SICATENDO

SICAT ENDO *VERSION 2.0.40*

Instructions for use | English | SIDEXIS 4

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1 INTENDED PURPOSE

INTENDED PURPOSE

SICAT Endo is a software for visualization of imaging information of the oral-maxillofacial region. The imaging data originates from medical scanners such as CT or CBCT scanners. It 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

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

CONTRAINDICATIONS

There are no contraindications.

However, SICAT Endo is used within a treatment workflow, that requires the use of different medical devices. For those devices, the contraindications according to the corresponding manufacturer's Instructions for Use must be observed.

PATIENT TARGET GROUP

For the patient target group there are no exclusion criteria.

However, SICAT Endo is used within a treatment workflow, that requires the use of different medical devices. For those devices, the indications including patient target group according to the corresponding manufacturer's Instructions for Use must be observed.

INTENDED USERS

The intended users are qualified professionals. For SICAT Endo, these are dentists.

2 CLINICAL BENEFIT

The use of SICAT Endo allows to aid the diagnosis/therapy in the oral-maxillofacial region based on fused CT data and optical impression data. Diagnosis-/therapy-related parameters like drill canals can be planned and endodontic entry points, with respect to occlusal surfaces in situ, can be visualized and exported for treatment.

Using SICAT Endo in accordance with the intended purpose allows providing a treatment for the patient that is planned based on 3D X-ray scans with state-of-the-art accuracy.

3 VERSION HISTORY

VERSION 2.0.40

- SICAT Suite can be used with local or server-based patient data management (stand-alone version).

VERSION 2.0.20

- Start via parameters with automatic data import (stand-alone version)

VERSION 2.0

- The Hub is available as an additional option for importing and registering optical impressions.
- STL files that have been imported into Sidexis 4 can be used to import and register optical impressions.
- Optical impressions can be displayed in color if they have been downloaded from the Hub or imported from an SIXD file.
- The volume orientation correction and panoramic curve adjustment can be configured separately for each application.
- In the Panorama view, the inspection window can be maximized.
- The transversal and longitudinal view in the Panorama workspace can be tilted.
- SICAT applications can be used either with workstation licenses or with network licenses.
- SICAT Suite can be used with Sidexis 4 or as a stand-alone version.

VERSION 1.4

- Initial release

4 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 (x64) or higher
RAM	8 GB
Graphics card	Dedicated* DirectX 11 or higher 2 GB graphics memory Current driver supporting at least WDDM 1.0
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	40 GB
Storage media	Access to external storage media containing installation files.
Input devices	Keyboard, mouse
Network	Ethernet, 1 Gbit/s
Printer for patient information	At least 300 dpi Paper format DIN A4 or US letter
Operating system	Windows 10 (64 Bit, Desktop) This operating system will be supported to the extent to and for the duration of which it is supported by Microsoft.
Web browser	Microsoft Edge Mozilla Firefox Google Chrome JavaScript must be activated. A standard browser must be set.
PDF viewer	Adobe Reader DC or higher, for example
Hub	Version 2.X from version 2.1

SIDEXIS 4	Version 4.3.1 or higher (SiPlanAPI V5)

*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 197*]

SOFTWARE PREREQUISITES

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

- CodeMeter license management software 7.21a
- 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 181*].

5 SAFETY INFORMATION

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

- *Definition of the danger levels [▶Page 12]*
- *Qualifications of operating personnel [▶Page 13]*
- *Safety instructions [▶Page 211]*

If serious incidents (such as severe injuries) occur in connection with the product, these must be reported to the manufacturer and the competent authority.

5.1 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.**

5.2 QUALIFICATIONS OF OPERATING PERSONNEL

CAUTION

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.

The following requirements must be met to use the software:

- You have read the instructions for use.
- You are familiar with the basic structure and functions of the software.

6 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.

3. **Optional or conditional step:** Optional or conditional steps are preceded by the aim of the step or the condition and a colon.

▶ Final results are marked with this icon.

- Instructions consisting of just one step are marked with this icon.

PATIENT DATA

All example patient names shown in this document are fictitious. Any similarities to real persons are therefore purely coincidental. In particular, there is no connection between the example patient names and the patient data shown.

7 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 23]*.

After installation, SICAT Suite can be used in two versions:

- Stand-alone version
- SIDEXIS 4 module

When installing SICAT Suite, both versions are always installed, even if you only use one version.

Since some operating steps vary depending on the version, there are separate instructions for use for the two versions. Make sure to consult the right instructions for use for the SICAT Suite version you are using.

The applications are also uninstalled along with SICAT Suite. Information on this can be found in the section *Uninstalling SICAT Suite [▶Page 210]*.

8 OVERVIEW OF SICAT SUITE

SICAT Suite comprises the following applications:

- SICAT Implant – The intended purpose of SICAT Implant is indicated in the SICAT Implant instructions for use.
- SICAT Function – The intended purpose of SICAT Function is indicated in the SICAT Function instructions for use.
- SICAT Air – The intended purpose of SICAT Air is indicated in the SICAT Air instructions for use.
- SICAT Endo – The intended purpose 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
- Danish
- Swedish

LICENSING

The following steps are required to acquire a license for 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 in SICAT Suite. Workstation licenses are activated in SICAT Suite and network licenses are activated on the license server in the local practice network.

If subscriptions to the Suite products are available in your country, you can obtain separate information on how to set them up and use them.

FULL VERSION AND VIEWER MODE

SICAT Suite can start in one of two modes:

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

In general, the following is true:

- You do not need to choose a mode when you install SICAT Suite.
- 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.

9 OVERVIEW OF THE INSTALLATION

Depending on the requirements and infrastructure available on site, SICAT Suite can be used in different application scenarios as a stand-alone version or as an add-on module in SIDEXIS 4.

During SICAT Suite set-up, you can select the type of installation. To install SICAT Suite as an add-on module in SIDEXIS 4, you only need the workstation computer installation. The stand-alone version is always installed as well.

During installation on a workstation computer, the SICAT Suite set-up automatically opens the following installation programs for the individual software components one after the other:

- SICAT Suite with all applications (SICAT Implant, SICAT Function, SICAT Air, SICAT Endo)
- SICAT Implant Database

When using SICAT Suite as an add-on module in SIDEXIS 4, the patient records are managed by SIDEXIS 4.

10 STARTING SICAT SUITE SET-UP

CAUTION

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.

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.

CAUTION

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.

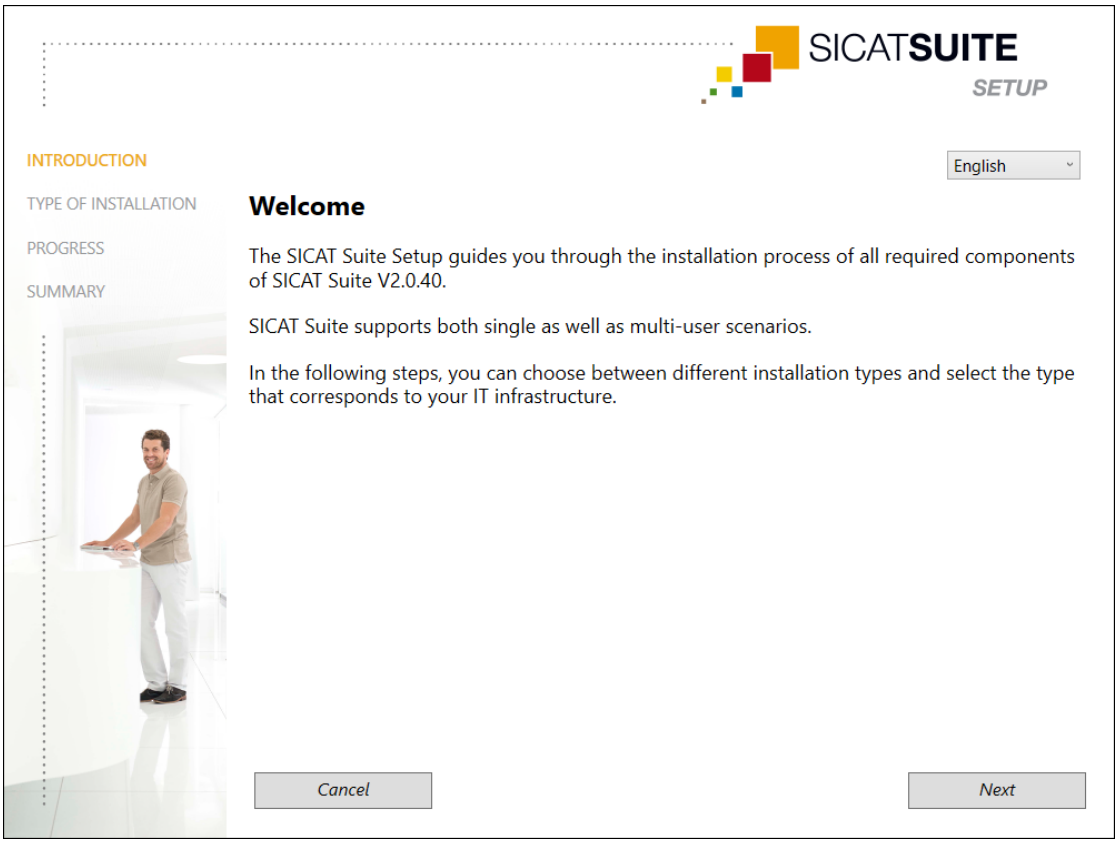
The SICAT Suite set-up installs all required software components one after the other.

☑ Your computer fulfills the system requirements. Information on this can be found in the section *System requirements [▶Page 9]*.

☑ SICAT Suite can be downloaded from the SICAT website.

1. Download the ZIP file from the SICAT website.
2. Unzip the ZIP file on the computer on which you want to install SICAT Suite.
3. Once unzipped, open the **SICAT Suite** folder in the Windows Explorer.
4. Start the file **Setup.exe**.

▶ The SICAT Suite set-up starts and the **INTRODUCTION** window opens:



5. Select the desired language for the SICAT Suite set-up in the top right-hand corner of the **INTRODUCTION** window and click on **Next**.

   ▶ The selected language will be used for the entire installation. The **TYPE OF INSTALLATION** window opens.

The set-up offers the following options for the further SICAT Suite installation:

- Installation with local patient data management as a single-user installation
- Installation with server-based patient data management as server and workstation computer installation

To install SICAT Suite as an add-on module in SIDEXIS 4, you only need the workstation computer installation. Information on this can be found in the section *Installation as workstation computer installation [▶Page 21]*.

10.1 INSTALLATION AS WORKSTATION COMPUTER INSTALLATION

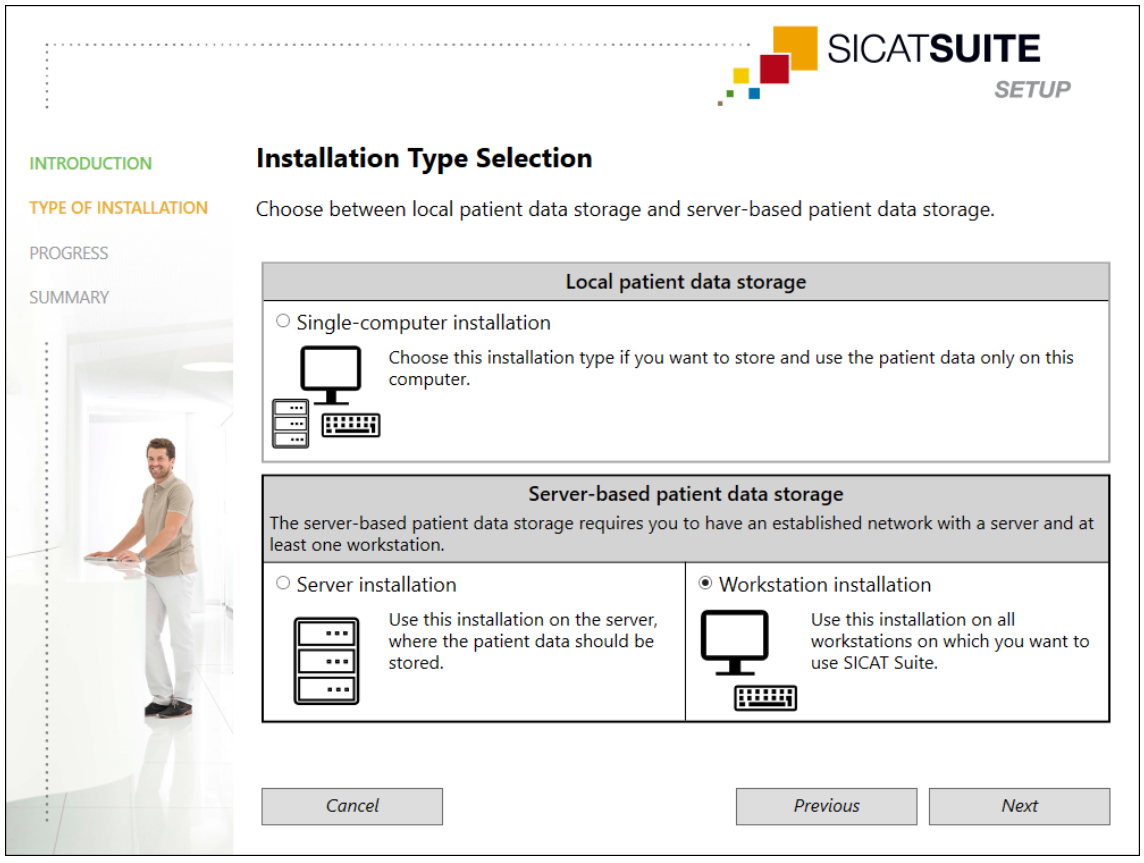
To install SICAT Suite as an add-on module in SIDEXIS 4, select the workstation computer installation.

If you install SIDEXIS 4 and then install SICAT Suite, you can register SICAT Suite as a SIDEXIS 4 module during installation. This allows you to use SICAT Suite integrated with SIDEXIS 4.

If you install SICAT Suite first and then install SIDEXIS 4 you cannot register SICAT Suite as a SIDEXIS 4 module during installation. You can manually register SICAT Suite as a SIDEXIS 4 module later on. For more information, see *Registering and removing SICAT Suite as a SIDEXIS 4 module [▶Page 36]*.

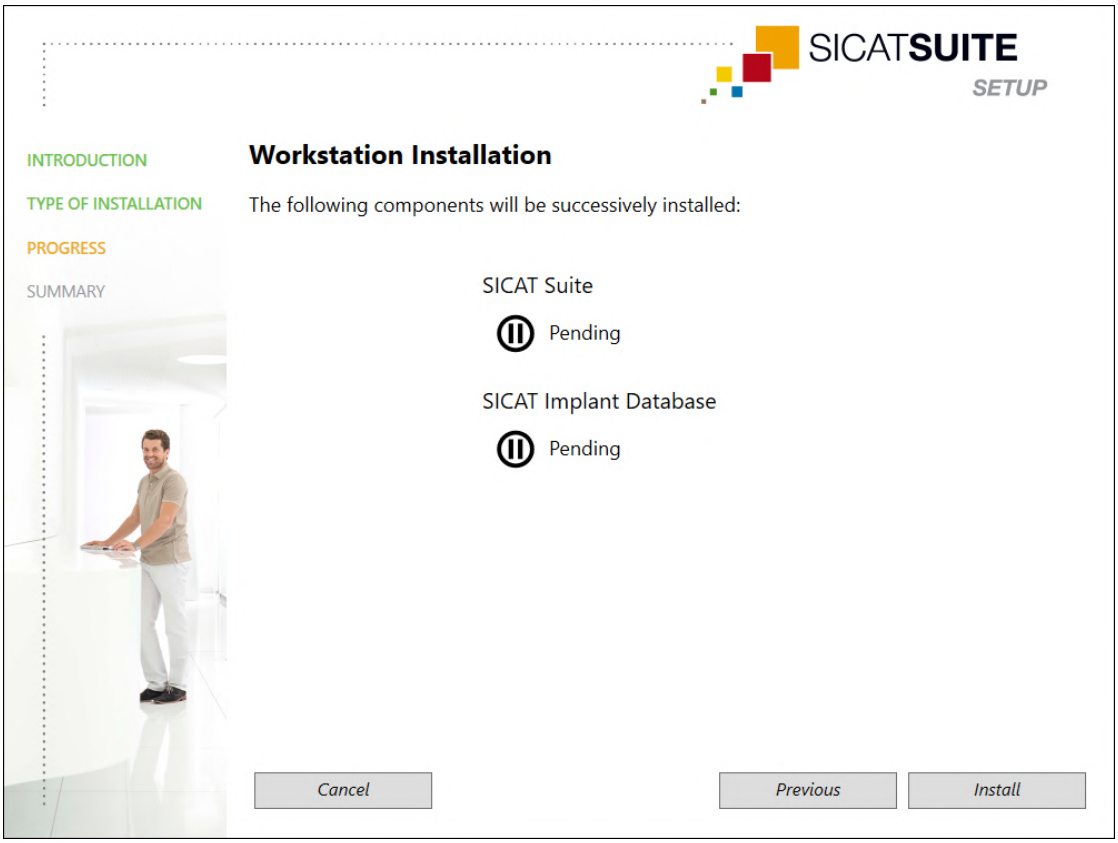
WORKSTATION COMPUTER INSTALLATION

- ☑ SICAT Suite is to be installed in a server environment.
- ☑ SICAT Suite is to be installed on a workstation computer.
- ☑ The SICAT Suite set-up has been started. Information on this can be found in the section *Starting SICAT Suite set-up [▶Page 19]*.



1. In the **TYPE OF INSTALLATION** window, select the check box **Workstation installation** in the **Server-based patient data storage** section and click on **Next**.

▶ The **PROGRESS** window opens:



▶ The software components that need to be installed will be displayed.

2. Click on the **Install** button.
   ▶ The installation process starts. The icon appears for the duration of the installation.
   ▶ The respective installers for the required software components for a workstation computer installation are opened one after the other:
   Installing SICAT Suite [▶ Page 23]
   Installing SICAT Implant Database
   ▶ When the installation has been completed, the **SUMMARY** window opens.
   ▶ If the software components have been successfully installed, the icon ✓ appears.
3. Click on the **Finish** button.
   ▶ The SICAT Suite set-up closes.

10.2 INSTALLING SICAT SUITE

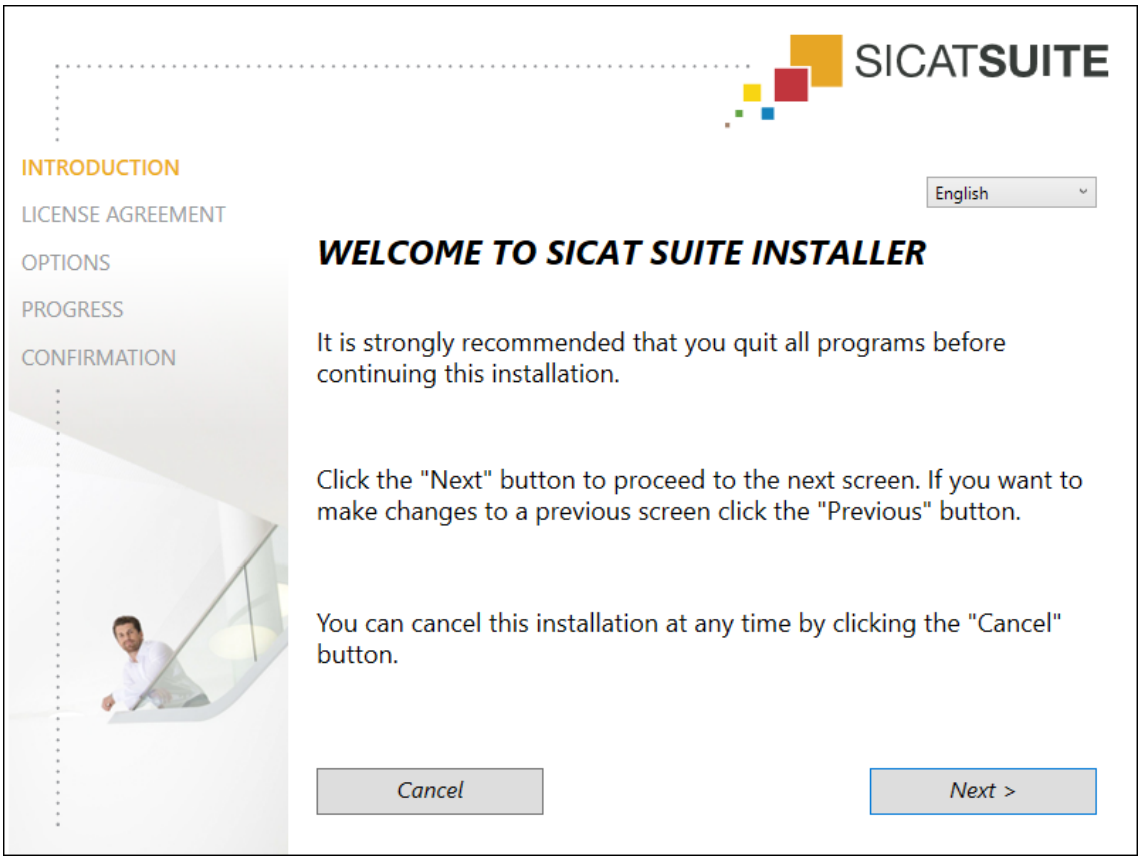
If you install SIDEXIS 4 and then install SICAT Suite, you can register SICAT Suite as a SIDEXIS 4 module during installation. This allows you to use SICAT Suite integrated with SIDEXIS 4.

If you install SICAT Suite first and then install SIDEXIS 4 you cannot register SICAT Suite as a SIDEXIS 4 module during installation. You can manually register SICAT Suite as a SIDEXIS 4 module later on. For more information, see *Registering and removing SICAT Suite as a SIDEXIS 4 module* [▶ *Page 36*].

The installation of SICAT Suite is started automatically during the SICAT Suite set-up.

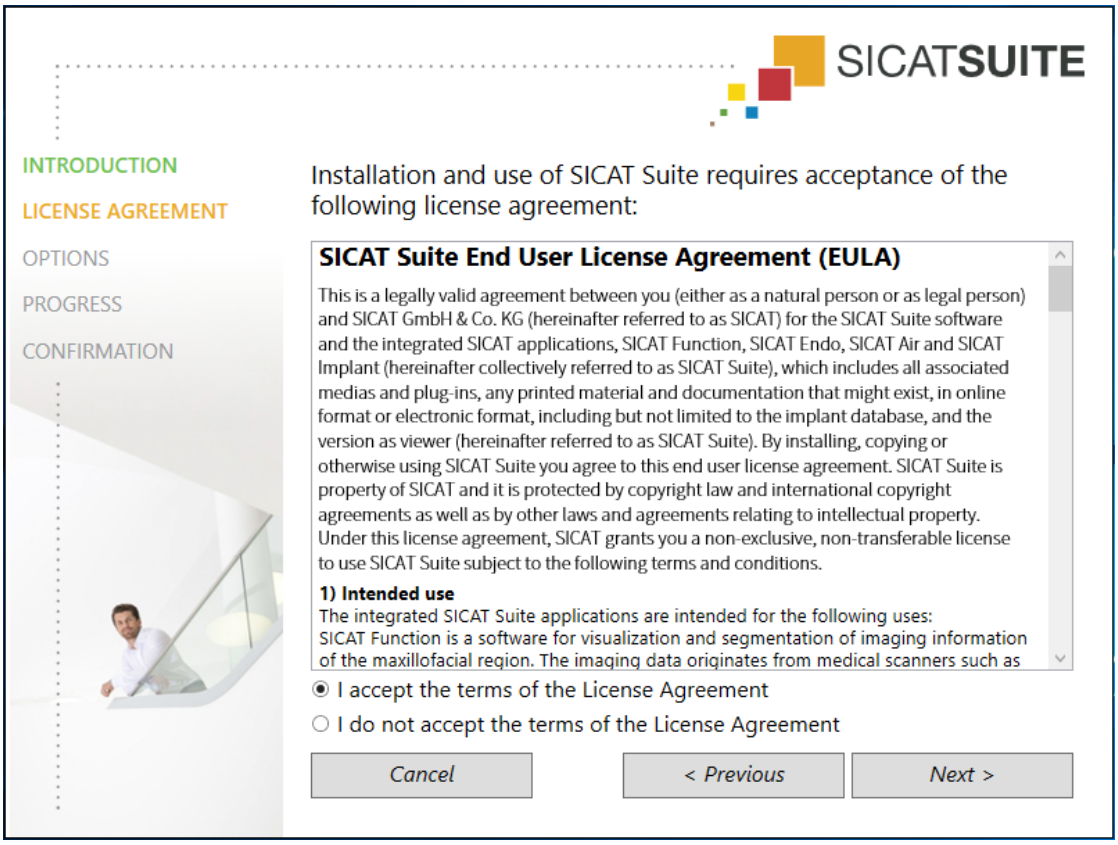
☑ SICAT Suite is not installed.

☑ The SICAT Suite installer was started by the SICAT Suite set-up.



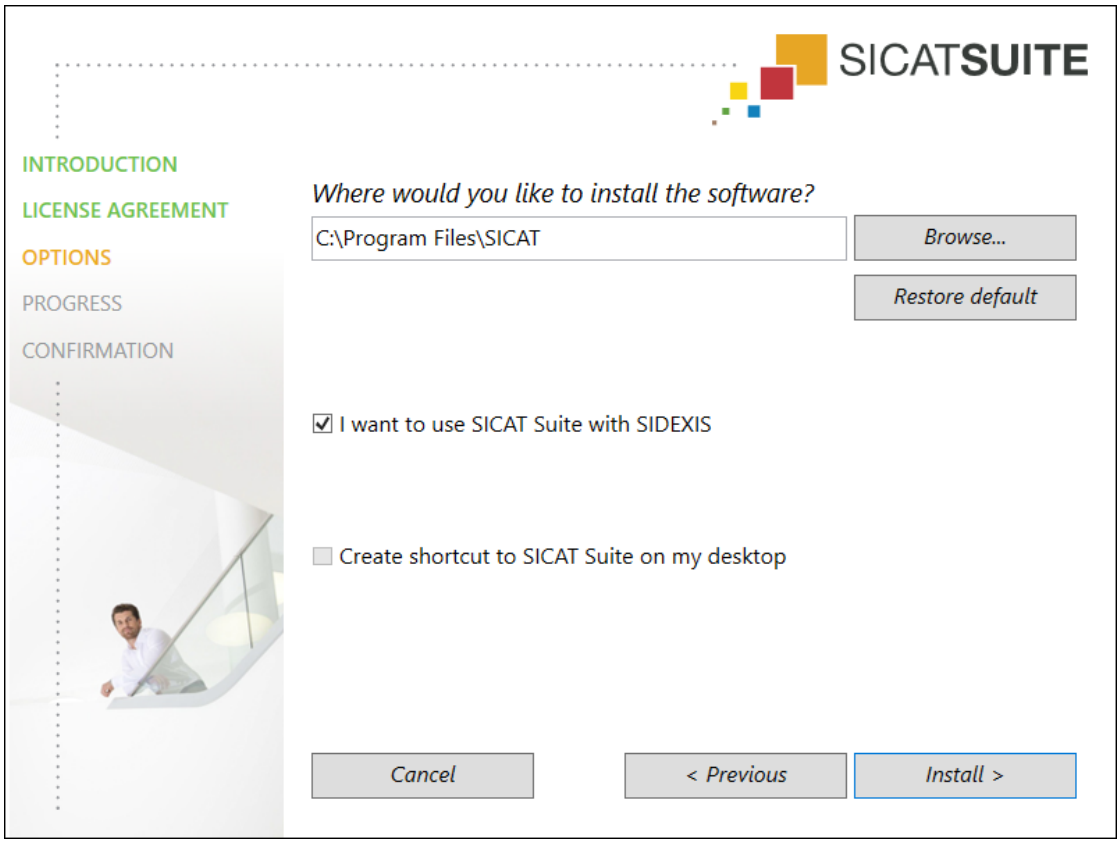
1. Select the desired language for the SICAT Suite installer in the top right-hand corner of the **INTRODUCTION** window and click on **Next**.

▶ The **LICENSE AGREEMENT** window opens:



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

▶ The **OPTIONS** window opens:



3. To change the folder in which the SICAT Suite installer will install SICAT Suite on the hard disk, click on the **Browse** button.

   ▶ The **Select folder** window opens.

4. Browse to the desired folder and click on **OK**.

   ▶ The SICAT Suite installer adds the path to the selected folder in the **Where would you like to install the software** field.

5. If 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 installation or manually register SICAT Suite as a SIDEXIS 4 module later on.

   ▶ 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.

6. If available, enable or disable the **Create shortcut to SICAT Suite on my desktop** check box.

7. Click on the **Install** button.

   ▶ The **PROGRESS** window opens.

   ▶ SICAT Suite and the remaining required software are installed.

   ▶ When the installation has been completed, the **CONFIRMATION** window opens.

8. Click on the **Finish** button.

   ▶ The SICAT Suite installer closes.

11 PERFORMING TEST STEPS AFTER OPERATING SYSTEM UPDATE

CAUTION

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 corresponding test steps. If you notice deviations during a test step, prevent further use of SICAT Endo on the computer in question and contact SICAT support.

The test steps can only be performed in the stand-alone version of SICAT Suite. For further information on how to perform the test steps, please refer to the instructions for use for SICAT Endo, version 2.0.40 - stand-alone. You can find them in the SICAT Suite installation folder in the subdirectory “Help_PDF” or on the SICAT website www.sicat.com.

PREPARATIONS

1. If SIDEXIS 4 is open, close the program.

2. If you have not yet installed the SICAT Suite Patient Database of the stand-alone version, install it now. The SICAT Suite Patient Database can be installed later on by selecting the server installation during SICAT Suite set-up. The installation is described in chapter *Starting SICAT Suite set-up* in the instructions for use for SICAT Endo, version 2.0.40 - stand-alone.

3. If you have not yet added and activated a connection to a patient database in the stand-alone version of SICAT Suite, set up a connection first. Setting up a connection to a patient database is described in chapter *Patient database* of the instructions for use for SICAT Endo, version 2.0.40 - stand-alone

4. Perform the test steps described in the instructions for use for SICAT Endo, version 2.0.40 - stand-alone. Proceed as described in chapter *Performing test steps after operating system update*.

12 UPDATING OR REPAIRING SICAT SUITE

UPGRADING SICAT SUITE

CAUTION

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.

You can upgrade SICAT Suite by starting the SICAT Suite installer and clicking on **Upgrade**. The installer will first uninstall the old version of SICAT Suite. All data and settings will be maintained.

Please take note of the following scenarios before upgrading SICAT Suite:

SIDEXIS 4 IS INSTALLED IN A VERSION LOWER THAN V4.3.1

SICAT Suite version 2.0 and higher is not compatible with any version of SIDEXIS 4 lower than V4.3.1. Information on this can be found in the section *System requirements [▶Page 9]*.

1. Upgrade SIDEXIS 4 to V4.3.1 or higher.
2. Upgrade SICAT Suite.

If SICAT Suite was registered as a SIDEXIS 4 module before the update, the registration will stay the same. If SICAT Suite was **not** registered as a SIDEXIS 4 module before the update, you can also register SICAT Suite manually as a SIDEXIS 4 module to use SICAT Suite integrated with SIDEXIS 4. Information on this can be found in the section *Registering and removing SICAT Suite as a SIDEXIS 4 module [▶Page 36]*.

SIDEXIS XG IS INSTALLED

SICAT Suite version 2.0 is not compatible with SIDEXIS XG. Information on this can be found in the section *System requirements [▶Page 9]*.

1. Upgrade SIDEXIS XG to SIDEXIS 4 V4.3.1 or higher.
2. Upgrade SICAT Suite.

If SICAT Suite was registered as a SIDEXIS XG plug-in before the update, SICAT Suite will be registered as SIDEXIS 4 module. If SICAT Suite was **not** registered as a SIDEXIS XG plug-in before the update, you can also register SICAT Suite manually 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 36]*.

When you open a 3D X-ray scan after the update, 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. All data and settings will be maintained.

☑ SICAT Suite has already been installed.

☑ SICAT Suite has not been started.

1. Click on **Programs and features** in the Windows **Control panel**.
   ▶ The **Programs and features** window opens.
2. Click on the **SICAT Suite** item.
3. Click on the **Change** button.
   ▶ The SICAT Suite installer starts.
   ▶ The **OPTIONS** window opens.
4. Click on the **Repair** button.
   ▶ When the repair has been completed, the **CONFIRMATION** window opens.
5. Click on the **Finish** button.
   ▶ The SICAT Suite installer closes.

13 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 36]*.

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 40]*.

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.

TRANSFER OF DATA FROM SIDEXIS 4

When a volume is first opened in SICAT Endo SICAT Endo applies the volume orientation and the panoramic region from SIDEXIS 4. The following restrictions apply here:

- SICAT Endo only supports rotations of the volume orientation up to a maximum of 30 degrees.
- SICAT Endo supports only standard panoramic curves from SIDEXIS 4, not the shifting of individual supporting points from SIDEXIS 4.
- 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 will not apply the volume orientation and panoramic region or will not apply 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

A SICAT Endo study consists of a 3D X-ray scan and the corresponding planning project. A planning project is comprised of planning data from a SICAT application based on a 3D X-ray scan.

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. One of the results of this is that when SIDEXIS 4 opens a data record, it checks whether the data record is already in use. If this is the case, the data record in SICAT Suite is opened in read-only Viewer mode 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	Yes
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 207]*.

14 THE STANDARD WORKFLOW OF SICAT ENDO

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

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

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.

CAUTION

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.

CAUTION

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.

CAUTION

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 23]*.

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 36]*.

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 45]*.

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 207]*.

SETTINGS

Change the desired settings in the **Settings** area. Information on this can be found in the section *Settings [▶Page 194]*.

DATA RECORDS

SICAT Endo combines three different data types:

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

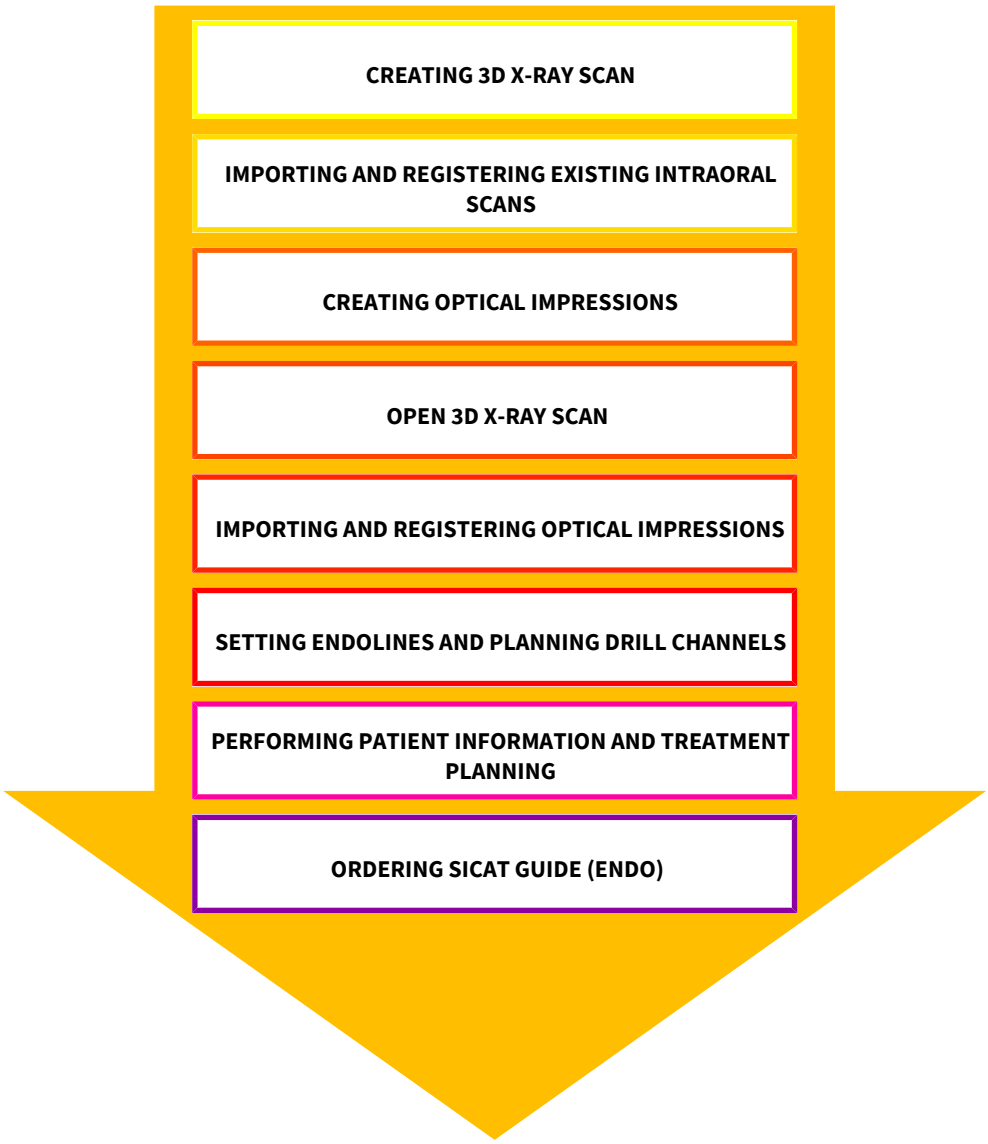
ACQUIRING DATA RECORDS

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 40]*.

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 *Adjusting volume orientation and panoramic region [▶Page 96]*.

2. Import and register existing intraoral scans in SICAT Endo. For further information see section *Importing intraoral scans and allocating them to teeth [▶Page 124]* and section *Registering intraoral scan [▶Page 130]*.

3. Import and register the optical impressions with the 3D X-ray data. Information on this can be found in the section *Optical impressions [▶Page 107]*.

4. Set EndoLines and plan drill channels. For further information see *Pre-aligning a tooth region [▶Page 147]*, *Setting EndoLines [▶Page 149]* and *Planning drill channels [▶Page 159]*.

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 71]*.

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.

7. Order a SICAT GUIDE (ENDO) surgical guide. Information on this can be found in the section *Ordering process [▶Page 181]*.

8. Export data, for example to obtain a second opinion. Information on this can be found in the section *Data export [▶Page 180]*.

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 208]*.

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 44]*.

Further support is available in the **Support** area. Information on this can be found in the section *Support [▶Page 203]*.

15 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 23]*.

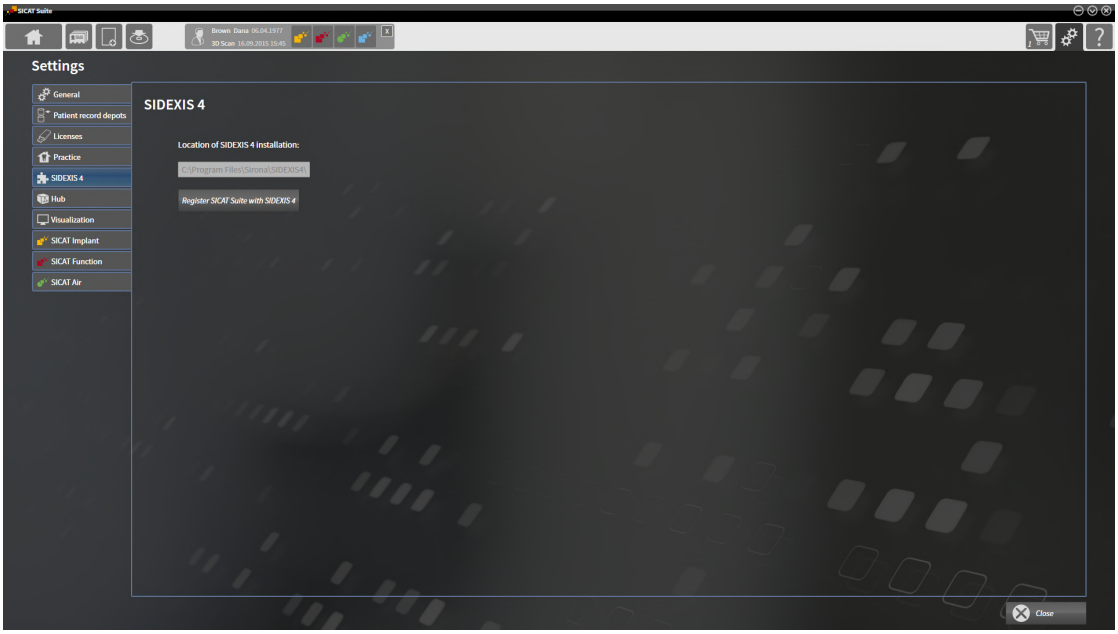
OPENING THE "SIDEXIS 4" WINDOW

1. Start the stand-alone version of SICAT Suite. Information on this can be found in the section *Starting SICAT Suite [▶Page 40]*.

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 23]*.

☑ 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

16 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.

17 STARTING SICAT SUITE

⚠ **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 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 23]*.
- ☑ 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 36]*. If SICAT Suite is installed after SIDEXIS 4, registration may take place automatically.
- ☑ You have already selected a 3D X-ray scan or a study in SIDEXIS 4.
- ☑ Optionally, you have also selected optical impressions or intraoral scans in addition to a 3D X-ray scan or study.

1. If you have selected a 3D X-ray scan and, optionally, optical impressions or intraoral scans, click on the **Show in** icon and then on the **SICAT Suite** icon.

2. If you have selected a study and, optionally, optical impressions or intraoral scans, click on the **SICAT Suite** icon.

▶ SIDEXIS 4 switches to the **Plan & Treat** phase.

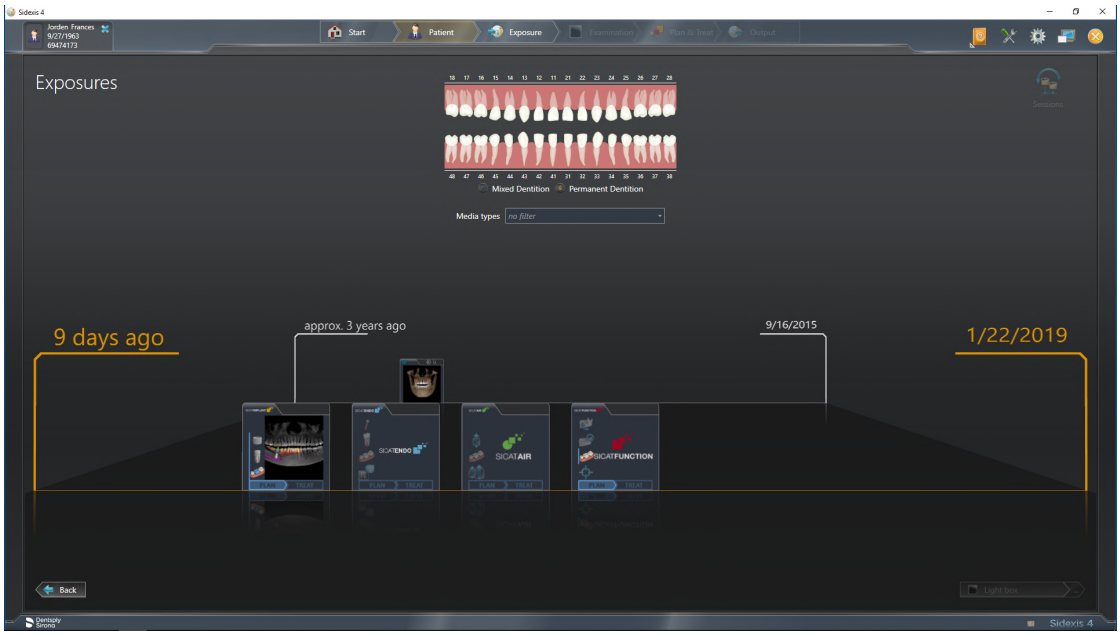
▶ SICAT Suite opens the 3D X-ray scan with the corresponding study in SICAT Endo.

▶ If you have selected a 3D X-ray scan or study together with optical impressions and/or intraoral scans, the SICAT Endo will open the **Administer and register radiographs** wizard and the **Import and Register Optical Impressions** wizard one after the other. For further information about this see *Intraoral scans [▶Page 121]* and *Optical impressions [▶Page 107]*.

ℹ	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 the 3D X-ray scan. Information on this can be found in the section *Switching between SICAT applications [▶Page 43]*.

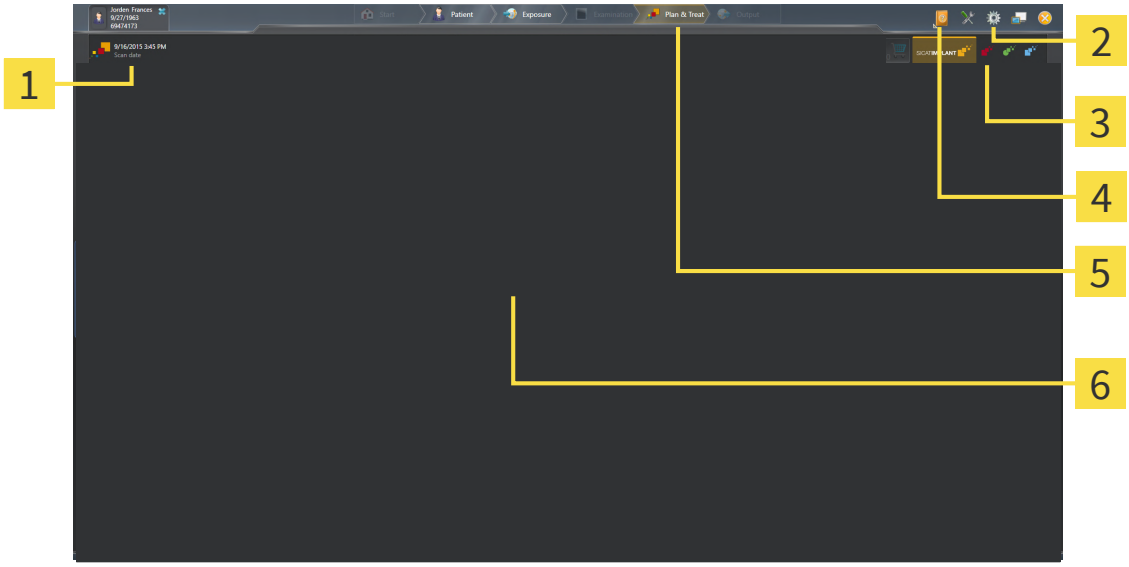
If you have saved an application-specific study, you can select it directly in the **Scans** window and open it in the corresponding SICAT application. If you already have an item in your shopping cart which is based on that study, the shopping cart will open.



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 38]*.

18 THE USER INTERFACE OF SICAT SUITE

The SICAT Suite user interface comprises the following parts:



1 Currently opened study	4 **Help**
2 **Settings**	5 SIDEXIS 4 phase bar
3 Buttons to change applications and **Shopping Cart** button	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 194]*.
- Buttons to change applications and **Shopping Cart** button – Information on this can be found in the sections *Switching between SICAT applications [▶Page 43]* and *Ordering process [▶Page 181]*.
- **Help** - Information on this can be found in the section *Opening the instructions for use [▶Page 44]*.
- The **Application area**, which is located in the remaining part of SICAT Suite, shows the user interface of the active SICAT application.

19 SWITCHING BETWEEN SICAT APPLICATIONS

To switch between SICAT applications, proceed as follows:

- Click on the button with the label matching the desired SICAT application.

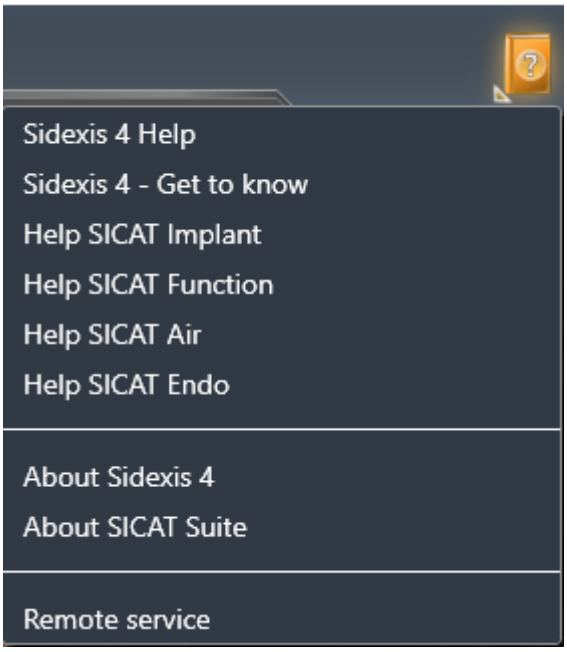
► SICAT Suite will switch to the selected application.

20 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.

21 LICENSES

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

In the SICAT Suite version which is connected to SIDEXIS 4, you can view SICAT Endo plans even without activated SICAT Endo license.

To be able to use network licenses, you must first set up a license server in the local practice network and connect SICAT Suite with the license server.

For information on how to set up a license server in a practice network, please refer to the instructions for use of the CodeMeter license management software by WIBU-SYSTEMS AG and the quick guide *Installing the SICAT Suite version 2.0 license server.*

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.

These licenses can be obtained both as workstation licenses and as network licenses:

- With a workstation license, you can use the SICAT applications on a specific computer.
- With a network license, you can use the SICAT applications on several computers within a local practice network.

ACQUIRING LICENSES

The following steps are required to acquire a license for 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 in SICAT Suite. Workstation licenses are activated in SICAT Suite and network licenses are activated on the license server in the local practice network.

If subscriptions to the Suite products are available in your country, you can obtain separate information on how to set them up and use them.

ACTIVATING AND DEACTIVATING LICENSES

The following applies to workstation licenses and network licenses:

- You will only receive license keys for SICAT applications that are 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.
- 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.

The following applies to workstation licenses only:

- When you activate an activation key for a workstation license on a computer, an included license will be tied to the computer and is no longer available for activation on another computer. An activation key can contain several licenses for SICAT applications or functions.
- You may deactivate workstation licenses for each SICAT application or individual function separately. Returned workstation licenses are available for renewed activation on the same or another computer.

The following applies to network licenses only:

- If you use network licenses, a network license for included SICAT applications or functions will be available to a user on a computer while using SICAT Suite. The network license will be locked for use by other users during this time.
- If you are using a network license, the network license will be automatically returned to the license server in the practice network when you exit SICAT Suite.
- If you switch from a network license to a workstation license, the network license will be automatically returned to the license server in the practice network.
- If you fail to properly exit SICAT Suite and this causes the connection to the license server in the practice network to be terminated, use of the network license by other users will automatically be enabled after a set period of time.
- If you are using SICAT Suite with network licenses SIDEXIS 4, you can specify in the settings for SICAT Suite whether a time limit should apply for establishing the connection to the license server in the practice network.

FURTHER ACTIONS

The **Licenses** 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 “Licenses” window [▶Page 48]*.

You can activate workstation licenses in two ways:

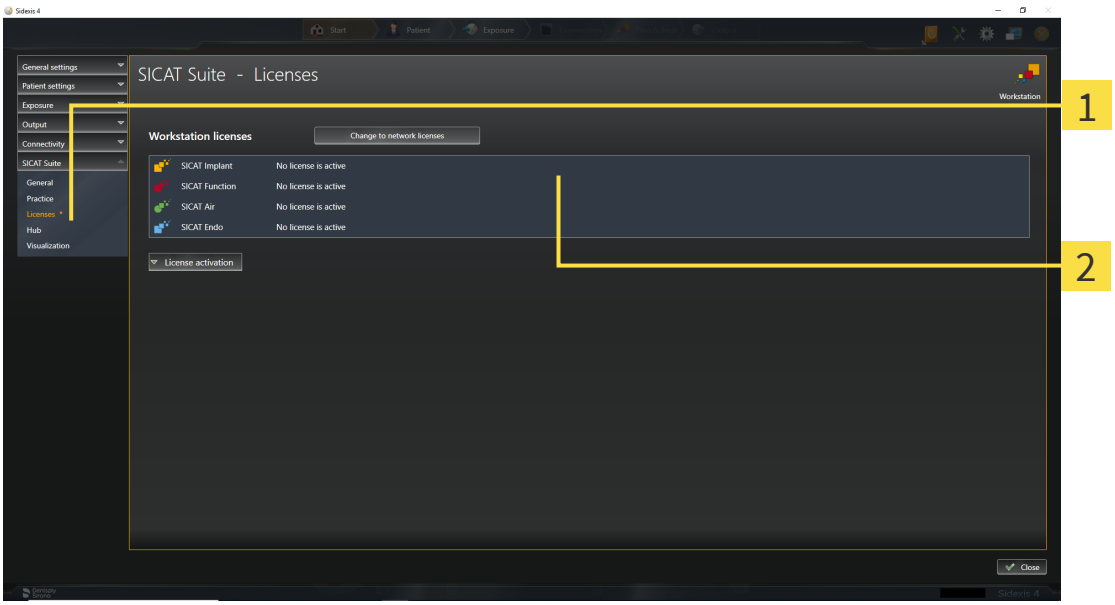
- If the computer on which SICAT Suite is running has an active Internet connection, the license can be activated automatically. Information on this can be found in the section *Activating workstation licenses using an active Internet connection [▶Page 49]*.
- Upon request or if the computer on which 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 workstation licenses manually or without an active Internet connection [▶Page 51]*.

You can deactivate workstation licenses for each application or function individually. After you have deactivated a workstation license, you can enter the same or another activation key. Returned workstation licenses are available for activation on the same or another computer. Information on this can be found in the section *Returning workstation licenses to the license pool [▶Page 53]*.

For information on how to activate network licenses, see *Activating network licenses [▶Page 55]*.

21.1 OPENING THE “LICENSES” 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 **Licenses** window opens:



1 **Licenses** tab

2 **Licenses** window

Continue with one of the following actions:

- *Activating workstation licenses using an active Internet connection [▶Page 49]*
- *Activating workstation licenses manually or without an active Internet connection [▶Page 51]*
- *Activating network licenses [▶Page 55]*
- *Returning workstation licenses to the license pool [▶Page 53]*

21.2 ACTIVATING WORKSTATION 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:

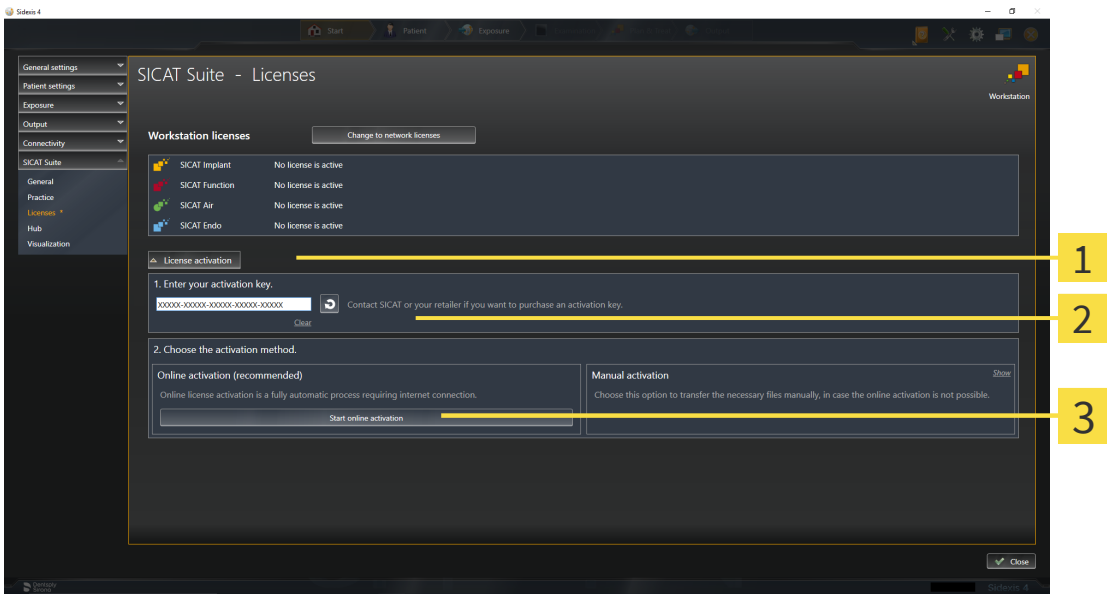
☑ At least one SICAT application or one individual function is missing an active workstation license.

☑ The computer on which SICAT Suite is running has an active Internet connection.

☑ The **Licenses** window is already open. Information on this can be found in the section *Opening the "Licenses" window [▶Page 48]*.

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

   ▶ The **License activation** 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.

21.3 ACTIVATING WORKSTATION LICENSES MANUALLY OR WITHOUT AN ACTIVE INTERNET CONNECTION

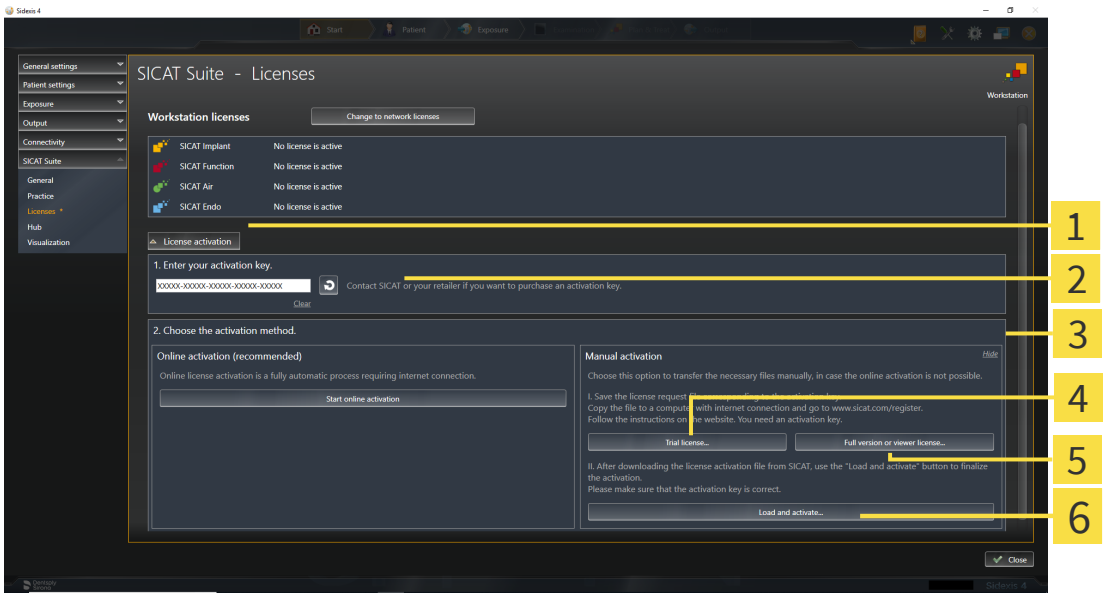
NOTICE	**Patient record must be closed** You must close the active patient record before making changes to the licenses.

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 workstation license.

☑ The **Licenses** window is already open. Information on this can be found in the section *Opening the "Licenses" window [▶Page 48]*.

1. Click on **License activation** in the **Licenses** window.
   ▶ The **License activation** area expands.
2. Click on **Show** in the **Manual activation** area.
   ▶ The **Manual activation** area expands:



1 **License activation**	4 **Trial license** button
2 **Enter your activation key** area	5 **Full version or viewer license** button
3 **Show**	6 **Load and activate** button

3. If you wish to activate a full version license, click on the **Full version or viewer license** button.
4. If you wish to activate a demo license, click on the **Trial 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 **Licenses** 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.

21.4 RETURNING WORKSTATION LICENSES TO THE LICENSE POOL

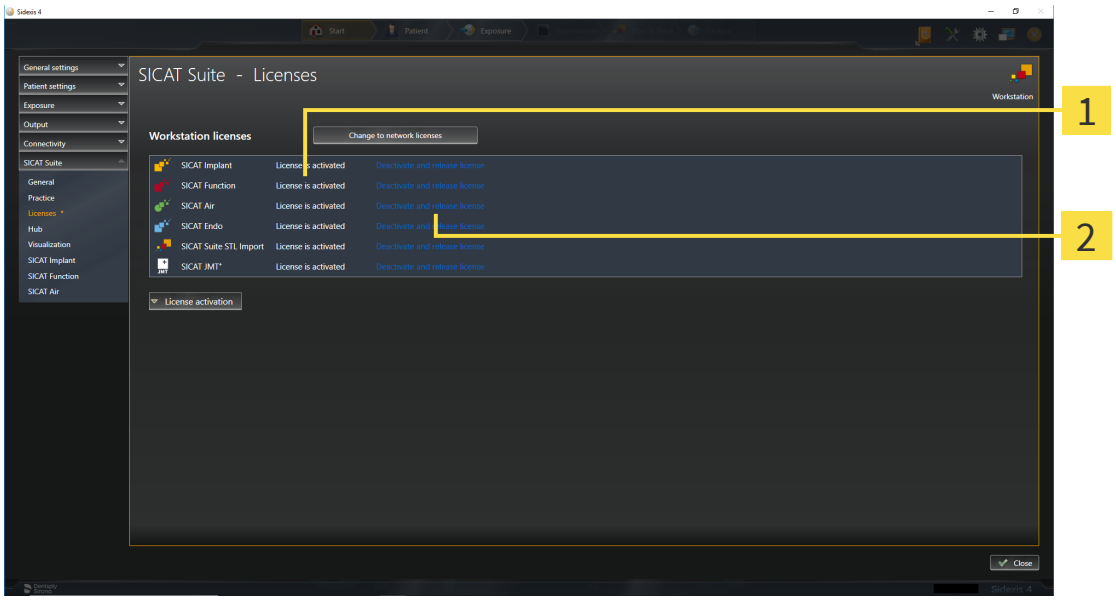
NOTICE	**Patient record must be closed** You must close the active patient record before making changes to the licenses.

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

☑ You have already activated the full version license of a SICAT application.

☑ The computer on which SICAT Suite is running has an active Internet connection.

☑ The **Licenses** window is already open. Information on this can be found in the section *Opening the "Licenses" window [▶Page 48]*.



1 License status of SICAT applications and individual functions

2 **Deactivate and release license** button

- In the **Licenses** window, click on the **Deactivate and release license** 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 re-start 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.

21.5 ACTIVATING NETWORK LICENSES

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 network license.

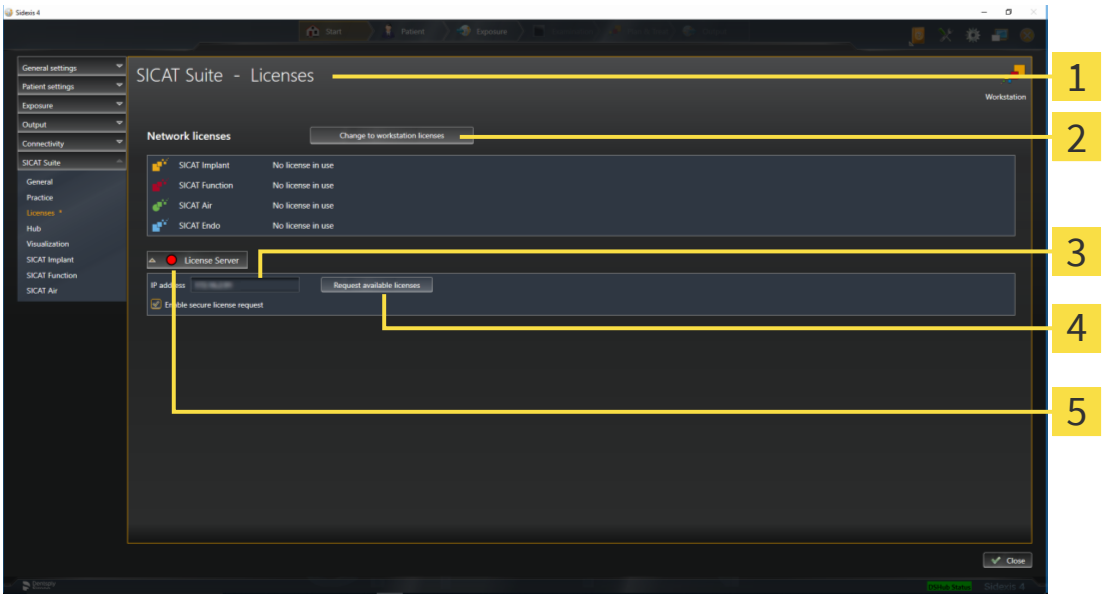
☑ You have set up a license server.

☑ The computer on which SICAT Suite is running has an active network connection to the network in which the license server is located.

☑ The **Licenses** window is already open. Information on this can be found in the section *Opening the "Licenses" window [▶Page 48]*.

1. Click the **Change to network licenses** button in the **Licenses** window.

▶ SICAT Endo shows information about the network licenses and the **License Server** area opens:



1 **Licenses** window

2 **Change to workstation licenses** button

3 **IP address** area

4 **Request available licenses** button

5 Status indicator

2. In the **IP address** area, enter the IP address of the license server in the practice network.

3. Click on the **Request available licenses** button.

▶ SICAT Suite connects to the license server.

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

▶ The status indicator changes from red to green.

▶ The **License Server** area is collapsed.

To ensure that the network licenses can be retrieved from the license server without a time limit, the **Enable Secure License Request** check box is selected by default.

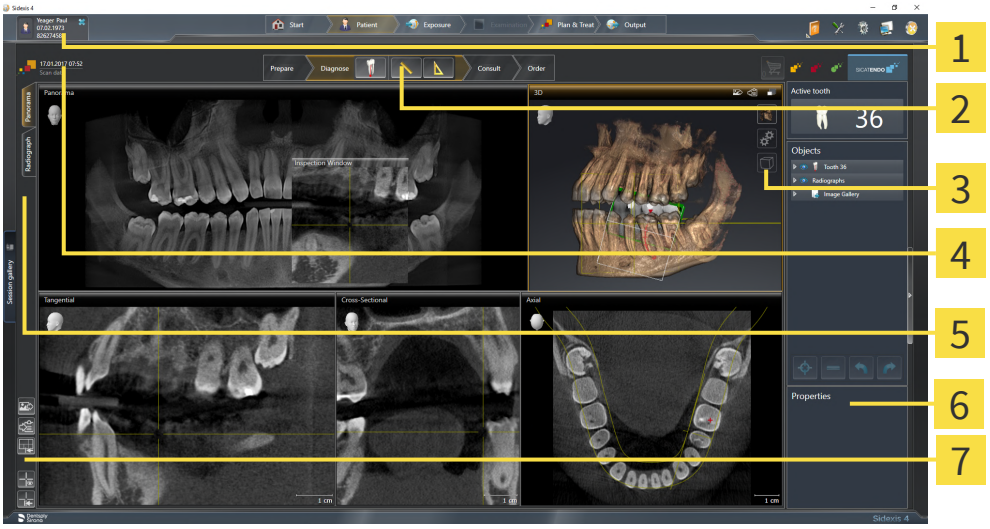
NOTICE

Restart required

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

22 THE SICAT ENDO USER INTERFACE

The SICAT Endo user interface comprises the following parts:



1 **Active Patient Record** tab

2 **Workflow toolbar**

3 **View toolbar**

4 Information about the open 3D X-ray scan

5 Buttons for toggling between workspaces

6 **Object bar**

7 **Workspace toolbar**

- 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 58]*.
- 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 68]*.
- 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 76]* and *Adjusting the 3D view [▶Page 89]*.
- The **Object bar** contains tools for the management of diagnosis objects and planning objects. For further information, see section *Object bar [▶Page 60]* and section *SICAT Endo objects [▶Page 64]*.
- 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 83]*, *Resetting views [▶Page 87]*, *Adjusting and resetting the layout of workspaces [▶Page 73]* and *Creating screenshots of workspaces [▶Page 74]*.

22.1 WORKFLOW TOOLBAR

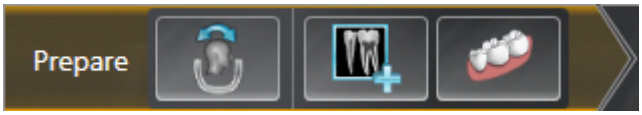
The **Workflow toolbar** in SICAT Endo consists of four workflow steps:

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



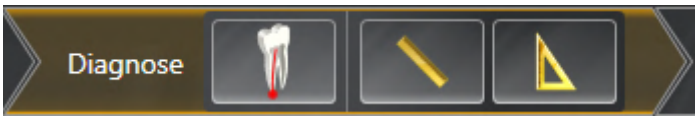
The following tools are available in the **Prepare** workflow step:

- **Adjust volume orientation and panoramic region** - For further information see *Adjusting the volume orientation [▶Page 99]* and *Adjusting the panoramic region [▶Page 104]*.

- **Administer and register radiographs** - For further information see *Importing intraoral scans and allocating them to teeth [▶Page 124]*, *Pre-positioning intraoral scans [▶Page 128]* and *Registering intraoral scan [▶Page 130]*.

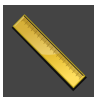
- **Import and register optical impressions** - Information on this can be found in the section *Optical impressions [▶Page 107]*.

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 147]*, *Setting EndoLines [▶Page 149]* and *Planning drill channels [▶Page 159]*.



- **Add distance measurement (D)** - Information on this can be found in the section *Adding distance measurements [▶Page 165]*.

- **Add angle measurement (A)** - Information on this can be found in the section *Adding angle measurements [▶Page 166]*.

3. “INFORM” WORKFLOW STEP

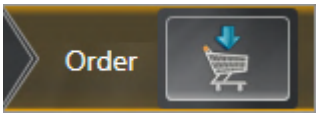
The following tools are available in the **Consult** workflow step:

- **Draw Arrow** - Information on this can be found in the section *Creating images and screenshots [▶Page 171]*.

- **Draw Circle** - Information on this can be found in the section *Creating images and screenshots [▶Page 171]*.

- **Create report** - Information on this can be found in the section Preparing handouts.

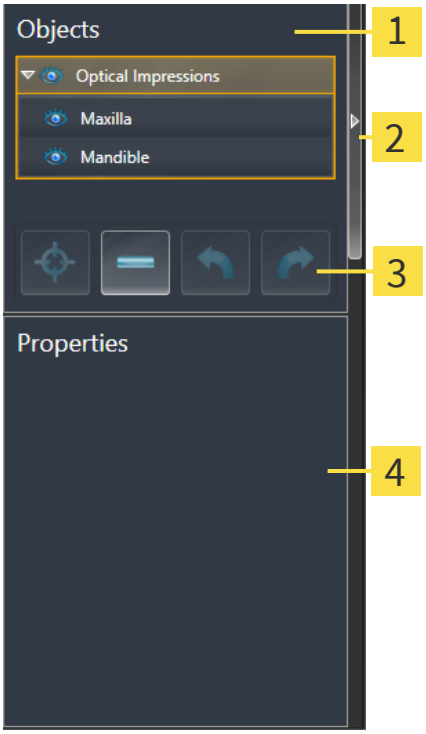
4. "ORDER” WORKFLOW STEP



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

- **Order SICAT ENDOGUIDE** - Information on this can be found in the section *Placing surgical guides in the shopping cart [▶Page 182]*.

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 61]*.
- 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 63]*.
- The **Properties** area shows the details of the active object.

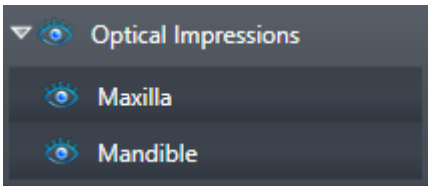
You can change the visibility of the **Object bar** using two buttons on the right side of the **Object bar**: **Hide object bar** and **Show object bar**

The objects available in SICAT Endo can be found in the section *SICAT Endo objects [▶Page 64]*.

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 group** icon next to the desired object group.
   ▶ The object group collapses.

2. Click on the **Expand group** 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 61]*.

☑ The object can be focused.

- 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 61]*.

- 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.

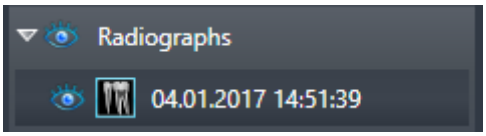
Undo and redo are only available as long as a study is open in a SICAT application.

22.5 SICAT ENDO OBJECTS

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

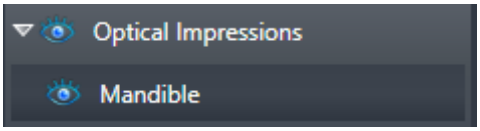
- **Radiographs**
- **Optical impression object group**
- **Endo planning object**
  - **EndoLine**
  - **Drill canal**
- **Image Gallery**
  - **Image**
  - **Screenshot**

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



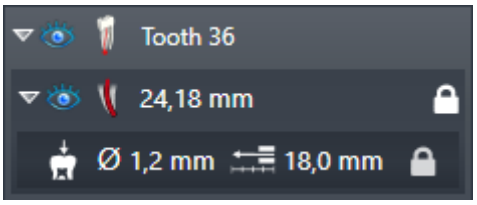
After you have imported and registered at least one optical impression, SICAT Endo displays an **Optical Impressions** object group in the **Object browser**. An **Optical Impressions** object group may contain the following objects:

- **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.

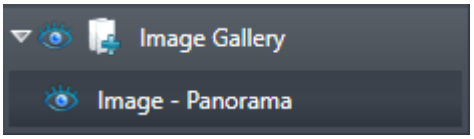
ENDO PLANNING OBJECT GROUP



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

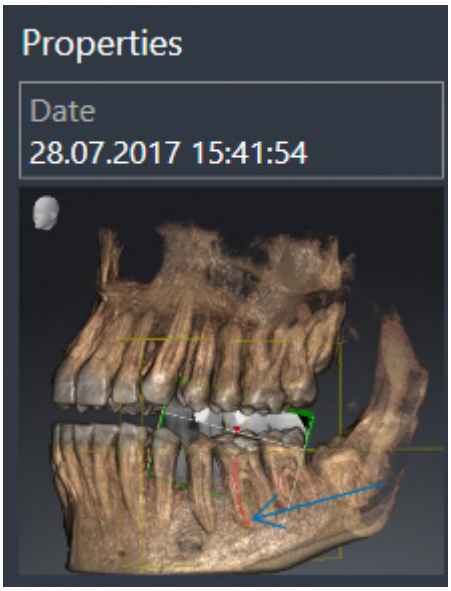


The following applies for **Image Gallery** object groups:

- 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.

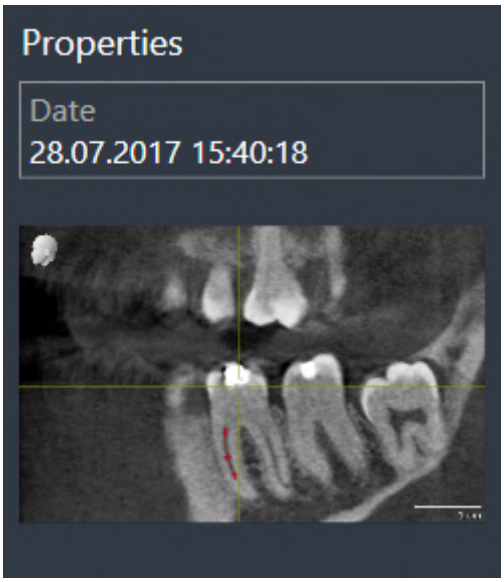
IMAGE OBJECTS



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.

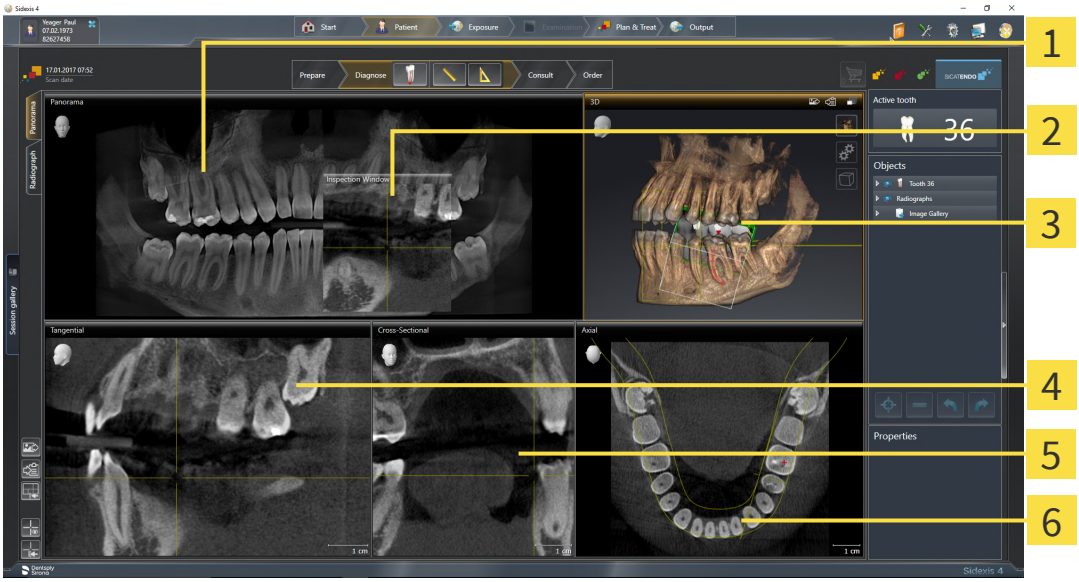
SICAT Endo features two different workspaces:

- **Panorama** workspace- Information on this can be found in the section *Overview of the panoramic workspace [▶Page 69]*.
- **Intraoral image** workspace- Information on this can be found in the section *Overview of the intraoral scan workspace [▶Page 71]*.

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

- *Switching workspaces [▶Page 72]*.
- *Adjusting and resetting the layout of workspaces [▶Page 73]*.
- *Adjusting the views [▶Page 76]*.
- There are additional possibilities to adjust the **3D** view. Information on this can be found in the section *Adjusting the 3D view [▶Page 89]*.
- You can document the contents of the active workspace. Information on this can be found in the section *Creating screenshots of workspaces [▶Page 74]*.

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 104]*.

INSPECTION WINDOW

The **Inspection Window** is embedded in the **Panorama** view. It adds the third dimension to the **Panorama** view by displaying slices parallel to the panoramic curve. You can move, hide, show and maximize the **Inspection Window**. Information on this can be found in the section *Moving, hiding, showing and maximizing the inspection window [▶Page 84]*.

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

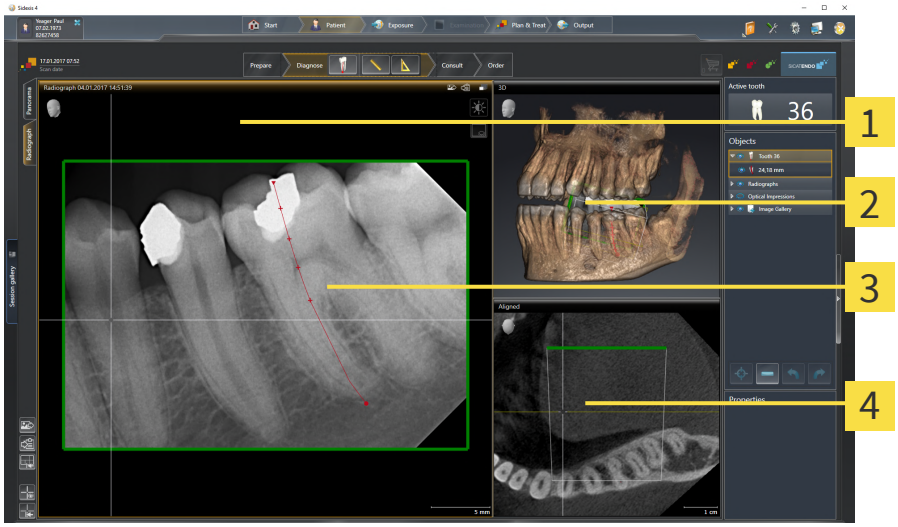
The **Cross-Sectional** view shows slices that are orthogonal to the panoramic curve.

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 201]*.

You can find information on the functions of the views in the sections *Adjusting the views [▶Page 76]* and *Adjusting the 3D view [▶Page 89]*.

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 WORKSPACES

To switch the workspace, proceed as follows:

- Click on the tab of the desired workspace in the upper left corner of the workspace region.

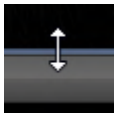
► The selected workspace opens.

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.

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 workspaces [▶Page 72]*.

- 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 workspaces [▶Page 72]*.

- 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

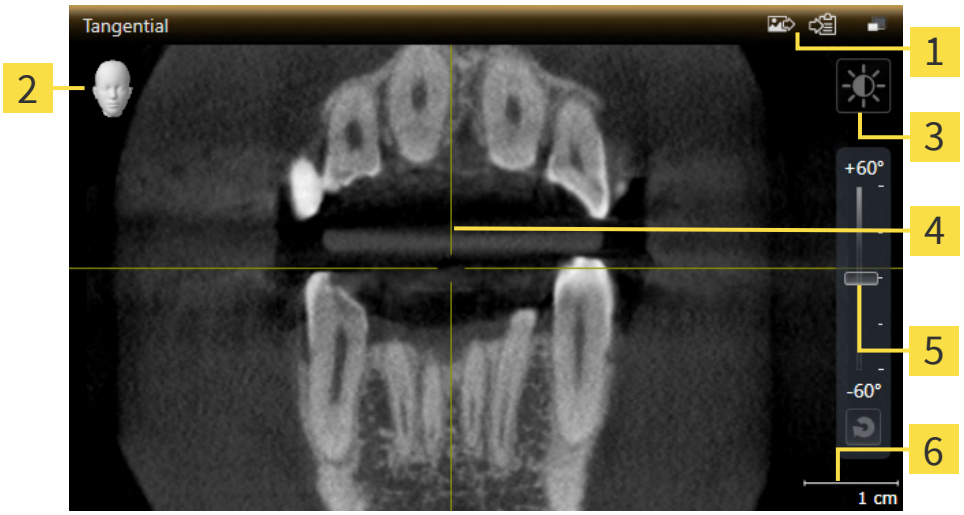
Views are contained in workspaces. A description of the various workspaces and views can be found under *Workspaces [▶Page 68]*.

You can adjust the views. For further information about this see *Adjusting the views [▶Page 76]* and *Adjusting the 3D view [▶Page 89]*.

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 77]*.

An active view contains the following elements:



1	Title bar	4	Crosshair
2	Orientation head	5	Slider for tilt adjustment
3	View toolbar	6	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 77]*
- *Maximizing and restoring views [▶Page 78]*
- *Adjusting and resetting the brightness and contrast of the 2D views [▶Page 79]*
- *Zooming views and panning views [▶Page 81]*
- *Scrolling through slices in the 2D slice views [▶Page 82]*
- *Moving, hiding and showing crosshairs and frames [▶Page 83]*
- *Moving, hiding, showing and maximizing the inspection window [▶Page 84]*
- *Tilting views [▶Page 86]*
- *Resetting views [▶Page 87]*

There are additional possibilities to adjust the **3D** view. Information on this can be found in the section *Adjusting the 3D view [▶Page 89]*.

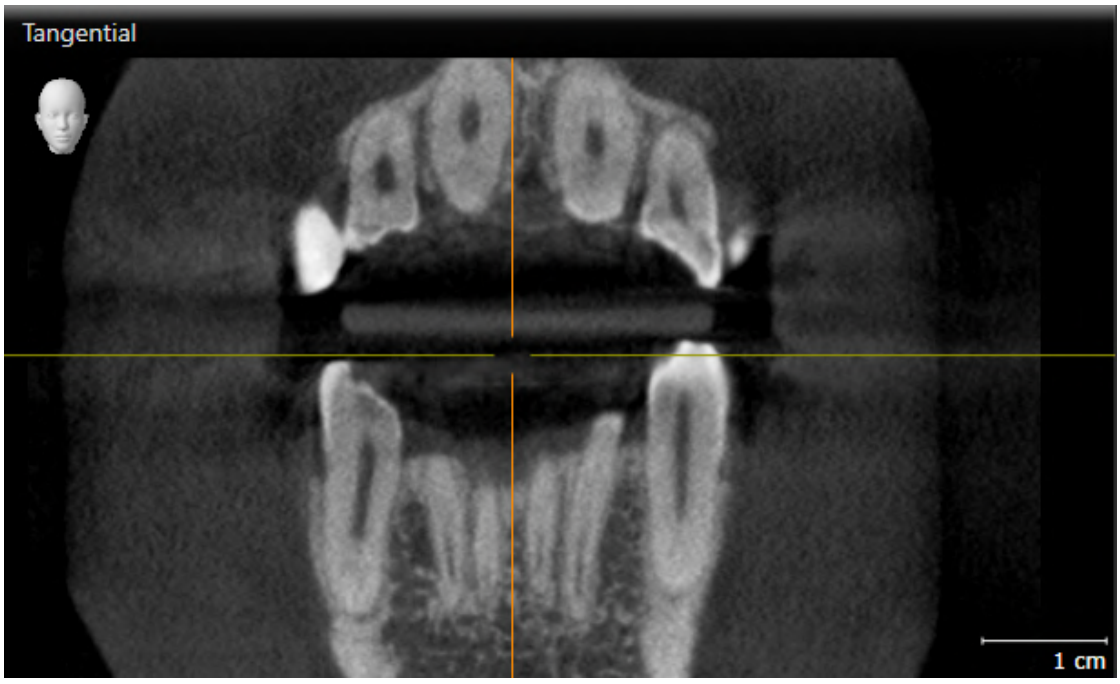
You can document the content of an active view. Information on this can be found in the section *Creating screenshots of views [▶Page 88]*.

24.2 CHANGING THE ACTIVE VIEW

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

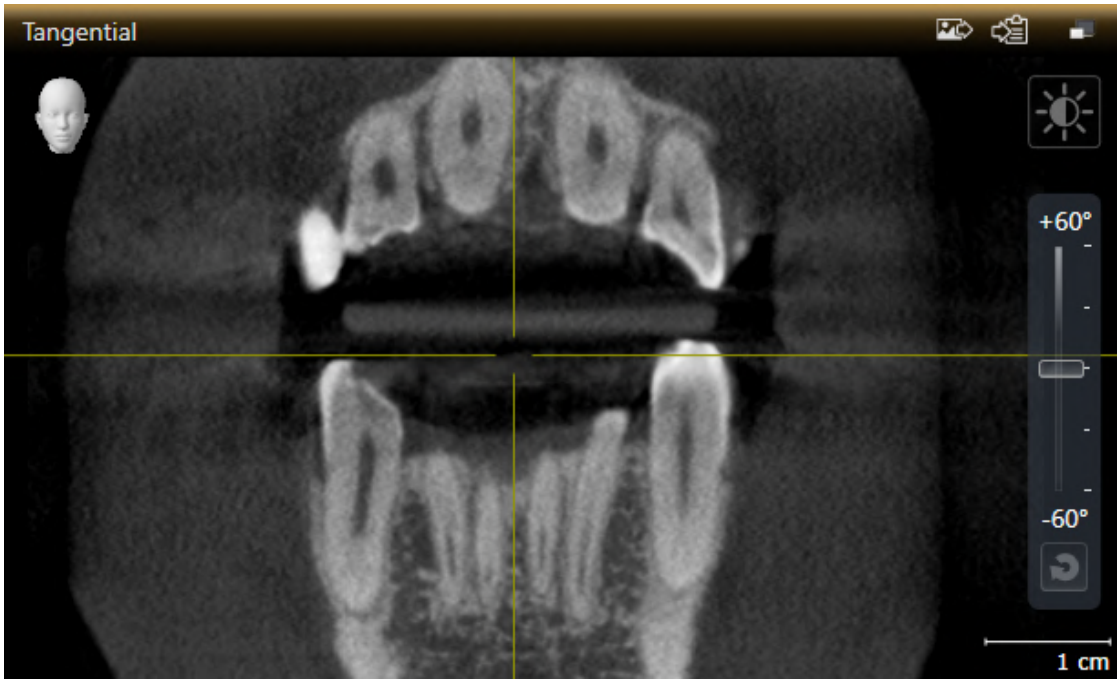
To activate a view, proceed as follows:

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 77]*.

☑ 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 77]*.

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, SHOWING AND MAXIMIZING 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 *Changing the active workspace [▶Page 72]*.

☑ 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, SHOWING AND MAXIMIZING THE INSPECTION WINDOW IN THE PANORAMA WORKSPACE

The **Set inspection window** icon is both a status indicator and a switch.

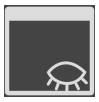
To hide, show and maximize the **Inspection Window**, proceed as follows:

☑ The **Panorama** workspace is already open. Information on this can be found in the section *Switching workspaces [▶Page 72]*.

☑ The **Inspection Window** is already shown.

1. Place the mouse pointer over the **Set inspection window** icon in the **View toolbar** of the **Panorama** view.

▶ SICAT Endo displays the icons for setting the inspection window:



2. Click on the **Hide inspection window** icon.
   ▶ SICAT Endo hides the **Inspection Window**.

3. Click on the **Use default inspection window size** icon.
   ▶ SICAT Endo shows the **Inspection Window**.

4. Click on the **Show maximized inspection window** icon.
   ▶ SICAT Endo maximizes the inspection window.

HIDING AND SHOWING THE INSPECTION WINDOW IN THE INTRAORAL SCAN WORKSPACE

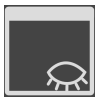
The **Set inspection window** icon is both a status indicator and a switch.

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

☑ The **Radiograph** workspace is already open. Information on this can be found in the section *Switching workspaces [▶Page 72]*.

☑ The **Inspection Window** is already shown.

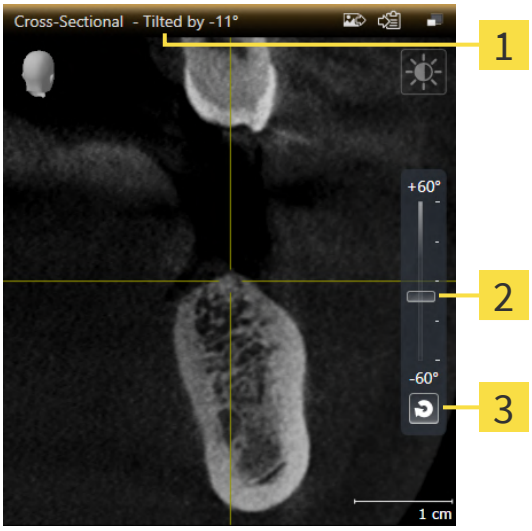
1. Click on the **Hide inspection window** icon in the **View toolbar** of the **Radiograph** view.
   ▶ SICAT Endo hides the **Inspection Window**.



2. Click on the **Use default inspection window size** icon in the **View toolbar** of the **Radiograph** view.
   ▶ SICAT Endo shows the **Inspection Window**.

24.9 TILTING VIEWS

In the **Panorama** workspace, you can tilt the **Tangential** and **Cross-Sectional** views. This allows you to optimize alignment in both views for viewing a specific anatomical structure (e. g. a tooth) or a planning object.



1 Currently set tilt

2 Slider for tilt adjustment

3 **Reset tilt** button

☑ The **Panorama** workspace is already open. Information on this can be found in the section *Switching workspaces [▶Page 72]*.

☑ The **Tangential** or **Cross-Sectional** view is already active. Information on this can be found in the section *Changing the active view [▶Page 77]*.

- To adjust the tilt, move the slider up or down to the desired tilt while pressing the mouse key. You can also change the tilt by clicking on the slider and using the **Up** and **Down** arrow keys.

▶ SICAT Endo tilts the active view and shows the currently set tilt in the title bar of the active view.

▶ SICAT Endo updates the line of the crosshair in the **Tangential** or **Cross-Sectional** view.

▶ SICAT Endo tilts the corresponding frame in the **3D** view.

You can reset the tilt to 0° by clicking the **Reset tilt** button.

24.10 RESETTING VIEWS

To reset all views, proceed as follows:

- Click on the **Workspace toolbar** icon in the **Reset views**.

► 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.

► SICAT Endo resets the tilt of views to 0°.

24.11 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

☑ The desired view is already active. Information on this can be found in the section *Changing the active view [▶Page 77]*.

- 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 77]*.

- 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 90]*.

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

- *Switching the display mode of the 3D view [▶Page 91]*
- *Configuring the active display mode of the 3D view [▶Page 92]*
- *Rotating the 3D view [▶Page 156]*
- *Switching off and switching on the display of optical impressions in color [▶Page 95]*

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.

To change the viewing direction of the **3D** view, you can rotate the **3D** view. Information on this can be found in the section *Rotating the 3D view [▶Page 156]*.

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 77]*.

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:

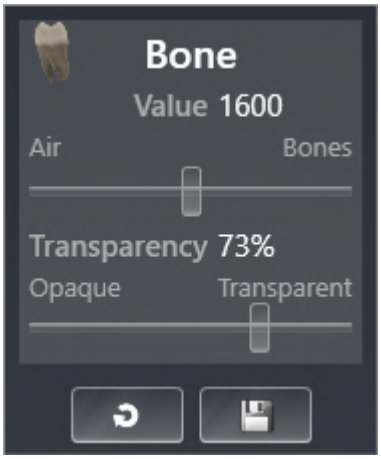
☑ The **3D** view is already active. Information on this can be found in the section *Changing the active view [▶Page 77]*.

☑ 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 91]*.

☑ 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**.

   ▶ The **Advanced** 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 77]*.

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.

25.5 SWITCHING OFF AND SWITCHING ON THE DISPLAY OF OPTICAL IMPRESSIONS IN COLOR

In the **3D** view, optical impressions are automatically displayed in color if you have previously imported optical impressions in color and display in color is activated.

You can switch the display of optical impressions in color to a monochrome display if only the exact recognition of the shape and geometry is important.

☑ The **3D** view is already active. Information on this can be found in the section *Changing the active view [▶Page 77]*.

1. Click on the **Turn the colored display for optical impressions off** icon in the **View toolbar**.
   ▶ SICAT Endo switches from display in color to monochrome display.

2. Click on the **Turn the colored display for optical impressions on** icon in the **View toolbar**.
   ▶ SICAT Endo switches from monochrome display to display in color.

26 ADJUSTING 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:

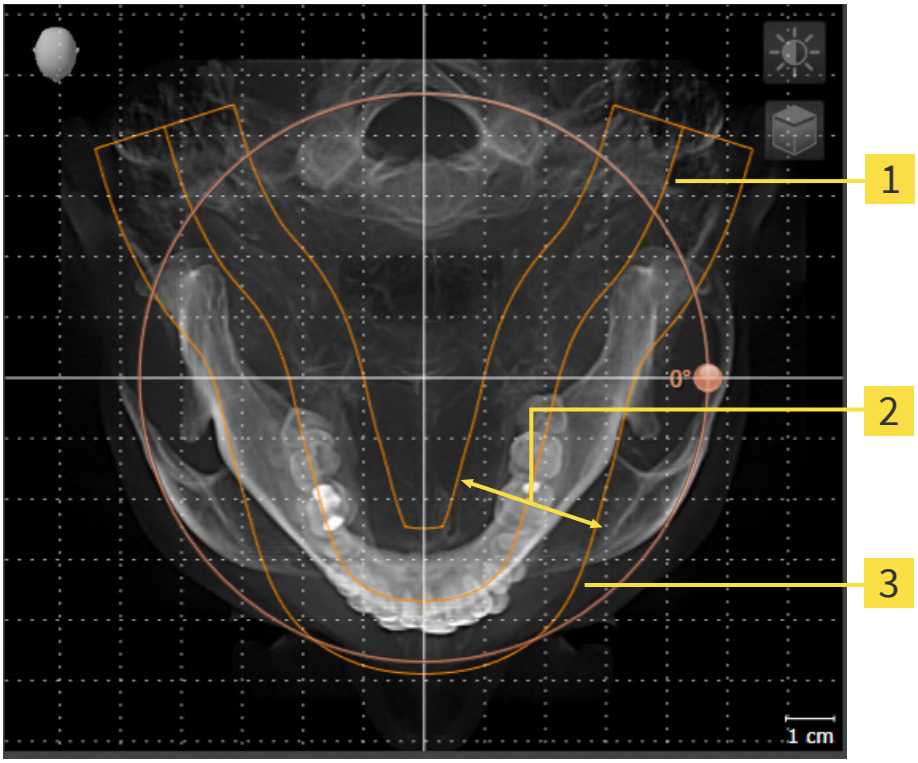
- Sub-optimal positioning of the patient during the 3D X-ray scan
- Orientation according to case, for example orientation of the axial slices parallel to the Frankfurt plane or parallel to the bite plane
- Optimizing the **Panorama** view

If you adjust the volume orientation in SICAT Endo, SICAT Endo applies your settings to your currently open planning.

Information on how to adjust the volume orientation can be found in the section *Adjusting the volume orientation [▶Page 99]*.

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, SICAT Endo applies your settings to your currently open planning.

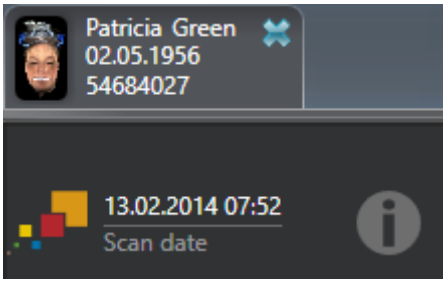
Information on adjusting the panoramic region can be found in the section *Adjusting the panoramic region [▶Page 104]*.

TRANSFER OF DATA FROM SIDEXIS 4

When a volume is first opened in SICAT Endo SICAT Endo applies the volume orientation and the panoramic region from SIDEXIS 4. The following restrictions apply here:

- SICAT Endo only supports rotations of the volume orientation up to a maximum of 30 degrees.
- SICAT Endo supports only standard panoramic curves from SIDEXIS 4, not the shifting of individual supporting points from SIDEXIS 4.
- 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 will not apply the volume orientation and panoramic region or will not apply 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 the information icon, you will receive the following information:

- Settings and data that are not transferred.
- Instructions on how to adjust the settings in SICAT Endo.

26.1 ADJUSTING THE VOLUME ORIENTATION

General information on volume orientation can be found in the section *Adjusting volume orientation and panoramic region [▶Page 96]*.

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

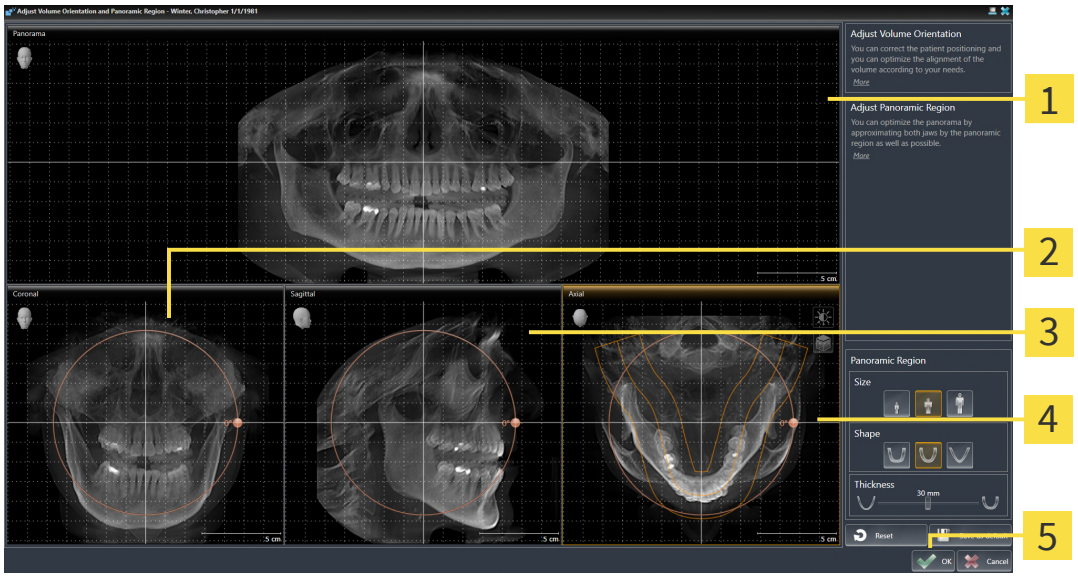
- Opening the **Adjust Volume Orientation and Panoramic Region** window
- Rotating volumes in the **Coronal** view
- Rotating volumes in the **Sagittal** view
- Rotating volumes in the **Axial** view

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 **Coronal** view with **Rotation** slider

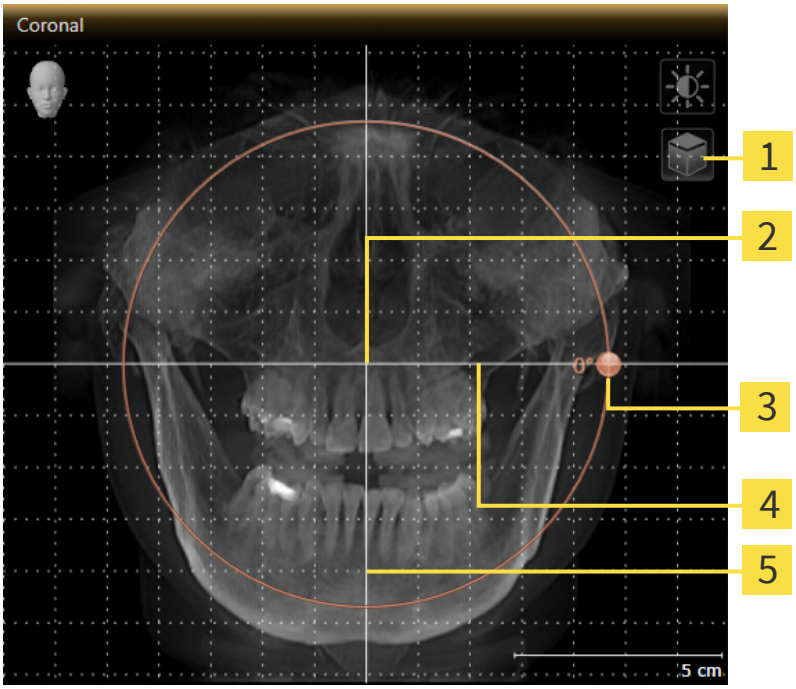
3 **Sagittal** view with **Rotation** slider

4 **Axial** view with **Rotation** slider

5 **OK** button

ROTATING VOLUMES IN THE CORONAL VIEW

1. Activate the **Coronal** view:



1 **Enable slices mode** icon or **Enable projection mode** icon

2 Center of rotation

3 **Rotation** slider

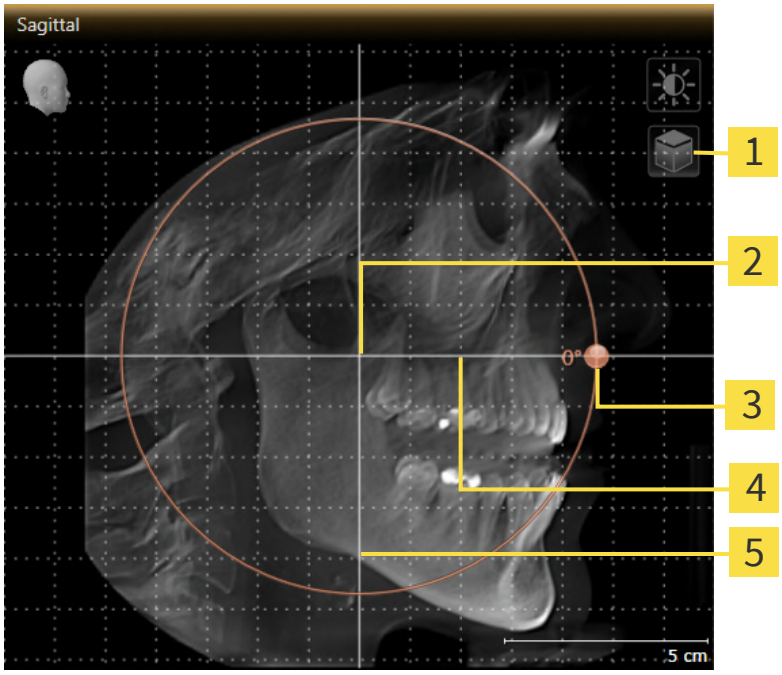
4 Horizontal reference line

5 Vertical reference line

2. Make sure that the projection mode is active. If the slice mode is active, click on the **Enable projection mode** icon.
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

2 Center of rotation

3 **Rotation** slider

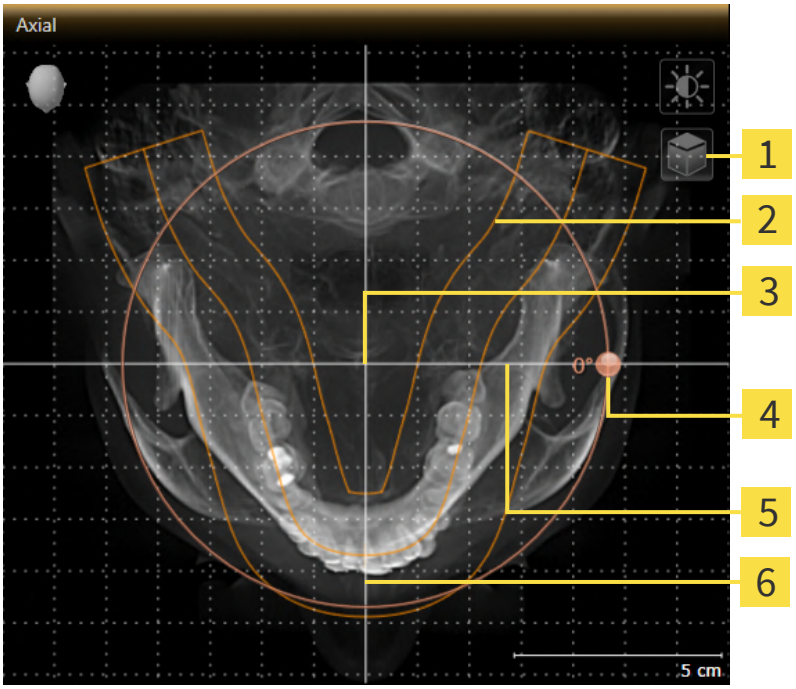
4 Horizontal reference line

5 Vertical reference line

2. Make sure that the projection mode is active. If the slice mode is active, click on the **Enable projection mode** icon.
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 slices mode** icon or **Enable projection 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 projection mode is active. If the slice mode is active, click on the **Enable projection mode** icon.
3. 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.
4. Place the mouse pointer on the **Rotation** slider.
5. Click and hold the left mouse button.
6. 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.
7. 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.
8. To save your changes, click **OK**.
   ▶ If the change of the volume orientation affects existing objects in SICAT Endo, SICAT Endo opens a message window which states the exact impact.

9. 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 79]*.
- You can zoom in the views. SICAT Endo synchronizes the zoom between the **Coronal** view and the **Sagittal** view.
- To save the current volume orientation and panoramic region as a default, click on the **Save as default** button.
- To reset the volume orientation and panoramic region to the last saved default setting, click on the **Reset** button.
- If you do not want to save your changes, click on **Cancel**.
- If you have opened data in viewer mode, your customizations will no longer be active after you close the data.

26.2 ADJUSTING THE PANORAMIC REGION

General information on the panoramic region can be found in the section *Adjusting volume orientation and panoramic region [▶Page 96]*.

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

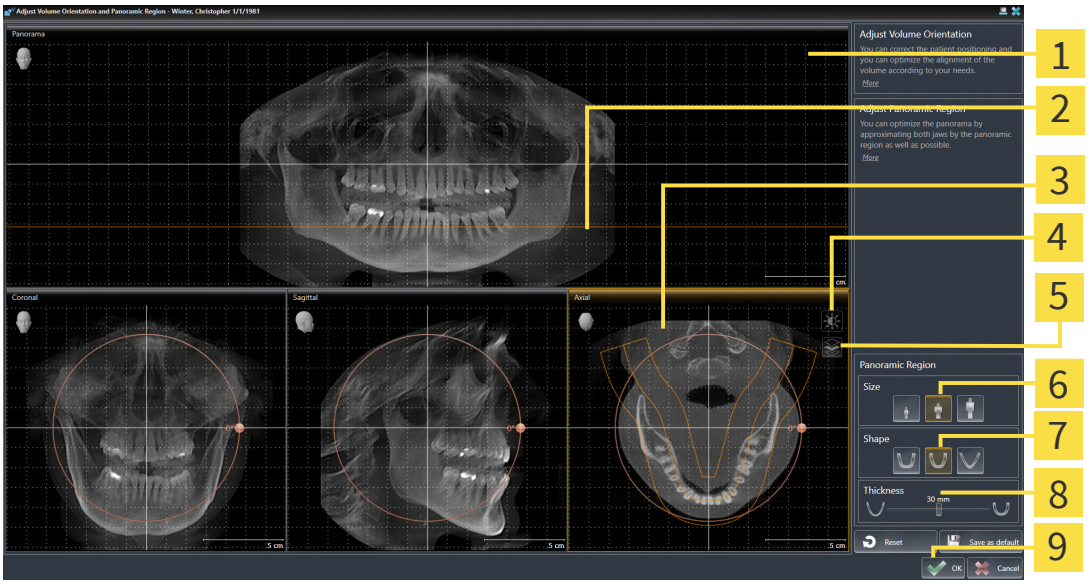
- Opening the **Adjust Volume Orientation and Panoramic Region** window
- Adjusting the slice position of the **Axial** view
- Moving the panoramic region
- Rotating volumes in the **Axial** view
- Adjusting **Size**, **Shape** and **Thickness** of the panoramic region

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. If the projection mode is active, click on the **Enable slices mode** icon.
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. Make sure that the projection mode is active. If the slice mode is active, click on the **Enable projection mode** icon.

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

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

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**.
   ▶ If the change of the panoramic region affects existing objects in SICAT Endo, SICAT Endo opens a message window which states the exact impact.
6. If you still want to adjust the panoramic region, click on the **Adjust** button in the message window.

▶ 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 79]*.
- You can zoom in the views. SICAT Endo synchronizes the zoom between the **Coronal** view and the **Sagittal** view.
- To save the current volume orientation and panoramic region as a default, click on the **Save as default** button.
- To reset the volume orientation and panoramic region to the last saved default setting, click on the **Reset** button.
- If you do not want to save your changes, click on **Cancel**.
- If you have opened data in viewer mode, your customizations will no longer be active after you close the data.

27 OPTICAL IMPRESSIONS

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

SICAT Endo can overlay (register) matching 3D X-ray data and optical impressions for the same patient. The overlaid representation provides additional information for planning and implementation. This allows you to implement the therapy based on optical impressions.

To use optical impressions, proceed as follows:

1. Import of optical impressions using the following import methods:
   - *Downloading optical impressions from the Hub [▶Page 109]*
   - *Importing optical impressions from a file [▶Page 112]*
   - *Transferring optical impressions from SIDEXIS 4 [▶Page 115]*
   - *Re-using optical impressions from SICAT applications [▶Page 116]*
2. Registration (overlay) of the optical impressions with 3D X-ray data: *Registering and checking optical impressions [▶Page 117]*

Registration is not required if optical impressions from a SICAT application are reused.

SICAT Endo supports the following data formats for optical impressions:

- SIXD data records that contain an optical impression of the maxilla or the mandible (at least 75 % of the maxillary and mandibular arch). Use this format if you are using a CEREC system that supports the SIXD format.
- SSI data records that contain an optical impression of the maxilla and the mandible (at least 75 % of the maxillary and mandibular arch). Use this format if you are using a CEREC system that does **not** support the SIXD format.
- STL data records* that contain an optical impression of the maxilla **or** the mandible (at least 75 % of the maxillary and mandibular arch). Use this format if you are using another CAD/CAM system that supports the STL format.

*You need an activated **SICAT Suite STL Import** license for STL data records. Additional steps must be observed when importing. Information on this can be found in the section *Additional steps for optical impressions in STL format [▶Page 114]*.

The following actions are available for optical impressions:

- Activating, hiding and showing optical impressions: *Managing objects with the object browser [▶Page 61]*
- Focusing on and removing optical impressions: *Managing objects with the object toolbar [▶Page 63]*
- Setting the display of optical impressions in color: *Switching off and switching on the display of optical impressions in color [▶Page 95]*

27.1 IMPORTING OPTICAL IMPRESSIONS

CAUTION

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.

CAUTION

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

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

CAUTION

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.

CAUTION

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.

CAUTION

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.

27.1.1 DOWNLOADING OPTICAL IMPRESSIONS FROM THE HUB

You can download optical impressions in SIXD format from the Hub and import them into SICAT Endo.

☑ The connection to the Hub is established. Information on this can be found in the section *Viewing Hub connection status [▶Page 200]*.

☑ The license for using the Hub is activated. Information on this can be found in the section *Licenses [▶Page 45]*.

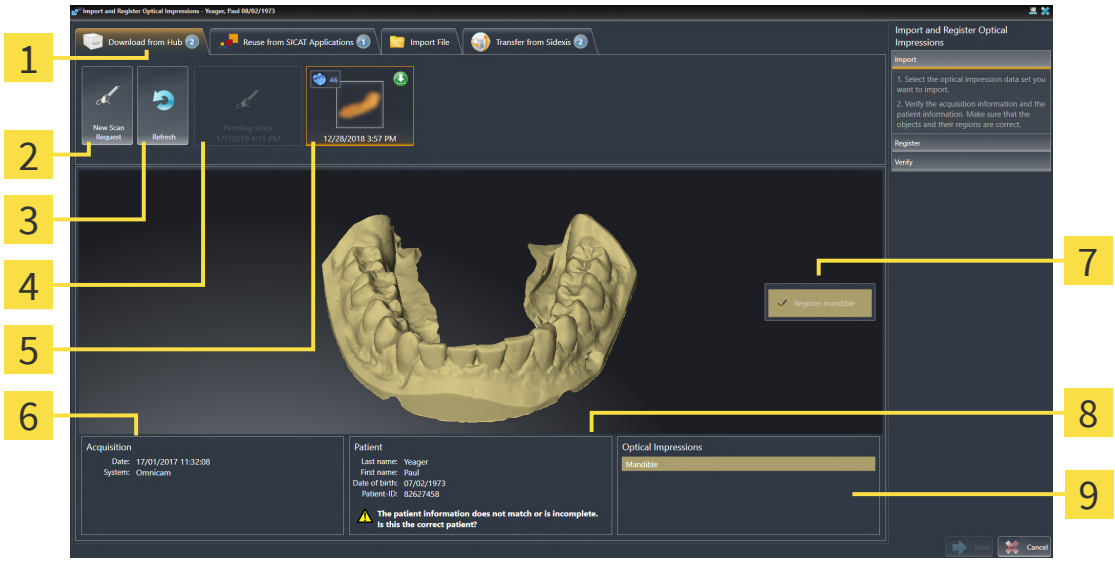
☑ The **Prepare** workflow step is expanded.

1. Click on the **Import and Register Optical Impressions** icon.

   ▶ SICAT Endo opens the **Import and Register Optical Impressions** wizard with the step **Import**.

2. Click on the **Download from Hub** tab.

   ▶ SICAT Endo displays outstanding scan jobs and available optical impressions.



1	**Download from Hub** tab
2	**New Scan Request** button
3	**Refresh** button
4	Scan request with status: pending not yet downloaded
5	Available optical impressions with status: not yet downloaded already downloaded
6	Scan information
7	Selection for registration
8	Patient information
9	**Optical Impressions** area

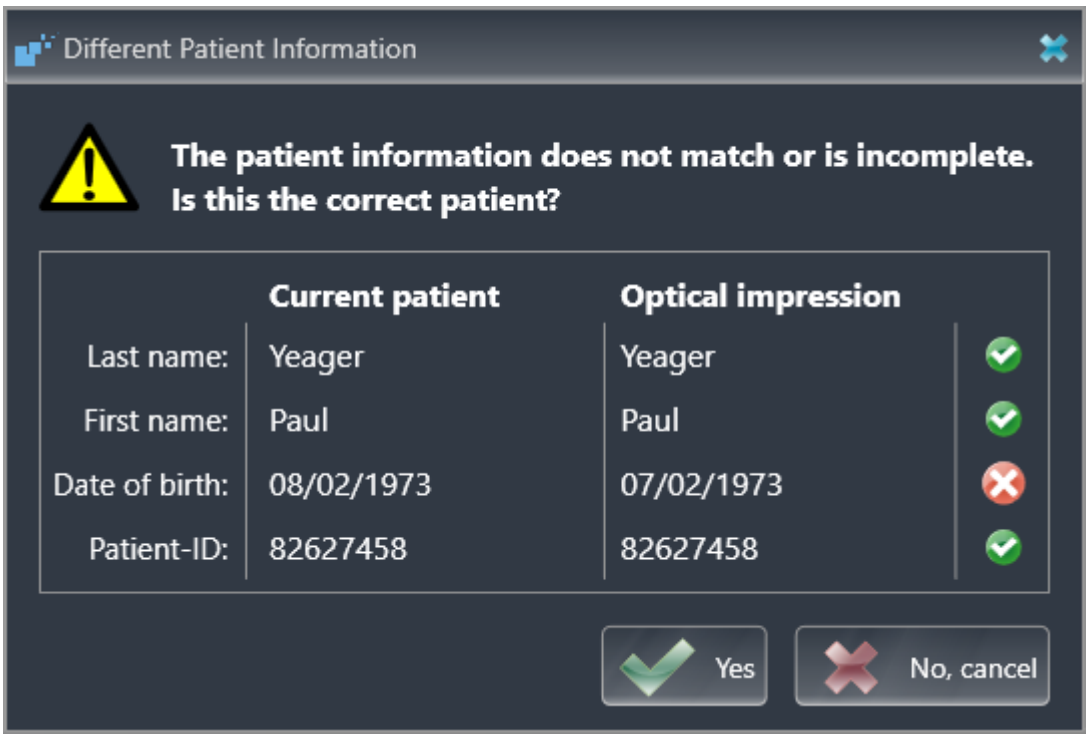
3. Click on the desired optical impression.

   ▶ SICAT Endo downloads the optical impression if the impression has not already been downloaded. After the impression has been downloaded, SICAT Endo displays the impression in the **3D** view.

   ▶ The maxilla or mandible is preselected for registration.

4. Check the selection for registration.

5. Check whether the scan information and patient information match.
6. Check that the correct jaw is displayed in the **Optical Impressions** area.
7. 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:



8. Compare the patient information. If you are sure that, despite different patient information, the optical impression matches the current patient, click on the **Yes** button.
   ▶ The **Register** step opens for the optical impression. Follow the steps in section *Registering and checking optical impressions [▶Page 117]*.

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

- If the desired optical impression is not displayed, you can refresh the overview by clicking on the **Refresh** button. Alternatively, you can send a scan request for recording the optical impression to the Hub. Information on this can be found in the section *Creating a scan request for an optical impression [▶Page 111]*.
- In the default setting, the connection to the Hub is disconnected. Information on the connection status can be found in the section *Viewing Hub connection status [▶Page 200]*.
- You can use the Hub if you have activated the corresponding license to use the Hub. Information on this can be found in the section *Licenses [▶Page 45]*.

27.1.1.1 CREATING A SCAN REQUEST FOR AN OPTICAL IMPRESSION

You can send a request for scanning optical impressions to the Hub.

☑ SIDEXIS 4 has established the connection with the Hub. Information on this can be found in the section *Viewing Hub connection status [▶Page 200]*.

☑ The license for using the Hub is activated. Information on this can be found in the section *Licenses [▶Page 45]*.

☑ 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 **Download from Hub** tab.
   ▶ SICAT Endo displays outstanding scan jobs and available optical impressions.

3. Click on the **New Scan Request** icon.
   ▶ SICAT Endo displays the **New Scan Request** window. You can now define specifications for the scan request.
4. Select a dentist.
5. **Defining the scan region:** Check the box Maxilla and/or Mandible.
6. If necessary, enter additional information such as scanning instructions.
7. To send the scan request to the Hub, click on **Create scan request** and confirm the query with OK.

▶ SICAT Endo sends the scan request to the Hub and displays the pending scan request in the **Download from Hub** tab with the icon .

▶ You can edit the scan request in CEREC and take an optical impression in CEREC.

27.1.2 IMPORTING OPTICAL IMPRESSIONS FROM A FILE

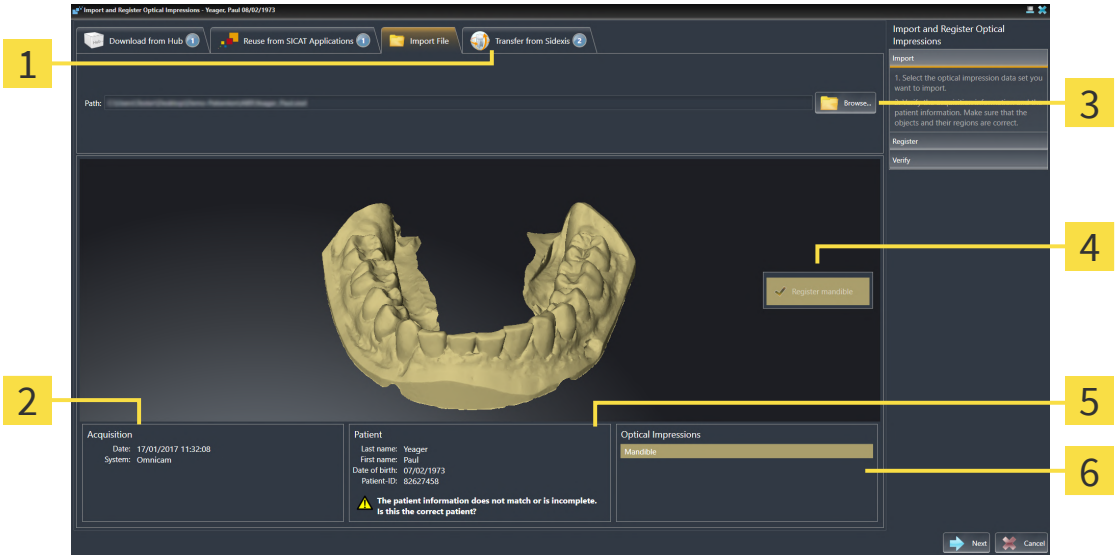
You can import one or more files with an optical impression.

☑ The **Prepare** workflow step is 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 **Import File** tab.



1 **Import File** tab	4 Selection for registration
2 Scan information	5 Patient information
3 **Browse** button	6 **Optical Impressions** area

3. Click on the **Browse** button.

4. In the **Open Optical Impression File** window, switch to the desired file with the optical impression, select the file and click on **Open**.

   ▶ SICAT Endo opens the selected file.

5. **Defining jaw assignment and orientation for STL file:** When you select an STL file with an optical impression of the maxilla or mandible, SICAT Endo opens a window where you can adjust the assignment and orientation of the jaw. To do this, follow the steps in section *Additional steps for optical impressions in STL format [▶Page 114]*. Then, continue with the next step.

   ▶ The maxilla or mandible is preselected for registration.

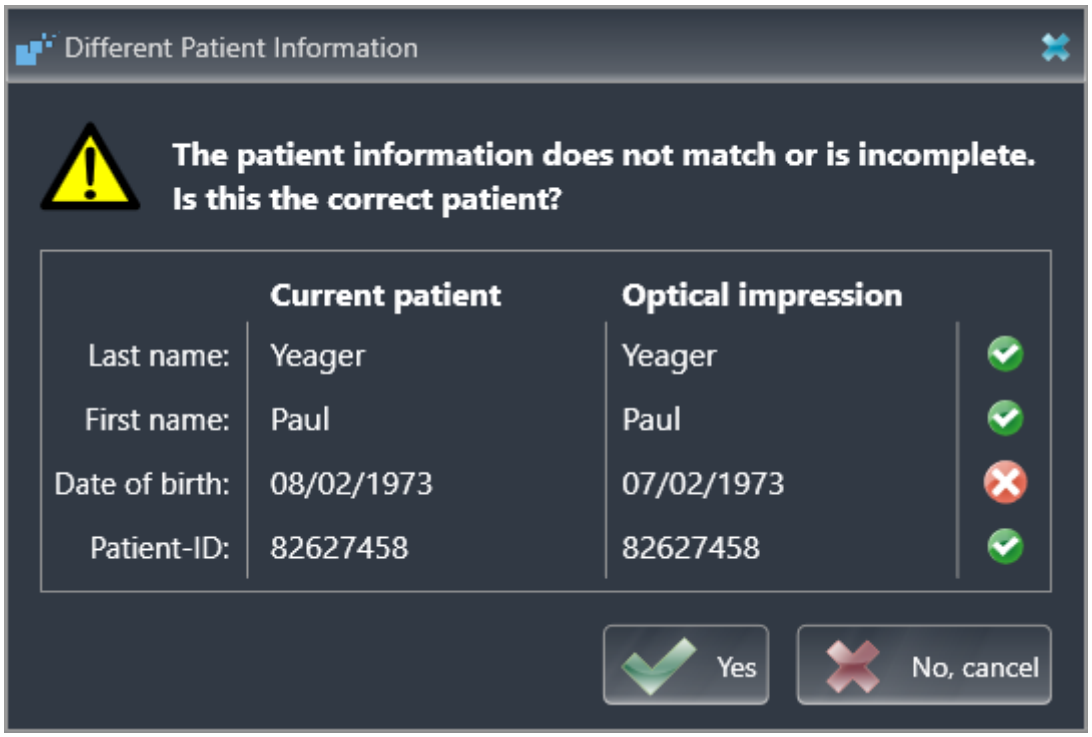
6. Check the selection for registration.

7. Check the scan information and patient information.

8. Check the jaws in the **Optical Impressions** area.

9. 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:



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

▶ The **Register** step opens for the optical impression. Follow the steps in section *Registering and checking optical impressions [▶Page 117]*.

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

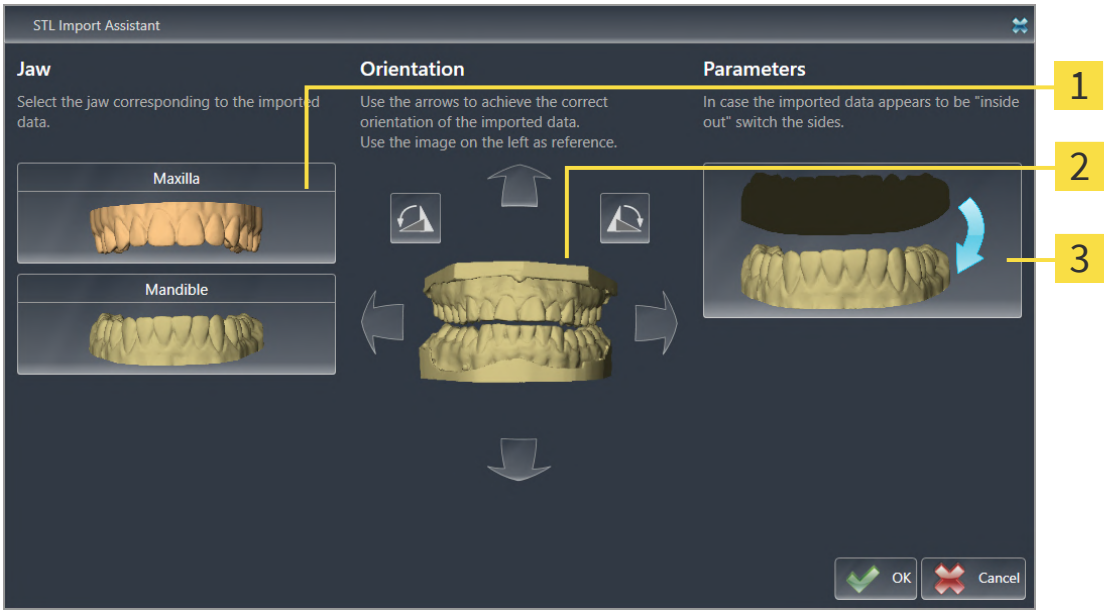
27.1.2.1 ADDITIONAL STEPS FOR OPTICAL IMPRESSIONS IN STL FORMAT

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 optical impressions from a file [▶Page 112]*.

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



1 Selection of the jaw

2 Changing the orientation

3 Switching inside and outside

2. In the **Jaw** area, select whether the optical impression contains the **Maxilla** or the **Mandible** 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 **Parameters** 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 import of the optical impressions. Information on this can be found in the section *Importing optical impressions from a file [▶Page 112]*.

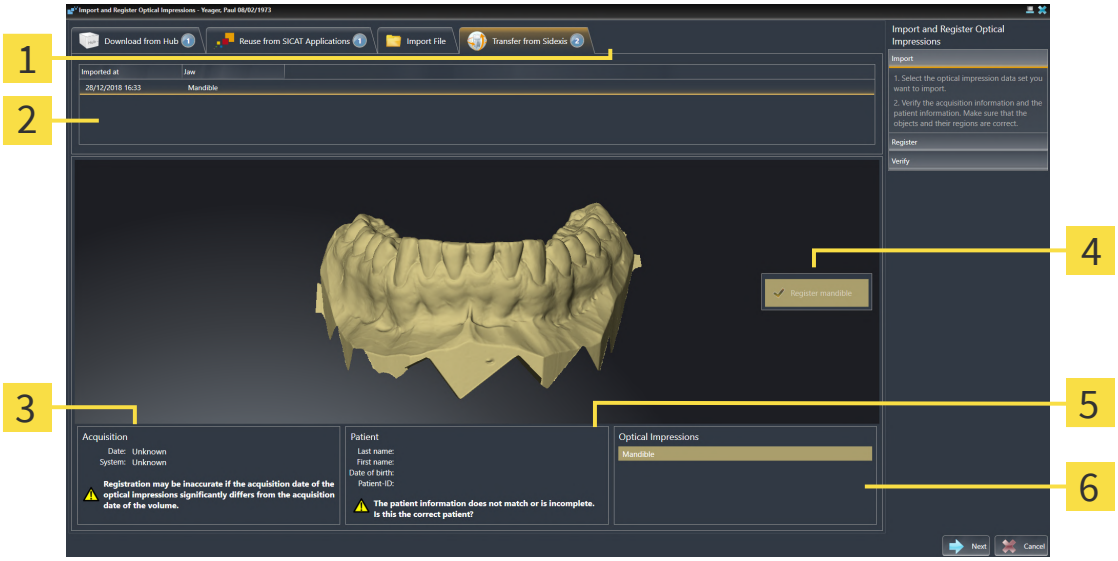
27.1.3 TRANSFERRING OPTICAL IMPRESSIONS FROM SIDEXIS 4

You can transfer optical impressions in STL format that have been imported into SIDEXIS 4 and have already been used there from SIDEXIS 4 to SICAT Endo.

☑ You are already using an optical impression of a jaw for the opened study in SIDEXIS 4 which you are not yet using in SICAT Endo.

☑ The **Prepare** workflow step is 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 **Transfer from Sidexis** tab. The tab will only be displayed if at least one optical impression in SIDEXIS 4 is suitable for planning in SICAT Endo.
3. In the upper area, click on the row with the optical impression that you want to transfer.
   ▶ SICAT Endo displays the optical impression selected:



1 **Transfer from Sidexis** tab

2 List of optical impressions

3 Scan information

4 Selection for registration

5 Patient information

6 **Optical Impressions** area

4. Check the selection for registration.
5. Check the scan information and patient information.
6. Check the jaws in the **Optical Impressions** area.
7. Click **Next**.
   ▶ The **Register** step opens for the optical impression. Follow the steps in section *Registering and checking optical impressions [▶Page 117]*.

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

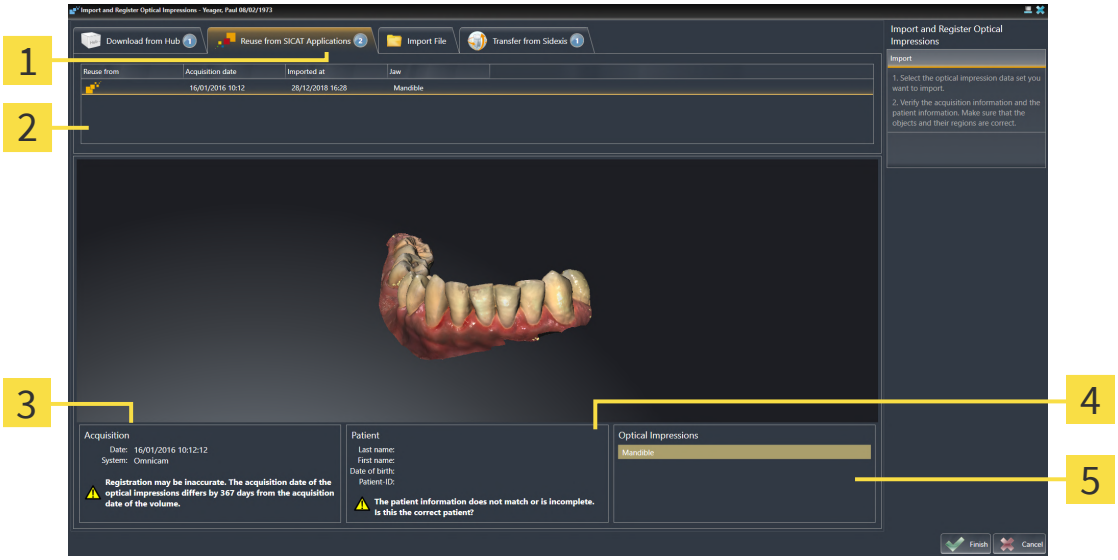
27.1.4 RE-USING OPTICAL IMPRESSIONS FROM SICAT APPLICATIONS

You can re-use optical impressions from a SICAT application.

☑ You have already imported a suitable optical impression for the opened study in a SICAT application, which you have not yet used in SICAT Endo.

☑ The **Prepare** workflow step is 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 **Reuse from SICAT Applications** tab.
3. In the upper area, click on the row with the optical impression that you want to re-use.
   ▶ SICAT Endo displays the optical impression selected:



1 **Reuse from SICAT Applications** tab

2 List of re-usable optical impressions

3 Scan information

4 Patient information

5 **Optical Impressions** area

4. Check the scan information and patient information.
5. Check the jaws in the **Optical Impressions** area.
6. Click on the **Finish** button.

▶ SICAT Endo closes the **Import and Register Optical Impressions** wizard.

▶ SICAT Endo adds the selected optical impressions to the **Object browser**.

▶ SICAT Endo displays the optical impression selected.

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

27.2 REGISTERING AND CHECKING OPTICAL IMPRESSIONS

CAUTION

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.

CAUTION

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.

CAUTION

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.

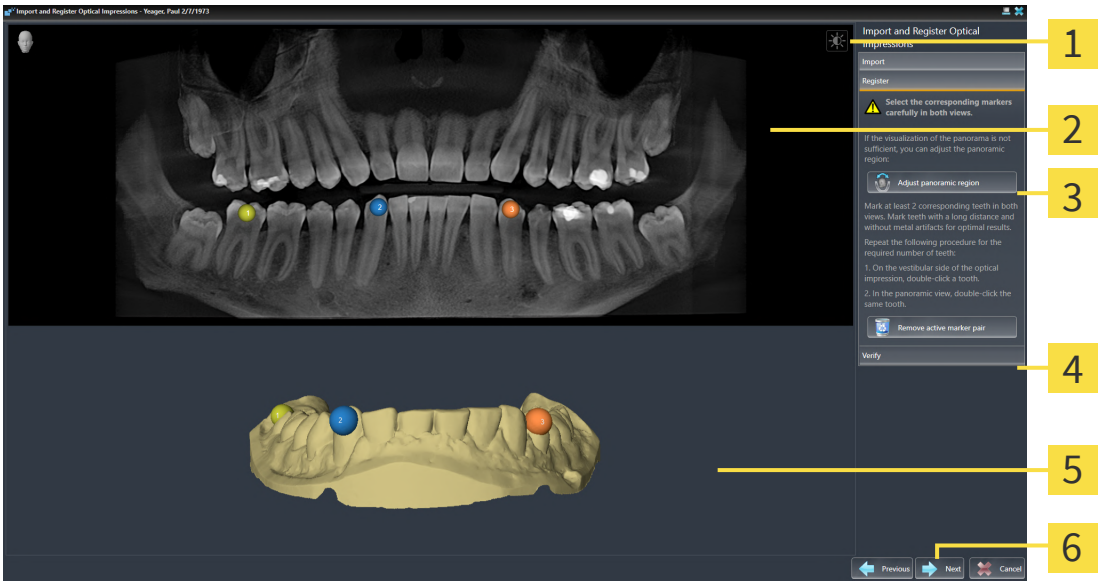
When you register optical impressions, carefully select corresponding markings in the 3D X-ray scans and optical impressions.

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**.

Optical impressions in color are automatically displayed in color in the **Import** step in the 3D preview. However, in the steps **Register** and **Verify** optical impressions in color are displayed in one color so that you can recognize the shape and geometry more exactly.

To register and check optical impressions, proceed as follows:

☑ The **Import and Register Optical Impressions** wizard is open at the **Register** step.



1 **Adjust brightness and contrast** icon	4 **Remove active marker pair** button
2 **Panorama** view	5 **3D** view which shows the first optical impression
3 **Adjust panoramic region** button	6 **Next** button

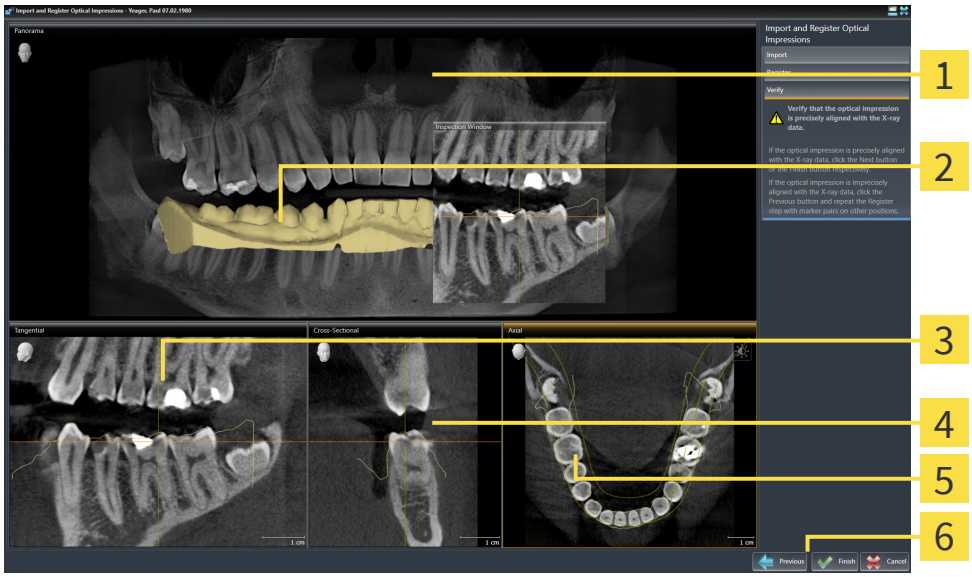
1. Double click the same tooth both in the **Panorama** view and on the vestibular side of the optical impression in the **3D** view. Make sure that the distance between individual teeth is as large as possible and mark only teeth without metal artifacts. Repeat this step until you have marked at least **two** matching teeth in both views.

   ▶ Markings with different colors and numbers in both views will display corresponding teeth in the optical impression.

2. 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

3. In the 2D views, check whether the optical impression is precisely aligned with the X-ray data. **In every slice view**, scroll through the slices and check the contours shown.

4. 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.

5. If the optical impression is precisely aligned to the X-ray data, click on the **Finish** button.

▶ SICAT Endo closes the **Import and Register Optical Impressions** wizard.

▶ 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 79]*.
- 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 104]*.
- If you wish to remove a specific marker pair in the **Register** step, you can select a marker from the pair in both views via mouse click and click on the **Remove active marker pair** button.
- If you want to cancel importing and registering optical impressions, click **Cancel**.

28 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

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

Insufficient quality of the intraoral records or 3D X-ray scans may cause the mechanism for registering the inraoral 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 123]*.

The following actions are available for intraoral scans:

- *Importing intraoral scans and allocating them to teeth [▶Page 124]*
- *Pre-positioning intraoral scans [▶Page 128]*
- *Registering intraoral scan [▶Page 130]*

28.1 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

28.2 IMPORTING INTRAORAL SCANS AND ALLOCATING THEM TO TEETH

General information on intraoral scans can be found in the section *Intraoral scans [▶Page 121]*.

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

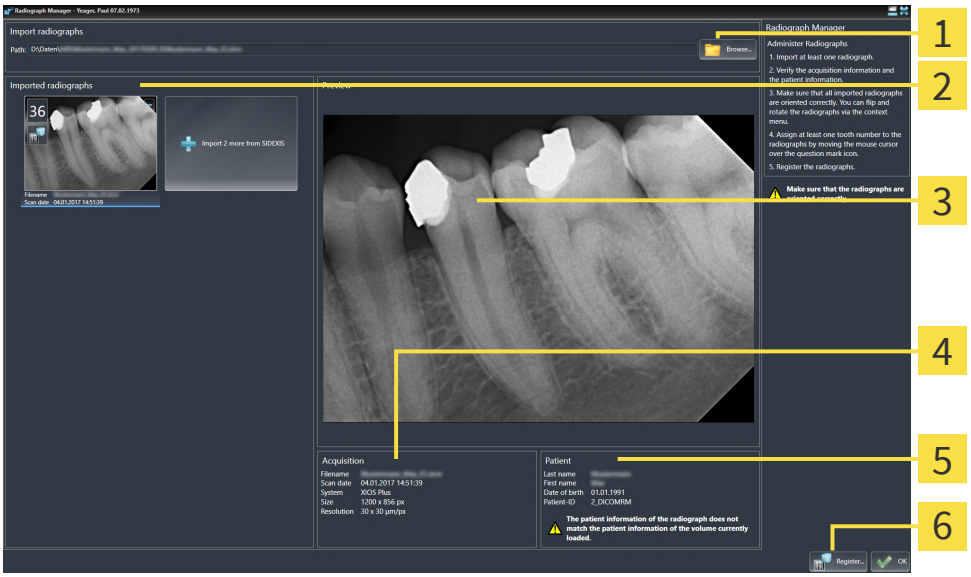
☑ The **Prepare** workflow step is already expanded. Information on this can be found in the section *Workflow toolbar [▶Page 58]*.

☑ 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 123]*.

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.

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 127]*

29 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 124]*.

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 128]*
- *Registering intraoral scan [▶Page 130]*

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 133]*.

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 136]*.

29.1 PRE-POSITIONING INTRAORAL SCANS

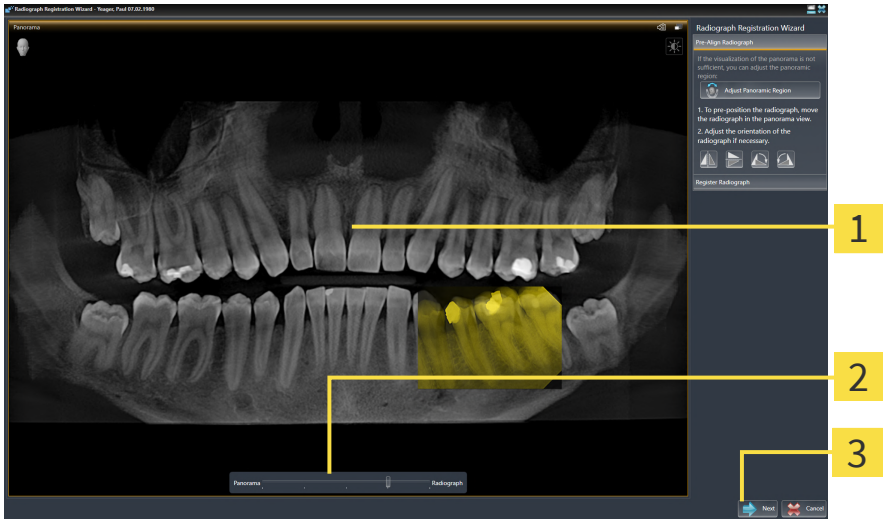
General information on the registration wizard can be found in the section *Registration wizard [▶Page 127]*.

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 58]*.

☑ 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 124]*.

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

2 **Transparency** slider

3 **Next** button

   ▶ 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.

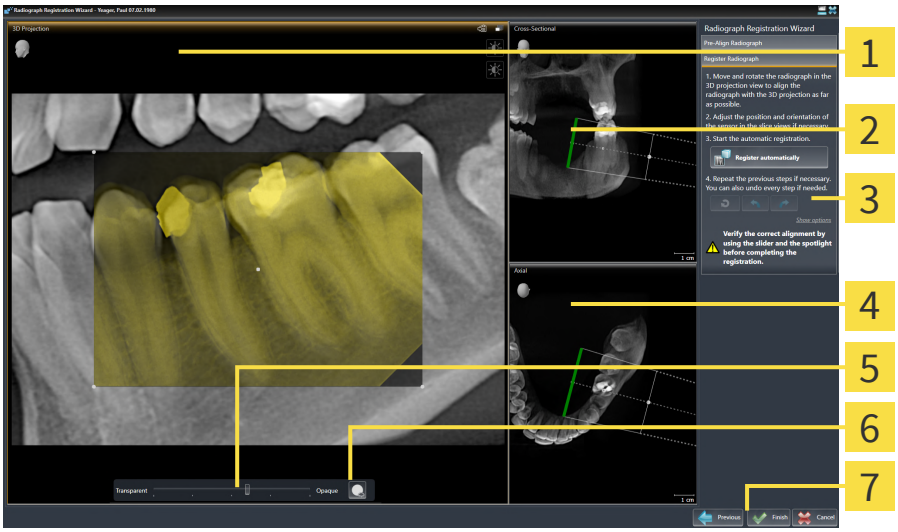
The check correct overlay of intraoral scan and panorama, you can adjust the transparency using the **transparency** slider.

Continue with the section *Registering intraoral scan [▶Page 130]*.

29.2 REGISTERING INTRAORAL SCAN

General information on the registration wizard can be found in the section *Registration wizard [▶Page 127]*.

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 automatically** 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 133]*.

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 136]*.

PERFORMING AUTOMATIC REGISTRATION

- To perform automatic registration, click on the **Register automatically** 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.

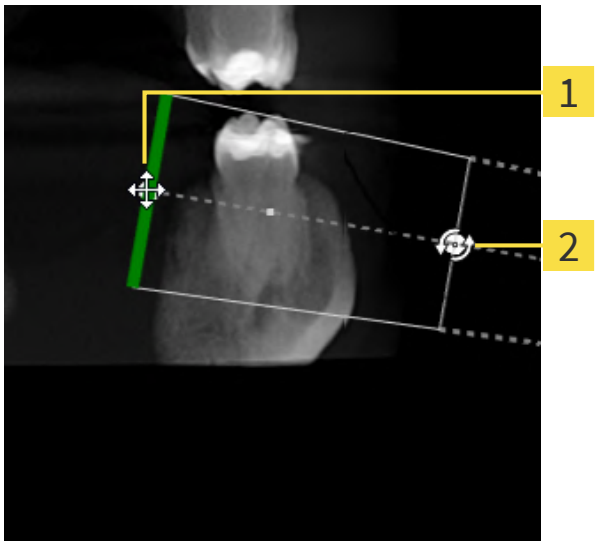
29.3 ADJUSTING PRE-ORIENTATION IN THE TRANSVERSAL AND AXIAL VIEW

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 130]*.

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

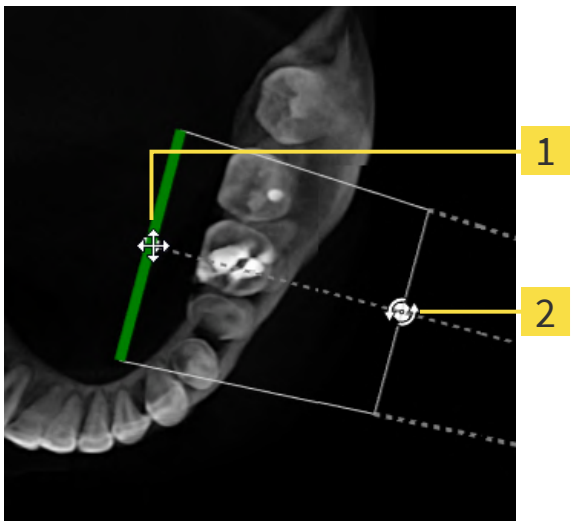
1. To rotate the orientation of the recording device and the sensor in the 3D X-ray scan, position the mouse pointer on control point **two** in the **Cross-Sectional** view.
   ▶ The mouse pointer becomes a circle with two rotating arrows.

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.

29.4 MASKING AREAS

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

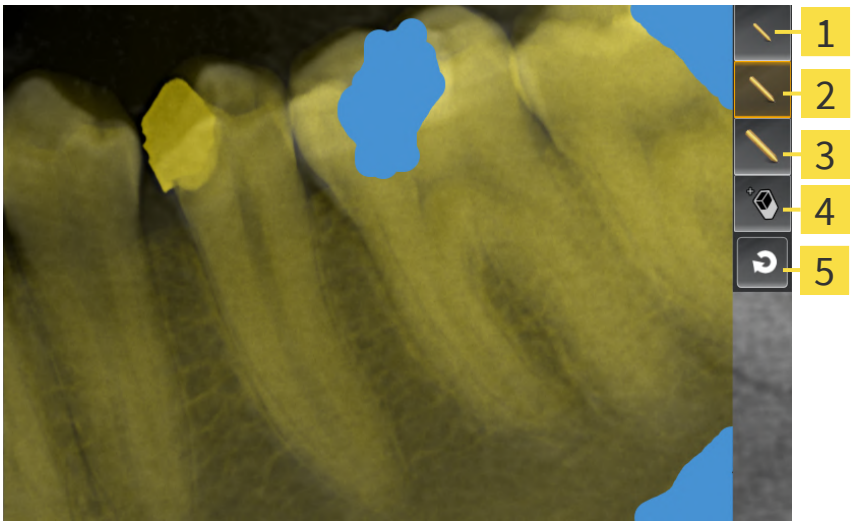
- Metal artifacts
- Teeth of the opposite jaw
- Edges in the intraoral scan that do not belong to the scan

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

2 **Use a medium paintbrush** button

3 **Use a large paintbrush** button

4 **Use an eraser** button

5 **Reset mask** 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.

30 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 124]*.
- *Registering intraoral scan [▶Page 130]*
- *Selecting a tooth for treatment planning [▶Page 146]*

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 139]*.

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 68]*.

The EndoLine wizard comprises the following steps:

- *Pre-aligning a tooth region [▶Page 147]*
- *Setting EndoLines [▶Page 149]*
- *Planning drill channels [▶Page 159]*

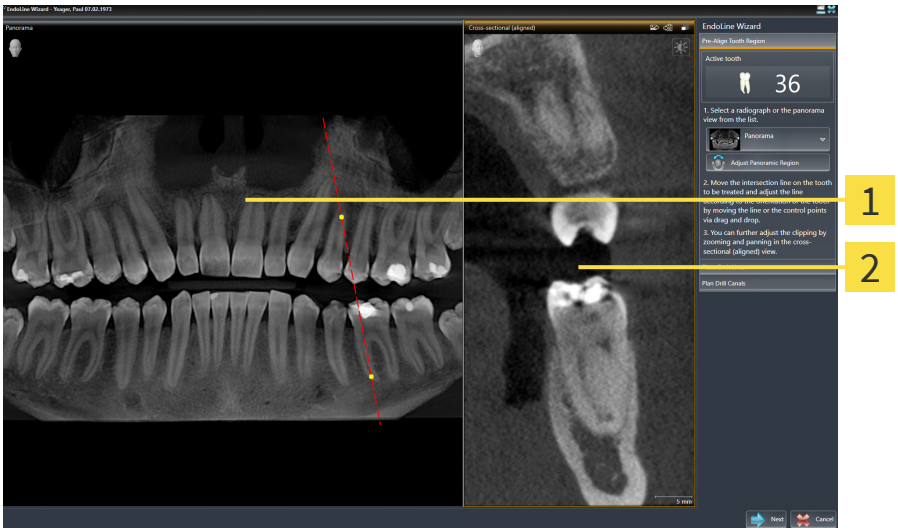
30.1 VIEWS IN THE ENDOLINE WIZARD

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 76]* and *Adjusting the 3D view [▶Page 89]*.

“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 146]*.

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.

"SET 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.

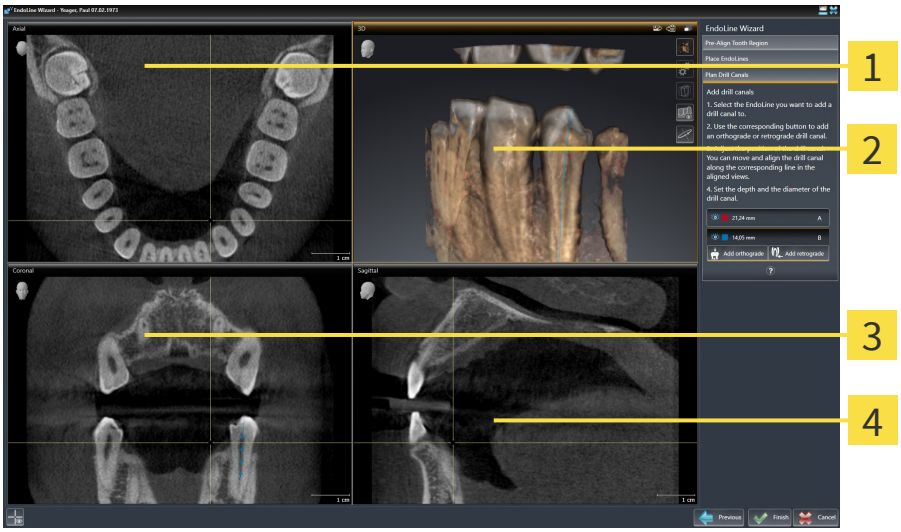
The **Axial (aligned)** view shows the tooth marked in the **Pre-Align Tooth Region** step from the top and aligned to the line of intersection previously created.

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 89]*.

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 144]*.

“PLAN DRILL CHANNELS” STEP

The following views are available in the **Plan Drill Canals** step:



1 **Axial** view

2 **3D** view

3 **Coronal** 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 89]*.

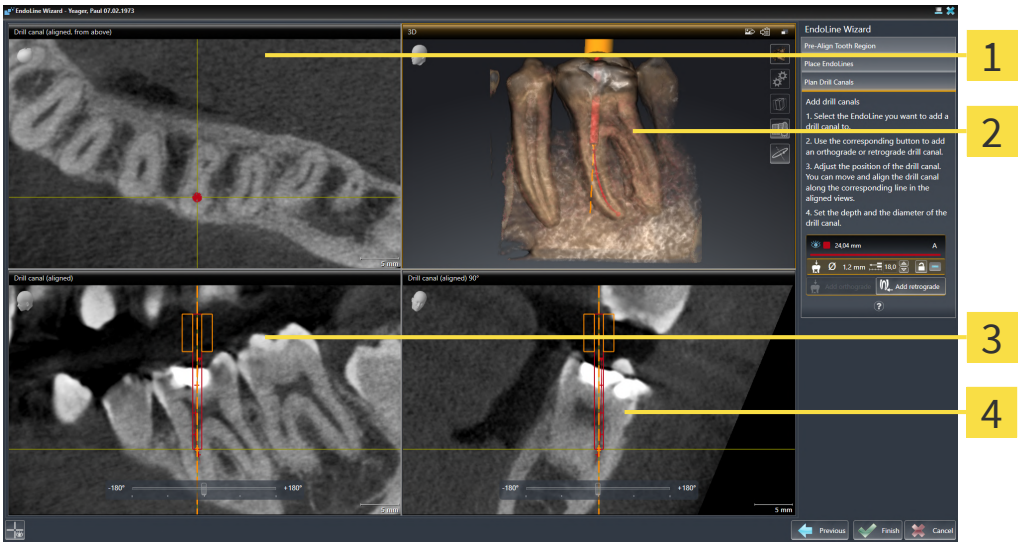
The **Coronal** view shows the EndoLine from the front.

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

2 **3D** view

3 **Drill canal (aligned)** 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.

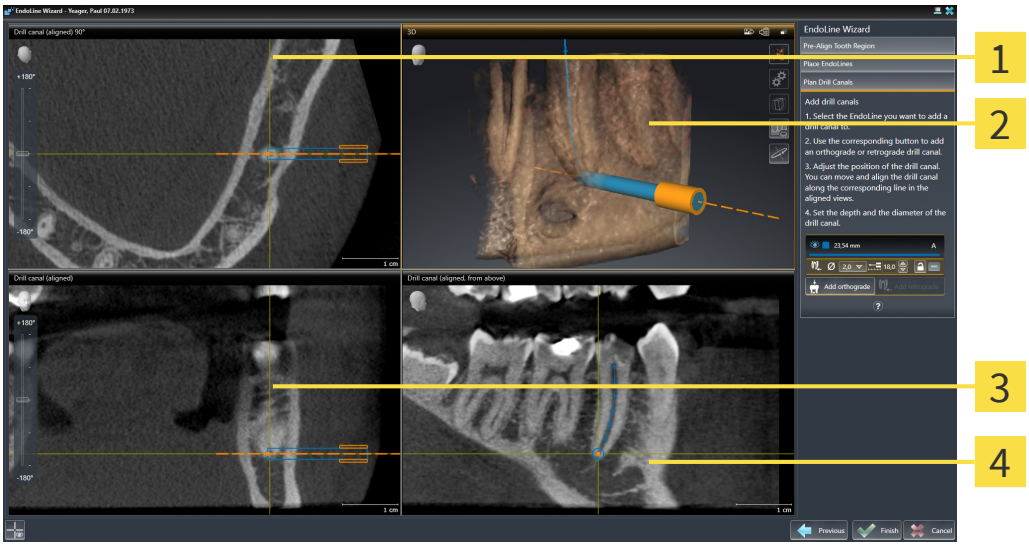
The **3D** view shows the drill channel that you have set in the 3D X-ray scan. Information on adjusting the **3D** view can be found in the section *Adjusting the 3D view [▶Page 89]*.

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

2 **3D** view

3 **Drill canal (aligned)** 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.

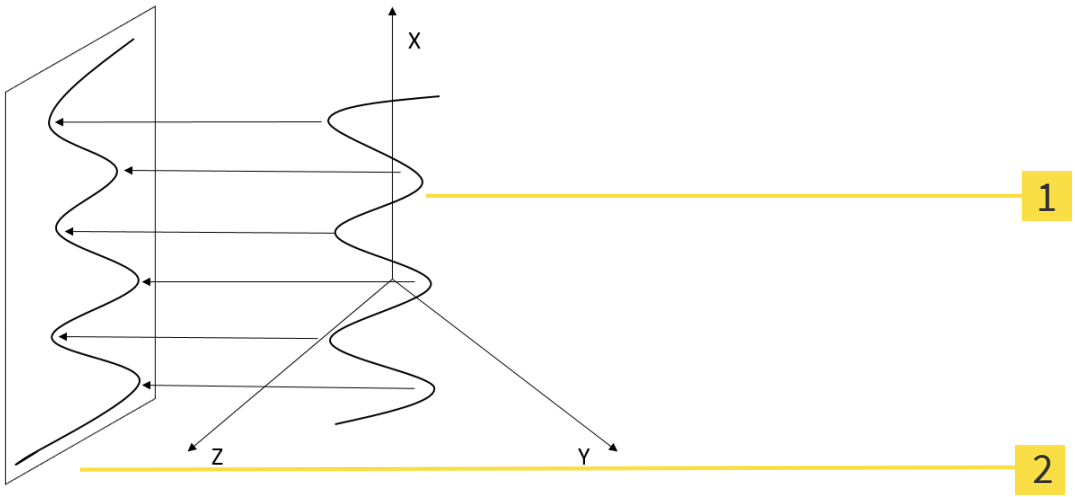
The **3D** view shows the drill channel that you have set in the 3D X-ray scan. Information on adjusting the **3D** view can be found in the section *Adjusting the 3D view [▶Page 89]*.

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.

30.1.1 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.

30.1.2 ROTATING ENDOVIEW

Information on EndoView can be found in the section *EndoView [▶Page 144]*.

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

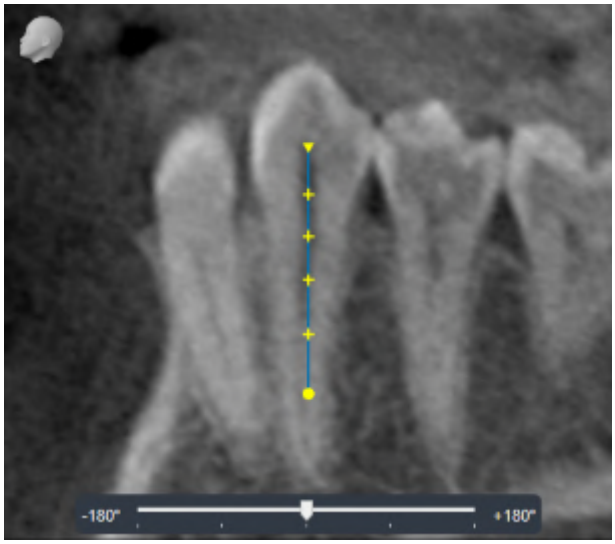
☑ The **Place EndoLines** step is already open. Information on this can be found in the section *Setting EndoLines [▶Page 149]*.

☑ 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.

30.2 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 68]*.

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.

30.3 PRE-ALIGNING A TOOTH REGION

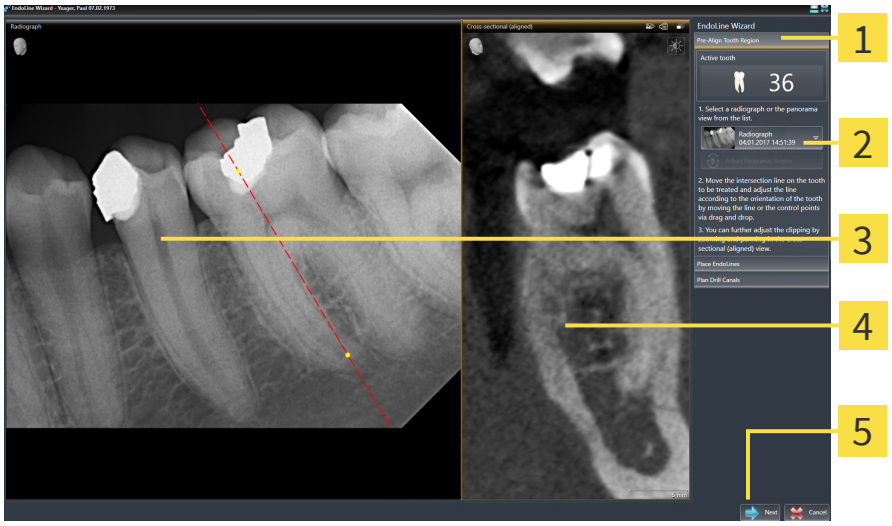
General information on the EndoLine wizard can be found in the section *EndoLine wizard [▶Page 138]*.

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 146]*.

☑ The **Diagnose** workflow step is already expanded. Information on this can be found in the section *Workflow toolbar [▶Page 58]*.

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 *Setting EndoLines [▶Page 149]*.

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 104]*.

30.4 SETTING 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.

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.

General information on the EndoLine wizard can be found in the section *EndoLine wizard [▶Page 138]*.

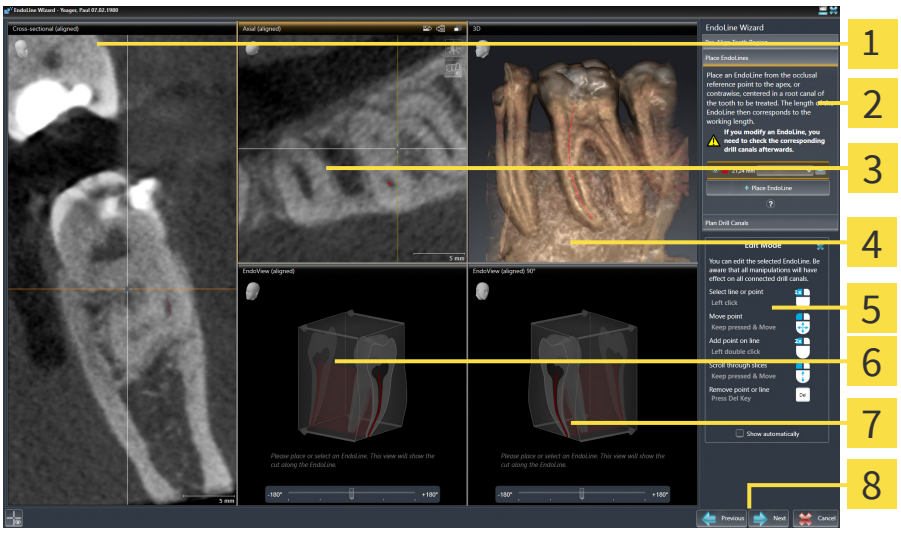
In the **Place EndoLines** step, you can mark the root canals that you want to treat in the aligned views using EndoLines.

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 147]*.

☑ The **Place EndoLines** step is already open.



1 **Cross-sectional (aligned)** view

2 **Place EndoLines** area

3 **Axial (aligned)** view

4 **3D** view

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 159]*.

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 152]*.

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 153]*.

You can use a rotation mode in the **3D** view. Information on this can be found in the section *Rotating the 3D view [▶Page 156]*.

You can view imported and registered optical impressions in the **3D** view. Information on this can be found in the section *Displaying optical impressions [▶Page 157]*.

You can show and hide the crosshairs in the **Cross-sectional (aligned)** view and in the **Axial (aligned)** view using the **Show crosshairs** button and the **Hide crosshairs** button.

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 158]*.

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.

30.5 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.

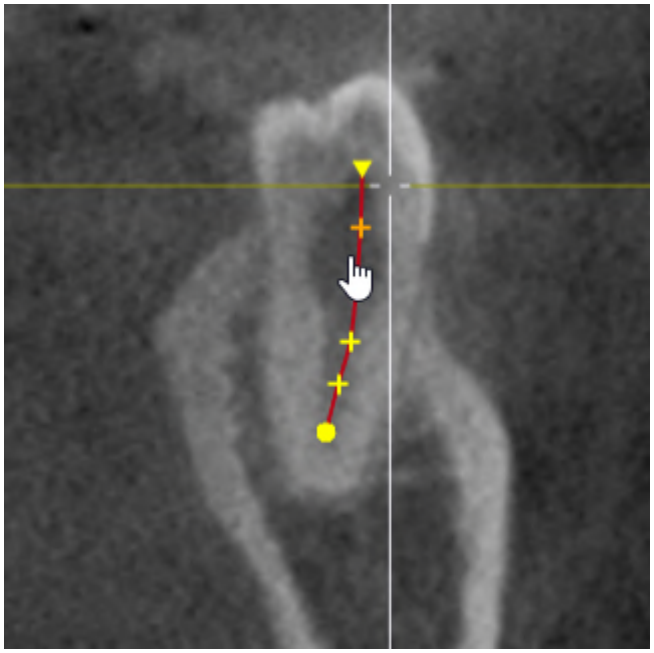
▶ SICAT Endo displays the new description or position specification.

30.6 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.

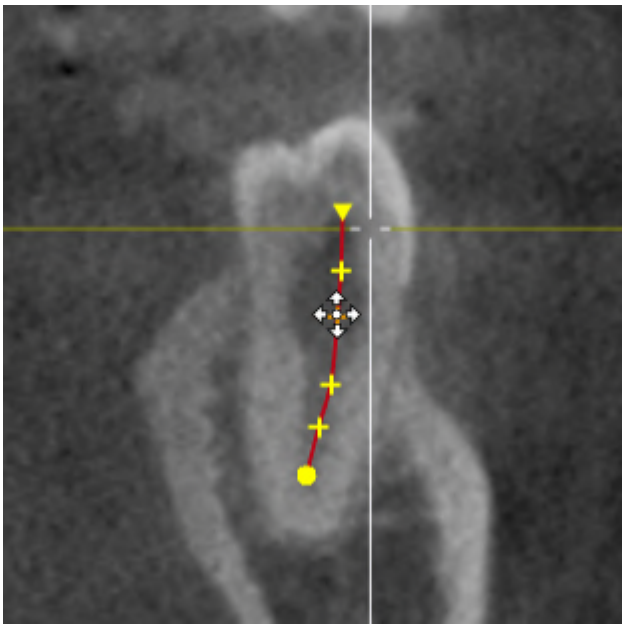
2. Double-click on the desired position.

► 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.

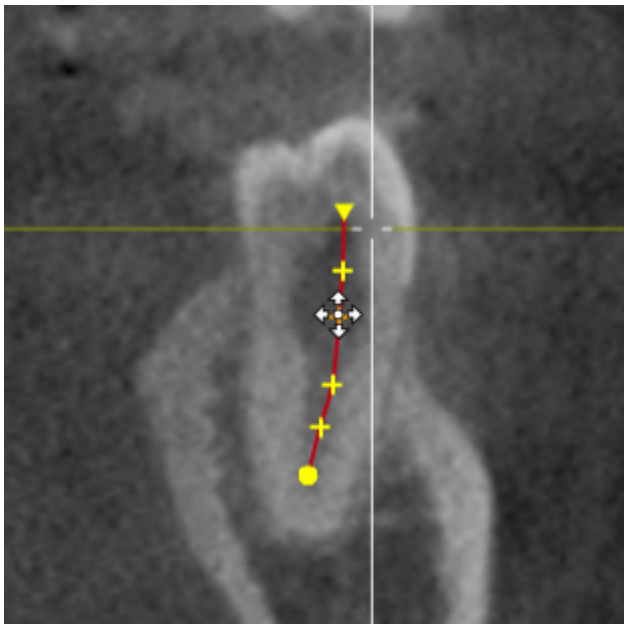
▶ SICAT Endo maintains the current position of the control point.

▶ 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.

30.7 ROTATING THE 3D VIEW

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 75]*.

1. Click on the **Spin 3D view** button.
   ▶ SICAT Endo rotates the 3D X-ray scan about the vertical axis of the selected section.
2. 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.

30.8 DISPLAYING OPTICAL IMPRESSIONS

General information on optical impressions can be found in the section *Optical impressions [▶Page 107]*.

If you have already imported and registered optical impressions, you can show and hide these optical impressions in the views in the EndoLine wizard.

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

☑ You have already activated the desired view. Information on this can be found in the section *Views [▶Page 75]*.

☑ You have already imported and registered at least one optical impression. Information on this can be found in the section *Optical impressions [▶Page 107]*.

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.

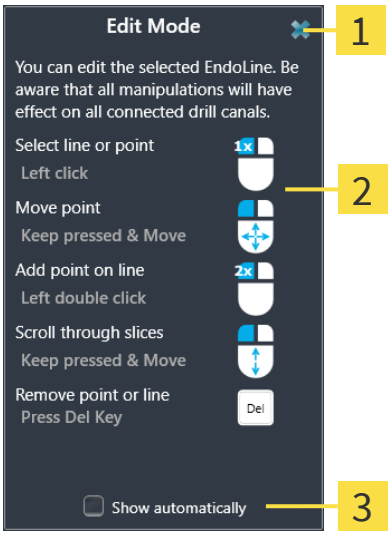
▶ SICAT Endo hides the optical impressions.

▶ 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.

30.9 USING MOUSE KEYS

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



1 **Close** button

2 Picture

2 **Show automatically** check box

The action that is associated with a mouse key depends on the editing mode.

SICAT Endo distinguishes the following editing modes:

- Creation mode
- Editing mode

Depending on the editing mode, different actions are available. The available actions are displayed in the overview and illustrated using a picture.

You can display the overview using the **Show help** button.

You can move the overview to another position using drag & drop.

To close the overview, click on the **Close** button.

If you activate the **Show automatically** check box, the overview is displayed automatically when setting or editing an EndoLine.

30.10 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 138]*.

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.

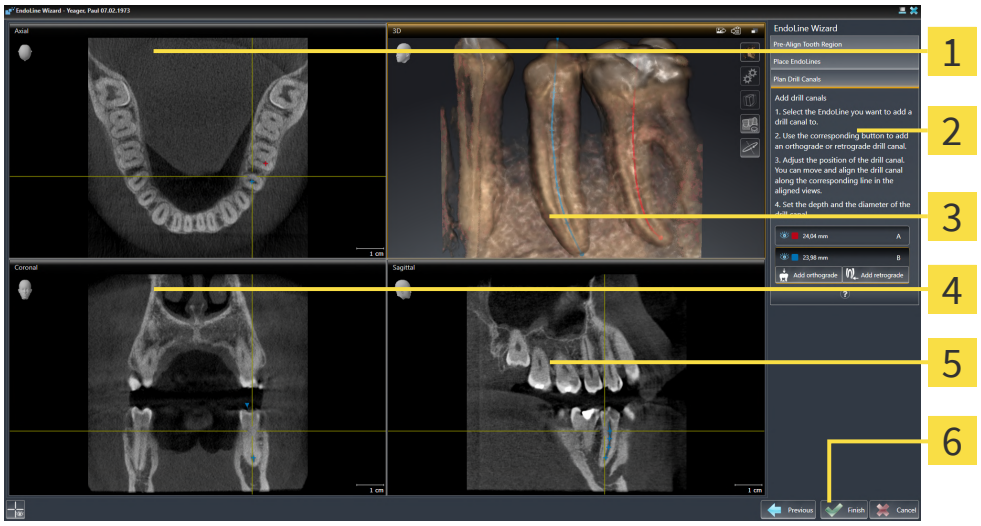
OPENING THE PLAN DRILL CANALS STEP

☑ You have finished the **Place EndoLines** step. Information on this can be found in the section *Setting EndoLines [▶Page 149]*.

☑ 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

2 **Add drill canals** area

3 **3D** view

4 **Coronal** view

5 **Sagittal** view

6 **Finish** button

PLANNING ORTHOGRADE DRILL CHANNELS

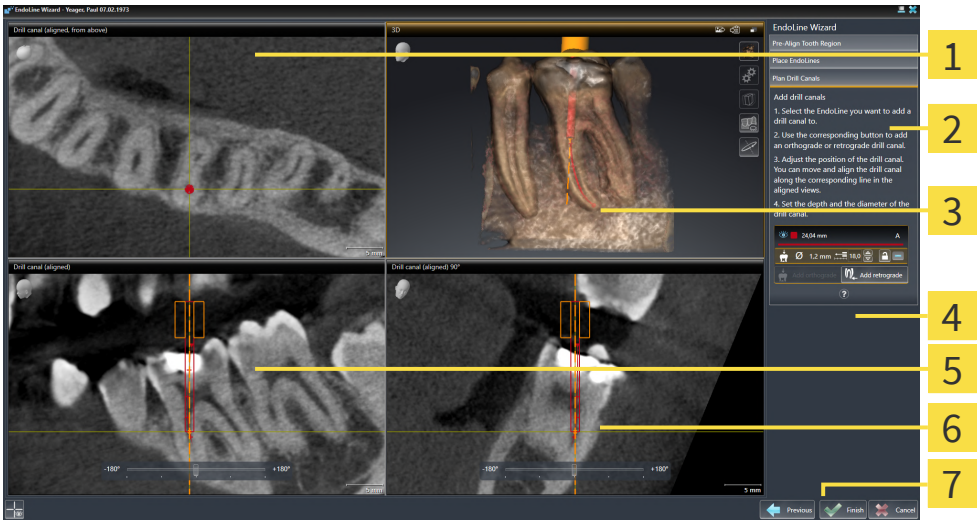
1. In the **Add drill canals** area, select the EndoLine to which you want to add an orthograde drill channel.

   ▶ 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

2 **Add drill canals** area

3 **3D** view

4 Infographic

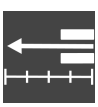
5 **Drill canal (aligned)** view

6 **Drill canal (aligned) 90°** view

7 **Finish** 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. 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.

> You can show and hide the crosshairs in the **Drill canal (aligned, from above)**, **Drill canal (aligned)** and **Drill canal (aligned) 90°** views using the **Show crosshairs** button and the **Hide crosshairs** button.

PLANNING RETROGRADE DRILL CHANNELS

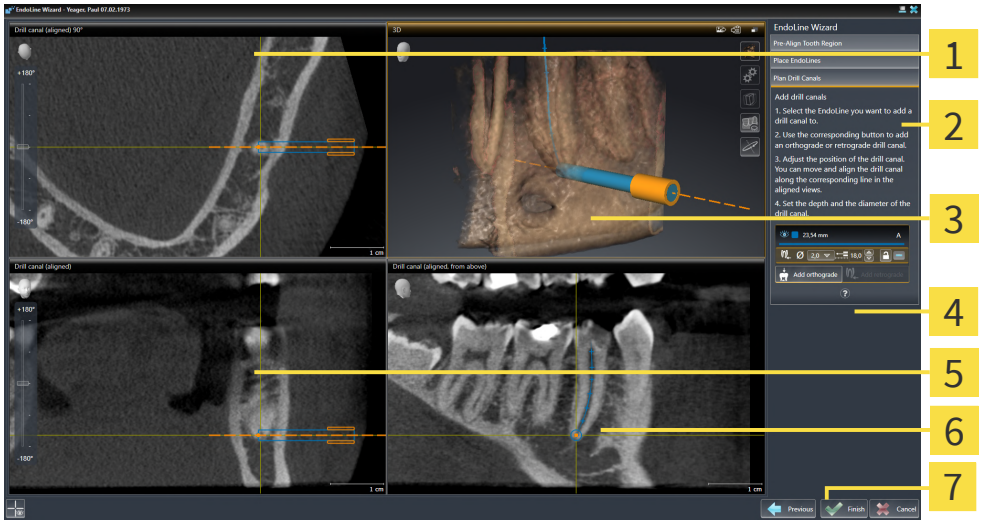
1. In the **Add drill canals** area, select the EndoLine that you want to add a retrograde drill channel to.

▶ 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

2 **Add drill canals** area

3 **3D** view

4 Infographic

5 **Drill canal (aligned)** view

6 **Drill canal (aligned, from above)** view

7 **Finish** 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.

You can show and hide the crosshairs in the **Drill canal (aligned, from above)**, **Drill canal (aligned)** and **Drill canal (aligned) 90°** views using the **Show crosshairs** button and the **Hide crosshairs** button.

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.

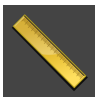
3. Click on the **Delete drill canal** button at the end of the row.

▶ 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.

31 DISTANCE AND ANGLE MEASUREMENTS

SICAT Endo features two different types of measurement:



- Distance measurements

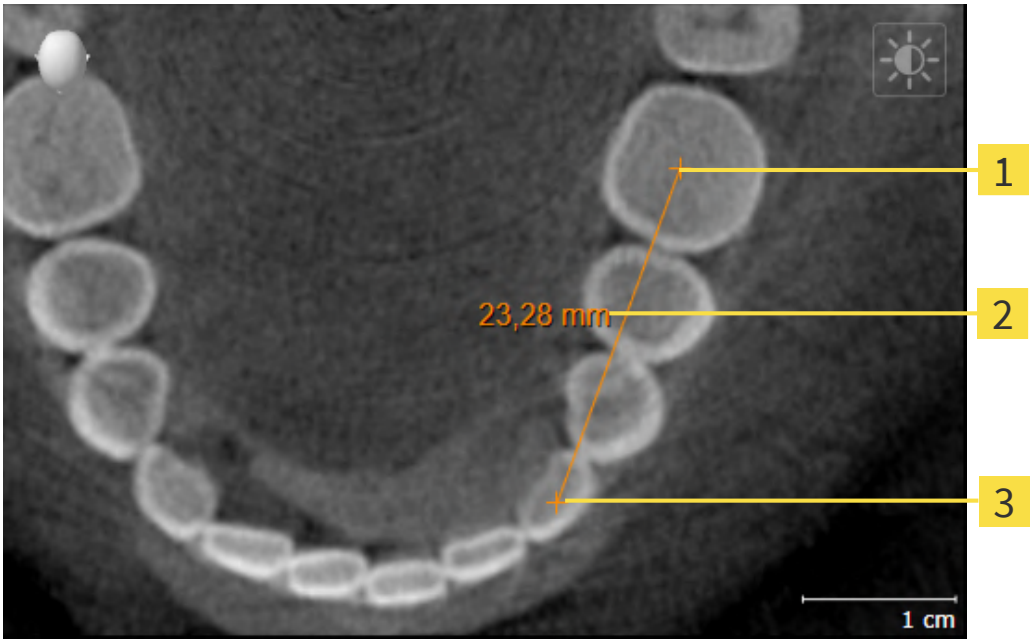
- Angle measurements

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 165]*
- *Adding angle measurements [▶Page 166]*
- *Moving measurements, individual measuring points and measured values [▶Page 168]*
- Activating, hiding and showing measurements - Information on this can be found in the section *Managing objects with the object browser [▶Page 61]*.
- 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 63]*.

31.1 ADDING DISTANCE MEASUREMENTS



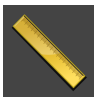
1 Starting point

2 Measured value

3 End point

To add a distance measurement, proceed as follows:

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

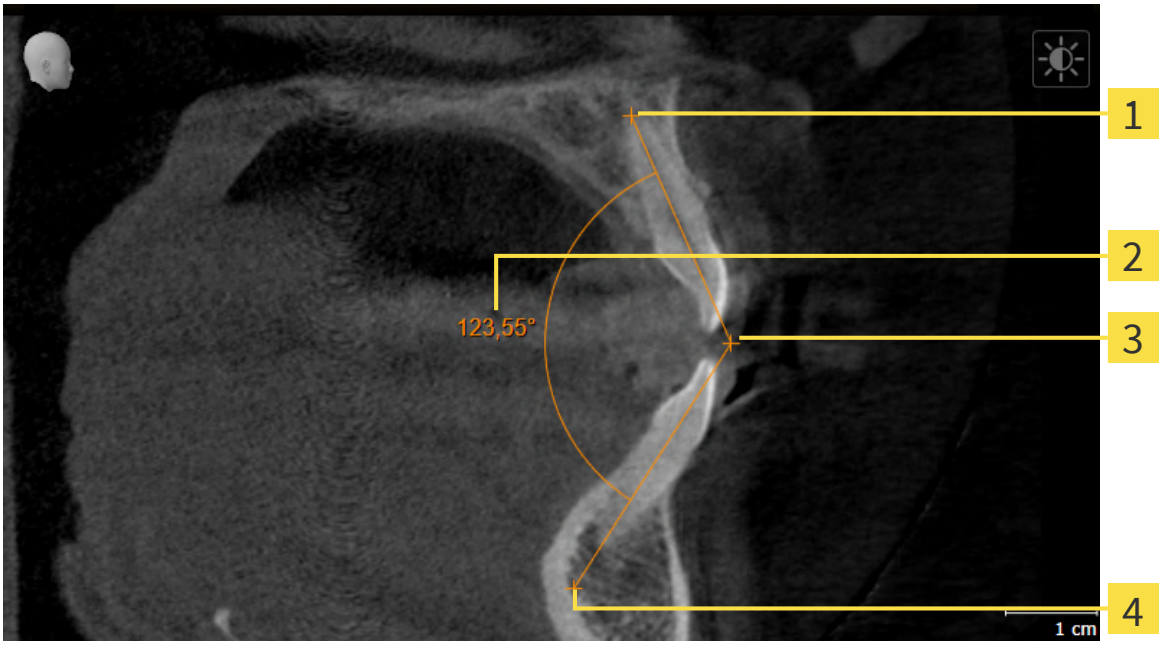


1. In the **Diagnose** workflow step, click the **Add distance measurement (D)** icon.
   ▶ SICAT Endo adds a new distance measurement to the **Object browser**.
2. Move the mouse pointer over the desired 2D slice view.
   ▶ The mouse pointer becomes a cross.
3. Click on the starting point of the distance 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**.

31.2 ADDING ANGLE MEASUREMENTS



1 Starting point

2 Measured value

3 Vertex

4 End point

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 arm 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 arm of the angle measurement by a line from the vertex to the mouse pointer.
   ▶ SICAT Endo shows the current angle between both arms of the angle measurement and in the **Object browser**.

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

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

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

31.3 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 61]* and *Managing objects with the object toolbar [▶Page 63]*.

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 61]* and *Managing objects with the object toolbar [▶Page 63]*.

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 61]* and *Managing objects with the object toolbar [▶Page 63]*.

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.

32 PATIENT INFORMATION

⚠ **CAUTION**	**Using the report for diagnostic 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 report

You can compile the contents of the report during your explanations on the screen.

The sources are images based on drawing objects and screenshots.

The report enables the patient to better understand the results you have discussed and discuss them with others.

Creating the report consists of the following steps:

- *Creating images and screenshots [▶Page 171]*
- *Preparing reports [▶Page 174]*
- *Generating reports [▶Page 178]*

32.1 CREATING IMAGES AND SCREENSHOTS

General information on patient information can be found in the section Patient information.

General information on managing images and screenshots can be found in the section *SICAT Endo objects [▶Page 64]*.

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 99]*.

☑ 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 99]*.

☑ 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.

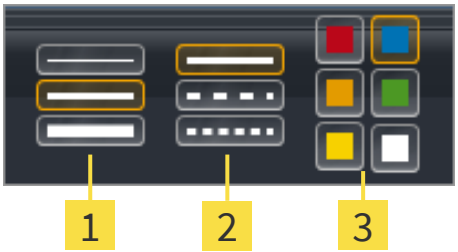
CONFIGURING DRAWING TOOLS

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 “REPORT GENERATION" 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 report, 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 reports [▶Page 174]*.

32.2 PREPARING REPORTS

General information on patient information can be found in the section *Patient information [▶Page 170]*.

The following actions are available to prepare reports:

- Open the **Report Generation** window
- Change report settings
- Preparing elements

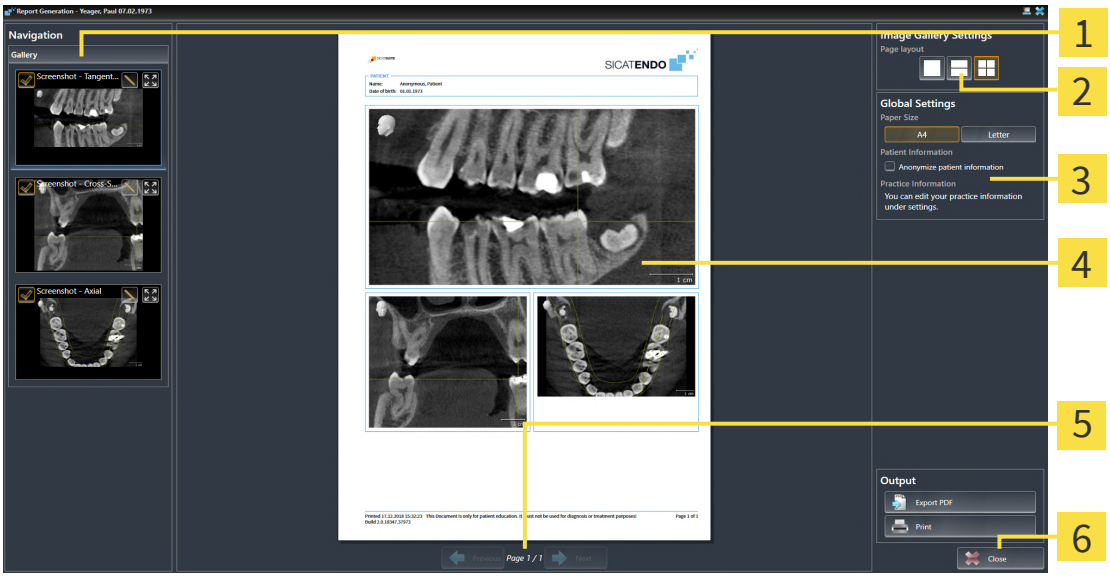
OPENING THE “REPORT GENERATION" WINDOW

☑ 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 report** icon.

▶ The **Report Generation** window opens:



1	**Gallery** area	4	Preview
2	Buttons for arranging the images	5	Page navigation
3	**Global Settings** area	6	**Close** button

CHANGE REPORT 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.

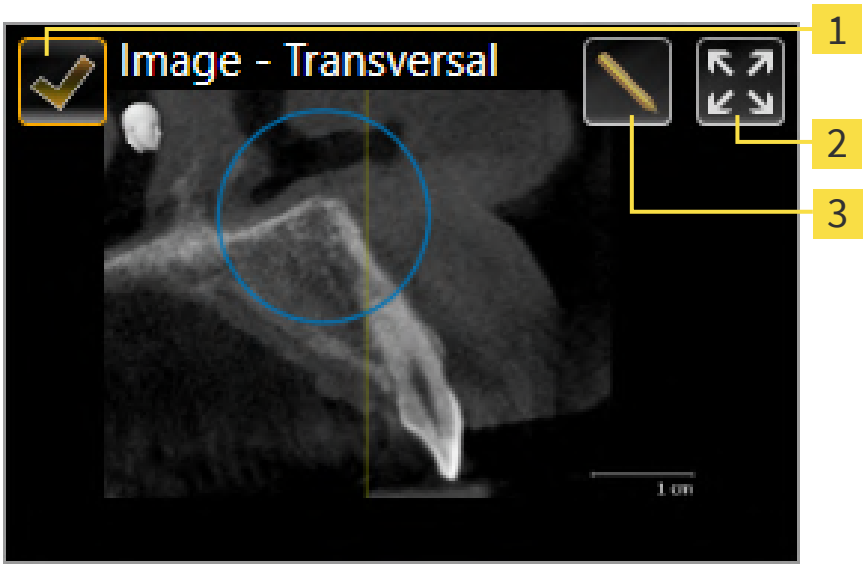
   ▶ SICAT Endo shows on the report the actual patient information or anonymized patient information according to the selected settings.

PREPARING ELEMENTS FOR REPORTS

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 171]*.

To prepare elements for reports, proceed as follows:

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



1 Check box for hiding and showing

2 **Show image on single page** icon

3 **Edit image description** icon

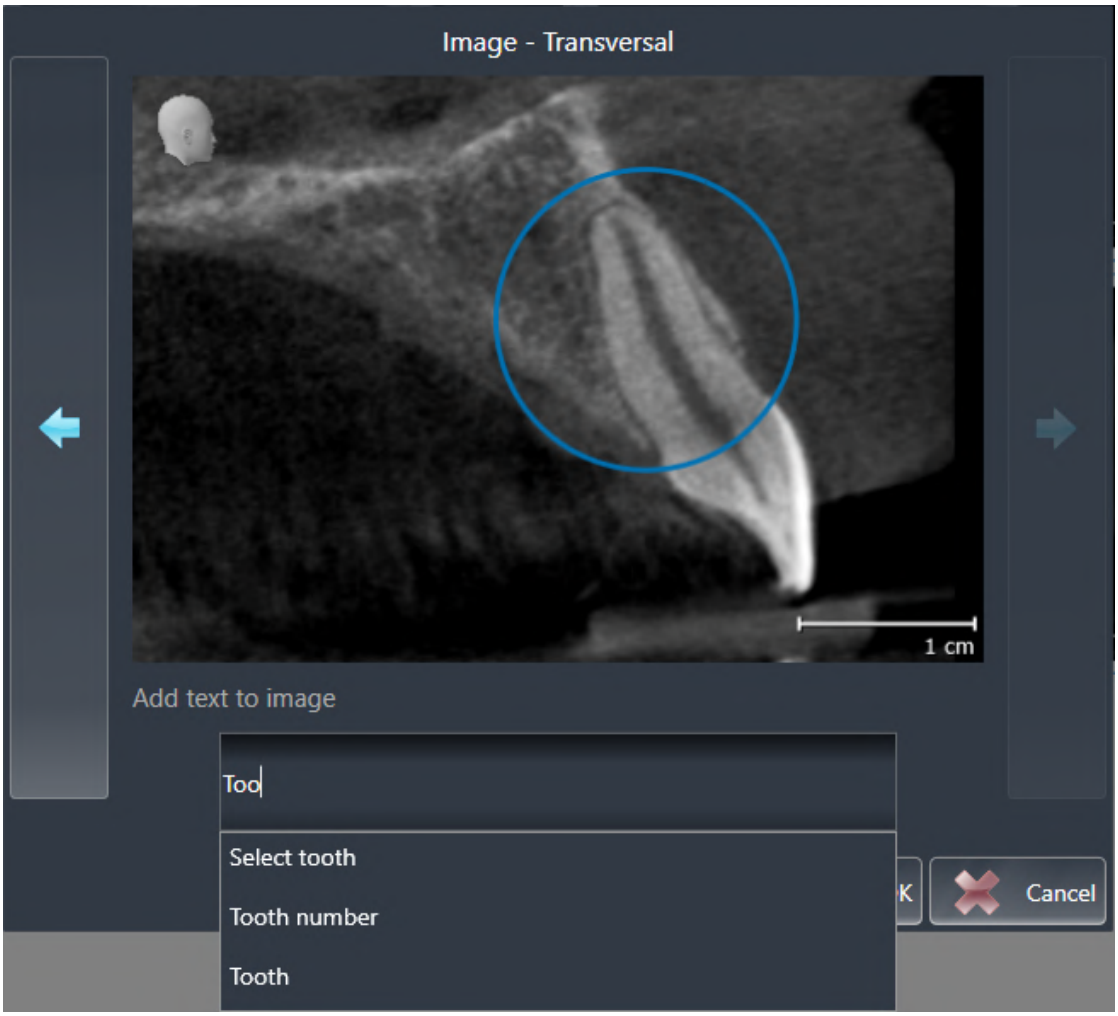
1. If you want to hide an element in the report, deactivate the corresponding check box for the element.

   ▶ 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 in the report, 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 report using the **Object browser**. Information on this can be found in the section *Managing objects with the object toolbar [▶Page 63]*.

Continue with the section *Generating reports [▶Page 178]*.

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 199]*.

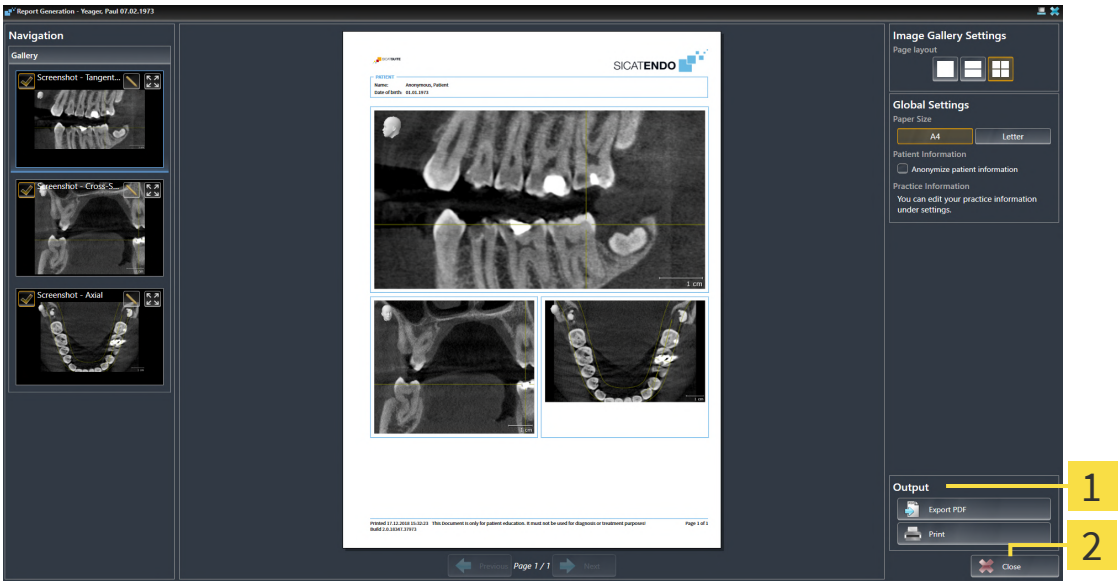
32.3 GENERATING REPORTS

The following actions are available to generate a report:

- Saving report as a PDF file
- Printing report

SAVING REPORT AS A PDF FILE

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



1 **Output** area

2 **Close** button

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 report.
3. Enter a name in the **File name** field and click on **Save**.

▶ The Windows Explorer window closes.

▶ SICAT Endo saves the report as a PDF file.

PRINTING REPORT

Reports of a suitable quality require a printer that meets certain requirements. Information on this can be found in the section *System requirements [▶Page 9]*.

☑ 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 report to the printer.

33 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.

34 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 182]*.
- 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 186]*.
- 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 187]* or section *Completing an order without an active Internet connection [▶Page 191]*.

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

34.1 PLACING SURGICAL GUIDES IN THE SHOPPING CART

⚠ **CAUTION**	**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.

⚠ **CAUTION**	**An incorrect order might lead to the wrong treatment.** 1. Check your order before sending it. 2. Confirm the correct planning of your order.

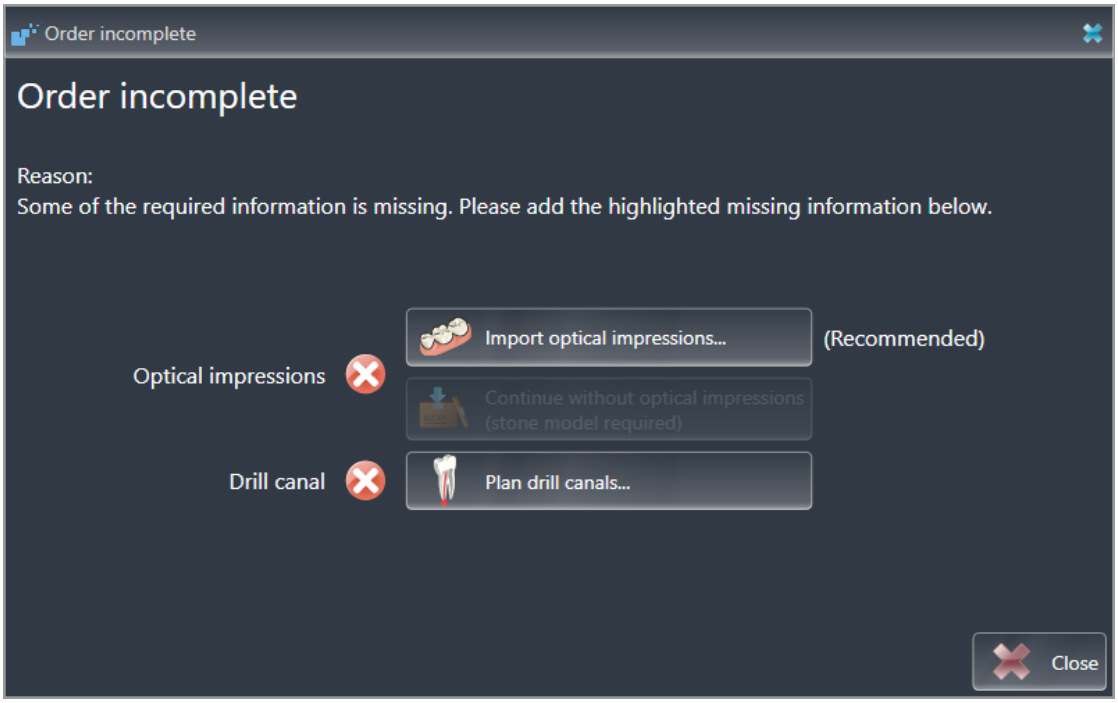
General information on the ordering process can be found in the section *Ordering process [▶Page 181]*.

In SICAT Endo, you can place a **SICAT ACCESSGUIDE** 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 ACCESSGUIDE** 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 58]*.

1. Click on the **Order SICAT ENDOGUIDE** 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 107]*.

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 159]*.

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 104]*.

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

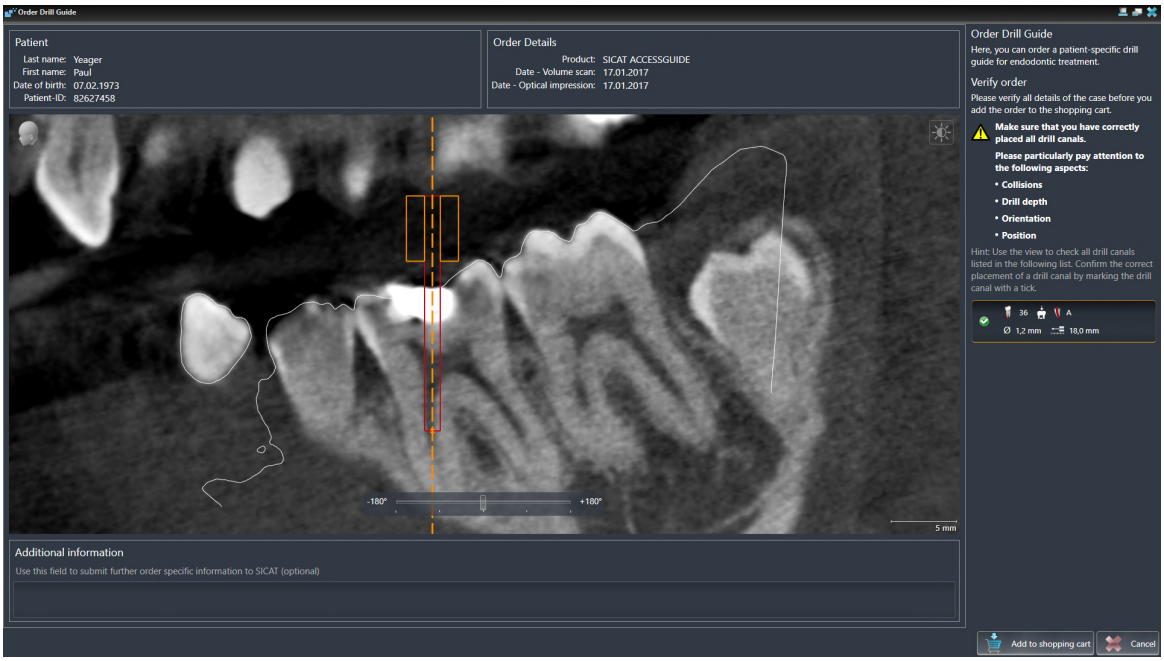
- ☑ You have imported at least one optical impression.
- ☑ You have already set EndoLines.
- ☑ You have already set drill channels.
- ☑ The **Order** workflow step is already expanded. Information on this can be found in the section *Workflow toolbar [▶Page 58]*.

- Click on the **Order SICAT ENDOGUIDE** 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 ACCESSGUIDE** 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 186]*.

34.2 OPENING THE SHOPPING CART

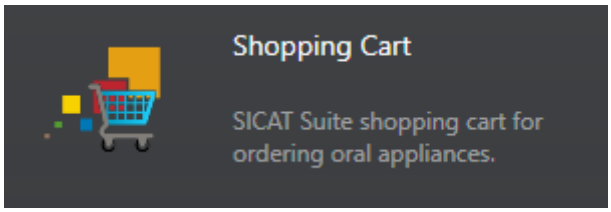
☑ The shopping cart contains at least one product.

☑ 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:

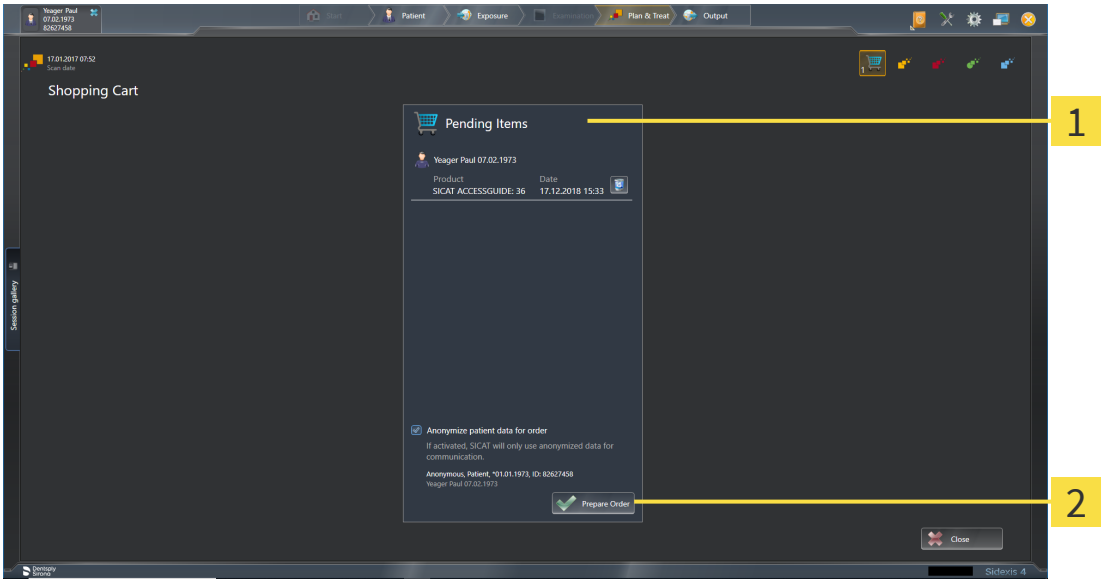


Continue with the following action:

- *Checking the shopping cart and completing the order [▶Page 186]*

34.3 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 185]*.



1 **Pending Items** list

2 **Prepare Order** button

1. Check in the **Shopping Cart** window whether the desired products are included.
2. Activate or deactivate the **Anonymize patient data for order** check box.
3. Click on the **Prepare 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 187]*
- *Completing an order without an active Internet connection [▶Page 191]*

34.4 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 **Allow access to the Internet for placing orders** checkbox is activated. Information on this can be found in the section *Using general settings [▶Page 195]*.

☑ 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 188]*.

▶ 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.

34.5 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.

34.6 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 9]*.

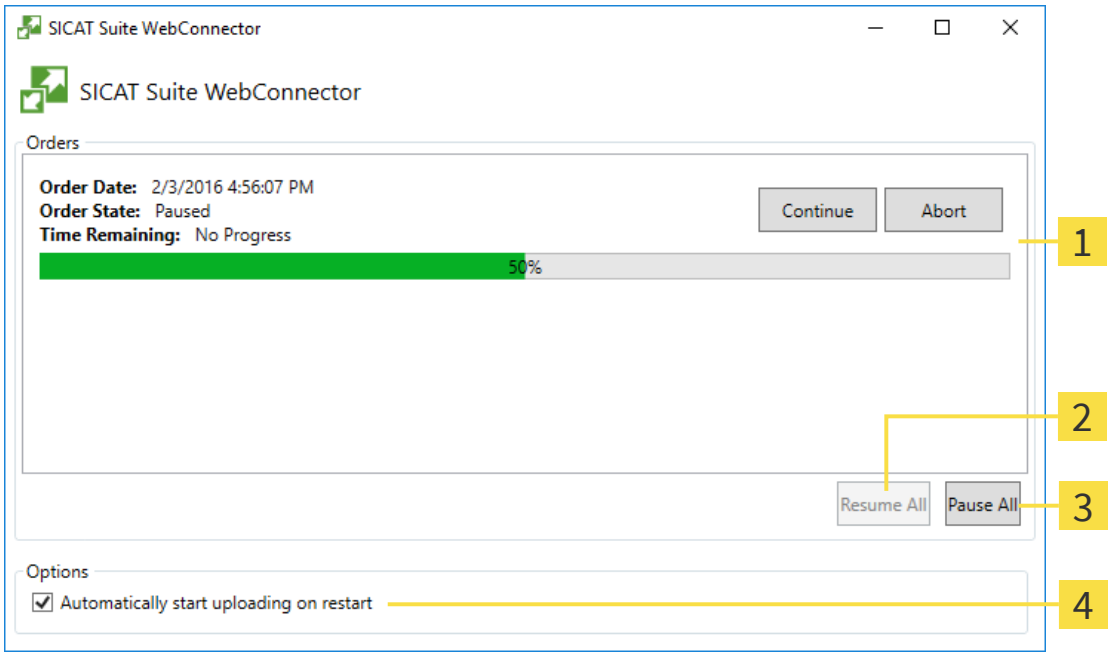
In certain versions of Windows, you have to set a standard browser in order for the ordering process to work.

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.

34.7 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 **SICAT Suite - No connection to 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 occured. 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.

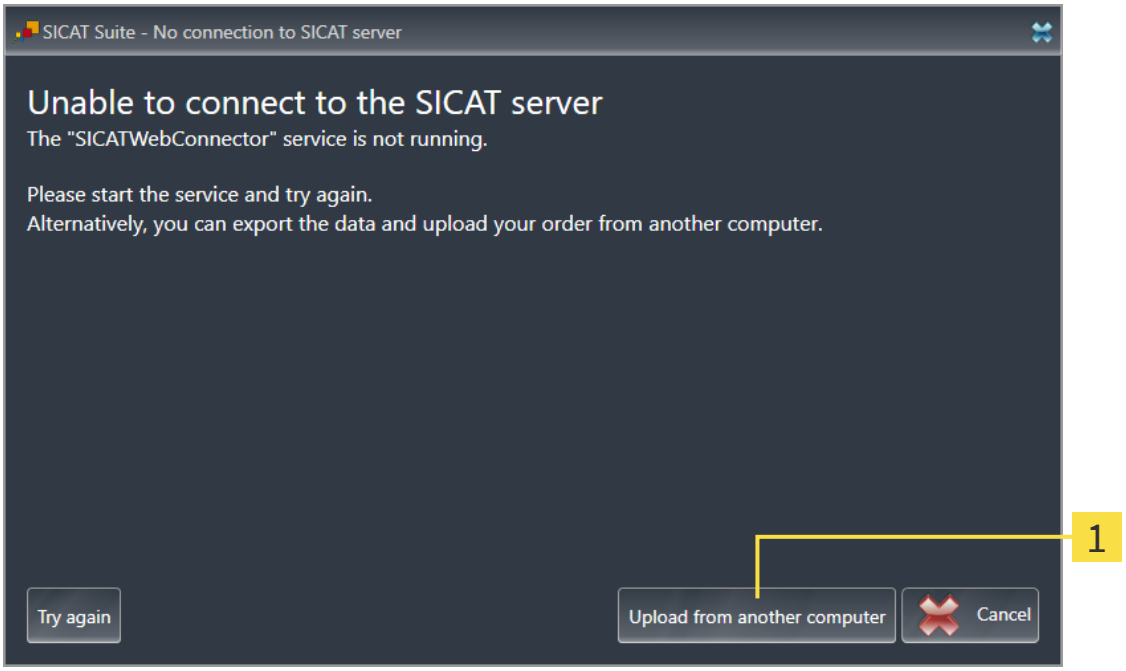
If you have deactivated the **Allow access to the Internet for placing orders** checkbox in the settings on the **General** tab, the **Sending the order from another computer** window opens directly.

As an alternative to troubleshooting or if you have disabled access to the Internet, you can upload an order via a web browser on another computer with an active Internet connection. 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:

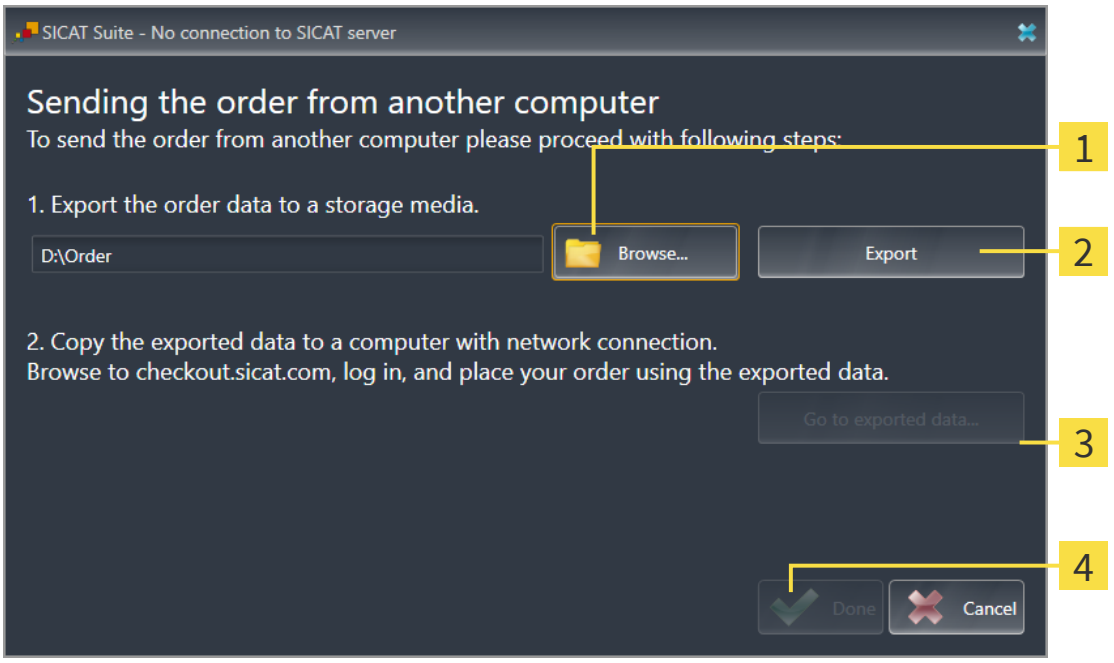
☑ The computer on which SICAT Suite is running does not have an active Internet connection.

☑ 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:



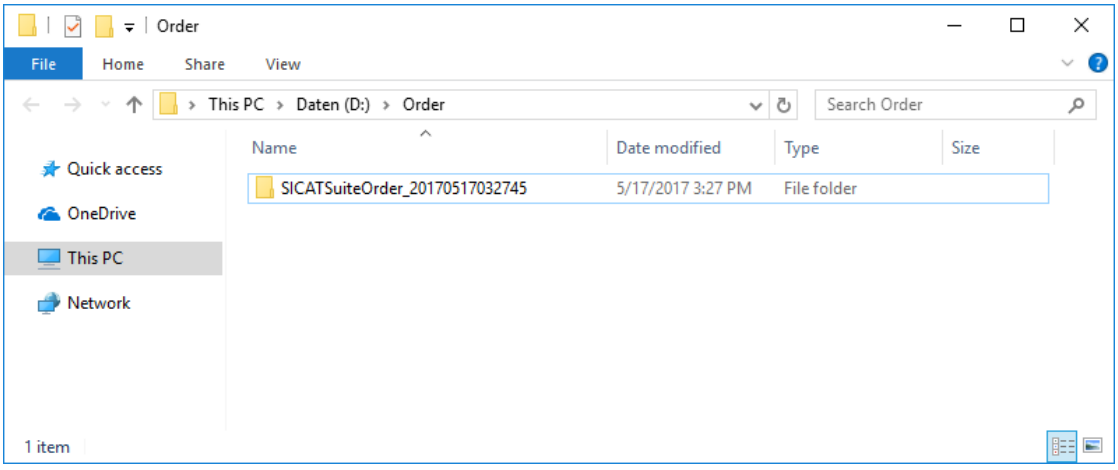
1	**Browse** button	3	**Go to exported data** button
2	**Export** button	4	**Done** button

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 www.sicat.com 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 188]*.

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.

35 SETTINGS

The version of SICAT Suite which is connected to SIDEXIS 4 applies many settings from SIDEXIS 4. You can view the values of such settings in SICAT Endo, but you can only change them in the SIDEXIS 4 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 195]*.
- **Licenses** - Information on this can be found in the section *Licenses [▶Page 45]*.
- **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 199]*.
- **Hub** - SIDEXIS 4 applies the hub connection settings and the connection status is displayed. Information on this can be found in the section *Viewing Hub connection status [▶Page 200]*.
- **Visualization** – Changing general visualization settings. Information on this can be found in the section *Changing visualization settings [▶Page 201]*.

If you change the settings, SICAT Endo will apply the changes immediately and saves the settings in your user profile.

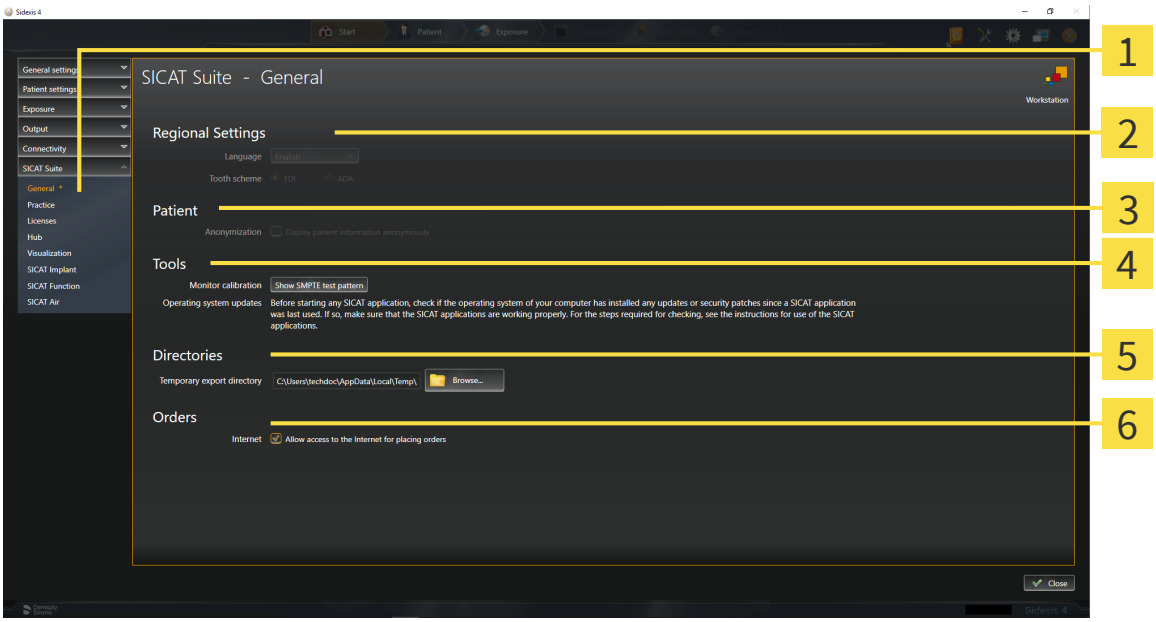
The settings in SICAT Suite are valid for the active user of the current workstation. SICAT Suite applies all changes in the settings immediately. If you switch to another category in the settings, SICAT Suite will also save changes to the settings permanently.

35.1 USING GENERAL SETTINGS

The version of SICAT Suite which is connected to SIDEXIS 4 applies many settings from SIDEXIS 4. You can view the values of such settings in SICAT Endo, but you can only change them in the SIDEXIS 4 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:



1 **General** tab	4 **Tools** area
2 **Regional Settings** area	5 **Directories** area
3 **Patient** area	6 **Orders** 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.
- You can change the status of the **Allow access to the Internet for placing orders** check box in the **Orders** area. If the checkbox is activated, SICAT Suite connects to the Internet to place orders.

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.

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.

35.2 MONITOR CALIBRATION WITH THE SMPTE TEST IMAGE

CAUTION

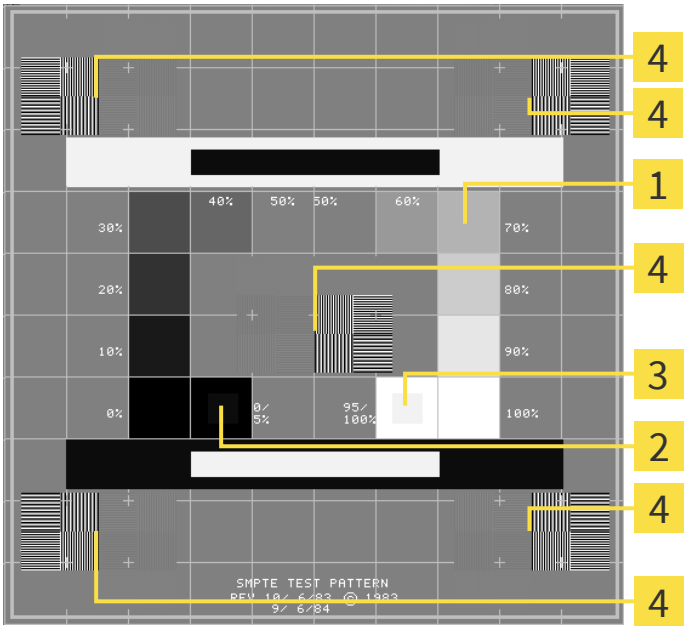
Insufficient environmental visualization conditions could result in incorrect diagnosis and treatment.

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

2 0% square

3 100% 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.

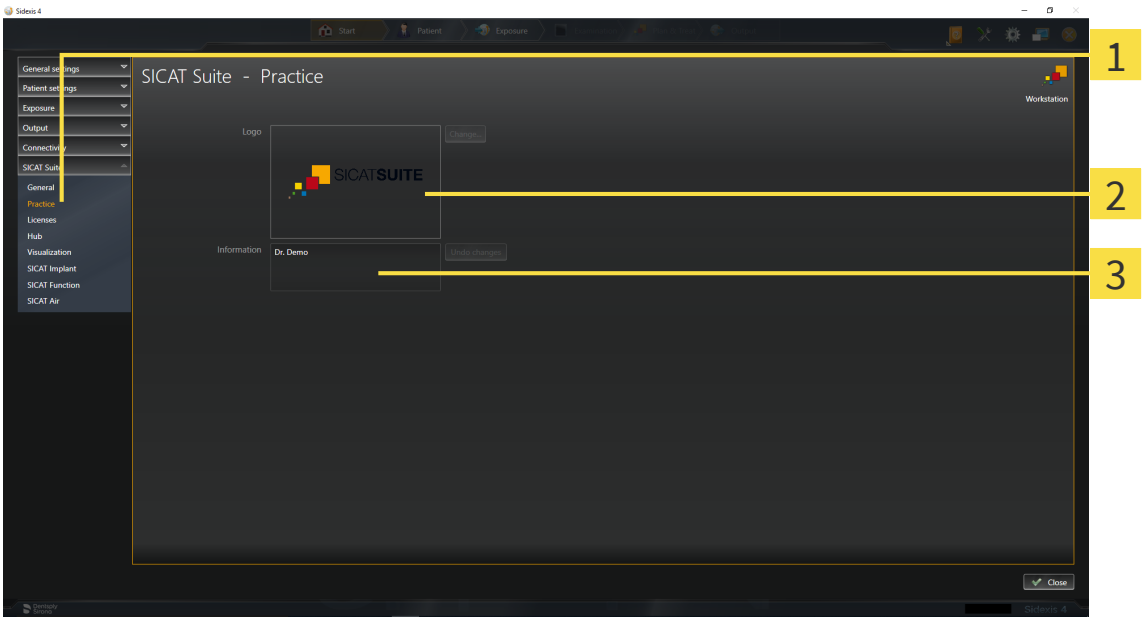
35.3 USING PRACTICE INFORMATION

The version of SICAT Suite connected to SIDEXIS 4 uses the practice logo and the informational copy from SIDEXIS 4. 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 4.

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.

35.4 VIEWING HUB CONNECTION STATUS

You can view the Hub's connection status in SICAT Suite. SICAT Suite applies the settings for Hub use from SIDEXIS 4.

☑ The license for using the Hub is activated. Information on this can be found in the section *Licenses* *[▶Page 45]*.

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 **Hub** button.
   ▶ The **Hub** window opens.

▶ You can see the connection status on the right side.

35.5 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

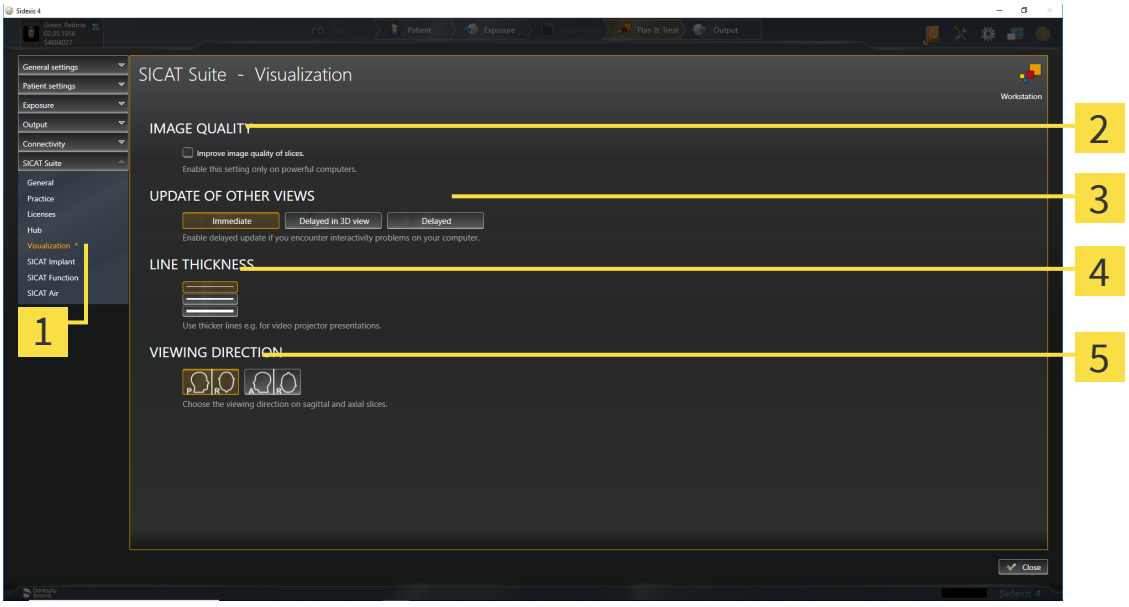
Insufficient environmental visualization conditions could result in incorrect diagnosis and treatment.

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

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.

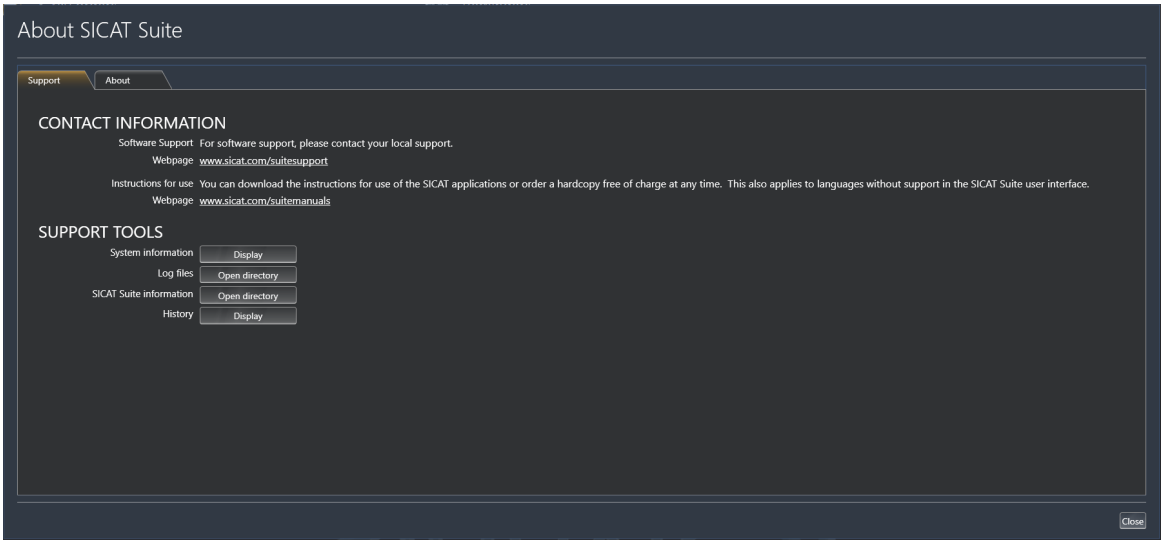
36 SUPPORT

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 204]*



36.1 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.

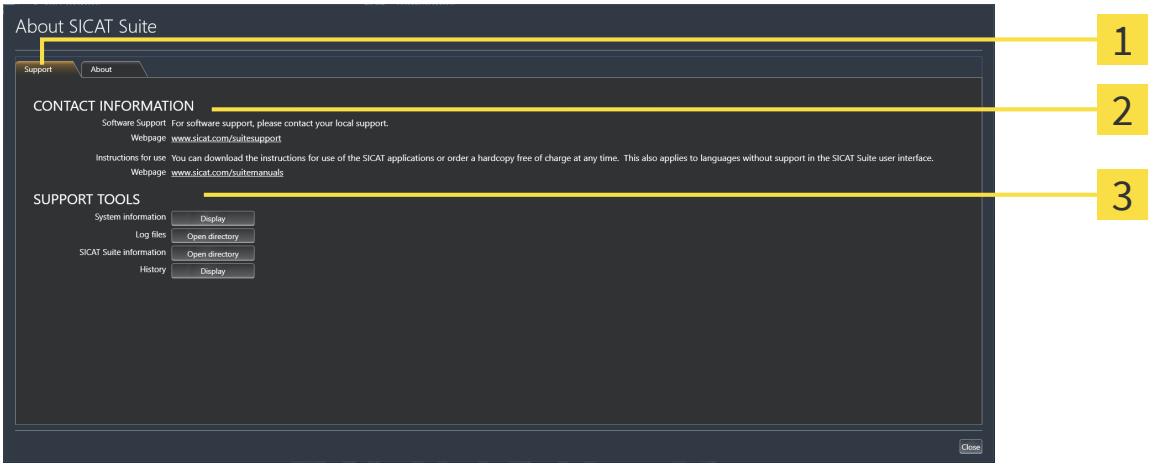
▶ The **SICAT Suite information** window opens.

The **SICAT Suite information** window comprises the following tabs:

- **Support** - Information on this can be found in the section *Support [▶Page 203]*.
- **About** - Information on this can be found in the section Info.

36.2 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

2 **CONTACT INFORMATION** area

3 **SUPPORT TOOLS** area

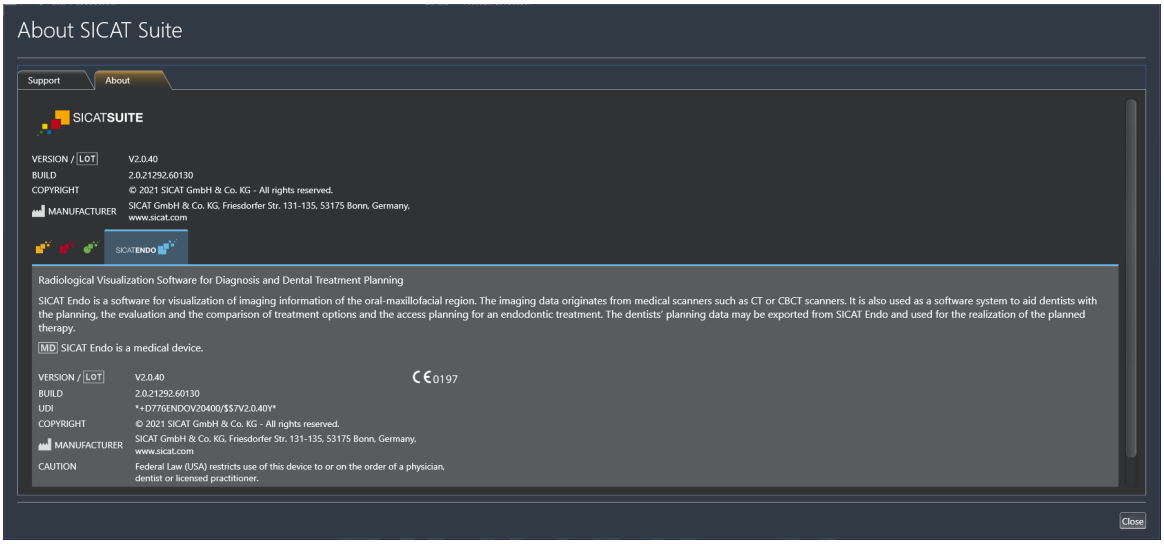
The **CONTACT INFORMATION** area contains information about where you can find the instructions for use.

The following tools are available in the **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.

36.3 ABOUT

The **About** tab displays information on SICAT Suite and all installed SICAT applications on several tabs:



37 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	Yes, if the patient record is locked

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. One of the results of this is that when SIDEXIS 4 opens a data record, it checks whether the data record is already in use. If this is the case, the data record in SICAT Suite is opened in read-only Viewer mode and you cannot save changes to SICAT Endo studies.

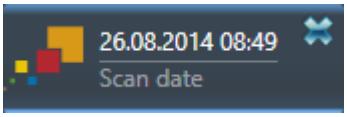
To open data without being able to make and save changes, proceed as follows:

- Start SICAT Suite with a 3D X-ray scan from SIDEXIS 4. Information on this can be found in the section *Starting SICAT Suite [▶Page 40]*.

▶ SICAT Suite opens the 3D X-ray scan and planning project from the current SIDEXIS 4 examination.

▶ If this is the first data transfer from SIDEXIS 4 and the settings in SIDEXIS 4 are compatible with the settings in SICAT Suite, SICAT Endo will apply the volume orientation and panoramic curve of SIDEXIS 4. Information on this can be found in the section *Adjusting volume orientation and panoramic region [▶Page 96]*.

38 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.

39 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

40 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 workstation licenses to the license pool [▶Page 53]*.

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 189]*.

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 and confirm the prompt.
   ▶ The uninstallation program starts.
   ▶ After the uninstallation is completed, 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.

41 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.

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

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

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

DISPLAY CONDITIONS

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.

DATA MANAGEMENT

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

Deleting original data may result in data being lost.

Do not delete the original data following the import.

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.

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.

CAUTION

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.

CAUTION

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

CAUTION

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

CAUTION

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.

CAUTION

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.

CAUTION

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

CAUTION

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.

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.

CAUTION

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.

CAUTION

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

CAUTION

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.

CAUTION

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

CAUTION

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.

CAUTION

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

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

CAUTION

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.

CAUTION

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.

CAUTION

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.

CAUTION

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.

CAUTION

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.

CAUTION

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

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.

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.

42 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 Endo-Line 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.

Hub

An external memory that acts as a server and enables data exchange between different devices in a local network.

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.

Planning project

A planning project is comprised of planning data from a SICAT application based on a 3D X-ray scan.

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

SYMBOLS

Caution! Observe the accompanying documents.

Observe the electronic instructions for use on www.sicat.com/suitemanuals.

BUILD Build number

UDI Unique Device Identifier

Manufacturer

Lot number

Medical device

CE 0197 CE marking including number of the notified body
TÜV Rheinland LGA Products GmbH, Tillystraße 2, 90431 Nürnberg, Germany

LOT NUMBER OF THE SOFTWARE

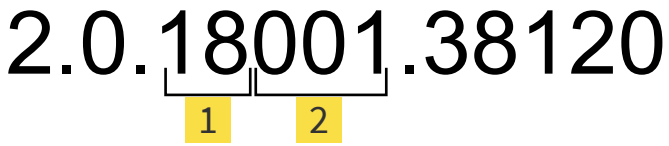
The lot number indicated in the software. Information on this can be found in the section *About [▶Page 206]*.

V2.0.40

DATE OF MANUFACTURE

The software's date of manufacture can be inferred from the build number displayed in the software. Information on this can be found in the section *About [▶Page 206]*.

Example of a build number:



1 Year of manufacture of the software (18 means 2018)

2 Day of manufacture of the software (001 means 1 January)

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