SICATAIR

SICAT AIR VERSION 2.0.40

Instructions for use | English | Standalone

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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 58]*.
- 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

Database server	SQL Server Express 2019

Free disk space on hard disk (server-based patient data management)	1 TB, SSD recommended
Free disk space on hard disk (local patient data management)	100 GB

*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 236]*

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 207]*.

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 255]*

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 37]*.

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 252]*.

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 neither activated a license nor the Viewer license of a 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 without a license and with activated Viewer license will start in Viewer mode.

9 OVERVIEW OF THE INSTALLATION

Depending on the requirements and infrastructure available on site, SICAT Suite can be used in different application scenarios at a single workstation or in a network environment with multiple workstations and shared patient data management.

During SICAT Suite set-up, SICAT Suite is installed with all software components needed according to the selected installation type either on a single workstation computer or, in a network environment, on a server and on the respective workstation computers in the network.

The SICAT Suite set-up automatically opens the installers required for the respective software components one after the other:

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

Depending on the selected installation type, the patient data is stored in the SICAT Suite Patient Database on the local computer or on a separate server.

Starting with version 2.0.40 of SICAT Suite, the former Patient Record Depot must be relocated to the SICAT Suite Patient Database if you want to continue using the existing data. Information on this can be found in the section *Patient database [▶Page 69]*.

APPLICATION SCENARIO: LOCAL PATIENT DATA MANAGEMENT

If SICAT Suite is used on a single workstation computer, all components are installed on the workstation computer. The patient data is managed locally in the SICAT Suite Patient Database on the workstation computer. The workstation computer can be used by one or more users, each having their own settings.

APPLICATION SCENARIO: SERVER-BASED PATIENT DATA MANAGEMENT

If SICAT Suite is used on several workstation computers in a network, the server component with the SICAT Suite Patient Database must be installed on the server and SICAT Suite must be installed on the respective workstation computers. The patient data is managed in the SICAT Suite Patient Database on the server and the workstation computers each have access to the centrally managed patient data via the network. The common patient data management can be used by several users at the same time. Depending on the available license (full version or Viewer) the workstation computers can either be used to edit patient data or to view patient data. Information on this can be found in the section *Licenses [▶Page 58]*.

In a server environment, the SICAT Implant Database is installed locally on each workstation computer as well.

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.

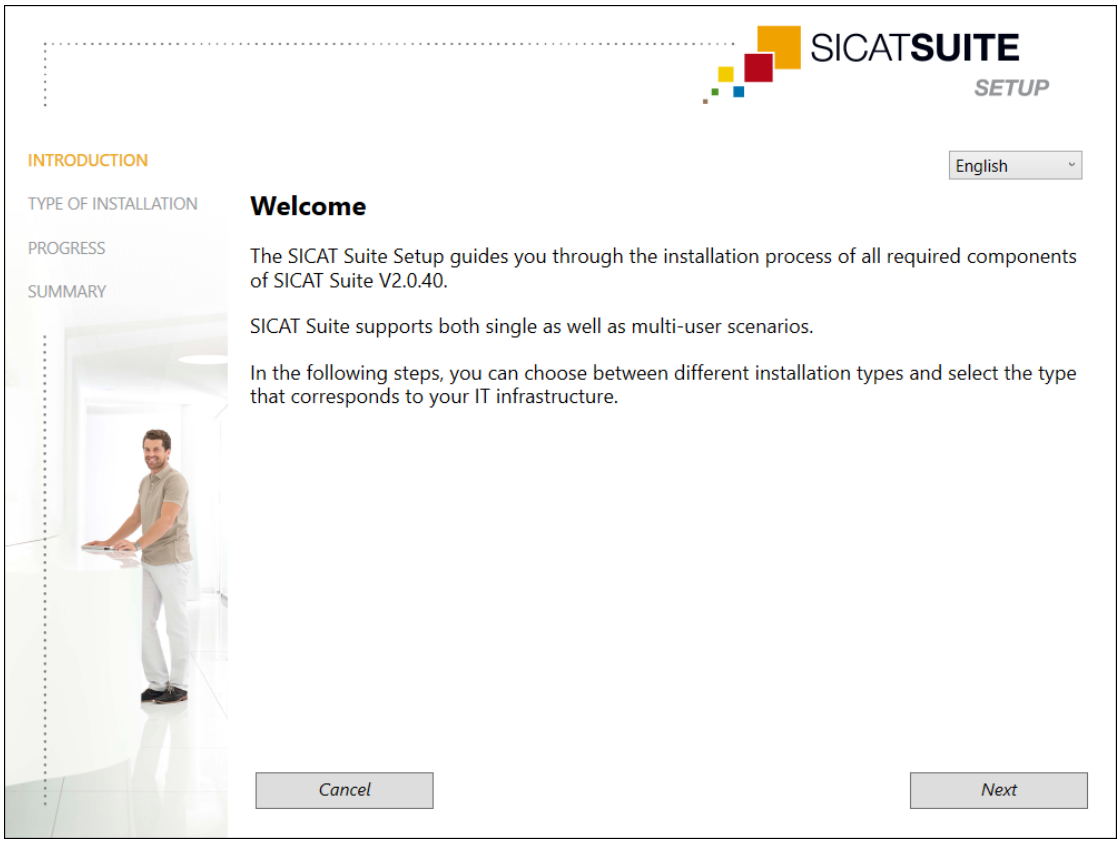
☑ Your computer fulfills the system requirements. Information on this can be found in the section *System requirements [▶Page 10]*.

☑ 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:

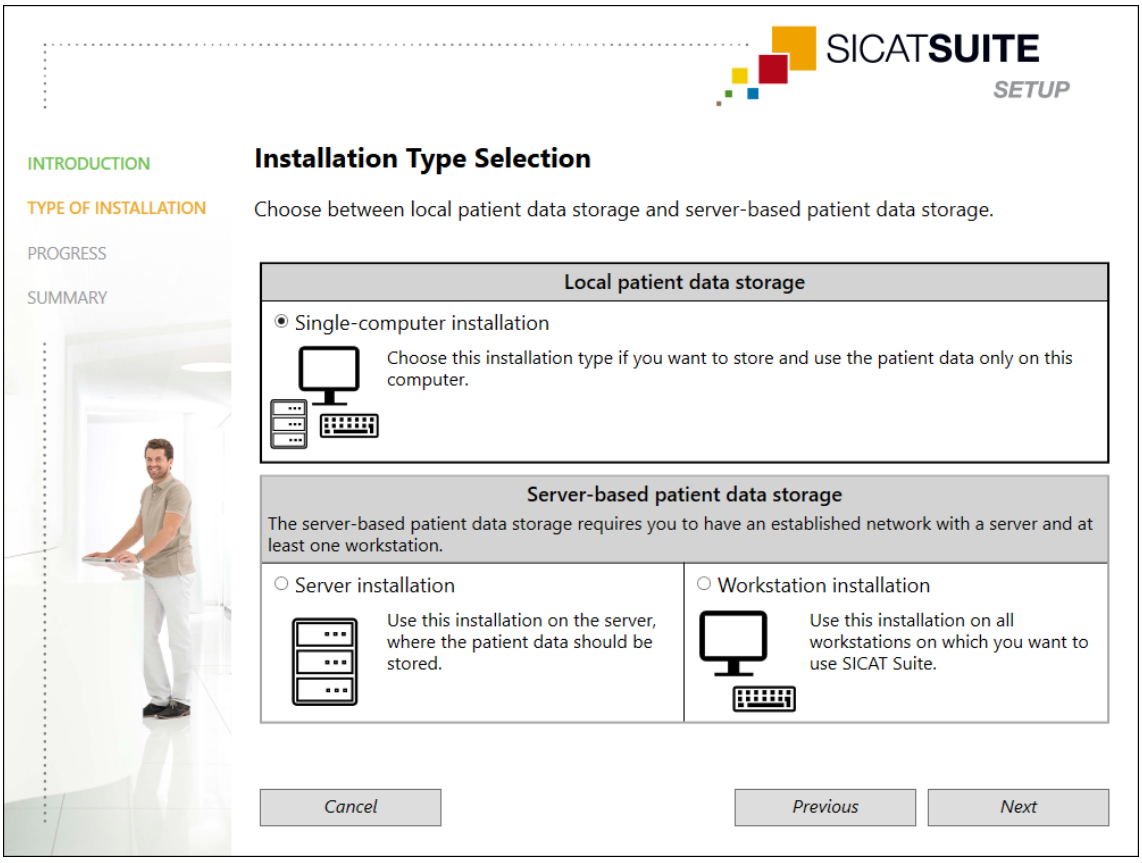
- *Installation with local patient data management as a single-user installation [▶Page 22]*
- *Installation with server-based patient data management as server and workstation computer installation [▶Page 24]*

10.1 INSTALLATION WITH LOCAL PATIENT DATA MANAGEMENT AS A SINGLE-USER INSTALLATION

Select single-user installation to install SICAT Suite with local patient data management as single-user installation.

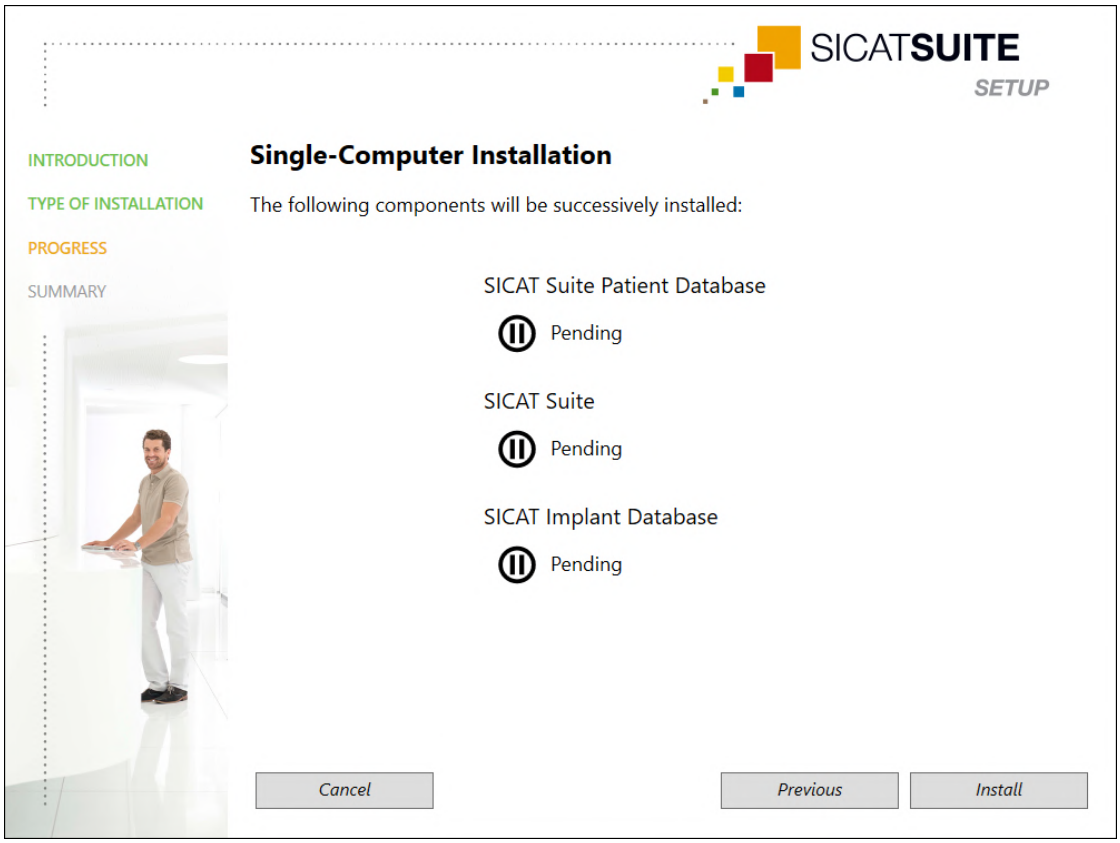
☑ SICAT Suite is to be installed on a single workstation computer.

☑ 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 **Single-computer installation** in the section **Local patient data storage** 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 single-user installation are opened one after the other:
   Installing the SICAT Suite Patient Database [▶Page 28]
   Installing SICAT Suite [▶Page 37]
   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. When SICAT Suite is started for the first time, the connection to the local patient database is established automatically.

10.2 INSTALLATION WITH SERVER-BASED PATIENT DATA MANAGEMENT AS SERVER AND WORKSTATION COMPUTER INSTALLATION

To install SICAT Suite in a network environment with several workstation computers, the SICAT Suite set-up must be started on the server and on each workstation computer and the appropriate installation must be selected.

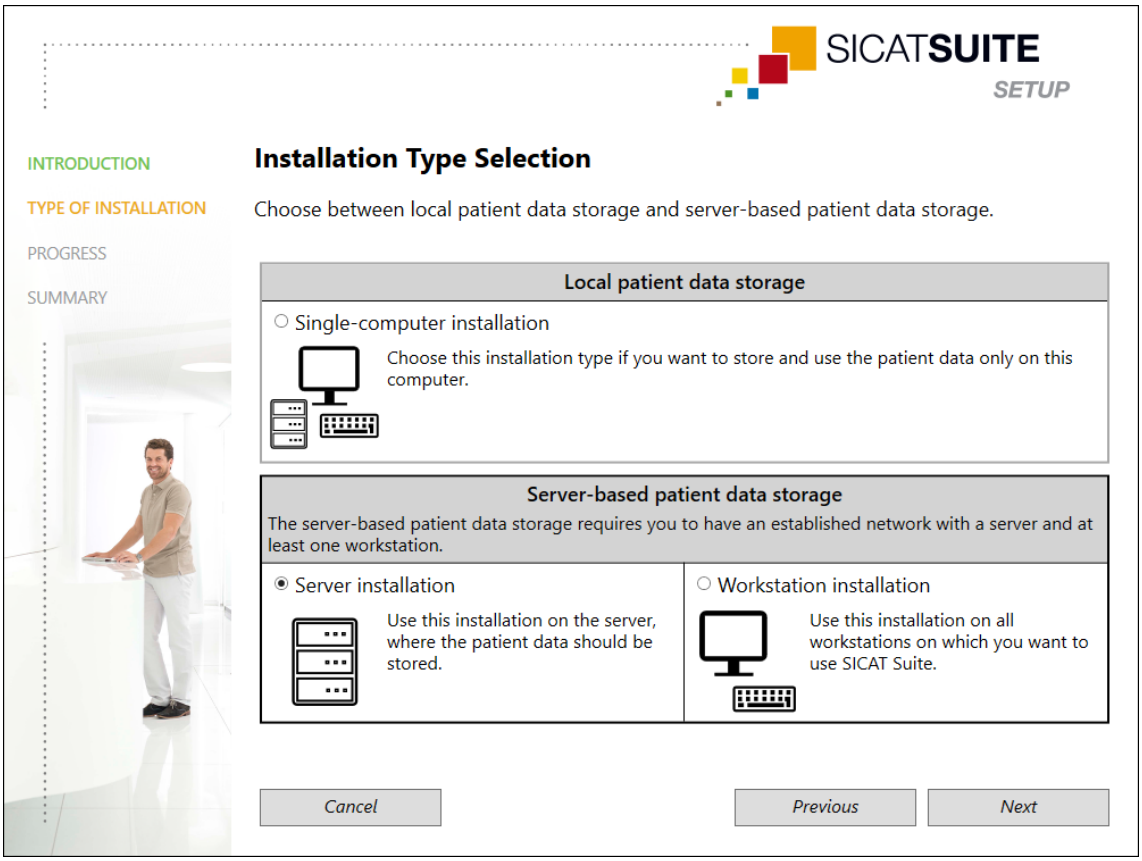
- The server installation for installing the SICAT Suite Patient Database must be performed on the server.
- The workstation computer installation must be performed on all workstation computers on which SICAT Suite is to be used.

SERVER INSTALLATION

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

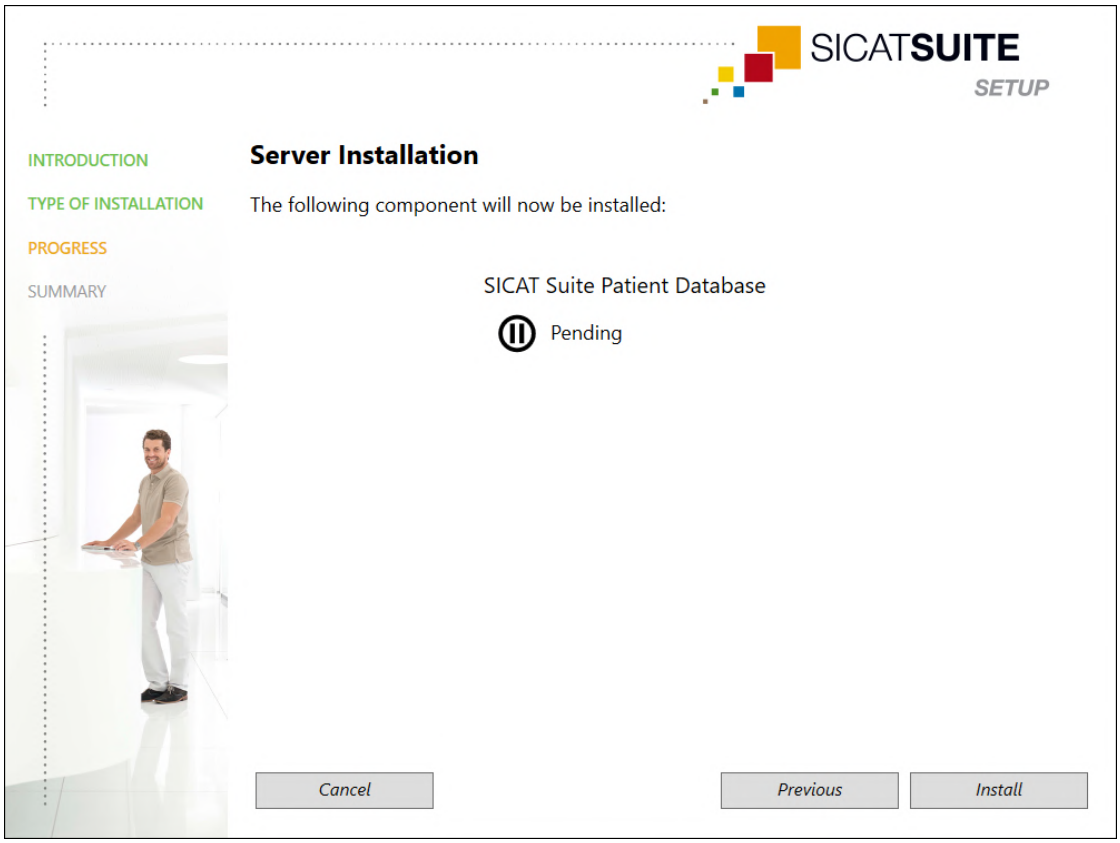
☑ The SICAT Suite Patient Database is to be installed on a server computer.

☑ 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 **Server installation** in the **Server-based patient data storage** section and click on **Next**.

▶ The **PROGRESS** window opens:



▶ The software component that needs to be installed will be displayed.

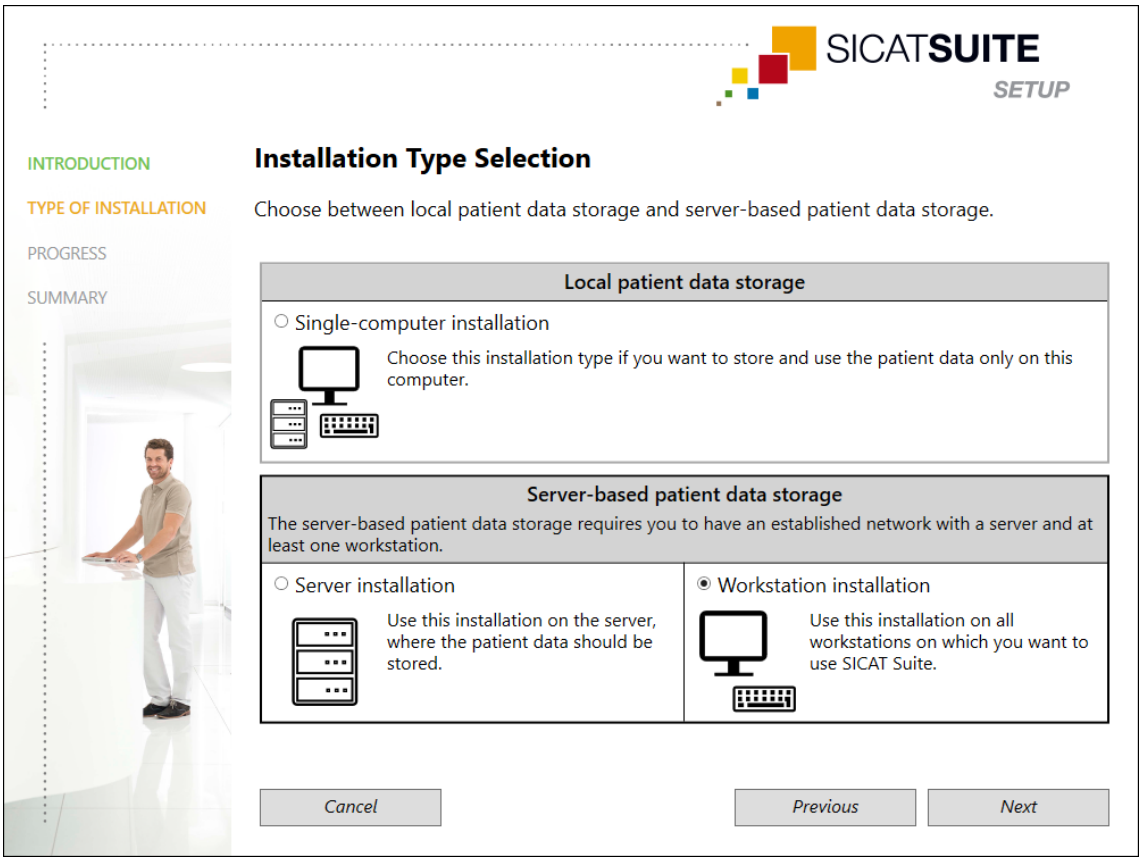
2. Click on the **Install** button.
   ▶ The installation process starts. The icon appears for the duration of the installation.
   ▶ The installer for the server installation opens:
   Installing the SICAT Suite Patient Database [▶Page 28]
   ▶ When the installation has been completed, the **SUMMARY** window opens.
   ▶ If the installation has been successful the icon ✓ appears.
3. Click on the **Finish** button.
   ▶ The SICAT Suite set-up closes.

WORKSTATION COMPUTER INSTALLATION

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

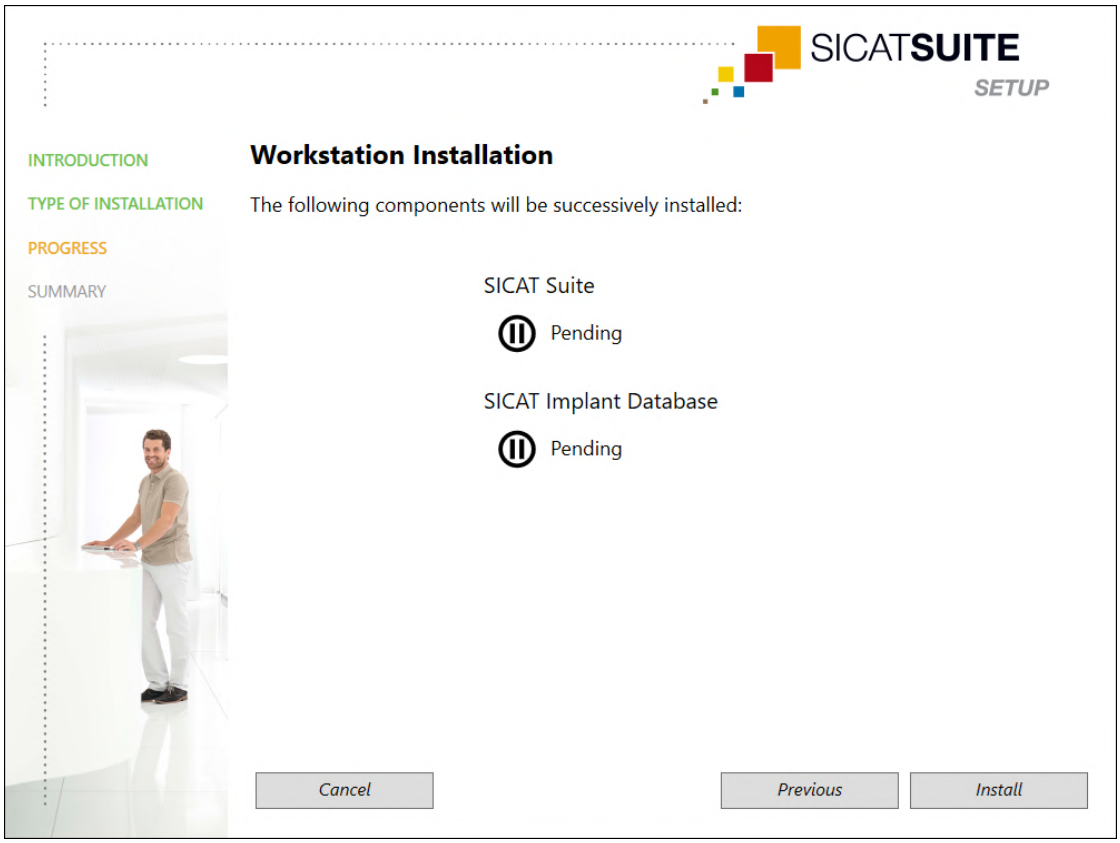
☑ SICAT Suite is to be installed on a workstation computer.

☑ 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 37]
   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.

10.3 INSTALLING THE SICAT SUITE PATIENT DATABASE

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

Depending on the type of installation that you have selected during the SICAT Suite set-up, the SICAT Suite Patient Database is installed as follows:

- *Installation with local patient data management as a single-user installation [▶Page 29]*
- *Installation with server-based patient data management as server installation [▶Page 32]*

10.3.1 INSTALLATION WITH LOCAL PATIENT DATA MANAGEMENT AS A SINGLE-USER INSTALLATION

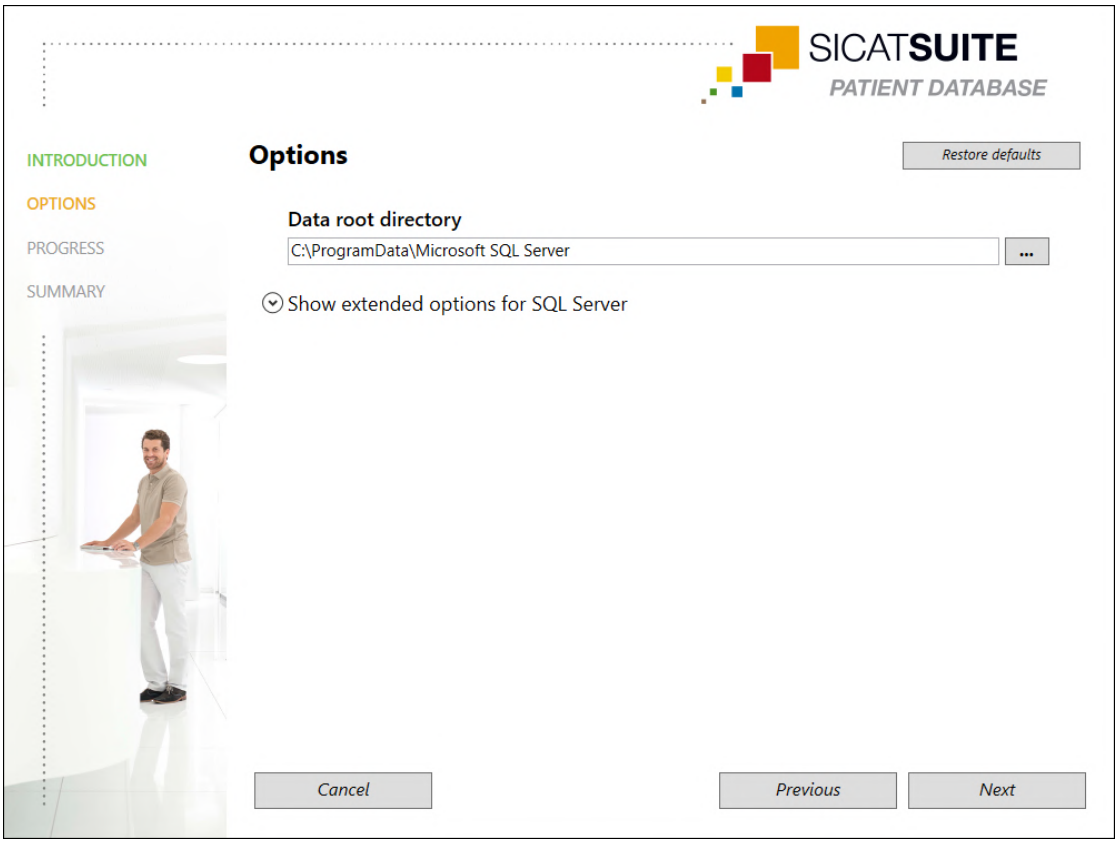
☑ The SICAT Suite Patient Database is not installed.

☑ The SICAT Suite Patient Database installer was started by the SICAT Suite set-up as a single-user installation.

NOTICE	**Any modification of the default installation paths may mean that the SICAT Suite Patient Database will not function as intended.** Only modify the installation paths if you are familiar with the installation of SQL databases. Consult our customer support for details regarding the modification of installation paths.

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

▶ The **OPTIONS** window opens:



▶ In the **Data root directory** field, the path is shown under which the database with the patient data is created.

2. Click on the button next to the **Data root directory** field if you want to select another storage location. Make sure that there is sufficient space available at the selected storage location. Information on this can be found in the section *System requirements [▶Page 10]*.

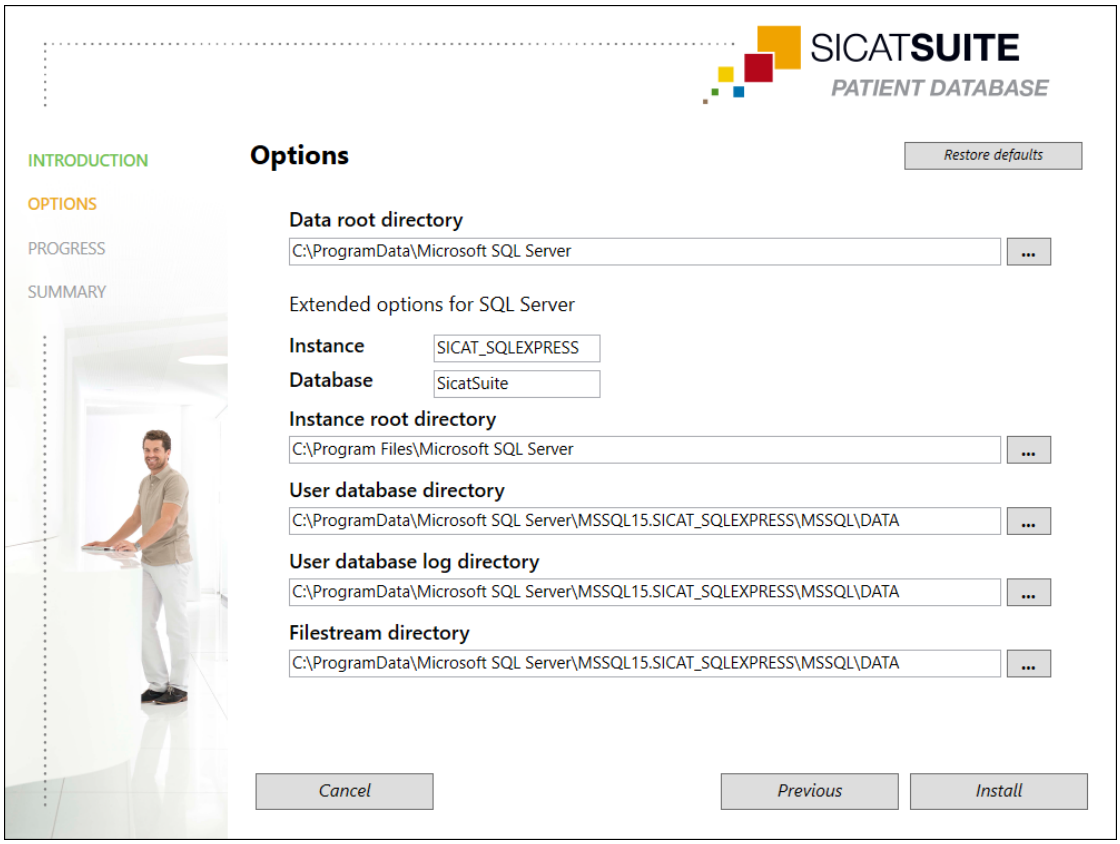
   ▶ The **Select folder** window opens.

3. Browse to the desired folder in which the SICAT Suite Patient Database installer is to create the “Microsoft SQL Server” directory and click on **OK**.

   ▶ The SICAT Suite Database installer adds the path to the selected folder in the **Data root directory** field.

4. If you want to select individual paths for the installation of the SICAT Suite Patient Database, click on the **Show extended options for SQL Server** button to display the advanced options and select the desired directories for the corresponding SQL data.

▶ The advanced options with the individual paths and the database properties are then displayed:



5. Make a note of the contents of the **Instance** and **Database** input fields, if you modify the database properties.

6. Click on the **Install** button.

   ▶ If the available storage space on the installation drive is insufficient, a window containing information about the actual and recommended storage space opens. In this case you can continue the installation by clicking on **Install anyway** or cancel the installation by clicking on **Cancel**.

   ▶ The **PROGRESS** window opens.

   ▶ The SICAT Suite Patient Database is installed.

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

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

   ▶ The SICAT Suite Patient Database installer closes.

10.3.2 INSTALLATION WITH SERVER-BASED PATIENT DATA MANAGEMENT AS SERVER INSTALLATION

☑ The SICAT Suite Patient Database is not installed.

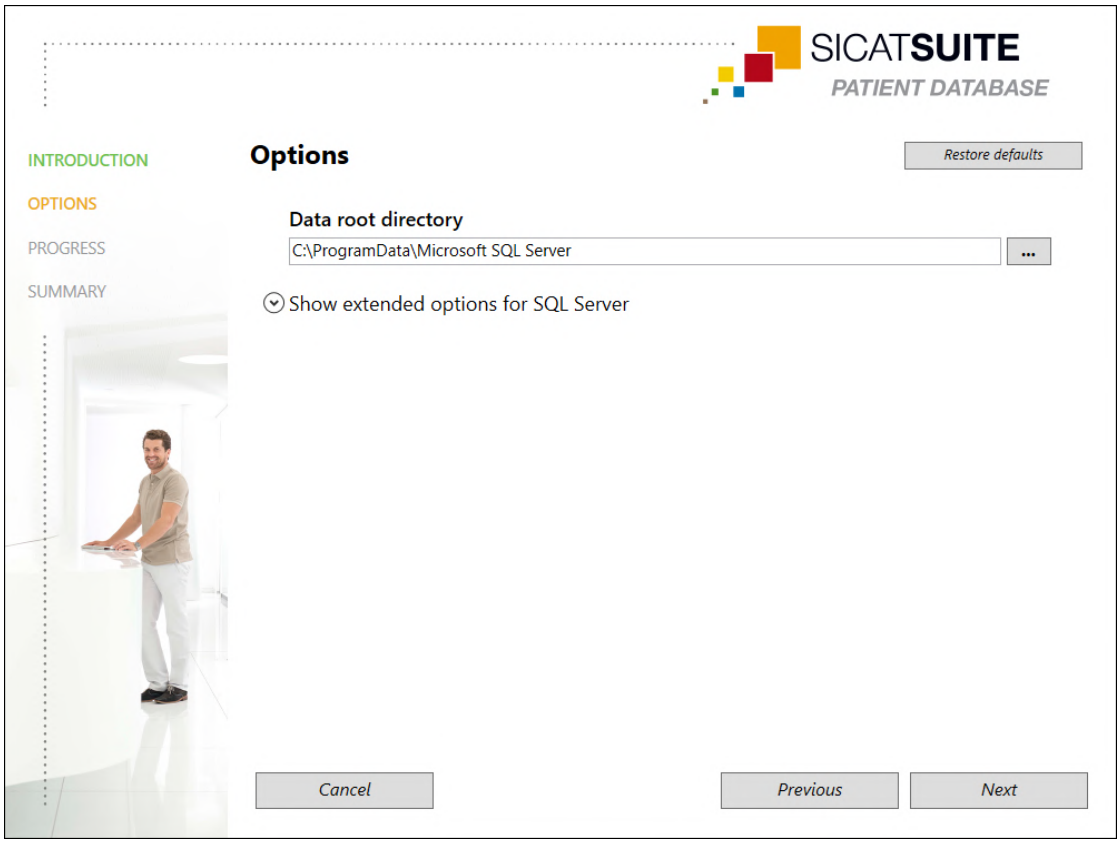
☑ The SICAT Suite Patient Database installer was started by the SICAT Suite set-up as a server installation.

NOTICE	**Any modification of the default installation paths may mean that the SICAT Suite Patient Database will not function as intended.** Only modify the installation paths if you are familiar with the installation of SQL databases. Consult our customer support for details regarding the modification of installation paths.

NOTICE	**The patient database must be protected with an individually chosen password. If you forget your password, you will no longer be able to connect to the patient database and access patient records.** Keep your password for connecting to the patient database in a secure place so that you can find it at all times.

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

▶ The **OPTIONS** window opens:



▶ In the **Data root directory** field, the path is shown under which the database with the patient data is created.

2. Click on the button next to the **Data root directory** field if you want to select another storage location. Make sure that there is sufficient space available at the selected storage location. Information on this can be found in the section *System requirements [▶Page 10]*.

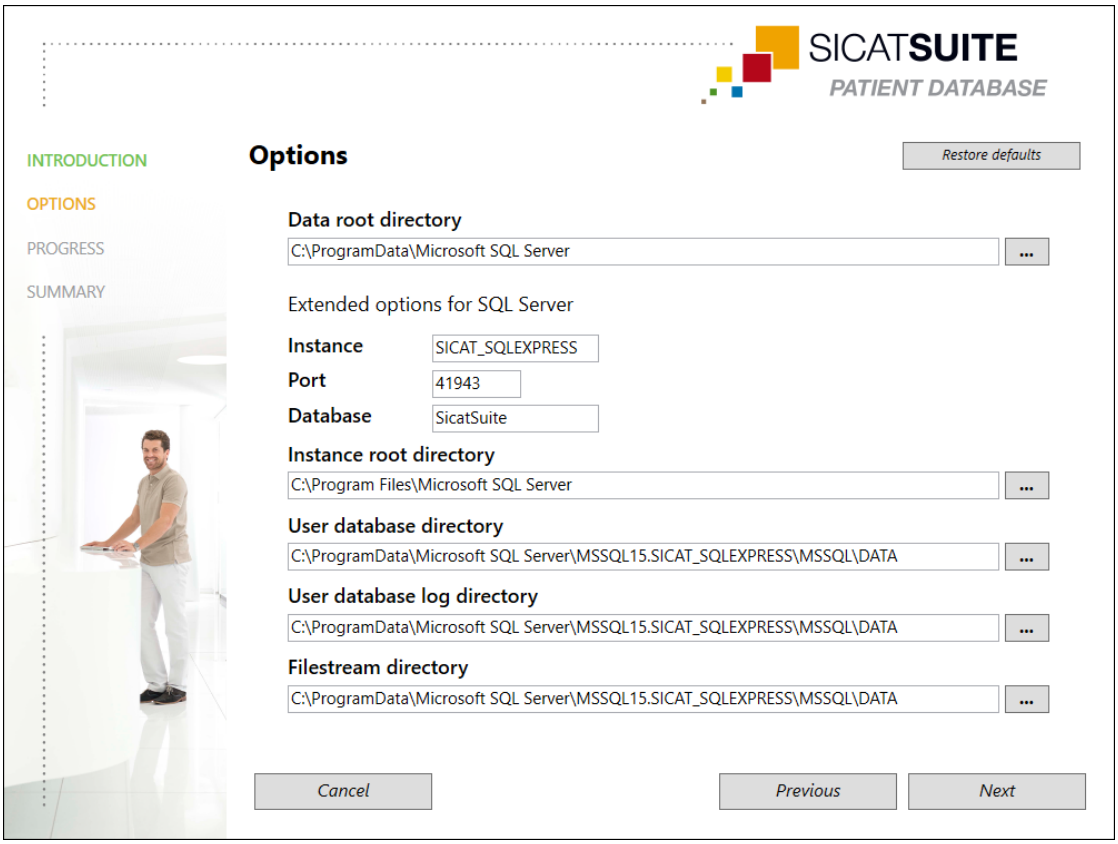
   ▶ The **Select folder** window opens.

3. Browse to the desired folder in which the SICAT Suite Patient Database installer is to create the “Microsoft SQL Server” directory and click on **OK**.

   ▶ The SICAT Suite Database installer adds the path to the selected folder in the **Data root directory** field.

4. If you want to select individual paths for the installation of the SICAT Suite Patient Database, click on the **Show extended options for SQL Server** button to display the advanced options and select the desired directories for the corresponding SQL data.

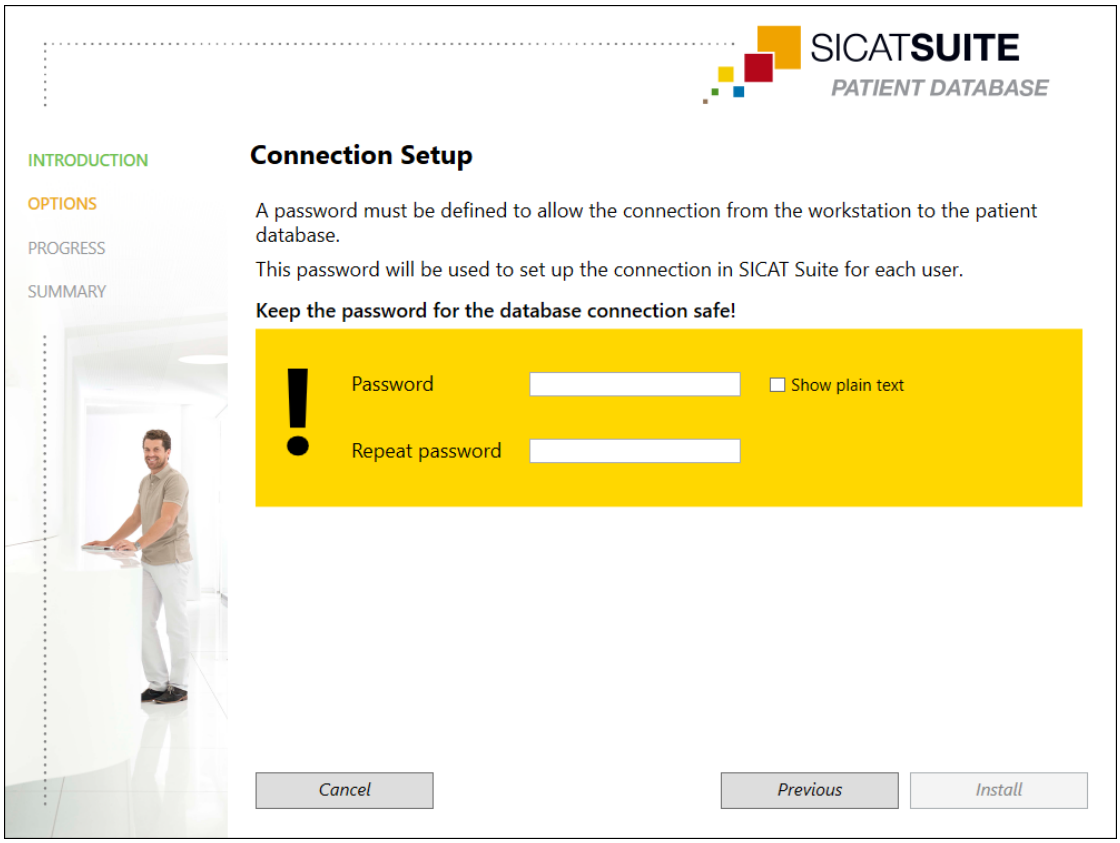
▶ The advanced options with the individual paths and the database properties are then displayed:



5. Make a note of the contents of the **Instance**, **Port** und **Database** input fields if you modify the database properties.

6. Click on the **Next** button.

▶ The **Connection Setup** window opens:



▶ If you have modified database properties, the changed database properties are listed.

7. Type a secure password that you want to use for connecting to the SICAT Suite Patient Database in the **Password** input field.

8. Re-type your selected password in the **Repeat password** input field. Enable the **Show plain text** check box to show the assigned password.

9. Remember your password. You need it to connect to the SICAT Suite Patient Database on the workstation computers. You cannot access the patient database without your password.

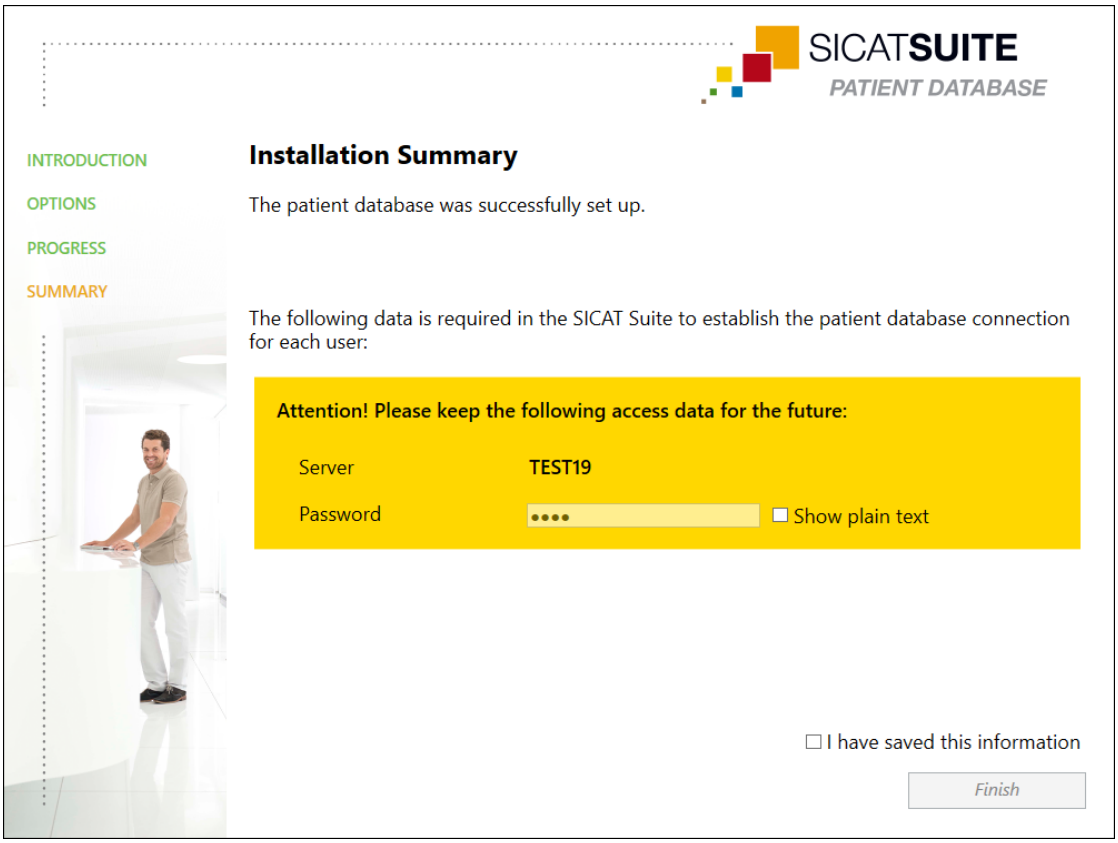
10. Click on the **Install** button.

    ▶ If the available storage space on the installation drive is insufficient, a window containing information about the actual and recommended storage space opens. In this case you can continue the installation by clicking on **Install anyway** or cancel the installation by clicking on **Cancel**.

    ▶ The **PROGRESS** window opens.

    ▶ The SICAT Suite Patient Database is installed.

▶ When the installation has been completed, the **SUMMARY** window opens:



▶ Your credentials for the SICAT Suite Patient Database are shown in the lower part of the window.

11. Enable the **Show plain text** check box.

    ▶ Your password is shown.

12. Make a note of the name of the server after the **Server** entry and the password after the **Password** entry and keep them both in a safe place that is inaccessible to unauthorized persons.

13. Enable the check box **I have saved this information** to confirm that you have written down the credentials.

14. Click on the **Finish** button.

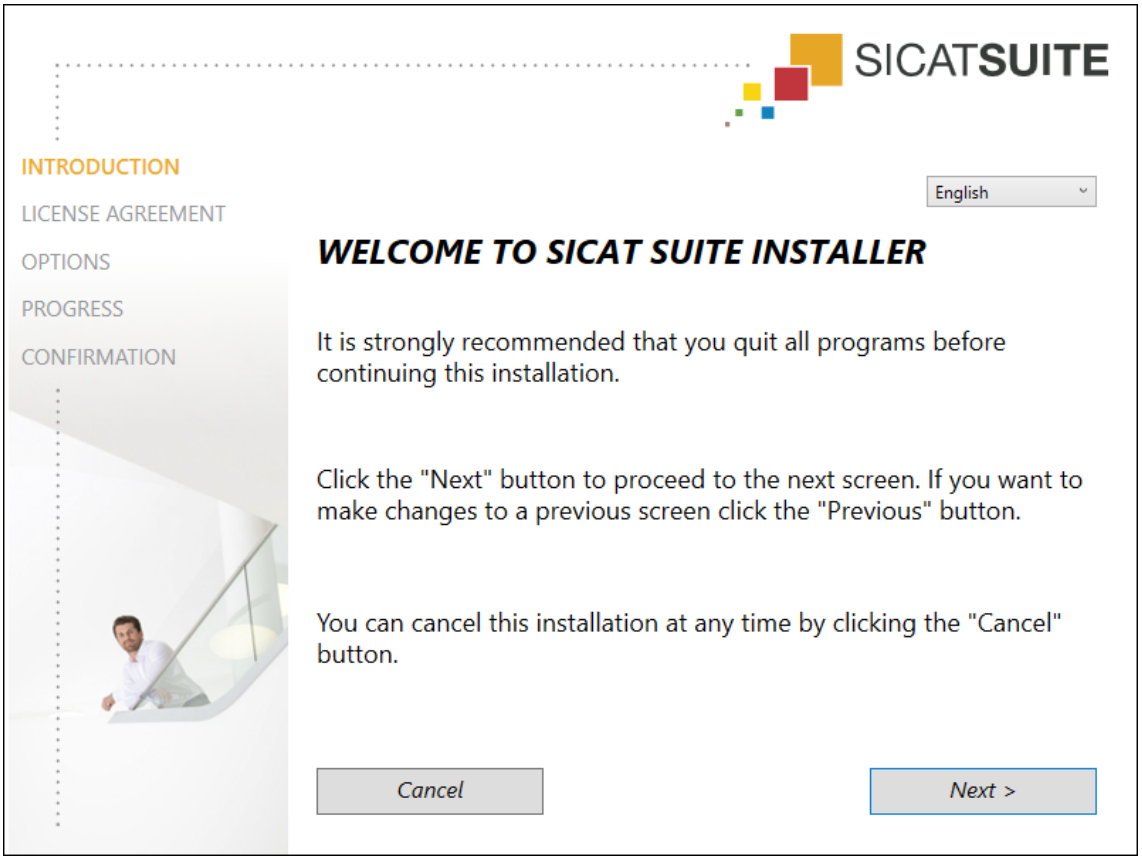
    ▶ The SICAT Suite Patient Database installer closes.

10.4 INSTALLING SICAT SUITE

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

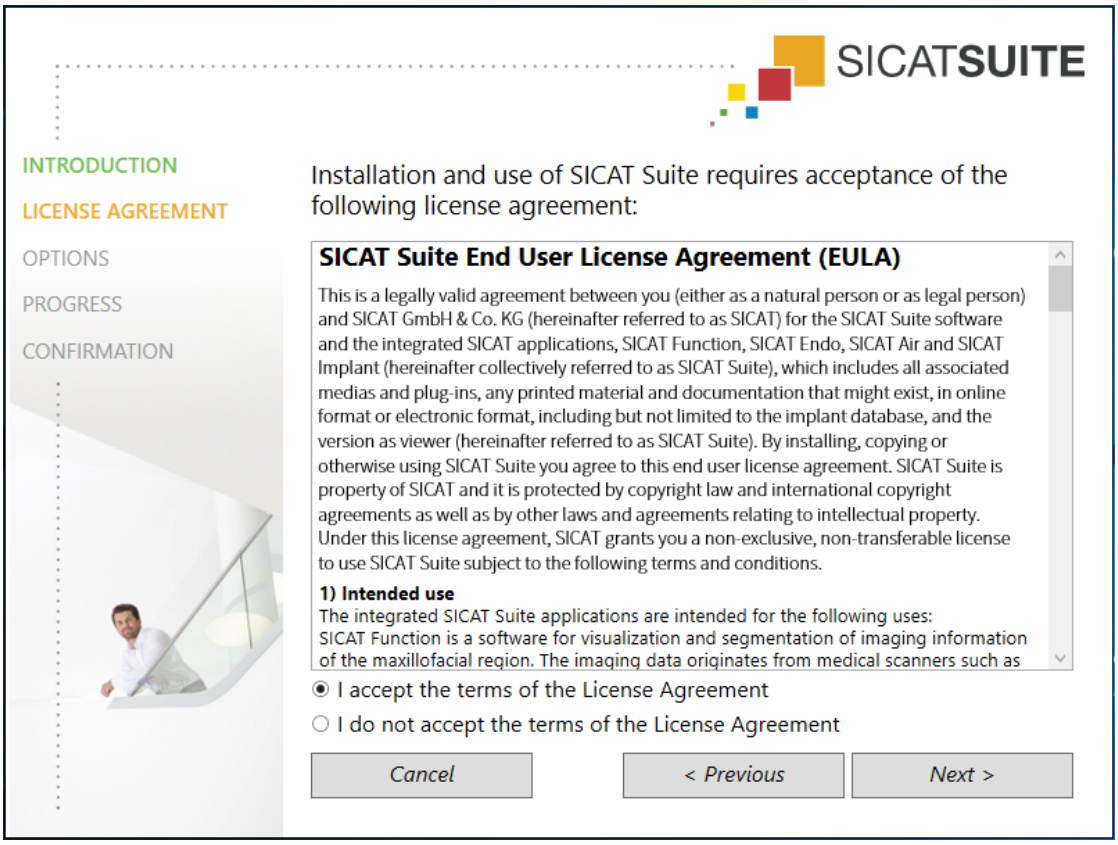
☑ SICAT Suite is not installed.

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



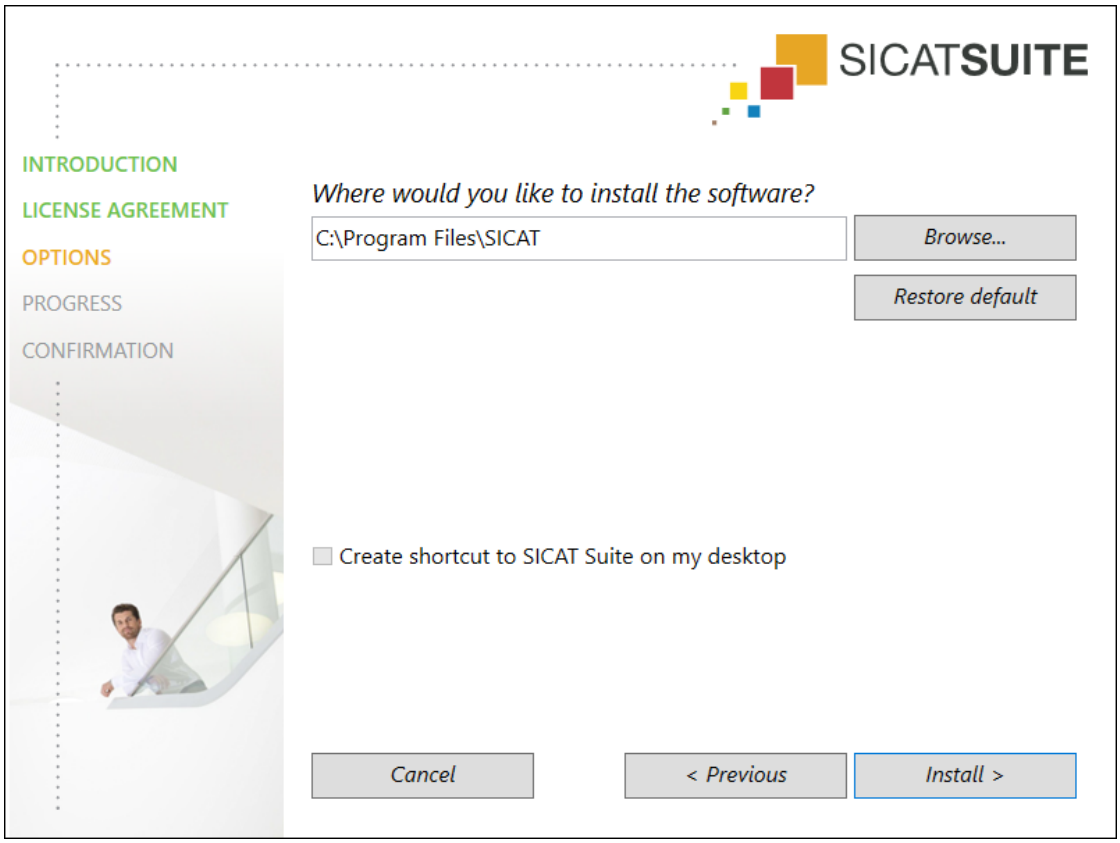
1. Select the desired language for the SICAT Suite installer in the top right-hand corner of the **INTRODUCTION** window and click on **Next**.

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

6. 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.

7. 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.

PREPARATIONS

☑ The SICAT Suite Patient Database is installed.

☑ A connection to a patient database has been added and is active. Information on this can be found in the section *Adding a connection to a patient database [▶Page 72]*.

1. Start SICAT Suite as a stand-alone version by pressing the **Windows** key, entering **SICAT Suite** and clicking on the **SICAT Suite** icon.
2. Import the reference data record from the “SICATSuite_ReferenceDataset_2.0.40.zip” file. You can find the data record in the SICAT Suite ZIP file that you have used for the installation. Information on this can be found in the section *Data import [▶Page 81]*.
3. Open the “Patient Axx” patient record in SICAT Air.

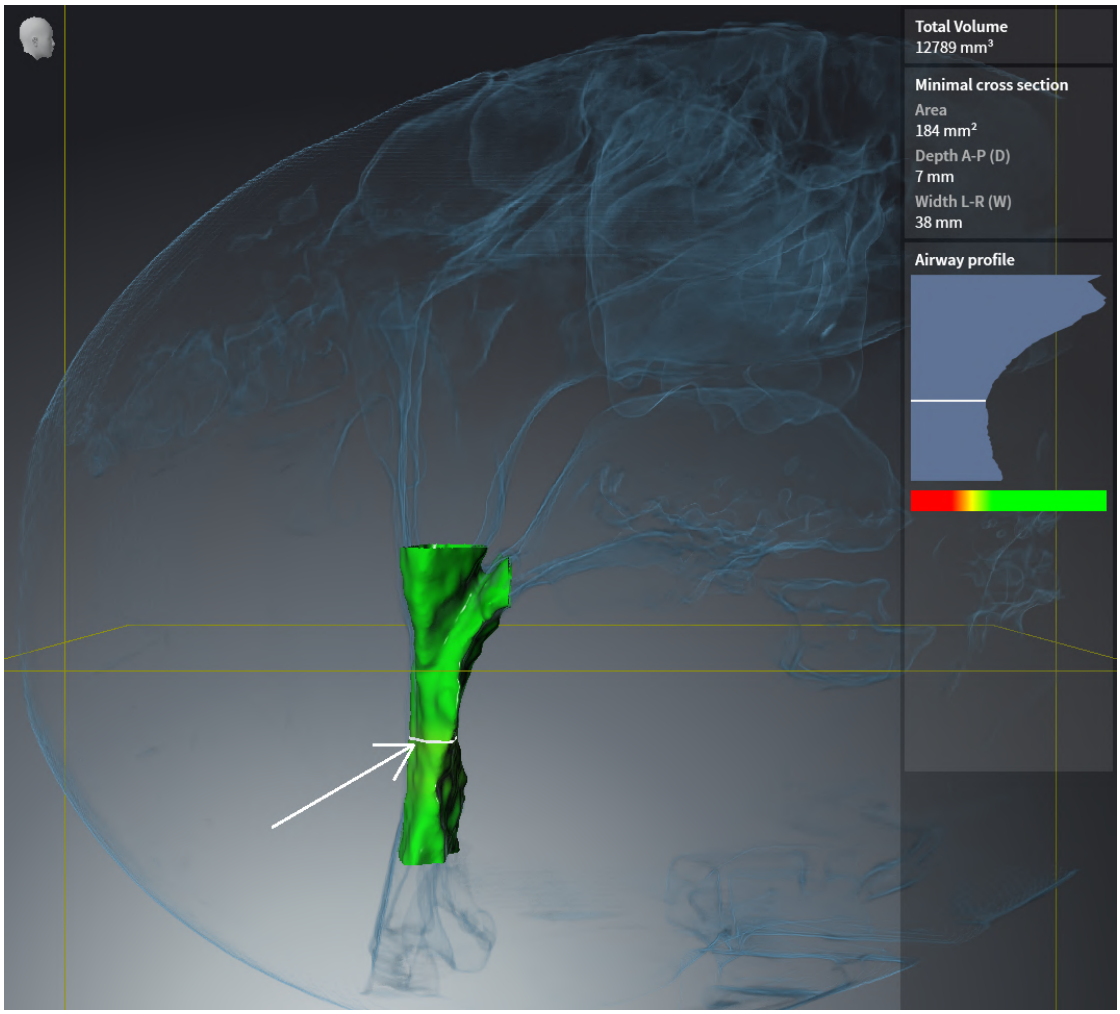
ACTIVATING THE AIRWAY WORKSPACE

- Make sure that the **Airway** workspace is active.

AIRWAY SEGMENTATION

1. Set the display mode of the **3D** view to **Volumetric view with soft tissue**.
2. Make sure that the default values are set in the **3D** view: Air 1124 and transparency 76%
3. Set the clipping mode to **Clipping: None**.
4. Reset the **Airway** workspace using the corresponding function in the **Workspace toolbar**.

5. Compare the **3D** view with the following screenshot. In particular, check the airway profile, the position of the annotation and the following values: **Total volume** and **Minimal cross section area**

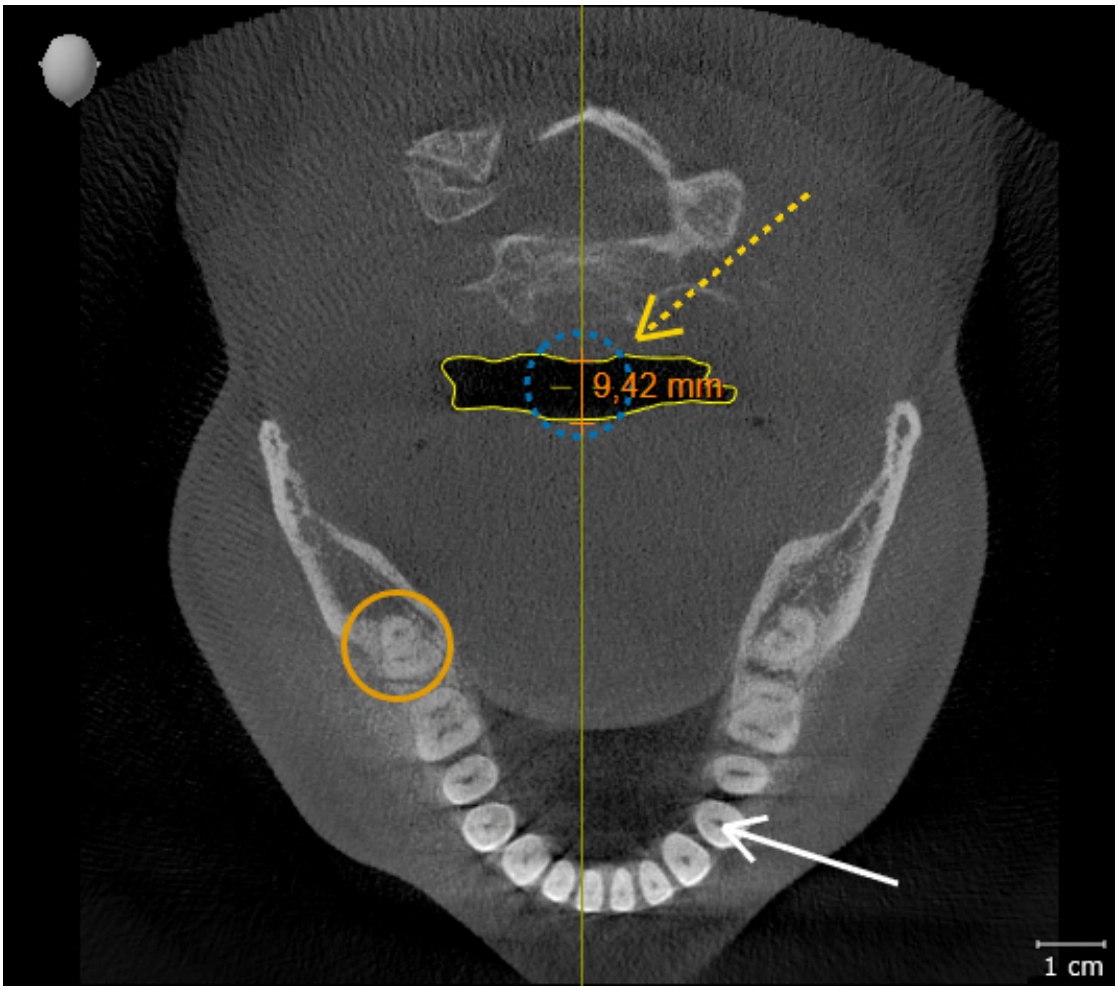


ANNOTATIONS

1. Ensure that the values for **Brightness** and **Contrast** in the **Axial** view are set to the default value of 50%.

2. In the **Object browser**, under **Handout**, select the “Image - Axial” element and focus on it.

3. Compare the **Axial** view with the following screenshot. In particular, check the positions and the representation of the annotations and the distance measurement.

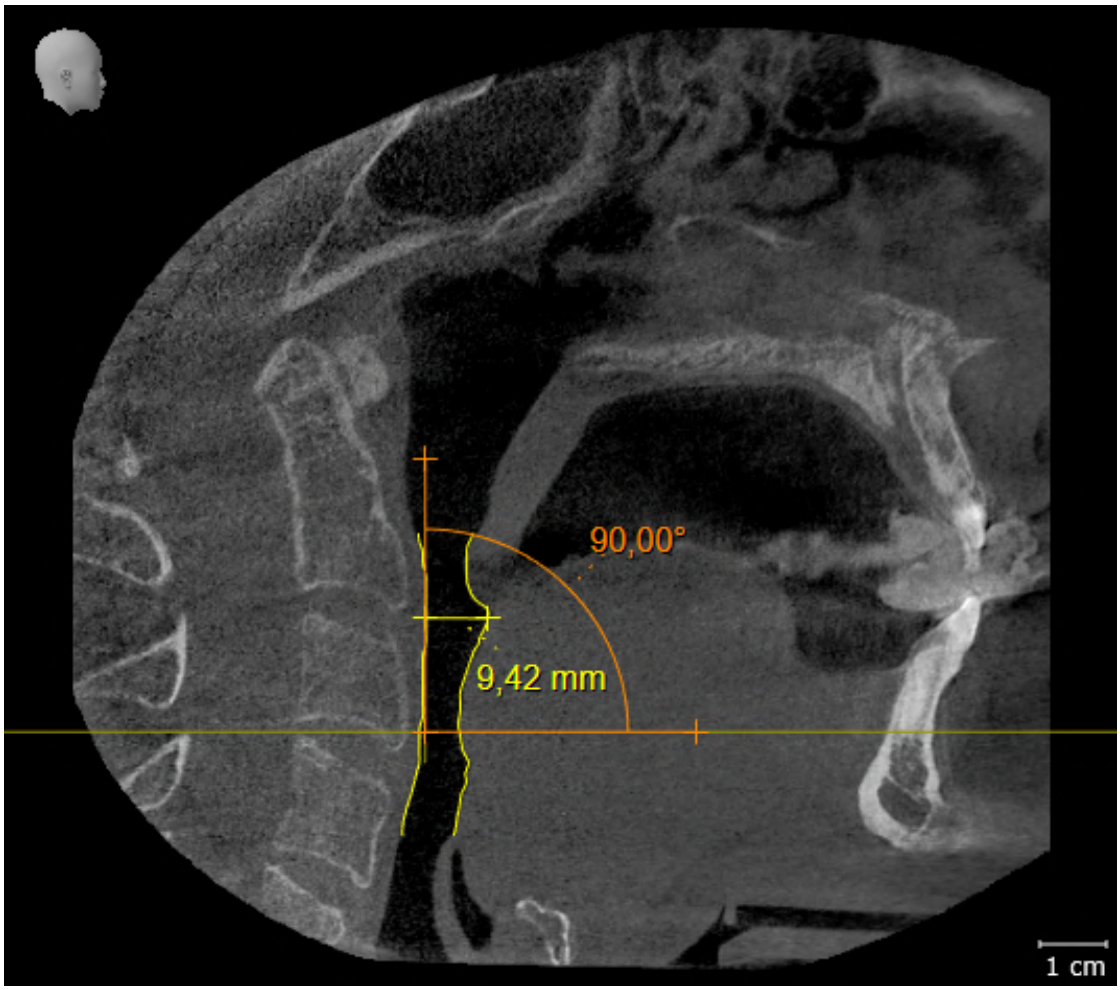


MEASUREMENTS

1. Ensure that the values for **Brightness** and **Contrast** in the **Sagittal** view are set to the default value of 50%.

2. In the **Object browser**, under **Measurements**, select the “90.00°” element and focus on it.

3. Compare the **Sagittal** view with the following screenshot. In particular, check the representation of the measurement objects (90.00° and 9.42 mm) and the orientation of the volume.



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.

ℹ	Starting with version 2.0.40 of SICAT Suite, the former Patient Record Depot must be relocated to the SICAT Suite Patient Database if you want to continue using the existing data. You can relocate the data of a Patient Record Depot to a patient database when you set up the connection to a patient database. You can find information on how to relocate a Patient Record Depot to the SICAT Suite Patient Database in the corresponding separate quick guide.

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.

PATIENT DATA AND VOLUME DATA

The stand-alone version of SICAT Suite includes its own central administration of patient records and volume data. The concept of patient records in the stand-alone version of SICAT Suite can be compared to classic patient records:

- Patient records are stored in patient databases which can be compared to filing cabinets.
- Selecting a patient record can be compared to removing a patient record from a filing cabinet and placing it on your desk.
- Opening patient data from a patient record in SICAT applications can be compared to taking out pages from the patient record.
- Adding 3D X-ray scans to a patient file can be compared to adding 2D X-ray scans to a classical patient file.
- A 3D X-ray scan may form the basis of several planning projects. Planning objects are also part of a patient record.
- A 3D X-ray scan together with the corresponding planning projects is known as a study.

Information on managing connections to patient databases can be found in the section *Patient database [▶Page 69]*. Information on managing patient records can be found in the section *Patient records [▶Page 91]*.

For information on saving patient records in the SICAT Suite Patient Database, please refer to the separately available instructions.

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

SETTINGS

In the stand-alone version, SICAT Suite manages all settings itself. Information on this can be found in the section *Settings [▶Page 233]*.

LICENSES

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

OPENING STUDIES WITH OR WITHOUT WRITE PERMISSIONS

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

- A SICAT Air full version license must be activated.
- A connection to a patient database must be active.
- In a network environment with server-based patient data management, the patient record must not be edited by another user.

Otherwise, you cannot make or save any changes to SICAT Air studies. If you have activated a SICAT Air Viewer license, you can view 3D X-ray scans and SICAT Air studies.

The following table shows which functions are available depending on the license if a connection to a patient database is activated:

FUNCTION	APPLICATION FULL VERSION LICENSE	APPLICATION VIEWER LICENSE	NO APPLICATION LICENSE
Support area	Yes	Yes	Yes
General settings	Yes	Yes	Yes
Data export	Yes	No	No
Managing connections to patient databases	Yes	Yes	Yes
Managing patient records	Yes	Yes	Yes
Data import	Yes	Yes	Yes
Help	Yes	Yes	Yes

The following table shows which functions are available depending on the SICAT Air license if a connection to a patient database is activated:

FUNCTION	SICAT AIR FULL VERSION LICENSE	SICAT AIR VIEWER LICENSE	NO SICAT AIR LICENSE
SICAT Air settings	Yes	Yes	No
Making changes to SICAT Air studies	Yes	No	No
Opening data in Viewer mode	Yes, if the patient record is locked	Yes	Yes, for SICAT data

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.

In the stand-alone version, the license status also influences the available functions in the **SICAT Suite Home** window. Information on this can be found in the section *Overview of the "SICAT Suite Home" window. [▶Page 54]*.

Further information is available in the section *Opening read-only data [▶Page 248]*.

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 37]*.

ACTIVATING FULL VERSION

1. 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 58]*.

2. In order to save your data, create at least one connection to a patient database and activate it. Information on this can be found in the section *Patient database [▶Page 69]*.

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 248]*.

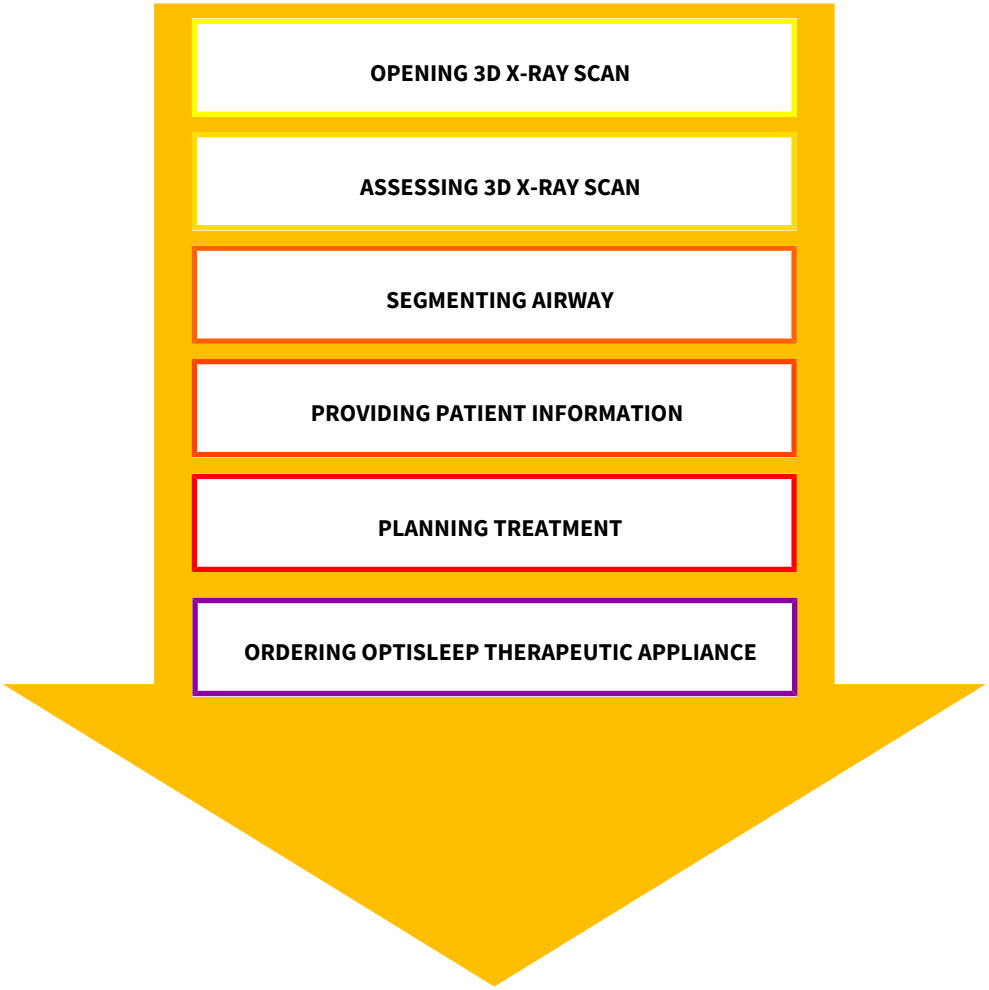
START

Information on how to start SICAT Suite can be found in the section *Starting SICAT Suite [▶Page 51]*.

SETTINGS

Change the desired settings in the **Settings** area. Information on this can be found in the section *Settings [▶Page 233]*.

HOW TO PROCEED IN SICAT AIR



OPENING A DATA RECORD

1. Import the 3D X-ray scan into the patient database. Information on this can be found in the section *Data import [▶Page 81]*.
2. To search for patient records and manage imported data, follow the instructions provided under *Patient records [▶Page 91]*.
3. To work with data from patient records, open a patient record in SICAT Air. Information on this can be found in the section *Opening 3D X-ray scans or planning projects from the patient record summary [▶Page 98]*.

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 156]*.
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 170]*.
4. Assess the airway in the **Airway** workspace. Information on this can be found in the section *Airway analysis [▶Page 181]*.
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 207]*.
10. If you wish to obtain a second opinion, export the data. Information on this can be found in the section *Data export [▶Page 204]*.

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 187]*.

ENDING OR PAUSING WORK ON THE DATA RECORD

- To end or interrupt your work, save it by closing the active patient record. Information on this can be found in the section *Closing SICAT Suite [▶Page 250]*.

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 57]*.

Further support is available in the **Support** area. Information on this can be found in the section *Support [▶Page 244]*.

15 STARTING SICAT SUITE

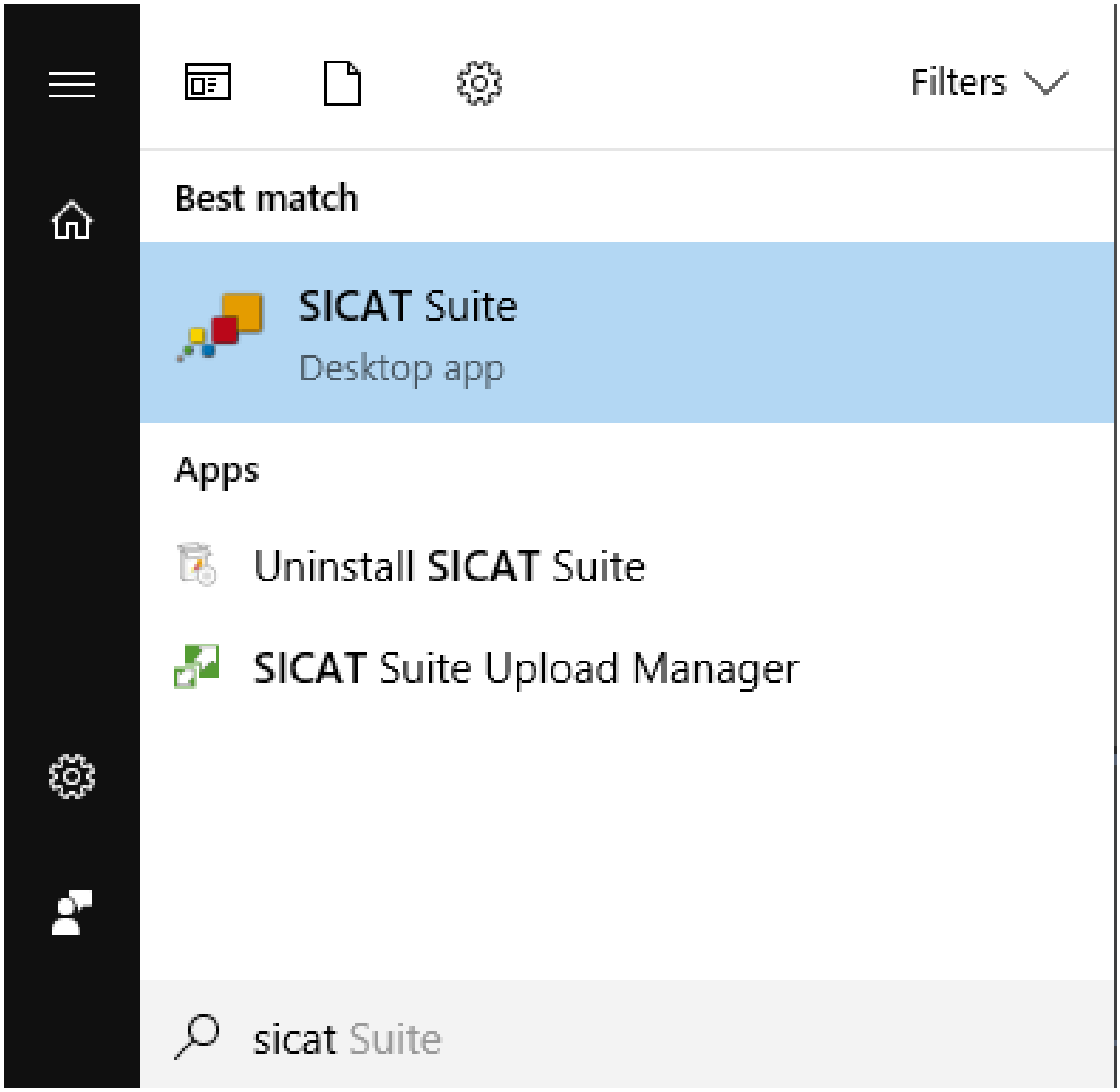
To start SICAT Suite, proceed as follows:

☑ SICAT Suite has already been successfully installed. Information on this can be found in the section *Installing SICAT Suite [▶Page 37]*.

- If a desktop shortcut was created during installation, click on the **SICAT Suite** icon on the Windows desktop.

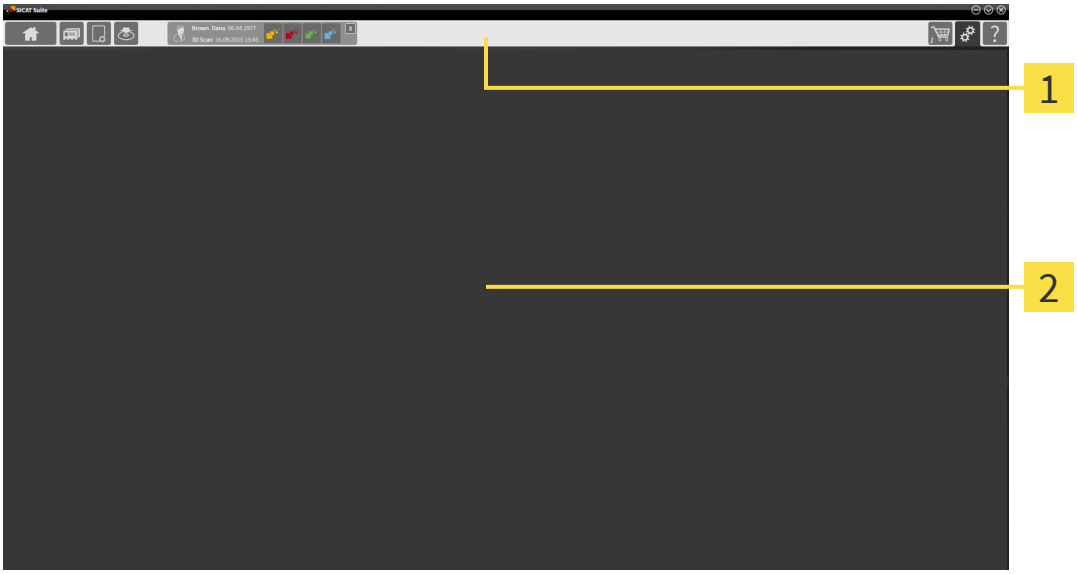
▶ SICAT Suite starts and the **SICAT Suite Home** window opens. Information on this can be found in the section *Overview of the "SICAT Suite Home" window. [▶Page 54]*.

You can also start SICAT Suite by pressing the **Windows** key, entering **SICAT Suite** and clicking on the **SICAT Suite** icon.



16 THE USER INTERFACE OF SICAT SUITE

The SICAT Suite user interface comprises the following parts:



1 **Navigation bar**

2 **Application area**

- The navigation bar at the upper end of SICAT Suite shows tabs to switch between different windows and applications.
- The **Application area**, which is located in the remaining part of SICAT Suite, shows the user interface of the active SICAT application.

The **Navigation bar** is comprised of three different sections. The section on the left side and the section on the right side are always visible. SICAT Suite shows the section in the center only if a patient record is activated.

The section on the left side contains the following tabs:

- **SICAT Suite Home** - Information on this can be found in the section *Overview of the "SICAT Suite Home" window. [▶Page 54]*.

- **Patient records** - Information on this can be found in the section *Patient records [▶Page 91]*.

- **Add new data** - Information on this can be found in the section *Data import [▶Page 81]*.

- **Export data** - Information on this can be found in the section *Data export [▶Page 204]*.

The section in the middle contains the following tabs:

- **Manage patient records** - Information on this can be found in the section *Working with patient records [▶Page 95]*.

- **Applications** - Information on this can be found in the section *Switching between SICAT applications [▶Page 56]*.

The section on the right side contains the following tabs:

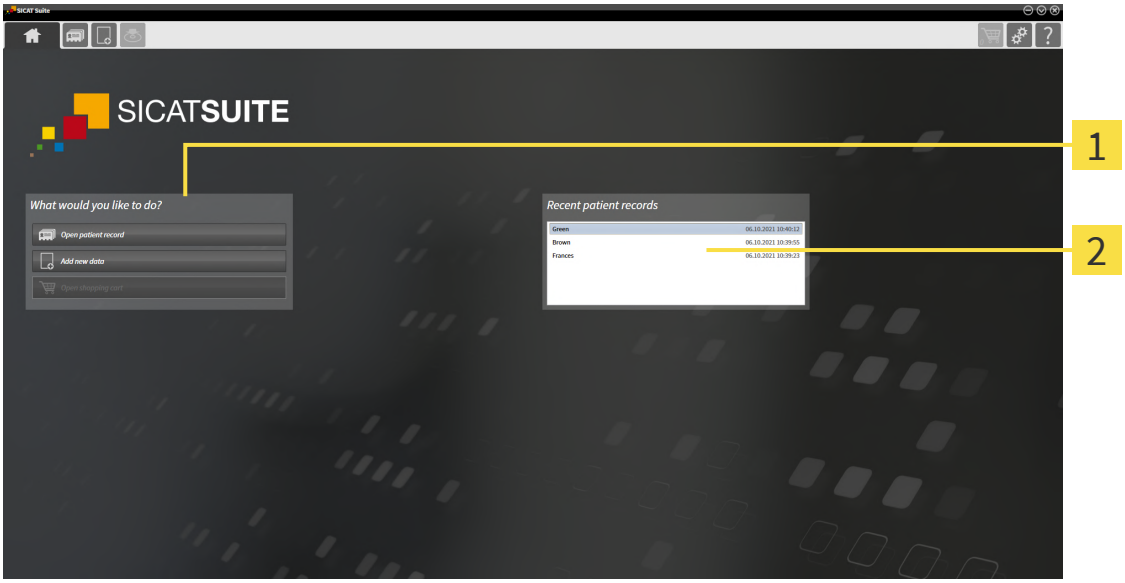
- **Shopping Cart** - Information on this can be found in the section *Ordering process [▶Page 207]*.

- **Settings** - Information on this can be found in the section *Settings [▶Page 233]*.

- **Support** - Information on this can be found in the section *Support [▶Page 244]*.

16.1 OVERVIEW OF THE “SICAT SUITE HOME” WINDOW.

The **SICAT Suite Home** window will greet you when you start the stand-alone version of SICAT Suite:



1 **What would you like to do** area

2 **Recent patient records** area

You can return to this window at any time by clicking the **SICAT Suite Home** icon. The content of the **SICAT Suite Home** window depends on the following parameters:

- Activation status and type of licenses
- Connection to the patient database

To be able to work with SICAT Suite, you have to set up a connection to a patient database. Information on this can be found in the section *Patient database [▶Page 69]*.

If no license is activated, the **SICAT Suite Home** window will only show a message and the **Activate license** button.

If the Viewer license of at least one SICAT application is activated, but no full version license of a SICAT application is activated, SICAT Suite will run in Viewer mode. In this mode, the functions for editing and saving patient data are not available.

If a full version license is activated and a connection to a patient database has been created and activated in SICAT Suite, the following buttons are available in the **SICAT Suite Home** window in the section **What would you like to do**:

- **Open** - Information on this can be found in the section *Patient records [▶Page 91]*.

- **Add new data** - Information on this can be found in the section *Data import [▶Page 81]*.

- **Shopping Cart** - Information on this can be found in the section *Ordering process [▶Page 207]*.

- In addition, the **Recent patient records** section will display a list of the most recently opened patient records. You can double-click on these patient records to switch to the **Patient record browser** window and show the patient record.

If the **Display patient information anonymously** setting is active, the **SICAT Suite Home** window will hide the **Recent patient records** area.

See also

▶ Data export [▶ 204]

17 SWITCHING BETWEEN SICAT APPLICATIONS

To switch between SICAT applications, proceed as follows:

- Click on the button with the label matching the desired SICAT application in the **Navigation bar**.

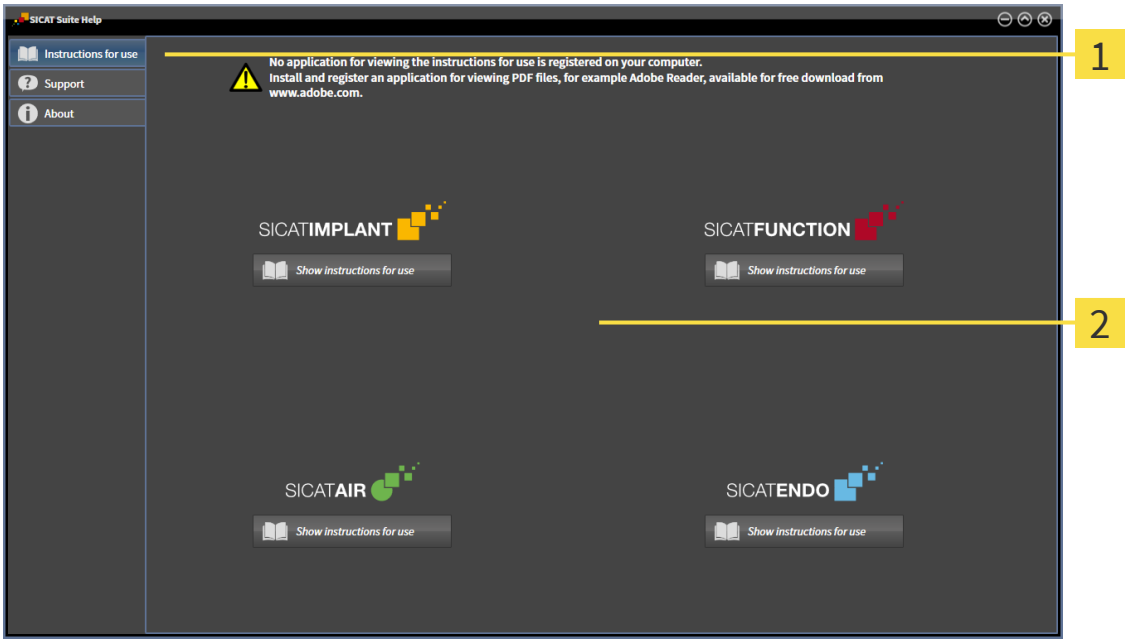
▶ SICAT Suite will switch to the selected application.

18 OPENING THE INSTRUCTIONS FOR USE

The instructions for use for SICAT applications are available in the **SICAT Suite Help** window in the form of PDF files.

You can open the **SICAT Suite Help** window by clicking on the **Support** icon in the **Navigation bar** or pressing the F1 key.

The **SICAT Suite Help** window looks as follows:



1 **Instructions for use** tab

2 **Instructions for use** window

You can open the instructions for use by clicking on the **Instructions for use** tab and then clicking on the desired **Show instructions for use** button.

19 LICENSES

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

If the **Add new data** or **View new data** functions are available in SICAT Suite based on activated licenses, you can view previously exported data records even without an activated SICAT 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.

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 61]*.

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 62]*.
- 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 64]*.

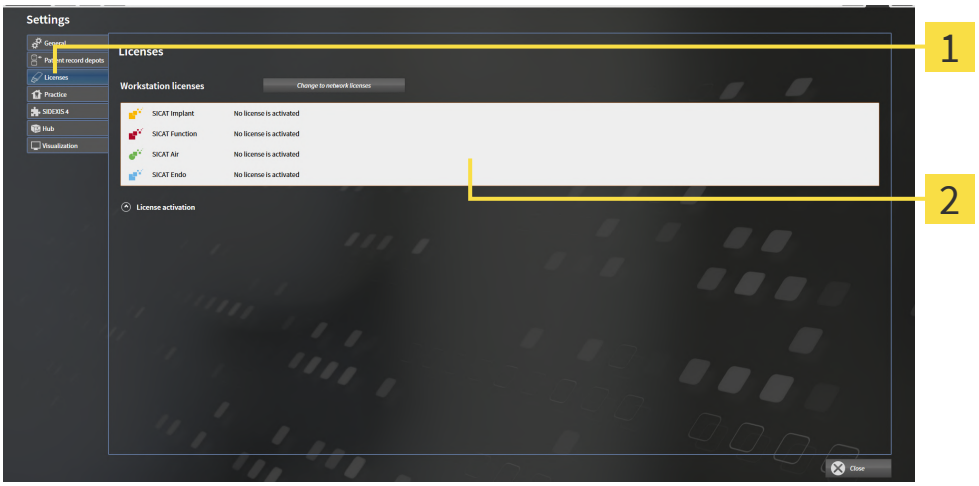
You can deactivate workstation licenses for each application or function individually. After you have deactivated a workstation license, you can enter the same or another activation key. Returned workstation licenses are available for activation on the same or another computer. Information on this can be found in the section *Returning workstation licenses to the license pool [▶Page 66]*.

For information on how to activate network licenses, see *Activating network licenses [▶Page 67]*.

19.1 OPENING THE “LICENSES” WINDOW

1. Click on the **Settings** icon in the **Navigation bar**.
   ▶ The **Settings** window opens.

2. Click the **Licenses** tab.
   ▶ 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 62]*
- *Activating workstation licenses manually or without an active Internet connection [▶Page 64]*
- *Activating network licenses [▶Page 67]*
- *Returning workstation licenses to the license pool [▶Page 66]*

19.2 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.

NOTICE	**Shopping cart must be empty** The shopping cart must be empty before you can make any changes to the licenses.

To start the activation process, proceed as follows:

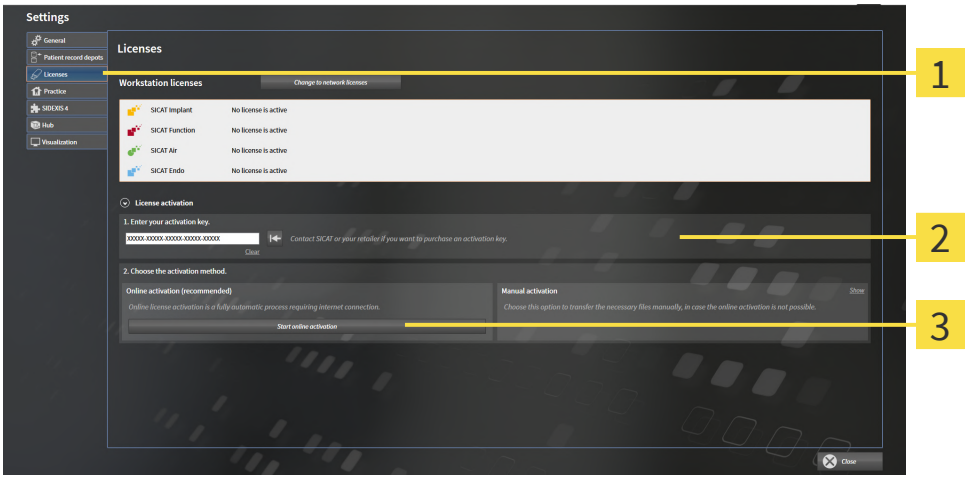
☑ At least one SICAT application or one individual function is missing an active workstation license.

☑ 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 61]*.

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**.

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

19.3 ACTIVATING 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.

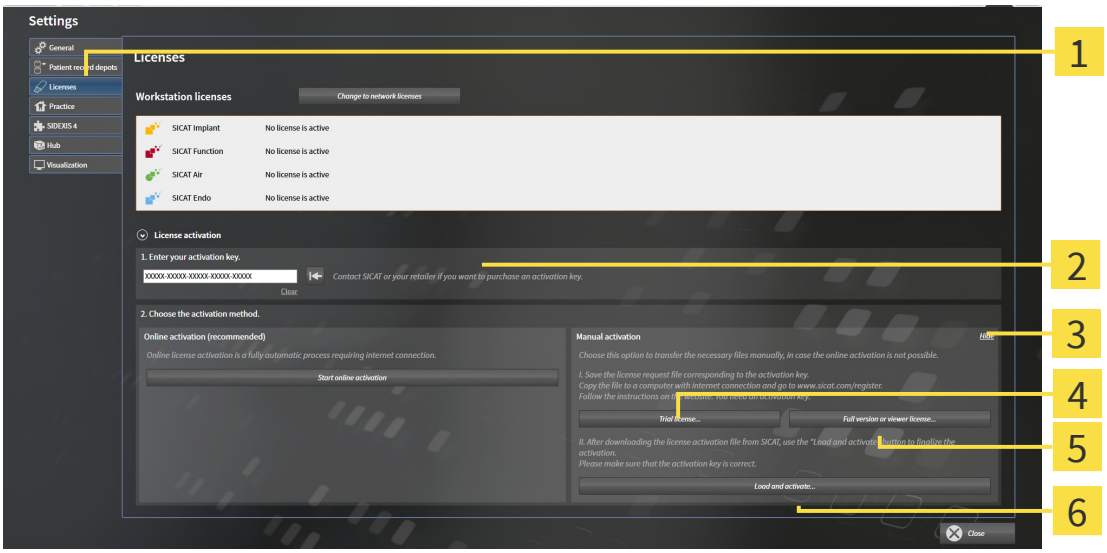
NOTICE	**Shopping cart must be empty** The shopping cart must be empty before you can make any changes to the licenses.

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

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

☑ The **Licenses** window is already open. Information on this can be found in the section *Opening the "Licenses" window [▶Page 61]*.

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**.

19.4 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.

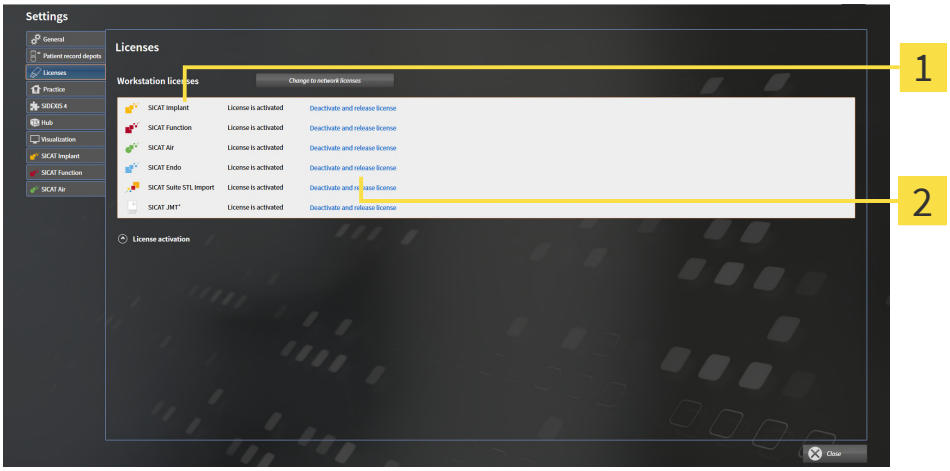
NOTICE	**Shopping cart must be empty** The shopping cart must be empty before you can make any changes to the licenses.

To deactivate a full 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 61]*.



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.

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

19.5 ACTIVATING NETWORK LICENSES

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

NOTICE	**Shopping cart must be empty** The shopping cart must be empty before you can make any changes to the licenses.

To start the activation process, proceed as follows:

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

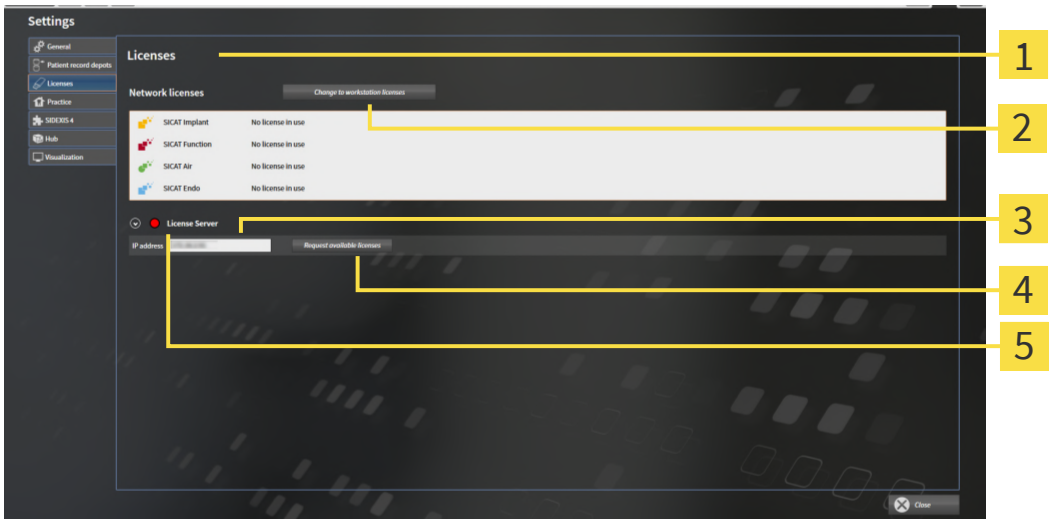
☑ You have set up a license server.

☑ 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 61]*.

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.

20 PATIENT DATABASE

BACKUP

CAUTION

The absence of a backup mechanism for the Patient Record Depots could result in patient data being irreversibly lost.

Make sure that a regular data backup is created of all Patient Record Depots.

Depending on the selected installation type, the patient data is stored locally or server-based in the SICAT Suite Patient Database. You yourself are responsible for backing up the patient data.

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

DATA SECURITY

CAUTION

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

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

CAUTION

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

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

CAUTION

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

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

GENERAL INFORMATION

The full range of management functions for patient databases is only available if an application license is activated in SICAT Suite.

Starting with version 2.0.40 of SICAT Suite, the former Patient Record Depot must be relocated to the SICAT Suite Patient Database if you want to continue using the existing data. You can relocate the data of a Patient Record Depot to a patient database when you set up the connection to a patient database. You can find information on how to relocate a Patient Record Depot to the SICAT Suite Patient Database in the corresponding separate quick guide.

SICAT Suite manages patient data as follows:

- All 3D scans for a patient and all corresponding planning projects are organized in patient records.
- Patient records are stored locally or on a server in the SICAT Suite Patient Database.

SICAT Suite requires at least a connection to one patient database to run in the full version. Several connections to patient databases can be managed. However, only one patient database can be active at one time.

Performing certain actions will lock the patient records and, while locked, they are only available for viewing by other users in a network environment with server-based patient data management. Information on this can be found in the section *Patient records [▶Page 91]*.

In case of server-based patient data management a network connection with a certain minimum bandwidth is required. Information on this can be found in the section *System requirements [▶Page 10]*.

The following actions are available for setting up connections to a patient database:

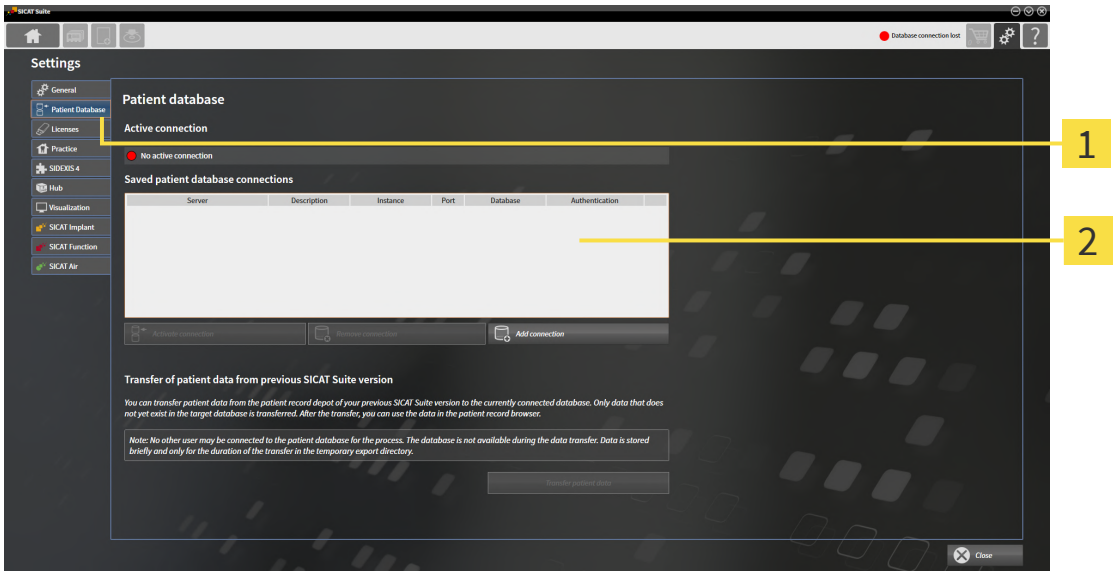
- *Opening the “Patient database” window [▶Page 71]*
- *Adding a connection to a patient database [▶Page 72]*
- *Activating another patient database [▶Page 77]*
- *Removing a connection to a patient database [▶Page 78]*

20.1 OPENING THE “PATIENT DATABASE” WINDOW

To open the **Patient Database** window, proceed as follows:

1. Click on the **Navigation bar** icon in the **Settings**.
   ▶ The **Settings** window opens.

2. Click on the **Patient Database** tab.
   ▶ The **Patient Database** window opens:



1 **Patient Database** tab

2 **Saved patient database connections** list

Continue with one of the following actions:

- *Adding a connection to a patient database [▶Page 72]*
- *Activating another patient database [▶Page 77]*
- *Removing a connection to a patient database [▶Page 78]*

20.2 ADDING A CONNECTION TO A PATIENT DATABASE

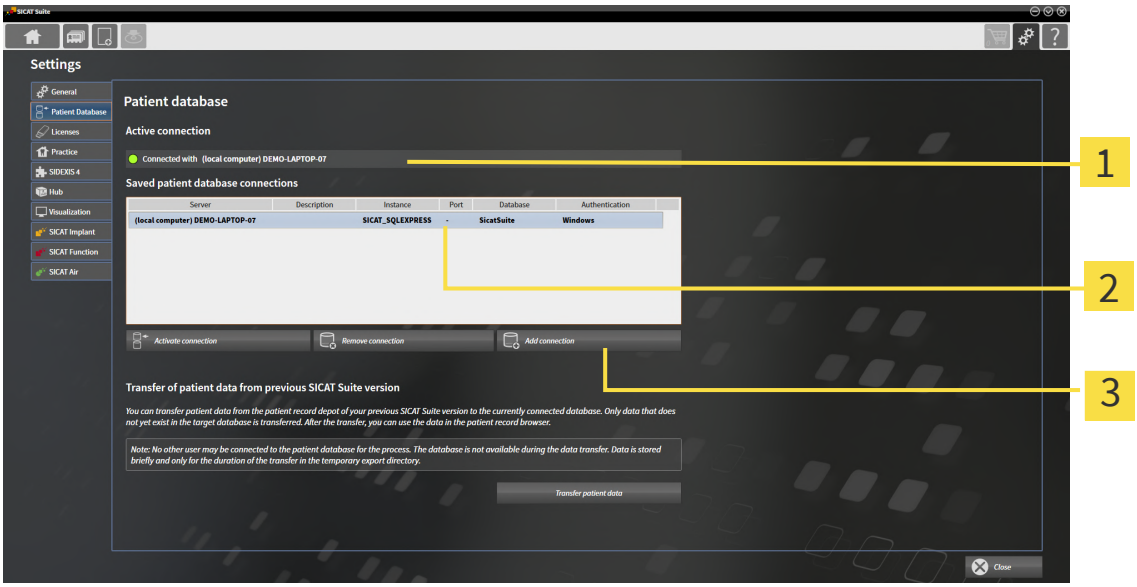
To be able to use the patient database, you have to establish a connection to the SICAT Suite Patient Database. A local connection for a single workstation or a connection to a server for a workstation computer in a network can be added.

If SICAT Suite with local patient data management has been installed, the connection to the local patient database is already set up and activated.

To add the connection to a patient database, proceed as follows:

☑ The SICAT Suite Patient Database is installed locally or on a server. Information on this can be found in the section *Installing the SICAT Suite Patient Database [▶Page 28]*.

☑ The **Patient Database** window is already open.



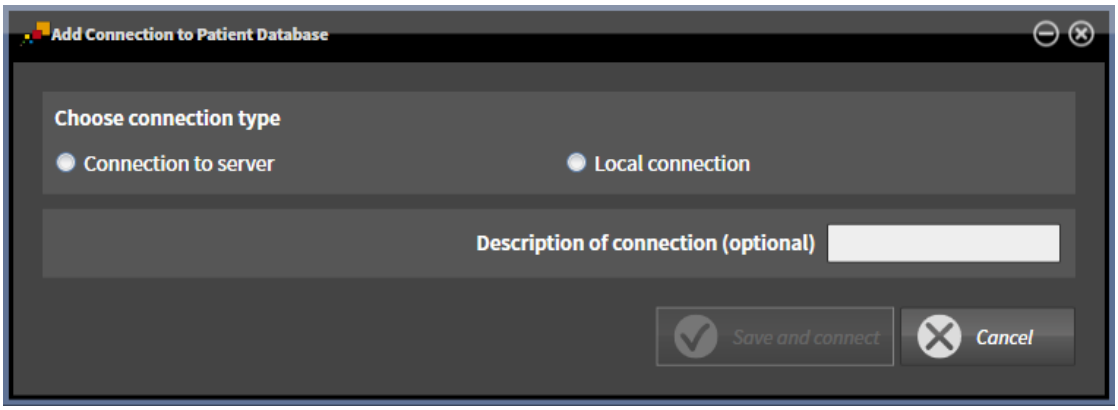
1 Active connection

2 **Saved patient database connections** list

3 **Add connection** button

1. Click on the **Add connection** button in the **Patient Database** window.

   ▶ The **Add connection to patient database** window opens:



2. Select the type of connection according to the type of installation.

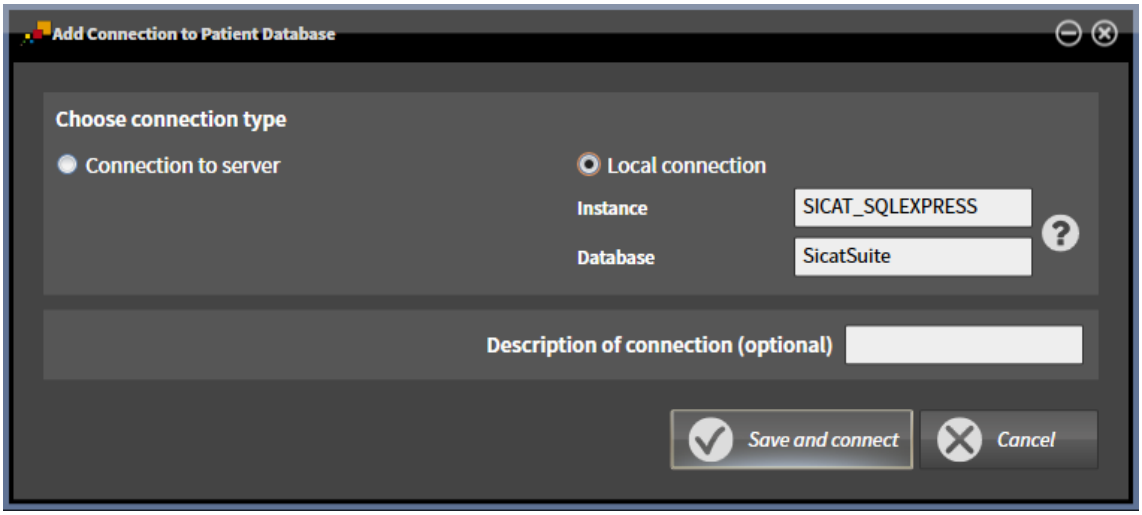
The following options are available for adding a connection:

- *Adding a local connection [▶Page 74]*
- *Adding a connection to a server [▶Page 75]*

20.2.1 ADDING A LOCAL CONNECTION

To establish a local connection to the SICAT Suite Patient Database for a single workstation, proceed as follows:

☑ The SICAT Suite Patient Database is installed locally on the single workstation *Installation with local patient data management as a single-user installation [▶Page 29]*.



1. In the window **Add connection to patient database**, select the check box **Local connection**.
   ▶ The connection details are displayed.
   ▶ The input fields are pre-populated with default values that are used during installation.
2. If you have assigned different names when installing SICAT Suite Patient Database, type the assigned names in the **Instance** and **Database** input fields.
3. Choose a name for the connection and type the name in the input field **Description of connection (optional)** so that you can uniquely identify the connection in case you later use several patient databases and switch back and forth between them.
4. Click on the **Save and connect** button.
   ▶ The connection is added.
   ▶ If another connection was previously activated, the confirmation message **Activate Connection to Patient Database** opens.
5. Click the **Activate connection** button in the confirmation message.
   ▶ The new connection is activated.
   ▶ In the **Patient Database** window, the added connection is shown in bold in the **Saved patient database connections** section.

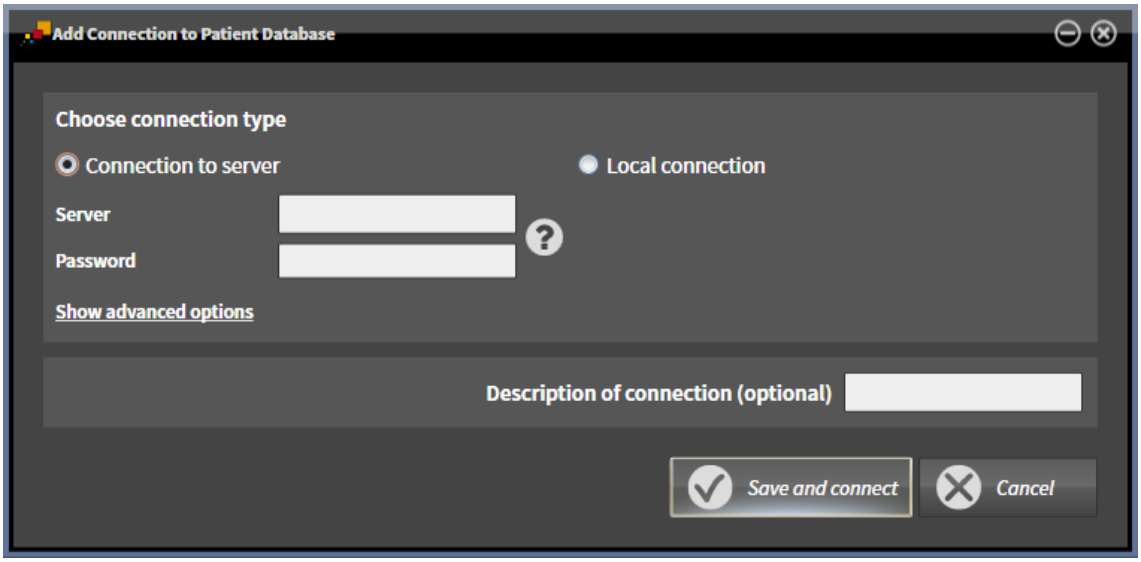
▶ SICAT Suite is connected to a local patient database. The active connection is shown in the section **Active connection**.

20.2.2 ADDING A CONNECTION TO A SERVER

To establish a connection to the SICAT Suite Patient Database on a server for a workstation computer, proceed as follows:

☑ The SICAT Suite Patient Database is installed on a server in the network *Installation with server-based patient data management as server installation [▶Page 32]*.

☑ There is network connectivity for the workstation computer and the server.



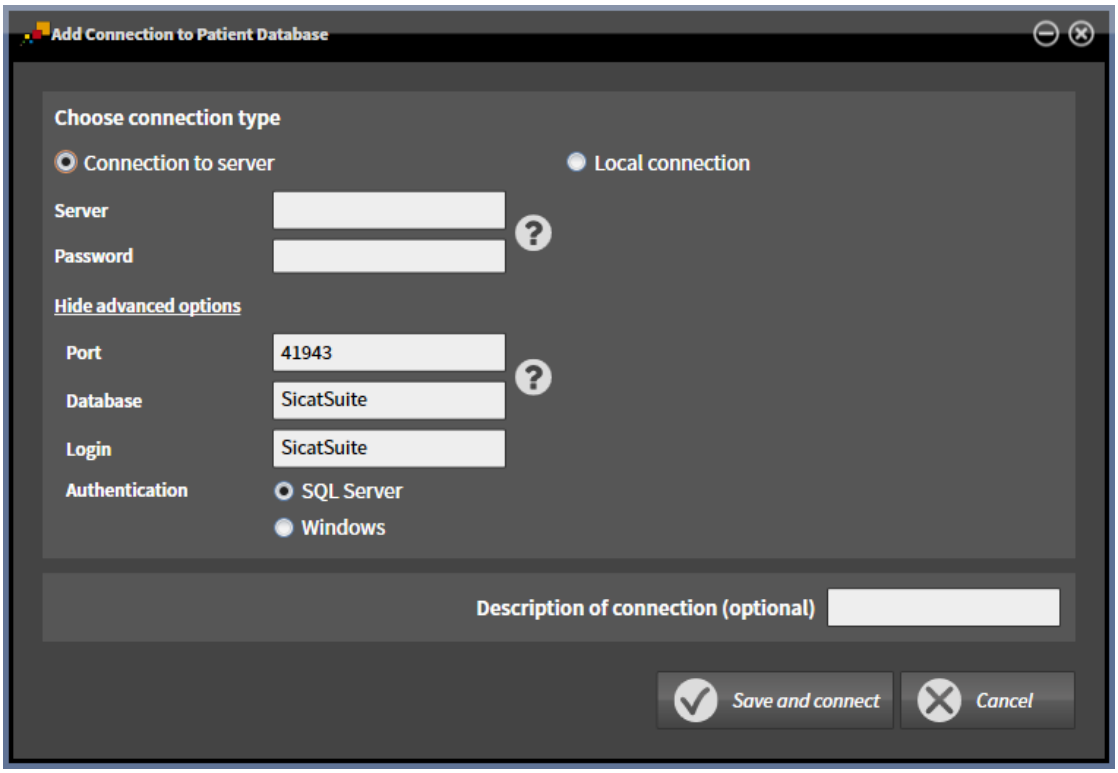
1. In the window **Add connection to patient database**, select the check box **Connection to server**.

   ▶ The server connection details are displayed.

2. Type the name of the server shown during installation and your chosen password in the **Server** and **Password** input fields.

3. If you have changed default values during installation, click on the **Show advanced options** button.

▶ The advanced options are displayed:



4. Type the parameters you used during installation in the input fields.

5. Click on the **Save and connect** button.
   ▶ The connection is added.
   ▶ If another connection was previously activated, the confirmation message **Activate Connection to Patient Database** opens.

6. Click the **Activate connection** button in the confirmation message.
   ▶ The new connection is activated.
   ▶ In the **Patient Database** window, the added connection is shown in bold in the **Saved patient database connections** section. For other connections, the font style changes to normal.

▶ SICAT Suite is connected to a patient database on a server. The active connection is shown in the section **Active connection**.

20.3 ACTIVATING ANOTHER PATIENT DATABASE

It may be helpful to change the active connection to a patient database, such as in the following cases:

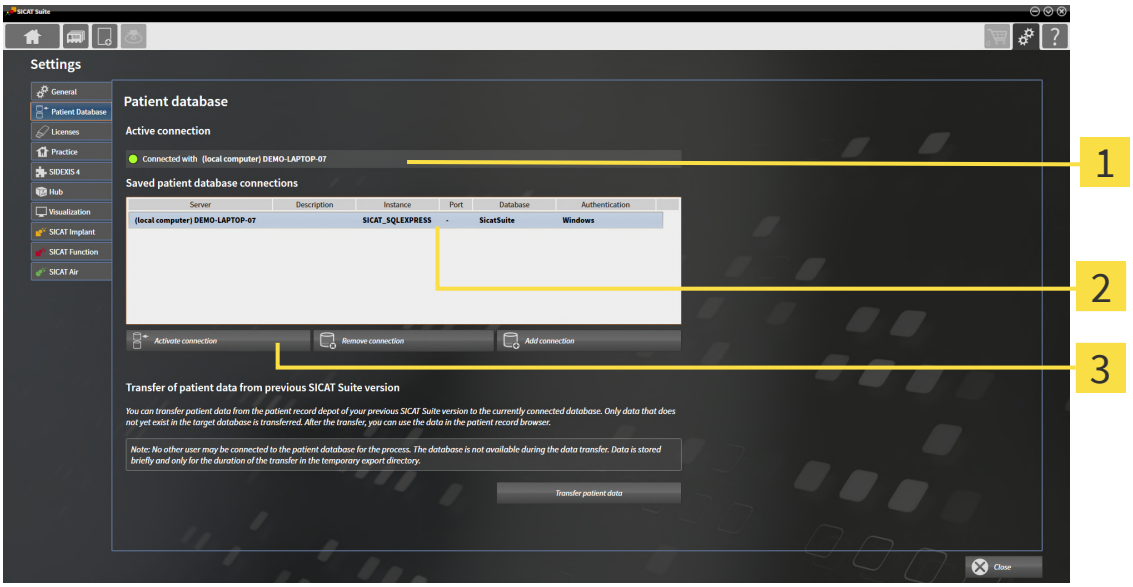
- You want to switch between a patient database in your practice's network and a local patient database on your notebook.
- You want to display patient data in public, which has been stored anonymously in another patient database, for example for training purposes.

To activate another patient database, proceed as follows:

☑ The SICAT Suite Patient Database is installed locally or on a server.

☑ The desired connection has already been added to a patient database. Information on this can be found in the section *Adding a connection to a patient database [▶Page 72]*.

☑ The **Patient Database** window is already open.



1 Active connection

2 **Saved patient database connections** list

3 **Activate connection** button

1. In the section **Saved patient database connections** of the **Patient Database** window, click on the row with the desired patient database in the list.

2. Click on the **Activate connection** button.
   ▶ If another connection was previously activated, the confirmation message **Activate Connection to Patient Database** opens.
3. Click the **Activate connection** button in the confirmation message.
   ▶ The selected connection is activated.
   ▶ In the **Patient Database** window, the added connection is shown in bold in the **Saved patient database connections** section. For other connections, the font style changes to normal.

▶ SICAT Suite activates the selected patient database. The active connection is shown in the section **Active connection**.

20.4 REMOVING A CONNECTION TO A PATIENT DATABASE

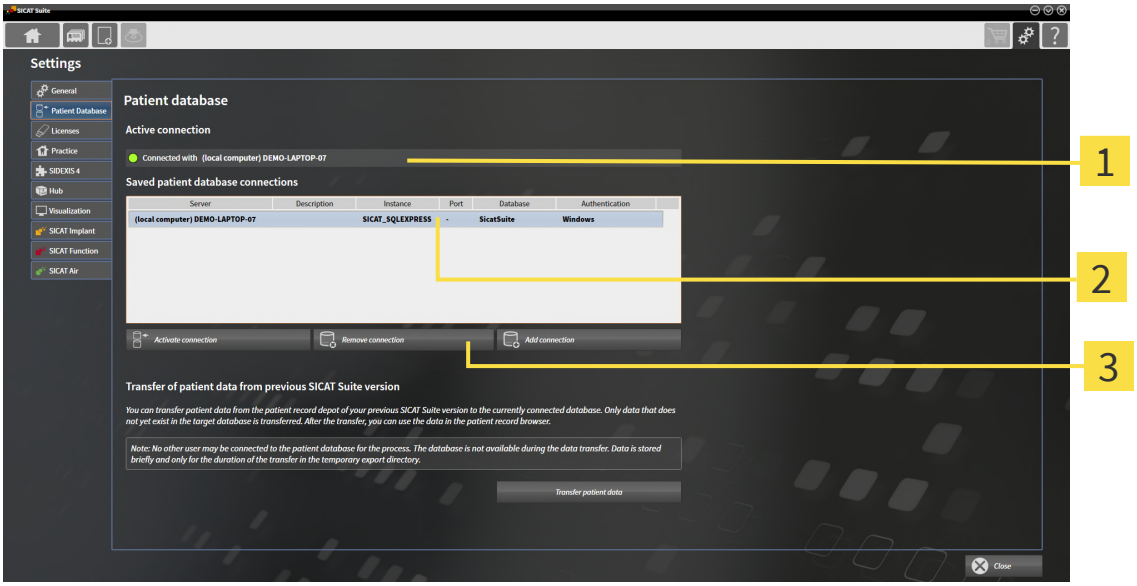
SICAT Suite only removes a patient database from the connection list **Saved patient database connections**. It does not delete any patient databases. You can add a connection to a patient database again. Information on this can be found in the section *Adding a connection to a patient database [▶Page 72]*.

To remove a patient database from the connection list **Saved patient database connections**, proceed as follows:

☑ The SICAT Suite Patient Database is installed locally or on a server.

☑ At least one connection to a patient database is shown in the section **Saved patient database connections**.

☑ The **Patient Database** window is already open.



1 Active connection

2 **Saved patient database connections** list

3 **Remove connection** button

1. In the section **Saved patient database connections** of the **Patient Database** window, click on the row with the desired patient database in the list.

2. Click on the **Remove connection** button.

▶ SICAT Suite removes the selected patient database in the section **Saved patient database connections** from the list.

20.5 TRANSFERRING PATIENT RECORDS FROM SICAT SUITE, VERSION 2.0.20 OR OLDER

In earlier versions of SICAT Suite, the patient records are stored in the file system of the workstation computer or on the network. If you want to continue using patient data of older versions, you have to relocate them to the SICAT Suite Patient Database. During the relocation, only those patient data are transferred that do not already exist in the patient database.

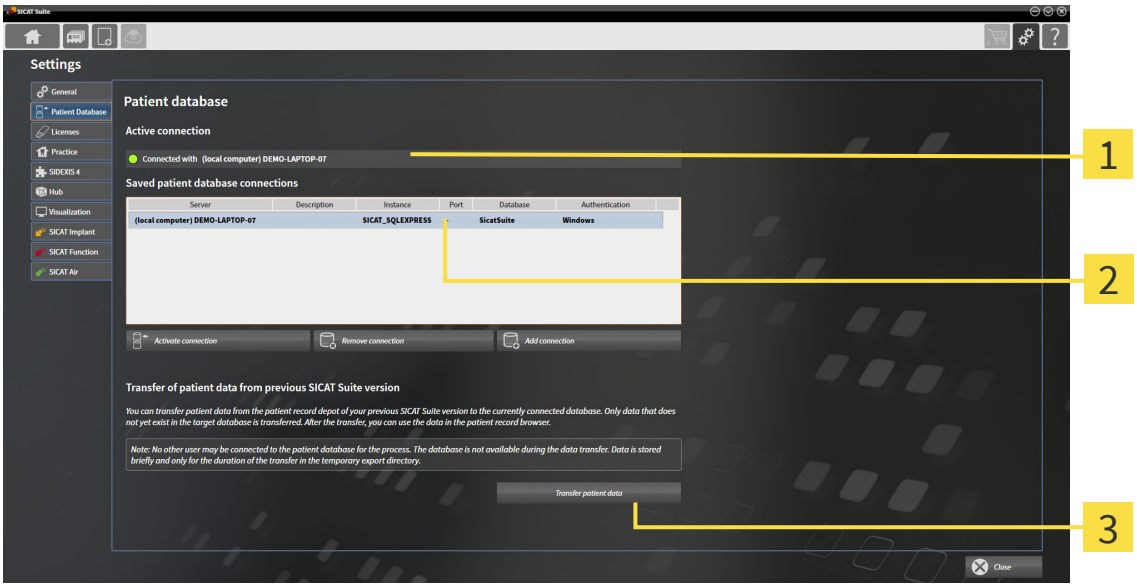
To transfer the patient data from a previous SICAT Suite version to a patient database, proceed as follows:

☑ The SICAT Suite Patient Database is installed locally or on a server.

☑ A connection to a patient database has been added and is active. Information on this can be found in the section *Adding a connection to a patient database [▶Page 72]*.

☑ No other user is connected to the active patient database.

☑ The **Patient Database** window is already open.



1 Active connection

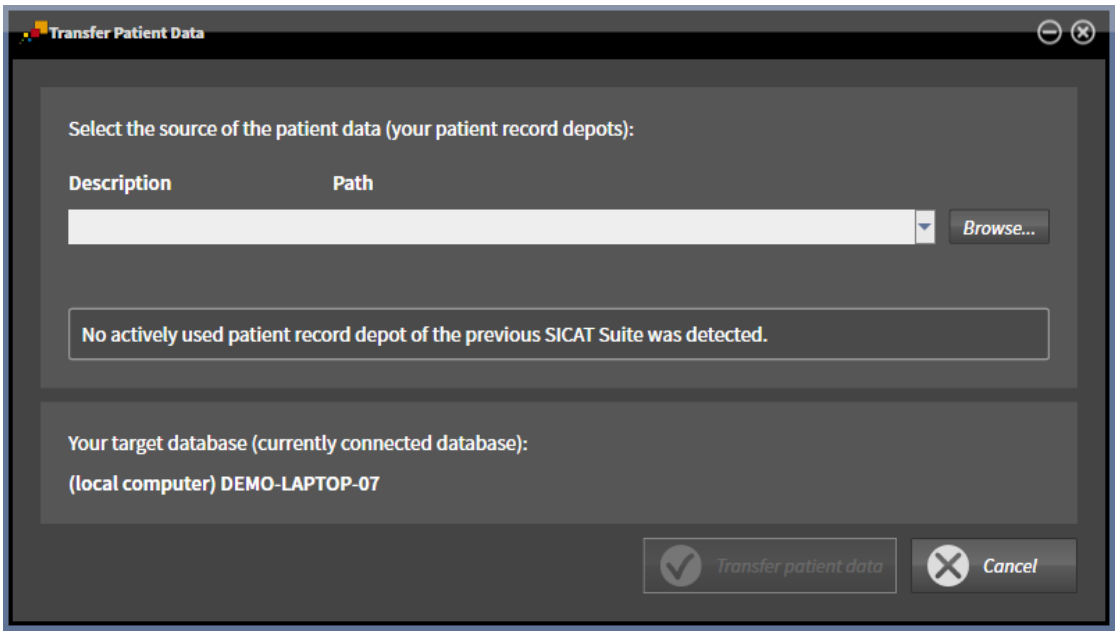
2 **Saved patient database connections** list

3 **Transfer patient data** button

1. If you are using several patient databases, activate the desired patient database to which you want to transfer the Patient Record Depot of a previous SICAT Suite version. Information on this can be found in the section *Activating another patient database [▶Page 77]*.

2. Click the **Transfer patient data** button in the **Patient Database** window.

▶ The **Transfer Patient Data** window opens:



3. Click on the **Browse** button.
   ▶ The **Select folder** window opens.
4. Browse to the desired folder in which your Patient Record Depot is located.
5. Select the desired file an click on **Open**.
   ▶ The path to the selected file is displayed in the **Description** field.
6. Click on the **Transfer patient data** button.
   ▶ A progress window opens.
   ▶ The Patient Record Depot is transferred to the active patient database.
   ▶ During the relocation process, the patient database is not available for other users.

▶ After the patient records have been successfully transferred, the confirmation message **The data transfer was successful** appears. The data transfer is complete.

21 DATA IMPORT

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

Deleting original data may result in data being lost.

Do not delete the original data following the import.

SICAT Suite can import 3D X-ray scans from the following data formats:

- SICAT Suite DICOM data
- 3D X-ray scans (DICOM, information on this can be found in the section *Supported DICOM format* *[▶Page 83]*)
- SICAT Implant data
- SICAT surgical guide order data
- GALILEOS Wrap&Go data

Two settings determine the manner in which SICAT Suite imports 3D X-ray scans into the active patient database:

- The import settings determine whether SICAT Suite imports a 3D X-ray scan or not, overwrites an existing 3D X-ray scan or creates a duplicate.
- The allocation settings determine the patient record, to which SICAT Suite allocates an imported 3D X-ray scan.

If a data record contains studies from SICAT applications, SICAT Suite imports the studies together with the 3D X-ray scans.

IMPORT SETTINGS FOR 3D X-RAY SCANS

If the active patient database contains patient records, you can select different import settings for 3D X-ray scans. The available import settings depend on whether or not the ID of the data to be imported matches the ID of a patient record in the active patient database.

You can select import settings individually for each 3D X-ray scan:

DATA TYPE	THE ID MATCHES	THE ID DOES NOT MATCH	ALWAYS AVAILABLE
SICAT Suite DICOM data SICAT Implant data SICAT surgical guide order data	**Overwrite existing** – SICAT Suite imports the 3D X-ray scan and overwrites the existing data record with the same ID.	**Import** – SICAT Suite imports the 3D X-ray scan as a new data record.	**Do not import** – SICAT Suite does not import the 3D X-ray scan.

DATA TYPE	THE ID MATCHES	THE ID DOES NOT MATCH	ALWAYS AVAILABLE
DICOM data from third-party suppliers GALILEOS Wrap&Go data	**Import anyway** – SICAT Suite imports the 3D X-ray scan as a copy of an existing data record.	**Import** – SICAT Suite imports the 3D X-ray scan as a new data record.	**Do not import** – SICAT Suite does not import the 3D X-ray scan.

ATTRIBUTE COMPARISON FOR PATIENT RECORD ALLOCATION

SICAT Suite analyzes different attributes of the data to be imported. These attributes are:

- Last name
- First name
- Date of birth
- Patient ID, for example the social security number or an internal patient ID for your practice

SETTINGS FOR PATIENT RECORD ALLOCATION

The following list shows the import options, which SICAT Suite suggests, depending on the attribute comparison:

- All attributes of the data to be imported match the attributes of a patient record in the active patient database: SICAT Suite suggests the option **Assign to existing patient record** and matching patient record.
- Not all attributes of the data to be imported match the attributes of a patient record in the active patient database: SICAT Suite suggests the option **Create new patient record**.

In both cases, you can assign the data to another patient record manually.

Perform the following actions in the order stated to import data:

- *Selecting the data to be imported [▶Page 84]*
- *Selecting an import option [▶Page 86]*
- *Allocating data to an existing patient record [▶Page 88]*

or

- *Creating a new patient record through data import [▶Page 87]*

21.1 SUPPORTED DICOM FORMAT

When importing DICOM data records, SICAT Suite supports data records, which meet the following criteria:

- Data record present in DICOM 3.0 format.
- Data record contains only parallel slices.
- Data record is uncompressed, JPEG compressed or JPEG 2000 compressed.
- Data record matches a supported type from the following list.

The supported data record types are:

- CT Image
- Digital X-Ray Image
- Digital Intraoral X-Ray Image
- X-Ray 3D Craniofacial Image
- Secondary Capture Image (grayscale) (for CT modality only)
- Multiframe Grayscale Word Secondary Capture Image (for CT modality only)

Please see the DICOM conformance statement for further criteria. SICAT will be happy to send this to you upon request. The necessary contact details are found on the reverse.

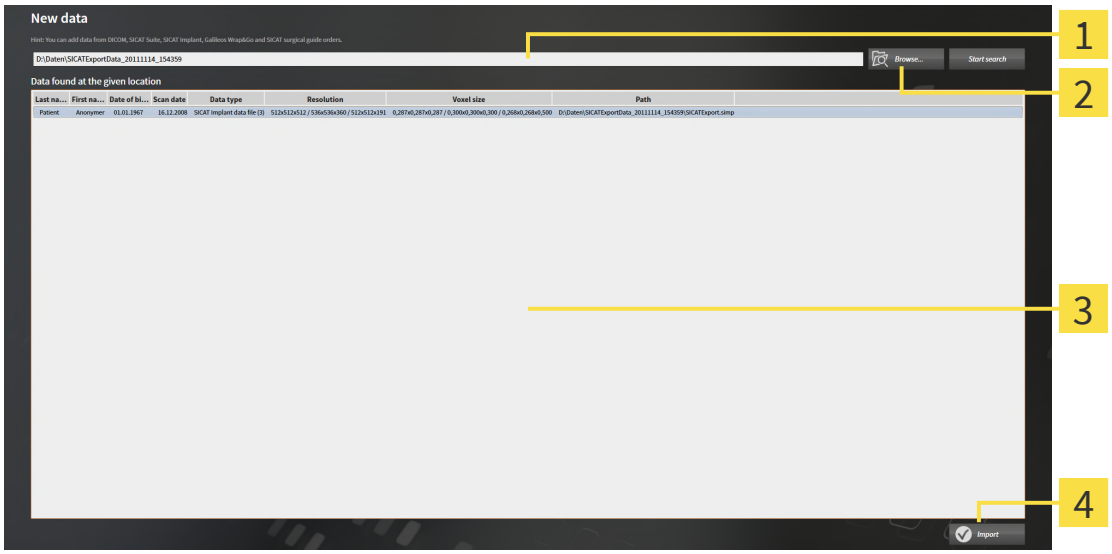
21.2 SELECTING THE DATA TO BE IMPORTED

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

To import data to the active patient database, proceed as follows:

1. Click on the **Navigation bar** icon in the **New data**.
   ▶ The **New data** window opens:



1 **Where is the data located** field	3 **Data found at the given location** list
2 **Browse** button	4 **Import** button

2. Click on the **Browse** button.
   ▶ The **Select a file or directory** window opens.
3. Select the desired file or the desired folder in the **Select a file or directory** window and click on **OK**.

▶ SICAT Suite closes the **Select a file or directory** window and transfers the path of the file you require or the selected folder into the **Where is the data located** field.

▶ If you have selected a compatible file, SICAT Suite will display the file contents in the **Data found at the given location** list.

▶ If you have selected a folder, SICAT Suite will search the folder and all sub-folders. SICAT Suite will display compatible files that are contained in one of the searched folders in the **Data found at the given location** list.

You can also drag & drop to import data into SICAT Suite.

If you use the described procedure, the search will start automatically. You can cancel the search by clicking the **Stop search** button. If you enter a path to a file or a folder manually into the **Where is the data located** field, you have to click on the **Start search** button. This may also be useful to start a new search if the contents of the folder have changed or if you have accidentally canceled the search.

If SICAT Suite does not find certain files even if they are compatible, this may be down to the long path to the files. Copy the files to a higher level of the file system and start your search again.

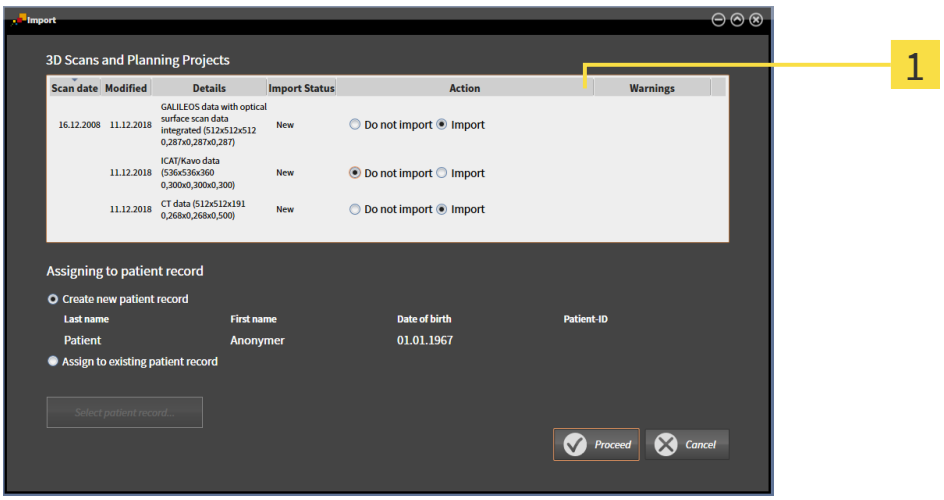
Continue with the section *Selecting an import option [▶Page 86]*.

21.3 SELECTING AN IMPORT OPTION

To select an import option for each study, proceed as follows:

1. Select the desired study from the **Data found at the given location** list and click the **Import** button.

   ▶ The **Import** window opens:



   1 **Action** column

2. In the **Import** window, select one of the following entries from the **Action** column for each study: **Do not import**, **Import anyway**, **Import** or **Overwrite existing**. A detailed description of the options can be found in the section *Data import [▶Page 81]*t.

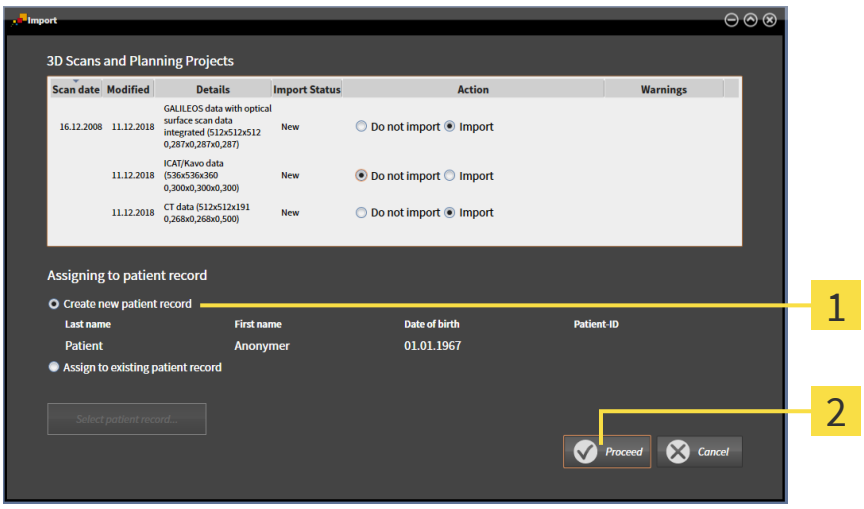
▶ It is defined for all studies individually whether you want to import them or not.

Continue with one of the following actions:

- *Allocating data to an existing patient record [▶Page 88]*
- *Creating a new patient record through data import [▶Page 87]*

21.4 CREATING A NEW PATIENT RECORD THROUGH DATA IMPORT

You can create a new patient record via data import if there is not yet a patient record with the same attribute combination in the active patient database.



1 **Create new patient record** option

2 **Proceed** button

To allocate data you wish to import to a new patient record, proceed as follows:

- Select the option **Create new patient record** in the **Assigning to patient record** area and click the **Proceed** button.

▶ SICAT Suite creates a new patient record with the attributes of the selected data.

▶ SICAT Suite imports the selected data and allocates it to the new patient record.

▶ The **Patient record browser** window opens and SICAT Suite highlights the imported patient records in the **Patient records** list. Information on this can be found in the section *Patient records* [▶ *Page 91*].

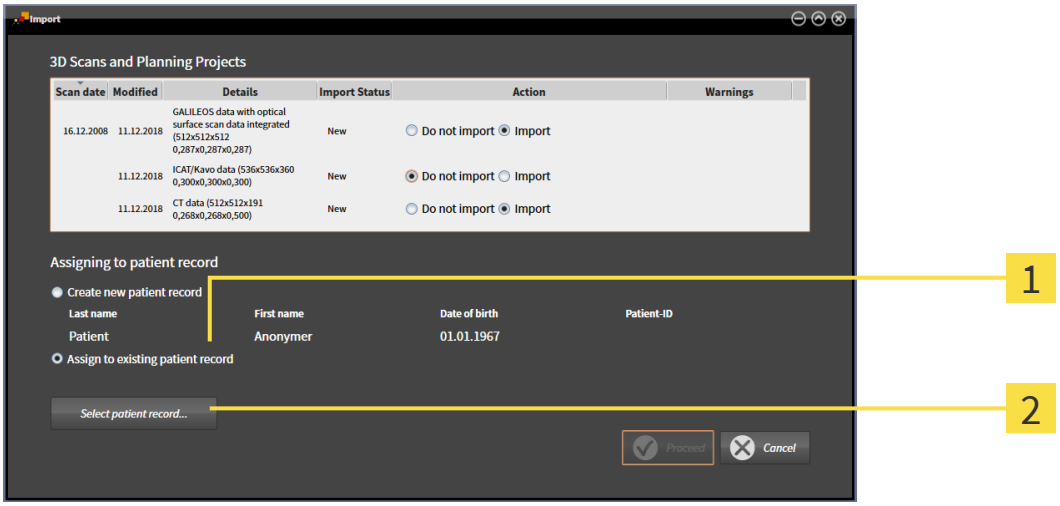
21.5 ALLOCATING DATA TO AN EXISTING PATIENT RECORD

CAUTION

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

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

SICAT Suite automatically selects the option **Assign to existing patient record** with the corresponding patient record if the following condition applies: all attributes of the data to be imported match the attributes of a patient record in the active patient database.



1 Option **Assign to existing patient record**

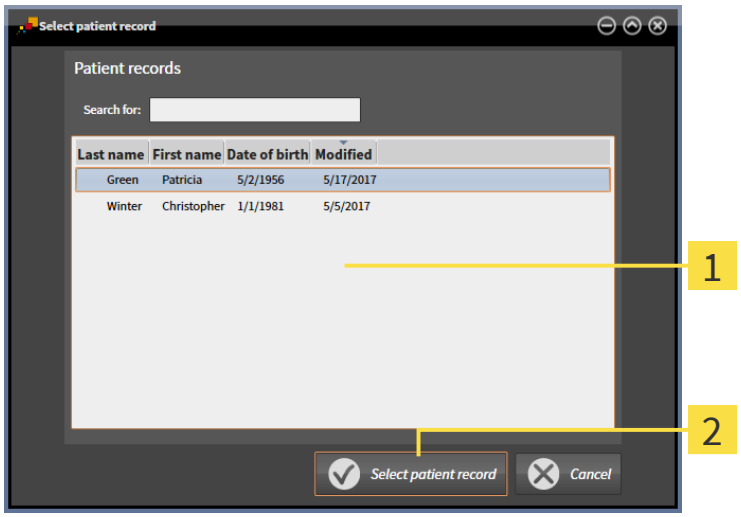
2 **Select patient record** button

To manually allocate data you wish to import to an existing patient record, proceed as follows:

☑ The active patient database contains at least one Patient Record.

1. In the **Assigning to patient record** section, select the option **Assign to existing patient record** and click on the button **Select patient record**.

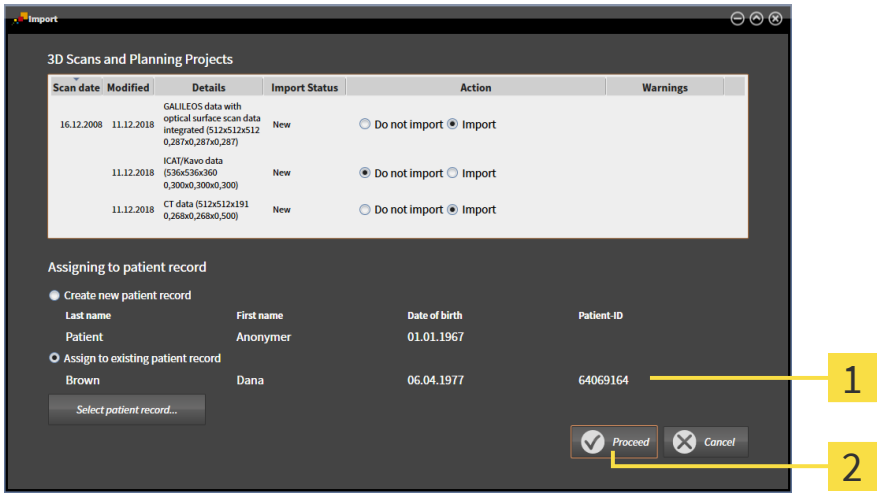
▶ The **Select patient record** window opens and displays a list of already existing Patient Records:



1 **Patient records** list

2 **Select patient record** button

2. Click on the desired Patient Record and click on the button **Select patient record**.
   ▶ The **Select patient record** window closes.
   ▶ The window **Import** displays the attributes of the selected Patient Record.

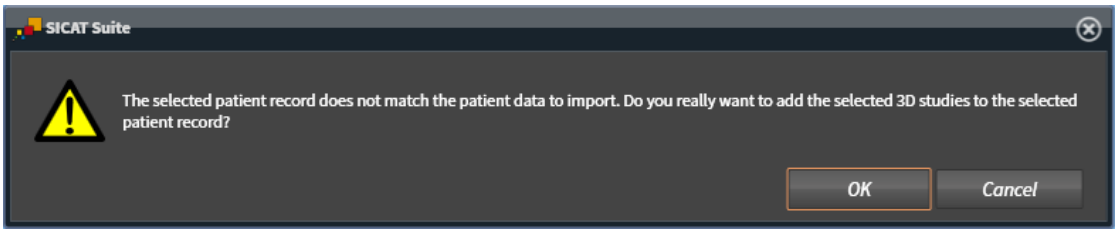


1 Attributes of the selected patient record

2 **Proceed** button

3. Click on the **Proceed** button in the **Import** window.

4. If the attributes of the data to be imported do not match the attributes of the selected patient record, a warning message opens:



5. If you still want to import the data, click on **OK**.

▶ SICAT Suite imports the selected data and assigns it to an existing patient record.

▶ The **Patient record browser** window opens and SICAT Suite highlights the imported Patient Records in the **Patient records** list. Information on this can be found in the section *Patient records* *[▶Page 91]*.

22 PATIENT RECORDS

Patient records may contain several 3D studies. A study consists of a 3D X-ray scan and the corresponding planning projects. In addition, it may also contain documents created during the planning phase.

ACCESS TO PATIENT RECORDS WITH MULTIPLE USERS IN THE NETWORK

The patient records are stored in the SICAT Suite Patient Database. When a user opens a patient record for editing this will lock the patient record. A locked patient record can only be opened for viewing by other users in a network environment with server-based patient data and cannot be modified or opened for planning.

The lock is active for the entire time during which the patient record is used by a user for the following purposes:

- Editing a planning project
- Modifying attributes of the patient record
- Adding new patient data to the patient record
- Editing the shopping cart
- Forwarding patient data (export)
- Deleting a patient record

As soon as the patient record is closed, the lock is de-activated and the patient record can again be edited by other users.

Locked patient records are marked with a lock symbol in the **Patient record browser** window. Buttons for editing a patient record are grayed out.

The following actions are available for managing patient records:

- *Opening the “Patient record browser” window [▶Page 92]*
- *Searching for and sorting patient records [▶Page 93]*
- *Opening 3D X-ray scans or planning projects from the patient record summary [▶Page 98]*
- *Working with patient records [▶Page 95]*
- *Changing the attributes of patient records [▶Page 97]*
- *Deleting patient records [▶Page 104]*
- *Deleting 3D X-ray scans or planning projects from patient records [▶Page 106]*
- *Unlocking patient records after lock has expired [▶Page 108]*

There are also actions to import data and to export data from patient records:

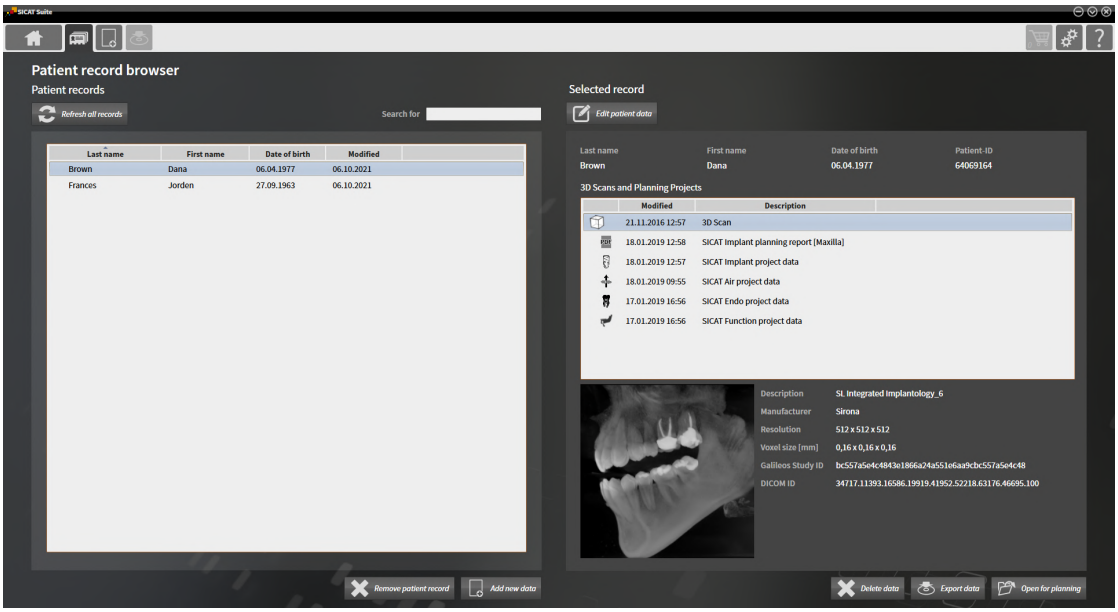
- *Data import [▶Page 81]*
- *Data export [▶Page 204]*

22.1 OPENING THE “PATIENT RECORD BROWSER” WINDOW

To open the **Patient record browser** window, proceed as follows:

- Click on the **Navigation bar** icon in the **Patient records**.

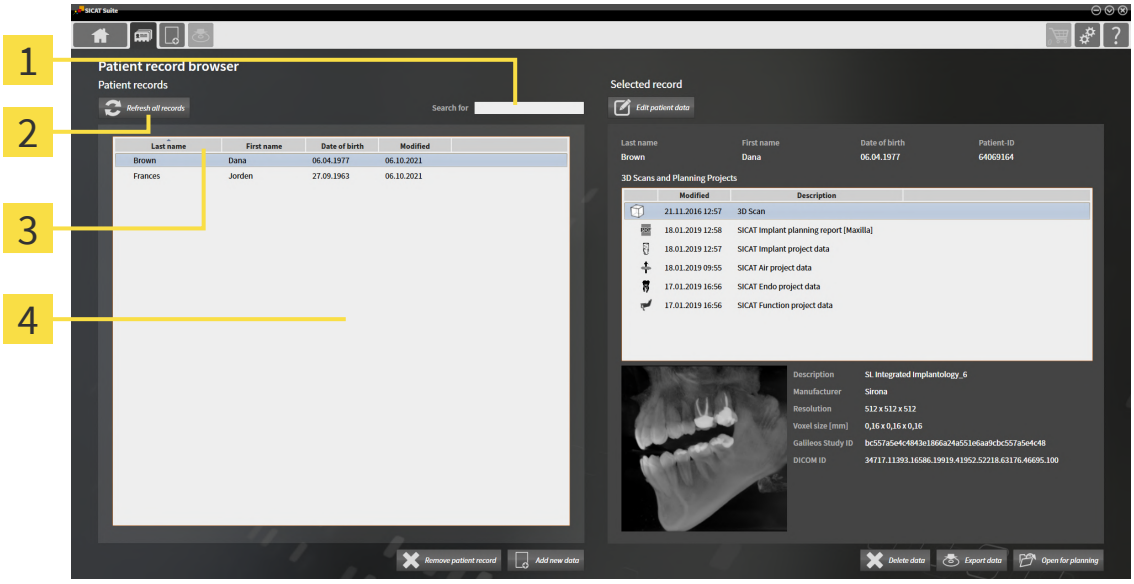
► The **Patient record browser** window opens:



Continue with one of the following actions:

- *Searching for and sorting patient records [▶Page 93]*
- *Working with patient records [▶Page 95]*
- *Changing the attributes of patient records [▶Page 97]*
- *Opening 3D X-ray scans or planning projects from the patient record summary [▶Page 98]*
- *Deleting patient records [▶Page 104]*
- *Deleting 3D X-ray scans or planning projects from patient records [▶Page 106]*
- *Unlocking patient records after lock has expired [▶Page 108]*

22.2 SEARCHING FOR AND SORTING PATIENT RECORDS



1 **Search for** field

2 **Refresh all records** button

3 Column headers with attributes

4 **Patient records** list

In the **Patient record browser** window, the patient records can be selected and managed.

The **Patient records** list shows all patient records stored in the patient database.

Patient records that are locked by another user are marked with a lock symbol. Further information is available in the section *Patient records [▶Page 91]*.

UPDATING PATIENT RECORDS

Since several users have access to the patient database, it is possible that patient records that have been newly created or modified by other users are not yet yet shown in the **Patient records** list.

To update the patient records, proceed as follows:

☑ The **Patient record browser** window is already open. Information on this can be found in the section *Opening the "Patient record browser" window [▶Page 92]*.

- Click on the **Refresh all records** button.

▶ The **Patient records** list will be updated and shows all patient records that exist in the patient database.

If access to patient records is restricted in a network environment with server-based patient data management due to network problems or if you want to update the locked status of patient records, you can re-establish proper communication between SICAT Suite and the patient database after the network problem has been resolved by updating the **Patient records** list.

SEARCHING FOR PATIENT RECORDS

SICAT Suite searches through the attributes of all patient records for the search text entered.

To search for a patient record, proceed as follows:

☑ The **Patient record browser** window is already open. Information on this can be found in the section *Opening the "Patient record browser" window [▶Page 92]*.

- Type the desired search text in the **Search for** field.

▶ The **Patient records** list displays all patient records that contain the entered search text in an attribute.

SICAT Suite will start the search as soon as you start typing.

SORTING PATIENT RECORDS ACCORDING TO ATTRIBUTES

You can sort patient records according to the following attributes:

- **Last name**
- **First name**
- **Date of birth**
- **Modified**

To sort patient records by attributes, proceed as follows:

☑ The **Patient record browser** window is already open. Information on this can be found in the section *Opening the "Patient record browser" window [▶Page 92]*.

1. Click on the column header of the desired attribute in the **Patient records** list.
   ▶ SICAT Suite sorts the **Patient records** list in the order of the desired attribute.
2. Click again on the column header of the desired attribute in the **Patient records** list.
   ▶ SICAT Suite sorts the **Patient records** list in reverse order of the desired attribute.

By default, patient records are sorted in descending order of the date they were last changed.

22.3 WORKING WITH PATIENT RECORDS

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.

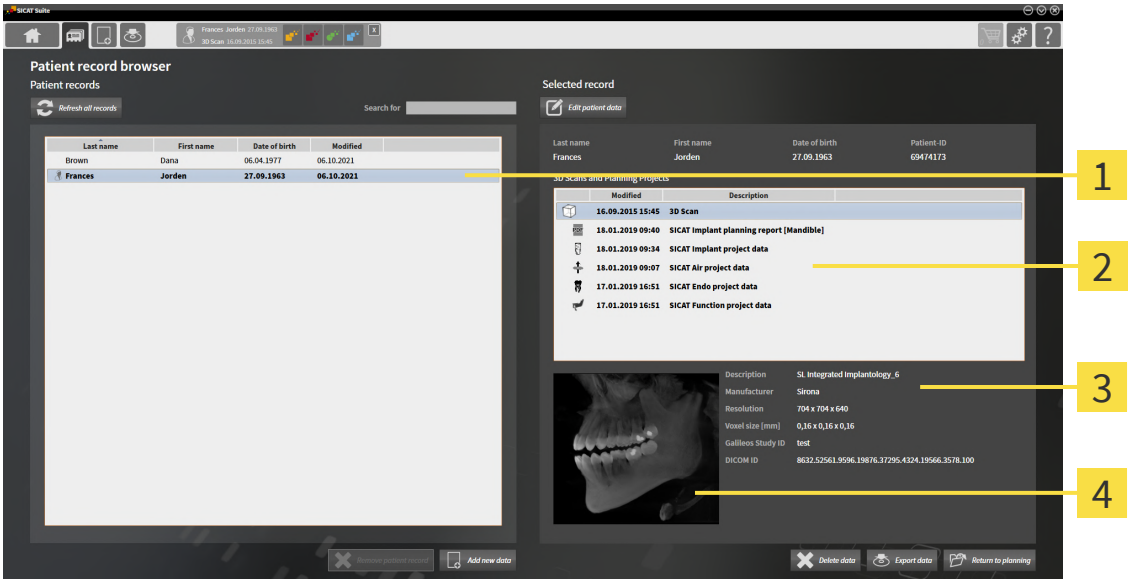
CAUTION

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.

To work with a patient record, proceed as follows:

☑ The **Patient record browser** window is already open. Information on this can be found in the section *Opening the "Patient record browser" window [▶Page 92]*.



1 **Patient records** list

2 **3D Scans and Planning Projects** list

3 **Details** area

4 **Overview** area

1. Select the desired patient record from the **Patient records** list in the **Patient record browser** window.

   ▶ In the **Selected record** area, the **3D Scans and Planning Projects** list shows all 3D X-ray scans, planning projects and PDF files of the selected patient record.

2. Select the desired 3D X-ray scan or planning project from the **3D Scans and Planning Projects** list.

   ▶ The **Overview** section shows a preview of the selected 3D X-ray scan or planning project.

   ▶ The **Details** section shows details of the selected 3D X-ray scan or planning project, such as DICOM metadata or planning data details.

Patient records that are locked by another user are marked with a lock symbol. Information on this can be found in the section *Patient records [▶Page 91]*.

A patient record that you are currently editing yourself will be marked with a person icon.

You now have the following options for working with the patient record:

- *Changing the attributes of patient records [▶Page 97]*
- *Deleting 3D X-ray scans or planning projects from patient records [▶Page 106]*
- *Deleting patient records [▶Page 104]*
- *Data export [▶Page 204]*
- *Unlocking patient records after lock has expired [▶Page 108]*

22.4 CHANGING THE ATTRIBUTES OF PATIENT RECORDS

The combination of attributes in each patient record in the active patient database must be unique.

You can change the following attributes of a patient record:

- **Last name**
- **First name**
- **Date of birth**
- **Patient-ID**

To change the attributes of patient records, proceed as follows:

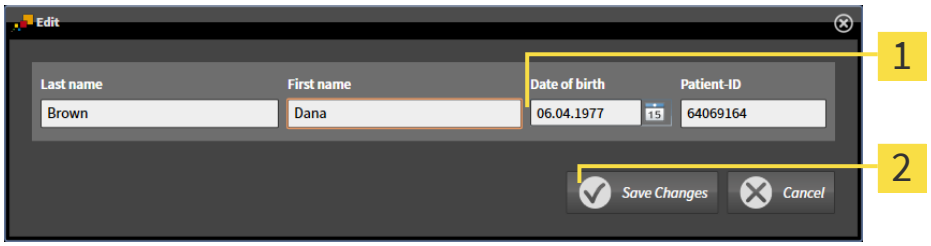
☑ The **Patient record browser** window is already open. Information on this can be found in the section *Opening the "Patient record browser" window [▶Page 92]*

☑ The patient record is not locked by another user.

1. Select the desired patient record from the **Patient records** list in the **Patient record browser** window.

2. Click on the **Edit patient data** button.

   ▶ The **Edit** window opens:



1 Attribute fields

2 **Save Changes** button

3. Type the desired values into the attribute fields in the **Edit** window.

4. Click on the **Save Changes** button.

▶ SICAT Suite saves your changes.

The patient ID remains visible even if patient data is anonymized and can be used to identify patients at any time.

The patient ID does not match the DICOM ID. You can enter any desired ID as the patient ID, for example the social security number or an internal patient ID for your practice.

22.5 OPENING 3D X-RAY SCANS OR PLANNING PROJECTS FROM THE PATIENT RECORD SUMMARY

CAUTION

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

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

CAUTION

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

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

CAUTION

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

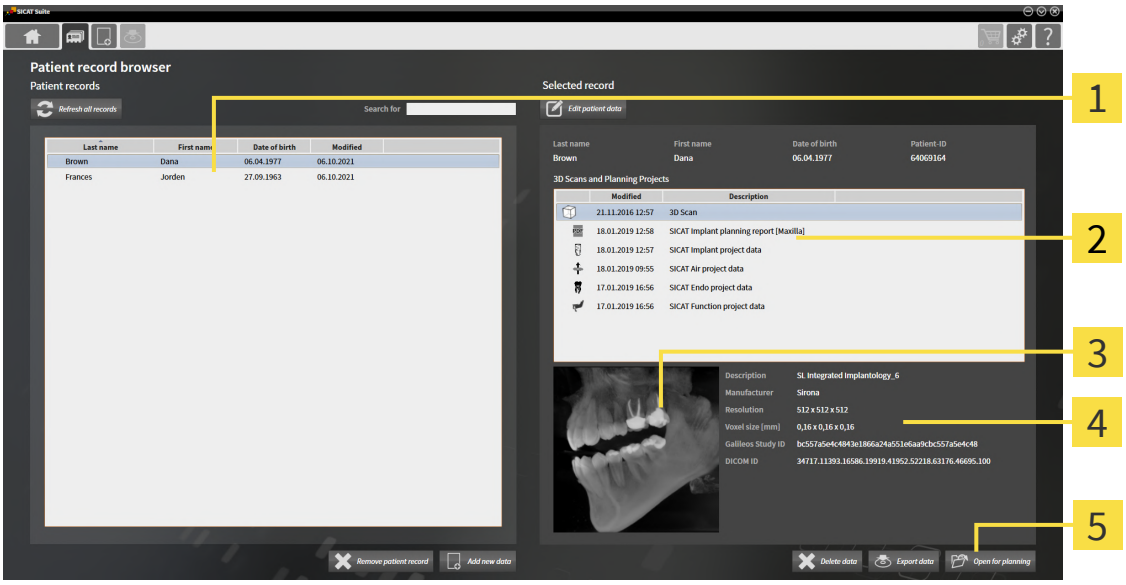
Always verify the quality, integrity, and correct orientation of the displayed 3D data.

Depending on the license used and the lock status of a patient record, 3D x-ray scans or planning projects can be opened for viewing or for planning.

Whether you can open a 3D X-ray scan or a planning project for planning or just for viewing depends on the license you are using and whether the patient record is locked by another user. For further information see section *Opening read-only data [▶Page 248]* and *Patient records [▶Page 91]* and *Working with patient records [▶Page 95]*.

To open a 3D X-ray scan or planning project, proceed as follows:

☑ The **Patient record browser** window is already open. Information on this can be found in the section *Opening the "Patient record browser" window [▶Page 92]*.



1 **Patient records** list

2 **3D Scans and Planning Projects** list

3 **Overview** area

4 **Details** area

5 **Open for planning** or **Open to view** button

1. Select the desired patient record from the **Patient records** list in the **Patient record browser** window.

   ▶ In the **Selected record** area, the **3D Scans and Planning Projects** list shows all 3D X-ray scans, planning projects and PDF files of the selected patient record.

2. Select the desired data record or document from the **3D Scans and Planning Projects** list.

   ▶ The **Overview** and **Details** areas display information on the selected data record or document.

3. Click on the **Open for planning** button or **Open to view** button to open a selected data record.

   ▶ The selected data record is opened in a SICAT application for planning or viewing.

4. Click on the **Export data** button to save a selected PDF.

   ▶ A Windows file explorer window opens and you can save the document in any directory. You can then view the document in the standard PDF viewer.

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

22.6 SICAT AIR STUDIES IN SICAT SUITE

⚠ **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.

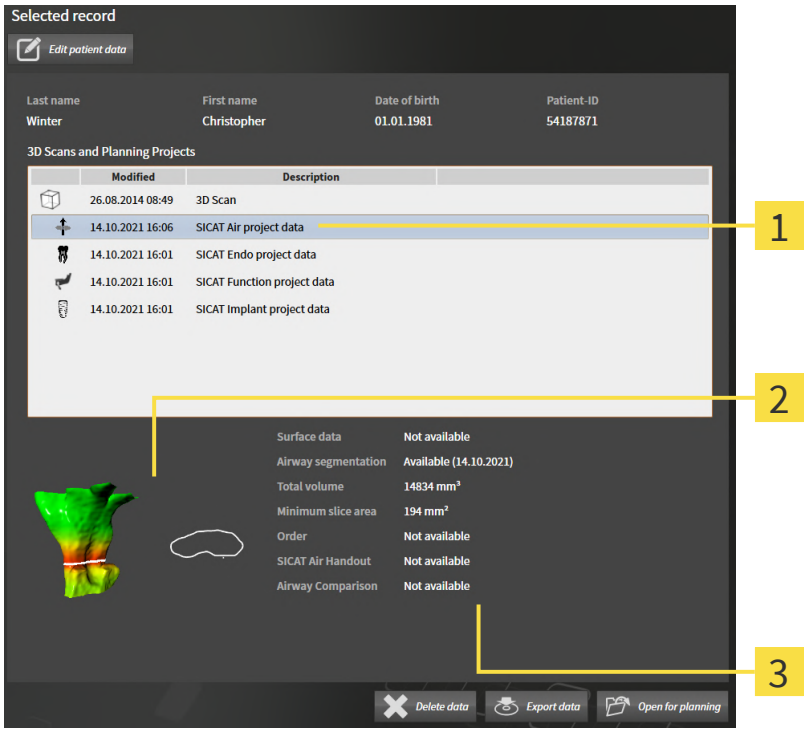
⚠ **CAUTION**	**Insufficient visualization quality could result in incorrect diagnosis and treatment.** Before using a SICAT application, for example with the SMPTE test image, check whether the display quality is sufficient.

⚠ **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 in the stand-alone version, the patient data will be managed in SICAT Suite.

The **Patient record browser** displays information on SICAT Air studies if the following conditions have been fulfilled:

- You are using the stand-alone version of SICAT Suite.
- You have selected a SICAT Air study in the **3D Scans and Planning Projects** section:



1 Selected SICAT Air study

2 **Overview** area

3 **Details** area

If you have already segmented the airway, the **Overview** section displays the following elements:

- Illustration of the segmented airway, highlighting the smallest cross-section
- Contour of the slice with the smallest cross-section:

The **Details** section displays the following information:

- Availability of optical impressions
- Availability of airway segmentation with a date of creation, total volume and minimal slice area
- Availability of an order with status and date
- Availability of a handout
- Availability of an airway comparison

If you have already segmented the airway, the **Patient record browser** displays the following information:

- **Total volume**
- **Minimum slice area**

The **Patient record browser** also displays handouts that you have created with SICAT Air in the **3D Scans and Planning Projects** section. You can open handouts in the standard PDF viewer by double clicking them.

22.7 CLOSING PATIENT RECORDS AND SAVING THEIR PLANNING PROJECTS

To close a patient record that has been opened for editing and to save the planning projects it contains, proceed as follows:

- Click on the **Close** button in the area of the open patient record.

► SICAT Suite closes the patient record and saves any changes made to planning projects. The patient record is then unlocked.

22.8 DELETING PATIENT RECORDS

CAUTION

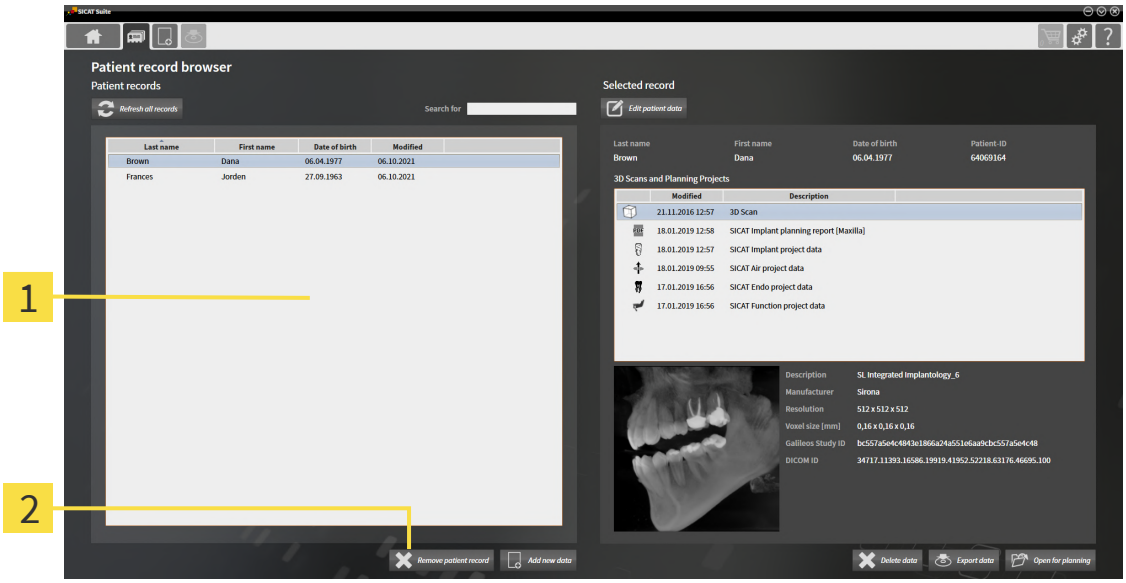
When deleting patient records, all 3D scans, planning projects and PDF files contained in these patient records will be deleted as well.

Only delete patient records if you are sure you will never need any contained 3D scans, planning projects and PDF files again.

To delete a patient record and all 3D scans and planning projects it contains, proceed as follows:

☑ The **Patient record browser** window is already open. Information on this can be found in the section *Opening the "Patient record browser" window [▶Page 92]*.

☑ The patient record is not locked by another user.



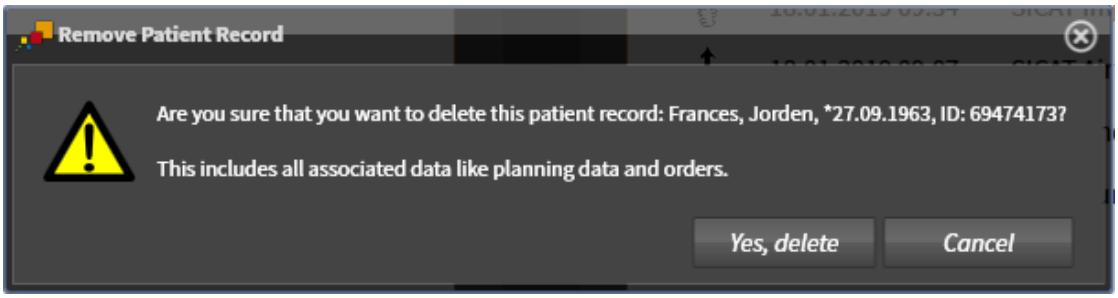
1 **Patient records** list

2 **Remove patient record** button

1. Select the desired patient record from the **Patient records** list in the **Patient record browser** window.

2. Click on the **Remove patient record** button.

   ▶ A confirmation message opens:



3. Click on **Yes, delete** in the confirmation message if you wish to delete the selected data.

► SICAT Suite deletes the selected patient record and all 3D scans and planning projects included therein from the active patient database and removes it from the **Patient records** list.

22.9 DELETING 3D X-RAY SCANS OR PLANNING PROJECTS FROM PATIENT RECORDS

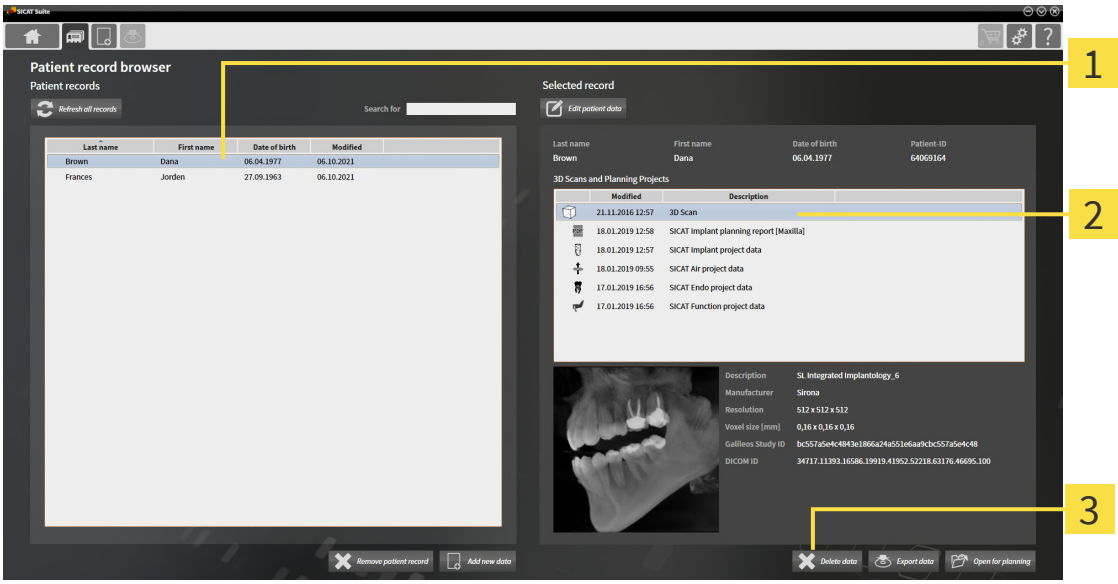
⚠ **CAUTION**	**Deleted patient records, studies, 3D scans, and planning projects cannot be recovered.** Only delete patient records, studies, 3D scans, and planning projects if you are sure you will never need those data again.

⚠ **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.

To delete a 3D X-ray scan or planning project from a patient record, proceed as follows:

☑ The **Patient record browser** window is already open. Information on this can be found in the section *Opening the "Patient record browser" window [▶Page 92]*.

☑ The patient record is not locked by another user.



1 **Patient records** list

2 **3D Scans and Planning Projects** list

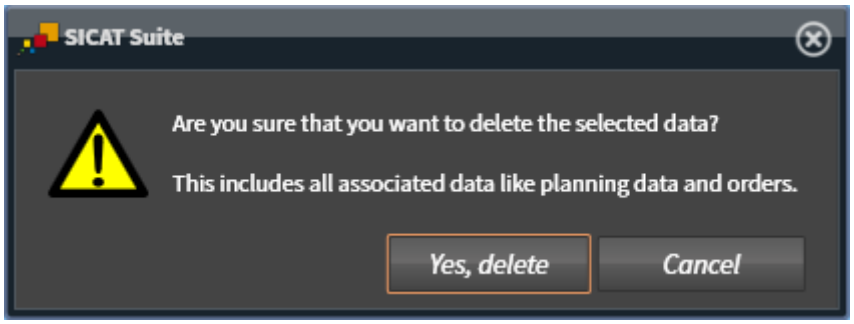
3 **Remove data** button

1. Select the desired patient record from the **Patient records** list in the **Patient record browser** window.

   ▶ In the **Selected record** area, the **3D Scans and Planning Projects** list shows all 3D X-ray scans, planning projects and PDF files of the selected patient record.

2. Select the desired data record or document from the **3D Scans and Planning Projects** list.

3. Click on the **Remove data** button.
   ▶ A confirmation message opens:



4. Click on **Yes, delete** in the confirmation message if you wish to delete the selected data.

▶ SICAT Suite deletes the selected 3D X-ray scan or planning project from the patient record and removes it from the **3D Scans and Planning Projects** list.

22.10 UNLOCKING PATIENT RECORDS AFTER LOCK HAS EXPIRED

Due to network problems, it can happen in rare cases that a patient record was not closed properly by a user in the network and is still locked, even though the patient record is no longer opened by the user.

A locked patient record that has not been updated for a long time is marked with the lock symbol and an exclamation mark in the **Selected record** area.

To unlock a patient record that is no longer opened, proceed as follows:

☑ The **Patient record browser** window is already open. Information on this can be found in the section *Opening the "Patient record browser" window [▶Page 92]*

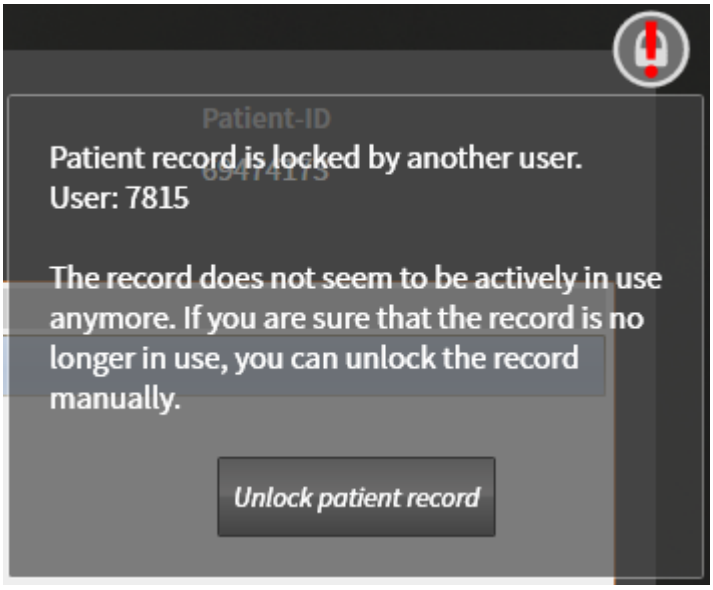
☑ A patient record is marked as locked and can only be opened for viewing.

1. Select the locked patient record from the **Patient records** list in the **Patient record browser** window.

   ▶ In the **Selected record** area, the **3D Scans and Planning Projects** list shows all 3D X-ray scans, planning projects and PDF files of the selected patient record.

2. Place the mouse pointer on the lock symbol.

   ▶ An information window opens:



   ▶ It will indicate the name of the user who is currently causing the patient record to be locked.

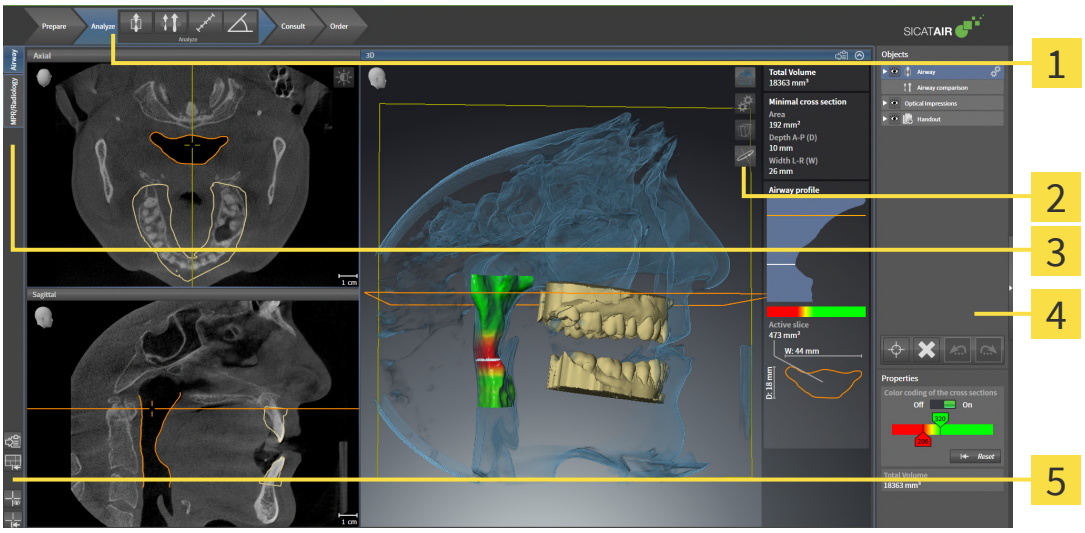
3. Contact the user and ask them if they really still have the patient record open.

4. Once you have made sure that the respective user no longer has the patient record open, click on the **Unlock patient record** button.

   ▶ The patient record is then unlocked.

23 THE SICAT AIR USER INTERFACE

The SICAT Air user interface comprises the following parts:



1 **Workflow toolbar**

2 **View toolbar**

3 Buttons to change workspaces

4 **Object bar**

5 **Workspace toolbar**

- The **Workflow toolbar** consists of various workflow steps, which include the main tools of the application workflow. This includes tools that you can use to add and import diagnosis objects and planning objects. Information on this can be found in the section *Workflow toolbar [▶Page 110]*.
- 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 122]*.
- 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 128]* and *Adjusting the 3D view [▶Page 138]*.
- The **Object bar** contains tools for the management of diagnosis objects and planning objects. For further information see section *Object bar [▶Page 112]* and section *SICAT Air objects [▶Page 116]*.
- 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 135]*, *Resetting views [▶Page 136]*, *Adjusting and resetting the layout of workspaces [▶Page 125]* and *Creating screenshots of workspaces [▶Page 126]*.

23.1 WORKFLOW TOOLBAR

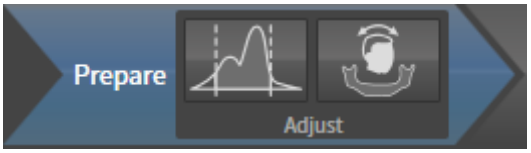
The **Workflow toolbar** in SICAT Air consists of four workflow steps:

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"

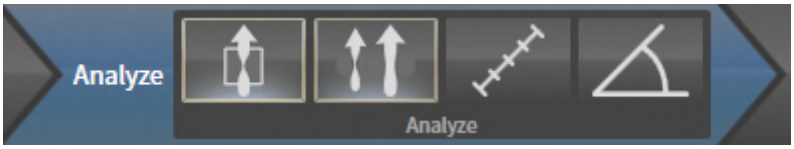


The following tools are available in the **Prepare** workflow step:

- **Adjust gray values** - Information on this can be found in the section *Adjusting gray scale values [▶Page 152]*. This tool is only available and required for volumes from non-Sirona devices.

- **Adjust volume orientation and panoramic region** - Information on this can be found in the section *Adjusting the volume orientation [▶Page 156]* and *Adjusting the panoramic region [▶Page 161]*.

2. WORKFLOW STEP "ANALYZE"



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

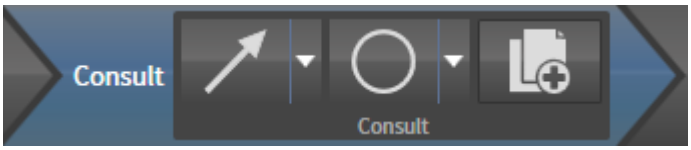
- **Segment the airway** - Information on this can be found in the section *Defining the airway area [▶Page 171]*.

- **Compare airways** - Information on this can be found in the section *Carrying out an airway comparison [▶Page 188]*.

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

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

3. WORKFLOW STEP "CONSULT"



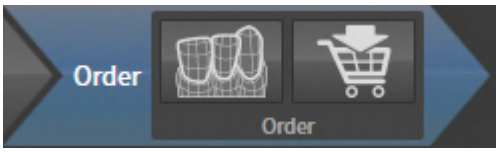
The following tools are available in the **Consult** workflow step:

- **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"

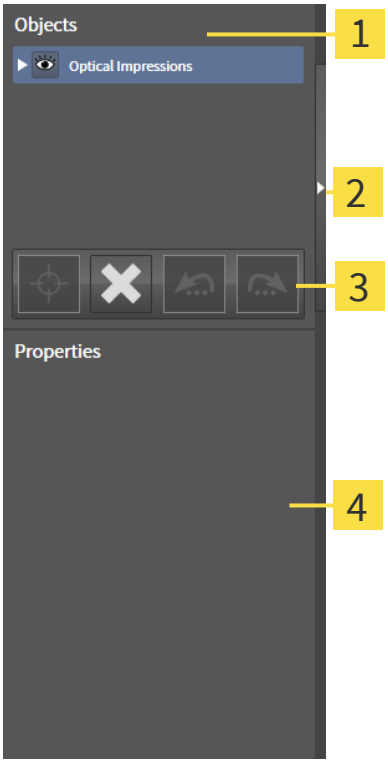


The following tools are available in the **Order** workflow step:

- **Import and register optical impressions** - Information on this can be found in the section *Optical impressions [▶Page 211]*.

- **Order Therapeutic Appliance** - Information on this can be found in the section *Placing therapeutic appliances in the shopping cart [▶Page 208]*.

23.2 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 113]*.
- 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 115]*.
- The **Properties** area shows the details of the active object.

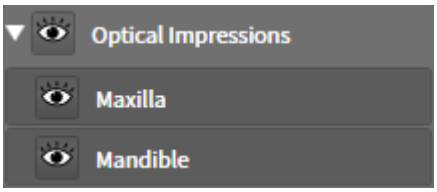
You can change the visibility of the **Object bar** using two buttons on the right side of the **Object bar**: **Hide object bar** and **Show object bar**

The objects available in SICAT Air can be found in the section *SICAT Air objects [▶Page 116]*.

23.3 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.

23.4 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 113]*.

☑ 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 113]*.

- 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.

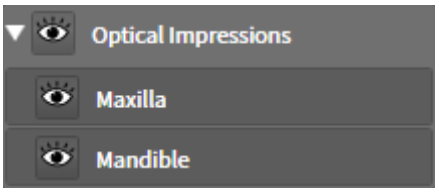
Undo and redo are only available as long as a study is open in a SICAT application.

23.5 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



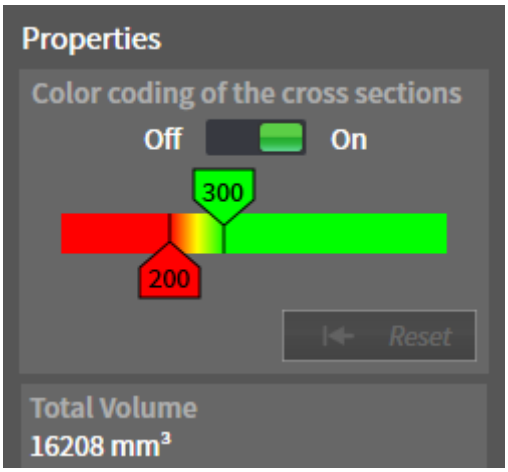
After you have imported and registered optical impressions, SICAT Air displays a **Optical Impressions** object in the **Object browser**. A **Optical Impressions** object contains the following sub-objects:

- **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 243]*.
- 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.

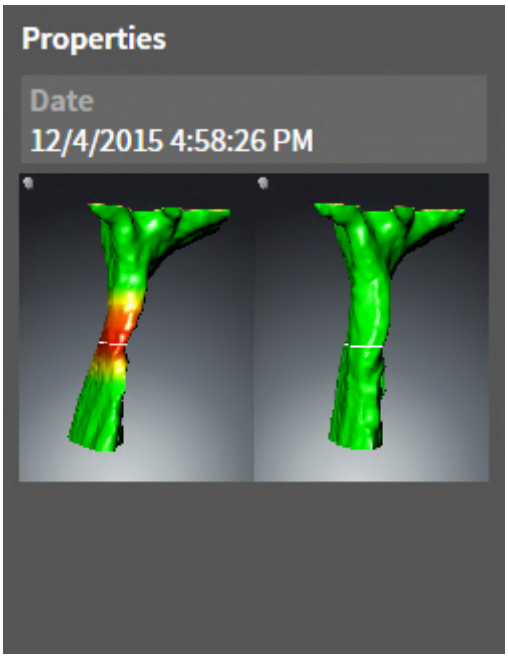
If you move the mouse pointer over a **Airway** object, SICAT Air will display a gear icon. Click on the gear icon and SICAT Air will open the **Segment the airway** window.

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.

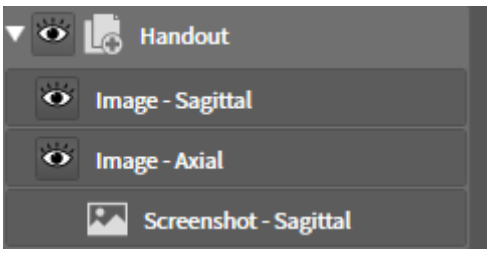
AIRWAY COMPARISON OBJECT



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.

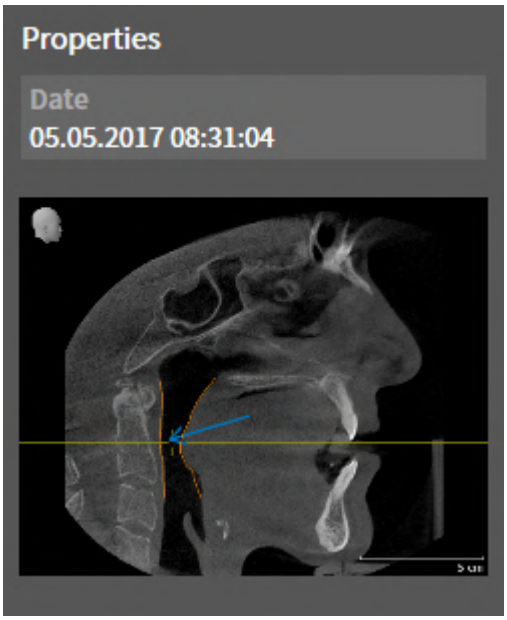
HANDOUT OBJECT



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.

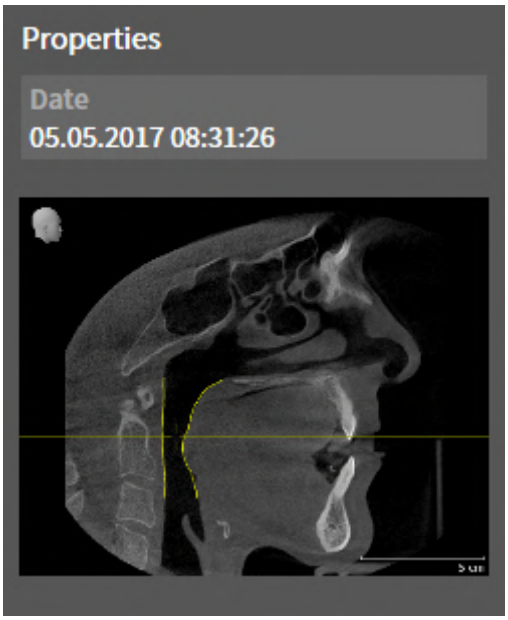
IMAGE OBJECTS



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.

24 WORKSPACES

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

SICAT Air features two different workspaces:

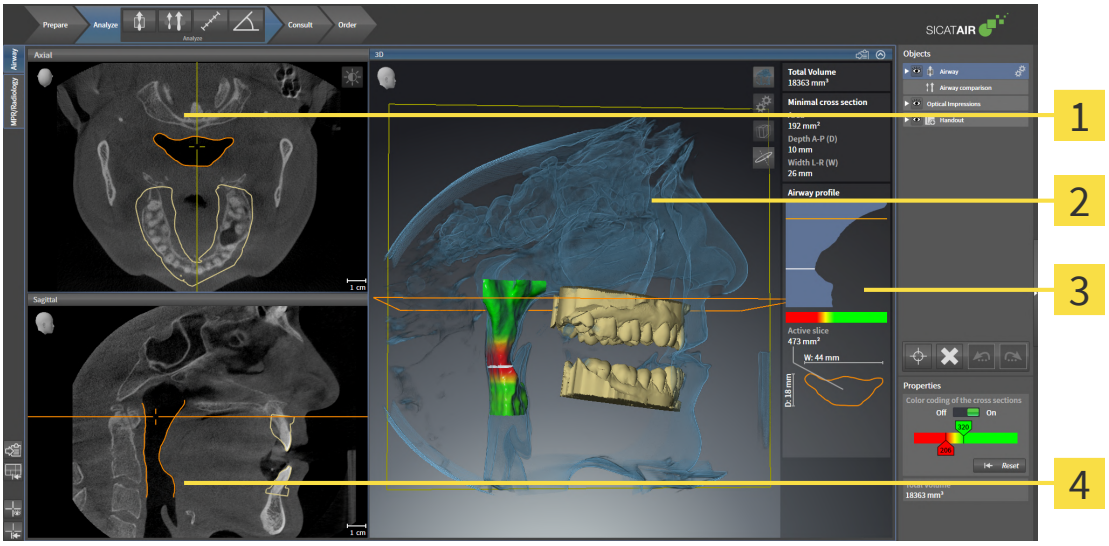
- **Airway** workspace - Information on this can be found in the section *Overview of the airway workspace [▶Page 122]*.
- **MPR/Radiology** workspace - Information on this can be found in the section *Overview of the MPR/Radiology workspace [▶Page 123]*.

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 124]*.
- *Adjusting and resetting the layout of workspaces [▶Page 125]*.
- *Adjusting the views [▶Page 128]*.
- There are additional possibilities to adjust the **3D** view. Information on this can be found in the section *Adjusting the 3D view [▶Page 138]*.
- You can document the contents of the active workspace. Information on this can be found in the section *Creating screenshots of workspaces [▶Page 126]*.

24.1 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 241]*.

3D VIEW

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

SAGITTAL VIEW

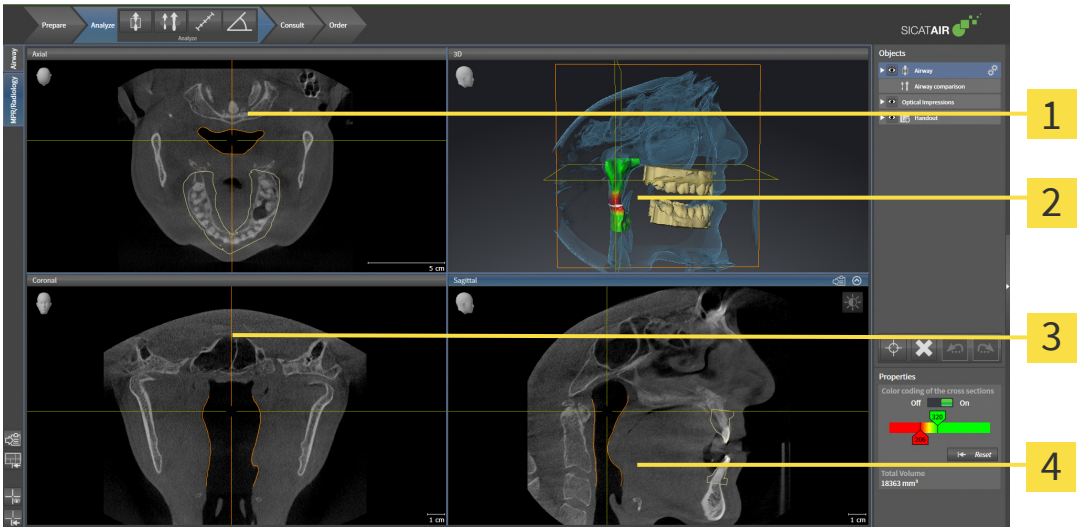
By default, the **Sagittal** view shows slices from the right. You can switch the viewing direction of the **Sagittal** view. Information on this can be found in the section *Changing visualization settings [▶Page 241]*.

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 128]* and *Adjusting the 3D view [▶Page 138]*.

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 116]*, *Segmenting the airway [▶Page 170]* and *Interacting with the airway profile [▶Page 184]*.

24.2 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 241]*.

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 241]*.

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 128]* and *Adjusting the 3D view [▶Page 138]*.

24.3 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.

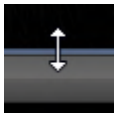
► The selected workspace opens.

24.4 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.

24.5 CREATING SCREENSHOTS OF WORKSPACES

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

COPYING A SCREENSHOT OF A WORKSPACE TO THE WINDOWS CLIPBOARD

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

☑ The desired workspace is already active. Information on this can be found in the section *Switching workspaces [▶Page 124]*.

- 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.

25 VIEWS

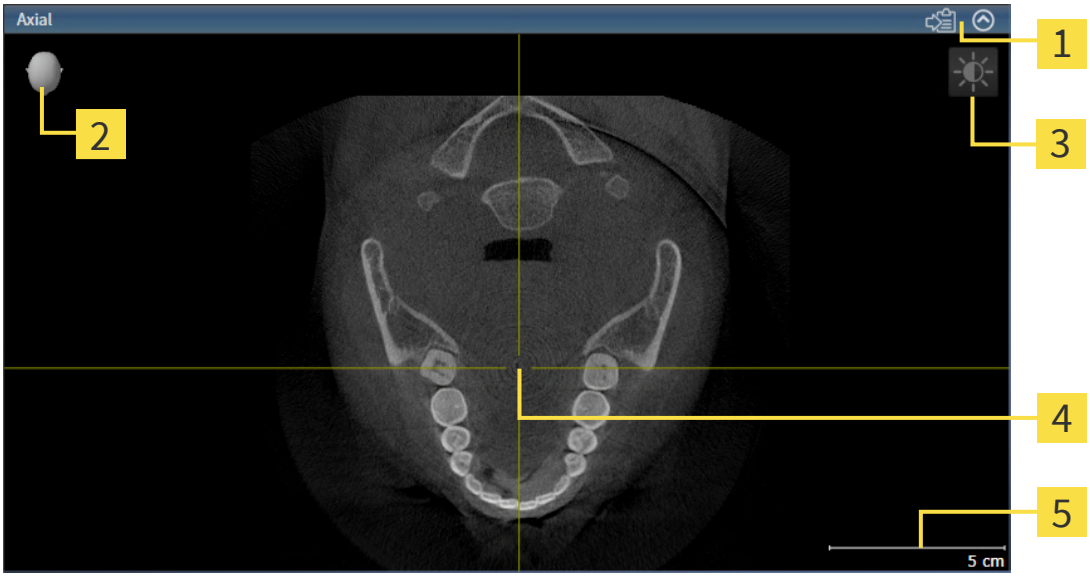
Views are contained in workspaces. A description of the various workspaces and views can be found under *Workspaces [▶Page 121]*.

You can adjust the views. For further information about this see *Adjusting the views [▶Page 128]* and *Adjusting the 3D view [▶Page 138]*.

25.1 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 129]*.

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 129]*
- *Maximizing and restoring views [▶Page 130]*
- *Adjusting and resetting the brightness and contrast of the 2D views [▶Page 131]*
- *Zooming views and panning views [▶Page 133]*
- *Scrolling through slices in the 2D slice views [▶Page 134]*
- *Moving, hiding and showing crosshairs and frames [▶Page 135]*
- *Resetting views [▶Page 136]*

There are additional possibilities to adjust the **3D** view. Information on this can be found in the section *Adjusting the 3D view [▶Page 138]*.

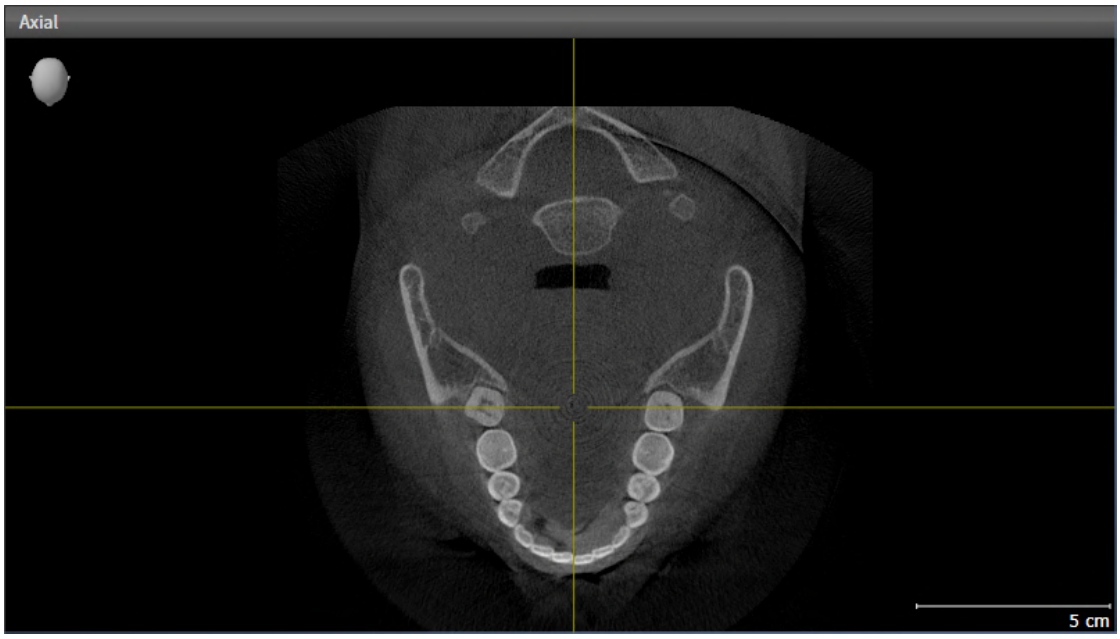
You can document the content of an active view. Information on this can be found in the section *Creating screenshots of views [▶Page 137]*.

25.2 CHANGING THE ACTIVE VIEW

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

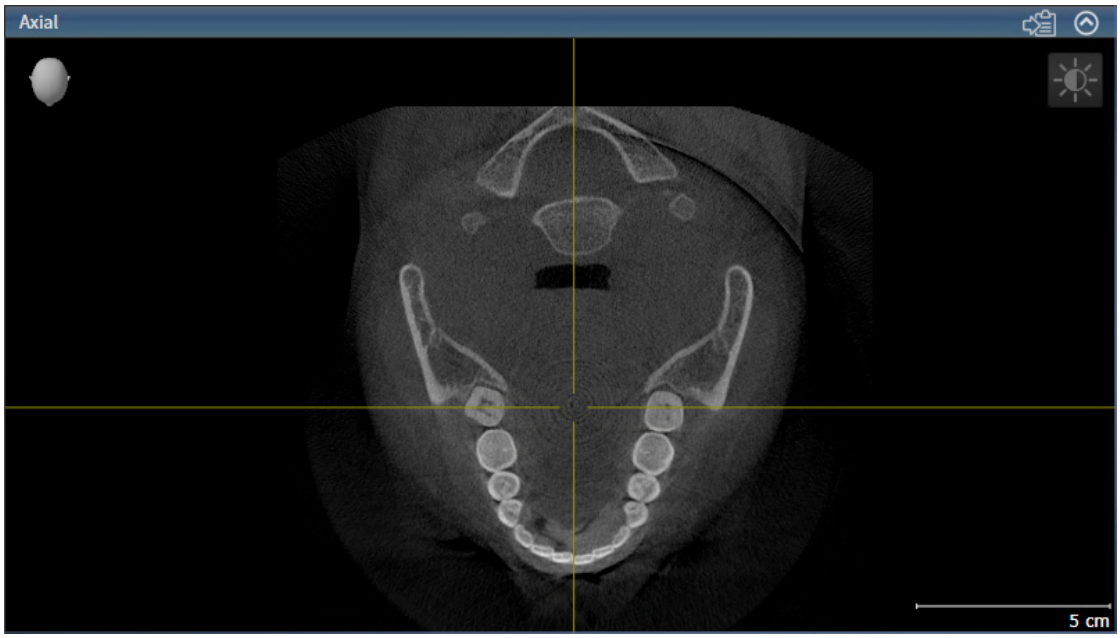
To activate a view, proceed as follows:

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 blue title bar.

25.3 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 129]*.

☑ 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.

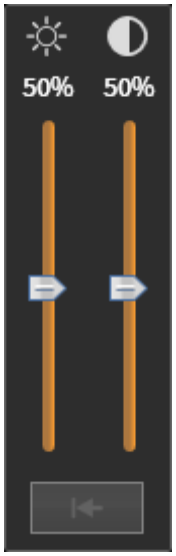
25.4 ADJUSTING AND RESETTING THE BRIGHTNESS AND CONTRAST OF THE 2D VIEWS

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 129]*.

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.

25.5 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.

25.6 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.

25.7 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.

25.8 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.

25.9 CREATING SCREENSHOTS OF VIEWS

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

- Copying to the Windows clipboard.

COPYING A SCREENSHOT OF A VIEW TO THE WINDOWS CLIPBOARD

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

☑ The desired view is already active. Information on this can be found in the section *Changing the active view [▶Page 129]*.

- 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.

26 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 139]*.

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

- *Switching the display mode of the 3D view [▶Page 141]*
- *Configuring the active display mode of the 3D view [▶Page 142]*
- *Changing the clipping mode of the 3D view [▶Page 147]*
- *Rotating the 3D view [▶Page 148]*
- *Switching off and switching on the display of optical impressions in color [▶Page 149]*

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

26.1 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.

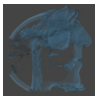
▶ The transparent **Viewing direction** window closes.

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 148]*.

26.2 DISPLAY MODES OF THE 3D VIEW

General information on the **3D** view can be found in the section *Adjusting the 3D view [▶Page 138]*.

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

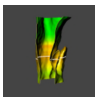


- The **Volumetric view with soft tissue** displays only the soft tissue.

- 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 116]*.

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 141]*.

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 142]*.

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 144]*.

26.3 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 129]*.

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.

26.4 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.

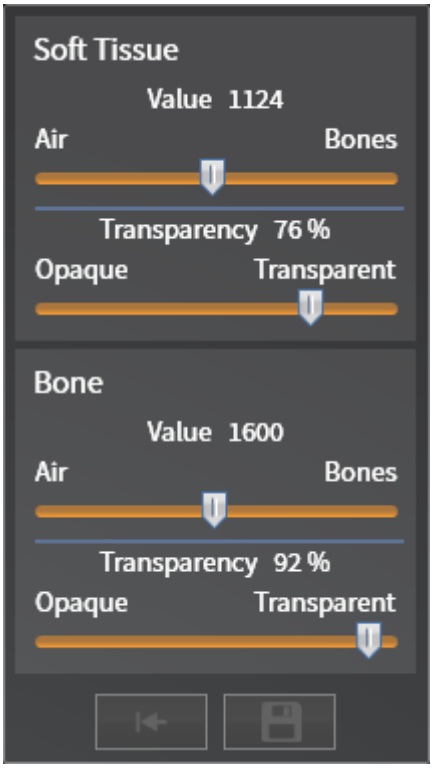
To configure the active display mode of the **3D** view, proceed as follows:

☑ The **3D** view is already active. Information on this can be found in the section *Changing the active view [▶Page 129]*.

☑ 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 141]*.

☑ 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.

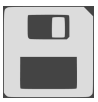
4. Activate or deactivate the available check box.
   ▶ SICAT Air adjusts the **3D** view according to the status of the check box.

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.

26.5 CLIPPING MODES OF THE 3D VIEW

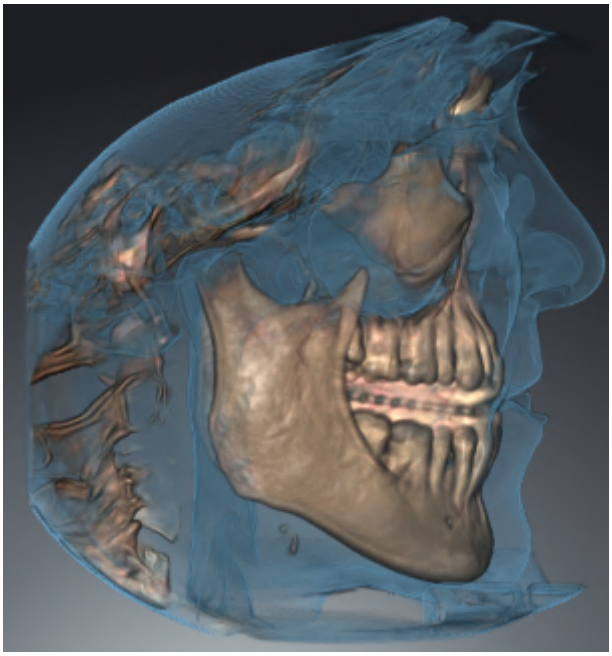
General information on the **3D** view can be found in the section *Adjusting the 3D view [▶Page 138]*.

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.

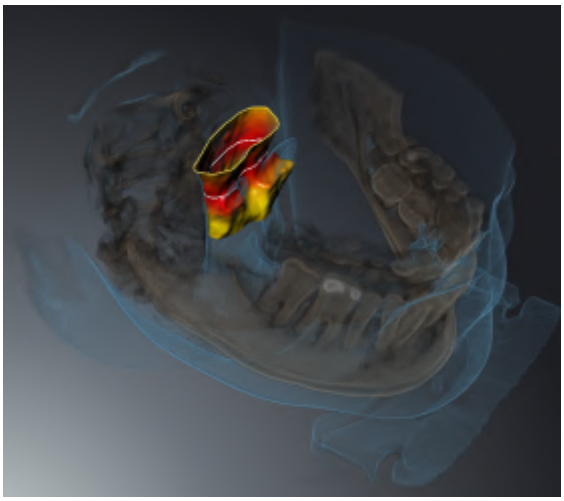


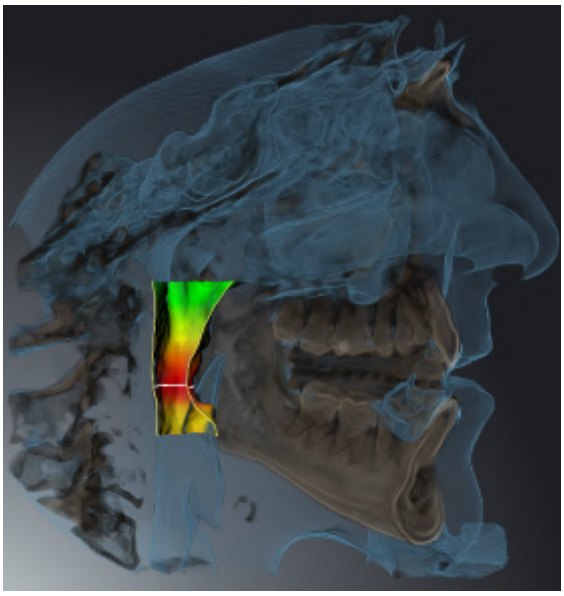
CLIPPING: AIRWAY SLAB

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 171]*. 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 134]*. 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 184]*.





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 147]*.

26.6 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 129]*.

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.

26.7 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 127]*.

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.

26.8 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 129]*.

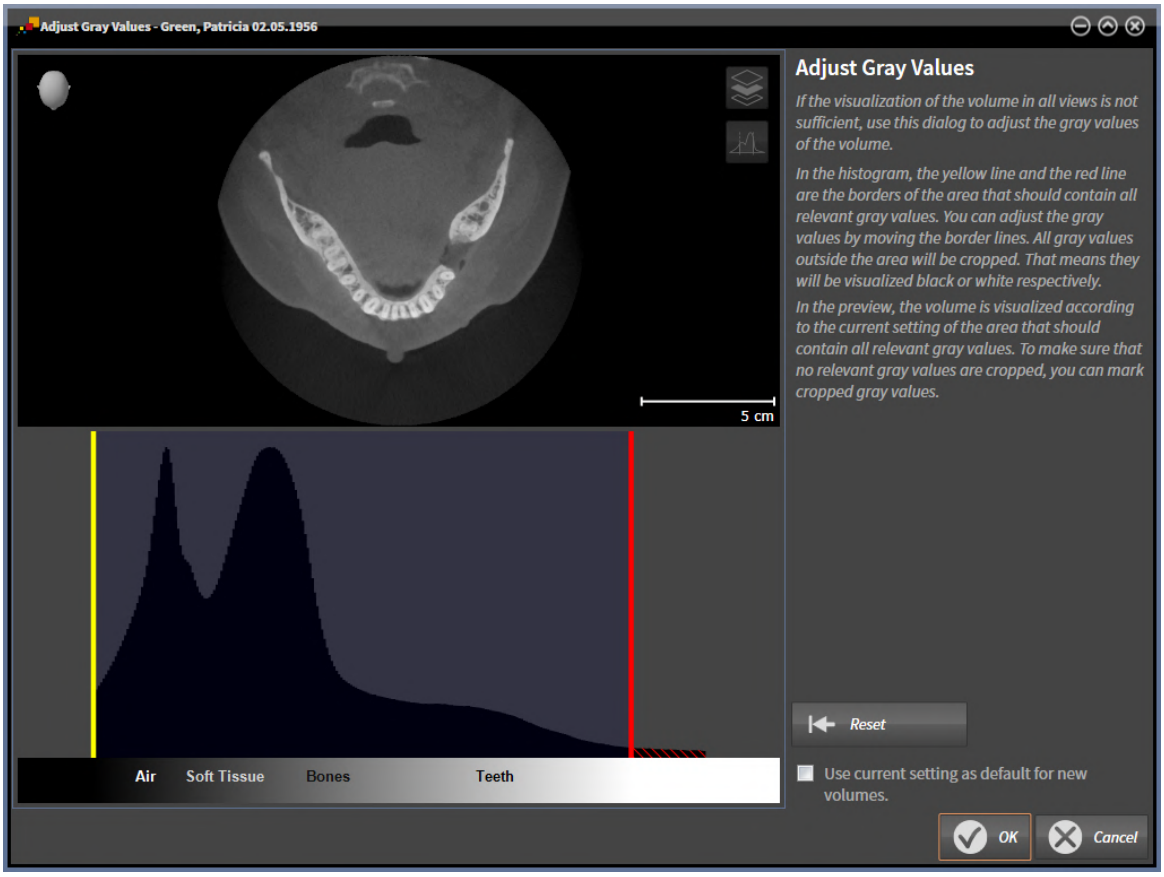
1. Click on the **Turn the colored display for optical impressions off** icon in the **View toolbar**.
   ▶ SICAT Air switches from display in color to monochrome display.

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.

27 GRAY SCALE VALUES

You can only adjust gray scale values for volumes, which have been created by non-Sirona 3D X-ray devices.

If the illustration of the volume is insufficient, you can adjust the gray scale values of the volume in the **Adjust Gray Values** window:



The **Adjust Gray Values** window has two parts:

- The upper section shows an **Axial** slice view or a **Coronal** projection view.
- The lower section shows a histogram with the frequency distribution of the gray scale values.

In the histogram, the yellow and red lines show the borders of the area, which should contain all of the relevant gray scale values. You can adjust the gray scale values by moving the limits. SICAT Air cuts all gray scale values outside the area. This means that the software shows them either in black or white.

SICAT Air displays the volume in the **Axial** slice view or **Axial** projection view according to the area which should contain all of the relevant gray scale values. To ensure that SICAT Air does not hide any relevant image information, the software can label gray scale values that have been cropped out.

In the **Axial** slice view, you can scroll through the layers and check them for cropped-out gray values.

In the **Coronal** projection view, you can check all slices for cropped-out gray values simultaneously.

Only adjust the gray scale values if the illustration of the volume is insufficient in all views. Information on this can be found in the section *Adjusting gray scale values [▶Page 152]*.

For example, to highlight certain anatomical structures, you can temporarily adjust the brightness and contrast of the 2D views. Information on this can be found in the section *Adjusting and resetting the brightness and contrast of the 2D views [▶Page 131]*.

You can also adjust the display of the **3D** view. For further information see *Switching the display mode of the 3D view [▶Page 141]*, *Configuring the active display mode of the 3D view [▶Page 142]* and *Changing the clipping mode of the 3D view [▶Page 147]*.

27.1 ADJUSTING GRAY SCALE VALUES

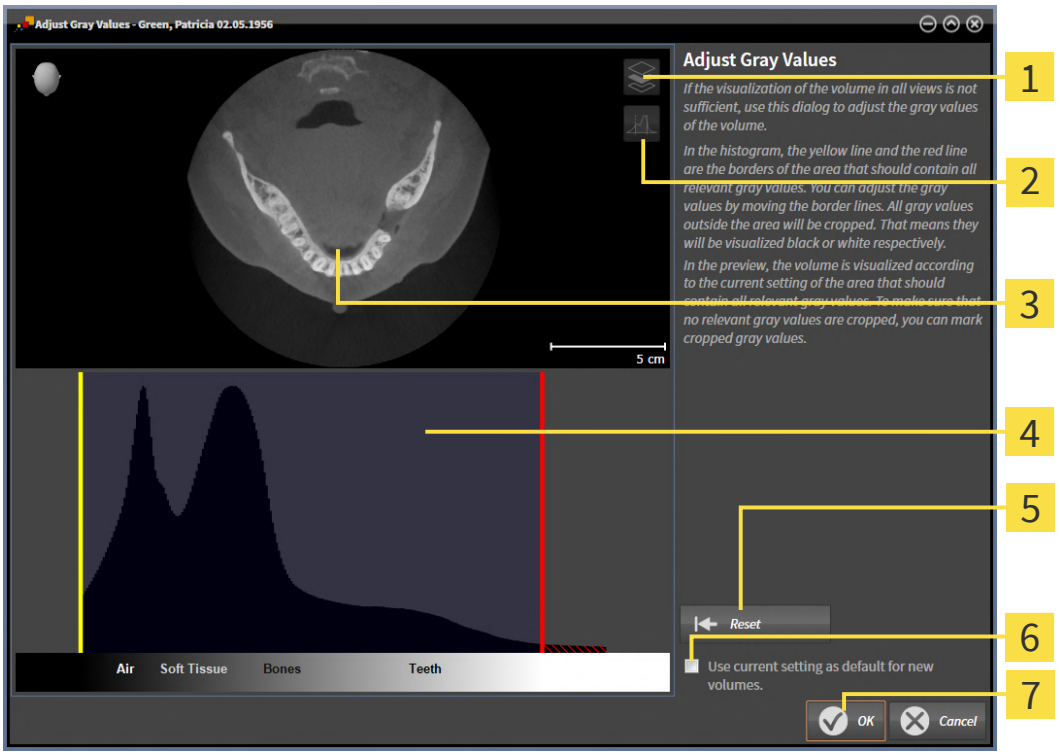
General information on gray scale values can be found in the section *Gray scale values [▶ Page 150]*.

To adjust the gray scale values of the volume, proceed as follows:

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

1. Click on the **Adjust gray values** icon.

   ▶ The **Adjust Gray Values** window opens:



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

2 **Unmark cropped gray values** icon or **Mark cropped gray values** icon

3 **Axial** slice view or **Coronal** projection view

4 Histogram

5 **Reset** button

6 **Use current setting as default for new volumes** check box

7 **OK** button

2. Make sure that the axial slice mode is active. Click on the **Enable axial slices mode** icon if necessary.

3. Move the yellow line to adjust the lower border of the area, which should contain all of the relevant gray scale values.

   ▶ SICAT Air adjusts all gray scale values in the **Axial** slice view accordingly.

▶ SICAT Air marks all gray scale values beneath the lowest relevant gray scale value in yellow.

4. Scroll through the axial slices. Make sure that all of the relevant gray scale values have not been marked yellow. Move the yellow line again if necessary.

5. Move the red line to adjust the upper border of the area, which should contain all of the relevant gray scale values.

   ▶ SICAT Air adjusts all gray scale values in the **Axial** slice view accordingly.

   ▶ SICAT Air labels all gray scale values above the highest relevant gray scale value in red.

6. Scroll through the axial slices. Make sure that all of the relevant gray scale values have not been marked red. Move the red line again if necessary.

7. Click on **OK**.

▶ The **Adjust Gray Values** window closes and SICAT Air displays the volume with the correspondingly adjusted gray scale values in all views.

In addition to the steps described, the following actions are available in the **Adjust Gray Values** window as well:

- To assess all of the slices at once, click on the **Enable coronal projection mode** icon. Click on the **Enable axial slices mode** icon to switch back to the **Axial** slice view.
- To move both borders at once, you can click on and move the area that should contain all of the relevant gray scale values.
- To reset the area that should contain all relevant gray scale values to the default settings, click on the **Reset** button.
- If you do not want to mark the cropped gray scale values, click on the **Unmark cropped gray values** icon.
- To use the set area as default for future imported volumes, you can enable the check box **Use current setting as default for new volumes**.
- If you do not want to save your changes, click on **Cancel**.

28 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:

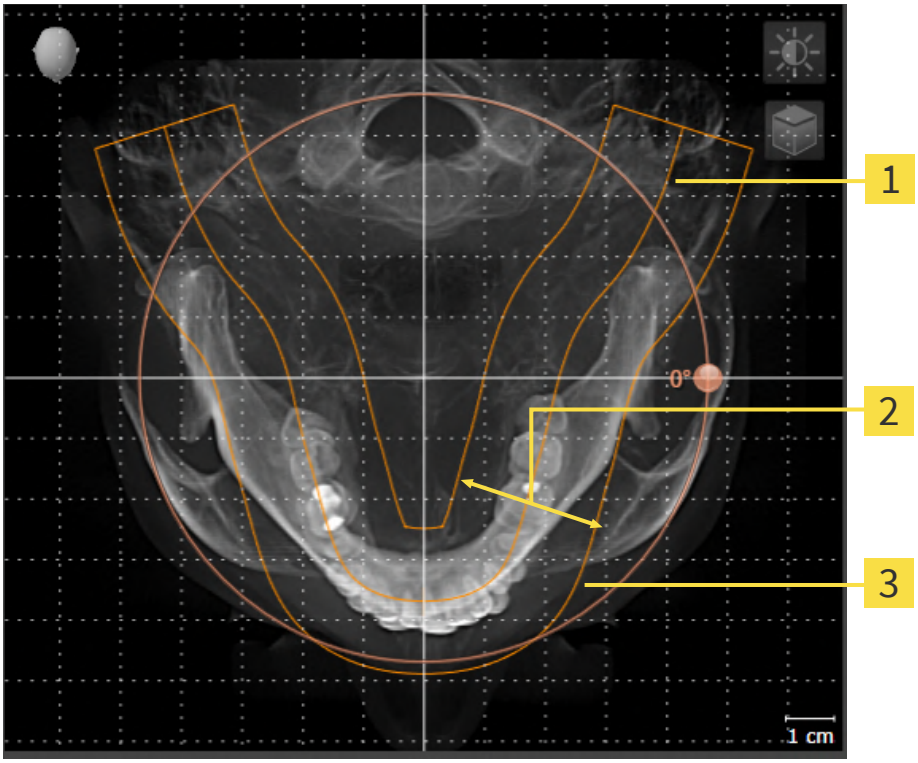
- Sub-optimal positioning of the patient during the 3D X-ray scan
- Orientation according to case, for example orientation of the axial slices parallel to the Frankfurt plane or parallel to the bite plane
- Optimizing the **Panorama** view

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 156]*.

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 161]*.

28.1 ADJUSTING THE VOLUME ORIENTATION

General information on volume orientation can be found in the section *Adjusting volume orientation and panoramic region [▶Page 154]*.

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

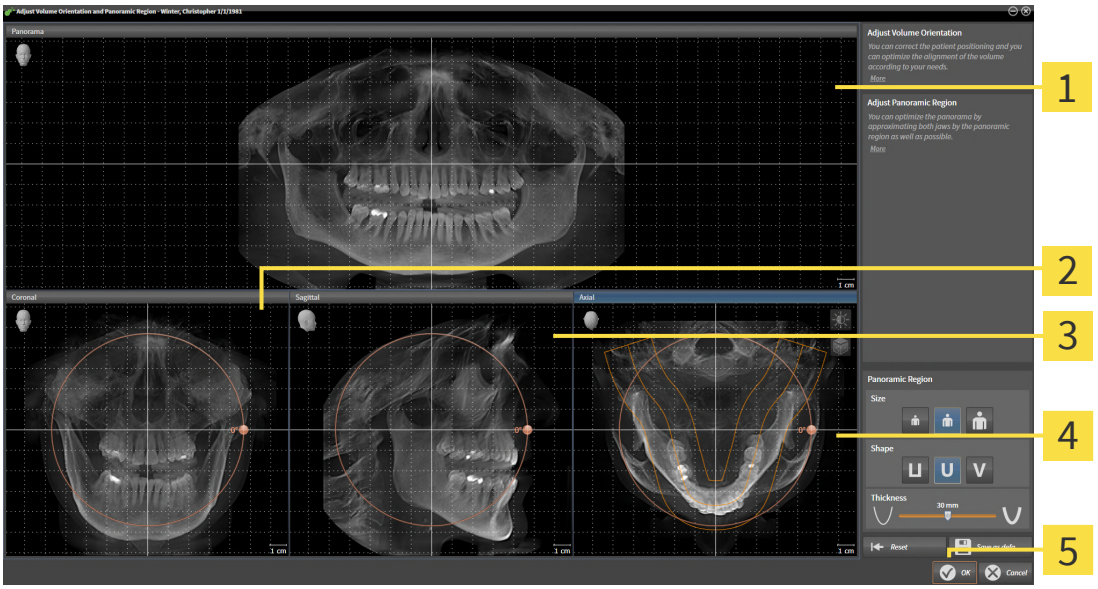
- Opening the **Adjust Volume Orientation and Panoramic Region** window
- Rotating volumes in the **Coronal** view
- Rotating volumes in the **Sagittal** view
- Rotating volumes in the **Axial** view

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

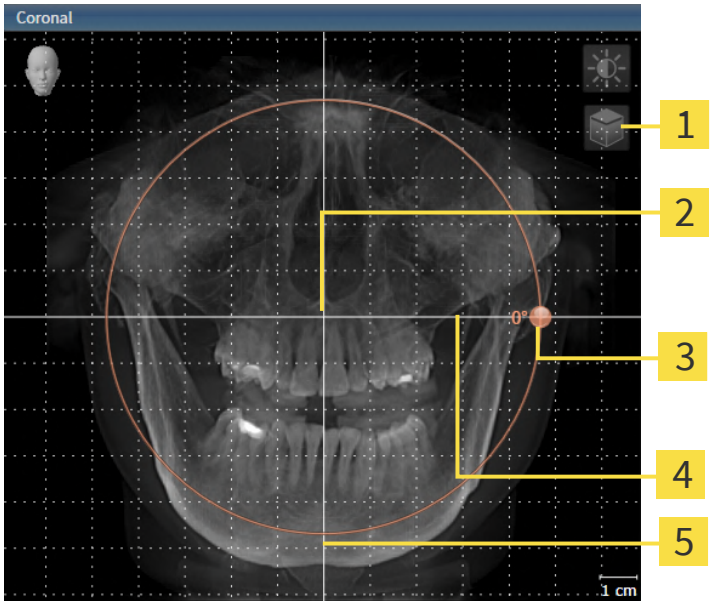
3 **Sagittal** view with **Rotation** slider

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

5 **OK** button

ROTATING VOLUMES IN THE CORONAL VIEW

1. Activate the **Coronal** view:

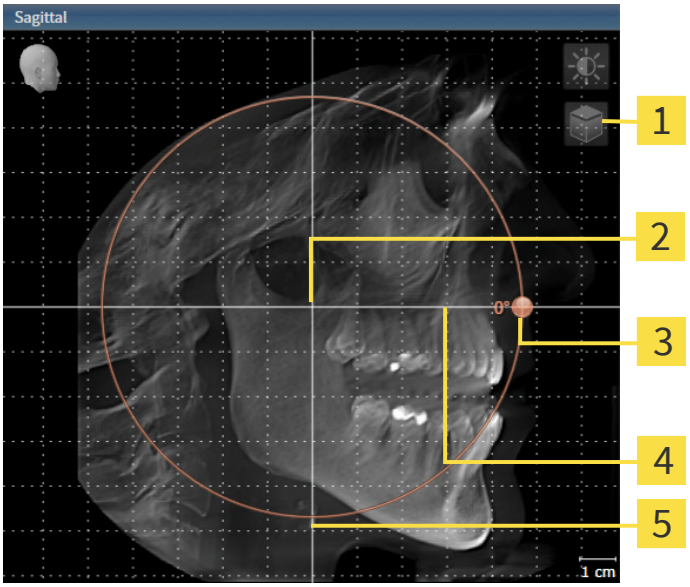


1	**Enable slices mode** icon or **Enable projection mode** icon	4	Horizontal reference line
2	Center of rotation	5	Vertical reference line
3	**Rotation** slider		

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:

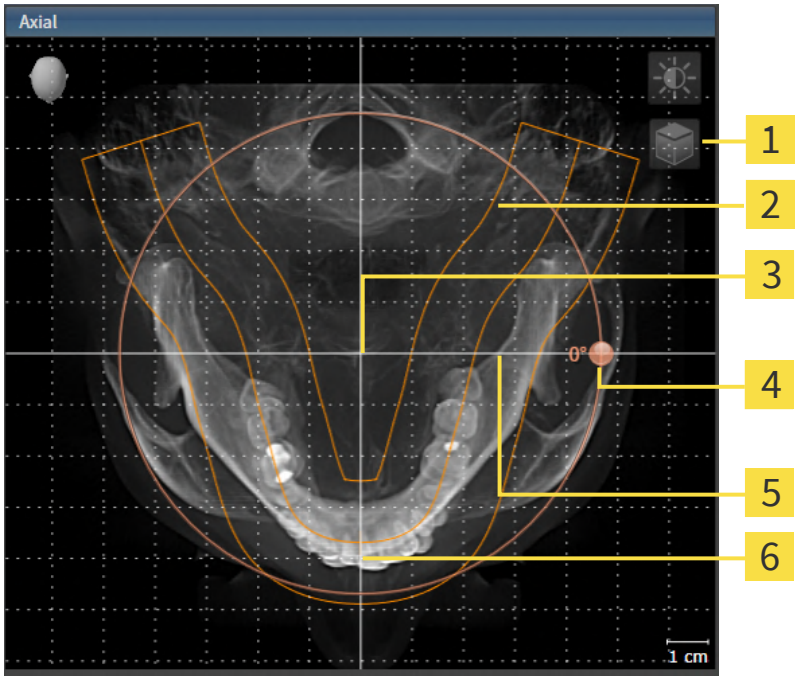


1 **Enable slices mode** icon or **Enable projection mode** icon	4 Horizontal reference line
2 Center of rotation	5 Vertical reference line
3 **Rotation** slider	

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 131]*.
- 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.

28.2 ADJUSTING THE PANORAMIC REGION

General information on the panoramic region can be found in the section *Adjusting volume orientation and panoramic region [▶Page 154]*.

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

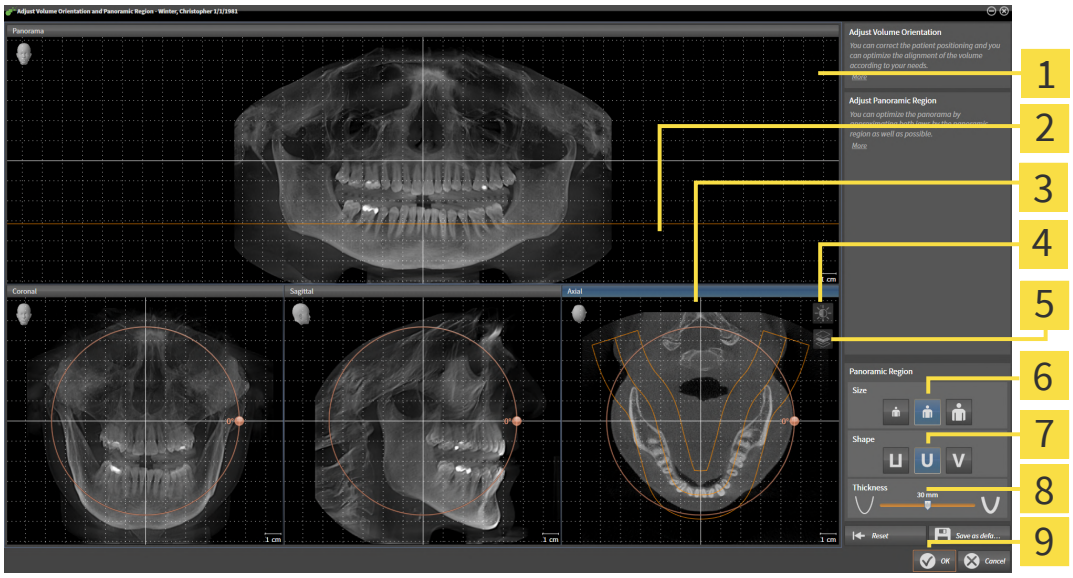
- Opening the **Adjust Volume Orientation and Panoramic Region** window
- Adjusting the slice position of the **Axial** view
- Moving the panoramic region
- Rotating volumes in the **Axial** view
- Adjusting **Size**, **Shape** and **Thickness** of the panoramic region

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 131]*.
- 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.

29 DISTANCE AND ANGLE MEASUREMENTS

SICAT Air features two different types of measurement:

- Distance measurements

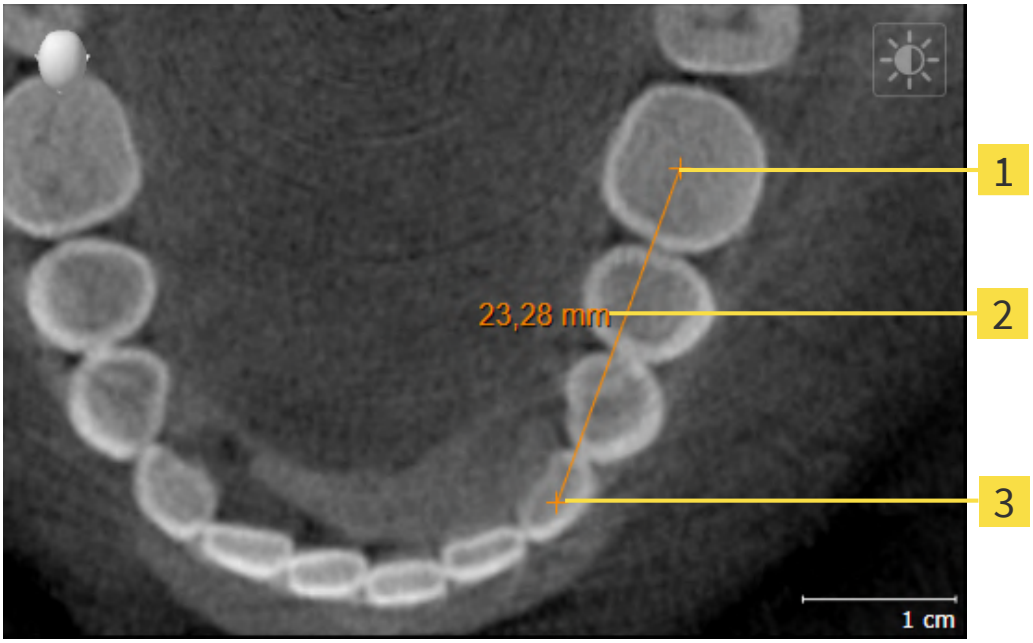
- Angle measurements

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 165]*
- *Adding angle measurements [▶Page 166]*
- *Moving measurements, individual measuring points and measured values [▶Page 168]*
- Activating, hiding and showing measurements - Information on this can be found in the section *Managing objects with the object browser [▶Page 113]*.
- 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 115]*.

29.1 ADDING DISTANCE MEASUREMENTS



1 Starting point

2 Measured value

3 End point

To add a distance measurement, proceed as follows:

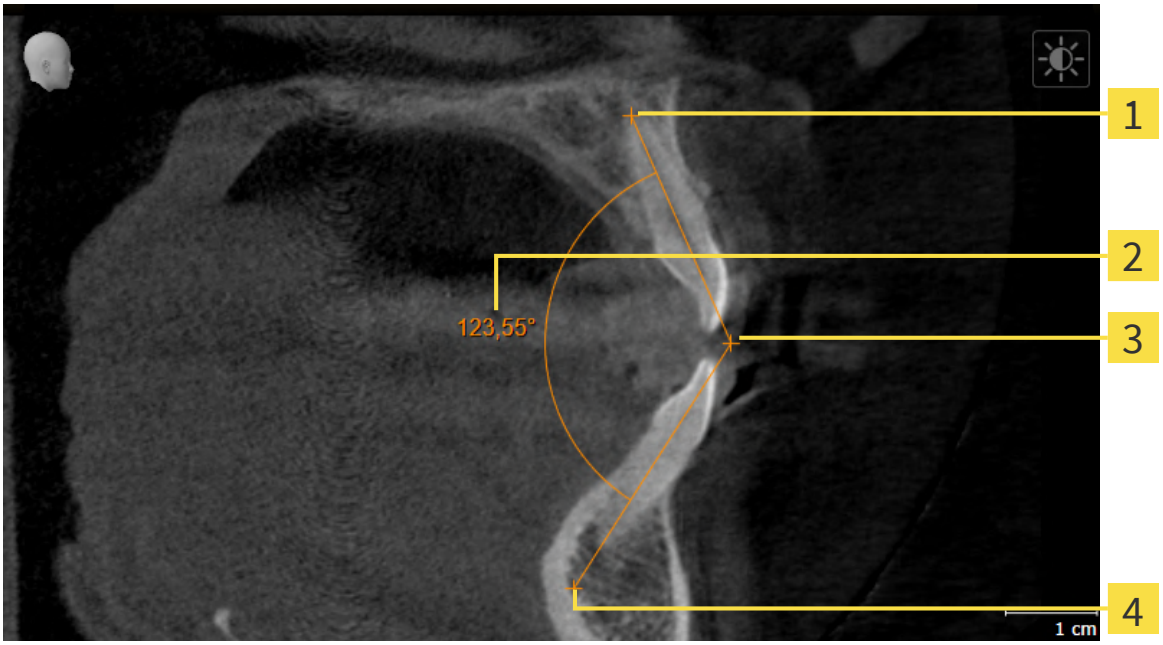
☑ The **Diagnose** workflow step is already expanded.

1. In the **Diagnose** workflow step, click the **Add distance measurement (D)** icon.
   ▶ SICAT 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**.

29.2 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**.

29.3 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 113]* and *Managing objects with the object toolbar [▶Page 115]*.

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 113]* and *Managing objects with the object toolbar [▶Page 115]*.

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 113]* and *Managing objects with the object toolbar [▶Page 115]*.

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.

30 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 156]*. 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 171]*

The following steps are optional:

- *Correcting the airway segmentation [▶Page 175]*
- *Removing non-required areas from the airway [▶Page 177]*

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 178]*.

30.1 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 170]*.

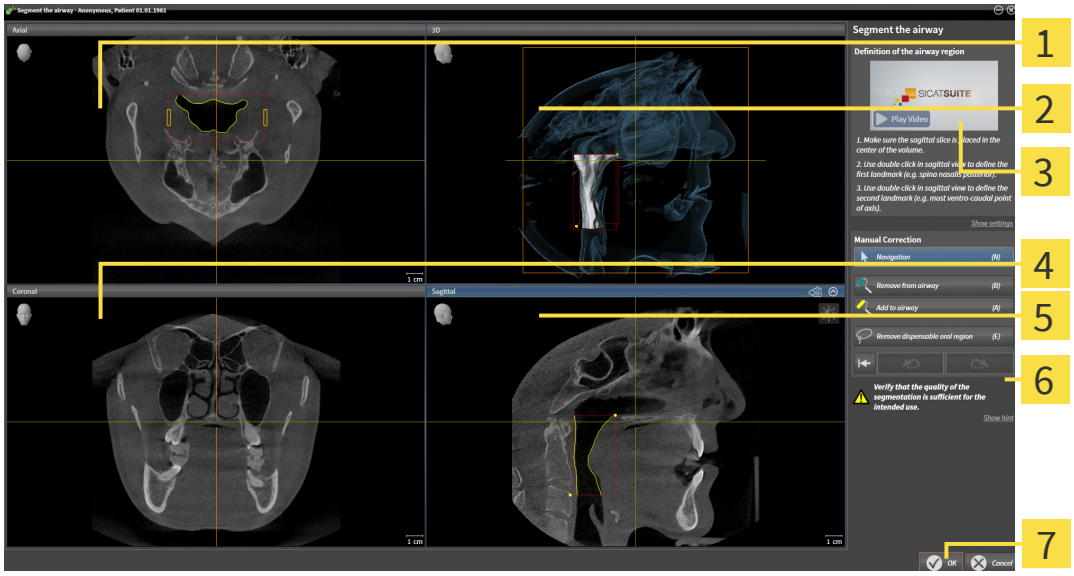
OPENING THE “SEGMENT THE AIRWAY" WINDOW

☑ 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 156]*.

☑ The **Analyze** workflow step is already expanded. Information on this can be found in the section *Workflow toolbar [▶Page 110]*.

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

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

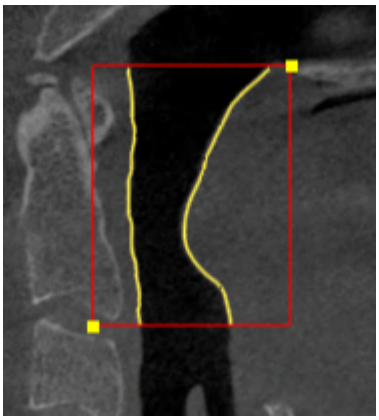


1	**Axial** view	5	**Sagittal** view
2	**3D** view	6	Tool area
3	Example video	7	**OK** button
4	**Coronal** view		

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.

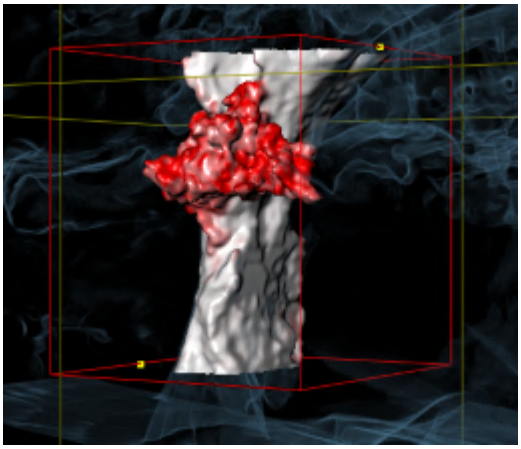
4. Double click on the position of the lower reference point of the airway in the **Sagittal** view.

▶ 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.

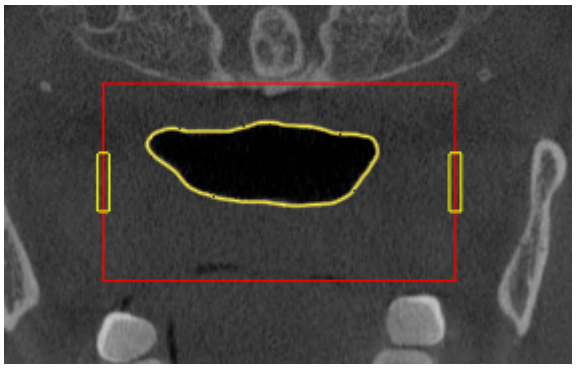
▶ SICAT Air automatically re-segments the airway based on the new airway area.

▶ 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 180]*.

If the segmentation does not match the anatomical characteristics , continue with the section *Correcting the airway segmentation [▶Page 175]* or *Removing non-required areas from the airway [▶Page 177]*.

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 131]*.
- 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 137]*.
- 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.

30.2 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 170]*.

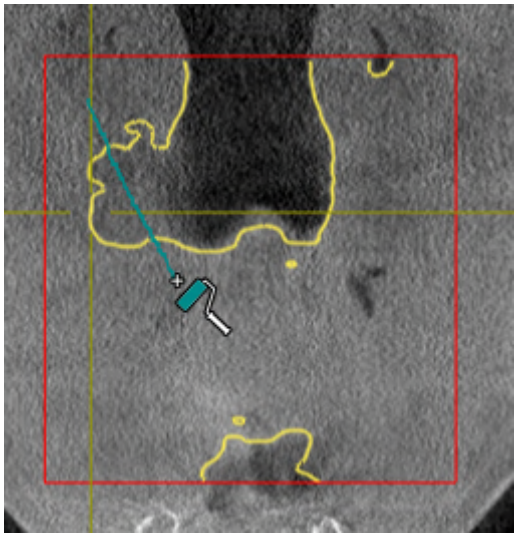
REMOVING INCORRECTLY IDENTIFIED AREAS FROM THE AIRWAY

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

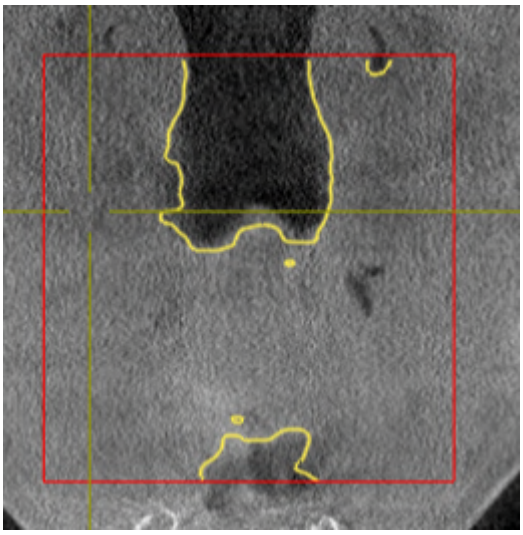
In your corrections, consider in particular the areas marked red in the **3D** view. However, these areas may not be the only areas that SICAT Air may have incorrectly identified as part of the airway.

☑ You have already defined an airway area. Information on this can be found in the section *Defining the airway area [▶Page 171]*.

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 171]*.

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 180]*.

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 178]*.

30.3 REMOVING NON-REQUIRED AREAS FROM THE AIRWAY

General information on segmentation of the airway can be found in the section *Segmenting the airway [▶Page 170]*.

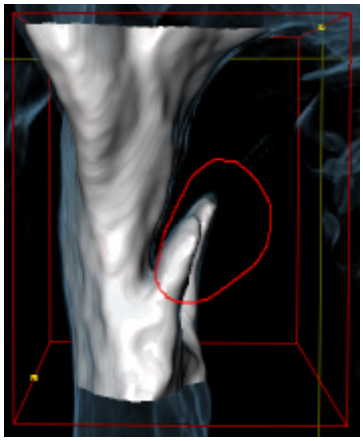
Use the **Remove dispensable oral region** tool in air-carrying areas, which are not part of the relevant airway. This includes, for example the oral cavity and protuberances.

☑ You have already defined an airway area. Information on this can be found in the section *Defining the airway area [▶Page 171]*.

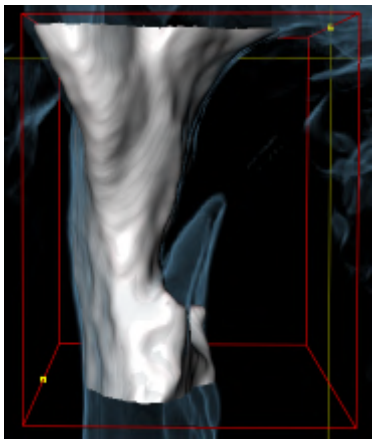
1. Click the **Remove dispensable oral region** button in the **Segment the airway** window.

   ▶ 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 180]*.

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 178]*.

30.4 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.

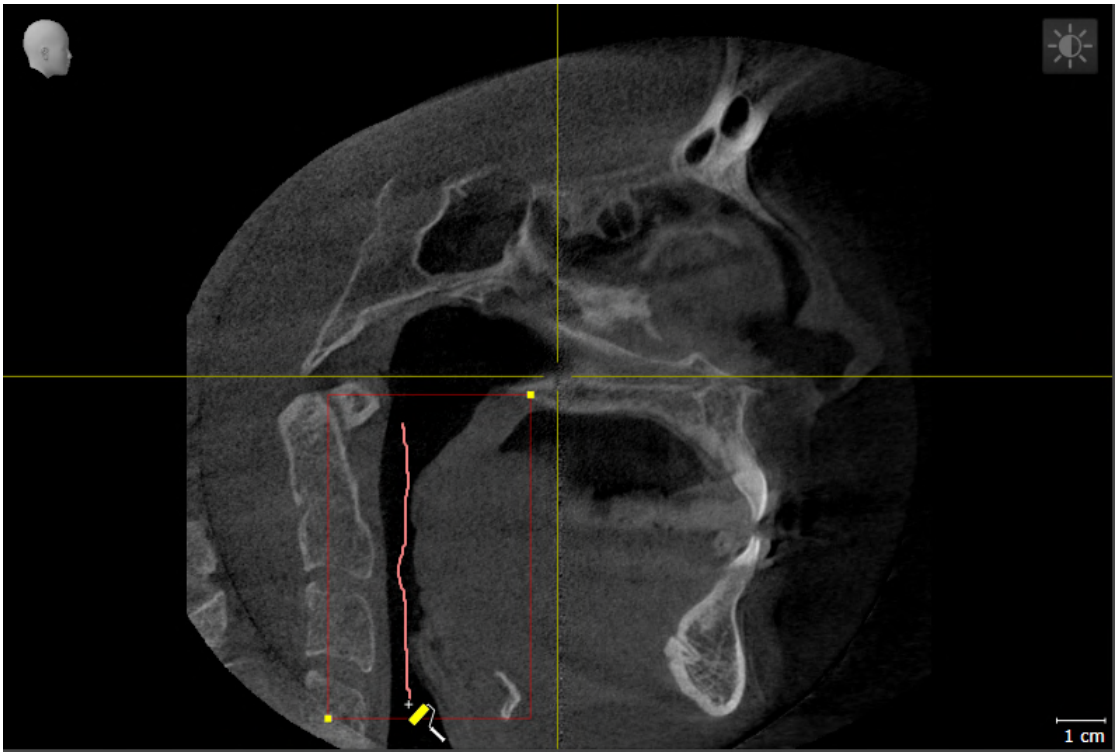
General information on segmentation of the airway can be found in the section *Segmenting the airway [▶Page 170]*.

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:

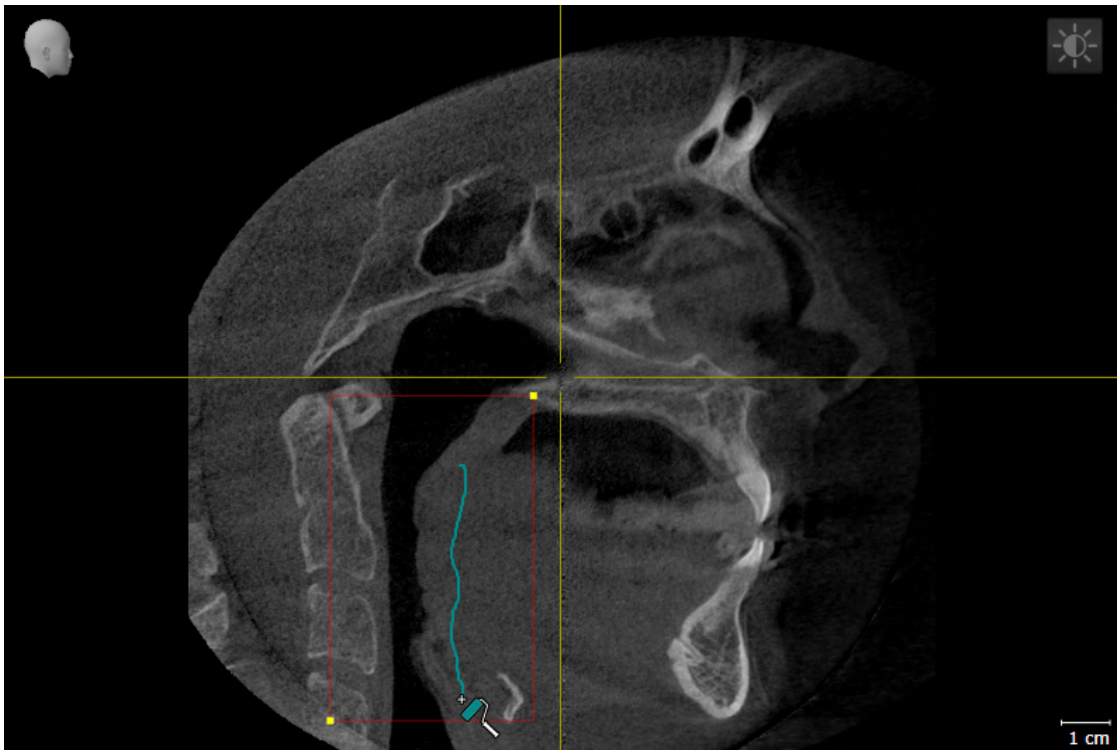
☑ You have already defined an airway area. Information on this can be found in the section *Setting the airway area [▶Page 171]*.

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 175]*
- *Removing non-required areas from the airway [▶Page 177]*

If the segmentation of the airway matches the anatomical characteristics, continue with the section *Completing the segmentation of the airway [▶Page 180]*.

30.5 COMPLETING THE SEGMENTATION OF THE AIRWAY

General information on the segmentation of the airway can be found in the section *Segmenting the airway [▶Page 170]*.

☑ 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 171]*.

- 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.

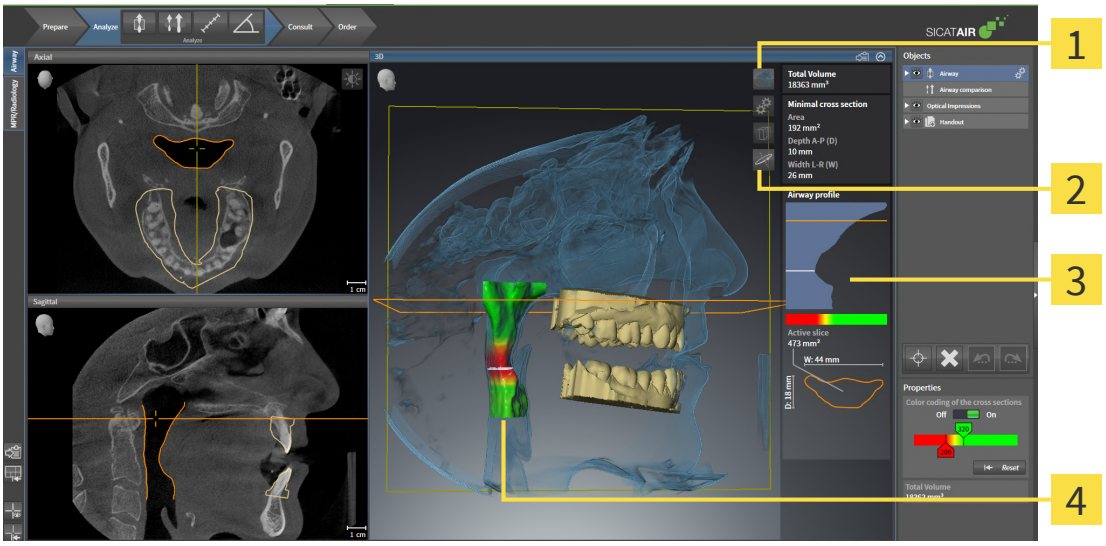
▶ In the **Object bar**, SICAT Air creates an **Airway** object.

31 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 170]*.

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

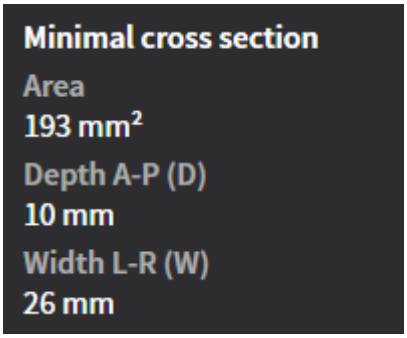
TOTAL VOLUME

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:

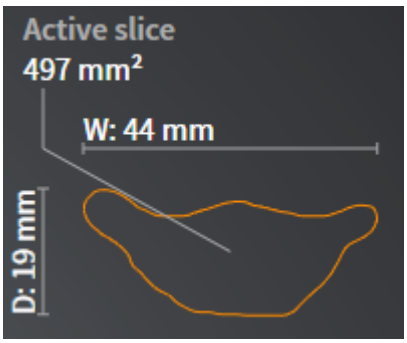
- The white line symbolizes the slice with the smallest cross-sectional area.
- The orange line symbolizes the selected slice.

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 184]*.

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

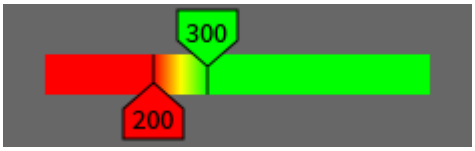
DISPLAY MODES

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 140]*.

CLIPPING MODES

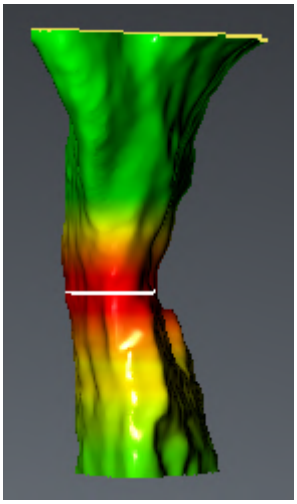
In the **3D** view, SICAT Air can hide certain areas of the volume with different clipping modes. Information on this can be found in the section *Clipping modes of the 3D view [▶Page 144]*.

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 116]*. 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 243]*.

31.1 INTERACTING WITH THE AIRWAY PROFILE

General information on airway analysis can be found in the section *Airway analysis [▶Page 181]*.

To interact with the airway profile, proceed as follows:

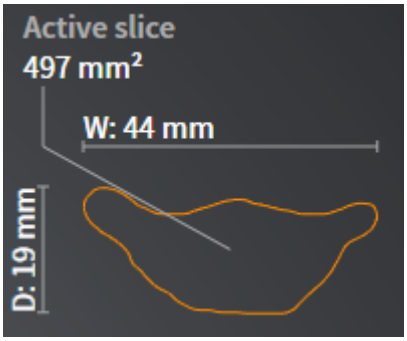
☑ The **Airway** workspace is already open. Information on this can be found in the section *Switching workspaces [▶Page 124]*.

☑ You have already segmented the airway. Information on this can be found in the section *Defining the airway area [▶Page 171]*.

- Click on the desired slice in the airway profile.

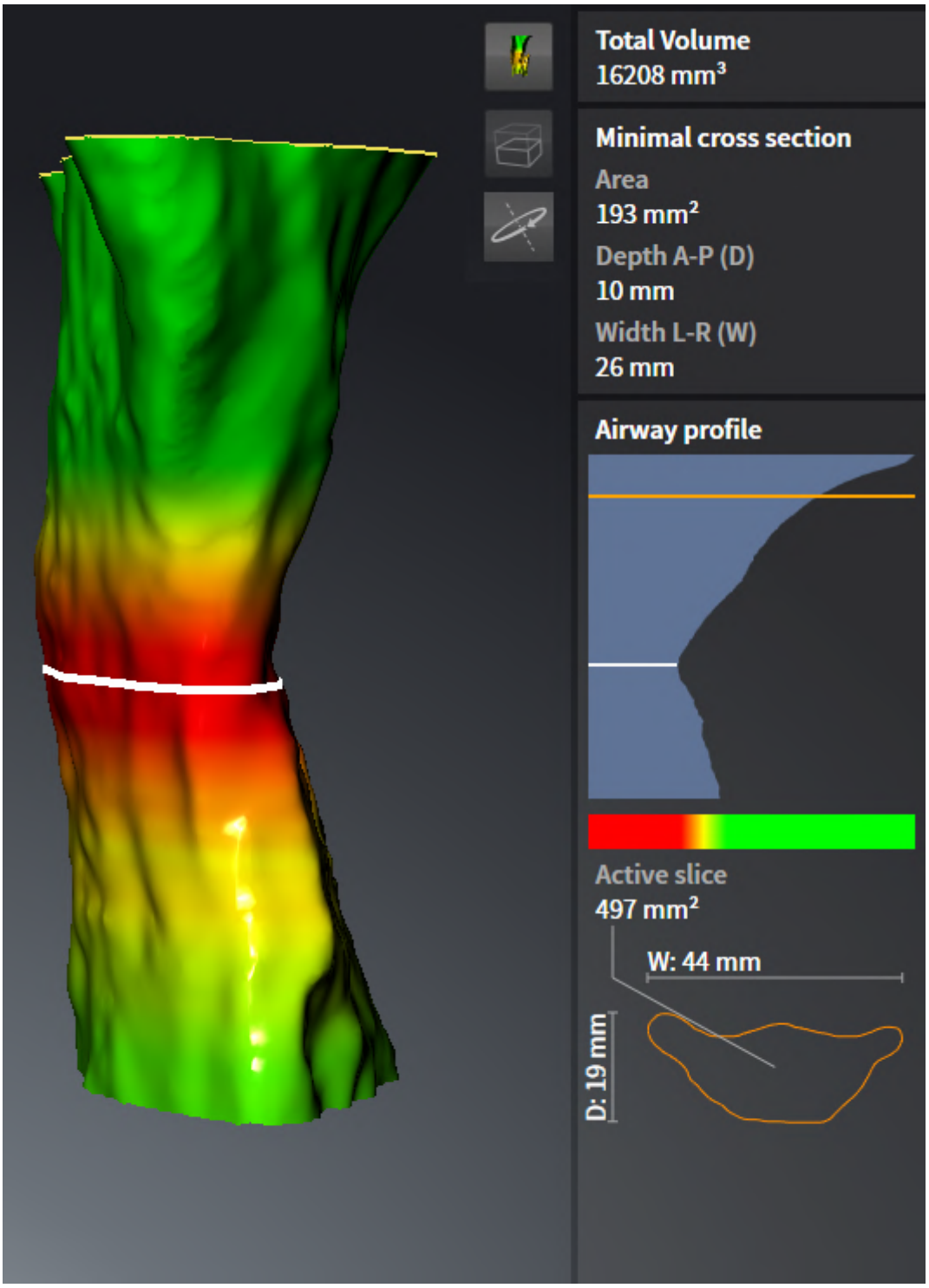
▶ In the airway profile, an orange line shows the selected slice:

▶ 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.

32 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 156]*. 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 188]*.

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.

32.1 CARRYING OUT AN AIRWAY COMPARISON

Information on this can be found in the section *Airway comparison [▶Page 187]*.

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 171]*.

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

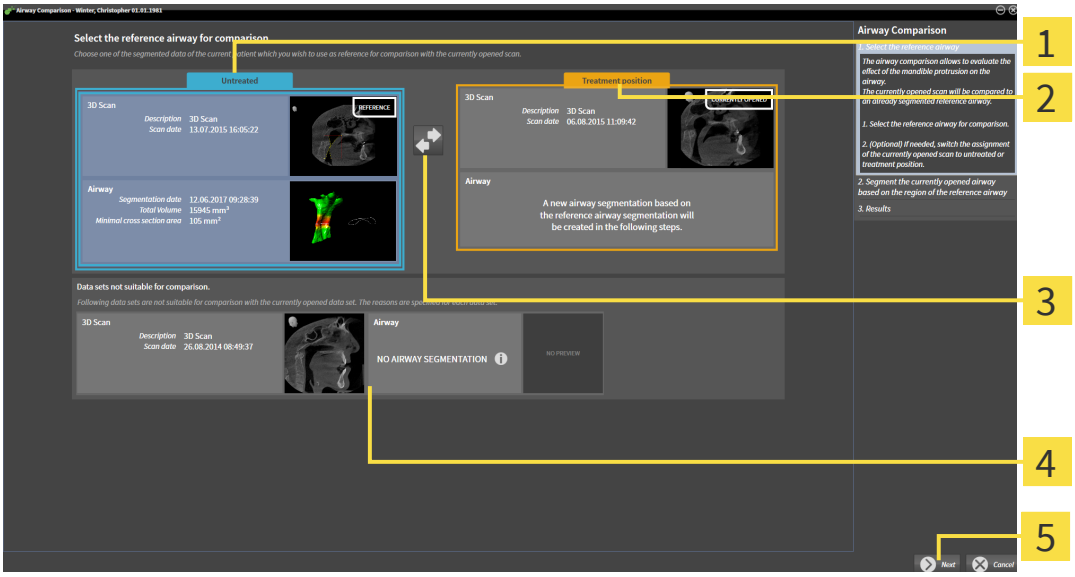
☑ You have already aligned the 3D X-ray scan showing the treatment position according to your requirements, for example, according to the Frankfurt plane. Information on this can be found in the section *Adjusting the volume orientation [▶Page 156]*.

☑ The **Analyze** workflow step is already expanded. Information on this can be found in the section *Workflow toolbar [▶Page 110]*.

- 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

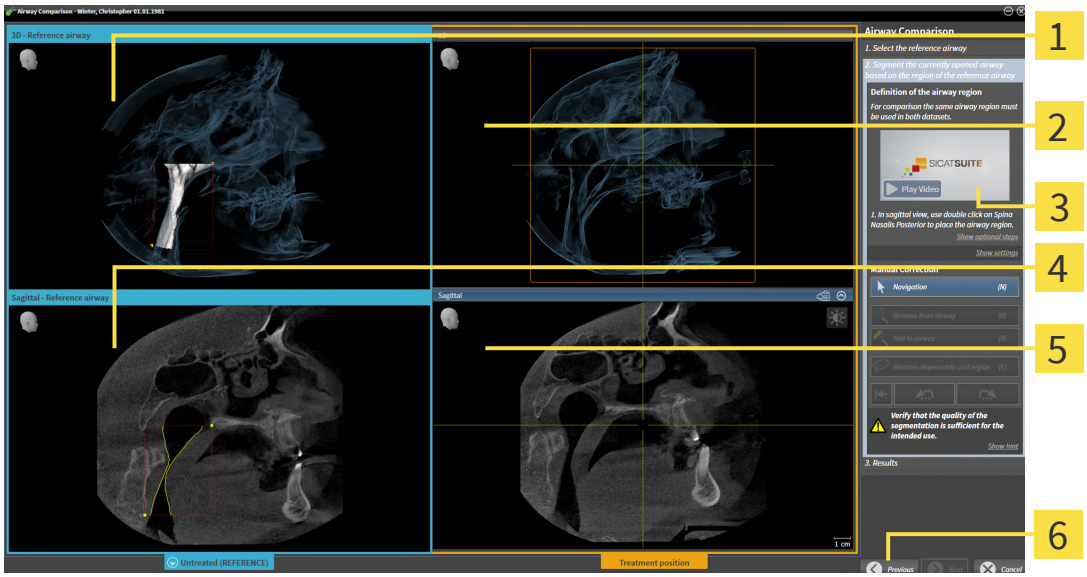
1. Select the desired reference airway where necessary.

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

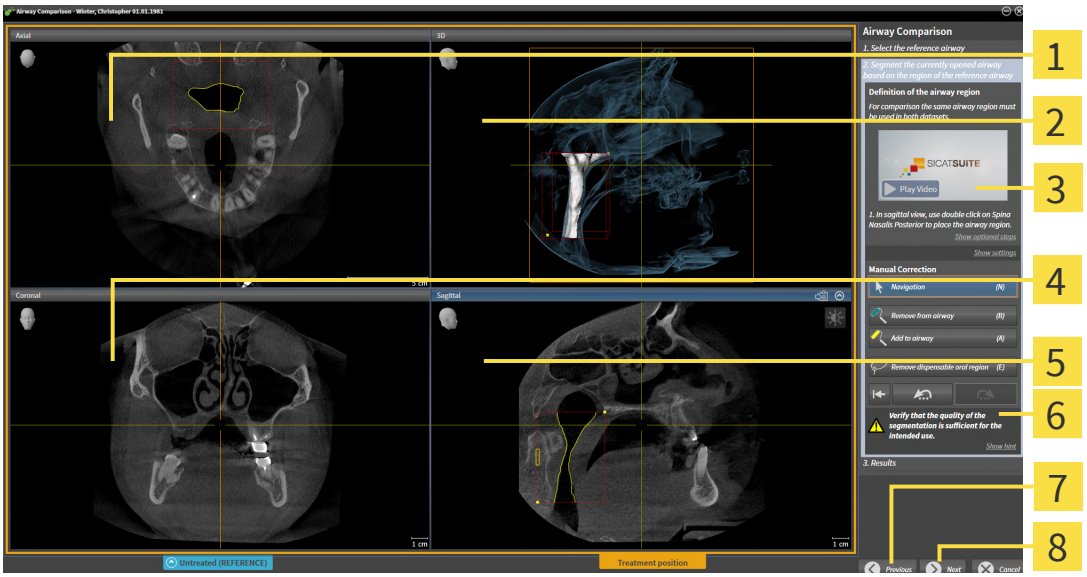


1	**3D** view of the 3D X-ray scan in reference position (you cannot change this view)	4	**Sagittal** view of the volume in reference position
2	**3D** view of the 3D X-ray scan in the treatment position (you cannot change this view)	5	**Sagittal** view of the 3D X-ray scan in the treatment position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



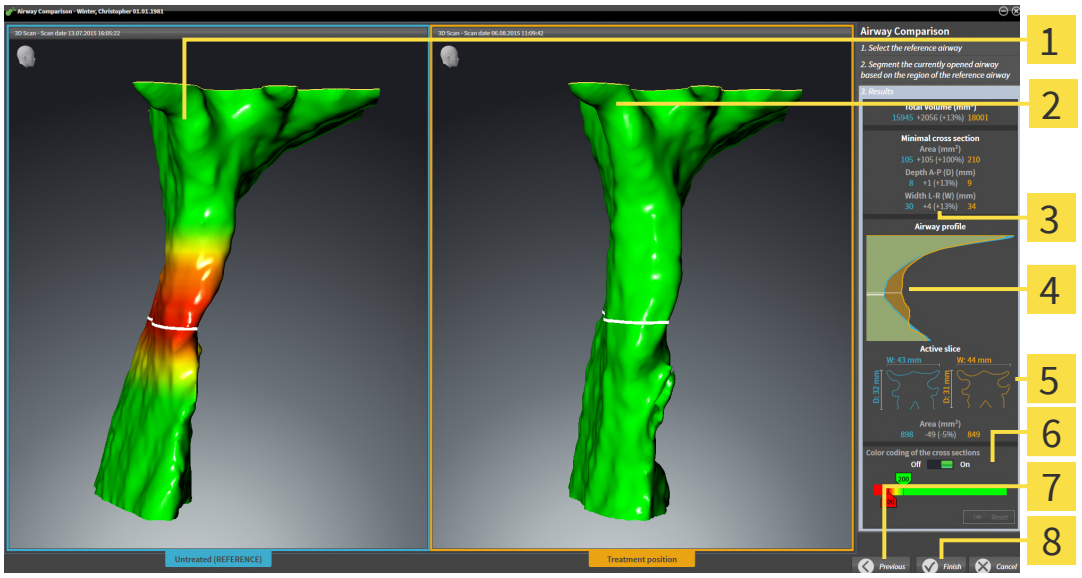
1 **Axial** view of the 3D X-ray scan in the treatment position	5 **Sagittal** view of the 3D X-ray scan in the treatment position
2 **3D** view of the 3D X-ray scan in the treatment position	6 Tool area
3 Tutorial video	7 **Previous** button
4 **Coronal** view of the 3D X-ray scan in the treatment position	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 175]* and *Removing non-required areas from the airway [▶Page 177]*.
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

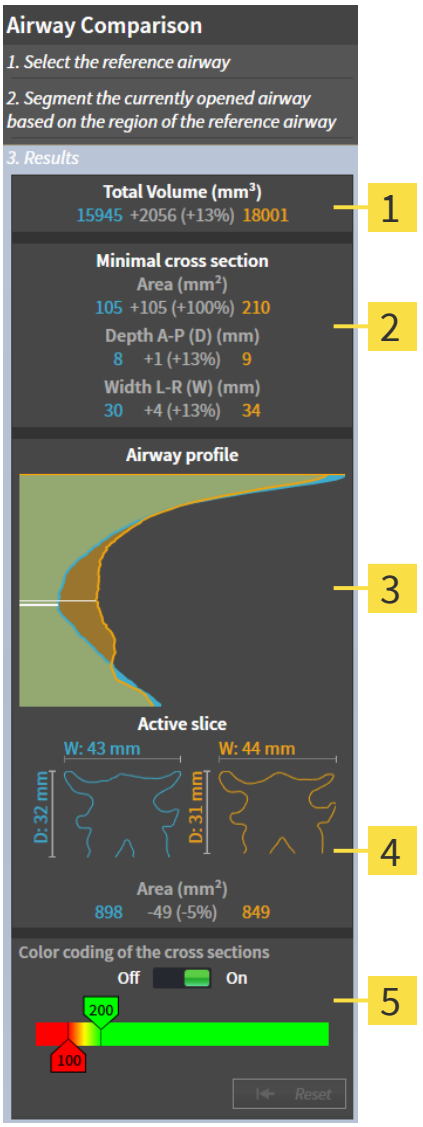


1	**3D** view of the untreated airway	5	Juxtaposition of the cross-sections when untreated and in the treatment position
2	**3D** view of the segmented airway of the 3D X-ray scan in the treatment position	6	Color coding
3	Juxtaposition of the data of the segmented airway when untreated and in the treatment 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 181]*.

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**.

33 PATIENT INFORMATION

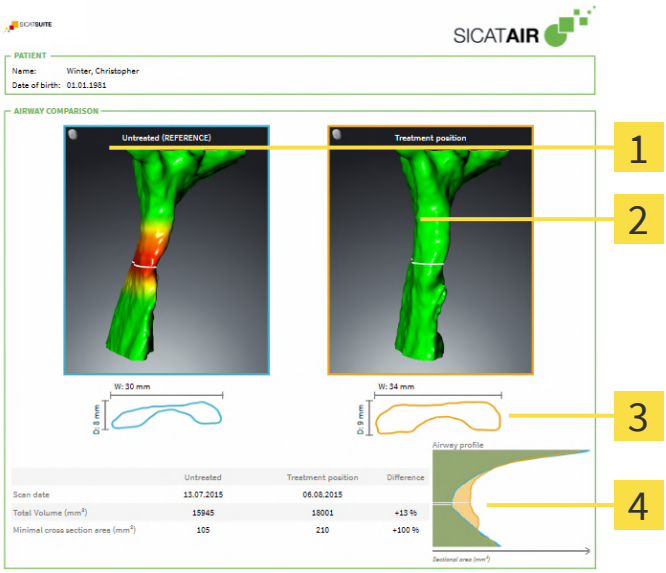
⚠ **CAUTION**	**Using the handout for diagnosis purposes may result in an incorrect diagnosis and treatment.** Only use the visualization functions for medical images of the software user interface to perform a diagnosis on medical images and to plan the treatment.

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

1. In your practice within SICAT 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 195]*
- *Preparing handouts [▶Page 198]*
- *Generating handouts [▶Page 202]*

33.1 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 156]*. 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 194]*.

General information on managing images and screenshots can be found in the section *SICAT Air objects [▶Page 116]*.

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 156]*.

☑ The **Consult** workflow step is already expanded. Information on this can be found in the section *Workflow toolbar [▶Page 110]*.

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 156]*.

☑ The **Consult** workflow step is already expanded. Information on this can be found in the section *Workflow toolbar [▶Page 110]*.

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

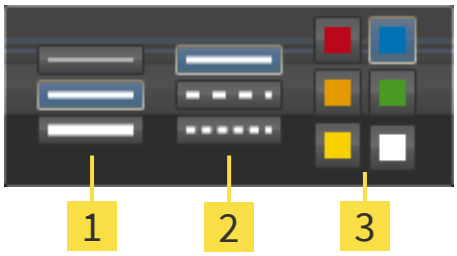
You can configure the **Draw Arrow** drawing tool or the **Draw Circle** drawing tool separately. Changes to the settings will only affect drawing objects created after that point.

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 110]*.

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 198]*.

33.2 PREPARING HANDOUTS

General information on patient information can be found in the section *Patient information [▶Page 194]*.

The following actions are available for preparing handouts:

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

OPENING THE “REPORT GENERATION" WINDOW

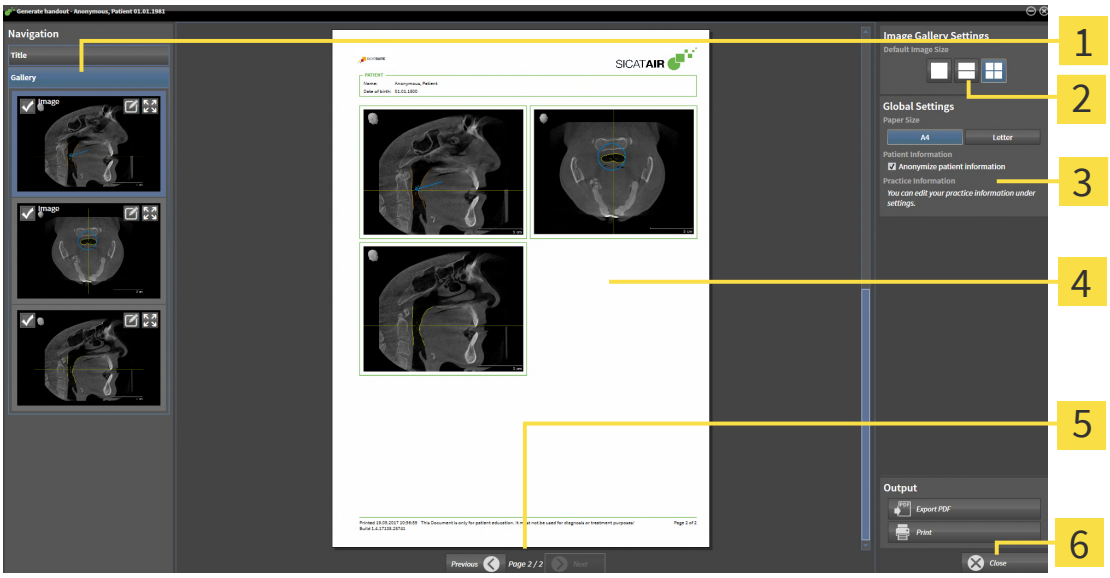
☑ You have created at least one **Image** object or one **Screenshot** object.

☑ 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 110]*.

- 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.

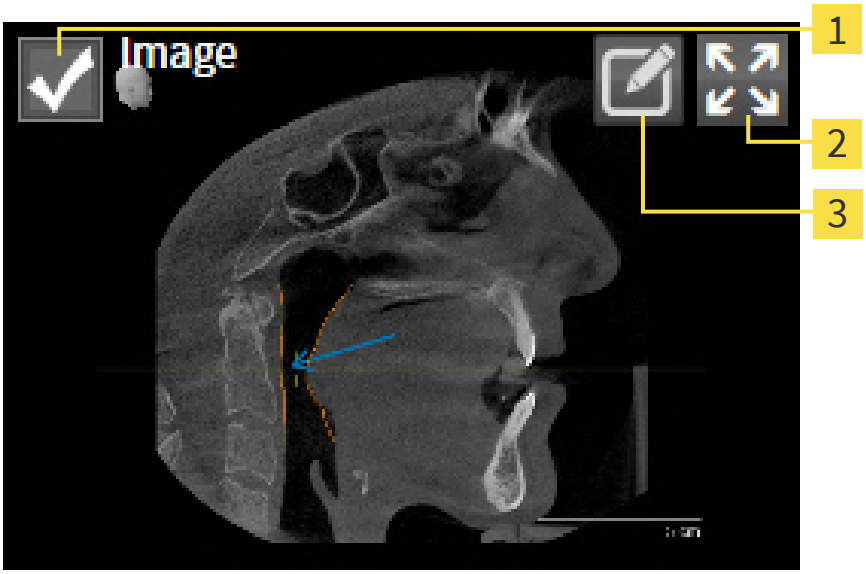
3. Activate or deactivate the **Anonymize patient information** check box.
   ▶ SICAT Air shows the actual patient information or anonymized patient information according to the selected setting.

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 195]* and *Carrying out an airway comparison [▶Page 188]*.

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

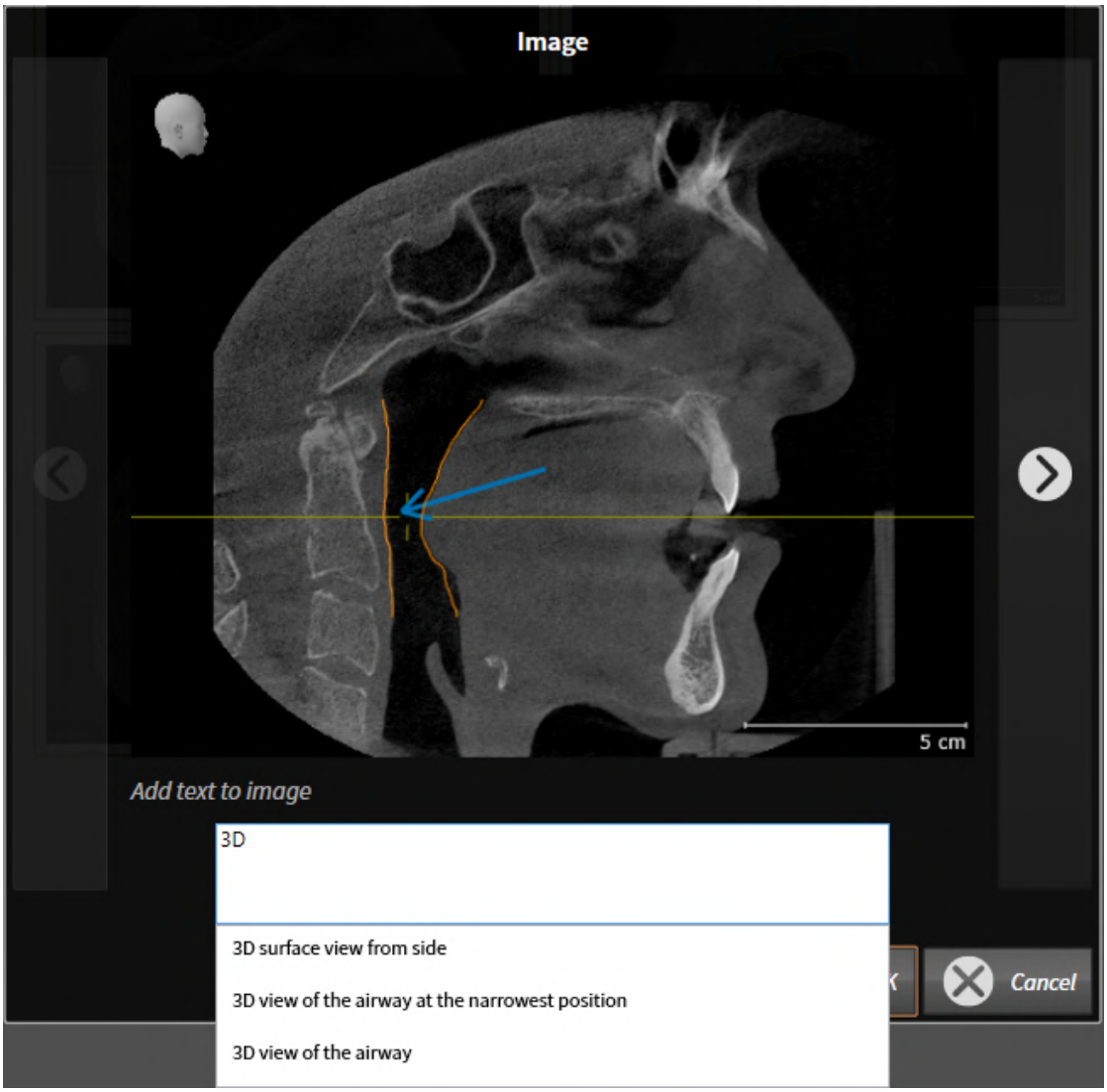
3 **Edit image description** icon

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 115]*.

Continue with the section *Generating handouts [▶Page 202]*.

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 238]*.

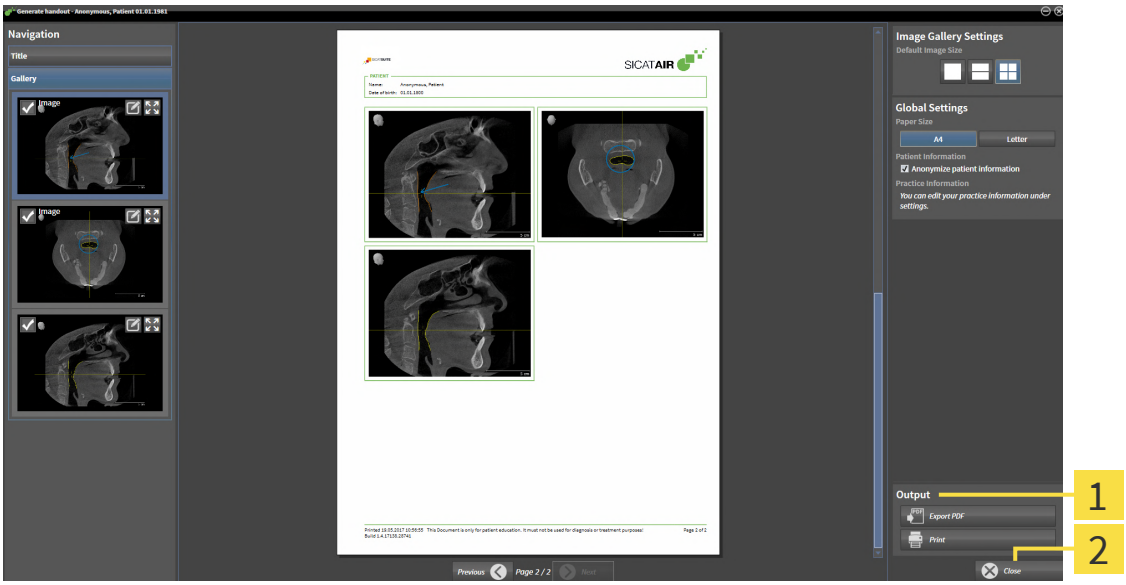
33.3 GENERATING HANDOUTS

The following actions are available for producing handouts:

- Saving a handout as a PDF file
- Printing handouts

SAVING A HANDOUT AS A PDF FILE

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



1 **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.

SICAT Air also saves the encrypted PDF file in the patient record.

PRINTING HANDOUTS

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

34 DATA EXPORT

You can export data.

You can export the studies of the patient record currently open.

SICAT Suite can export the following data:

- Patient records (DICOM)
- 3D studies
- Documents

Exported data may contain the following elements:

DATA TYPE	EXPORT FORMAT
3D scans	DICOM
3D studies	SICAT proprietary
Document	PDF

SICAT Suite exports 3D scans and studies either into Zip archives or DICOM directories. Where necessary, SICAT Suite can anonymize patient data for export.

To export documents, select the documents in the **3D Scans and Planning Projects** area and click on the **Export data** button. Afterwards, a Windows Explorer window will open and you can select a target directory. You can then view the document in the standard PDF viewer.

Perform the following actions in the order stated to export data:

- Open the **Export data** window. Information on this can be found in the section *Opening the "Forwarding data" window [▶Page 205]*.
- Export the desired data. Information on this can be found in the section *Exporting data [▶Page 206]*.

34.1 OPENING THE “FORWARDING DATA” WINDOW

To export data, you first have to open the **Export data** window.

To open the **Export data** window, perform one of the following actions:

- Click on the **Export data** icon in the **Navigation bar** if a patient record is currently open for planning.

  ▶ The **Export data** window opens.

- Select a patient record in the **Patient record browser** window and click on the **Export data** button to forward the information of the selected patient.

  ▶ The **Export data** window opens.

- Select a 3D X-ray scan, a study or a planning object in the **Patient record browser** window and click the **Export data** button.

  ▶ The **Export data** window opens.

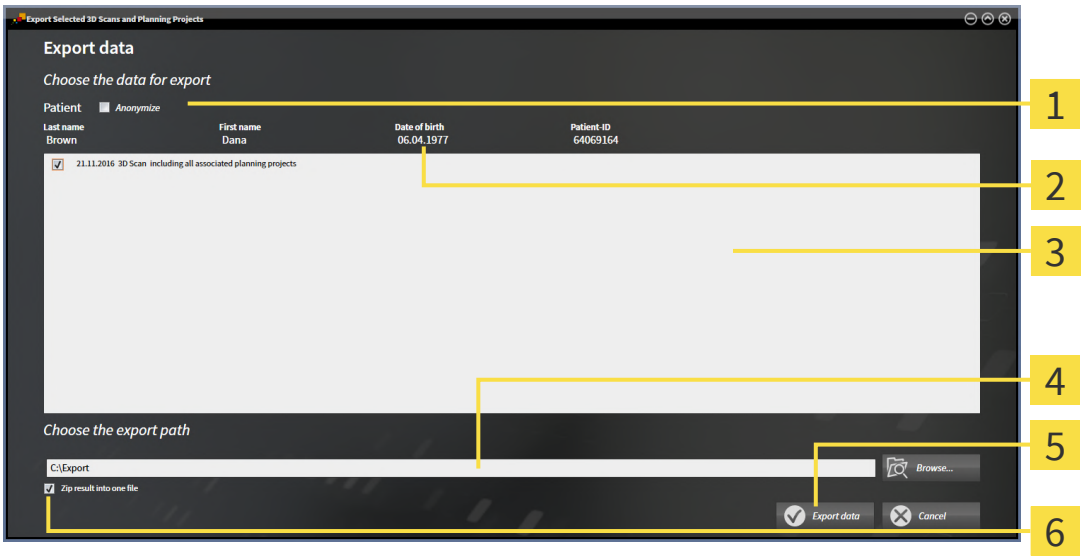
SICAT Suite exports only the 3D X-ray scans and planning projects of the patient record selected by you.

Continue with the section *Exporting data [▶Page 206]*.

34.2 EXPORTING DATA

To export studies, proceed as follows:

☑ The **Export data** window is already open. Information on this can be found in the section *Opening the "Forwarding data" window [▶Page 205]*.



1 **Anonymize** check box	4 **Choose the export path** field
2 Attributes of the patient record	5 **Export data** button
3 List of 3D studies	6 **Zip result into one file** check box

1. Activate the **Anonymize** check box in the **Export data** window if desired.

   ▶ The attributes of the exported patient record will change to **Patient** for **Last name**, **Anonymous** for **First name** and **01.01** with the year of birth for **Date of birth**. The attributes of the patient record in the patient database remain unchanged.

2. Make sure that the desired 3D studies of the desired patient have been selected.

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

   ▶ The **Folder search** window opens.

4. Select a target folder and click on **OK** in the **Folder search** window.

   ▶ The **Folder search** window closes and SICAT Suite transfers the path of the desired folder to the **Choose the export path** field.

5. Activate or deactivate the **Zip result into one file** check box.

6. Click on the **Export data** button.

▶ SICAT Suite exports the selected studies into a Zip file or into the selected folder. The patient record is locked for the duration of the export.

Both Zip files and folders contain the 3D X-ray scans in DICOM format and planning data in a proprietary file format. You can view the 3D X-ray scans with any DICOM viewer and the planning data with the corresponding SICAT application.

35 ORDERING PROCESS

To order the desired product, proceed as follows:

- Place the desired planning data for 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 208]*.
- 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 225]*.
- 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 226]* or section *Completing an order without an active Internet connection [▶Page 230]*.

You can add orders to the shopping cart, which belong to different patients, 3D X-ray scans and applications. The contents of the shopping cart will remain when you close SICAT Suite.

During the ordering process, patient data must be saved in the patient record. Therefore, the patient record must not be locked by another user. Otherwise the ordering process cannot be continued until the patient record has been unlocked. For further information about locked patient records, refer to *Patient records [▶Page 91]* and *Unlocking patient records after lock has expired [▶Page 108]*.

35.1 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 207]*.

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

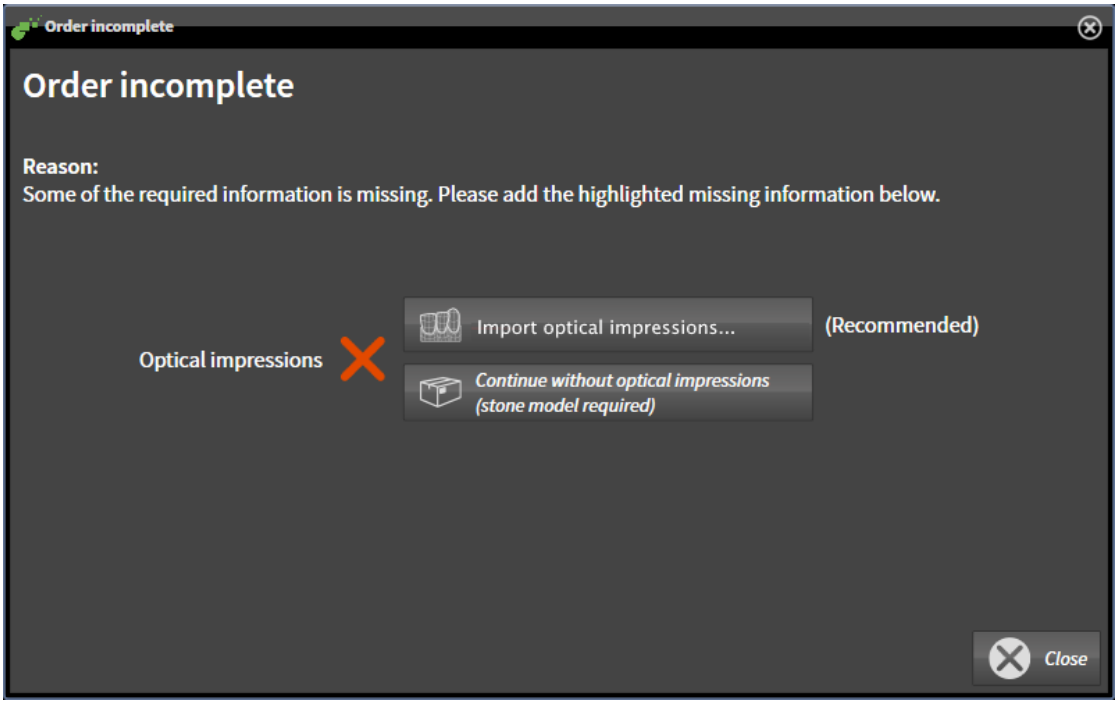
IF YOU HAVE NOT YET ADDED ANY OPTICAL IMPRESSIONS

☑ 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 110]*.

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 211]*.

▶ 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 161]*.

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.

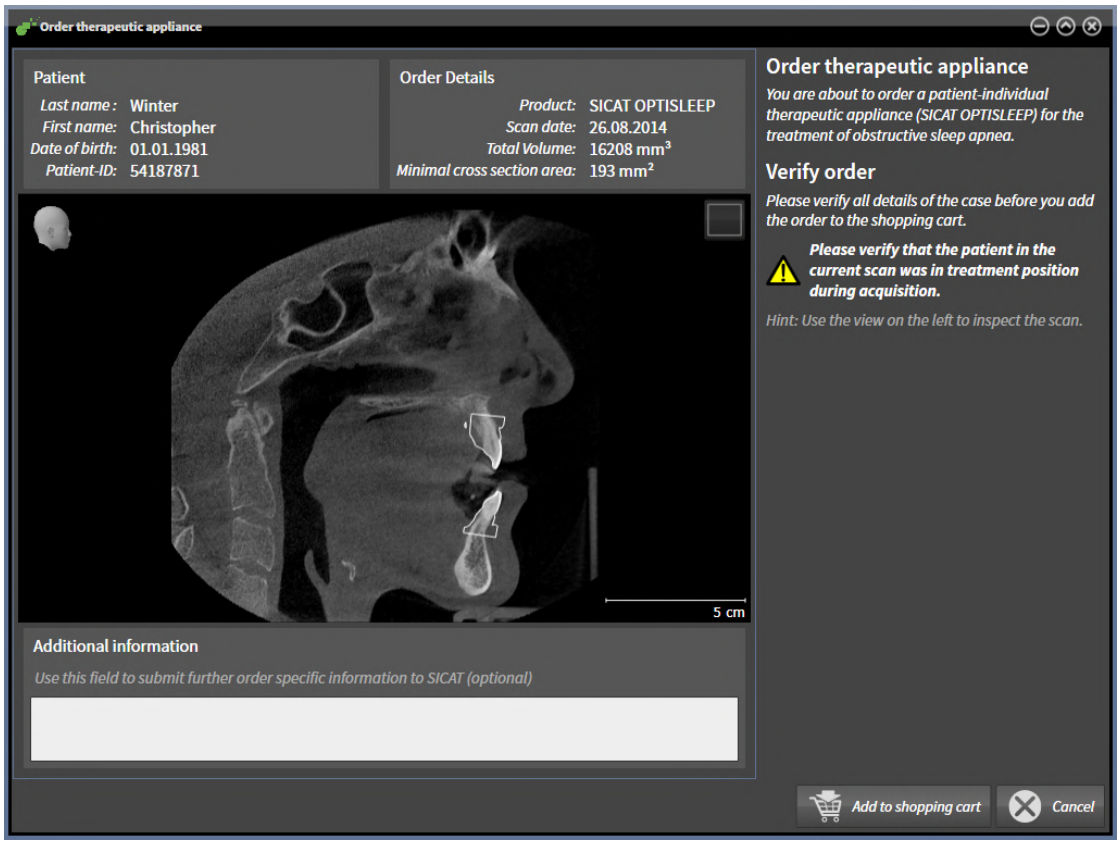
☑ The **Order** workflow step is already expanded. Information on this can be found in the section *Workflow toolbar [▶Page 110]*.

- 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 225]*.

35.2 OPTICAL IMPRESSIONS

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 213]*
   - *Importing optical impressions from a file [▶Page 216]*
   - *Re-using optical impressions from SICAT applications [▶Page 219]*
2. Registration (overlay) of the optical impressions with 3D X-ray data: *Registering and checking optical impressions [▶Page 220]*

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 218]*.

The following actions are available for optical impressions:

- Activating, hiding and showing optical impressions: *Managing objects with the object browser [▶Page 113]*
- Focusing on and removing optical impressions: *Managing objects with the object toolbar [▶Page 115]*
- Setting the display of optical impressions in color: *Switching off and switching on the display of optical impressions in color [▶Page 149]*

35.2.1 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.

35.2.1.1 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 *Activating and deactivating Hub use [▶Page 239]*.

☑ The license for using the Hub is activated. Information on this can be found in the section *Licenses [▶Page 58]*.

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

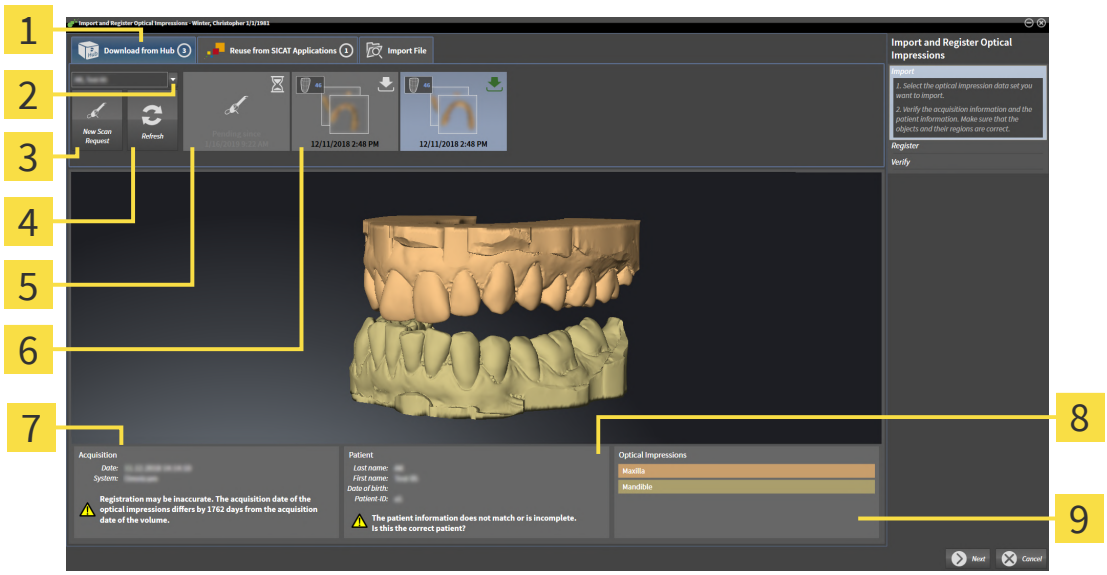
1. Click on the **Import and Register Optical Impressions** icon.

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

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

3. Select a patient.

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

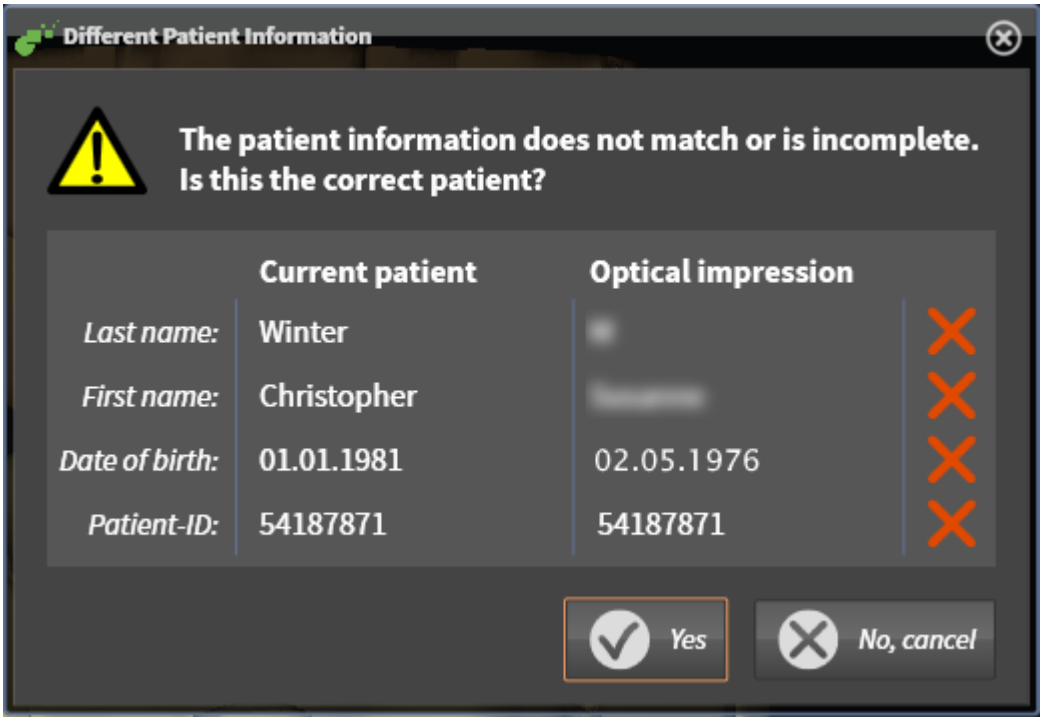


1	**Download from Hub** tab
2	**Patient selection** button
3	**New Scan Request** button
4	**Refresh** button
5	Scan request with status: pending not yet downloaded
6	Available optical impressions with status: not yet downloaded already downloaded
7	Scan information
8	Patient information
9	**Optical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

4. 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.

5. Check the selection for registration.
6. Check whether the scan information and patient information match.
7. Check the jaws in the **Optical Impressions** area.
8. 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:



9. 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 220]*.

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 215]*.
- In the default setting, the connection to the Hub is disconnected. Information on adjusting the connection can be found in the section *Activating and deactivating Hub use [▶Page 239]*.
- 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 58]*.

35.2.1.1.1 CREATING A SCAN REQUEST FOR AN OPTICAL IMPRESSION

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

☑ The connection to the Hub is established. Information on this can be found in the section *Activating and deactivating Hub use [▶Page 239]*.

☑ The license for using the Hub is activated. Information on this can be found in the section *Licenses [▶Page 58]*.

☑ 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.

3. Select a patient.

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

4. Click on the **New Scan Request** icon.

   ▶ SICAT Air displays the **New Scan Request** window. You can now define specifications for the scan request.

5. Select a dentist.

6. If necessary, enter additional information such as scanning instructions.

7. To send the scan request to the Hub, click on **Create scan request** and confirm the query with OK.

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

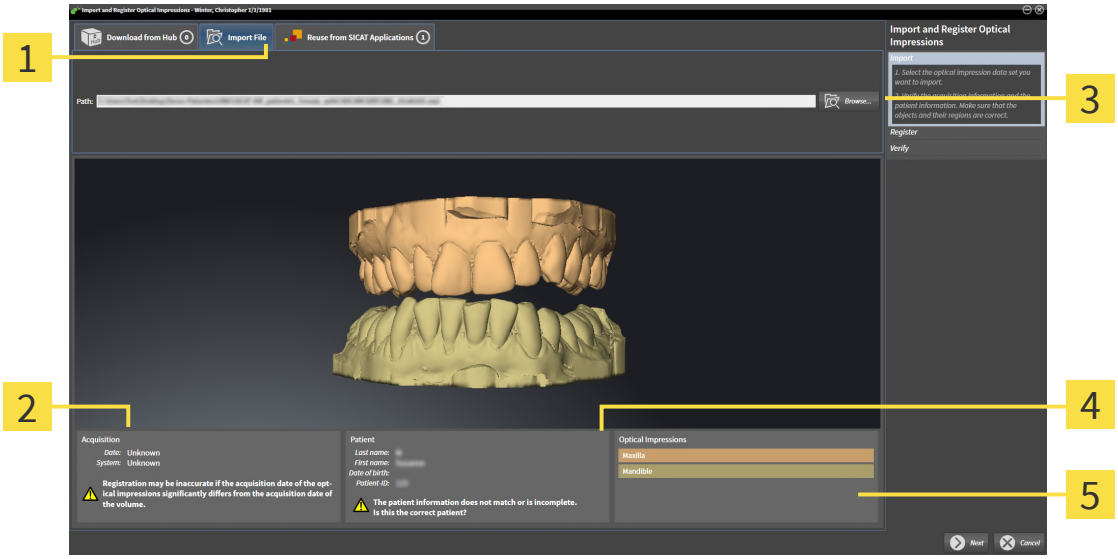
▶ You can edit the scan request in CEREC and take an optical impression in CEREC.

35.2.1.2 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

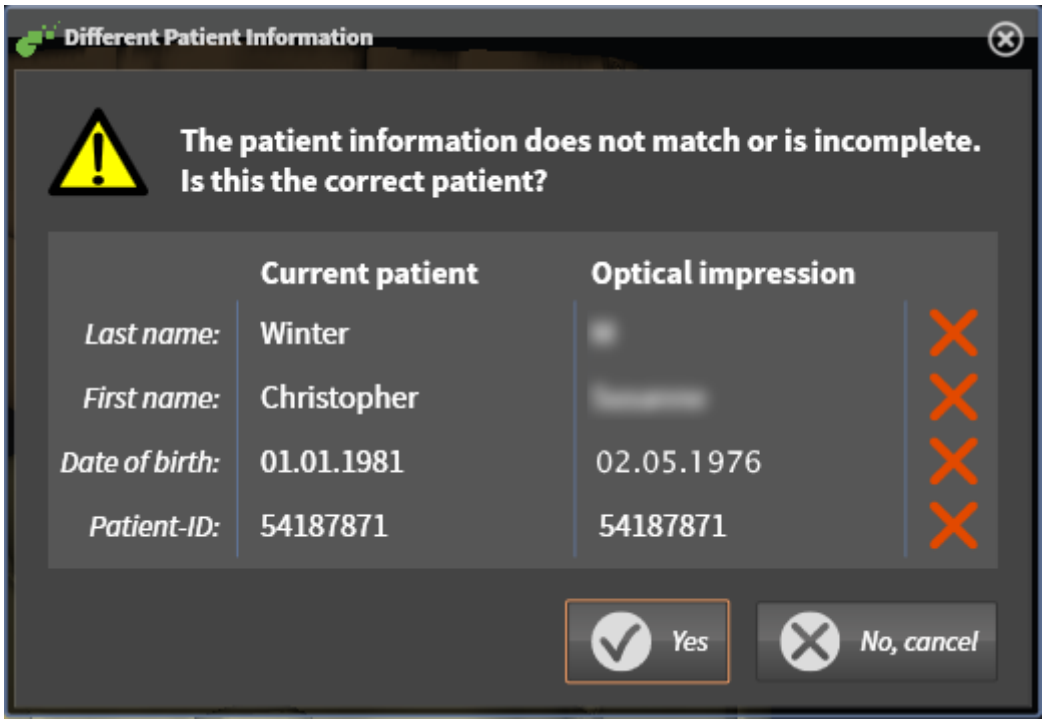
3 **Browse** button

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 218]*.
   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 220]*.

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.

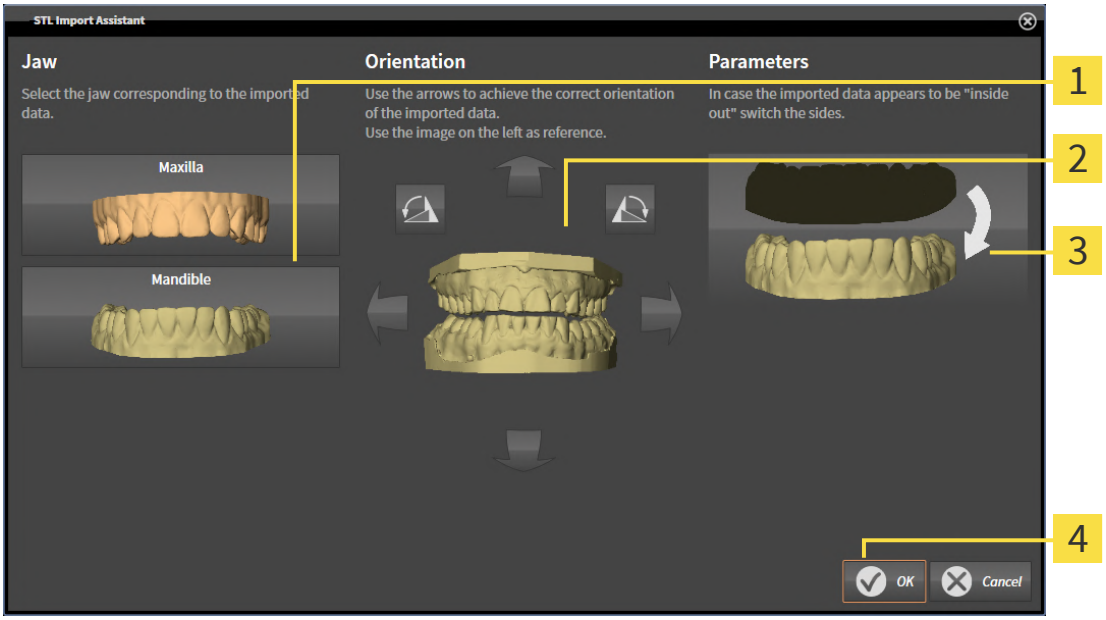
35.2.1.2.1 ADDITIONAL STEPS FOR OPTICAL IMPRESSIONS IN STL FORMAT

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 216]*.

   ▶ 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 216]*.

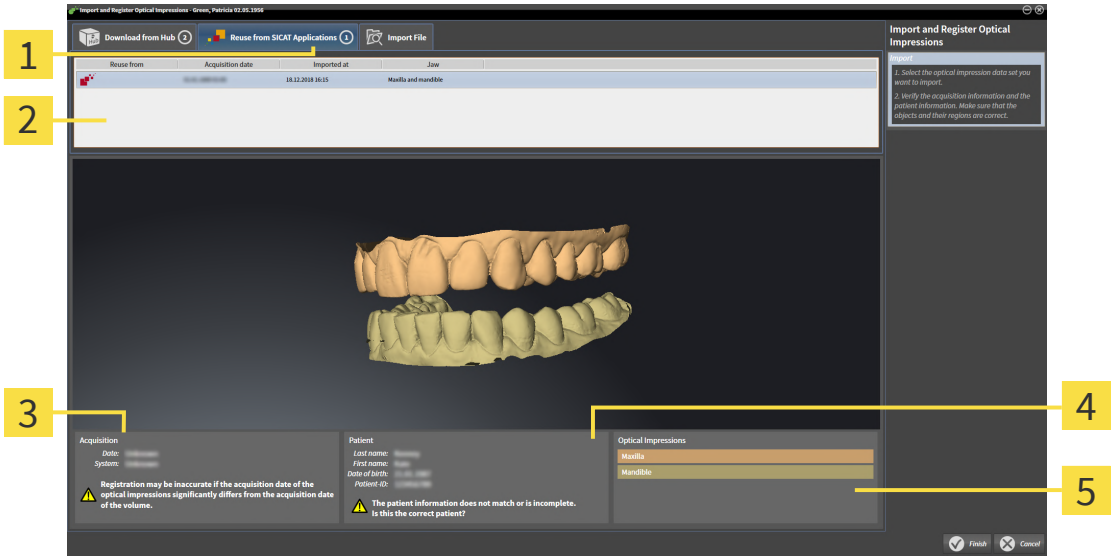
35.2.1.3 RE-USING OPTICAL IMPRESSIONS FROM SICAT APPLICATIONS

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

2 List of re-usable optical impressions

3 Scan information

4 Patient information

5 **Optical Impressions** area

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

▶ SICAT 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.

35.2.2 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.

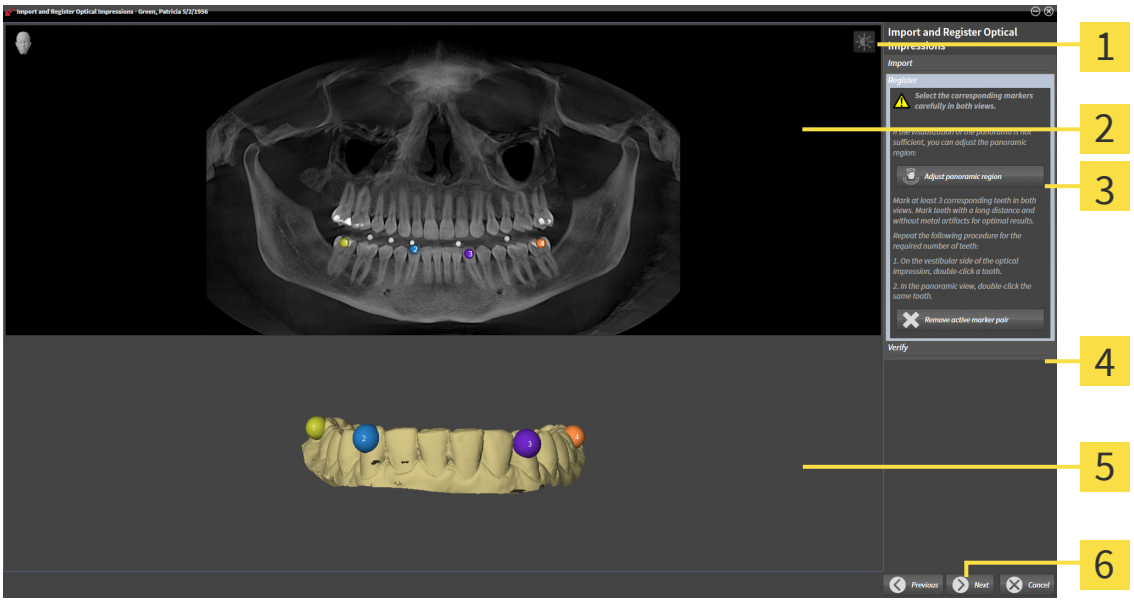
When you register optical impressions, carefully select corresponding markings in the 3D X-ray scans and optical impressions.

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

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

To register and check optical impressions, proceed as follows:

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



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

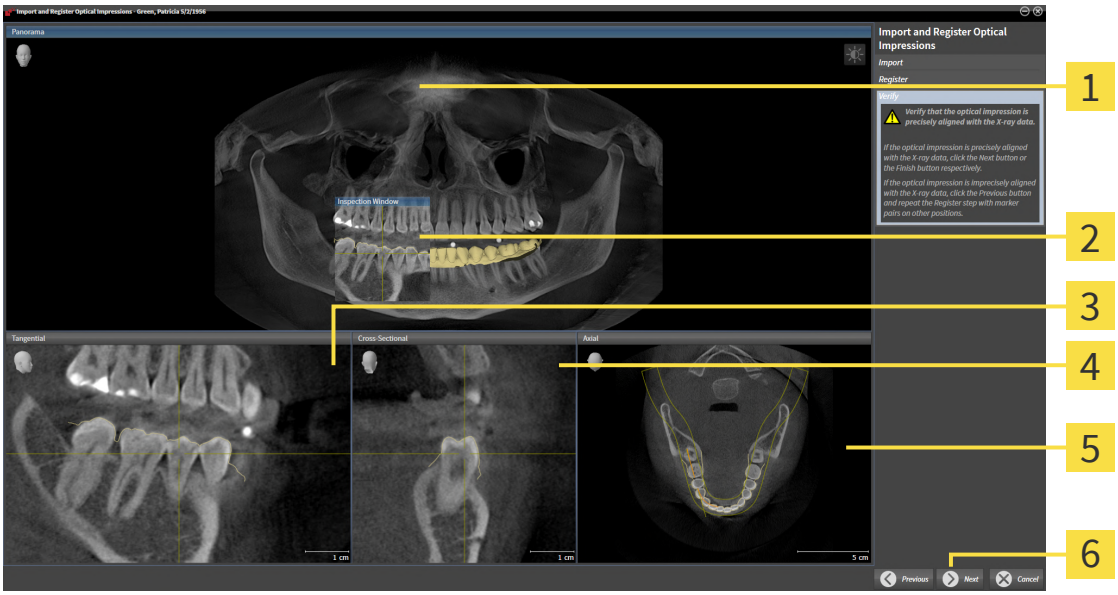
1. Double click the same tooth both in the **Panorama** view and on the vestibular side of the optical impression in the **3D** view. Make sure that the distance between individual teeth is as large as possible and mark only teeth without metal artifacts. Repeat this step until you have marked at least **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 131]*.
- 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 161]*.
- 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**.

35.3 OPENING THE SHOPPING CART

The **Shopping Cart** icon shows the number of elements in the shopping cart.

☑ The shopping cart contains at least one product.

- If the shopping cart is not yet open, click the **Shopping Cart** button on the **Navigation bar**.

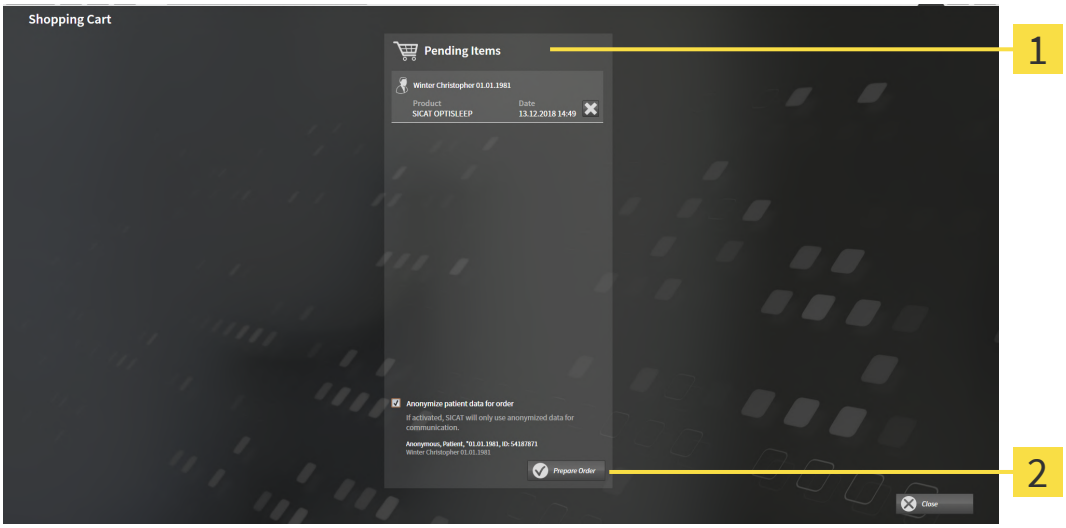
▶ The **Shopping Cart** window opens.

Continue with the following action:

- *Checking the shopping cart and completing the order [▶Page 225]*

35.4 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 224]*.



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.

Patient records for which you are preparing an order are locked until you have finalized your order.

Continue with one of the following actions:

- *Completing an order using an active Internet connection [▶Page 226]*
- *Completing an order without an active Internet connection [▶Page 230]*

35.5 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 234]*.

☑ 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 227]*.

▶ SICAT Suite prepares the order data for uploading.

▶ As soon as the preparations are complete, SICAT WebConnector will transfer the order data via an encrypted connection to the SICAT server.

▶ The status of the order in the shopping cart will change to **Uploading**.

SICAT Suite will display orders until they are fully uploaded. This also applies to orders that are uploaded on another computer if several computers are using the active patient database. You can pause, continue and cancel the uploading of orders in the shopping cart that have been started on the current computer.

If you log off from Windows while uploading the orders, SICAT WebConnector will pause the process. The software will continue uploading automatically after you log back on.

35.6 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.

35.7 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]*.

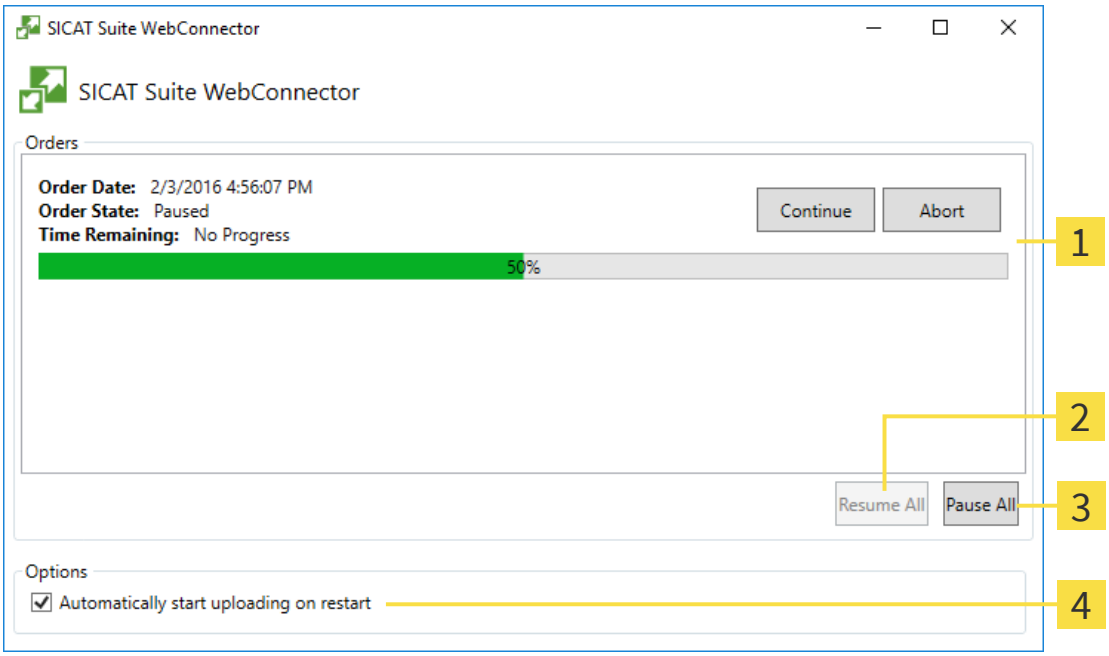
In certain versions of Windows, you have to set a standard browser in order for the ordering process to work.

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.

35.8 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.

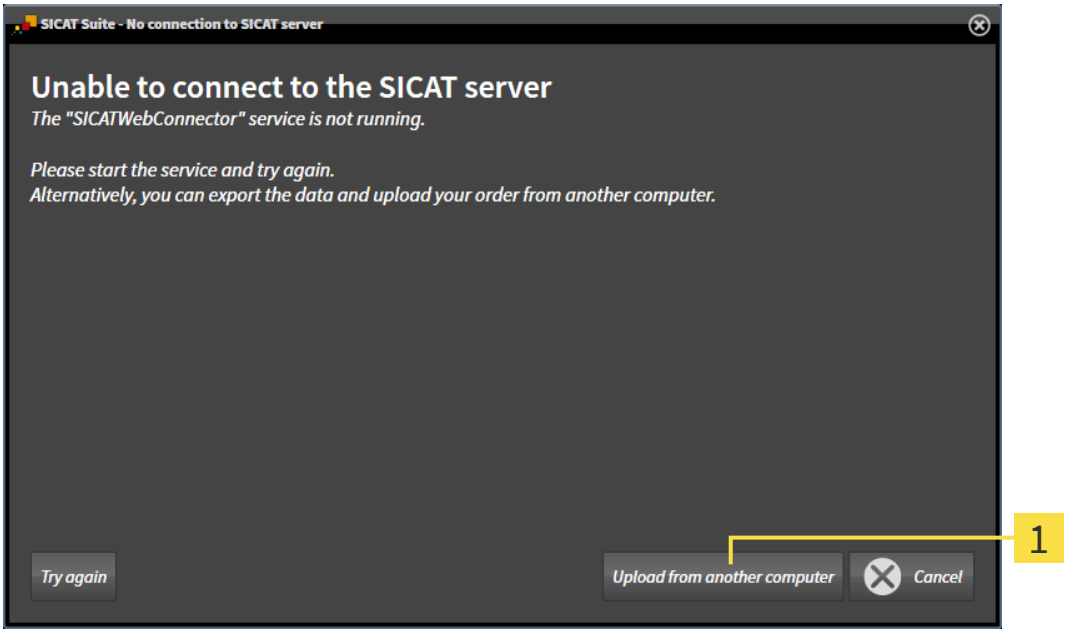
If you have deactivated the **Allow access to the Internet for placing orders** checkbox in the settings on the **General** tab, the **Sending the order from another computer** window opens directly.

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.

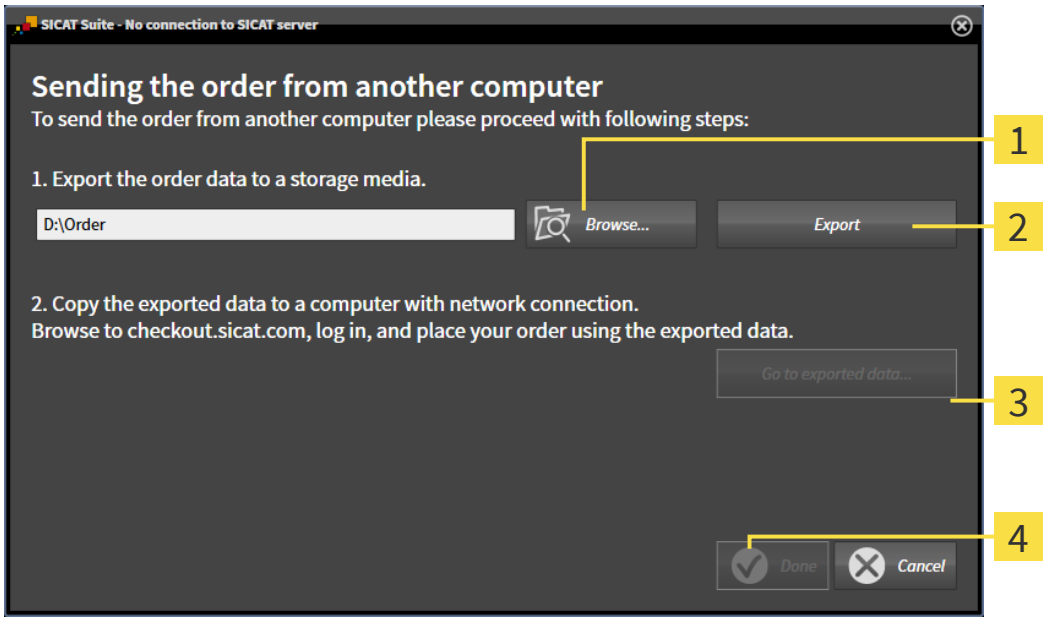
☑ A window will appear with the following message: **Unable to connect to the SICAT server**



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

2 **Export** button

3 **Go to exported data** button

4 **Done** button

2. Click on the **Browse** button.

   ▶ A Windows Explorer window opens.

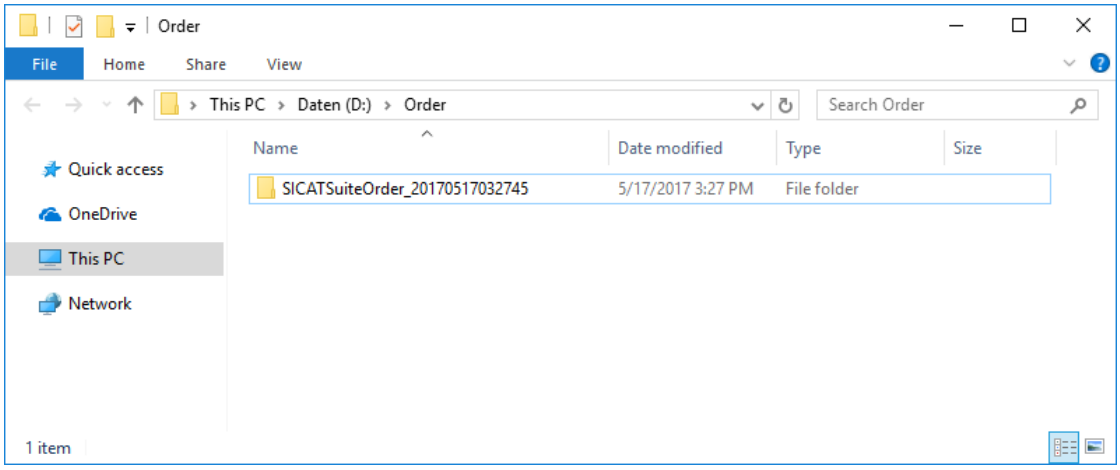
3. Select an existing directory or create a new directory and click on **OK**. Please note that the path to the directory must not be longer than 160 characters.

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 227]*.

14. Click on the link to upload the planning data for the product.

15. Select the corresponding product data on the computer with the active Internet connection. This is a Zip archive that is located in the same folder as the previously uploaded XML file and whose file name starts with **SICATSuiteExport**.

▶ Once you have executed the order, your browser will transfer the archive with the product data to the SICAT server via an encrypted connection.

SICAT Suite does not automatically delete exported data. When an ordering process is completed, you should delete exported data manually for security reasons.

36 SETTINGS

You can change or view general settings in the **Settings** window. After you have clicked on the **Settings** icon, the option bar will show the following tabs on the left-hand side of the **Settings** window:

- **General** - Information on this can be found in the section *Using general settings [▶Page 234]*.
- **Patient Database** - You can define the connection to a patient database. Information on this can be found in the section *Patient database [▶Page 69]*.
- **Licenses** - Information on this can be found in the section *Licenses [▶Page 58]*.
- **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 238]*.
- **SIDEXIS 4** - Only relevant if SIDEXIS 4 is installed on your system.
- **Hub** - Activating or deactivating Hub use. Information on this can be found in the section *Activating and deactivating Hub use [▶Page 239]*.
- **Visualization** – Changing general visualization settings. Information on this can be found in the section *Changing visualization settings [▶Page 241]*.
- **SICAT Air** – Changing application-specific settings of SICAT Air. Information on this can be found in the section *Changing SICAT Air settings [▶Page 243]*.

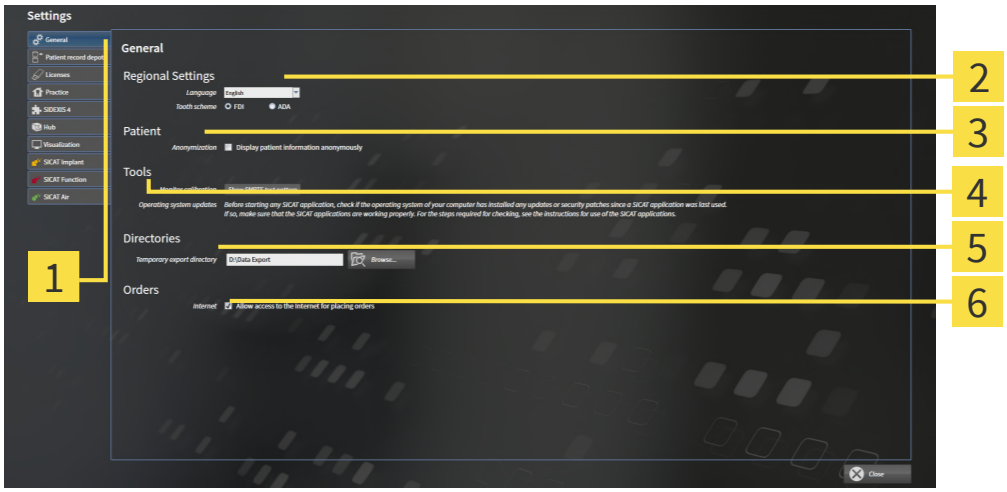
If you change the settings, SICAT Air will apply the changes immediately and saves the settings in your user profile.

36.1 USING GENERAL SETTINGS

To open the general settings, proceed as follows:

1. Click on the **Settings** icon in the **Navigation bar**.
   ▶ The **Settings** window opens.

2. Click the **General** tab.
   ▶ The **General** window opens:



1 **General** tab	4 **Tools** area
2 **Regional Settings** area	5 **Directories** area
3 **Patient** area	6 **Orders** area

You can change the following settings:

- You can change the language of the user interface in the **Language** list in the **Regional Settings** area.
- You can change the current in the tooth scheme in the **Regional Settings** area under **Tooth scheme**.
- You can change the status of the **Display patient information anonymously** check box in the **Patient** area. If the check box is selected, SICAT Suite will display the attributes of the patient record in the **Navigation bar** as **Patient** for **Last name**, **Anonymous** for **First name** and **01.01.** with the year of birth for **Date of birth**. In the **SICAT Suite Home** window, SICAT will hide the **Recent patient records** list.
- In the **Directories** area, you can enter a folder in the **Temporary export directory** field in which SICAT Suite is to save order information. You must have full access to this folder.
- 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.

The supported tooth schemes are FDI and ADA.

36.2 MONITOR CALIBRATION WITH THE SMPTE TEST IMAGE

CAUTION

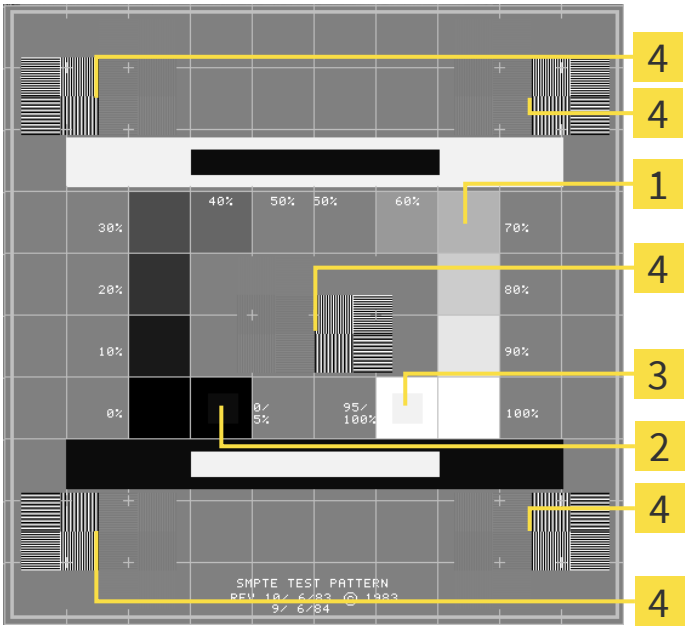
Insufficient environmental visualization conditions could result in incorrect diagnosis and treatment.

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.

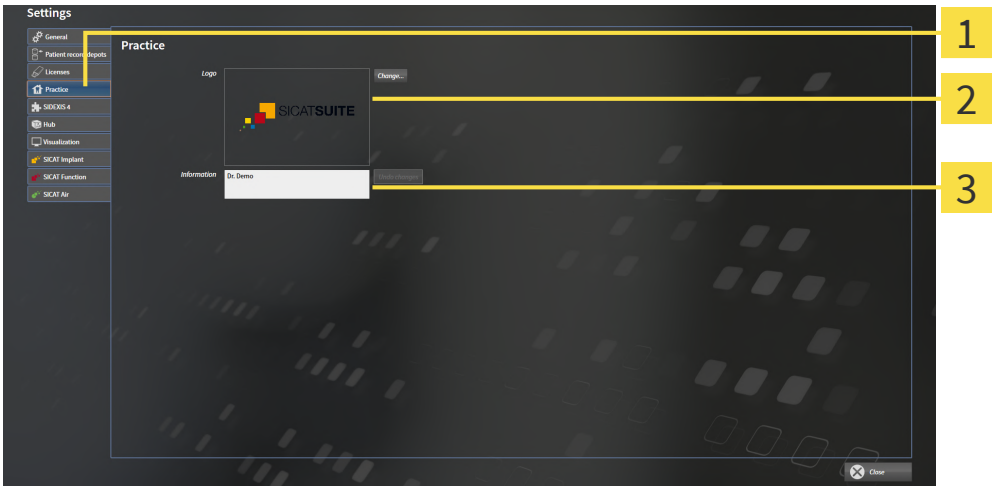
36.3 USING PRACTICE INFORMATION

The applications in SICAT Suite use the information displayed here to customize outputs or PDF files.

To open the practice information, proceed as follows:

1. Click on the **Settings** icon in the **Navigation bar**.
   ▶ The **Settings** window opens.

2. Click the **Practice** tab.
   ▶ The **PRACTICE** window opens:



1 **Practice** tab

2 **Logo** area

3 **Information** area

You can change the following settings:

- You can set the logo of your practice in the **Logo** area. You can select the logo of your practice using the **Change** button. SICAT Suite copies the selected file to your SICAT Suite user directory.
- You can enter a text which identifies your practice, for example the name and address, in the **Information** area. You can increase the number of lines to a maximum of five by pressing the **Enter** key. You can undo changes to the information text by clicking the **Undo changes** button.

36.4 ACTIVATING AND DEACTIVATING HUB USE

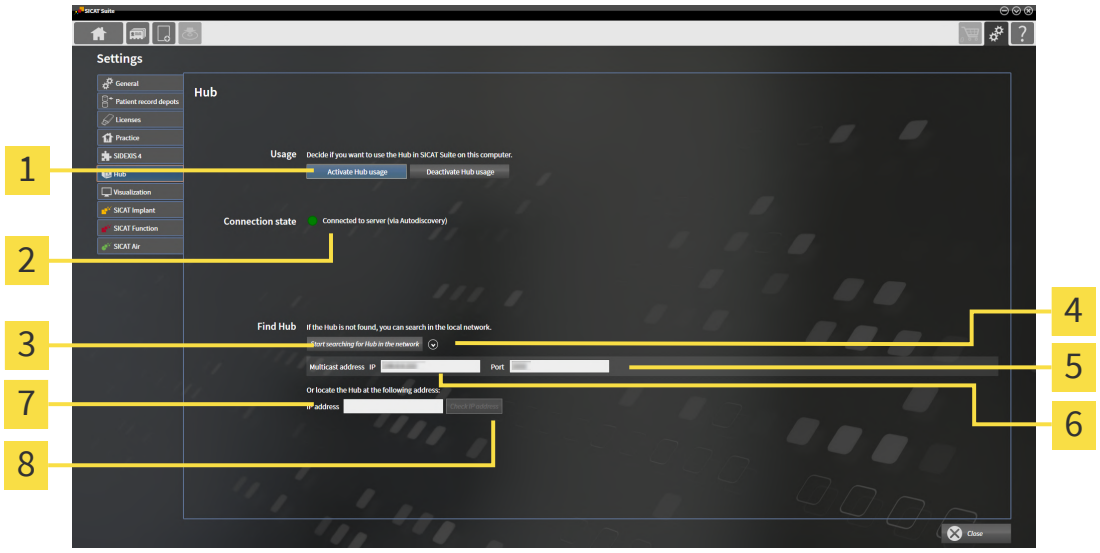
In the settings, you can activate and deactivate Hub use and check the connection settings. In the default setting, Hub use is deactivated.

ACTIVATING HUB USE

☑ The license for using the Hub is activated. Information on this can be found in the section *Licenses* *[▶Page 58]*.

1. Click on the **Settings** icon in the **Navigation bar**.
   ▶ The **Settings** window opens.

2. Click on the **Hub** tab.
   ▶ The **Hub** window opens:



1	**Activate Hub usage** and **Deactivate Hub usage**	5	Input field **Port**
2	**Connection state**	6	Input field **Multicast address IP**
3	**Start searching for Hub in the network** button	7	Input field **IP address**
4	Show and hide	8	**Check IP address** button

3. Click on the **Activate Hub usage** button.
   ▶ SICAT Suite attempts to connect to the Hub.
   ▶ If a green icon appears next to **Connection state**, SICAT Suite was able to connect to the Hub.
   ▶ If a red icon appears next to **Connection state**, SICAT Suite was not able to connect to the Hub.

4. If SICAT Suite was not able to connect to the hub, check whether the multicast address set on the Hub differs from the one shown here:
   – Click on the icon next to the **Start searching for Hub in the network** button.
   – In the **Multicast address** field, enter the multicast address set on the Hub. By default, the multicast address is 239.0.0.222.

– In the **Port** field, enter the port set on the Hub. By default, the port is 2222.
– Click on the **Start searching for Hub in the network** button. When SICAT Suite finds the Hub, the green icon is displayed and the Hub can be used.

5. If SICAT Suite was not able to connect to the Hub using a multicast address, try connecting by directly entering the Hub's IP address:
– Enter the Hub's IP address in the field **IP address** and click on the **Check IP address** button. If SICAT Suite finds the Hub under the specified IP address, the Hub can be used.

6. If SICAT Suite was not able to connect to the Hub using either a multicast address or the Hub's IP address, contact customer support for the Hub.

DEACTIVATING HUB USE

1. Click on the **Settings** icon in the **Navigation bar**.

2. Click on **Hub** in the **Settings** window.
   ▶ The **Hub** window opens.

3. Click on the **Deactivate Hub usage** button.
   ▶ SICAT Suite deactives Hub use.

36.5 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.
   ▶ The **Settings** window opens.

2. Click the **Visualization** tab.
   ▶ The **Visualization** window opens:

1 **Visualization** tab

2 **IMAGE QUALITY** area

3 **UPDATE OF OTHER VIEWS** area

4 **LINE THICKNESS** area

5 **VIEWING DIRECTION** area

The settings are:

- **Improve image quality of slices** – Improves the image quality of slices as the software averages adjacent slices. Activate this setting only on high-performance computers.
- **UPDATE OF OTHER VIEWS** – Delayed updates improve the interactivity of the active view but causes delays in the updating of other views. Activate delayed updates only if you detect interactivity problems on your computer.
- **LINE THICKNESS** – Changes the thickness of lines. Thicker lines are useful for presentations on projectors.
- **VIEWING DIRECTION** – Switches the viewing directions of the **Axial** slice view and **Sagittal** slice view.

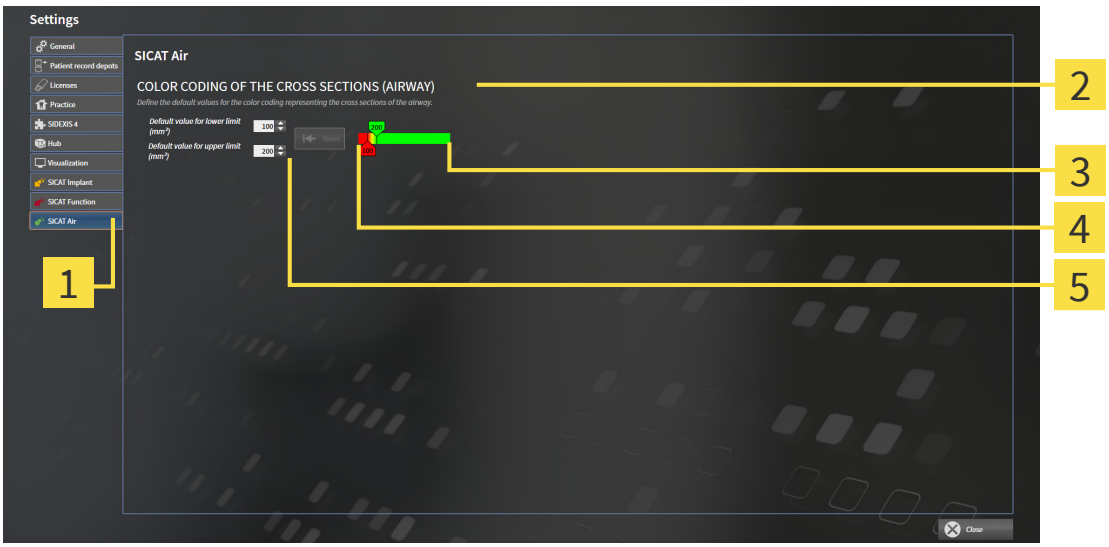
36.6 CHANGING SICAT AIR SETTINGS

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.
   ▶ The **Settings** window opens.

2. Click the **SICAT Air** tab.
   ▶ 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 mm^2, 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 mm^2, 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.

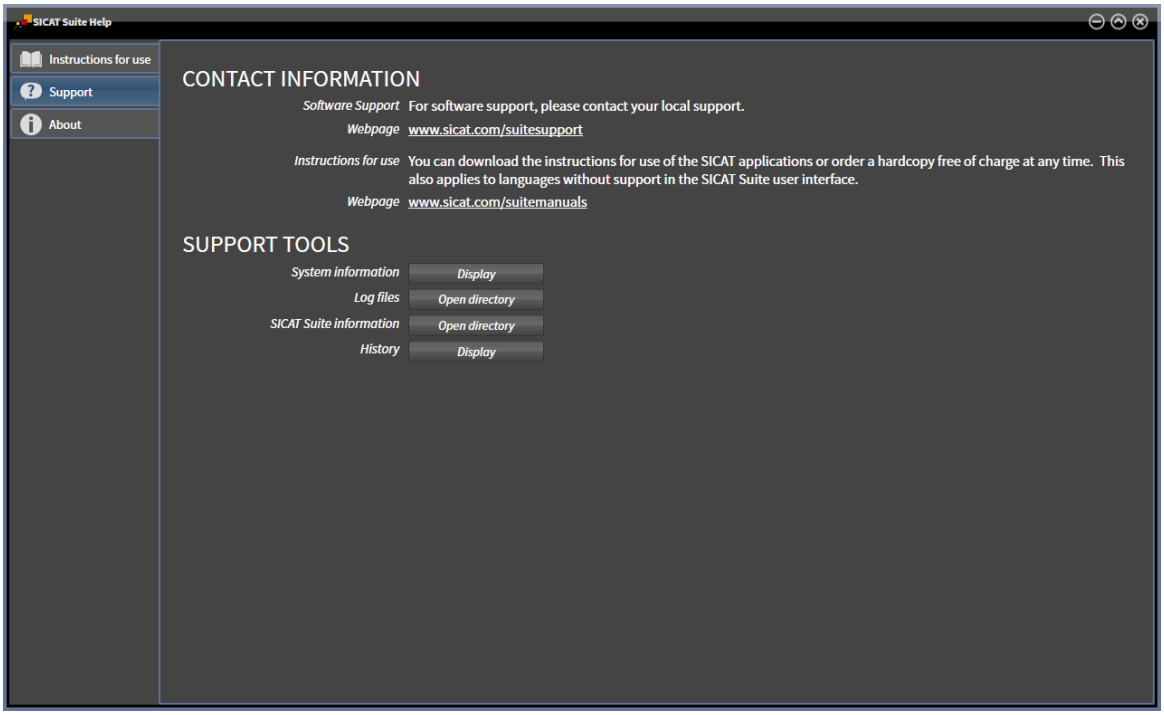
37 SUPPORT

SICAT offers you the following support options:

- PDF documents
- Contact information
- Information on the installed SICAT Suite and SICAT applications

Continue with the following action:

- *Opening the support options [▶Page 245]*



37.1 OPENING THE SUPPORT OPTIONS

You can open the **Support** window by clicking the **Support** icon in the **Navigation bar** or pressing the F1 key.

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

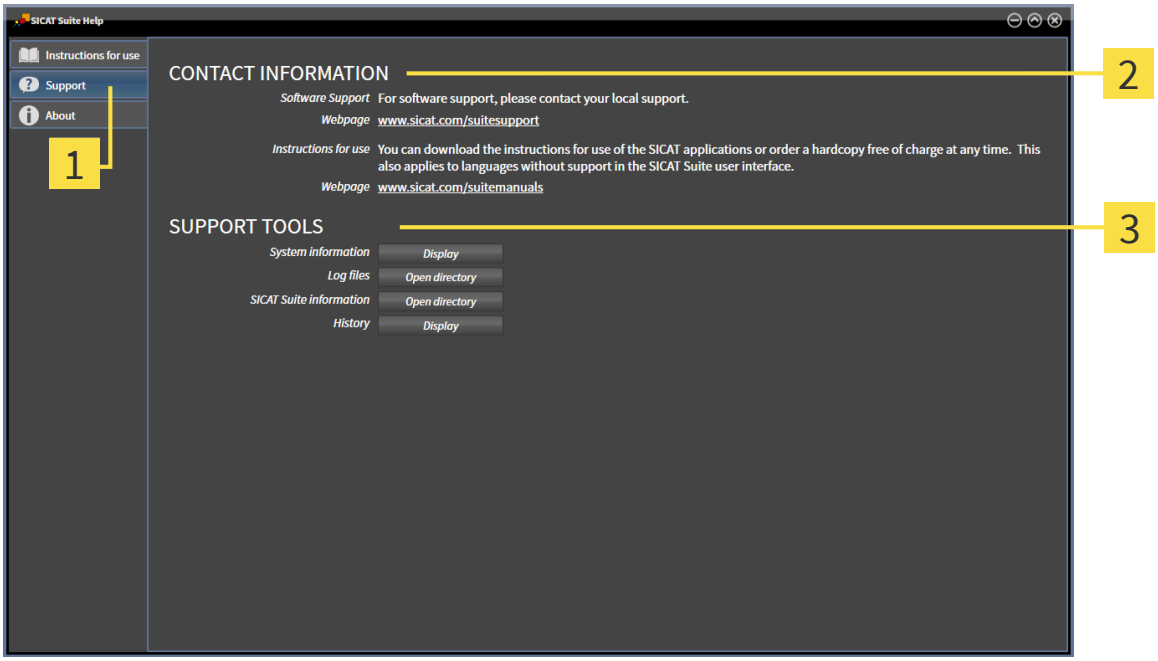
- **Instructions for use** - Information on this can be found in the section *Opening the instructions for use [▶Page 57]*.

- **Support** - Information on this can be found in the section *Contact information and support tools [▶Page 246]*.

- **About** - Information on this can be found in the section Info.

37.2 CONTACT INFORMATION AND SUPPORT TOOLS

The **Support** window contains all of the relevant information and tools to enable SICAT Support to help you:



1 **Support** tab

2 **CONTACT INFORMATION** area

3 **SUPPORT TOOLS** area

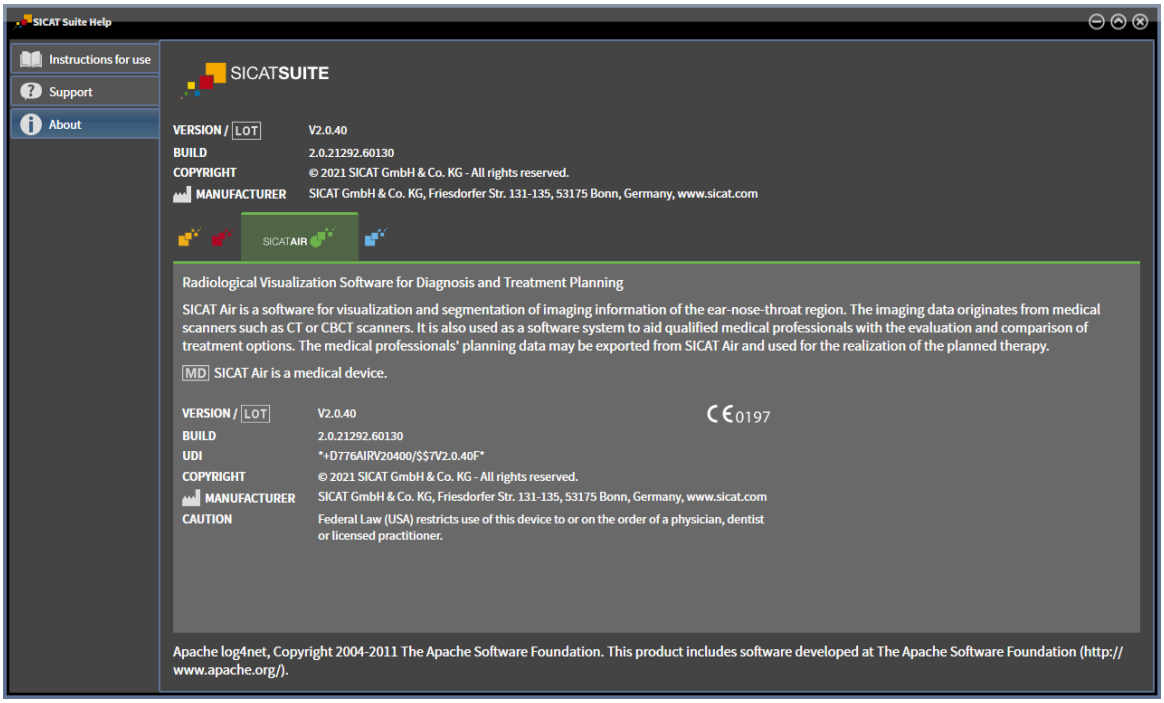
The **CONTACT INFORMATION** area contains information about where you can find the instructions for use.

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.

37.3 ABOUT

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



38 OPENING READ-ONLY DATA

You can open data as read-only.

Which data you can view in the stand-alone version without being able to make and save changes depends on the status of your license:

TYPE OF SICAT AIR LICENSE	VIEWING WITHOUT CHANGES POSSIBLE?
None	Yes, for SICAT data
Viewer	Yes
Full version	Yes, if the patient record is locked

You can only view DICOM data if you have activated a full version license of SICAT Air.

See also

► Working with patient records [► 95]

39 CLOSING SICAT AIR THE AND SAVING PLANNING PROJECTS

To close SICAT Air, proceed as follows:

- Click on the **Close** button in the area of the active patient record.

► SICAT Air saves the active patient record and changes made to planning projects.

► SICAT Air closes.

► SICAT Suite closes the active patient record.

40 CLOSING SICAT SUITE

- Click on the **Close** button in the top right-hand corner of SICAT Suite.

► If the full version of SICAT Suite is running, it has write authorization and a study is opened, it will save all planning projects.

► SICAT Suite closes.

41 KEYBOARD SHORTCUTS

If you move the mouse pointer over certain functions, SICAT 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

42 UNINSTALLING SICAT SUITE

The SICAT Suite uninstallation program maintains active licenses on your computer. Therefore, SICAT Suite warns you that it will not automatically delete licenses before the uninstallation. If you no longer wish to use SICAT Suite on this computer, deactivate the licenses before uninstallation. Information on this can be found in the section *Returning workstation licenses to the license pool [▶Page 66]*.

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 228]*.

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.

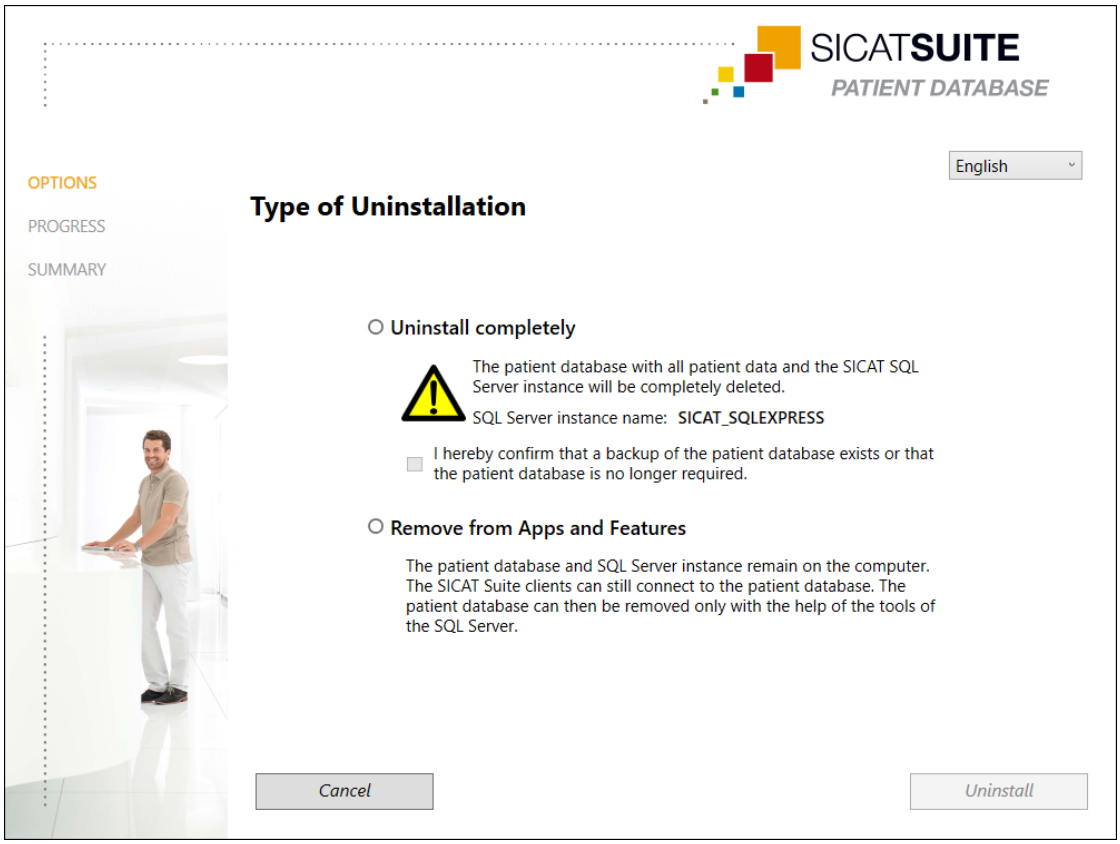
43 UNINSTALLING THE SICAT SUITE PATIENT DATABASE

To uninstall SICAT Suite Patient Database, proceed as follows:

☑ SICAT Suite has already been uninstalled.

1. Click on **Programs and features** in the Windows **Control panel**.
   ▶ The **Programs and features** window opens.

2. Select the entry **SICAT Suite Patient Database** from the list. This entry contains the version number of the SICAT Suite Patient Database.
   ▶ The SICAT Suite Patient Database uninstallation program starts. The **OPTIONS** window opens:



3. Select the check box **Uninstall completely** to completely uninstall the SICAT Suite Patient Database or select the check box **Remove from Apps and Features** to only remove the SICAT Suite Patient Database entry from **Programs and features**.

4. If you want to uninstall the SICAT Suite Patient Database completely and have saved the patient data or no longer need it, enable the check box **I hereby confirm that a backup of the patient database exists or that the patient database is no longer required**.

5. Click on the **Uninstall** button and confirm the prompt.
   ▶ The **PROGRESS** window opens.
   ▶ The SICAT Suite Patient Database is uninstalled.
   ▶ When the uninstallation has been completed, the **SUMMARY** window opens.

6. Click on the **Finish** button.

▶ The SICAT Suite Patient Database uninstallation program closes.

44 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.

45 ACCURACY

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

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

GLOSSARY

3D X-ray scan

A 3D X-ray scan is a volumetric X-ray image.

ADA

American Dental Association

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.

Navigation bar

The navigation bar in the upper part of SICAT Suite contains the most important icons in SICAT Suite. If a patient record is active, the navigation bar allows switching between patient records and different applications.

Optical impressions

An optical impression is the result of a 3D surface scan of teeth, impression material or plaster casts.

Patient record

A patient record contains all 3D scans and planning projects that belong to a certain patient. SICAT Suite saves patient records in patient databases.

Patient record depots

A Patient Record Depot contains patient records. SICAT Suite up to version 2.0.20 saves Patient Record Depots in folders on a local file system or network file system.

Planning project

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

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.

Smallest slice area

The smallest slice area is the place in the airway with the smallest cross-sectional area.

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

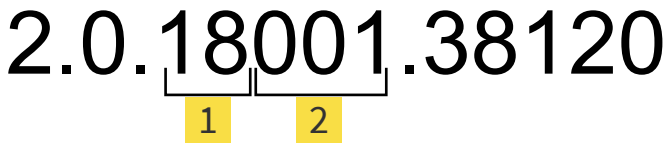
The lot number indicated in the software. Information on this can be found in the section *About [▶Page 247]*.

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 247]*.

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)

REVISION: 2021-12-02

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