SICATAIR

SICAT AIR *VERSION 2.0.40*

Instructions for use | English | SIDEXIS 4

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1 INTENDED PURPOSE

INTENDED PURPOSE

SICAT Air is a software for visualization and segmentation of imaging information of the ear-nose-throat region. The imaging data originates from medical scanners such as CT or CBCT scanners. It is also used as a software system to aid qualified medical professionals with the evaluation and comparison of treatment options. The medical professionals' planning data may be exported from SICAT Air and used for the realization of the planned therapy.

INDICATIONS

SICAT Air is a software application for:

- Aiding diagnosis in the ear-nose-throat region
- Aiding treatment planning in the ear-nose-throat region
- Aiding comparisons of different treatment options
- Aiding treatment planning for oral appliances

CONTRAINDICATIONS

There are no contraindications.

However, SICAT Air 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 Air 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 medical professionals.

2 CLINICAL BENEFIT

The use of SICAT Air allows to aid the diagnosis/therapy in the ENT region based on fused CT data and optical impression data. Diagnosis-/therapy-related parameters like total airway volume and narrowest cross-section area of the airway can be calculated.

Using SICAT Air in accordance with the intended purpose allows providing the patient with a treatment that is planned based on such parameters extracted from 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.
- 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.
- Addition of rotation mode for 3D X-ray scan in 3D view
- Revised bone representation in 3D view
- Representation of optical impressions in the slice views

VERSION 1.4

- For reasons of legal compliance, SICAT applications require a license even for Viewer mode. Applications without license are not available. For all applications that are approved in your country, SICAT automatically adds Viewer licenses to your customer activation key. You can activate the Viewer licenses by deactivating and re-activating any license. Information on this can be found in the section *Licenses [▶Page 45]*.
- The stand-alone version and the SIDEXIS XG plug-in version of these instructions for use are also available in form of PDF files.
- SICAT Air supports different resolutions of the 3D X-ray scans that are to be compared for airway comparison.
- The handout creation window features a preview function.

VERSION 1.3

- SIDEXIS 4 module
- Support of Italian, Spanish, Portuguese, Dutch and Russian languages
- The version number of SICAT Air matches the version number of SICAT Suite.
- Airway comparison
- Text blocks for handouts

VERSION 1.0

- Initial release
- Support of German, English, French and Japanese languages

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 180]

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 150].

5 SAFETY INFORMATION

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

- *Definition of the danger levels [▶Page 13]*
- *Qualifications of operating personnel [▶Page 14]*
- *Safety instructions [▶Page 196]*

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 Air 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 24]*.

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 195]*.

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.

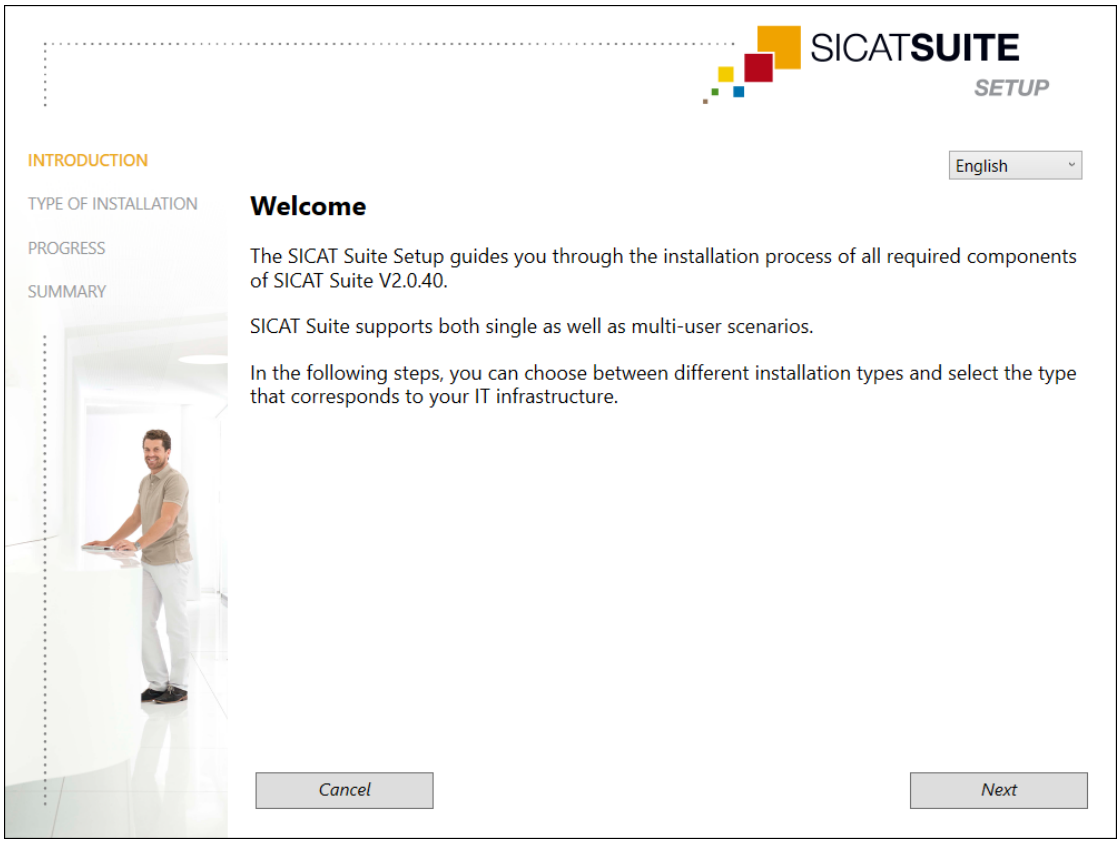
☑ Your computer fulfills the system requirements. Information on this can be found in the section *System requirements [▶Page 10]*.

☑ 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 22]*.

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.

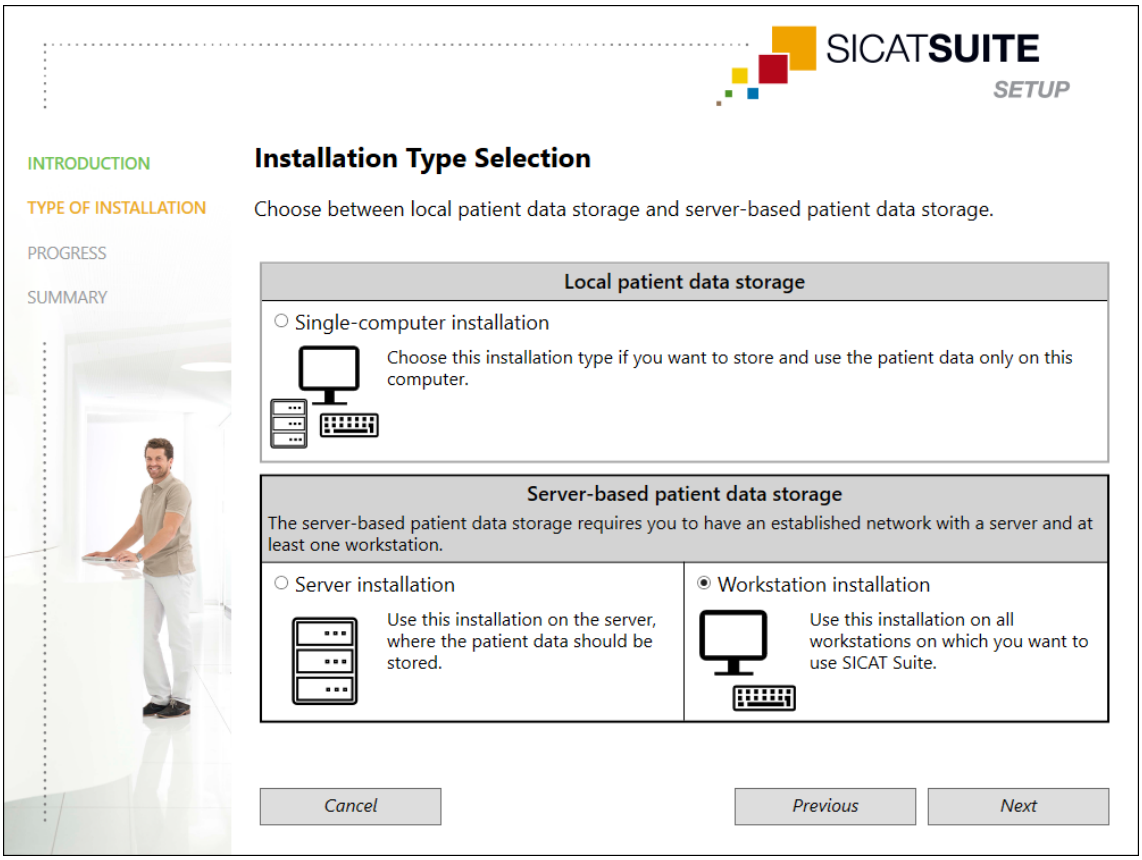
If you install SICAT Suite first and then install SIDEXIS 4 you cannot register SICAT Suite as a SIDEXIS 4 module during installation. You can manually register SICAT Suite as a SIDEXIS 4 module later on. For more information, see *Registering and removing SICAT Suite as a SIDEXIS 4 module [▶Page 36]*.

WORKSTATION COMPUTER INSTALLATION

☑ SICAT Suite is to be installed in a server environment.

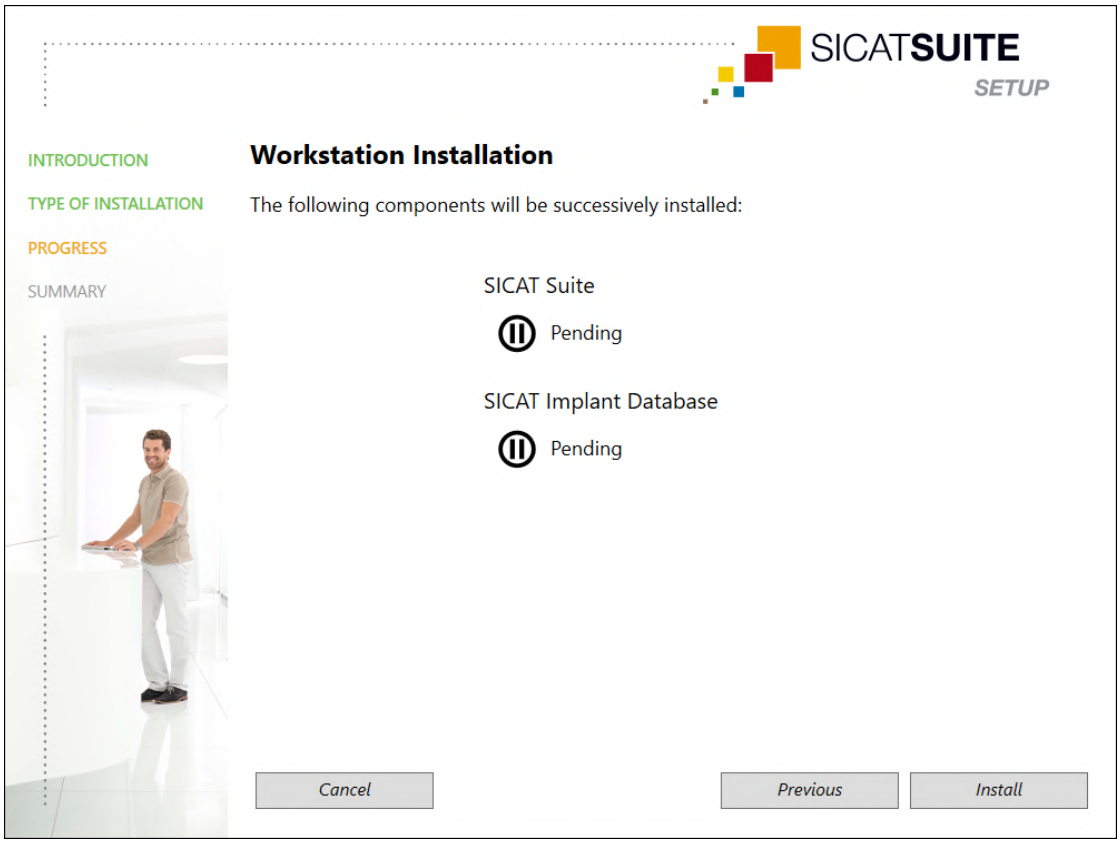
☑ SICAT Suite is to be installed on a workstation computer.

☑ The SICAT Suite set-up has been started. Information on this can be found in the section *Starting SICAT Suite set-up [▶Page 20]*.



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 24]
   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

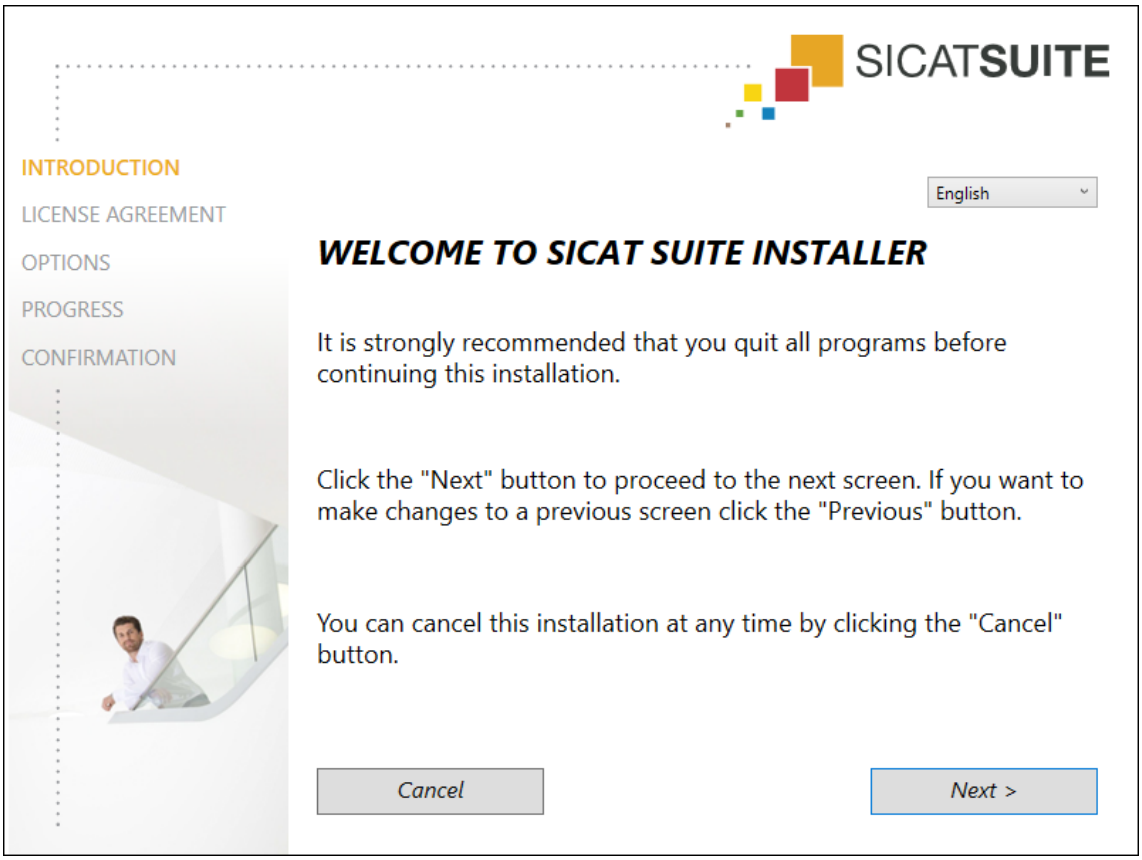
If you install SIDEXIS 4 and then install SICAT Suite, you can register SICAT Suite as a SIDEXIS 4 module during installation. This allows you to use SICAT Suite integrated with SIDEXIS 4.

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.

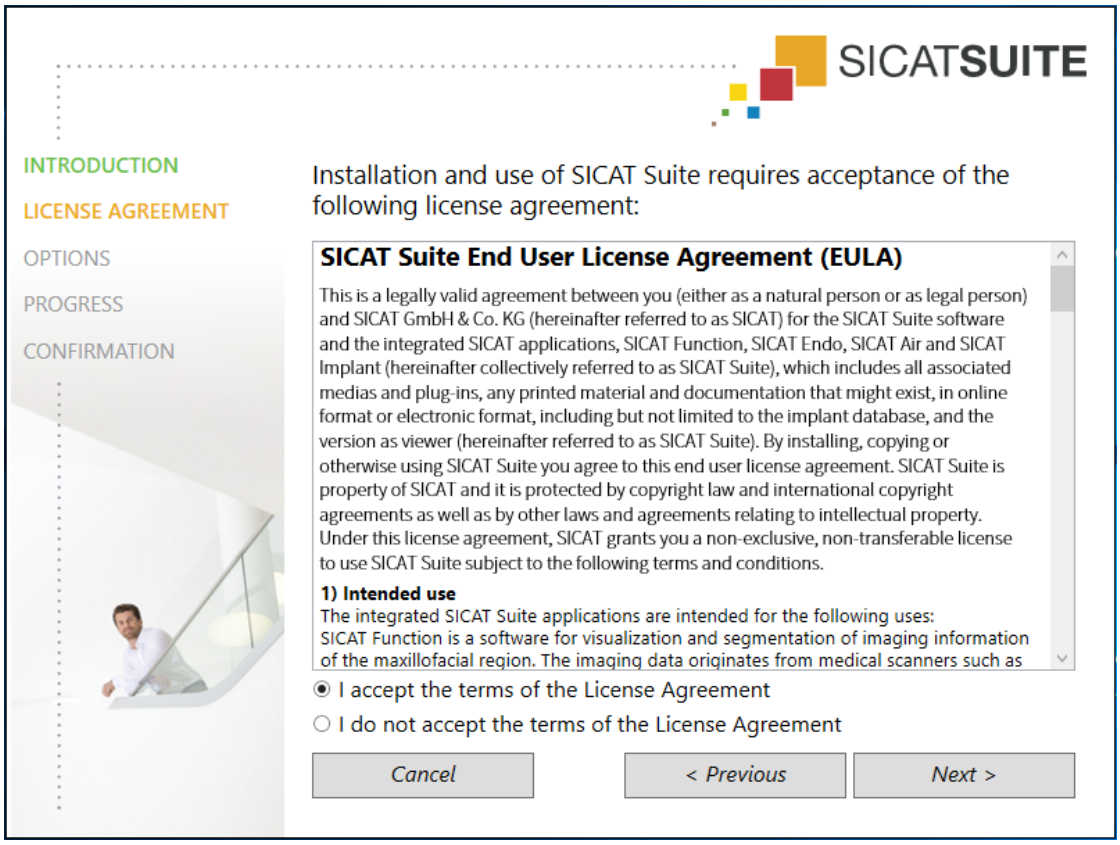
☑ SICAT Suite is not installed.

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



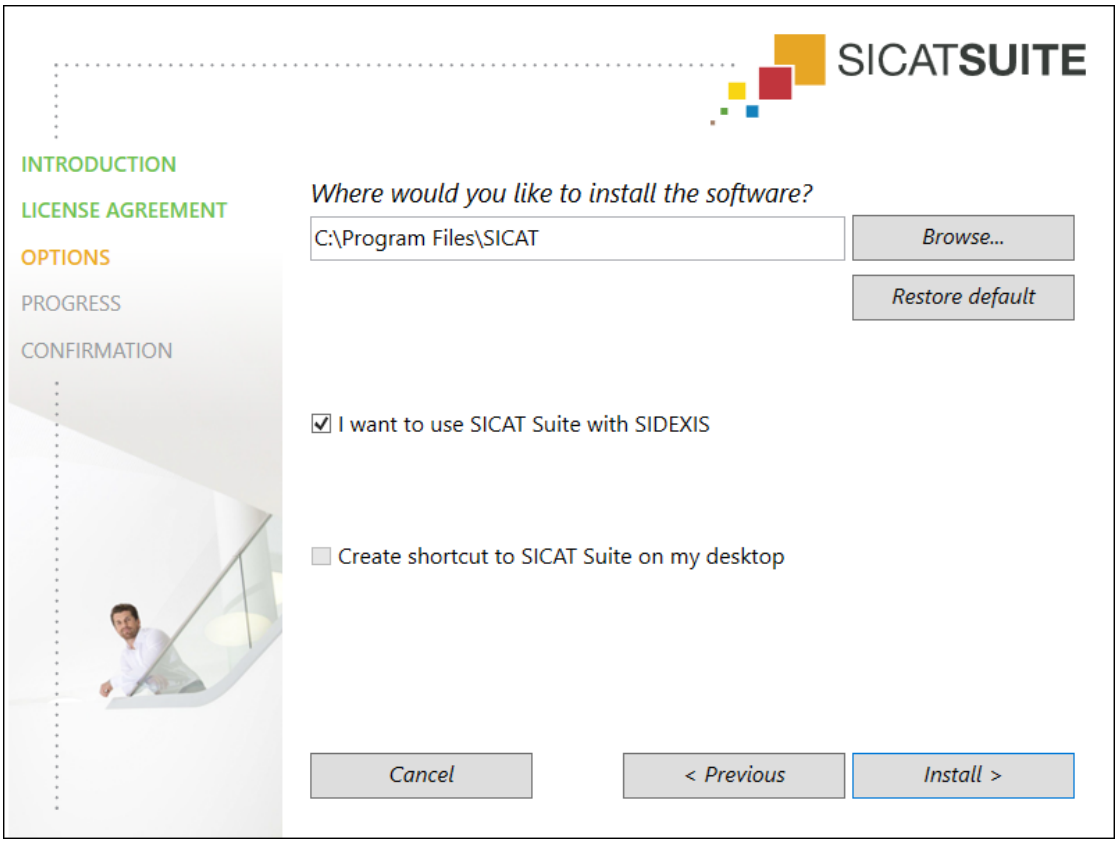
1. Select the desired language for the SICAT Suite installer in the top right-hand corner of the **INTRODUCTION** window and click on **Next**.

▶ 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 Air operates without any errors. Perform the corresponding test steps. If you notice deviations during a test step, prevent further use of SICAT Air 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 Air, 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 Air, 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 Air, version 2.0.40 - stand-alone

4. Perform the test steps described in the instructions for use for SICAT Air, 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 10]*.

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 10]*.

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 Air 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 Air 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 Air SICAT Air applies the volume orientation and the panoramic region from SIDEXIS 4. The following restrictions apply here:

- SICAT Air only supports rotations of the volume orientation up to a maximum of 30 degrees.
- SICAT Air supports only standard panoramic curves from SIDEXIS 4, not the shifting of individual supporting points from SIDEXIS 4.
- SICAT Air supports only panoramic curves that are at least 10 mm thick.
- SICAT Air supports only panoramic curves that have not been rotated in SIDEXIS 4.

If at least one of the restrictions applies, SICAT Air will not apply the volume orientation and panoramic region or will not apply the panoramic region.

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

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

- A SICAT Air full version license must be activated.

The following table shows which functions are available depending on the license:

FUNCTION	FULL VERSION LICENSE ACTIVATED	VIEWER LICENSE ACTIVATED	NO LICENSE ACTIVATED
Support area	Yes	Yes	Yes
General settings	Yes	Yes	Yes
SICAT Air settings	Yes	Yes	No
Making changes	Yes	No	No
Viewing data without saving changes	Yes, if the patient record is locked	Yes	Yes
Help	Yes	Yes	Yes

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

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

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

Under certain circumstances you cannot make or save changes to SICAT Air studies even if the application license is activated. An ongoing ordering process is one example of a cause of this.

Further information is available in the section *Opening read-only data [▶Page 192]*.

14 THE STANDARD WORKFLOW OF SICAT AIR

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.

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.

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 24]*.

ACTIVATING FULL VERSION

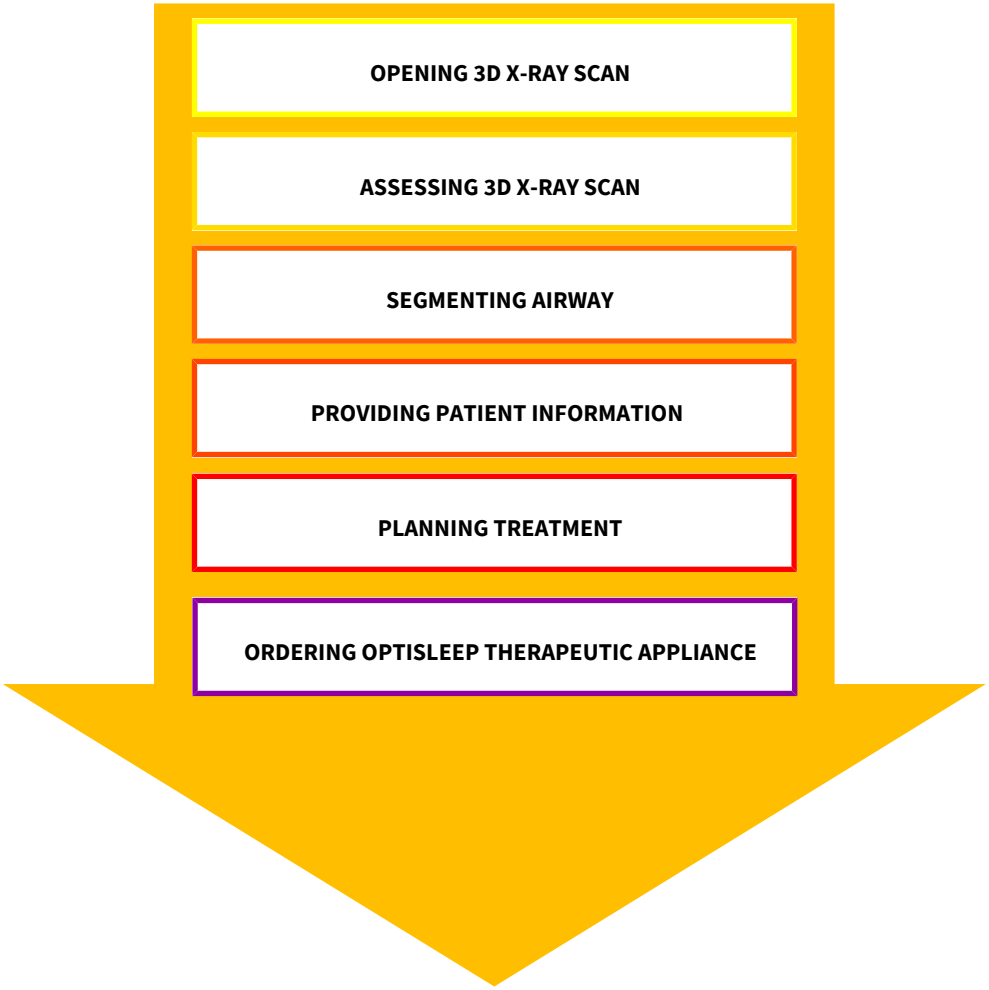
- If you have purchased a license for SICAT Air, activate the license to unlock the full version. Information on this can be found in the section *Licenses [▶Page 45]*.

If you have not purchased a license for SICAT Air, open a 3D X-ray scan in Viewer mode. Information on this is available in the section *Opening read-only data [▶Page 192]*.

SETTINGS

Change the desired settings in the **Settings** area. Information on this can be found in the section *Settings [▶Page 177]*.

HOW TO PROCEED IN SICAT AIR



OPENING A DATA RECORD

1. Select a 3D X-ray scan or a SICAT Air study in the timeline.
2. Start SICAT Air. Information on this can be found in the section *Starting SICAT Suite [▶Page 40]*.

EDITING DATA RECORDS IN SICAT AIR

1. Align the 3D X-ray scan 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 101]*.
2. Assess the 3D X-ray scan and get an overview of the upper airways.
3. Segment the respiratory path. Information on this can be found in the section *Segmenting the airway [▶Page 115]*.
4. Assess the airway in the **Airway** workspace. Information on this can be found in the section *Airway analysis [▶Page 126]*.
5. Inform the patient and create a handout for the patient based on this. Information on this can be found in the section Patient information.
6. Perform treatment planning.
7. Create a 3D X-ray scan of the patient with the jaw in a protruded treatment position. Open the scan in SICAT Air.
8. Verify the effect of the therapeutic appliance. Consider in particular changes to the airways and the effects on the temporomandibular joint.
9. Order a customized therapeutic appliance for the patient. Information on this can be found in the section *Ordering process [▶Page 150]*.
10. If you wish to obtain a second opinion, export the data. Information on this can be found in the section *Data export [▶Page 149]*.

You can verify the effect of the therapeutic appliance in particular by using the airway comparison. Information on this can be found in the section *Airway comparison [▶Page 132]*.

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 193]*.

SICAT Air saves airway objects, the airway comparison, the handout, the segmentation and optical impressions in a study, which is based on the 3D X-ray scan.

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 188]*.

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* *[▶Page 30]*

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 24]*.

OPENING THE "SIDEXIS 4" WINDOW

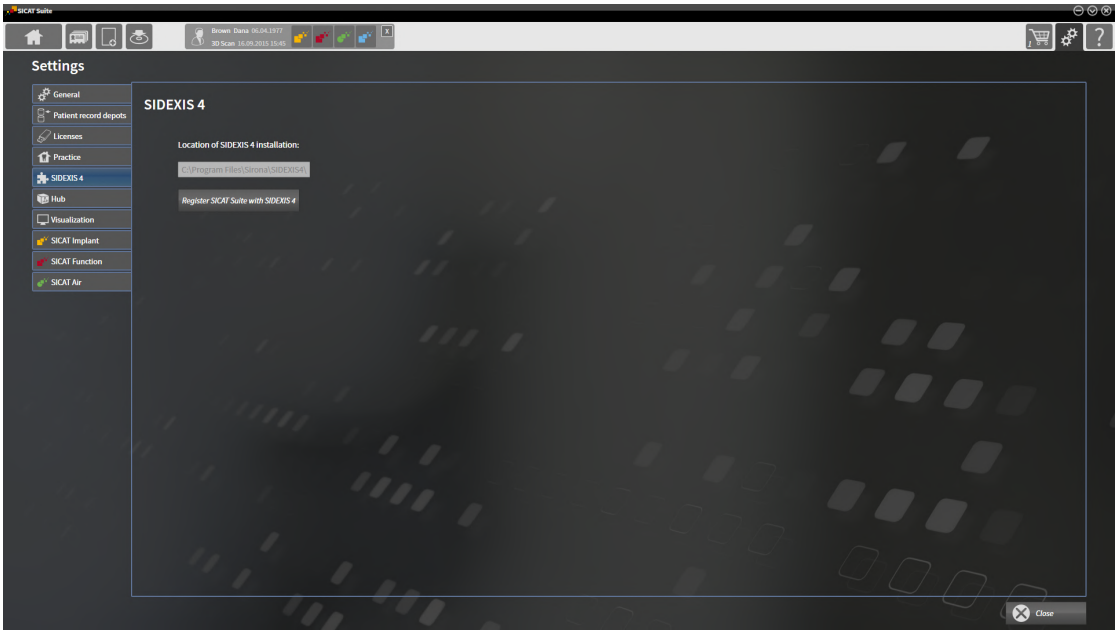
1. Start the stand-alone version of SICAT Suite. Information on this can be found in the section *Starting SICAT Suite* *[▶Page 40]*.

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 24]*.

☑ 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 AIR STUDIES IN SIDEXIS 4

⚠ **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 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**	**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.

If SICAT Suite is running as a SIDEXIS 4 module, the patient data will be managed in SIDEXIS 4.

SIDEXIS 4 displays preview pictures of SICAT Air studies if the following conditions have been fulfilled:

- You are using SICAT Suite as a SIDEXIS 4 module.
- A SICAT Air study is available for the selected patient.

1 Availability of airway segmentation

2 Availability of optical impressions

3 Availability of an airway comparison

4 Planning

5 Order

The preview pictures contain the following information:

- Availability of airway segmentation
- Availability of optical impressions
- Availability of an airway comparison
- Planning not available, in process or completed
- Order not available, therapeutic appliance to be ordered is in shopping cart or order has been uploaded

A bright display of the icons 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 24]*.

☑ 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 in addition to a 3D X-ray scan or study.

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

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

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

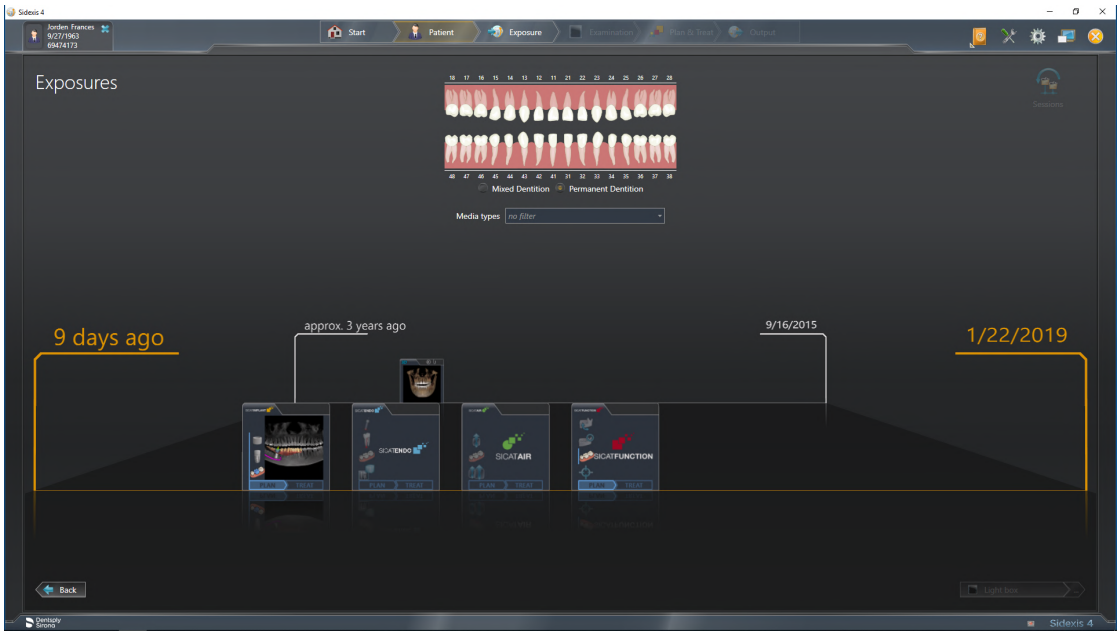
▶ SICAT Suite opens the 3D X-ray scan with the corresponding study in SICAT Air.

▶ If you have selected a 3D X-ray scan or study together with optical impressions, the SICAT Air will first open the **Import and Register Optical Impressions** wizard with the step **Import**. For more information, see *Optical impressions [▶Page 154]*.

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]*.

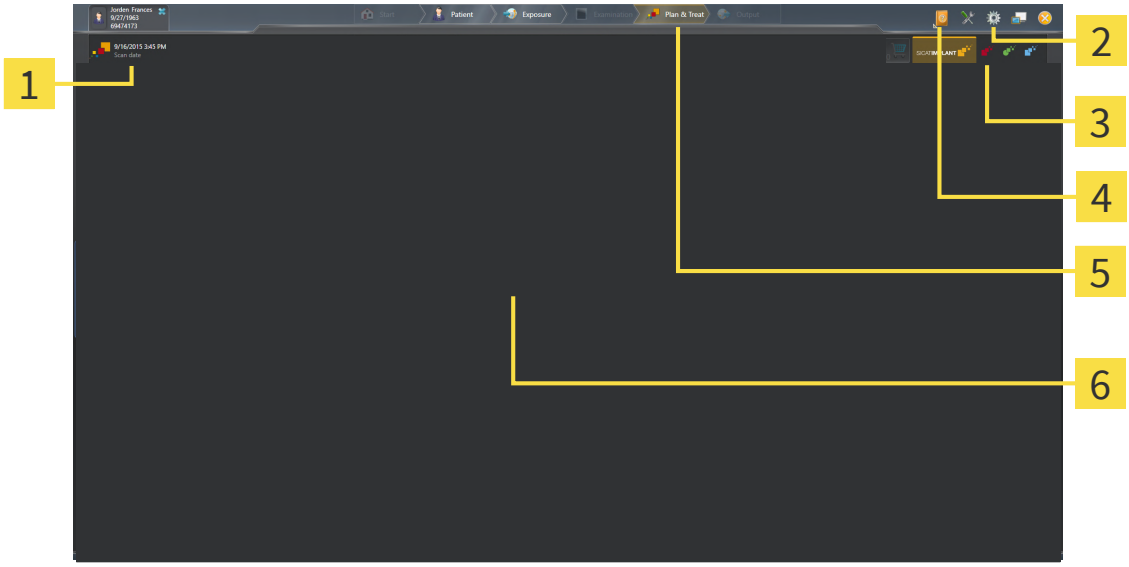
If you have saved an application-specific study, you can select it directly in the **Scans** window and open it in the corresponding SICAT application. If you already have an item in your shopping cart which is based on that study, the shopping cart will open.



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 Air 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 177]*.
- 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 150]*.
- **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:

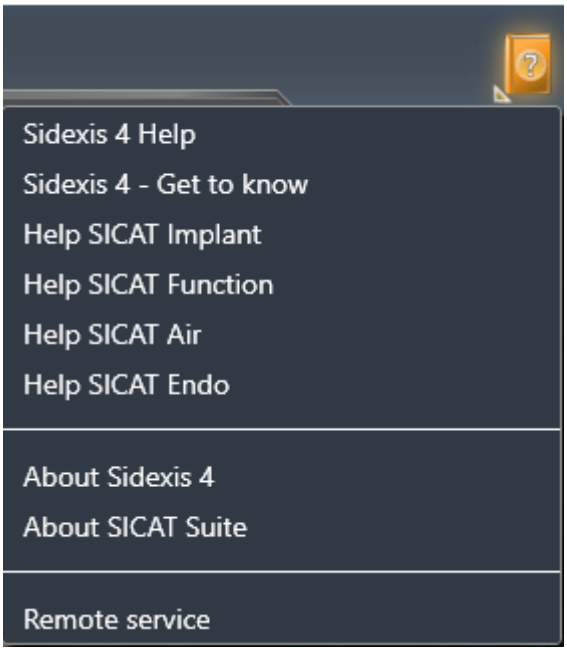
- Click on the button with the label matching the desired SICAT application.

► 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 Air plans even without activated SICAT Air 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:

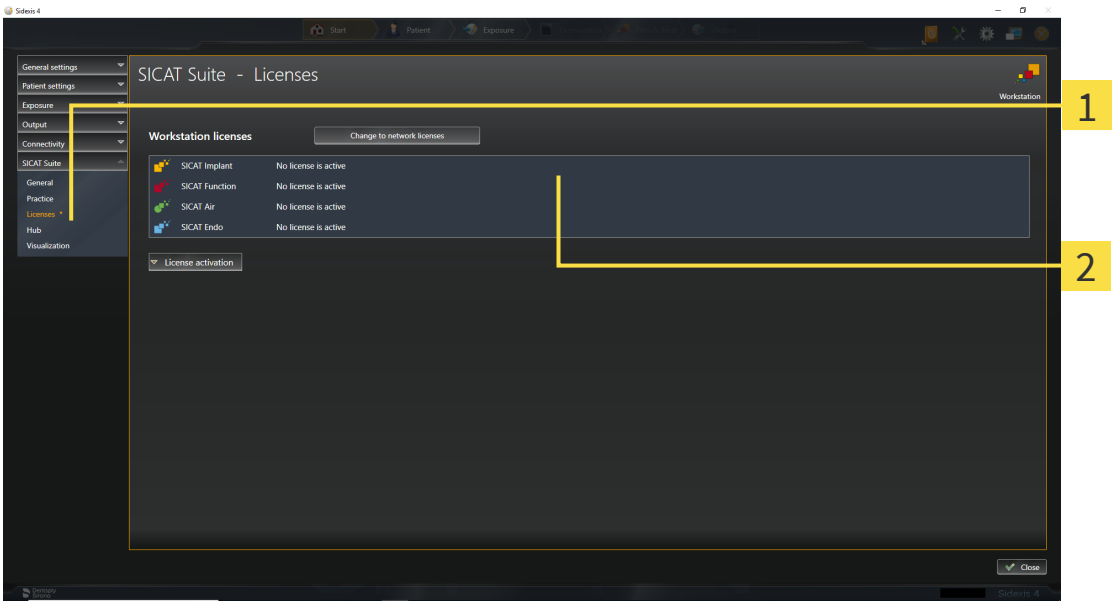
- If the computer on which SICAT Suite is running has an active Internet connection, the license can be activated automatically. Information on this can be found in the section *Activating workstation licenses using an active Internet connection [▶Page 49]*.
- Upon request or if the computer on which 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:

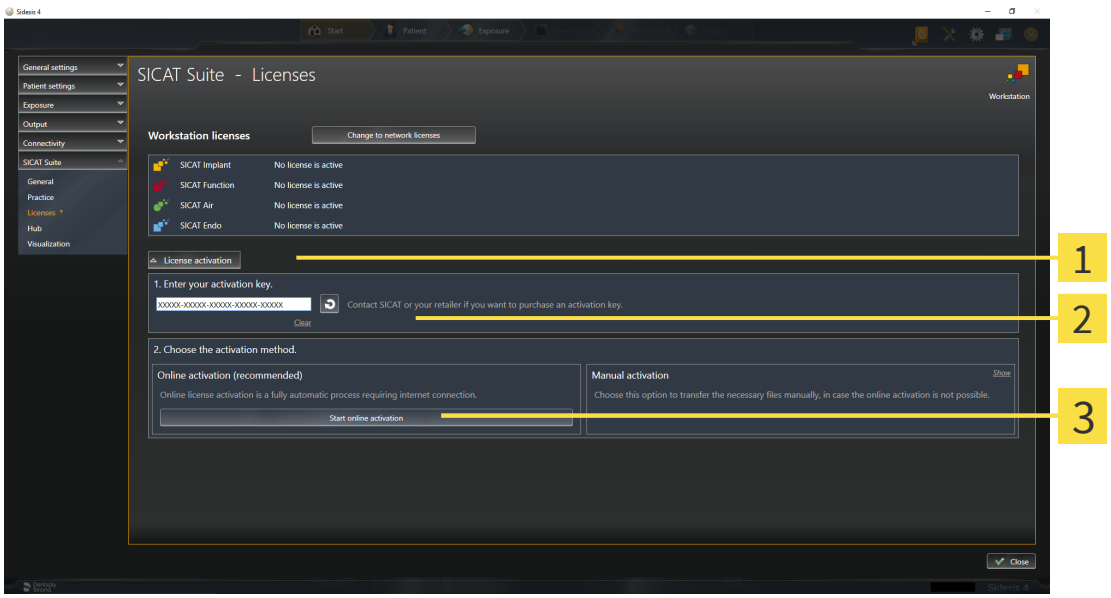
☑ At least one SICAT application or one individual function is missing an active workstation license.

☑ 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

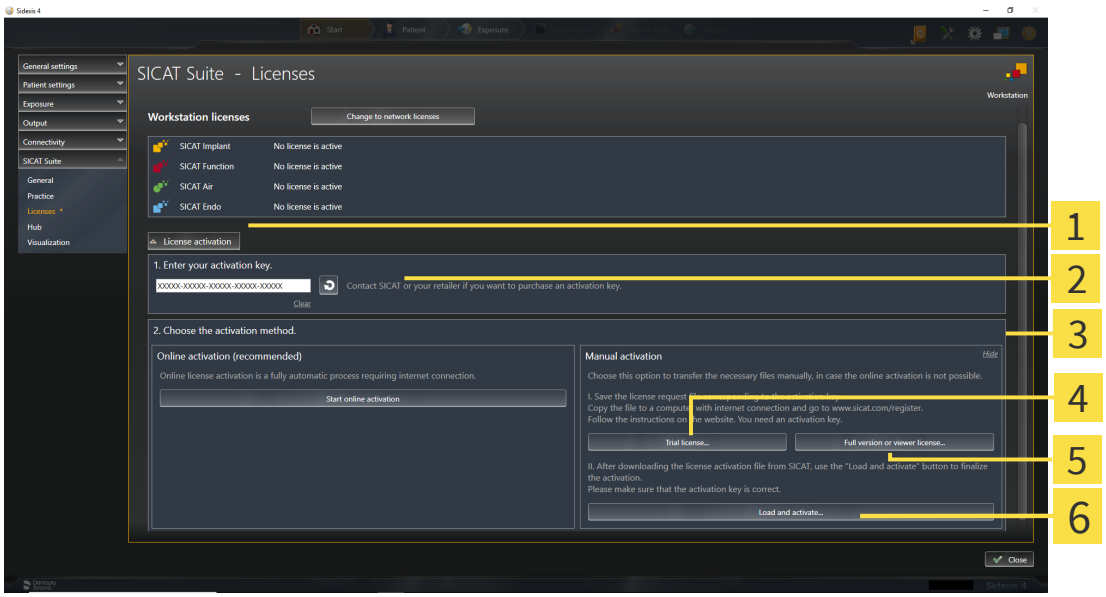
NOTICE	**Patient record must be closed** You must close the active patient record before making changes to the licenses.

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

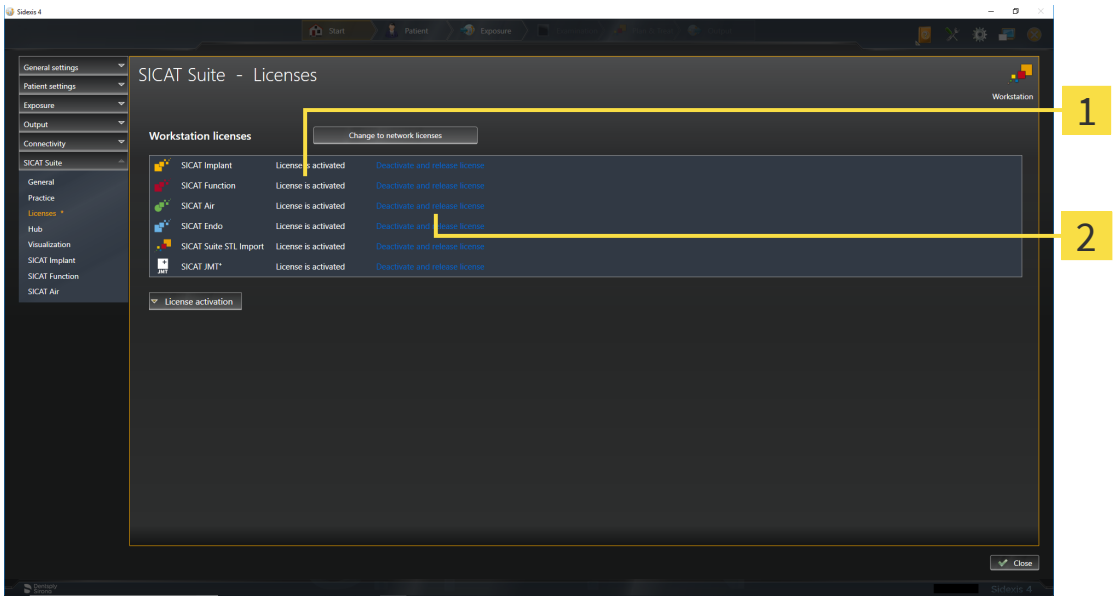
You must close the active patient record before making changes to the licenses.

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.

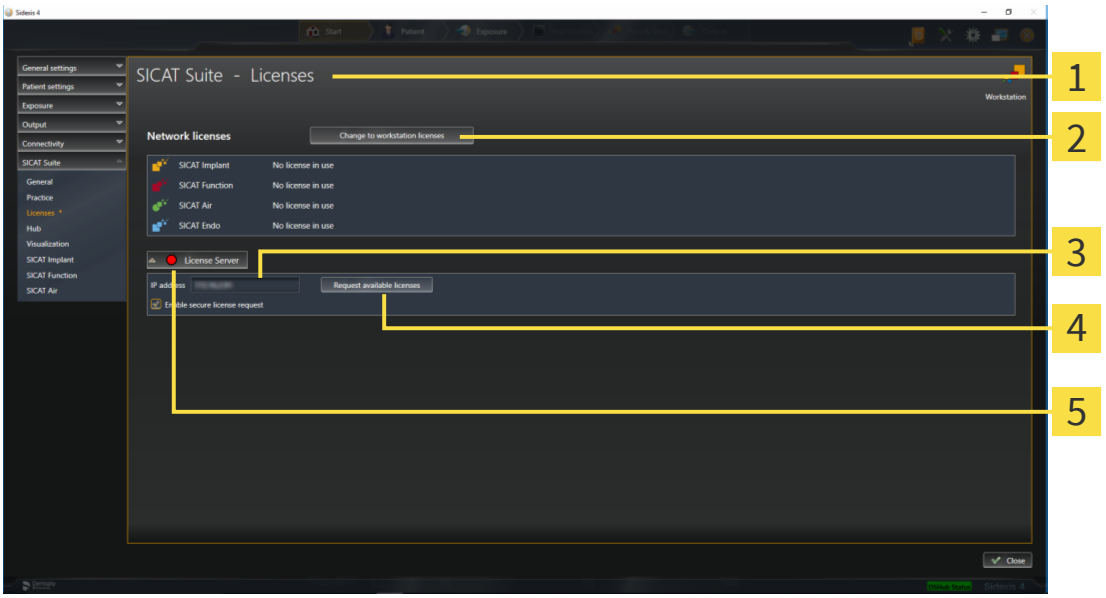
☑ You have set up a license server.

☑ 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 Air 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.

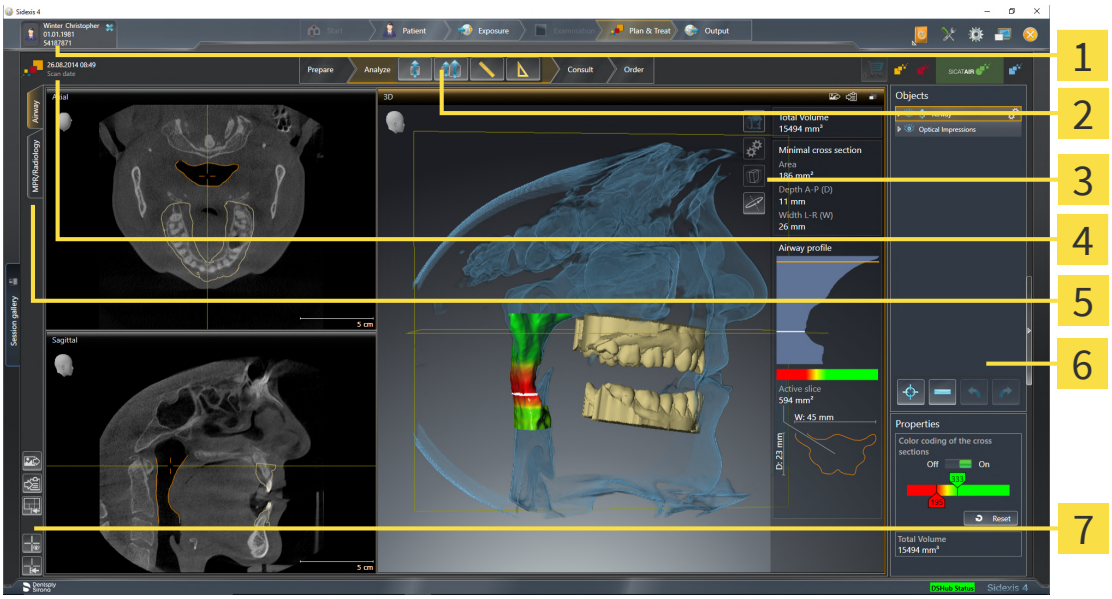
NOTICE

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 AIR USER INTERFACE

The SICAT Air user interface comprises the following parts:



1 **Active patient record** tab	5 Buttons to change workspaces
2 **Workflow toolbar**	6 **Object bar**
3 **View toolbar**	7 **Workspace toolbar**
4 Information about the open 3D X-ray scan	

- The **Active patient record** tab shows the attributes of the active patient record.
- The **Workflow toolbar** consists of various workflow steps, which include the main tools of the application workflow. This includes tools that you can use to add and import diagnosis objects and planning objects. Information on this can be found in the section *Workflow toolbar [▶Page 58]*.
- The **Workspace area** is the part of the user interface below the **Workflow toolbar**. It displays the active workspace of SICAT Air. Each workspace contains a specific combination of views. Information on this can be found in the section *Overview of the airway workspace [▶Page 70]*.
- 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 86]*.
- 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 Air 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 84]*, *Adjusting and resetting the layout of workspaces [▶Page 73]* and *Creating screenshots of workspaces [▶Page 74]*.

22.1 WORKFLOW TOOLBAR

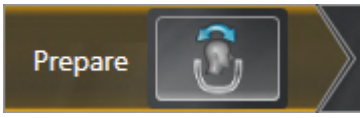
The **Workflow toolbar** in SICAT Air consists of four workflow steps:

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

EXPANDING AND COLLAPSING WORKFLOW STEPS

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

1. WORKFLOW STEP "PREPARE"



The following tool is available in the **Prepare** workflow step:

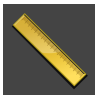
- **Adjust volume orientation and panoramic region** - Information on this can be found in the section *Adjusting the volume orientation [▶Page 101]* and *Adjusting the panoramic region [▶Page 106]*.

2. WORKFLOW STEP "ANALYZE"

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

- **Segment the airway** - Information on this can be found in the section *Defining the airway area [▶Page 116]*.

- **Compare airways** - Information on this can be found in the section *Carrying out an airway comparison [▶Page 133]*.



- **Add distance measurement (D)** - Information on this can be found in the section *Adding distance measurements [▶Page 110]*.

- **Add angle measurement (A)** - Information on this can be found in the section *Adding angle measurements [▶Page 111]*.

3. WORKFLOW STEP "CONSULT"

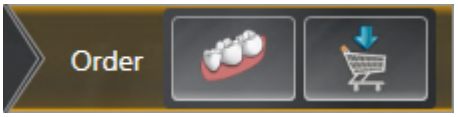
The following tools are available in the **Consult** workflow step:

- **Draw Arrow** - Information on this can be found in the section Creating images and screenshots.

- **Draw Circle** - Information on this can be found in the section Creating images and screenshots.

- **Generate handout** - Information on this can be found in the section Preparing handouts.

4. WORKFLOW STEP "ORDER"

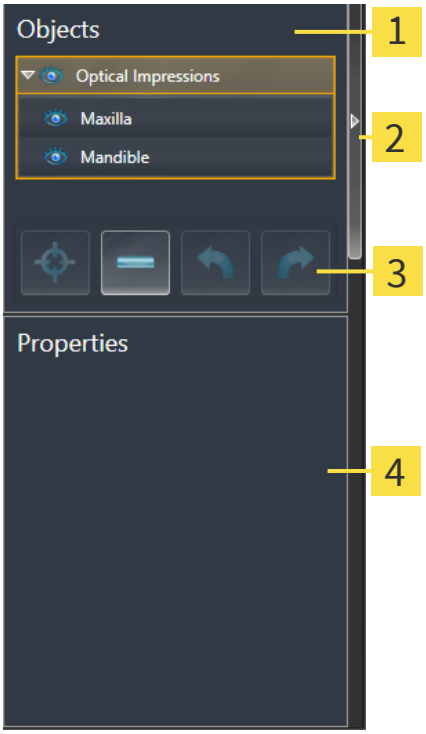


The following tools are available in the **Order** workflow step:

- **Import and register optical impressions** - Information on this can be found in the section *Optical impressions [▶Page 154]*.

- **Order Therapeutic Appliance** - Information on this can be found in the section *Placing therapeutic appliances in the shopping cart [▶Page 151]*.

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.

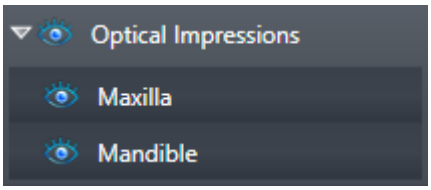
You can change the visibility of the **Object bar** using two buttons on the right side of the **Object bar**: **Hide object bar** and **Show object bar**

The objects available in SICAT Air can be found in the section *SICAT Air 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 Air deactivates a previously activated object or object group.

▶ SICAT Air activates the desired object or the desired object group.

▶ SICAT Air 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 Air hides the object or object group.
- ▶ SICAT Air 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 Air shows the object or object group.

▶ SICAT Air 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 Air moves the focus point of the views to the active object.

▶ SICAT Air 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 Air 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 Air undoes the last object action or group action.

2. Click on the **Redo object/group action (Ctrl+Y)** icon.

▶ SICAT Air redoes the last undone object action or group action.

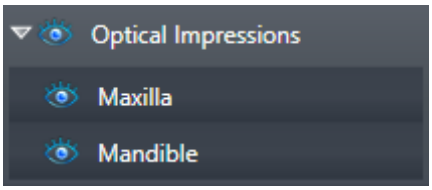
Undo and redo are only available as long as a study is open in a SICAT application.

22.5 SICAT AIR OBJECTS

SICAT Air groups application-specific objects in the **Object browser** as follows:

- **Optical Impressions**
- **Airway**
  - **Minimal cross section area**
- **Airway comparison**
- **Handout**
  - **Image**
  - **Screenshot**
  - **Airway comparison**

OPTICAL IMPRESSION OBJECT



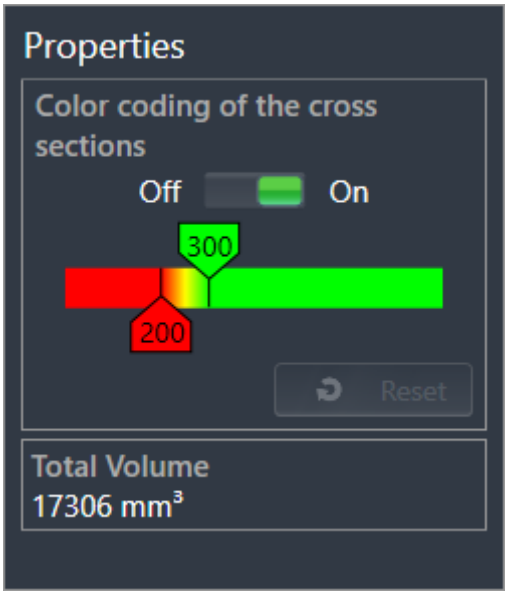
After you have imported and registered optical impressions, SICAT Air displays a **Optical Impressions** object in the **Object browser**. A **Optical Impressions** object contains the following sub-objects:

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

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

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

AIRWAY OBJECT



After you have segmented the airway, SICAT Air displays the **Airway** object in **Object browser**. The **Object bar** displays the following elements in the **Properties** area for this object:

- A switch that you can use to activate or deactivate the Color coding.
- The **Color coding of the cross sections** with sliders that you can use to define the minimum and maximum value of the cross-sectional area in mm^2 for the color gradient.
- The **Reset** button that you can use to reset the values for the color coding to the values from the SICAT Air settings. Information on how to define the default values in the SICAT Air settings can be found in the section *Changing SICAT Air settings [▶Page 186]*.
- The **Total volume** of the segmented airway area

SICAT Air applies changes to the properties immediately to the airway in the **3D** view.

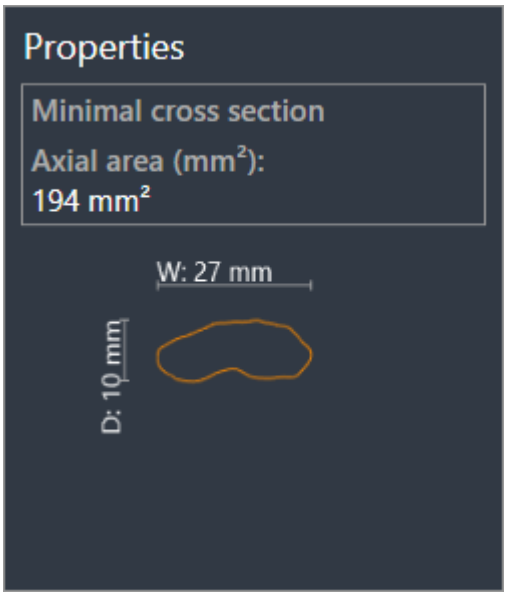
If you focus on the **Airway** object, SICAT Air will adjust the workspace region as follows:

- If not already active, SICAT Air will activate the **Airway** workspace.
- SICAT Air focuses all views on the middle of the smallest cross-sectional area.

If you hide the **Airway** object, SICAT Air will also hide the airway section.

If you move the mouse pointer over a **Airway** object, SICAT Air will display a gear icon. Click on the gear icon and SICAT Air will open the **Segment the airway** window.

MINIMAL CROSS SECTION AREA OBJECT



The following applies for **Minimal cross section area** objects:

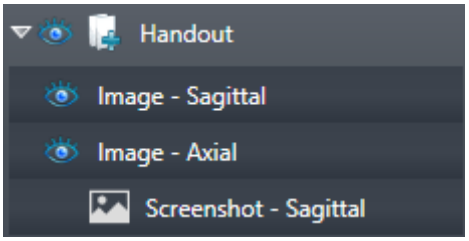
- **Minimal cross section area** objects are beneath **Airway** objects.
- The designation of a **Minimal cross section area** object contains the smallest cross-sectional area in mm^2.
- In the **Properties** area, the object also displays the cross-section of the slice.
- If you focus on a **Minimal cross section area** object, the 2D slice views display the slice with the smallest cross-sectional area.

AIRWAY COMPARISON OBJECT

The following applies for **Airway comparison** objects:

- If you move the mouse pointer over a **Airway comparison** object, SICAT Air will display a gear icon. Click on the gear icon and SICAT Air will open the **Airway Comparison** window.
- After you have created and activated an **Airway comparison**, 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 an **Airway comparison** object. After removing it, you cannot restore the previous **Airway comparison** object and must perform the airway comparison once again.

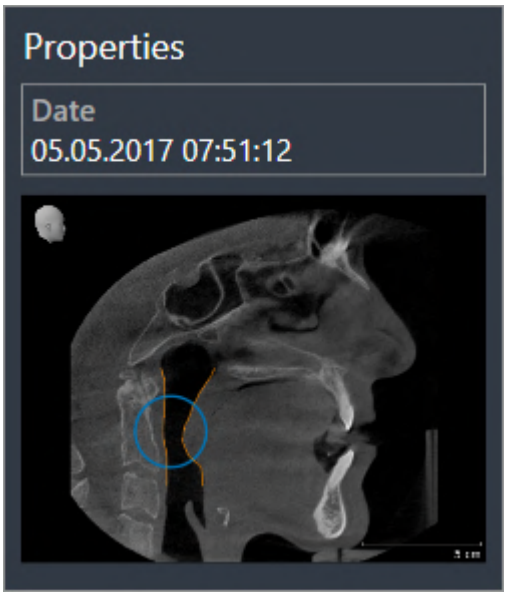
HANDOUT OBJECT



The following applies for **Handout** objects:

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

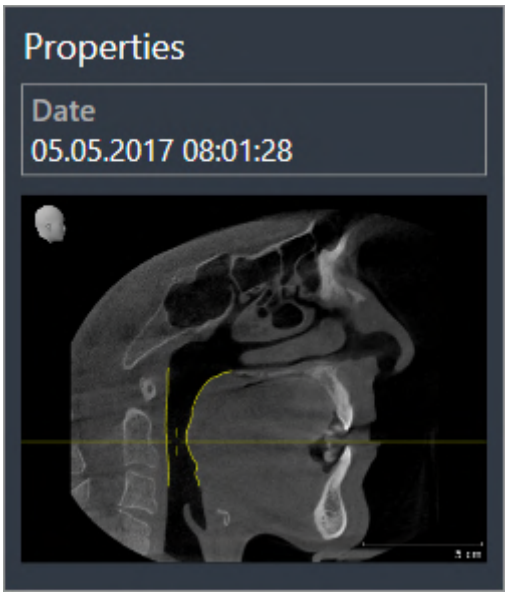
IMAGE OBJECTS



The following applies for **Image** objects:

- **Image** objects are below**Handout** objects.
- SICAT Air combines all drawing objects of a slice in a workspace for each 2D view and creates a **Image** object from this.
- SICAT Air 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 a **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 arrows and circles.
- You can use the **Remove active object/group (Del)** function to remove a **Image** object and thus all arrows and circles contained in it at once. SICAT Air removes **Image** objects both from the **Object browser** and from the **Generate handout** window.
- If you focus on a **Image** object, SICAT Air restores the corresponding view for the time at which you have created the last arrow or circle contained therein.

SCREENSHOT OBJECTS



The following applies for **Screenshot** objects:

- **Screenshot** objects are below**Handout** objects.
- SICAT Air 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 an **Screenshot** object. SICAT Air removes **Screenshot** objects both from the **Object browser** and from the **Generate handout** window.
- If you focus on a **Screenshot** object, SICAT Air 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 Air features two different workspaces:

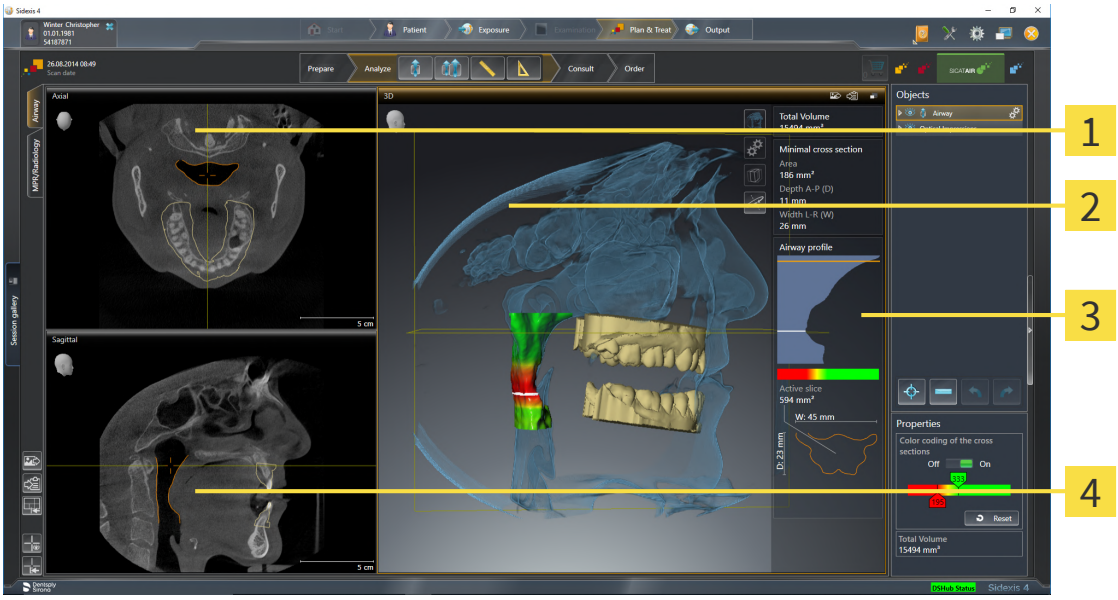
- **Airway** workspace - Information on this can be found in the section *Overview of the airway workspace [▶Page 70]*.
- **MPR/Radiology** workspace - Information on this can be found in the section *Overview of the MPR/Radiology workspace [▶Page 71]*.

When you close SICAT Air, the software will save the layout of the workspaces and the settings of the views.

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 86]*.
- 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 AIRWAY WORKSPACE



1 **Axial** view

2 **3D** view

3 Airway analysis area

4 **Sagittal** view

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 184]*.

3D VIEW

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

SAGITTAL VIEW

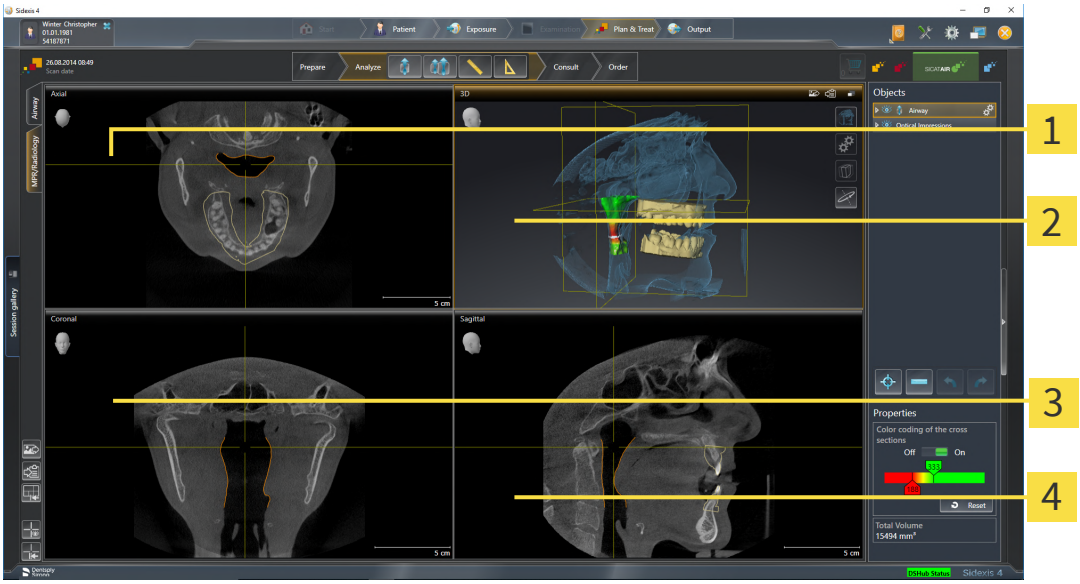
By default, the **Sagittal** view shows slices from the right. You can switch the viewing direction of the **Sagittal** view. Information on this can be found in the section *Changing visualization settings [▶Page 184]*.

When you close SICAT Air, the software will save the layout of the workspaces and the settings of the views.

The functions of the views can be found in the sections *Adjusting the views [▶Page 76]* and *Adjusting the 3D view [▶Page 86]*.

If you have created an **Airway** object by segmenting the airway, the airway analysis area will be available in the **3D** view. For further information see *SICAT Air objects [▶Page 64]*, *Segmenting the airway [▶Page 115]* and *Interacting with the airway profile [▶Page 129]*.

23.2 OVERVIEW OF THE MPR/RADIOLOGY WORKSPACE



1 **Axial** view

2 **3D** view

3 **Coronal** view

4 **Sagittal** view

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 184]*.

3D VIEW

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

CORONAL VIEW

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

SAGITTAL VIEW

By default, the **Sagittal** view shows slices from the right. You can switch the viewing direction of the **Sagittal** view. Information on this can be found in the section *Changing visualization settings [▶Page 184]*.

When you close SICAT Air, the software will save the layout of the workspaces and the settings of the views.

The functions of the views can be found in the sections *Adjusting the views [▶Page 76]* and *Adjusting the 3D view [▶Page 86]*.

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.

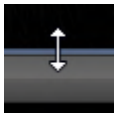
► The selected workspace opens.

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 Air 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 Air 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 Air 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 Air 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

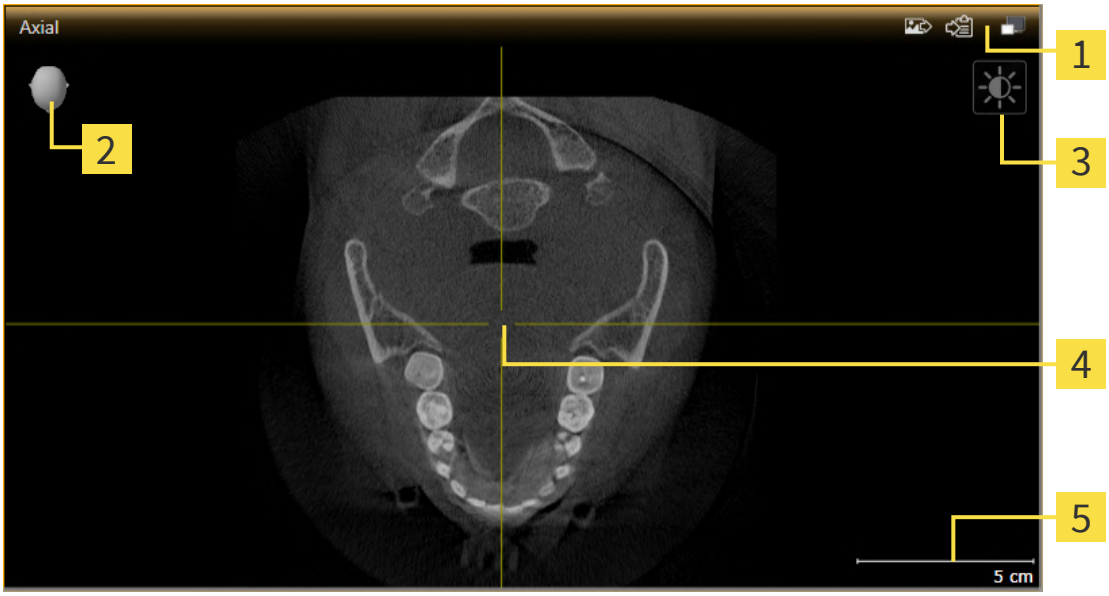
Views are contained in workspaces. A description of the various workspaces and views can be found under *Workspaces [▶Page 69]*.

You can adjust the views. For further information about this see *Adjusting the views [▶Page 76]* and *Adjusting the 3D view [▶Page 86]*.

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	Scale
3	View toolbar		

2D slice views display crosshairs. Crosshairs are lines of intersection with other slice views. SICAT Air 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]*
- *Resetting views [▶Page 84]*

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

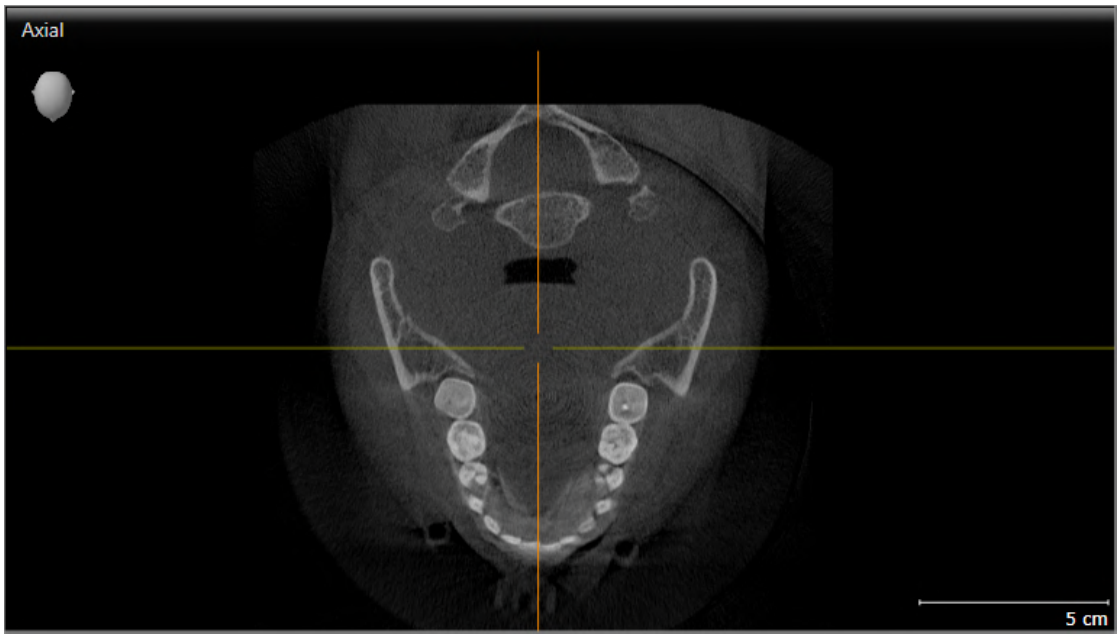
You can document the content of an active view. Information on this can be found in the section *Creating screenshots of views [▶Page 85]*.

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 Air 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 Air maximizes the view.

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

   ▶ SICAT Air 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 Air adjusts the brightness of the 2D view according to the position of the **Brightness** slider.

4. Release the left mouse button.

   ▶ SICAT Air 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 Air adjusts the contrast of the 2D view according to the position of the **Contrast** slider.

7. Release the left mouse button.

   ▶ SICAT Air 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 Air 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 Air adjusts the slices and crosshairs of other views according to the current focus point.
   ▶ SICAT Air adjusts the frames of the **3D** views according to the current focus point.
4. Release the left mouse button.

▶ SICAT Air 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 Air adjusts the slices and crosshairs of other views according to the current focus point.
   ▶ SICAT Air adjusts the frames of the **3D** views according to the current focus point.
4. Release the left mouse button.

▶ SICAT Air 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 Air hides the crosshairs in all 2D slice views.
   ▶ SICAT Air hides the frames in the **3D** view.

2. Click on the **Show crosshairs and frames** icon.
   ▶ SICAT Air shows the crosshairs in all 2D slice views.
   ▶ SICAT Air shows the frames in the **3D** view.

24.8 RESETTING VIEWS

To reset all views, proceed as follows:

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

► SICAT Air resets all views to the default values for zoom, panning views, scrolling, and moving the crosshairs.

► SICAT Air resets the viewing direction of the **3D** view to the default value.

24.9 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 Air 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 Air 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 87]*.

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

- *Switching the display mode of the 3D view [▶Page 89]*
- *Configuring the active display mode of the 3D view [▶Page 90]*
- *Changing the clipping mode of the 3D view [▶Page 95]*
- *Rotating the 3D view [▶Page 96]*
- *Switching off and switching on the display of optical impressions in color [▶Page 97]*

When you close SICAT Air, the software will save the layout of the workspaces and the settings of the views.

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 Air 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.

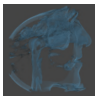
▶ The transparent **Viewing direction** window closes.

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 96]*.

25.2 DISPLAY MODES OF THE 3D VIEW

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

SICAT Air provides different display modes for the **3D** view in the **MPR/Radiology** workspace and **Airway** workspace:

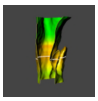


- The **Volumetric view with soft tissue** displays only the soft tissue.

- The **Surface view** displays a non-transparent slice through the volume.

- The **Volumetric view with bones and soft tissue** combines the **Volumetric view with soft tissue** and the **Volumetric view with bones**.

- The **Volumetric view with bones** displays only the bone.



- The **Opaque view of the airway** displays the segmented airway. The airway is the same as the **Airway** object in SICAT Air. Settings in the **Airway** object affect the **Opaque view of the airway**. Information on this can be found in the section *SICAT Air objects [▶Page 64]*.

Information on how to activate a display mode of the **3D** view can be found in the section *Switching the display mode of the 3D view [▶Page 89]*.

Information on how to configure the active display mode can be found in the section *Configuring the active display mode of the 3D view [▶Page 90]*.

You can find information on how to use the different display modes together with the various clipping modes in the section *Clipping modes of the 3D view [▶Page 92]*.

25.3 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 Air 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.

25.4 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:

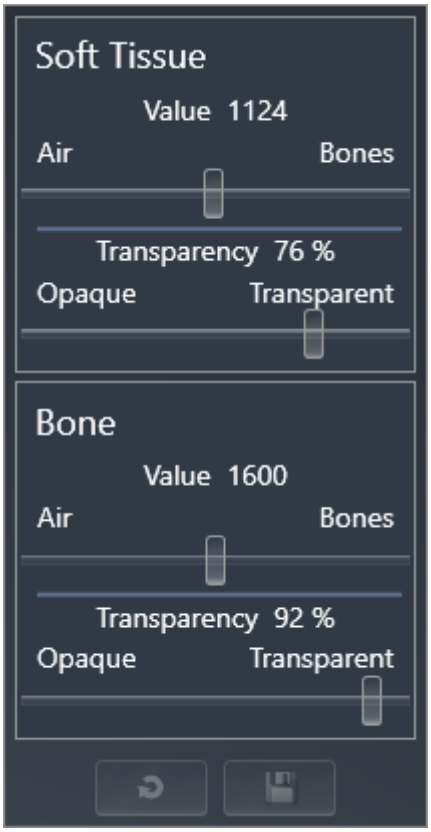
☑ The **3D** view is already active. Information on this can be found in the section *Changing the active view [▶Page 77]*.

☑ 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 89]*.

☑ 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 Air 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 Air adjusts the **3D** view according to the status of the check box.

5. Move the slider you require.

   ▶ SICAT Air 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.

25.5 CLIPPING MODES OF THE 3D VIEW

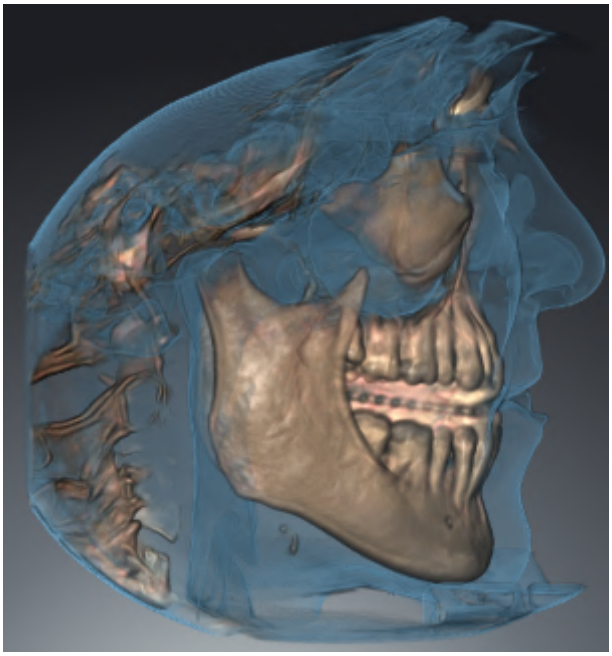
General information on the **3D** view can be found in the section *Adjusting the 3D view [▶Page 86]*.

You can hide parts of the volume in the **3D** view using the clipping modes.

SICAT Air provides different clipping modes in the **3D** view depending on the display mode:

CLIPPING: NONE

SICAT Air displays all parts of the volume contained in the active display mode.

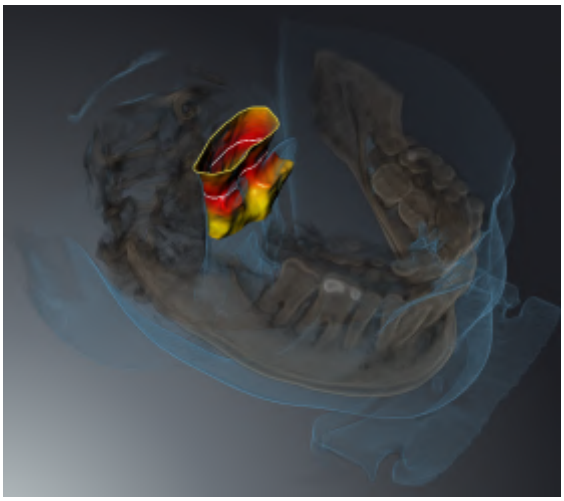


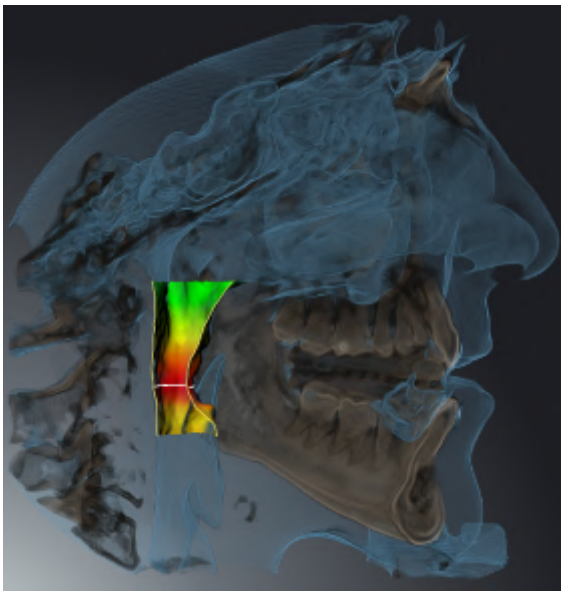
CLIPPING: AIRWAY SLAB

SICAT Air hides all parts of the volume that are on the side of the airway area. Information on how to adjust the airway area can be found in the section *Defining the airway area [▶Page 116]*. If you have not defined an airway area, SICAT Air will use default values.

CLIPPING: ACTIVE SLICE

SICAT Air hides all parts of the volume that are beyond a slice you have selected. You can set the slice depending on the clipping mode in the **Axial** slice view, **Coronal** slice view or **Sagittal** slice view. Information on this can be found in the section *Scrolling through slices in the 2D slice views [▶Page 82]*. A workspace only provides the slice clipping modes for which it contains the corresponding slice views. In the **Airway** workspace, you can also define the axial slice in the airway profile. Information on this can be found in the section *Interacting with the airway profile [▶Page 129]*.





CLIPPING MODES IN CERTAIN DISPLAY MODES

The following table shows which clipping modes are available in the display modes:

	Clipping: None	**Clipping: Airway Slab**	**Clipping: Active slice**
Volumetric view with soft tissue	Yes	Yes*	Yes
Surface view	No	No	Yes, sagittal*

Volumetric view with bones and soft tissue	Yes*	Yes	Yes
Volumetric view with bones	Yes*	No	Yes
Opaque view of the airway	Yes*	No	Yes

*Standard

Information on how to activate a clipping mode of the **3D** view can be found in the section *Changing the clipping mode of the 3D view [▶Page 95]*.

25.6 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 Air 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.

25.7 ROTATING THE 3D VIEW

You can use the **Spin 3D view** function in the **Airway** workspace and in the **MPR/Radiology** workspace to switch a rotation mode for the 3D X-ray scan on and off. If the rotation mode is switched on, SICAT Air 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 Air 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 Air stops the rotation of the 3D X-ray scan.

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

25.8 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 Air 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 Air 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:

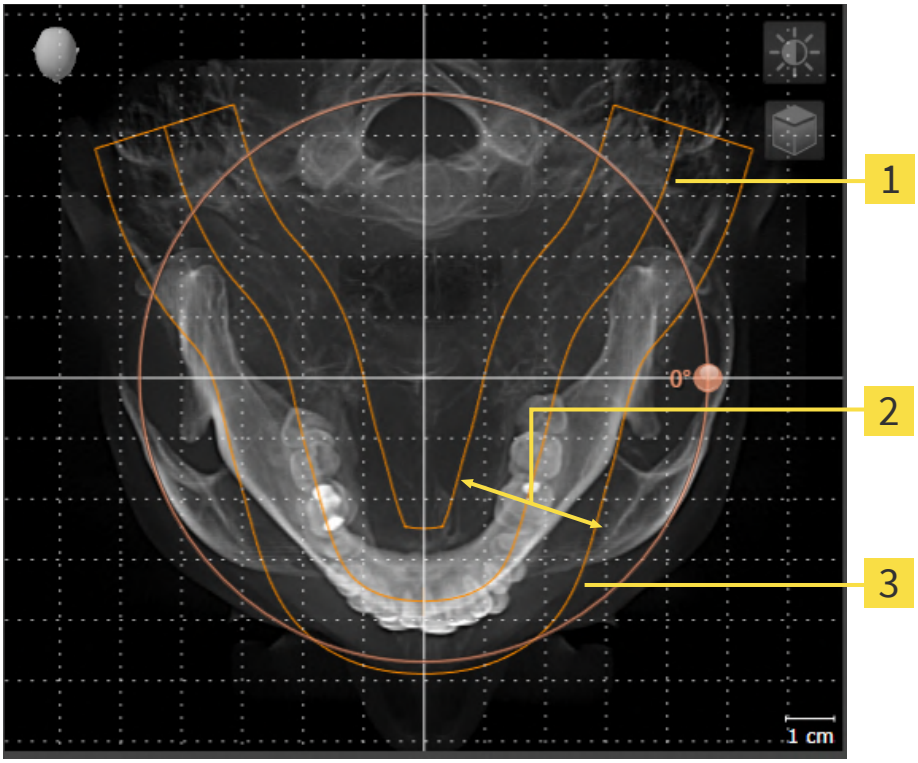
- Sub-optimal positioning of the patient during the 3D X-ray scan
- Orientation according to case, for example orientation of the axial slices parallel to the Frankfurt plane or parallel to the bite plane
- Optimizing the **Panorama** view

If you adjust the volume orientation in SICAT Air, SICAT Air 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 101]*.

PANORAMIC REGION

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

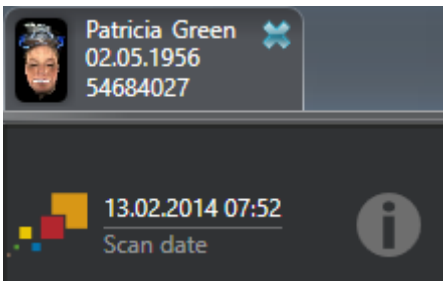
Information on adjusting the panoramic region can be found in the section *Adjusting the panoramic region [▶Page 106]*.

TRANSFER OF DATA FROM SIDEXIS 4

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

- SICAT Air only supports rotations of the volume orientation up to a maximum of 30 degrees.
- SICAT Air supports only standard panoramic curves from SIDEXIS 4, not the shifting of individual supporting points from SIDEXIS 4.
- SICAT Air supports only panoramic curves that are at least 10 mm thick.
- SICAT Air supports only panoramic curves that have not been rotated in SIDEXIS 4.

If at least one of the restrictions applies, SICAT Air will not apply the volume orientation and panoramic region or will not apply the panoramic region.



In this case, SICAT Air 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 Air.

26.1 ADJUSTING THE VOLUME ORIENTATION

General information on volume orientation can be found in the section *Adjusting volume orientation and panoramic region [▶Page 98]*.

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

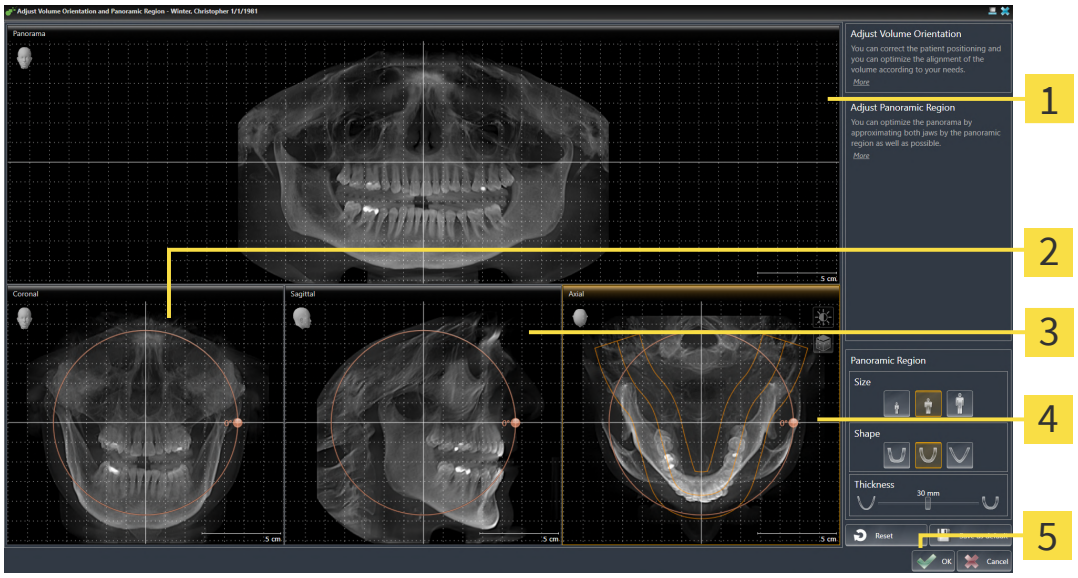
- Opening the **Adjust Volume Orientation and Panoramic Region** window
- Rotating volumes in the **Coronal** view
- Rotating volumes in the **Sagittal** view
- Rotating volumes in the **Axial** view

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

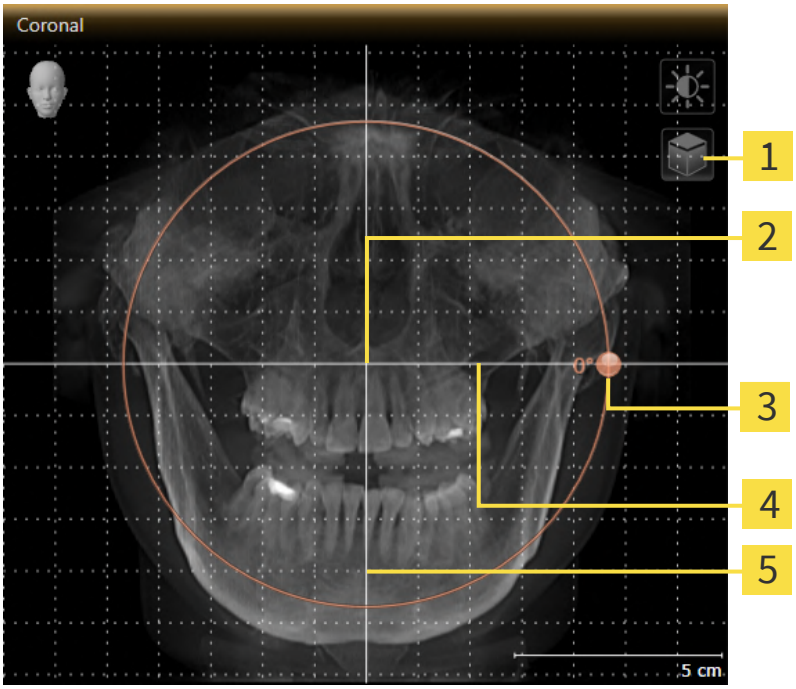
3 **Sagittal** view with **Rotation** slider

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

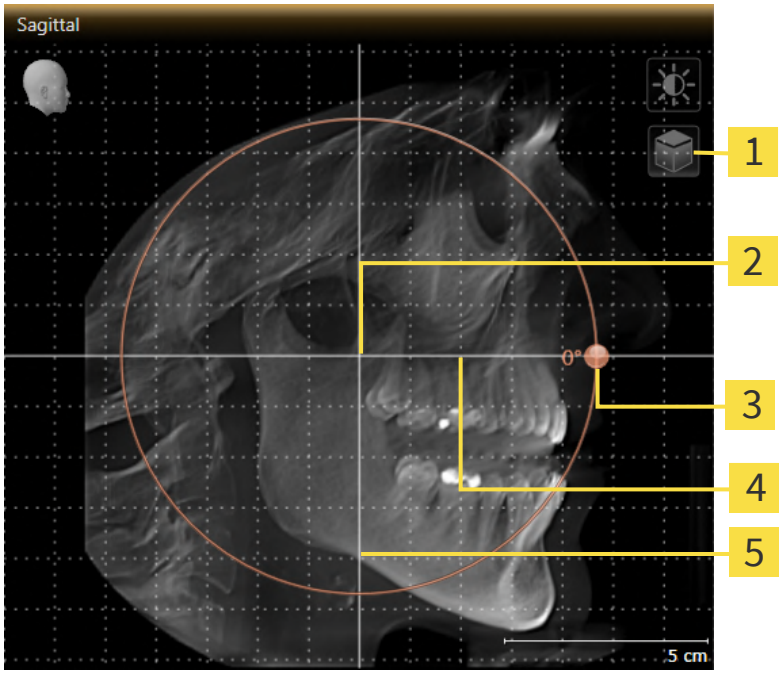
4 Horizontal reference line

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 Air 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

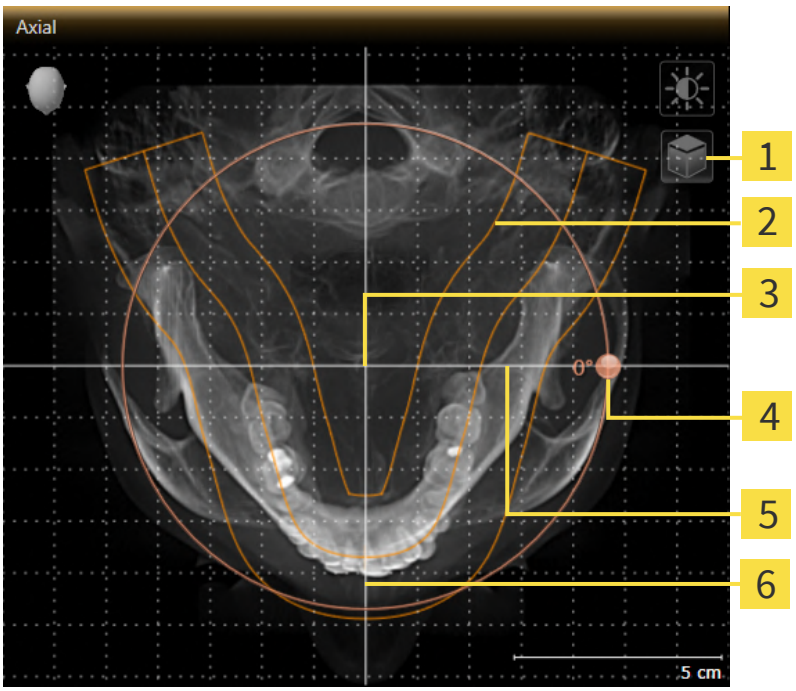
4 Horizontal reference line

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 Air 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 Air 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 Air 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 Air, SICAT Air 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 Air 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 Air 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 98]*.

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

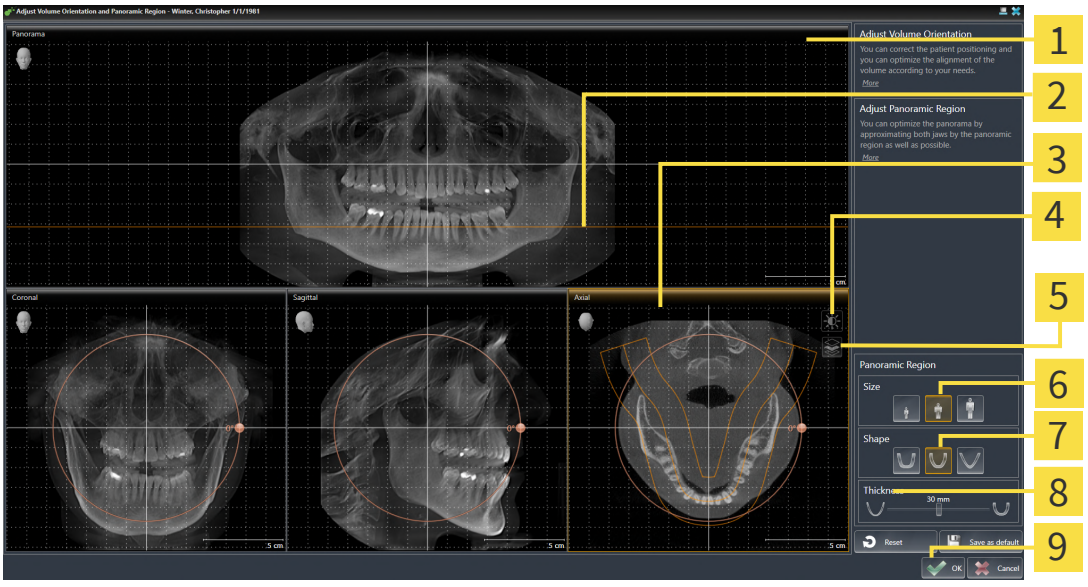
- Opening the **Adjust Volume Orientation and Panoramic Region** window
- Adjusting the slice position of the **Axial** view
- Moving the panoramic region
- Rotating volumes in the **Axial** view
- Adjusting **Size**, **Shape** and **Thickness** of the panoramic region

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 Air 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 Air 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 Air, SICAT Air 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.

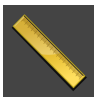
▶ SICAT Air saves the altered volume orientation and altered panoramic region and displays the **Panorama** view accordingly.

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 Air 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 DISTANCE AND ANGLE MEASUREMENTS

SICAT Air features two different types of measurement:



- Distance measurements

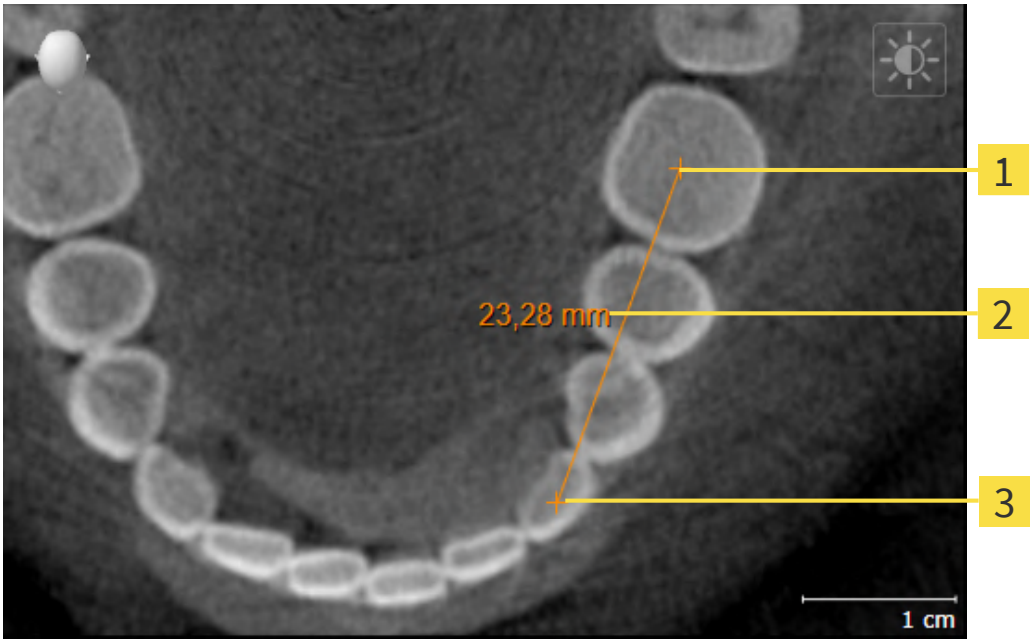
- Angle measurements

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 Air will also add it to the **Measurements** group in the **Object browser**.

The following actions are available for measurements:

- *Adding distance measurements [▶Page 110]*
- *Adding angle measurements [▶Page 111]*
- *Moving measurements, individual measuring points and measured values [▶Page 113]*
- 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]*.

27.1 ADDING DISTANCE MEASUREMENTS



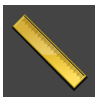
1 Starting point

2 Measured value

3 End point

To add a distance measurement, proceed as follows:

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

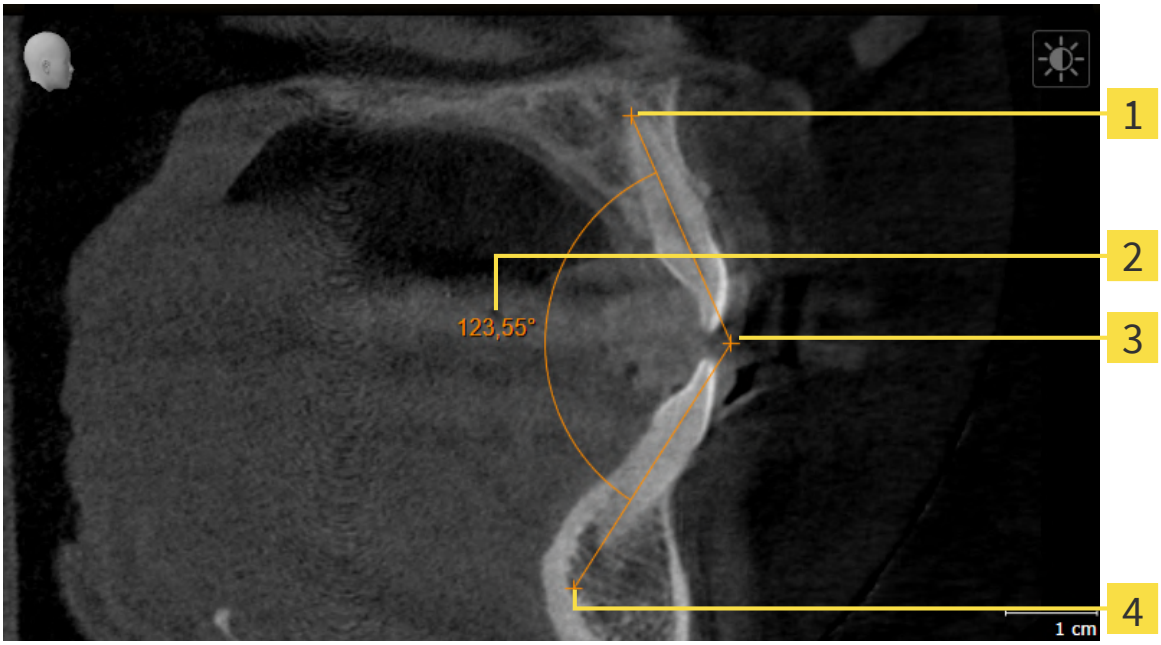


1. In the **Diagnose** workflow step, click the **Add distance measurement (D)** icon.
   ▶ SICAT Air adds a new distance measurement to the **Object browser**.
2. Move the mouse pointer over the desired 2D slice view.
   ▶ The mouse pointer becomes a cross.
3. Click on the starting point of the distance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

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

27.2 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 Air 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 Air illustrates the starting point using a small cross.
   ▶ SICAT Air 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 Air illustrates the vertex using a small cross.
   ▶ SICAT Air shows the second arm of the angle measurement by a line from the vertex to the mouse pointer.
   ▶ SICAT Air 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 Air illustrates the end point using a small cross.

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

27.3 MOVING MEASUREMENTS, INDIVIDUAL MEASURING POINTS AND MEASURED VALUES

MOVING MEASUREMENTS

To move a measurement, proceed as follows:

☑ SICAT Air 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 Air maintains the current position of the measurement.

MOVING INDIVIDUAL MEASURING POINTS

To move an individual measuring point, proceed as follows:

☑ SICAT Air 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 Air maintains the current position of the measuring point.

MOVING MEASURED VALUES

To move a measured value, proceed as follows:

☑ SICAT Air 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 Air shows a dotted line between the measured value and the corresponding measurement.
4. Release the left mouse button.

▶ SICAT Air maintains the current position of the measured value.

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

28 SEGMENTING THE AIRWAY

CAUTION

Excessive artifacts or the insufficient resolution of 3D X-ray scans may result in the failure of the segmentation process or lead to insufficient results. Examples of excessive artifacts in 3D X-ray scans include movement artifacts and metal artifacts.

Only use 3D X-ray scans that allow for a sufficient quality of segmentation of the relevant anatomical structures.

CAUTION

Insufficient segmentation quality may result in an incorrect diagnosis and treatment.

Check that the segmentation quality is sufficient for the intended use.

NOTICE

Before segmenting the airway, it may be useful to align the volume according to the Frankfurt plane. Information on this can be found in the section *Adjusting the volume orientation [▶Page 101]*. If you align the volume only after segmenting the airway, SICAT Air removes the Airway object and you must carry out segmentation once more.

In SICAT Air you require an **Airway** object for the airway analysis. You create an **Airway** object by segmenting the airway. The **Airway** object illustrates the airway separately, displays the key information and offers additional interaction options.

SICAT Air requires an airway area to segment the airway. You can define the airway area with two anatomical reference points in the **Segment the airway** window. After this, SICAT Air will create an airway area in the form of a cuboid. The software defines the airway area using reference points and a configurable lateral width. SICAT Air finally performs an automatic segmentation of the airway in the airway area. You can subsequently move the reference points and change the lateral width, whereupon the software will perform the automatic segmentation of the airway once more.

SICAT Air marks areas red in the **3D** view, which the software cannot clearly identify as an airway. If SICAT Air has incorrectly assigned parts of the volume, correction tools are available.

Segmenting the airway consists of the following step:

- *Defining the airway area [▶Page 116]*

The following steps are optional:

- *Correcting the airway segmentation [▶Page 120]*
- *Removing non-required areas from the airway [▶Page 122]*

If the automatic segmentation of the airway still does not meet the anatomical circumstances even after using the correction tools, you can segment the airway manually. Information on this can be found in the section *Segmenting the airway manually [▶Page 123]*.

28.1 DEFINING THE AIRWAY AREA

⚠ **CAUTION**	**3D X-ray scans of insufficient quality may result in the quality of the segmented airway and airway profile being insufficient.** Only use 3D X-ray scans of a sufficient quality to create the segmented airway and airway profile with a sufficient quality and resolution.

General information on the segmentation of the airway can be found in the section *Segmenting the airway [▶Page 115]*.

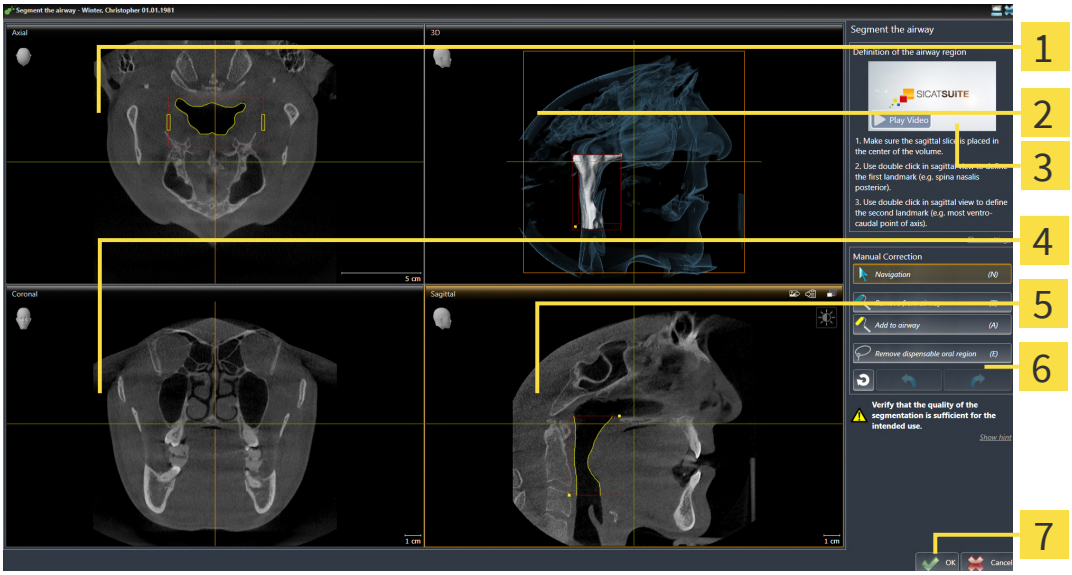
OPENING THE “SEGMENT THE AIRWAY" WINDOW

☑ 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 101]*.

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

- Click on the **Segment the airway** icon.

▶ The **Segment the airway** window opens:

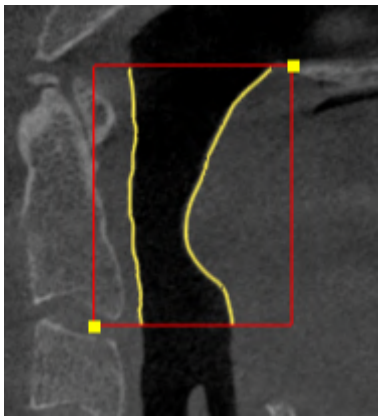


1	**Axial** view	5	**Sagittal** view
2	**3D** view	6	Tool area
3	Example video	7	**OK** button
4	**Coronal** view		

SETTING ANATOMICAL REFERENCE POINTS TO DEFINE THE AIRWAY AREA

1. Make sure that the **Sagittal** view shows the desired point for the upper reference point in the airway. If necessary, scroll through the slices in the **Sagittal** view.

2. Double click on the position of the upper reference point of the airway in the **Sagittal** view:



▶ SICAT Air marks the upper reference point with a yellow rectangle.

▶ The lower reference point will now match the position of the mouse pointer.

▶ SICAT Air marks the airway area with a red frame.

3. Make sure that the **Sagittal** view shows the desired point for the lower reference point in the airway. If necessary, scroll through the slices in the **Sagittal** view.

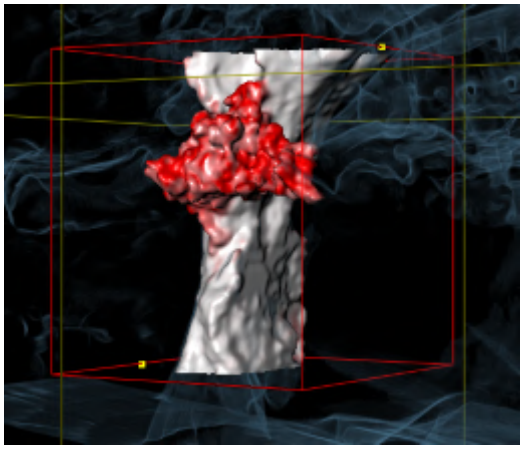
4. Double click on the position of the lower reference point of the airway in the **Sagittal** view.

▶ SICAT Air marks the lower reference point with a yellow rectangle.

▶ SICAT Air defines the airway area according to the position of the reference points.

▶ SICAT Air automatically segments the airway based on the airway area.

▶ SICAT Air marks areas in the **3D** view red that the software cannot clearly identify as an airway:



MOVING REFERENCE POINTS OF THE AIRWAY AREA

You can move the reference points in all 2D views.

1. Make sure that the navigation mode is active. Click on the **Navigation** button if necessary.

2. Make sure that the desired 2D view shows the desired reference point. If necessary, scroll through the slices.

3. Place the mouse pointer on a reference point.

▶ The mouse pointer becomes a crosshair.

4. Click and hold the left mouse button.
5. Place the mouse pointer on the new position of the reference point.
   ▶ The reference point tracks the movement of the mouse pointer.
   ▶ SICAT Air adjusts the airway area according to the position of the reference point.
6. Release the left mouse button.

▶ SICAT Air maintains the new position of the reference point.

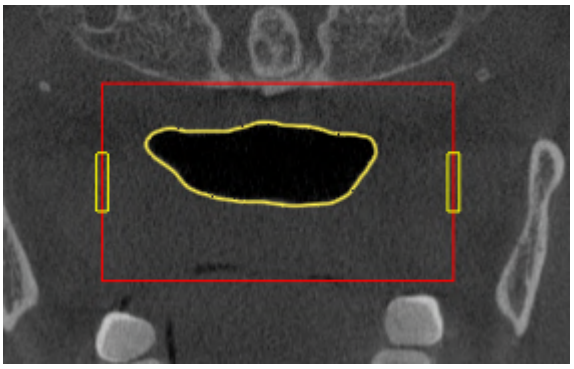
▶ SICAT Air automatically re-segments the airway based on the new airway area.

▶ SICAT Air marks areas in the **3D** view red that the software cannot clearly identify as an airway.

CHANGING THE LATERAL SIZE OF THE AIRWAY AREA

The default lateral size is 60 mm.

1. Make sure that the navigation mode is active. Click on the **Navigation** button if necessary.
2. Make sure that the **Axial** view shows the markers for the lateral size. If necessary, scroll through the slices in the **Axial** view:



3. Place the mouse pointer on a marker of the lateral size.
   ▶ The mouse pointer becomes a two-way arrow.
4. Click and hold the left mouse button.
5. Place the mouse pointer on the desired position of the marker.
   ▶ The marker tracks the movement of the mouse pointer.
   ▶ SICAT Air adjusts the airway area according to the new lateral size.
6. Release the left mouse button.

▶ SICAT Air maintains the new position of the marker.

▶ SICAT Air automatically re-segments the airway based on the new airway area.

▶ SICAT Air marks areas in the **3D** view red that the software cannot clearly identify as an airway.

If the segmentation of the airway matches the anatomical characteristics, continue with the section *Completing the segmentation of the airway [▶Page 125]*.

If the segmentation does not match the anatomical characteristics , continue with the section *Correcting the airway segmentation [▶Page 120]* or *Removing non-required areas from the airway [▶Page 122]*.

In addition to the described process, the following actions are available in the **Segment the airway** 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 copy screenshots of individual views to the clipboard and to the handout by clicking on the **Copy screenshot to clipboard (Ctrl+C)** icon. Information on this can be found in the section *Creating screenshots of views [▶Page 85]*.
- If you want to undo the last work step, you can click on the **Undo (Ctrl+Z)** button.
- If you want to redo the last work step, you can click on the **Redo (Ctrl+Y)** button.
- If you want to undo all work steps, you can click on the **Remove airway segmentation and reset all changes** button and confirm this in the message window by clicking **OK**.
- If you want to cancel the segmentation of the airway, you can click **Cancel**.

The **Undo (Ctrl+Z)** and **Redo (Ctrl+Y)** functions are only available as long as the **Segment the airway** window is open.

28.2 CORRECTING THE AIRWAY SEGMENTATION

> The segmentation of SICAT Air works with areas instead of anatomical contours. For this reason, it is only rarely necessary to exactly trace the anatomical contours. Instead, mark contingous areas by drawing lines within the areas.

General information on segmentation of the airway can be found in the section *Segmenting the airway [▶Page 115]*.

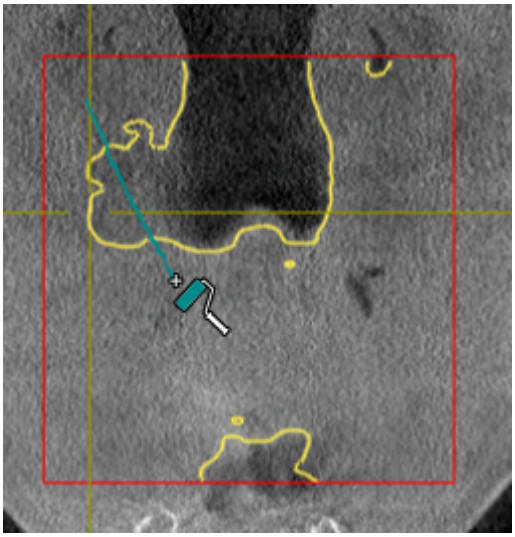
REMOVING INCORRECTLY IDENTIFIED AREAS FROM THE AIRWAY

You can remove areas from the airway in all 2D views.

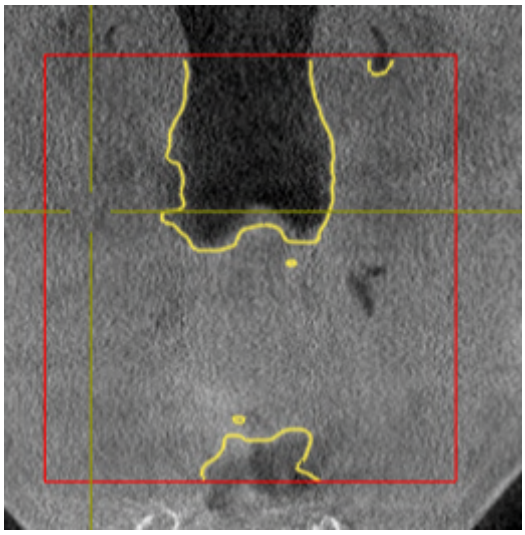
In your corrections, consider in particular the areas marked red in the **3D** view. However, these areas may not be the only areas that SICAT Air may have incorrectly identified as part of the airway.

☑ You have already defined an airway area. Information on this can be found in the section *Defining the airway area [▶Page 116]*.

1. Click the **Remove from airway** button in the **Segment the airway** window.
   ▶ The mouse pointer becomes a blue paint roller.
2. Mark the areas that SICAT Air has incorrectly identified as part of the airway in a 2D view within the airway area.



▶ SICAT Air removes the marked area from the airway:



ADDING INCORRECTLY IDENTIFIED AREAS TO THE AIRWAY

You can mark areas as part of the airway in all 2D views.

☑ You have already defined an airway area. Information on this can be found in the section *Defining the airway area [▶Page 116]*.

1. Click the **Add to airway** button in the **Segment the airway** window.
   ▶ The mouse pointer becomes a yellow paint roller.
2. Mark additional areas as part of the airway in a 2D view within the airway area.
   ▶ SICAT Air identifies the marked area as part of the airway.

If the segmentation of the airway matches the anatomical characteristics, continue with the section *Completing the segmentation of the airway [▶Page 125]*.

If the automatic segmentation of the airway still does not meet the anatomical circumstances even after using the correction tools, you can segment the airway manually. Information on this can be found in the section *Segmenting the airway manually [▶Page 123]*.

28.3 REMOVING NON-REQUIRED AREAS FROM THE AIRWAY

General information on segmentation of the airway can be found in the section *Segmenting the airway [▶Page 115]*.

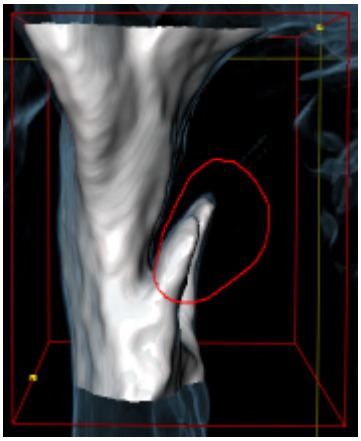
Use the **Remove dispensable oral region** tool in air-carrying areas, which are not part of the relevant airway. This includes, for example the oral cavity and protuberances.

☑ You have already defined an airway area. Information on this can be found in the section *Defining the airway area [▶Page 116]*.

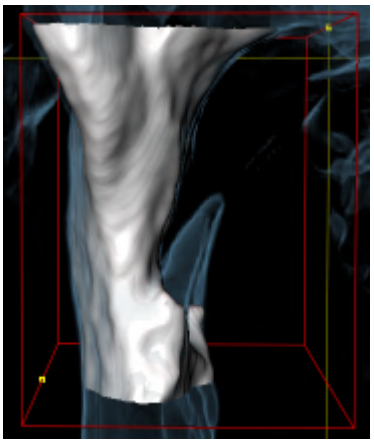
1. Click the **Remove dispensable oral region** button in the **Segment the airway** window.

   ▶ The mouse pointer becomes a lasso.

2. Frame areas that you wish to completely remove from detection in the **3D** view. It does not matter whether this is in the airway or an area outside the airway:



▶ SICAT Air removes the entire area behind the marker from the volume. This means that SICAT Air can no longer identify this area as an airway or area outside the airway:



You can also use the **Remove dispensable oral region** function in the 2D views. In this case, SICAT Air makes changes to the current slice only.

If the segmentation of the airway matches the anatomical characteristics, continue with the section *Completing the segmentation of the airway [▶Page 125]*.

If the automatic segmentation of the airway still does not meet the anatomical circumstances even after using the correction tools, you can segment the airway manually. Information on this can be found in the section *Segmenting the airway manually [▶Page 123]*.

28.4 SEGMENTING THE AIRWAY MANUALLY

> The segmentation of SICAT Air works with areas instead of anatomical contours. For this reason, it is only rarely necessary to exactly trace the anatomical contours. Instead, mark contingous areas by drawing lines within the areas.

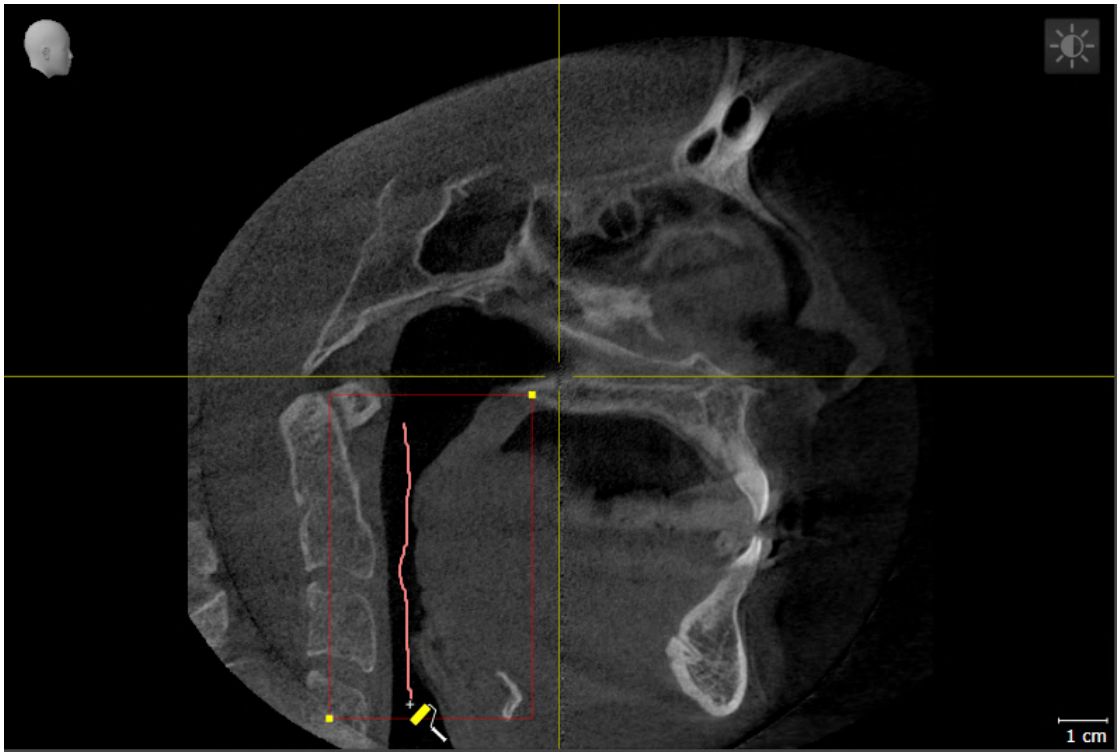
General information on segmentation of the airway can be found in the section *Segmenting the airway [▶Page 115]*.

Even if you use the correction tools, SICAT Air may still not be able to automatically produce usable segmentation of the airway on certain 3D X-ray scans. In this case, segment the airway manually:

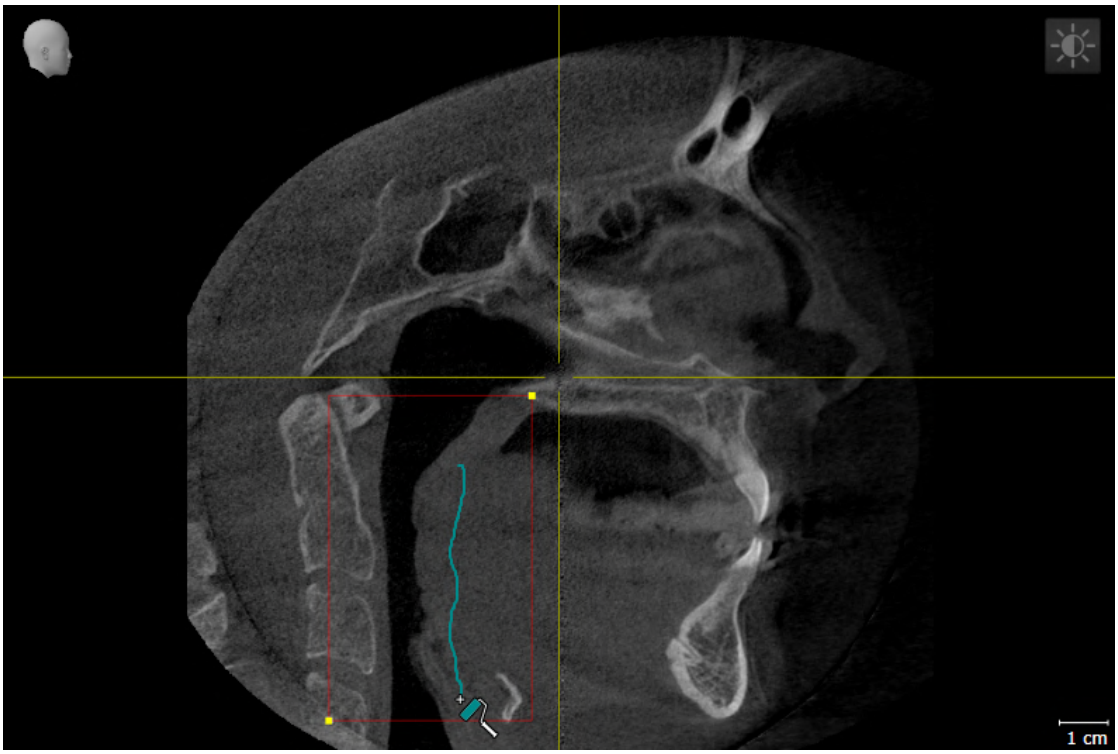
☑ You have already defined an airway area. Information on this can be found in the section *Setting the airway area [▶Page 116]*.

1. Click the **Show settings** button in the **Segment the airway** window.
   ▶ The **Show settings** area expands.
2. Activate the **Segment the airway manually** check box.
   ▶ If available, SICAT Air will remove the automatic segmentation of the airway and accompanying corrections.

3. To mark areas as part of the airway, use the **Add to airway** drawing tool within the airway area:



4. To mark areas outside the airway, use the **Remove from airway** drawing tool within the airway area:



▶ SICAT Air segments the airway according to your markers.

▶ SICAT Air marks areas in the **3D** view red that the software cannot clearly identify as an airway.

If you want to segment the airway manually, you have to mark the airway as well as areas outside the airway. After this, SICAT Air will perform the segmentation.

The tools to correct the automatic segmentation of the airway are also available for the manual segmentation of the airway:

- *Correcting the airway segmentation [▶Page 120]*
- *Removing non-required areas from the airway [▶Page 122]*

If the segmentation of the airway matches the anatomical characteristics, continue with the section *Completing the segmentation of the airway [▶Page 125]*.

28.5 COMPLETING THE SEGMENTATION OF THE AIRWAY

General information on the segmentation of the airway can be found in the section *Segmenting the airway [▶Page 115]*.

☑ You have already defined an airway area in the **Segment the airway** window. Information on this can be found in the section *Defining the airway area [▶Page 116]*.

- If the segmentation matches the anatomical characteristics, click on **OK**.

▶ SICAT Air adopts the segmented airway.

▶ SICAT Air closes the **Segment the airway** window.

▶ If not already active, SICAT Air will activate the **Airway** workspace.

▶ In the **3D** view, SICAT Air activates the **Opaque view of the airway** display mode.

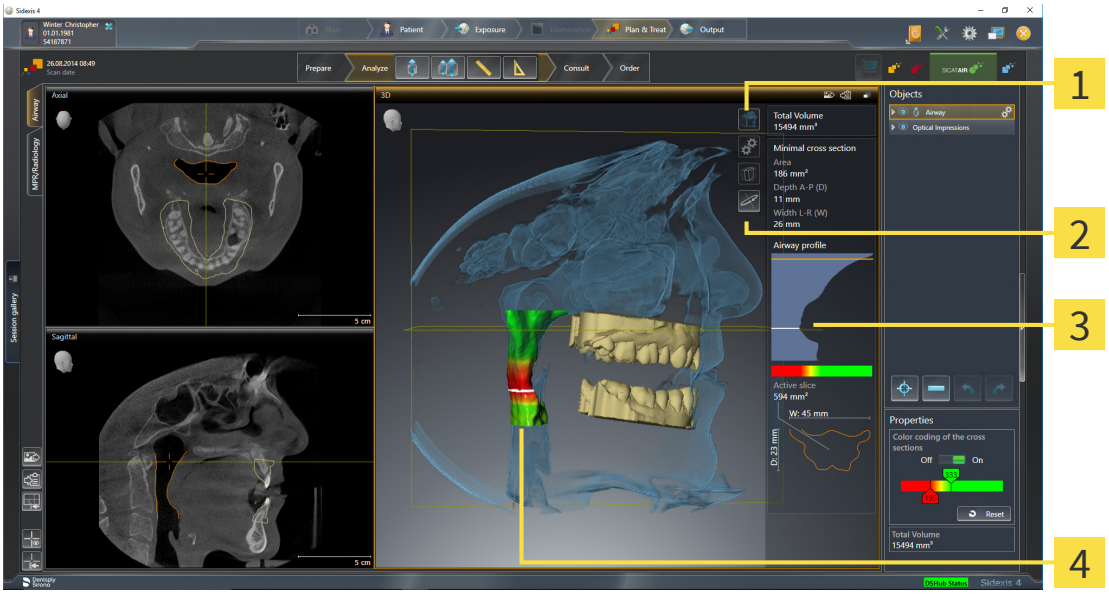
▶ In the **Object bar**, SICAT Air creates an **Airway** object.

29 AIRWAY ANALYSIS

Before starting the airway analysis, you have to segment the airway. Information on this can be found in the section *Segmenting the airway [▶Page 115]*.

SICAT Air provides the following possibilities for the airway analysis:

- Airway analysis area
- Display modes
- Clipping modes
- Color coding



1 **Switch display mode** icon

2 **Switch clipping mode** icon

3 Airway analysis area

4 Segmented **Airway** object with color coding

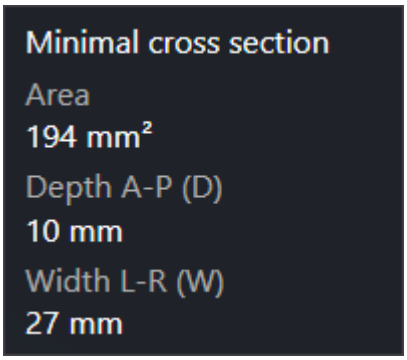
TOTAL VOLUME

Above the airway profile, SICAT Air displays the **Total volume** of the **Airway** object in mm^3.

AIRWAY ANALYSIS AREA

After you have segmented the airway, SICAT Air displays the airway analysis area in the **Airway** workspace.

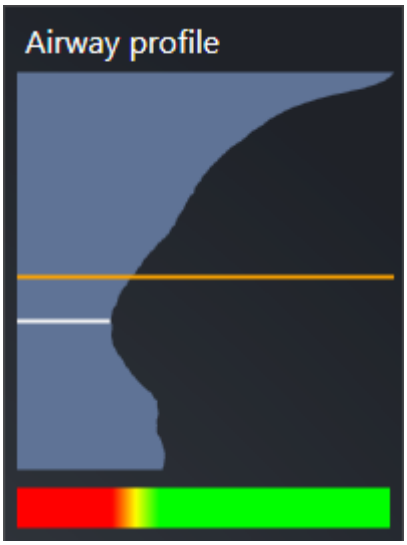
The upper part of the airway analysis area looks as follows:



You can view the following information on the segmented airway:

- **Minimal cross section area**
- **Depth A-P (D)**
- **Width L-R (W)**

The middle section of the airway analysis area displays the airway profile. The airway profile visualizes the cross-sectional areas of the axial slices along the airway:



The airway profile contains two lines that have the following meanings:

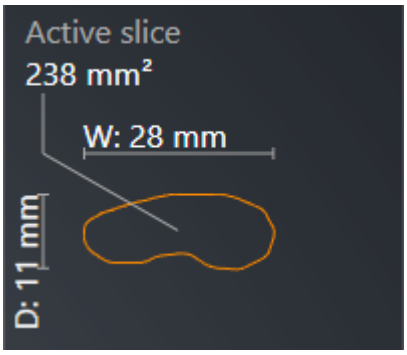
- The white line symbolizes the slice with the smallest cross-sectional area.
- The orange line symbolizes the selected slice.

The selected slice determines the position of the clipping in the **3D** view and the information in the lower section of the airway analysis area.

Information on selecting a slice in the airway profile can be found in the section *Interacting with the airway profile [▶Page 129]*.

The color gradient below the airway profile establishes the relationship between the color coding and slice areas.

The lower part of the airway analysis area looks as follows:



You can view the following information on the cross-section of the selected slice:

- Visualization of the cross-section
- Cross-sectional area
- Width
- Depth

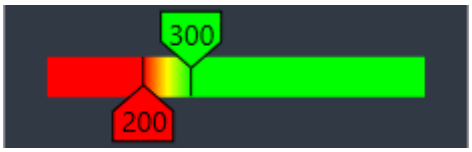
DISPLAY MODES

In the **3D** view, SICAT Air can highlight certain aspects of the volume with different display modes. Information on this can be found in the section *Display modes of the 3D view [▶Page 88]*.

CLIPPING MODES

In the **3D** view, SICAT Air can hide certain areas of the volume with different clipping modes. Information on this can be found in the section *Clipping modes of the 3D view [▶Page 92]*.

COLOR CODING



SICAT Air gives the segmented airway a color coding. The color coding is equivalent to the cross-sectional areas of the airway profile. You can use the color coding in the **3D** view to highlight bottlenecks in the airway object.

You can configure the color coding. Information on this can be found in the section *SICAT Air objects [▶Page 64]*. You should select the upper threshold in such a way that you can regard all areas of the airway above this as healthy. You should select the lower threshold in such a way that you can regard all areas of the airway below this as pathological. SICAT Air represents the area between them as a color gradient:

In the SICAT Air settings, you can define default values for the color coding. Information on this can be found in the section *Changing SICAT Air settings [▶Page 186]*.

29.1 INTERACTING WITH THE AIRWAY PROFILE

General information on airway analysis can be found in the section *Airway analysis [▶Page 126]*.

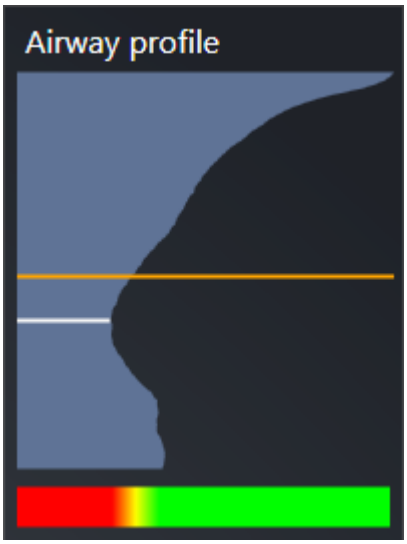
To interact with the airway profile, proceed as follows:

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

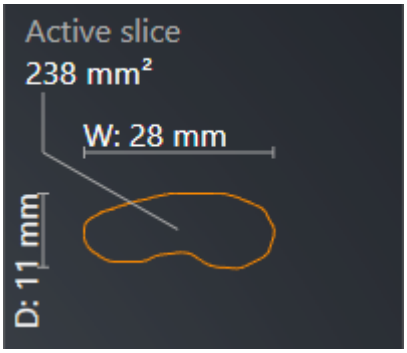
☑ You have already segmented the airway. Information on this can be found in the section *Defining the airway area [▶Page 116]*.

- Click on the desired slice in the airway profile.

► In the airway profile, an orange line shows the selected slice:

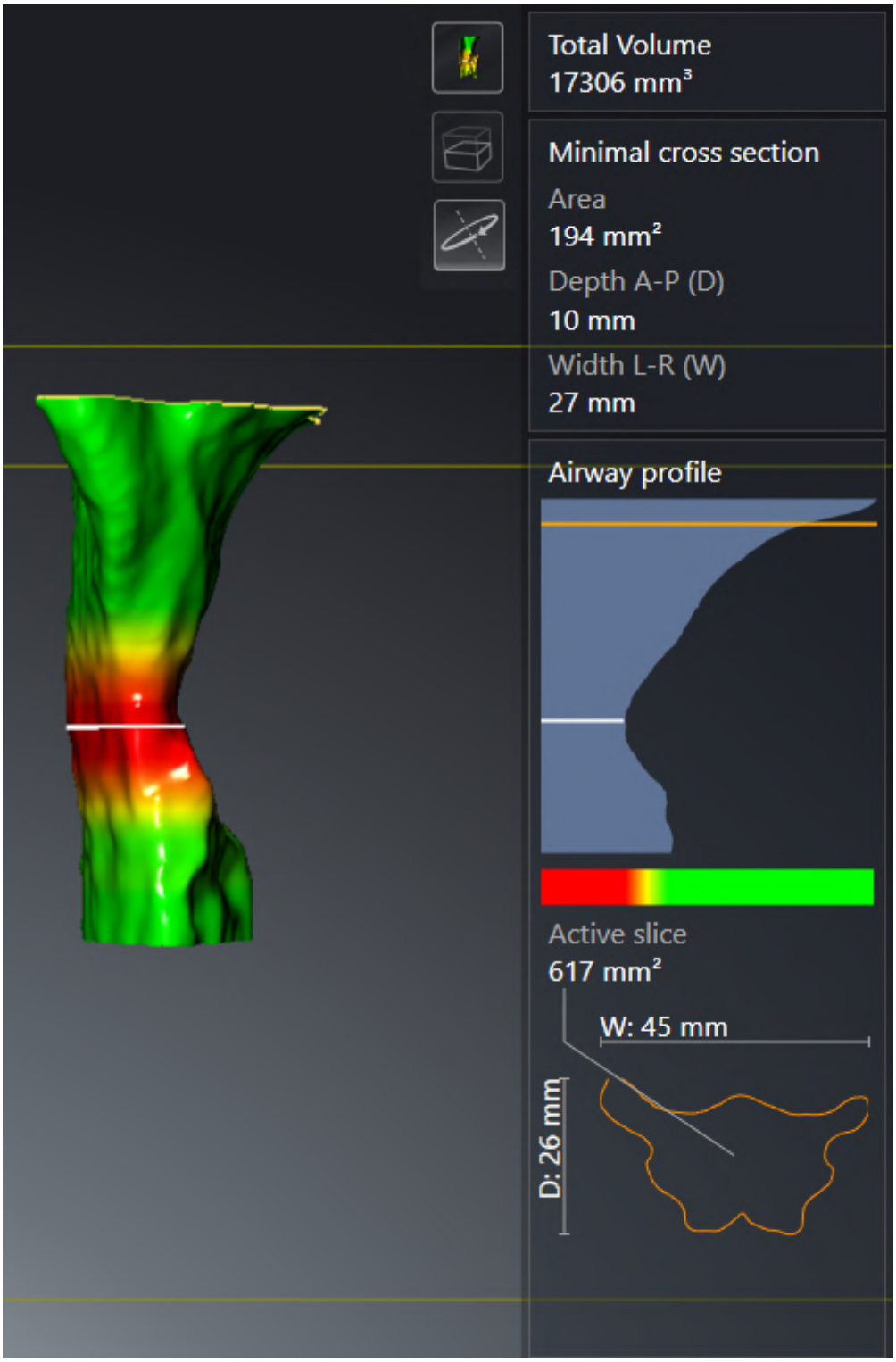


► SICAT Air displays information for the selected slice:



► In the **3D** view, SICAT Air activates the **Clipping: Designated Slice (select in slice view)** clipping mode.

► The **3D** view hides the area above the selected slice:



► SICAT Air focuses the crosshair on the center of the airway in the 2D views.

30 AIRWAY COMPARISON

⚠ **CAUTION**	**3D X-ray scans of insufficient quality may result in the quality of the segmented airway and airway profile being insufficient.** Only use 3D X-ray scans of a sufficient quality to create the segmented airway and airway profile with a sufficient quality and resolution.

⚠ **CAUTION**	**The use of incorrect data for the airway comparison may result in an incorrect diagnosis and treatment.** Use the correct patient, the correct 3D X-ray scans, the correct airway segmentation data, the correct interesting area and the correct size when selecting airway profiles for the airway comparison.

NOTICE	**Before segmenting the airway, it may be sensible to align the volume according to the Frankfurt plane. Information on this can be found in the section *Adjusting the volume orientation [▶Page 101]*. If you align the volume only after segmenting the airway, SICAT Air removes the Airway object and you must carry out segmentation once more.**

You can use the Airway comparison to compare the segmented upper airways of two 3D X-ray scans:

- In one 3D X-ray scan, the mandible is in an untreated position.
- In one 3D X-ray scan, the mandible is in a protruded treatment position.

You can use the airway comparison to assess the effects of the treatment position on the patient's airway.

The airway comparison is always performed on the basis of the currently opened 3D X-ray scan and one other data record. The other data record is called reference data record.

ℹ	The rear walls of the airways must be aligned equally so that the airway comparison delivers correct values.

The following conditions must be met for you to be able to perform an airway comparison:

- The reference 3D X-ray scan already has an airway object.
- The 3D X-ray scan with the mandible in the treatment position is open.

If all of the conditions are fulfilled, you can open the **Airway Comparison** window and perform an airway comparison. Information on this can be found in the section *Carrying out an airway comparison [▶Page 133]*.

ℹ	The segmentation of the 3D X-ray scan in the treatment position in the **Airway Comparison** window does not depend on the segmentation in the **Segment the airway** window. Both objects in the **Object browser** are also independent of one another.

30.1 CARRYING OUT AN AIRWAY COMPARISON

Information on this can be found in the section *Airway comparison [▶Page 132]*.

OPENING THE “AIRWAY COMPARISON” WINDOW

☑ You have already segmented the airway area in the reference 3D X-ray scan. Information on this can be found in the section *Defining the airway area [▶Page 116]*.

☑ You have already opened the 3D X-ray scan showing the treatment position.

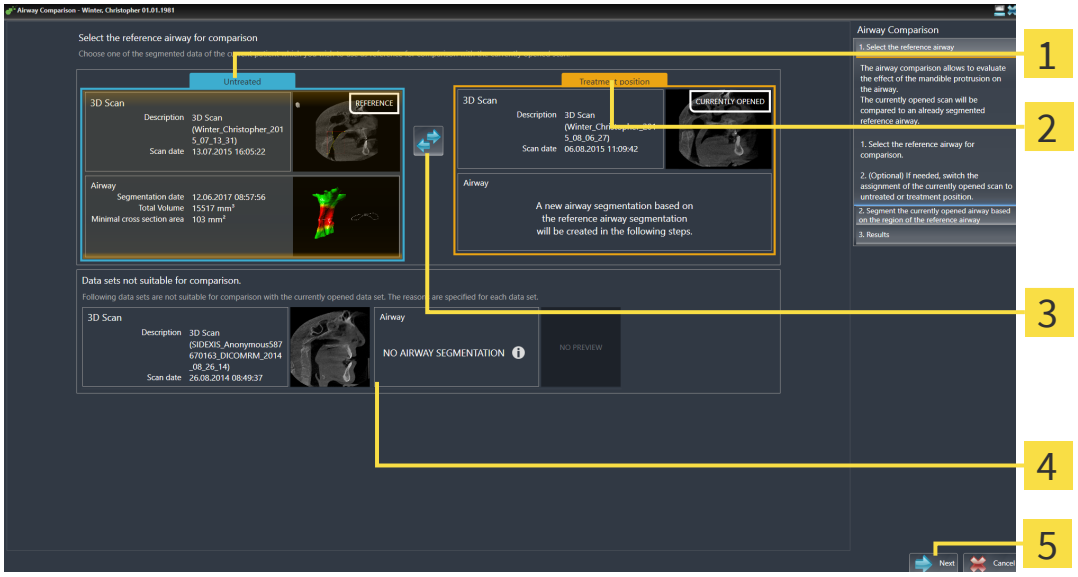
☑ You have already aligned the 3D X-ray scan showing the treatment position according to your requirements, for example, according to the Frankfurt plane. Information on this can be found in the section *Adjusting the volume orientation [▶Page 101]*.

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

- Click on the **Compare airways** icon.

▶ The **Airway Comparison** window opens with the **Select the reference airway for comparison** step.

SELECTING THE REFERENCE AIRWAY



1 **Untreated** list

2 **Treatment position** list

3 **Switch the assignment to untreated and treatment position** icon

4 List of 3D X-ray scans that are not suitable for the airway comparison

5 **Next** button

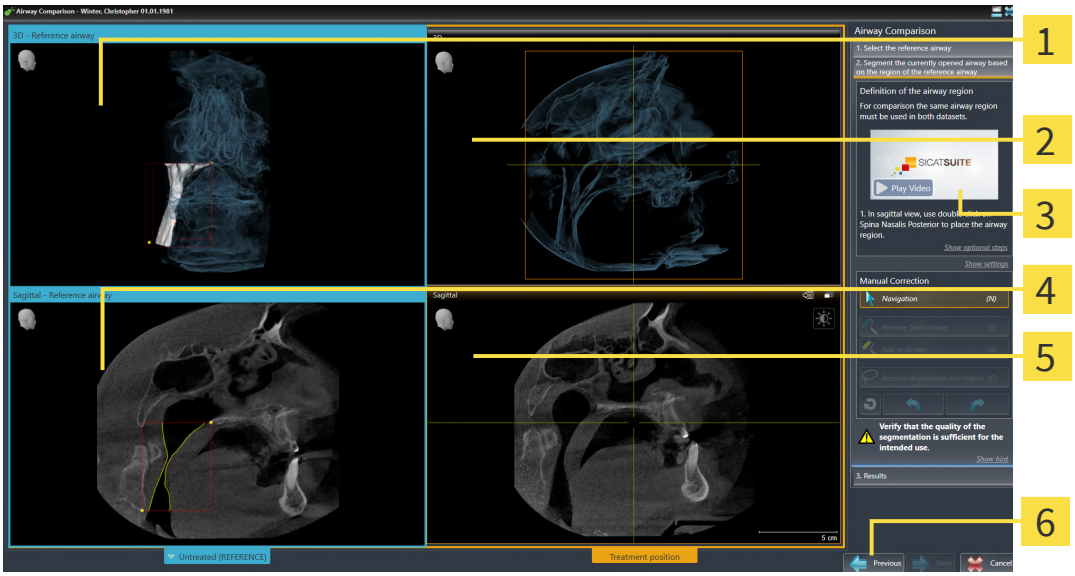
1. Select the desired reference airway where necessary.

2. Click on the **Switch the assignment to untreated and treatment position** icon, if necessary, to define whether the reference airway in the 3D X-ray scan is in an untreated position or in the treatment position.

3. Click on the **Next** button.

▶ The **Segment the currently opened airway based on the region of the reference airway** step opens.

SEGMENTING THE AIRWAY IN TREATMENT POSITION FOR COMPARISON

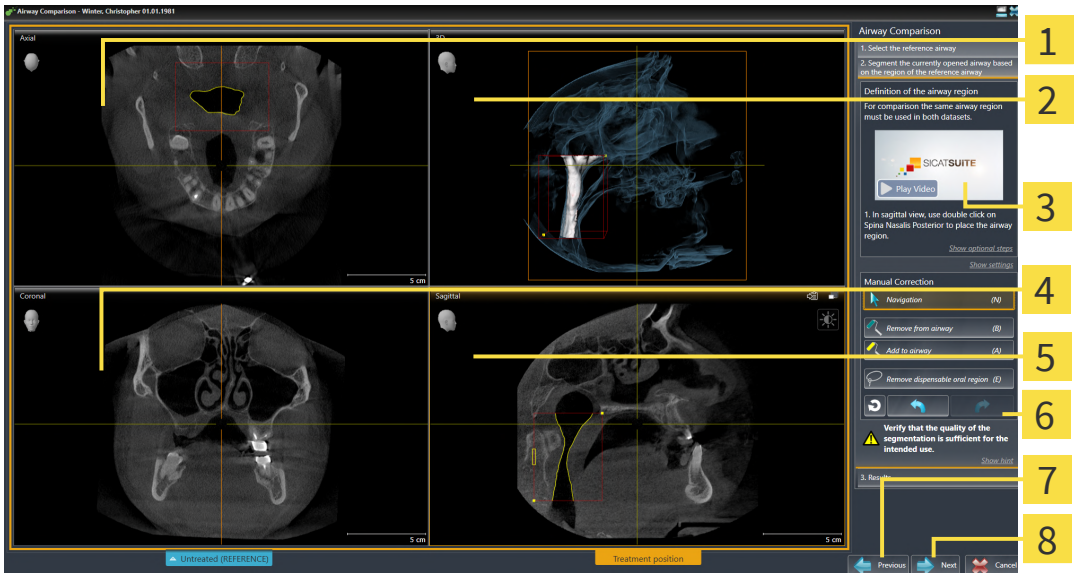


1	**3D** view of the 3D X-ray scan in reference position (you cannot change this view)	4	**Sagittal** view of the volume in reference position
2	**3D** view of the 3D X-ray scan in the treatment position (you cannot change this view)	5	**Sagittal** view of the 3D X-ray scan in the treatment position
3	Tutorial video	6	**Previous** button

Both airways must be the same height. Therefore, you can only define the upper right reference point of the airway area in the 3D X-ray scan in the treatment position. SICAT Air then automatically defines the lower left reference point of the airway area.

1. In the **Sagittal** view of the 3D X-ray scan in the treatment position, double-click on the same anatomical position of the upper reference point of the airway area as in the reference 3D X-ray scan.
   ▶ SICAT Air segments the 3D X-ray scan in the treatment position with the selected upper reference point and an airway area that has the same dimensions as the segmentation of the reference 3D X-ray scan.
   ▶ SICAT Air hides the **3D** view and the **Sagittal** view of the reference 3D X-ray scan.

▶ SICAT Air displays the **Axial** view and the **Coronal** view of the 3D X-ray scan in the treatment position.



1 **Axial** view of the 3D X-ray scan in the treatment position	5 **Sagittal** view of the 3D X-ray scan in the treatment position
2 **3D** view of the 3D X-ray scan in the treatment position	6 Tool area
3 Tutorial video	7 **Previous** button
4 **Coronal** view of the 3D X-ray scan in the treatment position	8 **Next** button

2. Where necessary, correct the position of the upper reference point by moving it.

   ▶ While you are moving the upper reference point, SICAT Air displays the **3D** view and the **Sagittal** view of the reference 3D X-ray scan.

3. Where necessary, adjust the lateral width in the **Sagittal** view.

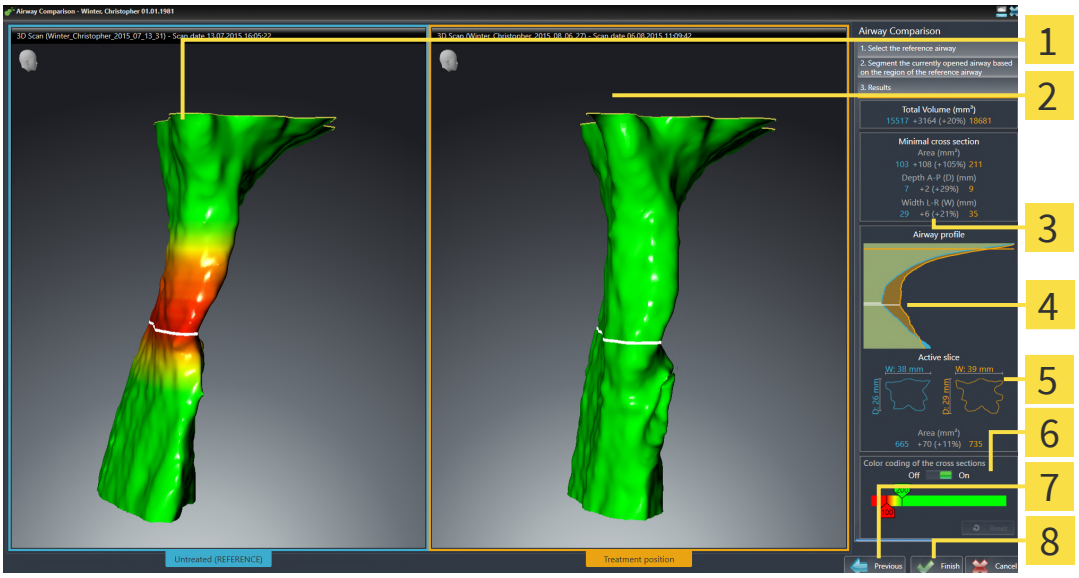
4. Correct the segmentation of the 3D X-ray scan in the treatment position where necessary. The same correction tools are available as in the **Segment the airway** window. For further information about this see *Correcting the airway segmentation [▶Page 120]* and *Removing non-required areas from the airway [▶Page 122]*.

5. Click on the **Next** button.

▶ The **Results** step opens.

You can hide and show the **Axial** view and the **Coronal** view of the 3D X-ray scan in the treatment position by clicking on the icon.

COMPARING AIRWAYS

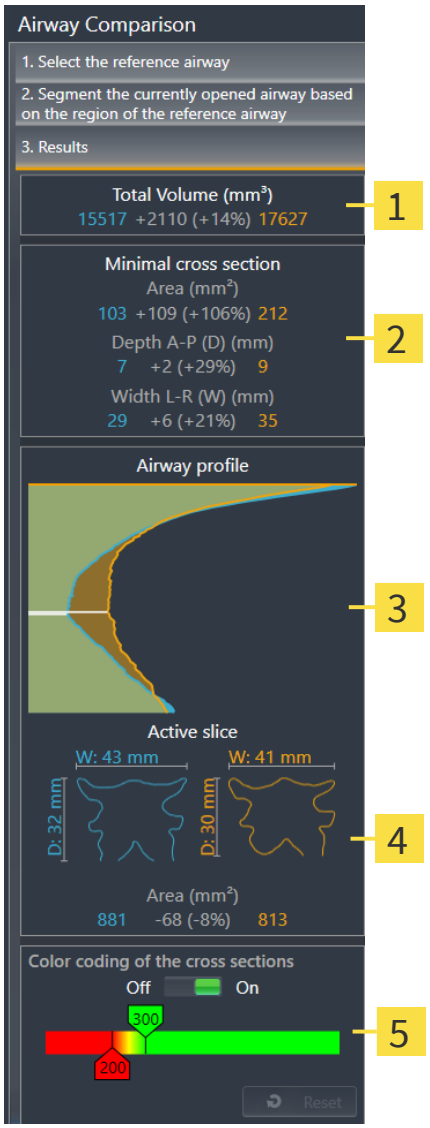


1	**3D** view of the untreated airway	5	Juxtaposition of the cross-sections when untreated and in the treatment position
2	**3D** view of the segmented airway of the 3D X-ray scan in the treatment position	6	Color coding
3	Juxtaposition of the data of the segmented airway when untreated and in the treatment position	7	**Previous** button
4	Juxtaposition of the airway profiles when untreated and in the treatment position	8	**Finish** button

1. Move the segmented airways so that you can easily compare both airways . SICAT Air does not synchronize the movement.

2. Rotate the segmented airways. SICAT Air synchronizes the movement.

3. Zoom the segmented airways. SICAT Air synchronizes the zoom.



1 **Total volume (mm³)**

2 **Minimal cross section**

3 **Airway profile**

4 **Active slice**

5 **Color coding of the cross sections**

4. Use the illustration of the cross-section and the information in the airway comparison area on the right hand side to compare the segmented airways. The blue values belong to the untreated airway, while the orange values belong to the airway in the treatment position. The percentage values show the change from the untreated airway to the airway in the treatment position. The other elements of the view are identical to those in the airway analysis area. Information on this can be found in the section *Airway analysis [▶Page 126]*.

5. Use the **Airway profile** area to select a slice at which SICAT Air cuts the depiction of the airways in the **3D** view. The selected slice applies for both airways.

6. Adjust the color gradient to highlight the cross-sectional areas of the airways and in particular bottlenecks. The settings for the color gradient apply for both airways.

7. Click on the **Finish** button.

▶ SICAT Air saves the airway comparison.

▶ SICAT Air creates a **Airway comparison** object in the **Object browser**.

▶ SICAT Air creates a separate page in the handout with screenshots and a comparison of the most important measured values from the airway comparison. In the **Object browser**, SICAT Air displays the page as an **Airway comparison** object under the **Handout** object.

You can return to the previous page of the **Airway Comparison** assistant by clicking the **Previous** button.

You can cancel the airway comparison by clicking on the **Cancel** button, the ⊗ icon, pressing **ESC** or by pressing the key combinationAlt+F4. SICAT Air will then not create a **Airway comparison** object and will not save the segmentation of the airway for the volume in the treatment position.

If a study already contains an **Airway comparison** object, SICAT Air will overwrite it only if you have completed the segmentation in full once more.

After you have performed an airway comparison, you can also open the **Airway Comparison** window by clicking on the **Details** icon next to the **Airway comparison** object in the **Object browser**.

Starting from the study, in which you performed the airway comparison, if you open the **Airway Comparison** window once more, it will open immediately with the step **Comparsion of the airway with and without therapeutic appliance**.

31 PATIENT INFORMATION

CAUTION

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

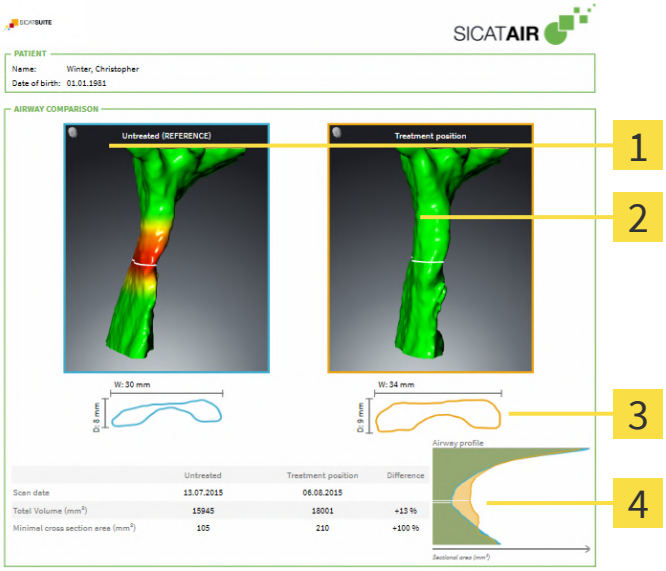
Only use the visualization functions for medical images of the software user interface to perform a diagnosis on medical images and to plan the treatment.

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

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

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

The sources are images based on drawing objects, screenshots and the airway comparison. The airway comparison plays a key role and has its own page on the handout:



1 **Untreated** screenshot

2 **Treatment position** screenshot

3 Juxtaposition of the slices with the smallest cross-sectional area

4 Comparison of the numerical values and **Airway profile**

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

Creating the handout consists of the following steps:

- *Creating images and screenshots [▶Page 140]*
- *Preparing handouts [▶Page 143]*
- *Generating handouts [▶Page 147]*

31.1 CREATING IMAGES AND SCREENSHOTS

NOTICE	**Before creating images and screenshots, it may be useful to align the volume according to the Frankfurt plane. Information on this can be found in the section *Adjusting the volume orientation [▶Page 101]*. If you align the volume only after creating images and screenshots, SICAT Air removes the drawing object and you must carry out segmentation once more.**

General information on patient information can be found in the section *Patient information [▶Page 139]*.

General information on managing images and screenshots can be found in the section *SICAT Air 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 101]*.

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

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 Air 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 Air shows the finished arrow in the view.
   ▶ If not yet available, SICAT Air 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 Air 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 101]*.

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

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 Air 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 Air shows the finished circle in the view.
   ▶ If not yet available, SICAT Air 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 Air 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

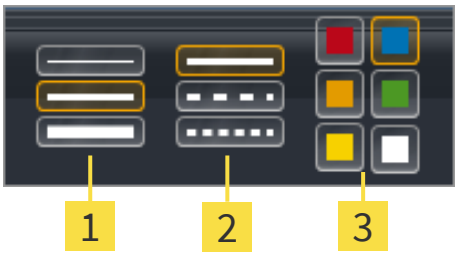
You can configure the **Draw Arrow** drawing tool or the **Draw Circle** drawing tool separately. Changes to the settings will only affect drawing objects created after that point.

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 [▶Page 58]*.

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 Air closes the transparent **Configure drawing tool** window.

▶ SICAT Air saves the settings in your user profile.

▶ SICAT Air uses the new settings for drawing objects created from then on.

ADDING SCREENSHOTS TO THE “GENERATE HANDOUT" WINDOW

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

To add screenshots to the handout, proceed as follows:

1. To create a screenshot of a view, click on the **Copy screenshot to clipboard (Ctrl+C)** icon in the **View toolbar** of the desired view.

2. To create a screenshot of the entire workspace, click on the **Copy screenshot to clipboard (Ctrl +C)** icon in the **Workspace toolbar**.

▶ SICAT Air 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 Air copies a screenshot to the clipboard.

Continue with the section *Preparing handouts [▶Page 143]*.

31.2 PREPARING HANDOUTS

General information on patient information can be found in the section *Patient information [▶Page 139]*.

The following actions are available for preparing handouts:

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

OPENING THE “REPORT GENERATION" WINDOW

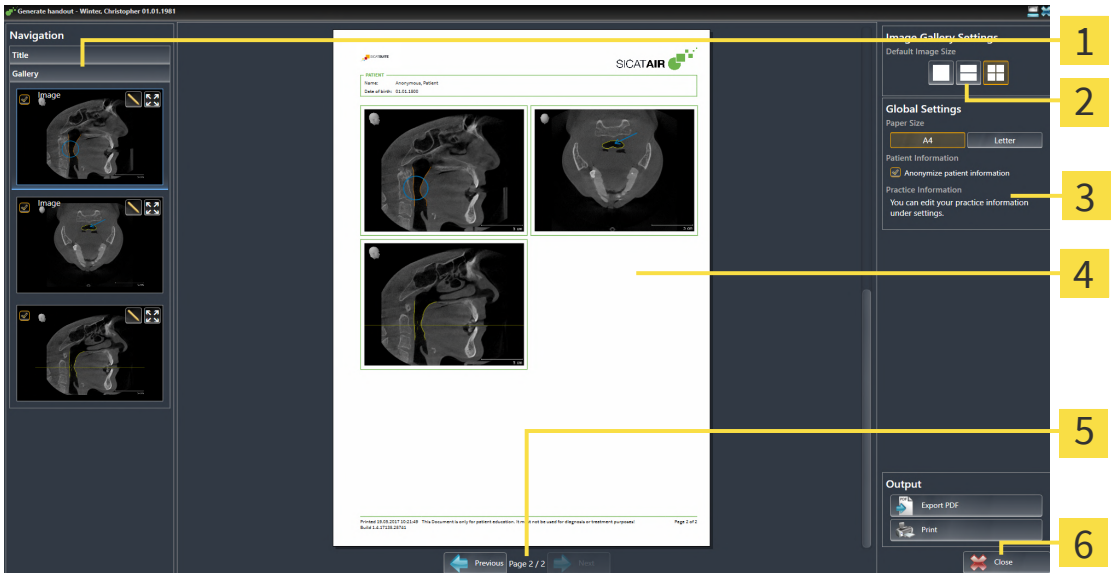
☑ You have created at least one **Image** object or one **Screenshot** object.

☑ Alternatively, you have created one **Airway comparison** object.

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

- Click on the **Create Patient Information 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

CHANGING HANDOUT SETTINGS

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

1. Click on the icon for the desired arrangement of the images in the **Image Gallery Settings** area.
   ▶ SICAT Air 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 Air changes the paper size according to the selected setting.

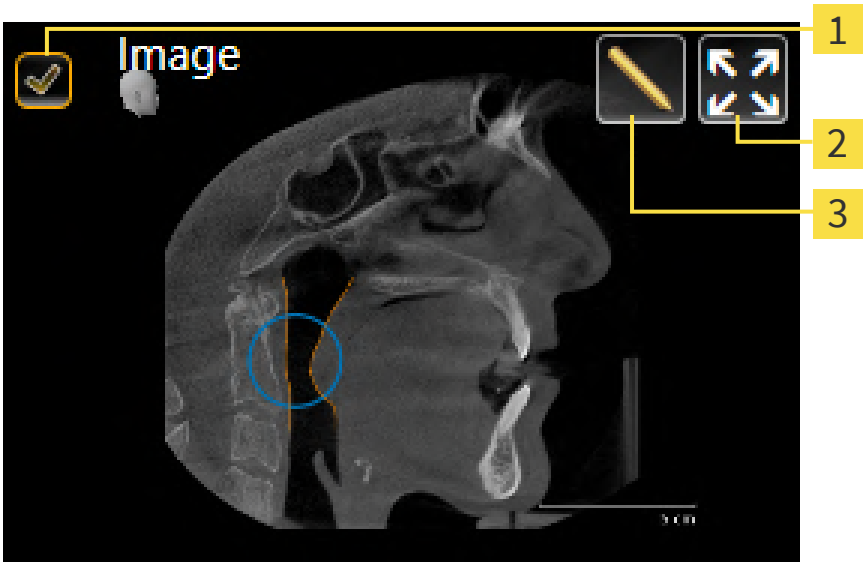
3. Activate or deactivate the **Anonymize patient information** check box.
   ▶ SICAT Air shows the actual patient information or anonymized patient information according to the selected setting.

PREPARING ELEMENTS FOR HANDOUTS

The **Report Generation** window shows screenshots from **Image** objects, screenshots from **Screenshot** objects and information from **Airway Comparison**objects. For further information about this see *Creating images and screenshots [▶Page 140]* and *Carrying out an airway comparison [▶Page 133]*.

To prepare elements for handouts, proceed as follows:

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



1 Check box for hiding and showing

2 **Show image on single page** icon

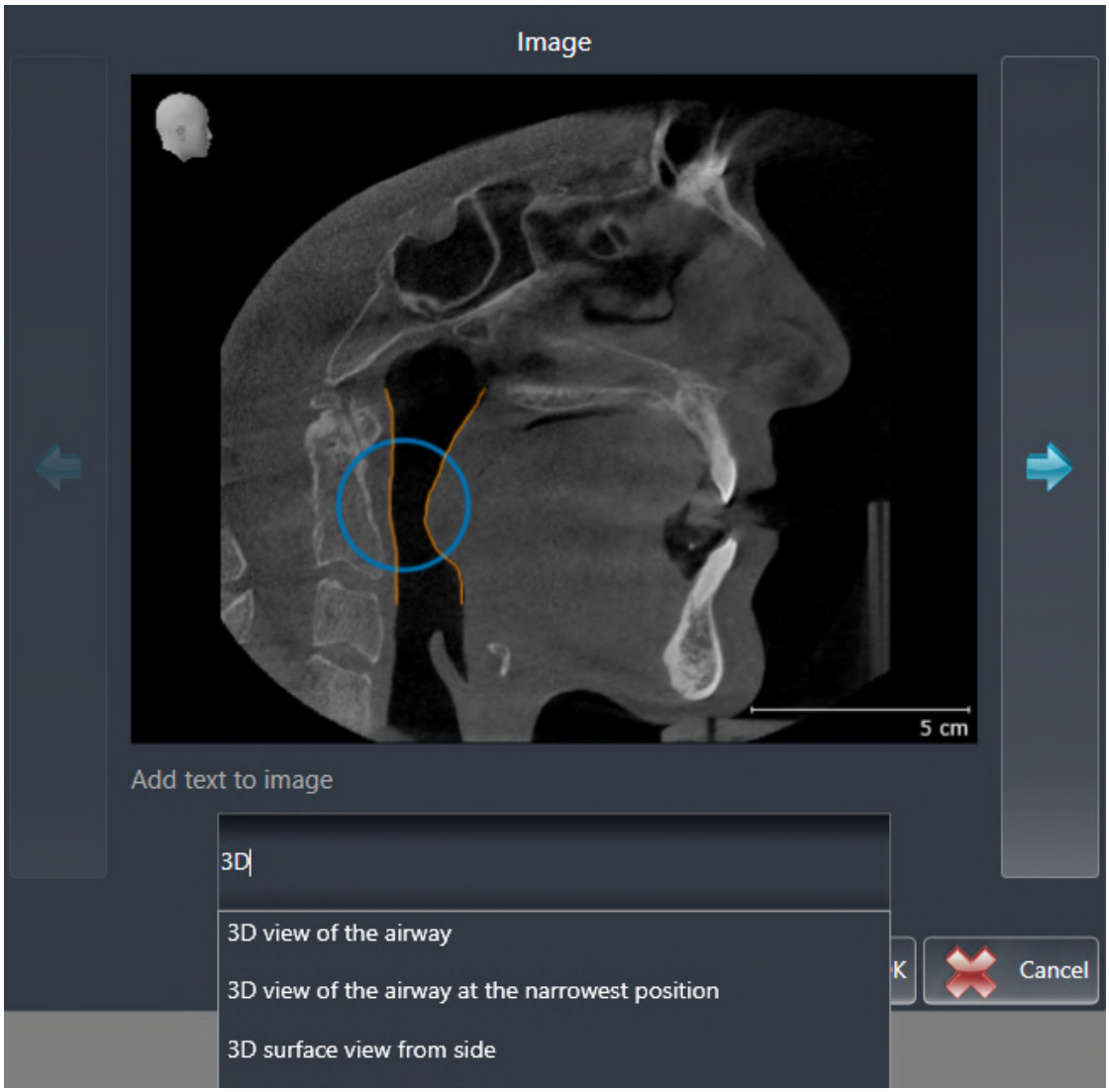
3 **Edit image description** icon

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

2. If you want SICAT Air 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 Air 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 Air will display the list of text blocks.
5. Click on the desired text block.
   ▶ SICAT Air 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 Air saves the text as a description of the screenshot.
   ▶ If the text you have entered is not available as a text block, SICAT Air will save the description as a new text block in your user profile.
8. If you wish to change the order of elements on the handout, adjust them using drag & drop.

If you place the mouse pointer on a text block, SICAT Air 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 Air will remove the text block from your user profile.

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

You can completely remove elements from the handout using the **Object browser**. Information on this can be found in the section *Managing objects with the object toolbar [▶Page 63]*.

Continue with the section *Generating handouts [▶Page 147]*.

SICAT Air 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 182]*.

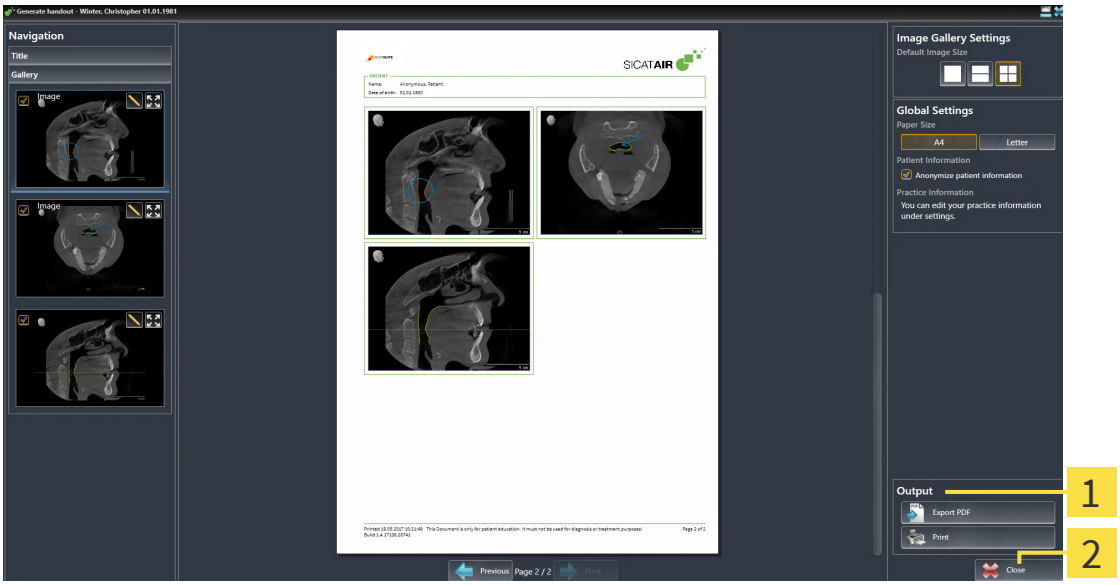
31.3 GENERATING HANDOUTS

The following actions are available for producing handouts:

- Saving a handout as a PDF file
- Printing handouts

SAVING A HANDOUT AS A PDF FILE

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



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

▶ The Windows Explorer window closes.

▶ SICAT Air saves the handout as a PDF file.

PRINTING HANDOUTS

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

☑ 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 Air sends the handout to the printer.

32 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.

33 ORDERING PROCESS

To order the desired product, proceed as follows:

- Place the desired planning data for therapeutic appliances in the shopping cart in SICAT Air. Information on this can be found in the section *Placing therapeutic appliances in the shopping cart [▶Page 151]*.
- 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 169]*.
- 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 170]* or section *Completing an order without an active Internet connection [▶Page 174]*.

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

33.1 PLACING THERAPEUTIC APPLIANCES 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 150]*.

In SICAT Air, the first part of the ordering process for a therapeutic appliance consists of the following steps:

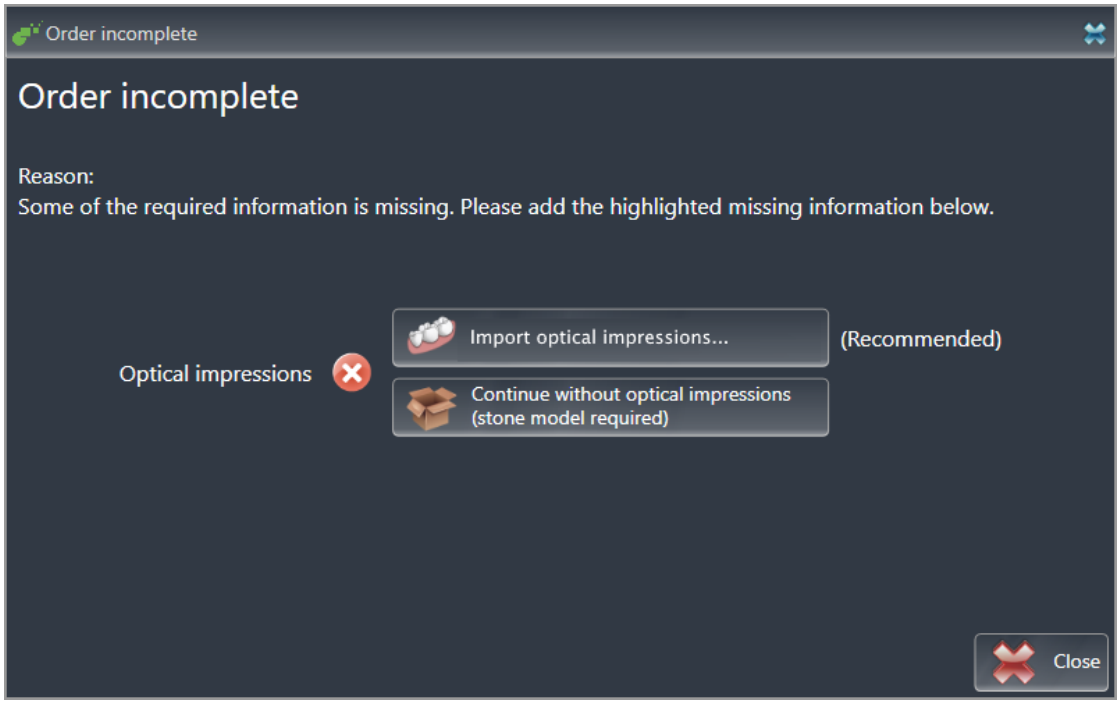
IF YOU HAVE NOT YET ADDED ANY OPTICAL IMPRESSIONS

☑ The 3D X-ray scan has been created in the treatment position.

☑ 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 Therapeutic Appliance** icon.

   ▶ The **Order incomplete** window opens:



2. Click on the **Import and Register Optical Impressions** button and import optical impressions corresponding to the 3D X-ray scan. Information on this can be found in the section *Optical impressions [▶Page 154]*.

▶ The **Order therapeutic appliance** window opens.

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 106]*.

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

IF YOU HAVE ALREADY ADDED OPTICAL IMPRESSIONS

☑ The 3D X-ray scan has been created in the treatment position.

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

- Click on the **Order Therapeutic Appliance** icon.

▶ The **Order therapeutic appliance** window opens.

CHECK YOUR ORDER IN THE “ORDER THERAPEUTIC APPLIANCE" WINDOW

☑ The **Order therapeutic appliance** window is already open.

1. Check in the **Patient** section and **Order Details** section whether the patient information and scan information are correct.
2. Check in the 2D view that the scan has been created in the treatment position.
3. If desired, enter additional information for SICAT in the **Additional information** field.

4. Click on the **Add to shopping cart** button.

▶ SICAT Air places the desired planning data for therapeutic appliances in the SICAT shopping cart.

▶ The **Order therapeutic appliance** window closes.

▶ SICAT Air opens the SICAT Suite shopping cart.

As long as there is an order in the shopping cart, you can no longer overwrite optical impressions of a plan. This is only possible once more when you have completed or deleted the order. If you overwrite or delete optical impressions of a plan, you cannot order the same treatment position again.

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

Continue with the section *Checking the shopping cart and completing the order [▶Page 169]*.

33.2 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 Air 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 156]*
   - *Importing optical impressions from a file [▶Page 159]*
   - *Transferring optical impressions from SIDEXIS 4 [▶Page 162]*
   - *Re-using optical impressions from SICAT applications [▶Page 163]*
2. Registration (overlay) of the optical impressions with 3D X-ray data: *Registering and checking optical impressions [▶Page 164]*

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

SICAT Air supports the following data formats for optical impressions:

- SIXD data records that contain an optical impression of the maxilla and the mandible (each for the entire 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 (each for the entire 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 (for the entire maxillary and mandibular arch, respectively). 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 161]*.

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 97]*

33.2.1 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.

33.2.1.1 DOWNLOADING OPTICAL IMPRESSIONS FROM THE HUB

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

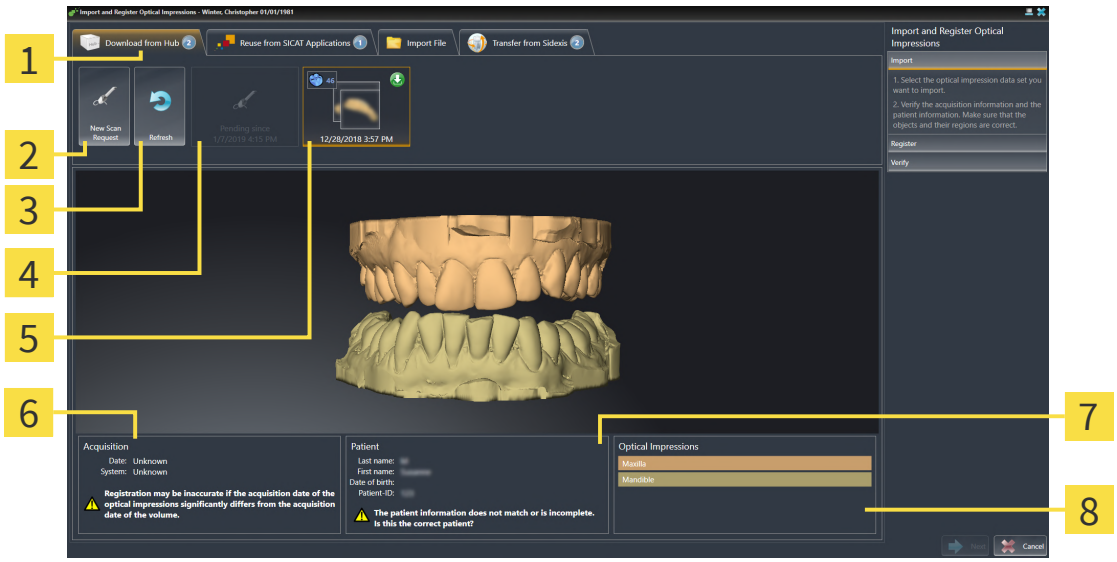
☑ The connection to the Hub is established. Information on this can be found in the section *Viewing Hub connection status [▶Page 183]*.

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

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

1. Click on the **Import and Register Optical Impressions** icon.
   ▶ SICAT Air opens the **Import and Register Optical Impressions** wizard with the step **Import**.

2. Click on the **Download from Hub** tab.
   ▶ SICAT Air displays outstanding scan jobs and available optical impressions.



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

3. Click on the desired optical impressions.
   ▶ SICAT Air downloads the optical impressions if the impressions have not already been downloaded. After the impressions have been downloaded, SICAT Air displays the impressions in the **3D** view.

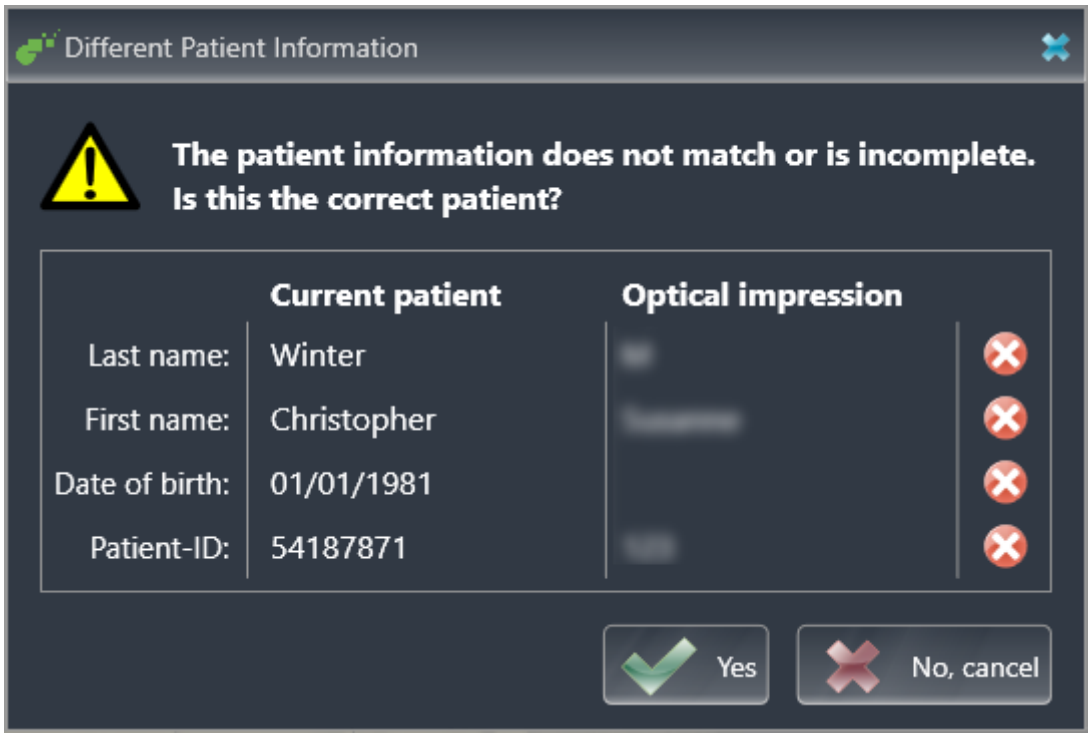
4. Check the selection for registration.

5. Check whether the scan information and patient information match.

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

7. Click **Next**.

   ▶ If the patient data in the 3D X-ray scan and in the optical impressions differ,SICAT Air will open the **Different Patient Information** window:



8. Compare the patient information. If you are sure that, despite different patient information, the optical impressions match the current patient, click on the **Yes** button.

   ▶ The **Register** step opens for the first optical impression: Follow the steps in section *Registering and checking optical impressions [▶Page 164]*.

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 impressions are not displayed, you can refresh the overview by clicking on the **Refresh** button. Or you can send a scan request for recording the optical impressions to the Hub. Information on this can be found in the section *Creating a scan request for an optical impression [▶Page 158]*.
- 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 183]*.
- 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]*.

33.2.1.1.1 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 183]*.

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

☑ The **Order** 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 Air displays outstanding scan jobs and available optical impressions.

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

▶ SICAT Air 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.

33.2.1.2 IMPORTING OPTICAL IMPRESSIONS FROM A FILE

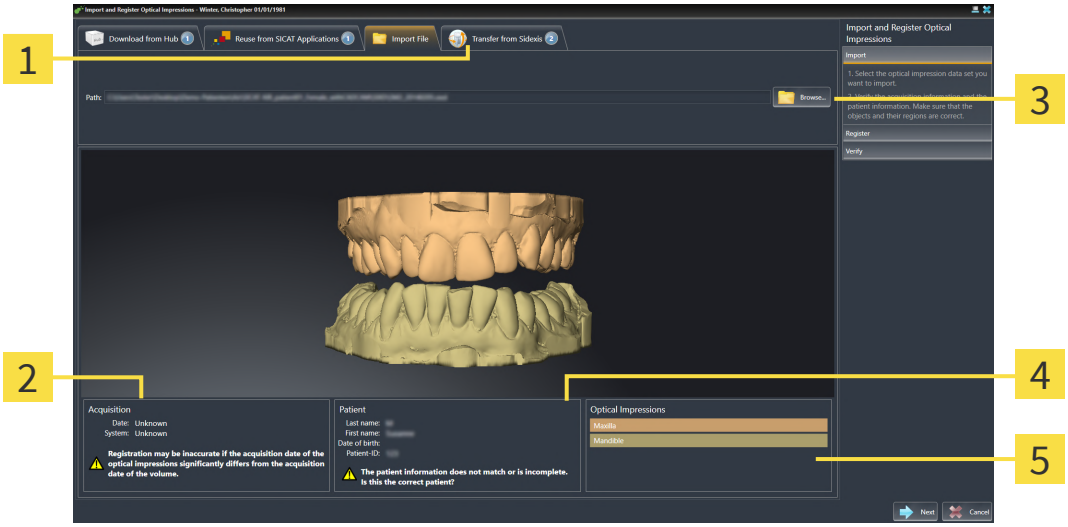
You can import one or more files with optical impressions.

☑ The **Order** 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

2 Scan information

3 **Browse** button

4 Patient information

5 **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 impressions file, select the file and click on **Open**.

   ▶ SICAT Air 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 Air 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 161*].
   Then, you can select another STL file with the maxilla or mandible that is still missing and adjust the assignment and orientation of the jaw. Then, continue with the next step.

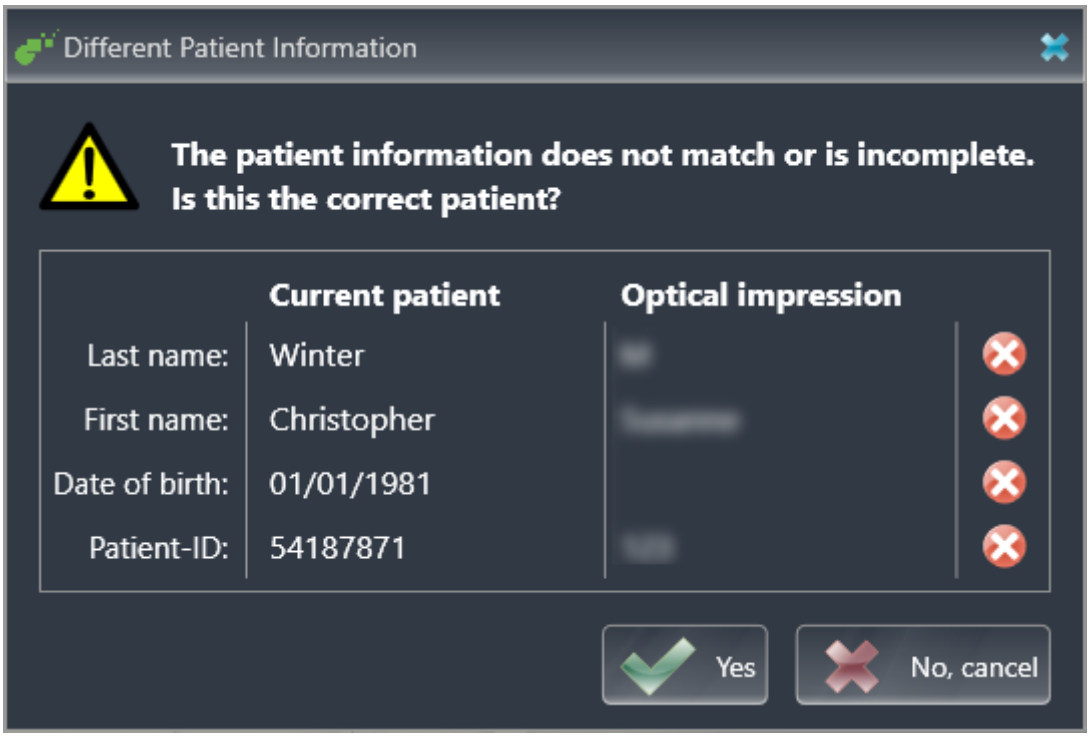
6. Check the selection for registration.

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 impressions differ,SICAT Air will open the **Different Patient Information** window:



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

▶ The **Register** step opens for the first optical impression: Follow the steps in section *Registering and checking optical impressions [▶Page 164]*.

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.

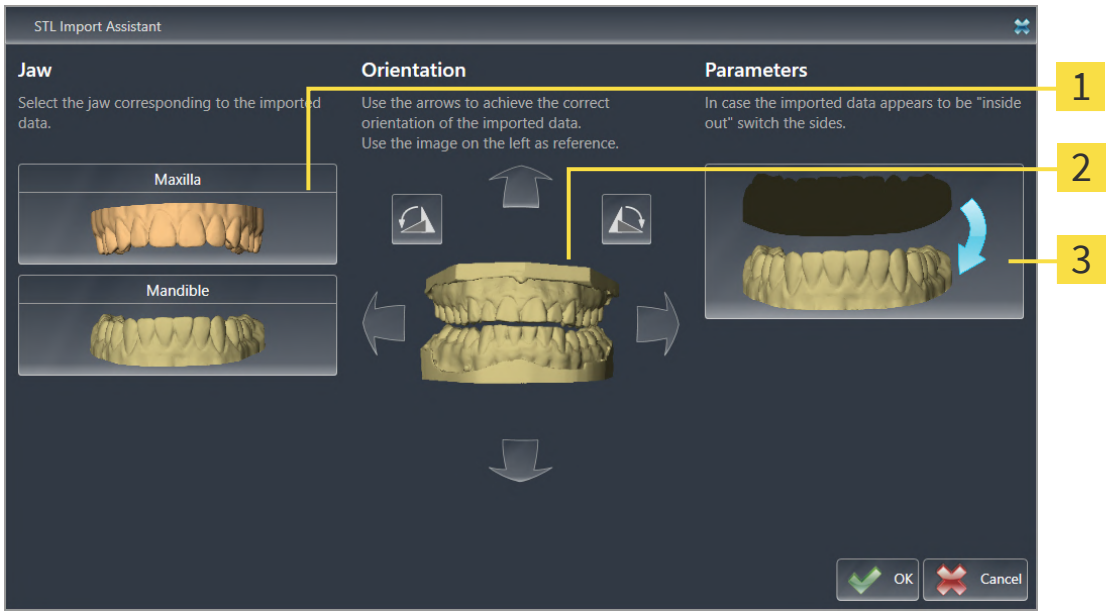
33.2.1.2.1 ADDITIONAL STEPS FOR OPTICAL IMPRESSIONS IN STL FORMAT

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 159]*.

   ▶ 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 Air automatically attributes the second STL file to the other jaw.

   ▶ SICAT Air 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 159]*.

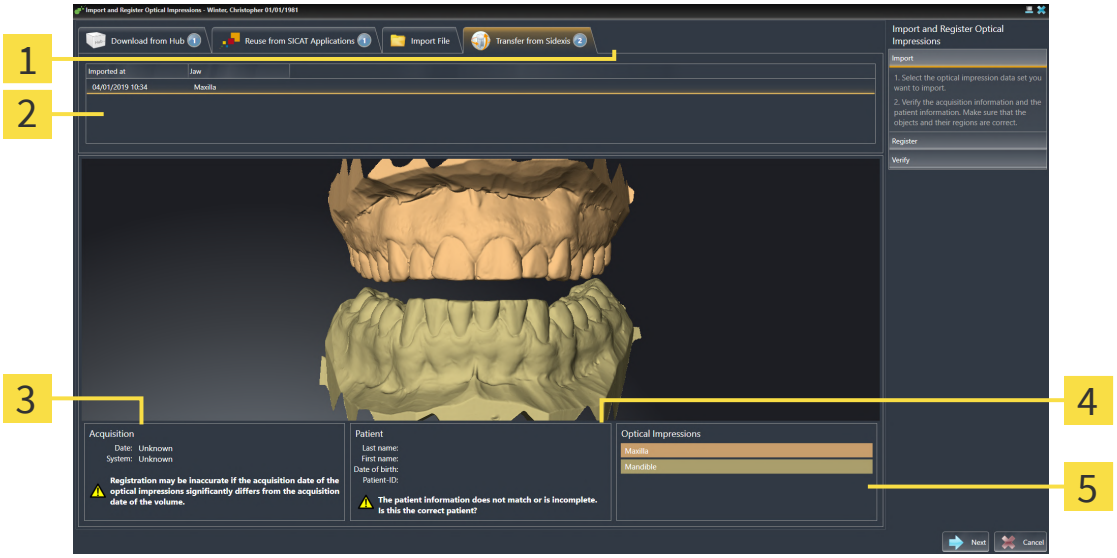
33.2.1.3 TRANSFERRING OPTICAL IMPRESSIONS FROM SIDEXIS 4

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 Air.

☑ You are already using two optical impressions of two jaws for the opened study in SIDEXIS 4 which you are not yet using in SICAT Air.

☑ The **Order** 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 Air.
3. In the upper area, click on the row with the optical impressions that you want to transfer.
   ▶ SICAT Air displays the optical impressions selected:



1 **Transfer from Sidexis** tab

2 List of optical impressions

3 Scan information

4 Patient information

5 **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 first optical impression: Follow the steps in section *Registering and checking optical impressions* *[▶Page 164]*.

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.

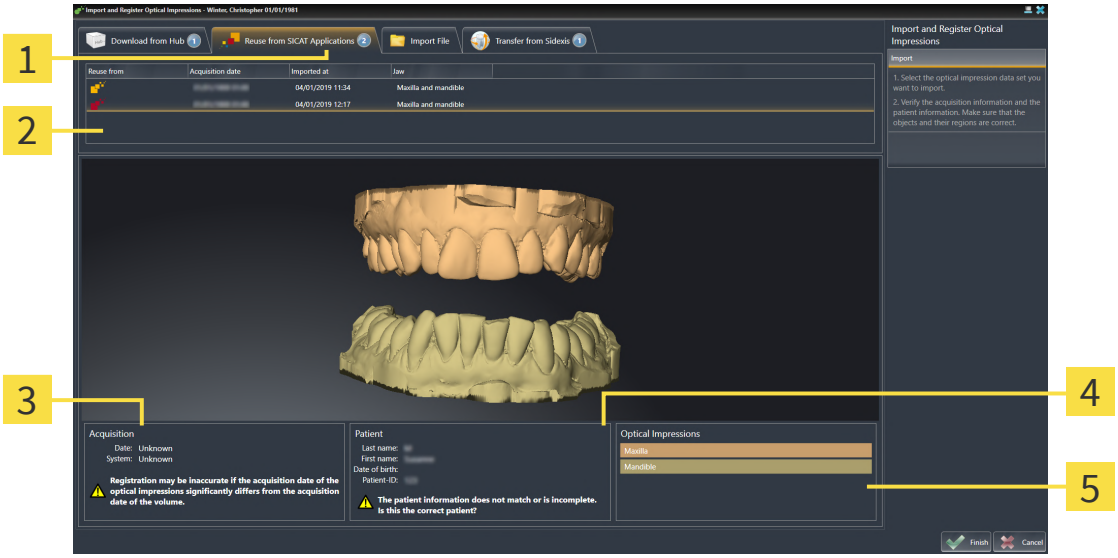
33.2.1.4 RE-USING OPTICAL IMPRESSIONS FROM SICAT APPLICATIONS

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

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

☑ The **Order** 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 impressions that you want to re-use.
   ▶ SICAT Air displays the optical impressions selected:



1 **Reuse from SICAT Applications** tab	4 Patient information
2 List of re-usable optical impressions	5 **Optical Impressions** area
3 Scan information	

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

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

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

▶ SICAT Air displays the optical impressions 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.

33.2.2 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.

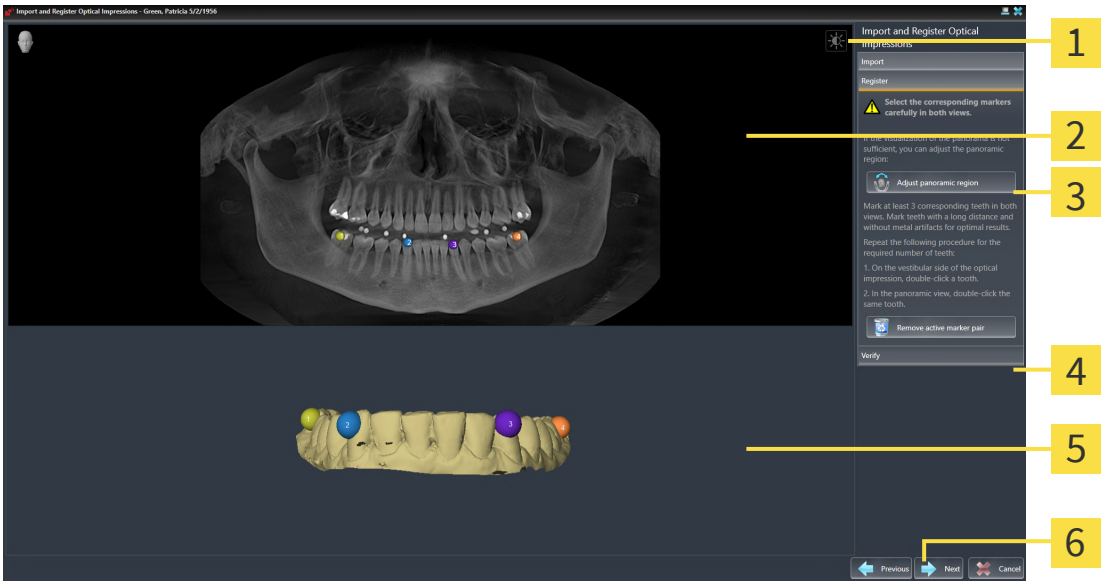
⚠ **CAUTION**	**The selection of markings in the registration process for optical impressions that do not correspond to one another may result in an incorrect diagnosis and treatment.** When you register optical impressions, carefully select corresponding markings in the 3D X-ray scans and optical impressions.

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

ℹ	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

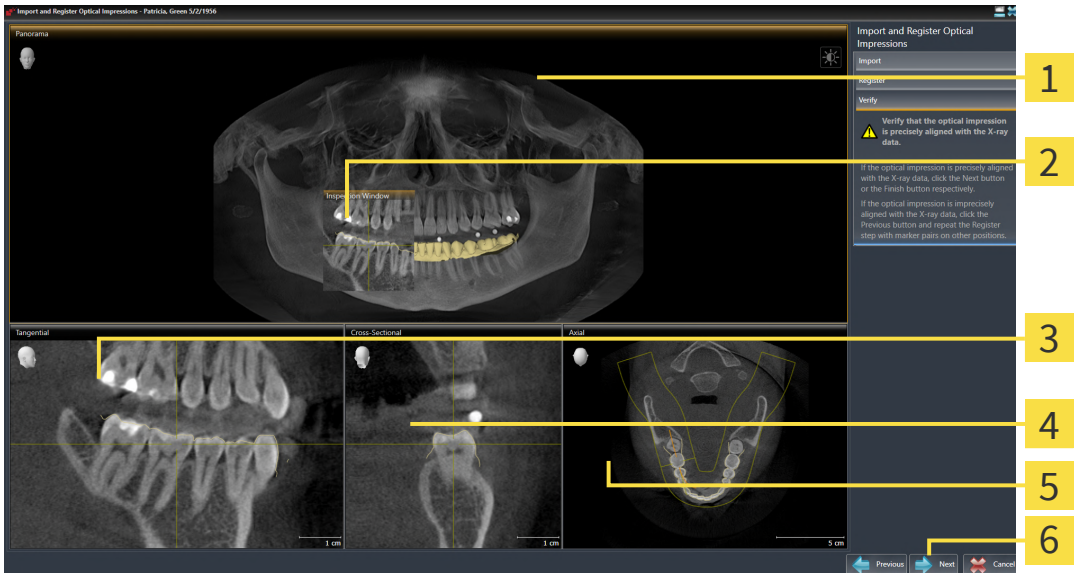
1. Double click the same tooth both in the **Panorama** view and on the vestibular side of the optical impression in the **3D** view. Make sure that the distance between individual teeth is as large as possible and mark only teeth without metal artifacts. Repeat this step until you have marked at least **three** 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 Air calculates the registration of the optical impression with the X-ray data.

▶ The **Verify** step opens:



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

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 first optical impression is precisely aligned to the X-ray data, click on the **Next** button. Repeat the previous steps for the second optical impression.
6. If the second optical impression is precisely aligned to the X-ray data, click on the **Finish** button.

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

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

▶ SICAT Air displays the registered optical impressions .

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 106]*.
- 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**.

33.3 OPENING THE SHOPPING CART

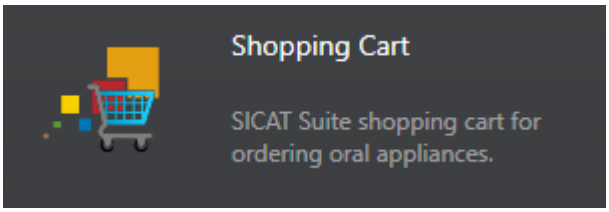
☑ The shopping cart contains at least one product.

☑ 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:

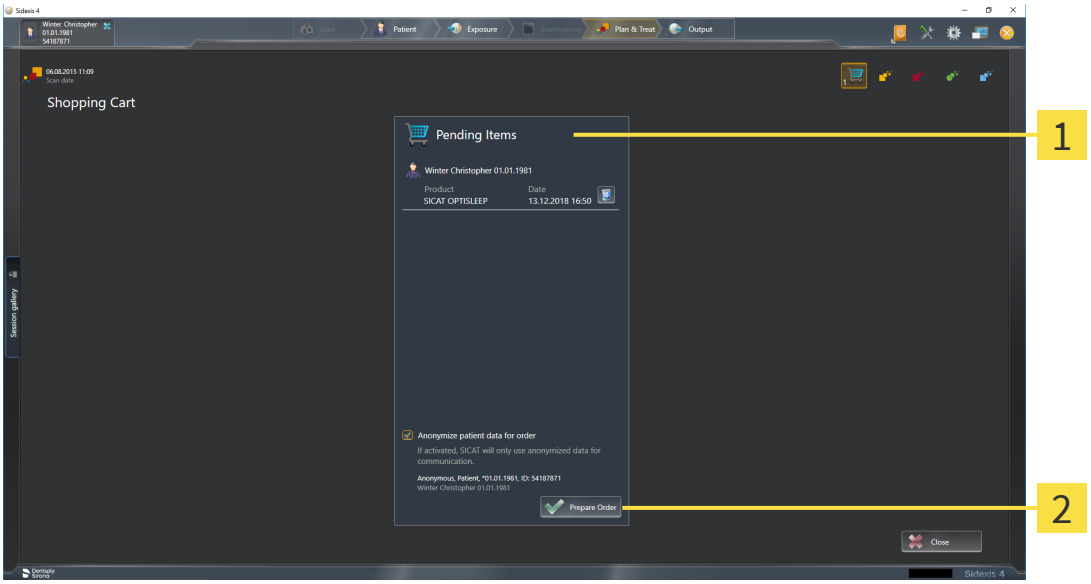


Continue with the following action:

- *Checking the shopping cart and completing the order [▶Page 169]*

33.4 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 168]*.



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 170]*
- *Completing an order without an active Internet connection [▶Page 174]*

33.5 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 178]*.

☑ 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 171]*.

▶ 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.

33.6 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.

33.7 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 10]*.

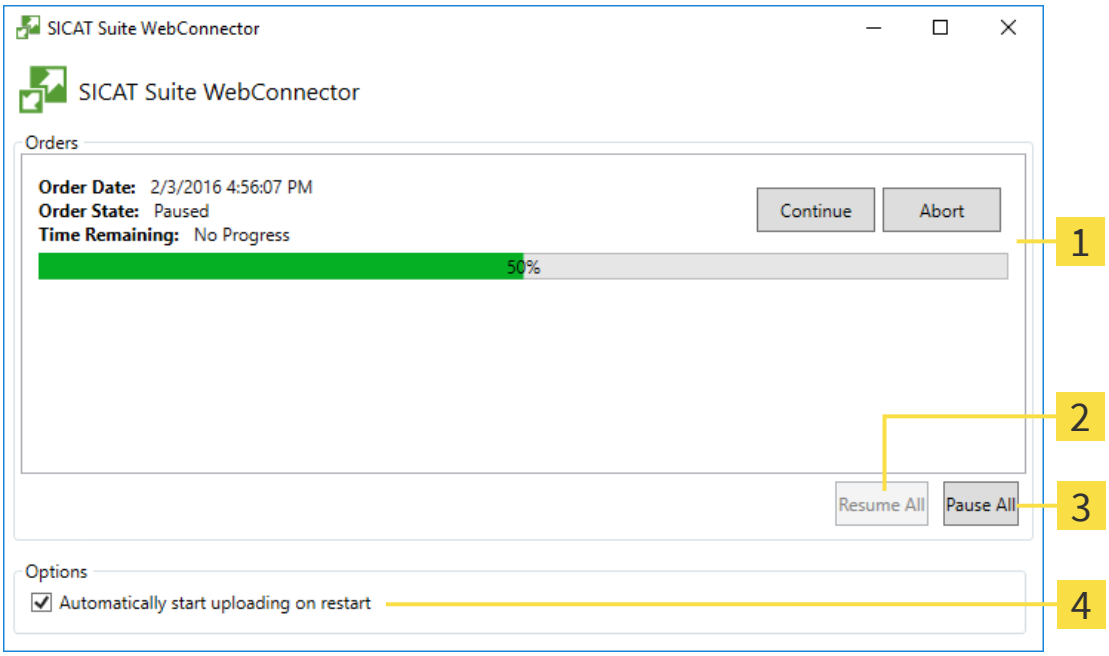
In certain versions of Windows, you have to set a standard browser in order for the ordering process to work.

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 Air 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.

33.8 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.

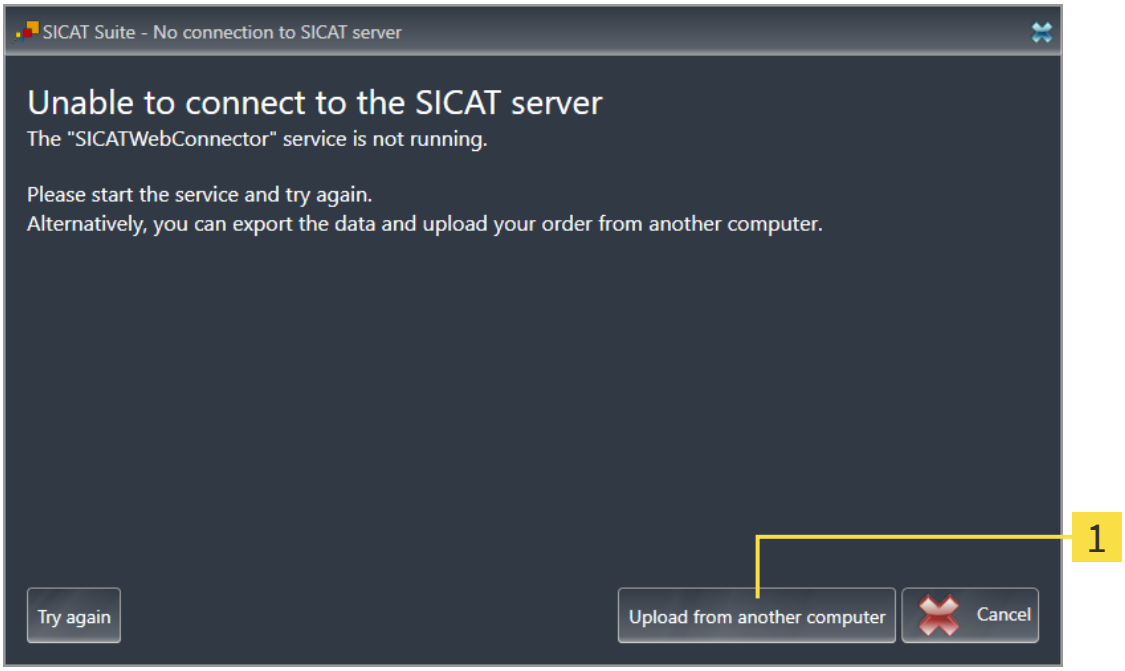
If you have deactivated the **Allow access to the Internet for placing orders** checkbox in the settings on the **General** tab, the **Sending the order from another computer** window opens directly.

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.

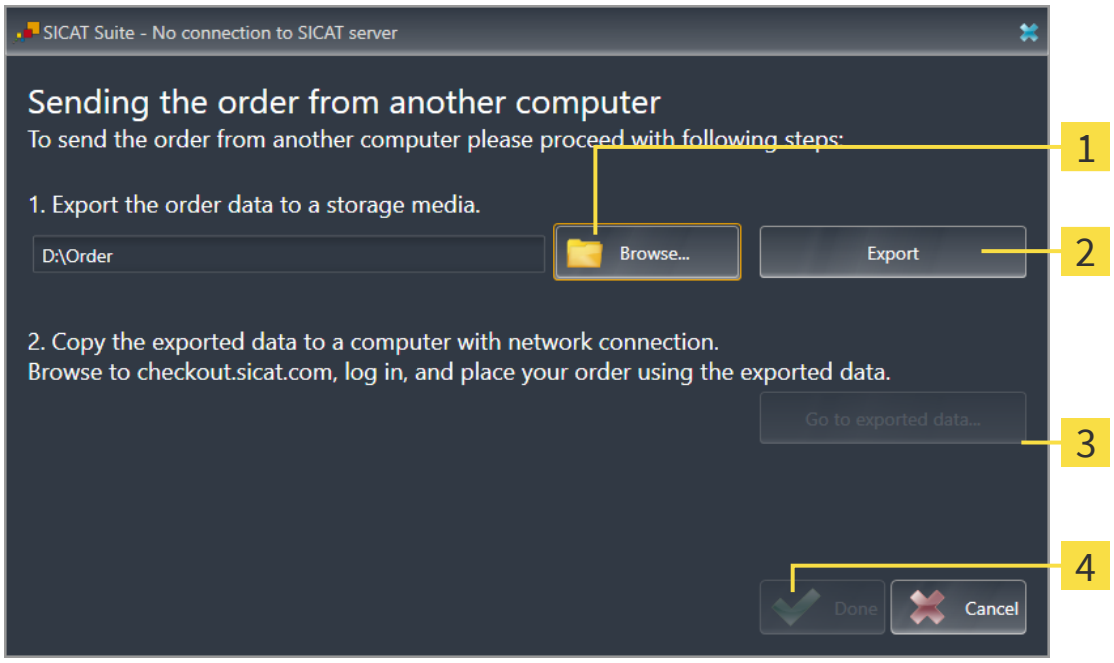
☑ A window will appear with the following message: **Unable to connect to the SICAT server**



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.

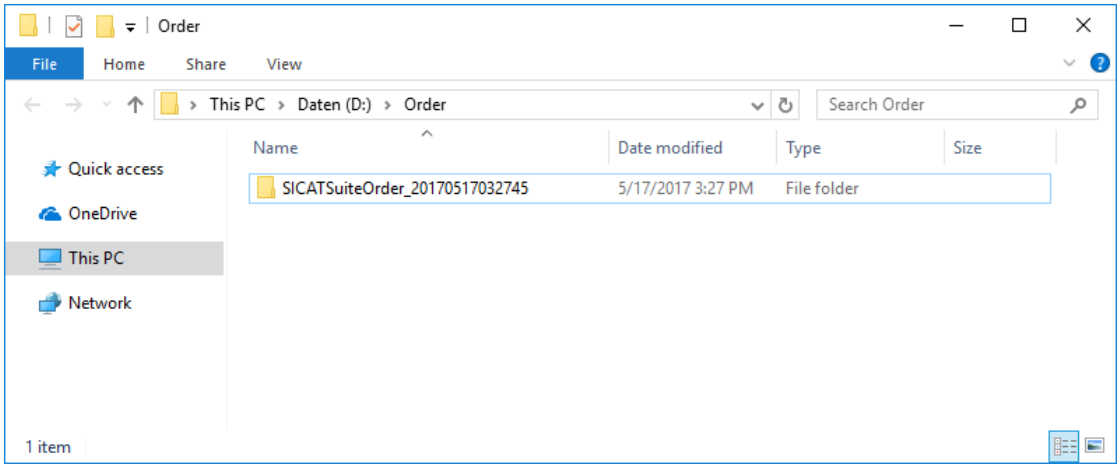
3. Select an existing directory or create a new directory and click on **OK**. Please note that the path to the directory must not be longer than 160 characters.

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 171]*.

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.

34 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 Air, 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 178]*.
- **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 182]*.
- **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 183]*.
- **Visualization** – Changing general visualization settings. Information on this can be found in the section *Changing visualization settings [▶Page 184]*.
- **SICAT Air** – Changing application-specific settings of SICAT Air. Information on this can be found in the section *Changing SICAT Air settings [▶Page 186]*.

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

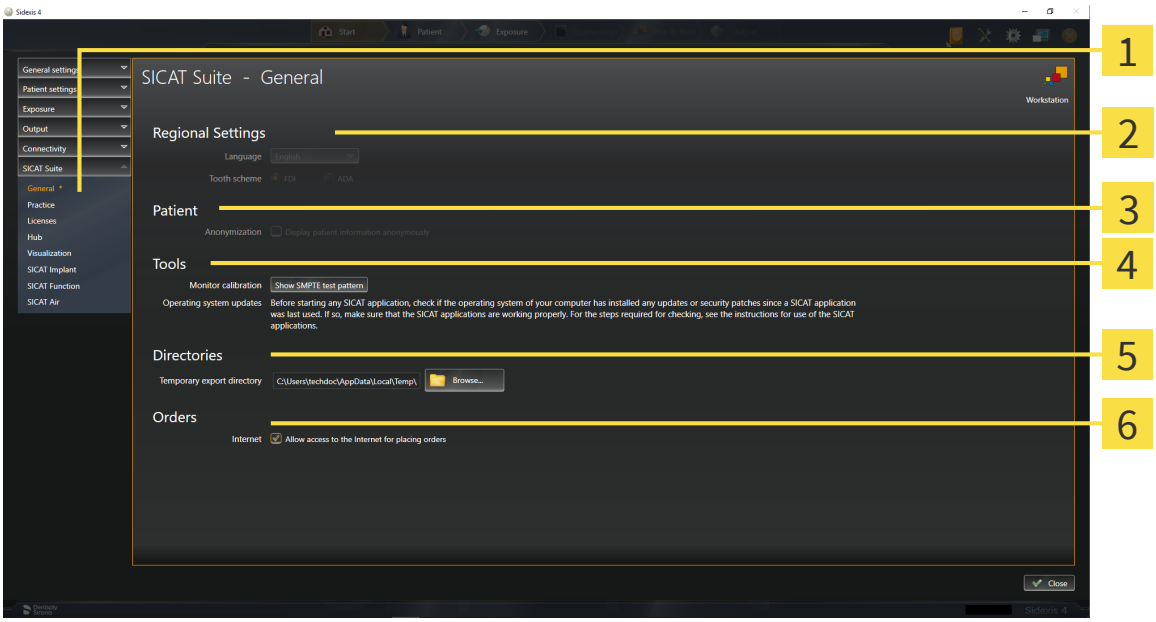
The settings in SICAT Suite are valid for the active user of the current workstation. SICAT Suite applies all changes in the settings immediately. If you switch to another category in the settings, SICAT Suite will also save changes to the settings permanently.

34.1 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 Air, 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

2 **Regional Settings** area

3 **Patient** area

4 **Tools** area

5 **Directories** area

6 **Orders** area

SICAT Air 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 Air 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 Air does not support, SICAT Air will display English text in the user interface.

The supported tooth schemes are FDI and ADA.

34.2 MONITOR CALIBRATION WITH THE SMPTE TEST IMAGE

CAUTION

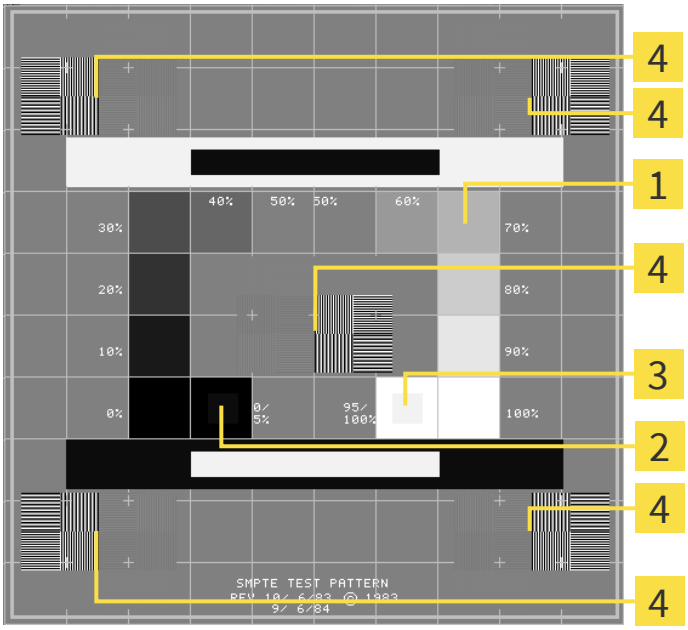
Insufficient environmental visualization conditions could result in incorrect diagnosis and treatment.

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.

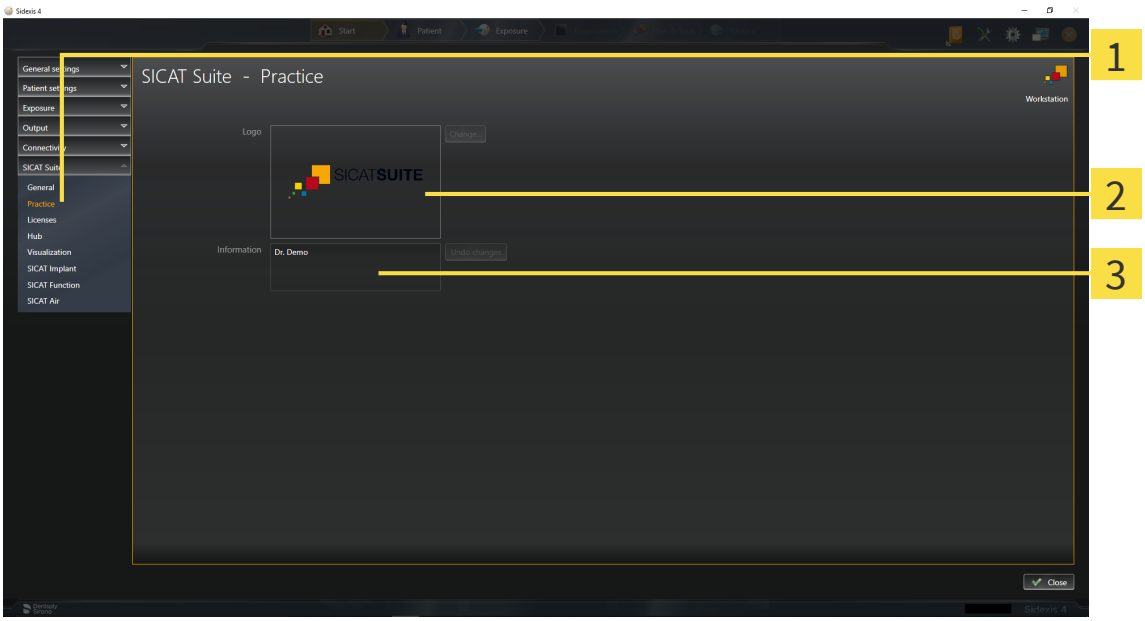
34.3 USING PRACTICE INFORMATION

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.

34.4 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.

34.5 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

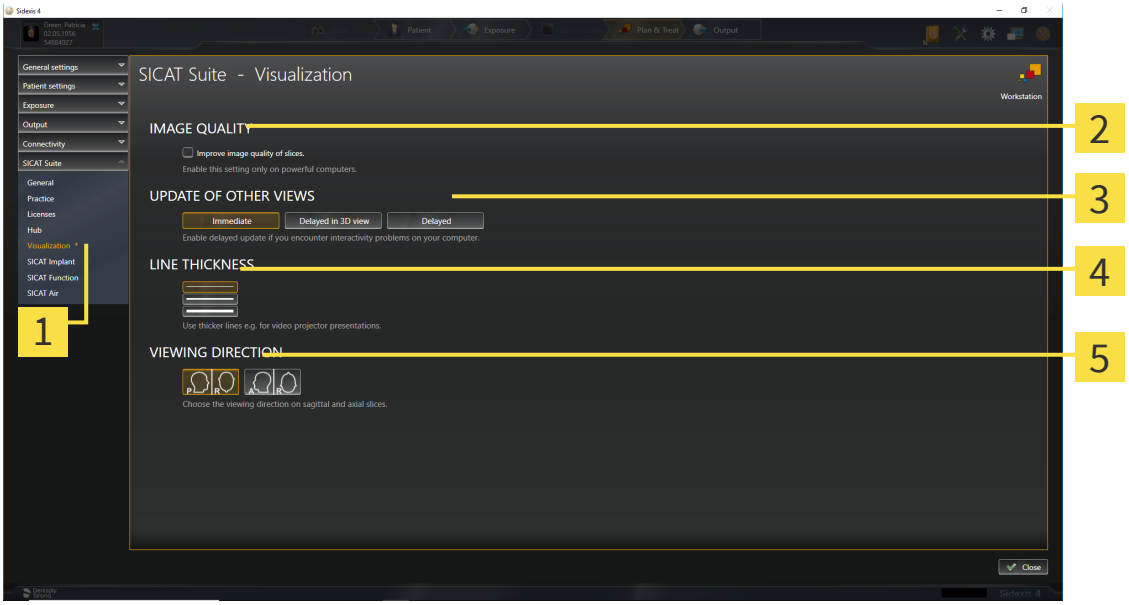
Insufficient environmental visualization conditions could result in incorrect diagnosis and treatment.

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:

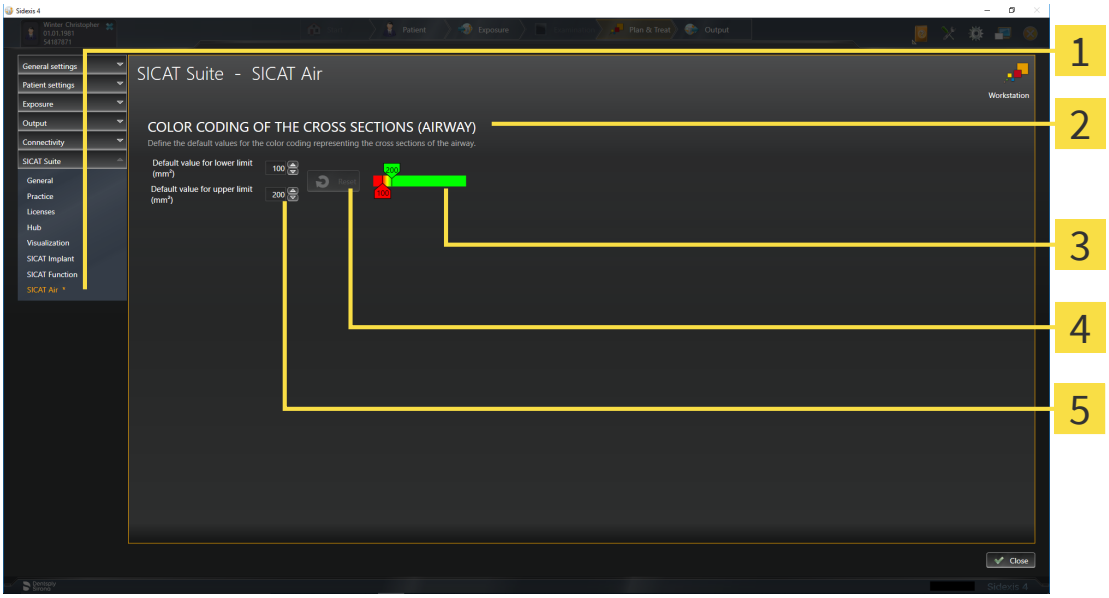
- **Improve image quality of slices** – Improves the image quality of slices as the software averages adjacent slices. Activate this setting only on high-performance computers.
- **UPDATE OF OTHER VIEWS** – Delayed updates improve the interactivity of the active view but causes delays in the updating 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.

34.6 CHANGING SICAT AIR SETTINGS

SICAT Air settings determine the color gradient of the **Airway** object in SICAT Air.

To change the SICAT Air 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 **SICAT Air** button.
   ▶ The **SICAT Air** window opens:



1 **SICAT Air** tab

2 **COLOR CODING OF THE CROSS SECTIONS (AIRWAY)** area

3 **Color coding** with sliders

4 **Reset** button

5 **Default value for lower limit (mm²)** field and **Default value for upper limit (mm²)** field

The settings are:

- **Default value for lower limit (mm²)** – defines the lower value of the cross-sectional area in mm², from which the **Color coding** starts entirely in red.
- **Default value for upper limit (mm²)** – defines the upper value of the cross-sectional area in mm², from which the **Color coding** ends entirely in green.

If you change the values in the fields **Default value for lower limit (mm²)** and **Default value for upper limit (mm²)**, the sliders display the effects on the **Color coding**. If you move the sliders in **Color coding**, the values in the fields adapt accordingly.

You can reset the settings for **Default value for lower limit (mm²)** and **Default value for upper limit (mm²)** to the default settings of SICAT Air by clicking the **Reset** button.

SICAT Air uses the changed default values in two cases:

- You open a 3D X-ray scan for the first time:
- You reset the values of an **Airway** object.

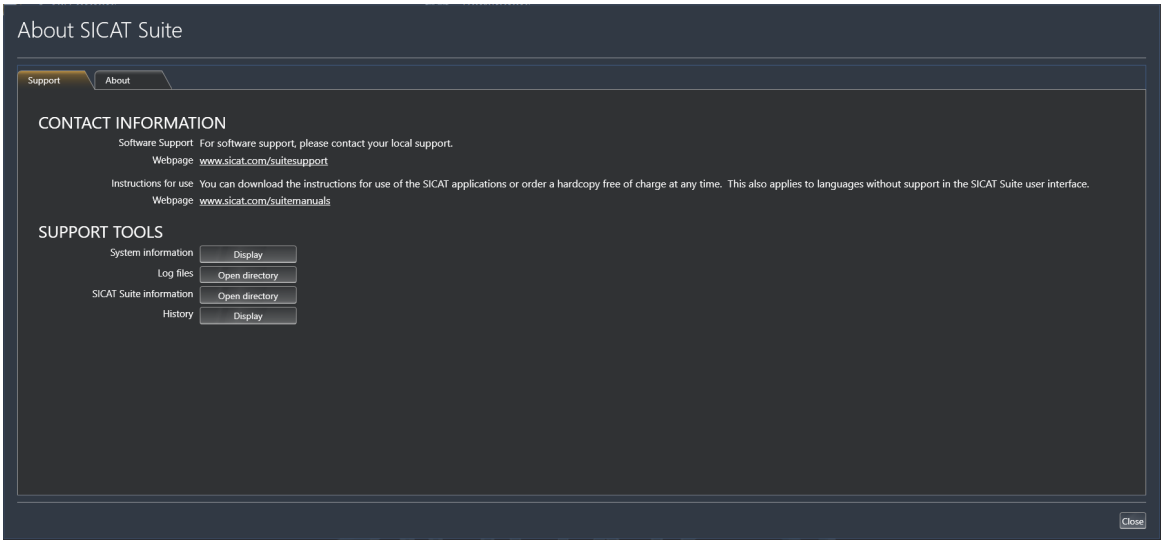
35 SUPPORT

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 189]*



35.1 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.

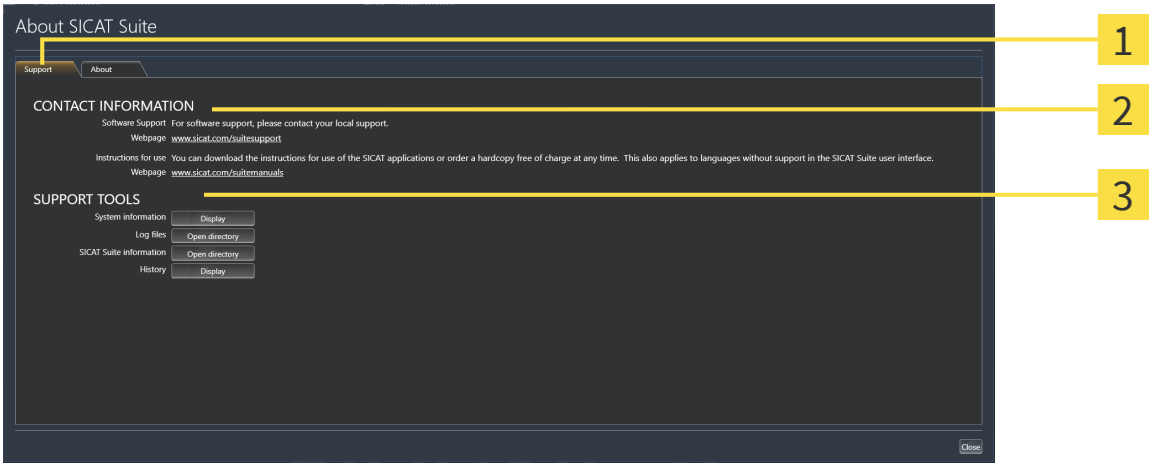
▶ The **SICAT Suite information** window opens.

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

- **Support** - Information on this can be found in the section *Support [▶Page 188]*.
- **About** - Information on this can be found in the section Info.

35.2 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

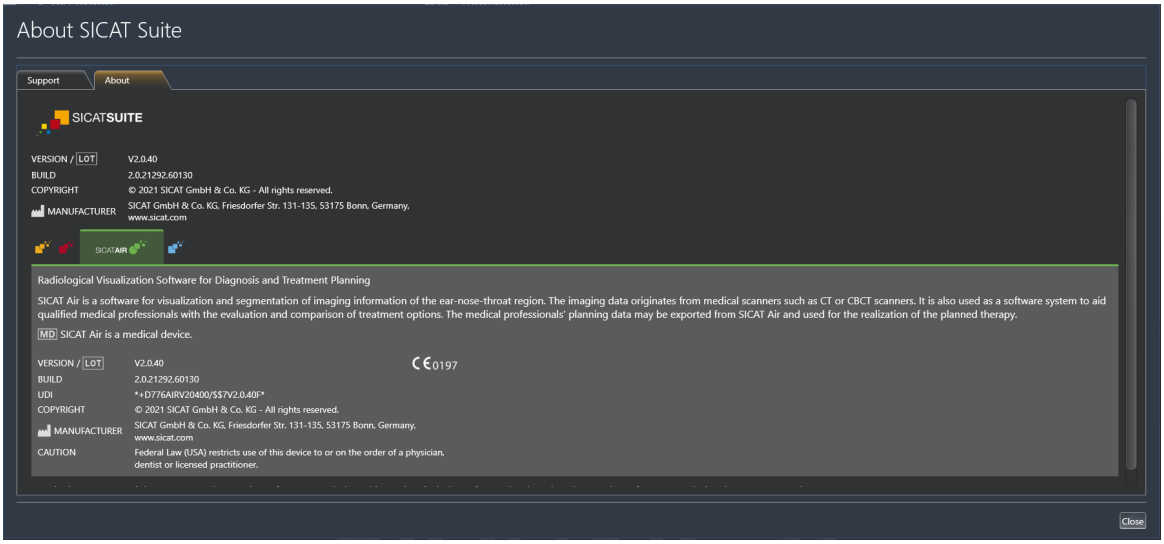
The **CONTACT INFORMATION** area contains information about where you can find the instructions for use.

The following tools are available in the **SUPPORT TOOLS** area:

- Click on the **Display** button in the **System information** area and SICAT Air will open the system information of the operating system.
- Click on the **Open directory** button in the **Log files** area and SICAT Air 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 Air will show the message window.

35.3 ABOUT

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



36 OPENING READ-ONLY DATA

You can open data as read-only.

The data you can view in SICAT Air as a SIDEXIS 4 module without being able to make and save changes depends on the status of your license:

TYPE OF SICAT AIR 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 Air studies without a Viewer license:

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

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 Air studies.

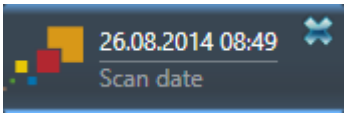
To open data without being able to make and save changes, proceed as follows:

- 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 Air 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 98]*.

37 CLOSING SICAT SUITE



- Click the **Close** button in the top left-hand corner of the currently opened study.

► SICAT Suite closes.

► SICAT Suite stores the changed planning projects of all SICAT applications that are running as a full version in SIDEXIS 4.

38 KEYBOARD SHORTCUTS

If you move the mouse pointer over certain functions, SICAT Air 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

The following keyboard shortcuts are available in the **Segment the airway** window of SICAT Air:

KEYBOARD SHORTCUTS	DESCRIPTION
N	Navigation
B	Remove from the respiratory path
A	Add to the respiratory path
E	Remove non-required oral area

39 UNINSTALLING SICAT SUITE

The SICAT Suite uninstallation program maintains active licenses on your computer. Therefore, SICAT Suite warns you that it will not automatically delete licenses before the uninstallation. If you no longer wish to use SICAT Suite on this computer, deactivate the licenses before uninstallation. Information on this can be found in the section *Returning 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 172]*.

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.

40 SAFETY INSTRUCTIONS

3D X-RAY SCANS

⚠ **CAUTION**	**Unsuitable X-ray devices may result in an incorrect diagnosis and treatment.** Only use 3D X-ray scans from X-ray devices that are cleared as medical equipment.

⚠ **CAUTION**	**Unsuitable 3D X-ray scans may result in an incorrect diagnosis and treatment.** Always verify the quality, integrity, and correct orientation of the displayed 3D data.

⚠ **CAUTION**	**X-ray devices without DICOM conformity could result in incorrect diagnosis and treatment.** Only use 3D volume data from X-ray devices with DICOM conformity declared.

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.

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.

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.

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.

SEGMENTATION

CAUTION

Excessive artifacts or the insufficient resolution of 3D X-ray scans may result in the failure of the segmentation process or lead to insufficient results. Examples of excessive artifacts in 3D X-ray scans include movement artifacts and metal artifacts.

Only use 3D X-ray scans that allow for a sufficient quality of segmentation of the relevant anatomical structures.

CAUTION

Insufficient segmentation quality may result in an incorrect diagnosis and treatment.

Check that the segmentation quality is sufficient for the intended use.

CAUTION

3D X-ray scans of insufficient quality may result in the quality of the segmented airway and airway profile being insufficient.

Only use 3D X-ray scans of a sufficient quality to create the segmented airway and airway profile with a sufficient quality and resolution.

AIRWAY COMPARISON

CAUTION

The use of incorrect data for the airway comparison may result in an incorrect diagnosis and treatment.

Use the correct patient, the correct 3D X-ray scans, the correct airway segmentation data, the correct interesting area and the correct size when selecting airway profiles for the airway comparison.

PATIENT INFORMATION

CAUTION

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

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

41 ACCURACY

The following table shows the accuracy values in all SICAT applications:

Measurement accuracy for distance measurements	< 100 µm
Measurement accuracy for angle measurements	< 1 degree
Representation accuracy	< 20 µm

GLOSSARY

ADA

American Dental Association

Airway

The term airway labels the object, which SICAT Air creates during segmentation. It is the upper part of the airways that is relevant in SICAT Air.

Airway analysis area

The term airway analysis area labels the bar in the airway workspace, which contains the relevant measured values and airway profile.

Airway area

The airway region is the region of interest, which you define in the segmentation window using the anatomical reference points and lateral size.

Airway comparison

The airway comparison juxtaposes two segmented airways in 3D views. The juxtaposition allows you to compare the lower jaw in an untreated position and in the treatment position. This allows you to assess the impacts of a therapeutic appliance.

Airway profile

Designates the 2D diagram, which shows the cross-sectional areas along the segmented airway.

Application

SICAT applications are programs belonging to SICAT Suite.

Color coding

Color coding highlights the size of the sections of the airway using different colors.

Crosshairs

Crosshairs are lines of intersection with other slice views.

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.

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.

Reference data record

The reference data record is a data record with a segmented airway, which is not currently open in SICAT Air. The reason for the differentiation between an open data record and the reference data record is that SICAT Air can only ever open one 3D X-ray scan.

Segmentation

Segmentation is the process, in which the software separates certain areas from the volume.

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

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.

Treatment position

Treatment position means that the patient's lower jaw is in a protruding position, which prevents bottlenecks in the airway, during the 3D X-ray scan.

Untreated

Untreated means that the patient's lower jaw is in occlusion during the 3D X-ray scan.

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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

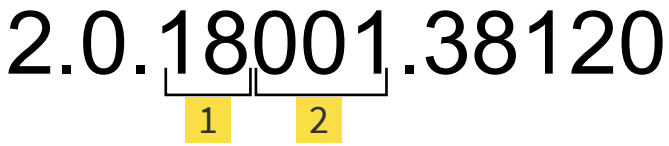
The lot number indicated in the software. Information on this can be found in the section *About [▶Page 191]*.

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 191]*.

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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CONTACT

MANUFACTURER

SICAT GMBH & CO. KG

FRIESDORFER STR. 131-135

53175 BONN, GERMANY

WWW.SICAT.COM

CE 0197

DOCUMENT ID: DHNO10IFU021

LOCAL SUPPORT

WWW.SICAT.COM/SUITESUPPORT

SICAT