uses the SIDEXIS patient data and volume data. The data is therefore backed up via the processes intended for SIDEXIS.



You should also back up the user settings of the SICAT applications in addition to the patient data. You can find the user settings for each user in two directories separately. You can open the directories by entering **%appdata%\SICAT GmbH & Co. KG** and **%localappdata%\SICAT GmbH & Co. KG** into the address bar of Windows Explorer.

SETTINGS

In the version connected to SIDEXIS, SICAT Suite will only display the values of some settings, as these are imported from SIDEXIS.

LICENSES

The stand-alone version and versions of SICAT Suite connected to other software use the same licenses. You do not need to choose a version when you install SICAT Suite.

OPENING STUDIES WITH OR WITHOUT WRITE PERMISSIONS



If the computers, on which SIDEXIS XG and SICAT Suite are running, are in a network environment and where permitted by SIDEXIS XG and the network configuration, SIDEXIS XG could be part of a multi-workstation installation. This may mean, amongst other things, that you can only open data records opened on other workstations in read-only mode.

The following conditions must be met in order to make changes to SICAT Endo studies and save these changes:

- A SICAT Endo full version license must be activated.
- The 3D X-ray scan to which the SICAT Endo study belongs is not open on other workstations.

Otherwise, you cannot make or save any changes to SICAT Endo studies. If you have activated a Viewer license, you can view 3D X-ray scans and SICAT Endo studies.

The following table shows which functions are available in each case:

FUNCTION	FULL VERSION LICENSE ACTIVATED	VIEWER LICENSE ACTIVATED	NO LICENSE ACTIVATED
Support area	Yes	Yes	Yes
General settings	Yes	Yes	Yes
Making changes	Yes	No	No
Viewing data without saving changes	No	Yes	No
Help	Yes	Yes	Yes

In the following cases, you can view SICAT Endo studies without a Viewer license:

- In SIDEXIS 4, export SICAT Endo studies and import the data to SIDEXIS on another computer. SICAT Endo must be installed on this computer.
- In SIDEXIS 4, create a Wrap&Go package which contains SICAT Endo studies. Install the Wrap&Go package on another computer. Then, install SICAT Endo.

In both cases you cannot make or save any changes to the planning.

Under certain circumstances you cannot make or save changes to SICAT Endo studies even if the application license is activated. An ongoing ordering process may, for example, be one cause for this.

Further information is available in the section *Opening read-only data* [▶ Page 191 - SIDEXIS XG].

12 THE STANDARD WORKFLOW OF SICAT ENDO



The shared use of SICAT Suite and the SICAT applications contained therein with other devices within a computer network or a storage area network could result in previously unknown risks for patients, users and other persons.

Ensure that rules are compiled within your organization to determine, analyze and assess risks in relation to your network.



Saving SICAT application data in an unreliable or incompatible network file system could result in data loss

Together with your network administrator, make that SICAT application data can be safely stored in the desired network file system.



Changes to your network environment may result in new risks for your network environment. Examples include changes to your network configuration, the connection of additional devices or components to your network, the disconnection of devices or components from your network and the updating or upgrading of network devices or components.

Perform a network risk analysis after any changes to the network.



Problems in terms of cyber-security could result in unauthorized access to your patient data and risks in relation to the security or integrity of your patient data.

If you suspect problems in relation to the cyber-security of your SICAT application, contact support immediately.



Security leaks in your information system environment could result in unauthorized access to your patient data and put the privacy or integrity of your patient data at risk.

1. Make sure policies are established within your organization to prevent security threats to your information system environment.
2. Install and run an up-to-date virus scanner.
3. Make sure the pattern files of the virus scanner are updated on a regular basis.



Unauthorized access to your workstation could result in risks to the privacy and integrity of your patient data.

Limit the access to your workstation to authorized individuals only.



Before starting work with SICAT Suite, it is important that you have read these instructions for use and in particular all safety information in full. Keep these instructions for use at hand for use when information is needed in future.

INSTALLATION

Information on how to install SICAT Suite can be found in the section *Installing SICAT Suite* [▶ Page 17 - *SIDEXIS XG*].

Information on how to manually register SICAT Suite as a SIDEXIS XG plug-in can be found in the section *Registering and removing SICAT Suite as a SIDEXIS XG plug-in* [▶ Page 32 - *SIDEXIS XG*].

ACTIVATING FULL VERSION

- If you have purchased a license for SICAT Endo, activate the license to unlock the full version. Information on this can be found in the section *Licenses* [▶ Page 39 - *SIDEXIS XG*].



If you have not purchased a license for SICAT Endo, open a 3D X-ray scan in Viewer mode. Information on this is available in the section *Opening read-only data* [▶ Page 191 - *SIDEXIS XG*].

SETTINGS

Change the desired settings in the **Settings** area. Information on this can be found in the section *Settings* [▶ Page 179 - *SIDEXIS XG*].

DATA RECORDS

SICAT Endo combines three different data types:

- 3D X-ray scans, for example, from Sirona GALILEOS
- Intraoral scans, for example, from Sirona XIOS XG
- Digital optical impressions, for example, from Sirona CEREC

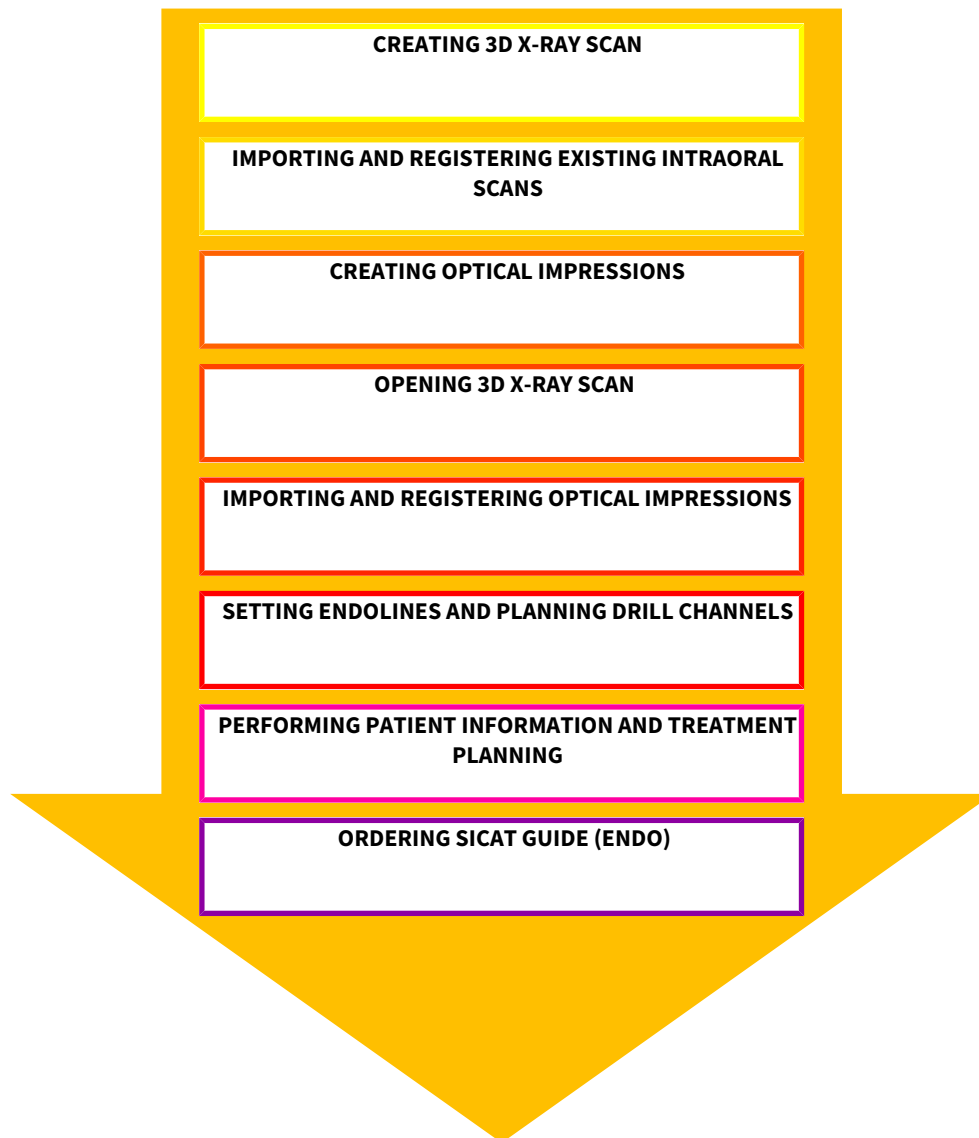
ACQUIRING DATA RECORDS

1. Create an intraoral scan of the patient where required. For more information, please refer to the instructions for use for the respective device.
2. Create a 3D X-ray scan of the patient. For more information, please refer to the instructions for use for the respective device.
3. Create digital optical impressions of the maxilla or mandible. For more information, please refer to the instructions for use for the respective device.

OPENING A DATA RECORD

- To work with data from SIDEXIS XG, open an examination containing a 3D X-ray scan in SIDEXIS XG and start SICAT Suite. Information on this can be found in the section *Starting SICAT Suite* [▶ Page 34 - *SIDEXIS XG*].

TYPICAL DIGITAL ENDODONTIC WORKFLOW



WORK STEPS IN SICAT ENDO

1. If necessary, adjust the volume orientation and panoramic region. Information on this can be found in the section *Volume orientation and panoramic region* [▶ Page 88 - SIDEXIS XG].
2. Import and register existing intraoral scans in SICAT Endo. For further information see section *Importing intraoral scans and allocating them to teeth* [▶ Page 110 - SIDEXIS XG] and section *Registering intraoral scan* [▶ Page 116 - SIDEXIS XG].
3. Import and register the optical impressions with the 3D X-ray data. Information on this can be found in the section *Importing and registering optical impressions* [▶ Page 99 - SIDEXIS XG].
4. Set EndoLines and plan drill channels. For further information see *Pre-aligning a tooth region* [▶ Page 133 - SIDEXIS XG], *Placing EndoLines* [▶ Page 135 - SIDEXIS XG] and *Planning drill channels* [▶ Page 144 - SIDEXIS XG].
5. Examine the Endo planning objects in the **Radiograph** workspace. Information on this can be found in the section *Overview of the intraoral scan workspace* [▶ Page 63 - SIDEXIS XG].

6. Inform the patient and create a handout for the patient based on this. Information on this can be found in the section *Patient information* [▶ Page 155 - SIDEXIS XG].
7. Order a SICAT GUIDE (ENDO) surgical guide. Information on this can be found in the section *Ordering process* [▶ Page 166 - SIDEXIS XG].
8. Export data, for example, to obtain a second opinion. Information on this can be found in the section *Data export* [▶ Page 163 - SIDEXIS XG].

ENDING OR PAUSING WORK ON THE DATA RECORD

- To end or interrupt your work, save it by closing SICAT Suite. Information on this can be found in the section *Closing SICAT Suite* [▶ Page 194 - SIDEXIS XG].

INSTRUCTIONS FOR USE AND SUPPORT

The instructions for use can be found in the **SICAT Suite Help** window. Information on this can be found in the section *Opening the instructions for use* [▶ Page 38 - SIDEXIS XG].

Further support is available in the **Support** area. Information on this can be found in the section *Support* [▶ Page 187 - SIDEXIS XG].

13 REGISTERING AND REMOVING SICAT SUITE AS A SIDEXIS XG PLUG-IN



If you install SICAT Suite after SIDEXIS XG and have checked the corresponding check box, the SICAT Suite installation program will automatically register it as a plug-in. Information on this can be found in the section *Installing SICAT Suite* [▶ Page 17 - SIDEXIS XG].

OPENING THE "NGPLUGINMANAGER" WINDOW

1. Press the **Windows** key, enter **SIDEXIS Manager** and click on the **SIDEXIS Manager** icon.
▶ The **SIDEXIS Manager** window opens.
2. In the **SIDEXIS Manager** window, click on the **NGPluginManager** icon.
3. Where necessary, accept the message from the Windows user account control.
▶ The **Plug-in Manager** window opens.

REGISTERING SICAT SUITE

- SICAT Suite has already been successfully installed. Information on this can be found in the section *Installing SICAT Suite* [▶ Page 17 - SIDEXIS XG].
 - The **Plug-in Manager** window is already open.
1. Click on the **Add** button.
▶ A Windows Explorer window opens.
 2. Switch to the installation directory of SICAT Suite, such as C:\Program Files\SICAT\SICAT Suite.
 3. Select the Sicat.PlanAndTreat.XG.exe file.
 4. Click on the **Open** button.
▶ SICAT Suite is registered as a SIDEXIS plug-in.

PLACING THE SICAT SUITE ICON

1. Click on the **Set up** entry in the **View** menu.
▶ The **Set up** window opens with the **Orders** tab.
2. Click on the **Program plug-ins** entry under **Categories**.
3. Drag the **SICAT Suite** icon from the **Set up** window to the desired position in the SIDEXIS XG icon bars.

REMOVING SICAT SUITE

- SICAT Suite is already registered as a SIDEXIS plug-in.
- The **Plug-in Manager** window is already open.

1. Select the **SICAT Suite** entry.
2. Click on the **Remove** button.
3. Restart SIDEXIS.

▶ SICAT Suite is no longer available as a SIDEXIS plug-in.

14 STARTING SICAT SUITE



Incorrect assignment of patient name or 3D scan could result in confusion of patient scans.

Verify that the 3D scan that is to be imported or already loaded in a SICAT Suite application is associated with the correct name of the patient and the correct scan information.



Unsuitable X-ray devices may result in an incorrect diagnosis and treatment.

Only use 3D X-ray scans from X-ray devices that are cleared as medical equipment.



Unsuitable 3D X-ray scans may result in an incorrect diagnosis and treatment.

Always verify the quality, integrity, and correct orientation of the displayed 3D data.

To start SICAT Endo, you must first start SICAT Suite.

To start SICAT Suite as a SIDEXIS XG plug-in, proceed as follows:

- SICAT Suite has already been successfully installed. Information on this can be found in the section *Installing SICAT Suite* [▶ Page 17 - SIDEXIS XG].
- SICAT Suite has already been registered as a SIDEXIS XG plug-in. Information on this can be found in the section *Registering and removing SICAT Suite as a SIDEXIS XG plug-in* [▶ Page 32 - SIDEXIS XG]. If SICAT Suite is installed after SIDEXIS XG, registration may take place automatically.
- The SICAT Suite button has already been placed in SIDEXIS XG.
- You have already opened a 3D X-ray scan in SIDEXIS XG.

- Click on the **SICAT Suite** button.

- ▶ SICAT Suite opens the data record in a SICAT application.



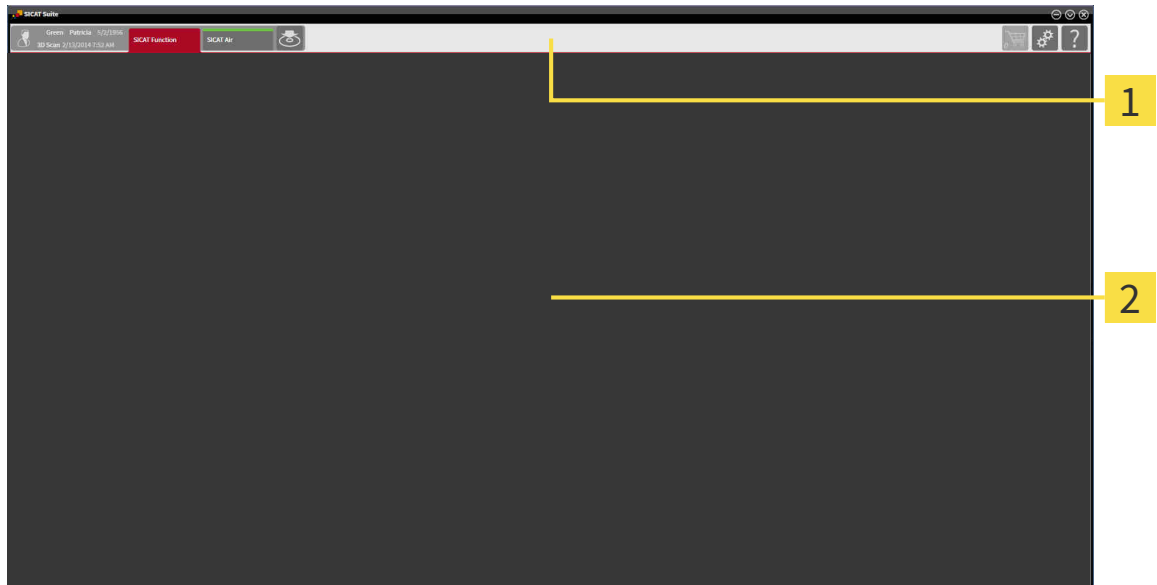
If you open a 3D X-ray scan without the corresponding study and have only activated the license of one SICAT application, that SICAT application will start. If you open a 3D X-ray scan with several corresponding studies and you have activated the licenses for multiple SICAT applications, the application with the most recently changed study will open.



In the following two cases, the data record is only opened in Viewer mode: No license is activated or another SIDEXIS XG workstation is using the data record. Information on this is available in the section *Opening read-only data* [▶ Page 191 - SIDEXIS XG].

15 THE USER INTERFACE OF SICAT SUITE

The SICAT Suite user interface comprises the following parts:



1 Navigation bar

2 Application area

- The navigation bar at the upper end of SICAT Suite shows tabs to switch between different windows and applications.
- The **Application area**, which is located in the remaining part of SICAT Suite, shows the user interface of the active SICAT application.

The **Navigation bar** is comprised of two different sections. The section on the left side and the section on the right side are always visible.

The section on the left side contains the following tabs:



- Patient data and volume data – attributes of active patient data and volume data depending on the settings in SIDEXIS XG.
- **Applications** – buttons which can be used to switch between the different SICAT applications. Information on this can be found in the section *Switching between SICAT applications* [▶ Page 37 - SIDEXIS XG].



- **Export data** - Information on this can be found in the section *Data export* [▶ Page 163 - SIDEXIS XG].

The section on the right side contains the following tabs:



- **Shopping cart** - Information on this can be found in the section *Ordering process* [▶Page 166 - *SIDEXIS XG*].



- **Settings** - Information on this can be found in the section *Settings* [▶Page 179 - *SIDEXIS XG*].



- **Support** - Information on this can be found in the section *Support* [▶Page 187 - *SIDEXIS XG*].

16 SWITCHING BETWEEN SICAT APPLICATIONS

To switch between SICAT applications, proceed as follows:



- Click on the button with the label matching the desired SICAT application in the **Navigation bar**.
- ▶ SICAT Suite will switch to the selected application.

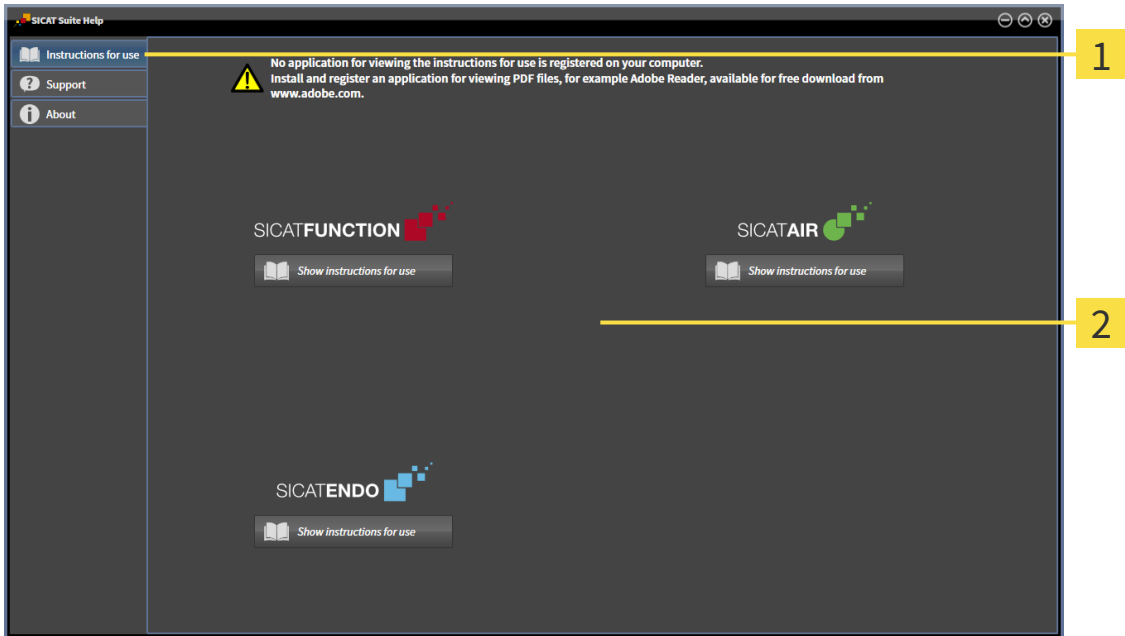
17 OPENING THE INSTRUCTIONS FOR USE

The instructions for use for SICAT applications are available in the **Support** window in the form of PDF files.



You can open the **Support** window by clicking the **Support** icon in the **Navigation bar** or pressing the F1 key.

The **Support** window looks as follows:



1 Instructions for use tab

2 Instructions for use window

You can open the desired help by clicking the **Show instructions for use** button.

18 LICENSES

SICAT Suite shows only SICAT applications for which you have activated a license.



In the SICAT Suite version which is connected to SIDEXIS, you can view SICAT Endo plans even without activated SICAT Endo license.

The following license types exist:

- A Viewer license, through which you can use an application in Viewer mode for an unlimited period of time.
- A demo license, through which you will receive temporary access to the full version of one or more SICAT applications.
- A full version license, through which you will receive access to the full version of one or more SICAT applications for an unlimited period of time.

The following steps are required to activate SICAT applications or individual functions:

- You contact your local sales partner.
- You receive a voucher code.
- Using the voucher code, you generate a license key on the SICAT portal (which can be accessed via SICAT home page).
- SICAT adds the license key to your activation key.
- You use your activation key to activate SICAT applications or individual functions on computers on which SICAT Suite is installed.

The following applies for activating and deactivating licenses:

- You will only receive license keys for SICAT applications that are approved in your country.
- If you activate an activation key on a computer, one license of all included SICAT applications or included functions will be linked to that computer. The licenses will be no longer available for activation on another computer.
- You may deactivate licenses for each SICAT application or individual function separately. Returned licenses are available for renewed activation on the same or another computer.
- If you return a full version license for a SICAT application, you will automatically receive a Viewer license provided the application is approved in your country.
- If you activate a full version license, you will automatically receive Viewer licenses for all applications that are approved in your country.

Information on how to convert a voucher code into an activation key can be found in section *Redeeming voucher codes* [▶ Page 47 - SIDEXIS XG].

The **License Overview** window gives an overview of the licenses which are activated on your computer. If you are using a demo license, SICAT Suite will display the expiry date of the licenses. Information on this can be found in the section *Opening the “Your licenses at a glance” window* [▶ Page 41 - SIDEXIS XG].

You can activate licenses in two ways:

- If the computer on which SICAT Suite is running has an active Internet connection, the license can be activated automatically. Information on this can be found in the section *Activating licenses using an active Internet connection* [▶ Page 42 - SIDEXIS XG].
- Upon request or if the computer on which SICAT Suite is running has no active Internet connection, the license can be activated manually using the license request files. You have to upload such license request files on the SICAT website. In return, you will receive a license activation file, which you have to activate in SICAT Suite. Information on this can be found in the section *Activating licenses manually or without an active Internet connection*. [▶ Page 44 - SIDEXIS XG].

You can deactivate licenses for each application or function individually. After you have deactivated a license, you can enter the same or another activation key. Returned licenses are available for activation on the same or another computer. Information on this can be found in the section *Returning licenses to the license pool* [▶ Page 46 - SIDEXIS XG].

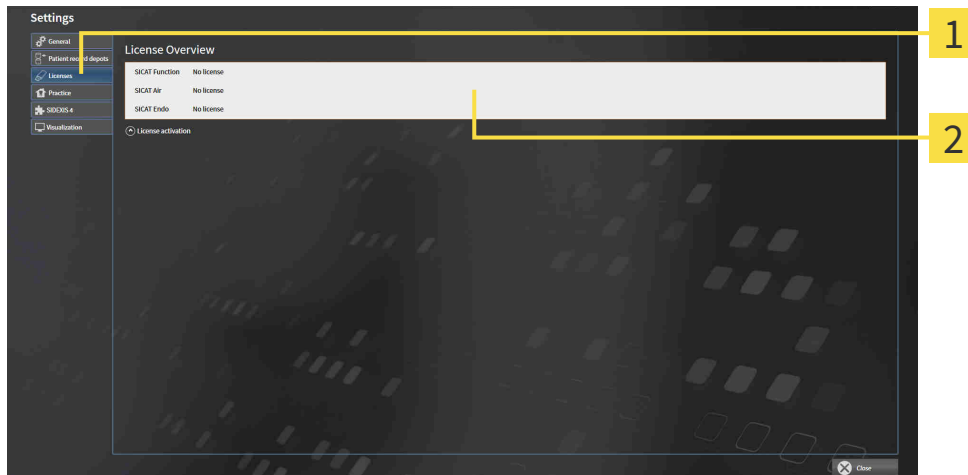
18.1 OPENING THE “YOUR LICENSES AT A GLANCE” WINDOW



1. Click on the **Settings** icon in the **Navigation bar**.
 ► The **Settings** window opens.



2. Click the **Licenses** tab.
 ► The **License Overview** window opens:



1 Licenses tab

2 License Overview window

Continue with one of the following actions:

- *Activating licenses using an active Internet connection* [► Page 42 - SIDEXIS XG]
- *Activating licenses manually or without an active Internet connection.* [► Page 44 - SIDEXIS XG]
- *Returning licenses to the license pool* [► Page 46 - SIDEXIS XG]

18.2 ACTIVATING LICENSES USING AN ACTIVE INTERNET CONNECTION

NOTICE **Shopping cart must be empty**

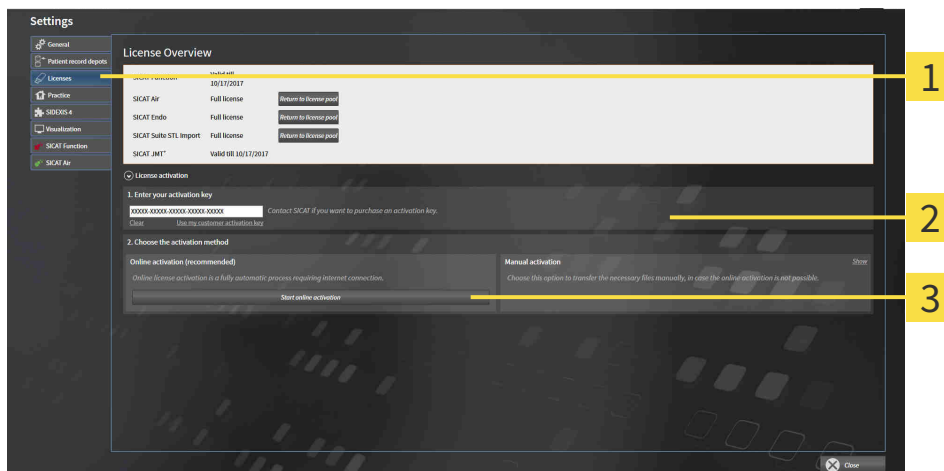
The shopping cart must be empty before you can make any changes to the licenses.

To start the activation process, proceed as follows:

- ☑ At least one SICAT application or one individual function is missing an active license.
- ☑ The computer on which SICAT Suite is running has an active Internet connection.
- ☑ The **License Overview** window is already open. Information on this can be found in the section *Opening the “Your licenses at a glance” window* [▶ Page 41 - SIDEXIS XG].

1. Click the **License activation** button in the **License Overview** window.

▶ The **License Overview** area expands:



- 1** License activation button
- 2** Enter your activation key area
- 3** Start online activation button

2. Enter your activation key in the **Enter your activation key** field.
 3. Click on the **Start online activation** button.
 4. If a **Windows Firewall** window opens, allow SICAT Suite to access the Internet.
- ▶ Licenses acquired for installed applications or individual functions are removed from your license pool and activated in SICAT Suite on the current computer.
 - ▶ The message window opens and shows the following message: **License was successfully activated.**

NOTICE**Restart required**

If a version of a SICAT application which is connected to SIDEXIS requires a restart after a license change, SICAT Suite will open a corresponding message window.



To activate a SICAT application again, you can use your customer activation key by clicking on the **Use my customer activation key** button in the **Enter your activation key** area. To clear the field with the current license key, you can click on the **Clear** button.

18.3 ACTIVATING LICENSES MANUALLY OR WITHOUT AN ACTIVE INTERNET CONNECTION.

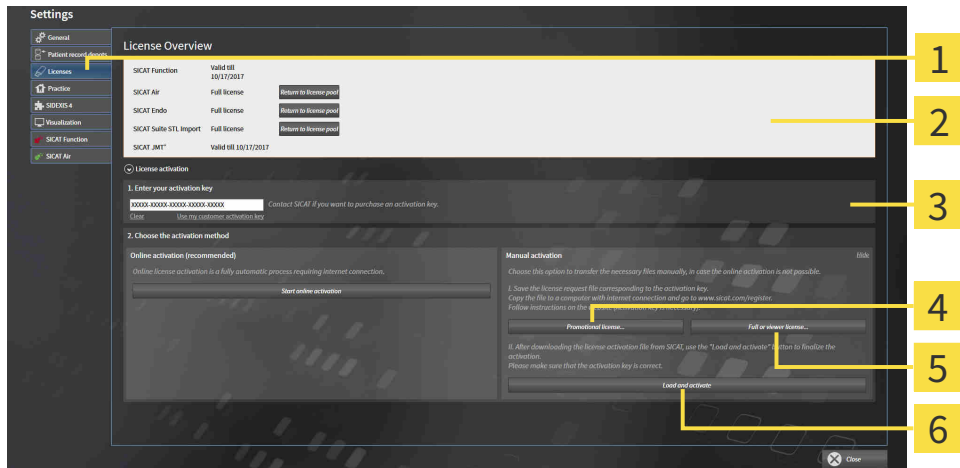
Shopping cart must be empty

NOTICE The shopping cart must be empty before you can make any changes to the licenses.

To activate licenses manually or without an active Internet connection, proceed as follows:

- ☑ At least one SICAT application or one individual function is missing an active license.
- ☑ The **License Overview** window is already open. Information on this can be found in the section *Opening the “Your licenses at a glance” window [▶ Page 41 - SIDEXIS XG]*.

1. Click on **License activation** in the **License Overview** window.
 - ▶ The **License activation** area expands.
2. Click on **Display** in the **Manual activation** area.
 - ▶ The **Manual activation** area expands:



- | | |
|---|--|
| 1 License activation | 4 Promotional license button |
| 2 Enter your activation key area | 5 Full or viewer license button |
| 3 Display | 6 Load and activate button |

3. If you wish to activate a full license, click the **Full or viewer license** button.
4. If you wish to activate a demo license, click the **Promotional license** button.
 - ▶ A Windows Explorer window opens.
5. Select the desired folder for the license request file and click **OK**.
 - ▶ A license request file with the **WibuCmRaC** file extension is generated and saved in the selected folder.
6. Copy the license request file on a computer with an active Internet connection, for example using a USB stick.

7. Open a web browser on the computer with the active Internet connection and open the <http://www.sicat.com/register> web page.
8. Follow the instructions on the activation page.
 - ▶ Licenses acquired for installed applications or individual functions are removed from your license pool.
 - ▶ The SICAT license server generates a license activation file with the **WibuCmRaU** file extension which you need to download onto your computer.
9. Copy the downloaded license activation file onto the computer on which SICAT Suite is running.
10. Check that the correct key is in the **Enter your activation key** field.
11. Click the **Load and activate** button in the **License Overview** window.
 - ▶ A Windows Explorer window opens.
12. Browse to find the license activation file, select it and click **OK**.
 - ▶ The license in the license activation file is installed on the current computer.
 - ▶ The message window opens and shows the following message: **License was successfully activated.**

NOTICE**Restart required**

If a version of a SICAT application which is connected to SIDEXIS requires a restart after a license change, SICAT Suite will open a corresponding message window.

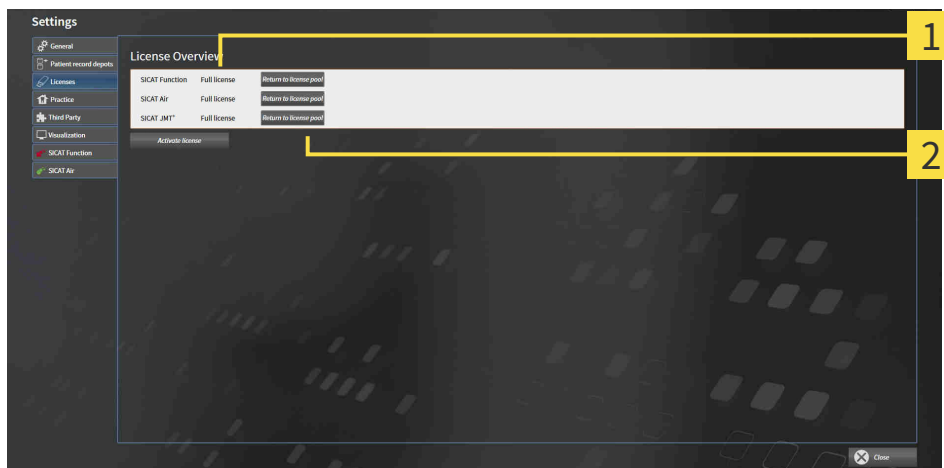
18.4 RETURNING LICENSES TO THE LICENSE POOL

NOTICE **Shopping cart must be empty**

The shopping cart must be empty before you can make any changes to the licenses.

To deactivate a full license and return it to the license pool, proceed as follows:

- ☑ You have already installed the full license of a SICAT application.
- ☑ The computer on which SICAT Suite is running has an active Internet connection.
- ☑ The **License Overview** window is already open. Information on this can be found in the section *Opening the “Your licenses at a glance” window* [▶ Page 41 - SIDEXIS XG].




- 1** License status of SICAT applications and individual functions
- 2** Return to license pool button

- In the **License Overview** window, click on the **Return to license pool** button in the row of the desired SICAT application or individual function.
- ▶ The selected license is returned to your license pool and will be ready for activation again.
- ▶ The message window opens and shows the following message: **License was successfully returned to the license pool.**
- ▶ Without a license, an application will only be available in Viewer mode. If the licenses for all SICAT applications have been returned to your license pool, SICAT Suite will switch entirely to Viewer mode.

NOTICE **Restart required**

If a version of a SICAT application which is connected to SIDEXIS requires a restart after a license change, SICAT Suite will open a corresponding message window.

 If you wish to deactivate a license on a computer without an active Internet connection, please contact SICAT support.

18.5 REDEEMING VOUCHER CODES

1. Open a web browser on the computer with the active Internet connection and open the <http://www.sicat.com> web page.
2. Select the link for the SICAT portal.
 - ▶ The SICAT portal opens.
3. Register or log in to the SICAT portal using your username and password if you have not already done so.
4. Click on the entry to manage your licenses in the account management section.
5. Enter your voucher code and confirm the code.
 - ▶ The SICAT Portal will generate a license key and add the license key to your activation key.
6. Start SICAT Suite and activate the license.

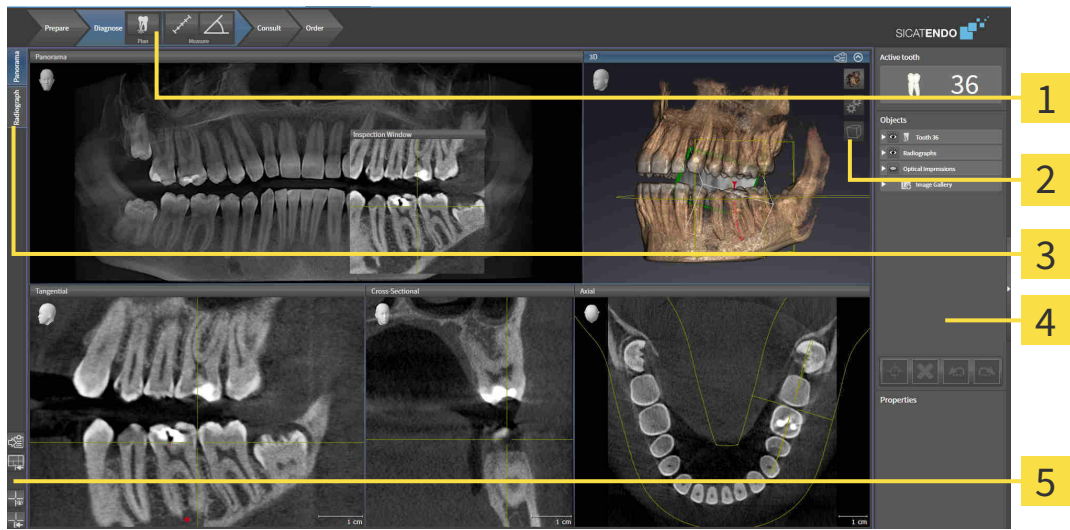
For further information about this see *Activating licenses using an active Internet connection* [▶ Page 42 - *SIDEXIS XG*] and *Activating licenses manually or without an active Internet connection*. [▶ Page 44 - *SIDEXIS XG*].



See the FAQ on the SICAT portal for more help.

19 THE SICAT ENDO USER INTERFACE

The SICAT Endo user interface comprises the following parts:



- 1 Workflow toolbar**
- 2 View toolbar**
- 3 Buttons for toggling between workspaces**
- 4 Object bar**
- 5 Workspace toolbar**

- The **Workflow toolbar** consists of various workflow steps, which include the main tools of the application workflow. This includes tools that you can use to add and import diagnosis objects and planning objects. Information on this can be found in the section *Workflow toolbar* [▶ Page 49 - *SIDEXIS XG*].
- The **Workspace area** is the part of the user interface below the **Workflow toolbar**. It displays the active workspace of SICAT Endo. Each workspace contains a specific combination of views. Information on this can be found in the section *Workspaces* [▶ Page 60 - *SIDEXIS XG*].
- Only the active view shows the **View toolbar**. It contains tools to adjust the display to the corresponding view. For further information about this see *Adjusting the views* [▶ Page 68 - *SIDEXIS XG*] and *Adjusting the 3D view* [▶ Page 82 - *SIDEXIS XG*].
- The **Object bar** contains tools for the management of diagnosis objects and planning objects. For further information, see section *Object bar* [▶ Page 52 - *SIDEXIS XG*] and section *SICAT Endo objects* [▶ Page 56 - *SIDEXIS XG*].
- The **Workspace toolbar** contains tools for changing the general settings of workspaces and all of the views they contain and for documenting the contents of workspaces. For further information about this, see *Moving, hiding and showing crosshairs and frames* [▶ Page 77 - *SIDEXIS XG*], *Resetting views* [▶ Page 80 - *SIDEXIS XG*], *Adjusting and resetting the layout of workspaces* [▶ Page 65 - *SIDEXIS XG*] and *Creating screenshots of workspaces* [▶ Page 66 - *SIDEXIS XG*].

19.1 WORKFLOW TOOLBAR

The **Workflow toolbar** in SICAT Endo consists of four workflow steps:

1. **Prepare**
2. **Diagnose**
3. **Consult**
4. **Order**

EXPANDING AND COLLAPSING WORKFLOW STEPS

You can expand and collapse workflow steps by clicking on them.

1. “PREPARE” WORKFLOW STEP



The following tools are available in the **Prepare** workflow step:



- **Adjust volume orientation and panoramic region** - For further information see *Adjusting the volume orientation* [▶ Page 90 - SIDEXIS XG] and *Adjusting the panoramic region* [▶ Page 95 - SIDEXIS XG].

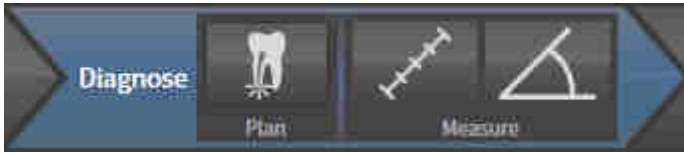


- **Administer and register radiographs** - For further information see *Importing intraoral scans and allocating them to teeth* [▶ Page 110 - SIDEXIS XG], *Pre-positioning intraoral scans* [▶ Page 114 - SIDEXIS XG] and *Registering intraoral scan* [▶ Page 116 - SIDEXIS XG].



- **Import and register optical impressions** - Information on this can be found in the section *Importing and registering optical impressions* [▶ Page 99 - SIDEXIS XG].

2. “DIAGNOSE” WORKFLOW STEP



The following tools are available in the **Diagnose** workflow step:



- **Plan root canal treatment using EndoLines and drill canals** - For further information see *Pre-aligning a tooth region* [▶ Page 133 - SIDEXIS XG], *Placing EndoLines* [▶ Page 135 - SIDEXIS XG] and *Planning drill channels* [▶ Page 144 - SIDEXIS XG].



- **Add distance measurement (D)** - Information on this can be found in the section *Adding distance measurements* [▶ Page 150 - SIDEXIS XG].



- **Add angle measurement (A)** - Information on this can be found in the section *Adding angle measurements* [▶ Page 151 - SIDEXIS XG].

3. “INFORM” WORKFLOW STEP



The following tools are available in the **Consult** workflow step:



- **Draw Arrow** - Information on this can be found in the section *Creating images and screenshots* [▶ Page 156 - SIDEXIS XG].

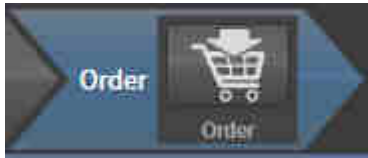


- **Draw Circle** - Information on this can be found in the section *Creating images and screenshots* [▶ Page 156 - SIDEXIS XG].



- **Create report** - Information on this can be found in the section *Preparing handouts* [▶ Page 160 - SIDEXIS XG].

4. "ORDER" WORKFLOW STEP

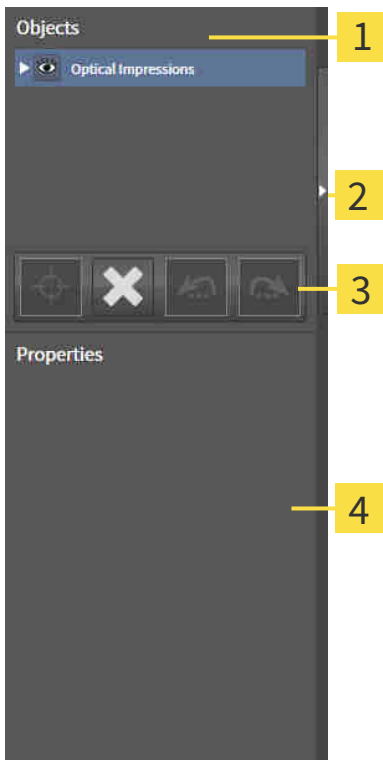


The following tools are available in the **Order** workflow step:



- **Order SICAT GUIDE (ENDO)** - Information on this can be found in the section *Placing surgical guides in the shopping cart* [▶ *Page 167 - SIDEXIS XG*].

19.2 OBJECT BAR



1 Object browser

2 Hide object bar button or Show object bar button

3 Object toolbar

4 Properties area

The **Object bar** contains the following elements:

- The **Object browser** shows a categorized list of all diagnosis objects and planning objects that you have added or imported to the current study. The **Object browser** groups objects automatically. For example, the **Measurements** group contains all measurement objects. You can expand or collapse object groups, activate objects and object groups and show or hide objects and object groups. Information on this can be found in the section *Managing objects with the object browser* [▶ Page 53 - SIDEXIS XG].
- The **Object toolbar** contains tools for focusing objects, removing objects or object groups and undoing or redoing object actions or object group actions. Information on this can be found in the section *Managing objects with the object toolbar* [▶ Page 55 - SIDEXIS XG].
- The **Properties** area shows the details of the active object.

You can change the visibility of the **Object bar** using two buttons on the right side of the **Object bar**: **Hide object bar** and **Show object bar**

The objects available in SICAT Endo can be found in the section *SICAT Endo objects* [▶ Page 56 - SIDEXIS XG].

19.3 MANAGING OBJECTS WITH THE OBJECT BROWSER

COLLAPSING AND EXPANDING OBJECT GROUPS

To collapse or expand an object group, proceed as follows:



The desired object group is currently expanded.



1. Click on the **Collapse** icon next to the desired object group.
 - ▶ The object group collapses.



2. Click on the **Expand** icon next to the desired object group.
 - ▶ The object group expands.

ACTIVATING OBJECTS AND OBJECT GROUPS

Some tools are only available for active objects or object groups.

To activate an object or object group, proceed as follows:

The desired object or the desired object group is currently deactivated.

- Click the desired object or the desired object group.
 - ▶ SICAT Endo deactivates a previously activated object or object group.
 - ▶ SICAT Endo activates the desired object or the desired object group.
 - ▶ SICAT Endo highlights the object or object group in **Object browser** and the views in a certain color.



In the 2D views, you can activate certain objects by clicking on the objects.

HIDING AND SHOWING OBJECTS AND OBJECT GROUPS



This function is available only for certain object types.

To hide and show an object or object group, proceed as follows:

- The desired object or the desired object group is currently shown.



1. Click on the **Shown** icon or **Some Shown** icon next to the desired object or object group.



- ▶ SICAT Endo hides the object or object group.
- ▶ SICAT Endo displays the **Hidden** icon next to the object or object group.



2. Click on the **Hidden** icon next to the desired object or object group.

- ▶ SICAT Endo shows the object or object group.
- ▶ SICAT Endo displays the **Shown** icon next to the object or object group.

19.4 MANAGING OBJECTS WITH THE OBJECT TOOLBAR



These functions are available only for certain object types.

FOCUSING ON OBJECTS

Use this function to find objects in the views.

To focus objects, proceed as follows:

- ☑ The desired object is already active. Information on this can be found in the section *Managing objects with the object browser* [▶ Page 53 - SIDEXIS XG].



- Click on the **Focus active object (F)** icon.
- ▶ SICAT Endo moves the focus point of the views to the active object.
- ▶ SICAT Endo displays the active object in the views.



You can also focus objects by double clicking on them in **Object browser** or in a view with the exception of the **3D** view.

REMOVING OBJECTS AND OBJECT GROUPS

To remove an object or object group, proceed as follows:

- ☑ The desired object or the desired object group is already active. Information on this can be found in the section *Managing objects with the object browser* [▶ Page 53 - SIDEXIS XG].



- Click on the **Remove active object/group (Del)** icon.
- ▶ SICAT Endo removes the object or object group.

UNDOING AND REDOING OBJECT ACTIONS

To undo and redo the last object action or group action, proceed as follows:



1. Click on the **Undo last object/group action (Ctrl+Z)** icon.
 - ▶ SICAT Endo undoes the last object action or group action.



2. Click on the **Redo object/group action (Ctrl+Y)** icon.
 - ▶ SICAT Endo redoes the last undone object action or group action.



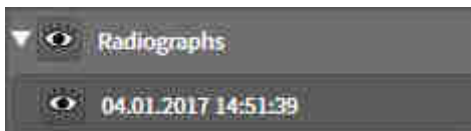
Undo and redo are only available as long as a study is open in a SICAT application.

19.5 SICAT ENDO OBJECTS

SICAT Endo groups application-specific object groups and objects in the **Object browser** as follows:

- **Radiographs**
- **Optical impressions**
- **Endo planning object**
 - **EndoLine**
 - **Drill canal**
- **Image Gallery**
 - **Image**
 - **Screenshot**

INTRAORAL SCANS OBJECT GROUP



After you have imported and registered intraoral scans, SICAT Endo displays a **Radiographs** object group in the **Object browser**. A **Radiographs** object group always consists of at least one intraoral scan. SICAT Endo displays the scan date and the scan time for each intraoral scan.

OPTICAL IMPRESSION OBJECT GROUP



After you have imported and registered at least one optical impression, SICAT Endo displays an **Optical impressions** object group in the **Object browser**. An **Optical impressions** object group may contain the following objects:

- **Maxilla**
- **Mandible**

If you focus on one object, SICAT Endo will focus all 2D views on the selected object.

If you remove a **Maxilla** or a **Mandible** object, SICAT Endo deletes all existing optical impressions from the study.

ENDO PLANNING OBJECT GROUP



After you have planned EndoLines and drill channels, SICAT Endo shows **Endo planning object groups** in the **Object browser**. An **Endo planning object group** is always tooth-specific and contains the results from the EndoLine wizard in form of EndoLines and drill channels. An **Endo planning object group** contains as objects EndoLines and as sub-objects drill channels. Drill channels are always linked to an EndoLine. You can use drill channels to plan your endodontic treatment.

If you focus on one of the objects or sub-objects, SICAT Endo will focus all 2D views on the selected object.

PICTURE GALLERY OBJECT GROUP

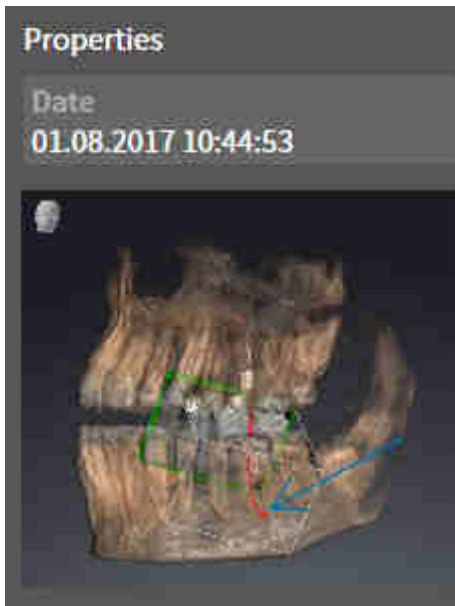


The following applies for **Image Gallery** object groups:



- If you move the mouse pointer over an **Image Gallery** object group, SICAT Endo will display a gear icon. Click on the gear icon and SICAT Endo will open the **Report Generation** window.
- You can use the **Remove active object/group (Del)** function to remove an **Image Gallery** object group. SICAT Endo removes all associated **Image** objects and **Screenshot** objects.

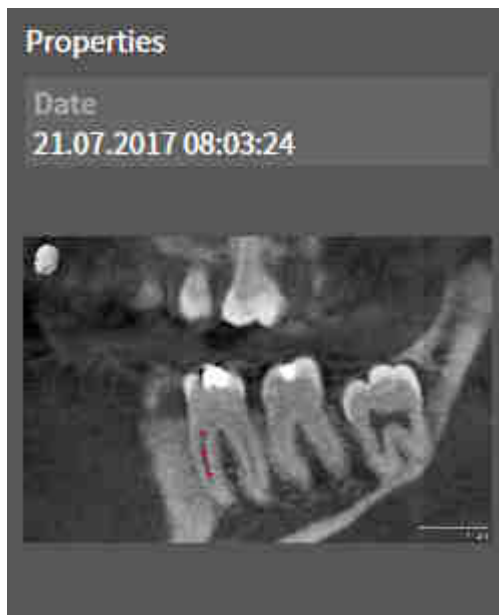
IMAGE OBJECTS



The following applies for **Image** objects:

- **Image** objects are below **Image Gallery** object groups.
- SICAT Endo combines all drawing objects of a slice in a workspace for each 2D view and creates a **Image** object from this.
- SICAT Endo combines all drawing objects of a certain viewing direction and zoom factor in a workspace for the 3D view and creates an **Image** object from this.
- After you have created and activated an **Image** object, the **Object browser** will display the following in the **Properties** area:
 - Creation time of the object
 - Preview of the object
- You can use the **Undo last object/group action (Ctrl+Z)** and **Redo object/group action (Ctrl+Y)** functions for individual annotations.
- You can use the **Remove active object/group (Del)** function to remove a **Image** object and thus all annotations contained in it at once. SICAT Endo removes **Image** objects both from the **Object browser** and from the **Report Generation** window.
- If you focus on an **Image** object, SICAT Endo restores the corresponding view for the time at which you have created the last annotation contained therein.

SCREENSHOT OBJECTS



The following applies for **Screenshot** objects:

- **Screenshot** objects are below **Image Gallery** object groups.
- SICAT Endo creates one **Screenshot** object per screenshot.
- After you have created and activated a **Screenshot** object, the **Object browser** will display the following in the **Properties** area:
 - Creation time of the object
 - Preview of the object
- You can use the **Remove active object/group (Del)** function to remove a **Screenshot** object. SICAT Endo removes **Screenshot** objects both from the **Object browser** and from the **Report Generation** window.
- If you focus on a **Screenshot** object, SICAT Endo restores the corresponding view for the time at which you have created the object.
- The show and hide functions are not available.

20 WORKSPACES

SICAT applications constitute studies in various views and assign combinations of views in workspaces.

SICAT Endo features two different workspaces:

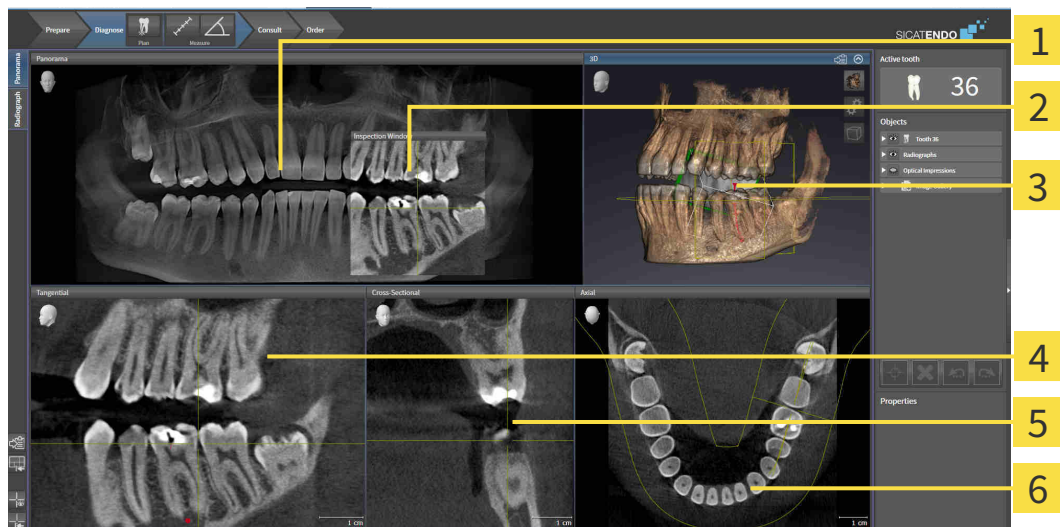


- **Panorama** workspace- Information on this can be found in the section *Overview of the panoramic workspace* [▶ Page 61 - SIDEXIS XG].
- **Intraoral image** workspace- Information on this can be found in the section *Overview of the intraoral scan workspace* [▶ Page 63 - SIDEXIS XG].

The following actions are available for workspaces and the views they contain:

- *Switching the active workspace* [▶ Page 64 - SIDEXIS XG].
- *Adjusting and resetting the layout of workspaces* [▶ Page 65 - SIDEXIS XG].
- *Adjusting the views* [▶ Page 68 - SIDEXIS XG].
- There are additional possibilities to adjust the **3D** view. Information on this can be found in the section *Adjusting the 3D view* [▶ Page 82 - SIDEXIS XG].
- You can document the contents of the active workspace. Information on this can be found in the section *Creating screenshots of workspaces* [▶ Page 66 - SIDEXIS XG].

20.1 OVERVIEW OF THE PANORAMIC WORKSPACE



1 Panorama view

2 Inspection Window

3 3D view

4 Tangential view

5 Cross-Sectional view

6 Axial view

PANORAMA VIEW

The **Panorama** view corresponds to a virtual orthopantomogram (OPG). It shows an orthogonal projection onto the panoramic curve with a certain thickness. You can adjust the panoramic curve and the thickness to both jaws. Information on this can be found in the section *Adjusting the panoramic region* [▶ Page 95 - SIDEXIS XG].

INSPECTION WINDOW

The **Inspection Window** is embedded in the **Panorama** view. It adds the third dimension to the **Panorama** view by showing slices parallel to the panoramic curve. You can hide and show the **Inspection Window**. Information on this can be found in the section *Moving, hiding and showing the inspection window* [▶ Page 78 - SIDEXIS XG].

3D VIEW

The **3D** view shows a 3D representation of the opened study.

TANGENTIAL VIEW

The **Tangential** view shows slices that are tangential to the panoramic curve.

CROSS-SECTIONAL VIEW

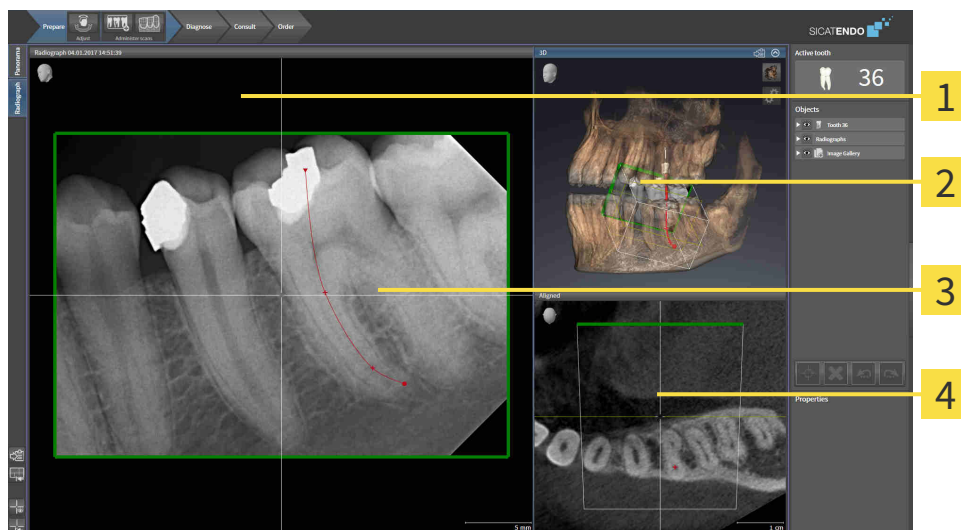
The **Cross-Sectional** view shows slices that are orthogonal to the panoramic curve.

AXIAL VIEW

By default, the **Axial** view shows slices from above. You can switch the viewing direction of the **Axial** view. Information on this can be found in the section *Changing visualization settings* [▶ Page 185 - *SIDEXIS XG*].

You can find information on the functions of the views in the sections *Adjusting the views* [▶ Page 68 - *SIDEXIS XG*] and *Adjusting the 3D view* [▶ Page 82 - *SIDEXIS XG*].

20.2 OVERVIEW OF THE INTRAORAL SCAN WORKSPACE



1 Radiograph view

2 3D view

3 Inspection window

4 Aligned view

RADIOGRAPH VIEW

The **Radiograph** view shows the intraoral scan selected in the object browser.

INSPECTION WINDOW

The **Inspection Window** is embedded in the **Radiograph** view. It adds the third dimension to the **Radiograph** view by showing slices parallel to the intraoral scan. You can hide and show the **Inspection Window** and use it to verify the registration or assess root canals.

3D VIEW

The **3D** view shows a 3D representation of the opened study.

ALIGNED VIEW

By default, the **Aligned** view shows a slice through the intraoral scan that is defined by the position of the crosshairs in the **Radiograph** view.

20.3 SWITCHING THE ACTIVE WORKSPACE

To change the active workspace, proceed as follows:



- Click on the tab of the desired workspace in the upper left corner of the workspace region.
- ▶ The selected workspace opens.

20.4 ADJUSTING AND RESETTING THE LAYOUT OF WORKSPACES

ADJUSTING THE LAYOUT OF THE ACTIVE WORKSPACE

To adjust the layout of the active workspace, proceed as follows:

1. Move the mouse pointer over the border between two or more views.
 - ▶ The mouse pointer changes:



2. Click and hold the left mouse button.
3. Move the mouse.
 - ▶ The position of the border will change.
 - ▶ The sizes of the views on all sides of the border will change.
4. Release the left mouse button.
 - ▶ SICAT Endo maintains the current position of the border and the current sizes of the views on all sides of the border.

RESETTING THE LAYOUT OF THE ACTIVE WORKSPACE

To reset the layout of the active workspace, proceed as follows:



- Click on the **Reset layout of active workspace** icon in the **Workspace toolbar**.
- ▶ SICAT Endo resets the active workspace to the default layout. This means that the software displays all views in their default sizes.

20.5 CREATING SCREENSHOTS OF WORKSPACES

You can copy screenshots of the workspaces to the Windows clipboard for documentation purposes.

COPYING A SCREENSHOT OF A WORKSPACE TO THE WINDOWS CLIPBOARD

To copy a screenshot of a workspace to the Windows clipboard, proceed as follows:

- ☑ The desired workspace is already active. Information on this can be found in the section *Switching the active workspace* [▶ Page 64 - SIDEXIS XG].



- Click on the **Copy screenshot of active workspace to clipboard** icon in the workspace toolbar.
- ▶ SICAT Endo copies a screenshot of a workspace to the Windows clipboard.



You can add screenshots from the clipboard to several applications, such as image processing software and word processors. In most applications, the paste shortcut key is Ctrl+V.

21 VIEWS

Views are contained in workspaces. A description of the various workspaces and views can be found under *Workspaces* [▶ Page 60 - *SIDEXIS XG*].

You can adjust the views. For further information about this see *Adjusting the views* [▶ Page 68 - *SIDEXIS XG*] and *Adjusting the 3D view* [▶ Page 82 - *SIDEXIS XG*].

21.1 ADJUSTING THE VIEWS

Some tools to adjust the views are only available for the active view. Information on how to activate a view can be found under *Changing the active view* [► Page 70 - *SIDEXIS XG*].

An active view contains the following elements:



- 1** Title bar
- 2** Orientation head
- 3** View toolbar
- 4** Crosshairs
- 5** Scale

2D slice views display crosshairs. Crosshairs are lines of intersection with other slice views. SICAT Endo synchronizes all slice views with each other. This means that all crosshairs show the same position within the 3D X-ray data. You can use this to match anatomical structures beyond the views.

The **3D** view shows frames, which illustrate the current position of the 2D slice views.

The following actions are available to adjust the views:

- *Changing the active view* [▶ Page 70 - SIDEXIS XG]
- *Maximizing and restoring views* [▶ Page 72 - SIDEXIS XG]
- *Adjusting and resetting the brightness and contrast of the 2D views* [▶ Page 73 - SIDEXIS XG]
- *Zooming views and panning views* [▶ Page 75 - SIDEXIS XG]
- *Scrolling through slices in the 2D slice views* [▶ Page 76 - SIDEXIS XG]
- *Moving, hiding and showing crosshairs and frames* [▶ Page 77 - SIDEXIS XG]
- *Moving, hiding and showing the inspection window* [▶ Page 78 - SIDEXIS XG]
- *Resetting views* [▶ Page 80 - SIDEXIS XG]

There are additional possibilities to adjust the **3D** view. Information on this can be found in the section *Adjusting the 3D view* [▶ Page 82 - SIDEXIS XG].

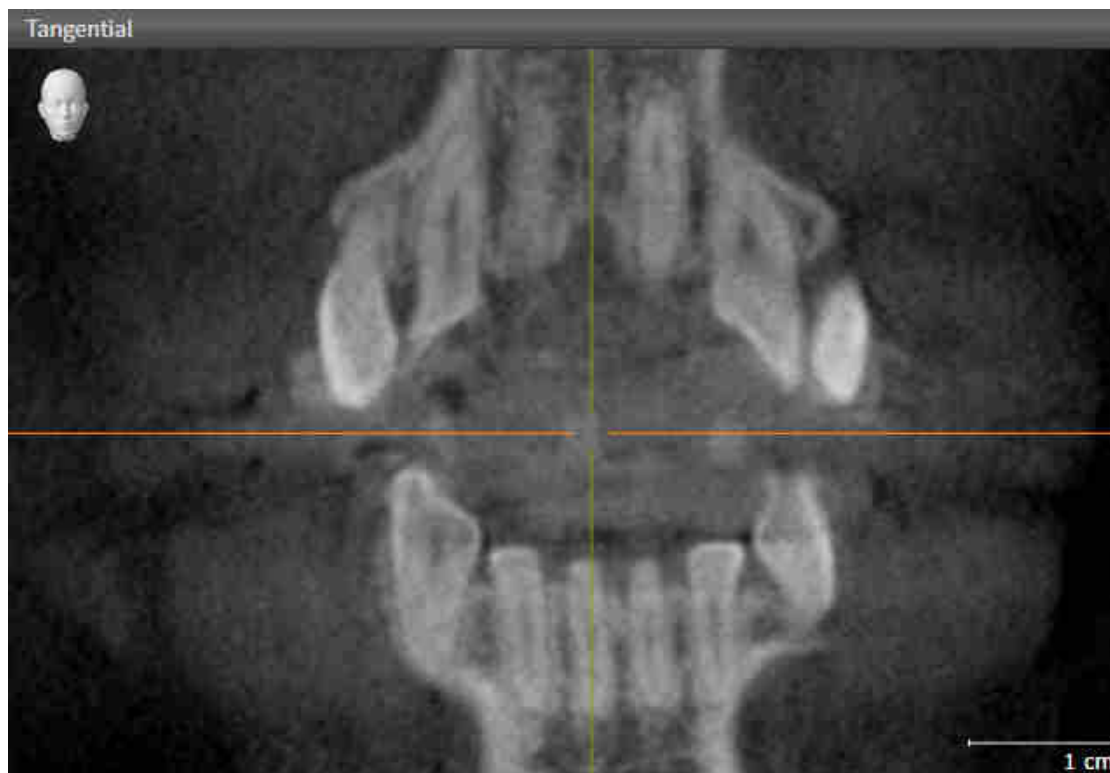
You can document the content of an active view. Information on this can be found in the section *Creating screenshots of views* [▶ Page 81 - SIDEXIS XG].

21.2 CHANGING THE ACTIVE VIEW

Only the active view shows the **View toolbar** and the title bar.

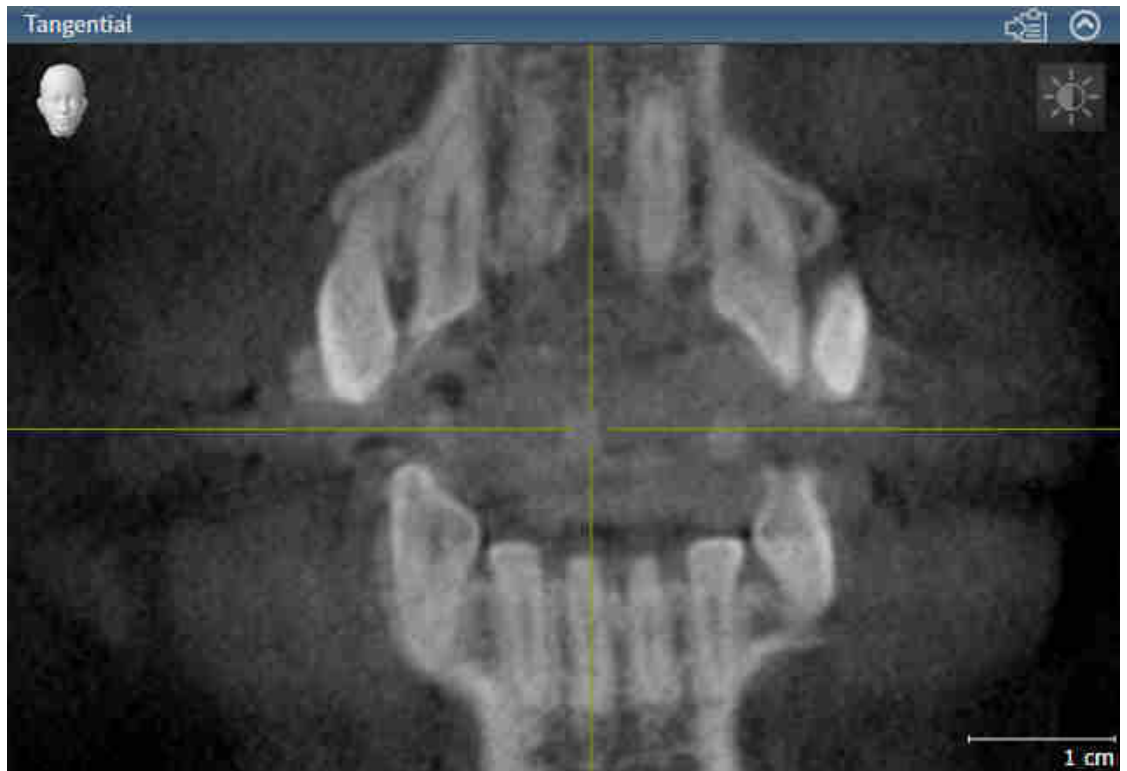
To activate a view, proceed as follows:

1. Place the mouse pointer over the desired view:



2. Click the desired view.

► SICAT Endo activates the view:



You can identify the activated view by the orange title bar.

21.3 MAXIMIZING AND RESTORING VIEWS

To maximize a view and restore it to its previous size, proceed as follows:

- ☑ The desired view is already active. Information on this can be found in the section *Changing the active view* [▶ *Page 70 - SIDEXIS XG*].
- ☑ The desired view is not maximized.



1. Click on the **Maximize** icon in the title bar of the desired view.

▶ SICAT Endo maximizes the view.



2. Click on the **Restore** icon in the title bar of the maximized view.

▶ SICAT Endo restores the view to its previous size.



The following alternatives are available to maximize views and restore them to their previous size:

- To maximize a view, you can also double click on the title bar of the view you require.
- To restore a view to its previous size, you can also double click on the title bar of the maximized view.

21.4 ADJUSTING AND RESETTING THE BRIGHTNESS AND CONTRAST OF THE 2D VIEWS

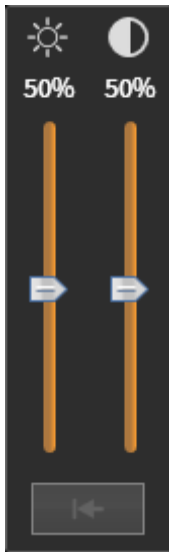
To adjust the brightness and contrast of a 2D view, proceed as follows:

- ☑ The desired 2D view is already active. Information on this can be found in the section *Changing the active view* [▶ Page 70 - SIDEKIS XG].



1. Place the mouse pointer over the **Adjust brightness and contrast** icon in the **View toolbar** of the 2D view.

▶ The transparent **Adjust brightness and contrast** window opens:



2. Move the mouse pointer over the **Brightness** slider.
3. Click and hold the left mouse button and move the mouse up or down.
 - ▶ SICAT Endo adjusts the brightness of the 2D view according to the position of the **Brightness** slider.
4. Release the left mouse button.
 - ▶ SICAT Endo maintains the current brightness of the 2D view.



5. Move the mouse pointer over the **Contrast** slider.
6. Click and hold the left mouse button and move the mouse up or down.
 - ▶ SICAT Endo adjusts the contrast of the 2D view according to the position of the **Contrast** slider.
7. Release the left mouse button.
 - ▶ SICAT Endo maintains the current contrast of the 2D view.
8. Move the mouse pointer out of the transparent **Adjust brightness and contrast** window.
 - ▶ The transparent **Adjust brightness and contrast** window closes.

To reset the brightness and contrast of the 2D view to the default values, click on the **Reset brightness and contrast** icon.



The brightness and contrast of all 2D slice views are linked together.

21.5 ZOOMING VIEWS AND PANNING VIEWS

ZOOMING A VIEW

Zooming magnifies or shrinks the contents of a view.

To zoom a view, proceed as follows:

1. Place the mouse pointer over the desired view.
 - ▶ The view will zoom in.
2. Move the mouse wheel forwards.
 - ▶ The view will zoom in.
3. Move the mouse wheel backwards.
 - ▶ The view will zoom out.



Alternatively, you can click on the mouse wheel and move the mouse up and down to zoom in or out.

PANNING A VIEW

To move a section in a view, proceed as follows:

1. Place the mouse pointer over the desired view.
 - ▶ The mouse pointer changes.
2. Press and hold down the right mouse button.
 - ▶ The section in the view will move according to the movement of the mouse pointer.
3. Move the mouse.
 - ▶ The section in the view will move according to the movement of the mouse pointer.
4. Release the right mouse button.
 - ▶ SICAT Endo maintains the current position of the view.

21.6 SCROLLING THROUGH SLICES IN THE 2D SLICE VIEWS

To scroll through slices in a 2D slice view, proceed as follows:

1. Move the mouse pointer over the desired 2D slice view.
2. Click and hold the left mouse button.
 - ▶ The mouse pointer becomes a two-way arrow.
3. Move the mouse up or down as desired.
 - ▶ With the exception of the **Cross-Sectional** slice, all slices move in parallel.
 - ▶ The **Cross-Sectional** slice moves along the panoramic curve.
 - ▶ SICAT Endo adjusts the slices and crosshairs of other views according to the current focus point.
 - ▶ SICAT Endo adjusts the frames of the **3D** views according to the current focus point.
4. Release the left mouse button.
 - ▶ SICAT Endo maintains the current slice.

21.7 MOVING, HIDING AND SHOWING CROSSHAIRS AND FRAMES

MOVING A CROSSHAIR

To move the crosshair in a 2D slice view, proceed as follows:

All crosshairs and frames are currently shown.

1. Move the mouse pointer in the view you require to the middle of the crosshair.

▶ The mouse pointer becomes a crosshair:



2. Click and hold the left mouse button.

3. Move the mouse.

▶ The crosshair in the view will track the movements of the mouse.

▶ SICAT Endo adjusts the slices and crosshairs of other views according to the current focus point.

▶ SICAT Endo adjusts the frames of the **3D** views according to the current focus point.

4. Release the left mouse button.

▶ SICAT Endo maintains the current position of the crosshair.



To immediately move the crosshair to the position of the mouse pointer, you can also double click in a 2D view.

HIDING AND SHOWING CROSSHAIRS AND FRAMES

To hide and show all crosshairs and frames, proceed as follows:

All crosshairs and frames are currently shown.



1. Click on the **Hide crosshairs and frames** icon in the **Workspace toolbar**.

▶ SICAT Endo hides the crosshairs in all 2D slice views.

▶ SICAT Endo hides the frames in the **3D** view.



2. Click on the **Show crosshairs and frames** icon.

▶ SICAT Endo shows the crosshairs in all 2D slice views.

▶ SICAT Endo shows the frames in the **3D** view.

21.8 MOVING, HIDING AND SHOWING THE INSPECTION WINDOW

MOVING THE INSPECTION WINDOW

To move the **Inspection Window**, proceed as follows:

- ☑ The **Panorama** workspace or the **Radiograph** workspace is already open. Information on this can be found in the section *Switching the active workspace* [▶ Page 64 - *SIDEXIS XG*].
- ☑ The **Inspection Window** is already shown:



1. Place the mouse pointer on the **Inspection Window** title bar in the **Panorama** view or the **Radiograph** view.
 - ▶ The mouse pointer becomes a hand.
2. Click and hold the left mouse button.
3. Move the mouse.
 - ▶ The **Inspection Window** tracks the movement of the mouse pointer.
 - ▶ SICAT Endo adjusts the slices and crosshairs of other views according to the current focus point.
 - ▶ SICAT Endo adjusts the frames of the **3D** view according to the current focus point.
4. Release the left mouse button.
 - ▶ SICAT Endo maintains the current **Inspection Window** position.

HIDING AND SHOWING THE INSPECTION WINDOW



The icon that displays whether the **Inspection Window** is hidden or shown, is simultaneously a status display and a switch.

To hide and show the **Inspection Window**, proceed as follows:

- ✓ The **Panorama** workspace or the **Radiograph** workspace is already open. Information on this can be found in the section *Switching the active workspace* [▶ Page 64 - SIDEXIS XG].
- ✓ The **Inspection Window** is already shown.



1. Click on the **Hide inspection window** icon in the **View toolbar** of the **Panorama** view or the **Radiograph** view.

▶ SICAT Endo hides the **Inspection Window**.



2. Click on the **Show inspection window** icon in the **View toolbar** of the **Panorama** view or the **Radiograph** view.

▶ SICAT Endo shows the **Inspection Window**.

21.9 RESETTING VIEWS

To reset all views, proceed as follows:



- Click on the **Reset views** icon in the **Workspace toolbar**.
- ▶ SICAT Endo resets all views to the default values for zoom, panning, scrolling, moving the crosshairs and moving the **Inspection Window**.
- ▶ SICAT Endo resets the viewing direction of the **3D** view to the default value.

21.10 CREATING SCREENSHOTS OF VIEWS

You can take screenshots of the views to document them and output screenshots in the following ways:

- Exporting to the current SIDEXIS XG examination.
- Copying to the Windows clipboard.

EXPORTING A SCREENSHOT OF A VIEW TO THE CURRENT SIDEXIS EXAMINATION

To export a screenshot of a view to the current SIDEXIS examination, proceed as follows:

- ☑ The desired view is already active. Information on this can be found in the section *Changing the active view* [▶ *Page 70 - SIDEXIS XG*].



- Click on the **Export screenshot to current SIDEXIS exam** icon in the title bar of the view.
- ▶ SICAT Endo exports a screenshot of a view to the current SIDEXIS examination.

If you open a screenshot which you have created in a SICAT application in SIDEXIS XG, the SICAT application starts with the corresponding study.

COPYING A SCREENSHOT OF A VIEW TO THE WINDOWS CLIPBOARD

To copy a screenshot of a view to the Windows clipboard, proceed as follows:

- ☑ The desired view is already active. Information on this can be found in the section *Changing the active view* [▶ *Page 70 - SIDEXIS XG*].



- Click on the **Copy screenshot to clipboard (Ctrl+C)** icon in the title bar of the view.
- ▶ SICAT Endo copies a screenshot of the view to the Windows clipboard.



You can add screenshots from the clipboard to several applications, such as image processing software and word processors. In most applications, the paste shortcut key is Ctrl+V.

22 ADJUSTING THE 3D VIEW

You can change the direction of the **3D** view at any time. Information on this can be found in the section *Changing the direction of the 3D view* [▶ Page 83 - SIDEXIS XG].

The following actions are available to configure the **3D** view:

- *Switching the display mode of the 3D view* [▶ Page 84 - SIDEXIS XG]
- *Configuring the active display mode of the 3D view* [▶ Page 85 - SIDEXIS XG]
- *Rotating the 3D view* [▶ Page 141 - SIDEXIS XG]

22.1 CHANGING THE DIRECTION OF THE 3D VIEW

There are two ways to change the direction of the **3D** view:

- Interactive changes
- Selecting a standard viewing direction

INTERACTIVELY CHANGING THE DIRECTION OF THE 3D VIEW

To interactively change the direction of the **3D** view, proceed as follows:

1. Place the mouse pointer on the **3D** view.
2. Click and hold the left mouse button.
 - ▶ The mouse pointer becomes a hand.
3. Move the mouse.
 - ▶ The viewing direction changes according to the movement of the mouse.
4. Release the left mouse button.
 - ▶ SICAT Endo keeps the current viewing direction of the **3D** view.

SELECTING A STANDARD VIEWING DIRECTION

To select a standard viewing direction in the **3D** view, proceed as follows:



1. Place the mouse pointer over the Orientation head icon in the top left corner of the **3D** view.
 - ▶ The transparent **Viewing direction** window opens:



- ▶ In the middle of the transparent **Viewing direction** window, the highlighted Orientation head shows the current viewing direction.
2. Click on the Orientation head icon that shows the desired standard viewing direction.
 - ▶ The direction of the **3D** view changes according to your selection.
 3. Move the mouse pointer out of the transparent **Viewing direction** window.
 - ▶ The transparent **Viewing direction** window closes.

22.3 CONFIGURING THE ACTIVE DISPLAY MODE OF THE 3D VIEW



Only configurable display modes show the **Configure active display mode** icon. The transparent **Configure active display mode** window only shows the settings that are relevant for the active display mode.

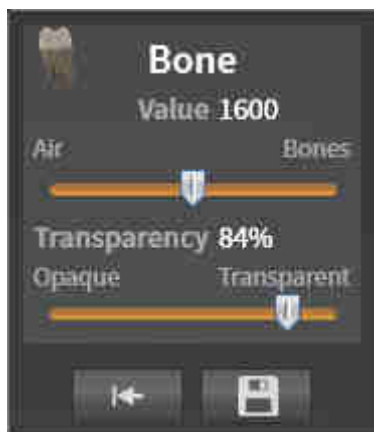
To configure the active display mode of the **3D** view, proceed as follows:

- ☑ The **3D** view is already active. Information on this can be found in the section *Changing the active view* [▶ Page 70 - SIDEXIS XG].
- ☑ The desired display mode is already active. Information on this can be found in the section *Switching the display mode of the 3D view* [▶ Page 84 - SIDEXIS XG].
- ☑ The active display mode is configurable.



1. Place the mouse pointer over the **Configure active display mode** icon in the **View toolbar** of the **3D** view.

▶ The transparent **Configure active display mode** window opens:



2. Move the slider you require.
 - ▶ SICAT Endo adjusts the **3D** view according to the position of the slider.
3. Where available, click on the arrow icon next to **.Advanced options**.
 - ▶ The **Advanced options** area expands.
4. Activate or deactivate the available check box.
 - ▶ SICAT Endo adjusts the **3D** view according to the status of the check box.
5. Move the slider you require.
 - ▶ SICAT Endo adjusts the **3D** view according to the position of the slider.
6. Move the mouse pointer out of the transparent **Configure active display mode** window.
 - ▶ The transparent **Configure active display mode** window closes.



You can reset to the default settings by clicking the **Reset configuration of active display mode to default values** button.



You can save the current settings as default settings by clicking the **Save configuration of active display mode as default values** button.

22.4 CHANGING THE CLIPPING MODE OF THE 3D VIEW

To change the clipping mode of the **3D** view, proceed as follows:

☑ The **3D** view is already active. Information on this can be found in the section *Changing the active view* [▶ Page 70 - *SIDEXIS XG*].

1. Place the mouse pointer over the **Switch clipping mode** icon in the **View toolbar** of the **3D** view.

▶ The transparent **Switch clipping mode** window opens:



2. Click on the icon of the desired clipping mode.

▶ SICAT Endo activates the desired clipping mode.

3. Move the mouse pointer out of the transparent **Switch clipping mode** window.

▶ The transparent **Switch clipping mode** window closes.

23 VOLUME ORIENTATION AND PANORAMIC REGION



If an adjustment of the volume orientation is required, perform this when starting work on the 3D X-ray scan. If you adjust the volume orientation later, you may have to repeat your diagnosis or planning under certain circumstances.

VOLUME ORIENTATION

You can adjust the volume orientation for all views by rotating the volume around the three principal axes. This may be necessary in the following cases:

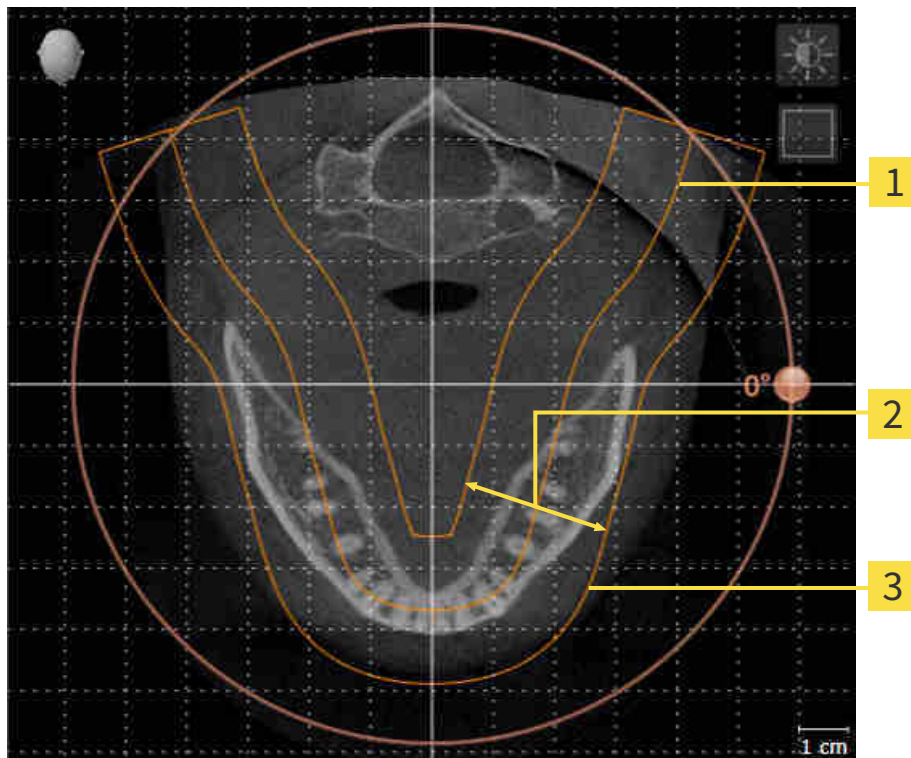
- Sub-optimal positioning of the patient during the 3D X-ray scan
- Orientation according to case, for example orientation of the axial slices parallel to the Frankfurt plane or parallel to the bite plane
- Optimizing the panorama view

If you adjust the volume orientation in SICAT Endo, all other SICAT applications adopt your changes.

Information on how to adjust the volume orientation can be found in the section *Adjusting the volume orientation* [▶ Page 90 - SIDEXIS XG].

PANORAMIC REGION

SICAT Endo calculates the **Panorama** view on the basis of the volume and panoramic region. To optimize the **Panorama** view, you should adjust the panoramic region to both jaws of the patient. This is vital for effective and efficient diagnosis and treatment planning.



1 Panoramic curve

2 Thickness

3 Panoramic region

The panoramic region is defined by the two following components:

- Shape and position of the panoramic curve
- Thickness of the panoramic region

Both of the following conditions must be met to optimally adjust the panoramic region:

- The panoramic region must contain all teeth and both jaws in full.
- The panoramic region should be as thin as possible.

If you adjust the panoramic region in SICAT Endo, all other SICAT applications adopt your changes.

Information on adjusting the panoramic region can be found in the section *Adjusting the panoramic region* [► Page 95 - SIDEXIS XG].

23.1 ADJUSTING THE VOLUME ORIENTATION

General information on volume orientation can be found in the section *Volume orientation and panoramic region* [▶ Page 88 - SIDEXIS XG].

The adjustment of the volume orientation consists of the following steps:

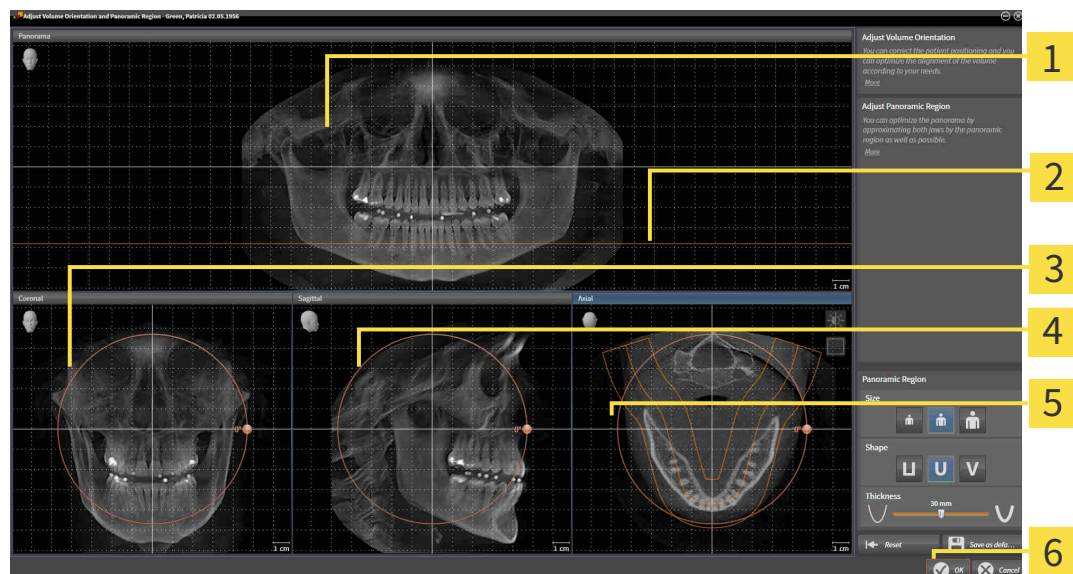
- Opening the **Adjust Volume Orientation and Panoramic Region** window
- Rotating volumes in the **Coronal** view
- Rotating volumes in the **Sagittal** view
- Rotating volumes in the **Axial** view

OPENING THE "ADJUST VOLUME ORIENTATION AND PANORAMIC REGION" WINDOW

- ☑ The **Prepare** workflow step is already expanded.



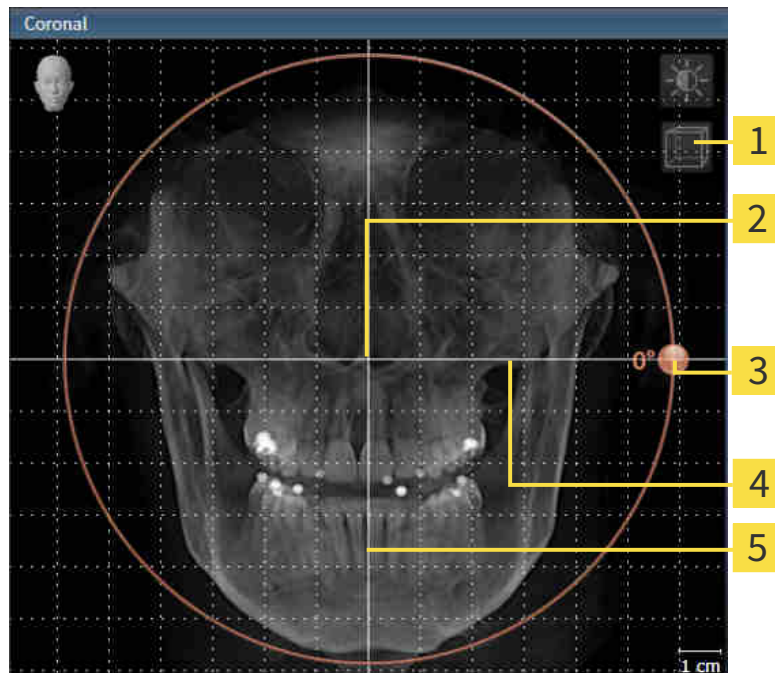
- Click on the **Adjust volume orientation and panoramic region** icon.
- ▶ The **Adjust Volume Orientation and Panoramic Region** window opens:



- | | |
|---|--|
| 1 Panorama view | 4 Sagittal view with Rotation slider |
| 2 Axial reference line | 5 Axial view with Rotation slider |
| 3 Coronal view with Rotation slider | 6 OK button |

ROTATING VOLUMES IN THE CORONAL VIEW

1. Activate the **Coronal** view:

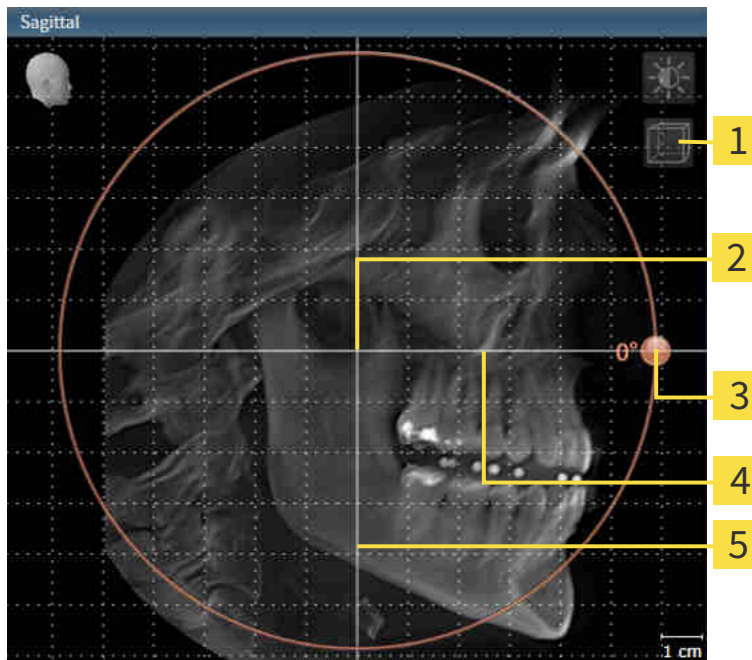


- | | |
|---|------------------------------------|
| 1 Enable slices mode icon or Enable projection mode icon | 4 Horizontal reference line |
| 2 Center of rotation | 5 Vertical reference line |
| 3 Rotation slider | |

2. Make sure that the projection mode is active. Click on the **Enable projection mode** icon if necessary.
3. Place the mouse pointer on the **Rotation** slider.
4. Click and hold the left mouse button.
5. Move the **Rotation** slider along the circle in the desired direction.
 - ▶ SICAT Endo rotates the volume in the **Coronal** view in a circle around the center of rotation and in the other views accordingly.
6. Release the left mouse button when you have reached the desired rotation of the volume. Orientate yourself using the horizontal reference lines, the vertical reference lines and the grid.

ROTATING VOLUMES IN THE SAGITTAL VIEW

1. Activate the **Sagittal** view:

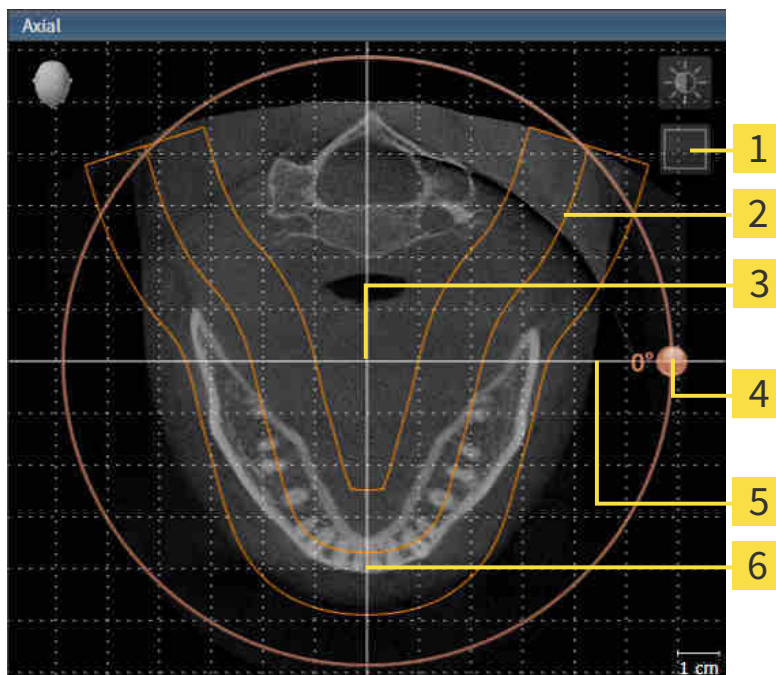


- | | |
|---|------------------------------------|
| 1 Enable slices mode icon or Enable projection mode icon | 4 Horizontal reference line |
| 2 Center of rotation | 5 Vertical reference line |
| 3 Rotation slider | |

2. Make sure that the projection mode is active. Click on the **Enable projection mode** icon if necessary.
3. Place the mouse pointer on the **Rotation** slider.
4. Click and hold the left mouse button.
5. Move the **Rotation** slider along the circle in the desired direction.
 - ▶ SICAT Endo rotates the volume in the **Sagittal** view in a circle around the center of rotation and in the other views accordingly.
6. Release the left mouse button when you have reached the desired rotation of the volume. Orientate yourself using the horizontal reference lines, the vertical reference lines and the grid.

ROTATING VOLUMES IN THE AXIAL VIEW

1. Activate the **Axial** view:



- | | |
|---|------------------------------------|
| 1 Enable projection mode icon or Enable slices mode icon | 4 Rotation slider |
| 2 Panoramic region | 5 Horizontal reference line |
| 3 Center of rotation | 6 Vertical reference line |

2. Make sure that the slice mode is active. Click on the **Enable slices mode** icon if necessary.
3. Scroll to a slice with the roots of the mandibular teeth, for example by left clicking on the axial reference lines in the panorama view and hold the left button as you move the mouse up or down as desired.
4. Where necessary, move the panoramic region in the **Axial** view by left clicking on the panorama view and holding the left button as you move the mouse. SICAT Endo moves the center of rotation, the horizontal reference lines and the vertical reference lines accordingly.
5. Place the mouse pointer on the **Rotation** slider.
6. Click and hold the left mouse button.
7. Move the **Rotation** slider along the circle in the desired direction.
 - SICAT Endo rotates the volume in the **Axial** view in a circle around the center of rotation and in the other views accordingly.
8. Release the left mouse button when you have reached the desired rotation of the volume. Orientate yourself using the panoramic region, the horizontal reference lines, vertical reference lines and the grid.
9. To save your changes, click **OK**.

- ▶ If the change of the volume orientation affects existing objects in SICAT applications, SICAT Endo opens a message window which states the exact impact.
10. If you still want to adjust the volume orientation, click on the **Adjust** button in the message window.
- ▶ SICAT Endo saves the altered volume orientation and displays the volume with the corresponding orientation in all views.



In addition to the described process, the following actions are available in the **Adjust Volume Orientation and Panoramic Region** window:

- You can adjust the brightness and contrast of a 2D image by activating the desired view and clicking the **Adjust brightness and contrast** icon. Information on this can be found in the section *Adjusting and resetting the brightness and contrast of the 2D views* [▶ Page 73 - SIDEXIS XG].
- You can zoom in the views. SICAT Endo synchronizes the zoom between the views with the exception of the **Axial** view.
- To reset the volume orientation and panoramic region, click on the **Reset** button.
- To save the current volume orientation and panoramic region as a default, click on the **Save as default** button.
- If you do not want to save your changes, click **Cancel**.

23.2 ADJUSTING THE PANORAMIC REGION

General information on the panoramic region can be found in the section *Volume orientation and panoramic region* [► Page 88 - SIDEXIS XG].

The adjustment of the panoramic region consists of the following steps:

- Opening the **Adjust Volume Orientation and Panoramic Region** window
- Adjusting the slice position of the **Axial** view
- Moving the panoramic region
- Rotating volumes in the **Axial** view
- Adjusting **Size**, **Shape** and **Thickness** of the panoramic region

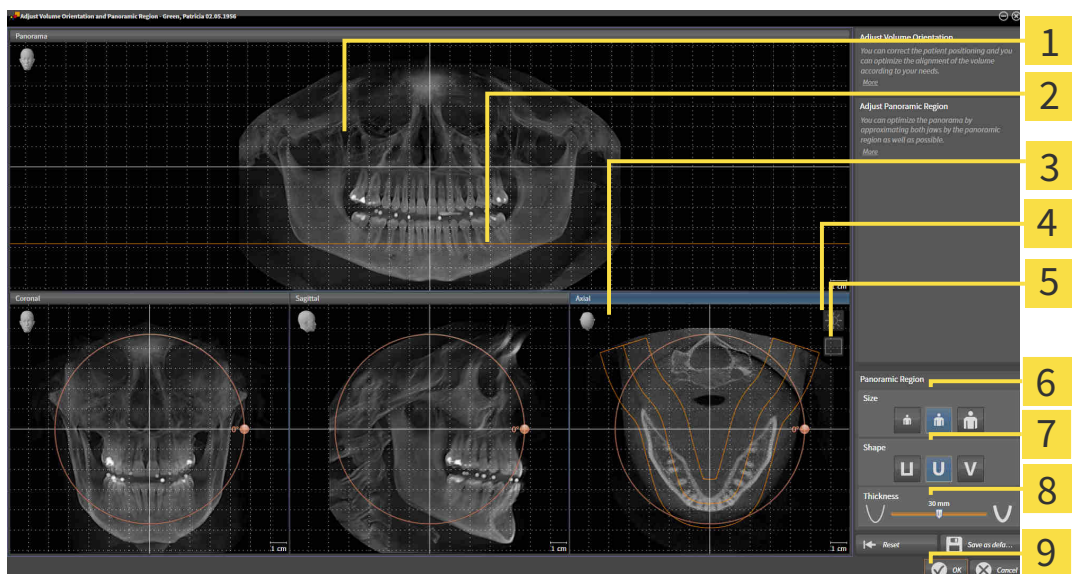
OPENING THE "ADJUST VOLUME ORIENTATION AND PANORAMIC REGION" WINDOW

- ☑ The **Prepare** workflow step is already expanded.



- Click on the **Adjust volume orientation and panoramic region** icon.

- The **Adjust Volume Orientation and Panoramic Region** window opens:



- | | |
|---|---------------------------|
| 1 Panorama view | 6 Size buttons |
| 2 Axial reference line | 7 Shape buttons |
| 3 Axial view with Rotation slider | 8 Thickness slider |
| 4 Adjust brightness and contrast icon | 9 OK button |
| 5 Enable projection mode icon or Enable slices mode icon | |

ADJUSTING THE SLICE POSITION OF THE AXIAL VIEW



1. Make sure that the slice mode of the **Axial** view is active. Click on the **Enable slices mode** icon if necessary.
2. Place the mouse pointer on the axial reference line in the **Panorama** view. The axial reference line illustrates the current slice position of the **Axial** view.
3. Click and hold the left mouse button.
4. Move the mouse up or down as desired.
 - ▶ The slice in the **Axial** view will change according to the position of the axial reference lines in the **Panorama** view.
5. When the axial reference line is on the roots of the mandibular teeth, release the left mouse button.
 - ▶ The **Axial** view maintains the current slice.

MOVING THE PANORAMIC REGION

1. Place the mouse pointer on the panoramic region in the **Axial** view.
2. Click and hold the left mouse button.
 - ▶ The mouse pointer changes.
3. Move the mouse.
 - ▶ SICAT Endo moves the panoramic region according to the position of the mouse pointer.
4. When the central curve of the panoramic region is on the roots of the mandibular teeth, release the left mouse button.
 - ▶ The panoramic region will remain in its current position.

ROTATING VOLUMES IN THE AXIAL VIEW

1. Place the mouse pointer on the **Rotation** slider in the **Axial** view.
2. Click and hold the left mouse button.
3. Move the **Rotation** slider along the circle in the direction you require.
 - ▶ SICAT Endo rotates the volume in the **Axial** view in a circle accordingly around the center of rotation and in the other views accordingly.
4. When the roots of the mandibular teeth follow the central curve of the panoramic region, release the left mouse button.

ADJUSTING THE SIZE, SHAPE AND THICKNESS OF THE PANORAMIC REGION



1. Select the **Size** of the panoramic region that best reflects the mandible of the patient by clicking on the corresponding **Size** button.



2. Select the **Shape** of the panoramic region that best reflects the mandible of the patient by clicking on the corresponding **Shape** button.



3. Make sure that the projection mode of the **Axial** view is active. Click on the **Enable projection mode** icon if necessary.



4. Select the **Thickness** of the panoramic region by moving the **Thickness** slider. Make sure that the panoramic region contains all teeth and both jaws in full. Keep the thickness as low as possible.

5. To save your changes, click **OK**.

- SICAT Endo saves the altered volume orientation and altered panoramic region and displays the **Panorama** view accordingly.

In addition to the described process, the following actions are available in the **Adjust Volume Orientation and Panoramic Region** window:



- You can adjust the brightness and contrast of a 2D image by activating the desired view and clicking the **Adjust brightness and contrast** icon. Information on this can be found in the section *Adjusting and resetting the brightness and contrast of the 2D views* [▶ Page 73 - SIDEXIS XG].
- You can zoom in the views. SICAT Endo synchronizes the zoom between the views with the exception of the **Axial** view.
- To reset the volume orientation and panoramic region, click on the **Reset** button.
- To save the current volume orientation and panoramic region as a default, click on the **Save as default** button.
- If you do not want to save your changes, click **Cancel**.

24 OPTICAL IMPRESSIONS



You can import and register optical impressions only for X-ray data that has been created by Sirona 3D-X-ray devices.

SICAT Endo can show matching X-ray data and optical impressions for the same patient simultaneously. The combined illustration provides additional information for analysis and diagnosis. In addition, the treatment implementation is based on optical impressions.

The following actions are required to use data with optical impressions in SICAT Endo:

- Registering optical impressions on X-ray data

SICAT Endo supports the following file formats for optical impressions:

- SIXD files which contain an optical impression of the maxilla and an optical impression of the mandible
- SSI files which contain an optical impression of the maxilla and an optical impression of the mandible
- STL files which contain an optical impression of the maxilla or an optical impression of the mandible (**SICAT Suite STL Import** license required)

The following tools are available for optical impressions:

- *Importing and registering optical impressions* [▶ Page 99 - SIDEXIS XG]
- *Re-using optical impressions from other SICAT applications* [▶ Page 105 - SIDEXIS XG]
- Activating, hiding and showing optical impressions - Information on this can be found in the section *Managing objects with the object browser* [▶ Page 53 - SIDEXIS XG].
- Focusing on optical impressions and removing optical impressions – Information on this can be found in the section *Managing objects with the object toolbar* [▶ Page 55 - SIDEXIS XG].

Optical impressions in STL format require additional steps during import. Information on this can be found in the section *Additional steps for optical impressions in STL format* [▶ Page 104 - SIDEXIS XG].

24.1 IMPORTING AND REGISTERING OPTICAL IMPRESSIONS



The use of other data as 3D X-ray scans as a lone source of information may result in an incorrect diagnosis and treatment.

1. Use 3D X-ray scans as a preferred source of information for diagnosis and planning.
2. Use other data, such as optical impressions, only as an auxiliary source of information.



Inappropriate optical impression devices could result in incorrect diagnosis and treatment.

Only use optical impression data from devices cleared as medical devices.



Optical impression data that does not match patient and date of 3D X-ray data could result in incorrect diagnosis and treatment.

Make sure the patient and date of the imported optical impression data match the patient and date of the visualized 3D X-ray data.



Insufficient integrity or quality of optical impressions may result in an incorrect diagnosis and treatment.

Check the integrity and quality of the optical impressions imported.



Insufficient integrity and precision of optical impressions may result in an incorrect diagnosis and treatment.

Only use optical impressions of a sufficient quality and precision for the intended diagnosis and treatment.



Excessive artifacts, insufficient resolution or the lack of points for registration may mean that the registration process for optical impressions fails. Examples of excessive artifacts in 3D X-ray scans include movement artifacts and metal artifacts.

Only use optical impression data and 3D X-ray data that allow for an adequate registration.



The selection of markings in the registration process for optical impressions that do not correspond to one another may result in an incorrect diagnosis and treatment.

When you register optical impressions, carefully select corresponding markings in the 3D X-ray scans and optical impressions.



The incorrect registration of optical impressions for 3D X-ray scans may result in an incorrect diagnosis and treatment.

Check that the registered optical impressions are correctly aligned to the 3D X-ray scans.

i To enable you to check whether 3D X-ray data and optical impressions match, the **Import and register optical impressions** wizard always shows the patient data and ignores the **Anonymize** setting.

i You can use the **Inspection Window** to check whether an optical impression is precisely aligned to the X-ray data. You can move the **Inspection Window** and scroll through the slices in the **Inspection Window**.

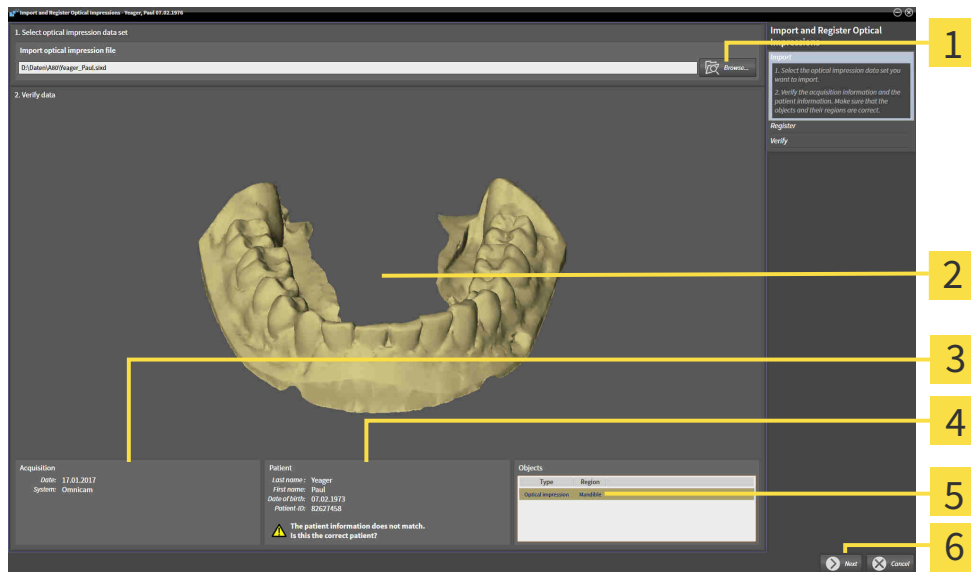
General information on optical impressions can be found in the section *Optical impressions* [▶ Page 98 - *SIDEXIS XG*].

To import and register an optical impression, proceed as follows:

- ☑ The **Prepare** workflow step is already expanded.



1. Click on the **Import and register optical impressions** icon.
 - ▶ The **Import and register optical impressions** wizard opens with the **Import** step.
2. Click on the **Browse** button.
 - ▶ The **Open Optical Impression File** window opens.
3. In the **Open Optical Impression File** window, select the desired optical impression file and click on **Open**.
 - ▶ The **Open Optical Impression File** window closes.
 - ▶ SICAT Endo opens the selected optical impression file:

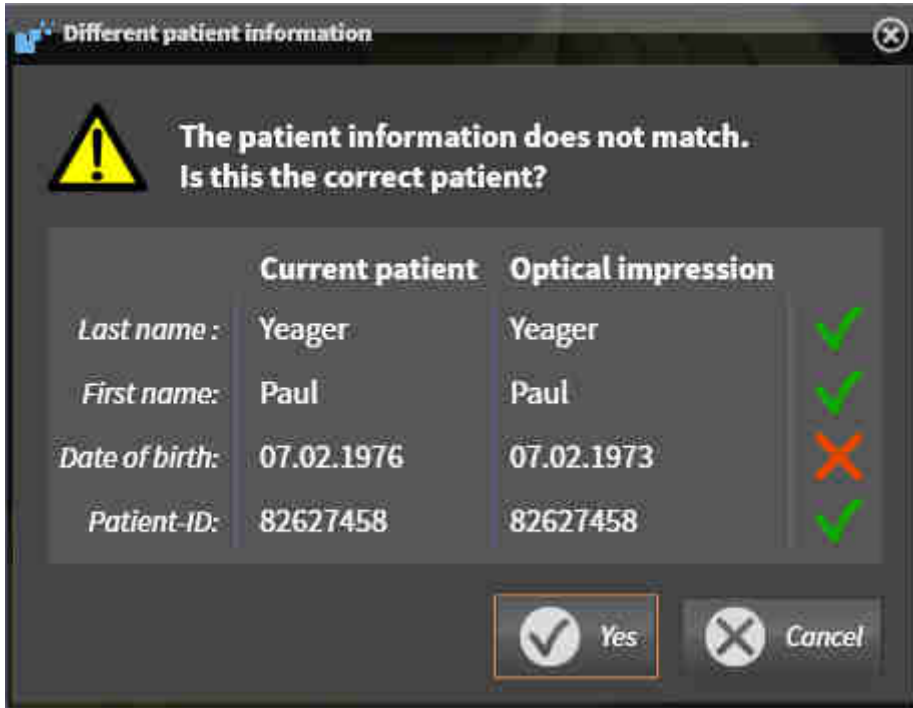


- | | |
|--|------------------------------|
| 1 Import optical impression file area | 4 Patient information |
| 2 3D view of optical impression | 5 List of objects |
| 3 Scan information | 6 Next button |

4. Check the scan information and patient information.
5. Make sure that the objects and their regions are correct. The background color in the list of objects matches the color of the objects in the **3D** view.

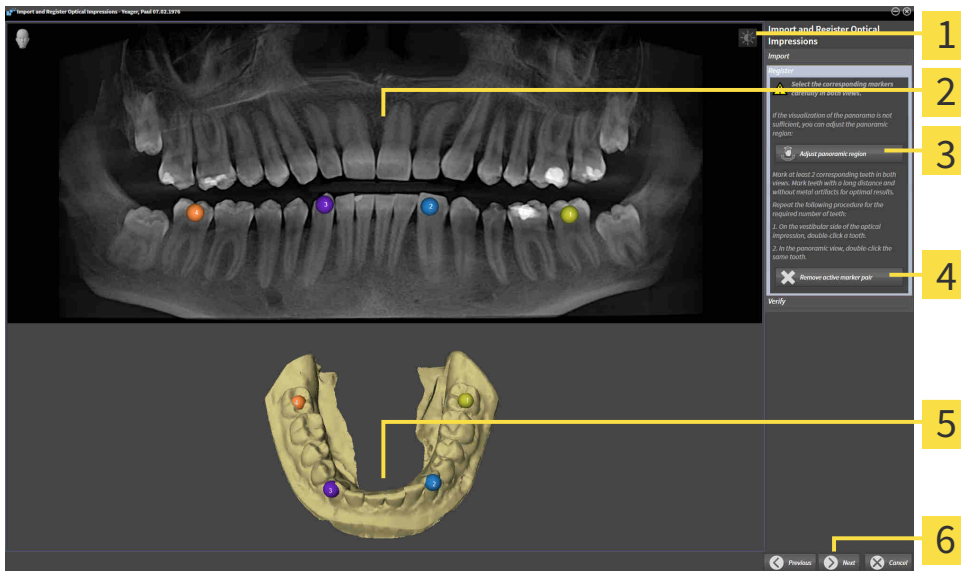
6. Click **Next**.

► If the patient data in the 3D X-ray scan and in the optical impression differ, SICAT Endo will open the **Different patient information** window:



7. Compare the patient information. If you are sure that the optical impression matches the current patient, click on the **Yes** button.

► The **Register** step opens:



1 Adjust brightness and contrast icon

4 Remove active marker pair button

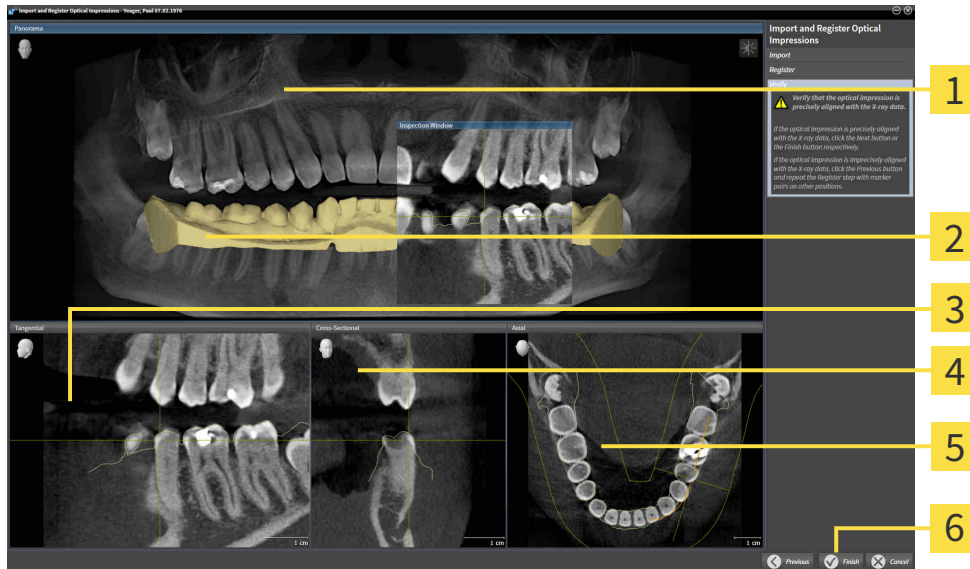
2 Panorama view

5 3D view that shows the optical impression

3 Adjust panoramic region button

6 Next button

8. For the optical impression, use the left mouse key to double click the same tooth both in the **Panorama** view and on the vestibular side of the optical impression in the **3D** view. Make sure that there is a large distance between individual teeth and mark only teeth without metal artifacts. Repeat this step until you have marked at least two matching teeth in both views.
 - ▶ Markings with different colors and numbers in both views will display corresponding teeth in the optical impression.
9. Click **Next**.
 - ▶ SICAT Endo calculates the registration of the optical impression with the X-ray data.
 - ▶ The **Verify** step opens:



- | | |
|----------------------------|-------------------------------|
| 1 Panorama view | 4 Cross-Sectional view |
| 2 Inspection Window | 5 Axial view |
| 3 Tangential view | 6 Finish button |

10. Check whether the optical impression is precisely aligned to the X-ray data in the 2D slice views. Scroll through the slices and check the contours shown.
11. If the optical impression is imprecisely aligned to the X-ray data, click on the **Previous** button and repeat the **Register** step with marker pairs in different positions if necessary.
12. If the optical impression is precisely aligned to the X-ray data, click on the **Finish** button.
 - ▶ The **Import and register optical impressions** wizard closes.
 - ▶ SICAT Endo adds the selected optical impression to the **Object browser**.
 - ▶ SICAT Endo displays the registered optical impression.



In addition to the described process, the following actions are available in the **Import and register optical impressions** wizard:

- You can adjust the brightness and contrast of a 2D image by clicking the **Adjust brightness and contrast** icon. Information on this can be found in the section *Adjusting and resetting the brightness and contrast of the 2D views* [▶ Page 73 - SIDEXIS XG].
- You can adjust the panoramic area by clicking the **Adjust panoramic region** icon. Information on this can be found in the section *Adjusting the panoramic region* [▶ Page 95 - SIDEXIS XG].
- If you wish to remove a certain marker pair in the **Register** step, you can select a marker from the pair and click on the **Remove active marker pair** button.
- If you want to cancel importing and registering optical impressions, click **Cancel**.

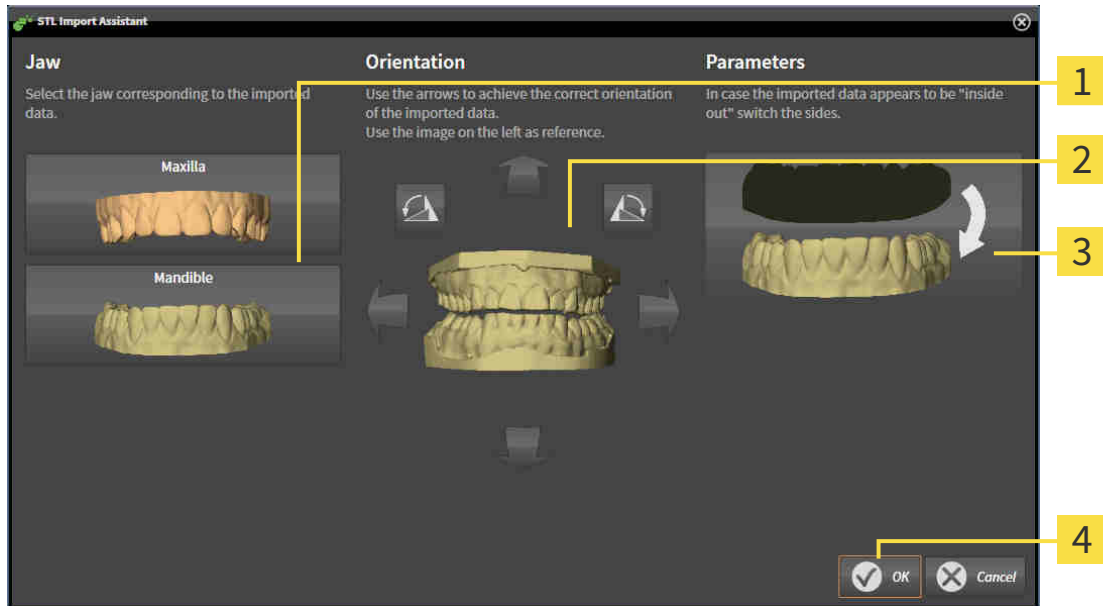
24.2 ADDITIONAL STEPS FOR OPTICAL IMPRESSIONS IN STL FORMAT

STL files do not contain information regarding the position and orientation of optical impressions. Therefore, you need to adjust position and orientation if required.

☑ You have already activated a **SICAT Suite STL import** license.

1. Open the optical impressions in a file in STL format. Information on this can be found in the section Importing and registering optical impressions.

► The **STL import wizard** window opens:



1 Selection of the jaw

3 Switching inside and outside

2 Changing the orientation

4 OK button

2. In the **jaw** area, select whether the optical impression contains the **maxilla** or the **mandibula** by clicking on the corresponding symbol.



3. If required, change the orientation of the optical impressions for rough pre-positioning by clicking on the arrow symbols or the rotation symbols in the **orientation** area.
4. If required, switch the inside and the outside of the optical impressions by clicking on the representation of the optical impression in the **parameter** area.
5. Click on the **OK** button.
6. If required, repeat those steps for a second STL file. SICAT Endo automatically attributes the second STL file to the other jaw.
 - SICAT Endo displays the imported optical impressions in the **Import and register optical impressions** wizard.
7. Continue with the registration of the optical impressions. Information on this can be found in the section Importing and registering optical impressions.

24.3 RE-USING OPTICAL IMPRESSIONS FROM OTHER SICAT APPLICATIONS



The use of other data as 3D X-ray scans as a lone source of information may result in an incorrect diagnosis and treatment.

1. Use 3D X-ray scans as a preferred source of information for diagnosis and planning.
2. Use other data, such as optical impressions, only as an auxiliary source of information.



Inappropriate optical impression devices could result in incorrect diagnosis and treatment.

Only use optical impression data from devices cleared as medical devices.



Optical impression data that does not match patient and date of 3D X-ray data could result in incorrect diagnosis and treatment.

Make sure the patient and date of the imported optical impression data match the patient and date of the visualized 3D X-ray data.



Insufficient integrity or quality of optical impressions may result in an incorrect diagnosis and treatment.

Check the integrity and quality of the optical impressions imported.



Insufficient integrity and precision of optical impressions may result in an incorrect diagnosis and treatment.

Only use optical impressions of a sufficient quality and precision for the intended diagnosis and treatment.



The incorrect registration of optical impressions for 3D X-ray scans may result in an incorrect diagnosis and treatment.

Check that the registered optical impressions are correctly aligned to the 3D X-ray scans.



To enable you to check whether 3D X-ray data and optical impressions match, the **Import and register optical impressions** wizard always shows the patient data and ignores the **Anonymize** setting.

General information on the optical impressions can be found in the section *Optical impressions* [▶ Page 98 - *SIDEXIS XG*].

To re-use optical impressions from another SICAT application, proceed as follows:

- The **Prepare** workflow step is already expanded.
- You have already imported optical impressions for the opened study in another SICAT application, which you have not yet used in SICAT Endo.

1. Click on the **Import and register optical impressions** icon.
 - ▶ The **Import and register optical impressions** wizard opens with the **Import** step.

2. Click on the row with the desired optical impressions in the **Reuse optical impressions from other SICAT applications** area.
 3. SICAT Endo displays the optical impressions selected.
 4. Check the scan information and patient information. Make sure that the objects and their regions are correct. The background color in the list of objects matches the color of the objects in the **3D** view.
 5. Click on the **Finish** button.
- ▶ The **Import and register optical impressions** wizard closes.
 - ▶ SICAT Endo adds the selected optical impressions to the **Object browser**.
 - ▶ SICAT Endo displays the optical impressions selected.

If you want to cancel the transfer of optical impressions from another SICAT application, click **Cancel**.

25 INTRAORAL SCANS



CAUTION

Devices for intraoral scans that are not certified as a medical device may result in incorrect diagnosis and treatment.

Make sure to use only devices that are certified as a medical device for intraoral scans.



CAUTION

Insufficient integrity or quality of intraoral scans may result in an incorrect diagnosis and treatment.

Check the integrity and quality of the imported intraoral scans.



CAUTION

Intraoral scans that have not been registered correctly with the 3D X-ray scans may result in an incorrect diagnosis and treatment.

Check that the intraoral records have been correctly registered with the 3D X-ray scans.



CAUTION

Intraoral scans that do not match the patient and the 3D X-ray scan or whose record time is too far away from the record time of the 3D X-ray scan may result in an incorrect diagnosis and treatment.

Make sure that the patient and 3D X-ray scan of an intraoral scan match and that their record time is not too far away from the record time of the 3D X-ray scan.



CAUTION

Insufficient quality of the intraoral records or 3D X-ray scans may cause the mechanism for registering the intraoral records to fail.

Only use intraoral scans and 3D X-ray scans that allow for a correct registration.



CAUTION

Insufficient quality and precision of intraoral scans may result in an incorrect diagnosis and treatment.

Only use intraoral scans of sufficient quality and precision for the intended diagnosis and treatment.



CAUTION

Incorrect positions or orientations of the intraoral scans may result in an incorrect diagnosis and treatment.

After registration, check for correct position and orientation of the intraoral scans on the teeth in the 3D X-ray scan.



CAUTION

Incorrect orientation of the intraoral records relative to the 3D X-ray scan may result in an incorrect diagnosis and treatment.

1. Check that the registered intraoral scans are correctly aligned to the 3D X-ray scans.
2. If required, rotate the intraoral scans to orient them correctly.

**Incorrect tooth number allocation could result in incorrect diagnosis and treatment.**

Check that the selected tooth numbers and the actual anatomical tooth numbers match.

You can use intraoral scans to prepare the diagnosis and for treatment planning in SICAT Endo. You can import and manage the intraoral scans in the **Radiograph Manager** window.

The following actions are required to use intraoral scans in SICAT Endo:

- Importing DICOM files containing intraoral scans
- Allocating tooth numbers to intraoral scans
- Registering the intraoral scans

SICAT Endo supports the following file formats for intraoral scans:

- DICOM data that is available as single-frame file

A list of compatible recording systems can be found in the section *Compatible intraoral scan sensors* [[▶ Page 109 - SIDEXIS XG](#)].

The following actions are available for intraoral scans:

- *Importing intraoral scans and allocating them to teeth* [[▶ Page 110 - SIDEXIS XG](#)]
- *Pre-positioning intraoral scans* [[▶ Page 114 - SIDEXIS XG](#)]
- *Registering intraoral scan* [[▶ Page 116 - SIDEXIS XG](#)]

25.1 COMPATIBLE INTRAORAL SCAN SENSORS

SICAT Endo supports the following intraoral record sensors:

- XIOS XG Supreme, manufacturer: Sirona Dental Systems GmbH, Germany
- XIOS XG Select, manufacturer: Sirona Dental Systems GmbH, Germany
- XIOS Plus, manufacturer: Sirona Dental Systems GmbH, Germany
- Schick 33, manufacturer: Sirona Dental Inc., USA
- Schick Elite, manufacturer: Sirona Dental Inc., USA

25.2 IMPORTING INTRAORAL SCANS AND ALLOCATING THEM TO TEETH

General information on intraoral scans can be found in the section *Intraoral scans* [▶ Page 107 - SIDEXIS XG].

To import intraoral scans and allocate them to one or several teeth, proceed as follows:

- ☑ The **Prepare** workflow step is already expanded. Information on this can be found in the section *Workflow toolbar* [▶ Page 49 - SIDEXIS XG].
- ☑ The intraoral scan is not yet available in SICAT Endo. You can only import each intraoral scan once.
- ☑ The intraoral scan is available as DICOM file in single-frame format.
- ☑ The intraoral scan was created using a compatible intraoral recording device. Information on this can be found in the section *Compatible intraoral scan sensors* [▶ Page 109 - SIDEXIS XG].



1. Click on the **Administer and register radiographs** icon.
 - ▶ The **Radiograph Manager** window opens.
2. Click on the **Browse** button.
 - ▶ The **Open radiograph** window opens.
3. In the **Open radiograph** window, switch to the desired intraoral scan file and select at least one file. You can import several scans at once by keeping the **Ctrl** key pressed while selecting several files one after another.
4. Click **Open**.
 - ▶ The **Open radiograph** window closes.
 - ▶ SICAT Endo displays the intraoral scans imported:



- | | |
|--|--|
| <p>1 Browse button</p> <p>2 Imported radiographs area</p> <p>3 Preview area</p> | <p>4 Patient Information</p> <p>5 Scan information</p> <p>6 Register button</p> |
|--|--|

5. To select an imported intraoral scan, click on a scan in the **Imported radiographs** area.
 - ▶ SICAT Endo displays the selected scan in the **Preview** area.
6. Check the information on the patient and the information on the scan. Make sure that the scan and the patient match and that the record dates of the 3D X-ray scan and the intraoral scan are not more than 90 days apart.
7. Make sure that the imported intraoral scan's orientation is anatomically correct.
8. If an imported intraoral scan's orientation is not anatomically correct, use the right mouse key to click on the scan in the **Imported radiographs** area and select one of the **Flip horizontally**, **Flip vertically**, **Rotate counter clockwise** or **Rotate clockwise** entries in the context menu.
 - ▶ SICAT Endo flips the scan across the horizontal or vertical image axis.
 - ▶ SICAT Endo rotates the scan in 90 degree increments towards the left or the right.
9. Place the mouse pointer over the question mark icon in a scan.
 - ▶ The **Tooth number** window opens:



10. Allocate up to four tooth numbers to the scan by clicking on the anatomically correct tooth numbers one after the other.
11. To close the **Tooth number** window, position the mouse pointer outside of the window.
 - ▶ SICAT Endo closes the **Tooth number** window.
 - ▶ SICAT Endo displays the allocated tooth numbers in the intraoral scans.
 - ▶ SICAT Endo saves all changes that are made when the Radiograph Manager is closed.



You can select the following functions using the context menu in the **Imported radiographs** area:

- **Flip horizontally**
- **Flip vertically**
- **Rotate counter clockwise**
- **Rotate clockwise**
- **Tooth number**
- **Register**
- **Remove**



The following options are available to remove intraoral scans from the **Imported radiographs** area,

- Click on the **Remove radiograph from planning project** icon in a scan.
- Use the right mouse key to click on a scan and select the **Remove** entry in the context menu.
- In the **Imported radiographs** area, select a scan and press the **Del** key.

To register an imported intraoral scan, proceed with the following section:

- *Registration wizard* [▶ *Page 113 - SIDEXIS XG*]

26 REGISTRATION WIZARD

The registration wizard provides functions for registering intraoral scans.

To be able to use the registration wizard, you must have imported intraoral records and allocated tooth numbers. Information on this can be found in the section *Importing intraoral scans and allocating them to teeth* [▶ Page 110 - SIDEXIS XG].

Before starting to work with the registration wizard, you have to select the intraoral scan that you want to register.

In the registration wizard, you can pre-orient the intraoral scan on the panoramic curve. You can use the **3D Projection** view to further adjust the orientation before SICAT Endo automatically registers the intraoral scan.

The registration wizard comprises the following steps:

- *Pre-positioning intraoral scans* [▶ Page 114 - SIDEXIS XG]
- *Registering intraoral scan* [▶ Page 116 - SIDEXIS XG]

If pre-positioning in the **Panorama** view is not sufficient, you can also adjust the orientation in the **Register Radiograph** step using the **Cross-Sectional** view or the **Axial** view. Information on this can be found in the section *Adjusting pre-orientation in the transversal and axial view* [▶ Page 119 - SIDEXIS XG].

If an intraoral scan contains areas that could cause problems during registration, you can provide these areas with a mask by coloring them and exclude them from registration in the **Register Radiograph** step. Information on this can be found in the section *Masking areas* [▶ Page 122 - SIDEXIS XG].

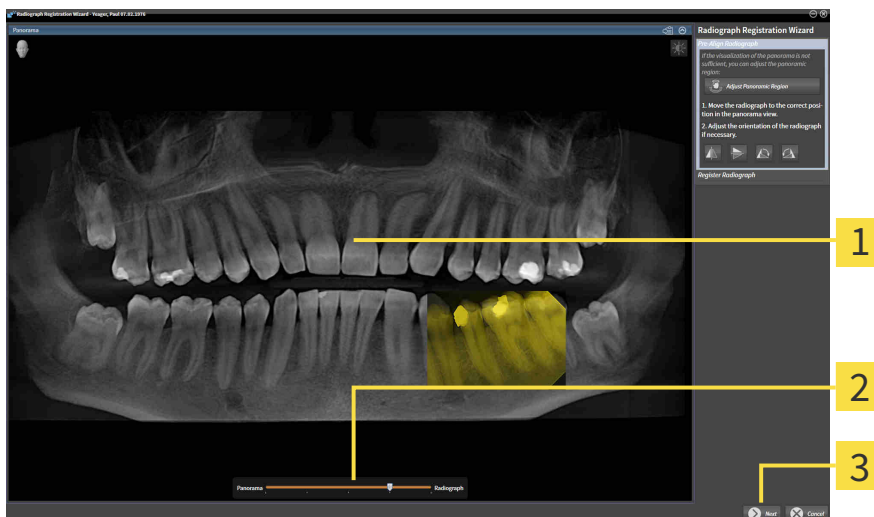
26.1 PRE-POSITIONING INTRAORAL SCANS

General information on the registration wizard can be found in the section *Registration wizard* [▶ Page 113 - SIDEKIS XG].

In the **Pre-Align Radiograph** step, you can orient the intraoral scan on the panoramic curve such that the 3D X-ray scan and the intraoral scan are overlaid in the best possible way.

- ☑ The **Prepare** workflow step is already expanded. Information on this can be found in the section *Workflow toolbar* [▶ Page 49 - SIDEKIS XG].
- ☑ You have imported at least one intraoral scan and allocated at least one tooth number to the intraoral scan. Information on this can be found in the section *Importing intraoral scans and allocating them to teeth* [▶ Page 110 - SIDEKIS XG].

1. Click on the **Administer and register radiographs** icon.
 - ▶ The **Radiograph Manager** window opens.
2. To select an intraoral scan for registration, use the left mouse key to click on the scan.
 - ▶ SICAT Endo marks the scan.
3. Click on the **Register** button.
 - ▶ The **Pre-Align Radiograph** step opens:



1 Panorama window

3 Next button

2 Transparency slider

- ▶ SICAT Endo displays the intraoral scan on the panoramic curve in the **Panorama** window.
4. To move the intraoral scan, position the mouse pointer on the scan.
 5. Click and hold the left mouse button.
 6. Move the intraoral scan to the desired position.
 7. Release the left mouse button.
 - ▶ SICAT Endo maintains the current position of the intraoral scan.

8. If required, you can adjust the orientation of the intraoral scan using the **Flip horizontally**, **Flip vertically**, **Rotate clockwise** or **Rotate counter clockwise** in the **Pre-Align Radiograph** area.
9. To proceed with the next step of the registration, click on the **Next** button.

► The **Register Radiograph** step opens.



To start registration of an intraoral scan, you can also proceed as follows:

- Double-click on the intraoral scan in the **Imported radiographs** area.
- Mark the intraoral scan in the **Imported radiographs** area and press the **Enter key**.
- Use the right mouse key to click on a scan in the **Imported radiographs** area and select the **Register** entry in the context menu.



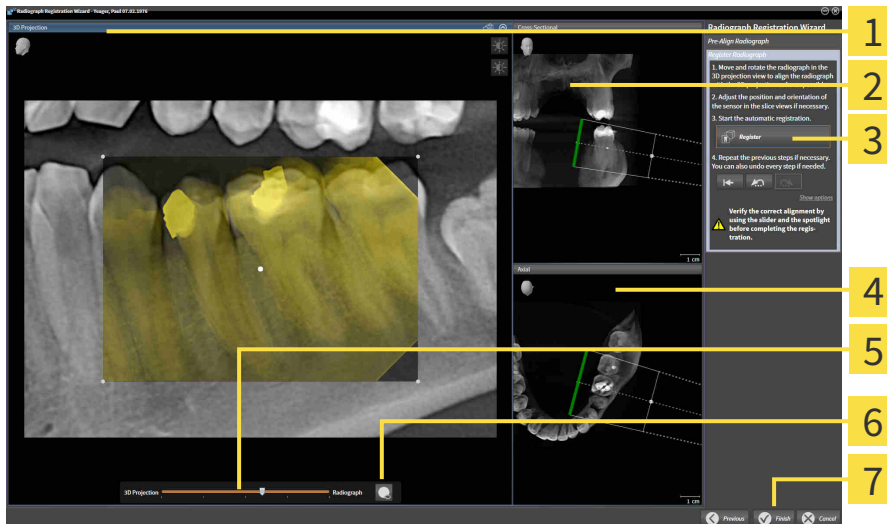
The check correct overlay of intraoral scan and panorama, you can adjust the transparency using the **transparency** slider.

Continue with the section *Registering intraoral scan* [► Page 116 - SIDEXIS XG].

26.2 REGISTERING INTRAORAL SCAN

General information on the registration wizard can be found in the section *Registration wizard* [▶ Page 113 - *SIDEXIS XG*].

In the **Register Radiograph** step, you can fine-align the initial position of the intraoral scan before performing the automatic registration.



1 3D Projection view

2 Cross-Sectional view

3 Register button

4 Axial view

5 Transparency slider

6 Spotlight button

7 Finish button

To adjust the overlay of the intraoral scan and the **3D Projection** view, proceed as follows:



1. Position the mouse pointer on the intraoral scan in the **3D Projection** view.
 - ▶ The mouse pointer changes.
2. Click and hold the left mouse button.
3. Move the intraoral scan to the desired position.
4. Release the left mouse button.
 - ▶ SICAT Endo maintains the current rotation of the intraoral scan.
 - ▶ SICAT Endo adjusts the **Cross-Sectional** view and the **Axial** view accordingly.



5. To rotate the intraoral scan, position the mouse pointer on one of the control points at the corners of the scan in the **3D Projection** view.
 - ▶ The mouse pointer changes.
6. Click and hold the left mouse button.
7. Move the intraoral scan in the desired direction.

8. Release the left mouse button.
 - ▶ SICAT Endo maintains the current position of the intraoral scan.
 - ▶ SICAT Endo adjusts the **Cross-Sectional** view and the **Axial** view accordingly.

SWITCHING SPOTLIGHT ON AND OFF

To check the correct overlay of the intraoral scan and the 3D projection, you can display a spotlight in the **3D Projection** view.



1. Click on the **Spotlight** button.
2. Position the mouse pointer on the intraoral scan.
 - ▶ SICAT Endo shows a spotlight.
3. Move the mouse pointer to the position of the intraoral scan that you want to check.
4. Repeat this step for all spots that you want to check.



5. To hide the spotlight, click on the **Spotlight** button again.
 - ▶ SICAT Endo hides the spotlight.

ADJUSTING ORIENTATION IN THE TRANSVERSAL OR AXIAL VIEW

If the orientation of the intraoral scan in the **3D Projection** view is not sufficient, you can additionally adjust the orientation in the **Cross-Sectional** view or the **Axial** view. Information on this can be found in the section *Adjusting pre-orientation in the transversal and axial view* [▶ Page 119 - SIDEXIS XG].

MASKING AREAS IN THE INTRAORAL SCAN

If you want to exclude certain areas of the intraoral scan from automatic registration, you can provide these areas with a mask by coloring them. SICAT Endo does not take these masked areas into account during automatic registration. Information on this can be found in the section *Masking areas* [▶ Page 122 - SIDEXIS XG].

PERFORMING AUTOMATIC REGISTRATION

- To perform automatic registration, click on the **Register** button in the **Register Radiograph** area.
 - ▶ SICAT Endo registers the intraoral scan with the 3D X-ray scan.
 - ▶ SICAT Endo closes the registration wizard.
 - ▶ SICAT Endo displays the result of the registration in the **Radiograph Manager** window.

CHECKING REGISTRATION

1. Check the result of the registration using the **3D Projection** view, the **Cross-Sectional** view and the **Axial** view.
2. If you are not satisfied with the result, you can adjust the position of the intraoral scan by moving the intraoral scan with the mouse using the drag&drop function.
3. To finish registration, click on the **Finish** button.

▶ The **Radiograph Registration Wizard** closes.

▶ The **Radiograph Manager** window opens.



▶ SICAT Endo shows the intraoral scan as registered in the **Imported radiographs** area in the **Radiograph Manager**.



The check correct overlay of intraoral scan and panorama, you can adjust the transparency using the **transparency** slider.



To reset the last adjustment, click on the **Undo the last step** button. To reset all adjustments, click on the **Reset all steps** button.

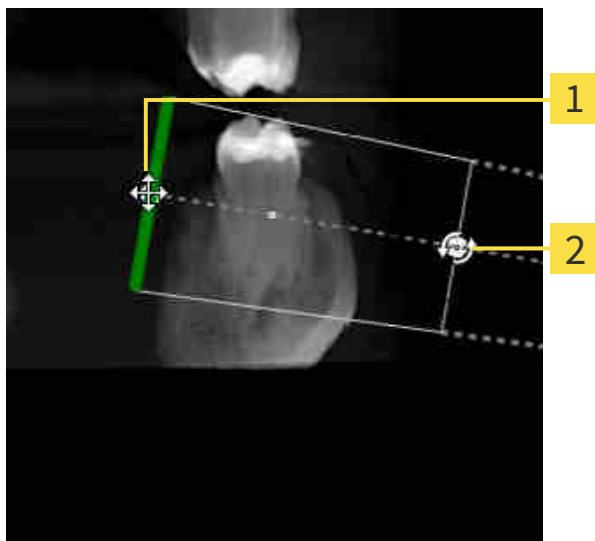
26.3 ADJUSTING PRE-ORIENTATION IN THE TRANSVERSAL AND AXIAL VIEW

For general information on the adjustment of the overlay of the intraoral scan and the 3D projection, please refer to section *Registering intraoral scan* [▶ Page 116 - *SIDEXIS XG*].

Even if you are able to orient the intraoral scan in an anatomically correct manner in the **3D Projection** view, SICAT Endo may not be able to automatically register the intraoral scan with the 3D X-ray scan for certain scans.

If this is the case, adjust the positioning of the intraoral scan in the **Cross-Sectional** view or in the **Axial** view:

MOVING THE ORIENTATION IN THE TRANSVERSAL VIEW



1 Control point **one**

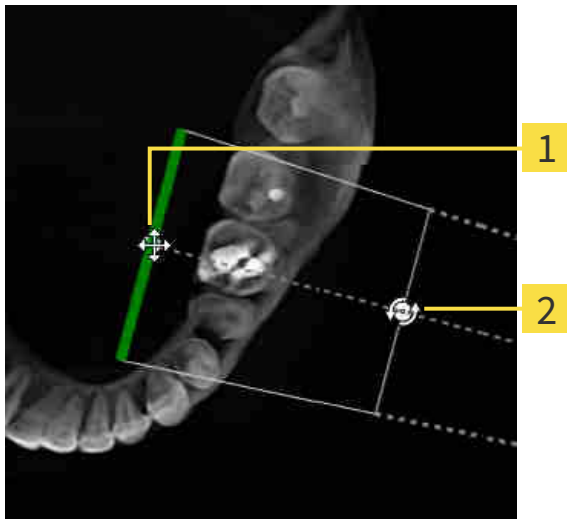
2 Control point **two**

1. To move the orientation of the recording device and the sensor in the 3D X-ray scan, position the mouse pointer on control point **one** in the **Cross-Sectional** view.
 - ▶ The mouse pointer becomes a cross with four arrows.
2. Click and hold the left mouse button.
3. Move the orientation in the desired direction.
4. Release the left mouse button.
 - ▶ SICAT Endo maintains the current orientation.
 - ▶ SICAT Endo adjusts the **3D Projection** view and the **Axial** view accordingly.

ROTATING THE ORIENTATION IN THE TRANSVERSAL VIEW

1. To rotate the orientation of the recording device and the sensor in the 3D X-ray scan, position the mouse pointer on control point **two** in the **Cross-Sectional** view.
 - ▶ The mouse pointer becomes a circle with two rotating arrows.
2. Click and hold the left mouse button.
3. Rotate the orientation in the desired direction.
4. Release the left mouse button.
 - ▶ SICAT Endo maintains the current orientation.
 - ▶ SICAT Endo adjusts the **3D Projection** view and the **Axial** view accordingly.

MOVING THE ORIENTATION IN THE AXIAL VIEW



1 Control point **one**

2 Control point **two**

1. To move the orientation of the recording device and the sensor in the 3D X-ray scan, position the mouse pointer on control point **one** in the **Cross-Sectional** view.
 - ▶ The mouse pointer becomes a cross with four arrows.
2. Click and hold the left mouse button.
3. Move the orientation in the desired direction.
4. Release the left mouse button.
 - ▶ SICAT Endo maintains the current orientation.
 - ▶ SICAT Endo adjusts the **3D Projection** view and the **Cross-Sectional** view accordingly.

ROTATING THE ORIENTATION IN THE AXIAL VIEW

1. To rotate the orientation of the recording device and the sensor in the 3D X-ray scan, position the mouse pointer on control point **two** in the **Axial** view.
 - ▶ The mouse pointer becomes a circle with two rotating arrows.
2. Click and hold the left mouse button.
3. Rotate the orientation in the desired direction.
4. Release the left mouse button.
 - ▶ SICAT Endo maintains the current orientation.
 - ▶ SICAT Endo adjusts the **3D Projection** view and the **Cross-Sectional** view accordingly.

26.4 MASKING AREAS

An intraoral scan may contain areas which may cause problems during automatic registration. This includes:

- Metal artifacts
- Teeth of the opposite jaw
- Edges in the intraoral scan that do not belong to the scan

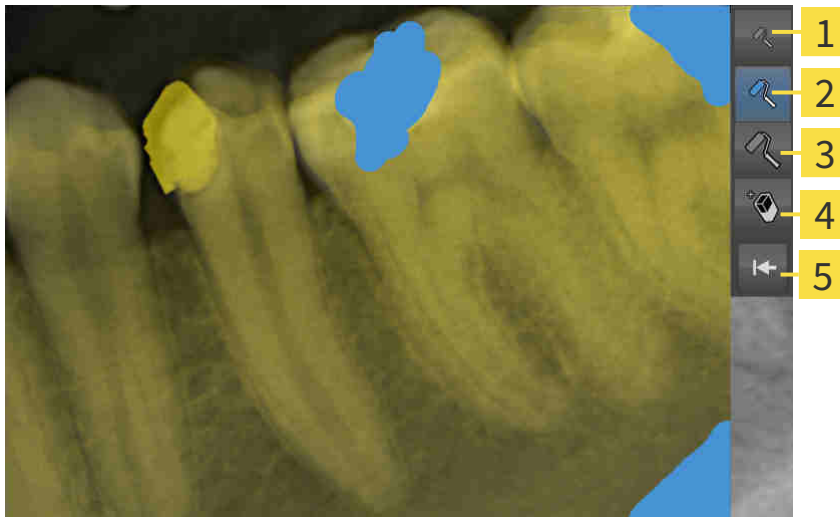
To avoid problems during automatic registration, you can mask such areas. SICAT Endo excludes all masked areas from automatic registration.

To mask individual sections in a intraoral scan, proceed as follows:

1. Click on the **Show options** button in the **Register Radiograph** area.
 - ▶ SICAT Endo displays the **Edit mask** button.



2. Click on the **Edit mask** button.
 - ▶ SICAT Endo displays the mask toolbar to the right of the intraoral scan.



1 Use a **small paintbrush** button

4 Use an **eraser** button

2 Use a **medium paintbrush** button

5 **Reset mask** button

3 Use a **large paintbrush** button

3. To color an area, click on the **Use a small paintbrush** button, the **Use a medium paintbrush** button or the **Use a large paintbrush** button.
 - ▶ The mouse pointer becomes a circle.
4. Position the mouse pointer on the area of the intraoral scan that you want to color.
5. Click and hold the left mouse button.
6. Move the mouse pointer over the area that you want to color.
7. Release the left mouse button.

- ▶ SICAT Endo shows the marked area colored in blue.
- 8. Repeat these steps if required to mask additional areas of the intraoral scan where needed.
- 9. To remove an area marked in blue, click on the **Use an eraser** button.
 - ▶ The mouse pointer becomes an eraser.
- 10. Use the left mouse key to click on the marked blue area that you want to remove.
 - ▶ SICAT Endo removes the marked area from the intraoral scan.
- 11. To remove all markings, click on the **Reset mask** button.
 - ▶ SICAT Endo removes all areas marked in blue from the intraoral scan.
- 12. To apply all changes that you have made, click on the **Finish editing** button in the **Register Radiograph** area.
 - ▶ SICAT Endo displays the masked areas in the **3D Projection** view.
 - ▶ SICAT Endo excludes the masked areas from automatic registration.



To hide the **Edit mask** button again, click on the **Hide options** button in the **Register Radiograph** area.

27 ENDOLINE WIZARD

The EndoLine wizard provides functions for diagnosis and treatment planning.

You can perform the following actions prior to using the EndoLine wizard:

- *Importing intraoral scans and allocating them to teeth* [▶ Page 110 - SIDEXIS XG].
- *Registering intraoral scan* [▶ Page 116 - SIDEXIS XG]
- *Selecting a tooth for treatment planning* [▶ Page 132 - SIDEXIS XG]

In the EndoLine wizard, you can use a line of intersection to define the area that you want to treat. You can place EndoLines in the root canals in this area.

EndoLines are measuring lines that you can use to mark the root canal that is to be treated and to locate the root apices. EndoLines serve as the basis for the planning and placing of drill channels.

SICAT Endo uses different views to represent EndoLines. Information on this can be found in the section *Views in the EndoLine wizard* [▶ Page 125 - SIDEXIS XG].

SICAT Endo attributes all objects that you create during the planning to the selected tooth. These objects can be EndoLines or drill channels. You can view these objects in the **Panorama** workspace and in the **Radiograph** workspace and manage and edit them in the **Object browser**.

You can use different views and combinations of views are in the workspaces of SICAT Endo to view the objects that you have created. Information on this can be found in the section *Workspaces* [▶ Page 60 - SIDEXIS XG].

The EndoLine wizard comprises the following steps:

- *Pre-aligning a tooth region* [▶ Page 133 - SIDEXIS XG]
- *Placing EndoLines* [▶ Page 135 - SIDEXIS XG]
- *Planning drill channels* [▶ Page 144 - SIDEXIS XG]

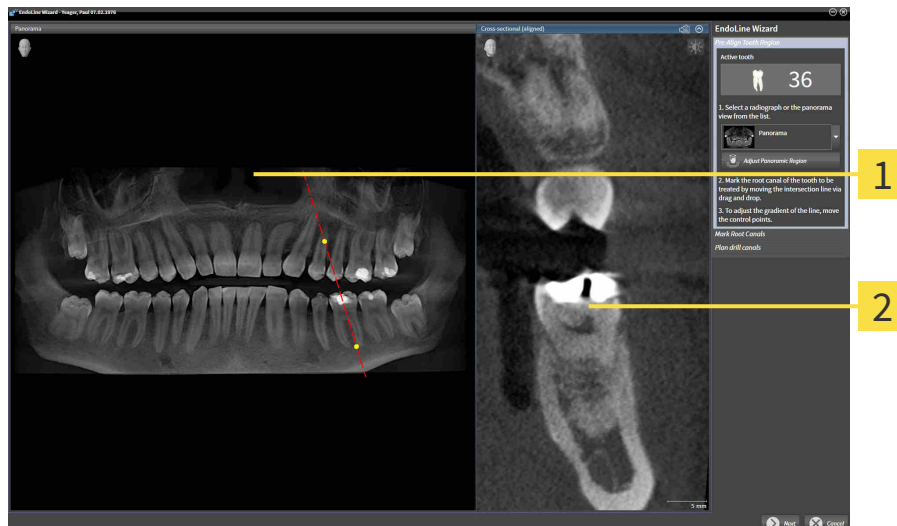
27.1 VIEWS IN THE ENDOLINE WIZARD

Each step in the EndoLine wizard features several views.

General information on adjusting the views can be found in the section *Adjusting the views* [▶ Page 68 - *SIDEXIS XG*] and *Adjusting the 3D view* [▶ Page 82 - *SIDEXIS XG*].

“PRE-ALIGN TOOTH REGION” STEP

The following views are available in the **Pre-Align Tooth Region** step:



1 Panorama view or Radiograph view

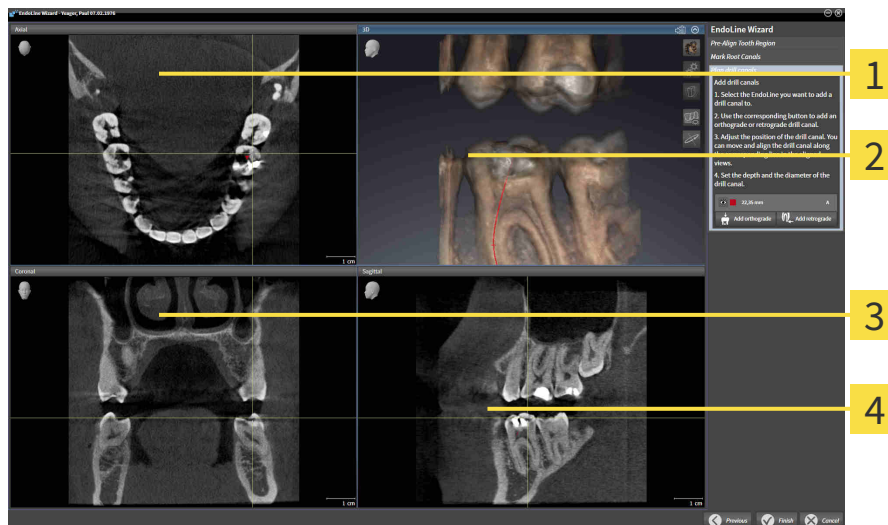
2 Cross-sectional (aligned) view

In the **Panorama** view or the **Radiograph** view, you can use a line of intersection to pre-align the view of the root canal that is to be treated. The **Radiograph** view is only available if you have registered at least one intraoral scan for the active tooth. For information on how to select an active tooth, please refer to *Selecting a tooth for treatment planning* [▶ Page 132 - *SIDEXIS XG*].

In the **Cross-sectional (aligned)** view, the tooth that has been marked in the **Panorama** view or in the **Radiograph** view is shown from the side and aligned to the line of intersection previously created.

“PLAN DRILL CHANNELS” STEP

The following views are available in the **Plan drill canals** step:



1 Axial view

3 Coronal view

2 3D view

4 Sagittal view

The **Axial** view shows the EndoLine from the top.

The **3D** view shows the EndoLine in the 3D X-ray scan. Information on adjusting the **3D** view can be found in the section *Adjusting the 3D view* [► Page 82 - SIDEXIS XG].

The **Coronal** view shows the EndoLine from the front.

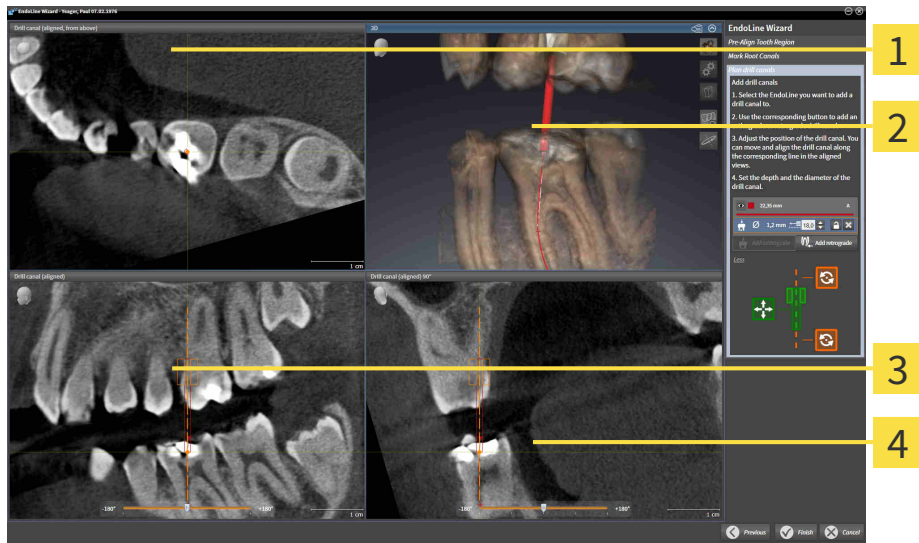
The **Sagittal** view shows the EndoLine from the right.



If you have not yet planned any drill channels, SICAT Endo displays the **Axial** view, the **3D** view, the **Coronal** view and the **Sagittal** view when you open the **Plan drill canals** step in the EndoLine wizard.

VIEWS WHEN PLANNING ORTHOGRADE DRILL CHANNELS

The following views are available when planning orthograde drill channels:



- 1** Drill canal (aligned, from above) view
- 3** Drill canal (aligned) view
- 2** 3D view
- 4** Drill canal (aligned) 90° view

The **Drill canal (aligned, from above)** view shows the drill channel aligned to the EndoLine from the top.

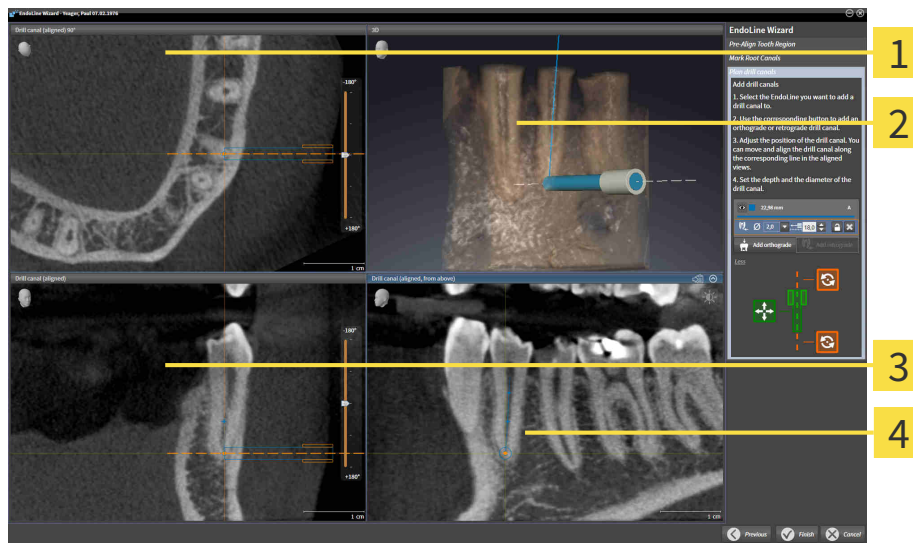
The **3D** view shows the drill channel that you have set in the 3D X-ray scan. Information on adjusting the **3D** view can be found in the section *Adjusting the 3D view* [▶ Page 82 - *SIDEXIS XG*].

The **Drill canal (aligned)** view shows the drill channel aligned to the EndoLine from the front.

The **Drill canal (aligned) 90°** view shows the drill channel aligned to the EndoLine from the side.

VIEWS WHEN PLANNING RETROGRADE DRILL CHANNELS

The following views are available when planning retrograde drill channels:



1 Drill canal (aligned) 90° view

3 Drill canal (aligned) view

2 3D view

4 Drill canal (aligned, from above) view

The **Drill canal (aligned) 90°** view shows the drill channel aligned to the EndoLine from the side.

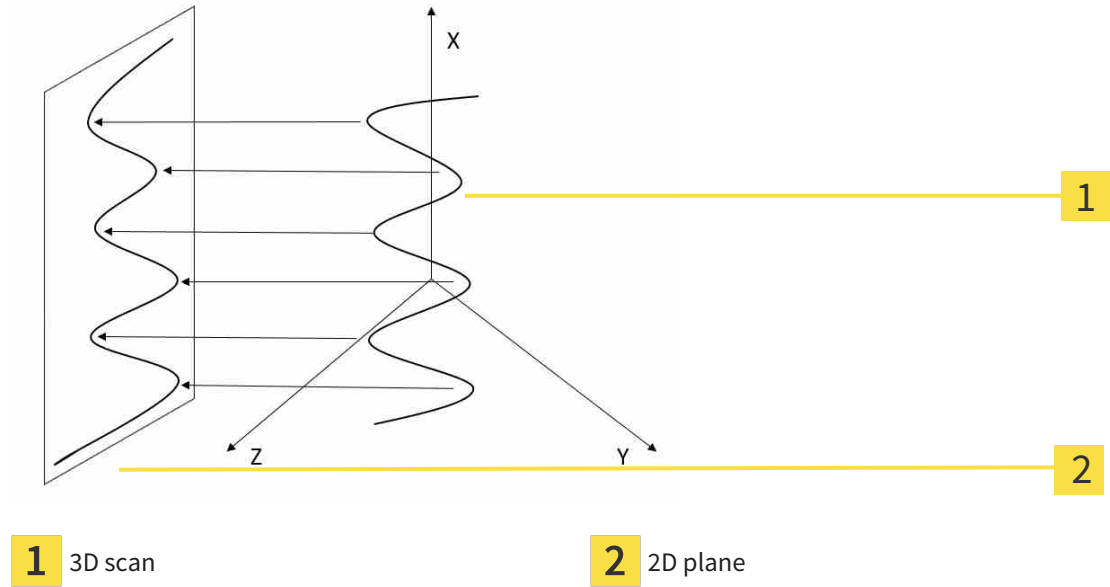
The **3D** view shows the drill channel that you have set in the 3D X-ray scan. Information on adjusting the **3D** view can be found in the section *Adjusting the 3D view* [▶ Page 82 - SIDEXIS XG].

The **Drill canal (aligned)** view shows the drill channel aligned to the EndoLine from the front.

The **Drill canal (aligned, from above)** view shows the drill channel aligned to the EndoLine from the top.

27.1.1 ENDOVIEW

EndoView in SICAT Endo visualizes the anatomy of complex tooth structures of a patient with the software application projecting and showing a curved EndoLine from a 3D scan on a 2D plane. This technique is called Curved Planar Reformation (CPR). It enables the visualization of curved structures reconstructed in a plane.



Visualizing an EndoLine in the 2D plane helps you to assess the details of the anatomical teeth structures and to identify anomalies more easily. At the same time, EndoView improves the accuracy of diagnostic decisions and facilitates the creation of a customized treatment plan for your patient.

27.1.2 ROTATING ENDOVIEW

Information on EndoView can be found in the section *EndoView* [▶ *Page 130 - SIDEXIS XG*].

In the **EndoView (aligned)** and **EndoView (aligned) 90°** view, you can use a slider to rotate the image sections.

- ☑ The **Place EndoLines** step is already open. Information on this can be found in the section *Placing EndoLines* [▶ *Page 135 - SIDEXIS XG*].
- ☑ You have set at least one EndoLine.
- ☑ You have selected an EndoLine.

1. Enable the **EndoView (aligned)** view or the **EndoView (aligned) 90°** view by clicking into the desired view.

▶ SICAT Endo activates the view.



2. Position the mouse pointer on the slider.
3. Click and hold the left mouse button.
4. Move the slider to the desired position.
5. Release the mouse button.

▶ SICAT Endo rotates the image section.

▶ SICAT Endo adjusts the **EndoView (aligned)** view and the **EndoView (aligned) 90°** view.



Alternatively, you can also rotate the image section by using the left mouse key to click on any position in **EndoView (aligned)** or in **EndoView (aligned) 90°** and keep the mouse key pressed to rotate the image section in the desired direction.



The slider ranges from -180 degrees to +180 degrees and is divided into 90 degree segments. You can use the slider to set an angle for rotating the view.

27.2 SELECTING A TOOTH FOR TREATMENT PLANNING

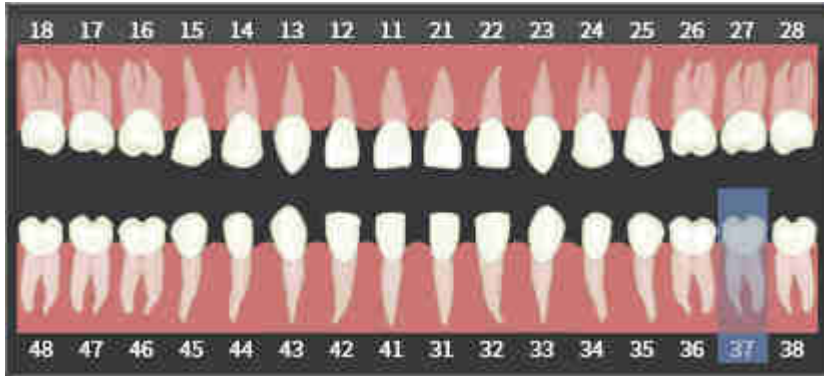
Before being able to plan EndoLines and drill channels you must select the tooth that you want to treat.

- ☑ You have opened the **Radiograph** workspace or the **Panorama** workspace. Information on this can be found in the section *Workspaces* [▶ Page 60 - SIDEXIS XG].



1. Place the mouse pointer over the **Active tooth** section in the **Object bar**.

▶ The **Tooth number** window opens:



2. Move the mouse pointer over the tooth that you want to treat.
 - ▶ SICAT Endo highlights the tooth number.
3. To select the highlighted tooth, left click on the tooth.
 - ▶ SICAT Endo marks the tooth in blue.
 - ▶ SICAT Endo displays the tooth number in the **Object bar** in the **Active tooth** area.
4. To close the **Tooth number** window, move the mouse pointer out of the **Active tooth** area.
 - ▶ SICAT Endo closes the **Tooth number** window.

27.3 PRE-ALIGNING A TOOTH REGION

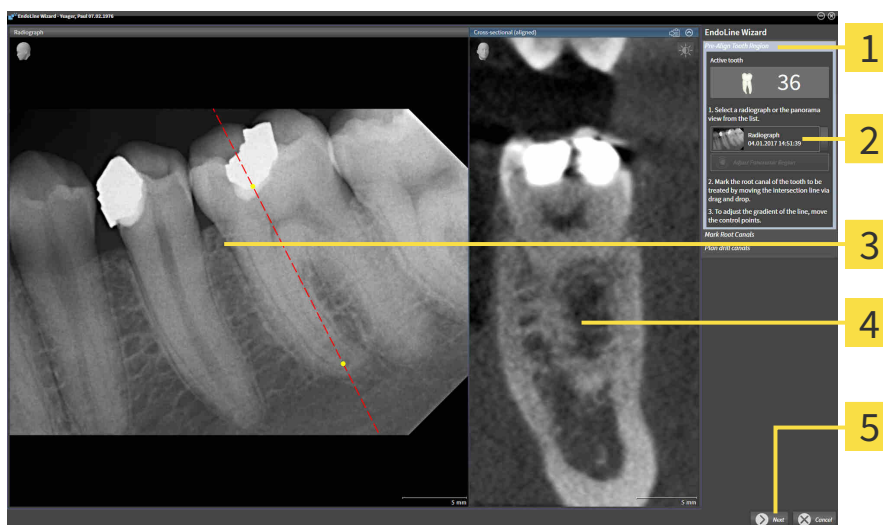
General information on the EndoLine wizard can be found in the section *EndoLine wizard* [▶ Page 124 - *SIDEXIS XG*].

In the **Pre-Align Tooth Region** step, you can use a line of intersection to adjust the views so as to be able to clearly see the tooth and the roots that you want to treat.

- ☑ You have selected the tooth that you want to treat in the **Radiograph** workspace or in the **Panorama** workspace using the **Tooth number** schema in the **Object bar**. Information on this can be found in the section *Selecting a tooth for treatment planning* [▶ Page 132 - *SIDEXIS XG*].
- ☑ The **Diagnose** workflow step is already expanded. Information on this can be found in the section *Workflow toolbar* [▶ Page 49 - *SIDEXIS XG*].



1. Click on the **Plan root canal treatment using EndoLines and drill canals** icon.
 - ▶ The **Pre-Align Tooth Region** step opens:



- | | |
|---|---|
| 1 Pre-Align Tooth Region area | 4 Cross-sectional (aligned) view |
| 2 List of Panorama view and intraoral scans | 5 Next button |
| 3 Panorama view or Radiograph view | |

2. In the **Pre-Align Tooth Region** area, select an intraoral scan or the panorama from the list.
 - ▶ SICAT Endo shows a line of intersection with two yellow control points in the **Intraoral scan** view or in the **Panorama** view.



3. To move the line of intersection, position the mouse pointer on the line of intersection.
 - ▶ The mouse pointer changes.
4. Click and hold the left mouse button.
5. Move the line of intersection to the desired position.
6. Release the left mouse button.
 - ▶ SICAT Endo maintains the current position of the line of intersection.
 - ▶ SICAT Endo adjusts the **Cross-sectional (aligned)** view according to the changed position of the line of intersection.



7. To rotate the line of intersection, position the mouse pointer on one of the two yellow control points.
 - ▶ The mouse pointer changes.
8. Click and hold the left mouse button.
9. Rotate the line of intersection in the desired direction.
10. Release the left mouse button.
 - ▶ SICAT Endo maintains the current rotation of the line of intersection.
 - ▶ SICAT Endo adjusts the **Cross-sectional (aligned)** view according to the changed position of the line of intersection.
11. Click **Next**.
 - ▶ SICAT Endo applies the adjustment of the views.
 - ▶ The **Place EndoLines** step opens.

Continue with the section *Placing EndoLines* [▶ Page 135 - SIDEXIS XG].



To be able to choose between an intraoral scan and the **Panorama** view for pre-alignment, you must have registered at least one intraoral scan for the selected tooth.



You can adjust the panoramic area by clicking the **Adjust panoramic region** icon. Information on this can be found in the section *Adjusting the panoramic region* [▶ Page 95 - SIDEXIS XG].

27.4 PLACING ENDOLINES



Using the 3D view to display measurements and planning objects may result in incorrect diagnosis and treatment.

Use the 3D view for guidance only and regard it as an additional source of information.

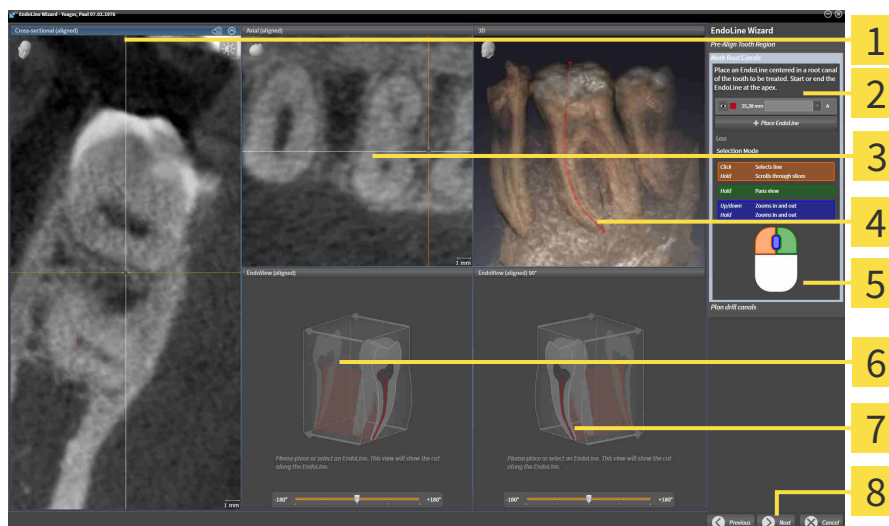
General information on the EndoLine wizard can be found in the section *EndoLine wizard* [► Page 124 - SIDEXIS XG].

In the **Place EndoLines** step, you can mark the root canals that you want to treat in the aligned views using EndoLines.

SICAT Endo marks the start point with a triangle and the end point with a circle when an EndoLine is inserted.

The order of the points depends of the tooth number that was previously selected and the position of the tooth in the patient’s jaw. In the upper jaw, the start point is below the end point and in the lower jaw, the start point is above the end point.

- You have finished the **Pre-Align Tooth Region** step. Information on this can be found in the section *Pre-aligning a tooth region* [► Page 133 - SIDEXIS XG].
- The **Place EndoLines** step is already open.



- | | |
|---|---------------------------------|
| 1 Cross-sectional (aligned) view | 5 Infographic |
| 2 Place EndoLines area | 6 EndoView (aligned) |
| 3 Axial (aligned) view | 7 EndoView (aligned) 90° |
| 4 3D view | 8 Next button |



1. Click on the **Place EndoLine** button in the **Place EndoLines** area.
 - SICAT Endo highlights the **Cross-sectional (aligned)** view and the **Axial (aligned)** view.
 - The mouse pointer changes.
2. Position the mouse pointer in the **Cross-sectional (aligned)** view or the **Axial (aligned)** view.

3. Use the left mouse key to click on the apex or the start point.
 - ▶ SICAT Endo sets a control point.
4. Add further control points to mark the root paths by left-clicking on additional positions on the root path.
5. To finish marking the root paths, double-click on the apex or the start point.
 - ▶ SICAT Endo sets a control point.
 - ▶ SICAT Endo displays all control points and a connection between the points in form of an EndoLine.
 - ▶ SICAT Endo aligns the **EndoView (aligned)** view and the **EndoView (aligned) 90°** view to the EndoLine.
6. If required, repeat the steps to mark additional root canals.
7. Verify the EndoLines set in the **EndoView (aligned)** view or the **EndoView (aligned) 90°** view.
8. Click **Next**.
 - ▶ The **Plan drill canals** step opens.

Continue with the section *Planning drill channels* [▶ Page 144 - SIDEXIS XG].




You can modify the color and the text for the description and the position of an EndoLine. Information on this can be found in the section *Adjusting color and text* [▶ Page 137 - SIDEXIS XG].

You can modify an EndoLine by moving, adding or deleting control points. Information on this can be found in the section *Adding, moving and deleting control points* [▶ Page 138 - SIDEXIS XG].

You can use a rotation mode in the **3D** view. Information on this can be found in the section *Rotating the 3D view* [▶ Page 141 - SIDEXIS XG].

You can view imported and registered optical impressions in the **3D** view. Information on this can be found in the section *Displaying optical impressions in the 3D view* [▶ Page 142 - SIDEXIS XG].

You can use different functions when inserting an EndoLine with the mouse keys. Information on this can be found in the section *Using mouse keys* [▶ Page 143 - SIDEXIS XG].

	To select an EndoLine, you can left-click on the line in one of the aligned views or select it in the Place EndoLines area.
	To delete an EndoLine, highlight the EndoLine in the Place EndoLines area and click on the Delete EndoLine button at the end of the row of the selected EndoLine.
	To adjust representation in EndoView (aligned) or in EndoView (aligned) 90° , you can use the slider in these views. You can rotate the views by any angle to the left or to the right using the slider.

27.5 ADJUSTING COLOR AND TEXT

ADJUSTING THE COLOR

To change the color of an EndoLine, proceed as follows:

1. Click the **Change color** button in the row for the EndoLine.
 - ▶ SICAT Endo changes the color of the EndoLine.
2. If the color is not the desired color, click again on the **Change color** button until SICAT Endo shows the desired color.
 - ▶ SICAT Endo shows the new color for the EndoLine.

ADJUSTING TEXT FOR DESCRIPTION OR POSITION SPECIFICATION

To change the description text or position specification text of the EndoLine, proceed as follows:

1. To enter a description for the EndoLine, click on the **Description/Position** field in the EndoLine row.
 - ▶ The mouse pointer blinks at the enter position.
2. Enter the desired EndoLine description.
 - ▶ SICAT Endo displays the description.
3. To select a text for the EndoLine position specification, click on the arrow icon in the **Description/Position** field in the EndoLine row.
 - ▶ SICAT Endo displays a list with position specifications.
4. Click on the desired position specification in the list.
 - ▶ SICAT Endo shows the position specification in the **Description/Position** field.
5. To apply the changes and to close the **Description/Position** field, left-click on a position outside of the **Description/Position** field.
 - ▶ SICAT Endo displays the new description or position specification.

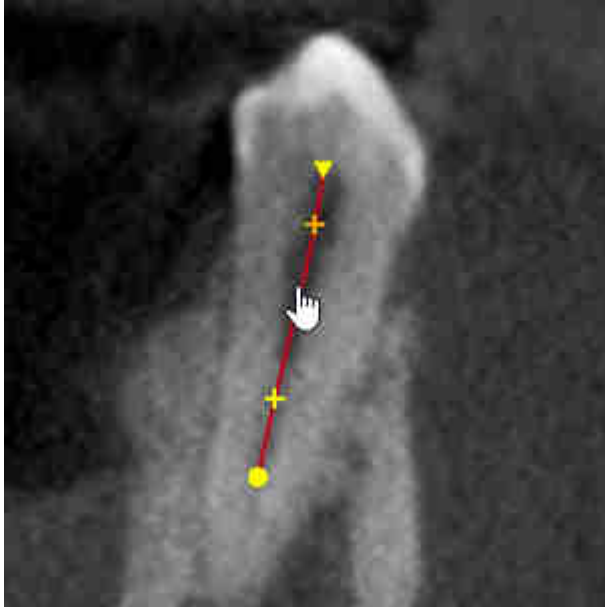


27.6 ADDING, MOVING AND DELETING CONTROL POINTS

ADDING CONTROL POINTS TO AN ENDOLINE

To add a control point to an EndoLine, proceed as follows:

1. Position the mouse pointer at the position of an EndoLine where you want to add a control point

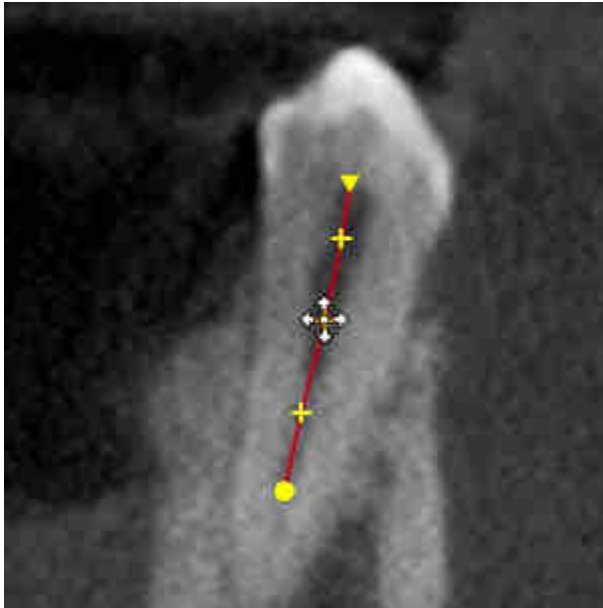


- ▶ The mouse pointer changes.
2. Double-click on the desired position.
- ▶ SICAT Endo adds a control point in the shape of a cross.

MOVING CONTROL POINTS OF AN ENDOLINE

To move control points of an EndoLine, proceed as follows:

1. Position the mouse pointer on the control point of the EndoLine that you want to move.

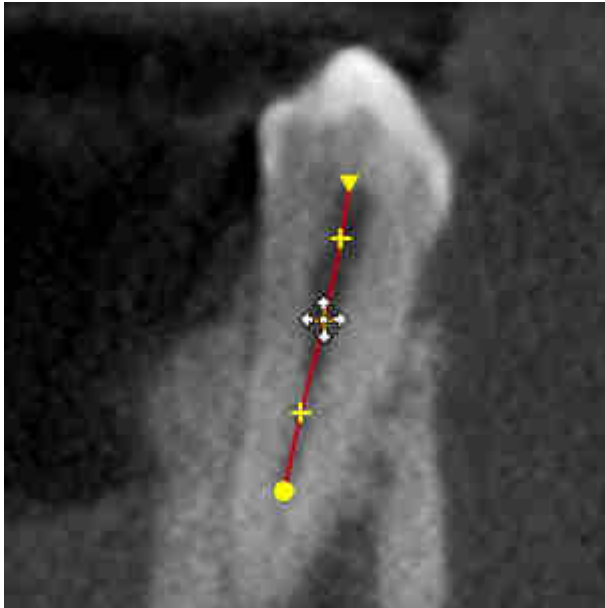


- ▶ The mouse pointer changes.
2. Click and hold the left mouse button.
3. Move the mouse.
 - ▶ The control point tracks the movement of the mouse pointer.
 - ▶ SICAT Endo adjusts the EndoLine according to the new position of the control point.
4. Release the left mouse button.
 - ▶ SICAT Endo maintains the current position of the control point.
 - ▶ SICAT Endo displays the new path of the EndoLine.

DELETING CONTROL POINTS FROM AN ENDOLINE

To delete a control point from an EndoLine, proceed as follows:

1. Position the mouse pointer on the control point of the EndoLine that you want to delete.



- ▶ The mouse pointer changes.
2. Left-click on the control point.
 - ▶ SICAT Endo marks the control point.
3. Press the **Del** key.
 - ▶ SICAT Endo deletes the control point.
 - ▶ SICAT Endo adjusts the EndoLine accordingly.



Please note that the EndoLine will be deleted completely as soon as you delete the penultimate control point.

27.7 ROTATING THE 3D VIEW

General information on the **3D** view can be found in the section *Adjusting the 3D view* [▶ Page 82 - *SIDEXIS XG*].

You can use the **Spin 3D view** function to switch on and off a rotation mode for the 3D X-ray scan in the EndoLine wizard. If the rotation mode is switched on, SICAT Endo rotates the 3D X-ray scan clockwise.

To use the rotation mode, proceed as follows:

- ☑ You have already activated the **3D** view. Information on this can be found in the section *Views* [▶ Page 67 - *SIDEXIS XG*].

1. Adjust the representation of the 3D X-ray scan in such a way that the desired section of the image is shown.
2. Make sure that you have selected the desired display mode. Information on this can be found in the section *Switching the display mode of the 3D view* [▶ Page 84 - *SIDEXIS XG*].
3. Make sure that you have selected the desired clipping mode. Information on this can be found in the section *Changing the clipping mode of the 3D view* [▶ Page 87 - *SIDEXIS XG*].



4. Click on the **Spin 3D view** button.
 - ▶ SICAT Endo rotates the 3D X-ray scan about the vertical axis of the selected section.
5. To exit rotation mode, click on the **Spin 3D view** button again.
 - ▶ SICAT Endo stops the rotation of the 3D X-ray scan.



To stop the rotation mode, you can also click anywhere in the **3D** view.

27.8 DISPLAYING OPTICAL IMPRESSIONS IN THE 3D VIEW

General information on the **3D** view can be found in the section *Adjusting the 3D view* [▶ Page 82 - *SIDEXIS XG*].

If you have already imported and registered optical impressions, you can show and hide these optical impressions in the **3D** view.

To show and hide the optical impressions, proceed as follows:

- ☑ You have already activated the **3D** view. Information on this can be found in the section *Views* [▶ Page 67 - *SIDEXIS XG*].
- ☑ You have already imported and registered at least one optical impression. Information on this can be found in the section *Importing and registering optical impressions* [▶ Page 99 - *SIDEXIS XG*].



1. To show the optical impressions, click on the **Show object** button.
 - ▶ SICAT Endo shows the optical impressions.
 - ▶ SICAT Endo updates the representation of the 3D X-ray scan.



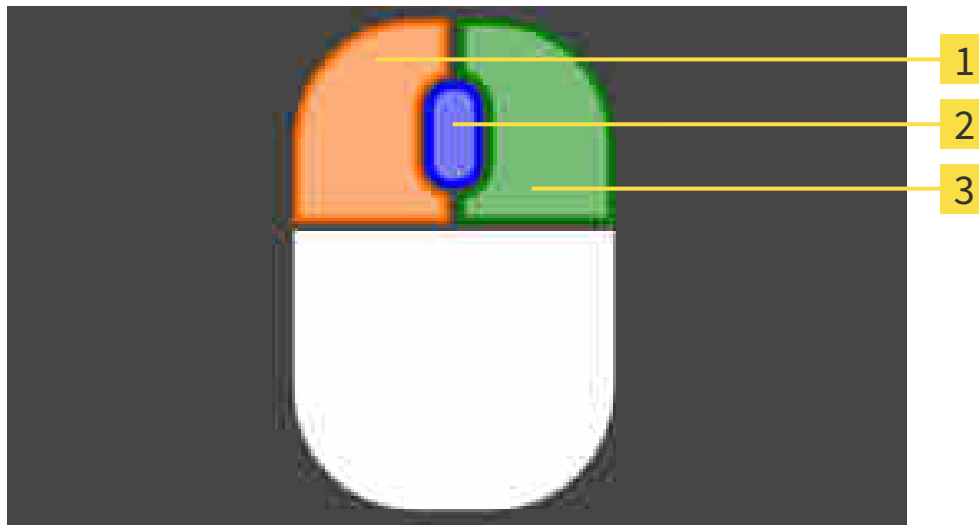
2. To hide the optical impressions, click on the **Hide object** button.
 - ▶ SICAT Endo hides the optical impressions.
 - ▶ SICAT Endo updates the representation of the 3D X-ray scan.



If you have not yet imported and registered optical impressions, SICAT Endo does not show the **Show object** button in the **3D** view.

27.9 USING MOUSE KEYS

SICAT Endo shows a picture explaining how to use the mouse keys when setting an EndoLine:



1 Left mouse key

3 Right mouse key

2 Mouse wheel

If you activate a mouse key, SICAT Endo highlights the mouse key in the picture. The action that is associated with a mouse key depends on the editing mode.


SICAT Endo distinguishes the following editing modes:

- Create
- Edit
- Select

Depending on the editing mode, different actions are available. Available actions are shown in a table above the picture and are highlighted in the color of the associated mouse key.

You can show and hide the picture as needed.

27.10 PLANNING DRILL CHANNELS



CAUTION

An incorrect drilling depth might lead to the wrong treatment.

Make sure that the planned drilling depth and the selected drill match.

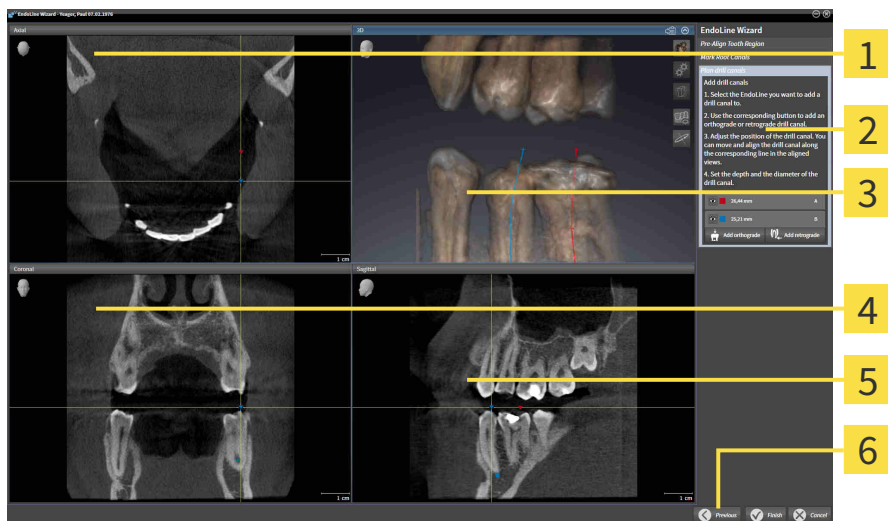
General information on the EndoLine wizard can be found in the section *EndoLine wizard* [▶ Page 124 - *SIDEXIS XG*].

In the **Plan drill canals** step, you can add orthograde and retrograde drill channels to EndoLines and edit them. You can add an orthograde drill channel and a retrograde drill channel. A drill channel is always in the same color as the Endoline associated with the drill channel.

OPENING THE PLAN DRILL CANALS STEP

- ☑ You have finished the **Place EndoLines** step. Information on this can be found in the section *Placing EndoLines* [▶ Page 135 - *SIDEXIS XG*].
- ☑ The **Place EndoLines** step is open.
 - Click on the **Next** button in the **Place EndoLines** step.

▶ The **Plan drill canals** step opens:



- | | |
|--|--|
| <p>1 Axial view</p> <p>2 Add drill canals area</p> <p>3 3D view</p> | <p>4 Coronal view</p> <p>5 Sagittal view</p> <p>6 Finish button</p> |
|--|--|

PLANNING ORTHOGRADE DRILL CHANNELS

1. In the **Add drill canals** area, select the EndoLine to which you want to add an orthograde drill channel.

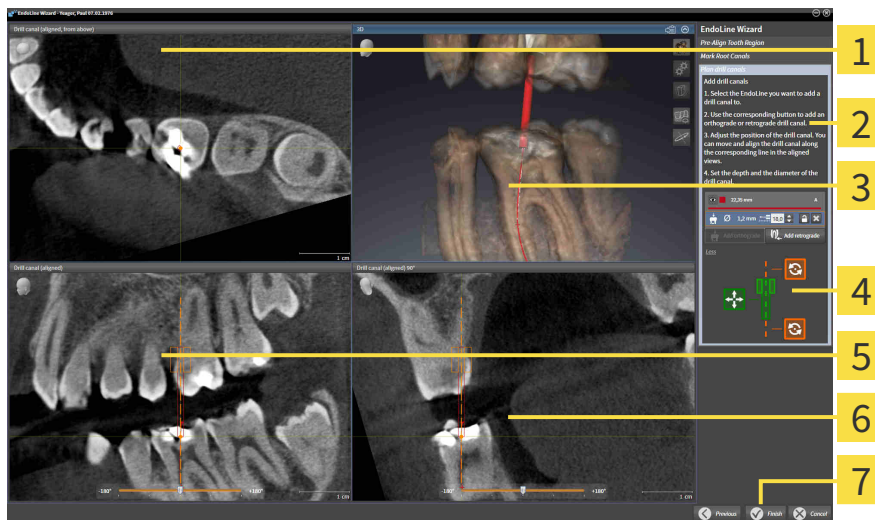
- ▶ SICAT Endo marks the EndoLine.



2. Click on the **Add orthograde** button.

- ▶ SICAT Endo adds an orthograde drill channel to the marked EndoLine.

- ▶ SICAT Endo adjusts the views as follows:



1 Drill canal (aligned, from above) view

5 Drill canal (aligned) view

2 Add drill canals area

6 Drill canal (aligned) 90° view

3 3D view

7 Finish button

4 Infographic



3. To adjust the position of the drill channel along the EndoLine, position the mouse pointer on the drill channel in the **Drill canal (aligned)** view or in the **Drill canal (aligned) 90°** view.

- ▶ The mouse pointer changes.

4. Click and hold the left mouse button.

5. Move the drill channel to the desired position.

6. Release the left mouse button.

- ▶ SICAT Endo maintains the current position of the drill channel.

- ▶ SICAT Endo adjusts the other views according to the changed position of the drill channel.



7. To adjust the rotation of the drill channel, position the mouse pointer on the EndoLine outside of the drill channel in the **Drill canal (aligned)** view or in the **Drill canal (aligned) 90°** view.

- ▶ The mouse pointer changes.

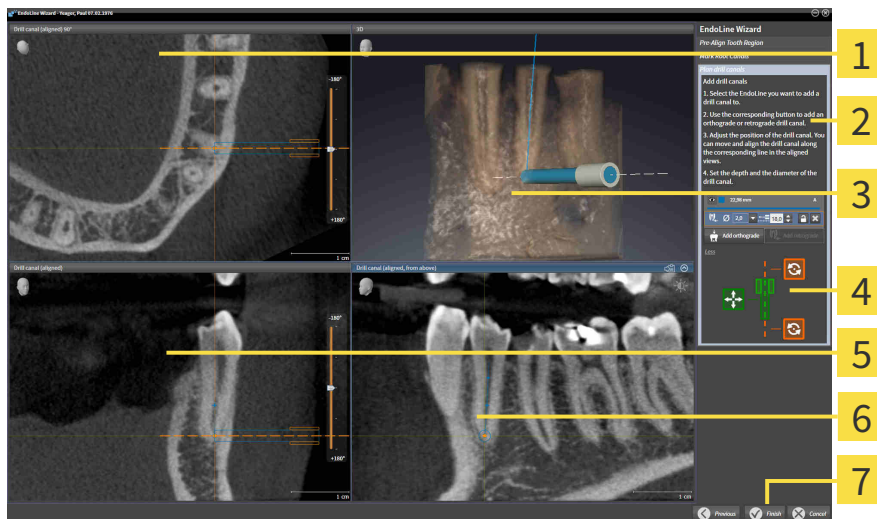
8. Click and hold the left mouse button.

9. Rotate the EndoLine with the drill channel in the desired direction.
10. Release the left mouse button.
 - ▶ SICAT Endo maintains the current rotation of the EndoLine and the drill channel.
 - ▶ SICAT Endo adjusts the other views according to the changed position of the drill channel.
11. If required, you can adjust the position of the drill sleeve by clicking on the arrow keys next to the **Depth [mm]** field.
 - ▶ SICAT Endo displays the new depth of the drill sleeve.
12. To finish the planning of drill channels, click on the **Finish** button.
 - ▶ The EndoLine wizard closes.
 - ▶ The **Radiograph** workspace opens.
 - ▶ SICAT Endo shows the planned drill channels.



PLANNING RETROGRADE DRILL CHANNELS

1. In the **Add drill canals** area, select the EndoLine that you want to add a retrograde drill channel to.
 - ▶ SICAT Endo marks the EndoLine.
2. Click on the **Add retrograde** button.
 - ▶ SICAT Endo adds a retrograde drill channel to the marked EndoLine.
 - ▶ SICAT Endo adjusts the views as follows:



1 Drill canal (aligned) 90° view

5 Drill canal (aligned) view

2 Add drill canals area

6 Drill canal (aligned, from above) view

3 3D view

7 Finish button

4 Infographic



3. To adjust the position of the drill channel along the EndoLine, position the mouse pointer on the drill channel in the **Drill canal (aligned)** view or in the **Drill canal (aligned) 90°** view.
 - ▶ The mouse pointer changes.
4. Click and hold the left mouse button.
5. Move the drill channel to the desired position.
6. Release the left mouse button.
 - ▶ SICAT Endo maintains the current position of the drill channel.
 - ▶ SICAT Endo adjusts the other views according to the changed position of the drill channel.



7. To adjust the rotation of the drill channel, position the mouse pointer on the EndoLine outside of the drill channel in the **Drill canal (aligned)** view or in the **Drill canal (aligned) 90°** view.
 - ▶ The mouse pointer changes.
8. Click and hold the left mouse button.
9. Rotate the EndoLine with the drill channel in the desired direction.
10. Release the left mouse button.
 - ▶ SICAT Endo maintains the current rotation of the EndoLine and the drill channel.
 - ▶ SICAT Endo adjusts the other views according to the changed position of the drill channel.



11. If required, you can adjust the position of the drill sleeve by clicking on the arrow keys next to the **Depth [mm]** field.
 - ▶ SICAT Endo displays the new depth of the drill sleeve.



12. If required, you can adjust the diameter of the retrograde drill channel by clicking on the arrow icon next to the **Diameter [mm]** field.
 - ▶ SICAT Endo displays a list with available diameters.
13. Click on the desired diameter.
 - ▶ SICAT Endo displays the new diameter of the drill channel.
14. To finish the planning of drill channels, click on the **Finish** button.
 - ▶ The EndoLine wizard closes.
 - ▶ The **Radiograph** workspace opens.
 - ▶ SICAT Endo shows the planned drill channels.

BLOCKING DRILL CHANNELS

Use this function to protect drill channels from modification.

To block a drill channel, proceed as follows:

- ☑ The drill channel has already been marked.



- Click on the **Lock object** icon.
- ▶ SICAT Endo blocks the drill channel for editing.
- ▶ SICAT Endo blocks the associated EndoLine.

UNBLOCKING DRILL CHANNELS

To unblock a drill channel, proceed as follows:

- ☑ The drill channel has been blocked.
- ☑ The drill channel has already been activated.



- Click on the **Unlock object** icon.
- ▶ SICAT Endo unblocks the drill channel.
- ▶ SICAT Endo unblocks the associated EndoLine.

DELETING DRILL CHANNELS

To delete a drill channel, proceed as follows:

1. In the **Add drill canals** area, click on the Endo planning object containing the drill channel that you want to delete.
 - ▶ SICAT Endo marks the Endo planning object.
2. In the Endo planning object, click on the drill channel that you want to delete.
 - ▶ SICAT Endo marks the drill channel.
3. Click on the **Delete drill canal** button at the end of the row.
 - ▶ SICAT Endo deletes the drill channel.



If you have blocked a drill channel for editing, you will not be able to edit the associated EndoLine either. To be able to edit the EndoLine, you have to unblock the associated drill channel.

28 DISTANCE AND ANGLE MEASUREMENTS

SICAT Endo features two different types of measurement:



- Distance measurements



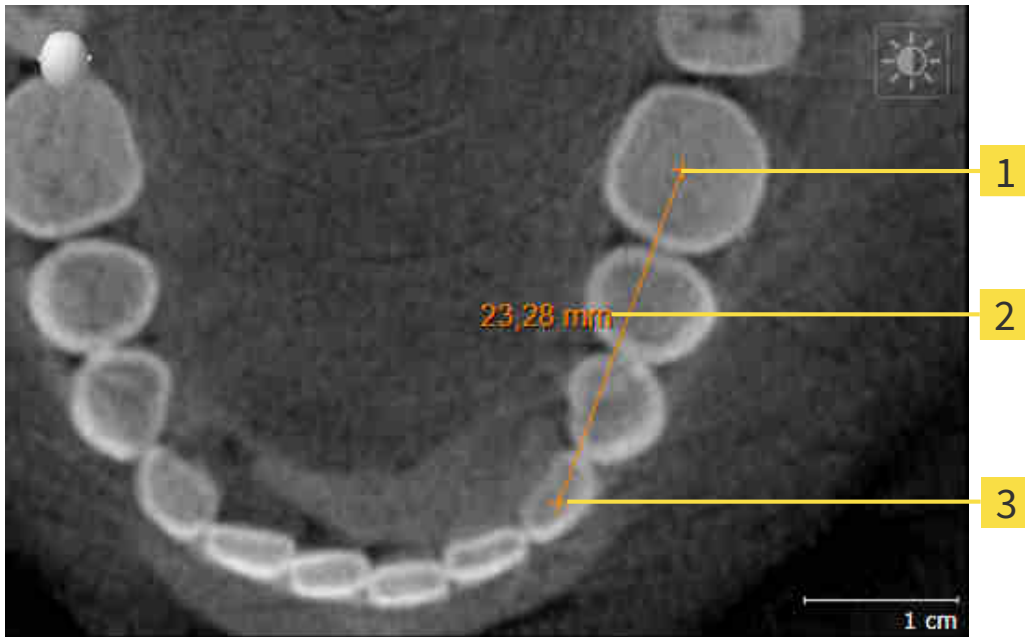
- Angle measurements

The tools to add measurements are available in the **Diagnose** step of the **Workflow toolbar**. You can add measurements in all 2D slice views. Every time you add a measurement, SICAT Endo will also add it to the **Measurements** group in the **Object browser**.

The following actions are available for measurements:

- *Adding distance measurements* [▶ Page 150 - SIDEXIS XG]
- *Adding angle measurements* [▶ Page 151 - SIDEXIS XG]
- *Moving measurements, individual measuring points and measured values* [▶ Page 153 - SIDEXIS XG]
- *Activating, hiding and showing measurements - Information on this can be found in the section [Managing objects with the object browser](#) [▶ Page 53 - SIDEXIS XG].*
- *Focusing on measurements, removing measurements and undoing and redoing measurement actions – Information on this can be found in the section [Managing objects with the object toolbar](#) [▶ Page 55 - SIDEXIS XG].*

28.1 ADDING DISTANCE MEASUREMENTS



1 Starting point

2 Measured value

3 End point

To add a distance measurement, proceed as follows:

The **Diagnose** workflow step is already expanded.

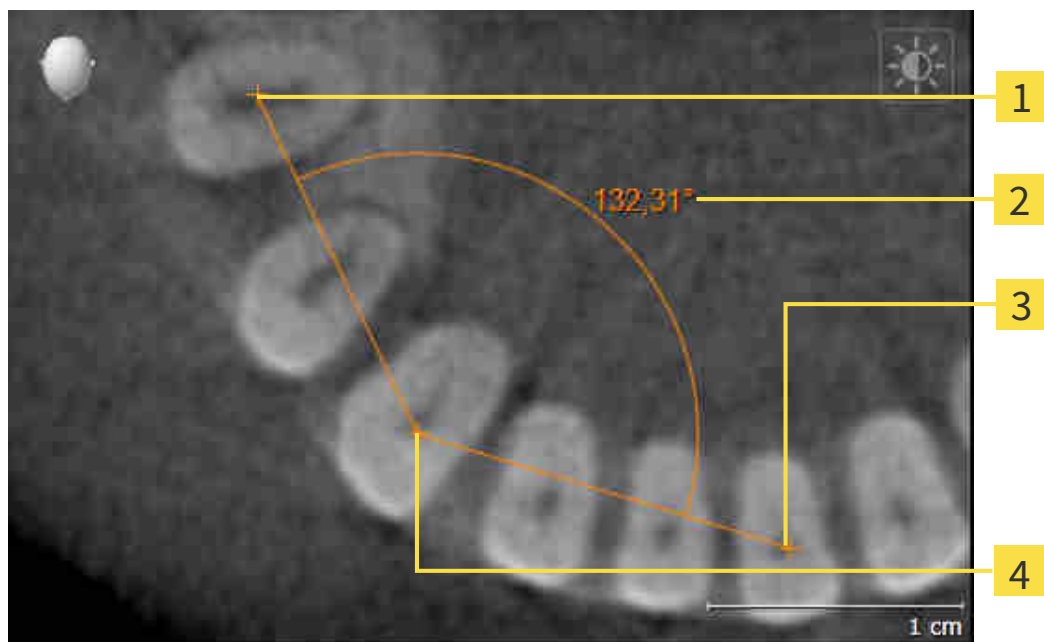


1. In the **Diagnose** workflow step, click the **Add distance measurement (D)** icon.
 - ▶ SICAT Endo adds a new distance measurement to the **Object browser**.
2. Move the mouse pointer over the desired 2D slice view.
 - ▶ The mouse pointer becomes a cross.
3. Click on the starting point of the distance measurement.
 - ▶ SICAT Endo illustrates the starting point using a small cross.
 - ▶ SICAT Endo shows a distance line between the starting point and the mouse pointer.
 - ▶ SICAT Endo shows the current distance between the starting point and the mouse pointer in the middle of the distance line and in the **Object browser**.
4. Move the mouse pointer to the end point of the distance measurement and left-click.
 - ▶ SICAT Endo illustrates the end point using a small cross.



You can cancel adding measurements at any time by pressing **ESC**.

28.2 ADDING ANGLE MEASUREMENTS



1 Starting point

2 Measured value

3 End point

4 Vertex

To add an angle measurement, proceed as follows:

- The **Diagnose** workflow step is already expanded.



1. In the **Diagnose** workflow step, click the **Add angle measurement (A)** icon.
 - ▶ SICAT Endo adds a new angle measurement to the **Object browser**.
2. Move the mouse pointer over the desired 2D slice view.
 - ▶ The mouse pointer becomes a cross.
3. Click on the starting point of the angle measurement.
 - ▶ SICAT Endo illustrates the starting point using a small cross.
 - ▶ SICAT Endo shows the first side of the angle measurement by means of a line from the starting point to the mouse pointer.
4. Move the mouse pointer to the vertex of the angle measurement and left-click.
 - ▶ SICAT Endo illustrates the vertex using a small cross.
 - ▶ SICAT Endo shows the second side of the angle measurement by a line from the vertex to the mouse pointer.
 - ▶ SICAT Endo shows the current angle between both sides of the angle measurement and in the **Object browser**.

5. Move the mouse pointer to the end point of the second side and left-click.

► SICAT Endo illustrates the end point using a small cross.



You can cancel adding measurements at any time by pressing **ESC**.

28.3 MOVING MEASUREMENTS, INDIVIDUAL MEASURING POINTS AND MEASURED VALUES

MOVING MEASUREMENTS

To move a measurement, proceed as follows:

- ☑ SICAT Endo shows the desired measurement already in a 2D slice view. For further information about this see *Managing objects with the object browser* [▶ Page 53 - SIDEXIS XG] and *Managing objects with the object toolbar* [▶ Page 55 - SIDEXIS XG].

1. Place the mouse pointer on one of the measurement lines.
 - ▶ The mouse pointer becomes a cross.
2. Click and hold the left mouse button.
3. Place the mouse pointer on the desired position of the measurement.
 - ▶ The measurement tracks the movement of the mouse pointer.
4. Release the left mouse button.
 - ▶ SICAT Endo maintains the current position of the measurement.

MOVING INDIVIDUAL MEASURING POINTS

To move an individual measuring point, proceed as follows:

- ☑ SICAT Endo shows the desired measurement already in a 2D slice view. For further information about this see *Managing objects with the object browser* [▶ Page 53 - SIDEXIS XG] and *Managing objects with the object toolbar* [▶ Page 55 - SIDEXIS XG].

1. Place the mouse pointer on the desired measuring point.
 - ▶ The mouse pointer becomes a cross.
2. Click and hold the left mouse button.
3. Place the mouse pointer on the desired position of the measuring point.
 - ▶ The measuring point tracks the movement of the mouse pointer.
 - ▶ The measured value changes as you move the mouse.
4. Release the left mouse button.
 - ▶ SICAT Endo maintains the current position of the measuring point.

MOVING MEASURED VALUES

To move a measured value, proceed as follows:

☑ SICAT Endo shows the desired measurement already in a 2D slice view. For further information about this see *Managing objects with the object browser* [▶ Page 53 - SIDEXIS XG] and *Managing objects with the object toolbar* [▶ Page 55 - SIDEXIS XG].

1. Place the mouse pointer on the desired measured value.
 - ▶ The mouse pointer becomes a cross.
2. Click and hold the left mouse button.
3. Place the mouse pointer on the desired position of the measured value.
 - ▶ The measured value tracks the movement of the mouse pointer.
 - ▶ SICAT Endo shows a dotted line between the measured value and the corresponding measurement.
4. Release the left mouse button.
 - ▶ SICAT Endo maintains the current position of the measured value.



After you have moved the value of a measurement, the SICAT Endo will define the value at an absolute position. To position the value again relative to the measurement, double click on the value.

29 PATIENT INFORMATION



CAUTION

Using the handout for diagnosis purposes may result in an incorrect diagnosis and treatment.

Only use the visualization functions for medical images of the software user interface to perform a diagnosis on medical images and to plan the treatment.

You can explain your diagnosis and highlight the effects of the treatment to the patient through illustrations customized for the patient. The patient information consists of two steps:

1. In your practice within SICAT Endo
2. By way of a patient information via the handout

You can compile the contents of the handouts during your explanations on the monitor.

The sources are images based on drawing objects and screenshots.

The patient can better understand the results you have discussed and also better discuss this with others using the handout.

Creating the handout consists of the following steps:

- *Creating images and screenshots* [▶ Page 156 - SIDEXIS XG]
- *Preparing handouts* [▶ Page 160 - SIDEXIS XG]
- *Generating handouts* [▶ Page 162 - SIDEXIS XG]

29.1 CREATING IMAGES AND SCREENSHOTS

General information on patient information can be found in the section *Patient information* [▶ Page 155 - *SIDEXIS XG*].

General information on managing images and screenshots can be found in the section *SICAT Endo objects* [▶ Page 56 - *SIDEXIS XG*].

There are two drawing tools:

- **Draw Arrow**
- **Draw Circle**

DRAWING ARROWS

To draw an arrow, proceed as follows:

- ☑ You have already aligned the volume according to your requirements. Information on this can be found in the section *Adjusting the volume orientation* [▶ Page 90 - *SIDEXIS XG*].
- ☑ The **Consult** workflow step is already expanded. Information on this can be found in the section *Workflow toolbar*.

1. In the **Consult** workflow step, click the **Draw Arrow** icon.
2. Place the mouse pointer over the desired view.
 - ▶ The mouse pointer becomes a pen.
3. Click and hold the left mouse button on the desired arrow tip position.
4. Move the mouse.
 - ▶ SICAT Endo shows an arrow in the view.
 - ▶ The end of the arrow will now match the position of the mouse pointer.
5. Move the mouse pointer to the desired arrow end position and release the left button.
 - ▶ SICAT Endo shows the finished arrow in the view.
 - ▶ If not yet available, SICAT Endo will create the structures required for the **Image** object in the **Object browser**.
 - ▶ The image will be available in the **Report Generation** window.
6. Click on the **Draw Arrow** icon.
 - ▶ SICAT Endo closes the mode for drawing arrows.

DRAWING CIRCLES

To draw a circle, proceed as follows:

- ☑ You have already aligned the volume according to your requirements, for example according to the Frankfurt plane. Information on this can be found in the section *Adjusting the volume orientation* [▶ Page 90 - *SIDEXIS XG*].
 - ☑ The **Consult** workflow step is already expanded. Information on this can be found in the section **Workflow toolbar**.
1. In the **Consult** workflow step, click the **Draw Circle** icon.
 2. Place the mouse pointer over the desired view.
 - ▶ The mouse pointer becomes a pen.
 3. Click and hold the left mouse button on the desired position for the center of the circle.
 4. Move the mouse.
 - ▶ SICAT Endo shows a circle in the view.
 - ▶ The radius of the circle will now match the distance between the center and the position of the mouse pointer.
 5. Move the mouse pointer to achieve the desired radius and release the left button.
 - ▶ SICAT Endo shows the finished circle in the view.
 - ▶ If not yet available, SICAT Endo will create the structures required for the **Image** object in the **Object browser**.
 - ▶ The image will be available in the **Report Generation** window.
 6. Click on the **Draw Circle** icon.
 - ▶ SICAT Endo closes the mode to draw circles.



As long as the **Draw Arrow** drawing tool or **Draw Circle** drawing tool is active, you can create several drawing objects one after another. You can cancel the use of a drawing tool by clicking on a point outside the view in question or by pressing the **ESC** key.

CONFIGURING DRAWING TOOLS

You can configure the **Draw Arrow** drawing tool or the **Draw Circle** drawing tool separately. Changes to the settings will only affect drawing objects created after that point.

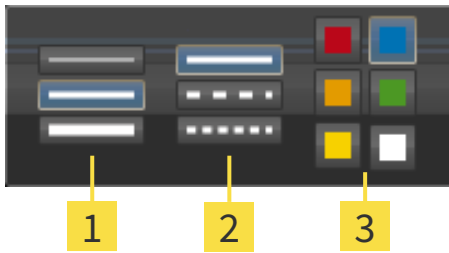
To configure a drawing tool, proceed as follows:

- ☑ The **Consult** workflow step is already expanded. Information on this can be found in the section Workflow toolbar.



1. In the **Consult** workflow step, click on the corresponding **Configure drawing tool** icon next to the **Draw Arrow** icon or **Draw Circle** icon.

▶ The transparent **Configure drawing tool** window opens:



1 Icons for the **Line thickness**

2 Icons for the **Line type**

3 Icons for the **Line color**

2. Click the desired icons to configure the **Line thickness**, **Line type** and **Line color** of the drawing tool.
3. Click on any point outside the transparent **Configure drawing tool** window.
 - ▶ SICAT Endo closes the transparent **Configure drawing tool** window.
 - ▶ SICAT Endo saves the settings in your user profile.
 - ▶ SICAT Endo uses the new settings for drawing objects created from then on.

ADDING SCREENSHOTS TO THE “GENERATE HANDOUT” WINDOW

You can create screenshots of any view in any workspace and any window as long as the respective view contains the **Copy screenshot to clipboard (Ctrl+C)** icon.

To add screenshots to the handout, proceed as follows:



1. To create a screenshot of a view, click on the **Copy screenshot to clipboard (Ctrl+C)** icon in the **View toolbar** of the desired view.
2. To create a screenshot of the entire workspace, click on the **Copy screenshot to clipboard (Ctrl+C)** icon in the **Workspace toolbar**.
 - ▶ SICAT Endo will create the structures that are required for the **Screenshotobject** in the **Object browser** and will activate the object.
 - ▶ The screenshot will be available in the **Report Generation** window.
 - ▶ SICAT Endo copies a screenshot to the clipboard.

Continue with the section *Preparing handouts* [▶ *Page 160 - SIDEXIS XG*].

29.2 PREPARING HANDOUTS

General information on patient information can be found in the section *Patient information* [▶ Page 155 - *SIDEXIS XG*].

The following actions are available for preparing handouts:

- Opening the **Report Generation** window
- Changing handout settings
- Preparing elements

OPENING THE “REPORT GENERATION” WINDOW

- ☑ You have created at least one **Image** object or one **Screenshot** object.
- ☑ The **Consult** workflow step is already expanded. Information on this can be found in the section *Workflow toolbar*.



- Click on the **Create Patient Information Report** icon.
- ▶ The **Report Generation** window opens:

CHANGING HANDOUT SETTINGS

- ☑ The **Report Generation** window is already open.
1. Click on the icon for the desired arrangement of the images in the **Image Gallery Settings** area.
 - ▶ SICAT Endo shows the images according to the selected settings.
 2. Click on the row with the button with the desired paper size in the **Global Settings** area.
 - ▶ SICAT Endo changes the paper size according to the selected setting.
 3. Activate or deactivate the **Anonymize patient information** check box.
 - ▶ SICAT Endo shows the actual patient information or anonymized patient information according to the selected setting.

PREPARING ELEMENTS FOR HANDOUTS

The **Report Generation** window shows screenshots from **Image** objects and screenshots from **Screenshot** objects. Information on this can be found in the section *Creating images and screenshots* [▶ Page 156 - *SIDEXIS XG*].

To prepare elements for handouts, proceed as follows:

- ☑ The **Report Generation** window is already open.



1. If you want to hide an element on the handout, deactivate the corresponding check box for the element.
 - ▶ SICAT Endo hides the element on the handout.



2. If you want SICAT Endo to show an image alone on a page, click on the **Show image on single page** icon.



3. If you want to add a description to an element, click on the **Edit image description** icon of the element.
 - ▶ SICAT Endo displays an enlarged version of the element and a text input field:
4. Enter text into the text input field.
 - ▶ If the text you have entered is part of an existing text block, SICAT Endo will display the list of text blocks.
5. Click on the desired text block.
 - ▶ SICAT Endo adds the text block to the text input field.
6. If the desired text is not available as a text block, enter a new text.
7. Click on the **OK** button.
 - ▶ SICAT Endo saves the text as a description of the screenshot.
 - ▶ If the text you have entered is not available as a text block, SICAT Endo will save the description as a new text block in your user profile.
8. If you wish to change the order of elements on the handout, adjust them using drag & drop.



If you place the mouse pointer on a text block, SICAT Endo will display the **Remove this auto complete text from the list** icon. If you click on the **Remove this auto complete text from the list** icon, SICAT Endo will remove the text block from your user profile.



You can switch between the elements in the window showing the enlarged versions of the elements by clicking on the **Next item** button and **Previous item** button.

You can completely remove elements from the handout using the **Object browser**. Information on this can be found in the section *Managing objects with the object toolbar* [▶ Page 55 - SIDEXIS XG].

Continue with the section *Generating handouts* [▶ Page 162 - SIDEXIS XG].



SICAT Endo takes the practice logo and practice information text from the general settings. Information on this can be found in the section *Using practice information* [▶ Page 184 - SIDEXIS XG].

29.3 GENERATING HANDOUTS

The following actions are available for producing handouts:

- Saving a handout as a PDF file
- Printing handouts

SAVING A HANDOUT AS A PDF FILE

☑ The **Report Generation** window is already open.



1. Click on the **Export PDF** button in the **output** area.
 - ▶ A Windows Explorer window opens.
2. Switch to the directory in which you wish to save the handout.
3. Enter a name in the **File name** field and click on **Save**.
 - ▶ The Windows Explorer window closes.
 - ▶ SICAT Endo saves the handout as a PDF file.

PRINTING HANDOUTS



Handouts of a suitable quality require a printer that meets certain requirements. Information on this can be found in the section *System requirements* [▶ *Page 8 - SIDEXIS XG*].



- ☑ The **Report Generation** window is already open.
1. Click on the **Print** button.
 - ▶ The **Print** window opens.
 2. Select the desired printer and adjust the print settings where necessary.
 3. Click **Print**.
 - ▶ SICAT Endo sends the handout to the printer.

30 DATA EXPORT

You can export data.

You can export the currently open patient data and volume data.

This is the study that was opened from SIDEXIS XG.

NOTICE

Reimporting exported data

You can only import data that was previously exported from SICAT Suite as a SIDEXIS XG plug-in in the stand-alone version of SICAT Suite.

SICAT Suite can export the following data:

- Patient records (DICOM)
- 3D studies
- Documents

Exported data may contain the following elements:

DATA TYPE	EXPORT FORMAT
3D scans	DICOM
3D studies	SICAT proprietary
Document	PDF

SICAT Suite exports 3D scans and studies either into Zip archives or DICOM directories. Where necessary, SICAT Suite can anonymize patient data for export.

Perform the following actions in the order stated to export data:

- Open the **Export data** window. Information on this can be found in the section *Opening the “Forwarding data” window* [▶ Page 164 - SIDEXIS XG].
- Export the desired data. Information on this can be found in the section *Exporting data* [▶ Page 165 - SIDEXIS XG].

30.1 OPENING THE “FORWARDING DATA” WINDOW

To export data, you first have to open the **Export data** window.

To open the **Export data** window in SICAT Suite as a SIDEXIS XG plug-in, proceed as follows:



- Click on the **Export data** icon in the **Navigation bar**.
- ▶ The **Export data** window opens.



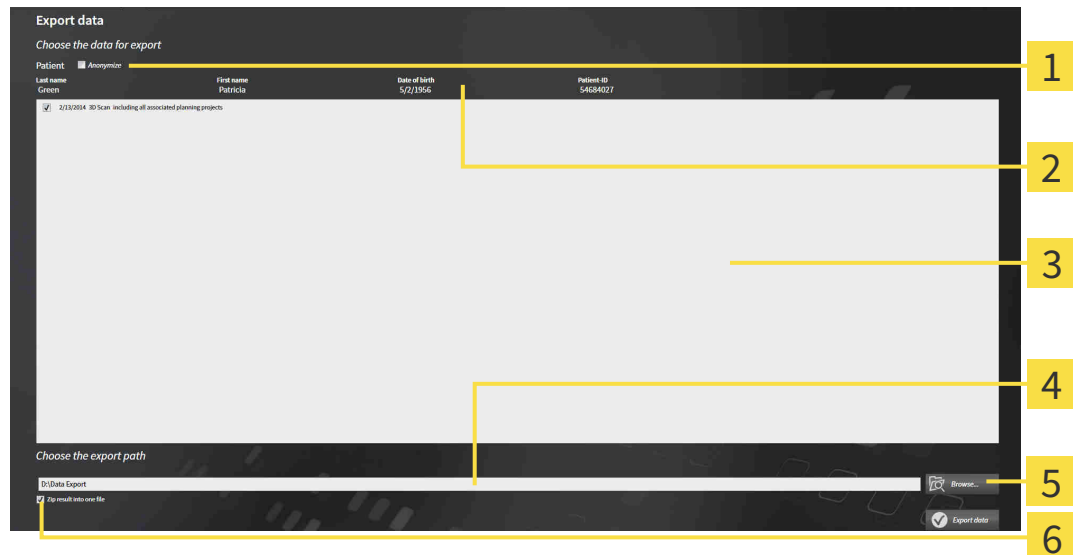
SICAT Suite exports only the selected 3D X-ray scans and planning projects for the active patient record.

Continue with the section *Exporting data* [▶ *Page 165 - SIDEXIS XG*].

30.2 EXPORTING DATA

To export studies, proceed as follows:

- ✓ The **Export data** window is already open. Information on this can be found in the section *Opening the “Forwarding data” window* [▶ Page 164 - SIDEXIS XG].



- | | |
|---|---|
| 1 Anonymize check box | 4 Choose the export path field |
| 2 Attributes of the patient record | 5 Export data button |
| 3 List of 3D studies | 6 Zip result into one file check box |

1. Activate the **Anonymize** check box in the **Export data** window if desired.
 - ▶ The attributes of the exported patient record will change to **Patient for Last name, Anonymous for First name and 01.01** with the year of birth for **Date of birth**. The attributes of the patient record in the patient record depot remain unchanged.
2. Make sure that the desired 3D studies of the desired patient have been selected.



3. Click on the **Browse** button.
 - ▶ The **Folder search** window opens.
4. Select a target folder and click on **OK** in the **Folder search** window.
 - ▶ The **Folder search** window closes and SICAT Suite transfers the path of the desired folder to the **Choose the export path** field.
5. Activate or deactivate the **Zip result into one file** check box.



6. Click on the **Export data** button.
 - ▶ SICAT Suite exports the selected studies into a Zip file or into the selected folder.

Both Zip files and folders contain the 3D X-ray scans in DICOM format and planning data in a proprietary file format. You can view the 3D X-ray scans with any DICOM viewer and the planning data with the corresponding SICAT application.

31 ORDERING PROCESS

To order the desired product, proceed as follows:

- Place the desired planning data for surgical guides in the shopping cart in SICAT Endo. Information on this can be found in the section *Placing surgical guides in the shopping cart* [▶ Page 167 - SIDEXIS XG].
- Check the shopping cart and start the order. Information on this can be found in the section *Checking the shopping cart and completing the order* [▶ Page 171 - SIDEXIS XG].
- Complete the order either directly on the computer on which SICAT Suite is running or on another computer with an active Internet connection. For further information see section *Completing an order using an active Internet connection* [▶ Page 172 - SIDEXIS XG] or section *Completing an order without an active Internet connection* [▶ Page 176 - SIDEXIS XG].



You can add orders to the shopping cart, which are part of the same 3D X-ray scan. You should then complete the ordering process in full as the contents of the shopping cart will be lost when you close SICAT Suite.

31.1 PLACING SURGICAL GUIDES IN THE SHOPPING CART



Incorrect data in an order may result in an incorrect order.

If you complete an order, ensure that you select and transfer the correct data for the order.



An incorrect order might lead to the wrong treatment.

1. Check your order before sending it.
2. Confirm the correct planning of your order.

General information on the ordering process can be found in the section *Ordering process* [▶ Page 166 - *SIDEXIS XG*].

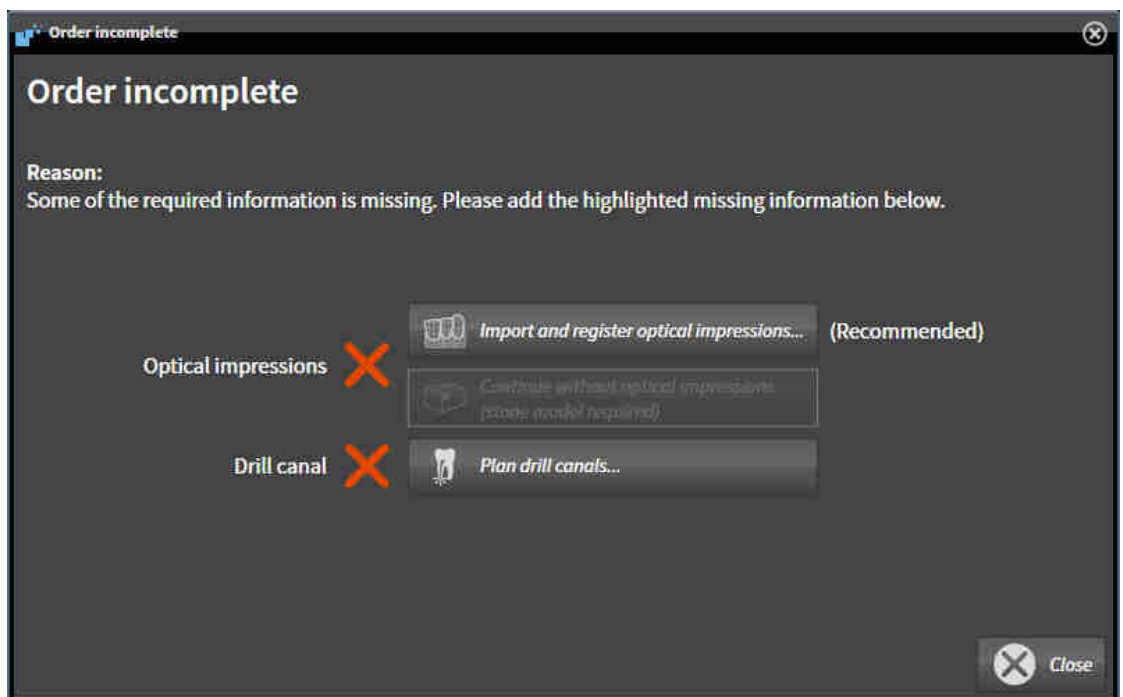
In SICAT Endo, you can place a **SICAT GUIDE (ENDO)** surgical guide in the shopping cart in the first part of the ordering process. Certain prerequisites must be met so that you can place a **SICAT GUIDE (ENDO)** in the shopping cart. SICAT Endo will notify you if you have not fulfilled all of the prerequisites.

IF THE PREREQUISITES ARE NOT FULFILLED

- The **Order** workflow step is already expanded. Information on this can be found in the section *Workflow toolbar* [▶ Page 49 - *SIDEXIS XG*].



1. Click on the **Order SICAT GUIDE (ENDO)** icon.
 - ▶ The **Order incomplete** window opens:



2. If you have not yet registered any optical impression, click on the **Import and register optical impressions** button and import an optical impression corresponding to the 3D X-ray scan. Information on this can be found in the section *Optical impressions* [▶ Page 98 - *SIDEXIS XG*].
3. If you have not yet planned a drill channel, click on the **Plan drill canals** button and set at least one drill channel. Information on this can be found in the section *Planning drill channels* [▶ Page 144 - *SIDEXIS XG*].

i You may have to adjust the orientation of the volume and the panoramic curve, before importing optical impressions. You can access the **Adjust Volume Orientation and Panoramic Region** window directly from the **Import and register optical impressions** window by clicking on the **Adjust panoramic region** button in the **Register** step. Information on this can be found in the section *Adjusting the panoramic region* [▶ Page 95 - SIDEXIS XG].

i If you wish to send plaster casts to SICAT instead of optical impressions, you can place surgical guides in the shopping cart without optical impressions by pressing the **Continue without optical impressions (stone model required)** button in the **Order incomplete** window. After this, the **Order Drill Guide** step will display the following information: **This order will be placed without optical impression data. The stone model must be sent to the SICAT Lab**

IF THE PREREQUISITES ARE FULFILLED

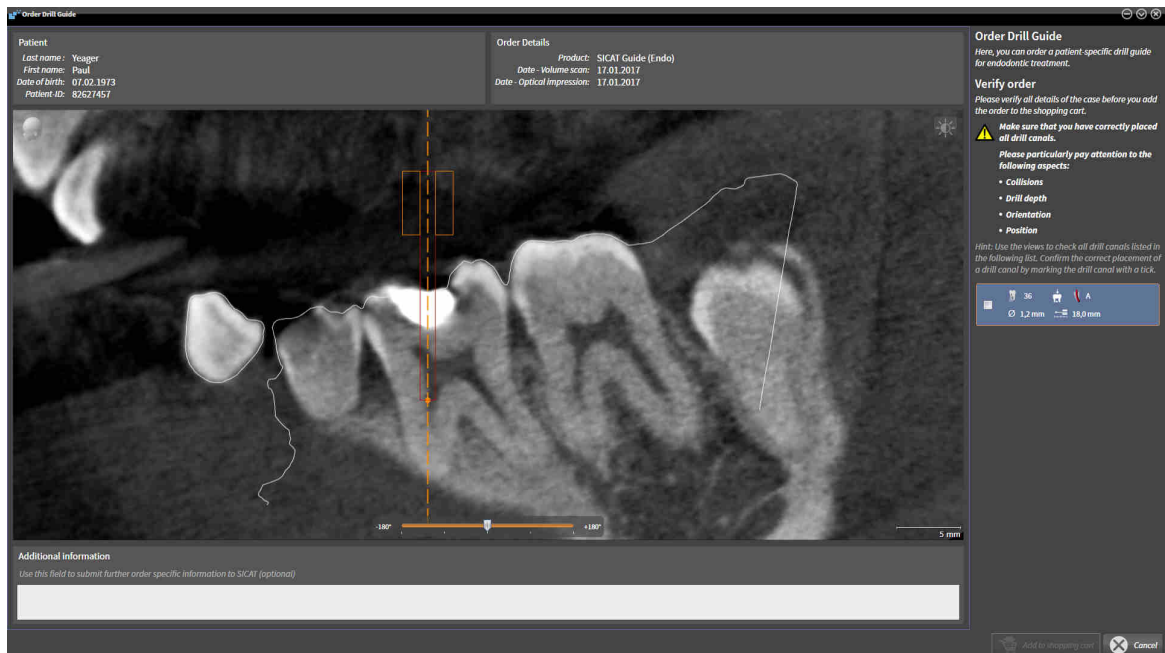
- You have imported at least one optical impression.
- You have already set EndoLines.
- You have already set drill channels.
- The **Order** workflow step is already expanded. Information on this can be found in the section *Workflow toolbar* [▶ Page 49 - SIDEXIS XG].



- Click on the **Order SICAT GUIDE (ENDO)** icon.
- ▶ The **Order Drill Guide** window opens.

VALIDATE YOUR ORDER IN THE ORDER DRILL GUIDE WINDOW

- The **Order Drill Guide** window is already open.



1. Check in the **Patient** section and **Order Details** section whether the patient information and scan information are correct.
2. Verify that you have correctly placed all drill channels.

3. To validate verification of a drill channel, mark the corresponding Endo planning object in the **Verify order** area.
 - ▶ SICAT Endo marks the Endo planning object.
4. Place a check mark.
 - ▶ SICAT Endo shows a green check mark.
5. Repeat the steps for all drill channels that are included in your order.
6. If desired, enter additional information for SICAT in the **Additional information** field.



7. Click on the **Add to shopping cart** button.
 - ▶ SICAT Endo places the desired planning data for the **SICAT GUIDE (ENDO)** in the SICAT shopping cart.
 - ▶ The **Order Drill Guide** window closes.
 - ▶ SICAT Endo opens the SICAT Suite shopping cart.



You can only add an order to the shopping cart if you have verified all planned drill channels and validated verification for each drill channel.



If you find a fault when verifying the drill channels but you have already validated verification by setting at least one check mark, please click on the **Cancel** button and repeat the order verification steps.



As long as there is an order in the shopping cart, you can no longer overwrite optical impressions, EndoLines and the drill channels of a plan. This is only possible once more when you have completed or deleted the order. If you overwrite or delete optical impressions, EndoLines or drill channels of a plan, you cannot re-order the same surgical guide.



You can cancel the order by clicking on **Cancel**.

Continue with the section *Checking the shopping cart and completing the order* [▶ Page 171 - SIDEXIS XG].

31.2 OPENING THE SHOPPING CART



The **Shopping cart** icon shows the number of elements in the shopping cart.

- ☑ The shopping cart contains at least one product.



- If the shopping cart is not yet open, click the **Shopping cart** button on the **Navigation bar**.
- ▶ The **Shopping cart** window opens.

Continue with the following action:

- *Checking the shopping cart and completing the order* [▶ [Page 171 - SIDEXIS XG](#)]

31.3 CHECKING THE SHOPPING CART AND COMPLETING THE ORDER

☑ The **Shopping cart** window is already open. Information on this can be found in the section *Opening the shopping cart* [▶ Page 170 - SIDEXIS XG].

1. Check in the **Shopping cart** window whether the desired products are included.

2. Click on the **Finalize Order** button.

▶ SICAT Suite sets the status of the orders to **Preparing** and establishes a connection to the SICAT server via the SICAT WebConnector.

▶ Changes to the order are only possible in the SICAT Portal with an active Internet connection.

Continue with one of the following actions:

■ *Completing an order using an active Internet connection* [▶ Page 172 - SIDEXIS XG]

■ *Completing an order without an active Internet connection* [▶ Page 176 - SIDEXIS XG]

31.4 COMPLETING AN ORDER USING AN ACTIVE INTERNET CONNECTION



In certain versions of Windows, you have to set a standard browser in order for the ordering process to work.

- ☑ The computer on which SICAT Suite is running has an active Internet connection.
 - ☑ The SICAT Portal was automatically opened in your browser.
1. Register or log in to the SICAT portal using your username and password if you have not already done so.
 - ▶ The ordering overview opens and shows the products contained in the order, along with the corresponding prices, grouped according to patients.
 2. Follow the instructions in the section *Performing ordering steps in the SICAT Portal* [▶ Page 173 - *SIDEXIS XG*].
 - ▶ SICAT Suite prepares the order data for uploading.
 - ▶ As soon as the preparations are complete, SICAT WebConnector will transfer the order data via an encrypted connection to the SICAT server.
 - ▶ The status of the order in the shopping cart will change to **Uploading**.



You can add orders to the shopping cart, which are based on the same 3D X-ray scan. You should then complete the ordering process in full as the contents of the shopping cart will be lost when you close SICAT Endo.



If you close *SIDEXIS XG* and open it again, SICAT Suite will show that the order has been uploaded in full, regardless of the actual status. You can view the actual status in the SICAT WebConnector. Information on this can be found in the section *The SICAT WebConnector* [▶ Page 174 - *SIDEXIS XG*].



If you log off from Windows while uploading the orders, SICAT WebConnector will pause the process. The software will continue uploading automatically after you log back on.

31.5 PERFORMING ORDERING STEPS IN THE SICAT PORTAL

After you have performed ordering steps in SICAT Suite, the SICAT Portal will open in your standard web browser. In the SICAT Portal, you can change your orders, select qualified providers for production and view the prices of the products.

To perform ordering steps in the SICAT Portal, proceed as follows:

1. Register or log in to the SICAT portal using your username and password if you have not already done so.
2. Check whether the desired products are included.
3. If necessary, remove specific patients along with all corresponding products from the ordering overview. When completing the order, SICAT Suite will apply changes that you have made in the SICAT Portal.
4. Check whether the billing address and delivery address are correct. Change these where necessary.
5. Select the desired shipping method.
6. Accept the general terms and conditions and send off the order.



You can remove patients and all corresponding appliances from the SICAT Portal by selecting a patient and clicking on the button to remove the patient. In the shopping cart, you will again have full access to the composition of the products.

31.6 THE SICAT WEBCONNECTOR

i The SICAT WebConnector requires specific ports for communication with the SICAT server. Information on this can be found in the section *System requirements* [▶ Page 8 - SIDEXIS XG].

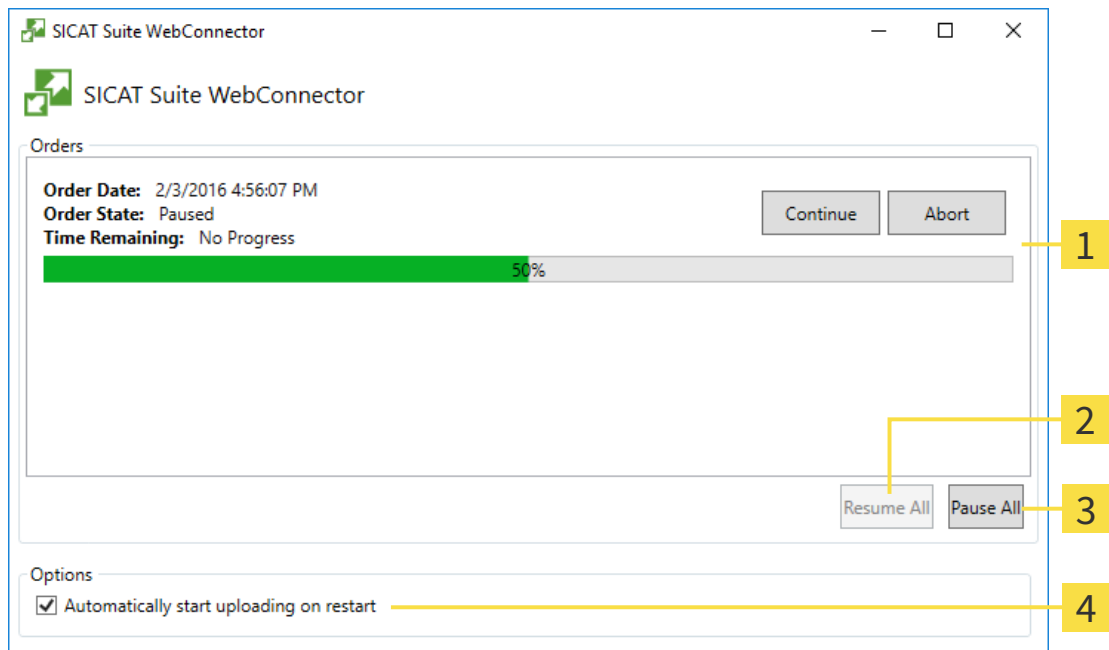
i In certain versions of Windows, you have to set a standard browser in order for the ordering process to work.

If the computer, on which SICAT Suite is running, has an active Internet connection, SICAT Suite will transfer your orders in the background in encrypted format via the SICAT WebConnector. SICAT Endo will show the status of the transfer directly in the shopping cart and can pause the SICAT WebConnector. The SICAT WebConnector will continue the transfer even if you have closed SICAT Suite. If the order cannot be uploaded as desired, you can open the user SICAT WebConnector interface.

OPENING THE “SICAT SUITE WEBCONNECTOR” WINDOW



- In the notifications area, click the **SICAT Suite WebConnector** icon in the task bar.
- ▶ The **SICAT Suite WebConnector** window opens:



- 1** Orders list
- 2** Continue all button
- 3** Stop all button
- 4** Continue uploading automatically after restart check box

The **Orders** list shows the queue of orders.

PAUSING AND CONTINUING THE UPLOAD

You can pause the upload process. This may be sensible, for example, if your Internet connection is overloaded. The settings only affect upload processes in the SICAT WebConnector. Upload processes via a web browser are not affected.

The **SICAT Suite WebConnector** window is already open.

1. Click on the **Stop all** button.

▶ The SICAT WebConnector pauses the uploading of all orders.

2. Click on the **Continue all** button.

▶ The SICAT WebConnector continues the uploading of all of the orders.

DEACTIVATING AUTOMATIC CONTINUATION AFTER A RESTART

You can prevent the SICAT WebConnector from automatically continuing uploads after restarting Windows.

The **SICAT Suite WebConnector** window is already open.

▪ Deactivate the **Continue uploading automatically after restart** check box.

▶ If you restart your computer, the SICAT WebConnector will no longer automatically continue uploading your orders.

31.7 COMPLETING AN ORDER WITHOUT AN ACTIVE INTERNET CONNECTION

If the computer on which SICAT Suite is running cannot connect to the SICAT server, SICAT Suite will open the **Unable to connect to the SICAT server** window. The window will indicate one of the following causes for the problem:

- **There is no Internet connection. SICAT WebConnector cannot connect to the SICAT server**
- **SICAT Portal is not available**
- **The "SICATWebConnector" service is not installed**
- **The "SICATWebConnector" service is not running**
- **An unknown error has occurred. SICAT WebConnector cannot connect to the SICAT server**

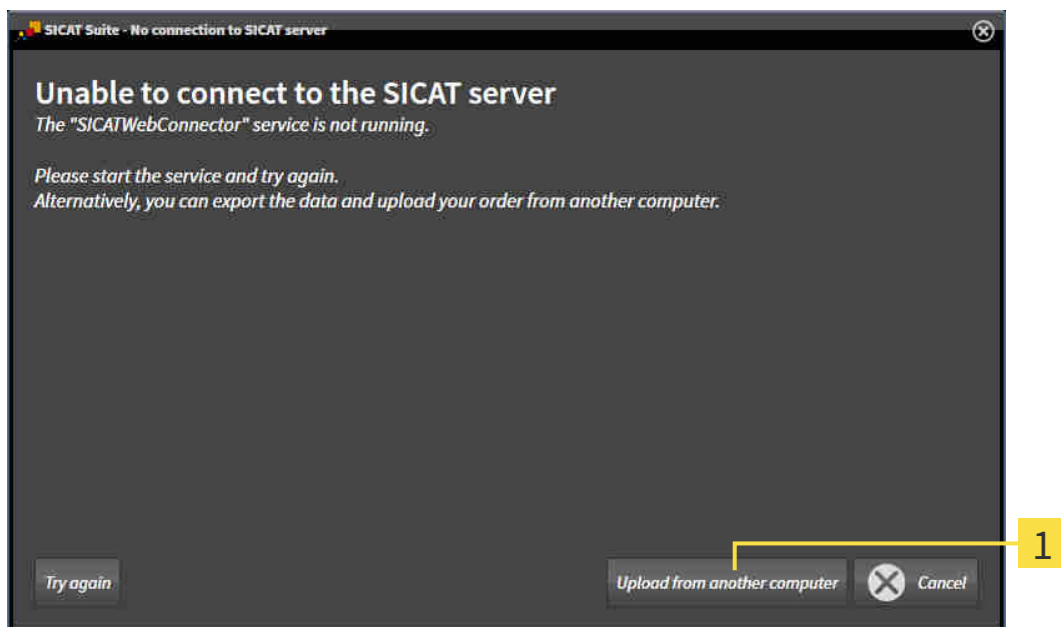
This chapter only shows screenshots for the scenario that no Internet connection is available.

Below the cause, possible steps for solving the problem will be shown.

As an alternative to eliminating the problem, you can upload an order using another computer with an active Internet connection via a web browser. For orders via web browser, SICAT Suite will export all products in the shopping cart at once and create one sub-folder per patient. Each sub-folder contains one XML file with the information regarding the order and a ZIP archive with the data SICAT needs for production. In the SICAT Portal, you can then successively upload the XML file and the ZIP archive. The transfer will be encrypted.

To complete the order without an active Internet connection, proceed as follows:

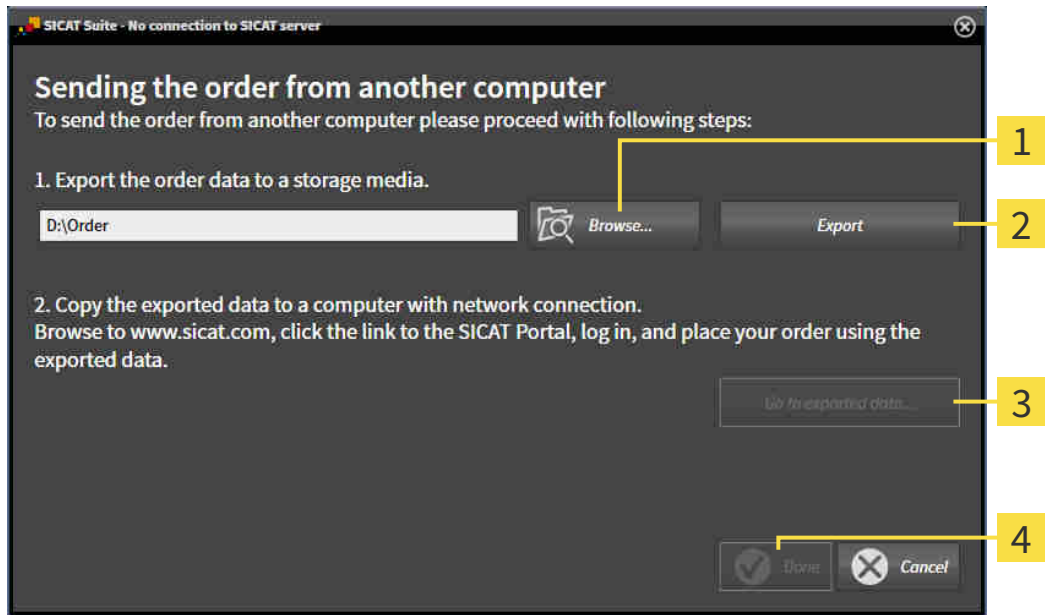
- The computer on which SICAT Suite is running does not have an active Internet connection.
- A window will appear with the following message: **Unable to connect to the SICAT server**



1 Upload from another computer button

1. Click on the **Upload from another computer** button.

► The **Sending the order from another computer** window opens:



1 Browse button

3 Go to exported data button

2 Export button

4 Done button

2. Click on the **Browse** button.

► A Windows Explorer window opens.

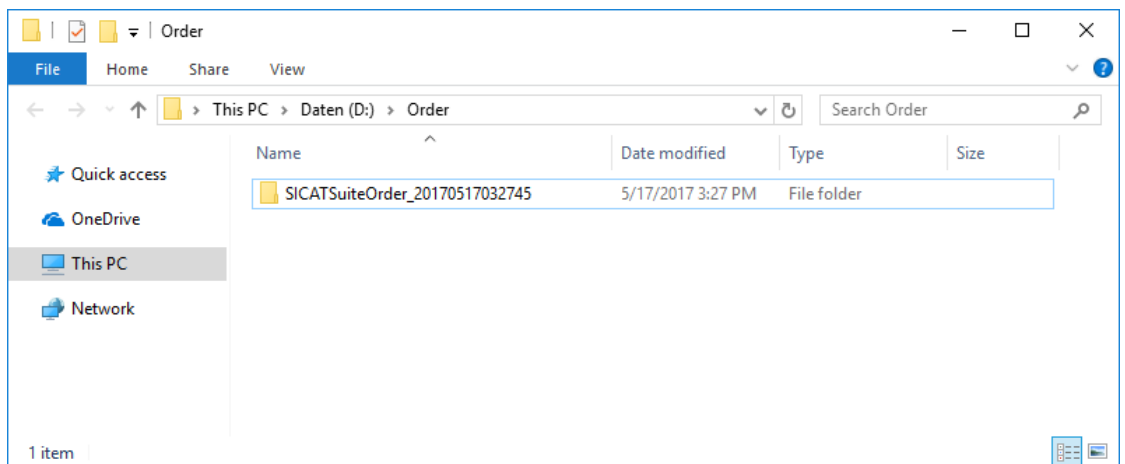
3. Select an existing directory or create a new directory and click on **OK**. Please note that the path to the directory must not be longer than 160 characters.

4. Click on the **Export** button.

► SICAT Suite will export all data required for ordering the shopping cart contents to the selected folder. SICAT Suite will create a sub-folder for each patient.

5. Click on the **Go to exported data** button.

► A Windows Explorer window opens and shows the directory with the exported data:



6. Copy the folder that contains the data of the required appliances to a computer with an active Internet connection, for example using a USB stick.
7. Click on **Done** in the **Sending the order from another computer** window.
 - ▶ SICAT Suite closes the **Sending the order from another computer** window.
 - ▶ SICAT Suite removes all products included in the order from the shopping cart.
8. Open a web browser on the computer with the active Internet connection and open the <http://www.sicat.de> web page.
9. Select the link for the SICAT portal.
 - ▶ The SICAT portal opens.
10. Register or log in to the SICAT portal using your username and password if you have not already done so.
11. Click on the link to upload the order.
12. Select the desired order on the computer with the active Internet connection. This is an XML file whose name starts with **SICATSuiteOrder**.
 - ▶ The ordering overview opens and shows the patients contained therein, the corresponding product and the price.
13. Follow the instructions in the section *Performing ordering steps in the SICAT Portal* [▶ *Page 173 - SIDEXIS XG*].
14. Click on the link to upload the planning data for the product.
15. Select the corresponding product data on the computer with the active Internet connection. This is a Zip archive that is located in the same folder as the previously uploaded XML file and whose file name starts with **SICATSuiteExport**.
 - ▶ Once you have executed the order, your browser will transfer the archive with the product data to the SICAT server via an encrypted connection.



SICAT Suite does not automatically delete exported data. When an ordering process is completed, you should delete exported data manually for security reasons.

32 SETTINGS



The versions of SICAT Suite connected to SIDEXIS adopt several settings from SIDEXIS. You can view the values of such settings in SICAT Endo, but only make changes in the SIDEXIS settings.

You can change or view general settings in the **Settings** window. After you have clicked on the **Settings** icon, the option bar will show the following tabs on the left-hand side of the **Settings** window:

- **General** - Information on this can be found in the section *Using general settings* [▶ Page 180 - SIDEXIS XG].
- **Licenses** - Information on this can be found in the section *Licenses* [▶ Page 39 - SIDEXIS XG].
- **Practice** - Viewing or changing the logo and the information text of your practice, for example for use on print-outs. Information on this can be found in the section *Using practice information* [▶ Page 184 - SIDEXIS XG].
- **Visualization** - Changing general visualization settings. Information on this can be found in the section *Changing visualization settings* [▶ Page 185 - SIDEXIS XG].

If you change the settings, SICAT Endo will apply the changes immediately and saves the settings in your user profile.

32.1 USING GENERAL SETTINGS



The versions of SICAT Suite connected to SIDEXIS adopt several settings from SIDEXIS. You can view the values of such settings in SICAT Endo, but only make changes in the SIDEXIS settings.

To open the general settings, proceed as follows:



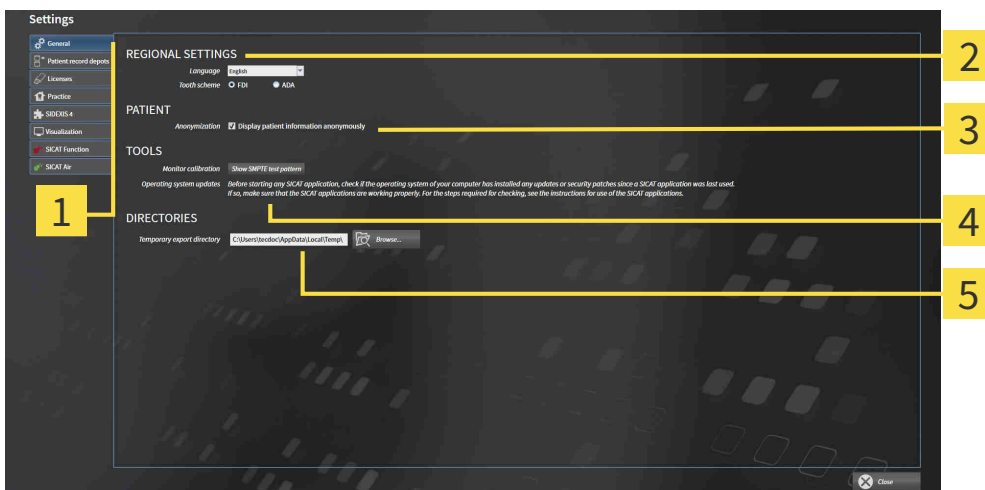
1. Click on the **Settings** icon in the **Navigation bar**.

▶ The **Settings** window opens.



2. Click the **General** tab.

▶ The **General** window opens:



1 General tab

4 TOOLS area

2 REGIONAL SETTINGS area

5 DIRECTORIES area

3 PATIENT area

SICAT Endo applies the following settings from SIDEXIS, which you can view here:

- You can view the language of the user interface in the **Language** list in the **REGIONAL SETTINGS** section.
- You can view the current tooth scheme in the **REGIONAL SETTINGS** area under **Tooth scheme**.
- You can view the status of the **Display patient information anonymously** check box in the **PATIENT** area. If the check box is activated, SICAT Endo will apply the anonymized patient data from SIDEXIS.

You can change the following settings:

- In the **DIRECTORIES** area, you can enter a folder in the **Temporary export directory** field in which SICAT Suite is to save order information. You must have full access to this folder.

Besides viewing or changing general settings, you can open the SMPTE test image to calibrate your monitor:

- Click on the **Show SMPTE test pattern** button under **TOOLS, Monitor calibration** to calibrate your monitor. Information on this can be found in the section *Monitor calibration with the SMPTE test image* [▶ Page 182 - SIDEXIS XG].



If you select a language in SIDEXIS Selecting, which SICAT Endo does not support, SICAT Endo will display English text in the user interface.



If you change the language in SIDEXIS XG, you have to restart SICAT Suite so that the change takes effect.



The supported tooth schemes are FDI and ADA.

32.2 MONITOR CALIBRATION WITH THE SMPTE TEST IMAGE



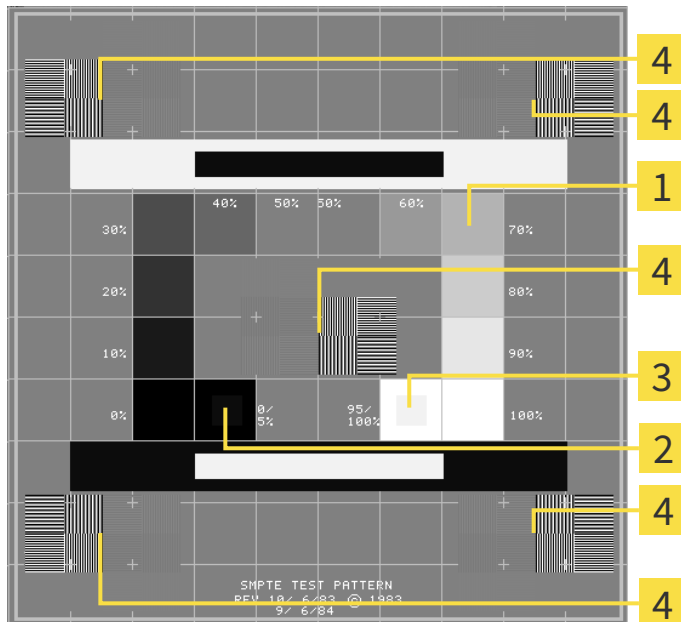
Insufficient environmental visualization conditions could result in incorrect diagnosis and treatment.

1. Only perform planning if the environmental conditions allow for sufficient visualization quality. For example, check for appropriate lighting.
2. Check whether the display quality is sufficient using the SMPTE test image.

The suitability of your monitor for displaying data in SICAT applications depends on four key properties:

- Brightness
- Contrast
- Local resolution (linearity)
- Distortion (aliasing)

The SMPTE test image is a reference image, which helps you check the following properties of your monitor:



1 Gray scale squares

3 100% square

2 0% square

4 Squares containing a sample bar with a high contrast

CHECKING BRIGHTNESS AND CONTRAST

In the middle of an SMPTE test image there is a series of squares, showing the gray scale progression from black (0% brightness) to white (100% brightness):

- The 0% square contains a smaller square to show the difference in brightness between 0% and 5%.
- The 100% square contains a smaller square to show the difference in brightness between 95% and 100%.

To check or configure your monitor, proceed as follows:

- The SMPTE test image is already open.
- Check whether you can see the visual difference between the inner square and outer square in the 0% square and 100% square. Change the settings of your monitor where necessary.



Several monitors can only show the difference in brightness in the 100% square, but not the 0% square. You can reduce ambient light to improve the ability to distinguish between the different brightness levels in the 0% square.

CHECKING THE LOCAL RESOLUTION AND DISTORTION

In the corners and the middle of the SMPTE test image, there are 6 squares showing a sample bar with a high contrast. In terms of local resolution and distortion, you should be able to differentiate between horizontal and vertical lines with different widths, which change between black and white:

- From wide to narrow (6 pixels, 4 pixels, 2 pixels)
- Horizontal and vertical

To check or configure your monitor, proceed as follows:

- Check in the 6 squares containing a sample bar with a high contrast whether you can see the differences between all of the lines. Change the settings of your monitor where necessary.

CLOSING THE SMPTE TEST IMAGE

To close the SMPTE test image, proceed as follows:

- Press the **ESC** key.
- ▶ The SMPTE test image closes.

32.3 USING PRACTICE INFORMATION

The versions of SICAT Suite connected to SIDEXIS adopt the practice logo and the information text from SIDEXIS. Therefore, you can only view the values of these settings in the SICAT Suite settings. Please make the desired changes to these settings in SIDEXIS.

The applications in SICAT Suite use the information displayed here to customize outputs or PDF files.

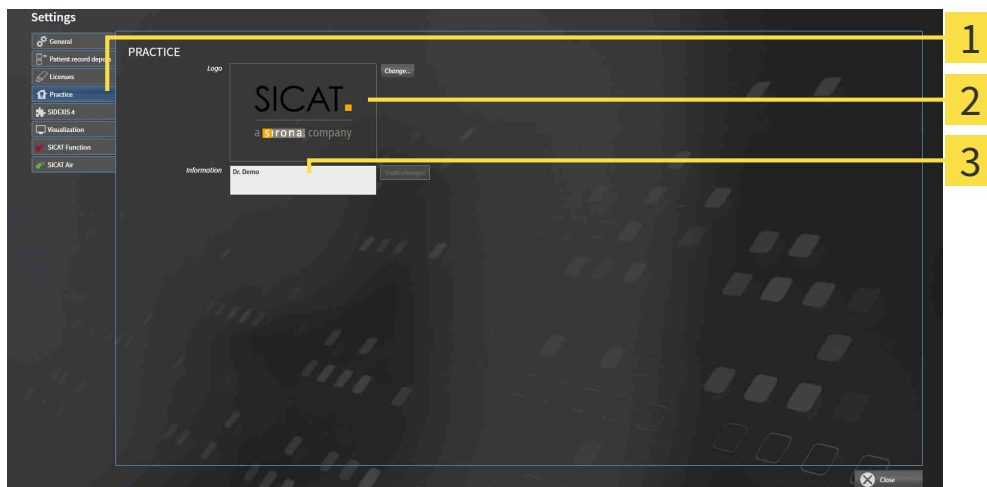
To open the practice information, proceed as follows:



1. Click on the **Settings** icon in the **Navigation bar**.
▶ The **Settings** window opens.



2. Click the **Practice** tab.
▶ The **PRACTICE** window opens:



- 1** Practice tab
- 2** Logo area
- 3** Information area

You can view the following settings:

- You can view the logo of your practice in the **Logo** section.
- You can view a text, which identifies your practice, for example the name and address, in the **Information** section.

32.4 CHANGING VISUALIZATION SETTINGS



Insufficient visualization quality could result in incorrect diagnosis and treatment.

Before using a SICAT application, for example with the SMPTE test image, check whether the display quality is sufficient.



Insufficient environmental visualization conditions could result in incorrect diagnosis and treatment.

1. Only perform planning if the environmental conditions allow for sufficient visualization quality. For example, check for appropriate lighting.
2. Check whether the display quality is sufficient using the SMPTE test image.

Visualization settings determine the visualization of the volume, diagnosis objects and planning objects in all SICAT applications.

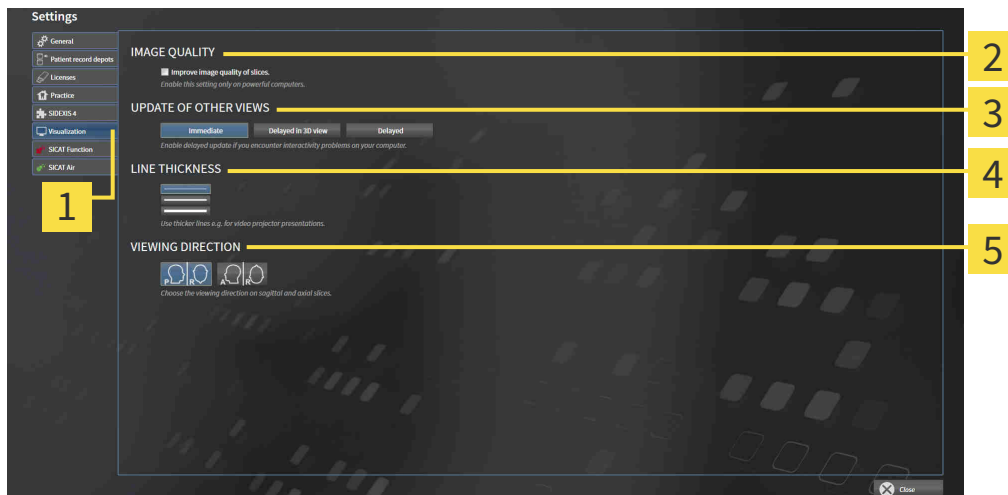
To open the **Visualization** window, proceed as follows:



1. Click on the **Settings** icon.
 - ▶ The **Settings** window opens.



2. Click the **Visualization** tab.
 - ▶ The **Visualization** window opens:



1 Visualization tab

2 IMAGE QUALITY area

3 UPDATE OF OTHER VIEWS area

4 LINE THICKNESS area

5 VIEWING DIRECTION area

The settings are:

- **Improve image quality of slices** – Improves the image quality of slices as the software averages adjacent slices. Activate this setting only on high-performance computers.
- **UPDATE OF OTHER VIEWS** – Delayed updates improve the interactivity of the active view but causes delays in the updating of other views. Activate delayed updates only if you detect interactivity problems on your computer.
- **LINE THICKNESS** – Changes the thickness of lines. Thicker lines are useful for presentations on projectors.
- **VIEWING DIRECTION** – Switches the viewing directions of the **Axial** slice view and **Sagittal** slice view.

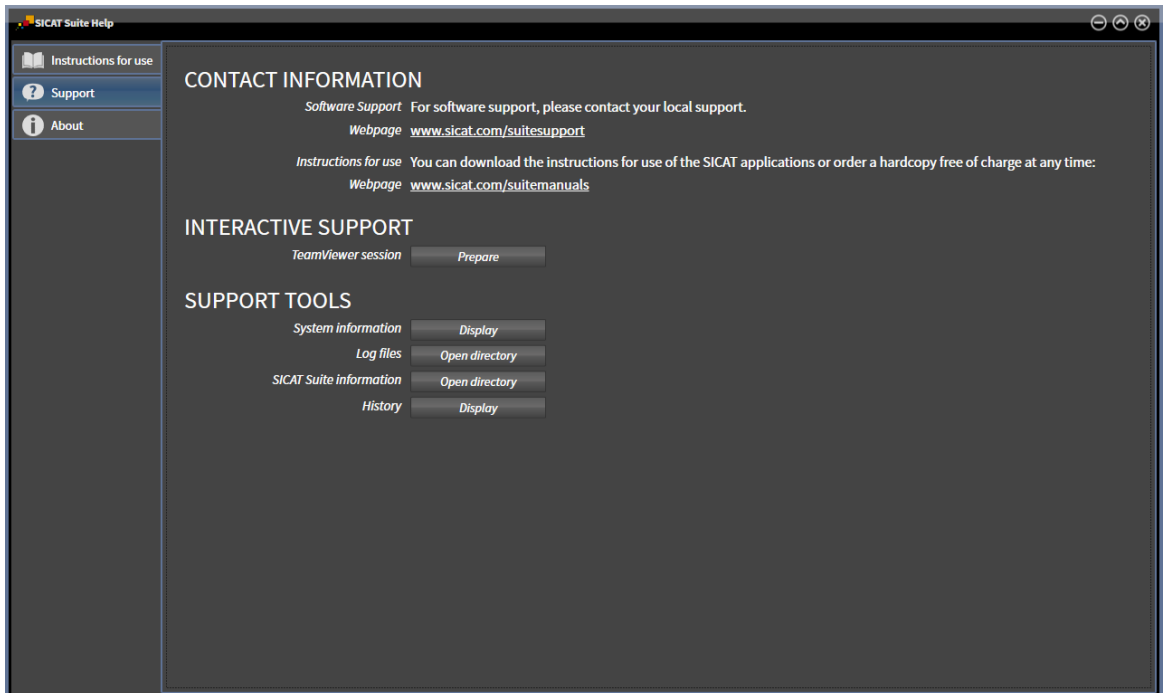
33 SUPPORT

SICAT offers you the following support options:

- PDF documents
- Contact information
- Information on the installed SICAT Suite and SICAT applications

Continue with the following action:

- *Opening the support options* [▶ Page 188 - SIDEXIS XG]



33.1 OPENING THE SUPPORT OPTIONS



You can open the **Support** window by clicking the **Support** icon in the **Navigation bar** or pressing the F1 key.

The SICAT Suite **Support** window comprises the following tabs:



- **Instructions for use** - Information on this can be found in the section *Opening the instructions for use* [▶ Page 38 - SIDEXIS XG].



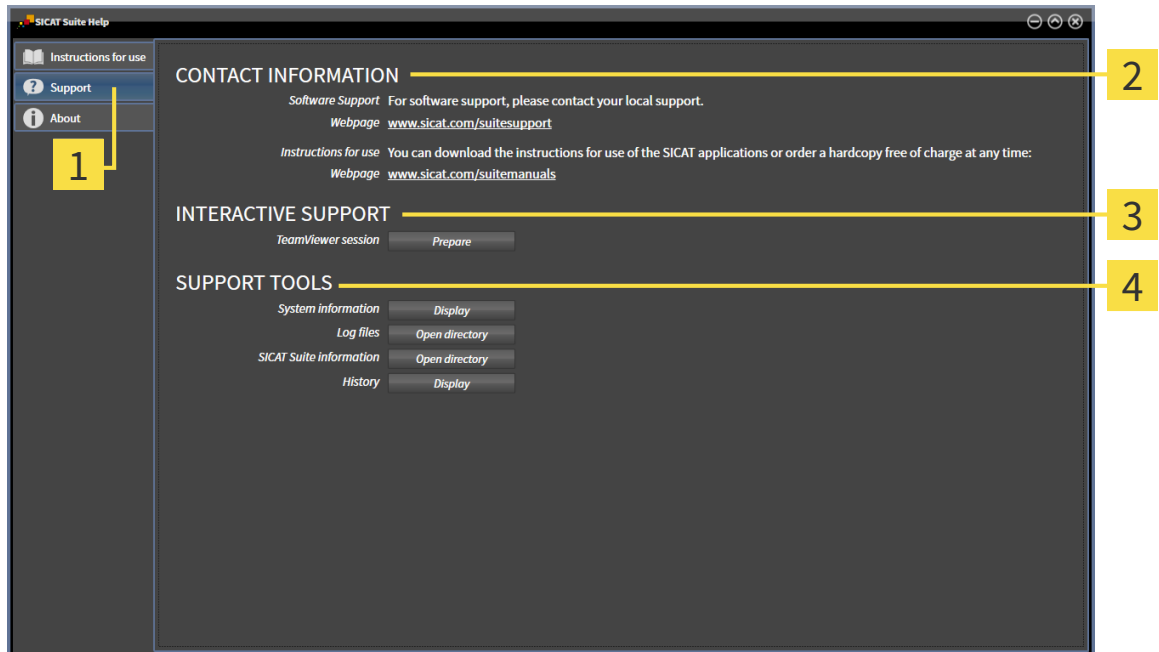
- **Support** - Information on this can be found in the section *Contact information and support tools* [▶ Page 189 - SIDEXIS XG].



- **About** - Information on this can be found in the section *Info* [▶ Page 190 - SIDEXIS XG].

33.2 CONTACT INFORMATION AND SUPPORT TOOLS

The **Support** window contains all of the relevant information and tools to enable SICAT Support to help you:



1 Support tab

3 INTERACTIVE SUPPORT area

2 CONTACT INFORMATION area

4 SUPPORT TOOLS area

The **CONTACT INFORMATION** area contains information about where you can find the instructions for use.

The following tools are available in the **INTERACTIVE SUPPORT** area:

- Click on the **Prepare** button in the **TeamViewer session** area and SICAT Endo will open a TeamViewer session.

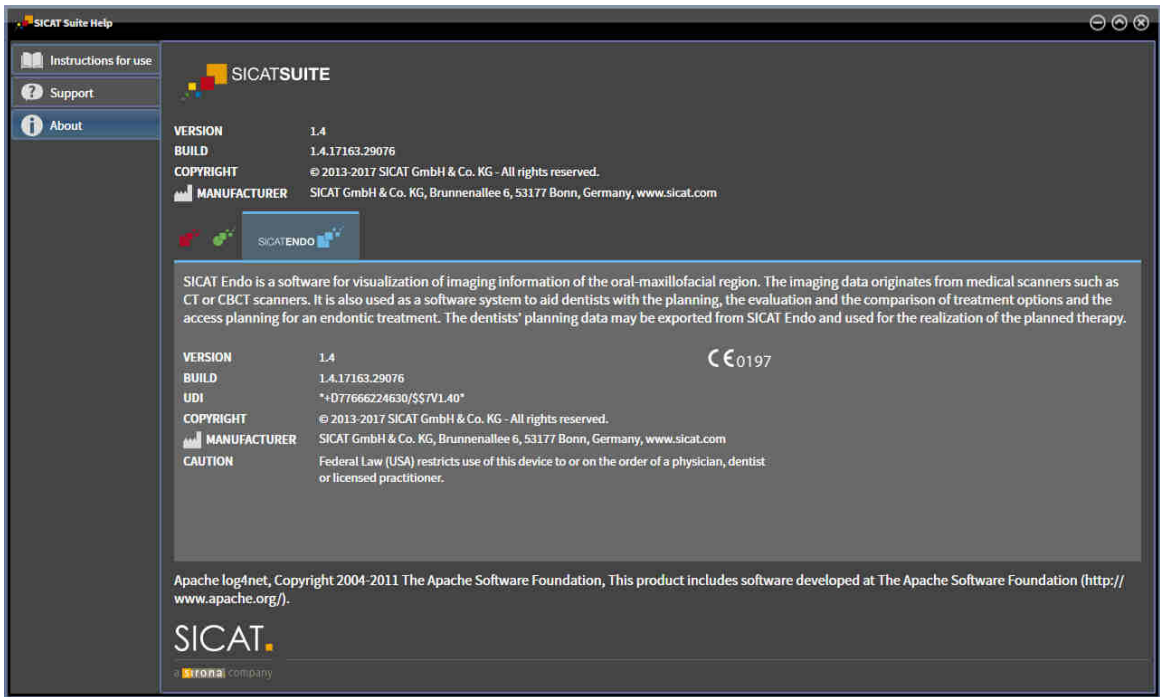
TeamViewer is software that allows mouse and keyboard commands to be remotely controlled and to transfer the contents of a computer's monitor via an active Internet connection. TeamViewer will only establish a connection if you explicitly consent. To do so, provide the SICAT support team with a TeamViewer ID and a password. This allows the SICAT support team to help you directly on-site.

The following tools are available in the **SUPPORT TOOLS** area:

- Click on the **Display** button in the **System information** area and SICAT Endo will open the system information of the operating system.
- Click on the **Open directory** button in the **Log files** area and SICAT Endo will open the log directory of SICAT Suite in a Windows Explorer window.
- Click on the **Open directory** button in the **SICAT Suite information** area and **SICAT Suite information** will export information on the current installation in a text file.
- Click on **Show messages** in the **SICAT Suite information** area and SICAT Endo will show the message window.

33.3 INFO

The **About** window displays information on SICAT Suite and all installed SICAT applications on several tabs:



34 OPENING READ-ONLY DATA

You can open data as read-only.

Which data you can view in SICAT Endo as a SIDEXIS XG plug-in without being able to make and save changes depends on the status of your license and the use of the current 3D X-ray scan:

TYPE OF SICAT ENDO LICENSE	ANOTHER SIDEXIS XG WORKSTATION IS USING THE 3D X-RAY SCAN	VIEWING WITHOUT CHANGES POSSIBLE?
None	Irrelevant	No
Viewer	Irrelevant	Yes
Full version	Yes	Yes
Full version	No	No

In the following cases, you can view SICAT Endo studies without a Viewer license:

- In SIDEXIS 4, export SICAT Endo studies and import the data to SIDEXIS on another computer. SICAT Endo must be installed on this computer.
- In SIDEXIS 4, create a Wrap&Go package which contains SICAT Endo studies. Install the Wrap&Go package on another computer. Then, install SICAT Endo.

In both cases you cannot make or save any changes to the planning.



You can find more information about multi-workstation support of SIDEXIS XG in the SIDEXIS XG instructions for use.

To open data without being able to make and save changes, proceed as follows:

1. Start SICAT Suite with a 3D X-ray scan from Sirona SIDEXIS XG. Information on this can be found in the section *Starting SICAT Suite* [▶ *Page 34 - SIDEXIS XG*].
 - ▶ SICAT Suite opens the 3D X-ray scan and planning project from the current SIDEXIS XG examination.
 - ▶ If another SIDEXIS XG workstation is using the current 3D X-ray scan, a window opens and displays the following message: **This patient record is being used by another user and can only be opened in read-only mode**
2. Click the **Open in read-only mode** button in the message window.
 - ▶ SICAT Suite opens the 3D X-ray scan and planning project from the current SIDEXIS XG examination.



The following conditions must be met for you to be able to adjust volume orientation and panoramic curve.

- You have activated a license which allows you to open 3D X-ray scans or SICAT Endo studies. Information on this can be found in the section *Licenses* [▶ *Page 39 - SIDEXIS XG*].
- No other corresponding study of SICAT Function or any other SICAT application contains objects relating to the 3D X-ray scan which would be affected by a change in the volume orientation or the panoramic curve.

If the conditions are not met, SICAT Endo deactivates the buttons and control elements that you can use for changing volume orientation or panoramic curves in the **Adjust Volume Orientation and Panoramic Region** window.

35 CLOSING SICAT ENDO

To close SICAT Endo, proceed as follows:



- Click on the **Close** button in the area of the active patient record.
- ▶ SICAT Suite saves the active patient record.
- ▶ SICAT Suite closes all SICAT applications.
- ▶ SICAT Suite closes the active patient record.

36 *CLOSING SICAT SUITE*



- Click on the **Close** button in the top right-hand corner of SICAT Endo.
- ▶ All SICAT applications will close.
- ▶ SIDEXIS stores the changed planning projects of all SICAT applications that are running as a full version.

37 KEYBOARD SHORTCUTS



If you move the mouse pointer over certain functions, SICAT Endo displays the keyboard shortcut in brackets next to the designation of the function.

The following keyboard shortcuts are available in all SICAT applications:

KEYBOARD SHORTCUTS	DESCRIPTION
A	Add an angle measurement
D	Add a distance measurement
F	Focus on an active object
Ctrl + C	Copy the contents of the active view to the clipboard
Ctrl + Z	Undo the last object action
Ctrl + Y	Redo the most recently undone object action
Del	Remove the active object or active object group
ESC	Cancel the current action (such as adding a measurement)
F1	Open the Support window, if a SICAT application is active, open the instructions for use

38 UNINSTALLING SICAT SUITE



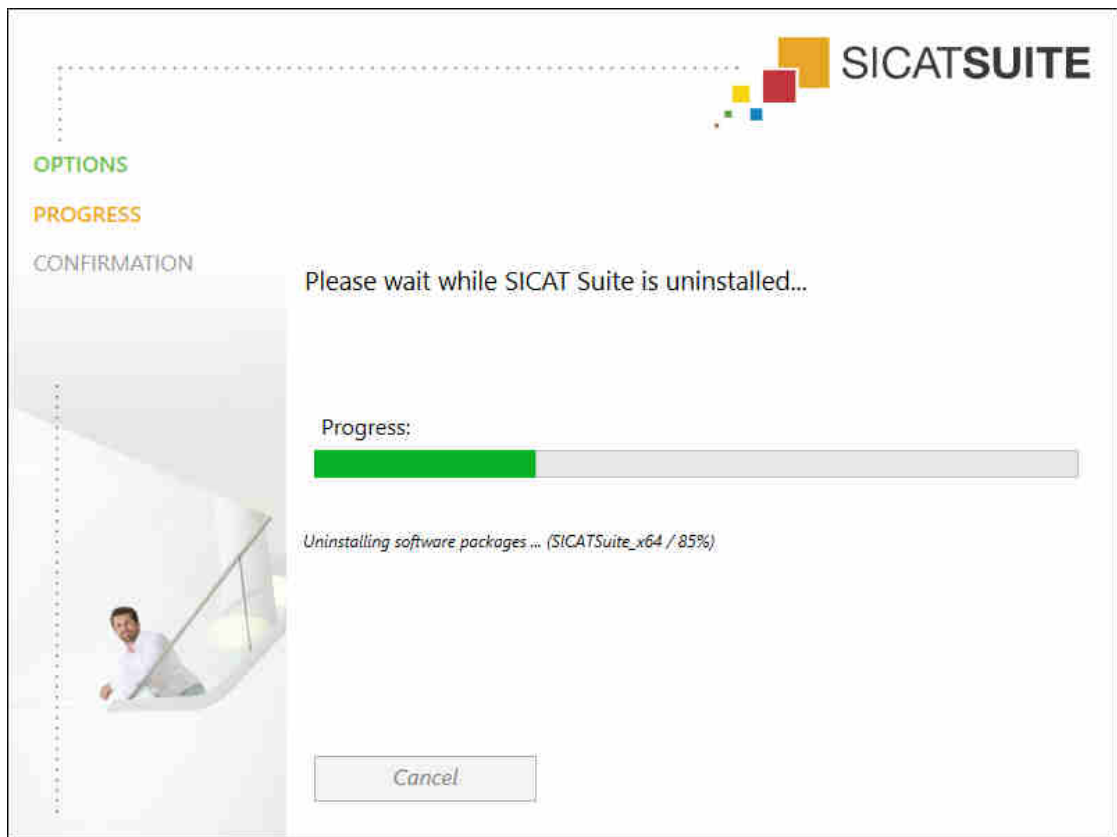
The SICAT Suite uninstallation program maintains active licenses on your computer. Therefore, SICAT Suite warns you that it will not automatically delete licenses before the uninstallation. If you no longer wish to use SICAT Suite on this computer, deactivate the licenses before uninstallation. Information on this can be found in the section *Returning licenses to the license pool* [▶ Page 46 - SIDEXIS XG].



Before uninstalling SICAT Suite, make sure that the SICAT WebConnector has uploaded all orders in full as the uninstallation program will automatically close the SICAT WebConnector. Information on this can be found in the section *The SICAT WebConnector* [▶ Page 174 - SIDEXIS XG].

To uninstall SICAT Suite, proceed as follows:

- ☑ The SICAT WebConnector has successfully uploaded all orders.
- 1. Click on **Programs and features** in the Windows **Control panel**.
 - ▶ The **Programs and features** window opens.
- 2. Select the **SICAT Suite** entry, which contains the version of SICAT Suite, from the list.
- 3. Click on the **Uninstall** button.
 - ▶ The uninstallation program will start and the **PROGRESS** window opens:



- ▶ After the uninstallation is complete, the **CONFIRMATION** window opens.



4. Click on the **Finish** button.

- ▶ The SICAT Suite uninstallation program will close.



To open the SICAT Suite uninstallation program, you can also start the SICAT Suite installation program on a computer, on which SICAT Suite is already installed.



The SICAT Suite uninstallation program will call the uninstallation programs of some software prerequisites, which were installed together with SICAT Suite. If other installed applications still need the software prerequisites, they will be retained.

39 SAFETY INSTRUCTIONS

3D X-RAY SCANS

**CAUTION**

Unsuitable X-ray devices may result in an incorrect diagnosis and treatment.

Only use 3D X-ray scans from X-ray devices that are cleared as medical equipment.

**CAUTION**

Unsuitable 3D X-ray scans may result in an incorrect diagnosis and treatment.

Always verify the quality, integrity, and correct orientation of the displayed 3D data.

**CAUTION**

X-ray devices without DICOM conformity could result in incorrect diagnosis and treatment.

Only use 3D volume data from X-ray devices with DICOM conformity declared.

**CAUTION**

The use of other data than 3D X-ray scans as source of information for planning a measurement-based therapy may result in an incorrect diagnosis and treatment.

Use 3D X-ray scans for diagnosis and planning when using the measurement feature.

INTRAORAL SCANS

**CAUTION**

3D X-ray scans that are unsuitable for registering intraoral scans may result in an incorrect diagnosis and treatment.

1. Only use 3D X-ray scans containing little or no artefacts.
2. Only use 3D X-ray scans with sufficiently high resolution.

**CAUTION**

Intraoral scans that do not match the patient and the 3D X-ray scan or whose record time is too far away from the record time of the 3D X-ray scan may result in an incorrect diagnosis and treatment.

Make sure that the patient and 3D X-ray scan of an intraoral scan match and that their record time is not too far away from the record time of the 3D X-ray scan.

**CAUTION**

Incorrect orientation of the intraoral records relative to the 3D X-ray scan may result in an incorrect diagnosis and treatment.

1. Check that the registered intraoral scans are correctly aligned to the 3D X-ray scans.
2. If required, rotate the intraoral scans to orient them correctly.



Intraoral scans that have not been registered correctly with the 3D X-ray scans may result in an incorrect diagnosis and treatment.

Check that the intraoral records have been correctly registered with the 3D X-ray scans.



Devices for intraoral scans that are not certified as a medical device may result in incorrect diagnosis and treatment.

Make sure to use only devices that are certified as a medical device for intraoral scans.



Insufficient integrity or quality of intraoral scans may result in an incorrect diagnosis and treatment.

Check the integrity and quality of the imported intraoral scans.



Insufficient quality of the intraoral records or 3D X-ray scans may cause the mechanism for registering the intraoral records to fail.

Only use intraoral scans and 3D X-ray scans that allow for a correct registration.



Insufficient quality and precision of intraoral scans may result in an incorrect diagnosis and treatment.

Only use intraoral scans of sufficient quality and precision for the intended diagnosis and treatment.



Incorrect positions or orientations of the intraoral scans may result in an incorrect diagnosis and treatment.

After registration, check for correct position and orientation of the intraoral scans on the teeth in the 3D X-ray scan.

DISPLAY CONDITIONS



Insufficient visualization quality could result in incorrect diagnosis and treatment.

Before using a SICAT application, for example with the SMPTE test image, check whether the display quality is sufficient.



Insufficient environmental visualization conditions could result in incorrect diagnosis and treatment.

1. Only perform planning if the environmental conditions allow for sufficient visualization quality. For example, check for appropriate lighting.
2. Check whether the display quality is sufficient using the SMPTE test image.

DATA MANAGEMENT



Incorrect assignment of patient name or 3D scan could result in confusion of patient scans.

Verify that the 3D scan that is to be imported or already loaded in a SICAT Suite application is associated with the correct name of the patient and the correct scan information.



Deleting original data may result in data being lost.

Do not delete the original data following the import.



The absence of a backup mechanism for the patient record depots could result in patient data being irreversibly lost.

Make sure that a regular data backup is created of all patient record depots.



When deleting patient records, all 3D scans, planning projects and PDF files contained in these patient records will be deleted as well.

Only delete patient records if you are sure you will never need any contained 3D scans, planning projects and PDF files again.



Deleted patient records, studies, 3D scans, and planning projects cannot be recovered.

Only delete patient records, studies, 3D scans, and planning projects if you are sure you will never need those data again.



When deleting 3D scans, all dependent planning projects will be deleted as well.

Only delete 3D scans if you are sure you will never need any dependent planning project again.

QUALIFICATIONS OF OPERATING PERSONNEL



The use of this software by unqualified personnel may result in an incorrect diagnosis and treatment.

The use of the software is restricted to qualified professionals.

SAFETY



Security leaks in your information system environment could result in unauthorized access to your patient data and put the privacy or integrity of your patient data at risk.

1. Make sure policies are established within your organization to prevent security threats to your information system environment.
2. Install and run an up-to-date virus scanner.
3. Make sure the pattern files of the virus scanner are updated on a regular basis.



Unauthorized access to your workstation could result in risks to the privacy and integrity of your patient data.

Limit the access to your workstation to authorized individuals only.



Problems in terms of cyber-security could result in unauthorized access to your patient data and risks in relation to the security or integrity of your patient data.

If you suspect problems in relation to the cyber-security of your SICAT application, contact support immediately.

SOFTWARE INSTALLATION



Changes to the software may mean that the software will not start or will not function as intended.

1. Do not make any changes to the software installation.
2. Do not delete or change any of the components in the software installation directory.



Damaged installation media may result in the failure of the installation.

Handle the installation media with care and store them appropriately.



If your system does not fulfill the system requirements, this may mean that the software will not start or will not function as intended.

Check whether your system meets the minimum software and hardware requirements before installing the software.



Insufficient authorizations may mean that the software installation or software update fails.

Make sure you have sufficient privileges on your system if you install or update the software.



Changes to the operating system may mean that the SICAT applications will not start or will not function as intended.

1. Prior to starting the SICAT applications, always check whether the operating system of your computer has installed updates or security updates since you last used the SICAT applications.
2. If the operating system of your computer has installed updates or security updates, perform the steps required for testing the SICAT applications as described in the instructions for use.
3. If the behavior of the SICAT applications differs from the behavior described in the instructions for use, stop using of the software and contact SICAT support immediately.

ORDERS



Incorrect data in an order may result in an incorrect order.

If you complete an order, ensure that you select and transfer the correct data for the order.



An incorrect order might lead to the wrong treatment.

1. Check your order before sending it.
2. Confirm the correct planning of your order.

OPTICAL IMPRESSIONS



The use of other data as 3D X-ray scans as a lone source of information may result in an incorrect diagnosis and treatment.

1. Use 3D X-ray scans as a preferred source of information for diagnosis and planning.
2. Use other data, such as optical impressions, only as an auxiliary source of information.



Inappropriate optical impression devices could result in incorrect diagnosis and treatment.

Only use optical impression data from devices cleared as medical devices.



Optical impression data that does not match patient and date of 3D X-ray data could result in incorrect diagnosis and treatment.

Make sure the patient and date of the imported optical impression data match the patient and date of the visualized 3D X-ray data.



Insufficient integrity or quality of optical impressions may result in an incorrect diagnosis and treatment.

Check the integrity and quality of the optical impressions imported.



Insufficient integrity and precision of optical impressions may result in an incorrect diagnosis and treatment.

Only use optical impressions of a sufficient quality and precision for the intended diagnosis and treatment.



Excessive artifacts, insufficient resolution or the lack of points for registration may mean that the registration process for optical impressions fails. Examples of excessive artifacts in 3D X-ray scans include movement artifacts and metal artifacts.

Only use optical impression data and 3D X-ray data that allow for an adequate registration.



The selection of markings in the registration process for optical impressions that do not correspond to one another may result in an incorrect diagnosis and treatment.

When you register optical impressions, carefully select corresponding markings in the 3D X-ray scans and optical impressions.



The incorrect registration of optical impressions for 3D X-ray scans may result in an incorrect diagnosis and treatment.

Check that the registered optical impressions are correctly aligned to the 3D X-ray scans.

NETWORK



Saving SICAT application data in an unreliable or incompatible network file system could result in data loss

Together with your network administrator, make that SICAT application data can be safely stored in the desired network file system.



The shared use of SICAT Suite and the SICAT applications contained therein with other devices within a computer network or a storage area network could result in previously unknown risks for patients, users and other persons.

Ensure that rules are compiled within your organization to determine, analyze and assess risks in relation to your network.



Changes to your network environment may result in new risks for your network environment. Examples include changes to your network configuration, the connection of additional devices or components to your network, the disconnection of devices or components from your network and the updating or upgrading of network devices or components.

Perform a network risk analysis after any changes to the network.

TOOTH SCHEME



CAUTION

Incorrect tooth number allocation could result in incorrect diagnosis and treatment.

Check that the selected tooth numbers and the actual anatomical tooth numbers match.

DRILL DEPTH



CAUTION

An incorrect drilling depth might lead to the wrong treatment.

Make sure that the planned drilling depth and the selected drill match.

PLANNING OBJECTS



CAUTION

Using the 3D view to display measurements and planning objects may result in incorrect diagnosis and treatment.

Use the 3D view for guidance only and regard it as an additional source of information.

40 ACCURACY

The following table shows the accuracy values in all SICAT applications:

Measurement accuracy for distance measurements	< 100 μm
Measurement accuracy for angle measurements	< 1 degree
Representation accuracy	< 20 μm

GLOSSARY

ADA

American Dental Association

Application

SICAT applications are programs belonging to SICAT Suite.

CPR

Curved Planar Reformation, two-dimensional image reconstruction from 3D X-ray scans that is used for the simplified representation of complex structures.

Crosshairs

Crosshairs are lines of intersection with other slice views.

Drill channel

Path for drilling planned on the basis of the EndoLine that can be visualized and edited in the software application.

EndoLine

An EndoLine is a multi-functional measuring line, which serves to mark the root canal to be treated and to locate the root apex.

FDI

Fédération Dentaire Internationale, World Dental Federation

Frames

In the 3D view, frames show the positions of the 2D slice views.

Intraoral scan

An intraoral scan is a 2D X-ray scan of individual teeth that is recorded using a dental film behind the tooth and an X-ray source outside of the mouth and features a high level of detail.

Message window

The message window shows messages on completed procedures in the bottom right corner of the screen.

Navigation bar

The navigation bar in the upper part of SICAT Suite contains the most important icons in SICAT Suite. If a patient record is active, the navigation bar allows switching between patient records and different applications.

Optical impressions

An optical impression is the result of a 3D surface scan of teeth, impression material or plaster casts.

Registration

Spatial leveling

SICAT Portal

SICAT Portal is a website, which you can use to order appliances from SICAT, amongst other things.

SIXD

File format to exchange optical impressions.

SMPTE

Society of Motion Picture and Television Engineers

Spotlight

Circular highlighting of an image area for checking the overlay of intraoral scan and 3D projection during the registration of intraoral scans.

SSI

File format to exchange optical impressions.

STL

Surface Tessellation Language, standard file format to exchange mesh data, which may contain optical impressions, for example.

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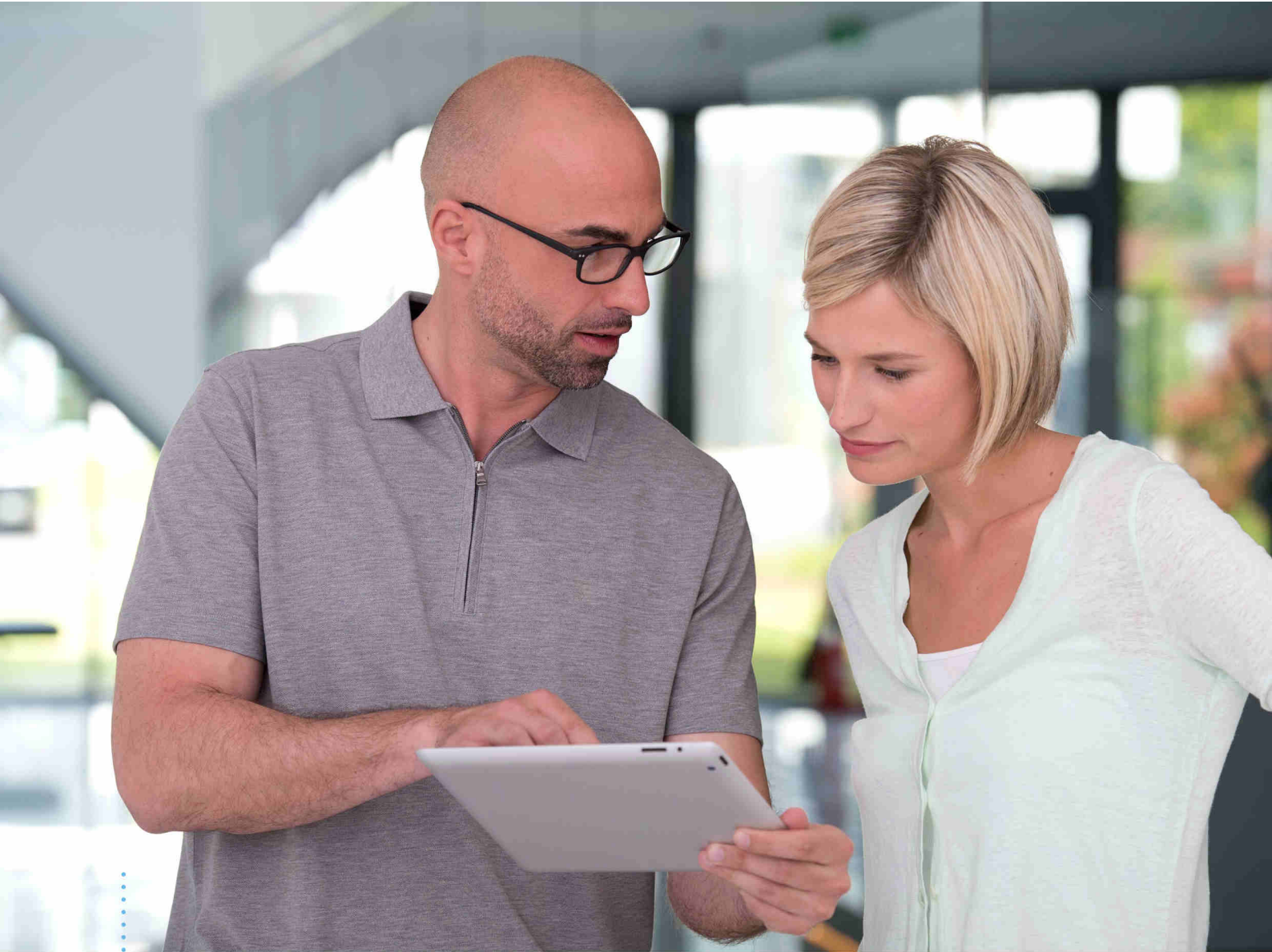
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SICAT ENDO *VERSION 1.4*

Instructions for use | English | Standalone

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1 INTENDED USE AND INDICATIONS FOR USE

SICAT Endo is a software application for the visualization of imaging information of the oral-maxillofacial region. The imaging data originates from medical scanners such as CT or CBCT scanners. SICAT Endo is also used as a software system to aid dentists with the planning, the evaluation and the comparison of treatment options and the access planning for an endodontic treatment. The dentists' planning data may be exported from SICAT Endo and used for the realization of the planned therapy.

INDICATIONS FOR USE

SICAT Endo is a software application for:


- Aiding diagnosis in the oral-maxillofacial region
- Aiding comparisons of different treatment options
- Aiding endodontic treatment planning
- Aiding treatment planning using endodontic surgical guides

2 *VERSION HISTORY*

VERSION 1.4

- Initial release

3 SYSTEM REQUIREMENTS



CAUTION

If your system does not fulfill the system requirements, this may mean that the software will not start or will not function as intended.

Check whether your system meets the minimum software and hardware requirements before installing the software.

Processor	Quad Core 2.3 GHz
RAM	8 GB
Graphics card	Dedicated* DirectX 11 or higher 2 GB graphics memory Current driver with at least WDDM 1.0 support
Screen	Resolution at least 1920x1080 pixels for 100 to 125 percent scale** Maximum resolution 3840x2160 pixels for 100 to 200 percent scale
Free disk space on hard disk	20 GB plus additional storage space for patient records
Storage media	Access to external storage media containing installation files.
Input devices	Keyboard, mouse
Network	Ethernet, 100 Mbit/s, 1000 Mbit/s recommended
Printer for patient information	At least 300 dpi Paper format DIN A4 or US letter
Operating system	Windows 7 SP1 (64 Bit) with KB2670838 Windows 8 (64 Bit, Desktop) Windows 8.1 (64 Bit, Desktop) Windows 10 (64 Bit, Desktop)
Web browser	Microsoft Internet Explorer 11 or higher Mozilla Firefox 39 or higher Google Chrome 44 or higher JavaScript must be activated. A standard browser must be set.
PDF viewer	Adobe Reader DC or higher, for example
SIDEXIS XG with SICAT Suite as a plug-in	Version 2.6.1 (64 Bit)

SIDEXIS 4 with SICAT Suite as a module	Version 4.2 SiPlanAPI V4
SIDEXIS 4 with SICAT Suite as a plug-in	Version 4.1.2 (64 Bit)



*SICAT Suite supports only dedicated graphics cards from the NVIDIA GeForce 960 GTX level of performance. Integrated graphics cards are not supported.

** The combination of a low monitor resolution and a high level of scaling may mean that the software displays certain parts of the user interface incompletely. The monitor must be configured so that it displays the SMPTE test image correctly. Information on this can be found in the section *Monitor calibration with the SMPTE test image* [▶ Page 225 - Standalone]

SOFTWARE PREREQUISITES

SICAT Suite requires the following software components and installs them if they are not already available:

- Microsoft .NET Framework 4.5
- CodeMeter license management software 6.30d
- SQL Server Compact Edition 4.0
- SICAT WebConnector

The SICAT WebConnector requires specific ports for communication with the SICAT server. The ports must be unblocked in your firewall:

PROTOCOL	DIRECTION OF TRANSMISSION	PORT
HTTP	Outgoing	80
HTTPS	Outgoing	443
FTPS - Management	Outgoing	21
FTPS - Data transmission	Outgoing	49152 -65534



You can also place orders without SICAT WebConnector. Information on this can be found in the section *Ordering process* [▶ Page 209 - Standalone].

4 SAFETY INFORMATION

It is important that you read the following safety-related chapters:

- *Definition of the danger levels* [▶ Page 11 - Standalone]
- *Qualifications of operating personnel* [▶ Page 12 - Standalone]
- *Safety instructions* [▶ Page 241 - Standalone]

4.1 DEFINITION OF THE DANGER LEVELS

These instructions for use use the following safety labels to prevent injuries to operating personnel or patients, as well as material damages:



CAUTION

Labels a dangerous situation, which could result in smaller injuries if not prevented.

NOTICE

Labels information deemed important, but not relevant to safety.

4.2 QUALIFICATIONS OF OPERATING PERSONNEL



The use of this software by unqualified personnel may result in an incorrect diagnosis and treatment.

The use of the software is restricted to qualified professionals.

Only educated or properly trained personnel may use the software.

If you are undergoing education or training or if you are using this software within the scope of general training, you may use the software only under the constant supervision of a qualified person.

You must meet the following prerequisites to use the software:

- You have read the instructions for use.
- You are familiar with the basic structure and functions of the software.
- You are able to identify software malfunctions and take suitable steps where necessary.

CAUTION! Federal Law (USA) restricts use of this device to or on the order of a physician, dentist or licensed practitioner.

5 USED ICONS AND HIGHLIGHTING

ICONS

The following icons are used in these instructions for use:



The note icon labels additional information, such as alternative methods.

HIGHLIGHTING

Text and labels of elements shown by SICAT Suite are highlighted in **bold**. This includes the following objects in the user interface:

- Area labels
- Button labels
- Icon labels
- Text in notes and messages on the screen

HANDLING INSTRUCTIONS

Handling instructions are written as numbered lists:

- ☑ Prerequisites are marked with this icon.
- 1. Steps are labeled with numbers.
 - ▶ Interim results are marked with this icon and indented.
- 2. Further steps will follow after the interim results.
 - ▶ Final results are marked with this icon.
 - Instructions consisting of just one step are marked with this icon.

6 OVERVIEW OF THE INSTRUCTIONS FOR USE

SICAT Endo is part of SICAT Suite in addition to other applications.

SICAT Suite forms the framework, in which the SICAT applications run. The applications are therefore installed along with SICAT Suite. Information on this can be found in the section *Installing SICAT Suite* [▶ *Page 17 - Standalone*].

SICAT Suite is currently available in three versions. Some operating steps vary, depending on the version used. Therefore, these instructions for use deal with the versions separately:

- SIDEXIS 4 module
- SIDEXIS XG plug-in
- Stand-alone version

You do not need to decide on a version when you install SICAT Suite.

The applications are also uninstalled along with SICAT Suite. Information on this can be found in the section *Uninstalling SICAT Suite* [▶ *Page 239 - Standalone*].

7 OVERVIEW OF SICAT SUITE

SICAT Suite comprises the following parts:

- SICAT Function – the intended use of SICAT Function is indicated in the SICAT Function instructions for use.
- SICAT Air – the intended use of SICAT Air is indicated in the SICAT Air instructions for use.
- SICAT Endo – the intended use of SICAT Endo is indicated in the SICAT Endo instructions for use.

LANGUAGES:

SICAT Suite supports the following languages in the user interface:

- English
- German
- French
- Japanese
- Spanish
- Italian
- Dutch
- Portuguese
- Russian

LICENSING

The following steps are required to activate SICAT applications or individual functions:

- You contact your local sales partner.
- You receive a voucher code.
- Using the voucher code, you generate a license key on the SICAT portal (which can be accessed via SICAT home page).
- SICAT adds the license key to your activation key.
- You use your activation key to activate SICAT applications or individual functions on computers on which SICAT Suite is installed.

FULL VERSION AND VIEWER MODE

SICAT Suite can start in one of two modes:

- If you have activated the Viewer license of at least one SICAT application, SICAT Suite will start in Viewer mode.
- If you have activated the full version license of at least one SICAT application, SICAT Suite will start as full version.

In general, the following is true:

- Applications with an activated full version license will start in the full version.
- Applications with activated Viewer license will start in Viewer mode.
- Applications without an activated license will not start.
- You do not need to choose a mode when you install SICAT Suite.

8 INSTALLING SICAT SUITE



Changes to the software may mean that the software will not start or will not function as intended.

1. Do not make any changes to the software installation.
2. Do not delete or change any of the components in the software installation directory.



Damaged installation media may result in the failure of the installation.

Handle the installation media with care and store them appropriately.



If your system does not fulfill the system requirements, this may mean that the software will not start or will not function as intended.

Check whether your system meets the minimum software and hardware requirements before installing the software.



Insufficient authorizations may mean that the software installation or software update fails.

Make sure you have sufficient privileges on your system if you install or update the software.



The **Auto play** function of Windows on your computer could be deactivated. In this case, you can open the optical medium in the Windows file Explorer and start the file **SICATSuiteSetup.exe** manually. The file name contains the version of SICAT Suite.

To install SICAT Suite, proceed as follows:

- Your computer fulfills the system requirements. Information on this can be found in the section *System requirements* [▶ *Page 8 - Standalone*].

1. Insert the SICAT Suite installation medium into the optical drive of your computer.

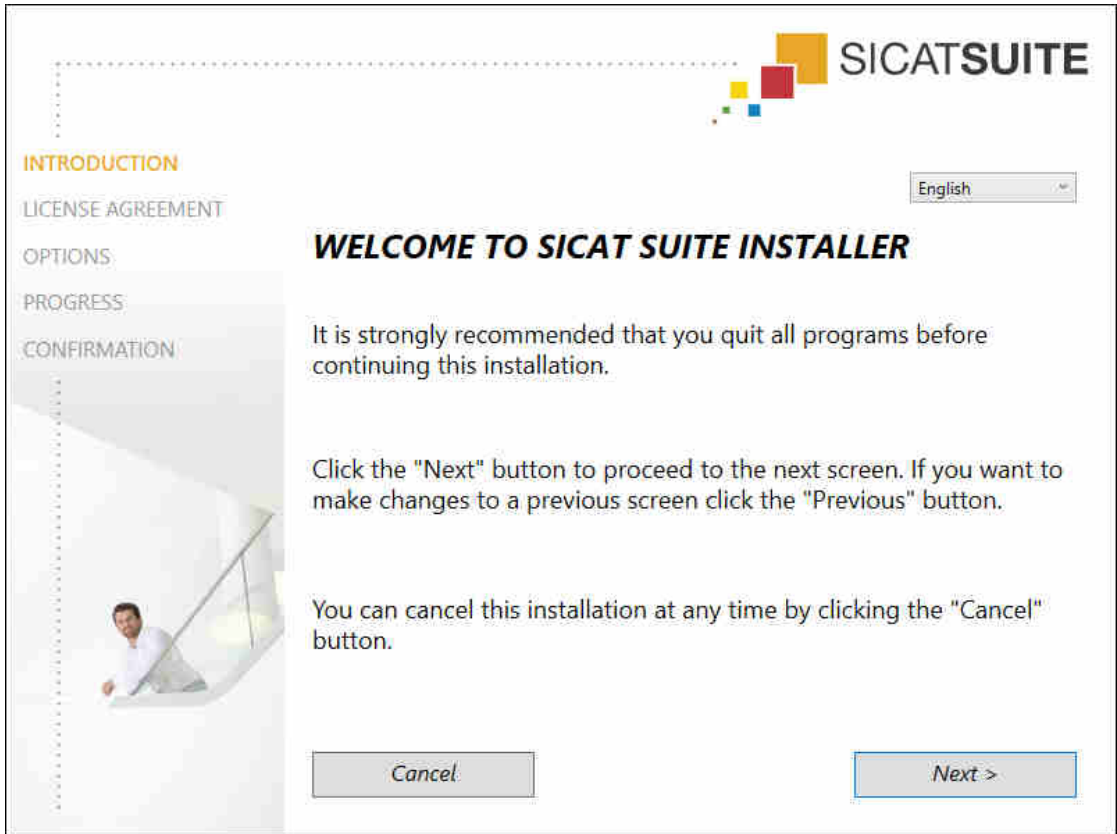
▶ The **Auto play** window opens.

2. Select the option **Execute SICATSuiteSetup.exe** in the **Auto play** window. The file name contains the version of SICAT Suite.

▶ The software prerequisites are installed if they are not already available on your computer.



- ▶ The SICAT Suite installation program will start and the **INTRODUCTION** window opens:



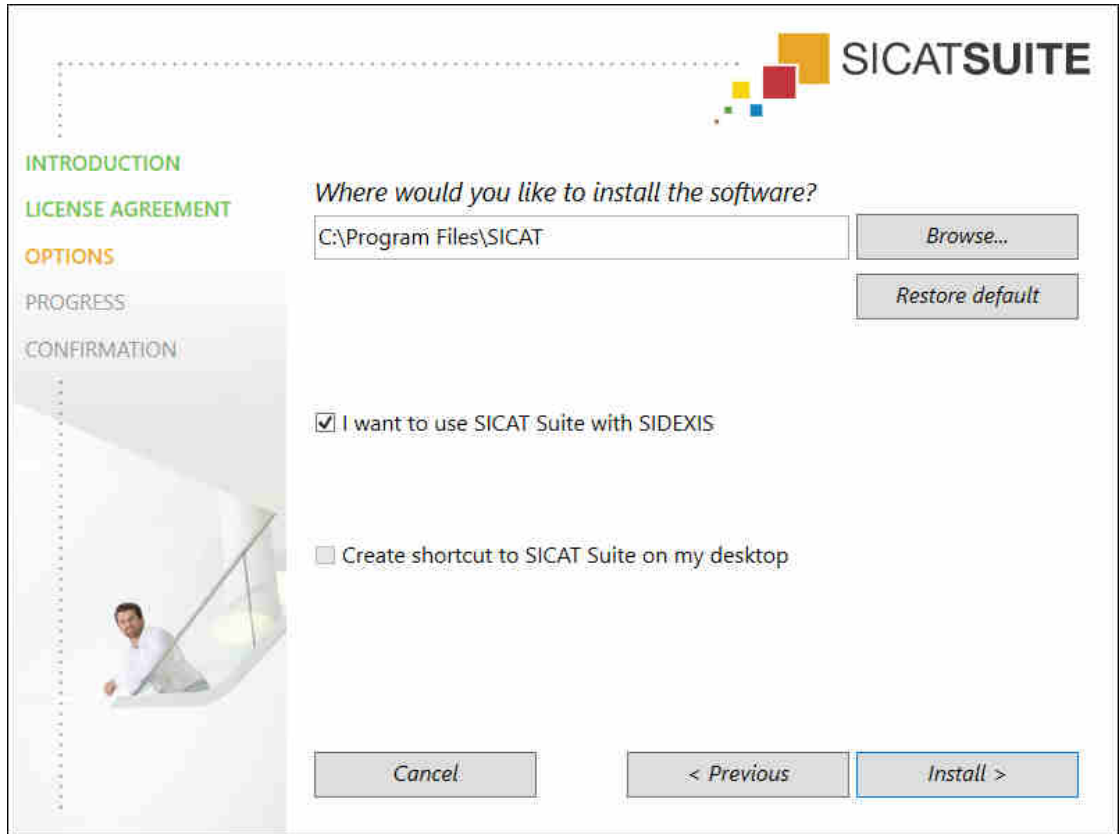
3. Select the desired language for the SICAT Suite installation program in the top right-hand corner of the **INTRODUCTION** window and click on **Next**.

► The **LICENSE AGREEMENT** window opens:



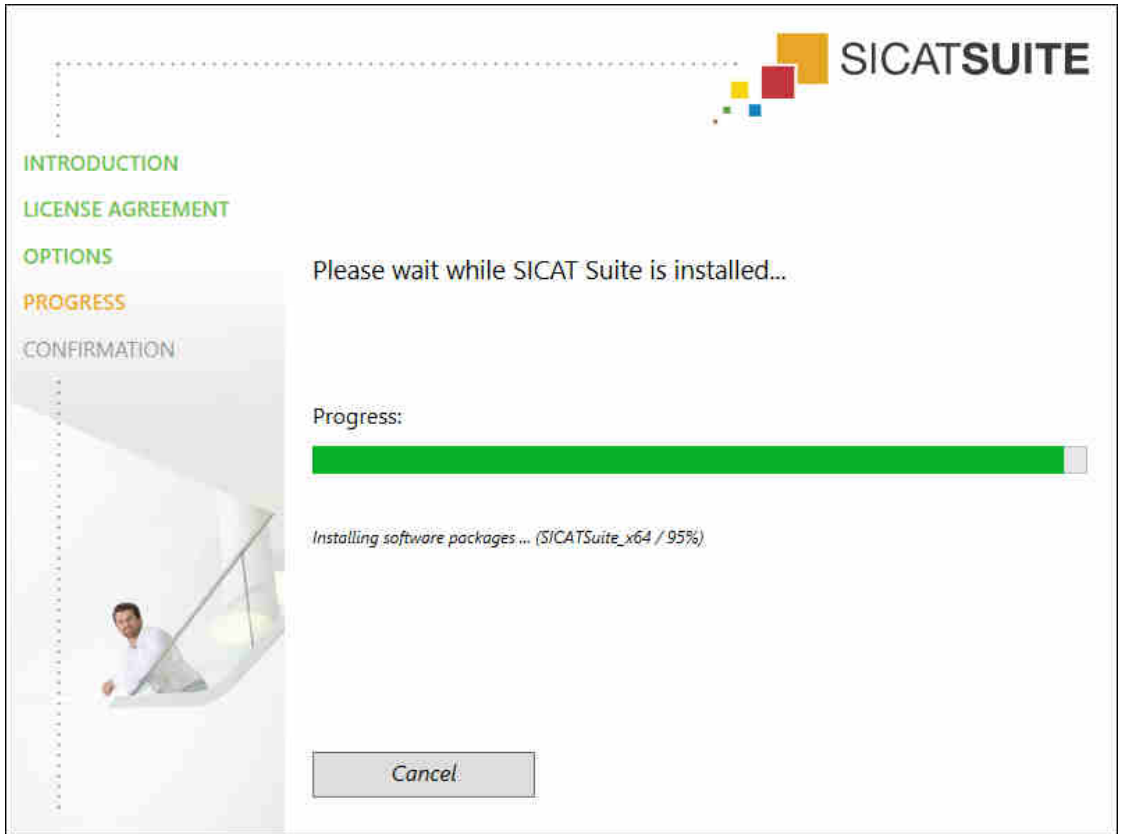
4. Read the end-user licensing agreement in full, select the **I accept the terms of the License Agreement** check box and click on **Next**.

► The **OPTIONS** window opens:

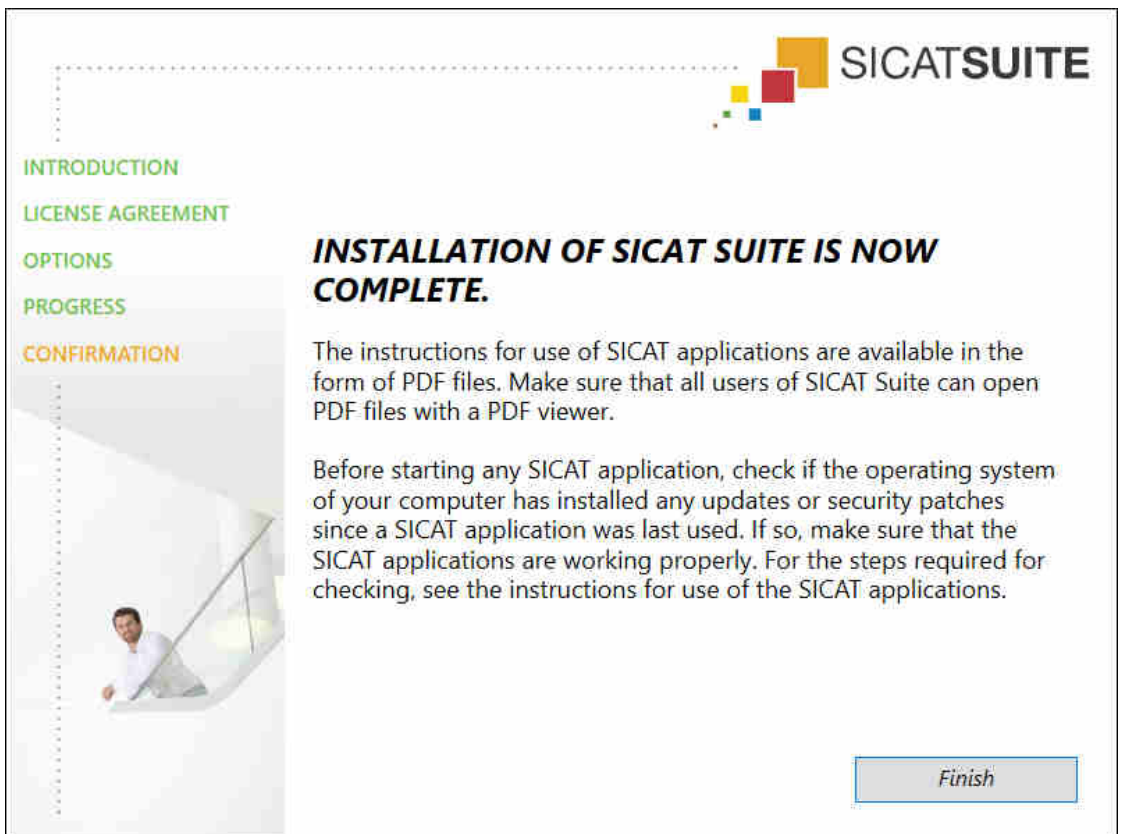


5. To change the folder on the hard disk in which the SICAT Suite installation program will install SICAT Suite click on the **Browse** button.
 - The **Select folder** window opens.
6. Browse to the desired folder in which the SICAT Suite installation program is to create the “SICAT Suite” directory and click on **OK**.
 - The SICAT Suite installation program will enter the directory for the selected folder in the **Where would you like to install the software** field.
7. If SIDEXIS XG or SIDEXIS 4 is installed on your computer, the **I want to use SICAT Suite with SIDEXIS** check box will be available. You can register SICAT Suite during the installation or register it manually as a SIDEXIS XG plug-in or SIDEXIS 4 module later.
 - If the **I want to use SICAT Suite with SIDEXIS** check box is activated, the **Create shortcut to SICAT Suite on my desktop** check box will not be available.
8. If available, activate or deactivate the **Create shortcut to SICAT Suite on my desktop** check box.
9. Click on the **Install** button.

- ▶ The **PROGRESS** window opens:



- ▶ SICAT Suite and the remaining software prerequisites will be installed.
- ▶ After the installation is complete, the **CONFIRMATION** window opens:



10. Click on the **Finish** button.

▶ The SICAT Suite installation program will close.

9 PERFORMING TEST STEPS AFTER OPERATING SYSTEM UPDATE



Changes to the operating system may mean that the SICAT applications will not start or will not function as intended.

1. Prior to starting the SICAT applications, always check whether the operating system of your computer has installed updates or security updates since you last used the SICAT applications.
2. If the operating system of your computer has installed updates or security updates, perform the steps required for testing the SICAT applications as described in the instructions for use.
3. If the behavior of the SICAT applications differs from the behavior described in the instructions for use, stop using of the software and contact SICAT support immediately.

If the operating system of your computer has installed updates, you must ensure that SICAT Endo operates without any errors. Perform the following test steps. If you notice deviation during a test step, prevent further use of SICAT Endo on the computer in question and contact SICAT support.

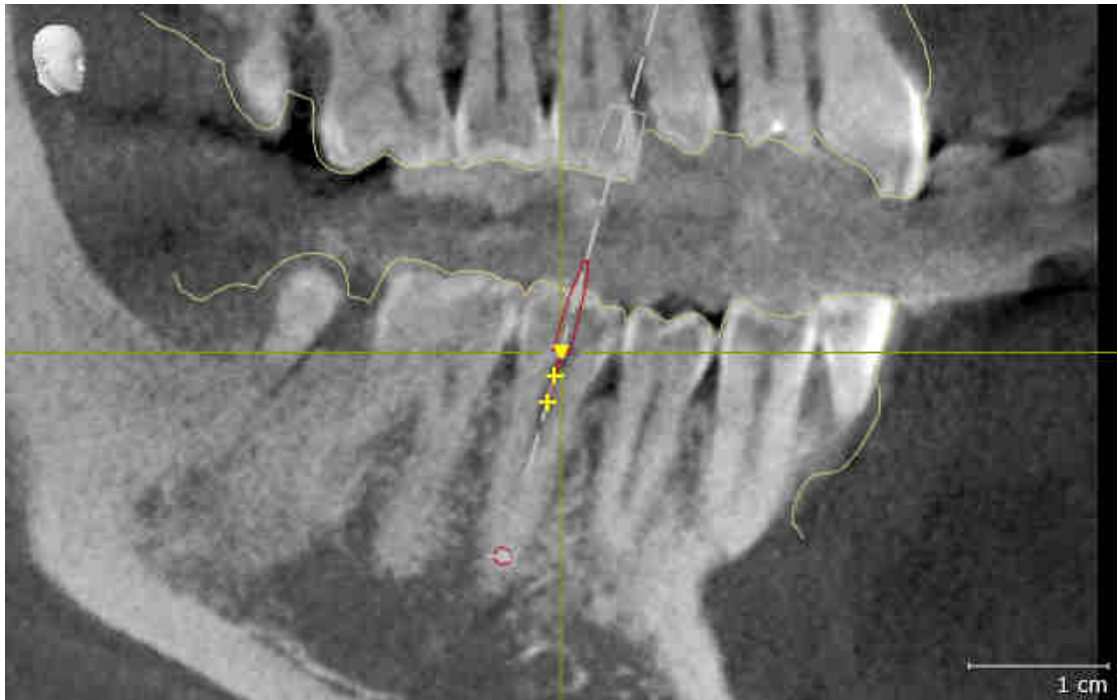
PREPARATIONS

1. To ensure that nobody has made unintended changes, delete the “Patient Axx” patient.
2. Import the reference data record from the “SICATSuite_ReferenceDataset_1.4.zip” file. You will find the data record on the SICAT Suite installation medium.
3. Open the “Patient Axx” reference data record in SICAT Endo.

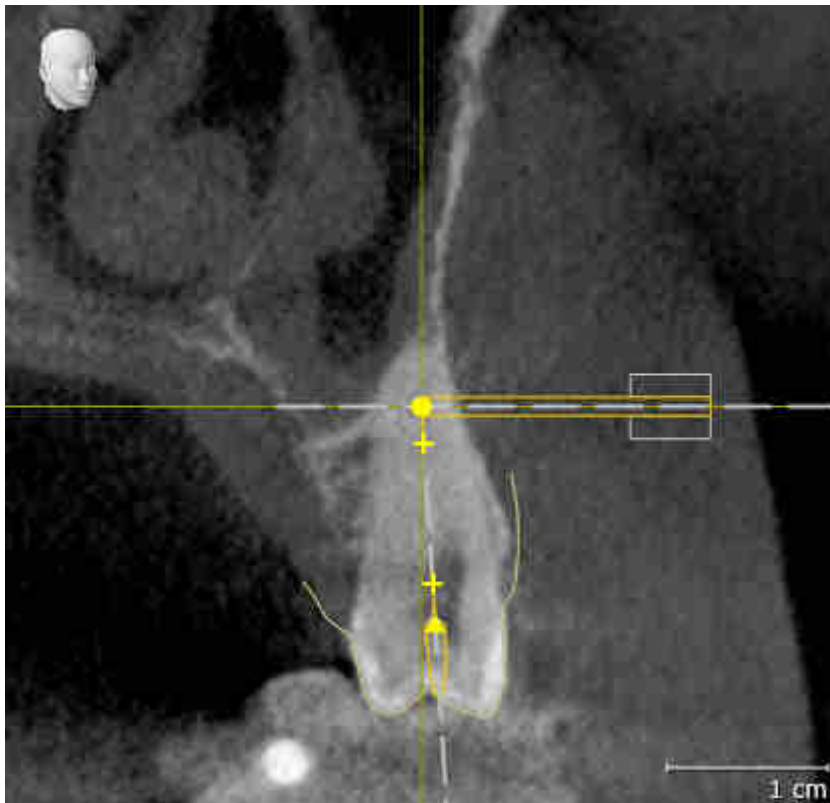
ENDOLINE

1. Make sure that the **FDI** tooth scheme is active. Information on this can be found in the section *Using general settings* [▶ Page 223 - Standalone].
2. Make sure that the **Panorama** workspace is active.
3. Reset the views to their default values.
4. In the **Object browser**, expand the "**Tooth 45**" group.
5. In the **Object browser**, select the "15.24 mm Tooth No. 45" element and focus on it.

6. Compare the **Tangential** view with the following screenshot:



7. In the **Object browser**, expand the "Tooth 25" group.
8. In the **Object browser**, select the "13.63 mm Tooth No. 25" element and focus on it.
9. Compare the **Cross-Sectional** view with the following screenshot:



10 UPDATING OR REPAIRING SICAT SUITE

UPDATING SICAT SUITE

You can update SICAT Suite by starting the SICAT Suite installation program and clicking on the **Refresh** button. The installation program will first uninstall the old version of SICAT Suite. All data and settings will be maintained.



A new version of the stand-alone version of SICAT Suite requires updated patient record depots. When first starting the new version or if you are activating an old patient record depot, SICAT Suite will ask if you want to update the patient record depot. SICAT Suite will update the patient record depot automatically when you confirm the message. **CAUTION! You can no longer use updated patient record depots with older versions of SICAT Suite.**



If you update SIDEXIS XG to SIDEXIS 4.1.3 or higher and then update SICAT Suite, the SICAT Suite installer will register SICAT Suite as a SIDEXIS 4 module. When you open a 3D X-ray scan, SICAT Suite will check whether there are studies in SIDEXIS XG for this 3D X-ray scan and transfer these from SIDEXIS XG to SIDEXIS 4.

REPAIRING SICAT SUITE

You can repair SICAT Suite by starting the SICAT Suite installation program and clicking on the **Repair** button. All data and settings will be maintained.

Both updates to and repairs of SICAT Suite use the SICAT Suite installation program. Information on this can be found in the section *Installing SICAT Suite* [▶ Page 17 - Standalone].

11 SPECIAL FEATURES IN THIS VERSION

Depending on whether you use SICAT Endo as stand-alone version or connected to other software, there are differences in certain areas.

PATIENT DATA AND VOLUME DATA

The stand-alone version of SICAT Suite includes its own central administration of patient records and volume data. The concept of patient records in the stand-alone version of SICAT Suite can be compared to classic patient records:

- Patient records are stored in the patient record depot, which can be compared to filing cabinets.
- Activating a patient record can be compared to removing a patient record from a filing cabinet and placing it on your desk.
- Opening patient data from a patient record in SICAT applications can be compared to taking out pages from the patient record.
- Adding 3D X-ray scans to a patient file can be compared to adding 2D X-ray scans to a classical patient file.
- A 3D X-ray scan may form the basis of several planning projects. Planning objects are also part of a patient record.
- A 3D X-ray scan together with the corresponding planning projects is known as a study.

Information on managing patient record depots can be found in the section *Patient record depots* [▶ Page 52 - Standalone]. Information on managing patient records can be found in the section *Patient records* [▶ Page 70 - Standalone].



You should also back up the user settings of the SICAT applications in addition to the patient data. You can find the user settings for each user in two directories separately. You can open the directories by entering **%appdata%\SICAT GmbH & Co. KG** and **%localappdata%\SICAT GmbH & Co. KG** into the address bar of Windows Explorer.

SETTINGS

In the stand-alone version, SICAT Suite manages all settings itself. Information on this can be found in the section *Settings* [▶ Page 222 - Standalone].

LICENSES

The stand-alone version and versions of SICAT Suite connected to other software use the same licenses. You do not need to choose a version when you install SICAT Suite.

OPENING STUDIES WITH OR WITHOUT WRITE PERMISSIONS

The following conditions must be met in order to make changes to SICAT Endo studies and save these changes:

- A SICAT Endo full version license must be activated.
- A patient record depot must be active.

Otherwise, you cannot make or save any changes to SICAT Endo studies. If you have activated a SICAT Endo Viewer license, you can view 3D X-ray scans and SICAT Endo studies.

The following table shows which functions are available if a license of a SICAT application and a patient record depot are activated:

FUNCTION	APPLICATION FULL VERSION LICENSE AND PATIENT RECORD DEPOT ACTIVATED	APPLICATION VIEWER LICENSE AND NO PATIENT RECORD DEPOT ACTIVATED	NO APPLICATION LICENSE AND NO PATIENT RECORD DEPOT ACTIVATED
Support area	Yes	Yes	Yes
General settings	Yes	Yes	Yes
Data export	Yes	No	No
Managing patient record depots	Yes	No	No
Managing patient records	Yes	No	No
Data import	Yes	No	No
Help	Yes	Yes	Yes

The following table shows which functions are available if a SICAT Endo license and a patient record depot are activated:

FUNCTION	SICAT ENDO FULL VERSION LICENSE AND PATIENT RECORD DEPOT ACTIVATED	SICAT ENDO VIEWER LICENSE AND PATIENT RECORD DEPOT ACTIVATED	NO SICAT ENDO LICENSE AND PATIENT RECORD DEPOT ACTIVATED
Making changes to SICAT Endo studies	Yes	No	No
Opening data in Viewer mode	No	Yes	No

Under certain circumstances you cannot make or save changes to SICAT Endo studies even if the application license is activated. An ongoing ordering process may, for example, be one cause for this.

In the stand-alone version, the license status also influences the available functions in the **SICAT Suite Home** window. Information on this can be found in the section *Overview of the “SICAT Suite Home” window*. [▶ *Page 39 - Standalone*].

Further information is available in the section *Opening read-only data* [▶ *Page 234 - Standalone*].

12 THE STANDARD WORKFLOW OF SICAT ENDO



The shared use of SICAT Suite and the SICAT applications contained therein with other devices within a computer network or a storage area network could result in previously unknown risks for patients, users and other persons.

Ensure that rules are compiled within your organization to determine, analyze and assess risks in relation to your network.



Saving SICAT application data in an unreliable or incompatible network file system could result in data loss

Together with your network administrator, make that SICAT application data can be safely stored in the desired network file system.



Changes to your network environment may result in new risks for your network environment. Examples include changes to your network configuration, the connection of additional devices or components to your network, the disconnection of devices or components from your network and the updating or upgrading of network devices or components.

Perform a network risk analysis after any changes to the network.



Before starting work with SICAT Suite, it is important that you have read these instructions for use and in particular all safety information in full. Keep these instructions for use at hand for use when information is needed in future.

INSTALLATION

Information on how to install SICAT Suite can be found in the section *Installing SICAT Suite* [▶ Page 17 - Standalone].

ACTIVATING FULL VERSION

1. If you have purchased a license for SICAT Endo, activate the license to unlock the full version. Information on this can be found in the section *Licenses* [▶ Page 43 - Standalone].
2. In order to save your data, create at least one patient record depot and activate it. Information on this can be found in the section *Patient record depots* [▶ Page 52 - Standalone].



If you have not purchased a license for SICAT Endo, open a 3D X-ray scan in Viewer mode. Information on this is available in the section *Opening read-only data* [▶ Page 234 - Standalone].



If the computer, on which SICAT Suite is running, is located in a network environment and where permitted by the network configuration, you can save patient record depots and the patient records therein on a network file system. Normally, the network file system must support the NFS protocol or SMB protocol for this. Information on this can be found in the section *Patient record depots* [▶ Page 52 - Standalone].

START

Information on how to start SICAT Suite can be found in the section *Starting SICAT Suite* [▶ Page 33 - Standalone].

SETTINGS

Change the desired settings in the **Settings** area. Information on this can be found in the section *Settings* [▶ Page 222 - Standalone].

DATA RECORDS

SICAT Endo combines three different data types:

- 3D X-ray scans, for example, from Sirona GALILEOS
- Intraoral scans, for example, from Sirona XIOS XG
- Digital optical impressions, for example, from Sirona CEREC

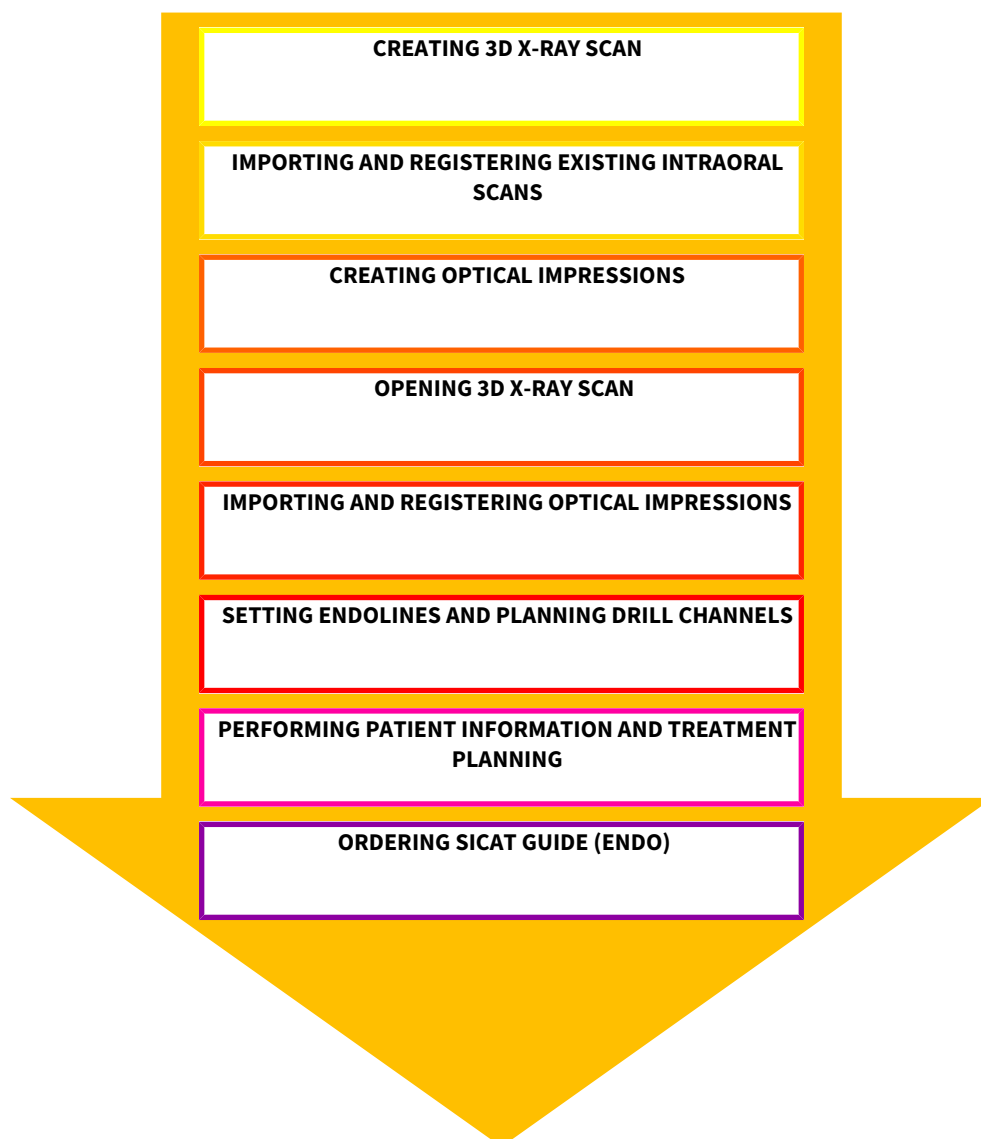
ACQUIRING DATA RECORDS

1. Create an intraoral scan of the patient where required. For more information, please refer to the instructions for use for the respective device.
2. Create a 3D X-ray scan of the patient. For more information, please refer to the instructions for use for the respective device.
3. Create digital optical impressions of the maxilla or mandible. For more information, please refer to the instructions for use for the respective device.

OPENING A DATA RECORD

1. Import the 3D X-ray scan into the patient record depot. Information on this can be found in the section *Data import* [▶ Page 60 - Standalone].
2. To search for patient records and manage imported data, follow the instructions provided under *Patient records* [▶ Page 70 - Standalone].
3. To work with data from patient records, open a patient record in SICAT Endo. Information on this can be found in the section *Opening 3D X-ray scans or planning projects from the patient record summary* [▶ Page 78 - Standalone].

TYPICAL DIGITAL ENDODONTIC WORKFLOW



WORK STEPS IN SICAT ENDO

1. If necessary, adjust the volume orientation and panoramic region. Information on this can be found in the section *Volume orientation and panoramic region* [▶ Page 131 - Standalone].
2. Import and register existing intraoral scans in SICAT Endo. For further information see section *Importing intraoral scans and allocating them to teeth* [▶ Page 153 - Standalone] and section *Registering intraoral scan* [▶ Page 159 - Standalone].
3. Import and register the optical impressions with the 3D X-ray data. Information on this can be found in the section *Importing and registering optical impressions* [▶ Page 142 - Standalone].
4. Set EndoLines and plan drill channels. For further information see *Pre-aligning a tooth region* [▶ Page 176 - Standalone], *Placing EndoLines* [▶ Page 178 - Standalone] and *Planning drill channels* [▶ Page 187 - Standalone].
5. Examine the Endo planning objects in the **Radiograph** workspace. Information on this can be found in the section *Overview of the intraoral scan workspace* [▶ Page 102 - Standalone].

6. Inform the patient and create a handout for the patient based on this. Information on this can be found in the section *Patient information* [▶ *Page 198 - Standalone*].
7. Order a SICAT GUIDE (ENDO) surgical guide. Information on this can be found in the section *Ordering process* [▶ *Page 209 - Standalone*].
8. Export data, for example, to obtain a second opinion. Information on this can be found in the section *Data export* [▶ *Page 206 - Standalone*].

ENDING OR PAUSING WORK ON THE DATA RECORD

- To end or interrupt your work, save it by closing the active patient record. Information on this can be found in the section *Closing SICAT Suite* [▶ *Page 237 - Standalone*].

INSTRUCTIONS FOR USE AND SUPPORT

The instructions for use can be found in the **SICAT Suite Help** window. Information on this can be found in the section *Opening the instructions for use* [▶ *Page 42 - Standalone*].

Further support is available in the **Support** area. Information on this can be found in the section *Support* [▶ *Page 230 - Standalone*].

13 STARTING SICAT SUITE

To start SICAT Endo, you must first start SICAT Suite.

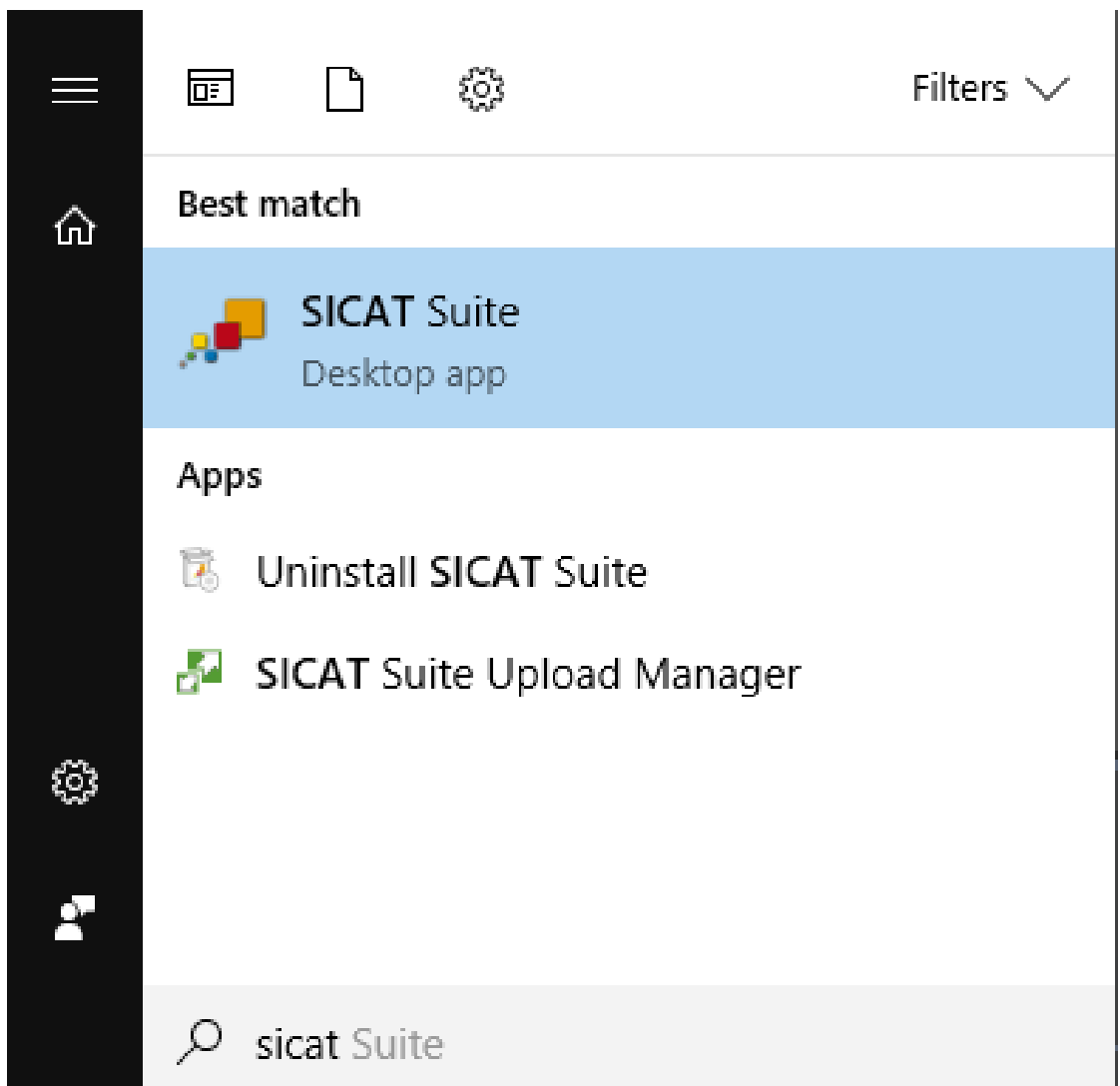
To start SICAT Suite, proceed as follows:

- ☑ SICAT Suite has already been successfully installed. Information on this can be found in the section *Installing SICAT Suite* [▶ *Page 17 - Standalone*].



- If a desktop shortcut was created during installation, click on the **SICAT Suite** icon on the Windows desktop.
- ▶ SICAT Suite starts and the **SICAT Suite Home** window opens. Information on this can be found in the section *Overview of the "SICAT Suite Home" window*. [▶ *Page 39 - Standalone*].

You can also start SICAT Suite by pressing the **Windows** key, entering **SICAT Suite** and clicking on the **SICAT Suite** icon.



14 SICAT ENDO STUDIES IN SICAT SUITE



X-ray devices without DICOM conformity could result in incorrect diagnosis and treatment.

Only use 3D volume data from X-ray devices with DICOM conformity declared.



Unsuitable 3D X-ray scans may result in an incorrect diagnosis and treatment.

Always verify the quality, integrity, and correct orientation of the displayed 3D data.



Unsuitable X-ray devices may result in an incorrect diagnosis and treatment.

Only use 3D X-ray scans from X-ray devices that are cleared as medical equipment.



Insufficient visualization quality could result in incorrect diagnosis and treatment.

Before using a SICAT application, for example with the SMPTE test image, check whether the display quality is sufficient.

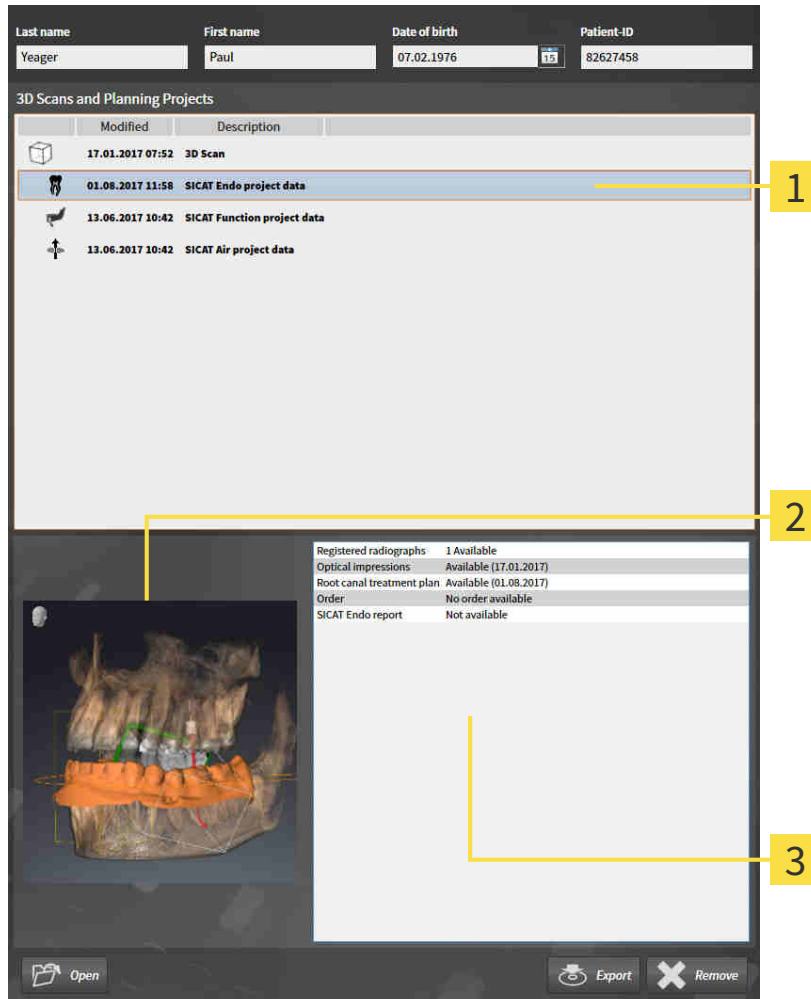


Insufficient environmental visualization conditions could result in incorrect diagnosis and treatment.

1. Only perform planning if the environmental conditions allow for sufficient visualization quality. For example, check for appropriate lighting.
2. Check whether the display quality is sufficient using the SMPTE test image.

The **Patient record browser** displays information on SICAT Endo studies if the following conditions have been met:

- You are using the stand-alone version of SICAT Suite.
- You have selected a SICAT Endo study in the **3D Scans and Planning Projects** area:

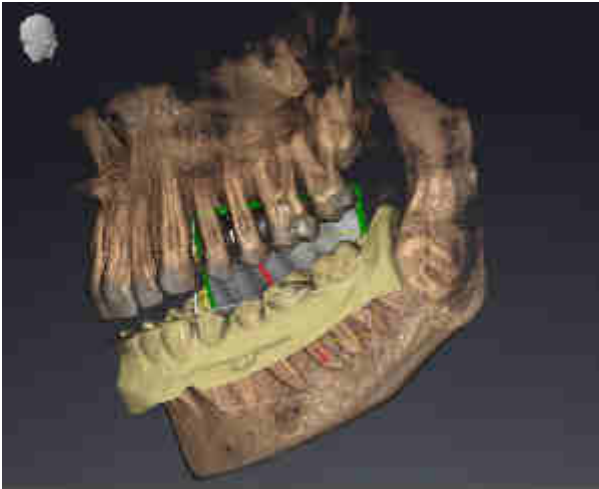


1 Selected SICAT Endo study

2 Overview area

3 Details area

The **Overview** area shows the **3D** view:

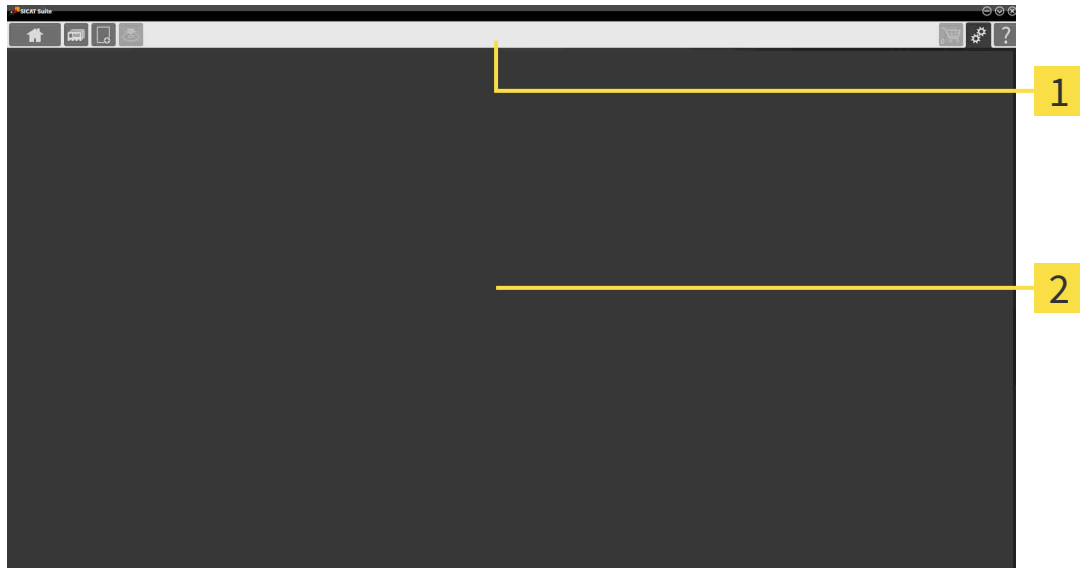


The **Details** area displays the following information:

- Availability of registered intraoral scans
- Availability of optical impressions
- Availability of a planning for root canal treatment
- Availability of an order with status and date
- Availability of a report

15 THE USER INTERFACE OF SICAT SUITE

The SICAT Suite user interface comprises the following parts:



1 Navigation bar

2 Application area

- The navigation bar at the upper end of SICAT Suite shows tabs to switch between different windows and applications.
- The **Application area**, which is located in the remaining part of SICAT Suite, shows the user interface of the active SICAT application.

The **Navigation bar** is comprised of three different sections. The section on the left side and the section on the right side are always visible. SICAT Suite shows the section in the center only if a patient record is activated.

The section on the left side contains the following tabs:



- **SICAT Suite Home** - Information on this can be found in the section *Overview of the “SICAT Suite Home” window*. [▶ Page 39 - Standalone].



- **Patient records** - Information on this can be found in the section *Patient records* [▶ Page 70 - Standalone].



- **Add new data** - Information on this can be found in the section *Data import* [▶ Page 60 - Standalone].



- **Export data** - Information on this can be found in the section *Data export* [▶ Page 206 - Standalone].

The section in the middle contains the following tabs:



- **Active patient record** - Information on this can be found in the section *Working with active patient records* [▶ *Page 75 - Standalone*].
- **Applications** - Information on this can be found in the section *Switching between SICAT applications* [▶ *Page 41 - Standalone*].



The section on the right side contains the following tabs:



- **Shopping cart** - Information on this can be found in the section *Ordering process* [▶ *Page 209 - Standalone*].



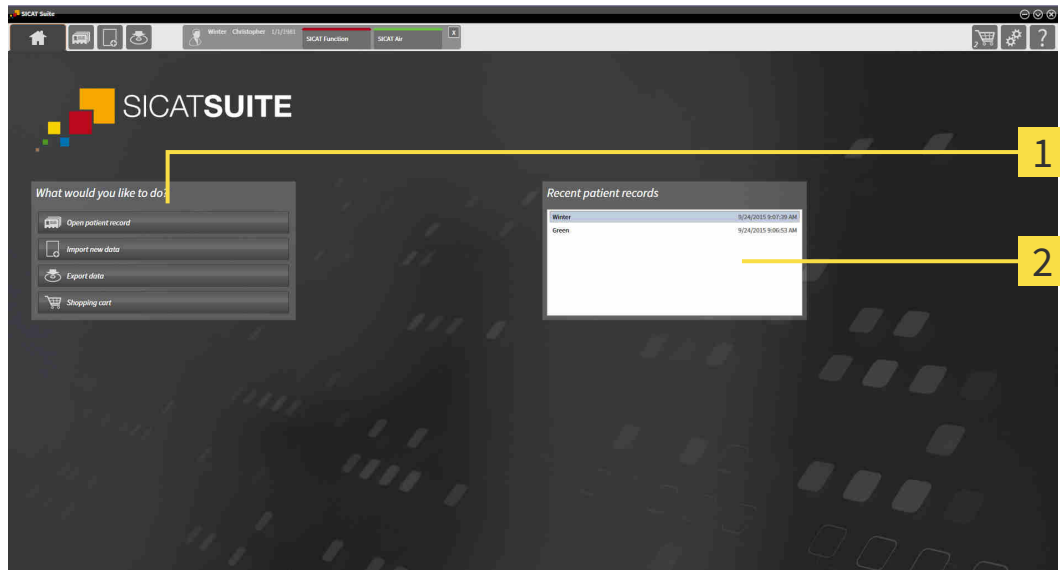
- **Settings** - Information on this can be found in the section *Settings* [▶ *Page 222 - Standalone*].



- **Support** - Information on this can be found in the section *Support* [▶ *Page 230 - Standalone*].

15.1 OVERVIEW OF THE “SICAT SUITE HOME” WINDOW.

The **SICAT Suite Home** window will greet you when you start the stand-alone version of SICAT Suite:



1 What would you like to do area

2 Recent patient records area



You can return to this window at any time by clicking the **SICAT Suite Home** icon. The content of the **SICAT Suite Home** window depends on the following parameters:

- Activation status and type of licenses
- Status of the patient record depots

If no license is activated, the **SICAT Suite Home** window will only show a message and the **Activate license** button.

If the Viewer license of at least one SICAT application is activated, but no full version license of a SICAT application is activated, SICAT Suite will run in Viewer mode. In this mode you cannot establish a connection to patient record depots, you cannot create patient record depots and the import, edit and save functions for patient data are not available. Therefore, only the **View new data** button and the **Activate license** button are available in the **SICAT Suite Home** window.

If a full version license is activated, but no patient record depot has been created and activated in SICAT Suite, you can create patient record depots, but the import, edit and save functions for patient data are not available. Therefore, only the **View new data** button and the **Set up patient record depot** button are available in the **SICAT Suite Home** window.

If a full version license is activated and a patient record depot has been created and activated in SICAT Suite, the following buttons are available in the **What would you like to do** area of the **SICAT Suite Home** window:



- **Open** - Information on this can be found in the section *Patient records* [▶ *Page 70 - Standalone*].



- **Add new data** - Information on this can be found in the section *Data import* [▶ *Page 60 - Standalone*].



- **Export data** - Information on this can be found in the section *Data export* [▶ *Page 206 - Standalone*].



- **Shopping cart** - Information on this can be found in the section *Ordering process* [▶ *Page 209 - Standalone*].

- In addition, the **Recent patient records** section will display a list of the most recently opened patient records. You can double click these patient records to open them.



If the **Display patient information anonymously** setting is active, the **SICAT Suite Home** window will hide the **Recent patient records** area.

16 SWITCHING BETWEEN SICAT APPLICATIONS

To switch between SICAT applications, proceed as follows:



- Click on the button with the label matching the desired SICAT application in the **Navigation bar**.
- ▶ SICAT Suite will switch to the selected application.

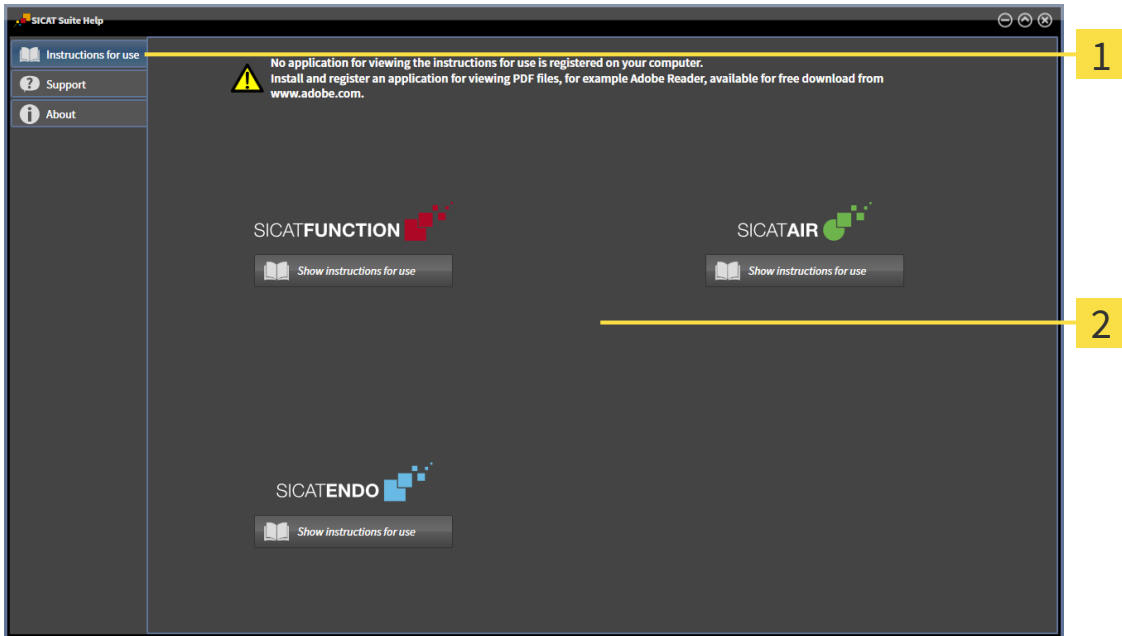
17 OPENING THE INSTRUCTIONS FOR USE

The instructions for use for SICAT applications are available in the **Support** window in the form of PDF files.



You can open the **Support** window by clicking the **Support** icon in the **Navigation bar** or pressing the F1 key.

The **Support** window looks as follows:



1 Instructions for use tab

2 Instructions for use window

You can open the desired help by clicking the **Show instructions for use** button.

18 LICENSES

SICAT Suite shows only SICAT applications for which you have activated a license.



If the **Add new data** or **View new data** functions are available in SICAT Suite based on activated licenses, you can view previously exported data records even without an activated SICAT Endo license.

The following license types exist:

- A Viewer license, through which you can use an application in Viewer mode for an unlimited period of time.
- A demo license, through which you will receive temporary access to the full version of one or more SICAT applications.
- A full version license, through which you will receive access to the full version of one or more SICAT applications for an unlimited period of time.

The following steps are required to activate SICAT applications or individual functions:

- You contact your local sales partner.
- You receive a voucher code.
- Using the voucher code, you generate a license key on the SICAT portal (which can be accessed via SICAT home page).
- SICAT adds the license key to your activation key.
- You use your activation key to activate SICAT applications or individual functions on computers on which SICAT Suite is installed.

The following applies for activating and deactivating licenses:

- You will only receive license keys for SICAT applications that are approved in your country.
- If you activate an activation key on a computer, one license of all included SICAT applications or included functions will be linked to that computer. The licenses will be no longer available for activation on another computer.
- You may deactivate licenses for each SICAT application or individual function separately. Returned licenses are available for renewed activation on the same or another computer.
- If you return a full version license for a SICAT application, you will automatically receive a Viewer license provided the application is approved in your country.
- If you activate a full version license, you will automatically receive Viewer licenses for all applications that are approved in your country.

Information on how to convert a voucher code into an activation key can be found in section *Redeeming voucher codes* [▶ Page 51 - Standalone].

The **License Overview** window gives an overview of the licenses which are activated on your computer. If you are using a demo license, SICAT Suite will display the expiry date of the licenses. Information on this can be found in the section *Opening the “Your licenses at a glance” window* [▶ Page 45 - Standalone].

You can activate licenses in two ways:

- If the computer on which SICAT Suite is running has an active Internet connection, the license can be activated automatically. Information on this can be found in the section *Activating licenses using an active Internet connection* [▶ Page 46 - Standalone].
- Upon request or if the computer on which SICAT Suite is running has no active Internet connection, the license can be activated manually using the license request files. You have to upload such license request files on the SICAT website. In return, you will receive a license activation file, which you have to activate in SICAT Suite. Information on this can be found in the section *Activating licenses manually or without an active Internet connection*. [▶ Page 48 - Standalone].

You can deactivate licenses for each application or function individually. After you have deactivated a license, you can enter the same or another activation key. Returned licenses are available for activation on the same or another computer. Information on this can be found in the section *Returning licenses to the license pool* [▶ Page 50 - Standalone].

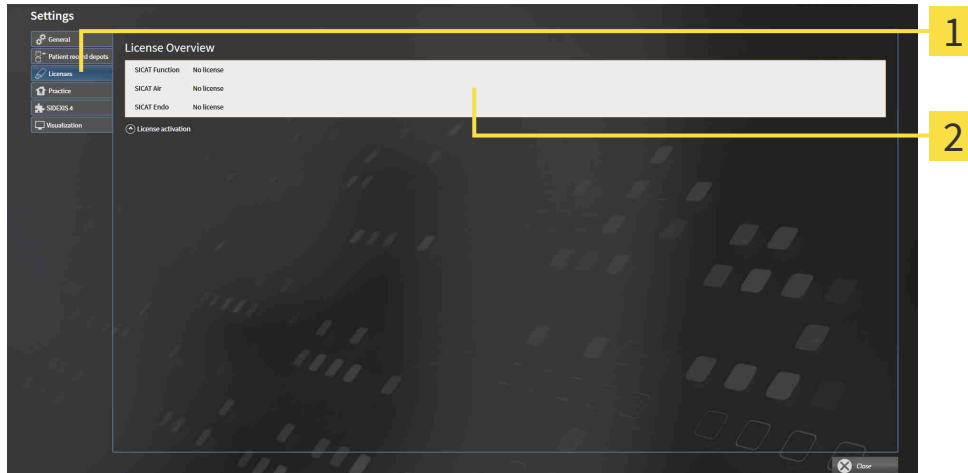
18.1 OPENING THE “YOUR LICENSES AT A GLANCE” WINDOW



1. Click on the **Settings** icon in the **Navigation bar**.
▶ The **Settings** window opens.



2. Click the **Licenses** tab.
▶ The **License Overview** window opens:



1 Licenses tab

2 License Overview window

Continue with one of the following actions:

- *Activating licenses using an active Internet connection* [▶ Page 46 - Standalone]
- *Activating licenses manually or without an active Internet connection.* [▶ Page 48 - Standalone]
- *Returning licenses to the license pool* [▶ Page 50 - Standalone]

18.2 ACTIVATING LICENSES USING AN ACTIVE INTERNET CONNECTION

NOTICE	<p>Patient record must be closed</p> <p>You must close the active patient record before making changes to the licenses.</p>
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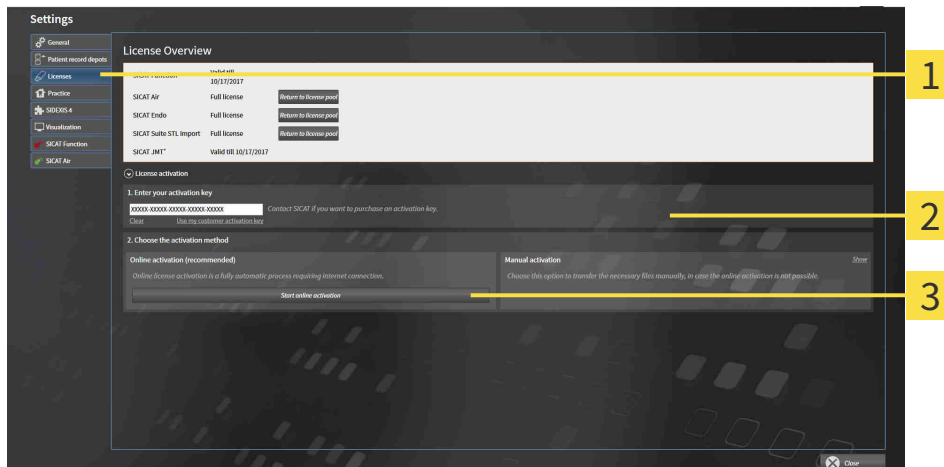
NOTICE	<p>Shopping cart must be empty</p> <p>The shopping cart must be empty before you can make any changes to the licenses.</p>
---------------	---

To start the activation process, proceed as follows:

- ☑ At least one SICAT application or one individual function is missing an active license.
- ☑ The computer on which SICAT Suite is running has an active Internet connection.
- ☑ The **License Overview** window is already open. Information on this can be found in the section *Opening the “Your licenses at a glance” window [▶ Page 45 - Standalone]*.

1. Click the **License activation** button in the **License Overview** window.

▶ The **License Overview** area expands:



- 1** License activation button
- 2** Enter your activation key area
- 3** Start online activation button

2. Enter your activation key in the **Enter your activation key** field.
 3. Click on the **Start online activation** button.
 4. If a **Windows Firewall** window opens, allow SICAT Suite to access the Internet.
- ▶ Licenses acquired for installed applications or individual functions are removed from your license pool and activated in SICAT Suite on the current computer.
 - ▶ The message window opens and shows the following message: **License was successfully activated.**



To activate a SICAT application again, you can use your customer activation key by clicking on the **Use my customer activation key** button in the **Enter your activation key** area. To clear the field with the current license key, you can click on the **Clear** button.

18.3 ACTIVATING LICENSES MANUALLY OR WITHOUT AN ACTIVE INTERNET CONNECTION.

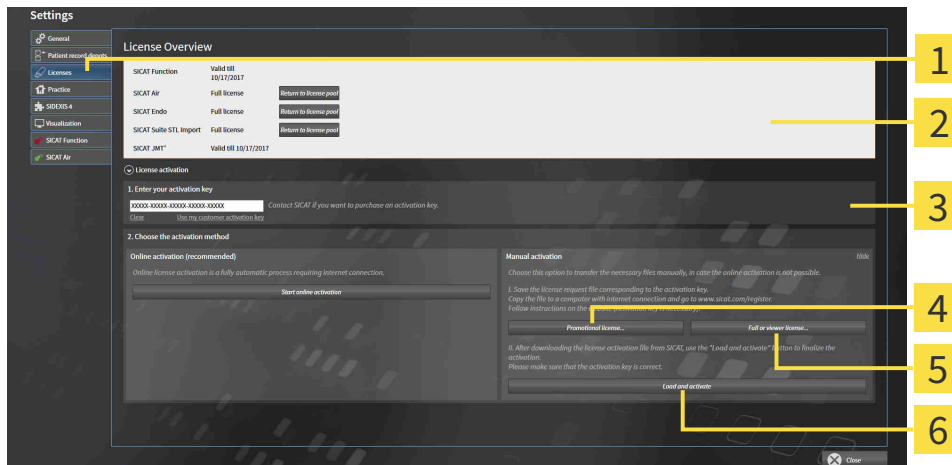
NOTICE	<p>Patient record must be closed</p> <p>You must close the active patient record before making changes to the licenses.</p>
---------------	--

NOTICE	<p>Shopping cart must be empty</p> <p>The shopping cart must be empty before you can make any changes to the licenses.</p>
---------------	---

To activate licenses manually or without an active Internet connection, proceed as follows:

- ☑ At least one SICAT application or one individual function is missing an active license.
- ☑ The **License Overview** window is already open. Information on this can be found in the section *Opening the “Your licenses at a glance” window [▶ Page 45 - Standalone]*.

1. Click on **License activation** in the **License Overview** window.
 - ▶ The **License activation** area expands.
2. Click on **Display** in the **Manual activation** area.
 - ▶ The **Manual activation** area expands:



- | | |
|---|--|
| 1 License activation | 4 Promotional license button |
| 2 Enter your activation key area | 5 Full or viewer license button |
| 3 Display | 6 Load and activate button |

3. If you wish to activate a full license, click the **Full or viewer license** button.
4. If you wish to activate a demo license, click the **Promotional license** button.
 - ▶ A Windows Explorer window opens.
5. Select the desired folder for the license request file and click **OK**.
 - ▶ A license request file with the **WibuCmRaC** file extension is generated and saved in the selected folder.

6. Copy the license request file on a computer with an active Internet connection, for example using a USB stick.
7. Open a web browser on the computer with the active Internet connection and open the <http://www.sicat.com/register> web page.
8. Follow the instructions on the activation page.
 - ▶ Licenses acquired for installed applications or individual functions are removed from your license pool.
 - ▶ The SICAT license server generates a license activation file with the **WibuCmRaU** file extension which you need to download onto your computer.
9. Copy the downloaded license activation file onto the computer on which SICAT Suite is running.
10. Check that the correct key is in the **Enter your activation key** field.
11. Click the **Load and activate** button in the **License Overview** window.
 - ▶ A Windows Explorer window opens.
12. Browse to find the license activation file, select it and click **OK**.
 - ▶ The license in the license activation file is installed on the current computer.
 - ▶ The message window opens and shows the following message: **License was successfully activated.**

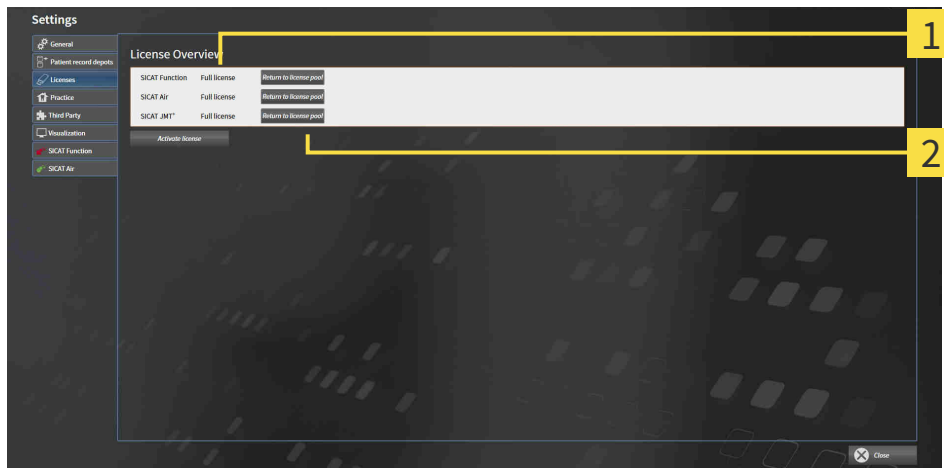
18.4 RETURNING LICENSES TO THE LICENSE POOL

NOTICE	<p>Patient record must be closed</p> <p>You must close the active patient record before making changes to the licenses.</p>
---------------	--

NOTICE	<p>Shopping cart must be empty</p> <p>The shopping cart must be empty before you can make any changes to the licenses.</p>
---------------	---

To deactivate a full license and return it to the license pool, proceed as follows:


- ☑ You have already installed the full license of a SICAT application.
- ☑ The computer on which SICAT Suite is running has an active Internet connection.
- ☑ The **License Overview** window is already open. Information on this can be found in the section *Opening the “Your licenses at a glance” window [▶ Page 45 - Standalone]*.



1 License status of SICAT applications and individual functions

2 Return to license pool button

- In the **License Overview** window, click on the **Return to license pool** button in the row of the desired SICAT application or individual function.
- ▶ The selected license is returned to your license pool and will be ready for activation again.
- ▶ The message window opens and shows the following message: **License was successfully returned to the license pool.**
- ▶ Without a license, an application will only be available in Viewer mode. If the licenses for all SICAT applications have been returned to your license pool, SICAT Suite will switch entirely to Viewer mode.

	<p>If you wish to deactivate a license on a computer without an active Internet connection, please contact SICAT support.</p>
---	---

18.5 REDEEMING VOUCHER CODES

1. Open a web browser on the computer with the active Internet connection and open the <http://www.sicat.com> web page.
2. Select the link for the SICAT portal.
 - ▶ The SICAT portal opens.
3. Register or log in to the SICAT portal using your username and password if you have not already done so.
4. Click on the entry to manage your licenses in the account management section.
5. Enter your voucher code and confirm the code.
 - ▶ The SICAT Portal will generate a license key and add the license key to your activation key.
6. Start SICAT Suite and activate the license.


For further information about this see *Activating licenses using an active Internet connection* [▶ Page 46 - Standalone] and *Activating licenses manually or without an active Internet connection*. [▶ Page 48 - Standalone].




See the FAQ on the SICAT portal for more help.

19 PATIENT RECORD DEPOTS


BACKUP


 **CAUTION** **The absence of a backup mechanism for the patient record depots could result in patient data being irreversibly lost.**
Make sure that a regular data backup is created of all patient record depots.


You yourself are responsible for backing up the patient data in the patient record depots. The settings under **Patient record depots** will show where you can find the patient record depots. If you have removed a patient record depot from the **Your patient record depots** list, SICAT Suite will no longer display the corresponding patient record depot even though it still exists on the corresponding data storage medium.

 You should also back up the user settings of the SICAT applications in addition to the patient data. You can find the user settings for each user in two directories separately. You can open the directories by entering **%appdata%\SICAT GmbH & Co. KG** and **%localappdata%\SICAT GmbH & Co. KG** into the address bar of Windows Explorer.

DATA SECURITY

 **CAUTION** **Saving SICAT application data in an unreliable or incompatible network file system could result in data loss**
Together with your network administrator, make that SICAT application data can be safely stored in the desired network file system.

 **CAUTION** **The shared use of SICAT Suite and the SICAT applications contained therein with other devices within a computer network or a storage area network could result in previously unknown risks for patients, users and other persons.**
Ensure that rules are compiled within your organization to determine, analyze and assess risks in relation to your network.

 **CAUTION** **Changes to your network environment may result in new risks for your network environment. Examples include changes to your network configuration, the connection of additional devices or components to your network, the disconnection of devices or components from your network and the updating or upgrading of network devices or components.**
Perform a network risk analysis after any changes to the network.

GENERAL INFORMATION



The administration of patient record depots is only available, if an application license is activated in SICAT Suite.



A new version of the stand-alone version of SICAT Suite requires updated patient record depots. When first starting the new version or if you are activating an old patient record depot, SICAT Suite will ask if you want to update the patient record depot. SICAT Suite will update the patient record depot automatically when you confirm the message. **CAUTION! You can no longer use updated patient record depots with older versions of SICAT Suite.**

SICAT Suite manages patient data as follows:

- All 3D scans for a patient and all corresponding planning projects are organized in patient records.
- Patient records are stored in the patient record depot.
- Patient record depots are saved in folders on a local file system or network file system.

SICAT Suite requires at least one patient record depot to run in the full version. Several patient record depots can be managed. However, only one patient record depot can be active at one time. Only one SICAT Suite can access patient record depots at one time both on a local file system and a network file system. You can only edit and save patient records from the active patient record depot.



Patient record depots on network file systems require a network connection with a certain minimum bandwidth. Information on this can be found in the section *System requirements* [▶ Page 8 - Standalone].

The following actions are available for managing patient record depots:

- *Opening the “Patient record depots” window* [▶ Page 54 - Standalone]
- *Adding patient record depots* [▶ Page 55 - Standalone]
- *Activating another patient record depot* [▶ Page 57 - Standalone]
- *Removing patient record depots* [▶ Page 59 - Standalone]

19.1 OPENING THE “PATIENT RECORD DEPOTS” WINDOW

To open the **Patient record depots** window, proceed as follows:



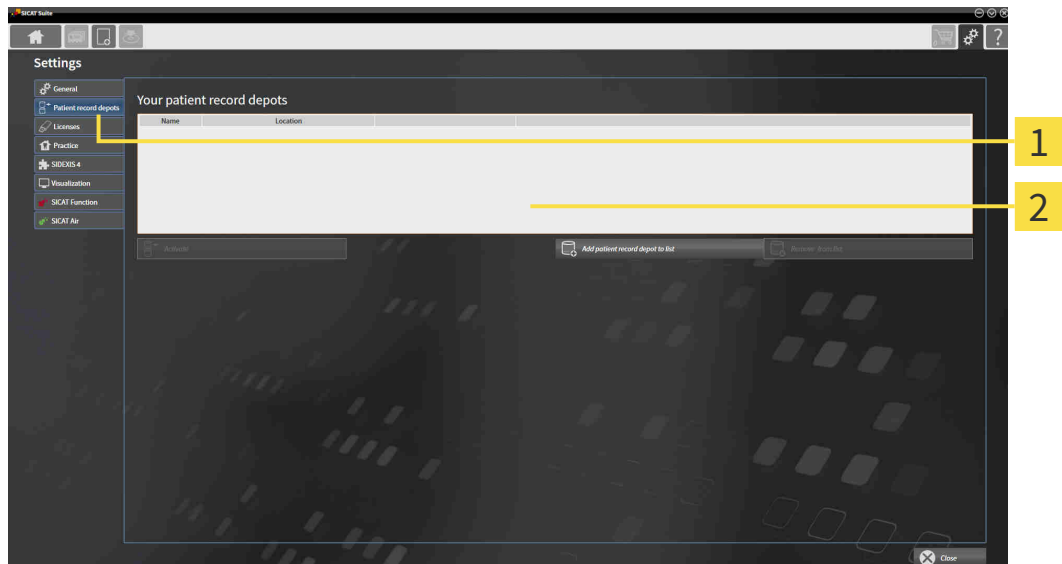
1. Click on the **Settings** icon in the **Navigation bar**.

▶ The **Settings** window opens.



2. Click the **Patient record depots** tab.

▶ The **Patient record depots** window opens:



1 Patient record depots tab

2 Patient record depots window

Continue with one of the following actions:

- *Adding patient record depots* [▶ Page 55 - Standalone]
- *Activating another patient record depot* [▶ Page 57 - Standalone]
- *Removing patient record depots* [▶ Page 59 - Standalone]

19.2 ADDING PATIENT RECORD DEPOTS



The absence of a backup mechanism for the patient record depots could result in patient data being irreversibly lost.

Make sure that a regular data backup is created of all patient record depots.



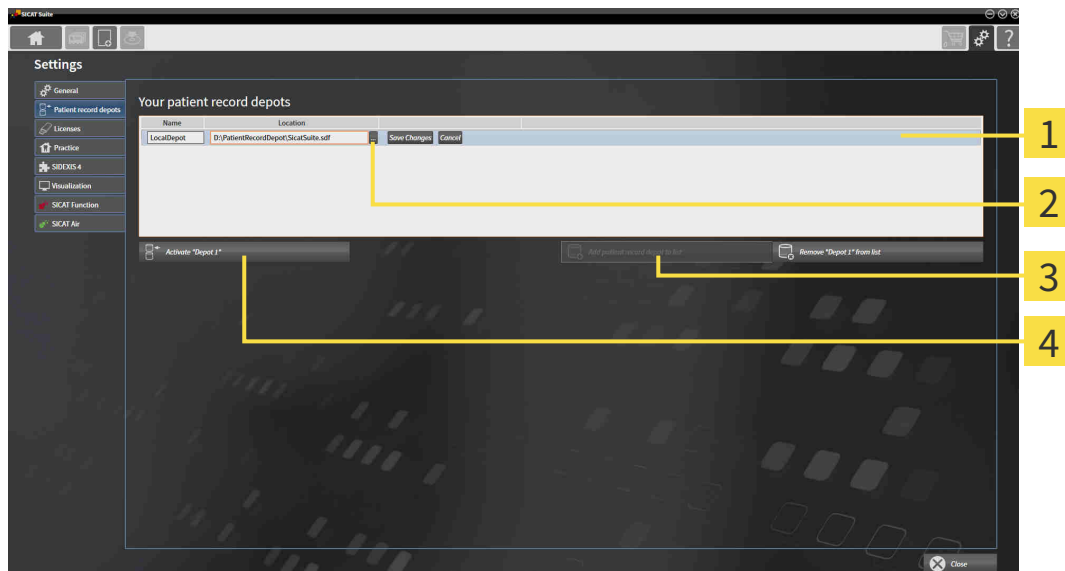
SICAT Suite saves patient record depots on file systems. You can only save one patient record depot per folder. Therefore, the folder, in which you want to save a new patient record depot, must be empty.



SICAT Suite adds an existing patient record depot if the following conditions have been met: The selected folder already contains a patient record depot, but is not included in the list of patient record depots.

To create a new patient record depot or to add an existing patient record depot, proceed as follows:

- ✓ The **Patient record depots** window is already open. Information on this can be found in the section *Opening the “Patient record depots” window [▶ Page 54 - Standalone]*.



1 Row of the new patient record depot

3 Add patient record depot to list button


2 Browse button

4 Button to activate the selected patient record depot




- Click the **Add patient record depot to list** button in the **Patient record depots** window.
 - ▶ SICAT Suite adds a new row to the **Your patient record depots** list for the new patient record depot.
- Click the button marked **Browse** in the row for the new patient record depot.
 - ▶ The **Browse** window opens.
- Select the folder you require in the **Browse** window and click **OK**.
 - ▶ The **Browse** window closes and SICAT Suite adds the path to the folder you require to the row of the new patient record depot.

4. Click in the **Name** field in the row of the new patient record depot and enter a recognizable name for the new patient record depot.
5. Click **Save Changes** while the new patient record depot is still selected.
 - ▶ If a patient record is active at that time, a confirmation message will open.
6. Click the **Switch patient record depot (active patient record will be closed)** button in the confirmation message.
 - ▶ SICAT Suite activates the new patient record depot. The font of the corresponding row changes to bold.
 - ▶ SICAT Suite deactivates the patient record depot that was previously active. The font of the corresponding row changes to normal.



You can click **Cancel** to cancel adding a patient record depot.



You can identify the created patient record depot using an SDF file in the respective folder.

19.3 ACTIVATING ANOTHER PATIENT RECORD DEPOT

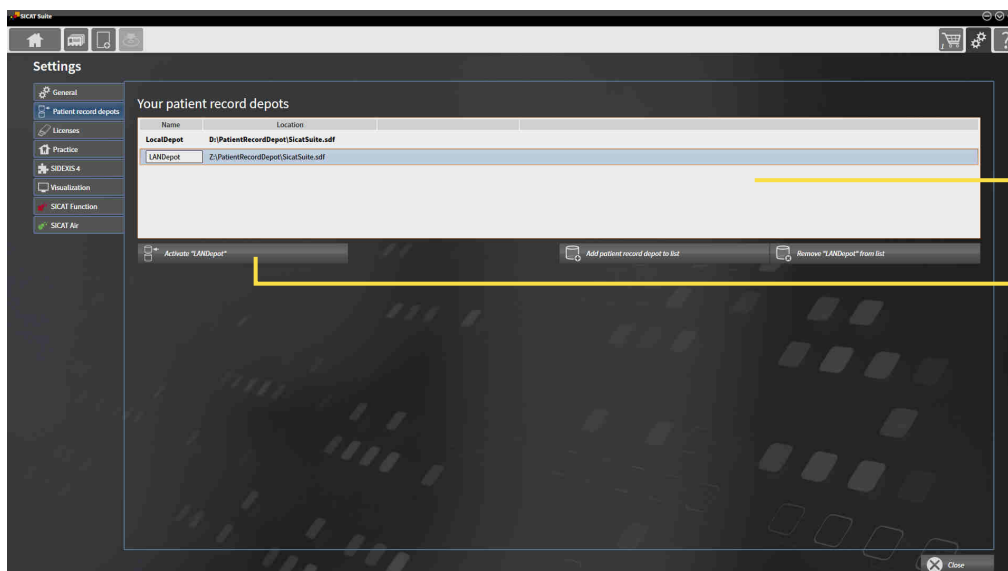


It may be helpful to change the active patient record depot, for example in the following cases:

- You want to switch between a patient record depot on your practice’s network file system and a patient record depot on your notebook.
- You want to display patient data in public, which has been stored anonymously in another patient record depot, for example for training purposes.

To activate another patient record depot, proceed as follows:

- ✓ No patient record is active. If a patient record is active, SICAT Suite will close it automatically.
- ✓ The patient record depot that you want to activate is not opened in SICAT Suite on another computer.
- ✓ The **Patient record depots** window is already open. Information on this can be found in the section *Opening the “Patient record depots” window* [▶ Page 54 - Standalone].



1 Your patient record depots list

2 Button for activating the selected patient record depot

1. In the **Patient record depots** window, click on the desired patient record depot in the **Your patient record depots** list.



2. Click on the button to activate the selected patient record depot.

▶ If a patient record is active at that time, a confirmation message will open.

3. Click the **Switch patient record depot (active patient record will be closed)** button in the confirmation message.

▶ SICAT Suite activates the selected patient record depot.



A new version of the stand-alone version of SICAT Suite requires updated patient record depots. When first starting the new version or if you are activating an old patient record depot, SICAT Suite will ask if you want to update the patient record depot. SICAT Suite will update the patient record depot automatically when you confirm the message. **CAUTION! You can no longer use updated patient record depots with older versions of SICAT Suite.**

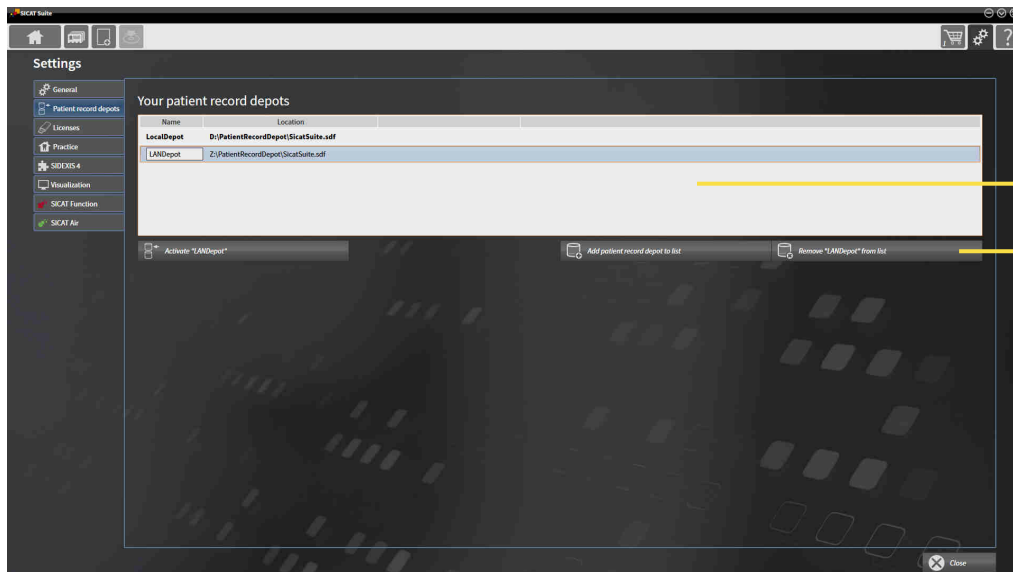
19.4 REMOVING PATIENT RECORD DEPOTS



SICAT Suite only removes a patient record depot from the **Your patient record depots** list. It does not delete patient record depots from the file system. You can add an existing patient record depot, which has been removed from the **Your patient record depots** list, back once again. Information on this can be found in the section *Adding patient record depots* [▶ Page 55 - Standalone].

To remove a patient record depot from the **Your patient record depots** list, proceed as follows:

- ☑ No patient record depot is opened.
- ☑ The **Patient record depots** window is already open. Information on this can be found in the section *Opening the “Patient record depots” window* [▶ Page 54 - Standalone].



1 Your patient record depots list

2 Button to remove the selected patient record depot

1. Click on the patient record depot you require in the **Patient record depots** window in the **Your patient record depots** list.



2. Click on the button to remove the selected patient record depot.

▶ SICAT Suite removes the selected patient record depot from the **Your patient record depots** list.

20 DATA IMPORT



Unsuitable 3D X-ray scans may result in an incorrect diagnosis and treatment.

Always verify the quality, integrity, and correct orientation of the displayed 3D data.



Deleting original data may result in data being lost.

Do not delete the original data following the import.



The data import will only be available if both a license is activated and a patient record depot has been created and activated. Without a license or patient record depot you can only open data in Viewer mode. Information on this is available in the section *Opening read-only data* [▶ Page 234 - Standalone].

SICAT Suite can import 3D X-ray scans from the following data formats:

- SICAT Suite DICOM data
- 3D X-ray scans (DICOM, information on this can be found in the section *Supported DICOM format* [▶ Page 62 - Standalone])
- SICAT Implant data
- SICAT surgical guide order data
- GALILEOS Wrap&Go data

Two settings determine the manner in which SICAT Suite imports 3D X-ray scans into the active patient record depot:

- The import settings determine whether SICAT Suite imports a 3D X-ray scan or not, overwrites an existing 3D X-ray scan or creates a duplicate.
- The allocation settings determine the patient record, to which SICAT Suite allocates an imported 3D X-ray scan.

If a data record contains studies from SICAT applications, SICAT Suite imports the studies together with the 3D X-ray scans.

IMPORT SETTINGS FOR 3D X-RAY SCANS

If the active patient record depot contains patient records, you can select different import settings for 3D X-ray scans. The available import settings depend on whether the ID of the data to be imported matches the ID of a patient record in the active patient record depot or not.

You can select import settings individually for each 3D X-ray scan:

DATA TYPE	THE ID MATCHES	THE ID DOES NOT MATCH	ALWAYS AVAILABLE
SICAT Suite DICOM data SICAT Implant data SICAT surgical guide order data	Overwrite existing – SICAT Suite imports the 3D X-ray scan and overwrites the existing data record with the same ID.	Import – SICAT Suite imports the 3D X-ray scan as a new data record.	Do not import – SICAT Suite does not import the 3D X-ray scan.
DICOM data from third-party suppliers GALILEOS Wrap&Go data	Import anyway – SICAT Suite imports the 3D X-ray scan as a copy of an existing data record.	Import – SICAT Suite imports the 3D X-ray scan as a new data record.	Do not import – SICAT Suite does not import the 3D X-ray scan.

ATTRIBUTE COMPARISON FOR PATIENT RECORD ALLOCATION

SICAT Suite analyzes different attributes of the data to be imported. These attributes are:

- Last name
- First name
- Date of birth
- Patient ID, for example the social security number or an internal patient ID for your practice

SETTINGS FOR PATIENT RECORD ALLOCATION

The following list shows the import options, which SICAT Suite suggests, depending on the attribute comparison:

- All attributes of the data to be imported match the attributes of a patient record in the active patient record depot: SICAT Suite suggests the **Assign to existing patient record** option and matching patient record.
- Not all attributes of the data to be imported match the attributes of a patient record in the active patient record depot: SICAT Suite suggests the **Create new patient record** option.

In both cases, you can assign the data to another patient record manually.

Perform the following actions in the order stated to import data:

- *Selecting the data to be imported* [▶ Page 63 - Standalone]
- *Selecting an import option* [▶ Page 65 - Standalone]
- *Allocating data to an existing patient record* [▶ Page 67 - Standalone]

or

- *Creating a new patient record through data import* [▶ Page 66 - Standalone]

20.1 SUPPORTED DICOM FORMAT

When importing DICOM data records, SICAT Suite supports data records, which meet the following criteria:

- Data record present in DICOM 3.0 format.
- Data record contains only parallel slices.
- Data record is uncompressed, JPEG compressed or JPEG 2000 compressed.
- Data record matches a supported type from the following list.

The supported data record types are:

- CT Image
- Digital X-Ray Image
- Digital Intraoral X-Ray Image
- X-Ray 3D Craniofacial Image
- Secondary Capture Image (grayscale) (for CT modality only)
- Multiframe Grayscale Word Secondary Capture Image (for CT modality only)

Please see the DICOM conformance statement for further criteria. SICAT will be happy to send this to you upon request. The necessary contact details are found on the reverse.

20.2 SELECTING THE DATA TO BE IMPORTED



Unsuitable X-ray devices may result in an incorrect diagnosis and treatment.

Only use 3D X-ray scans from X-ray devices that are cleared as medical equipment.



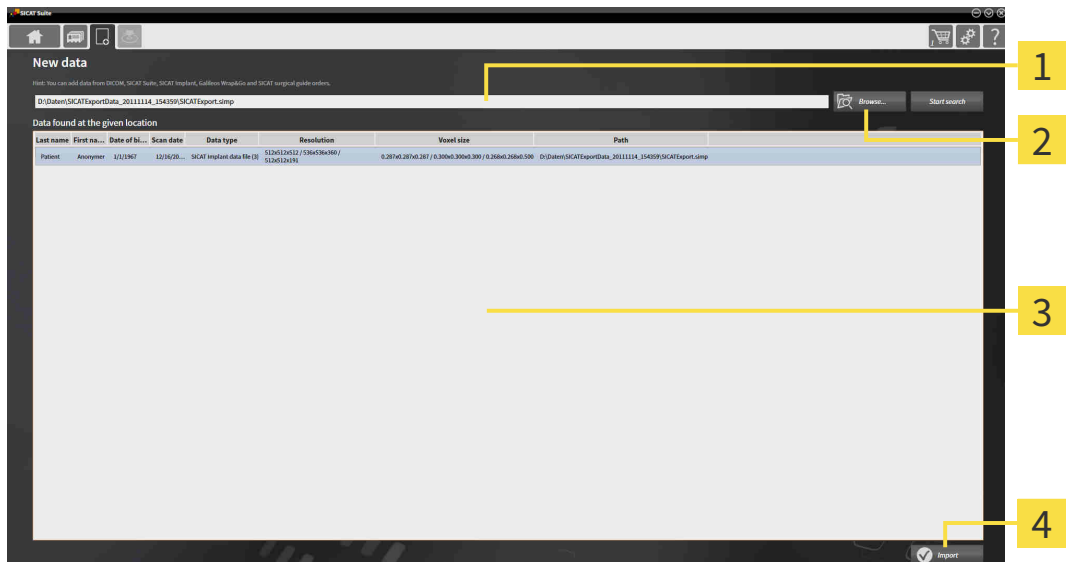
X-ray devices without DICOM conformity could result in incorrect diagnosis and treatment.

Only use 3D volume data from X-ray devices with DICOM conformity declared.

To import data to the active patient record depot, proceed as follows:



1. Click on the **New data** icon in the **Navigation bar**.
▶ The **New data** window opens:



1 Where is the data located field

3 Data found at the given location list

2 Browse button

4 Import button



2. Click on the **Browse** button.
▶ The **Select a file or directory** window opens.
3. Select the file you require in the **Select a file or directory** window and click **OK**.
▶ SICAT Suite closes the **Select a file or directory** window and transfers the path to the file you require or the selected folder into the **Where is the data located** field.
▶ If you have selected a compatible file, SICAT Suite will display the file contents in the **Data found at the given location** list.
▶ If you have selected a folder, SICAT Suite will search the folder and all sub-folders. SICAT Suite will display compatible files in any of the folders searched in the **Data found at the given location** list.



You can also drag & drop to import data into SICAT Suite.



If you use the described procedure, the search will start automatically. You can cancel the search by clicking the **Stop search** button. If you enter a path to a file or a folder manually into the **Where is the data located** field, you have to click on the **Start search** button. This may also be useful to start a new search if the contents of the folder have changed or if you have accidentally canceled the search.



If SICAT Suite does not find certain files even if they are compatible, this may be down to the long path to the files. Copy the files to a higher level of the file system and start your search again.

Continue with the section *Selecting an import option* [▶ Page 65 - Standalone].

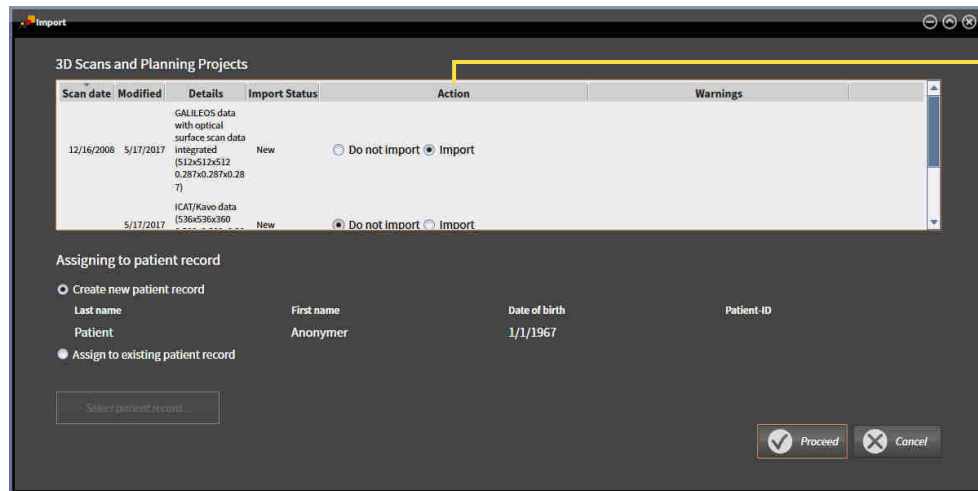
20.3 SELECTING AN IMPORT OPTION

To select an import option for each study, proceed as follows:



1. Select the desired study from the **Data found at the given location** list and click the **Import** button.

► The **Import** window opens:



1 Action column

2. In the **Import** window, select one of the following entries from the **Action** column for each study: **Do not import**, **Import anyway**, **Import** or **Overwrite existing**. A detailed description of the options can be found in the section *Data import* [► Page 60 - Standalone].

► It is defined for all studies individually whether you want to import them or not.

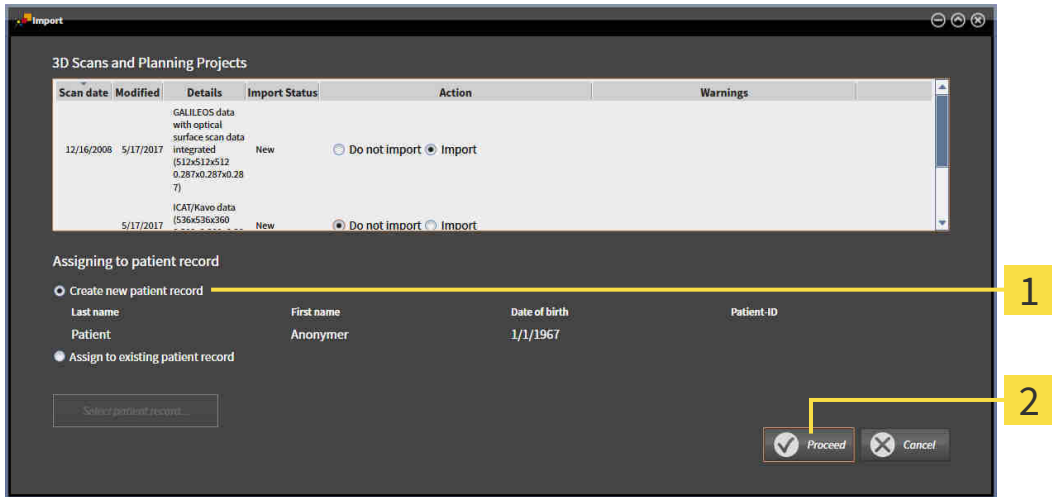
Continue with one of the following actions:

- *Allocating data to an existing patient record* [► Page 67 - Standalone]
- *Creating a new patient record through data import* [► Page 66 - Standalone]

20.4 CREATING A NEW PATIENT RECORD THROUGH DATA IMPORT



You can create a new patient record via data import if there is not yet a patient record with the same attribute combination in the active patient record depot.



1 Create new patient record option

2 Proceed button

To allocate data you wish to import to a new patient record, proceed as follows:

- Select the option **Create new patient record** in the **Assigning to patient record** area and click the **Proceed** button.
- ▶ SICAT Suite creates a new patient record with the attributes of the selected data.
- ▶ SICAT Suite imports the selected data and allocates it to the new patient record.
- ▶ The **Patient record browser** window opens and SICAT Suite highlights the imported patient records in the **Patient records** list. Information on this can be found in the section *Patient records* [▶ Page 70 - Standalone].

20.5 ALLOCATING DATA TO AN EXISTING PATIENT RECORD



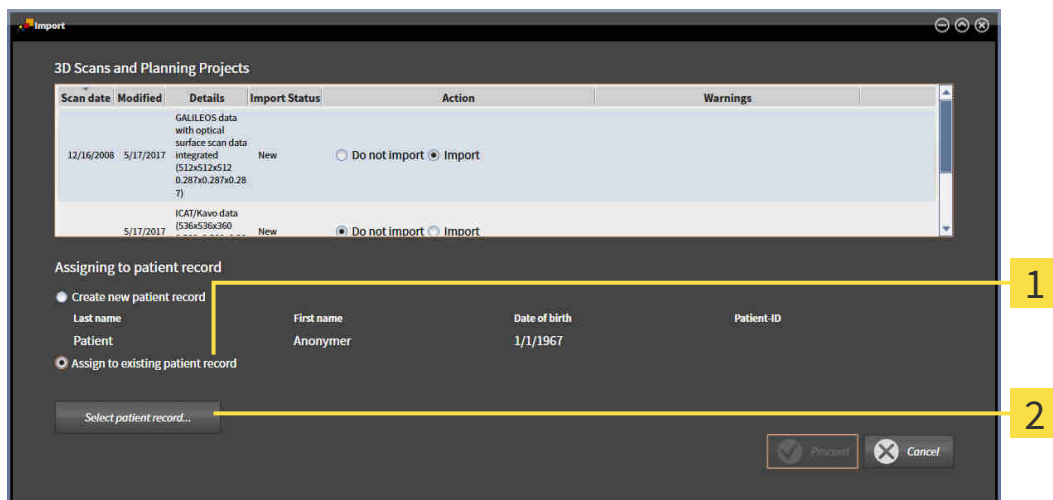
CAUTION

Incorrect assignment of patient name or 3D scan could result in confusion of patient scans.

Verify that the 3D scan that is to be imported or already loaded in a SICAT Suite application is associated with the correct name of the patient and the correct scan information.



SICAT Suite automatically selects the **Assign to existing patient record** option with the corresponding patient record if the following condition applies: All attributes of the data to be imported match the attributes of a patient record in the active patient record depot:



1 Assign to existing patient record option

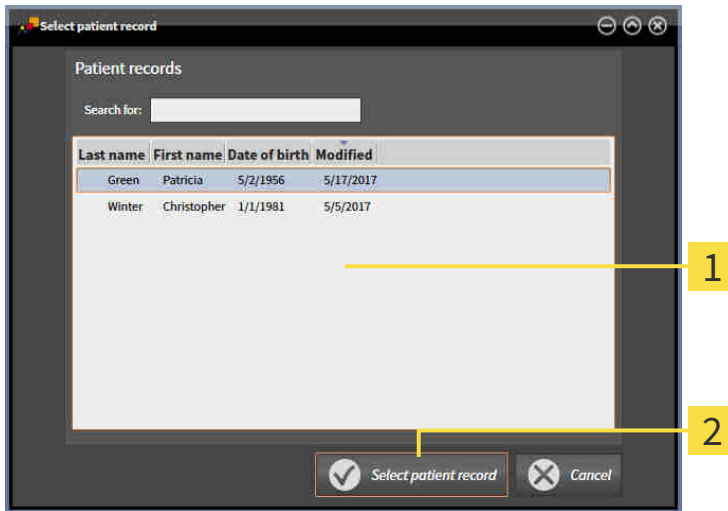
2 Select patient record button

To manually allocate data you wish to import to an existing patient record, proceed as follows:

The active patient record depot contains at least one patient record.

1. Select the option **Assign to existing patient record** in the **Assigning to patient record** section and click the **Select patient record** button.

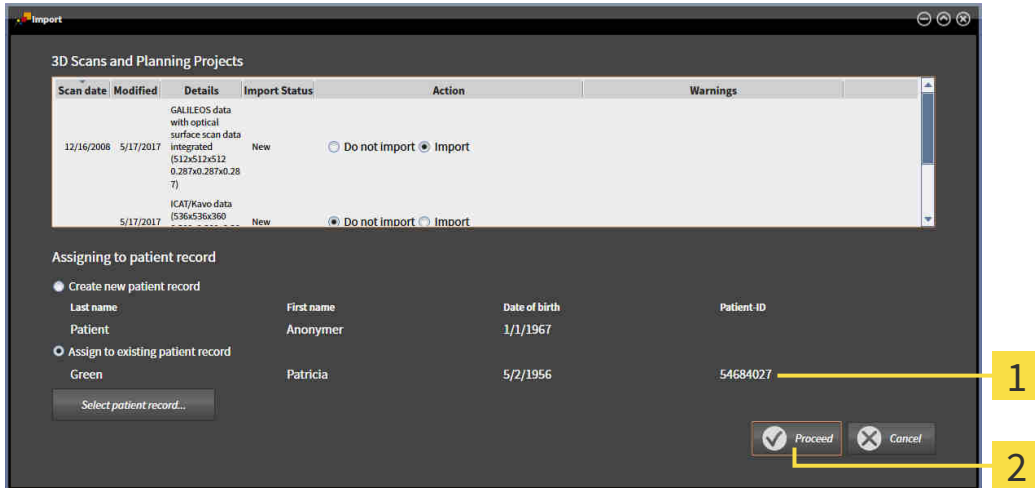
- ▶ The **Select patient record** window opens and displays a list of the already existing patient records:



- 1** Patient records list
- 2** Select patient record button

2. Click the desired patient record and click the button marked **Select patient record**.

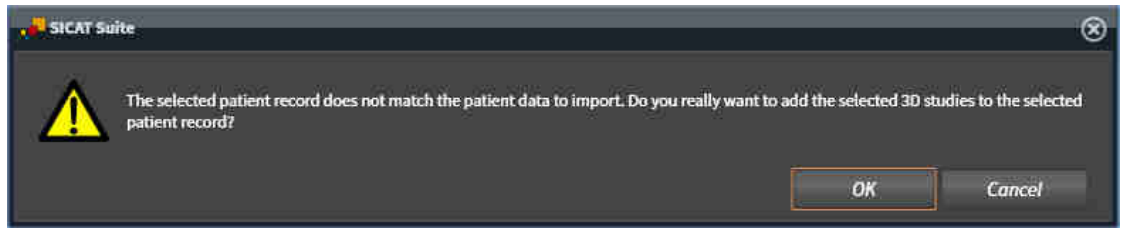
- ▶ The **Select patient record** window closes.
- ▶ The **Import** window displays the attributes of the selected patient record.



- 1** Attributes of the selected patient record
- 2** Proceed button

3. Click the **Proceed** button in the **Import** window.

4. If the attributes of the data to be imported do not match the attributes of the selected patient record, a warning message opens:



5. If you still want to import the data, click **OK**.
 - ▶ SICAT Suite imports the selected data and allocates it to an existing patient record.
 - ▶ The **Patient record browser** window opens and SICAT Suite highlights the imported patient records in the **Patient records** list. Information on this can be found in the section *Patient records* [▶ *Page 70 - Standalone*].

21 PATIENT RECORDS

Patient records may contain several 3D studies. A study consists of a 3D X-ray scan and the corresponding planning projects. In addition, it may also contain documents created during the planning phase.

The following actions are available for managing patient records:

- *Opening the “Patient record browser” window* [▶ *Page 71 - Standalone*]
- *Searching and sorting in the patient record depot* [▶ *Page 72 - Standalone*]
- *Activating patient records* [▶ *Page 74 - Standalone*]
- *Opening 3D X-ray scans or planning projects from the patient record summary* [▶ *Page 78 - Standalone*]
- *Working with active patient records* [▶ *Page 75 - Standalone*]
- *Changing the attributes of patient records* [▶ *Page 77 - Standalone*]
- *Deleting patient records from patient record depots* [▶ *Page 84 - Standalone*]
- *Deleting 3D X-ray scans or planning projects from patient records* [▶ *Page 85 - Standalone*]

There are also actions to import data and to export data from patient records:

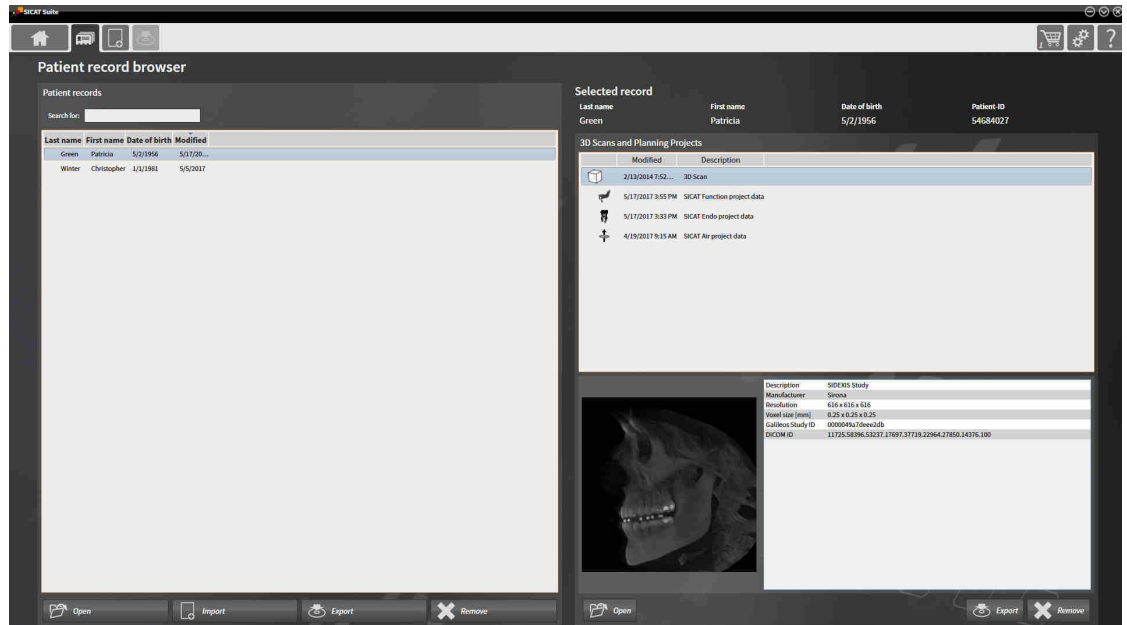
- *Data import* [▶ *Page 60 - Standalone*]
- *Data export* [▶ *Page 206 - Standalone*]

21.1 OPENING THE “PATIENT RECORD BROWSER” WINDOW

To open the **Patient record browser** window, proceed as follows:



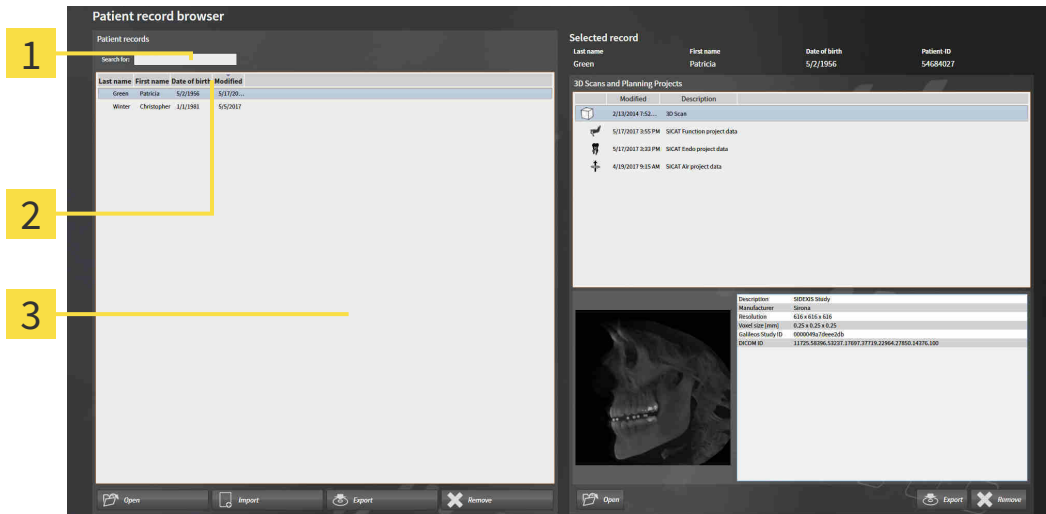
- Click on the **Patient records** icon in the **Navigation bar**.
- ▶ The **Patient record browser** window opens:



Continue with one of the following actions:

- *Searching and sorting in the patient record depot [▶ Page 72 - Standalone]*
- *Activating patient records [▶ Page 74 - Standalone]*
- *Opening 3D X-ray scans or planning projects from the patient record summary [▶ Page 78 - Standalone]*
- *Working with active patient records [▶ Page 75 - Standalone]*
- *Changing the attributes of patient records [▶ Page 77 - Standalone]*
- *Deleting patient records from patient record depots [▶ Page 84 - Standalone]*
- *Deleting 3D X-ray scans or planning projects from patient records [▶ Page 85 - Standalone]*

21.2 SEARCHING AND SORTING IN THE PATIENT RECORD DEPOT



- 1 Search for field
- 2 Column headers with attributes
- 3 Patient records list

SEARCHING FOR PATIENT RECORDS

SICAT Suite searches through the attributes of all patient records for the search text entered.

To search for a patient record, proceed as follows:

- ☑ The **Patient record browser** window is already open. Information on this can be found in the section *Opening the “Patient record browser” window* [▶ Page 71 - Standalone].
 - Enter the desired search text in the **Search for** field.
- ▶ The **Patient records** list displays all patient records, which contain the search text entered in an attribute.

SICAT Suite will start the search as soon as you start typing.

SORTING PATIENT RECORDS ACCORDING TO ATTRIBUTES

You can sort patient records according to the following attributes:

- **Last name**
- **First name**
- **Date of birth**
- **Modified**

To sort patient records by attributes, proceed as follows:

- ☑ The **Patient record browser** window is already open. Information on this can be found in the section *Opening the “Patient record browser” window* [▶ *Page 71 - Standalone*].



1. Click on the column header of the desired attribute in the **Patient records** list.
 - ▶ SICAT Suite sorts the **Patient records** list in the order of the desired attribute.
2. Click again on the column header of the desired attribute in the **Patient records** list.
 - ▶ SICAT Suite sorts the **Patient records** list by the desired attribute in reverse order.

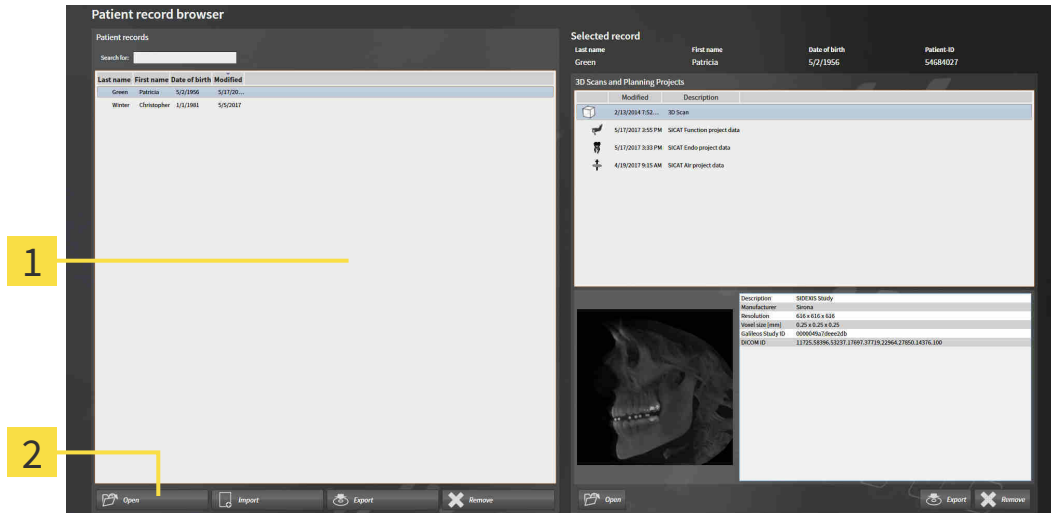


By default, patient records are sorted in descending order of the date they were last changed.

21.3 ACTIVATING PATIENT RECORDS

To work with a patient record, activate it as follows:

- ☑ The **Patient record browser** window is already open. Information on this can be found in the section *Opening the “Patient record browser” window* [▶ Page 71 - Standalone].



1 Patient records list

2 Button to activate the selected patient record

1. Select the desired patient record in the **Patient records** list.
 2. Click on the button to activate the selected patient record.
- ▶ SICAT Suite activates the selected patient record.

Continue with the section *Working with active patient records* [▶ Page 75 - Standalone].

21.4 WORKING WITH ACTIVE PATIENT RECORDS



Deleted patient records, studies, 3D scans, and planning projects cannot be recovered.

Only delete patient records, studies, 3D scans, and planning projects if you are sure you will never need those data again.

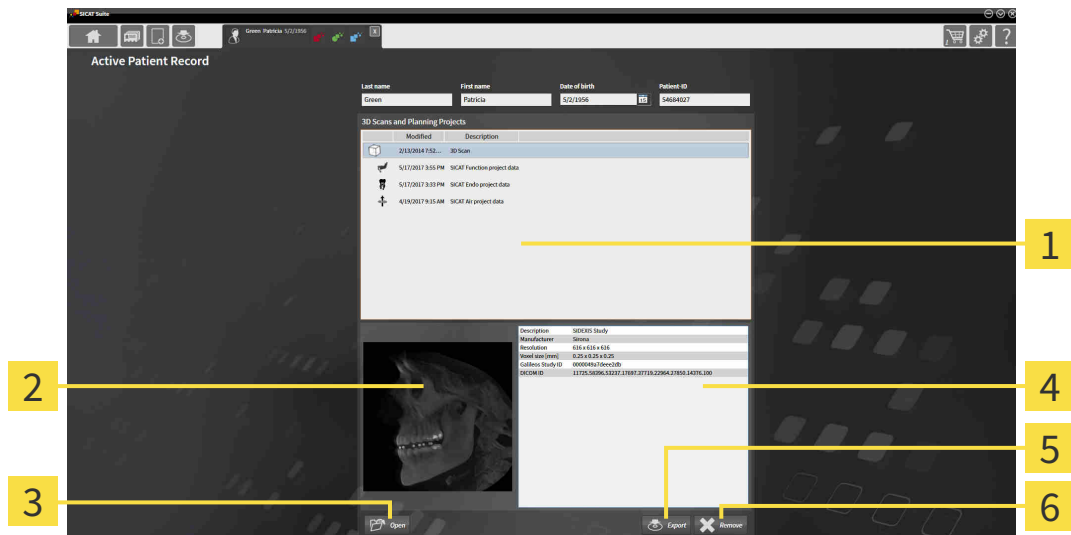


When deleting 3D scans, all dependent planning projects will be deleted as well.

Only delete 3D scans if you are sure you will never need any dependent planning project again.

To work with an active patient record, proceed as follows:

- ☑ A patient record is already active. Information on this can be found in the section *Activating patient records* [▶ Page 74 - Standalone].



- | | |
|--|------------------------|
| 1 3D Scans and Planning Projects list | 4 Details area |
| 2 Overview area | 5 Export button |
| 3 Open button | 6 Delete button |

1. In the **Active Patient Record** window, select the desired 3D X-ray scan or planning project from the **3D Scans and Planning Projects** list .
 - ▶ The **Overview** section shows a preview of the selected 3D X-ray scan or planning project.
 - ▶ The **Details** section shows details of the selected 3D X-ray scan or planning project, such as DICOM metadata.
2. To open the selected 3D X-ray scan in a SICAT application or open the selected planning project in the corresponding SICAT application, click on the **Open** button.
3. To open the selected document in the standard PDF viewer, click on the **Open** button.
4. To export the selected study from the active patient record, click on the **Export** button. Information on this can be found in the section *Data export* [▶ Page 206 - Standalone].



5. To delete the selected data 3D X-ray scan or planning project from the active patient record, click on the **Delete** button. Information on this can be found in the section *Deleting 3D X-ray scans or planning projects from patient records* [▶ Page 85 - Standalone].
6. Information on how to change attributes of the active patient record can be found in the section *Changing the attributes of patient records* [▶ Page 77 - Standalone].



If you open a 3D X-ray scan without the corresponding study and have only activated the license of one SICAT application, that SICAT application will start. If you open a 3D X-ray scan with several corresponding studies and you have activated the licenses for multiple SICAT applications, the application with the most recently changed study will open.

21.5 CHANGING THE ATTRIBUTES OF PATIENT RECORDS



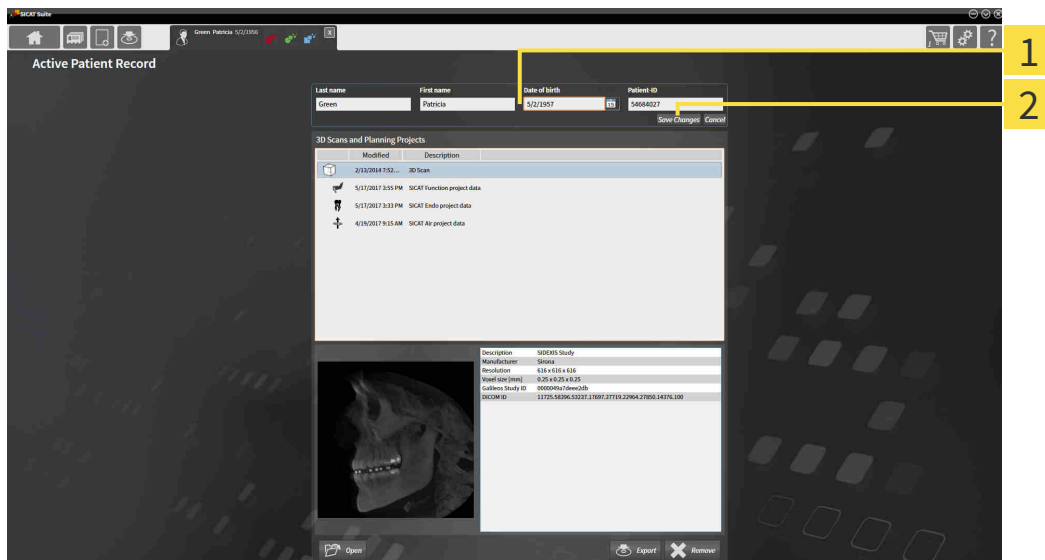
The combination of attributes in each patient record in the active patient record depot must be unique.

You can change the following attributes of a patient record:

- **Last name**
- **First name**
- **Date of birth**
- **Patient-ID**

To change the attributes of patient records, proceed as follows:

- A patient record is already active. Information on this can be found in the section *Activating patient records* [▶ Page 74 - Standalone].



1 Attribute fields

2 **Save Changes** button


1. Type the desired values into the attribute fields in the **Active Patient Record** window.
2. Click on the **Save Changes** button.

▶ SICAT Suite saves your changes.




The patient ID does not match the DICOM ID. You can enter any desired ID as the patient ID, for example the social security number or an internal patient ID for your practice.


21.6 OPENING 3D X-RAY SCANS OR PLANNING PROJECTS FROM THE PATIENT RECORD SUMMARY

CAUTION  **Incorrect assignment of patient name or 3D scan could result in confusion of patient scans.**

Verify that the 3D scan that is to be imported or already loaded in a SICAT Suite application is associated with the correct name of the patient and the correct scan information.

CAUTION  **Unsuitable X-ray devices may result in an incorrect diagnosis and treatment.**

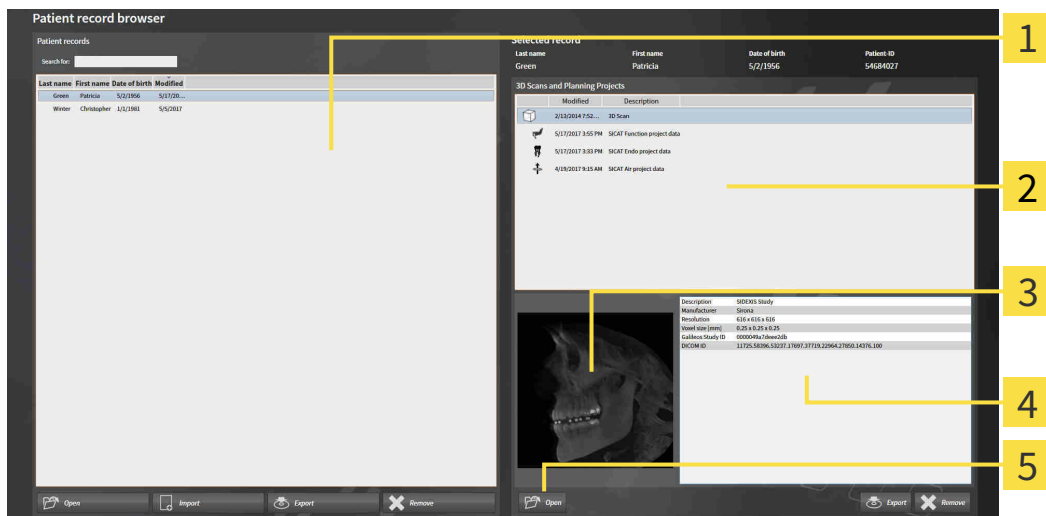
Only use 3D X-ray scans from X-ray devices that are cleared as medical equipment.

CAUTION  **Unsuitable 3D X-ray scans may result in an incorrect diagnosis and treatment.**

Always verify the quality, integrity, and correct orientation of the displayed 3D data.

To open a 3D X-ray scan or planning project from **Patient record browser**, proceed as follows:

- The **Patient record browser** window is already open. Information on this can be found in the section *Opening the “Patient record browser” window* [▶ Page 71 - Standalone].



- 1** Patient records list
- 2** 3D Scans and Planning Projects list
- 3** Overview area
- 4** Details area
- 5** Open button

- Select the desired patient record from the **Patient records** list in the **Patient record browser** window.
 - ▶ In the **Selected record** section, the **3D Scans and Planning Projects** list shows all 3D X-ray scans, planning projects and PDF files of the selected patient record.

2. Select the desired data record or document from the **3D Scans and Planning Projects** list.
 - ▶ The **Overview** and **Details** sections display information on the selected data record or document.



3. Click on the **Open** button.

- ▶ If you have selected a data record, it is opened in a SICAT application.








- ▶ If you have selected a document, it is opened in the standard PDF viewer.



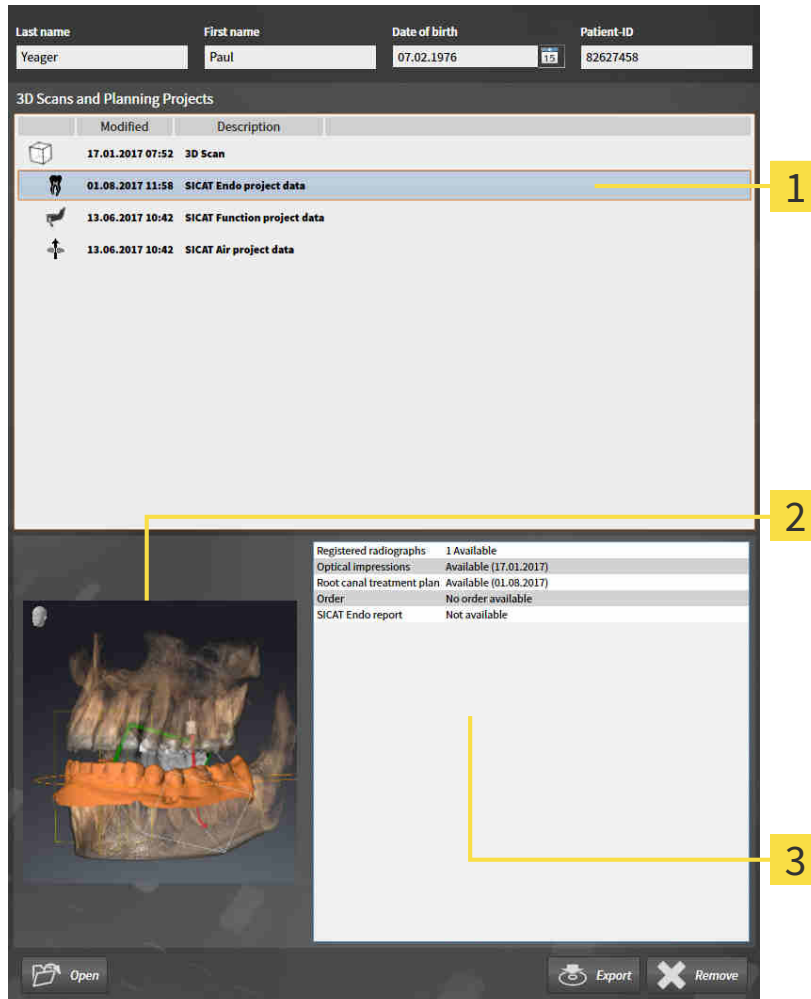
If you open a 3D X-ray scan without the corresponding study and have only activated the license of one SICAT application, that SICAT application will start. If you open a 3D X-ray scan with several corresponding studies and you have activated the licenses for multiple SICAT applications, the application with the most recently changed study will open.

21.7 SICAT ENDO STUDIES IN SICAT SUITE

- | | |
|---|--|
| 
CAUTION | <p>X-ray devices without DICOM conformity could result in incorrect diagnosis and treatment.</p> <p>Only use 3D volume data from X-ray devices with DICOM conformity declared.</p> |
| 
CAUTION | <p>Unsuitable 3D X-ray scans may result in an incorrect diagnosis and treatment.</p> <p>Always verify the quality, integrity, and correct orientation of the displayed 3D data.</p> |
| 
CAUTION | <p>Unsuitable X-ray devices may result in an incorrect diagnosis and treatment.</p> <p>Only use 3D X-ray scans from X-ray devices that are cleared as medical equipment.</p> |
| 
CAUTION | <p>Insufficient visualization quality could result in incorrect diagnosis and treatment.</p> <p>Before using a SICAT application, for example with the SMPTE test image, check whether the display quality is sufficient.</p> |
| 
CAUTION | <p>Insufficient environmental visualization conditions could result in incorrect diagnosis and treatment.</p> <ol style="list-style-type: none"> 1. Only perform planning if the environmental conditions allow for sufficient visualization quality. For example, check for appropriate lighting. 2. Check whether the display quality is sufficient using the SMPTE test image. |

The **Patient record browser** displays information on SICAT Endo studies if the following conditions have been met:

- You are using the stand-alone version of SICAT Suite.
- You have selected a SICAT Endo study in the **3D Scans and Planning Projects** area:

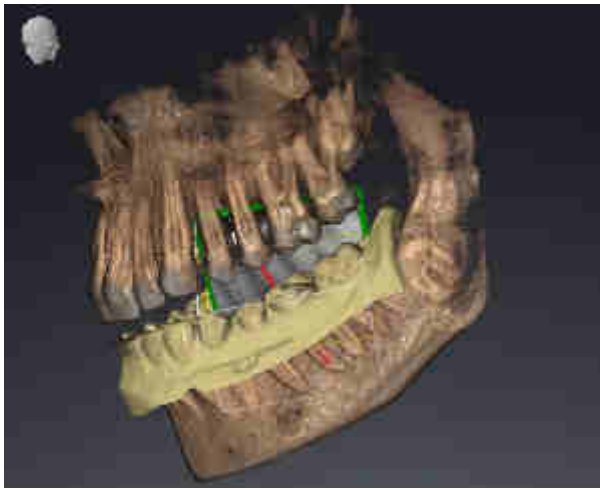


1 Selected SICAT Endo study

2 Overview area

3 Details area

The **Overview** area shows the **3D** view:



The **Details** area displays the following information:

- Availability of registered intraoral scans
- Availability of optical impressions
- Availability of a planning for root canal treatment
- Availability of an order with status and date
- Availability of a report

21.8 CLOSING ACTIVE PATIENT RECORDS AND SAVING THEIR PLANNING PROJECTS



To close an active patient record and save the planning projects it contains, proceed as follows:

- Click on the **Close** button in the area of the active patient record.
- ▶ SICAT Suite closes the active patient record and saves changes made to planning projects.

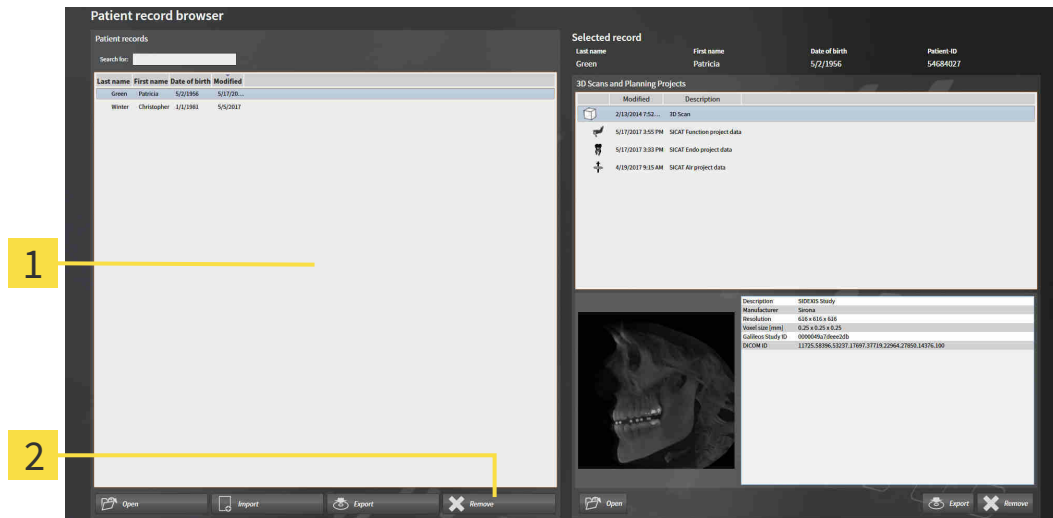
21.9 DELETING PATIENT RECORDS FROM PATIENT RECORD DEPOTS

CAUTION  **When deleting patient records, all 3D scans, planning projects and PDF files contained in these patient records will be deleted as well.**

Only delete patient records if you are sure you will never need any contained 3D scans, planning projects and PDF files again.

To delete a patient record and all 3D scans and planning projects it contains, proceed as follows:

- ✓ The **Patient record browser** window is already open. Information on this can be found in the section *Opening the “Patient record browser” window* [▶ Page 71 - Standalone].



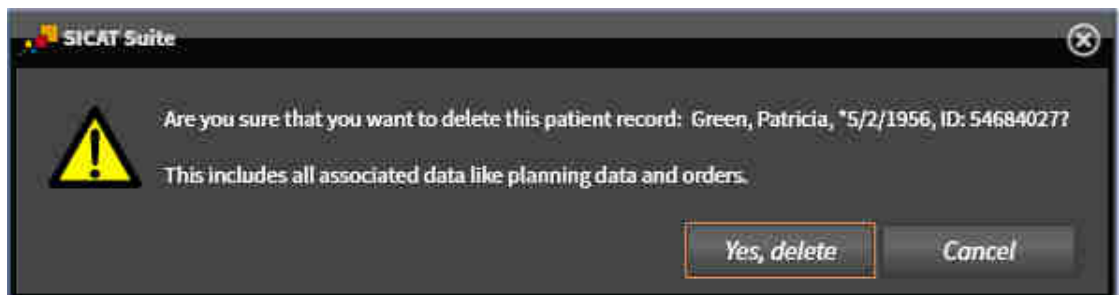
- 1** Patient records list
- 2** Button to delete the selected patient record

1. Select the desired patient record from the **Patient records** list in the **Patient record browser** window.



2. Click on the button to delete the selected patient record.

▶ A confirmation message opens:



- 3. Click on **Yes, delete** in the confirmation message if you wish to delete the selected data.
- ▶ SICAT Suite deletes the selected patient records and all 3D scans and planning projects therein from the active patient record depot and removes them from the **Patient records** list.

21.10 DELETING 3D X-RAY SCANS OR PLANNING PROJECTS FROM PATIENT RECORDS



Deleted patient records, studies, 3D scans, and planning projects cannot be recovered.

Only delete patient records, studies, 3D scans, and planning projects if you are sure you will never need those data again.

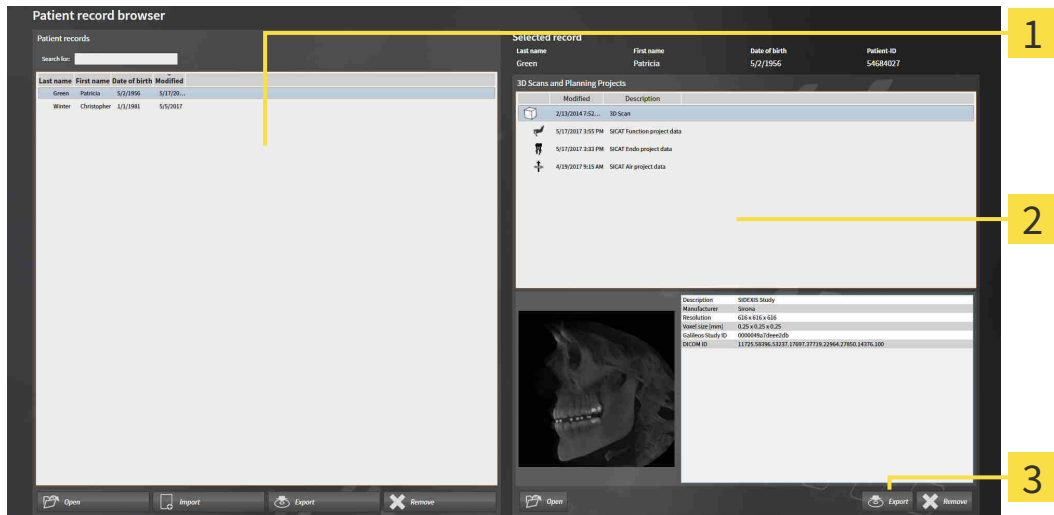


When deleting 3D scans, all dependent planning projects will be deleted as well.

Only delete 3D scans if you are sure you will never need any dependent planning project again.

To delete a 3D X-ray scan or planning project from a patient record, proceed as follows:

- The **Patient record browser** window is already open. Information on this can be found in the section *Opening the “Patient record browser” window* [▶ Page 71 - Standalone].



1 Patient records list

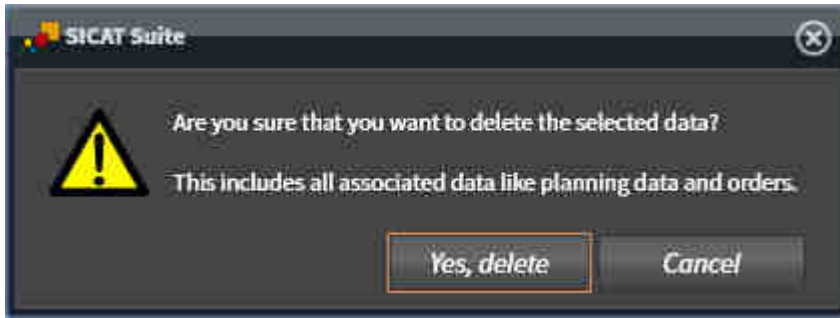
2 3D Scans and Planning Projects list

3 Delete button

1. Select the desired patient record from the **Patient records** list in the **Patient record browser** window.
 - ▶ In the **Selected record** area, the **3D Scans and Planning Projects** list shows all 3D X-ray scans and planning projects in the selected patient record.
2. Select the desired 3D X-ray scan or planning project from the **3D Scans and Planning Projects** list.
3. Click on the **Delete** button.




► A confirmation message opens:



4. Click on **Yes, delete** in the confirmation message if you wish to delete the selected data.

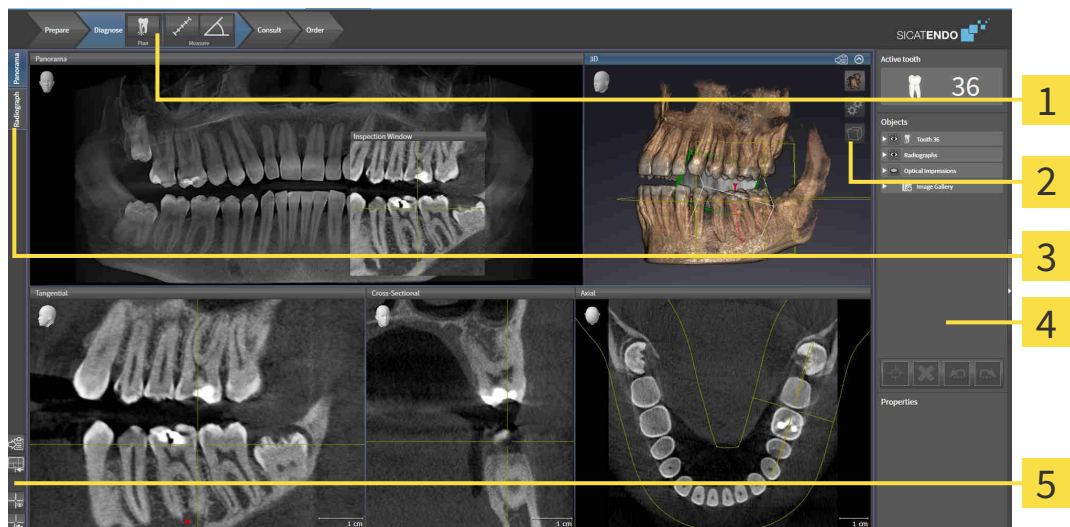
► SICAT Suite deletes the selected 3D scan or planning project from the active patient record and removes it from the **3D Scans and Planning Projects** list.



You can also delete 3D scans or planning projects from patient records in the **Active Patient Record** window. Information on this can be found in the section *Working with active patient records* [► *Page 75 - Standalone*].

22 THE SICAT ENDO USER INTERFACE

The SICAT Endo user interface comprises the following parts:



1 Workflow toolbar

4 Object bar

2 View toolbar

5 Workspace toolbar

3 Buttons for toggling between workspaces

- The **Workflow toolbar** consists of various workflow steps, which include the main tools of the application workflow. This includes tools that you can use to add and import diagnosis objects and planning objects. Information on this can be found in the section *Workflow toolbar* [▶ Page 88 - Standalone].
- The **Workspace area** is the part of the user interface below the **Workflow toolbar**. It displays the active workspace of SICAT Endo. Each workspace contains a specific combination of views. Information on this can be found in the section *Workspaces* [▶ Page 99 - Standalone].
- Only the active view shows the **View toolbar**. It contains tools to adjust the display to the corresponding view. For further information about this see *Adjusting the views* [▶ Page 107 - Standalone] and *Adjusting the 3D view* [▶ Page 121 - Standalone].
- The **Object bar** contains tools for the management of diagnosis objects and planning objects. For further information, see section *Object bar* [▶ Page 91 - Standalone] and section *SICAT Endo objects* [▶ Page 95 - Standalone].
- The **Workspace toolbar** contains tools for changing the general settings of workspaces and all of the views they contain and for documenting the contents of workspaces. For further information about this, see *Moving, hiding and showing crosshairs and frames* [▶ Page 116 - Standalone], *Resetting views* [▶ Page 119 - Standalone], *Adjusting and resetting the layout of workspaces* [▶ Page 104 - Standalone] and *Creating screenshots of workspaces* [▶ Page 105 - Standalone].

22.1 WORKFLOW TOOLBAR

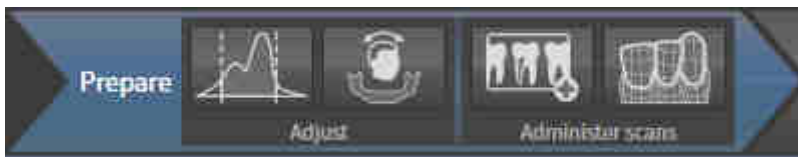
The **Workflow toolbar** in SICAT Endo consists of four workflow steps:

1. **Prepare**
2. **Diagnose**
3. **Consult**
4. **Order**

EXPANDING AND COLLAPSING WORKFLOW STEPS

You can expand and collapse workflow steps by clicking on them.

1. “PREPARE” WORKFLOW STEP



The following tools are available in the **Prepare** workflow step:



- **Adjust gray values** - Information on this can be found in the section *Adjusting gray scale values* [▶ Page 129 - Standalone]. This tool is only available and required for volumes from non-Sirona devices.



- **Adjust volume orientation and panoramic region** - For further information see *Adjusting the volume orientation* [▶ Page 133 - Standalone] and *Adjusting the panoramic region* [▶ Page 138 - Standalone].

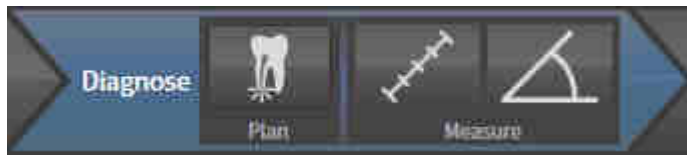


- **Administer and register radiographs** - For further information see *Importing intraoral scans and allocating them to teeth* [▶ Page 153 - Standalone], *Pre-positioning intraoral scans* [▶ Page 157 - Standalone] and *Registering intraoral scan* [▶ Page 159 - Standalone].



- **Import and register optical impressions** - Information on this can be found in the section *Importing and registering optical impressions* [▶ Page 142 - Standalone].

2. “DIAGNOSE” WORKFLOW STEP



The following tools are available in the **Diagnose** workflow step:



- **Plan root canal treatment using EndoLines and drill canals** - For further information see *Pre-aligning a tooth region* [▶ Page 176 - Standalone], *Placing EndoLines* [▶ Page 178 - Standalone] and *Planning drill channels* [▶ Page 187 - Standalone].



- **Add distance measurement (D)** - Information on this can be found in the section *Adding distance measurements* [▶ Page 193 - Standalone].



- **Add angle measurement (A)** - Information on this can be found in the section *Adding angle measurements* [▶ Page 194 - Standalone].

3. “INFORM” WORKFLOW STEP



The following tools are available in the **Consult** workflow step:



- **Draw Arrow** - Information on this can be found in the section *Creating images and screenshots* [▶ Page 199 - Standalone].

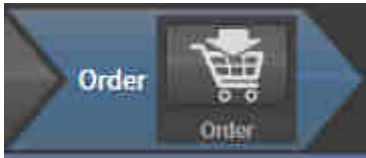


- **Draw Circle** - Information on this can be found in the section *Creating images and screenshots* [▶ Page 199 - Standalone].



- **Create report** - Information on this can be found in the section *Preparing handouts* [▶ Page 203 - Standalone].

4. "ORDER" WORKFLOW STEP

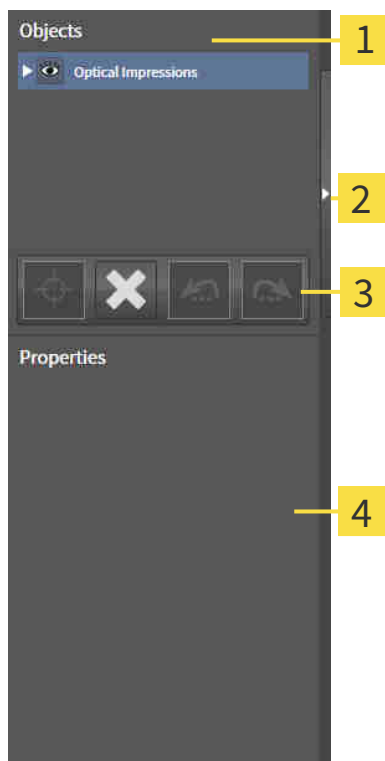


The following tools are available in the **Order** workflow step:



- **Order SICAT GUIDE (ENDO)** - Information on this can be found in the section *Placing surgical guides in the shopping cart* [▶ *Page 210 - Standalone*].

22.2 OBJECT BAR



1 Object browser

2 Hide object bar button or Show object bar button

3 Object toolbar

4 Properties area

The **Object bar** contains the following elements:

- The **Object browser** shows a categorized list of all diagnosis objects and planning objects that you have added or imported to the current study. The **Object browser** groups objects automatically. For example, the **Measurements** group contains all measurement objects. You can expand or collapse object groups, activate objects and object groups and show or hide objects and object groups. Information on this can be found in the section *Managing objects with the object browser* [▶ Page 92 - Standalone].
- The **Object toolbar** contains tools for focusing objects, removing objects or object groups and undoing or redoing object actions or object group actions. Information on this can be found in the section *Managing objects with the object toolbar* [▶ Page 94 - Standalone].
- The **Properties** area shows the details of the active object.

You can change the visibility of the **Object bar** using two buttons on the right side of the **Object bar**: **Hide object bar** and **Show object bar**

The objects available in SICAT Endo can be found in the section *SICAT Endo objects* [▶ Page 95 - Standalone].

22.3 MANAGING OBJECTS WITH THE OBJECT BROWSER

COLLAPSING AND EXPANDING OBJECT GROUPS

To collapse or expand an object group, proceed as follows:



☑ The desired object group is currently expanded.



1. Click on the **Collapse** icon next to the desired object group.
 - ▶ The object group collapses.



2. Click on the **Expand** icon next to the desired object group.
 - ▶ The object group expands.

ACTIVATING OBJECTS AND OBJECT GROUPS

Some tools are only available for active objects or object groups.

To activate an object or object group, proceed as follows:

☑ The desired object or the desired object group is currently deactivated.

- Click the desired object or the desired object group.
 - ▶ SICAT Endo deactivates a previously activated object or object group.
 - ▶ SICAT Endo activates the desired object or the desired object group.
 - ▶ SICAT Endo highlights the object or object group in **Object browser** and the views in a certain color.



In the 2D views, you can activate certain objects by clicking on the objects.

HIDING AND SHOWING OBJECTS AND OBJECT GROUPS



This function is available only for certain object types.

To hide and show an object or object group, proceed as follows:

- ☑ The desired object or the desired object group is currently shown.



1. Click on the **Shown** icon or **Some Shown** icon next to the desired object or object group.



- ▶ SICAT Endo hides the object or object group.
- ▶ SICAT Endo displays the **Hidden** icon next to the object or object group.



2. Click on the **Hidden** icon next to the desired object or object group.

- ▶ SICAT Endo shows the object or object group.
- ▶ SICAT Endo displays the **Shown** icon next to the object or object group.

22.4 MANAGING OBJECTS WITH THE OBJECT TOOLBAR



These functions are available only for certain object types.

FOCUSING ON OBJECTS

Use this function to find objects in the views.

To focus objects, proceed as follows:

- ☑ The desired object is already active. Information on this can be found in the section *Managing objects with the object browser* [▶ Page 92 - Standalone].



- Click on the **Focus active object (F)** icon.
- ▶ SICAT Endo moves the focus point of the views to the active object.
- ▶ SICAT Endo displays the active object in the views.



You can also focus objects by double clicking on them in **Object browser** or in a view with the exception of the **3D** view.

REMOVING OBJECTS AND OBJECT GROUPS

To remove an object or object group, proceed as follows:

- ☑ The desired object or the desired object group is already active. Information on this can be found in the section *Managing objects with the object browser* [▶ Page 92 - Standalone].



- Click on the **Remove active object/group (Del)** icon.
- ▶ SICAT Endo removes the object or object group.

UNDOING AND REDOING OBJECT ACTIONS

To undo and redo the last object action or group action, proceed as follows:



1. Click on the **Undo last object/group action (Ctrl+Z)** icon.
 - ▶ SICAT Endo undoes the last object action or group action.



2. Click on the **Redo object/group action (Ctrl+Y)** icon.
 - ▶ SICAT Endo redoes the last undone object action or group action.



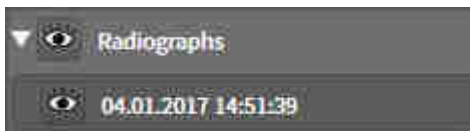
Undo and redo are only available as long as a study is open in a SICAT application.

22.5 SICAT ENDO OBJECTS

SICAT Endo groups application-specific object groups and objects in the **Object browser** as follows:

- **Radiographs**
- **Optical impressions**
- **Endo planning object**
 - **EndoLine**
 - **Drill canal**
- **Image Gallery**
 - **Image**
 - **Screenshot**

INTRAORAL SCANS OBJECT GROUP



After you have imported and registered intraoral scans, SICAT Endo displays a **Radiographs** object group in the **Object browser**. A **Radiographs** object group always consists of at least one intraoral scan. SICAT Endo displays the scan date and the scan time for each intraoral scan.

OPTICAL IMPRESSION OBJECT GROUP



After you have imported and registered at least one optical impression, SICAT Endo displays an **Optical impressions** object group in the **Object browser**. An **Optical impressions** object group may contain the following objects:

- **Maxilla**
- **Mandible**

If you focus on one object, SICAT Endo will focus all 2D views on the selected object.

If you remove a **Maxilla** or a **Mandible** object, SICAT Endo deletes all existing optical impressions from the study.

ENDO PLANNING OBJECT GROUP



After you have planned EndoLines and drill channels, SICAT Endo shows **Endo planning object groups** in the **Object browser**. An **Endo planning object group** is always tooth-specific and contains the results from the EndoLine wizard in form of EndoLines and drill channels. An **Endo planning object group** contains as objects EndoLines and as sub-objects drill channels. Drill channels are always linked to an EndoLine. You can use drill channels to plan your endodontic treatment.

If you focus on one of the objects or sub-objects, SICAT Endo will focus all 2D views on the selected object.

PICTURE GALLERY OBJECT GROUP

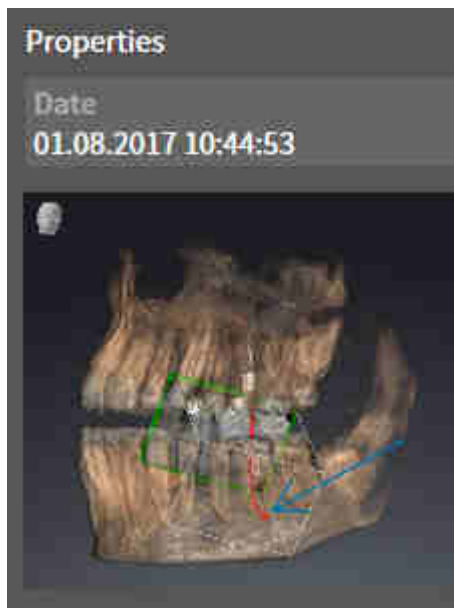


The following applies for **Image Gallery** object groups:



- If you move the mouse pointer over an **Image Gallery** object group, SICAT Endo will display a gear icon. Click on the gear icon and SICAT Endo will open the **Report Generation** window.
- You can use the **Remove active object/group (Del)** function to remove an **Image Gallery** object group. SICAT Endo removes all associated **Image** objects and **Screenshot** objects.

IMAGE OBJECTS



The following applies for **Image** objects:

- **Image** objects are below **Image Gallery** object groups.
- SICAT Endo combines all drawing objects of a slice in a workspace for each 2D view and creates a **Image** object from this.
- SICAT Endo combines all drawing objects of a certain viewing direction and zoom factor in a workspace for the 3D view and creates an **Image** object from this.
- After you have created and activated an **Image** object, the **Object browser** will display the following in the **Properties** area:
 - Creation time of the object
 - Preview of the object
- You can use the **Undo last object/group action (Ctrl+Z)** and **Redo object/group action (Ctrl+Y)** functions for individual annotations.
- You can use the **Remove active object/group (Del)** function to remove a **Image** object and thus all annotations contained in it at once. SICAT Endo removes **Image** objects both from the **Object browser** and from the **Report Generation** window.
- If you focus on an **Image** object, SICAT Endo restores the corresponding view for the time at which you have created the last annotation contained therein.

SCREENSHOT OBJECTS



The following applies for **Screenshot** objects:

- **Screenshot** objects are below **Image Gallery** object groups.
- SICAT Endo creates one **Screenshot** object per screenshot.
- After you have created and activated a **Screenshot** object, the **Object browser** will display the following in the **Properties** area:
 - Creation time of the object
 - Preview of the object
- You can use the **Remove active object/group (Del)** function to remove a **Screenshot** object. SICAT Endo removes **Screenshot** objects both from the **Object browser** and from the **Report Generation** window.
- If you focus on a **Screenshot** object, SICAT Endo restores the corresponding view for the time at which you have created the object.
- The show and hide functions are not available.

23 WORKSPACES

SICAT applications constitute studies in various views and assign combinations of views in workspaces.

SICAT Endo features two different workspaces:

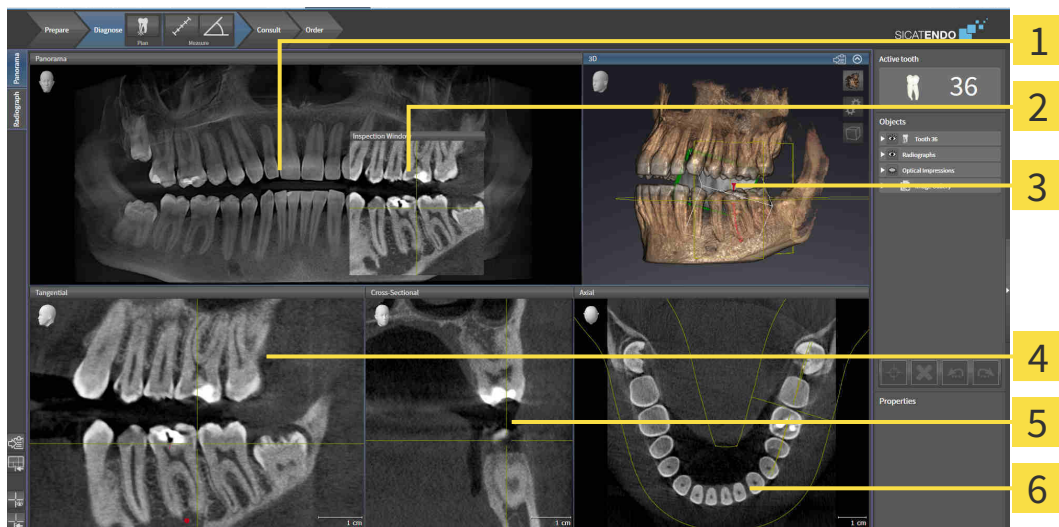


- **Panorama** workspace- Information on this can be found in the section *Overview of the panoramic workspace* [▶ Page 100 - Standalone].
- **Intraoral image** workspace- Information on this can be found in the section *Overview of the intraoral scan workspace* [▶ Page 102 - Standalone].

The following actions are available for workspaces and the views they contain:

- *Switching the active workspace* [▶ Page 103 - Standalone].
- *Adjusting and resetting the layout of workspaces* [▶ Page 104 - Standalone].
- *Adjusting the views* [▶ Page 107 - Standalone].
- There are additional possibilities to adjust the **3D** view. Information on this can be found in the section *Adjusting the 3D view* [▶ Page 121 - Standalone].
- You can document the contents of the active workspace. Information on this can be found in the section *Creating screenshots of workspaces* [▶ Page 105 - Standalone].

23.1 OVERVIEW OF THE PANORAMIC WORKSPACE



1 **Panorama** view

2 **Inspection Window**

3 **3D** view

4 **Tangential** view

5 **Cross-Sectional** view

6 **Axial** view

PANORAMA VIEW

The **Panorama** view corresponds to a virtual orthopantomogram (OPG). It shows an orthogonal projection onto the panoramic curve with a certain thickness. You can adjust the panoramic curve and the thickness to both jaws. Information on this can be found in the section *Adjusting the panoramic region* [▶ *Page 138 - Standalone*].

INSPECTION WINDOW

The **Inspection Window** is embedded in the **Panorama** view. It adds the third dimension to the **Panorama** view by showing slices parallel to the panoramic curve. You can hide and show the **Inspection Window**. Information on this can be found in the section *Moving, hiding and showing the inspection window* [▶ *Page 117 - Standalone*].

3D VIEW

The **3D** view shows a 3D representation of the opened study.

TANGENTIAL VIEW

The **Tangential** view shows slices that are tangential to the panoramic curve.

CROSS-SECTIONAL VIEW

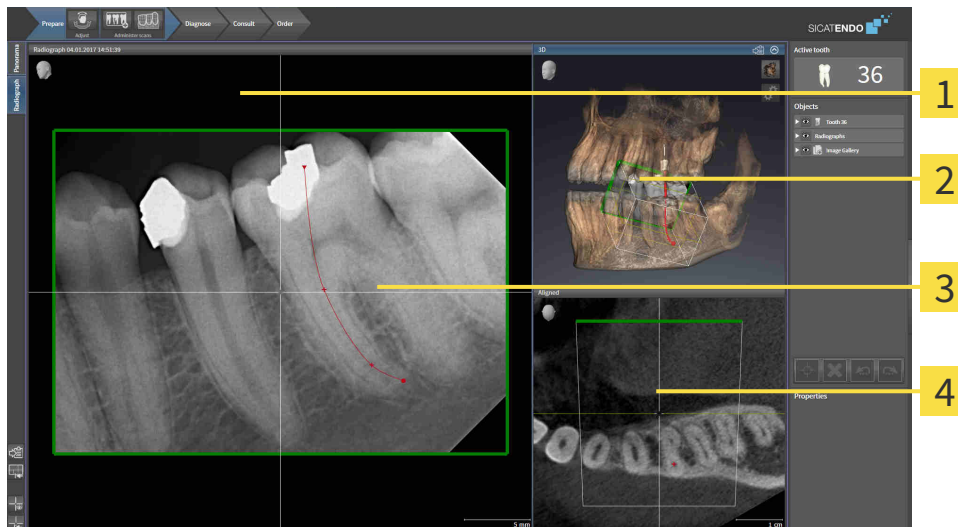
The **Cross-Sectional** view shows slices that are orthogonal to the panoramic curve.

AXIAL VIEW

By default, the **Axial** view shows slices from above. You can switch the viewing direction of the **Axial** view. Information on this can be found in the section *Changing visualization settings* [[▶ Page 228 - Standalone](#)].

You can find information on the functions of the views in the sections *Adjusting the views* [[▶ Page 107 - Standalone](#)] and *Adjusting the 3D view* [[▶ Page 121 - Standalone](#)].

23.2 OVERVIEW OF THE INTRAORAL SCAN WORKSPACE



1 Radiograph view

2 3D view

3 Inspection window

4 Aligned view

RADIOGRAPH VIEW

The **Radiograph** view shows the intraoral scan selected in the object browser.

INSPECTION WINDOW

The **Inspection Window** is embedded in the **Radiograph** view. It adds the third dimension to the **Radiograph** view by showing slices parallel to the intraoral scan. You can hide and show the **Inspection Window** and use it to verify the registration or assess root canals.

3D VIEW

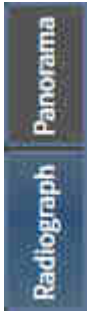
The **3D** view shows a 3D representation of the opened study.

ALIGNED VIEW

By default, the **Aligned** view shows a slice through the intraoral scan that is defined by the position of the crosshairs in the **Radiograph** view.

23.3 SWITCHING THE ACTIVE WORKSPACE

To change the active workspace, proceed as follows:



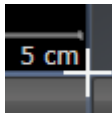
- Click on the tab of the desired workspace in the upper left corner of the workspace region.
- ▶ The selected workspace opens.

23.4 ADJUSTING AND RESETTING THE LAYOUT OF WORKSPACES

ADJUSTING THE LAYOUT OF THE ACTIVE WORKSPACE

To adjust the layout of the active workspace, proceed as follows:

1. Move the mouse pointer over the border between two or more views.
 - ▶ The mouse pointer changes:



2. Click and hold the left mouse button.
3. Move the mouse.
 - ▶ The position of the border will change.
 - ▶ The sizes of the views on all sides of the border will change.
4. Release the left mouse button.
 - ▶ SICAT Endo maintains the current position of the border and the current sizes of the views on all sides of the border.

RESETTING THE LAYOUT OF THE ACTIVE WORKSPACE

To reset the layout of the active workspace, proceed as follows:



- Click on the **Reset layout of active workspace** icon in the **Workspace toolbar**.
- ▶ SICAT Endo resets the active workspace to the default layout. This means that the software displays all views in their default sizes.

23.5 CREATING SCREENSHOTS OF WORKSPACES

You can copy screenshots of the workspaces to the Windows clipboard for documentation purposes.

COPYING A SCREENSHOT OF A WORKSPACE TO THE WINDOWS CLIPBOARD

To copy a screenshot of a workspace to the Windows clipboard, proceed as follows:

- ☑ The desired workspace is already active. Information on this can be found in the section *Switching the active workspace* [▶ *Page 103 - Standalone*].



- Click on the **Copy screenshot of active workspace to clipboard** icon in the workspace toolbar.
- ▶ SICAT Endo copies a screenshot of a workspace to the Windows clipboard.



You can add screenshots from the clipboard to several applications, such as image processing software and word processors. In most applications, the paste shortcut key is Ctrl+V.

24 VIEWS

Views are contained in workspaces. A description of the various workspaces and views can be found under *Workspaces* [▶ *Page 99 - Standalone*].

You can adjust the views. For further information about this see *Adjusting the views* [▶ *Page 107 - Standalone*] and *Adjusting the 3D view* [▶ *Page 121 - Standalone*].

24.1 ADJUSTING THE VIEWS

Some tools to adjust the views are only available for the active view. Information on how to activate a view can be found under *Changing the active view* [▶ Page 109 - Standalone].

An active view contains the following elements:



- 1 Title bar
- 2 Orientation head
- 3 View toolbar
- 4 Crosshairs
- 5 Scale

2D slice views display crosshairs. Crosshairs are lines of intersection with other slice views. SICAT Endo synchronizes all slice views with each other. This means that all crosshairs show the same position within the 3D X-ray data. You can use this to match anatomical structures beyond the views.

The **3D** view shows frames, which illustrate the current position of the 2D slice views.

The following actions are available to adjust the views:

- *Changing the active view* [▶ *Page 109 - Standalone*]
- *Maximizing and restoring views* [▶ *Page 111 - Standalone*]
- *Adjusting and resetting the brightness and contrast of the 2D views* [▶ *Page 112 - Standalone*]
- *Zooming views and panning views* [▶ *Page 114 - Standalone*]
- *Scrolling through slices in the 2D slice views* [▶ *Page 115 - Standalone*]
- *Moving, hiding and showing crosshairs and frames* [▶ *Page 116 - Standalone*]
- *Moving, hiding and showing the inspection window* [▶ *Page 117 - Standalone*]
- *Resetting views* [▶ *Page 119 - Standalone*]

There are additional possibilities to adjust the **3D** view. Information on this can be found in the section *Adjusting the 3D view* [▶ *Page 121 - Standalone*].

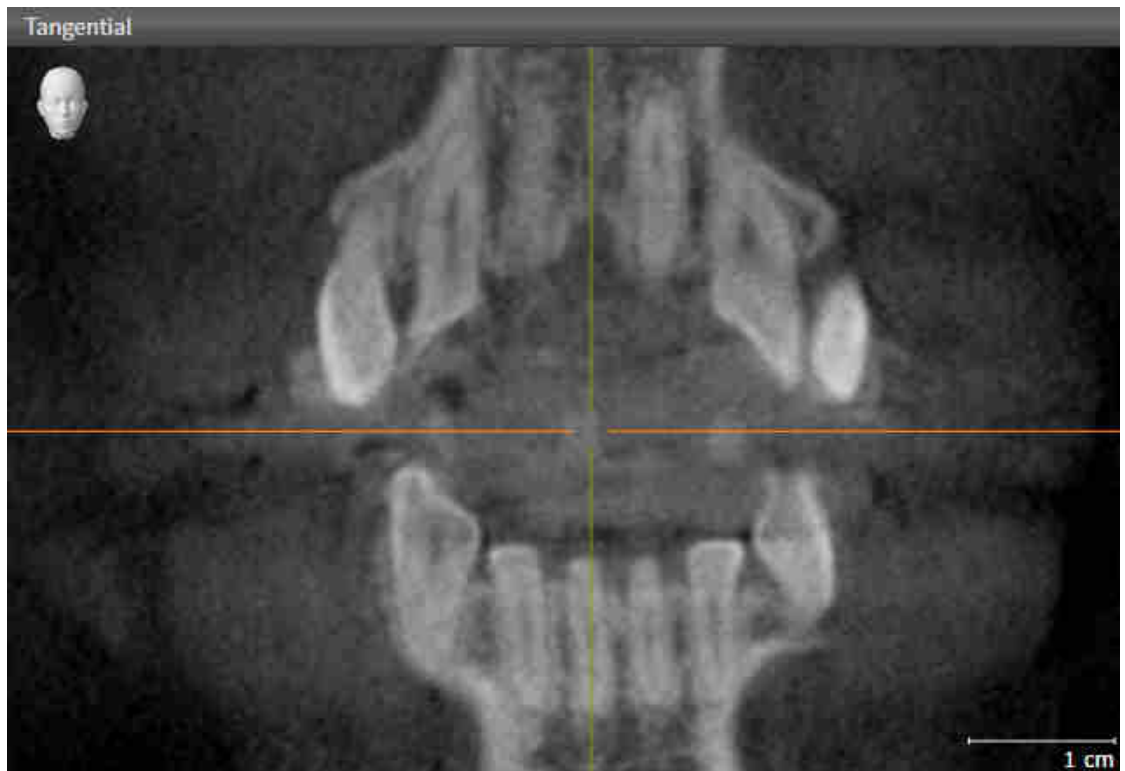
You can document the content of an active view. Information on this can be found in the section *Creating screenshots of views* [▶ *Page 120 - Standalone*].

24.2 CHANGING THE ACTIVE VIEW

Only the active view shows the **View toolbar** and the title bar.

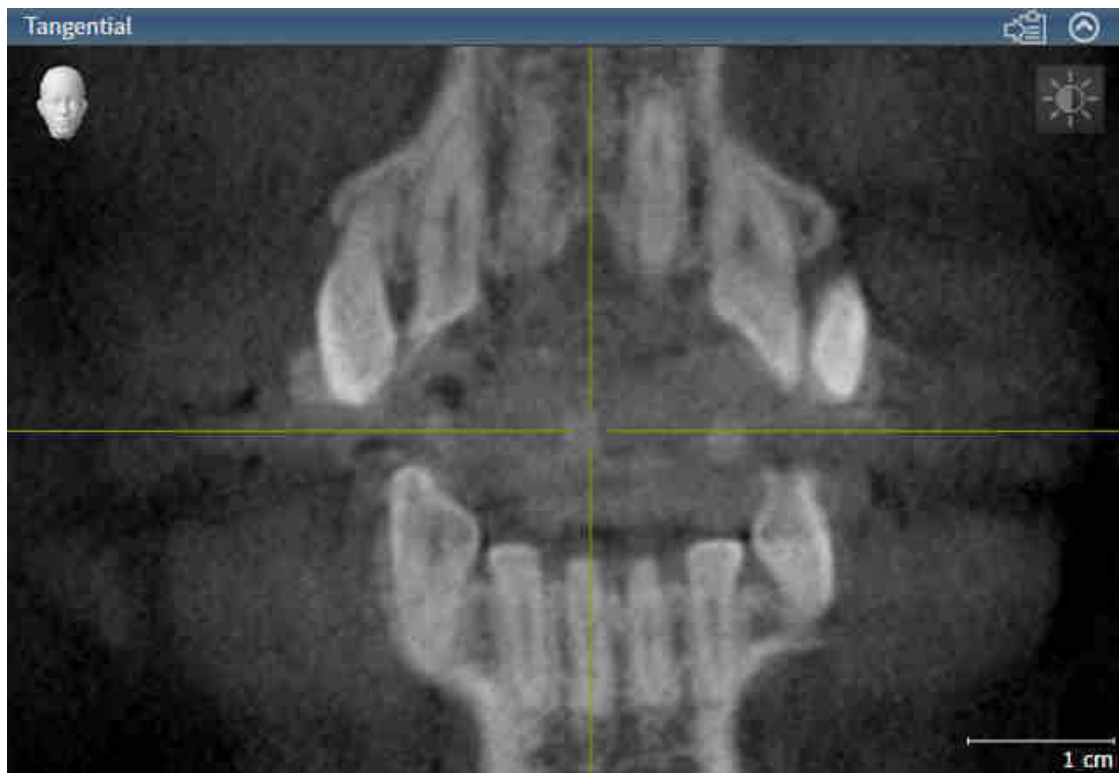
To activate a view, proceed as follows:

1. Place the mouse pointer over the desired view:



2. Click the desired view.

► SICAT Endo activates the view:



You can identify the activated view by the orange title bar.

24.3 MAXIMIZING AND RESTORING VIEWS

To maximize a view and restore it to its previous size, proceed as follows:

- ☑ The desired view is already active. Information on this can be found in the section *Changing the active view* [▶ *Page 109 - Standalone*].
- ☑ The desired view is not maximized.



1. Click on the **Maximize** icon in the title bar of the desired view.
 - ▶ SICAT Endo maximizes the view.



2. Click on the **Restore** icon in the title bar of the maximized view.
 - ▶ SICAT Endo restores the view to its previous size.



The following alternatives are available to maximize views and restore them to their previous size:

- To maximize a view, you can also double click on the title bar of the view you require.
- To restore a view to its previous size, you can also double click on the title bar of the maximized view.

24.4 ADJUSTING AND RESETTING THE BRIGHTNESS AND CONTRAST OF THE 2D VIEWS

To adjust the brightness and contrast of a 2D view, proceed as follows:

- ☑ The desired 2D view is already active. Information on this can be found in the section *Changing the active view* [▶ Page 109 - Standalone].



1. Place the mouse pointer over the **Adjust brightness and contrast** icon in the **View toolbar** of the 2D view.

▶ The transparent **Adjust brightness and contrast** window opens:



2. Move the mouse pointer over the **Brightness** slider.

3. Click and hold the left mouse button and move the mouse up or down.

▶ SICAT Endo adjusts the brightness of the 2D view according to the position of the **Brightness** slider.

4. Release the left mouse button.

▶ SICAT Endo maintains the current brightness of the 2D view.



5. Move the mouse pointer over the **Contrast** slider.

6. Click and hold the left mouse button and move the mouse up or down.

▶ SICAT Endo adjusts the contrast of the 2D view according to the position of the **Contrast** slider.

7. Release the left mouse button.

▶ SICAT Endo maintains the current contrast of the 2D view.

8. Move the mouse pointer out of the transparent **Adjust brightness and contrast** window.

▶ The transparent **Adjust brightness and contrast** window closes.

To reset the brightness and contrast of the 2D view to the default values, click on the **Reset brightness and contrast** icon.



The brightness and contrast of all 2D slice views are linked together.

24.5 ZOOMING VIEWS AND PANNING VIEWS

ZOOMING A VIEW

Zooming magnifies or shrinks the contents of a view.

To zoom a view, proceed as follows:

1. Place the mouse pointer over the desired view.
2. Move the mouse wheel forwards.
 - ▶ The view will zoom in.
3. Move the mouse wheel backwards.
 - ▶ The view will zoom out.



Alternatively, you can click on the mouse wheel and move the mouse up and down to zoom in or out.

PANNING A VIEW

To move a section in a view, proceed as follows:

1. Place the mouse pointer over the desired view.
2. Press and hold down the right mouse button.
 - ▶ The mouse pointer changes.
3. Move the mouse.
 - ▶ The section in the view will move according to the movement of the mouse pointer.
4. Release the right mouse button.
 - ▶ SICAT Endo maintains the current position of the view.

24.6 SCROLLING THROUGH SLICES IN THE 2D SLICE VIEWS

To scroll through slices in a 2D slice view, proceed as follows:

1. Move the mouse pointer over the desired 2D slice view.
2. Click and hold the left mouse button.
 - ▶ The mouse pointer becomes a two-way arrow.
3. Move the mouse up or down as desired.
 - ▶ With the exception of the **Cross-Sectional** slice, all slices move in parallel.
 - ▶ The **Cross-Sectional** slice moves along the panoramic curve.
 - ▶ SICAT Endo adjusts the slices and crosshairs of other views according to the current focus point.
 - ▶ SICAT Endo adjusts the frames of the **3D** views according to the current focus point.
4. Release the left mouse button.
 - ▶ SICAT Endo maintains the current slice.

24.7 MOVING, HIDING AND SHOWING CROSSHAIRS AND FRAMES

MOVING A CROSSHAIR

To move the crosshair in a 2D slice view, proceed as follows:

All crosshairs and frames are currently shown.

1. Move the mouse pointer in the view you require to the middle of the crosshair.

▶ The mouse pointer becomes a crosshair:



2. Click and hold the left mouse button.

3. Move the mouse.

▶ The crosshair in the view will track the movements of the mouse.

▶ SICAT Endo adjusts the slices and crosshairs of other views according to the current focus point.

▶ SICAT Endo adjusts the frames of the **3D** views according to the current focus point.

4. Release the left mouse button.

▶ SICAT Endo maintains the current position of the crosshair.



To immediately move the crosshair to the position of the mouse pointer, you can also double click in a 2D view.

HIDING AND SHOWING CROSSHAIRS AND FRAMES

To hide and show all crosshairs and frames, proceed as follows:

All crosshairs and frames are currently shown.



1. Click on the **Hide crosshairs and frames** icon in the **Workspace toolbar**.

▶ SICAT Endo hides the crosshairs in all 2D slice views.

▶ SICAT Endo hides the frames in the **3D** view.



2. Click on the **Show crosshairs and frames** icon.

▶ SICAT Endo shows the crosshairs in all 2D slice views.

▶ SICAT Endo shows the frames in the **3D** view.

24.8 MOVING, HIDING AND SHOWING THE INSPECTION WINDOW

MOVING THE INSPECTION WINDOW

To move the **Inspection Window**, proceed as follows:

- ☑ The **Panorama** workspace or the **Radiograph** workspace is already open. Information on this can be found in the section *Switching the active workspace* [▶ *Page 103 - Standalone*].
- ☑ The **Inspection Window** is already shown:



1. Place the mouse pointer on the **Inspection Window** title bar in the **Panorama** view or the **Radiograph** view.
 - ▶ The mouse pointer becomes a hand.
2. Click and hold the left mouse button.
3. Move the mouse.
 - ▶ The **Inspection Window** tracks the movement of the mouse pointer.
 - ▶ SICAT Endo adjusts the slices and crosshairs of other views according to the current focus point.
 - ▶ SICAT Endo adjusts the frames of the **3D** view according to the current focus point.
4. Release the left mouse button.
 - ▶ SICAT Endo maintains the current **Inspection Window** position.

HIDING AND SHOWING THE INSPECTION WINDOW



The icon that displays whether the **Inspection Window** is hidden or shown, is simultaneously a status display and a switch.

To hide and show the **Inspection Window**, proceed as follows:

- ☑ The **Panorama** workspace or the **Radiograph** workspace is already open. Information on this can be found in the section *Switching the active workspace* [▶ *Page 103 - Standalone*].
- ☑ The **Inspection Window** is already shown.



1. Click on the **Hide inspection window** icon in the **View toolbar** of the **Panorama** view or the **Radiograph** view.

▶ SICAT Endo hides the **Inspection Window**.



2. Click on the **Show inspection window** icon in the **View toolbar** of the **Panorama** view or the **Radiograph** view.

▶ SICAT Endo shows the **Inspection Window**.

24.9 RESETTING VIEWS

To reset all views, proceed as follows:



- Click on the **Reset views** icon in the **Workspace toolbar**.
- ▶ SICAT Endo resets all views to the default values for zoom, panning, scrolling, moving the crosshairs and moving the **Inspection Window**.
- ▶ SICAT Endo resets the viewing direction of the **3D** view to the default value.

24.10 CREATING SCREENSHOTS OF VIEWS

You can take screenshots of the views to document them and output screenshots in the following ways:

- Copying to the Windows clipboard.

COPYING A SCREENSHOT OF A VIEW TO THE WINDOWS CLIPBOARD

To copy a screenshot of a view to the Windows clipboard, proceed as follows:

- ☑ The desired view is already active. Information on this can be found in the section *Changing the active view* [▶ *Page 109 - Standalone*].



- Click on the **Copy screenshot to clipboard (Ctrl+C)** icon in the title bar of the view.
- ▶ SICAT Endo copies a screenshot of the view to the Windows clipboard.



You can add screenshots from the clipboard to several applications, such as image processing software and word processors. In most applications, the paste shortcut key is Ctrl+V.

25 ADJUSTING THE 3D VIEW

You can change the direction of the **3D** view at any time. Information on this can be found in the section *Changing the direction of the 3D view* [▶ Page 122 - Standalone].

The following actions are available to configure the **3D** view:

- *Switching the display mode of the 3D view* [▶ Page 123 - Standalone]
- *Configuring the active display mode of the 3D view* [▶ Page 124 - Standalone]
- *Rotating the 3D view* [▶ Page 184 - Standalone]

25.1 CHANGING THE DIRECTION OF THE 3D VIEW

There are two ways to change the direction of the **3D** view:

- Interactive changes
- Selecting a standard viewing direction

INTERACTIVELY CHANGING THE DIRECTION OF THE 3D VIEW

To interactively change the direction of the **3D** view, proceed as follows:

1. Place the mouse pointer on the **3D** view.
2. Click and hold the left mouse button.
 - ▶ The mouse pointer becomes a hand.
3. Move the mouse.
 - ▶ The viewing direction changes according to the movement of the mouse.
4. Release the left mouse button.
 - ▶ SICAT Endo keeps the current viewing direction of the **3D** view.

SELECTING A STANDARD VIEWING DIRECTION

To select a standard viewing direction in the **3D** view, proceed as follows:



1. Place the mouse pointer over the Orientation head icon in the top left corner of the **3D** view.
 - ▶ The transparent **Viewing direction** window opens:



- ▶ In the middle of the transparent **Viewing direction** window, the highlighted Orientation head shows the current viewing direction.
2. Click on the Orientation head icon that shows the desired standard viewing direction.
 - ▶ The direction of the **3D** view changes according to your selection.
3. Move the mouse pointer out of the transparent **Viewing direction** window.
 - ▶ The transparent **Viewing direction** window closes.

25.2 SWITCHING THE DISPLAY MODE OF THE 3D VIEW

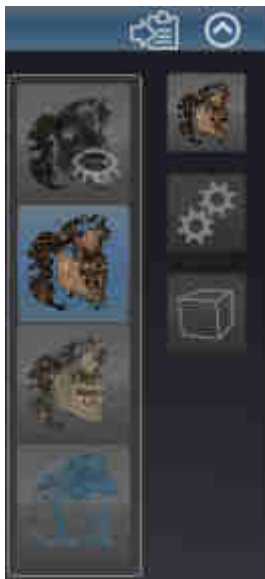


All display modes are available in all workspaces.

To change the display mode of the **3D** view, proceed as follows:

- ☑ The **3D** view is already active. Information on this can be found in the section *Changing the active view* [▶ *Page 109 - Standalone*].

1. Place the mouse pointer over the **Switch display mode** icon in the **View toolbar** of the **3D** view.
 - ▶ The transparent **Switch display mode** window opens:



2. Click on the icon for the desired display mode.
 - ▶ SICAT Endo activates the desired display mode.
3. Move the mouse pointer out of the transparent **Switch display mode** window.
 - ▶ The transparent **Switch display mode** window closes.

25.3 CONFIGURING THE ACTIVE DISPLAY MODE OF THE 3D VIEW



Only configurable display modes show the **Configure active display mode** icon. The transparent **Configure active display mode** window only shows the settings that are relevant for the active display mode.

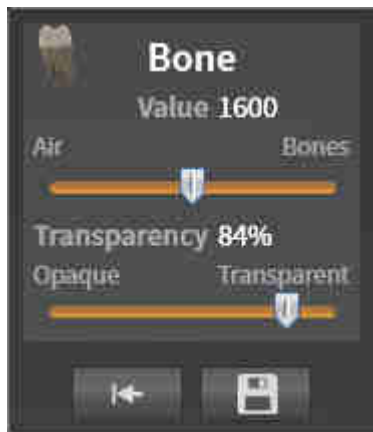
To configure the active display mode of the **3D** view, proceed as follows:

- ☑ The **3D** view is already active. Information on this can be found in the section *Changing the active view* [▶ Page 109 - Standalone].
- ☑ The desired display mode is already active. Information on this can be found in the section *Switching the display mode of the 3D view* [▶ Page 123 - Standalone].
- ☑ The active display mode is configurable.



1. Place the mouse pointer over the **Configure active display mode** icon in the **View toolbar** of the **3D** view.

▶ The transparent **Configure active display mode** window opens:



2. Move the slider you require.
 - ▶ SICAT Endo adjusts the **3D** view according to the position of the slider.
3. Where available, click on the arrow icon next to **.Advanced options**.
 - ▶ The **Advanced options** area expands.
4. Activate or deactivate the available check box.
 - ▶ SICAT Endo adjusts the **3D** view according to the status of the check box.
5. Move the slider you require.
 - ▶ SICAT Endo adjusts the **3D** view according to the position of the slider.
6. Move the mouse pointer out of the transparent **Configure active display mode** window.
 - ▶ The transparent **Configure active display mode** window closes.



You can reset to the default settings by clicking the **Reset configuration of active display mode to default values** button.



You can save the current settings as default settings by clicking the **Save configuration of active display mode as default values** button.

25.4 CHANGING THE CLIPPING MODE OF THE 3D VIEW

To change the clipping mode of the **3D** view, proceed as follows:

☑ The **3D** view is already active. Information on this can be found in the section *Changing the active view* [▶ *Page 109 - Standalone*].

1. Place the mouse pointer over the **Switch clipping mode** icon in the **View toolbar** of the **3D** view.

▶ The transparent **Switch clipping mode** window opens:



2. Click on the icon of the desired clipping mode.

▶ SICAT Endo activates the desired clipping mode.

3. Move the mouse pointer out of the transparent **Switch clipping mode** window.

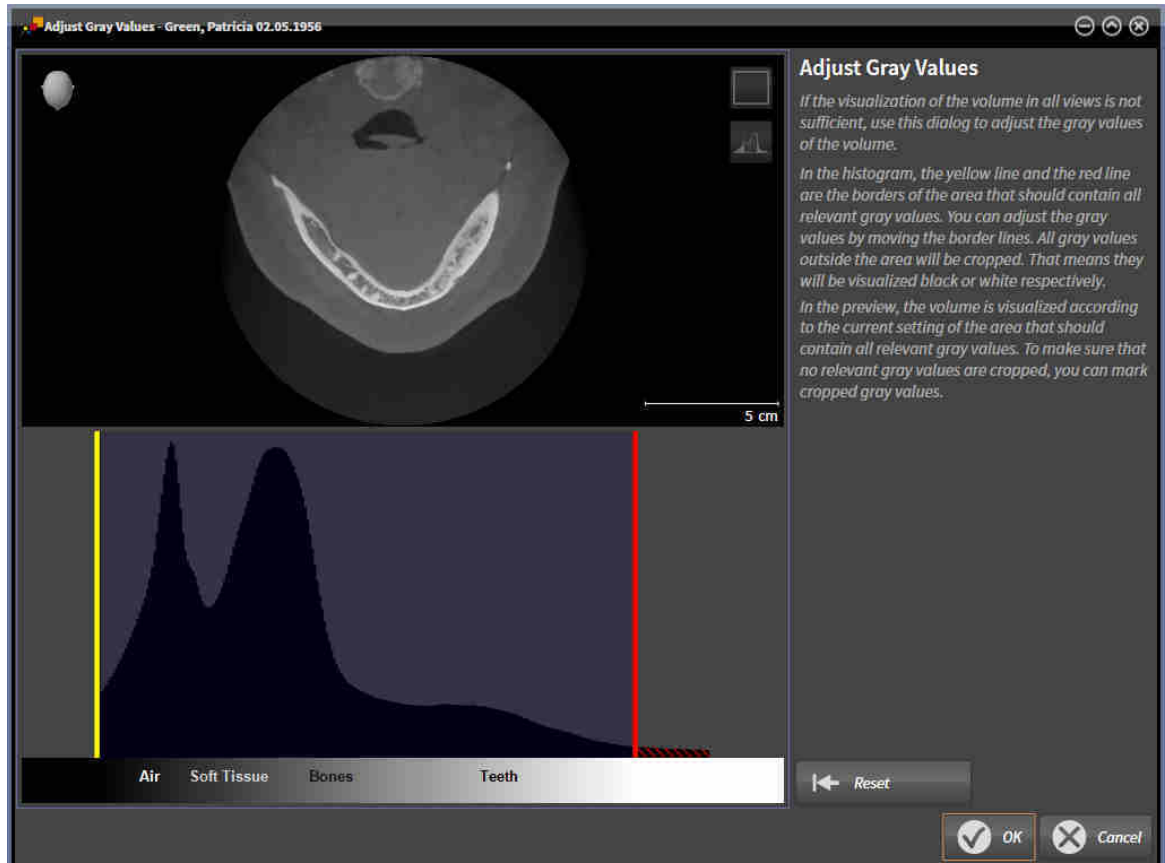
▶ The transparent **Switch clipping mode** window closes.

26 GRAY SCALE VALUES



You can only adjust gray scale values for volumes, which have been created by non-Sirona 3D X-ray devices.

If the illustration of the volume is insufficient, you can adjust the gray scale values of the volume in the **Adjust Gray Values** window:



The **Adjust Gray Values** window has two parts:

- The upper section shows an **Axial** slice view or a **Coronal** projection view.
- The lower section shows a histogram with the frequency distribution of the gray scale values.

In the histogram, the yellow and red lines show the borders of the area, which should contain all of the relevant gray scale values. You can adjust the gray scale values by moving the limits. SICAT Endo cuts all gray scale values outside the area. This means that the software shows them either in black or white.

SICAT Endo displays the volume in the **Axial** slice view or **Axial** projection view according to the area which should contain all of the relevant gray scale values. To ensure that SICAT Endo does not hide any relevant image information, the software can label gray scale values that have been cropped out.

In the **Axial** slice view, you can scroll through the layers and check them for cropped-out gray values.

In the **Coronal** projection view, you can check all slices for cropped-out gray values simultaneously.

Only adjust the gray scale values if the illustration of the volume is insufficient in all views. Information on this can be found in the section *Adjusting gray scale values* [▶ [Page 129 - Standalone](#)].

For example, to highlight certain anatomical structures, you can temporarily adjust the brightness and contrast of the 2D views. Information on this can be found in the section *Adjusting and resetting the brightness and contrast of the 2D views* [▶ [Page 112 - Standalone](#)].

You can also adjust the display of the **3D** view. For further information see *Switching the display mode of the 3D view* [▶ [Page 123 - Standalone](#)], *Configuring the active display mode of the 3D view* [▶ [Page 124 - Standalone](#)] and *Changing the clipping mode of the 3D view* [▶ [Page 126 - Standalone](#)].

26.1 ADJUSTING GRAY SCALE VALUES

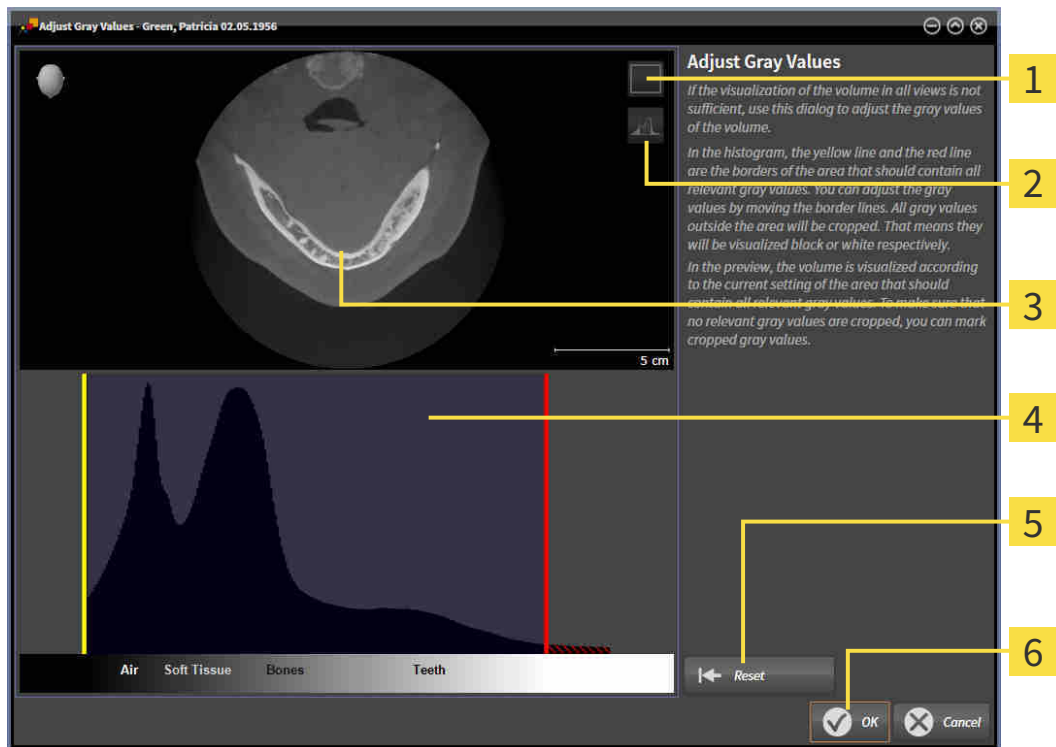
General information on gray scale values can be found in the section *Gray scale values* [▶ Page 127 - Standalone].

To adjust the gray scale values of the volume, proceed as follows:

- The **Prepare** workflow step is already expanded.



1. Click on the **Adjust gray values** icon.
▶ The **Adjust Gray Values** window opens:



1 Enable coronal projection mode icon or Enable axial slices mode icon

2 Unmark cropped gray values icon or Mark cropped gray values icon

3 Axial slice view or Coronal projection view

4 Histogram

5 Reset button

6 OK button

2. Make sure that the axial slice mode is active. Click on the **Enable axial slices mode** icon if necessary.
3. Move the yellow line to adjust the lower border of the area, which should contain all of the relevant gray scale values.
 - ▶ SICAT Endo adjusts all gray scale values in the **Axial** slice view accordingly.
 - ▶ SICAT Endo marks all gray scale values beneath the lowest relevant gray scale value in yellow.

4. Scroll through the axial slices. Make sure that all of the relevant gray scale values have not been marked yellow. Move the yellow line again if necessary.
 5. Move the red line to adjust the upper border of the area, which should contain all of the relevant gray scale values.
 - ▶ SICAT Endo adjusts all gray scale values in the **Axial** slice view accordingly.
 - ▶ SICAT Endo labels all gray scale values above the highest relevant gray scale value in red.
 6. Scroll through the axial slices. Make sure that all of the relevant gray scale values have not been marked red. Move the red line again if necessary.
 7. Click **OK**.
- ▶ The **Adjust Gray Values** window closes and SICAT Endo displays the volume with the correspondingly adjusted gray scale values in all views.

In addition to the described process, the following actions are available in the **Adjust Gray Values** window:



- To assess all of the layers at once, click on the **Enable coronal projection mode** icon. Click on the **Enable axial slices mode** icon to switch back to the **Axial** slice view.
- To move both borders at once, you can click on and move the area, which should contain all of the relevant gray scale values.
- To reset the area, which should contain all of the relevant gray scale values, to the default settings, click on the **Reset** button.
- If you do not want to mark the cut-out gray scale values, click on the **Unmark cropped gray values** icon.
- If you do not want to save your changes, click **Cancel**.

27 VOLUME ORIENTATION AND PANORAMIC REGION



If an adjustment of the volume orientation is required, perform this when starting work on the 3D X-ray scan. If you adjust the volume orientation later, you may have to repeat your diagnosis or planning under certain circumstances.

VOLUME ORIENTATION

You can adjust the volume orientation for all views by rotating the volume around the three principal axes. This may be necessary in the following cases:

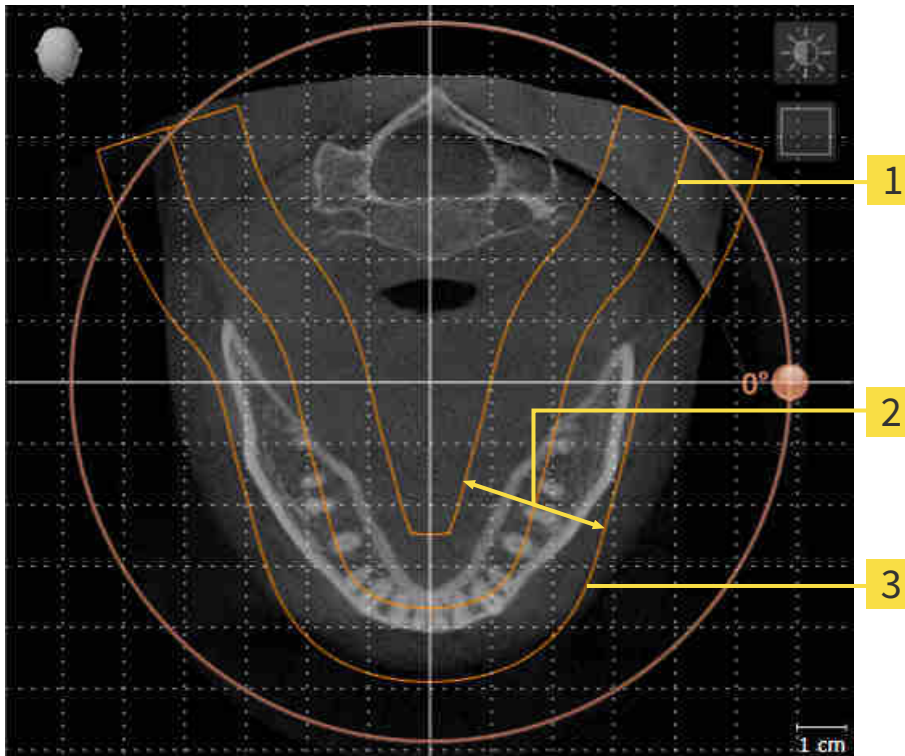
- Sub-optimal positioning of the patient during the 3D X-ray scan
- Orientation according to case, for example orientation of the axial slices parallel to the Frankfurt plane or parallel to the bite plane
- Optimizing the panorama view

If you adjust the volume orientation in SICAT Endo, all other SICAT applications adopt your changes.

Information on how to adjust the volume orientation can be found in the section *Adjusting the volume orientation* [▶ *Page 133 - Standalone*].

PANORAMIC REGION

SICAT Endo calculates the **Panorama** view on the basis of the volume and panoramic region. To optimize the **Panorama** view, you should adjust the panoramic region to both jaws of the patient. This is vital for effective and efficient diagnosis and treatment planning.



1 Panoramic curve

2 Thickness

3 Panoramic region

The panoramic region is defined by the two following components:

- Shape and position of the panoramic curve
- Thickness of the panoramic region

Both of the following conditions must be met to optimally adjust the panoramic region:

- The panoramic region must contain all teeth and both jaws in full.
- The panoramic region should be as thin as possible.

If you adjust the panoramic region in SICAT Endo, all other SICAT applications adopt your changes.

Information on adjusting the panoramic region can be found in the section *Adjusting the panoramic region* [[▶ Page 138 - Standalone](#)].

27.1 ADJUSTING THE VOLUME ORIENTATION

General information on volume orientation can be found in the section *Volume orientation and panoramic region* [▶ Page 131 - Standalone].

The adjustment of the volume orientation consists of the following steps:

- Opening the **Adjust Volume Orientation and Panoramic Region** window
- Rotating volumes in the **Coronal** view
- Rotating volumes in the **Sagittal** view
- Rotating volumes in the **Axial** view

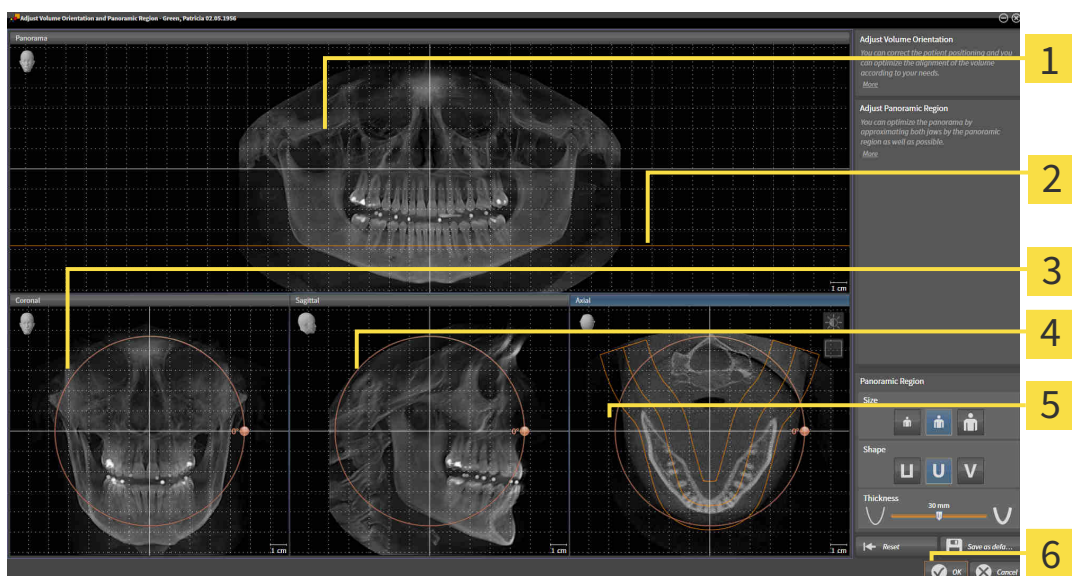
OPENING THE "ADJUST VOLUME ORIENTATION AND PANORAMIC REGION" WINDOW

- ☑ The **Prepare** workflow step is already expanded.



- Click on the **Adjust volume orientation and panoramic region** icon.

- ▶ The **Adjust Volume Orientation and Panoramic Region** window opens:



1 Panorama view

2 Axial reference line

3 Coronal view with **Rotation** slider

4 Sagittal view with **Rotation** slider

5 Axial view with **Rotation** slider

6 OK button

ROTATING VOLUMES IN THE CORONAL VIEW

1. Activate the **Coronal** view:

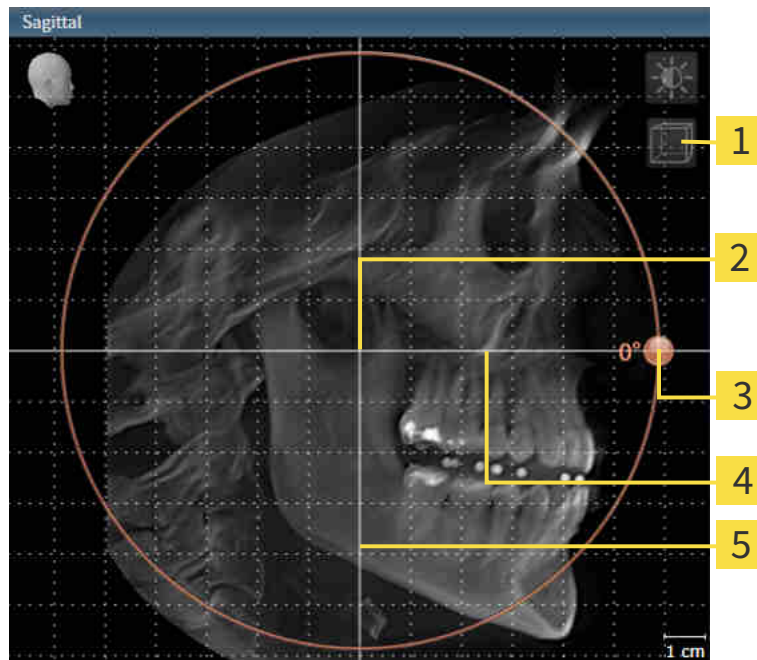


- | | |
|---|------------------------------------|
| 1 Enable slices mode icon or Enable projection mode icon | 4 Horizontal reference line |
| 2 Center of rotation | 5 Vertical reference line |
| 3 Rotation slider | |

2. Make sure that the projection mode is active. Click on the **Enable projection mode** icon if necessary.
3. Place the mouse pointer on the **Rotation** slider.
4. Click and hold the left mouse button.
5. Move the **Rotation** slider along the circle in the desired direction.
 - SICAT Endo rotates the volume in the **Coronal** view in a circle around the center of rotation and in the other views accordingly.
6. Release the left mouse button when you have reached the desired rotation of the volume. Orientate yourself using the horizontal reference lines, the vertical reference lines and the grid.

ROTATING VOLUMES IN THE SAGITTAL VIEW

1. Activate the **Sagittal** view:

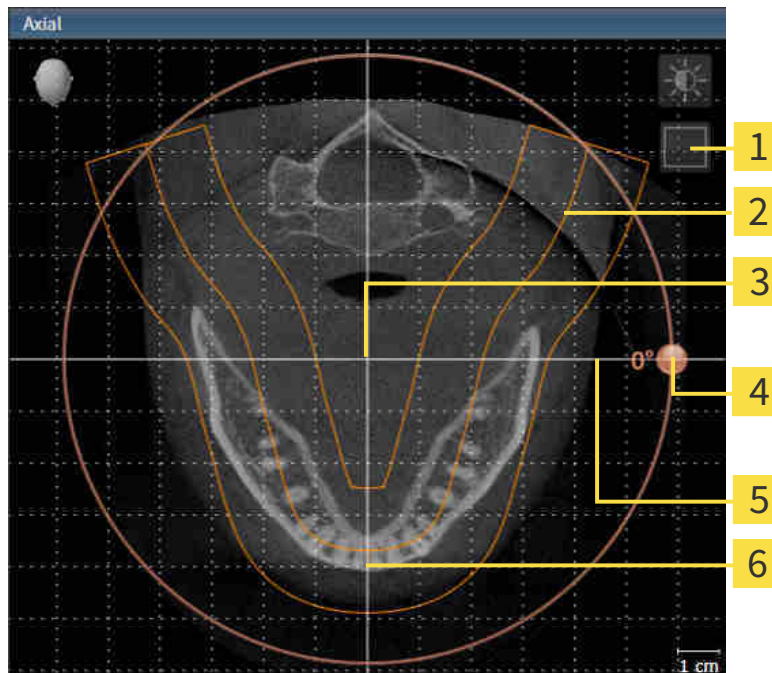


- | | |
|---|------------------------------------|
| 1 Enable slices mode icon or Enable projection mode icon | 4 Horizontal reference line |
| 2 Center of rotation | 5 Vertical reference line |
| 3 Rotation slider | |

2. Make sure that the projection mode is active. Click on the **Enable projection mode** icon if necessary.
3. Place the mouse pointer on the **Rotation** slider.
4. Click and hold the left mouse button.
5. Move the **Rotation** slider along the circle in the desired direction.
 - SICAT Endo rotates the volume in the **Sagittal** view in a circle around the center of rotation and in the other views accordingly.
6. Release the left mouse button when you have reached the desired rotation of the volume. Orientate yourself using the horizontal reference lines, the vertical reference lines and the grid.

ROTATING VOLUMES IN THE AXIAL VIEW

1. Activate the **Axial** view:



- | | |
|---|------------------------------------|
| 1 Enable projection mode icon or Enable slices mode icon | 4 Rotation slider |
| 2 Panoramic region | 5 Horizontal reference line |
| 3 Center of rotation | 6 Vertical reference line |

2. Make sure that the slice mode is active. Click on the **Enable slices mode** icon if necessary.
3. Scroll to a slice with the roots of the mandibular teeth, for example by left clicking on the axial reference lines in the panorama view and hold the left button as you move the mouse up or down as desired.
4. Where necessary, move the panoramic region in the **Axial** view by left clicking on the panorama view and holding the left button as you move the mouse. SICAT Endo moves the center of rotation, the horizontal reference lines and the vertical reference lines accordingly.
5. Place the mouse pointer on the **Rotation** slider.
6. Click and hold the left mouse button.
7. Move the **Rotation** slider along the circle in the desired direction.
 - ▶ SICAT Endo rotates the volume in the **Axial** view in a circle around the center of rotation and in the other views accordingly.
8. Release the left mouse button when you have reached the desired rotation of the volume. Orientate yourself using the panoramic region, the horizontal reference lines, vertical reference lines and the grid.
9. To save your changes, click **OK**.

- ▶ If the change of the volume orientation affects existing objects in SICAT applications, SICAT Endo opens a message window which states the exact impact.
10. If you still want to adjust the volume orientation, click on the **Adjust** button in the message window.
- ▶ SICAT Endo saves the altered volume orientation and displays the volume with the corresponding orientation in all views.



In addition to the described process, the following actions are available in the **Adjust Volume Orientation and Panoramic Region** window:

- You can adjust the brightness and contrast of a 2D image by activating the desired view and clicking the **Adjust brightness and contrast** icon. Information on this can be found in the section *Adjusting and resetting the brightness and contrast of the 2D views* [▶ *Page 112 - Standalone*].
- You can zoom in the views. SICAT Endo synchronizes the zoom between the views with the exception of the **Axial** view.
- To reset the volume orientation and panoramic region, click on the **Reset** button.
- To save the current volume orientation and panoramic region as a default, click on the **Save as default** button.
- If you do not want to save your changes, click **Cancel**.

27.2 ADJUSTING THE PANORAMIC REGION

General information on the panoramic region can be found in the section *Volume orientation and panoramic region* [▶ Page 131 - Standalone].

The adjustment of the panoramic region consists of the following steps:

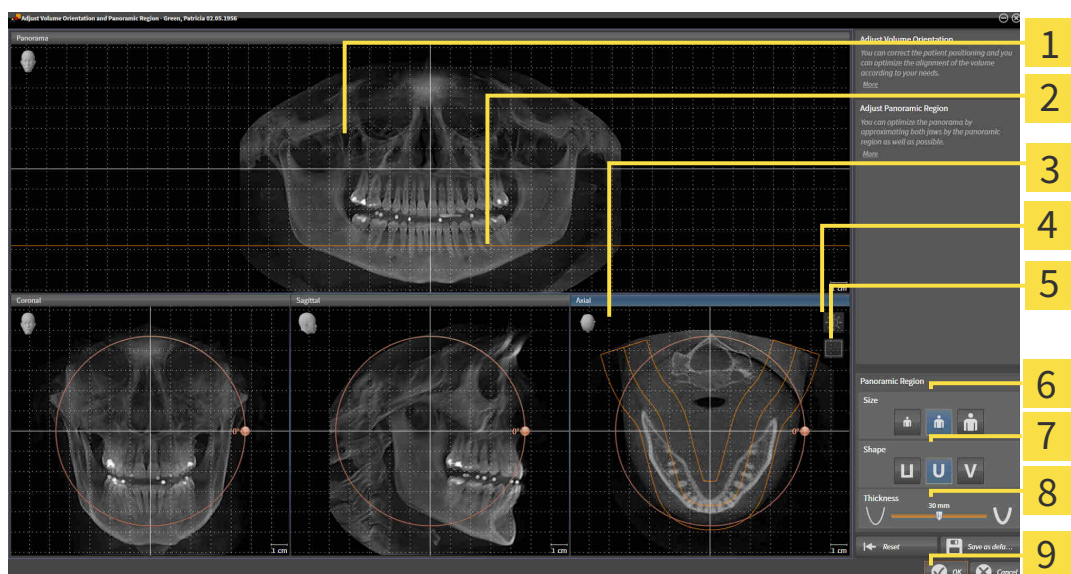
- Opening the **Adjust Volume Orientation and Panoramic Region** window
- Adjusting the slice position of the **Axial** view
- Moving the panoramic region
- Rotating volumes in the **Axial** view
- Adjusting **Size**, **Shape** and **Thickness** of the panoramic region

OPENING THE "ADJUST VOLUME ORIENTATION AND PANORAMIC REGION" WINDOW

- ☑ The **Prepare** workflow step is already expanded.



- Click on the **Adjust volume orientation and panoramic region** icon.
- ▶ The **Adjust Volume Orientation and Panoramic Region** window opens:



- | | |
|---|---------------------------|
| 1 Panorama view | 6 Size buttons |
| 2 Axial reference line | 7 Shape buttons |
| 3 Axial view with Rotation slider | 8 Thickness slider |
| 4 Adjust brightness and contrast icon | 9 OK button |
| 5 Enable projection mode icon or Enable slices mode icon | |

ADJUSTING THE SLICE POSITION OF THE AXIAL VIEW



1. Make sure that the slice mode of the **Axial** view is active. Click on the **Enable slices mode** icon if necessary.
2. Place the mouse pointer on the axial reference line in the **Panorama** view. The axial reference line illustrates the current slice position of the **Axial** view.
3. Click and hold the left mouse button.
4. Move the mouse up or down as desired.
 - ▶ The slice in the **Axial** view will change according to the position of the axial reference lines in the **Panorama** view.
5. When the axial reference line is on the roots of the mandibular teeth, release the left mouse button.
 - ▶ The **Axial** view maintains the current slice.

MOVING THE PANORAMIC REGION

1. Place the mouse pointer on the panoramic region in the **Axial** view.
2. Click and hold the left mouse button.
 - ▶ The mouse pointer changes.
3. Move the mouse.
 - ▶ SICAT Endo moves the panoramic region according to the position of the mouse pointer.
4. When the central curve of the panoramic region is on the roots of the mandibular teeth, release the left mouse button.
 - ▶ The panoramic region will remain in its current position.

ROTATING VOLUMES IN THE AXIAL VIEW

1. Place the mouse pointer on the **Rotation** slider in the **Axial** view.
2. Click and hold the left mouse button.
3. Move the **Rotation** slider along the circle in the direction you require.
 - ▶ SICAT Endo rotates the volume in the **Axial** view in a circle accordingly around the center of rotation and in the other views accordingly.
4. When the roots of the mandibular teeth follow the central curve of the panoramic region, release the left mouse button.

ADJUSTING THE SIZE, SHAPE AND THICKNESS OF THE PANORAMIC REGION



1. Select the **Size** of the panoramic region that best reflects the mandible of the patient by clicking on the corresponding **Size** button.



2. Select the **Shape** of the panoramic region that best reflects the mandible of the patient by clicking on the corresponding **Shape** button.



3. Make sure that the projection mode of the **Axial** view is active. Click on the **Enable projection mode** icon if necessary.



4. Select the **Thickness** of the panoramic region by moving the **Thickness** slider. Make sure that the panoramic region contains all teeth and both jaws in full. Keep the thickness as low as possible.

5. To save your changes, click **OK**.

- SICAT Endo saves the altered volume orientation and altered panoramic region and displays the **Panorama** view accordingly.

In addition to the described process, the following actions are available in the **Adjust Volume Orientation and Panoramic Region** window:



- You can adjust the brightness and contrast of a 2D image by activating the desired view and clicking the **Adjust brightness and contrast** icon. Information on this can be found in the section *Adjusting and resetting the brightness and contrast of the 2D views* [► Page 112 - Standalone].
- You can zoom in the views. SICAT Endo synchronizes the zoom between the views with the exception of the **Axial** view.
- To reset the volume orientation and panoramic region, click on the **Reset** button.
- To save the current volume orientation and panoramic region as a default, click on the **Save as default** button.
- If you do not want to save your changes, click **Cancel**.

28 OPTICAL IMPRESSIONS



You can import and register optical impressions only for X-ray data that has been created by Sirona 3D-X-ray devices.

SICAT Endo can show matching X-ray data and optical impressions for the same patient simultaneously. The combined illustration provides additional information for analysis and diagnosis. In addition, the treatment implementation is based on optical impressions.

The following actions are required to use data with optical impressions in SICAT Endo:

- Registering optical impressions on X-ray data

SICAT Endo supports the following file formats for optical impressions:

- SIXD files which contain an optical impression of the maxilla and an optical impression of the mandible
- SSI files which contain an optical impression of the maxilla and an optical impression of the mandible
- STL files which contain an optical impression of the maxilla or an optical impression of the mandible (**SICAT Suite STL Import** license required)

The following tools are available for optical impressions:

- *Importing and registering optical impressions* [▶ Page 142 - Standalone]
- *Re-using optical impressions from other SICAT applications* [▶ Page 148 - Standalone]
- Activating, hiding and showing optical impressions - Information on this can be found in the section *Managing objects with the object browser* [▶ Page 92 - Standalone].
- Focusing on optical impressions and removing optical impressions – Information on this can be found in the section *Managing objects with the object toolbar* [▶ Page 94 - Standalone].

Optical impressions in STL format require additional steps during import. Information on this can be found in the section *Additional steps for optical impressions in STL format* [▶ Page 147 - Standalone].

28.1 IMPORTING AND REGISTERING OPTICAL IMPRESSIONS



The use of other data as 3D X-ray scans as a lone source of information may result in an incorrect diagnosis and treatment.

1. Use 3D X-ray scans as a preferred source of information for diagnosis and planning.
2. Use other data, such as optical impressions, only as an auxiliary source of information.



Inappropriate optical impression devices could result in incorrect diagnosis and treatment.

Only use optical impression data from devices cleared as medical devices.



Optical impression data that does not match patient and date of 3D X-ray data could result in incorrect diagnosis and treatment.

Make sure the patient and date of the imported optical impression data match the patient and date of the visualized 3D X-ray data.



Insufficient integrity or quality of optical impressions may result in an incorrect diagnosis and treatment.

Check the integrity and quality of the optical impressions imported.



Insufficient integrity and precision of optical impressions may result in an incorrect diagnosis and treatment.

Only use optical impressions of a sufficient quality and precision for the intended diagnosis and treatment.



Excessive artifacts, insufficient resolution or the lack of points for registration may mean that the registration process for optical impressions fails. Examples of excessive artifacts in 3D X-ray scans include movement artifacts and metal artifacts.

Only use optical impression data and 3D X-ray data that allow for an adequate registration.



The selection of markings in the registration process for optical impressions that do not correspond to one another may result in an incorrect diagnosis and treatment.

When you register optical impressions, carefully select corresponding markings in the 3D X-ray scans and optical impressions.



The incorrect registration of optical impressions for 3D X-ray scans may result in an incorrect diagnosis and treatment.

Check that the registered optical impressions are correctly aligned to the 3D X-ray scans.



To enable you to check whether 3D X-ray data and optical impressions match, the **Import and register optical impressions** wizard always shows the patient data and ignores the **Anonymize** setting.



You can use the **Inspection Window** to check whether an optical impression is precisely aligned to the X-ray data. You can move the **Inspection Window** and scroll through the slices in the **Inspection Window**.

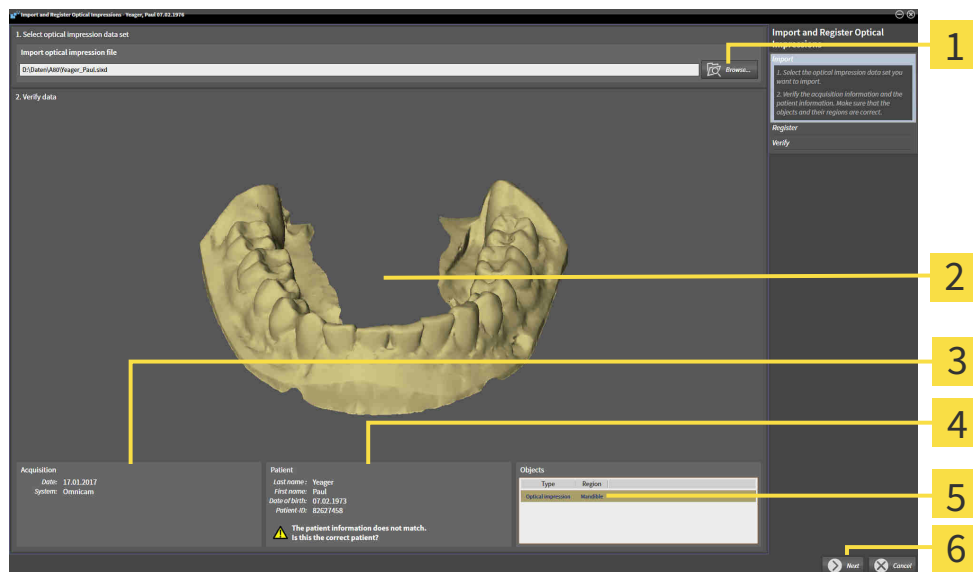
General information on optical impressions can be found in the section *Optical impressions* [▶ Page 141 - Standalone].

To import and register an optical impression, proceed as follows:

- ☑ The **Prepare** workflow step is already expanded.



1. Click on the **Import and register optical impressions** icon.
 - ▶ The **Import and register optical impressions** wizard opens with the **Import** step.
2. Click on the **Browse** button.
 - ▶ The **Open Optical Impression File** window opens.
3. In the **Open Optical Impression File** window, select the desired optical impression file and click on **Open**.
 - ▶ The **Open Optical Impression File** window closes.
 - ▶ SICAT Endo opens the selected optical impression file:

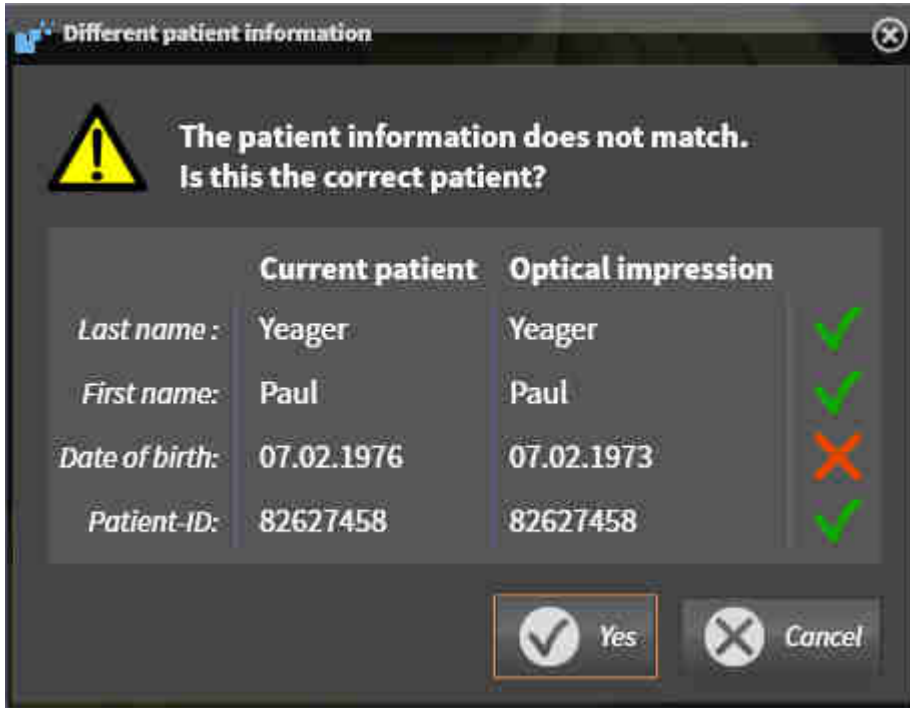


- | | |
|--|------------------------------|
| 1 Import optical impression file area | 4 Patient information |
| 2 3D view of optical impression | 5 List of objects |
| 3 Scan information | 6 Next button |

4. Check the scan information and patient information.
5. Make sure that the objects and their regions are correct. The background color in the list of objects matches the color of the objects in the **3D** view.

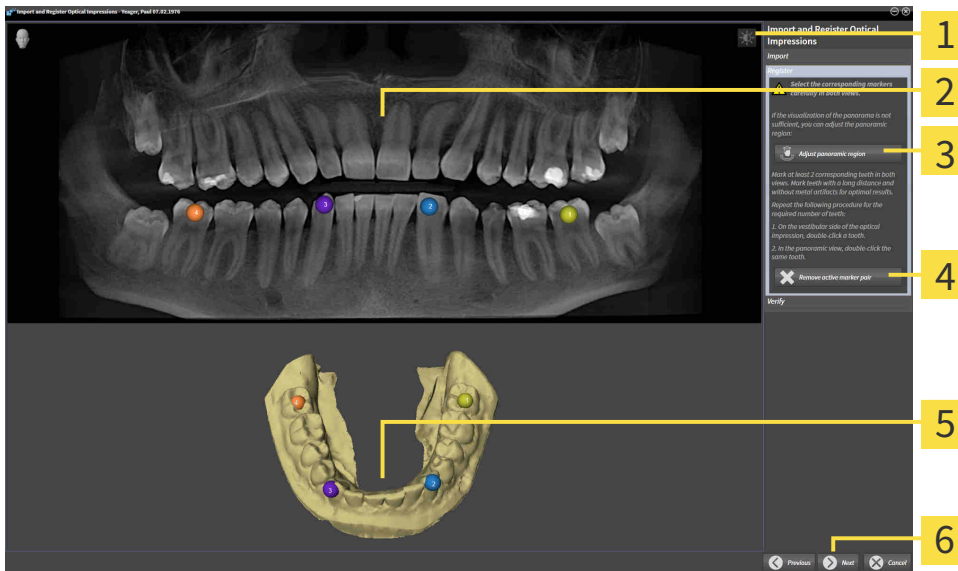
6. Click **Next**.

► If the patient data in the 3D X-ray scan and in the optical impression differ, SICAT Endo will open the **Different patient information** window:



7. Compare the patient information. If you are sure that the optical impression matches the current patient, click on the **Yes** button.

► The **Register** step opens:



1 Adjust brightness and contrast icon

4 Remove active marker pair button

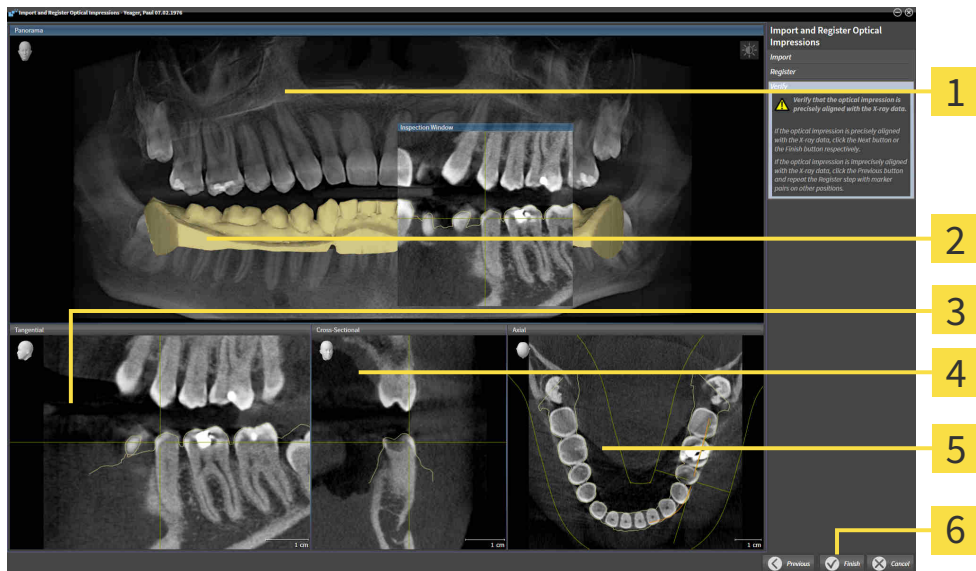
2 Panorama view

5 3D view that shows the optical impression

3 Adjust panoramic region button

6 Next button

8. For the optical impression, use the left mouse key to double click the same tooth both in the **Panorama** view and on the vestibular side of the optical impression in the **3D** view. Make sure that there is a large distance between individual teeth and mark only teeth without metal artifacts. Repeat this step until you have marked at least two matching teeth in both views.
 - ▶ Markings with different colors and numbers in both views will display corresponding teeth in the optical impression.
9. Click **Next**.
 - ▶ SICAT Endo calculates the registration of the optical impression with the X-ray data.
 - ▶ The **Verify** step opens:



1 Panorama view

2 Inspection Window

3 Tangential view

4 Cross-Sectional view

5 Axial view

6 Finish button

10. Check whether the optical impression is precisely aligned to the X-ray data in the 2D slice views. Scroll through the slices and check the contours shown.
11. If the optical impression is imprecisely aligned to the X-ray data, click on the **Previous** button and repeat the **Register** step with marker pairs in different positions if necessary.
12. If the optical impression is precisely aligned to the X-ray data, click on the **Finish** button.
 - ▶ The **Import and register optical impressions** wizard closes.
 - ▶ SICAT Endo adds the selected optical impression to the **Object browser**.
 - ▶ SICAT Endo displays the registered optical impression.



In addition to the described process, the following actions are available in the **Import and register optical impressions** wizard:

- You can adjust the brightness and contrast of a 2D image by clicking the **Adjust brightness and contrast** icon. Information on this can be found in the section *Adjusting and resetting the brightness and contrast of the 2D views* [▶ *Page 112 - Standalone*].
- You can adjust the panoramic area by clicking the **Adjust panoramic region** icon. Information on this can be found in the section *Adjusting the panoramic region* [▶ *Page 138 - Standalone*].
- If you wish to remove a certain marker pair in the **Register** step, you can select a marker from the pair and click on the **Remove active marker pair** button.
- If you want to cancel importing and registering optical impressions, click **Cancel**.

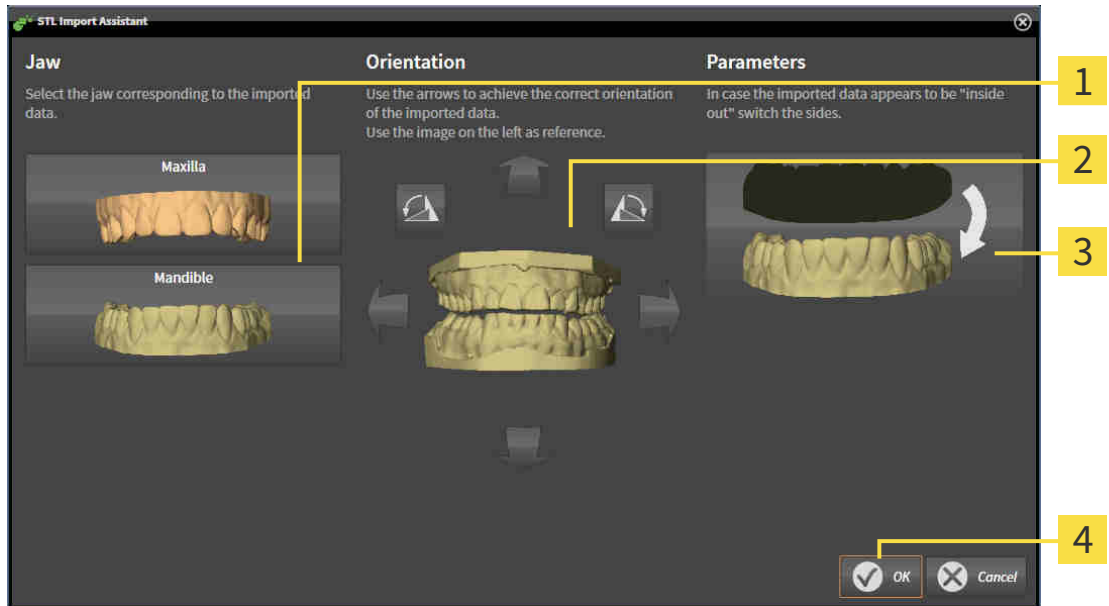
28.2 ADDITIONAL STEPS FOR OPTICAL IMPRESSIONS IN STL FORMAT

STL files do not contain information regarding the position and orientation of optical impressions. Therefore, you need to adjust position and orientation if required.

You have already activated a **SICAT Suite STL import** license.

1. Open the optical impressions in a file in STL format. Information on this can be found in the section Importing and registering optical impressions.

► The **STL import wizard** window opens:



- | | |
|-----------------------------------|---------------------------------------|
| 1 Selection of the jaw | 3 Switching inside and outside |
| 2 Changing the orientation | 4 OK button |

2. In the **jaw** area, select whether the optical impression contains the **maxilla** or the **mandibula** by clicking on the corresponding symbol.



3. If required, change the orientation of the optical impressions for rough pre-positioning by clicking on the arrow symbols or the rotation symbols in the **orientation** area.
4. If required, switch the inside and the outside of the optical impressions by clicking on the representation of the optical impression in the **parameter** area.
5. Click on the **OK** button.
6. If required, repeat those steps for a second STL file. SICAT Endo automatically attributes the second STL file to the other jaw.
 - SICAT Endo displays the imported optical impressions in the **Import and register optical impressions** wizard.
7. Continue with the registration of the optical impressions. Information on this can be found in the section Importing and registering optical impressions.

28.3 RE-USING OPTICAL IMPRESSIONS FROM OTHER SICAT APPLICATIONS



The use of other data as 3D X-ray scans as a lone source of information may result in an incorrect diagnosis and treatment.

1. Use 3D X-ray scans as a preferred source of information for diagnosis and planning.
2. Use other data, such as optical impressions, only as an auxiliary source of information.



Inappropriate optical impression devices could result in incorrect diagnosis and treatment.

Only use optical impression data from devices cleared as medical devices.



Optical impression data that does not match patient and date of 3D X-ray data could result in incorrect diagnosis and treatment.

Make sure the patient and date of the imported optical impression data match the patient and date of the visualized 3D X-ray data.



Insufficient integrity or quality of optical impressions may result in an incorrect diagnosis and treatment.

Check the integrity and quality of the optical impressions imported.



Insufficient integrity and precision of optical impressions may result in an incorrect diagnosis and treatment.

Only use optical impressions of a sufficient quality and precision for the intended diagnosis and treatment.



The incorrect registration of optical impressions for 3D X-ray scans may result in an incorrect diagnosis and treatment.

Check that the registered optical impressions are correctly aligned to the 3D X-ray scans.



To enable you to check whether 3D X-ray data and optical impressions match, the **Import and register optical impressions** wizard always shows the patient data and ignores the **Anonymize** setting.

General information on the optical impressions can be found in the section *Optical impressions* [► Page 141 - Standalone].

To re-use optical impressions from another SICAT application, proceed as follows:

- The **Prepare** workflow step is already expanded.
- You have already imported optical impressions for the opened study in another SICAT application, which you have not yet used in SICAT Endo.

1. Click on the **Import and register optical impressions** icon.

► The **Import and register optical impressions** wizard opens with the **Import** step.

2. Click on the row with the desired optical impressions in the **Reuse optical impressions from other SICAT applications** area.
 3. SICAT Endo displays the optical impressions selected.
 4. Check the scan information and patient information. Make sure that the objects and their regions are correct. The background color in the list of objects matches the color of the objects in the **3D** view.
 5. Click on the **Finish** button.
- ▶ The **Import and register optical impressions** wizard closes.
 - ▶ SICAT Endo adds the selected optical impressions to the **Object browser**.
 - ▶ SICAT Endo displays the optical impressions selected.

If you want to cancel the transfer of optical impressions from another SICAT application, click **Cancel**.

29 INTRAORAL SCANS



CAUTION

Devices for intraoral scans that are not certified as a medical device may result in incorrect diagnosis and treatment.

Make sure to use only devices that are certified as a medical device for intraoral scans.



CAUTION

Insufficient integrity or quality of intraoral scans may result in an incorrect diagnosis and treatment.

Check the integrity and quality of the imported intraoral scans.



CAUTION

Intraoral scans that have not been registered correctly with the 3D X-ray scans may result in an incorrect diagnosis and treatment.

Check that the intraoral records have been correctly registered with the 3D X-ray scans.



CAUTION

Intraoral scans that do not match the patient and the 3D X-ray scan or whose record time is too far away from the record time of the 3D X-ray scan may result in an incorrect diagnosis and treatment.

Make sure that the patient and 3D X-ray scan of an intraoral scan match and that their record time is not too far away from the record time of the 3D X-ray scan.



CAUTION

Insufficient quality of the intraoral records or 3D X-ray scans may cause the mechanism for registering the intraoral records to fail.

Only use intraoral scans and 3D X-ray scans that allow for a correct registration.



CAUTION

Insufficient quality and precision of intraoral scans may result in an incorrect diagnosis and treatment.

Only use intraoral scans of sufficient quality and precision for the intended diagnosis and treatment.



CAUTION

Incorrect positions or orientations of the intraoral scans may result in an incorrect diagnosis and treatment.

After registration, check for correct position and orientation of the intraoral scans on the teeth in the 3D X-ray scan.



CAUTION

Incorrect orientation of the intraoral records relative to the 3D X-ray scan may result in an incorrect diagnosis and treatment.

1. Check that the registered intraoral scans are correctly aligned to the 3D X-ray scans.
2. If required, rotate the intraoral scans to orient them correctly.

**CAUTION****Incorrect tooth number allocation could result in incorrect diagnosis and treatment.**

Check that the selected tooth numbers and the actual anatomical tooth numbers match.

You can use intraoral scans to prepare the diagnosis and for treatment planning in SICAT Endo. You can import and manage the intraoral scans in the **Radiograph Manager** window.

The following actions are required to use intraoral scans in SICAT Endo:

- Importing DICOM files containing intraoral scans
- Allocating tooth numbers to intraoral scans
- Registering the intraoral scans

SICAT Endo supports the following file formats for intraoral scans:

- DICOM data that is available as single-frame file

A list of compatible recording systems can be found in the section *Compatible intraoral scan sensors* [[▶ Page 152 - Standalone](#)].

The following actions are available for intraoral scans:

- *Importing intraoral scans and allocating them to teeth* [[▶ Page 153 - Standalone](#)]
- *Pre-positioning intraoral scans* [[▶ Page 157 - Standalone](#)]
- *Registering intraoral scan* [[▶ Page 159 - Standalone](#)]

29.1 COMPATIBLE INTRAORAL SCAN SENSORS

SICAT Endo supports the following intraoral record sensors:

- XIOS XG Supreme, manufacturer: Sirona Dental Systems GmbH, Germany
- XIOS XG Select, manufacturer: Sirona Dental Systems GmbH, Germany
- XIOS Plus, manufacturer: Sirona Dental Systems GmbH, Germany
- Schick 33, manufacturer: Sirona Dental Inc., USA
- Schick Elite, manufacturer: Sirona Dental Inc., USA

29.2 IMPORTING INTRAORAL SCANS AND ALLOCATING THEM TO TEETH

General information on intraoral scans can be found in the section *Intraoral scans* [▶ Page 150 - Standalone].

To import intraoral scans and allocate them to one or several teeth, proceed as follows:

- ✓ The **Prepare** workflow step is already expanded. Information on this can be found in the section *Workflow toolbar* [▶ Page 88 - Standalone].
- ✓ The intraoral scan is not yet available in SICAT Endo. You can only import each intraoral scan once.
- ✓ The intraoral scan is available as DICOM file in single-frame format.
- ✓ The intraoral scan was created using a compatible intraoral recording device. Information on this can be found in the section *Compatible intraoral scan sensors* [▶ Page 152 - Standalone].



1. Click on the **Administer and register radiographs** icon.
 - ▶ The **Radiograph Manager** window opens.
2. Click on the **Browse** button.
 - ▶ The **Open radiograph** window opens.
3. In the **Open radiograph** window, switch to the desired intraoral scan file and select at least one file. You can import several scans at once by keeping the **Ctrl** key pressed while selecting several files one after another.
4. Click **Open**.
 - ▶ The **Open radiograph** window closes.
 - ▶ SICAT Endo displays the intraoral scans imported:



1 Browse button

2 Imported radiographs area

3 Preview area

4 Patient Information

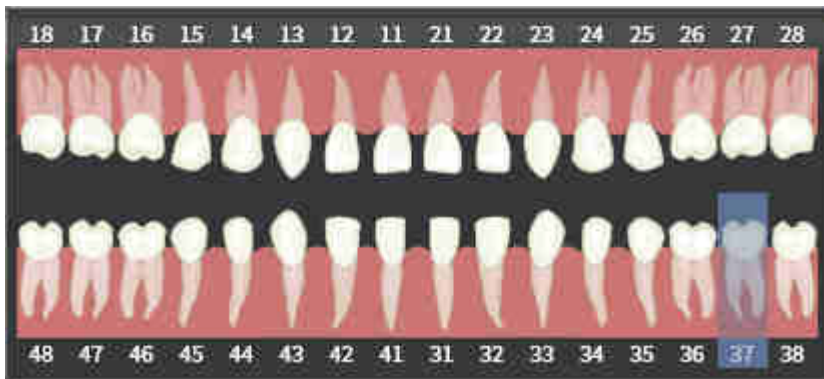
5 Scan information

6 Register button

5. To select an imported intraoral scan, click on a scan in the **Imported radiographs** area.
 - ▶ SICAT Endo displays the selected scan in the **Preview** area.
6. Check the information on the patient and the information on the scan. Make sure that the scan and the patient match and that the record dates of the 3D X-ray scan and the intraoral scan are not more than 90 days apart.
7. Make sure that the imported intraoral scan's orientation is anatomically correct.
8. If an imported intraoral scan's orientation is not anatomically correct, use the right mouse key to click on the scan in the **Imported radiographs** area and select one of the **Flip horizontally, Flip vertically, Rotate counter clockwise** or **Rotate clockwise** entries in the context menu.
 - ▶ SICAT Endo flips the scan across the horizontal or vertical image axis.
 - ▶ SICAT Endo rotates the scan in 90 degree increments towards the left or the right.



9. Place the mouse pointer over the question mark icon in a scan.
 - ▶ The **Tooth number** window opens:



10. Allocate up to four tooth numbers to the scan by clicking on the anatomically correct tooth numbers one after the other.
11. To close the **Tooth number** window, position the mouse pointer outside of the window.
 - ▶ SICAT Endo closes the **Tooth number** window.
 - ▶ SICAT Endo displays the allocated tooth numbers in the intraoral scans.
 - ▶ SICAT Endo saves all changes that are made when the Radiograph Manager is closed.



You can select the following functions using the context menu in the **Imported radiographs** area:

- **Flip horizontally**
- **Flip vertically**
- **Rotate counter clockwise**
- **Rotate clockwise**
- **Tooth number**
- **Register**
- **Remove**



The following options are available to remove intraoral scans from the **Imported radiographs** area,

- Click on the **Remove radiograph from planning project** icon in a scan.
- Use the right mouse key to click on a scan and select the **Remove** entry in the context menu.
- In the **Imported radiographs** area, select a scan and press the **Del** key.

To register an imported intraoral scan, proceed with the following section:

- *Registration wizard* [▶ *Page 156 - Standalone*]

30 REGISTRATION WIZARD

The registration wizard provides functions for registering intraoral scans.

To be able to use the registration wizard, you must have imported intraoral records and allocated tooth numbers. Information on this can be found in the section *Importing intraoral scans and allocating them to teeth* [▶ Page 153 - Standalone].

Before starting to work with the registration wizard, you have to select the intraoral scan that you want to register.

In the registration wizard, you can pre-orient the intraoral scan on the panoramic curve. You can use the **3D Projection** view to further adjust the orientation before SICAT Endo automatically registers the intraoral scan.

The registration wizard comprises the following steps:

- *Pre-positioning intraoral scans* [▶ Page 157 - Standalone]
- *Registering intraoral scan* [▶ Page 159 - Standalone]

If pre-positioning in the **Panorama** view is not sufficient, you can also adjust the orientation in the **Register Radiograph** step using the **Cross-Sectional** view or the **Axial** view. Information on this can be found in the section *Adjusting pre-orientation in the transversal and axial view* [▶ Page 162 - Standalone].

If an intraoral scan contains areas that could cause problems during registration, you can provide these areas with a mask by coloring them and exclude them from registration in the **Register Radiograph** step. Information on this can be found in the section *Masking areas* [▶ Page 165 - Standalone].

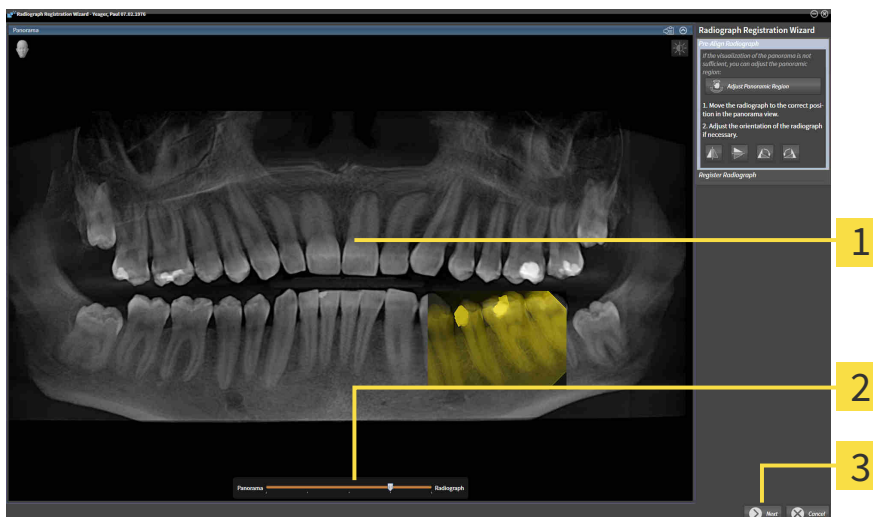
30.1 PRE-POSITIONING INTRAORAL SCANS

General information on the registration wizard can be found in the section *Registration wizard* [▶ Page 156 - Standalone].

In the **Pre-Align Radiograph** step, you can orient the intraoral scan on the panoramic curve such that the 3D X-ray scan and the intraoral scan are overlaid in the best possible way.

- ☑ The **Prepare** workflow step is already expanded. Information on this can be found in the section *Workflow toolbar* [▶ Page 88 - Standalone].
- ☑ You have imported at least one intraoral scan and allocated at least one tooth number to the intraoral scan. Information on this can be found in the section *Importing intraoral scans and allocating them to teeth* [▶ Page 153 - Standalone].

1. Click on the **Administer and register radiographs** icon.
 - ▶ The **Radiograph Manager** window opens.
2. To select an intraoral scan for registration, use the left mouse key to click on the scan.
 - ▶ SICAT Endo marks the scan.
3. Click on the **Register** button.
 - ▶ The **Pre-Align Radiograph** step opens:



1 Panorama window

3 Next button

2 Transparency slider

- ▶ SICAT Endo displays the intraoral scan on the panoramic curve in the **Panorama** window.
4. To move the intraoral scan, position the mouse pointer on the scan.
 5. Click and hold the left mouse button.
 6. Move the intraoral scan to the desired position.
 7. Release the left mouse button.
 - ▶ SICAT Endo maintains the current position of the intraoral scan.

8. If required, you can adjust the orientation of the intraoral scan using the **Flip horizontally**, **Flip vertically**, **Rotate clockwise** or **Rotate counter clockwise** in the **Pre-Align Radiograph** area.
9. To proceed with the next step of the registration, click on the **Next** button.

► The **Register Radiograph** step opens.



To start registration of an intraoral scan, you can also proceed as follows:

- Double-click on the intraoral scan in the **Imported radiographs** area.
- Mark the intraoral scan in the **Imported radiographs** area and press the **Enter key**.
- Use the right mouse key to click on a scan in the **Imported radiographs** area and select the **Register** entry in the context menu.



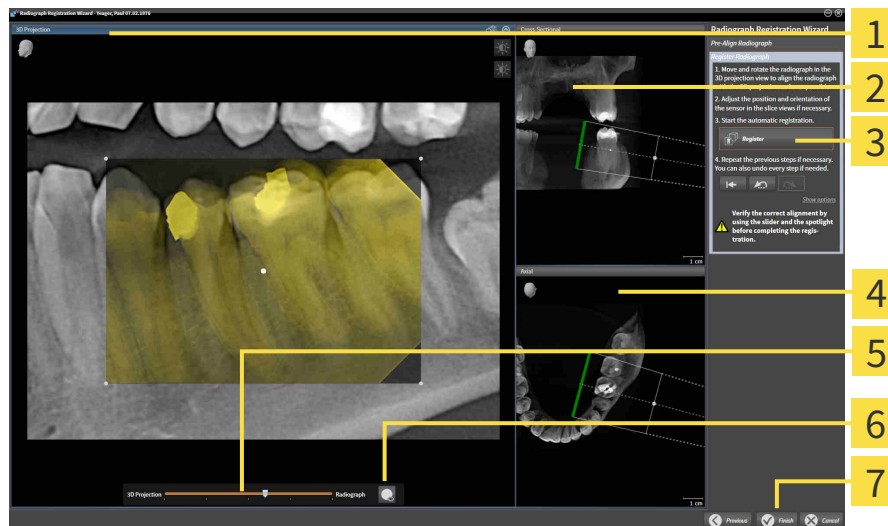
The check correct overlay of intraoral scan and panorama, you can adjust the transparency using the **transparency** slider.

Continue with the section *Registering intraoral scan* [► *Page 159 - Standalone*].

30.2 REGISTERING INTRAORAL SCAN

General information on the registration wizard can be found in the section *Registration wizard* [▶ Page 156 - Standalone].

In the **Register Radiograph** step, you can fine-align the initial position of the intraoral scan before performing the automatic registration.



1 3D Projection view

2 Cross-Sectional view

3 Register button

4 Axial view

5 Transparency slider

6 Spotlight button

7 Finish button

To adjust the overlay of the intraoral scan and the **3D Projection** view, proceed as follows:



1. Position the mouse pointer on the intraoral scan in the **3D Projection** view.
 - ▶ The mouse pointer changes.

2. Click and hold the left mouse button.
3. Move the intraoral scan to the desired position.
4. Release the left mouse button.

- ▶ SICAT Endo maintains the current rotation of the intraoral scan.
- ▶ SICAT Endo adjusts the **Cross-Sectional** view and the **Axial** view accordingly.



5. To rotate the intraoral scan, position the mouse pointer on one of the control points at the corners of the scan in the **3D Projection** view.
 - ▶ The mouse pointer changes.
6. Click and hold the left mouse button.
7. Move the intraoral scan in the desired direction.

8. Release the left mouse button.
 - ▶ SICAT Endo maintains the current position of the intraoral scan.
 - ▶ SICAT Endo adjusts the **Cross-Sectional** view and the **Axial** view accordingly.

SWITCHING SPOTLIGHT ON AND OFF

To check the correct overlay of the intraoral scan and the 3D projection, you can display a spotlight in the **3D Projection** view.



1. Click on the **Spotlight** button.
2. Position the mouse pointer on the intraoral scan.
 - ▶ SICAT Endo shows a spotlight.
3. Move the mouse pointer to the position of the intraoral scan that you want to check.
4. Repeat this step for all spots that you want to check.



5. To hide the spotlight, click on the **Spotlight** button again.
 - ▶ SICAT Endo hides the spotlight.

ADJUSTING ORIENTATION IN THE TRANSVERSAL OR AXIAL VIEW

If the orientation of the intraoral scan in the **3D Projection** view is not sufficient, you can additionally adjust the orientation in the **Cross-Sectional** view or the **Axial** view. Information on this can be found in the section *Adjusting pre-orientation in the transversal and axial view* [▶ Page 162 - Standalone].

MASKING AREAS IN THE INTRAORAL SCAN

If you want to exclude certain areas of the intraoral scan from automatic registration, you can provide these areas with a mask by coloring them. SICAT Endo does not take these masked areas into account during automatic registration. Information on this can be found in the section *Masking areas* [▶ Page 165 - Standalone].

PERFORMING AUTOMATIC REGISTRATION

- To perform automatic registration, click on the **Register** button in the **Register Radiograph** area.
 - ▶ SICAT Endo registers the intraoral scan with the 3D X-ray scan.
 - ▶ SICAT Endo closes the registration wizard.
 - ▶ SICAT Endo displays the result of the registration in the **Radiograph Manager** window.

CHECKING REGISTRATION

1. Check the result of the registration using the **3D Projection** view, the **Cross-Sectional** view and the **Axial** view.
2. If you are not satisfied with the result, you can adjust the position of the intraoral scan by moving the intraoral scan with the mouse using the drag&drop function.
3. To finish registration, click on the **Finish** button.

▶ The **Radiograph Registration Wizard** closes.

▶ The **Radiograph Manager** window opens.



▶ SICAT Endo shows the intraoral scan as registered in the **Imported radiographs** area in the **Radiograph Manager**.



The check correct overlay of intraoral scan and panorama, you can adjust the transparency using the **transparency** slider.



To reset the last adjustment, click on the **Undo the last step** button. To reset all adjustments, click on the **Reset all steps** button.

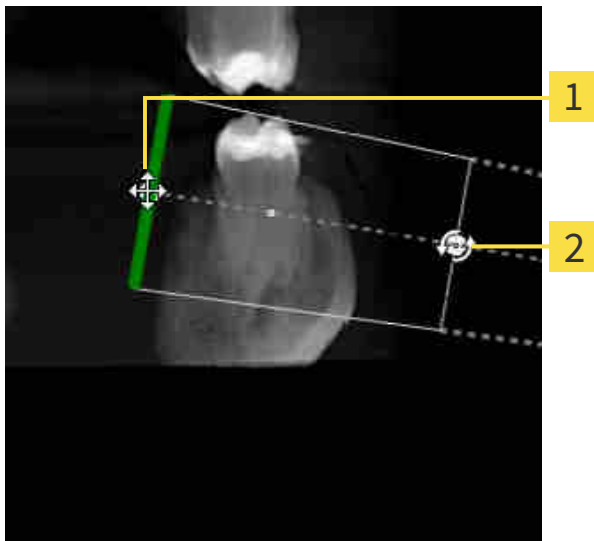
30.3 ADJUSTING PRE-ORIENTATION IN THE TRANSVERSAL AND AXIAL VIEW

For general information on the adjustment of the overlay of the intraoral scan and the 3D projection, please refer to section *Registering intraoral scan* [▶ *Page 159 - Standalone*].

Even if you are able to orient the intraoral scan in an anatomically correct manner in the **3D Projection** view, SICAT Endo may not be able to automatically register the intraoral scan with the 3D X-ray scan for certain scans.

If this is the case, adjust the positioning of the intraoral scan in the **Cross-Sectional** view or in the **Axial** view:

MOVING THE ORIENTATION IN THE TRANSVERSAL VIEW



1 Control point **one**

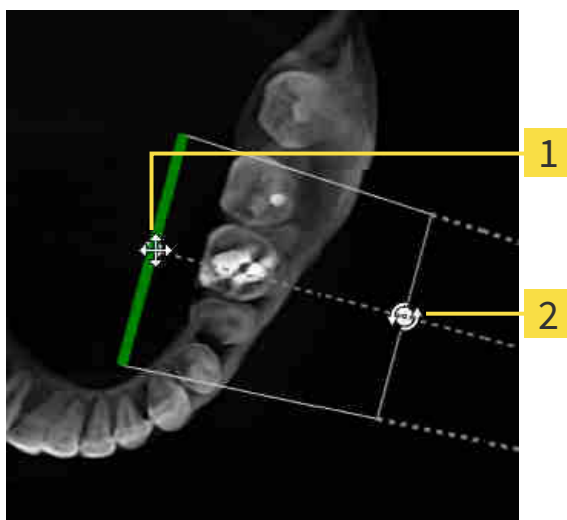
2 Control point **two**

1. To move the orientation of the recording device and the sensor in the 3D X-ray scan, position the mouse pointer on control point **one** in the **Cross-Sectional** view.
 - ▶ The mouse pointer becomes a cross with four arrows.
2. Click and hold the left mouse button.
3. Move the orientation in the desired direction.
4. Release the left mouse button.
 - ▶ SICAT Endo maintains the current orientation.
 - ▶ SICAT Endo adjusts the **3D Projection** view and the **Axial** view accordingly.

ROTATING THE ORIENTATION IN THE TRANSVERSAL VIEW

1. To rotate the orientation of the recording device and the sensor in the 3D X-ray scan, position the mouse pointer on control point **two** in the **Cross-Sectional** view.
 - ▶ The mouse pointer becomes a circle with two rotating arrows.
 2. Click and hold the left mouse button.
 3. Rotate the orientation in the desired direction.
 4. Release the left mouse button.
- ▶ SICAT Endo maintains the current orientation.
 - ▶ SICAT Endo adjusts the **3D Projection** view and the **Axial** view accordingly.

MOVING THE ORIENTATION IN THE AXIAL VIEW



1 Control point **one**

2 Control point **two**

1. To move the orientation of the recording device and the sensor in the 3D X-ray scan, position the mouse pointer on control point **one** in the **Cross-Sectional** view.
 - ▶ The mouse pointer becomes a cross with four arrows.
 2. Click and hold the left mouse button.
 3. Move the orientation in the desired direction.
 4. Release the left mouse button.
- ▶ SICAT Endo maintains the current orientation.
 - ▶ SICAT Endo adjusts the **3D Projection** view and the **Cross-Sectional** view accordingly.

ROTATING THE ORIENTATION IN THE AXIAL VIEW

1. To rotate the orientation of the recording device and the sensor in the 3D X-ray scan, position the mouse pointer on control point **two** in the **Axial** view.
 - ▶ The mouse pointer becomes a circle with two rotating arrows.
2. Click and hold the left mouse button.
3. Rotate the orientation in the desired direction.
4. Release the left mouse button.
 - ▶ SICAT Endo maintains the current orientation.
 - ▶ SICAT Endo adjusts the **3D Projection** view and the **Cross-Sectional** view accordingly.

30.4 MASKING AREAS

An intraoral scan may contain areas which may cause problems during automatic registration. This includes:

- Metal artifacts
- Teeth of the opposite jaw
- Edges in the intraoral scan that do not belong to the scan

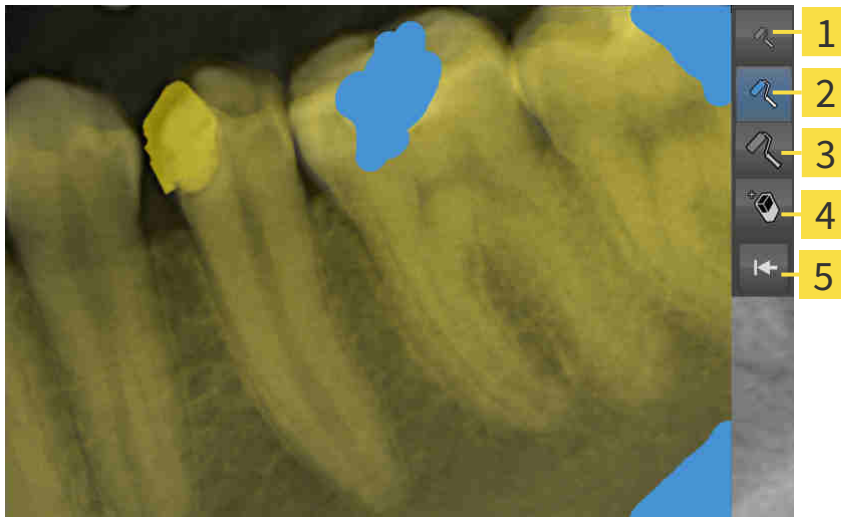
To avoid problems during automatic registration, you can mask such areas. SICAT Endo excludes all masked areas from automatic registration.

To mask individual sections in a intraoral scan, proceed as follows:

1. Click on the **Show options** button in the **Register Radiograph** area.
 - ▶ SICAT Endo displays the **Edit mask** button.



2. Click on the **Edit mask** button.
 - ▶ SICAT Endo displays the mask toolbar to the right of the intraoral scan.



1 Use a small paintbrush button

4 Use an eraser button

2 Use a medium paintbrush button

5 Reset mask button

3 Use a large paintbrush button

3. To color an area, click on the **Use a small paintbrush** button, the **Use a medium paintbrush** button or the **Use a large paintbrush** button.
 - ▶ The mouse pointer becomes a circle.
4. Position the mouse pointer on the area of the intraoral scan that you want to color.
5. Click and hold the left mouse button.
6. Move the mouse pointer over the area that you want to color.
7. Release the left mouse button.

- ▶ SICAT Endo shows the marked area colored in blue.
- 8. Repeat these steps if required to mask additional areas of the intraoral scan where needed.
- 9. To remove an area marked in blue, click on the **Use an eraser** button.
 - ▶ The mouse pointer becomes an eraser.
- 10. Use the left mouse key to click on the marked blue area that you want to remove.
 - ▶ SICAT Endo removes the marked area from the intraoral scan.
- 11. To remove all markings, click on the **Reset mask** button.
 - ▶ SICAT Endo removes all areas marked in blue from the intraoral scan.
- 12. To apply all changes that you have made, click on the **Finish editing** button in the **Register Radiograph** area.
 - ▶ SICAT Endo displays the masked areas in the **3D Projection** view.
 - ▶ SICAT Endo excludes the masked areas from automatic registration.



To hide the **Edit mask** button again, click on the **Hide options** button in the **Register Radiograph** area.

31 ENDOLINE WIZARD

The EndoLine wizard provides functions for diagnosis and treatment planning.

You can perform the following actions prior to using the EndoLine wizard:

- *Importing intraoral scans and allocating them to teeth* [▶ *Page 153 - Standalone*].
- *Registering intraoral scan* [▶ *Page 159 - Standalone*]
- *Selecting a tooth for treatment planning* [▶ *Page 175 - Standalone*]

In the EndoLine wizard, you can use a line of intersection to define the area that you want to treat. You can place EndoLines in the root canals in this area.

EndoLines are measuring lines that you can use to mark the root canal that is to be treated and to locate the root apices. EndoLines serve as the basis for the planning and placing of drill channels.

SICAT Endo uses different views to represent EndoLines. Information on this can be found in the section *Views in the EndoLine wizard* [▶ *Page 168 - Standalone*].

SICAT Endo attributes all objects that you create during the planning to the selected tooth. These objects can be EndoLines or drill channels. You can view these objects in the **Panorama** workspace and in the **Radiograph** workspace and manage and edit them in the **Object browser**.

You can use different views and combinations of views are in the workspaces of SICAT Endo to view the objects that you have created. Information on this can be found in the section *Workspaces* [▶ *Page 99 - Standalone*].

The EndoLine wizard comprises the following steps:

- *Pre-aligning a tooth region* [▶ *Page 176 - Standalone*]
- *Placing EndoLines* [▶ *Page 178 - Standalone*]
- *Planning drill channels* [▶ *Page 187 - Standalone*]

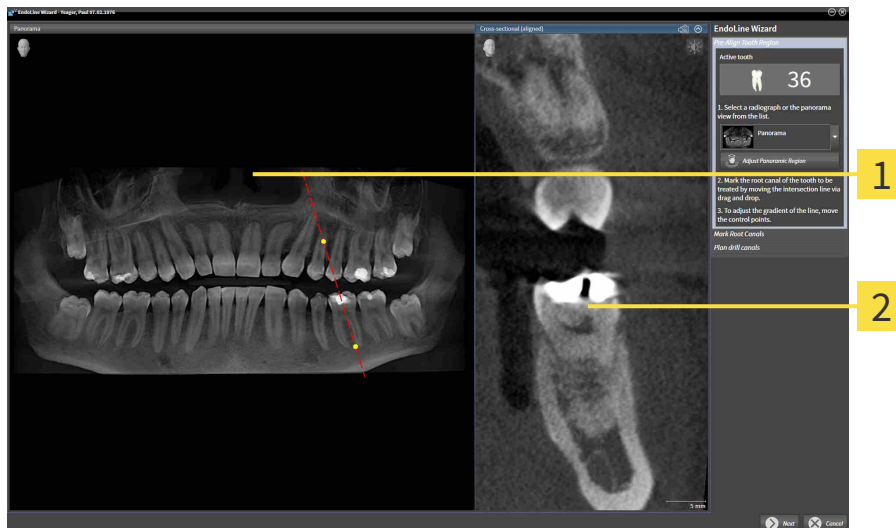
31.1 VIEWS IN THE ENDOLINE WIZARD

Each step in the EndoLine wizard features several views.

General information on adjusting the views can be found in the section *Adjusting the views* [▶ Page 107 - Standalone] and *Adjusting the 3D view* [▶ Page 121 - Standalone].

“PRE-ALIGN TOOTH REGION” STEP

The following views are available in the **Pre-Align Tooth Region** step:



1 Panorama view or Radiograph view

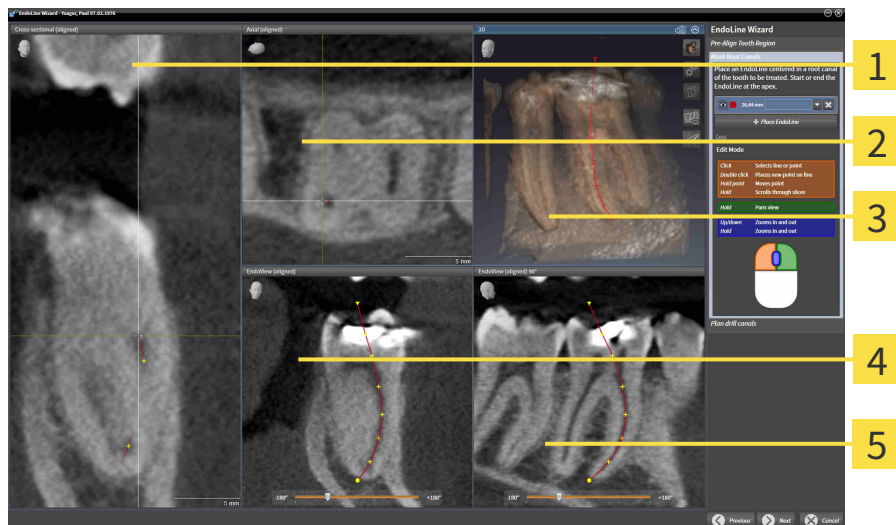
2 Cross-sectional (aligned) view

In the **Panorama** view or the **Radiograph** view, you can use a line of intersection to pre-align the view of the root canal that is to be treated. The **Radiograph** view is only available if you have registered at least one intraoral scan for the active tooth. For information on how to select an active tooth, please refer to *Selecting a tooth for treatment planning* [▶ Page 175 - Standalone].

In the **Cross-sectional (aligned)** view, the tooth that has been marked in the **Panorama** view or in the **Radiograph** view is shown from the side and aligned to the line of intersection previously created.

“PLACE ENDOLINES” STEP

The following views are available in the **Place EndoLines** step:



1 Cross-sectional (aligned) view

2 Axial (aligned) view

3 3D view

4 EndoView (aligned) view

5 EndoView (aligned) 90° view

The **Cross-sectional (aligned)** view in the **Place EndoLines** step corresponds to the **Cross-sectional (aligned)** view in the **Pre-Align Tooth Region** step. It shows the tooth marked in the **Pre-Align Tooth Region** step diagonally from the outside to the inside and aligned to the line of intersection previously created.

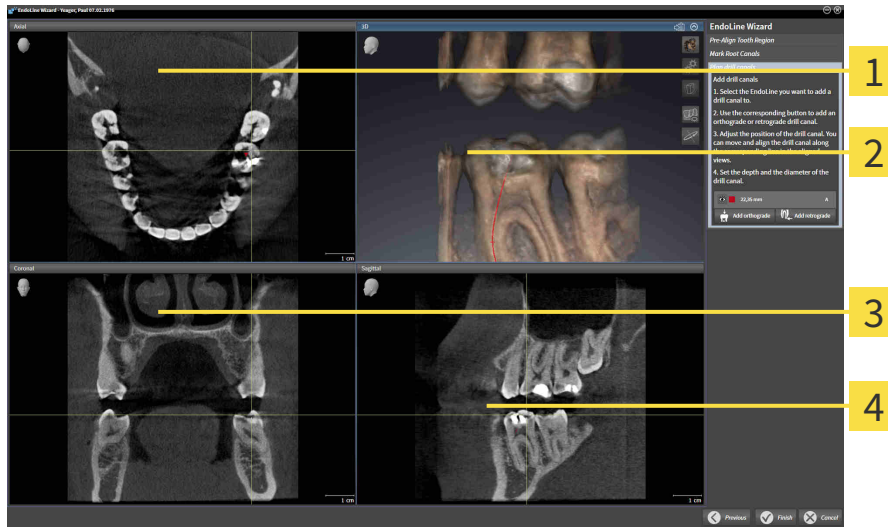
The **Axial (aligned)** view shows the tooth marked in the **Pre-Align Tooth Region** step from the top and aligned to the line of intersection previously created.

The **3D** view shows the EndoLine in the 3D X-ray scan. Information on adjusting the **3D** view can be found in the section *Adjusting the 3D view* [▶ Page 121 - Standalone].

The **EndoView (aligned)** is a view that is aligned to the EndoLine and shows the selected EndoLine projected onto a 2D plane. The **EndoView (aligned) 90°** is the **EndoView (aligned)** rotated by 90 degrees. The two views will only be shown if you have already set an EndoLine. Information on EndoView can be found in the section *EndoView* [▶ Page 173 - Standalone].

“PLAN DRILL CHANNELS” STEP

The following views are available in the **Plan drill canals** step:



1 Axial view

3 Coronal view

2 3D view

4 Sagittal view

The **Axial** view shows the EndoLine from the top.

The **3D** view shows the EndoLine in the 3D X-ray scan. Information on adjusting the **3D** view can be found in the section *Adjusting the 3D view* [▶ Page 121 - Standalone].

The **Coronal** view shows the EndoLine from the front.

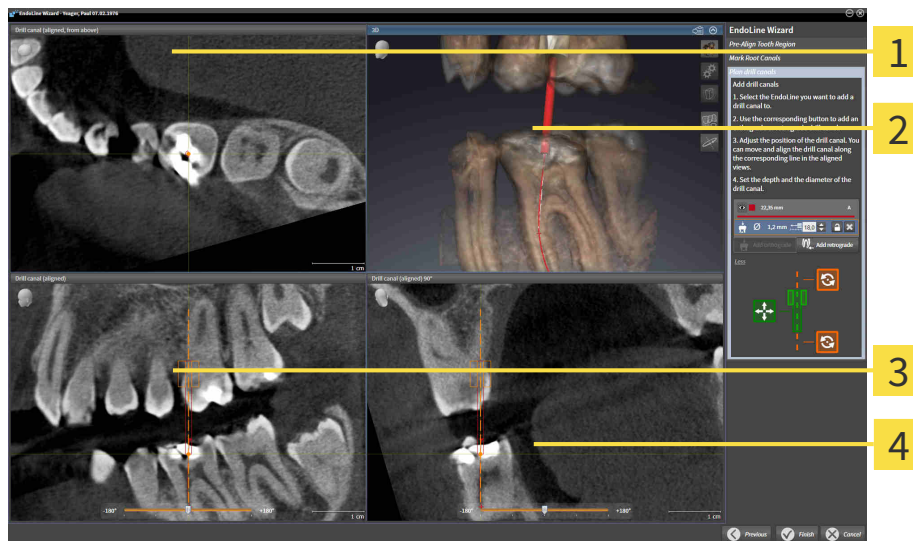
The **Sagittal** view shows the EndoLine from the right.



If you have not yet planned any drill channels, SICAT Endo displays the **Axial** view, the **3D** view, the **Coronal** view and the **Sagittal** view when you open the **Plan drill canals** step in the EndoLine wizard.

VIEWS WHEN PLANNING ORTHOGRADE DRILL CHANNELS

The following views are available when planning orthograde drill channels:



1 Drill canal (aligned, from above) view

3 Drill canal (aligned) view

2 3D view

4 Drill canal (aligned) 90° view

The **Drill canal (aligned, from above)** view shows the drill channel aligned to the EndoLine from the top.

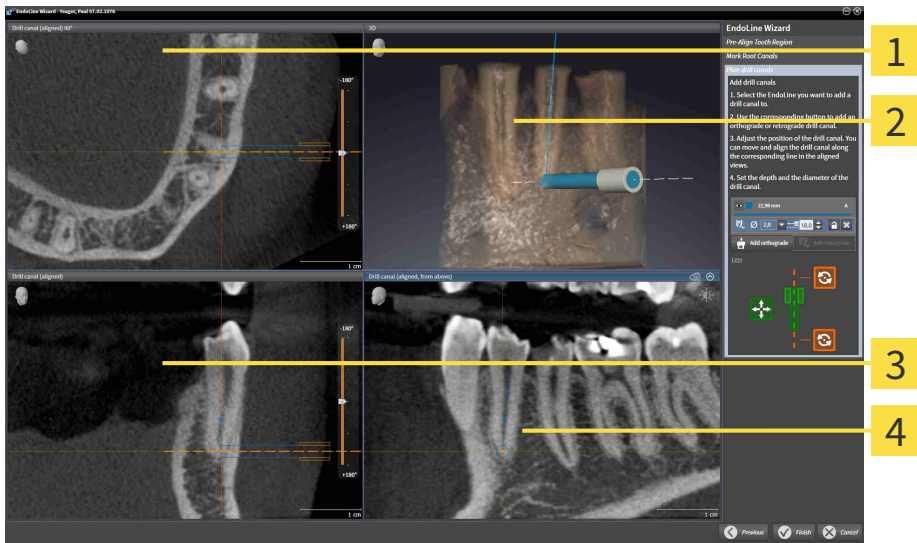
The **3D** view shows the drill channel that you have set in the 3D X-ray scan. Information on adjusting the **3D** view can be found in the section *Adjusting the 3D view* [▶ [Page 121 - Standalone](#)].

The **Drill canal (aligned)** view shows the drill channel aligned to the EndoLine from the front.

The **Drill canal (aligned) 90°** view shows the drill channel aligned to the EndoLine from the side.

VIEWS WHEN PLANNING RETROGRADE DRILL CHANNELS

The following views are available when planning retrograde drill channels:



1 Drill canal (aligned) 90° view

3 Drill canal (aligned) view

2 3D view

4 Drill canal (aligned, from above) view

The **Drill canal (aligned) 90°** view shows the drill channel aligned to the EndoLine from the side.

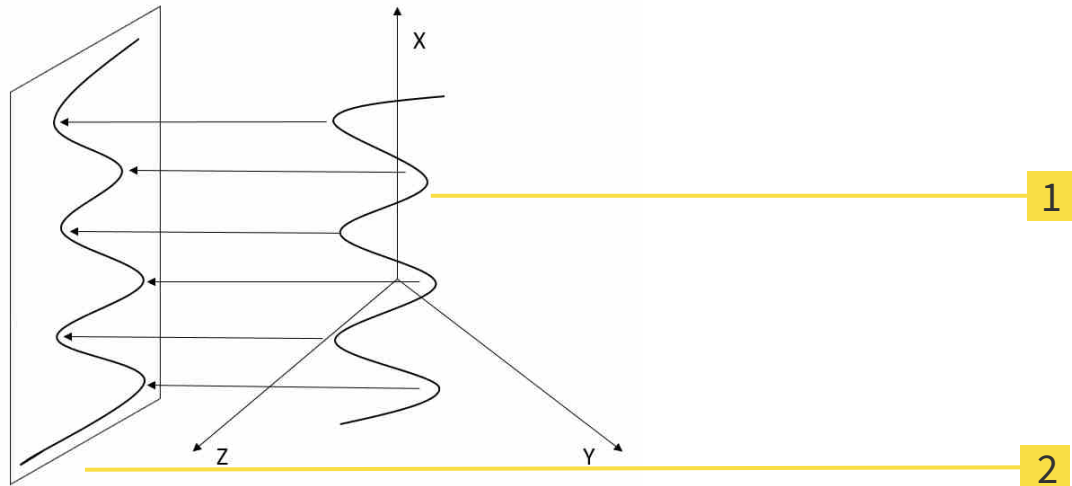
The **3D** view shows the drill channel that you have set in the 3D X-ray scan. Information on adjusting the **3D** view can be found in the section *Adjusting the 3D view* [▶ Page 121 - Standalone].

The **Drill canal (aligned)** view shows the drill channel aligned to the EndoLine from the front.

The **Drill canal (aligned, from above)** view shows the drill channel aligned to the EndoLine from the top.

31.1.1 ENDOVIEW

EndoView in SICAT Endo visualizes the anatomy of complex tooth structures of a patient with the software application projecting and showing a curved EndoLine from a 3D scan on a 2D plane. This technique is called Curved Planar Reformation (CPR). It enables the visualization of curved structures reconstructed in a plane.



1 3D scan

2 2D plane

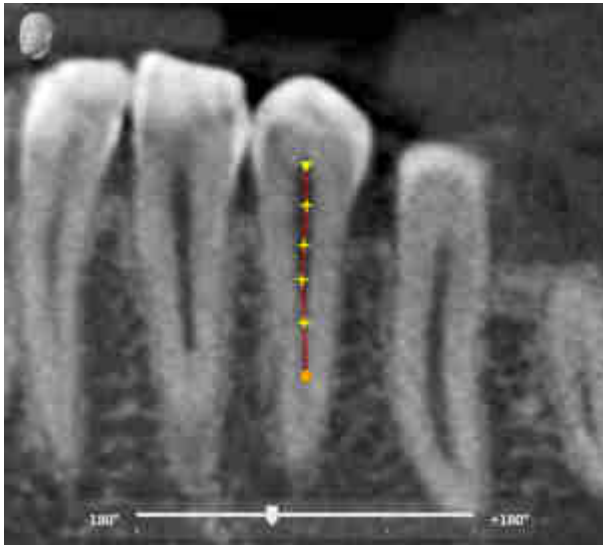
Visualizing an EndoLine in the 2D plane helps you to assess the details of the anatomical teeth structures and to identify anomalies more easily. At the same time, EndoView improves the accuracy of diagnostic decisions and facilitates the creation of a customized treatment plan for your patient.

31.1.2 ROTATING ENDOVIEW

Information on EndoView can be found in the section *EndoView* [▶ *Page 173 - Standalone*].

In the **EndoView (aligned)** and **EndoView (aligned) 90°** view, you can use a slider to rotate the image sections.

- ☑ The **Place EndoLines** step is already open. Information on this can be found in the section *Placing EndoLines* [▶ *Page 178 - Standalone*].
 - ☑ You have set at least one EndoLine.
 - ☑ You have selected an EndoLine.
1. Enable the **EndoView (aligned)** view or the **EndoView (aligned) 90°** view by clicking into the desired view.
 - ▶ SICAT Endo activates the view.



2. Position the mouse pointer on the slider.
3. Click and hold the left mouse button.
4. Move the slider to the desired position.
5. Release the mouse button.
 - ▶ SICAT Endo rotates the image section.
 - ▶ SICAT Endo adjusts the **EndoView (aligned)** view and the **EndoView (aligned) 90°** view.



Alternatively, you can also rotate the image section by using the left mouse key to click on any position in **EndoView (aligned)** or in **EndoView (aligned) 90°** and keep the mouse key pressed to rotate the image section in the desired direction.



The slider ranges from -180 degrees to +180 degrees and is divided into 90 degree segments. You can use the slider to set an angle for rotating the view.

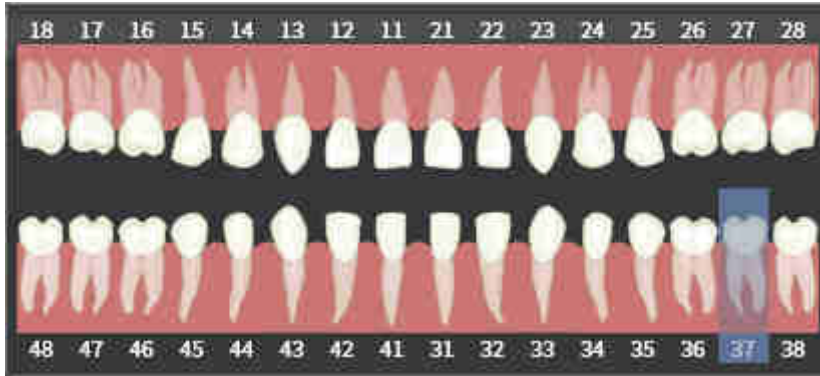
31.2 SELECTING A TOOTH FOR TREATMENT PLANNING

Before being able to plan EndoLines and drill channels you must select the tooth that you want to treat.

- ☑ You have opened the **Radiograph** workspace or the **Panorama** workspace. Information on this can be found in the section *Workspaces* [▶ Page 99 - Standalone].



1. Place the mouse pointer over the **Active tooth** section in the **Object bar**.
 - ▶ The **Tooth number** window opens:



2. Move the mouse pointer over the tooth that you want to treat.
 - ▶ SICAT Endo highlights the tooth number.
3. To select the highlighted tooth, left click on the tooth.
 - ▶ SICAT Endo marks the tooth in blue.
 - ▶ SICAT Endo displays the tooth number in the **Object bar** in the **Active tooth** area.
4. To close the **Tooth number** window, move the mouse pointer out of the **Active tooth** area.
 - ▶ SICAT Endo closes the **Tooth number** window.

31.3 PRE-ALIGNING A TOOTH REGION

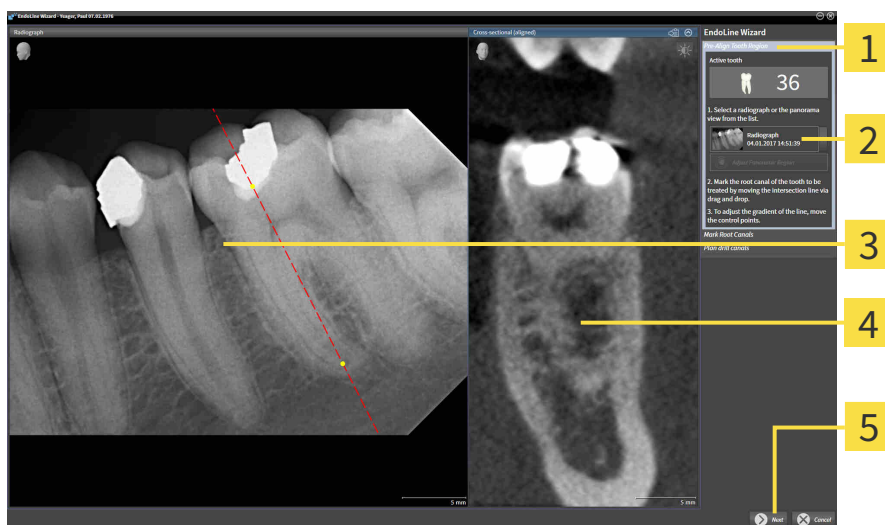
General information on the EndoLine wizard can be found in the section *EndoLine wizard* [▶ Page 167 - Standalone].

In the **Pre-Align Tooth Region** step, you can use a line of intersection to adjust the views so as to be able to clearly see the tooth and the roots that you want to treat.

- ☑ You have selected the tooth that you want to treat in the **Radiograph** workspace or in the **Panorama** workspace using the **Tooth number** schema in the **Object bar**. Information on this can be found in the section *Selecting a tooth for treatment planning* [▶ Page 175 - Standalone].
- ☑ The **Diagnose** workflow step is already expanded. Information on this can be found in the section *Workflow toolbar* [▶ Page 88 - Standalone].



1. Click on the **Plan root canal treatment using EndoLines and drill canals** icon.
 - ▶ The **Pre-Align Tooth Region** step opens:



- 1** Pre-Align Tooth Region area
- 2** List of **Panorama** view and intraoral scans
- 3** **Panorama** view or **Radiograph** view
- 4** Cross-sectional (aligned) view
- 5** Next button

2. In the **Pre-Align Tooth Region** area, select an intraoral scan or the panorama from the list.
 - ▶ SICAT Endo shows a line of intersection with two yellow control points in the **Intraoral scan** view or in the **Panorama** view.



3. To move the line of intersection, position the mouse pointer on the line of intersection.
 - ▶ The mouse pointer changes.
4. Click and hold the left mouse button.
5. Move the line of intersection to the desired position.
6. Release the left mouse button.
 - ▶ SICAT Endo maintains the current position of the line of intersection.
 - ▶ SICAT Endo adjusts the **Cross-sectional (aligned)** view according to the changed position of the line of intersection.



7. To rotate the line of intersection, position the mouse pointer on one of the two yellow control points.
 - ▶ The mouse pointer changes.
8. Click and hold the left mouse button.
9. Rotate the line of intersection in the desired direction.
10. Release the left mouse button.
 - ▶ SICAT Endo maintains the current rotation of the line of intersection.
 - ▶ SICAT Endo adjusts the **Cross-sectional (aligned)** view according to the changed position of the line of intersection.
11. Click **Next**.
 - ▶ SICAT Endo applies the adjustment of the views.
 - ▶ The **Place EndoLines** step opens.

Continue with the section *Placing EndoLines* [▶ *Page 178 - Standalone*].




To be able to choose between an intraoral scan and the **Panorama** view for pre-alignment, you must have registered at least one intraoral scan for the selected tooth.



You can adjust the panoramic area by clicking the **Adjust panoramic region** icon. Information on this can be found in the section *Adjusting the panoramic region* [▶ *Page 138 - Standalone*].

31.4 PLACING ENDOLINES



CAUTION

Using the 3D view to display measurements and planning objects may result in incorrect diagnosis and treatment.

Use the 3D view for guidance only and regard it as an additional source of information.

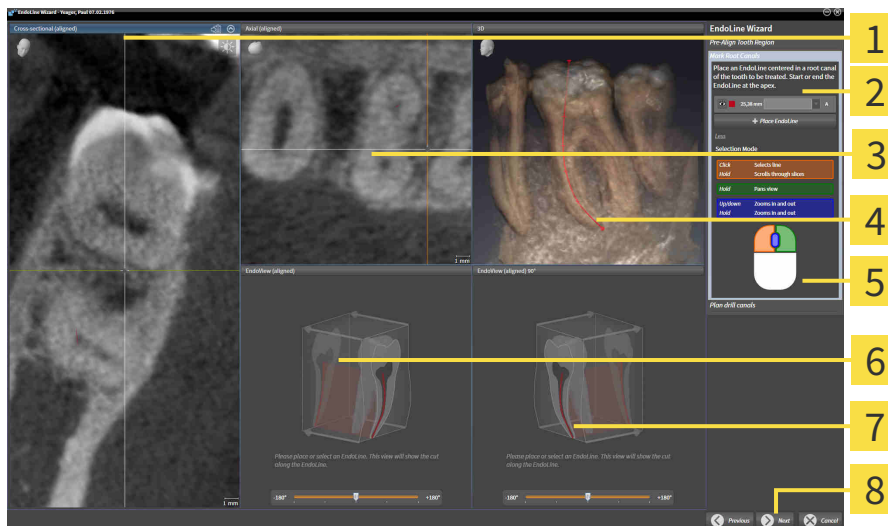
General information on the EndoLine wizard can be found in the section *EndoLine wizard* [▶ Page 167 - Standalone].

In the **Place EndoLines** step, you can mark the root canals that you want to treat in the aligned views using EndoLines.

SICAT Endo marks the start point with a triangle and the end point with a circle when an EndoLine is inserted.

The order of the points depends of the tooth number that was previously selected and the position of the tooth in the patient’s jaw. In the upper jaw, the start point is below the end point and in the lower jaw, the start point is above the end point.

- You have finished the **Pre-Align Tooth Region** step. Information on this can be found in the section *Pre-aligning a tooth region* [▶ Page 176 - Standalone].
- The **Place EndoLines** step is already open.



- | | |
|---|--|
| <ul style="list-style-type: none"> 1 Cross-sectional (aligned) view 2 Place EndoLines area 3 Axial (aligned) view 4 3D view | <ul style="list-style-type: none"> 5 Infographic 6 EndoView (aligned) 7 EndoView (aligned) 90° 8 Next button |
|---|--|



1. Click on the **Place EndoLine** button in the **Place EndoLines** area.
 - ▶ SICAT Endo highlights the **Cross-sectional (aligned)** view and the **Axial (aligned)** view.
 - ▶ The mouse pointer changes.
2. Position the mouse pointer in the **Cross-sectional (aligned)** view or the **Axial (aligned)** view.

3. Use the left mouse key to click on the apex or the start point.
 - ▶ SICAT Endo sets a control point.
4. Add further control points to mark the root paths by left-clicking on additional positions on the root path.
5. To finish marking the root paths, double-click on the apex or the start point.
 - ▶ SICAT Endo sets a control point.
 - ▶ SICAT Endo displays all control points and a connection between the points in form of an EndoLine.
 - ▶ SICAT Endo aligns the **EndoView (aligned)** view and the **EndoView (aligned) 90°** view to the EndoLine.
6. If required, repeat the steps to mark additional root canals.
7. Verify the EndoLines set in the **EndoView (aligned)** view or the **EndoView (aligned) 90°** view.
8. Click **Next**.
 - ▶ The **Plan drill canals** step opens.

Continue with the section *Planning drill channels* [▶ Page 187 - Standalone].

You can modify the color and the text for the description and the position of an EndoLine. Information on this can be found in the section *Adjusting color and text* [▶ Page 180 - Standalone].

You can modify an EndoLine by moving, adding or deleting control points. Information on this can be found in the section *Adding, moving and deleting control points* [▶ Page 181 - Standalone].

You can use a rotation mode in the **3D** view. Information on this can be found in the section *Rotating the 3D view* [▶ Page 184 - Standalone].

You can view imported and registered optical impressions in the **3D** view. Information on this can be found in the section *Displaying optical impressions in the 3D view* [▶ Page 185 - Standalone].

You can use different functions when inserting an EndoLine with the mouse keys. Information on this can be found in the section *Using mouse keys* [▶ Page 186 - Standalone].



To select an EndoLine, you can left-click on the line in one of the aligned views or select it in the **Place EndoLines** area.



To delete an EndoLine, highlight the EndoLine in the **Place EndoLines** area and click on the **Delete EndoLine** button at the end of the row of the selected EndoLine.



To adjust representation in **EndoView (aligned)** or in **EndoView (aligned) 90°**, you can use the slider in these views. You can rotate the views by any angle to the left or to the right using the slider.

31.5 ADJUSTING COLOR AND TEXT

ADJUSTING THE COLOR

To change the color of an EndoLine, proceed as follows:

1. Click the **Change color** button in the row for the EndoLine.
 - ▶ SICAT Endo changes the color of the EndoLine.
2. If the color is not the desired color, click again on the **Change color** button until SICAT Endo shows the desired color.
 - ▶ SICAT Endo shows the new color for the EndoLine.

ADJUSTING TEXT FOR DESCRIPTION OR POSITION SPECIFICATION

To change the description text or position specification text of the EndoLine, proceed as follows:

1. To enter a description for the EndoLine, click on the **Description/Position** field in the EndoLine row.
 - ▶ The mouse pointer blinks at the enter position.
2. Enter the desired EndoLine description.
 - ▶ SICAT Endo displays the description.
3. To select a text for the EndoLine position specification, click on the arrow icon in the **Description/Position** field in the EndoLine row.
 - ▶ SICAT Endo displays a list with position specifications.
4. Click on the desired position specification in the list.
 - ▶ SICAT Endo shows the position specification in the **Description/Position** field.
5. To apply the changes and to close the **Description/Position** field, left-click on a position outside of the **Description/Position** field.
 - ▶ SICAT Endo displays the new description or position specification.

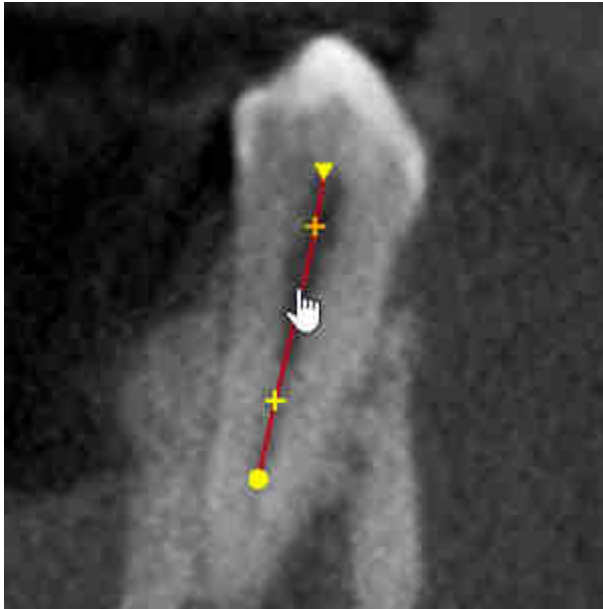


31.6 ADDING, MOVING AND DELETING CONTROL POINTS

ADDING CONTROL POINTS TO AN ENDOLINE

To add a control point to an EndoLine, proceed as follows:

1. Position the mouse pointer at the position of an EndoLine where you want to add a control point

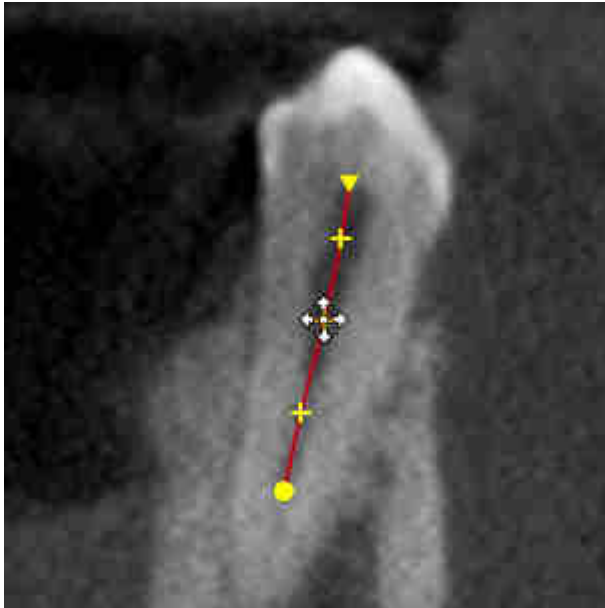


- ▶ The mouse pointer changes.
2. Double-click on the desired position.
- ▶ SICAT Endo adds a control point in the shape of a cross.

MOVING CONTROL POINTS OF AN ENDOLINE

To move control points of an EndoLine, proceed as follows:

1. Position the mouse pointer on the control point of the EndoLine that you want to move.

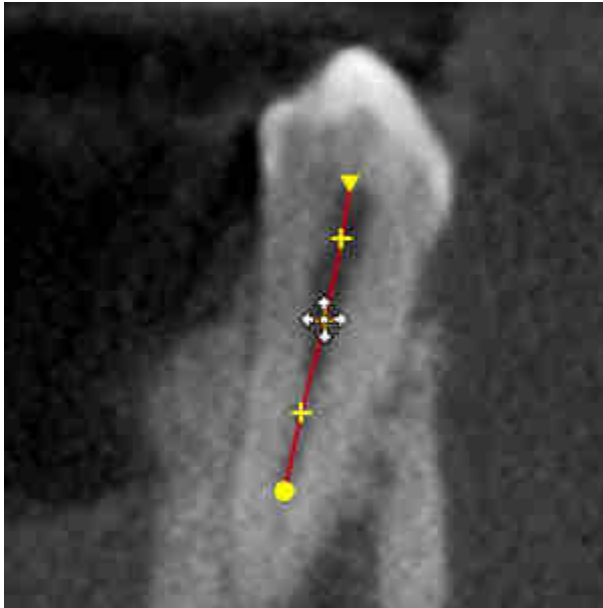


- ▶ The mouse pointer changes.
2. Click and hold the left mouse button.
3. Move the mouse.
 - ▶ The control point tracks the movement of the mouse pointer.
 - ▶ SICAT Endo adjusts the EndoLine according to the new position of the control point.
4. Release the left mouse button.
 - ▶ SICAT Endo maintains the current position of the control point.
 - ▶ SICAT Endo displays the new path of the EndoLine.

DELETING CONTROL POINTS FROM AN ENDOLINE

To delete a control point from an EndoLine, proceed as follows:

1. Position the mouse pointer on the control point of the EndoLine that you want to delete.



- ▶ The mouse pointer changes.
2. Left-click on the control point.
 - ▶ SICAT Endo marks the control point.
3. Press the **Del** key.
 - ▶ SICAT Endo deletes the control point.
 - ▶ SICAT Endo adjusts the EndoLine accordingly.



Please note that the EndoLine will be deleted completely as soon as you delete the penultimate control point.

31.7 ROTATING THE 3D VIEW

General information on the **3D** view can be found in the section *Adjusting the 3D view* [▶ *Page 121 - Standalone*].

You can use the **Spin 3D view** function to switch on and off a rotation mode for the 3D X-ray scan in the EndoLine wizard. If the rotation mode is switched on, SICAT Endo rotates the 3D X-ray scan clockwise.

To use the rotation mode, proceed as follows:

You have already activated the **3D** view. Information on this can be found in the section *Views* [▶ *Page 106 - Standalone*].

1. Adjust the representation of the 3D X-ray scan in such a way that the desired section of the image is shown.
2. Make sure that you have selected the desired display mode. Information on this can be found in the section *Switching the display mode of the 3D view* [▶ *Page 123 - Standalone*].
3. Make sure that you have selected the desired clipping mode. Information on this can be found in the section *Changing the clipping mode of the 3D view* [▶ *Page 126 - Standalone*].



4. Click on the **Spin 3D view** button.
 - ▶ SICAT Endo rotates the 3D X-ray scan about the vertical axis of the selected section.
5. To exit rotation mode, click on the **Spin 3D view** button again.
 - ▶ SICAT Endo stops the rotation of the 3D X-ray scan.



To stop the rotation mode, you can also click anywhere in the **3D** view.

31.8 DISPLAYING OPTICAL IMPRESSIONS IN THE 3D VIEW

General information on the **3D** view can be found in the section *Adjusting the 3D view* [▶ *Page 121 - Standalone*].

If you have already imported and registered optical impressions, you can show and hide these optical impressions in the **3D** view.

To show and hide the optical impressions, proceed as follows:

- ☑ You have already activated the **3D** view. Information on this can be found in the section *Views* [▶ *Page 106 - Standalone*].
- ☑ You have already imported and registered at least one optical impression. Information on this can be found in the section *Importing and registering optical impressions* [▶ *Page 142 - Standalone*].



1. To show the optical impressions, click on the **Show object** button.
 - ▶ SICAT Endo shows the optical impressions.
 - ▶ SICAT Endo updates the representation of the 3D X-ray scan.



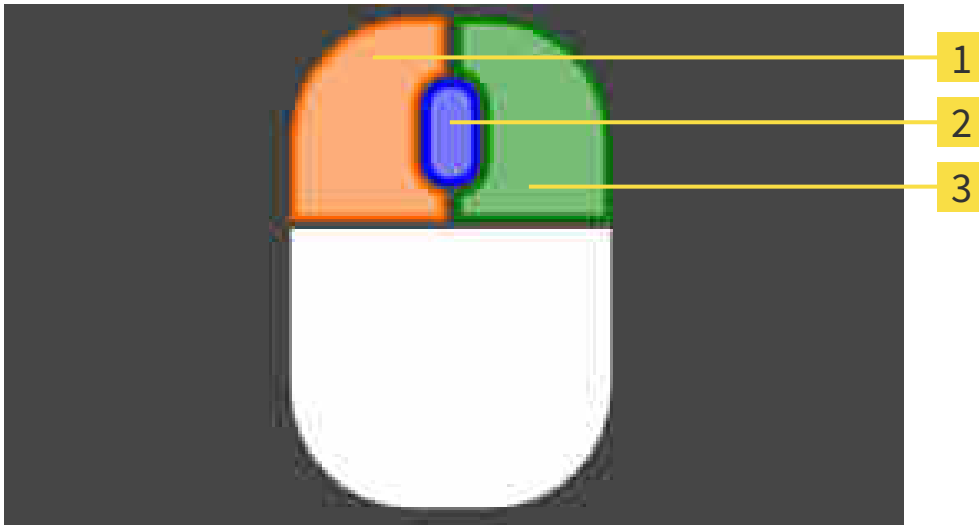
2. To hide the optical impressions, click on the **Hide object** button.
 - ▶ SICAT Endo hides the optical impressions.
 - ▶ SICAT Endo updates the representation of the 3D X-ray scan.



If you have not yet imported and registered optical impressions, SICAT Endo does not show the **Show object** button in the **3D** view.

31.9 USING MOUSE KEYS

SICAT Endo shows a picture explaining how to use the mouse keys when setting an EndoLine:



1 Left mouse key

3 Right mouse key

2 Mouse wheel

If you activate a mouse key, SICAT Endo highlights the mouse key in the picture. The action that is associated with a mouse key depends on the editing mode.

SICAT Endo distinguishes the following editing modes:

- Create
- Edit
- Select

Depending on the editing mode, different actions are available. Available actions are shown in a table above the picture and are highlighted in the color of the associated mouse key.

You can show and hide the picture as needed.

31.10 PLANNING DRILL CHANNELS

CAUTION  **An incorrect drilling depth might lead to the wrong treatment.**
 Make sure that the planned drilling depth and the selected drill match.

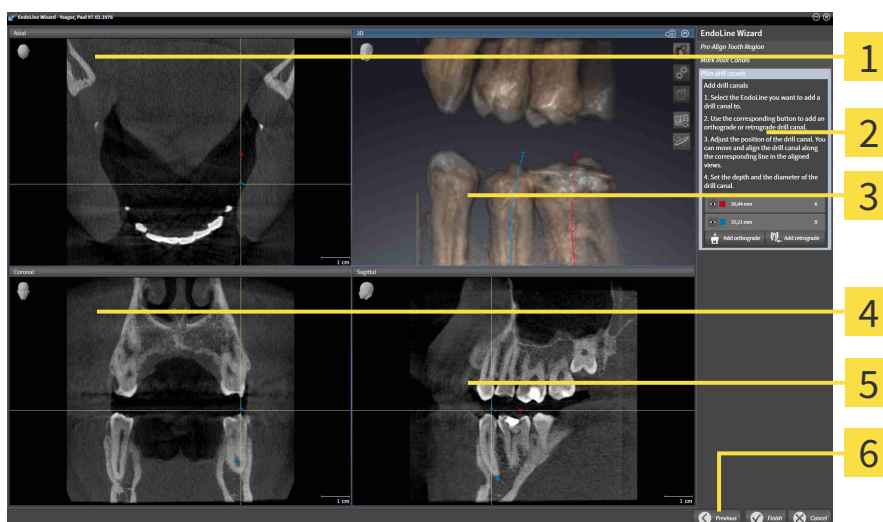
General information on the EndoLine wizard can be found in the section *EndoLine wizard* [▶ Page 167 - Standalone].

In the **Plan drill canals** step, you can add orthograde and retrograde drill channels to EndoLines and edit them. You can add an orthograde drill channel and a retrograde drill channel. A drill channel is always in the same color as the Endoline associated with the drill channel.

OPENING THE PLAN DRILL CANALS STEP

- ☑ You have finished the **Place EndoLines** step. Information on this can be found in the section *Placing EndoLines* [▶ Page 178 - Standalone].
- ☑ The **Place EndoLines** step is open.
 - Click on the **Next** button in the **Place EndoLines** step.

▶ The **Plan drill canals** step opens:



- | | |
|--------------------------------|------------------------|
| 1 Axial view | 4 Coronal view |
| 2 Add drill canals area | 5 Sagittal view |
| 3 3D view | 6 Finish button |

PLANNING ORTHOGRADE DRILL CHANNELS

1. In the **Add drill canals** area, select the EndoLine to which you want to add an orthograde drill channel.

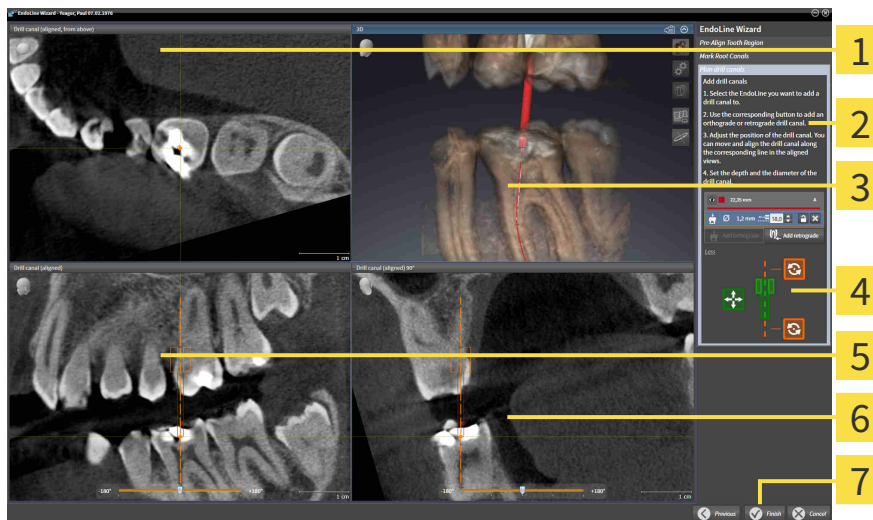
- ▶ SICAT Endo marks the EndoLine.



2. Click on the **Add orthograde** button.

- ▶ SICAT Endo adds an orthograde drill channel to the marked EndoLine.

- ▶ SICAT Endo adjusts the views as follows:



1 Drill canal (aligned, from above) view

5 Drill canal (aligned) view

2 Add drill canals area

6 Drill canal (aligned) 90° view

3 3D view

7 Finish button

4 Infographic



3. To adjust the position of the drill channel along the EndoLine, position the mouse pointer on the drill channel in the **Drill canal (aligned)** view or in the **Drill canal (aligned) 90°** view.

- ▶ The mouse pointer changes.

4. Click and hold the left mouse button.

5. Move the drill channel to the desired position.

6. Release the left mouse button.

- ▶ SICAT Endo maintains the current position of the drill channel.

- ▶ SICAT Endo adjusts the other views according to the changed position of the drill channel.



7. To adjust the rotation of the drill channel, position the mouse pointer on the EndoLine outside of the drill channel in the **Drill canal (aligned)** view or in the **Drill canal (aligned) 90°** view.

- ▶ The mouse pointer changes.

8. Click and hold the left mouse button.



3. To adjust the position of the drill channel along the EndoLine, position the mouse pointer on the drill channel in the **Drill canal (aligned)** view or in the **Drill canal (aligned) 90°** view.
 - ▶ The mouse pointer changes.
4. Click and hold the left mouse button.
5. Move the drill channel to the desired position.
6. Release the left mouse button.
 - ▶ SICAT Endo maintains the current position of the drill channel.
 - ▶ SICAT Endo adjusts the other views according to the changed position of the drill channel.



7. To adjust the rotation of the drill channel, position the mouse pointer on the EndoLine outside of the drill channel in the **Drill canal (aligned)** view or in the **Drill canal (aligned) 90°** view.
 - ▶ The mouse pointer changes.
8. Click and hold the left mouse button.
9. Rotate the EndoLine with the drill channel in the desired direction.
10. Release the left mouse button.
 - ▶ SICAT Endo maintains the current rotation of the EndoLine and the drill channel.
 - ▶ SICAT Endo adjusts the other views according to the changed position of the drill channel.



11. If required, you can adjust the position of the drill sleeve by clicking on the arrow keys next to the **Depth [mm]** field.
 - ▶ SICAT Endo displays the new depth of the drill sleeve.



12. If required, you can adjust the diameter of the retrograde drill channel by clicking on the arrow icon next to the **Diameter [mm]** field.
 - ▶ SICAT Endo displays a list with available diameters.
13. Click on the desired diameter.
 - ▶ SICAT Endo displays the new diameter of the drill channel.
14. To finish the planning of drill channels, click on the **Finish** button.
 - ▶ The EndoLine wizard closes.
 - ▶ The **Radiograph** workspace opens.
 - ▶ SICAT Endo shows the planned drill channels.

BLOCKING DRILL CHANNELS

Use this function to protect drill channels from modification.

To block a drill channel, proceed as follows:

- ☑ The drill channel has already been marked.



- Click on the **Lock object** icon.
- ▶ SICAT Endo blocks the drill channel for editing.
- ▶ SICAT Endo blocks the associated EndoLine.

UNBLOCKING DRILL CHANNELS

To unblock a drill channel, proceed as follows:

- ☑ The drill channel has been blocked.
- ☑ The drill channel has already been activated.



- Click on the **Unlock object** icon.
- ▶ SICAT Endo unblocks the drill channel.
- ▶ SICAT Endo unblocks the associated EndoLine.

DELETING DRILL CHANNELS

To delete a drill channel, proceed as follows:

1. In the **Add drill canals** area, click on the Endo planning object containing the drill channel that you want to delete.
 - ▶ SICAT Endo marks the Endo planning object.
2. In the Endo planning object, click on the drill channel that you want to delete.
 - ▶ SICAT Endo marks the drill channel.
3. Click on the **Delete drill canal** button at the end of the row.
 - ▶ SICAT Endo deletes the drill channel.



If you have blocked a drill channel for editing, you will not be able to edit the associated EndoLine either. To be able to edit the EndoLine, you have to unblock the associated drill channel.

32 DISTANCE AND ANGLE MEASUREMENTS

SICAT Endo features two different types of measurement:



- Distance measurements



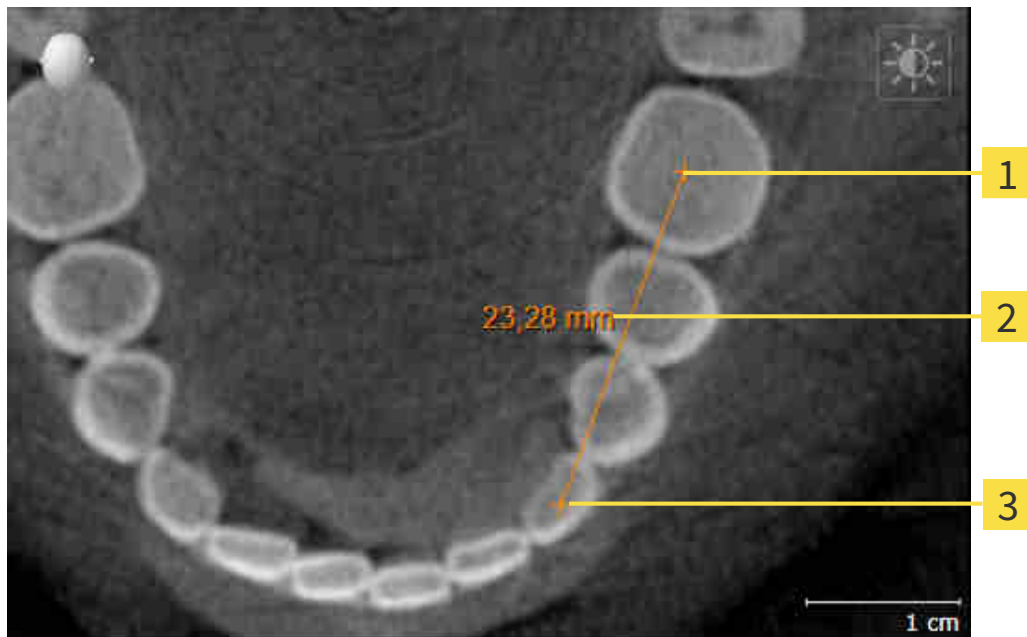
- Angle measurements

The tools to add measurements are available in the **Diagnose** step of the **Workflow toolbar**. You can add measurements in all 2D slice views. Every time you add a measurement, SICAT Endo will also add it to the **Measurements** group in the **Object browser**.

The following actions are available for measurements:

- *Adding distance measurements* [[▶ Page 193 - Standalone](#)]
- *Adding angle measurements* [[▶ Page 194 - Standalone](#)]
- *Moving measurements, individual measuring points and measured values* [[▶ Page 196 - Standalone](#)]
- *Activating, hiding and showing measurements - Information on this can be found in the section [Managing objects with the object browser](#) [[▶ Page 92 - Standalone](#)].*
- *Focusing on measurements, removing measurements and undoing and redoing measurement actions – Information on this can be found in the section [Managing objects with the object toolbar](#) [[▶ Page 94 - Standalone](#)].*

32.1 ADDING DISTANCE MEASUREMENTS



1 Starting point

2 Measured value

3 End point

To add a distance measurement, proceed as follows:

- The **Diagnose** workflow step is already expanded.

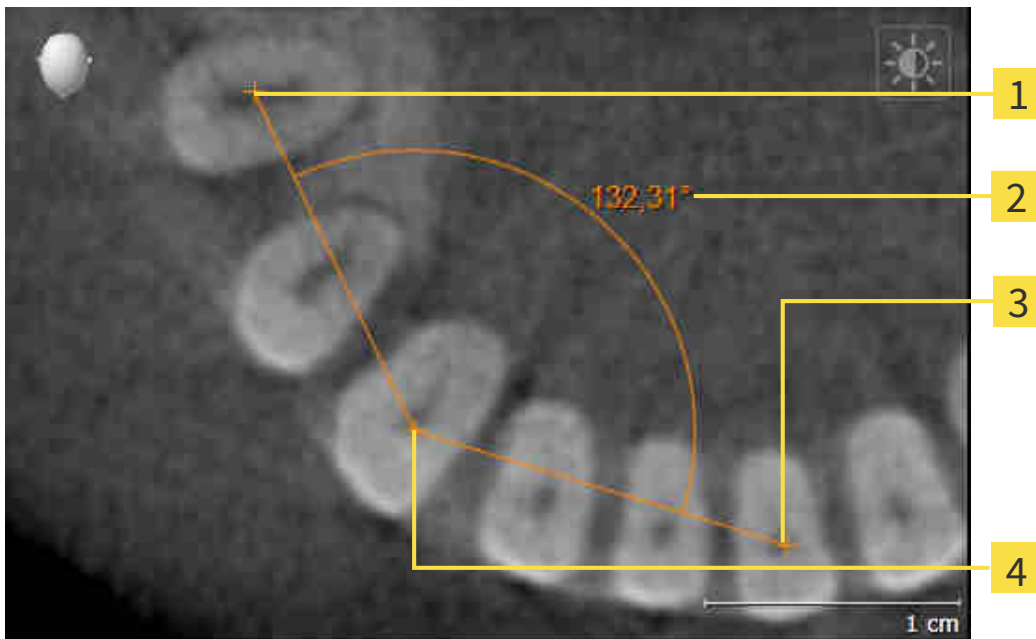


1. In the **Diagnose** workflow step, click the **Add distance measurement (D)** icon.
 - ▶ SICAT Endo adds a new distance measurement to the **Object browser**.
2. Move the mouse pointer over the desired 2D slice view.
 - ▶ The mouse pointer becomes a cross.
3. Click on the starting point of the distance measurement.
 - ▶ SICAT Endo illustrates the starting point using a small cross.
 - ▶ SICAT Endo shows a distance line between the starting point and the mouse pointer.
 - ▶ SICAT Endo shows the current distance between the starting point and the mouse pointer in the middle of the distance line and in the **Object browser**.
4. Move the mouse pointer to the end point of the distance measurement and left-click.
 - ▶ SICAT Endo illustrates the end point using a small cross.



You can cancel adding measurements at any time by pressing **ESC**.

32.2 ADDING ANGLE MEASUREMENTS



- 1** Starting point
- 2** Measured value
- 3** End point
- 4** Vertex

To add an angle measurement, proceed as follows:

- The **Diagnose** workflow step is already expanded.



1. In the **Diagnose** workflow step, click the **Add angle measurement (A)** icon.
 - ▶ SICAT Endo adds a new angle measurement to the **Object browser**.
2. Move the mouse pointer over the desired 2D slice view.
 - ▶ The mouse pointer becomes a cross.
3. Click on the starting point of the angle measurement.
 - ▶ SICAT Endo illustrates the starting point using a small cross.
 - ▶ SICAT Endo shows the first side of the angle measurement by means of a line from the starting point to the mouse pointer.
4. Move the mouse pointer to the vertex of the angle measurement and left-click.
 - ▶ SICAT Endo illustrates the vertex using a small cross.
 - ▶ SICAT Endo shows the second side of the angle measurement by a line from the vertex to the mouse pointer.
 - ▶ SICAT Endo shows the current angle between both sides of the angle measurement and in the **Object browser**.

5. Move the mouse pointer to the end point of the second side and left-click.

▶ SICAT Endo illustrates the end point using a small cross.



You can cancel adding measurements at any time by pressing **ESC**.

32.3 MOVING MEASUREMENTS, INDIVIDUAL MEASURING POINTS AND MEASURED VALUES

MOVING MEASUREMENTS

To move a measurement, proceed as follows:

- ☑ SICAT Endo shows the desired measurement already in a 2D slice view. For further information about this see *Managing objects with the object browser* [▶ Page 92 - Standalone] and *Managing objects with the object toolbar* [▶ Page 94 - Standalone].
- 1. Place the mouse pointer on one of the measurement lines.
 - ▶ The mouse pointer becomes a cross.
- 2. Click and hold the left mouse button.
- 3. Place the mouse pointer on the desired position of the measurement.
 - ▶ The measurement tracks the movement of the mouse pointer.
- 4. Release the left mouse button.
 - ▶ SICAT Endo maintains the current position of the measurement.

MOVING INDIVIDUAL MEASURING POINTS

To move an individual measuring point, proceed as follows:

- ☑ SICAT Endo shows the desired measurement already in a 2D slice view. For further information about this see *Managing objects with the object browser* [▶ Page 92 - Standalone] and *Managing objects with the object toolbar* [▶ Page 94 - Standalone].
- 1. Place the mouse pointer on the desired measuring point.
 - ▶ The mouse pointer becomes a cross.
- 2. Click and hold the left mouse button.
- 3. Place the mouse pointer on the desired position of the measuring point.
 - ▶ The measuring point tracks the movement of the mouse pointer.
 - ▶ The measured value changes as you move the mouse.
- 4. Release the left mouse button.
 - ▶ SICAT Endo maintains the current position of the measuring point.

MOVING MEASURED VALUES

To move a measured value, proceed as follows:

- ☑ SICAT Endo shows the desired measurement already in a 2D slice view. For further information about this see *Managing objects with the object browser* [▶ Page 92 - Standalone] and *Managing objects with the object toolbar* [▶ Page 94 - Standalone].
- 1. Place the mouse pointer on the desired measured value.
 - ▶ The mouse pointer becomes a cross.
- 2. Click and hold the left mouse button.
- 3. Place the mouse pointer on the desired position of the measured value.
 - ▶ The measured value tracks the movement of the mouse pointer.
 - ▶ SICAT Endo shows a dotted line between the measured value and the corresponding measurement.
- 4. Release the left mouse button.
 - ▶ SICAT Endo maintains the current position of the measured value.



After you have moved the value of a measurement, the SICAT Endo will define the value at an absolute position. To position the value again relative to the measurement, double click on the value.

33 PATIENT INFORMATION



CAUTION

Using the handout for diagnosis purposes may result in an incorrect diagnosis and treatment.

Only use the visualization functions for medical images of the software user interface to perform a diagnosis on medical images and to plan the treatment.

You can explain your diagnosis and highlight the effects of the treatment to the patient through illustrations customized for the patient. The patient information consists of two steps:

1. In your practice within SICAT Endo
2. By way of a patient information via the handout

You can compile the contents of the handouts during your explanations on the monitor.

The patient can better understand the results you have discussed and also better discuss this with others using the handout.

Creating the handout consists of the following steps:

- *Creating images and screenshots* [▶ Page 199 - Standalone]
- *Preparing handouts* [▶ Page 203 - Standalone]
- *Generating handouts* [▶ Page 205 - Standalone]

33.1 CREATING IMAGES AND SCREENSHOTS

General information on patient information can be found in the section *Patient information* [▶ Page 198 - Standalone].

General information on managing images and screenshots can be found in the section *SICAT Endo objects* [▶ Page 95 - Standalone].

There are two drawing tools:

- **Draw Arrow**
- **Draw Circle**

DRAWING ARROWS

To draw an arrow, proceed as follows:

- ☑ You have already aligned the volume according to your requirements. Information on this can be found in the section *Adjusting the volume orientation* [▶ Page 133 - Standalone].
- ☑ The **Consult** workflow step is already expanded. Information on this can be found in the section *Workflow toolbar*.

1. In the **Consult** workflow step, click the **Draw Arrow** icon.
2. Place the mouse pointer over the desired view.
 - ▶ The mouse pointer becomes a pen.
3. Click and hold the left mouse button on the desired arrow tip position.
4. Move the mouse.
 - ▶ SICAT Endo shows an arrow in the view.
 - ▶ The end of the arrow will now match the position of the mouse pointer.
5. Move the mouse pointer to the desired arrow end position and release the left button.
 - ▶ SICAT Endo shows the finished arrow in the view.
 - ▶ If not yet available, SICAT Endo will create the structures required for the **Image** object in the **Object browser**.
 - ▶ The image will be available in the **Report Generation** window.
6. Click on the **Draw Arrow** icon.
 - ▶ SICAT Endo closes the mode for drawing arrows.

DRAWING CIRCLES

To draw a circle, proceed as follows:

- ☑ You have already aligned the volume according to your requirements, for example according to the Frankfurt plane. Information on this can be found in the section *Adjusting the volume orientation* [▶ *Page 133 - Standalone*].
 - ☑ The **Consult** workflow step is already expanded. Information on this can be found in the section *Workflow toolbar*.
1. In the **Consult** workflow step, click the **Draw Circle** icon.
 2. Place the mouse pointer over the desired view.
 - ▶ The mouse pointer becomes a pen.
 3. Click and hold the left mouse button on the desired position for the center of the circle.
 4. Move the mouse.
 - ▶ SICAT Endo shows a circle in the view.
 - ▶ The radius of the circle will now match the distance between the center and the position of the mouse pointer.
 5. Move the mouse pointer to achieve the desired radius and release the left button.
 - ▶ SICAT Endo shows the finished circle in the view.
 - ▶ If not yet available, SICAT Endo will create the structures required for the **Image** object in the **Object browser**.
 - ▶ The image will be available in the **Report Generation** window.
 6. Click on the **Draw Circle** icon.
 - ▶ SICAT Endo closes the mode to draw circles.



As long as the **Draw Arrow** drawing tool or **Draw Circle** drawing tool is active, you can create several drawing objects one after another. You can cancel the use of a drawing tool by clicking on a point outside the view in question or by pressing the **ESC** key.

CONFIGURING DRAWING TOOLS

You can configure the **Draw Arrow** drawing tool or the **Draw Circle** drawing tool separately. Changes to the settings will only affect drawing objects created after that point.

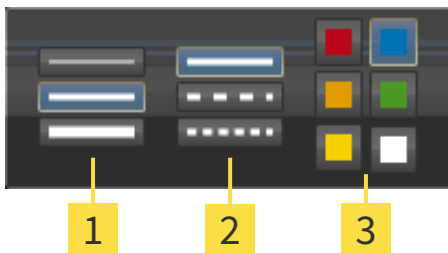
To configure a drawing tool, proceed as follows:

- ☑ The **Consult** workflow step is already expanded. Information on this can be found in the section Workflow toolbar.



1. In the **Consult** workflow step, click on the corresponding **Configure drawing tool** icon next to the **Draw Arrow** icon or **Draw Circle** icon.

- ▶ The transparent **Configure drawing tool** window opens:



1 Icons for the **Line thickness**

2 Icons for the **Line type**

3 Icons for the **Line color**

2. Click the desired icons to configure the **Line thickness**, **Line type** and **Line color** of the drawing tool.
3. Click on any point outside the transparent **Configure drawing tool** window.
 - ▶ SICAT Endo closes the transparent **Configure drawing tool** window.
 - ▶ SICAT Endo saves the settings in your user profile.
 - ▶ SICAT Endo uses the new settings for drawing objects created from then on.

ADDING SCREENSHOTS TO THE "GENERATE HANDOUT" WINDOW

You can create screenshots of any view in any workspace and any window as long as the respective view contains the **Copy screenshot to clipboard (Ctrl+C)** icon.

To add screenshots to the handout, proceed as follows:



1. To create a screenshot of a view, click on the **Copy screenshot to clipboard (Ctrl+C)** icon in the **View toolbar** of the desired view.
2. To create a screenshot of the entire workspace, click on the **Copy screenshot to clipboard (Ctrl+C)** icon in the **Workspace toolbar**.
 - ▶ SICAT Endo will create the structures that are required for the **Screenshotobject** in the **Object browser** and will activate the object.
 - ▶ The screenshot will be available in the **Report Generation** window.
 - ▶ SICAT Endo copies a screenshot to the clipboard.

Continue with the section *Preparing handouts* [▶ *Page 203 - Standalone*].

33.2 PREPARING HANDOUTS

General information on patient information can be found in the section *Patient information* [▶ Page 198 - Standalone].

The following actions are available for preparing handouts:

- Opening the **Report Generation** window
- Changing handout settings
- Preparing elements

OPENING THE “REPORT GENERATION” WINDOW

- ☑ You have created at least one **Image** object or one **Screenshot** object.
- ☑ The **Consult** workflow step is already expanded. Information on this can be found in the section *Workflow toolbar*.



- Click on the **Create Patient Information Report** icon.
- ▶ The **Report Generation** window opens:

CHANGING HANDOUT SETTINGS

- ☑ The **Report Generation** window is already open.
1. Click on the icon for the desired arrangement of the images in the **Image Gallery Settings** area.
 - ▶ SICAT Endo shows the images according to the selected settings.
 2. Click on the row with the button with the desired paper size in the **Global Settings** area.
 - ▶ SICAT Endo changes the paper size according to the selected setting.
 3. Activate or deactivate the **Anonymize patient information** check box.
 - ▶ SICAT Endo shows the actual patient information or anonymized patient information according to the selected setting.

PREPARING ELEMENTS FOR HANDOUTS

The **Report Generation** window shows screenshots from **Image** objects and screenshots from **Screenshot** objects. Information on this can be found in the section *Creating images and screenshots* [▶ Page 199 - Standalone].

To prepare elements for handouts, proceed as follows:

- ☑ The **Report Generation** window is already open.




1. If you want to hide an element on the handout, deactivate the corresponding check box for the element.
 - ▶ SICAT Endo hides the element on the handout.




2. If you want SICAT Endo to show an image alone on a page, click on the **Show image on single page** icon.



3. If you want to add a description to an element, click on the **Edit image description** icon of the element.
 - ▶ SICAT Endo displays an enlarged version of the element and a text input field:
4. Enter text into the text input field.
 - ▶ If the text you have entered is part of an existing text block, SICAT Endo will display the list of text blocks.
5. Click on the desired text block.
 - ▶ SICAT Endo adds the text block to the text input field.
6. If the desired text is not available as a text block, enter a new text.
7. Click on the **OK** button.
 - ▶ SICAT Endo saves the text as a description of the screenshot.
 - ▶ If the text you have entered is not available as a text block, SICAT Endo will save the description as a new text block in your user profile.
8. If you wish to change the order of elements on the handout, adjust them using drag & drop.




If you place the mouse pointer on a text block, SICAT Endo will display the **Remove this auto complete text from the list** icon. If you click on the **Remove this auto complete text from the list** icon, SICAT Endo will remove the text block from your user profile.



You can switch between the elements in the window showing the enlarged versions of the elements by clicking on the **Next item** button and **Previous item** button.

You can completely remove elements from the handout using the **Object browser**. Information on this can be found in the section *Managing objects with the object toolbar* [▶ Page 94 - Standalone].

Continue with the section *Generating handouts* [▶ Page 205 - Standalone].



SICAT Endo takes the practice logo and practice information text from the general settings. Information on this can be found in the section *Using practice information* [▶ Page 227 - Standalone].

33.3 GENERATING HANDOUTS

The following actions are available for producing handouts:

- Saving a handout as a PDF file
- Printing handouts

SAVING A HANDOUT AS A PDF FILE

The **Report Generation** window is already open.



1. Click on the **Export PDF** button in the **output** area.
 - ▶ A Windows Explorer window opens.
2. Switch to the directory in which you wish to save the handout.
3. Enter a name in the **File name** field and click on **Save**.
 - ▶ The Windows Explorer window closes.
 - ▶ SICAT Endo saves the handout as a PDF file.



SICAT Endo also saves the PDF file in the patient record.

PRINTING HANDOUTS



Handouts of a suitable quality require a printer that meets certain requirements. Information on this can be found in the section *System requirements* [▶ *Page 8 - Standalone*].



The **Report Generation** window is already open.

1. Click on the **Print** button.
 - ▶ The **Print** window opens.
2. Select the desired printer and adjust the print settings where necessary.
3. Click **Print**.
 - ▶ SICAT Endo sends the handout to the printer.

34 DATA EXPORT

You can export data.

You can export the studies of the patient record currently open.

SICAT Suite can export the following data:

- Patient records (DICOM)
- 3D studies
- Documents

Exported data may contain the following elements:

DATA TYPE	EXPORT FORMAT
3D scans	DICOM
3D studies	SICAT proprietary
Document	PDF

SICAT Suite exports 3D scans and studies either into Zip archives or DICOM directories. Where necessary, SICAT Suite can anonymize patient data for export.



To export documents, select the documents in the **3D Scans and Planning Projects** area and click on the **Export** button. Afterwards, a Windows Explorer window will open and you can select a target directory.

Perform the following actions in the order stated to export data:

- Open the **Export data** window. Information on this can be found in the section *Opening the “Forwarding data” window* [▶ Page 207 - Standalone].
- Export the desired data. Information on this can be found in the section *Exporting data* [▶ Page 208 - Standalone].

34.1 OPENING THE “FORWARDING DATA” WINDOW

To export data, you first have to open the **Export data** window.

To open the **Export data** window in the stand-alone version of SICAT Suite, perform one of the following actions:



- Click on the **Export data** icon in the **Navigation bar** if a patient record is currently active.
 - ▶ The **Export data** window opens.
- Click the **Export data** button in the **SICAT Suite Home** window.
 - ▶ The **Export data** window opens.
- Select a 3D X-ray scan, a study or a planning object in the **Active Patient Record** window and click the **Export data** button.
 - ▶ SICAT Suite activates the patient record and opens the **Export data** window for the selected data.
- Select a patient record in the **Patient record browser** window and click the button to forward the information of the selected patient.
 - ▶ SICAT Suite activates the patient record and opens the **Export data** window. All 3D X-ray scans and planning projects of the patient record are selected for export.
- Select a 3D X-ray scan or a planning object in the **Patient record browser** window and click the **Export data** button.
 - ▶ SICAT Suite activates the patient record and opens the **Export data** window.



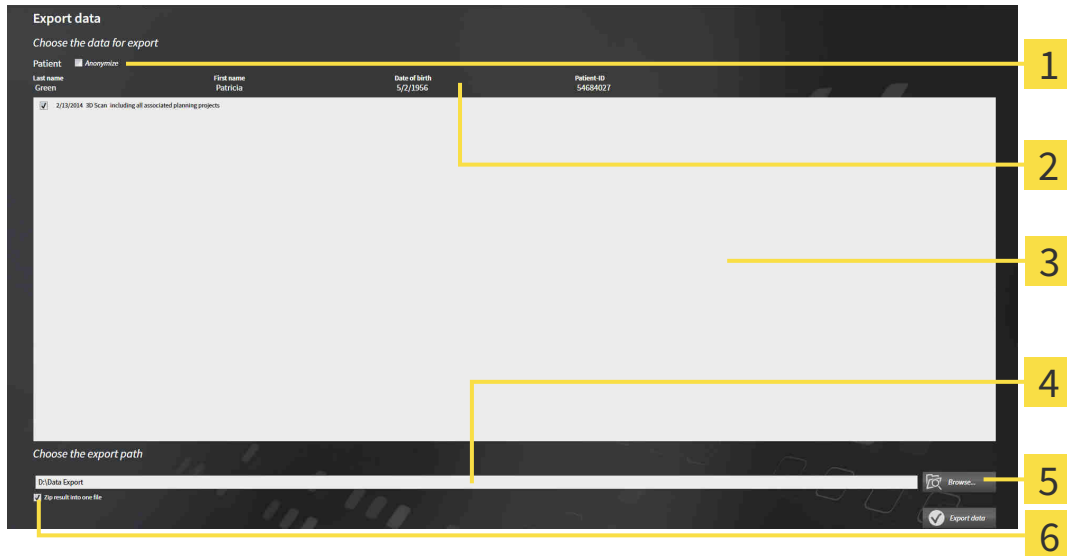
SICAT Suite exports only the selected 3D X-ray scans and planning projects for the active patient record.

Continue with the section *Exporting data* [▶ *Page 208 - Standalone*].

34.2 EXPORTING DATA

To export studies, proceed as follows:

- ☑ The **Export data** window is already open. Information on this can be found in the section *Opening the “Forwarding data” window* [▶ Page 207 - Standalone].



- | | |
|---|---|
| 1 Anonymize check box | 4 Choose the export path field |
| 2 Attributes of the patient record | 5 Export data button |
| 3 List of 3D studies | 6 Zip result into one file check box |

1. Activate the **Anonymize** check box in the **Export data** window if desired.
 - ▶ The attributes of the exported patient record will change to **Patient for Last name, Anonymous** for **First name** and **01.01** with the year of birth for **Date of birth**. The attributes of the patient record in the patient record depot remain unchanged.
2. Make sure that the desired 3D studies of the desired patient have been selected.
3. Click on the **Browse** button.
 - ▶ The **Folder search** window opens.
4. Select a target folder and click on **OK** in the **Folder search** window.
 - ▶ The **Folder search** window closes and SICAT Suite transfers the path of the desired folder to the **Choose the export path** field.
5. Activate or deactivate the **Zip result into one file** check box.
6. Click on the **Export data** button.
 - ▶ SICAT Suite exports the selected studies into a Zip file or into the selected folder.



Both Zip files and folders contain the 3D X-ray scans in DICOM format and planning data in a proprietary file format. You can view the 3D X-ray scans with any DICOM viewer and the planning data with the corresponding SICAT application.

35 ORDERING PROCESS

To order the desired product, proceed as follows:

- Place the desired planning data for surgical guides in the shopping cart in SICAT Endo. Information on this can be found in the section *Placing surgical guides in the shopping cart* [▶ Page 210 - Standalone].
- Check the shopping cart and start the order. Information on this can be found in the section *Checking the shopping cart and completing the order* [▶ Page 214 - Standalone].
- Complete the order either directly on the computer on which SICAT Suite is running or on another computer with an active Internet connection. For further information see section *Completing an order using an active Internet connection* [▶ Page 215 - Standalone] or section *Completing an order without an active Internet connection* [▶ Page 219 - Standalone].



You can add orders to the shopping cart, which belong to different patients, 3D X-ray scans and applications. The contents of the shopping cart will remain when you close SICAT Suite.

35.1 PLACING SURGICAL GUIDES IN THE SHOPPING CART



Incorrect data in an order may result in an incorrect order.

If you complete an order, ensure that you select and transfer the correct data for the order.



An incorrect order might lead to the wrong treatment.

1. Check your order before sending it.
2. Confirm the correct planning of your order.

General information on the ordering process can be found in the section *Ordering process* [▶ Page 209 - Standalone].

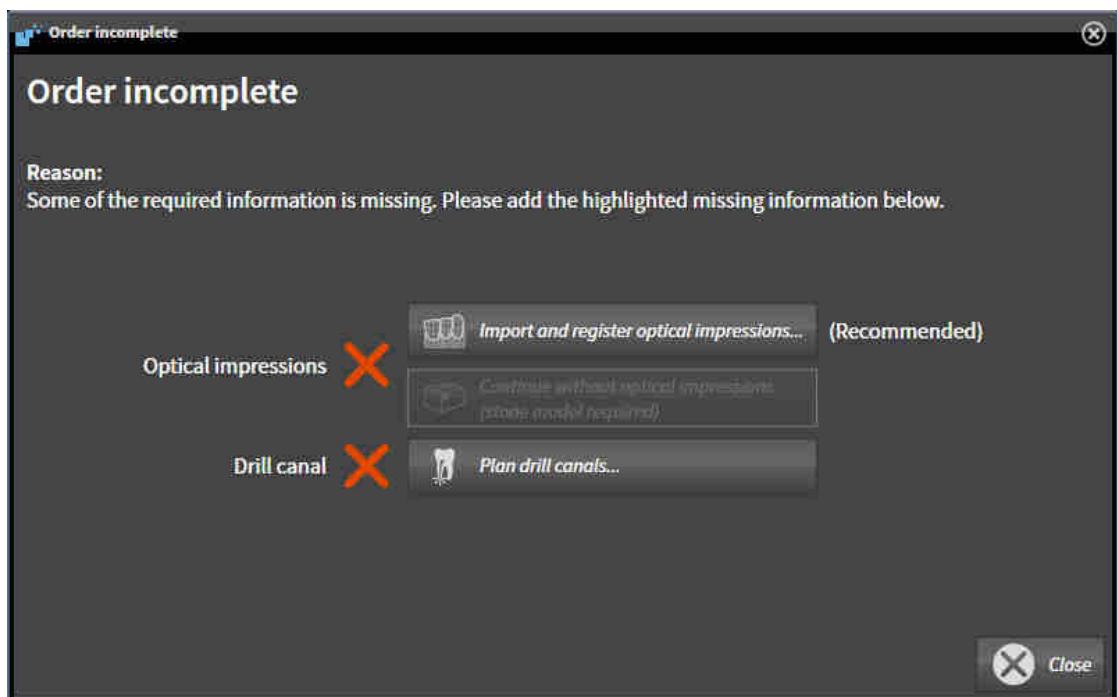
In SICAT Endo, you can place a **SICAT GUIDE (ENDO)** surgical guide in the shopping cart in the first part of the ordering process. Certain prerequisites must be met so that you can place a **SICAT GUIDE (ENDO)** in the shopping cart. SICAT Endo will notify you if you have not fulfilled all of the prerequisites.

IF THE PREREQUISITES ARE NOT FULFILLED

- ☑ The **Order** workflow step is already expanded. Information on this can be found in the section *Workflow toolbar* [▶ Page 88 - Standalone].



1. Click on the **Order SICAT GUIDE (ENDO)** icon.
 - ▶ The **Order incomplete** window opens:



2. If you have not yet registered any optical impression, click on the **Import and register optical impressions** button and import an optical impression corresponding to the 3D X-ray scan. Information on this can be found in the section *Optical impressions* [▶ Page 141 - Standalone].
3. If you have not yet planned a drill channel, click on the **Plan drill canals** button and set at least one drill channel. Information on this can be found in the section *Planning drill channels* [▶ Page 187 - Standalone].



You may have to adjust the orientation of the volume and the panoramic curve, before importing optical impressions. You can access the **Adjust Volume Orientation and Panoramic Region** window directly from the **Import and register optical impressions** window by clicking on the **Adjust panoramic region** button in the **Register** step. Information on this can be found in the section *Adjusting the panoramic region* [▶ Page 138 - Standalone].



If you wish to send plaster casts to SICAT instead of optical impressions, you can place surgical guides in the shopping cart without optical impressions by pressing the **Continue without optical impressions (stone model required)** button in the **Order incomplete** window. After this, the **Order Drill Guide** step will display the following information: **This order will be placed without optical impression data. The stone model must be sent to the SICAT Lab**

IF THE PREREQUISITES ARE FULFILLED

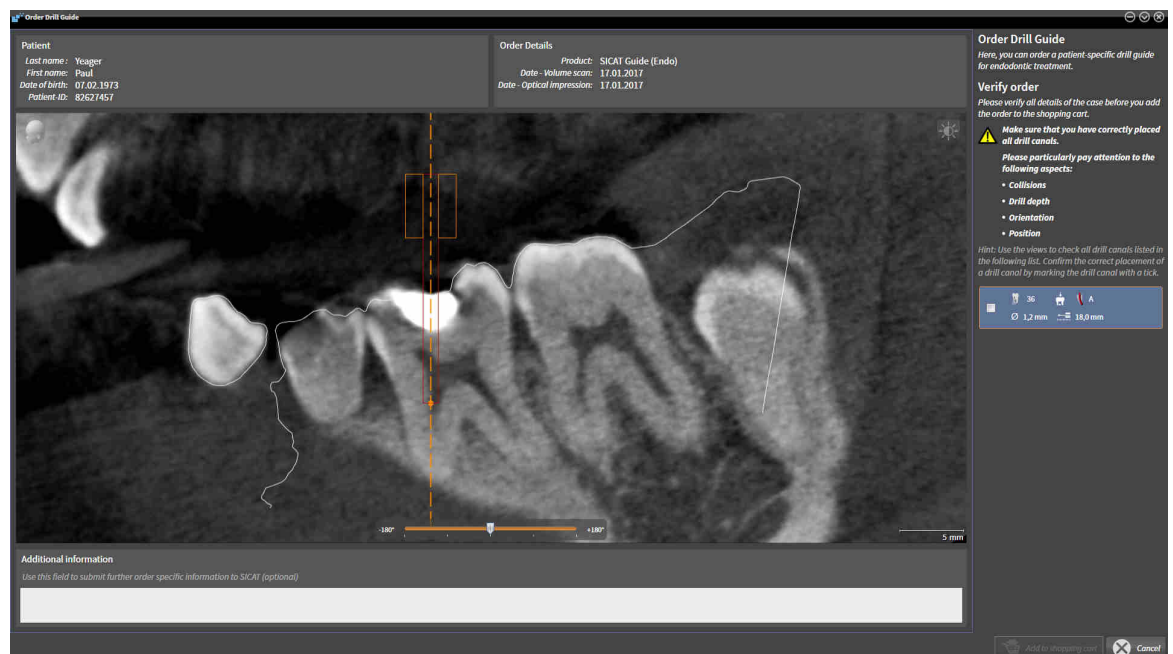
- You have imported at least one optical impression.
- You have already set EndoLines.
- You have already set drill channels.
- The **Order** workflow step is already expanded. Information on this can be found in the section *Workflow toolbar* [▶ Page 88 - Standalone].



- Click on the **Order SICAT GUIDE (ENDO)** icon.
- ▶ The **Order Drill Guide** window opens.

VALIDATE YOUR ORDER IN THE ORDER DRILL GUIDE WINDOW

- The **Order Drill Guide** window is already open.



1. Check in the **Patient** section and **Order Details** section whether the patient information and scan information are correct.
2. Verify that you have correctly placed all drill channels.

3. To validate verification of a drill channel, mark the corresponding Endo planning object in the **Verify order** area.
 - ▶ SICAT Endo marks the Endo planning object.
4. Place a check mark.
 - ▶ SICAT Endo shows a green check mark.
5. Repeat the steps for all drill channels that are included in your order.
6. If desired, enter additional information for SICAT in the **Additional information** field.



7. Click on the **Add to shopping cart** button.
 - ▶ SICAT Endo places the desired planning data for the **SICAT GUIDE (ENDO)** in the SICAT shopping cart.
 - ▶ The **Order Drill Guide** window closes.
 - ▶ SICAT Endo opens the SICAT Suite shopping cart.



You can only add an order to the shopping cart if you have verified all planned drill channels and validated verification for each drill channel.



If you find a fault when verifying the drill channels but you have already validated verification by setting at least one check mark, please click on the **Cancel** button and repeat the order verification steps.



As long as there is an order in the shopping cart, you can no longer overwrite optical impressions, EndoLines and the drill channels of a plan. This is only possible once more when you have completed or deleted the order. If you overwrite or delete optical impressions, EndoLines or drill channels of a plan, you cannot re-order the same surgical guide.



You can cancel the order by clicking on **Cancel**.

Continue with the section *Checking the shopping cart and completing the order* [▶ Page 214 - Standalone].

35.2 OPENING THE SHOPPING CART



The **Shopping cart** icon shows the number of elements in the shopping cart.

- ☑ The shopping cart contains at least one product.



- If the shopping cart is not yet open, click the **Shopping cart** button on the **Navigation bar**.
- ▶ The **Shopping cart** window opens.

Continue with the following action:

- *Checking the shopping cart and completing the order* [▶ Page 214 - Standalone]

35.3 CHECKING THE SHOPPING CART AND COMPLETING THE ORDER

☑ The **Shopping cart** window is already open. Information on this can be found in the section *Opening the shopping cart* [▶ *Page 213 - Standalone*].

1. Check in the **Shopping cart** window whether the desired products are included.

2. Click on the **Finalize Order** button.

▶ SICAT Suite sets the status of the orders to **Preparing** and establishes a connection to the SICAT server via the SICAT WebConnector.

▶ Changes to the order are only possible in the SICAT Portal with an active Internet connection.

Continue with one of the following actions:

▪ *Completing an order using an active Internet connection* [▶ *Page 215 - Standalone*]

▪ *Completing an order without an active Internet connection* [▶ *Page 219 - Standalone*]

35.4 COMPLETING AN ORDER USING AN ACTIVE INTERNET CONNECTION



In certain versions of Windows, you have to set a standard browser in order for the ordering process to work.

- ☑ The computer on which SICAT Suite is running has an active Internet connection.
 - ☑ The SICAT Portal was automatically opened in your browser.
1. Register or log in to the SICAT portal using your username and password if you have not already done so.
 - ▶ The ordering overview opens and shows the products contained in the order, along with the corresponding prices, grouped according to patients.
 2. Follow the instructions in the section *Performing ordering steps in the SICAT Portal* [▶ *Page 216 - Standalone*].
 - ▶ SICAT Suite prepares the order data for uploading.
 - ▶ As soon as the preparations are complete, SICAT WebConnector will transfer the order data via an encrypted connection to the SICAT server.
 - ▶ The status of the order in the shopping cart will change to **Uploading**.



SICAT Suite will display orders until they are fully uploaded. This also applies to orders that are uploaded on another computer if several computers are using the active patient record depot. You can pause, continue and cancel the uploading of orders in the shopping cart that have been started on the current computer.



If you log off from Windows while uploading the orders, SICAT WebConnector will pause the process. The software will continue uploading automatically after you log back on.

35.5 PERFORMING ORDERING STEPS IN THE SICAT PORTAL

After you have performed ordering steps in SICAT Suite, the SICAT Portal will open in your standard web browser. In the SICAT Portal, you can change your orders, select qualified providers for production and view the prices of the products.

To perform ordering steps in the SICAT Portal, proceed as follows:

1. Register or log in to the SICAT portal using your username and password if you have not already done so.
2. Check whether the desired products are included.
3. If necessary, remove specific patients along with all corresponding products from the ordering overview. When completing the order, SICAT Suite will apply changes that you have made in the SICAT Portal.
4. Check whether the billing address and delivery address are correct. Change these where necessary.
5. Select the desired shipping method.
6. Accept the general terms and conditions and send off the order.



You can remove patients and all corresponding appliances from the SICAT Portal by selecting a patient and clicking on the button to remove the patient. In the shopping cart, you will again have full access to the composition of the products.

35.6 THE SICAT WEBCONNECTOR



The SICAT WebConnector requires specific ports for communication with the SICAT server. Information on this can be found in the section *System requirements* [▶ *Page 8 - Standalone*].



In certain versions of Windows, you have to set a standard browser in order for the ordering process to work.

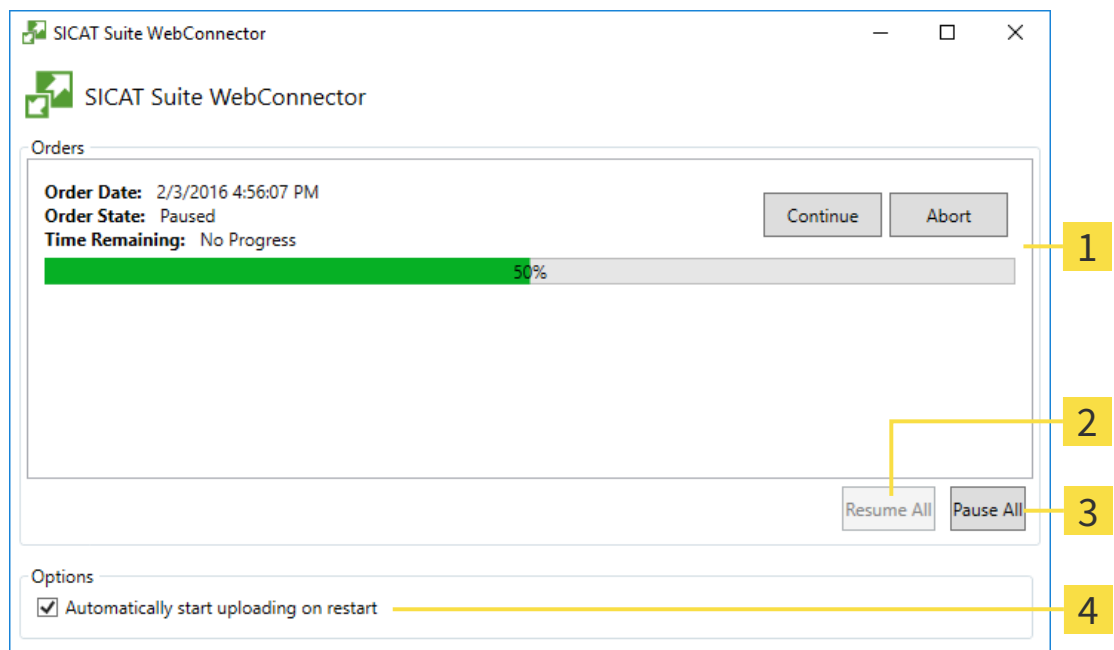
If the computer, on which SICAT Suite is running, has an active Internet connection, SICAT Suite will transfer your orders in the background in encrypted format via the SICAT WebConnector. SICAT Endo will show the status of the transfer directly in the shopping cart and can pause the SICAT WebConnector. The SICAT WebConnector will continue the transfer even if you have closed SICAT Suite. If the order cannot be uploaded as desired, you can open the user SICAT WebConnector interface.

OPENING THE "SICAT SUITE WEBCONNECTOR" WINDOW



- In the notifications area, click the **SICAT Suite WebConnector** icon in the task bar.

▶ The **SICAT Suite WebConnector** window opens:



1 Orders list

2 Continue all button

3 Stop all button

4 Continue uploading automatically after restart check box

The **Orders** list shows the queue of orders.

PAUSING AND CONTINUING THE UPLOAD

You can pause the upload process. This may be sensible, for example, if your Internet connection is overloaded. The settings only affect upload processes in the SICAT WebConnector. Upload processes via a web browser are not affected.

The **SICAT Suite WebConnector** window is already open.

1. Click on the **Stop all** button.

▶ The SICAT WebConnector pauses the uploading of all orders.

2. Click on the **Continue all** button.

▶ The SICAT WebConnector continues the uploading of all of the orders.

DEACTIVATING AUTOMATIC CONTINUATION AFTER A RESTART

You can prevent the SICAT WebConnector from automatically continuing uploads after restarting Windows.

The **SICAT Suite WebConnector** window is already open.

▪ Deactivate the **Continue uploading automatically after restart** check box.

▶ If you restart your computer, the SICAT WebConnector will no longer automatically continue uploading your orders.

35.7 COMPLETING AN ORDER WITHOUT AN ACTIVE INTERNET CONNECTION

If the computer on which SICAT Suite is running cannot connect to the SICAT server, SICAT Suite will open the **Unable to connect to the SICAT server** window. The window will indicate one of the following causes for the problem:

- **There is no Internet connection. SICAT WebConnector cannot connect to the SICAT server**
- **SICAT Portal is not available**
- **The "SICATWebConnector" service is not installed**
- **The "SICATWebConnector" service is not running**
- **An unknown error has occurred. SICAT WebConnector cannot connect to the SICAT server**

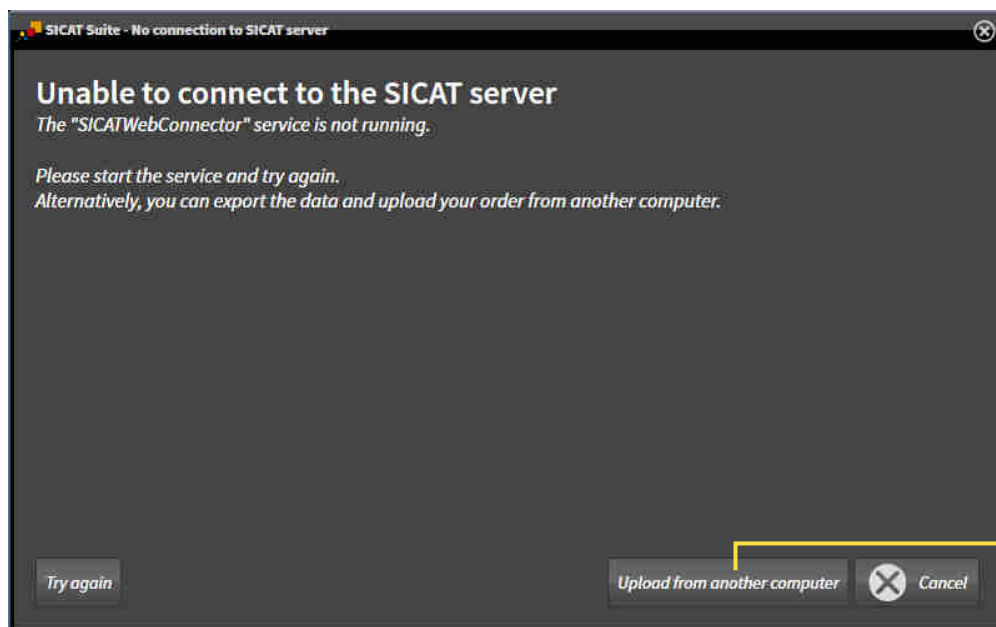
This chapter only shows screenshots for the scenario that no Internet connection is available.

Below the cause, possible steps for solving the problem will be shown.

As an alternative to eliminating the problem, you can upload an order using another computer with an active Internet connection via a web browser. For orders via web browser, SICAT Suite will export all products in the shopping cart at once and create one sub-folder per patient. Each sub-folder contains one XML file with the information regarding the order and a ZIP archive with the data SICAT needs for production. In the SICAT Portal, you can then successively upload the XML file and the ZIP archive. The transfer will be encrypted.

To complete the order without an active Internet connection, proceed as follows:

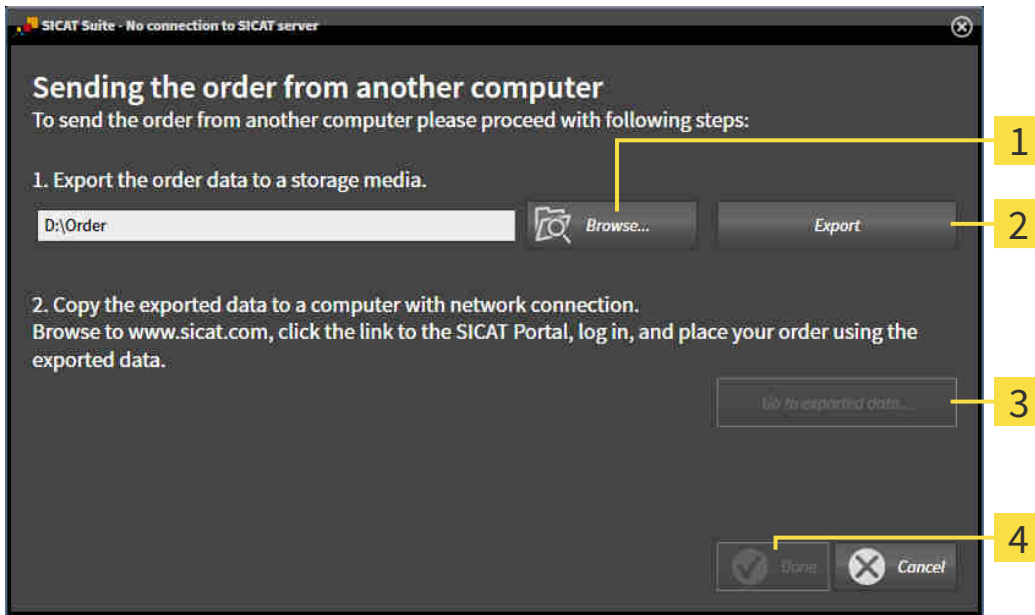
- The computer on which SICAT Suite is running does not have an active Internet connection.
- A window will appear with the following message: **Unable to connect to the SICAT server**



1 Upload from another computer button

1. Click on the **Upload from another computer** button.

► The **Sending the order from another computer** window opens:



1 Browse button

3 Go to exported data button

2 Export button

4 Done button

2. Click on the **Browse** button.

► A Windows Explorer window opens.

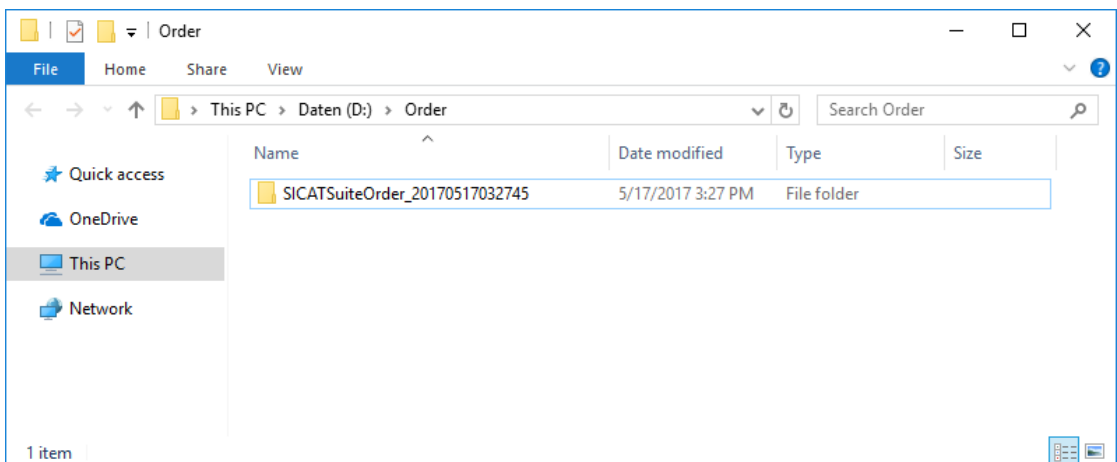
3. Select an existing directory or create a new directory and click on **OK**. Please note that the path to the directory must not be longer than 160 characters.

4. Click on the **Export** button.

► SICAT Suite will export all data required for ordering the shopping cart contents to the selected folder. SICAT Suite will create a sub-folder for each patient.

5. Click on the **Go to exported data** button.

► A Windows Explorer window opens and shows the directory with the exported data:



6. Copy the folder that contains the data of the required appliances to a computer with an active Internet connection, for example using a USB stick.
7. Click on **Done** in the **Sending the order from another computer** window.
 - ▶ SICAT Suite closes the **Sending the order from another computer** window.
 - ▶ SICAT Suite removes all products included in the order from the shopping cart.
8. Open a web browser on the computer with the active Internet connection and open the <http://www.sicat.de> web page.
9. Select the link for the SICAT portal.
 - ▶ The SICAT portal opens.
10. Register or log in to the SICAT portal using your username and password if you have not already done so.
11. Click on the link to upload the order.
12. Select the desired order on the computer with the active Internet connection. This is an XML file whose name starts with **SICATSuiteOrder**.
 - ▶ The ordering overview opens and shows the patients contained therein, the corresponding product and the price.
13. Follow the instructions in the section *Performing ordering steps in the SICAT Portal* [▶ *Page 216 - Standalone*].
14. Click on the link to upload the planning data for the product.
15. Select the corresponding product data on the computer with the active Internet connection. This is a Zip archive that is located in the same folder as the previously uploaded XML file and whose file name starts with **SICATSuiteExport**.
 - ▶ Once you have executed the order, your browser will transfer the archive with the product data to the SICAT server via an encrypted connection.



SICAT Suite does not automatically delete exported data. When an ordering process is completed, you should delete exported data manually for security reasons.

36 SETTINGS

You can change or view general settings in the **Settings** window. After you have clicked on the **Settings** icon, the option bar will show the following tabs on the left-hand side of the **Settings** window:

- **General** - Information on this can be found in the section *Using general settings* [▶ Page 223 - Standalone].
- **Your patient record depots** – only available in the stand-alone version of SICAT Suite. Information on this can be found in the section *Patient record depots* [▶ Page 52 - Standalone].
- **Licenses** - Information on this can be found in the section *Licenses* [▶ Page 43 - Standalone].
- **Practice** – Viewing or changing the logo and the information text of your practice, for example for use on print-outs. Information on this can be found in the section *Using practice information* [▶ Page 227 - Standalone].
- **Visualization** – Changing general visualization settings. Information on this can be found in the section *Changing visualization settings* [▶ Page 228 - Standalone].

If you change the settings, SICAT Endo will apply the changes immediately and saves the settings in your user profile.

36.1 USING GENERAL SETTINGS

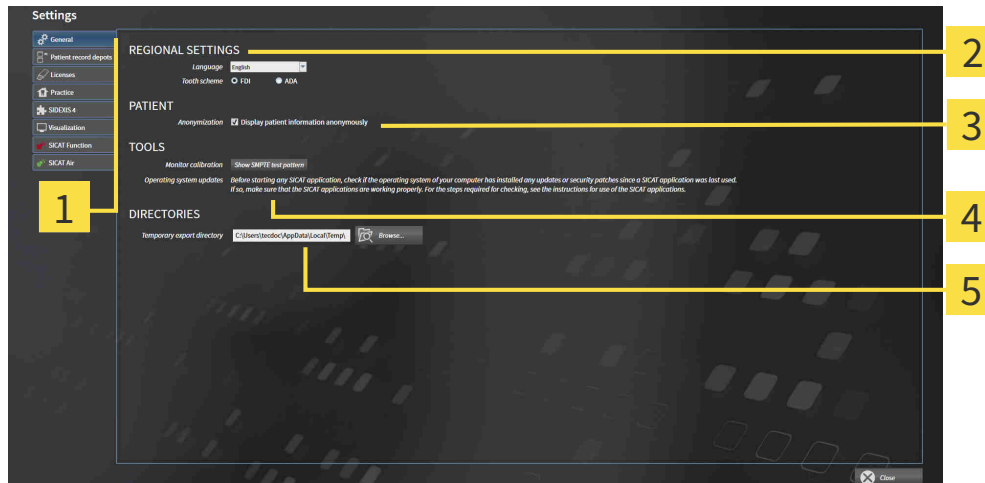
To open the general settings, proceed as follows:



1. Click on the **Settings** icon in the **Navigation bar**.
▶ The **Settings** window opens.



2. Click the **General** tab.
▶ The **General** window opens:



1 General tab

4 TOOLS area

2 REGIONAL SETTINGS area

5 DIRECTORIES area

3 PATIENT area

You can change the following settings:

- You can change the language of the user interface in the **Language** list in the **REGIONAL SETTINGS** area.
- You can change the current in the tooth scheme in the **REGIONAL SETTINGS** area under **Tooth scheme**.
- You can change the status of the **Display patient information anonymously** check box in the **PATIENT** area. If the check box is selected, SICAT Suite will display the attributes of the patient record in the **Navigation bar** as **Patient** for **Last name**, **Anonymous** for **First name** and **01.01.** with the year of birth for **Date of birth**. In the **SICAT Suite Home** window, SICAT will hide the **Recent patient records** list.
- In the **DIRECTORIES** area, you can enter a folder in the **Temporary export directory** field in which SICAT Suite is to save order information. You must have full access to this folder.

Besides viewing or changing general settings, you can open the SMPTE test image to calibrate your monitor:

- Click on the **Show SMPTE test pattern** button under **TOOLS, Monitor calibration** to calibrate your monitor. Information on this can be found in the section *Monitor calibration with the SMPTE test image* [▶ Page 225 - Standalone].



The supported tooth schemes are FDI and ADA.

36.2 MONITOR CALIBRATION WITH THE SMPTE TEST IMAGE



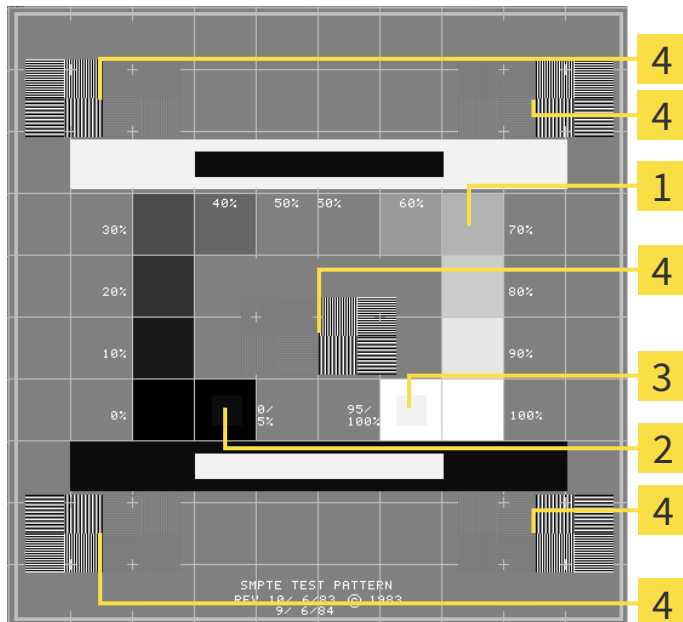
Insufficient environmental visualization conditions could result in incorrect diagnosis and treatment.

1. Only perform planning if the environmental conditions allow for sufficient visualization quality. For example, check for appropriate lighting.
2. Check whether the display quality is sufficient using the SMPTE test image.

The suitability of your monitor for displaying data in SICAT applications depends on four key properties:

- Brightness
- Contrast
- Local resolution (linearity)
- Distortion (aliasing)

The SMPTE test image is a reference image, which helps you check the following properties of your monitor:



- | | |
|--|--|
| <p>1 Gray scale squares</p> <p>2 0% square</p> | <p>3 100% square</p> <p>4 Squares containing a sample bar with a high contrast</p> |
|--|--|

CHECKING BRIGHTNESS AND CONTRAST

In the middle of an SMPTE test image there is a series of squares, showing the gray scale progression from black (0% brightness) to white (100% brightness):

- The 0% square contains a smaller square to show the difference in brightness between 0% and 5%.
- The 100% square contains a smaller square to show the difference in brightness between 95% and 100%.

To check or configure your monitor, proceed as follows:

- The SMPTE test image is already open.
 - Check whether you can see the visual difference between the inner square and outer square in the 0% square and 100% square. Change the settings of your monitor where necessary.



Several monitors can only show the difference in brightness in the 100% square, but not the 0% square. You can reduce ambient light to improve the ability to distinguish between the different brightness levels in the 0% square.

CHECKING THE LOCAL RESOLUTION AND DISTORTION

In the corners and the middle of the SMPTE test image, there are 6 squares showing a sample bar with a high contrast. In terms of local resolution and distortion, you should be able to differentiate between horizontal and vertical lines with different widths, which change between black and white:

- From wide to narrow (6 pixels, 4 pixels, 2 pixels)
- Horizontal and vertical

To check or configure your monitor, proceed as follows:

- Check in the 6 squares containing a sample bar with a high contrast whether you can see the differences between all of the lines. Change the settings of your monitor where necessary.

CLOSING THE SMPTE TEST IMAGE

To close the SMPTE test image, proceed as follows:

- Press the **ESC** key.
- ▶ The SMPTE test image closes.

36.3 USING PRACTICE INFORMATION

The applications in SICAT Suite use the information displayed here to customize outputs or PDF files.

To open the practice information, proceed as follows:



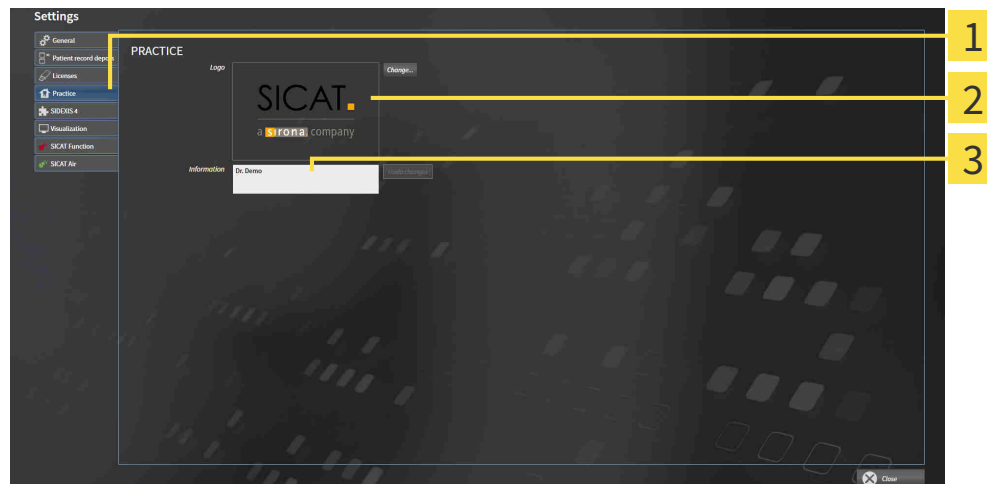
1. Click on the **Settings** icon in the **Navigation bar**.

▶ The **Settings** window opens.



2. Click the **Practice** tab.

▶ The **PRACTICE** window opens:



1 Practice tab


2 Logo area

3 Information area


You can change the following settings:

- You can set the logo of your practice in the **Logo** area. You can select the logo of your practice using the **Change** button. SICAT Suite copies the selected file to your SICAT Suite user directory.
- You can enter a text which identifies your practice, for example the name and address, in the **Information** area. You can increase the number of lines to a maximum of five by pressing the **Enter** key. You can undo changes to the information text by clicking the **Undo changes** button.

36.4 CHANGING VISUALIZATION SETTINGS

CAUTION  **Insufficient visualization quality could result in incorrect diagnosis and treatment.**

Before using a SICAT application, for example with the SMPTE test image, check whether the display quality is sufficient.

CAUTION  **Insufficient environmental visualization conditions could result in incorrect diagnosis and treatment.**

1. Only perform planning if the environmental conditions allow for sufficient visualization quality. For example, check for appropriate lighting.
2. Check whether the display quality is sufficient using the SMPTE test image.

Visualization settings determine the visualization of the volume, diagnosis objects and planning objects in all SICAT applications.

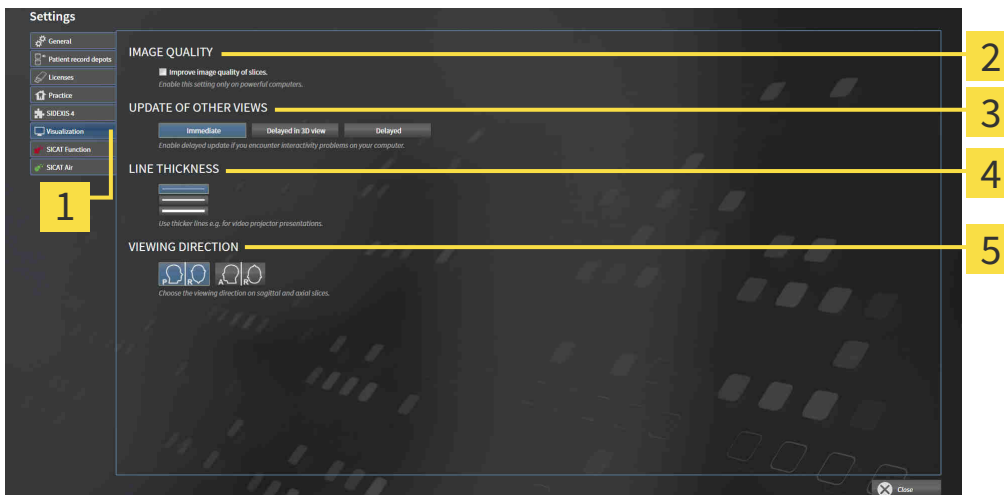
To open the **Visualization** window, proceed as follows:



1. Click on the **Settings** icon.
 - ▶ The **Settings** window opens.



2. Click the **Visualization** tab.
 - ▶ The **Visualization** window opens:



- | | |
|-------------------------------------|---------------------------------|
| 1 Visualization tab | 4 LINE THICKNESS area |
| 2 IMAGE QUALITY area | 5 VIEWING DIRECTION area |
| 3 UPDATE OF OTHER VIEWS area | |

The settings are:

- **Improve image quality of slices** – Improves the image quality of slices as the software averages adjacent slices. Activate this setting only on high-performance computers.
- **UPDATE OF OTHER VIEWS** – Delayed updates improve the interactivity of the active view but causes delays in the updating of other views. Activate delayed updates only if you detect interactivity problems on your computer.
- **LINE THICKNESS** – Changes the thickness of lines. Thicker lines are useful for presentations on projectors.
- **VIEWING DIRECTION** – Switches the viewing directions of the **Axial** slice view and **Sagittal** slice view.

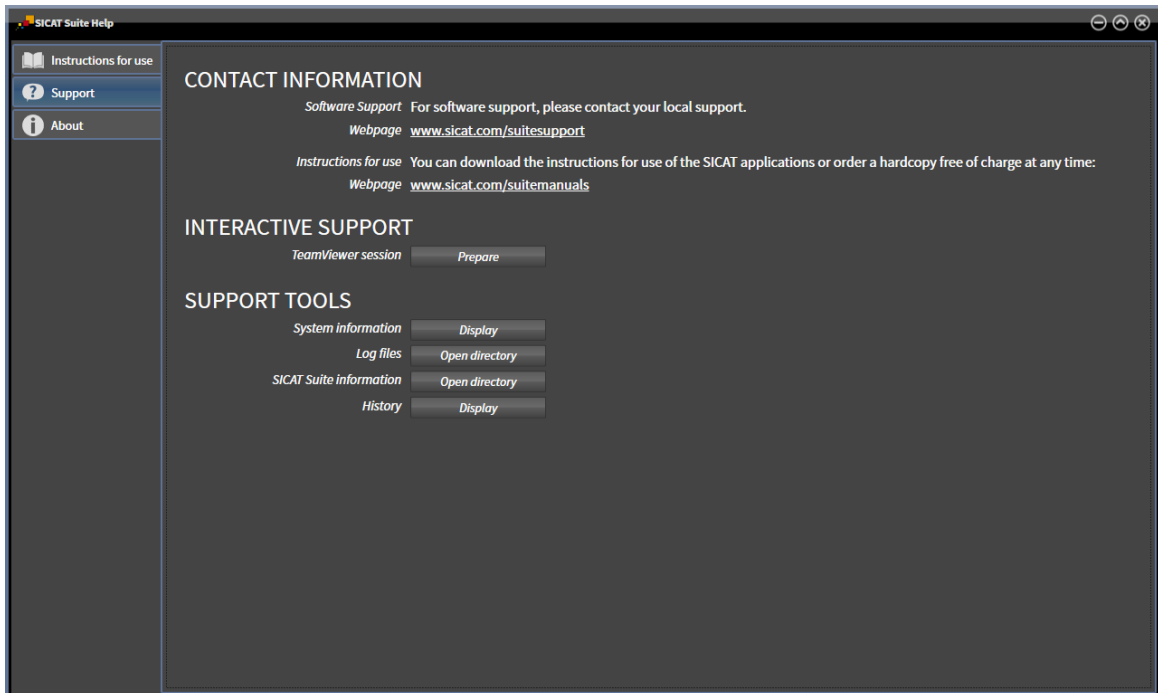
37 SUPPORT

SICAT offers you the following support options:

- PDF documents
- Contact information
- Information on the installed SICAT Suite and SICAT applications

Continue with the following action:

- *Opening the support options* [▶ *Page 231 - Standalone*]



37.1 OPENING THE SUPPORT OPTIONS



You can open the **Support** window by clicking the **Support** icon in the **Navigation bar** or pressing the F1 key.

The SICAT Suite **Support** window comprises the following tabs:



- **Instructions for use** - Information on this can be found in the section *Opening the instructions for use* [▶ Page 42 - Standalone].



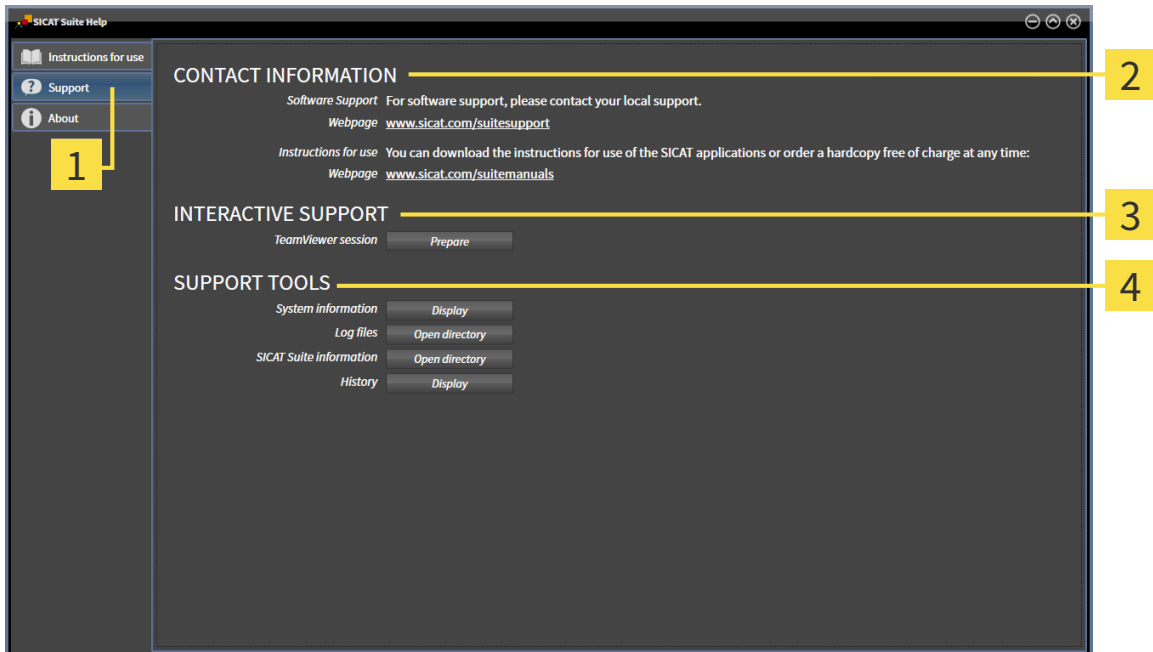
- **Support** - Information on this can be found in the section *Contact information and support tools* [▶ Page 232 - Standalone].



- **About** - Information on this can be found in the section *Info* [▶ Page 233 - Standalone].

37.2 CONTACT INFORMATION AND SUPPORT TOOLS

The **Support** window contains all of the relevant information and tools to enable SICAT Support to help you:



1 Support tab

3 INTERACTIVE SUPPORT area

2 CONTACT INFORMATION area

4 SUPPORT TOOLS area

The **CONTACT INFORMATION** area contains information about where you can find the instructions for use.

The following tools are available in the **INTERACTIVE SUPPORT** area:

- Click on the **Prepare** button in the **TeamViewer session** area and SICAT Endo will open a TeamViewer session.

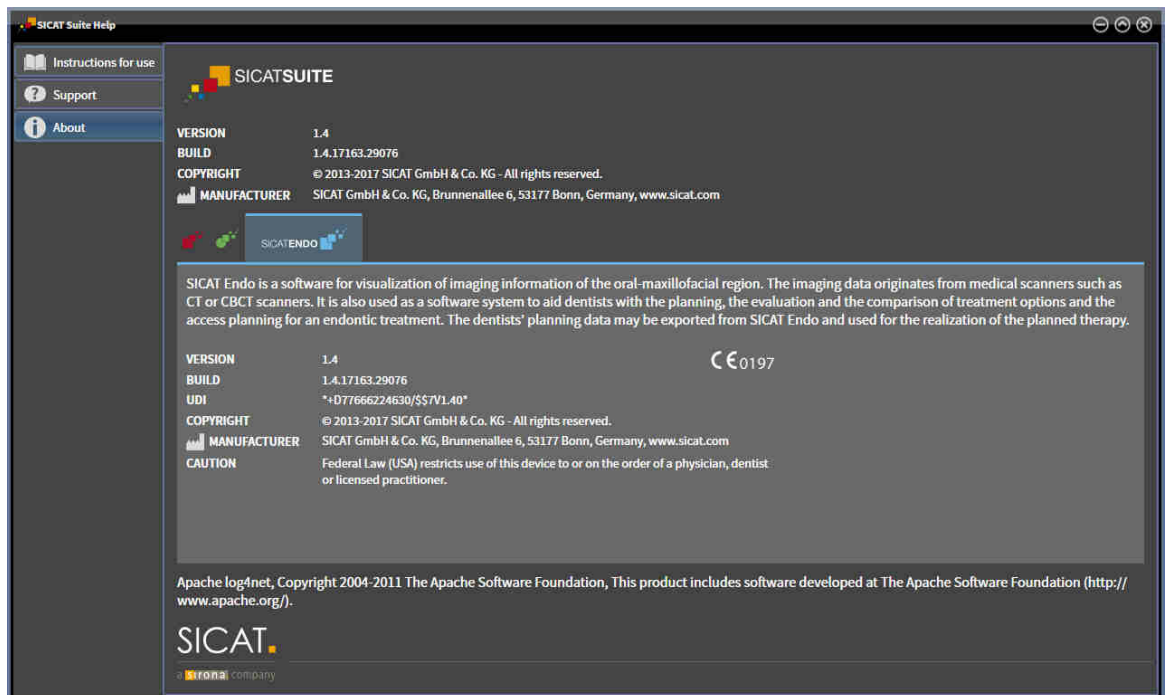
TeamViewer is software that allows mouse and keyboard commands to be remotely controlled and to transfer the contents of a computer's monitor via an active Internet connection. TeamViewer will only establish a connection if you explicitly consent. To do so, provide the SICAT support team with a TeamViewer ID and a password. This allows the SICAT support team to help you directly on-site.

The following tools are available in the **SUPPORT TOOLS** area:

- Click on the **Display** button in the **System information** area and SICAT Endo will open the system information of the operating system.
- Click on the **Open directory** button in the **Log files** area and SICAT Endo will open the log directory of SICAT Suite in a Windows Explorer window.
- Click on the **Open directory** button in the **SICAT Suite information** area and **SICAT Suite information** will export information on the current installation in a text file.
- Click on **Show messages** in the **SICAT Suite information** area and SICAT Endo will show the message window.

37.3 INFO

The **About** window displays information on SICAT Suite and all installed SICAT applications on several tabs:



38 OPENING READ-ONLY DATA

You can open data as read-only.

Which data you can view in the stand-alone version without being able to make and save changes depends on the status of your license and the availability of a patient record depot:

TYPE OF SICAT ENDO LICENSE	PATIENT RECORD DEPOT ACTIVE?	VIEWING WITHOUT CHANGES POSSIBLE?
None	Irrelevant	No
Viewer	Irrelevant	For SICAT data
Full version	No	Yes
Full version	Yes	No

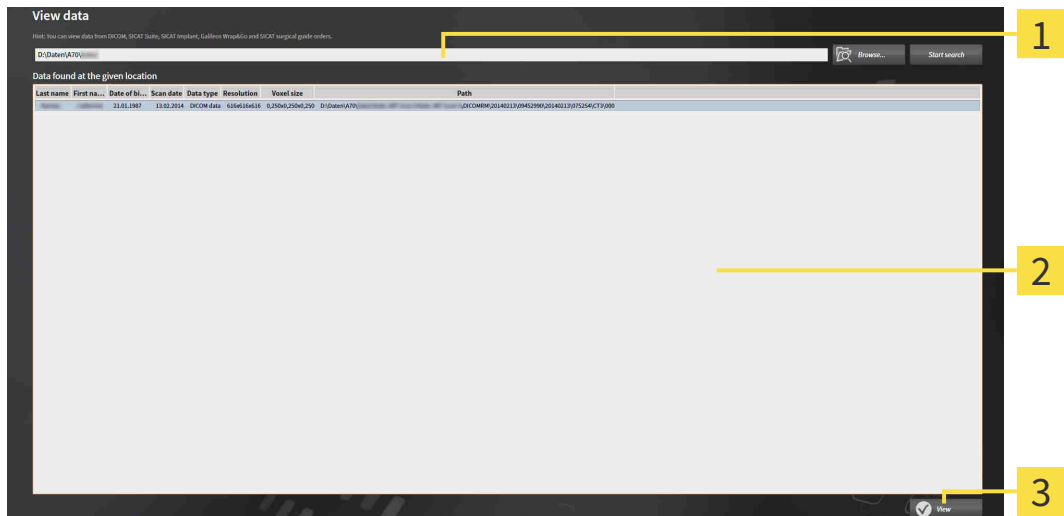
You can only view DICOM data if you have activated a full version license of SICAT Endo and no patient record depot is active.

To view data without being able to make and save changes, proceed as follows:



1. Click on the **View data** icon in the **Navigation bar**.

► The **View data** window opens:



- 1 **Where is the data located** field
- 2 **Data found at the given location** list
- 3 **View** button



2. Click on the **Browse** button.

► The **Select a file or directory** window opens.

3. Select the file or folder you wish to view in the **Select a file or directory** window and click **OK**.

► SICAT Suite closes the **Select a file or directory** window and transfers the path of the file you require or the selected folder into the **Where is the data located** field.

- ▶ If you have selected a compatible file, SICAT Suite will display the file contents in the **Data found at the given location** list.
 - ▶ If you have selected a folder, SICAT Suite will search the folder and all sub-folders. SICAT Suite will display compatible files that are contained in one of the searched folders in the **Data found at the given location** list.
4. Select the desired 3D X-ray scan or planning project from the **Data found at the given location** list and click on the **View data** button.
- ▶ SICAT Suite creates a temporary patient record, which contains 3D X-ray scans and planning projects, and activates it.
5. Continue with the section *Working with active patient records* [▶ Page 75 - Standalone].

You can also drag a compatible file or folder to the **Where is the data located** field using Drag & Drop to select data.



If you use the described procedure, the search will start automatically. You can cancel the search by clicking the **Stop search** button. If you enter a path to a file or a folder manually into the **Where is the data located** field, you have to click on the **Start search** button. This may also be useful to start a new search if the contents of the folder have changed or if you have accidentally canceled the search.



The following conditions must be met for you to be able to adjust volume orientation and panoramic curve.

- You have activated a license which allows you to open 3D X-ray scans or SICAT Endo studies. Information on this can be found in the section *Licenses* [▶ Page 43 - Standalone].
- No other corresponding study of SICAT Function or any other SICAT application contains objects relating to the 3D X-ray scan which would be affected by a change in the volume orientation or the panoramic curve.

If the conditions are not met, SICAT Endo deactivates the buttons and control elements that you can use for changing volume orientation or panoramic curves in the **Adjust Volume Orientation and Panoramic Region** window.

39 CLOSING SICAT ENDO

To close SICAT Endo, proceed as follows:



- Click on the **Close** button in the area of the active patient record.
- ▶ SICAT Suite saves the active patient record.
- ▶ SICAT Suite closes all SICAT applications.
- ▶ SICAT Suite closes the active patient record.

40 CLOSING SICAT SUITE



- Click on the **Close** button in the top right-hand corner of SICAT Suite.
- ▶ If the full version of SICAT Suite is running, it has write authorization and a study is opened, it will save all planning projects.
- ▶ SICAT Suite closes.

41 KEYBOARD SHORTCUTS



If you move the mouse pointer over certain functions, SICAT Endo displays the keyboard shortcut in brackets next to the designation of the function.

The following keyboard shortcuts are available in all SICAT applications:

KEYBOARD SHORTCUTS	DESCRIPTION
A	Add an angle measurement
D	Add a distance measurement
F	Focus on an active object
Ctrl + C	Copy the contents of the active view to the clipboard
Ctrl + Z	Undo the last object action
Ctrl + Y	Redo the most recently undone object action
Del	Remove the active object or active object group
ESC	Cancel the current action (such as adding a measurement)
F1	Open the Support window, if a SICAT application is active, open the instructions for use

42 UNINSTALLING SICAT SUITE



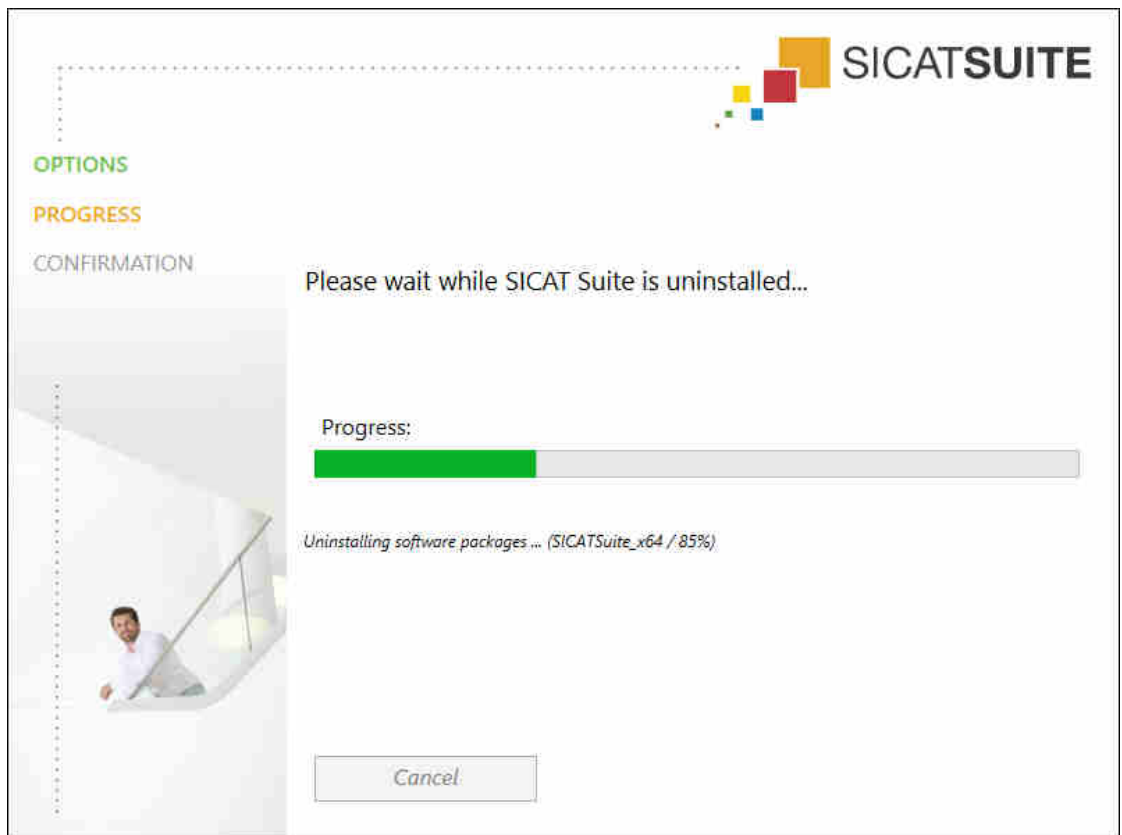
The SICAT Suite uninstallation program maintains active licenses on your computer. Therefore, SICAT Suite warns you that it will not automatically delete licenses before the uninstallation. If you no longer wish to use SICAT Suite on this computer, deactivate the licenses before uninstallation. Information on this can be found in the section *Returning licenses to the license pool* [▶ Page 50 - Standalone].



Before uninstalling SICAT Suite, make sure that the SICAT WebConnector has uploaded all orders in full as the uninstallation program will automatically close the SICAT WebConnector. Information on this can be found in the section *The SICAT WebConnector* [▶ Page 217 - Standalone].

To uninstall SICAT Suite, proceed as follows:

- The SICAT WebConnector has successfully uploaded all orders.
- 1. Click on **Programs and features** in the Windows **Control panel**.
 - ▶ The **Programs and features** window opens.
- 2. Select the **SICAT Suite** entry, which contains the version of SICAT Suite, from the list.
- 3. Click on the **Uninstall** button.
 - ▶ The uninstallation program will start and the **PROGRESS** window opens:



► After the uninstallation is complete, the **CONFIRMATION** window opens.



4. Click on the **Finish** button.

► The SICAT Suite uninstallation program will close.



To open the SICAT Suite uninstallation program, you can also start the SICAT Suite installation program on a computer, on which SICAT Suite is already installed.



The SICAT Suite uninstallation program will call the uninstallation programs of some software prerequisites, which were installed together with SICAT Suite. If other installed applications still need the software prerequisites, they will be retained.

43 SAFETY INSTRUCTIONS

3D X-RAY SCANS

**CAUTION**

Unsuitable X-ray devices may result in an incorrect diagnosis and treatment.

Only use 3D X-ray scans from X-ray devices that are cleared as medical equipment.

**CAUTION**

Unsuitable 3D X-ray scans may result in an incorrect diagnosis and treatment.

Always verify the quality, integrity, and correct orientation of the displayed 3D data.

**CAUTION**

X-ray devices without DICOM conformity could result in incorrect diagnosis and treatment.

Only use 3D volume data from X-ray devices with DICOM conformity declared.

**CAUTION**

The use of other data than 3D X-ray scans as source of information for planning a measurement-based therapy may result in an incorrect diagnosis and treatment.

Use 3D X-ray scans for diagnosis and planning when using the measurement feature.

INTRAORAL SCANS

**CAUTION**

3D X-ray scans that are unsuitable for registering intraoral scans may result in an incorrect diagnosis and treatment.

1. Only use 3D X-ray scans containing little or no artefacts.
2. Only use 3D X-ray scans with sufficiently high resolution.

**CAUTION**

Intraoral scans that do not match the patient and the 3D X-ray scan or whose record time is too far away from the record time of the 3D X-ray scan may result in an incorrect diagnosis and treatment.

Make sure that the patient and 3D X-ray scan of an intraoral scan match and that their record time is not too far away from the record time of the 3D X-ray scan.

**CAUTION**

Incorrect orientation of the intraoral records relative to the 3D X-ray scan may result in an incorrect diagnosis and treatment.

1. Check that the registered intraoral scans are correctly aligned to the 3D X-ray scans.
2. If required, rotate the intraoral scans to orient them correctly.



Intraoral scans that have not been registered correctly with the 3D X-ray scans may result in an incorrect diagnosis and treatment.

Check that the intraoral records have been correctly registered with the 3D X-ray scans.



Devices for intraoral scans that are not certified as a medical device may result in incorrect diagnosis and treatment.

Make sure to use only devices that are certified as a medical device for intraoral scans.



Insufficient integrity or quality of intraoral scans may result in an incorrect diagnosis and treatment.

Check the integrity and quality of the imported intraoral scans.



Insufficient quality of the intraoral records or 3D X-ray scans may cause the mechanism for registering the intraoral records to fail.

Only use intraoral scans and 3D X-ray scans that allow for a correct registration.



Insufficient quality and precision of intraoral scans may result in an incorrect diagnosis and treatment.

Only use intraoral scans of sufficient quality and precision for the intended diagnosis and treatment.



Incorrect positions or orientations of the intraoral scans may result in an incorrect diagnosis and treatment.

After registration, check for correct position and orientation of the intraoral scans on the teeth in the 3D X-ray scan.

DISPLAY CONDITIONS



Insufficient visualization quality could result in incorrect diagnosis and treatment.

Before using a SICAT application, for example with the SMPTE test image, check whether the display quality is sufficient.



Insufficient environmental visualization conditions could result in incorrect diagnosis and treatment.

1. Only perform planning if the environmental conditions allow for sufficient visualization quality. For example, check for appropriate lighting.
2. Check whether the display quality is sufficient using the SMPTE test image.

DATA MANAGEMENT



Incorrect assignment of patient name or 3D scan could result in confusion of patient scans.

Verify that the 3D scan that is to be imported or already loaded in a SICAT Suite application is associated with the correct name of the patient and the correct scan information.



Deleting original data may result in data being lost.

Do not delete the original data following the import.



The absence of a backup mechanism for the patient record depots could result in patient data being irreversibly lost.

Make sure that a regular data backup is created of all patient record depots.



When deleting patient records, all 3D scans, planning projects and PDF files contained in these patient records will be deleted as well.

Only delete patient records if you are sure you will never need any contained 3D scans, planning projects and PDF files again.



Deleted patient records, studies, 3D scans, and planning projects cannot be recovered.

Only delete patient records, studies, 3D scans, and planning projects if you are sure you will never need those data again.



When deleting 3D scans, all dependent planning projects will be deleted as well.

Only delete 3D scans if you are sure you will never need any dependent planning project again.

QUALIFICATIONS OF OPERATING PERSONNEL



The use of this software by unqualified personnel may result in an incorrect diagnosis and treatment.

The use of the software is restricted to qualified professionals.

SAFETY



Security leaks in your information system environment could result in unauthorized access to your patient data and put the privacy or integrity of your patient data at risk.

1. Make sure policies are established within your organization to prevent security threats to your information system environment.
2. Install and run an up-to-date virus scanner.
3. Make sure the pattern files of the virus scanner are updated on a regular basis.



Unauthorized access to your workstation could result in risks to the privacy and integrity of your patient data.

Limit the access to your workstation to authorized individuals only.



Problems in terms of cyber-security could result in unauthorized access to your patient data and risks in relation to the security or integrity of your patient data.

If you suspect problems in relation to the cyber-security of your SICAT application, contact support immediately.

SOFTWARE INSTALLATION



Changes to the software may mean that the software will not start or will not function as intended.

1. Do not make any changes to the software installation.
2. Do not delete or change any of the components in the software installation directory.



Damaged installation media may result in the failure of the installation.

Handle the installation media with care and store them appropriately.



If your system does not fulfill the system requirements, this may mean that the software will not start or will not function as intended.

Check whether your system meets the minimum software and hardware requirements before installing the software.



Insufficient authorizations may mean that the software installation or software update fails.

Make sure you have sufficient privileges on your system if you install or update the software.



Changes to the operating system may mean that the SICAT applications will not start or will not function as intended.

1. Prior to starting the SICAT applications, always check whether the operating system of your computer has installed updates or security updates since you last used the SICAT applications.
2. If the operating system of your computer has installed updates or security updates, perform the steps required for testing the SICAT applications as described in the instructions for use.
3. If the behavior of the SICAT applications differs from the behavior described in the instructions for use, stop using of the software and contact SICAT support immediately.

ORDERS



Incorrect data in an order may result in an incorrect order.

If you complete an order, ensure that you select and transfer the correct data for the order.



An incorrect order might lead to the wrong treatment.

1. Check your order before sending it.
2. Confirm the correct planning of your order.

OPTICAL IMPRESSIONS



The use of other data as 3D X-ray scans as a lone source of information may result in an incorrect diagnosis and treatment.

1. Use 3D X-ray scans as a preferred source of information for diagnosis and planning.
2. Use other data, such as optical impressions, only as an auxiliary source of information.



Inappropriate optical impression devices could result in incorrect diagnosis and treatment.

Only use optical impression data from devices cleared as medical devices.



Optical impression data that does not match patient and date of 3D X-ray data could result in incorrect diagnosis and treatment.

Make sure the patient and date of the imported optical impression data match the patient and date of the visualized 3D X-ray data.



Insufficient integrity or quality of optical impressions may result in an incorrect diagnosis and treatment.

Check the integrity and quality of the optical impressions imported.



Insufficient integrity and precision of optical impressions may result in an incorrect diagnosis and treatment.

Only use optical impressions of a sufficient quality and precision for the intended diagnosis and treatment.



Excessive artifacts, insufficient resolution or the lack of points for registration may mean that the registration process for optical impressions fails. Examples of excessive artifacts in 3D X-ray scans include movement artifacts and metal artifacts.

Only use optical impression data and 3D X-ray data that allow for an adequate registration.



The selection of markings in the registration process for optical impressions that do not correspond to one another may result in an incorrect diagnosis and treatment.

When you register optical impressions, carefully select corresponding markings in the 3D X-ray scans and optical impressions.



The incorrect registration of optical impressions for 3D X-ray scans may result in an incorrect diagnosis and treatment.

Check that the registered optical impressions are correctly aligned to the 3D X-ray scans.

NETWORK



Saving SICAT application data in an unreliable or incompatible network file system could result in data loss

Together with your network administrator, make that SICAT application data can be safely stored in the desired network file system.



The shared use of SICAT Suite and the SICAT applications contained therein with other devices within a computer network or a storage area network could result in previously unknown risks for patients, users and other persons.

Ensure that rules are compiled within your organization to determine, analyze and assess risks in relation to your network.



Changes to your network environment may result in new risks for your network environment. Examples include changes to your network configuration, the connection of additional devices or components to your network, the disconnection of devices or components from your network and the updating or upgrading of network devices or components.

Perform a network risk analysis after any changes to the network.

TOOTH SCHEME



CAUTION

Incorrect tooth number allocation could result in incorrect diagnosis and treatment.

Check that the selected tooth numbers and the actual anatomical tooth numbers match.

DRILL DEPTH



CAUTION

An incorrect drilling depth might lead to the wrong treatment.

Make sure that the planned drilling depth and the selected drill match.

PLANNING OBJECTS



CAUTION

Using the 3D view to display measurements and planning objects may result in incorrect diagnosis and treatment.

Use the 3D view for guidance only and regard it as an additional source of information.

44 ACCURACY

The following table shows the accuracy values in all SICAT applications:

Measurement accuracy for distance measurements	< 100 μm
Measurement accuracy for angle measurements	< 1 degree
Representation accuracy	< 20 μm

GLOSSARY

3D X-ray scan

A 3D X-ray scan is a volumetric X-ray image.

ADA

American Dental Association

Application

SICAT applications are programs belonging to SICAT Suite.

CPR

Curved Planar Reformation, two-dimensional image reconstruction from 3D X-ray scans that is used for the simplified representation of complex structures.

Crosshairs

Crosshairs are lines of intersection with other slice views.

Drill channel

Path for drilling planned on the basis of the EndoLine that can be visualized and edited in the software application.

EndoLine

An EndoLine is a multi-functional measuring line, which serves to mark the root canal to be treated and to locate the root apex.

FDI

Fédération Dentaire Internationale, World Dental Federation

Frames

In the 3D view, frames show the positions of the 2D slice views.

Intraoral scan

An intraoral scan is a 2D X-ray scan of individual teeth that is recorded using a dental film behind the tooth and an X-ray source outside of the mouth and features a high level of detail.

Message window

The message window shows messages on completed procedures in the bottom right corner of the screen.

Navigation bar

The navigation bar in the upper part of SICAT Suite contains the most important icons in SICAT Suite. If a patient record is active, the navigation bar allows switching between patient records and different applications.

Optical impressions

An optical impression is the result of a 3D surface scan of teeth, impression material or plaster casts.

Patient record

A patient record contains all 3D scans and Planning projects, which belong to a certain patient. SICAT Suite saves patient records in patient record depots.

Patient record depots

A patient record depot contains patient records. SICAT Suite saves patient record depots in folders on a local file system or network file system.

Planning project

A planning project is comprised of planning data from a SICAT application based on a 3D X-ray scan.

Registration

Spatial leveling

SICAT Portal

SICAT Portal is a website, which you can use to order appliances from SICAT, amongst other things.

SIXD

File format to exchange optical impressions.

SMPTE

Society of Motion Picture and Television Engineers

Spotlight

Circular highlighting of an image area for checking the overlay of intraoral scan and 3D projection during the registration of intraoral scans.

SSI

File format to exchange optical impressions.

STL

Surface Tessellation Language, standard file format to exchange mesh data, which may contain optical impressions, for example.

Study

A study consists of a 3D X-ray scan and the corresponding planning project.

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EXPLANATIONS OF LABELING



- Caution! Observe the accompanying documents.



- Observe the instructions for use.



- Manufacturer



- Batch code

This is an example of a batch code:

1020130921

1 2 3 4

- 1** Product version in AB format (10 means V1.0)
- 2** Year of manufacture
- 3** Month of manufacture
- 4** Day of manufacture

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