SICATFUNCTION

SICAT FUNCTION *VERSION 2.0.40*

Instructions for use | English | SIDEXIS 4

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1 INTENDED PURPOSE

INTENDED PURPOSE

SICAT Function is a software application for the visualization and segmentation of imaging information of the oral-maxillofacial region and for the visualization of mandibular movement. The imaging data originates from medical scanners such as CT or CBCT scanners and optical impression systems. Jaw motion information originates from jaw motion tracking devices. SICAT Function is also used as a software system to aid qualified dental professionals with the evaluation of dental treatment options. The dental professionals' planning data may be exported from SICAT Function and used as input data for CAD or Rapid Prototyping Systems.

INDICATIONS

SICAT Function is a software-application for:

- Aiding dental diagnosis in the oral-maxillofacial region
- Aiding diagnosis and treatment planning of Temporomandibular Dysfunction (TMD)
- Aiding diagnosis and treatment planning for oral appliances
- Aiding diagnosis and treatment planning for functional restorations

CONTRAINDICATIONS

There are no contraindications.

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

INTENDED USERS

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

2 CLINICAL BENEFIT

The use of SICAT Function allows to aid the diagnosis/therapy in the oral-maxillofacial region based on fused CT data, optical impression data, and jaw tracking data. Measured jaw motions and jaw positions can be transferred to the CT data and optical impression data. Diagnosis-/therapy-related information like different patient-specific jaw positions, jaw movements and traces, and positions in the temporo-mandibular joints can be visualized and exported.

Using SICAT Function in accordance with the intended purpose allows providing the patient with a better-informed treatment by using combined anatomical information from different modalities compared to using the information from each of these modalities separately. The modalities are in correct spatial alignment including the dynamic information from different patient-specific jaw-movements.

3 VERSION HISTORY

VERSION 2.0.40

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

VERSION 2.0.20

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

VERSION 2.0

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

VERSION 1.4

- 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 46]*.
- 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 Function is able to calculate a virtual hinge axis of the temporomandibular joints based on the jaw motion tracking data.
- SICAT Function shows the lengths of the arms of the Bonwill triangle and calculates the Balkwill angle.

VERSION 1.3

- SIDEXIS 4 module
- Support of Italian, Spanish, Portuguese, Dutch and Russian languages
- The version number of SICAT Function matches the version number of SICAT Suite.
- Alternative option to order therapeutic appliances by manufacturing a plaster model.
- **TMJ** workspace, which shows the motion of segmented condyles.
- Segmentation can be further edited after closing the segmentation window.

VERSION 1.1

- Support of French and Japanese languages
- Volume orientation alignment correction
- Ordering of OPTIMOTION therapeutic appliances
- Change of format for jaw motion tracking data to .jmt files
- Export of optical impressions with integrated anatomical traces

VERSION 1.0

- Initial release
- Support of English and German languages

4 SYSTEM REQUIREMENTS

CAUTION

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

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

Processor	Quad Core 2.3 Ghz (x64) or higher
RAM	8 GB
Graphics card	Dedicated* DirectX 11 or higher 2 GB graphics memory Current driver supporting at least WDDM 1.0
Screen	Resolution at least 1920x1080 pixels for 100 to 125 percent scale** Maximum resolution 3840x2160 pixels for 100 to 200 percent scale
Free disk space on hard disk	40 GB
Storage media	Access to external storage media containing installation files.
Input devices	Keyboard, mouse
Network	Ethernet, 1 Gbit/s
Printer for patient information	At least 300 dpi Paper format DIN A4 or US letter
Operating system	Windows 10 (64 Bit, Desktop) This operating system will be supported to the extent to and for the duration of which it is supported by Microsoft.
Web browser	Microsoft Edge Mozilla Firefox Google Chrome JavaScript must be activated. A standard browser must be set.
PDF viewer	Adobe Reader DC or higher, for example
Hub	Version 2.X from version 2.1
SIDEXIS 4	Version 4.3.1 or higher (SiPlanAPI V5)

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

** The combination of a low monitor resolution and a high level of scaling may mean that the software displays certain parts of the user interface incompletely.

The monitor must be configured so that it displays the SMPTE test image correctly. Information on this can be found in the section *Monitor calibration with the SMPTE test image* [▶Page 187]

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 170].

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 202]*

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 Function is part of SICAT Suite in addition to other applications. SICAT Suite forms the framework, in which the SICAT applications run. The applications are therefore installed along with SICAT Suite. Information on this can be found in the section *Installing SICAT Suite [▶Page 24]*.

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

- Stand-alone version
- SIDEXIS 4 module

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

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

The applications are also uninstalled along with SICAT Suite. Information on this can be found in the section *Uninstalling SICAT Suite [▶Page 201]*.

8 OVERVIEW OF SICAT SUITE

SICAT Suite comprises the following applications:

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

LANGUAGES:

SICAT Suite supports the following languages in the user interface:

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

LICENSING

The following steps are required to acquire a license for SICAT applications or individual functions:

- You contact your local sales partner.
- You receive a voucher code.
- Using the voucher code, you generate a license key on the SICAT portal (which can be accessed via SICAT home page).
- SICAT adds the license key to your activation key.
- You use your activation key to activate SICAT applications or individual functions in SICAT Suite. Workstation licenses are activated in SICAT Suite and network licenses are activated on the license server in the local practice network.

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

FULL VERSION AND VIEWER MODE

SICAT Suite can start in one of two modes:

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

In general, the following is true:

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

9 OVERVIEW OF THE INSTALLATION

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

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

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

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

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

10 STARTING SICAT SUITE SET-UP

⚠ **CAUTION**	**Changes to the software may mean that the software will not start or will not function as intended.** 1. Do not make any changes to the software installation. 2. Do not delete or change any of the components in the software installation directory.

⚠ **CAUTION**	**If your system does not fulfill the system requirements, this may mean that the software will not start or will not function as intended.** Check whether your system meets the minimum software and hardware requirements before installing the software.

⚠ **CAUTION**	**Insufficient authorizations may mean that the software installation or software update fails.** Make sure you have sufficient privileges on your system if you install or update the software.

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

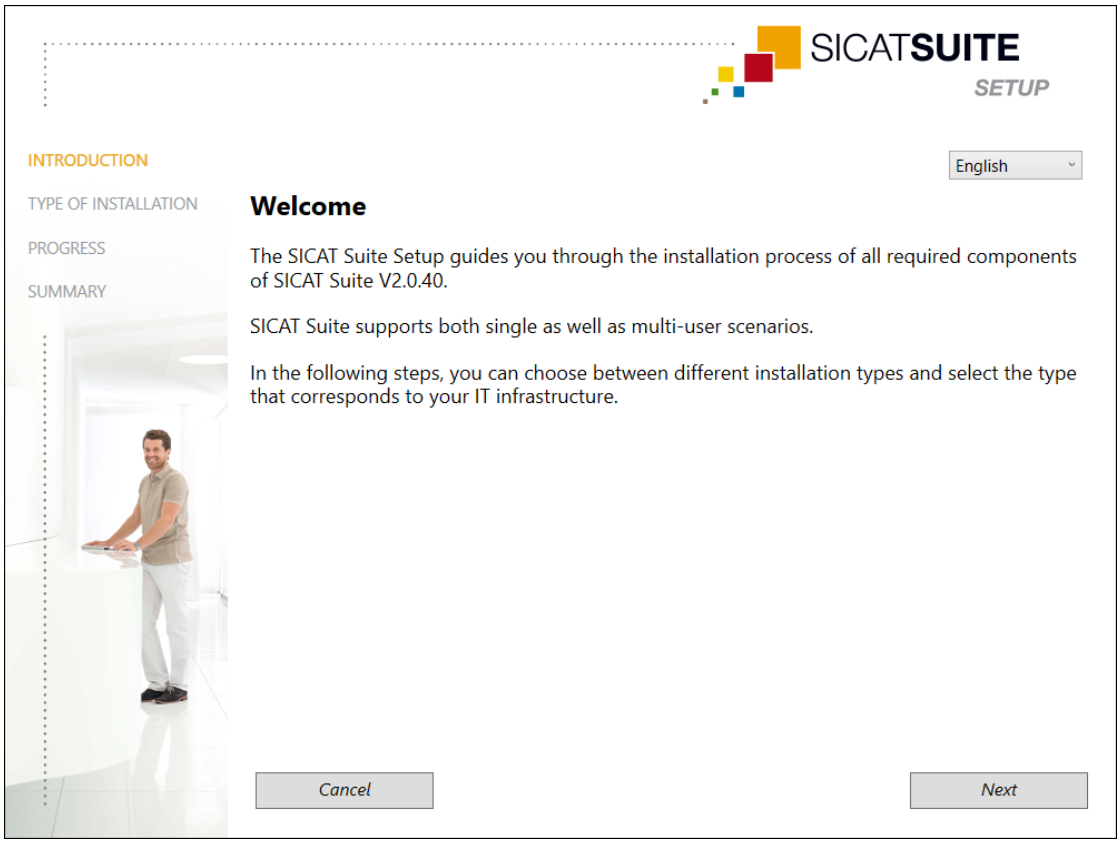
☑ Your computer fulfills the system requirements. Information on this can be found in the section *System requirements [▶Page 10]*.

☑ SICAT Suite can be downloaded from the SICAT website.

1. Download the ZIP file from the SICAT website.

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

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



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

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

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

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

To install SICAT Suite as an add-on module in SIDEXIS 4, you only need the workstation computer installation. Information on this can be found in the section *Installation as workstation computer installation [▶Page 22]*.

10.1 INSTALLATION AS WORKSTATION COMPUTER INSTALLATION

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

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

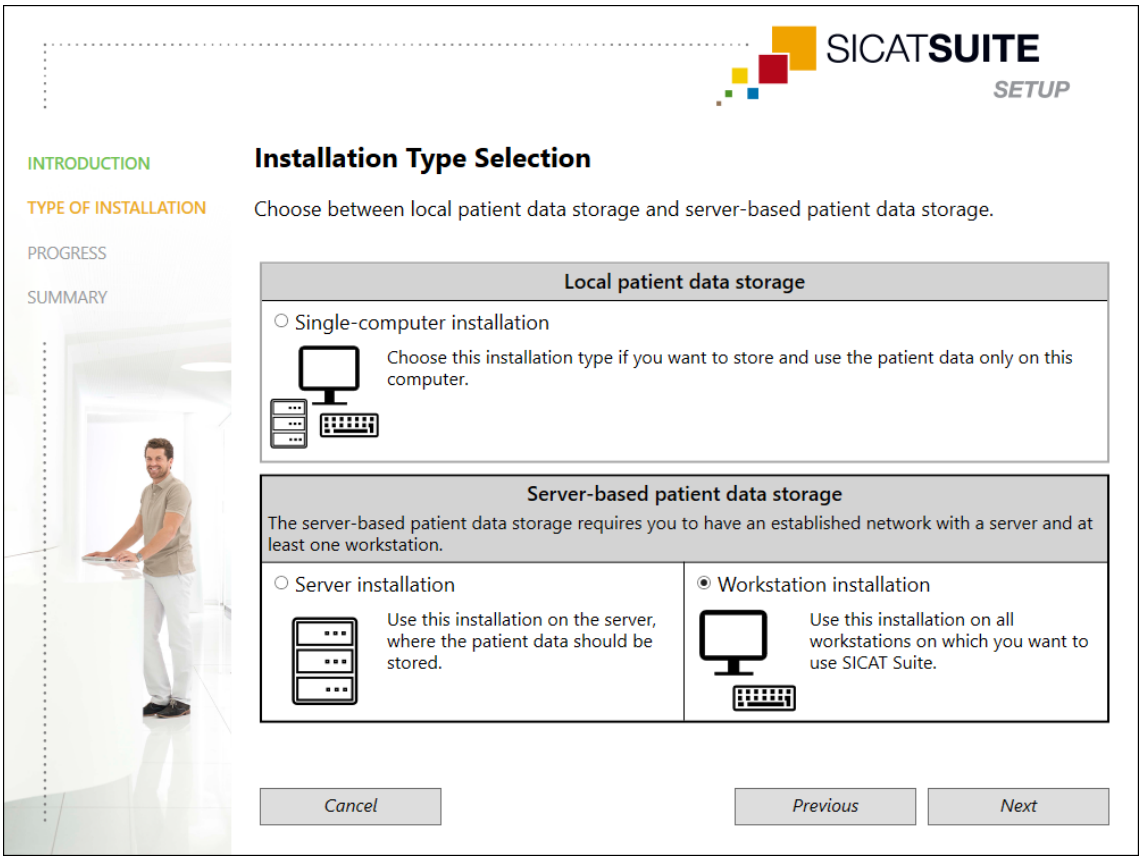
If you install SICAT Suite first and then install SIDEXIS 4 you cannot register SICAT Suite as a SIDEXIS 4 module during installation. You can manually register SICAT Suite as a SIDEXIS 4 module later on. For more information, see *Registering and removing SICAT Suite as a SIDEXIS 4 module [▶Page 37]*.

WORKSTATION COMPUTER INSTALLATION

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

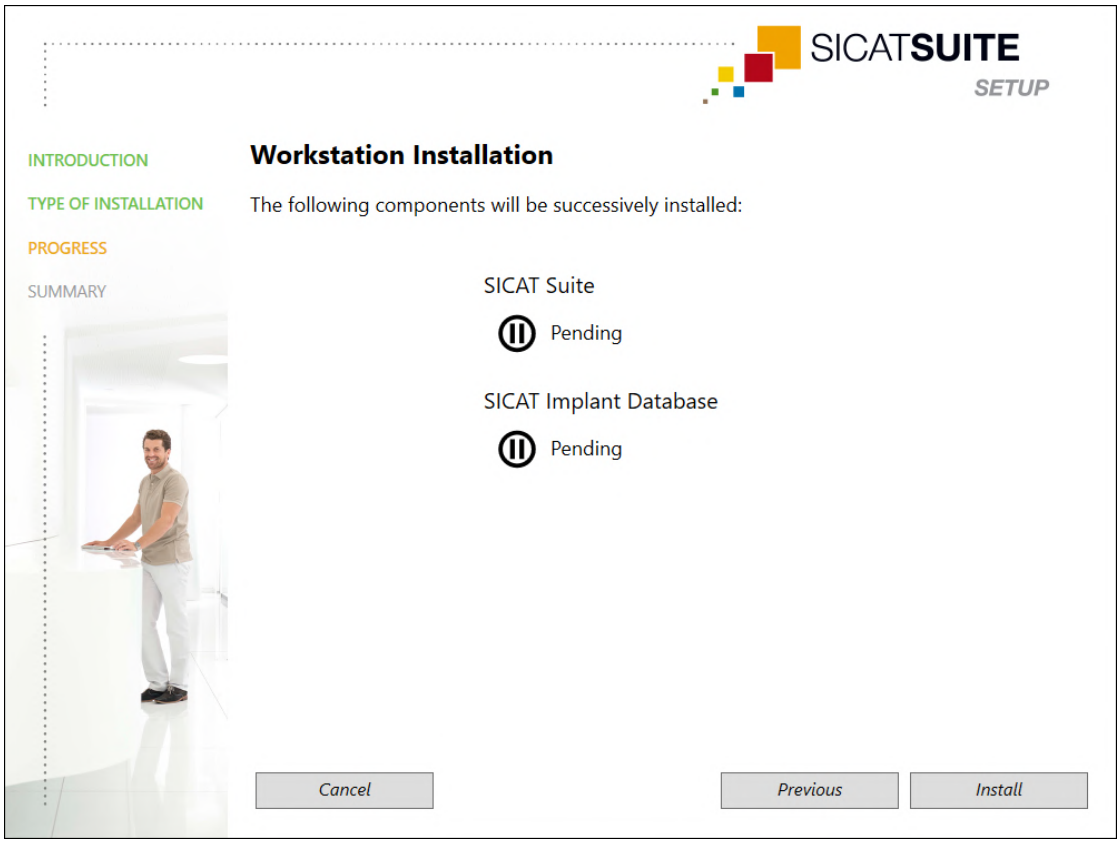
☑ SICAT Suite is to be installed on a workstation computer.

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



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

▶ The **PROGRESS** window opens:



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

2. Click on the **Install** button.
   ▶ The installation process starts. The icon appears for the duration of the installation.
   ▶ The respective installers for the required software components for a workstation computer installation are opened one after the other:
   Installing SICAT Suite [▶ Page 24]
   Installing SICAT Implant Database
   ▶ When the installation has been completed, the **SUMMARY** window opens.
   ▶ If the software components have been successfully installed, the icon ✓ appears.
3. Click on the **Finish** button.
   ▶ The SICAT Suite set-up closes.

10.2 INSTALLING SICAT SUITE

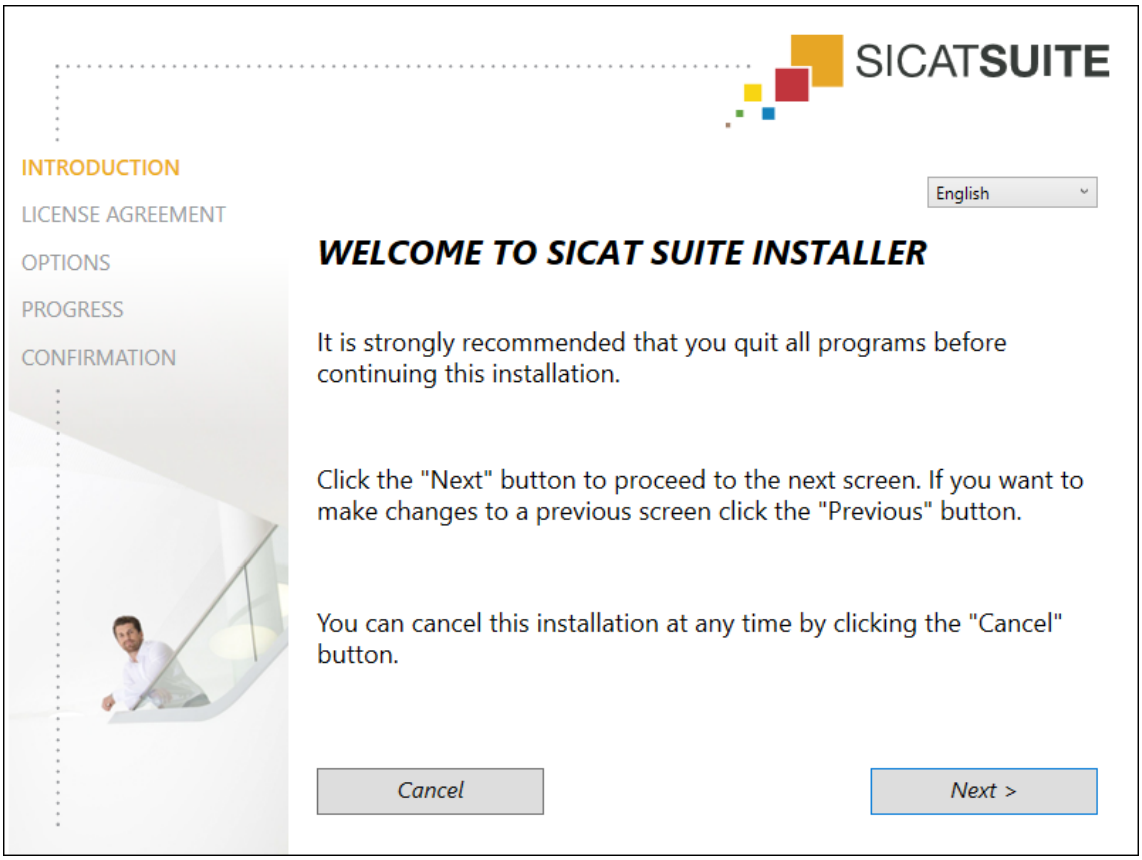
If you install SIDEXIS 4 and then install SICAT Suite, you can register SICAT Suite as a SIDEXIS 4 module during installation. This allows you to use SICAT Suite integrated with SIDEXIS 4.

If you install SICAT Suite first and then install SIDEXIS 4 you cannot register SICAT Suite as a SIDEXIS 4 module during installation. You can manually register SICAT Suite as a SIDEXIS 4 module later on. For more information, see *Registering and removing SICAT Suite as a SIDEXIS 4 module* *[▶Page 37]*.

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

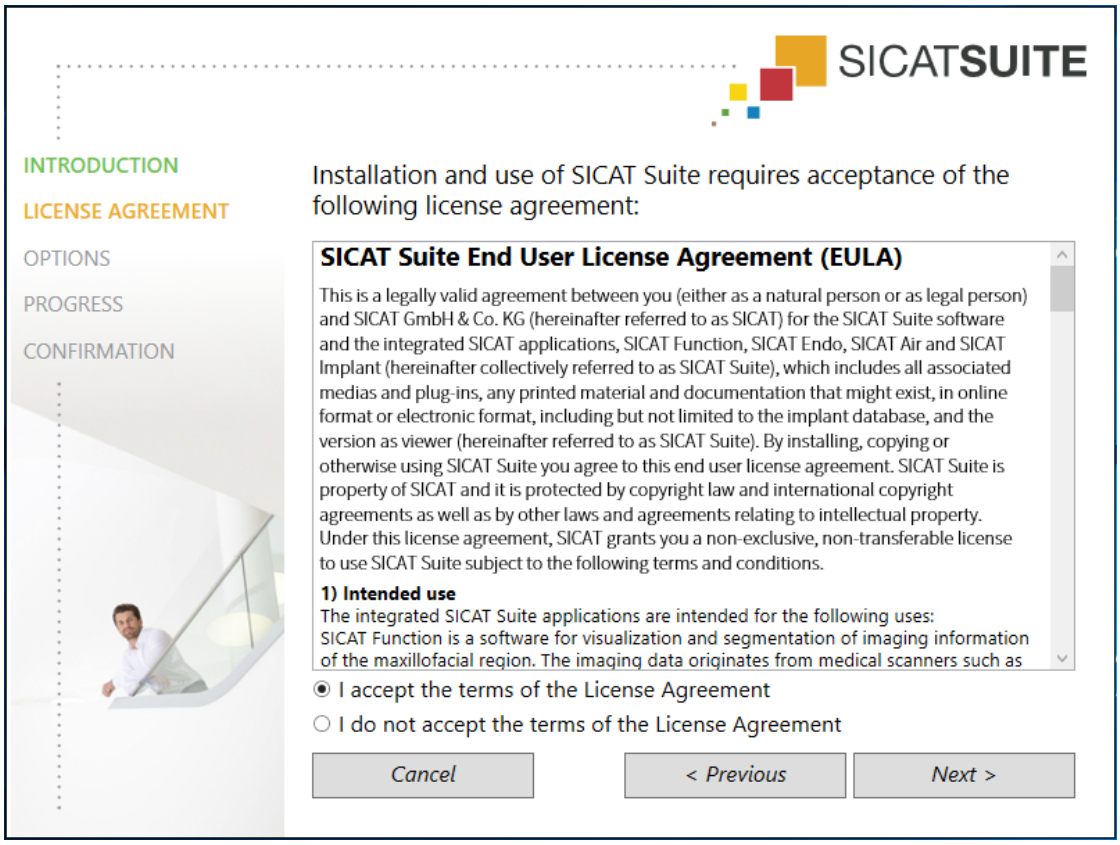
☑ SICAT Suite is not installed.

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



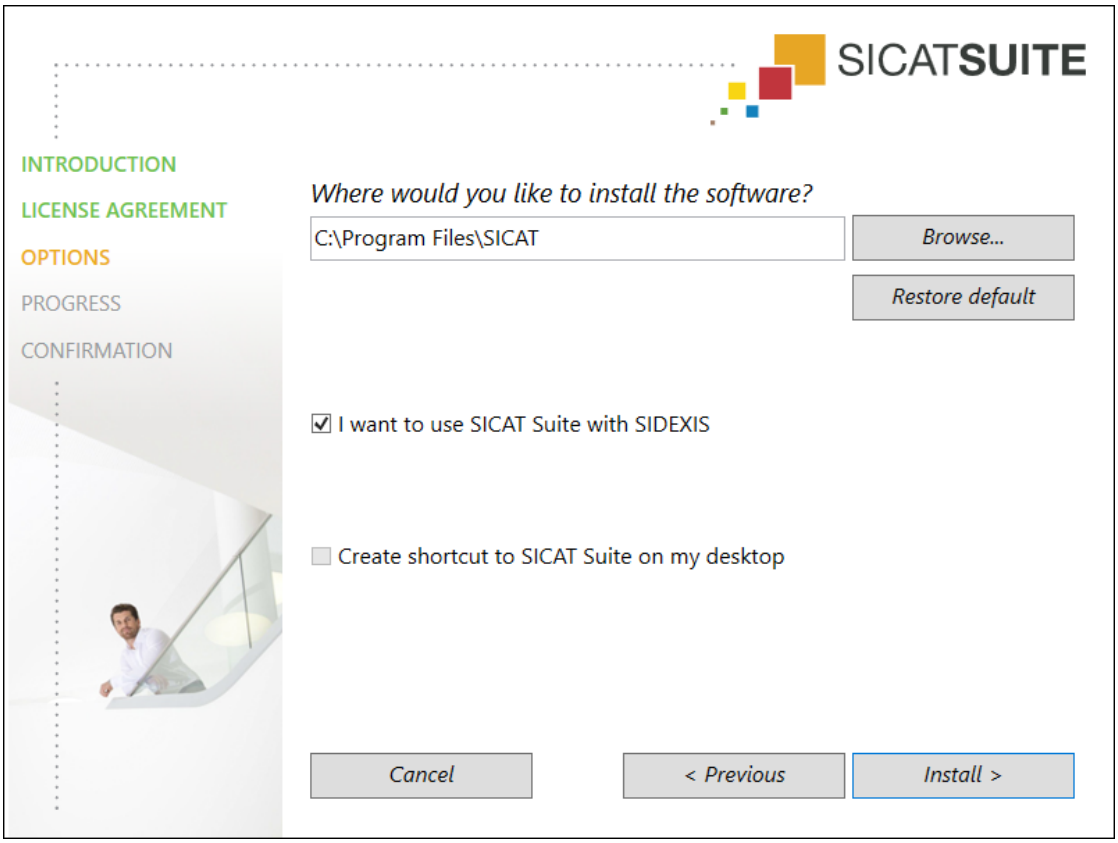
1. Select the desired language for the SICAT Suite installer in the top right-hand corner of the **INTRODUCTION** window and click on **Next**.

▶ The **LICENSE AGREEMENT** window opens:



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

▶ The **OPTIONS** window opens:



3. To change the folder in which the SICAT Suite installer will install SICAT Suite on the hard disk, click on the **Browse** button.
   ▶ The **Select folder** window opens.
4. Browse to the desired folder and click on **OK**.
   ▶ The SICAT Suite installer adds the path to the selected folder in the **Where would you like to install the software** field.
5. If SIDEXIS 4 is installed on your computer, the **I want to use SICAT Suite with SIDEXIS** check box will be available. You can register SICAT Suite during installation or manually register SICAT Suite as a SIDEXIS 4 module later on.
   ▶ If the **I want to use SICAT Suite with SIDEXIS** check box is activated, the **Create shortcut to SICAT Suite on my desktop** check box will not be available.
6. If available, enable or disable the **Create shortcut to SICAT Suite on my desktop** check box.
7. Click on the **Install** button.
   ▶ The **PROGRESS** window opens.
   ▶ SICAT Suite and the remaining required software are installed.
   ▶ When the installation has been completed, the **CONFIRMATION** window opens.
8. Click on the **Finish** button.
   ▶ The SICAT Suite installer closes.

11 PERFORMING TEST STEPS AFTER OPERATING SYSTEM UPDATE

CAUTION

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

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

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

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

PREPARATIONS

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

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

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

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

12 UPDATING OR REPAIRING SICAT SUITE

UPGRADING SICAT SUITE

⚠ **CAUTION**	**Insufficient authorizations may mean that the software installation or software update fails.** Make sure you have sufficient privileges on your system if you install or update the software.

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

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

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

SICAT Suite version 2.0 and higher is not compatible with any version of SIDEXIS 4 lower than V4.3.1. Information on this can be found in the section *System requirements [▶Page 10]*.

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

If SICAT Suite was registered as a SIDEXIS 4 module before the update, the registration will stay the same. If SICAT Suite was **not** registered as a SIDEXIS 4 module before the update, you can also register SICAT Suite manually as a SIDEXIS 4 module to use SICAT Suite integrated with SIDEXIS 4. Information on this can be found in the section *Registering and removing SICAT Suite as a SIDEXIS 4 module [▶Page 37]*.

SIDEXIS XG IS INSTALLED

SICAT Suite version 2.0 is not compatible with SIDEXIS XG. Information on this can be found in the section *System requirements [▶Page 10]*.

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

If SICAT Suite was registered as a SIDEXIS XG plug-in before the update, SICAT Suite will be registered as SIDEXIS 4 module. If SICAT Suite was **not** registered as a SIDEXIS XG plug-in before the update, you can also register SICAT Suite manually as a SIDEXIS 4 module. Information on this can be found in the section *Registering and removing SICAT Suite as a SIDEXIS 4 module [▶Page 37]*.

When you open a 3D X-ray scan after the update, SICAT Suite will check whether there are studies in SIDEXIS XG for this 3D X-ray scan and transfer these from SIDEXIS XG to SIDEXIS 4.

REPAIRING SICAT SUITE

You can repair SICAT Suite. All data and settings will be maintained.

☑ SICAT Suite has already been installed.

☑ SICAT Suite has not been started.

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

13 SPECIAL FEATURES IN THIS VERSION

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

MANUAL REGISTRATION AS A SIDEXIS 4 MODULE

In addition to the automatic connection during installation, you can also manually register and remove SICAT Suite as a SIDEXIS 4 module. Information on this can be found in the section *Registering and removing SICAT Suite as a SIDEXIS 4 module [▶Page 37]*.

PROGRAM START

SICAT Suite will start as a SIDEXIS 4 module within SIDEXIS 4 in the **Plan & Treat** phase. You can find information about how to start SICAT Suite as a SIDEXIS 4 module in the section *Starting SICAT Suite [▶Page 41]*.

PATIENT DATA AND VOLUME DATA

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

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

SETTINGS

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

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

LICENSES

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

TRANSFER OF DATA FROM SIDEXIS 4

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

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

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

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

DATA EXPORT

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

ADDING SCREENSHOTS TO A SIDEXIS 4 OUTPUT

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

SHOPPING CART

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

OPENING STUDIES WITH OR WITHOUT WRITE PERMISSIONS

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

If the computers on which SIDEXIS 4 and SICAT Suite are running are in a network environment, and where permitted by SIDEXIS 4 and the network configuration, SIDEXIS 4 could be part of a multi-workstation installation. One of the results of this is that when SIDEXIS 4 opens a data record, it checks whether the data record is already in use. If this is the case, the data record in SICAT Suite is opened in read-only Viewer mode and you cannot save changes to SICAT Function studies.

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

- A SICAT Function full version license must be activated.

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

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

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

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

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

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

Further information is available in the section *Opening read-only data [▶Page 198]*.

14 THE STANDARD WORKFLOW OF SICAT FUNCTION

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.

DATA RECORDS

SICAT Function combines three different data records:

- 3D X-ray scans, from Dentsply Sirona GALILEOS, for example
- Jaw motion tracking data, from a SICAT JMT⁺ system, for example
- Digital optical impressions, from Dentsply Sirona CEREC, for example

INSTALLATION

Information on how to install SICAT Suite can be found in the section *Installing SICAT Suite [▶Page 24]*.

Information on how to manually register SICAT Suite as SIDEXIS 4 module can be found in the section *Registering and removing SICAT Suite as a SIDEXIS 4 module [▶Page 37]*.

ACTIVATING FULL VERSION

- If you have purchased a license for SICAT Function, activate the license to unlock the full version. Information on this can be found in the section *Licenses [▶Page 46]*.

If you have not purchased a license for SICAT Function, open a 3D X-ray scan in Viewer mode. Information on this is available in the section *Opening read-only data [▶Page 198]*.

SETTINGS

Change the desired settings in the **Settings** area. Information on this can be found in the section *Settings [▶Page 184]*.

ACQUIRING DATA RECORDS

1. Produce a 3D X-ray scan of the patient while the patient is wearing the SICAT Fusion Bite. For more information, please refer to the SICAT JMT⁺ quick guides.
2. Record patient-specific jaw motion tracking data. For more information, please refer to the SICAT JMT⁺ instructions for use.
3. Create digital optical impressions of the maxilla and mandible. For more information, please refer to the instructions for use for the respective device.

OPENING A DATA RECORD

1. Select a 3D X-ray scan or a SICAT Function study in the timeline.
2. Start SICAT Function. Information on this can be found in the section *Starting SICAT Suite [▶Page 41]*.

HOW TO PROCEED IN SICAT FUNCTION

EDITING A DATA RECORD IN SICAT FUNCTION

1. If necessary, adjust the volume orientation and panoramic region. Information on this can be found in the section *Adjusting volume orientation and panoramic region [▶Page 102]*.

2. Import and register the jaw motion tracking data in SICAT Function. Information on this can be found in the section *Importing and registering jaw motion data [▶Page 115]*.

3. Segment the mandible and if necessary the fossa. For further information about this see *Segmenting the mandible [▶Page 121]* and *Segmenting the fossa [▶Page 123]*.

   ▶ SICAT Function visualizes imported jaw motion tracking data in the **3D** view.

4. Import and register the optical impressions with the 3D X-ray data. Information on this can be found in the section *Optical impressions [▶Page 125]*.

5. Examine the jaw motion tracking data in the **TMJ** workspace. For further information about this see *Overview of the TMJ workspace [▶Page 70]* and *Functions in the TMJ workspace [▶Page 149]*. Use the anatomical traces as a guide, particularly if you have not performed segmentation. For further information about this, see *Visualizing anatomical traces in the 3D view [▶Page 146]*, *Adjusting anatomical traces using the inspection window [▶Page 147]*, *Adjusting anatomical traces using the crosshair in a slice view [▶Page 148]* and *Interacting with jaw motion [▶Page 143]*.

6. Define a treatment position for the OPTIMOTION therapeutic appliance. Information on this can be found in the section *Defining a treatment position [▶Page 171]*.

7. Order a OPTIMOTION therapeutic appliance. Information on this can be found in the section *Ordering process [▶Page 170]*.

8. Export data, for example to obtain a second opinion. Information on this can be found in the section *Data export [▶Page 169]*.

ENDING OR PAUSING WORK ON THE DATA RECORD

- To end or pause your work, save it by closing SICAT Suite within SIDEXIS 4. Information on this can be found in the section *Closing SICAT Suite [▶Page 199]*.

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 45]*.

Further support is available in the **Support** area. Information on this can be found in the section *Support [▶Page 194]*.

15 REGISTERING AND REMOVING SICAT SUITE AS A SIDEXIS 4 MODULE

General information on using SICAT Suite with SIDEXIS 4 can be found under *Special features in this version [▶Page 30]*

If you install SICAT Suite after SIDEXIS 4, the SICAT Suite installation program will automatically register it as a SIDEXIS 4 module. Information on this can be found in the section *Installing SICAT Suite [▶Page 24]*.

OPENING THE "SIDEXIS 4" WINDOW

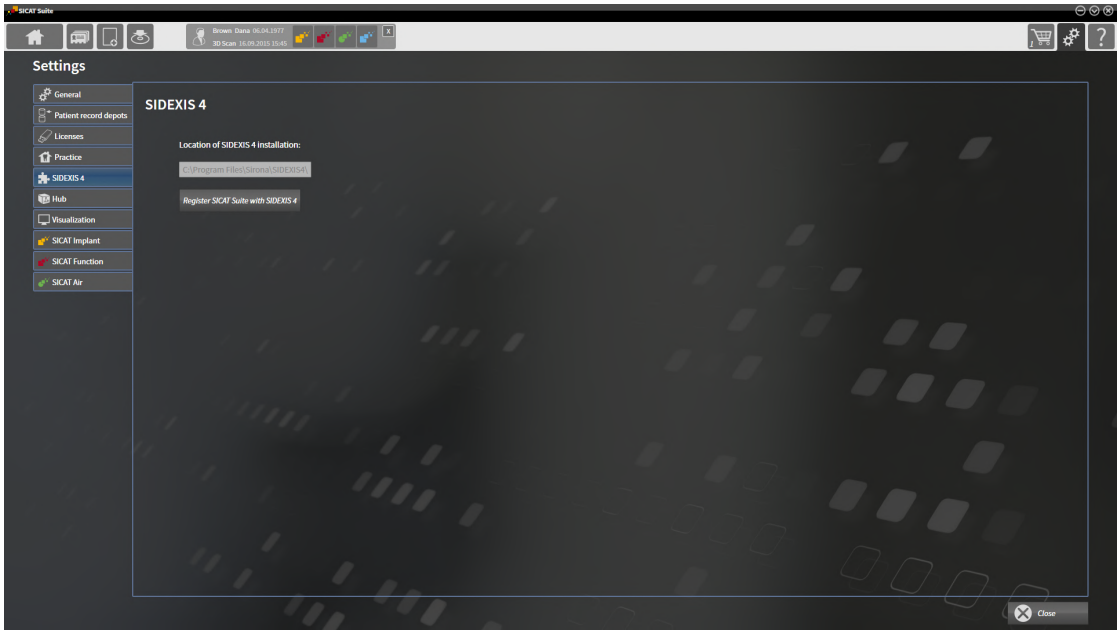
1. Start the stand-alone version of SICAT Suite. Information on this can be found in the section *Starting SICAT Suite [▶Page 41]*.

2. Click on the **Settings** icon.

   ▶ The **Settings** window opens.

3. Click the **SIDEXIS 4** tab.

▶ The **SIDEXIS 4** window opens:



REGISTERING SICAT SUITE AS A SIDEXIS 4 MODULE

☑ SICAT Suite has already been successfully installed. Information on this can be found in the section *Installing SICAT Suite [▶Page 24]*.

☑ SIDEXIS 4 is not open.

☑ The stand-alone version of SICAT Suite has already been started.

☑ The **SIDEXIS 4** window is already open.

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

2. Start SIDEXIS 4.

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

REMOVING SICAT SUITE AS A SIDEXIS 4 MODULE

☑ SICAT Suite is already registered as a SIDEXIS 4 module.

☑ SIDEXIS 4 is not open.

☑ The stand-alone version of SICAT Suite has already been started.

☑ The **SIDEXIS 4** window is already open.

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

2. Start SIDEXIS 4.

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

16 SICAT FUNCTION STUDIES IN SIDEXIS 4

CAUTION

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

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

CAUTION

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

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

CAUTION

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

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

CAUTION

Insufficient visualization quality could result in incorrect diagnosis and treatment.

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

CAUTION

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

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

NOTICE

To ensure the correct diagnosis, treatment and registration of jaw motion tracking data, SICAT recommends the use of 3D X-ray data with the following parameters:

1. Slice thickness less than 0.7 mm
2. Voxel size less than 0.7 mm in all three dimensions

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

SIDEXIS 4 displays preview images of SICAT Function studies if the following conditions have been fulfilled:

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

1	Jaw motion tracking data	4	Treatment position
2	Segmentation	5	Plan
3	Optical impressions	6	Order

The preview pictures contain the following information:

- Availability of jaw motion tracking data
- Availability of temporomandibular joint segmentation
- Availability of optical impressions
- Availability of a treatment position
- Planning not available, in process or completed
- Order not available, therapeutic appliance to be ordered is in shopping cart or order has been uploaded

A bright display of the icons means that the respective element is available in a study.

17 STARTING SICAT SUITE

CAUTION

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

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

CAUTION

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

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

CAUTION

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

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

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

☑ SICAT Suite has already been successfully installed. Information on this can be found in the section *Installing SICAT Suite [▶Page 24]*.

☑ SICAT Suite has already been registered as a SIDEXIS 4 module. Information on this can be found in the section *Registering and removing SICAT Suite as a SIDEXIS 4 module [▶Page 37]*. If SICAT Suite is installed after SIDEXIS 4, registration may take place automatically.

☑ You have already selected a 3D X-ray scan or a study in SIDEXIS 4.

☑ Optionally, you have also selected optical impressions in addition to a 3D X-ray scan or study.

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

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

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

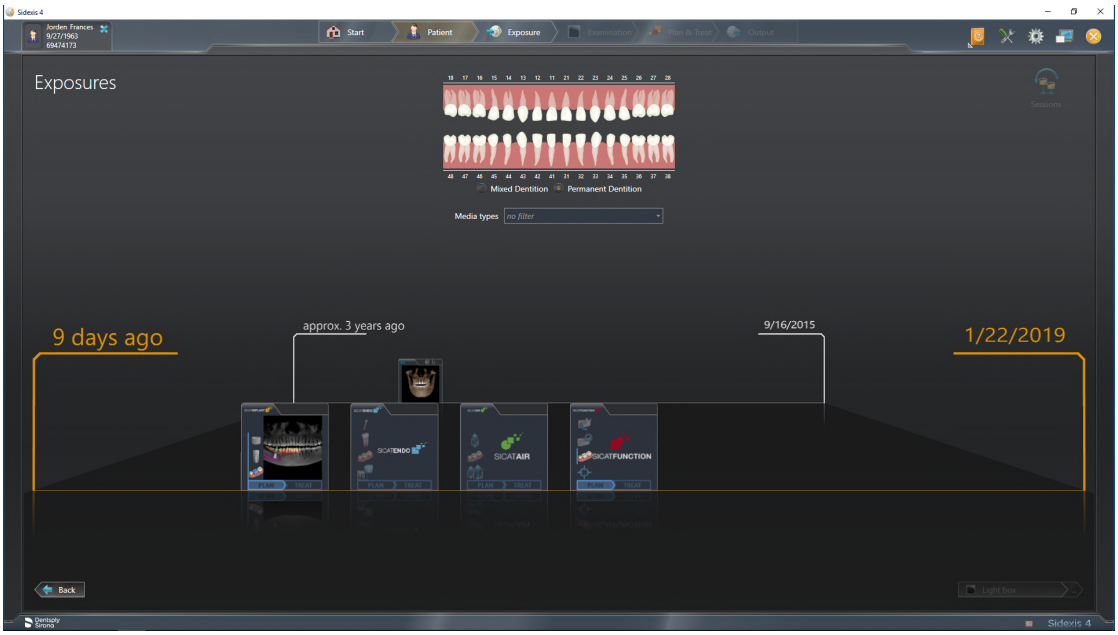
▶ SICAT Suite opens the 3D X-ray scan with the corresponding study in SICAT Function.

▶ If you have selected a 3D X-ray scan or study together with optical impressions, the SICAT Function will first open the **Import and Register Optical Impressions** wizard with the step **Import**. For more information, see *Optical impressions [▶Page 125]*.

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

You can change to another SICAT application after opening the 3D X-ray scan. Information on this can be found in the section *Switching between SICAT applications [▶Page 44]*.

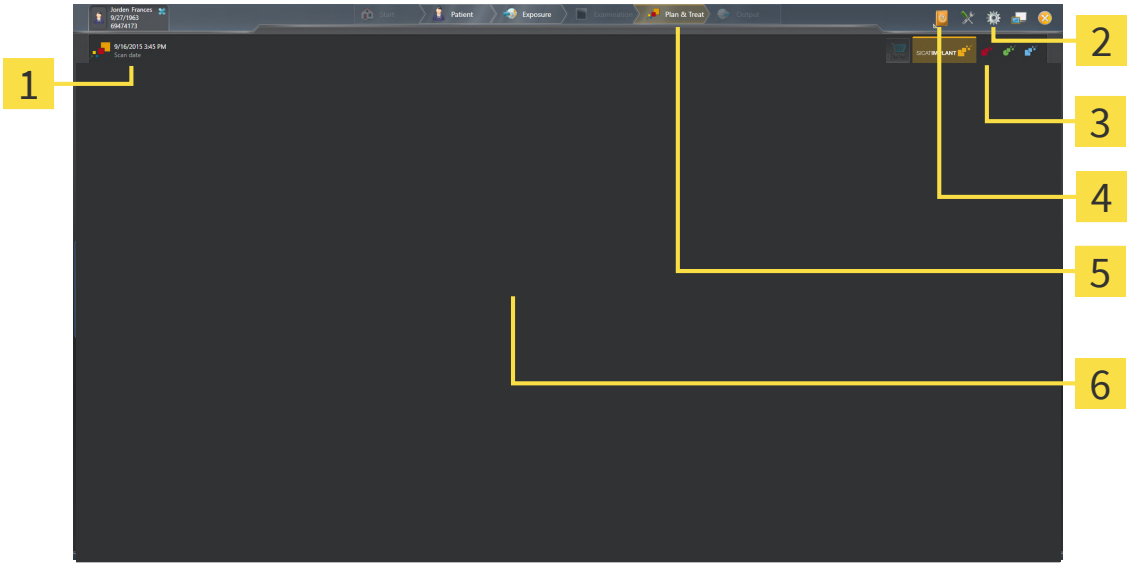
If you have saved an application-specific study, you can select it directly in the **Scans** window and open it in the corresponding SICAT application. If you already have an item in your shopping cart which is based on that study, the shopping cart will open.



SIDEXIS 4 also shows the studies in the **Patient details** window in the **Last scans** area. Information on this can be found in the section *SICAT Function studies in SIDEXIS 4 [▶Page 39]*.

18 THE USER INTERFACE OF SICAT SUITE

The SICAT Suite user interface comprises the following parts:



1	Currently opened study	4	**Help**
2	**Settings**	5	SIDEXIS 4 phase bar
3	Buttons to change applications and **Shopping Cart** button	6	**Application area**

- Currently opened study – here you will find information on the currently opened study and a button to close SICAT Suite.
- **Settings** - Information on this can be found in the section *Settings [▶Page 184]*.
- Buttons to change applications and **Shopping Cart** button – Information on this can be found in the sections *Switching between SICAT applications [▶Page 44]* and *Ordering process [▶Page 170]*.
- **Help** - Information on this can be found in the section *Opening the instructions for use [▶Page 45]*.
- The **Application area**, which is located in the remaining part of SICAT Suite, shows the user interface of the active SICAT application.

19 SWITCHING BETWEEN SICAT APPLICATIONS

To switch between SICAT applications, proceed as follows:

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

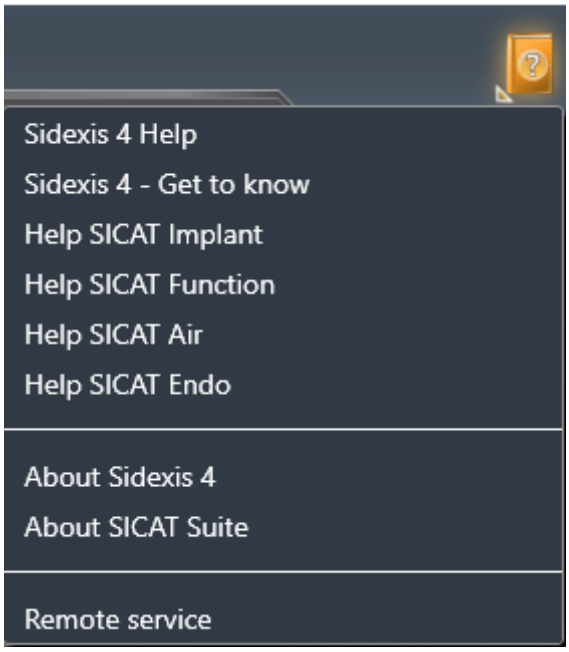
▶ SICAT Suite will switch to the selected application.

20 OPENING THE INSTRUCTIONS FOR USE

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

1. Click on the **Help** icon.

   ► A list of the available instructions for use opens:



2. Click the desired instructions for use.

► The selected instructions for use open.

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

21 LICENSES

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

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

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

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

The following license types exist:

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

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

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

ACQUIRING LICENSES

The following steps are required to acquire a license for SICAT applications or individual functions:

- You contact your local sales partner.
- You receive a voucher code.
- Using the voucher code, you generate a license key on the SICAT portal (which can be accessed via SICAT home page).
- SICAT adds the license key to your activation key.
- You use your activation key to activate SICAT applications or individual functions in SICAT Suite. Workstation licenses are activated in SICAT Suite and network licenses are activated on the license server in the local practice network.

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

ACTIVATING AND DEACTIVATING LICENSES

The following applies to workstation licenses and network licenses:

- You will only receive license keys for SICAT applications that are approved in your country.
- If you activate a full version license, you will automatically receive Viewer licenses for all applications that are approved in your country.
- If you return a full version license for a SICAT application, you will automatically receive a Viewer license provided the application is approved in your country.

The following applies to workstation licenses only:

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

The following applies to network licenses only:

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

FURTHER ACTIONS

The **Licenses** window gives an overview of the licenses which are activated on your computer. If you are using a demo license, SICAT Suite will display the expiry date of the licenses. Information on this can be found in the section *Opening the “Licenses” window [▶Page 49]*.

You can activate workstation licenses in two ways:

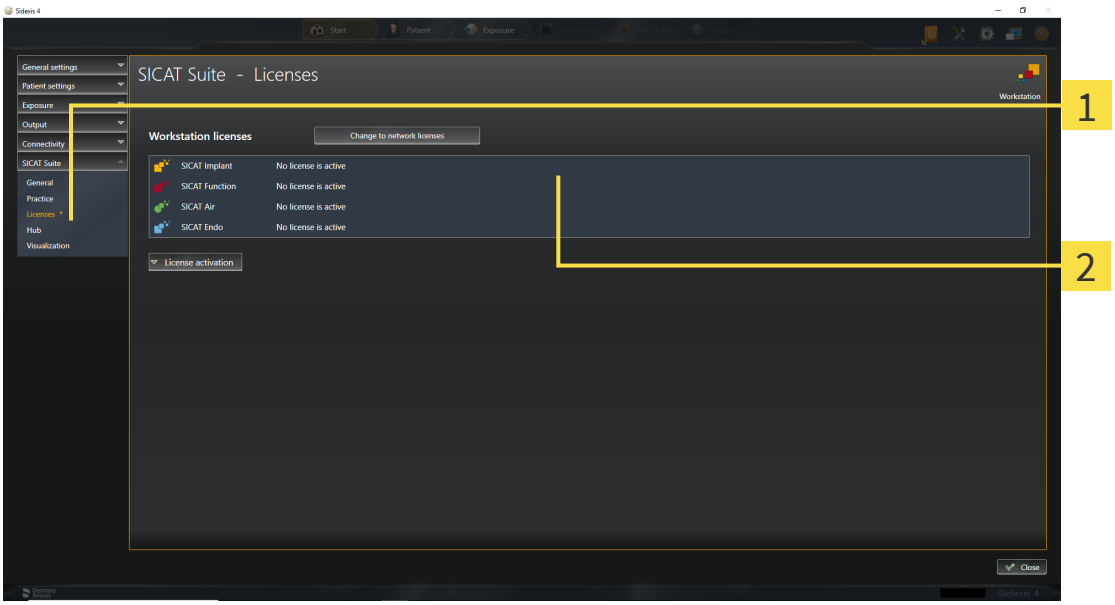
- If the computer on which SICAT Suite is running has an active Internet connection, the license can be activated automatically. Information on this can be found in the section *Activating workstation licenses using an active Internet connection [▶Page 50]*.
- Upon request or if the computer on which 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 52]*.

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 54]*.

For information on how to activate network licenses, see *Activating network licenses [▶Page 56]*.

21.1 OPENING THE “LICENSES” WINDOW

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



1 **Licenses** tab

2 **Licenses** window

Continue with one of the following actions:

- *Activating workstation licenses using an active Internet connection [▶Page 50]*
- *Activating workstation licenses manually or without an active Internet connection [▶Page 52]*
- *Activating network licenses [▶Page 56]*
- *Returning workstation licenses to the license pool [▶Page 54]*

21.2 ACTIVATING WORKSTATION LICENSES USING AN ACTIVE INTERNET CONNECTION

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

To start the activation process, proceed as follows:

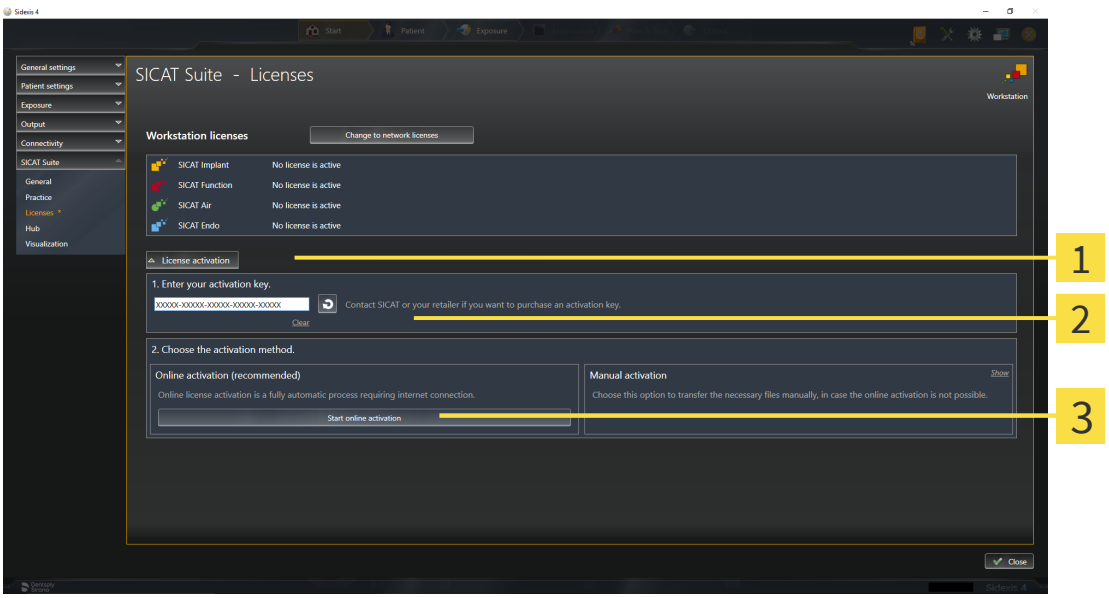
☑ At least one SICAT application or one individual function is missing an active workstation license.

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

☑ The **Licenses** window is already open. Information on this can be found in the section *Opening the "Licenses" window [▶Page 49]*.

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

   ▶ The **License activation** area expands:



1 **License activation** button

2 **Enter your activation key** area

3 **Start online activation** button

2. Enter your activation key in the **Enter your activation key** field.
3. Click on the **Start online activation** button.
4. If a **Windows Firewall** window opens, allow SICAT Suite to access the Internet.

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

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

NOTICE

Restart required

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

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

21.3 ACTIVATING WORKSTATION LICENSES MANUALLY OR WITHOUT AN ACTIVE INTERNET CONNECTION

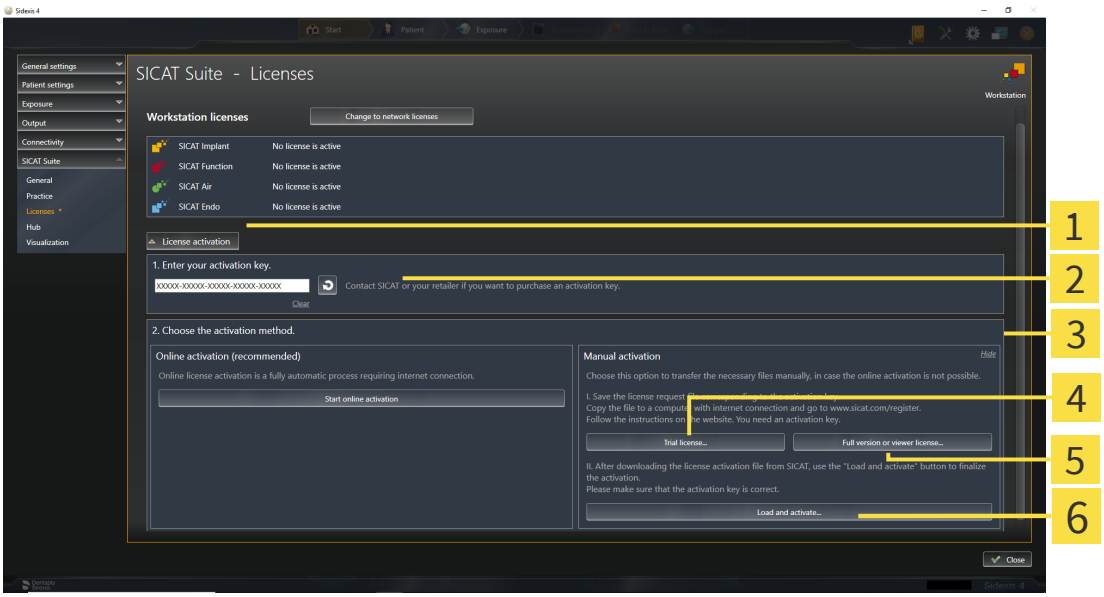
NOTICE	**Patient record must be closed** You must close the active patient record before making changes to the licenses.

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

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

☑ The **Licenses** window is already open. Information on this can be found in the section *Opening the "Licenses" window [▶Page 49]*.

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



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

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

6. Copy the license request file on a computer with an active Internet connection, for example using a USB stick.

7. Open a web browser on the computer with the active Internet connection and open the http://www.sicat.com/register web page.

8. Follow the instructions on the activation page.
   ▶ Licenses acquired for installed applications or individual functions are removed from your license pool.
   ▶ The SICAT license server generates a license activation file with the **WibuCmRaU** file extension which you need to download onto your computer.

9. Copy the downloaded license activation file onto the computer on which SICAT Suite is running.

10. Check that the correct key is in the **Enter your activation key** field.

11. Click the **Load and activate** button in the **Licenses** window.
    ▶ A Windows Explorer window opens.

12. Browse to find the license activation file, select it and click **OK**.

▶ The license in the license activation file is installed on the current computer.

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

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

21.4 RETURNING WORKSTATION LICENSES TO THE LICENSE POOL

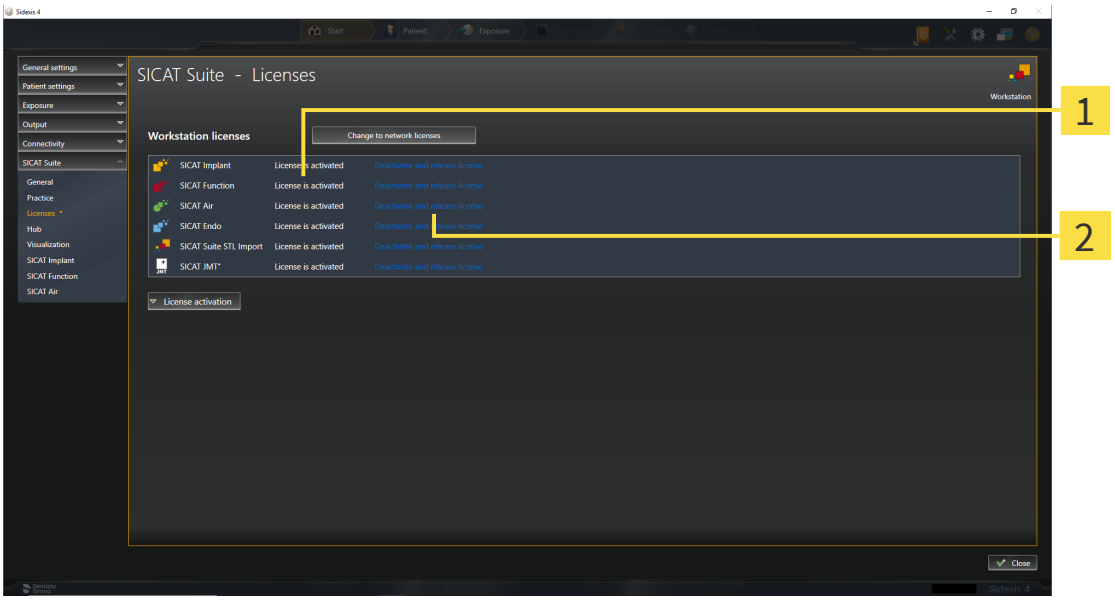
NOTICE	**Patient record must be closed** You must close the active patient record before making changes to the licenses.

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

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

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

☑ The **Licenses** window is already open. Information on this can be found in the section *Opening the "Licenses" window [▶Page 49]*.



1 License status of SICAT applications and individual functions

2 **Deactivate and release license** button

- In the **Licenses** window, click on the **Deactivate and release license** button in the row of the desired SICAT application or individual function.

▶ The selected license is returned to your license pool and will be ready for activation again.

▶ The message window opens and shows the following message: **License was successfully returned to the license pool**.

▶ Without a license, an application will only be available in Viewer mode. If the licenses for all SICAT applications have been returned to your license pool, SICAT Suite will switch entirely to Viewer mode.

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

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

21.5 ACTIVATING NETWORK LICENSES

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

To start the activation process, proceed as follows:

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

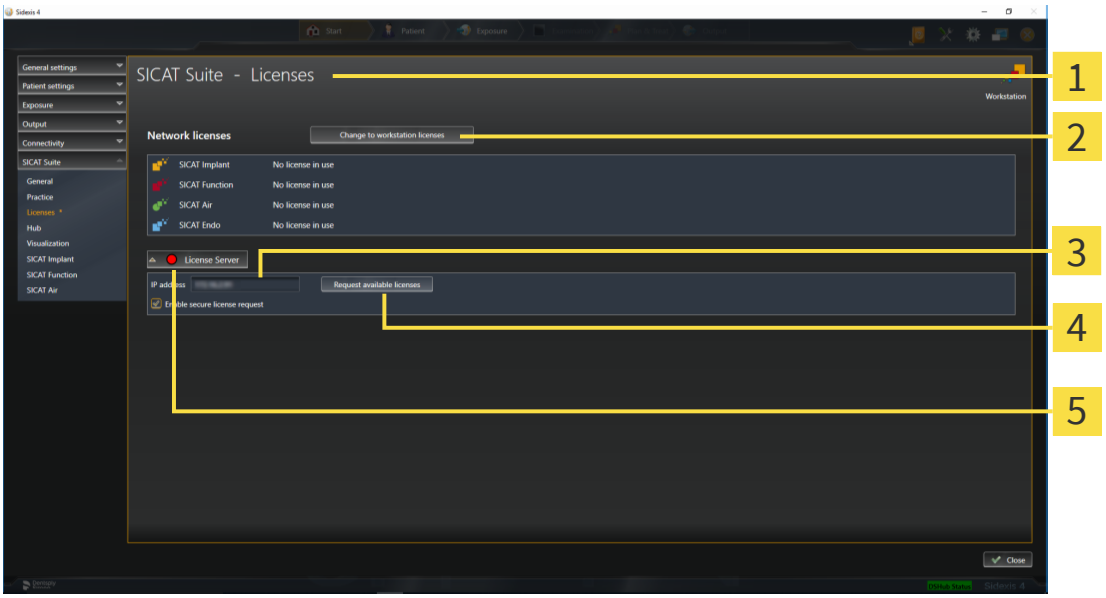
☑ You have set up a license server.

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

☑ The **Licenses** window is already open. Information on this can be found in the section *Opening the "Licenses" window [▶Page 49]*.

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

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



1 **Licenses** window

2 **Change to workstation licenses** button

3 **IP address** area

4 **Request available licenses** button

5 Status indicator

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

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

▶ SICAT Suite connects to the license server.

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

▶ The status indicator changes from red to green.

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

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

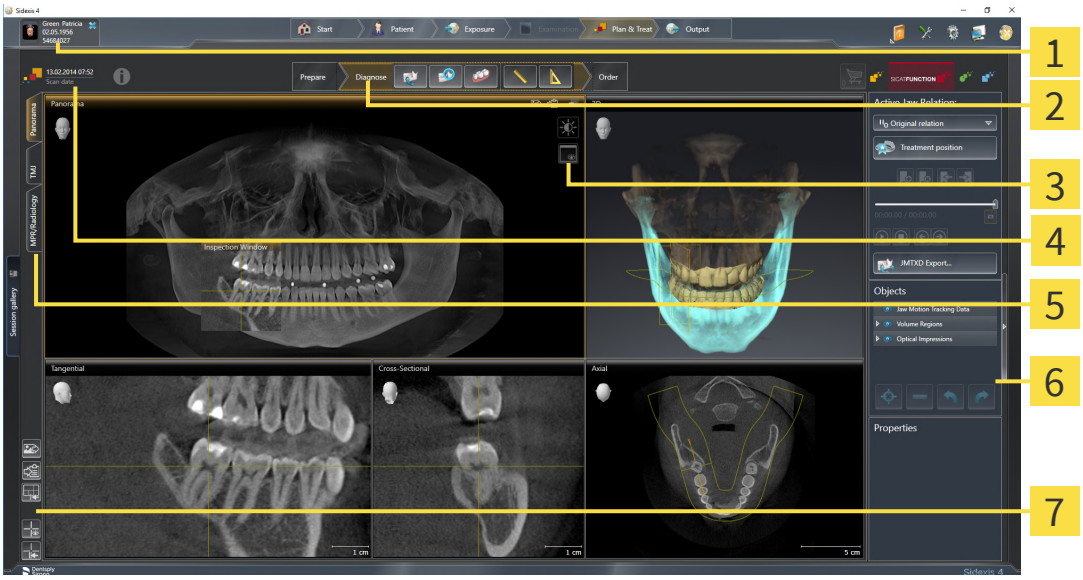
NOTICE

Restart required

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

22 THE SICAT FUNCTION USER INTERFACE

The SICAT Function user interface comprises the following parts:



1 **Active patient record** tab

2 **Workflow toolbar**

3 **View toolbar**

4 Information about the open 3D X-ray scan

5 Buttons to change workspaces

6 **Object bar**

7 **Workspace toolbar**

- The **Active patient record** tab shows the attributes of the active patient record.
- The **Workflow toolbar** consists of various workflow steps, which include the main tools of the application workflow. This includes tools which you can use to add and import diagnosis objects and planning objects. Information on this can be found in the section *Workflow toolbar [▶Page 59]*.
- The **Workspace area** is the part of the user interface below the **Workflow toolbar**. It displays the active workspace of SICAT Function. Each workspace contains a specific combination of views. Information on this can be found in the section *Workspaces [▶Page 67]*.
- 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 77]* and *Adjusting the 3D view [▶Page 91]*.
- The **Object bar** contains tools for the management of diagnosis objects and planning objects. Information on this can be found in the section *Object bar [▶Page 61]*.
- 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 85]*, *Resetting views [▶Page 89]*, *Adjusting and resetting the layout of workspaces [▶Page 74]* and *Creating screenshots of workspaces [▶Page 75]*.

22.1 WORKFLOW TOOLBAR

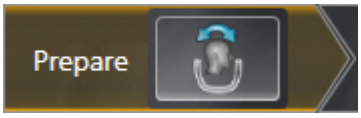
The **Workflow toolbar** in SICAT Function consists of three workflow steps:

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

EXPANDING AND COLLAPSING WORKFLOW STEPS

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

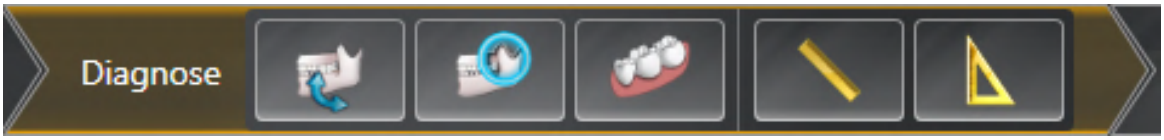
1. WORKFLOW STEP "PREPARE"



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

- **Adjust volume orientation and panoramic region** - For further information see *Adjusting the volume orientation [▶Page 105]* and *Adjusting the panoramic region [▶Page 110]*.

2. WORKFLOW STEP "DIAGNOSE"

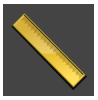


The following tools are available in the **Diagnose** workflow step:

- **Import and register jaw motion tracking data** - Information on this can be found in the section *Importing and registering jaw motion data [▶Page 115]*.

- **Segment condyles and mandible region** - Information on this can be found in the section *Segmentation [▶Page 120]*.

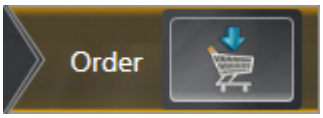
- **Import and register optical impressions** - Information on this can be found in the section *Optical impressions [▶Page 125]*.



- **Add distance measurement (D)** - Information on this can be found in the section *Adding distance measurements [▶Page 164]*.

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

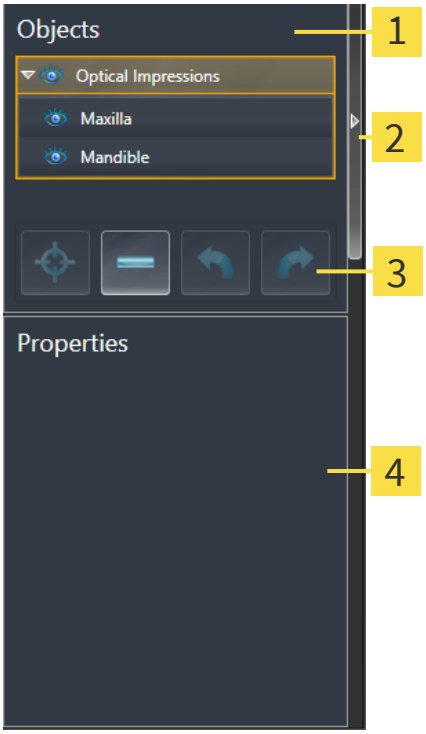
3. WORKFLOW STEP "ORDER"



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

- **Order Therapeutic Appliance** - Information on this can be found in the section *Placing therapeutic appliances in the shopping cart [▶Page 172]*.

22.2 OBJECT BAR



1 **Object browser**

2 **Hide object bar** button or **Show object bar** button

3 **Object toolbar**

4 **Properties** area

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

- The **Object browser** shows a categorized list of all diagnosis objects and planning objects that you have added or imported to the current study. The **Object browser** groups objects automatically. For example, the **Measurements** group contains all measurement objects. You can expand or collapse object groups, activate objects and object groups and show or hide objects and object groups. Information on this can be found in the section *Managing objects with the object browser [▶Page 62]*.
- 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 64]*.
- The **Properties** area shows the details of the active object.

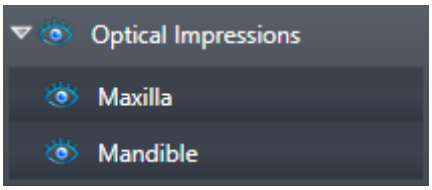
You can change the visibility of the **Object bar** using two buttons on the right side of the **Object bar**: **Hide object bar** and **Show object bar**

The objects available in SICAT Function can be found in the section *SICAT Function objects [▶Page 65]*.

22.3 MANAGING OBJECTS WITH THE OBJECT BROWSER

COLLAPSING AND EXPANDING OBJECT GROUPS

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



☑ The desired object group is currently expanded.

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

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

▶ The object group expands.

ACTIVATING OBJECTS AND OBJECT GROUPS

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

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

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

- Click the desired object or the desired object group.

▶ SICAT Function deactivates a previously activated object or object group.

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

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

▶ SICAT Function displays the **Shown** icon next to the object or object group.

22.4 MANAGING OBJECTS WITH THE OBJECT TOOLBAR

These functions are available only for certain object types.

FOCUSING ON OBJECTS

Use this function to find objects in the views.

To focus objects, proceed as follows:

☑ The desired object is already active. Information on this can be found in the section *Managing objects with the object browser [▶Page 62]*.

☑ The object can be focused.

- Click on the **Focus active object (F)** icon.

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

▶ SICAT Function 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 62]*.

- Click on the **Remove active object/group (Del)** icon.

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

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

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

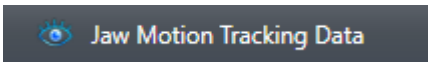
Undo and redo are only available as long as a study is open in a SICAT application.

22.5 SICAT FUNCTION OBJECTS

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

- **Jaw Motion Tracking Data**
- **Volume Regions**
  - **Mandible**
- **Optical Impressions**

JAW MOTION TRACKING DATA OBJECT



After you have imported jaw motion tracking data, SICAT Function displays a **Jaw Motion Tracking Data** object in the **Object browser**.

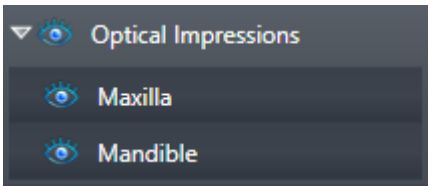
VOLUME REGIONS OBJECT ANDMANDIBLE OBJECT

After you have segmented the mandible, SICAT Function displays a **Volume Regions** object in the **Object browser**. The **Volume Regions** object contains the **Mandible** object. The **Mandible** object contains the following sub-objects:

- **Mandible Left**
- **Mandible Right**
- **Mandible Front**

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

OPTICAL IMPRESSION OBJECT



After you have imported and registered optical impressions, SICAT Function 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 Function will focus all 2D views on the selected object.

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

23 WORKSPACES

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

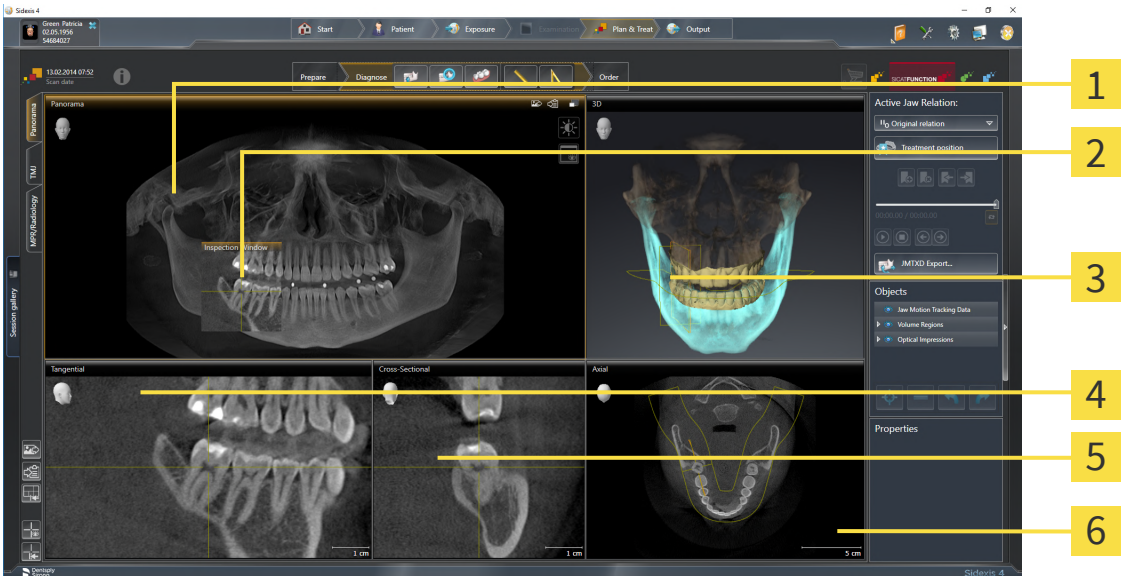
SICAT Function features three different workspaces:

- **Panorama** workspace - Information on this can be found in the section *Overview of the panoramic workspace [▶Page 68]*.
- **TMJ** workspace - Information on this can be found in the section *Overview of the TMJ workspace [▶Page 70]*.
- **MPR/Radiology** workspace - Information on this can be found in the section *Overview of the MPR/Radiology workspace [▶Page 72]*.

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

- *Switching workspaces [▶Page 73]*.
- *Adjusting and resetting the layout of workspaces [▶Page 74]*.
- *Adjusting the views [▶Page 77]*.
- There are additional possibilities to adjust the **3D** view. Information on this can be found in the section *Adjusting the 3D view [▶Page 91]*.
- You can document the contents of the active workspace. Information on this can be found in the section *Creating screenshots of workspaces [▶Page 75]*.

23.1 OVERVIEW OF THE PANORAMIC WORKSPACE



1 **Panorama** view

2 **Inspection Window**

3 **3D** view

4 **Tangential** view

5 **Cross-Sectional** view

6 **Axial** view

PANORAMA VIEW

The **Panorama** view corresponds to a virtual orthopantomogram (OPG). It shows an orthogonal projection onto the panoramic curve with a certain thickness. You can adjust the panoramic curve and the thickness to both jaws. Information on this can be found in the section *Adjusting the panoramic region [▶Page 110]*.

INSPECTION WINDOW

The **Inspection Window** is embedded in the **Panorama** view. It adds the third dimension to the **Panorama** view by displaying slices parallel to the panoramic curve. You can move, hide, show and maximize the **Inspection Window**. Information on this can be found in the section *Moving, hiding, showing and maximizing the inspection window [▶Page 86]*.

3D VIEW

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

TANGENTIAL VIEW

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

CROSS-SECTIONAL VIEW

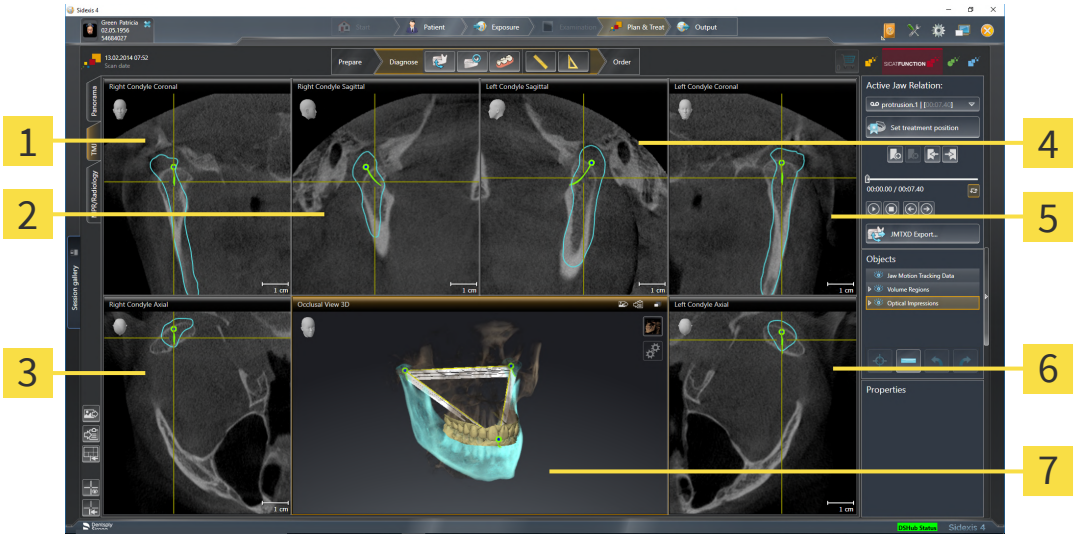
The **Cross-Sectional** view shows slices that are orthogonal to the panoramic curve.

AXIAL VIEW

By default, the **Axial** view shows slices from above. You can switch the viewing direction of the **Axial** view. Information on this can be found in the section *Changing visualization settings [▶Page 191]*.

You can find information on the functions of the views in the sections *Adjusting the views [▶Page 77]* and *Adjusting the 3D view [▶Page 91]*.

23.2 OVERVIEW OF THE TMJ WORKSPACE



1 **Right Condyle Coronal** view

2 **Right Condyle Sagittal** view

3 **Right Condyle Axial** view

4 **Left Condyle Sagittal** view

5 **Left Condyle Coronal** view

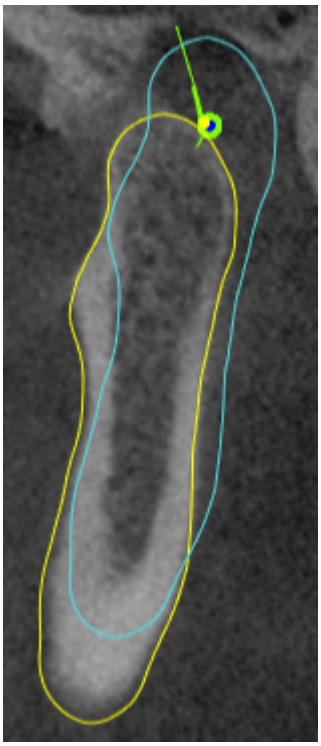
6 **Left Condyle Axial** view

7 **Occlusal View 3D**

You can select the individual anatomical articulation of a patient in the **Active Jaw Relation** and perform a diagnosis in the views. Information on the JMT area is found in the section *Interacting with jaw motion [▶Page 143]*.

The **TMJ** workspace shows the left and right condyles at the same time. Depending on the CBCT device used, a direct comparison of both temporomandibular joints is possible. You can use this comparison to identify asymmetries in terms of the movement and morphology of the temporomandibular joints.

SICAT Function marks the moving condyles differently.

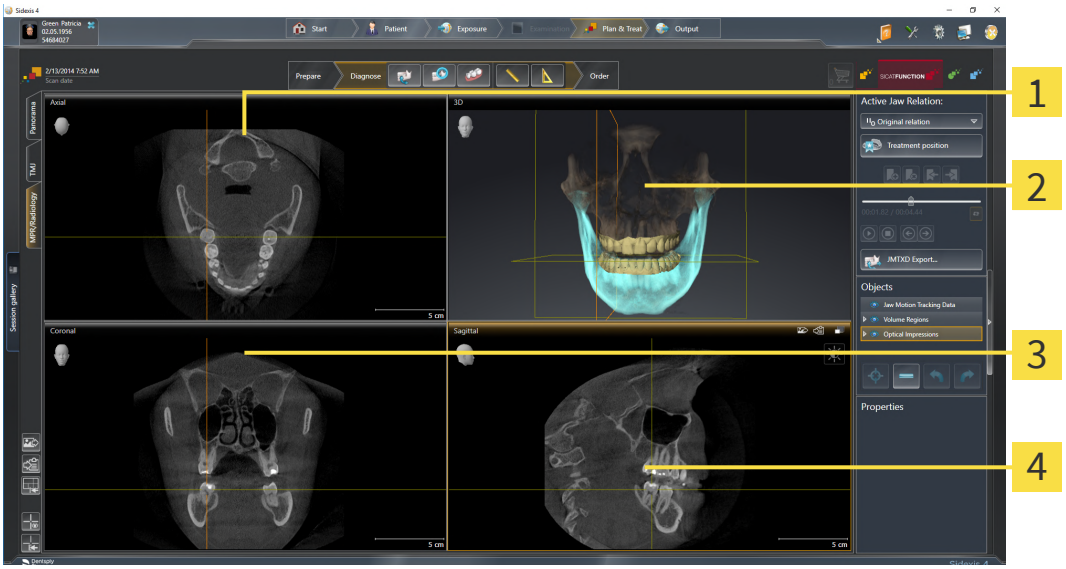


- SICAT Function shows moving condyles as a blue contour in the slice views.
- SICAT Function shows the segmentation boundary as a yellow contour in the slice views.
- SICAT Function shows moved condyles in the **3D** view as a blue 3D object.

To get a better comparison of the left and right temporomandibular joints, the views should be aligned to the median sagittal plane (mirror symmetry plane) of the head. Use the **Adjust Volume Orientation** function to compensate for misalignment during the 3D X-ray scan. Information on this can be found in the section *Adjusting the volume orientation [▶Page 105]*. For the volume orientation, ensure that the temporomandibular joints are as symmetrical as possible to the median sagittal plane.

There are additional options in the **TMJ** workspace to analyze jaw motion tracking data and volume regions. For further information about this, see *Functions in the TMJ workspace [▶Page 149]*, *Using the Bonwill triangle [▶Page 152]*, *Displaying the segmentation boundary [▶Page 153]* and *Displaying condyle-aligned movement [▶Page 154]*.

23.3 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 191]*.

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 191]*.

The functions of the views can be found in the sections *Adjusting the views [▶Page 77]* and *Adjusting the 3D view [▶Page 91]*.

23.4 SWITCHING WORKSPACES

To switch the workspace, proceed as follows:

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

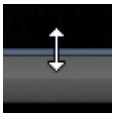
► The selected workspace opens.

23.5 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 Function 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 Function resets the active workspace to the default layout. This means that the software displays all views in their default sizes.

23.6 CREATING SCREENSHOTS OF WORKSPACES

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

ADDING A SCREENSHOT OF A WORKSPACE TO THE SIDEXIS 4 OUTPUT

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

☑ The desired workspace is already active. Information on this can be found in the section *Switching workspaces [▶Page 73]*.

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

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

COPYING A SCREENSHOT OF A WORKSPACE TO THE WINDOWS CLIPBOARD

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

☑ The desired workspace is already active. Information on this can be found in the section *Switching workspaces [▶Page 73]*.

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

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

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

24 VIEWS

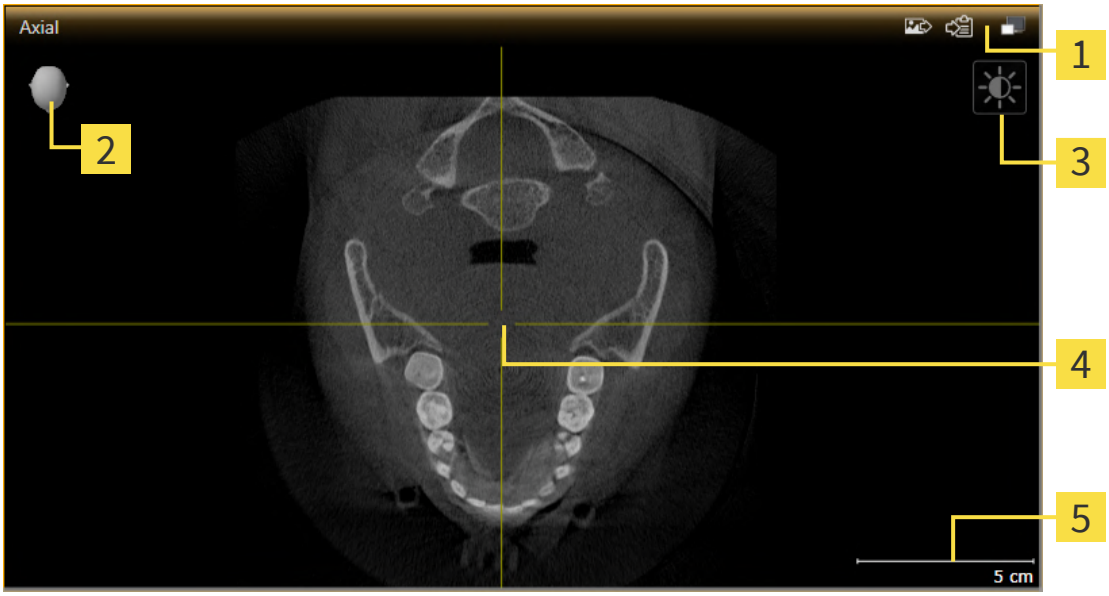
Views are contained in workspaces. A description of the various workspaces and views can be found under *Workspaces [▶Page 67]*.

You can adjust the views. For further information about this see *Adjusting the views [▶Page 77]* and *Adjusting the 3D view [▶Page 91]*.

24.1 ADJUSTING THE VIEWS

Some tools to adjust the views are only available for the active view. Information on how to activate a view can be found under *Changing the active view [▶Page 79]*.

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 Function 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 79]*
- *Maximizing and restoring views [▶Page 80]*
- *Adjusting and resetting the brightness and contrast of the 2D views [▶Page 81]*
- *Zooming views and panning views [▶Page 83]*
- *Scrolling through slices in the 2D slice views [▶Page 84]*
- *Moving, hiding and showing crosshairs and frames [▶Page 85]*
- *Moving, hiding, showing and maximizing the inspection window [▶Page 86]*
- *Tilting views [▶Page 88]*
- *Resetting views [▶Page 89]*

There are additional possibilities to adjust the **3D** view. Information on this can be found in the section *Adjusting the 3D view [▶Page 91]*.

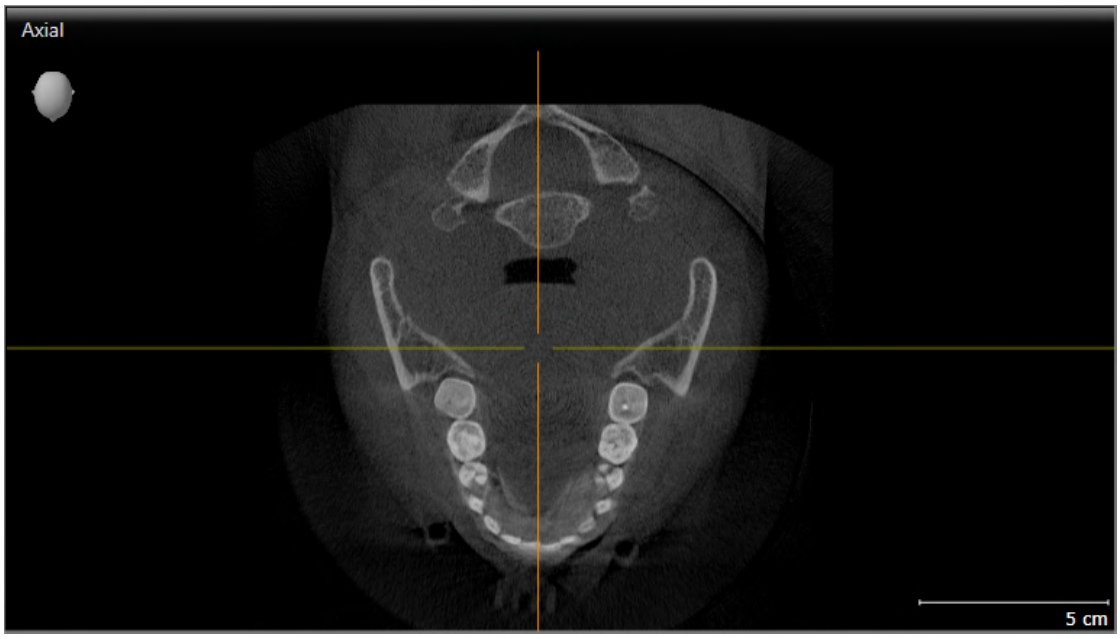
You can document the content of an active view. Information on this can be found in the section *Creating screenshots of views [▶ Page 90]*.

24.2 CHANGING THE ACTIVE VIEW

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

To activate a view, proceed as follows:

1. Place the mouse pointer over the desired view:



2. Click the desired view.

► SICAT Function activates the view:

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

24.3 MAXIMIZING AND RESTORING VIEWS

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

☑ The desired view is already active. Information on this can be found in the section *Changing the active view [▶Page 79]*.

☑ The desired view is not maximized.

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

   ▶ SICAT Function maximizes the view.

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

   ▶ SICAT Function restores the view to its previous size.

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

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

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

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

☑ The desired 2D view is already active. Information on this can be found in the section *Changing the active view [▶Page 79]*.

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 Function adjusts the brightness of the 2D view according to the position of the **Brightness** slider.

4. Release the left mouse button.

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

7. Release the left mouse button.

   ▶ SICAT Function maintains the current contrast of the 2D view.

8. Move the mouse pointer out of the transparent **Adjust brightness and contrast** window.

▶ The transparent **Adjust brightness and contrast** window closes.

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

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

24.5 ZOOMING VIEWS AND PANNING VIEWS

ZOOMING A VIEW

Zooming magnifies or shrinks the contents of a view.

To zoom a view, proceed as follows:

1. Place the mouse pointer over the desired view.
2. Move the mouse wheel forwards.
   ▶ The view will zoom in.
3. Move the mouse wheel backwards.

▶ The view will zoom out.

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

PANNING A VIEW

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

1. Place the mouse pointer over the desired view.
2. Press and hold down the right mouse button.
   ▶ The mouse pointer changes.
3. Move the mouse.
   ▶ The section in the view will move according to the movement of the mouse pointer.
4. Release the right mouse button.

▶ SICAT Function maintains the current position of the view.

24.6 SCROLLING THROUGH SLICES IN THE 2D SLICE VIEWS

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

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

▶ SICAT Function maintains the current slice.

24.7 MOVING, HIDING AND SHOWING CROSSHAIRS AND FRAMES

MOVING A CROSSHAIR

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

☑ All crosshairs and frames are currently shown.

1. Move the mouse pointer in the view you require to the middle of the crosshair.
   ▶ The mouse pointer becomes a crosshair:

2. Click and hold the left mouse button.
3. Move the mouse.
   ▶ The crosshair in the view will track the movements of the mouse.
   ▶ SICAT Function adjusts the slices and crosshairs of other views according to the current focus point.
   ▶ SICAT Function adjusts the frames of the **3D** views according to the current focus point.
4. Release the left mouse button.

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

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

24.8 MOVING, HIDING, SHOWING AND MAXIMIZING THE INSPECTION WINDOW

MOVING THE INSPECTION WINDOW

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

☑ The **Panorama** workspace is already open. Information on this can be found in the section *Changing the active workspace [▶Page 73]*.

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

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

▶ SICAT Function maintains the current **Inspection Window** position.

HIDING, SHOWING AND MAXIMIZING THE INSPECTION WINDOW

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

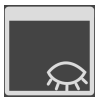
To hide, show and maximize the **Inspection Window**, proceed as follows:

☑ The **Panorama** workspace is already open. Information on this can be found in the section *Switching workspaces [▶Page 73]*.

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

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

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



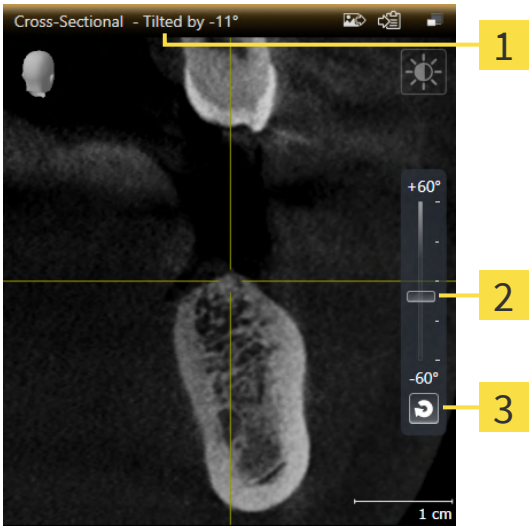
2. Click on the **Hide inspection window** icon.
   ▶ SICAT Function hides the **Inspection Window**.

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

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

24.9 TILTING VIEWS

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



1 Currently set tilt

2 Slider for tilt adjustment

3 **Reset tilt** button

☑ The **Panorama** workspace is already open. Information on this can be found in the section *Switching workspaces [▶Page 73]*.

☑ The **Tangential** or **Cross-Sectional** view is already active. Information on this can be found in the section *Changing the active view [▶Page 79]*.

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

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

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

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

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

24.10 RESETTING VIEWS

To reset all views, proceed as follows:

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

▶ SICAT Function resets all views to the default values for zoom, panning, scrolling, moving the crosshairs and moving the **Inspection Window**.

▶ SICAT Function resets the viewing direction of the **3D** view to the default value.

▶ SICAT Function resets the tilt of views to 0°.

24.11 CREATING SCREENSHOTS OF VIEWS

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

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

ADDING A SCREENSHOT OF A VIEW TO THE SIDEXIS 4 OUTPUT

☑ The desired view is already active. Information on this can be found in the section *Changing the active view [▶Page 79]*.

- Click on the **Add screenshot to SIDEXIS 4 output** icon in the title bar of the view.

▶ SICAT Function adds a screenshot of the view to the SIDEXIS 4 output.

COPYING A SCREENSHOT OF A VIEW TO THE WINDOWS CLIPBOARD

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

☑ The desired view is already active. Information on this can be found in the section *Changing the active view [▶Page 79]*.

- Click on the **Copy screenshot to clipboard (Ctrl+C)** icon in the title bar of the view.

▶ SICAT Function copies a screenshot of the view to the Windows clipboard.

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

25 ADJUSTING THE 3D VIEW

You can change the direction of the **3D** view at any time. Information on this can be found in the section *Changing the direction of the 3D view [▶Page 92]*.

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

- *Switching the display mode of the 3D view [▶Page 96]*
- *Configuring the active display mode of the 3D view [▶Page 97]*
- *Moving a clipping [▶Page 99]*
- *Switching off and switching on the display of optical impressions in color [▶Page 101]*

25.1 CHANGING THE DIRECTION OF THE 3D VIEW

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

- Interactive changes
- Selecting a standard viewing direction

INTERACTIVELY CHANGING THE DIRECTION OF THE 3D VIEW

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

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

▶ SICAT Function keeps the current viewing direction of the **3D** view.

SELECTING A STANDARD VIEWING DIRECTION

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

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

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

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

25.2 DISPLAY MODES OF THE 3D VIEW

General information on the **3D** view can be found in the section *Adjusting the 3D view [▶Page 91]*.

SICAT Function offers a total of two different display modes for the **3D** view:

- The **Overview** display mode provides an overview of the entire 3D X-ray scan.

- The **Clipped** display mode shows only one section of the 3D X-ray scan, which can be panned.

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 96]*.

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 97]*.

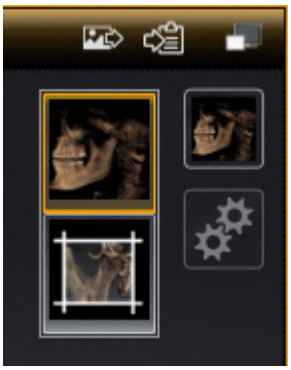
25.3 SWITCHING THE DISPLAY MODE OF THE 3D VIEW

All display modes are available in all workspaces.

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

☑ The **3D** view is already active. Information on this can be found in the section *Changing the active view [▶Page 79]*.

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 Function activates the desired display mode.
3. Move the mouse pointer out of the transparent **Switch display mode** window.

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

25.4 CONFIGURING THE ACTIVE DISPLAY MODE OF THE 3D VIEW

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

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

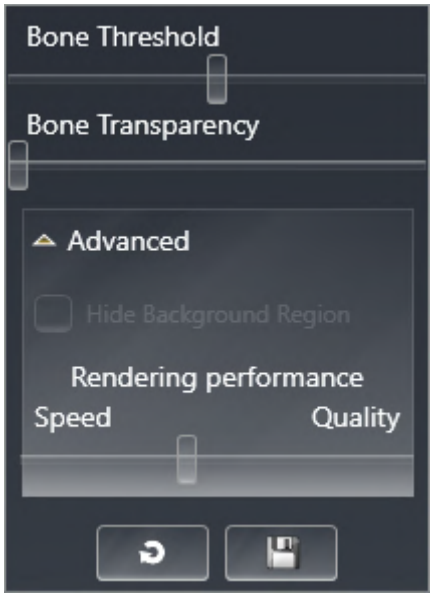
☑ The **3D** view is already active. Information on this can be found in the section *Changing the active view [▶Page 79]*.

☑ 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 96]*.

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

5. Move the slider you require.

   ▶ SICAT Function 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.

Where available, move the **Rendering performance** slider further left on slow computers.

25.5 MOVING A CLIPPING

General information on the **3D** view can be found in the section *Adjusting the 3D view [▶Page 91]*.

With the **Clipped** display mode, you can hide parts of the volume of the **3D** view. SICAT Function then only displays one slice section of the volume and SICAT Function will synchronize its position with the crosshair. To move the slice section, proceed as follows:

☑ You have already activated the **Clipped** display mode. Information on this can be found in the section *Switching the display mode of the 3D view [▶Page 96]*.

- In the **Axial** view, **Coronal** view or **Sagittal** view, scroll to the desired slice. Information on this can be found in the section *Scrolling through slices in the 2D slice views [▶Page 84]*.

▶ SICAT Function moves the slice section image according to the selected slice:

25.6 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 79]*.

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

26 ADJUSTING VOLUME ORIENTATION AND PANORAMIC REGION

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

VOLUME ORIENTATION

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

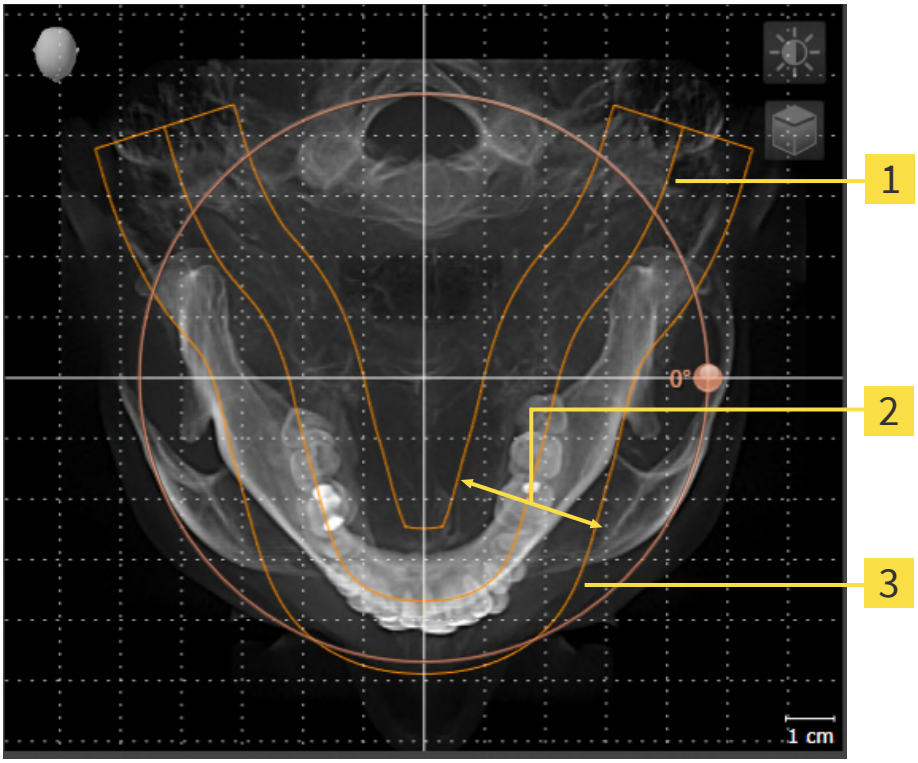
- Sub-optimal positioning of the patient during the 3D X-ray scan
- Orientation according to case, for example orientation of the axial slices parallel to the Frankfurt plane or parallel to the bite plane
- Optimizing the **Panorama** view

If you adjust the volume orientation in SICAT Function, SICAT Function 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 105]*.

PANORAMIC REGION

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

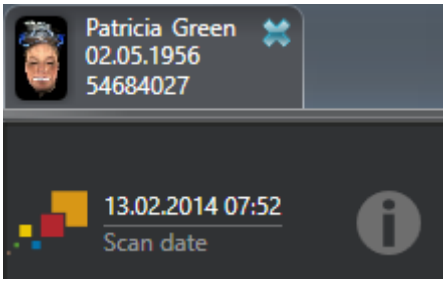
Information on adjusting the panoramic region can be found in the section *Adjusting the panoramic region [▶Page 110]*.

TRANSFER OF DATA FROM SIDEXIS 4

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

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

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



In this case, SICAT Function shows an information icon next to the information on the current 3D X-ray scan. If you move the mouse pointer over the information icon, you will receive the following information:

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

26.1 ADJUSTING THE VOLUME ORIENTATION

General information on volume orientation can be found in the section *Adjusting volume orientation and panoramic region [▶Page 102]*.

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

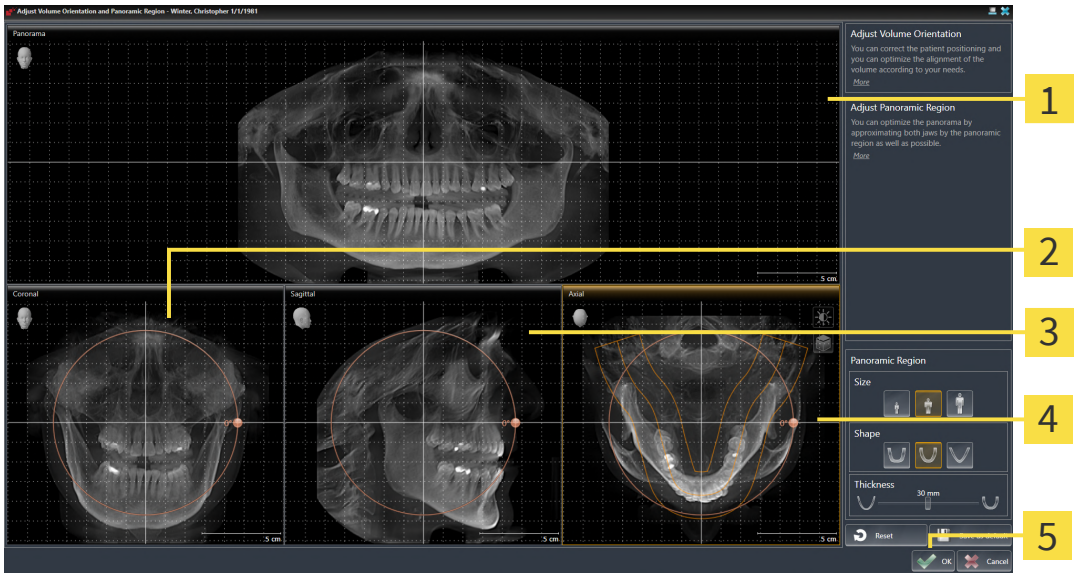
- Opening the **Adjust Volume Orientation and Panoramic Region** window
- Rotating volumes in the **Coronal** view
- Rotating volumes in the **Sagittal** view
- Rotating volumes in the **Axial** view

OPENING THE "ADJUST VOLUME ORIENTATION AND PANORAMIC REGION" WINDOW

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

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

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



1 **Panorama** view

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

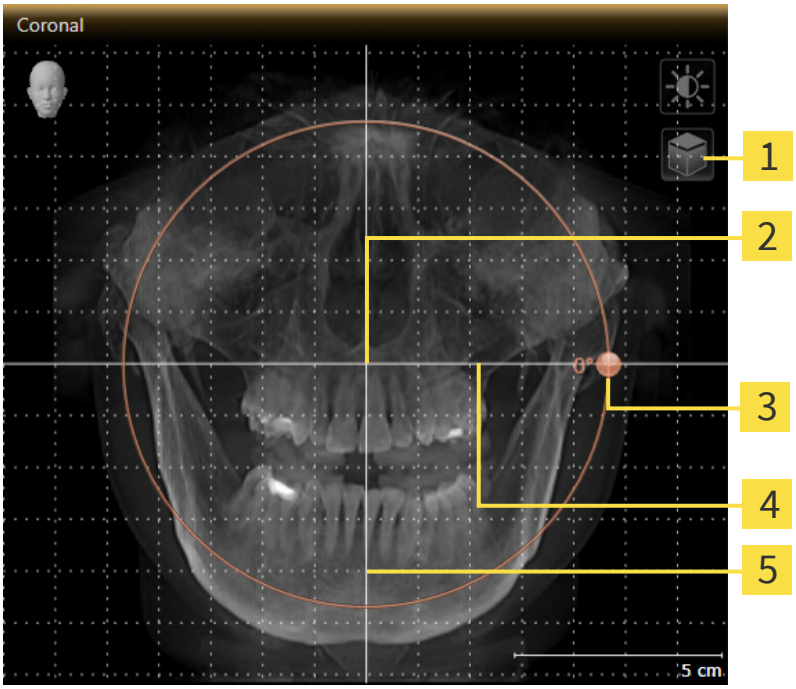
3 **Sagittal** view with **Rotation** slider

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

5 **OK** button

ROTATING VOLUMES IN THE CORONAL VIEW

1. Activate the **Coronal** view:



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

2 Center of rotation

3 **Rotation** slider

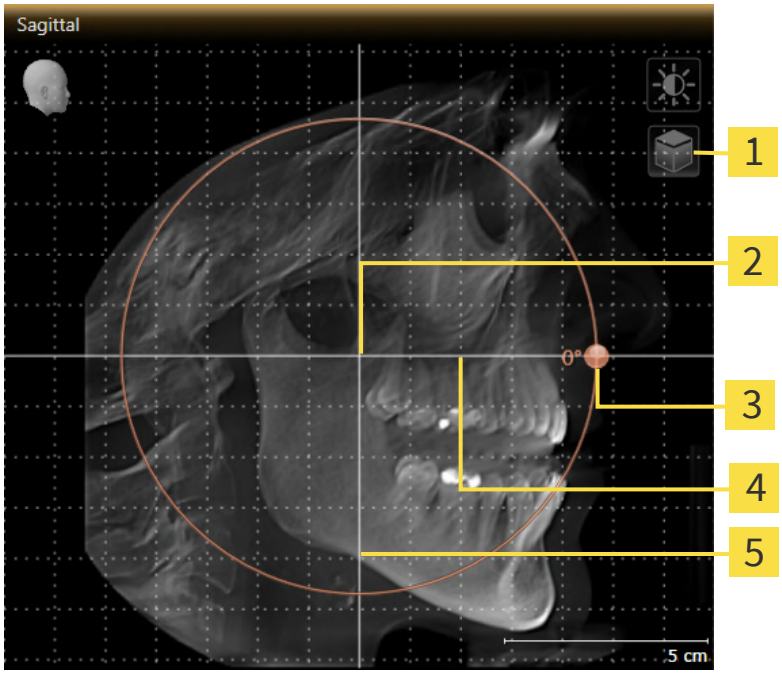
4 Horizontal reference line

5 Vertical reference line

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

ROTATING VOLUMES IN THE SAGITTAL VIEW

1. Activate the **Sagittal** view:



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

2 Center of rotation

3 **Rotation** slider

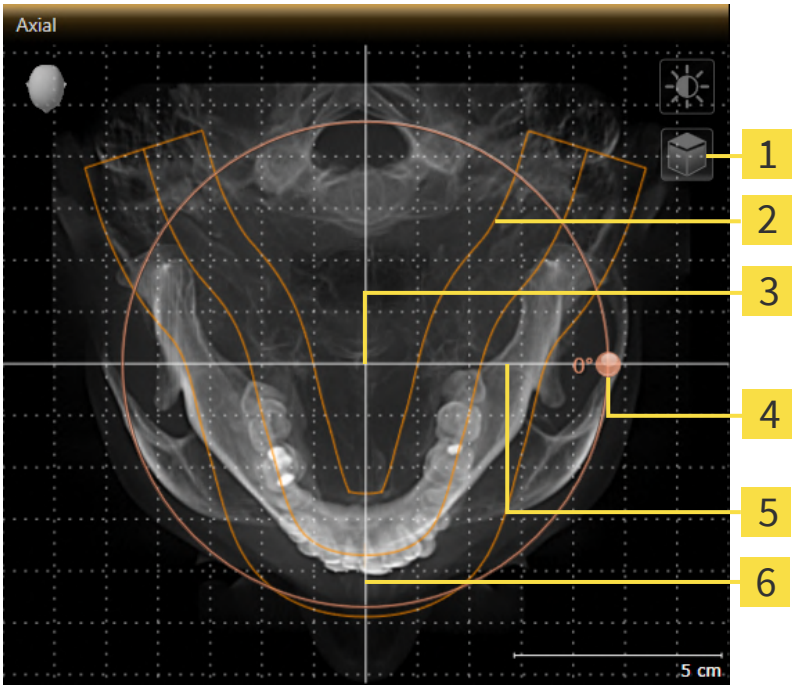
4 Horizontal reference line

5 Vertical reference line

2. Make sure that the projection mode is active. If the slice mode is active, click on the **Enable projection mode** icon.
3. Place the mouse pointer on the **Rotation** slider.
4. Click and hold the left mouse button.
5. Move the **Rotation** slider along the circle in the desired direction.
   ▶ SICAT Function 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 Function 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 Function 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**.

▶ SICAT Function 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 81]*.
- You can zoom in the views. SICAT Function synchronizes the zoom between the **Coronal** view and the **Sagittal** view.
- To save the current volume orientation and panoramic region as a default, click on the **Save as default** button.
- To reset the volume orientation and panoramic region to the last saved default setting, click on the **Reset** button.
- If you do not want to save your changes, click on **Cancel**.
- If you have opened data in viewer mode, your customizations will no longer be active after you close the data.

26.2 ADJUSTING THE PANORAMIC REGION

General information on the panoramic region can be found in the section *Adjusting volume orientation and panoramic region [▶Page 102]*.

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

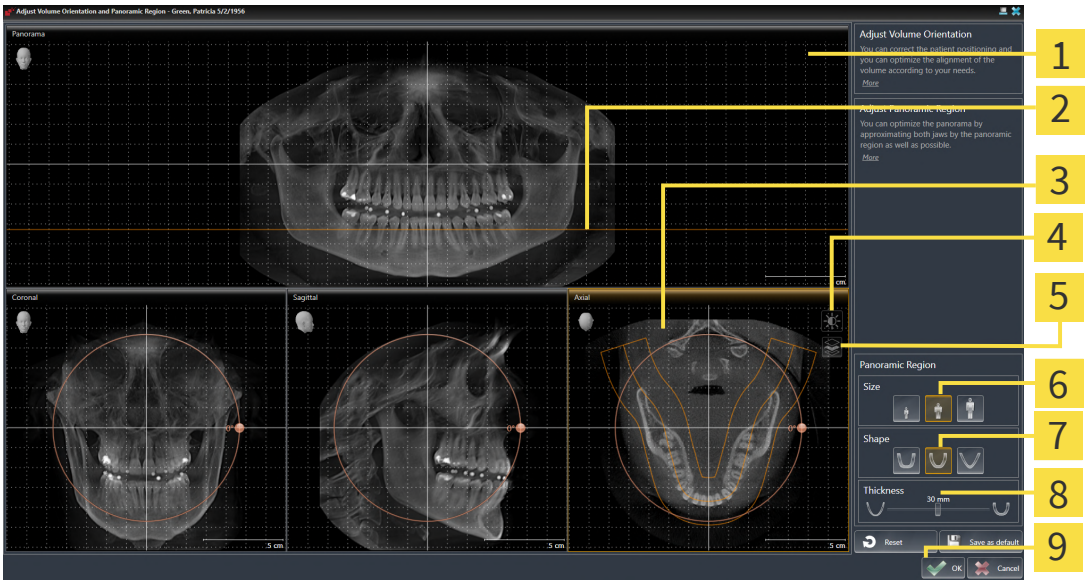
- Opening the **Adjust Volume Orientation and Panoramic Region** window
- Adjusting the slice position of the **Axial** view
- Moving the panoramic region
- Rotating volumes in the **Axial** view
- Adjusting **Size**, **Shape** and **Thickness** of the panoramic region

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 Function 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 Function 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**.

▶ SICAT Function 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 81]*.
- You can zoom in the views. SICAT Function synchronizes the zoom between the **Coronal** view and the **Sagittal** view.
- To save the current volume orientation and panoramic region as a default, click on the **Save as default** button.
- To reset the volume orientation and panoramic region to the last saved default setting, click on the **Reset** button.
- If you do not want to save your changes, click on **Cancel**.
- If you have opened data in viewer mode, your customizations will no longer be active after you close the data.

27 JAW MOTION TRACKING DATA

Patient-specific jaw motion and jaw positions provide information regarding the patient's chewing dynamics. You can use this information for patient analysis and diagnosis. In addition, the information can be integrated in the patient's treatment planning.

SICAT Function visualizes patient-specific jaw motion and jaw positions. The application supports the following sources of jaw motion tracking data:

- Motion data from jaw motion tracking devices
- Static positions of jaw motion tracking devices
- Buccal bite positions that are recorded with an intra-oral camera

A list of the compatible jaw motion tracking devices can be found in the section *Compatible jaw motion tracking devices [▶Page 114]*.

You can import buccal bite positions together with optical impressions. Information on this can be found in the section *Optical impressions [▶Page 125]*.

In addition to importing jaw motion tracking data, you have to perform further steps to prepare the display of jaw motion tracking data. Information on this can be found in the section *The standard workflow of SICAT Function [▶Page 33]*.

After you have prepared all of the data you require, the following jaw motion tracking data actions will be available:

- *Interacting with jaw motion [▶Page 143]*
- *Visualizing anatomical traces in the 3D view [▶Page 146]*
- *Adjusting anatomical traces using the inspection window [▶Page 147]*
- *Adjusting anatomical traces using the crosshair in a slice view [▶Page 148]*

Representation accuracy of jaw motion tracking data	< 0.6 mm

27.1 COMPATIBLE JAW MOTION TRACKING DEVICES

CAUTION

The use of jaw motion tracking devices with an unsuitable intended use may result in an incorrect diagnosis and treatment.

Only use jaw tracking data from devices with an intended use that covers the use of the jaw motion tracking data with SICAT Function.

CAUTION

The use of unsupported jaw motion tracking devices or incompatible registration devices may result in an incorrect diagnosis and treatment.

Only use jaw motion tracking data that has been recorded using a supported combination of a jaw motion tracking devices (such as SICAT JMT⁺) and a compatible registration device (such as SICAT Fusion Bite).

Ensure that you only record jaw motion tracking data with a compatible jaw motion tracking device in combination with a supported registration device. Import only such jaw motion tracking data from compatible jaw motion tracking devices to SICAT Function. You can only import jaw motion tracking data to SICAT Function that has been recorded using jaw motion tracking devices that support the SICAT JTI Format V1.0 interface.

SICAT Function currently supports the following combinations of jaw motion tracking devices and jaw motion registration devices:

- SICAT JMT⁺ in combination with a SICAT Fusion Bite, manufactured by: SICAT GmbH & Co. KG
- SICAT JMT blue in combination with a SICAT Fusion Bite, manufacturer: zebris Medical GmbH, Germany

27.2 IMPORTING AND REGISTERING JAW MOTION DATA

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

Unsuitable jaw motion tracking devices could result in incorrect diagnosis and treatment.

Only use jaw tracking data from devices cleared as medical devices.

CAUTION

Incorrect recording of jaw motion tracking data and 3D X-ray scans may result in an incorrect diagnosis and treatment.

Ensure that jaw motion tracking data and 3D X-ray scans have been recorded in accordance with the device manufacturer's instructions. Use the stated type of registration device.

CAUTION

Jaw motion tracking data that does not match the patient and date of the 3D X-ray scans may result in an incorrect diagnosis and treatment.

Make sure that the patient and date of the jaw motion tracking data match the patient and date in the 3D X-ray scan shown.

CAUTION

Insufficient integrity or quality of jaw motion tracking data may result in an incorrect diagnosis and treatment.

Check the integrity and quality of the jaw motion tracking data imported.

CAUTION

Insufficient quality, precision and resolution of jaw motion tracking data may result in an incorrect diagnosis and treatment.

Only use jaw motion tracking data of a sufficient quality, resolution and precision for the intended diagnosis and treatment.

CAUTION

Excessive artifacts, insufficient resolution or insufficient quality of the 3D X-ray scans may mean that the marker and registration device detection mechanism fails. Examples of excessive artifacts in 3D X-ray scans include movement artifacts and metal artifacts.

Use only 3D X-ray scans that enable the correct detection of markers and registration devices.

CAUTION

Incorrect positions, types and orientations of the registration device may result in an incorrect diagnosis and treatment.

After the JMT wizard has identified the registration device, check the correct position, type and orientation of the registration device, taking into account the 3D X-ray scans.

⚠ **CAUTION**	**The incorrect registration of jaw motion tracking data for 3D X-ray scans may result in an incorrect diagnosis and treatment.** Check that the registered jaw motion tracking data is correctly aligned to the 3D X-ray scans.

NOTICE	To ensure the correct registration of jaw motion tracking data, SICAT recommends the use of 3D X-ray data with the following parameters: 1. Slice thickness less than 0.7 mm 2. Voxel size less than 0.7 mm in all three dimensions

ℹ	Before you can import recorded jaw motion tracking data to SICAT Function, you have to export the data from the jaw motion tracking device software. Exporting files that are suitable for SICAT Function is described in the instructions for use of the jaw motion tracking device.

ℹ	If the opened study already contains registered jaw motion data, you have to confirm that SICAT Function will remove this data when you open the assistant **Import and Register Jaw Motion Tracking Data** again.

ℹ	During the import process of the jaw motion tracking data, you have to mark three spherical fiducial markers within the **Axial** view of the **Import and Register Jaw Motion Tracking Data** assistant so that SICAT Function can subsequently identify them.

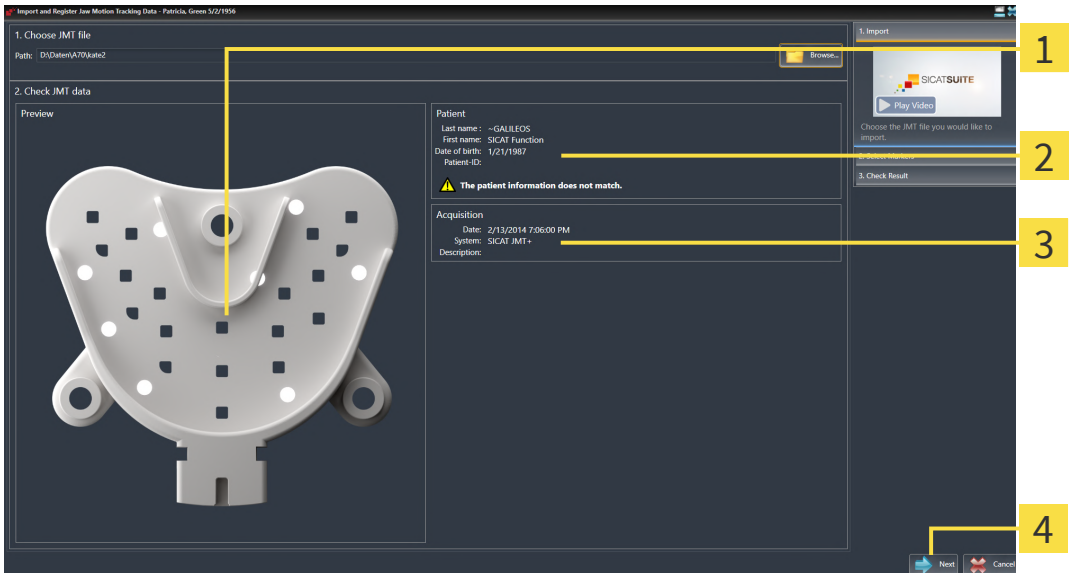
General information on jaw motion tracking data can be found in the section *Jaw motion tracking data [▶Page 113]*.

To import and register jaw motion tracking data, proceed as follows:

☑ The **Diagnose** workflow step is already expanded. Information on this can be found in the section *Workflow toolbar [▶Page 59]*.

1. Click on the **Import and Register Jaw Motion Tracking Data** icon.
   ▶ The **Import and Register Jaw Motion Tracking Data** wizard opens with the **Import** step.
2. Click the **Browse** button in the **Import and Register Jaw Motion Tracking Data** wizard.
   ▶ The **Load JMT Export File** window opens.
3. Switch to the desired jaw motion tracking data file in the **Load JMT Export File** window, select the file and click on **Open**.
   ▶ The **Load JMT Export File** window closes and SICAT Function transfers the path to the desired file with the jaw motion tracking data into the **Path** field.
   ▶ The **Bite fork** view shows a preview of the bite fork, which was used when recording the jaw motion tracking data.

▶ The **Patient** area and the **Acquisition** area display information from the file with the jaw motion tracking data:

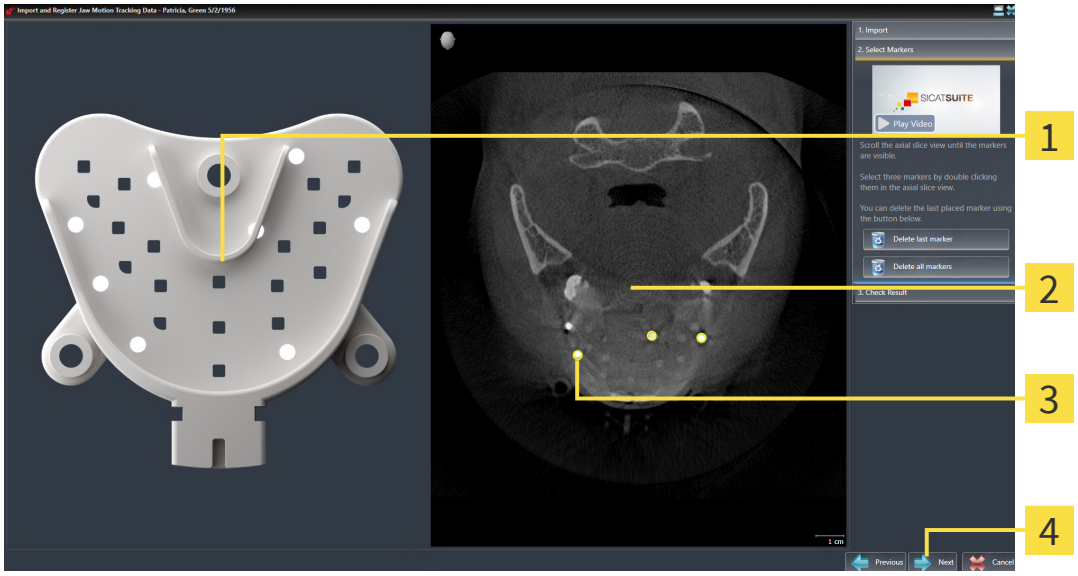


1	SICAT Fusion Bite view	3	**Acquisition** area
2	**Patient** area	4	**Next** button

4. Make sure that the file with the jaw motion tracking data matches the active study.

5. Click **Next**.

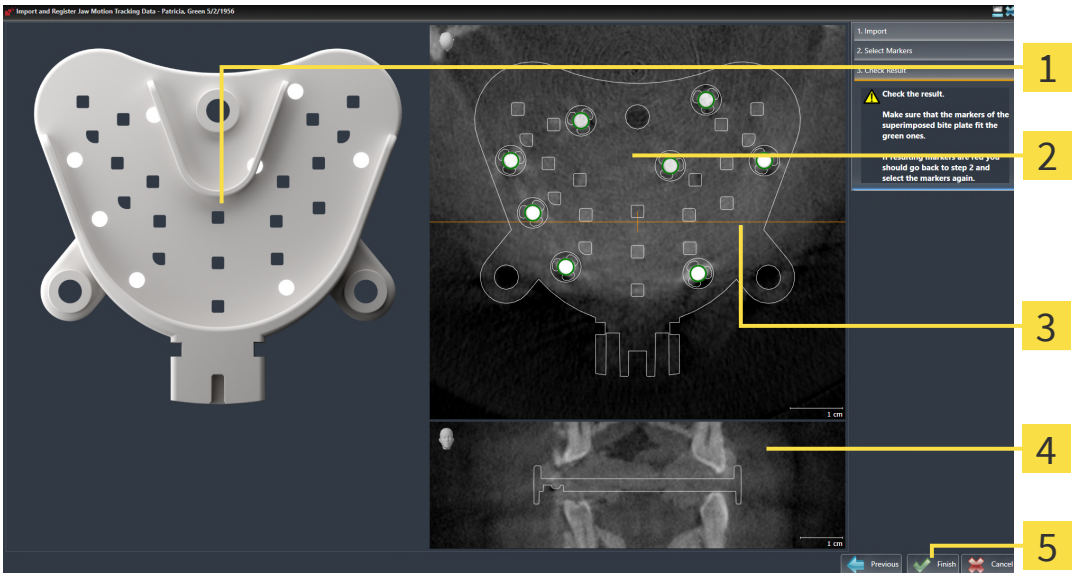
▶ The **Select Markers** step opens:



1	**Bite fork** view	3	Selected marker
2	**Axial** view	4	**Next** button

6. Scroll through the axial slices until the **Axial** slice view displays at least one fiducial marker.

7. Double click a fiducial marker in the **Axial** slice view.
   ▶ SICAT Function marks the fiducial marker.
8. Repeat the last step until up to three fiducial markers have been marked.
9. Click **Next**.
   ▶ SICAT Function registers the jaw motion tracking data.
   ▶ The **Check Result** step opens:



1 **Bite fork** view
2 **Axial** slice view
3 Coronal reference line
4 **Coronal** view
5 **Finish** button

10. Make sure that the fiducial markers on the **Bite fork** and in the **Axial** slice view match.
11. In the **Coronal** view, ensure that SICAT Function has correctly recognized the location of the bite fork. Move the coronal reference line in the **Axial** view or scroll through the slices in the **Coronal** view.
12. Click **Finish**.

▶ SICAT Function imports the registered jaw motion tracking data.

▶ The **Import and Register Jaw Motion Tracking Data** wizard closes.

▶ SICAT Function displays in the **Object browser** a **Jaw Motion Tracking Data** object. Information on this can be found in the section *SICAT Function objects [▶Page 65]*.

In addition to the described process, the following actions are available in the **Import and Register Jaw Motion Tracking Data** assistant:

- If you are not satisfied with the most recently placed marker, you can click the **Delete last marker**" button.
- If the **Bite fork** is imprecisely aligned to the X-ray data, click on the **Previous** button and repeat step **Select Markers** with markers in different positions if necessary.
- If you want to cancel importing and registering jaw motion data, click **Cancel**.

28 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.

To display the movement of the mandible, you have to define the border between the mandible and the background. This is called segmentation. You can use the **Mandible segmentation** assistant to segment both the mandible and the fossa of the patient. In SICAT Function, segmentation is a semi-automatic process.

Semi-automatic process means that you have to mark parts of the mandible and fossa manually using the drawing tools in the **Mandible segmentation** assistant. After a marking, the segmentation assistant will automatically mark similar areas.

The following actions are available to segment the mandible and fossa:

- *Segmenting the mandible [▶Page 121]*
- *Segmenting the fossa [▶Page 123]*

You can perform the following actions after segmenting the mandible:

- Visualizing and playing-back individual anatomical movements of the patient in the **3D** view. Information on this can be found in the section *Interacting with jaw motion [▶Page 143]*.
- Visualizing individual anatomical traces of the patient in the **3D** view. Information on this can be found in the section *Visualizing anatomical traces in the 3D view [▶Page 146]*.
- Visualization of the moved temporomandibular joints in the **TMJ** workspace. Information on this can be found in the section *Functions in the TMJ workspace [▶Page 149]*.

28.1 SEGMENTING THE MANDIBLE

> The **Segment Condyles and Mandible Region** assistant performs a precalculation of the segmentation each time it is started. The duration of the precalculation depends on the performance of your computer.

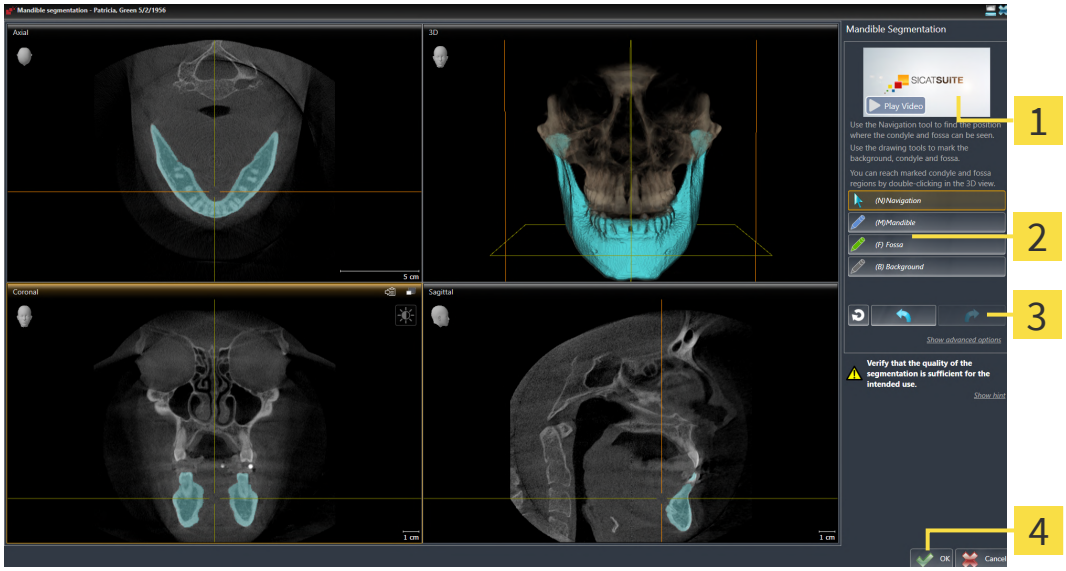
> The segmentation of SICAT Function works with areas instead of anatomical contours. For this reason, it is only rarely necessary to exactly trace the anatomical contours. Instead, mark contingous areas by drawing lines within the areas.

General information on segmentation can be found in the section *Segmentation [▶Page 120]*.

To segment the mandible, proceed as follows:

☑ The **Diagnose** workflow step is already expanded. Information on this can be found in the section *Workflow toolbar [▶Page 59]*.

1. Click on the **Segment condyles and mandible region** icon.
   ▶ The **Mandible segmentation** wizard opens:



1	Example video	3	**Reset** button, **Undo** button and **Redo** button
2	**Drawing tools** area	4	**OK** button

   ▶ The **Mandible segmentation** wizard performs a precalculation of the segmentation.

2. Adjust the **Axial** view, **Coronal** view or **Sagittal** view so that the mandible and fossa are visible.

3. Click on the **Mandible** button.
4. Move the mouse pointer onto the mandible in the desired 2D slice view.
   ▶ The mouse pointer becomes a pen.
5. Click and hold the left mouse button.
6. Trace the inner region of the mandible with the mouse pointer.
   ▶ SICAT Function shows your marking as a blue line.

7. Release the left mouse button.

   ▶ SICAT Function segments the mandible using your marking.

8. If you want to add additional areas to the mandible, click on the **Navigation** icon, navigate within a 2D view to the structures you require and mark them as described above.

9. Click on the **OK** button if the segmentation meets your requirements.

▶ The **Mandible segmentation** wizard closes.

▶ SICAT Function displays in the **Object browser** a **Volume Regions** object. Information on this can be found in the section *SICAT Function objects [▶Page 65]*.

▶ The **3D** view shows the results of the segmentation.

You can use the **Background** drawing tool to either mark areas as background or to correct large areas of semi-automatic segmentation.

You can also continue or improve the segmentation at a later time.

You can scroll through the 2D slice views by switching to **Navigation** mode.

In addition to the described process, the following actions are available in the **Segment Condyles and Mandible Region** window:

- There are special keyboard shortcuts in the **Segment Condyles and Mandible Region** window. Information on this can be found in the section *Keyboard shortcuts [▶Page 200]*.
- If you double click on a position in the **3D** view that belongs to the segmented area, all 2D slice views will display the corresponding slice. In addition, SICAT Function will center the crosshairs on the position. Use this navigation tool to correct marks that have gone outside the intended area or to close holes, for example.
- If the segmentation does not match the anatomic characteristics, you can click on the **Undo** button.
- If you want to restore an action that you have undone, you can click on the **Redo** button.
- If you want to undo all work steps, you can click on the **Reset** button.
- In rare cases, the precalculation of the data record may not provide an optimal result. In such a case, you can click **Show advanced options** and deactivate the **Auto detect background** check box. After this, you can mark areas that do not belong to the mandibular bone or the fossa with at least one stroke using the **Background** drawing tool.
- If you want to cancel the segmentation of the condyles and mandibular area, you can click **Cancel**.

28.2 SEGMENTING THE FOSSA

Thanks to the introduction of the **TMJ** workspace, segmentation of the fossa is no longer mandatory in most cases. Use the **TMJ** workspace to assess the dynamic condlye-fossa relationship even without segmenting the fossa.

The **Segment Condyles and Mandible Region** assistant performs a precalculation of the segmentation each time it is started. The duration of the precalculation depends on the performance of your computer.

The segmentation of SICAT Function 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 can be found in the section *Segmentation [▶Page 120]*.

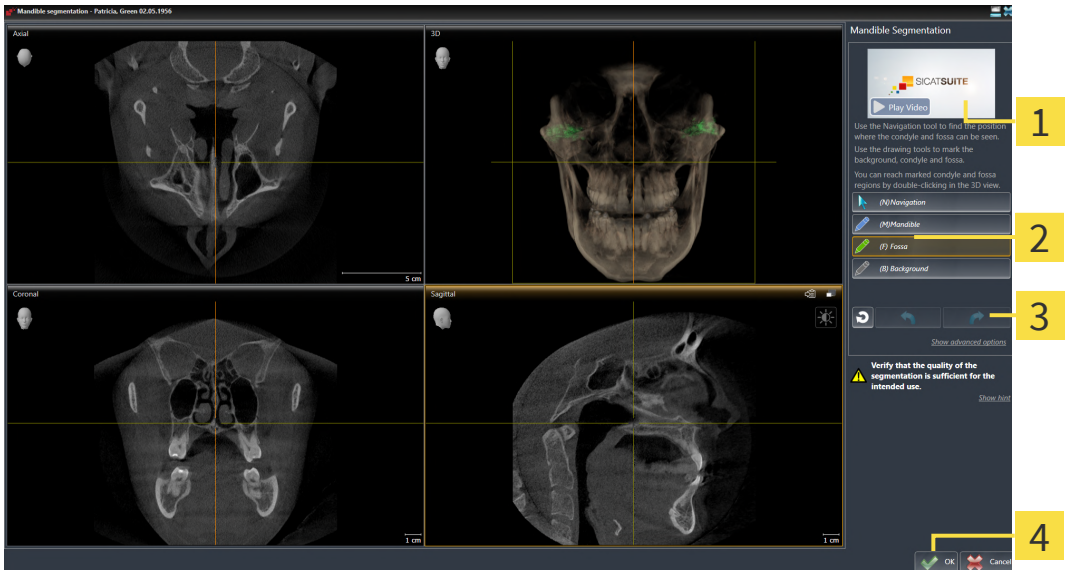
To segment the fossa, proceed as follows:

☑ The **Diagnose** workflow step is already expanded. Information on this can be found in the section *Workflow toolbar [▶Page 59]*.

☑ The CBCT scan includes the fossa.

1. Click on the **Segment condyles and mandible region** icon.

   ▶ The **Mandible segmentation** wizard opens:



1	Example video	3	**Reset** button, **Undo** button and **Redo** button
2	**Drawing tools** area	4	**OK** button

   ▶ The **Mandible segmentation** wizard performs a precalculation of the segmentation.

2. Adjust the **Axial** view, **Coronal** view or **Sagittal** view so that the mandible and fossa are visible.

3. Click on the **Fossa** button.

4. Move the mouse pointer onto the fossa in the 2D slice view you require.

   ▶ The mouse pointer becomes a pen.

5. Click and hold the left mouse button.
6. Trace the inner region of the fossa with the mouse pointer.
   ▶ SICAT Function shows your marking as a green line.
7. Release the left mouse button.
   ▶ SICAT Function segments the fossa using your marking.
8. If you want to add additional areas to the fossa, click on the **Navigation** icon, navigate within a 2D view to the desired structures and mark them as described above.
9. Click on the **OK** button if the segmentation meets your requirements.

▶ The **Mandible segmentation** wizard closes.

▶ SICAT Function displays in the **Object browser** a **Volume Regions** object. Information on this can be found in the section *SICAT Function objects [▶Page 65]*.

▶ The **3D** view shows the results of the segmentation.

You can use the **Background** drawing tool to either mark areas as background or to correct large areas of semi-automatic segmentation.

You can also continue or improve the segmentation at a later time.

You can scroll through the 2D slice views by switching to **Navigation** mode.

In addition to the described process, the following actions are available in the **Segment Condyles and Mandible Region** window:

- There are special keyboard shortcuts in the **Segment Condyles and Mandible Region** window. Information on this can be found in the section *Keyboard shortcuts [▶Page 200]*.
- If you double click on a position in the **3D** view that belongs to the segmented area, all 2D slice views will display the corresponding slice. In addition, SICAT Function will center the crosshairs on the position. Use this navigation tool to correct marks that have gone outside the intended area or to close holes, for example.
- If the segmentation does not match the anatomic characteristics, you can click on the **Undo** button.
- If you want to restore an action that you have undone, you can click on the **Redo** button.
- If you want to undo all work steps, you can click on the **Reset** button.
- In rare cases, the precalculation of the data record may not provide an optimal result. In such a case, you can click **Show advanced options** and deactivate the **Auto detect background** check box. After this, you can mark areas that do not belong to the mandibular bone or the fossa with at least one stroke using the **Background** drawing tool.
- If you want to cancel the segmentation of the condyles and mandibular area, you can click **Cancel**.

29 OPTICAL IMPRESSIONS

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

SICAT Function 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 128]*
   - *Importing optical impressions from a file [▶Page 131]*
   - *Transferring optical impressions from SIDEXIS 4 [▶Page 134]*
   - *Re-using optical impressions from SICAT applications [▶Page 136]*
2. Registration (overlay) of the optical impressions with 3D X-ray data: *Registering and checking optical impressions [▶Page 138]*

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

SICAT Function 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 133]*.

Please note the following limitations with respect to optical impressions in STL data records:

- STL data records do not support buccal bite positions. There is no entry for the buccal relation in the **Active Jaw Relation** list in the **Active Jaw Relation**.
- You cannot export jaw motion tracking data on the basis of STL data records. If you click on the button **JMTXD Export** in the JMT area, SICAT Function shows a corresponding message.

The following actions are available for optical impressions:

- Activating, hiding and showing optical impressions: *Managing objects with the object browser [▶Page 62]*
- Focusing on and removing optical impressions: *Managing objects with the object toolbar [▶Page 64]*
- Setting the display of optical impressions in color: *Switching off and switching on the display of optical impressions in color [▶Page 101]*

29.1 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.

29.1.1 DOWNLOADING OPTICAL IMPRESSIONS FROM THE HUB

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

☑ The connection to the Hub is established. Information on this can be found in the section *Viewing Hub connection status [▶Page 190]*.

☑ The license for using the Hub is activated. Information on this can be found in the section *Licenses [▶Page 46]*.

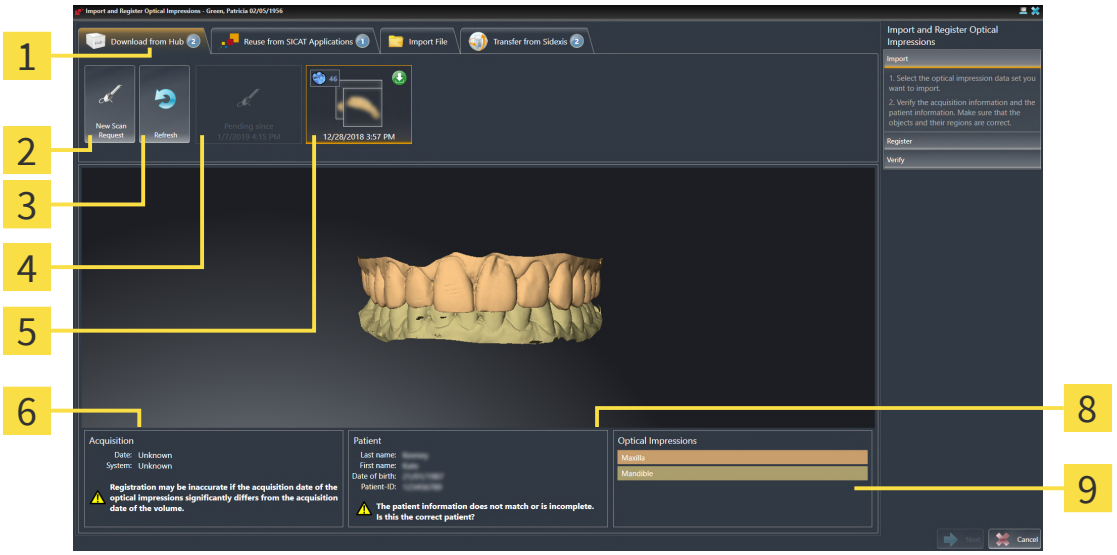
☑ The **Diagnose** workflow step is expanded.

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

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

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

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



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

3. Click on the desired optical impressions.

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

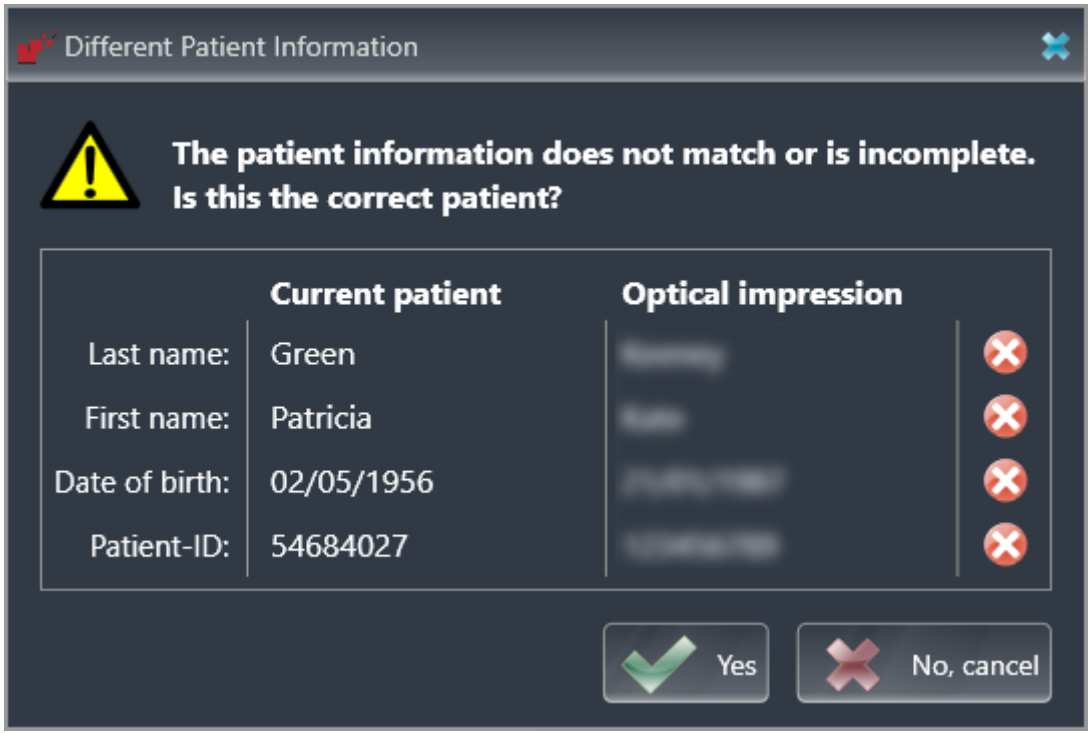
4. Check the selection for registration.

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

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

7. Click **Next**.

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



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

   ▶ The **Register** step opens for the first optical impression: Follow the steps in section *Registering and checking optical impressions [▶Page 138]*.

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 130]*.
- In the default setting, the connection to the Hub is disconnected. Information on the connection status can be found in the section *Viewing Hub connection status [▶Page 190]*.
- 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 46]*.

29.1.1.1 CREATING A SCAN REQUEST FOR AN OPTICAL IMPRESSION

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

☑ SIDEXIS 4 has established the connection with the Hub. Information on this can be found in the section *Viewing Hub connection status [▶Page 190]*.

☑ The license for using the Hub is activated. Information on this can be found in the section *Licenses [▶Page 46]*.

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

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

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

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

▶ SICAT Function 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.

29.1.2 IMPORTING OPTICAL IMPRESSIONS FROM A FILE

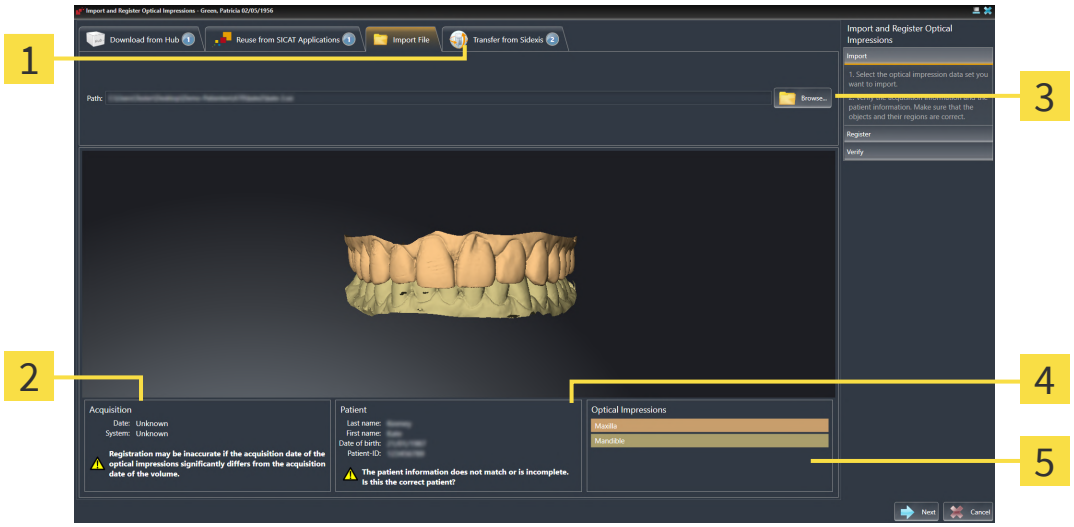
You can import one or more files with optical impressions.

Please note the following limitations with respect to optical impressions in STL data records:

- STL data records do not support buccal bite positions. There is no entry for the buccal relation in the **Active Jaw Relation** list in the **Active Jaw Relation**.
- You cannot export jaw motion tracking data on the basis of STL data records. If you click on the button **JMTXD Export** in the JMT area, SICAT Function shows a corresponding message.

☑ The **Diagnose** 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.

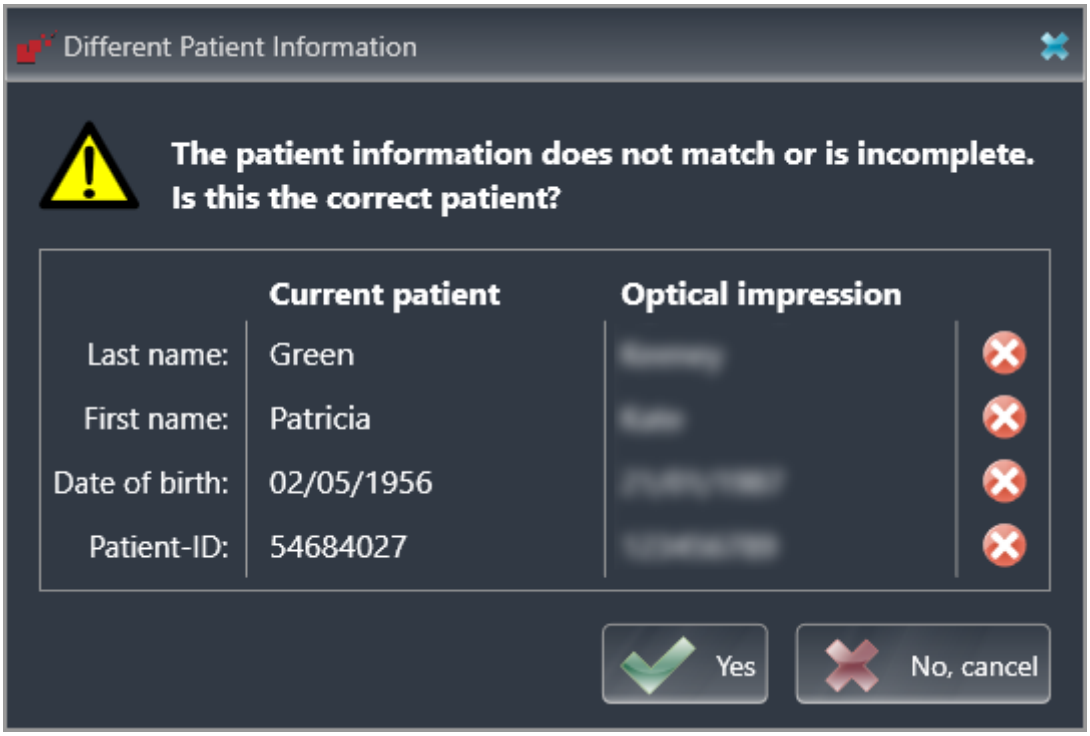


1 **Import File** tab
2 Scan information
3 **Browse** button
4 Patient information
5 **Optical Impressions** area

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 Function 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 Function 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 133].
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 Function 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 138]*.

	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.

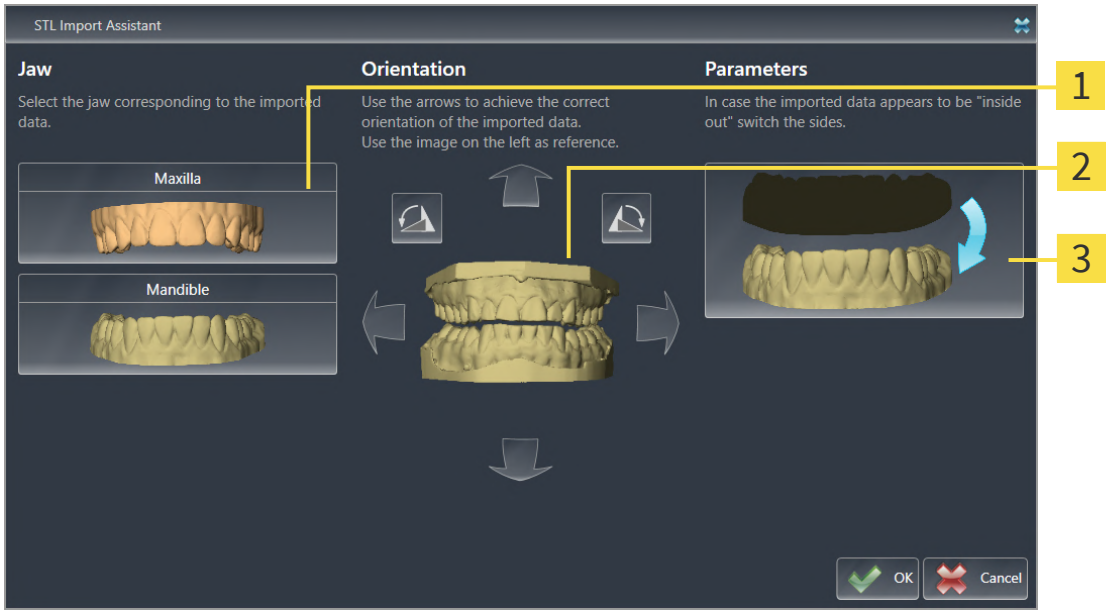
29.1.2.1 ADDITIONAL STEPS FOR OPTICAL IMPRESSIONS IN STL FORMAT

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 131]*.

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

   ▶ SICAT Function 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 131]*.

29.1.3 TRANSFERRING OPTICAL IMPRESSIONS FROM SIDEXIS 4

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

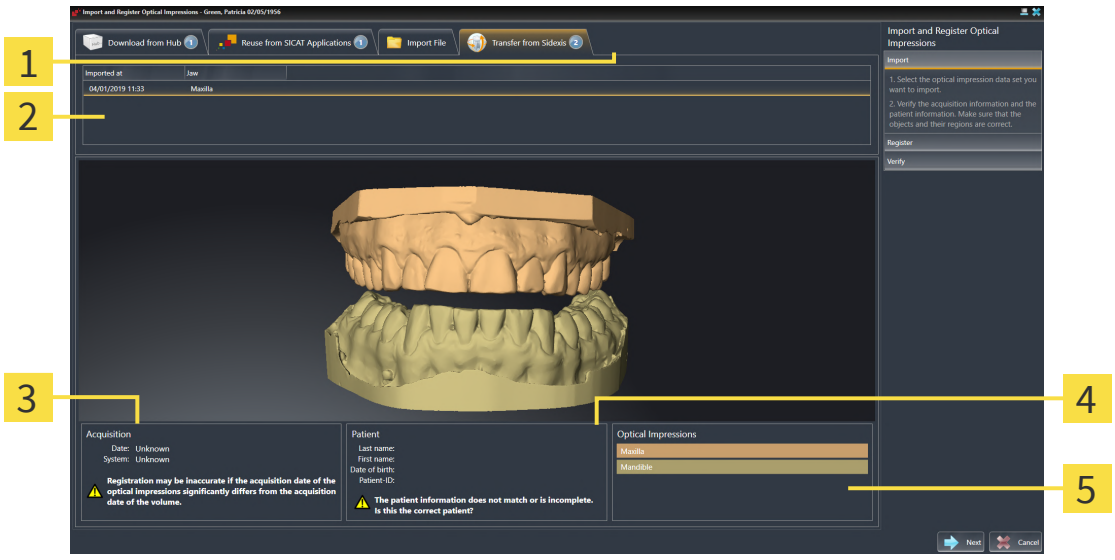
Please note the following limitations with respect to optical impressions in STL data records:

- STL data records do not support buccal bite positions. There is no entry for the buccal relation in the **Active Jaw Relation** list in the **Active Jaw Relation**.
- You cannot export jaw motion tracking data on the basis of STL data records. If you click on the button **JMTXD Export** in the JMT area, SICAT Function shows a corresponding message.

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

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

1. Click on the **Import and Register Optical Impressions** icon.
   ▶ The **Import and Register Optical Impressions** wizard opens with the **Import** step.
2. Click on the **Transfer from Sidexis** tab. The tab will only be displayed if at least one optical impression in SIDEXIS 4 is suitable for planning in SICAT Function.
3. In the upper area, click on the row with the optical impressions that you want to transfer.
   ▶ SICAT Function displays the optical impressions selected:



1 **Transfer from Sidexis** tab

2 List of optical impressions

3 Scan information

4 Patient information

5 **Optical Impressions** area

4. Check the selection for registration.
5. Check the scan information and patient information.

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

7. Click **Next**.

   ▶ The **Register** step opens for the first optical impression: Follow the steps in section *Registering and checking optical impressions [▶Page 138]*.

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.

29.1.4 RE-USING OPTICAL IMPRESSIONS FROM SICAT APPLICATIONS

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

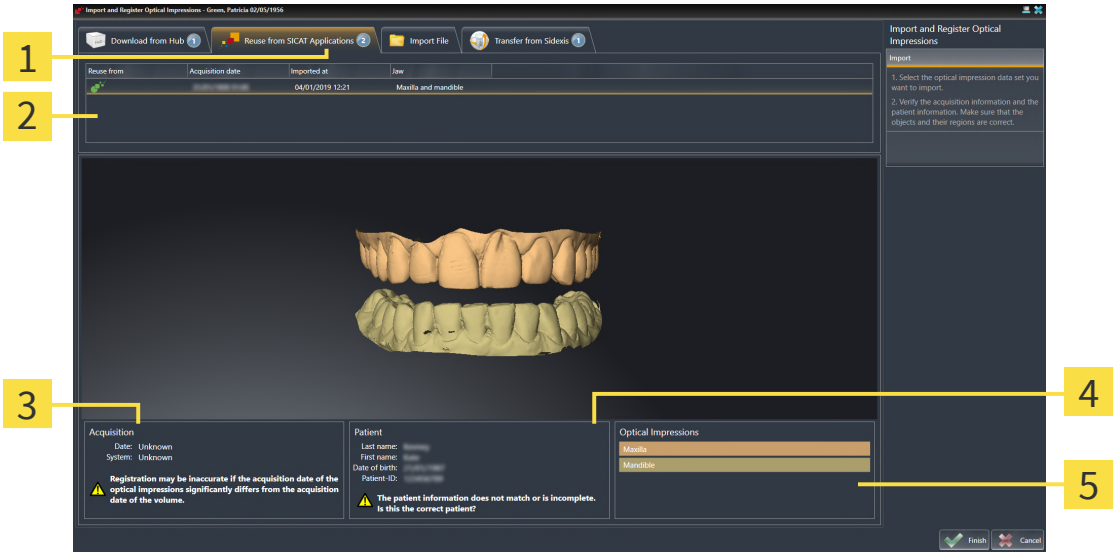
Please note the following limitations with respect to optical impressions in STL data records:

- STL data records do not support buccal bite positions. There is no entry for the buccal relation in the **Active Jaw Relation** list in the **Active Jaw Relation**.
- You cannot export jaw motion tracking data on the basis of STL data records. If you click on the button **JMTXD Export** in the JMT area, SICAT Function shows a corresponding message.

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

☑ The **Diagnose** 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 Function 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 Function closes the **Import and Register Optical Impressions** wizard.

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

▶ SICAT Function 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.

29.2 REGISTERING AND CHECKING OPTICAL IMPRESSIONS

⚠ **CAUTION**	**The incorrect registration of optical impressions for 3D X-ray scans may result in an incorrect diagnosis and treatment.** Check that the registered optical impressions are correctly aligned to the 3D X-ray scans.

⚠ **CAUTION**	**Excessive artifacts, insufficient resolution or the lack of points for registration may mean that the registration process for optical impressions fails. Examples of excessive artifacts in 3D X-ray scans include movement artifacts and metal artifacts.** Only use optical impression data and 3D X-ray data that allow for an adequate registration.

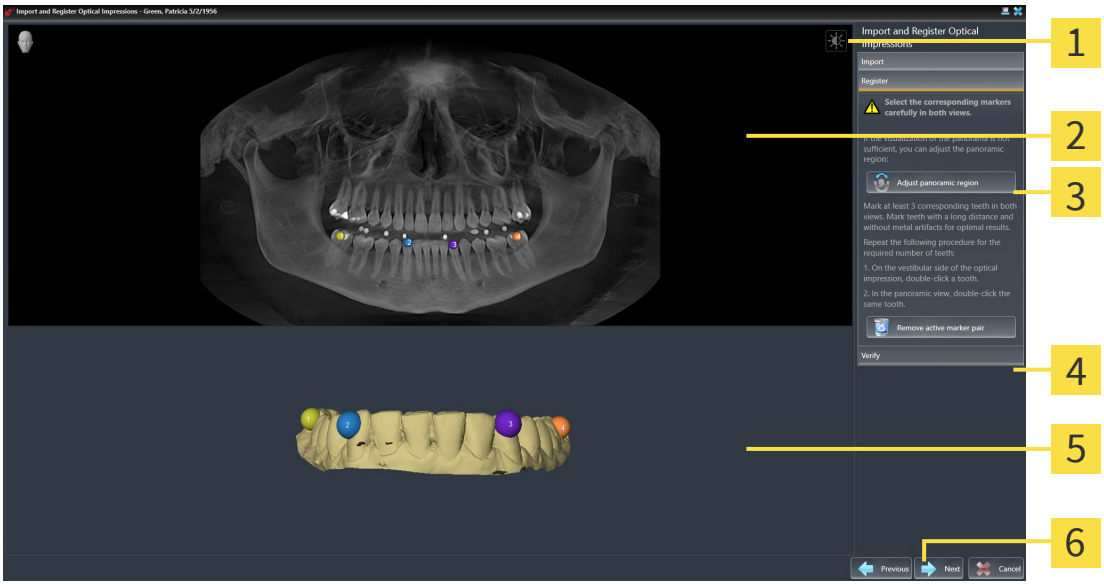
⚠ **CAUTION**	**The selection of markings in the registration process for optical impressions that do not correspond to one another may result in an incorrect diagnosis and treatment.** When you register optical impressions, carefully select corresponding markings in the 3D X-ray scans and optical impressions.

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

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

To register and check optical impressions, proceed as follows:

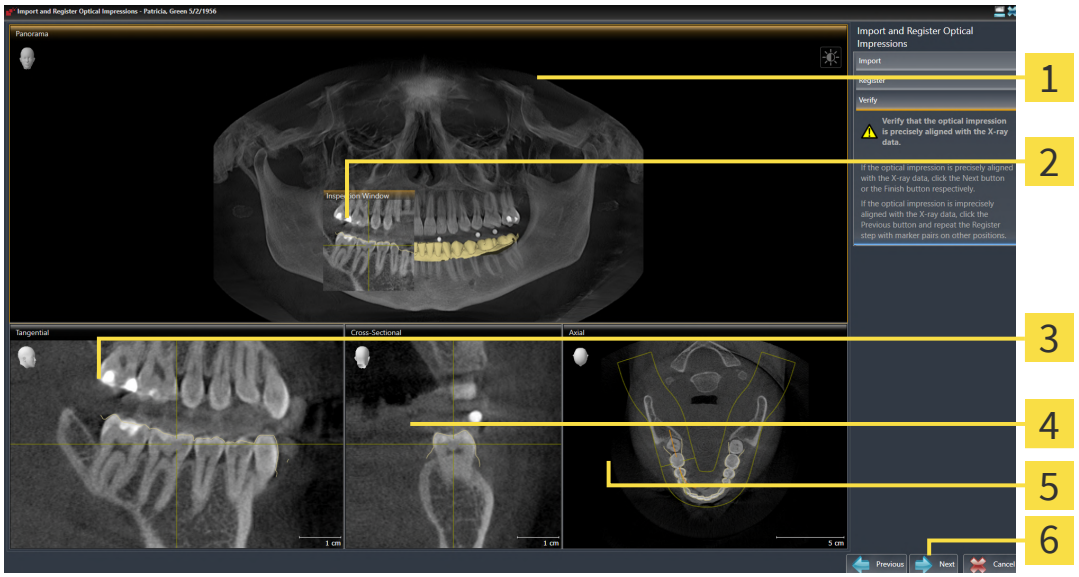
☑ The **Import and Register Optical Impressions** wizard is open at the **Register** step.



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

1. Double click the same tooth both in the **Panorama** view and on the vestibular side of the optical impression in the **3D** view. Make sure that the distance between individual teeth is as large as possible and mark only teeth without metal artifacts. Repeat this step until you have marked at least **three** matching teeth in both views.
   ▶ Markings with different colors and numbers in both views will display corresponding teeth in the optical impression.
2. Click **Next**.
   ▶ SICAT Function 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 Function closes the **Import and Register Optical Impressions** wizard.

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

▶ SICAT Function 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 81]*.
- 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 110]*.
- 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**.

30 ANATOMICAL ARTICULATION

SICAT Function visualizes the anatomical articulation of a patient by matching the software the 3D X-ray data with motion data from a digital measurement device for jaw motion records. This is known as anatomical articulation. After the segmentation of the mandible you can track all of the patient's movements up to the temporomandibular joints.

SICAT Function requires the following data for anatomical articulation:

- Segmented 3D X-ray data – Information on this can be found in the section *Segmentation [▶Page 120]*.
- Registered jaw motion tracking data – Information on this can be found in the section *Jaw motion tracking data [▶Page 113]*.

SICAT Function can use optical impressions as additional sources of information. For example, you can use optical impressions to analyze the jaw motion of a patient before the terminal occlusion. Information on this can be found in the section *Optical impressions [▶Page 125]*.

You can perform a diagnosis regarding the individual mandible movements of a patient with these tools:

- **Active Jaw Relation** - Information on this can be found in the section *Interacting with jaw motion [▶Page 143]*. You can use the Play button in the **Active Jaw Relation** to playback the individual movement of a patient's mandible in the **3D** view. In addition, you can use a button in the **Active Jaw Relation** to export jaw motion tracking data.
- **3D** view- Information on this can be found in the section *Adjusting the 3D view [▶Page 91]*.
- **Inspection Window** - Information on this can be found in the section *Moving, hiding, showing and maximizing the inspection window [▶Page 86]*.

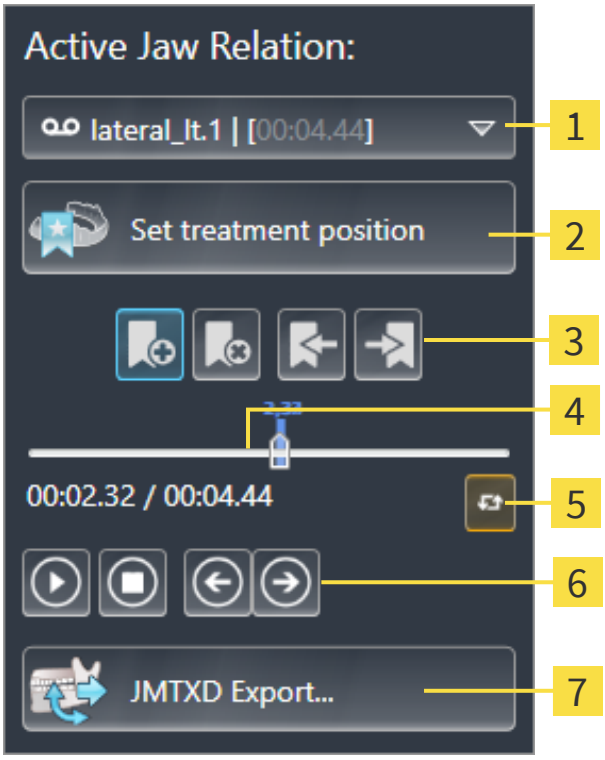
To perform a diagnosis of individual movements of a patient's mandible, you can place the crosshair by double clicking the selected position on the mandible in a 2D slice view. SICAT Function will then show the corresponding anatomical trace at the selected position in the **3D** view. Information on this can be found in the section *Moving, hiding and showing crosshairs and frames [▶Page 85]*.

Alternatively, you can place the **Inspection Window** on the selected position on the mandible. Information on this can be found in the section *Visualizing anatomical traces in the 3D view [▶Page 146]*.

In the **3D** view, SICAT Function will use different colors to show whether the selected position is on or outside the segmented mandible. For further information about this see *Adjusting anatomical traces using the inspection window [▶Page 147]* and *Adjusting anatomical traces using the crosshair in a slice view [▶Page 148]*.

30.1 INTERACTING WITH JAW MOTION

SICAT Function includes the **Active Jaw Relation** to manage jaw motion:



1 **Active Jaw Relation** list

2 **Set treatment position** button

3 Bookmark button

4 Time line with slider

5 **Switch play mode** icon

6 Play button

7 **JMTXD Export** button

You can carry out the following actions in the **Active Jaw Relation**:

- Selecting static jaw relations or jaw motion
- Interacting with jaw motion.
- Managing bookmarks.
- Defining a treatment position. Information on this can be found in the section *Defining a treatment position [▶Page 171]*.
- Exporting jaw motion tracking data.

SELECTING JAW RELATIONS OR JAW MOTION

To select a **Static jaw relation** or **Dynamic jaw relation**, proceed as follows:

1. Click on the **Active Jaw Relation** list.
   ▶ The **Active Jaw Relation** list opens.

2. Select the desired **Static jaw relation** or **Dynamic jaw relation**.

▶ The **Active Jaw Relation** list closes.

▶ The **Active Jaw Relation** shows the designation of the selected jaw relation.

▶ The **3D** view shows the selected jaw relation.

INTERACTING WITH JAW MOTION

To interact with jaw motion, proceed as follows:

☑ Jaw motion tracking data has already been imported. Information on this can be found in the section *Importing and registering jaw motion data [▶Page 115]*.

1. Click on the **Start** icon to start the playback.

2. Click on the **Stop** icon to stop the playback.

3. Click on the **Skip forward** icon to jump one frame forwards.

4. Click on the **Skip backward** icon to jump one frame backwards.

5. Click on the **Switch play mode** icon to switch between single and continuous playback mode.
6. To manually change the position on the time line, click on the slider in the JMT area, move the mouse and release the left mouse button at the desired position.

MANAGING BOOKMARKS IN THE JMT AREA

To manage bookmarks in the JMT area, proceed as follows:

1. To add a bookmark at the current position on the time line, click the **Add bookmark** icon.

2. To delete a bookmark at the current position on the time line, click the **Delete bookmark** icon.

3. To move the slide controller to the position of the next bookmark, click the **Skip to next bookmark** icon.

4. To move the slide controller to the position of the previous bookmark, click the **Skip to previous bookmark** icon.

You cannot delete a bookmark in the following cases:

- You have defined a bookmark as the treatment position, for which there is an order in the shopping cart. To delete the bookmark, complete the order or delete the order.
- You have selected a bookmark as an active jaw relation. To delete the bookmark, select the corresponding trace of movement or static jaw relation and click the **Skip to next bookmark** icon.

EXPORTING JAW MOTION TRACKING DATA

To export jaw motion tracking data, proceed as follows:

☑ You have already imported and registered jaw motion tracking data.

☑ You have already imported and registered optical impressions of both jaws.

1. Click on the **JMTXD Export** button.
   ▶ A Windows Explorer window opens.
2. Select a target folder and change the file name if required.
3. Click on the **Save** button.

▶ SICAT Function closes the Windows Explorer window.

▶ SICAT Function exports the jaw motion tracking data and the optical impressions to the selected file (JMTXD file format, compatible from CEREC 4.4 and from InLab15).

You can export jaw motion data anonymously if you activate anonymization beforehand in the settings.

30.2 VISUALIZING ANATOMICAL TRACES IN THE 3D VIEW

Anatomical traces show the spatial path of motion of an individual point in the mandible. They resemble the illustration of conventional axis-based condylography systems. The point, the trace of movement of which is shown, is called the trace point. You can freely choose trace points in SICAT Function. You can select the individual movements of a patient in the JMT area and perform a diagnosis in the **3D** view. General information on the JMT area can be found in the section *Interacting with jaw motion [▶Page 143]*.

To show anatomical traces in the **3D** view, perform the following steps.

- Register the jaw motion tracking data with the 3D X-ray data – Information on this can be found in the section *Jaw motion tracking data [▶Page 113]*.
- Segment the 3D X-ray data – Information on this can be found in the section *Segmentation [▶Page 120]*.

After you have imported the jaw motion data and segmented the 3D X-ray data, the **3D** view will initially show the original relations of the 3D X-ray scan. When you select a recorded motion, the **3D** view will show anatomical traces.

SICAT Function marks the position of the anatomical traces using different colors:

- If the anatomical traces are on the patient's mandible, SICAT Function will mark them in green.
- If the anatomical traces are not on the patient's mandible, SICAT Function will mark them in red.

You can place the anatomical traces on the patient's mandible. For further information about this see *Adjusting anatomical traces using the inspection window [▶Page 147]* and *Adjusting anatomical traces using the crosshair in a slice view [▶Page 148]*.

You can select a display mode for the **3D** view and adjust it according to your needs. Information on this can be found in the section *Adjusting the 3D view [▶Page 91]*.

You can display a combination of three different trace points. Information on this can be found in the section *Using the Bonwill triangle [▶Page 152]*.

You can show and hide the segmentation boundary. Information on this can be found in the section *Displaying the segmentation boundary [▶Page 153]*.

You can display the condyle-aligned movement. Information on this can be found in the section *Displaying condyle-aligned movement [▶Page 154]*.

30.3 ADJUSTING ANATOMICAL TRACES USING THE INSPECTION WINDOW

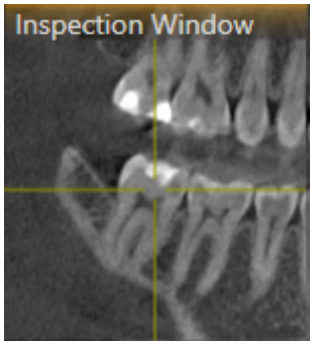
To use the **Inspection Window** to analyze individual movements of the patient on all points of the mandible, proceed as follows:

☑ The **Panorama** workspace is already active. Information on this can be found in the section *Switching workspaces [▶Page 73]*.

☑ The **Panorama** view is already active. Information on this can be found in the section *Changing the active view [▶Page 79]*.

☑ The **Inspection Window** is already shown. Information on this can be found in the section *Moving, hiding, showing and maximizing the inspection window [▶Page 86]*.

- Move the **Inspection Window** to the desired anatomical region:



▶ SICAT Function updates the position of the anatomical traces in the **3D** view according to the **Inspection Window** position. The current trace point is located in the crosshair of the inspection window.

▶ The anatomical traces are located at the new position.

If the trace point is outside the patient's mandible, you can position the anatomical traces on the patient's mandible. Information on this can be found in the section *Adjusting anatomical traces using the crosshair in a slice view [▶Page 148]*.

To move the **Inspection Window** immediately to the desired anatomical region, you can also double click the desired position in the **Panorama** view.

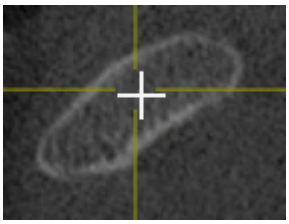
30.4 ADJUSTING ANATOMICAL TRACES USING THE CROSSHAIR IN A SLICE VIEW

To use the crosshair to analyze individual movements of the patient on all points of the mandible, proceed as follows:

☑ The crosshairs are currently shown in the 2D slice views. Information on this can be found in the section *Moving, hiding and showing crosshairs and frames [▶Page 85]*.

1. Activate the desired 2D slice view. Information on this can be found in the section *Changing the active view [▶Page 79]*.

2. Move the crosshair to the desired anatomical region. Information on this can be found in the section *Moving, hiding and showing crosshairs and frames [▶Page 85]*.



▶ SICAT Function updates the position of the anatomical traces in the **3D** view to the position of the crosshair.

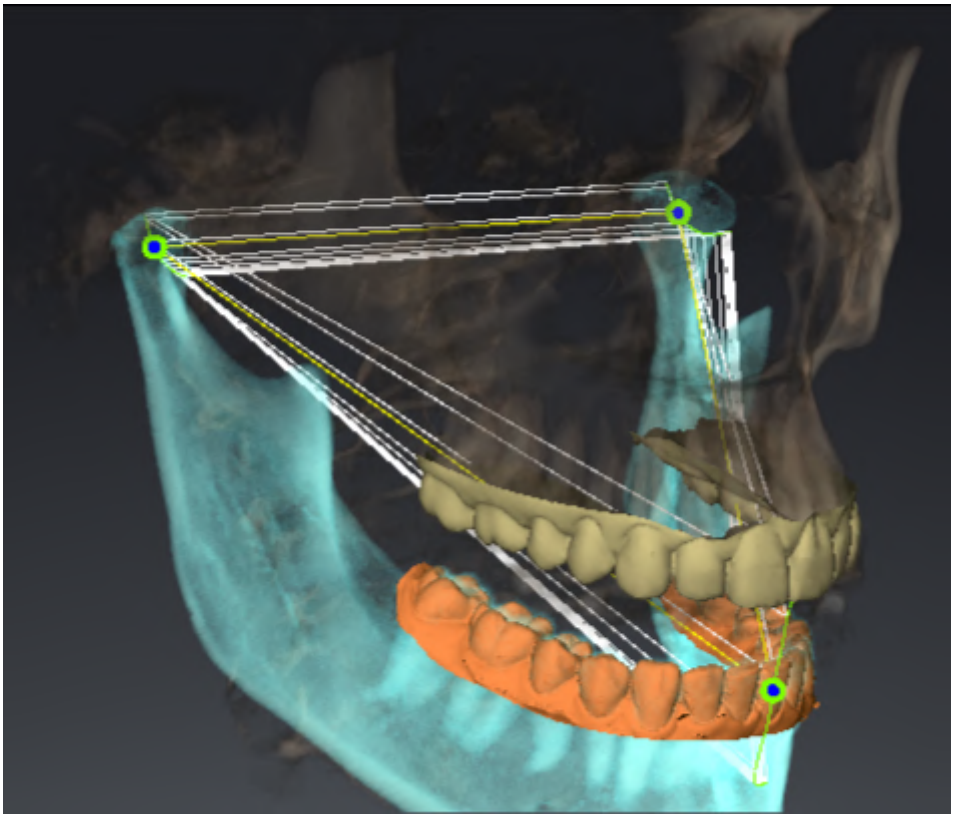
	In the **3D** view, SICAT Function labels the anatomical traces red if you select a position outside the patient's mandible.

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

31 FUNCTIONS IN THE TMJ WORKSPACE

The **TMJ** workspace helps you in diagnosing and planning the treatment of craniomandibular dysfunctions. Depending on the CBCT scan, you can compare the left and right temporomandibular joints in terms of morphology and movement in the **TMJ** workspace.

In the **TMJ** workspace, you can display three different anatomical traces simultaneously for each movement:



- Trace for the left condyle
- Trace for the right condyle
- Trace for a point on the occlusion, for example the interincisal point

You can move the trace points for the left and right condyles in the slice views of the **TMJ** workspace. Information on this can be found in the section *Moving trace points [▶Page 150]*.

In the **3D** view, you can set the trace point for the interincisal point by double clicking. Information on this can be found in the section *Setting the interincisal point [▶Page 151]*.

There are additional options in the **TMJ** workspace to perform a diagnosis on the individual anatomical articulation of a patient. For further information see *Displaying the segmentation boundary [▶Page 153]*, *Displaying condyle-aligned movement [▶Page 154]* and *Using the Bonwill triangle [▶Page 152]*. You can also use the Bonwill triangle to read articulator values. Information on this can be found in the section *Articulator values [▶Page 155]*.

31.1 MOVING TRACE POINTS

SICAT Function shows traces of corresponding trace points in the left and right condyles simultaneously. You can use the traces to compare the entire movement of the joints with one another.

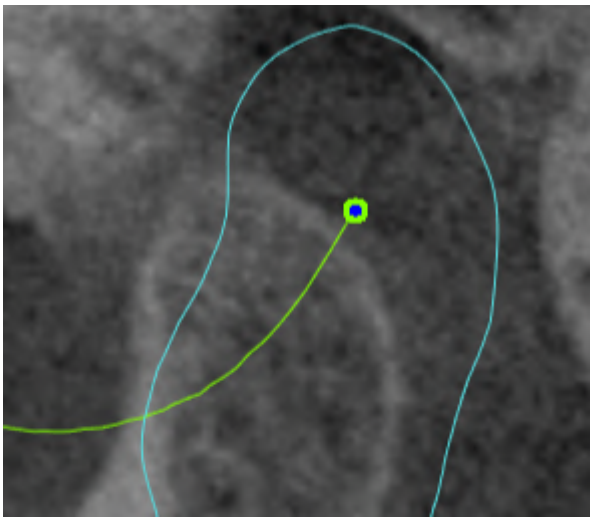
To move the trace points for the left and right condyles in the slice views, proceed as follows:

☑ You have already opened the **TMJ** workspace. General information on the **TMJ** workspace can be found in the section *Functions in the TMJ workspace [▶Page 149]* and *Overview of the TMJ workspace [▶Page 70]*.

☑ You have already selected a dynamic jaw relation.

1. Place the mouse pointer on the desired trace point.
2. Click and hold the left mouse button.
3. Place the mouse pointer on the desired position of the trace point.
4. Release the left mouse button.

   ▶ SICAT Function moves the trace point for the left and right condyle in the slice views to the selected position:



31.2 SETTING THE INTERINCISAL POINT

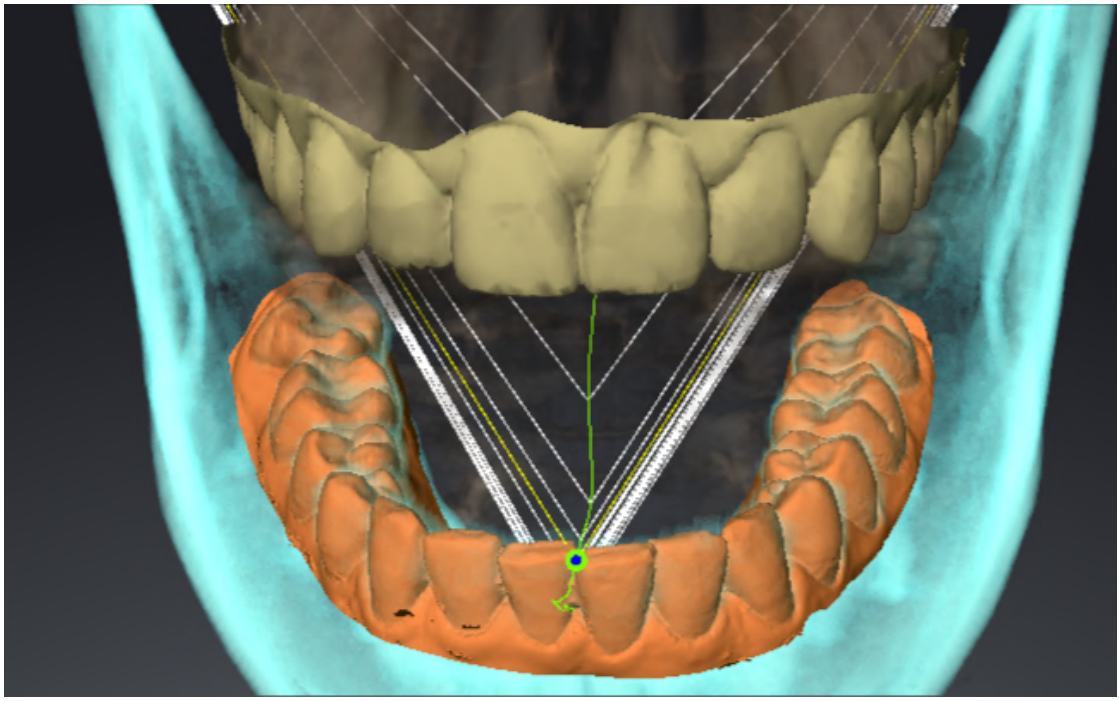
To set the trace point for the interincisal point in the **3D** view, proceed as follows:

☑ You have already opened the **TMJ** workspace. General information on the **TMJ** workspace can be found in the section *Functions in the TMJ workspace [▶Page 149]* and *Overview of the TMJ workspace [▶Page 70]*.

☑ You have already selected a dynamic jaw relation.

- Move the mouse pointer to the desired position in the **3D** view and double click the left mouse button.

▶ SICAT Function uses the selected position on the digital dental impressions as a trace point:



Using the frontal view on the interincisal point you can identify and more closely observe lateral movements of the lower jaw.

31.3 USING THE BONWILL TRIANGLE

DISPLAYING THE BONWILL TRIANGLE

The SICAT Function uses the **Bonwill triangle** to show the connection of the three trace points. This way, you can identify asymmetries and jumps in the movement more easily.

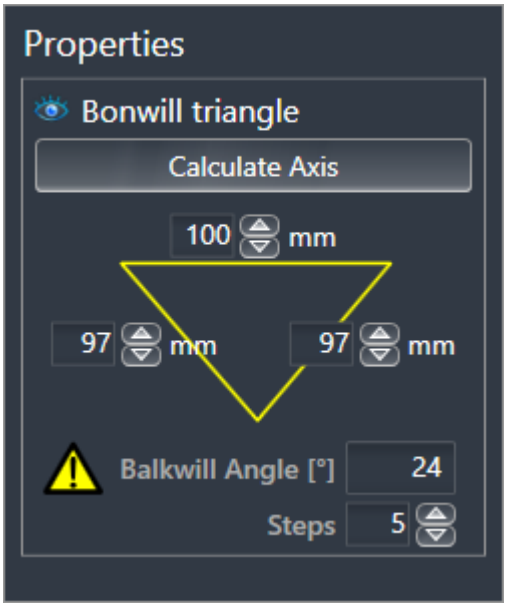
To display the **Bonwill triangle**, proceed as follows:

☑ You have already opened the **TMJ** workspace. General information on the **TMJ** workspace can be found in the section *Functions in the TMJ workspace [▶Page 149]* and *Overview of the TMJ workspace [▶Page 70]*.

☑ You have already selected a dynamic jaw relation.

- Click on **Jaw Motion Tracking Data** in the **Object browser**.

▶ SICAT Function shows the **Bonwill triangle** under **Properties**:



CONFIGURING THE BONWILL TRIANGLE

To set the step width of the Bonwill triangle, proceed as follows:

1. Click on **Jaw Motion Tracking Data** in the **Object browser**.
2. Click on one of the arrow buttons next to the **Steps** in the **Properties** area.

▶ SICAT Function changes the value of the **Steps** field.

▶ The **3D** view shows the selected step width of the Bonwill triangle.

Set the step width so that you can identify possible asymmetries in the movement well.

31.4 DISPLAYING THE SEGMENTATION BOUNDARY

If you display the segmentation boundary, you can compare the quality of segmentation with the 3D X-ray scans. If the segmentation boundary differs from the 3D X-ray scans, you can correct the segmentation in the **Segment Condyles and Mandible Region** window.

The blue contour shows the position of the condyles given the current movement. This means that the blue contour is typically not congruent with the 3D X-ray scans and is not suitable for checking the segmentation quality. Use the yellow contour instead for checking the segmentation boundary.

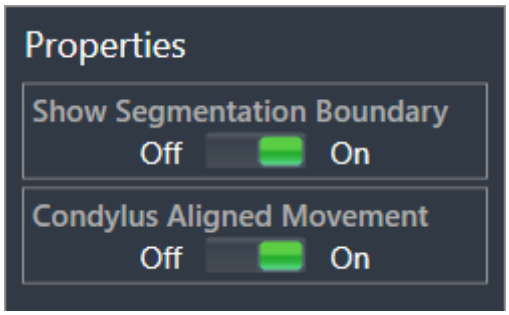
To display the segmentation boundary, proceed as follows:

☑ You have already opened the **TMJ** workspace. General information on the **TMJ** workspace can be found in the section *Functions in the TMJ workspace [▶Page 149]* and *Overview of the TMJ workspace [▶Page 70]*.

☑ You have already selected a dynamic jaw relation or a static jaw relation.

1. Click on **Volume Regions** in the **Object browser**.

   ▶ SICAT Function shows the **Show Segmentation Boundary** option under **Properties**:



2. Move the slide controller for the **Show Segmentation Boundary** option to the **On** position.

   ▶ The 2D views show the segmentation boundary as a yellow contour.

SICAT Function marks the segmented position of the articulation using different colors:

- SICAT Function marks the condyles in motion at the segmented position in blue.
- SICAT Function shows the original segmentation of the 3D X-ray scans using a control line. SICAT Function marks the control line in yellow.

31.5 DISPLAYING CONDYLE-ALIGNED MOVEMENT

When both condyles are captured in the 3D X-ray scan, you can use the condyle aligned movement to display moving condyles in relation to the fossa. If the condyle-aligned movement is activated, all points of the condyle are visible in the slice views of the **TMJ** workspace during the entire movement. If the condyle-aligned movement is deactivated, all points of the fossa are visible in the slice views of the **TMJ** workspace during the entire movement.

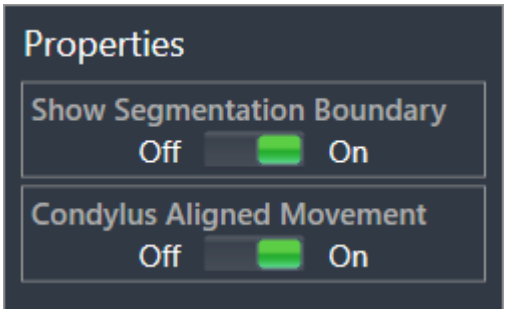
To display the condyle-aligned movement, proceed as follows:

☑ You have already opened the **TMJ** workspace. General information on the **TMJ** workspace can be found in the section *Functions in the TMJ workspace [▶Page 149]* and *Overview of the TMJ workspace [▶Page 70]*.

☑ You have already selected a dynamic jaw relation or a static jaw relation.

1. Click on **Volume Regions** in the **Object browser**.

   ▶ SICAT Function shows the **Condylus Aligned Movement** option under **Properties**:



2. Move the slide controller for the **Condylus Aligned Movement** option to the **On** position.

   ▶ The **3D** view shows the condyle-aligned movement.

32 ARTICULATOR VALUES

CAUTION

Incorrect volume orientations and incorrect determination of the incisal point may result in an incorrect diagnosis and treatment.

1. Make sure that the 3D X-ray scan is oriented in such a way that the occlusal plane of the maxilla is parallel to the axial slices.
2. Make sure that you have selected a jaw relation in which the patient's teeth are in occlusion so that the occlusal planes of the maxilla and mandible are aligned.
3. Make sure that the incisal point in the software is located over the anatomically correct incisal point between the lower central incisors.

CAUTION

An insufficiently accurate definition of the Bonwill triangle may result in an incorrect diagnosis and treatment.

1. Make sure that you have defined the Bonwill triangle according to the correct anatomic landmarks.
2. Make sure that the definition of the Bonwill triangle is suitable for the intended use.

CAUTION

The use of unsuitable jaw motion tracking data may cause an incorrect calculation of the hinge axis.

Only use a guided opening movement or a guided closing movement to calculate the hinge axis.

SICAT Function helps you to determine individual articulator values for each patient. You can construct and create individual prosthetic restorations by applying the values to an articulator. Currently, parameter determination is optimized for articulators using the occlusal plane as reference plane.

On example of an articulator using the occlusal plane as reference plane, is the virtual articulator of the CEREC software (Dentsply Sirona). Information on how to program the CEREC articulator with the individual values can be found in the CEREC instructions for use.

NECESSARY JAW MOTION RECORDING

You can determine most articulator values by means of jaw motion recordings. You need jaw motion records of a specific type to determine the values:

ARTICULATOR VALUE	REQUIRED JAW MOTION RECORDING
Sagittal condylar path inclination of the left and right temporomandibular joints.	Protrusion
Left and right Bennett angle and left and right immediate side shift	Left and right laterotrusion
Hinge axis	Guided opening movement or guided closing movement

VALUES FOR THE CEREC ARTICULATOR

You can use SICAT Function to determine the following values for the CEREC articulator:

CEREC ARTICULATOR PARAMETERS	DESCRIPTION
Arms	The arms are the distances from the left or right condyle to the incisal point between the lower central incisors. SICAT Function shows the length of the arms directly on the Bonwill triangle.
Base	The base is the distance between the left and the right condyles (intercondylar distance). SICAT Function shows the length of the base directly on the Bonwill triangle.
Balkwill angle	The Balkwill angle is the angle between the occlusal plane and the Bonwill triangle. SICAT Function shows the Balkwill angle directly on the Bonwill triangle.
Left and right sagittal condylar path inclination	The sagittal condylar path inclination is the angle between the protrusion trace of the left or right condyle and the occlusal plane. You can measure this angle in the sagittal views of the **TMJ** workspace using a protrusion trace. Make sure that the 3D X-ray data is oriented horizontally to the occlusal plane of the maxilla. Please observe the safety warning regarding volume orientation. Measure the angle between the protrusion trace of the left and right temporomandibular joint and the horizontal plane.
Left and right Bennet angle	The Bennett angle is the angle between the protrusion movement and the laterotrusion. You can measure this angle in the axial views of the **TMJ**-workspace using a laterotrusion on the left side and on the right side. Make sure that the 3D X-ray scans are oriented horizontally to the occlusal plane of the maxilla. Please observe the safety warning regarding volume orientation. Measure the angle between the laterotrusion trace and the sagittal plane.
Left and right immediate side shift	

VISIBILITY OF THE CONDYLES IN THE 3D X-RAY SCAN

You can determine the articulator values mainly by means of jaw motion recordings. Only the intercondylar distance (“base” length of the Bonwill triangle in the CEREC articulator) cannot be determined from the jaw motion tracking data alone.

If the temporomandibular joints are not visible in the 3D X-ray scan, you can calculate the position of the “base” arm of the Bonwill triangle using the hinge axis. You can determine the hinge axis based on a guided opening movement or closing movement. It is crucial that the mandible performs a rotary movement and does not shift forwards.

If both condyles are included in the 3D X-ray scan, you can determine the intercondylar distance based on the 3D X-ray scan. Please refer to the following table to see which jaw motion tracking data you need for each articulator value.

	CONDYLES ARE VISIBLE IN THE 3D X-RAY SCANS	CONDYLES ARE NOT VISIBLE IN THE 3D X-RAY SCANS
Cause	■ You have used an X-ray apparatus with a large field of view (FOV) for the 3D X-ray scan.	You have used an X-ray apparatus with a small field of view (FOV) for the 3D X-ray scan. You have made a 3D X-ray scan of a plaster model.
Consequence	In the 3D X-ray scan, the left trace point and the right trace point can be placed at the condyles.	In the 3D X-ray scan, the left trace point and the right trace point cannot be placed at the condyles.
Steps required	Place the left trace point and the right trace point in the slice views of the **TMJ** workspace. Use the position of the condyles in the 3D X-ray scan for orientation.	To calculate the hinge axis, a recording of guided opening movement or a guided closing movement is required. A guided opening movement or closing movement means that the patient opens his or her jaws by a few millimeters and closes them again and you manipulate the condyles using the Lauritzen manipulation or the Dawson manipulation to prevent the mandible from moving forwards. SICAT Function places the left trace point and the right trace point in such a way that both trace points will automatically be on the hinge axis of the temporomandibular joints.

THE BONWILL TRIANGLE IN SICAT FUNCTION

The Bonwill triangle in SICAT Function helps you to determine the following articulator values:

- Left and right arms [mm]
- Base [mm]
- Balkwill angle [°]

However, this requires that the three corners of the Bonwill triangle have been correctly placed:

- Left trace point
- Right trace point
- Incisal point

In the **TMJ** workspace, in the **3D** view, you can place the incisal point by double clicking on the anatomically correct point. Placement both of the left trace point and the right trace point differs depending on whether or not the condyles are visible in the 3D X-ray scan.

Information on how to read the articulator values can be found in the section *Reading articulator values if condyles are visible [▶Page 159]* or in the section *Reading articulator values if condyles are not visible [▶Page 161]*.

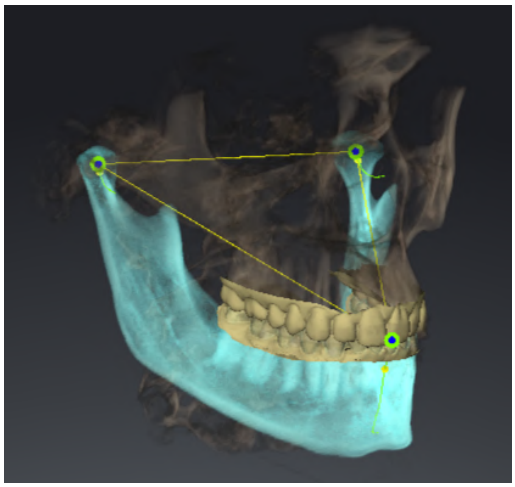
32.1 READING ARTICULATOR VALUES IF CONDYLES ARE VISIBLE

ADJUSTING THE BONWILL TRIANGLE IF CONDYLES ARE VISIBLE

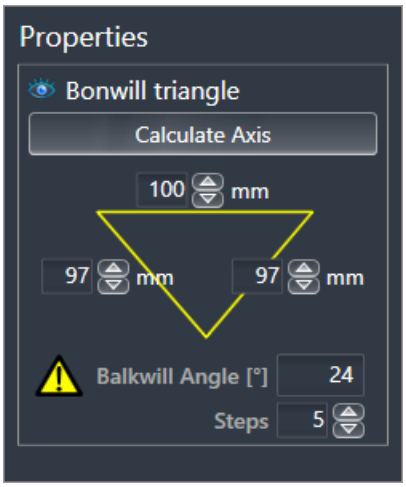
Use the slice views in the **TMJ** workspace for the following steps:

1. Click on the left trace point or the right trace point, hold the left mouse button and place the trace point in the corresponding condyle.

2. Place the incisal point between the incisors of the mandible by double clicking at the anatomically correct position. If you cannot see an incisal point between the incisors of the mandible, select an opening movement and open the jaws a little. Information on how to select a specific position within a jaw motion recording, can be found in the section *Interacting with jaw motion [▶Page 143]*.



The screenshot shows a 3D X-ray scan with a large field of view (FOV) in which a Bonwill triangle is aligned with respect to the patient's anatomy. The condyles are visible. The left trace point and the right trace point are placed in the center of the visible condyles. The incisal point in SICAT Function is placed between the central incisors of the mandible.



SICAT Function displays the length of the arms of the Bonwill triangle in mm. You can directly write down the values for the articulator. SICAT Function also shows the Balkwill angle. The Balkwill angle only applies to closed jaws and if the occlusal plane is horizontally aligned.

DETERMINING THE ARTICULATOR VALUES IF CONDYLES ARE VISIBLE

To determine the articulator values, proceed as follows:

☑ You have oriented the 3D X-ray scan in such a way that the occlusal plane of the maxilla is horizontally aligned and the jaws are aligned as symmetrically as possible with respect to the median sagittal plane. These correct alignments are necessary so that you will be able to correctly register the data and apply them to the articulator. Information on this can be found in the section *Adjusting volume orientation and panoramic region [▶Page 102]*.

☑ You have already imported jaw motion tracking data. Information on this can be found in the section *Jaw motion tracking data [▶Page 113]*.

☑ The **TMJ** workspace is already open. Information on this can be found in the section *Overview of the TMJ workspace [▶Page 70]*.

☑ You have already selected a dynamic jaw relation in the **Active Jaw Relation** list. Information on this can be found in the section *Interacting with jaw motion [▶Page 143]*.

1. In the **Object browser**, select the **Jaw Motion Tracking Data** object.

   ▶ SICAT Function will show the Bonwill triangle in the **Properties** area.

2. In the **3D** view, set the incisal point between the lower central incisors by double clicking on the segmented mandible or the optical impressions at the anatomically correct position. If the incisal point of the incisors of the mandible is concealed, open the jaws by playing back the movement until the incisors of the mandible are visible. Place the incisal point by double clicking and close the jaws again.

3. Set the left trace point and the right trace point in the center of the condyles by moving the trace points in the coronal, sagittal and axial views.

4. Write down the base value, the Balkwill angle and the values for the lengths of the arms. Please note that, depending on the articulator used, only one arm value can be entered.

5. During the selected protrusion movement, select a point in time when the jaws are closed. Information on how to select a specific position within a jaw motion recording, can be found in the section *Interacting with jaw motion [▶Page 143]*.

6. Ensure that the rows of teeth are closed.

7. In the sagittal views, use the **Add angle measurement (A)** tool to measure the sagittal condylar path inclination in the left temporomandibular joint and in the right temporomandibular joint Write down the values.

8. Select laterotrusion to the left. In the axial views, use the **Add angle measurement (A)** tool to measure the Bennett angle in the right temporomandibular joint Write down the value.

9. If available, measure the immediate side shift in the right temporomandibular joint. Write down the value.

10. Select laterotrusion to the right. In the axial views, use the **Add angle measurement (A)** tool to measure the Bennett angle in the left temporomandibular joint Write down the value.

11. If available, measure the immediate side shift in the left temporomandibular joint. Write down the value.

32.2 READING ARTICULATOR VALUES IF CONDYLES ARE NOT VISIBLE

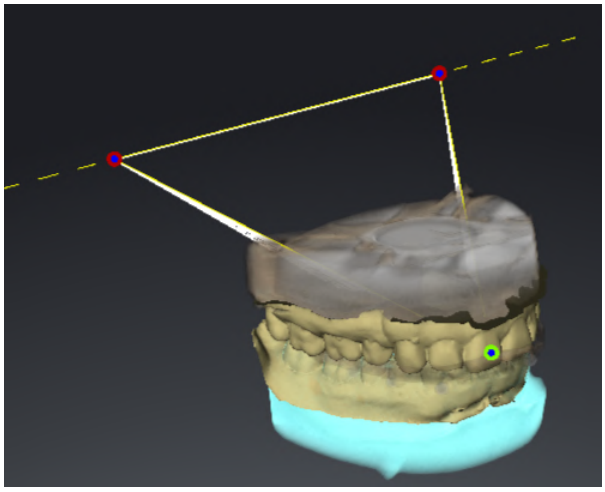
ADJUSTING THE BONWILL TRIANGLE IF CONDYLES ARE NOT VISIBLE

Proceed as follows:

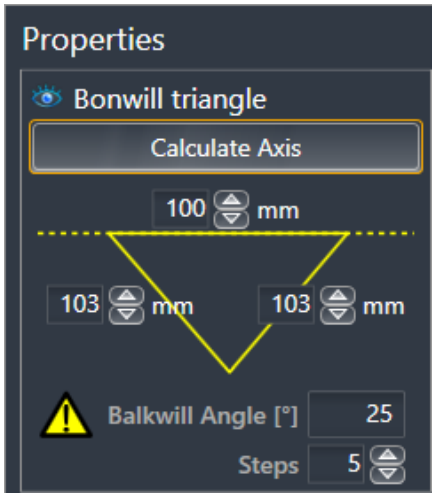
1. From the **Active Jaw Relation** list, select a guided opening movement or guided closing movement.
2. Click on the **Calculate Axis** button.

▶ SICAT Function shows the calculated axis as dashed line in the**3D** view. SICAT Function automatically places the left trace point and the right trace point in such a way that both trace points are positioned on the calculated hinge axis in the **TMJ** workspace.

▶ If you select the **Jaw Motion Tracking Data** object in the **Object browser**, SICAT Function shows the calculated axis in the **Properties** area.



The screenshot shows an example of a plaster model scan in which the condyles are not visible. The hinge axis was determined using a guided opening movement. The dashed line indicates the calculated axis. SICAT Function automatically placed the left trace point and the right trace point in such a way that both trace points are positioned on the calculated axis. The incisal point in SICAT Function is placed between the central incisors of the mandible.



SICAT Function displays the length of the arms of the Bonwill triangle in mm. You can directly write down the values for the articulator. SICAT Function also shows the Balkwill angle. The Balkwill angle only applies to closed jaws and if the occlusal plane is horizontally aligned.

DETERMINING THE ARTICULATOR VALUES IF CONDYLES ARE NOT VISIBLE

To determine the articulator values, proceed as follows:

☑ You have oriented the 3D X-ray scan in such a way that the occlusal plane of the maxilla is horizontally aligned and the jaws are aligned as symmetrically as possible with respect to the median sagittal plane. These correct alignments are necessary so that you will be able to correctly register the data and apply them to the articulator. Information on this can be found in the section *Adjusting volume orientation and panoramic region [▶Page 102]*.

☑ You have already imported jaw motion tracking data. Information on this can be found in the section *Jaw motion tracking data [▶Page 113]*.

☑ The **TMJ** workspace is already open. Information on this can be found in the section *Overview of the TMJ workspace [▶Page 70]*.

☑ You have already selected a dynamic jaw relation in the **Active Jaw Relation** list. Information on this can be found in the section *Interacting with jaw motion [▶Page 143]*.

1. In the **Object browser**, select the **Jaw Motion Tracking Data** object.

   ▶ SICAT Function will show the Bonwill triangle in the **Properties** area.

2. In the **3D** view, set the incisal point between the lower central incisors by double clicking on the segmented mandible or the optical impressions at the anatomically correct position. If the incisal point of the incisors of the mandible is concealed, open the jaws by playing back the movement until the incisors of the mandible are visible. Place the incisal point by double clicking and close the jaws again.

3. From the **Active Jaw Relation** list, select a guided opening movement or a guided closing movement.

4. Click on the **Calculate Axis** button in the **Properties** area. If required, set the length of the basis to the average value of 100 mm.

5. In the **Object browser**, select the **Jaw Motion Tracking Data** object.

   ▶ SICAT Function shows the values of the base, arms and Balkwill angle in the **Properties** area.

6. Write down the base value, the Balkwill angle and the values for the lengths of the arms. Please note that, depending on the articulator used, only one arm value can be entered.

7. Select a protrusion movement. During the protrusion movement, select a point in time when the jaws are closed. Information on how to select a specific position within a jaw motion recording, can be found in the section *Interacting with jaw motion [▶Page 143]*.

8. Ensure that the rows of teeth are closed.

9. In the sagittal views, use the **Add angle measurement (A)** tool to measure the sagittal condylar path inclination in the left temporomandibular joint and in the right temporomandibular joint Write down the values.

10. Select laterotrusion to the left. In the axial views, use the **Add angle measurement (A)** tool to measure the Bennett angle in the right temporomandibular joint Write down the value.

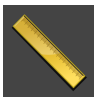
11. If available, measure the immediate side shift in the right temporomandibular joint. Write down the value.

12. Select laterotrusion to the right. In the axial views, use the **Add angle measurement (A)** tool to measure the Bennett angle in the left temporomandibular joint Write down the value.

13. If available, measure the immediate side shift in the left temporomandibular joint. Write down the value.

33 DISTANCE AND ANGLE MEASUREMENTS

SICAT Function features two different types of measurement:



- Distance measurements

- Angle measurements

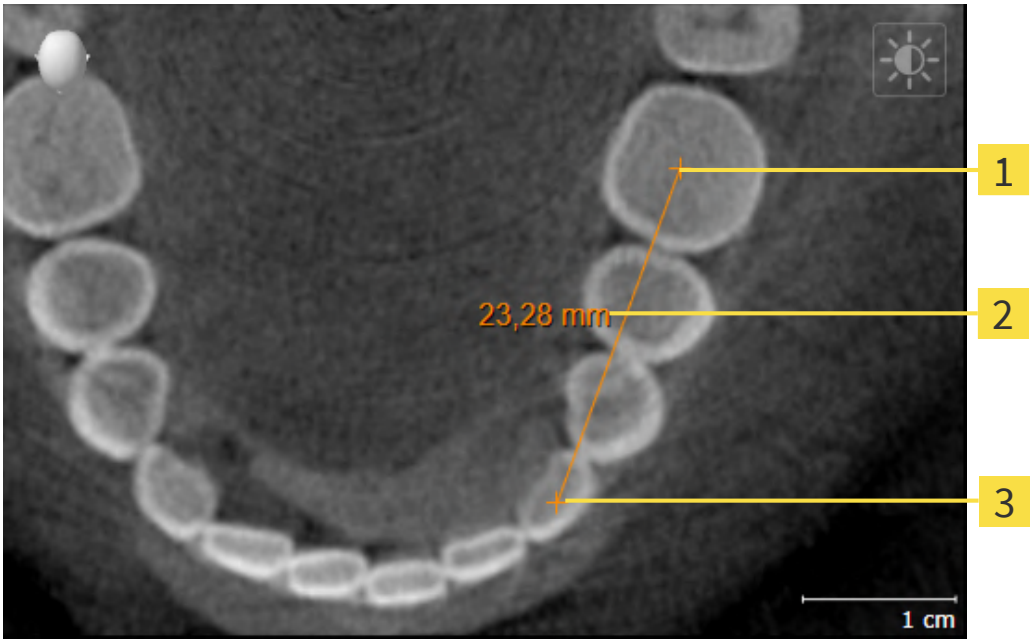
The tools to add measurements are available in the **Diagnose** step of the **Workflow toolbar**. You can add measurements in all 2D slice views. Every time you add a measurement, SICAT Function will also add it to the **Measurements** group in the **Object browser**.

You cannot add measurement objects in the **Inspection Window**.

The following actions are available for measurements:

- *Adding distance measurements [▶Page 164]*
- *Adding angle measurements [▶Page 165]*
- *Moving measurements, individual measuring points and measured values [▶Page 167]*
- Activating, hiding and showing measurements - Information on this can be found in the section *Managing objects with the object browser [▶Page 62]*.
- 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 64]*.

33.1 ADDING DISTANCE MEASUREMENTS



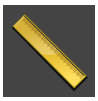
1 Starting point

2 Measured value

3 End point

To add a distance measurement, proceed as follows:

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

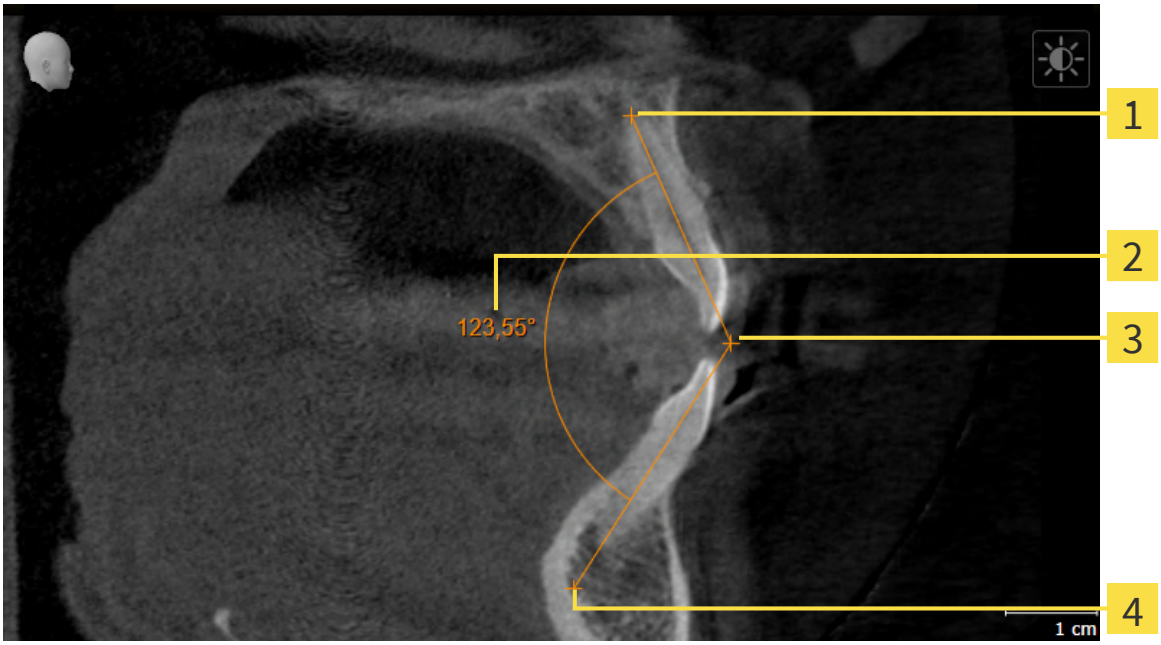


1. In the **Diagnose** workflow step, click the **Add distance measurement (D)** icon.
   ▶ SICAT Function adds a new distance measurement to the **Object browser**.
2. Move the mouse pointer over the desired 2D slice view.
   ▶ The mouse pointer becomes a cross.
3. Click on the starting point of the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

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

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

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

33.3 MOVING MEASUREMENTS, INDIVIDUAL MEASURING POINTS AND MEASURED VALUES

MOVING MEASUREMENTS

To move a measurement, proceed as follows:

☑ SICAT Function shows the desired measurement already in a 2D slice view. For further information about this see *Managing objects with the object browser [▶Page 62]* and *Managing objects with the object toolbar [▶Page 64]*.

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 Function maintains the current position of the measurement.

MOVING INDIVIDUAL MEASURING POINTS

To move an individual measuring point, proceed as follows:

☑ SICAT Function shows the desired measurement already in a 2D slice view. For further information about this see *Managing objects with the object browser [▶Page 62]* and *Managing objects with the object toolbar [▶Page 64]*.

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 Function maintains the current position of the measuring point.

MOVING MEASURED VALUES

To move a measured value, proceed as follows:

☑ SICAT Function shows the desired measurement already in a 2D slice view. For further information about this see *Managing objects with the object browser [▶Page 62]* and *Managing objects with the object toolbar [▶Page 64]*.

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

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

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

34 DATA EXPORT

You can export data.

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

35 ORDERING PROCESS

To order the desired product, proceed as follows:

- Define a treatment position in SICAT Function and place the desired planning data for therapeutic appliances in the shopping cart. For further information about this see *Defining a treatment position [▶Page 171]* and *Placing therapeutic appliances in the shopping cart [▶Page 172]*.
- 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 176]*.
- 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 177]* or section *Completing an order without an active Internet connection [▶Page 181]*.

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

35.1 DEFINING A TREATMENT POSITION

To define a treatment position, proceed as follows:

☑ You have already imported jaw motion tracking data. Information on this can be found in the section *Importing and registering jaw motion data [▶Page 115]*.

☑ You have already imported optical impressions. Information on this can be found in the section *Importing optical impressions [▶Page 127]*.

1. If you wish to define a treatment position based on a static jaw relation, select a static jaw relation from the **Active Jaw Relation** list. Information on this can be found in the section *Interacting with jaw motion [▶Page 143]*.

2. If you wish to define a treatment position based on a jaw movement, select a jaw movement from the **Active Jaw Relation** list and jump to the desired position. Information on this can be found in the section *Interacting with jaw motion [▶Page 143]*.

3. Click on the **Treatment position** button.

▶ If you have selected a treatment position that is based on a jaw movement, SICAT Function will set a bookmark at the corresponding position.

▶ The **Treatment position** button becomes the **Clear treatment position** button.

▶ SICAT Function saves the selected treatment position for the therapeutic appliance order.

REMOVING A TREATMENT POSITION

To remove a defined treatment position, proceed as follows:

☑ You have selected the static jaw relation or the bookmark for a jaw movement upon which the defined treatment position is based.

1. Click on the **Clear treatment position** button.
   ▶ SICAT Function opens a message window with the following contents: **Do you really want to clear the treatment position**

2. If you really want to remove the treatment position, click **Continue**.

OVERWRITING A TREATMENT POSITION

To overwrite a defined treatment position, proceed as follows:

☑ You have already defined a treatment position.

1. Select a static jaw relation or a jaw movement position that does not match the defined treatment position.

2. Click on the **Treatment position** button.
   ▶ SICAT Function opens a message window with the following contents: **You already have specified a treatment position If you continue, this treatment position will be replaced with the currently selected static jaw relation**

3. If you really want to replace the treatment position, click **Continue**.

Continue with the section *Placing therapeutic appliances in the shopping cart [▶Page 172]*.

35.2 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.

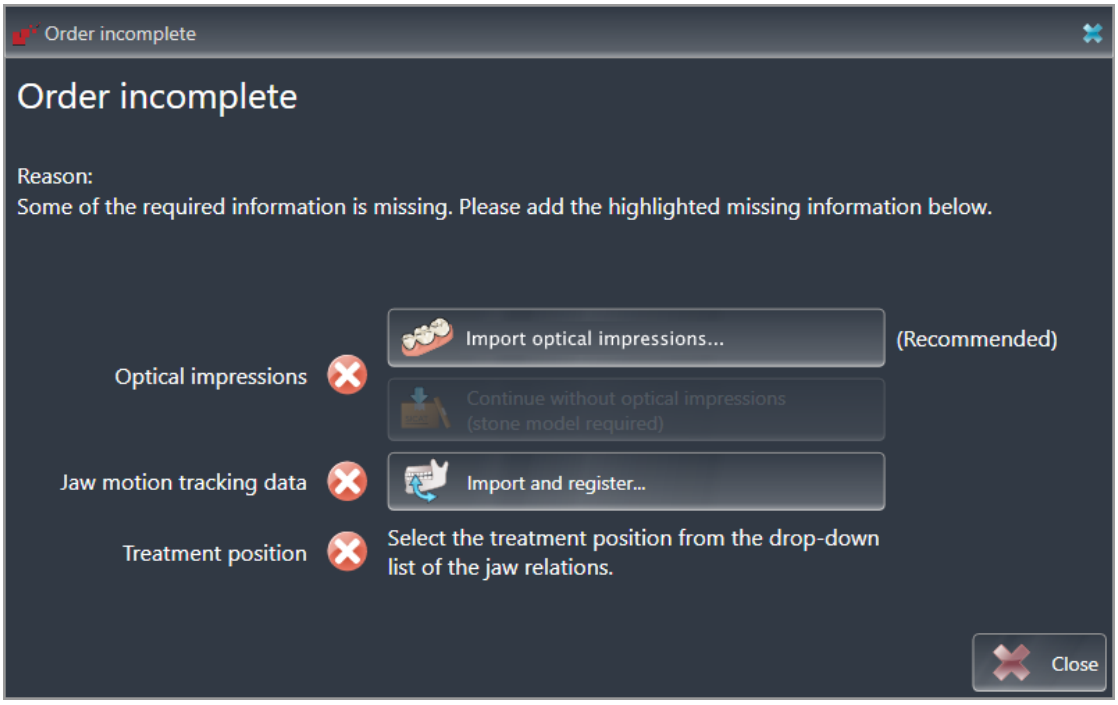
General information on the ordering process can be found in the section *Ordering process [▶Page 170]*.

In SICAT Function, you can place a therapeutic appliance in the shopping cart in the first part of the ordering process. Certain prerequisites must be met so that you can place therapeutic appliances in the shopping cart. SICAT Function will notify you if you have not fulfilled all of the prerequisites.

IF THE PREREQUISITES ARE NOT FULFILLED

☑ The **Order** workflow step is already expanded. Information on this can be found in the section *Workflow toolbar [▶Page 59]*.

1. Click on the **Order Therapeutic Appliance** icon.
   ▶ The **Order incomplete** window opens:



2. If you have not yet imported any optical impressions, click on the **Import and register** button and import optical impressions corresponding to the 3D X-ray scan. Information on this can be found in the section *Optical impressions [▶Page 125]*.

3. If you have not yet imported any jaw motion data, click on the **Import and register** button and import the jaw motion data. Information on this can be found in the section *Importing and registering jaw motion data [▶Page 115]*.

4. If you have not yet defined a treatment position, close the **Order incomplete** window and define a treatment position. Information on this can be found in the section *Defining a treatment position [▶Page 171]*.

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 110]*.

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 clicking the **Continue without optical impressions (stone model required)** button in the **Order incomplete** window. After this, the **Order OPTIMOTION** 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 THE PREREQUISITES ARE FULFILLED

☑ You have already imported optical impressions.

☑ You have already imported jaw motion tracking data.

☑ You have already defined a treatment position.

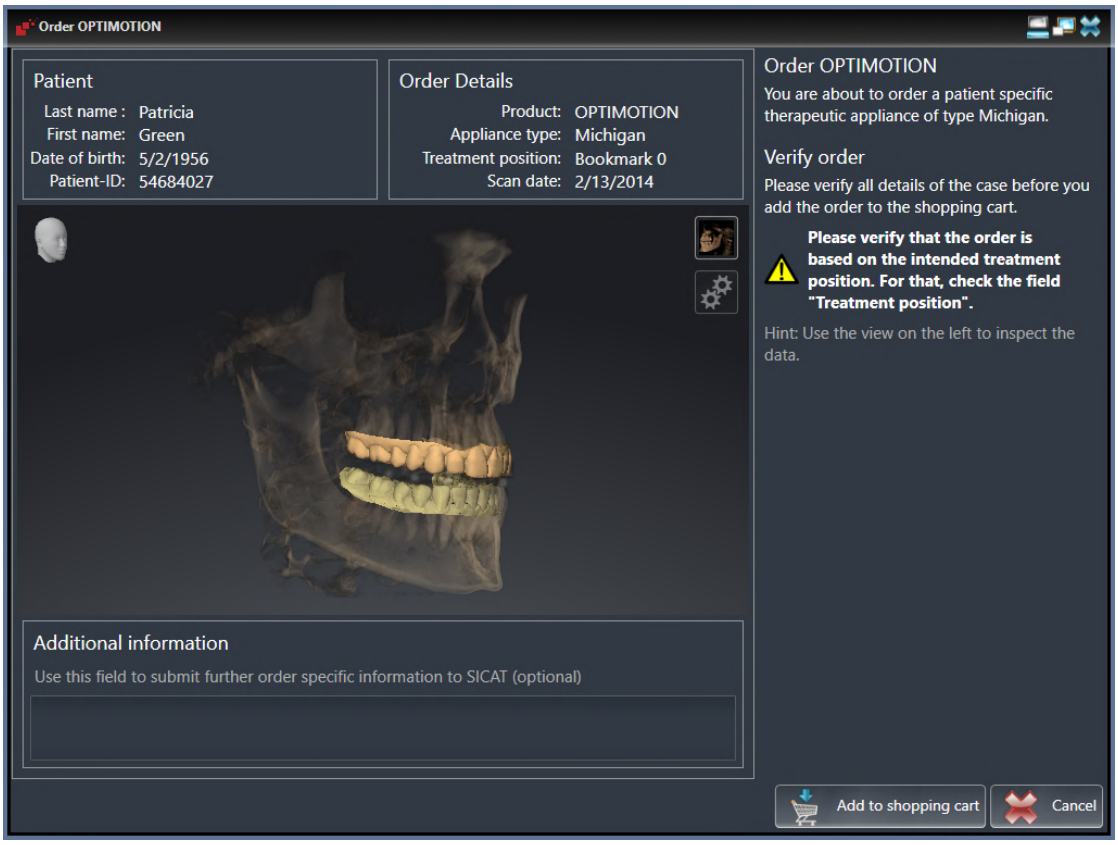
☑ The **Order** workflow step is already expanded. Information on this can be found in the section *Workflow toolbar [▶Page 59]*.

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

► The **Order OPTIMOTION** window opens.

CHECK YOUR ORDER IN THE “ORDER OPTIMOTION" WINDOW

☑ The **Order OPTIMOTION** window is already open.



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

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

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

▶ The **Order OPTIMOTION** window closes.

▶ SICAT Function opens the SICAT Suite shopping cart.

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

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

Continue with the section *Checking the shopping cart and completing the order [▶Page 176]*.

35.3 OPENING THE SHOPPING CART

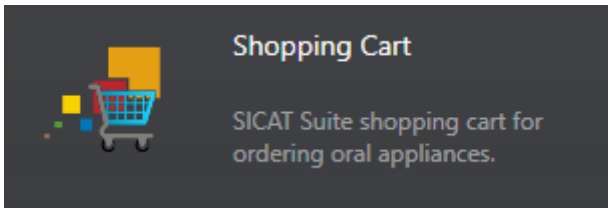
☑ The shopping cart contains at least one product.

☑ You have activated the display of the shopping cart in the **Output** phase. For more information, please refer to the SIDEXIS 4 instructions for use.

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

▶ The **Shopping Cart** window opens.

Alternatively, you can also click on the **Shopping Cart** button in the **Output** phase:

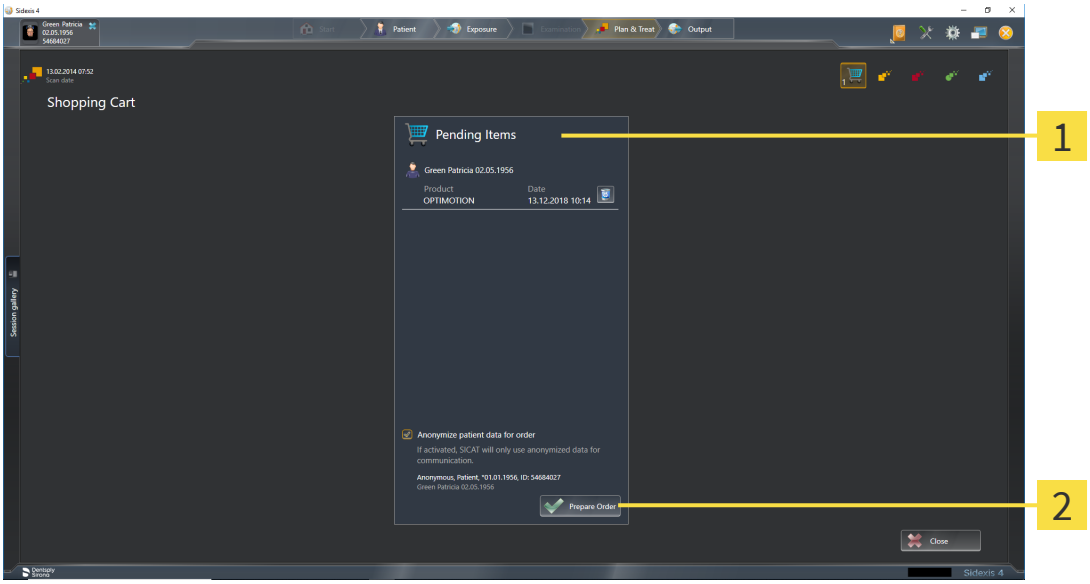


Continue with the following action:

- *Checking the shopping cart and completing the order [▶Page 176]*

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 175]*.



1 **Pending Items** list

2 **Prepare Order** button

1. Check in the **Shopping Cart** window whether the desired products are included.
2. Activate or deactivate the **Anonymize patient data for order** check box.
3. Click on the **Prepare Order** button.

▶ SICAT Suite sets the status of the orders to **Preparing** and establishes a connection to the SICAT server via the SICAT WebConnector.

▶ Changes to the order are only possible in the SICAT Portal with an active Internet connection.

Continue with one of the following actions:

- *Completing an order using an active Internet connection [▶Page 177]*
- *Completing an order without an active Internet connection [▶Page 181]*

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 185]*.

☑ 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 178]*.

▶ SICAT Suite prepares the order data for uploading.

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

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

In addition, the symbol of the study will change in the SIDEXIS 4 timeline and the **Treat** entry will be highlighted.

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

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

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]*.

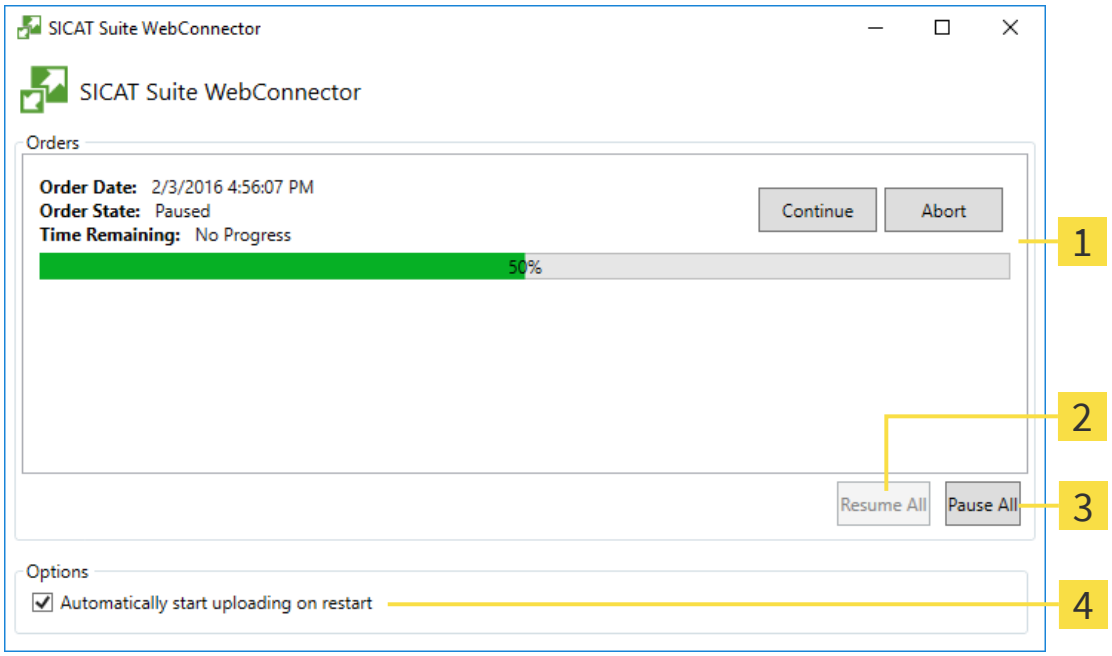
In certain versions of Windows, you have to set a standard browser in order for the ordering process to work.

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 Function 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.

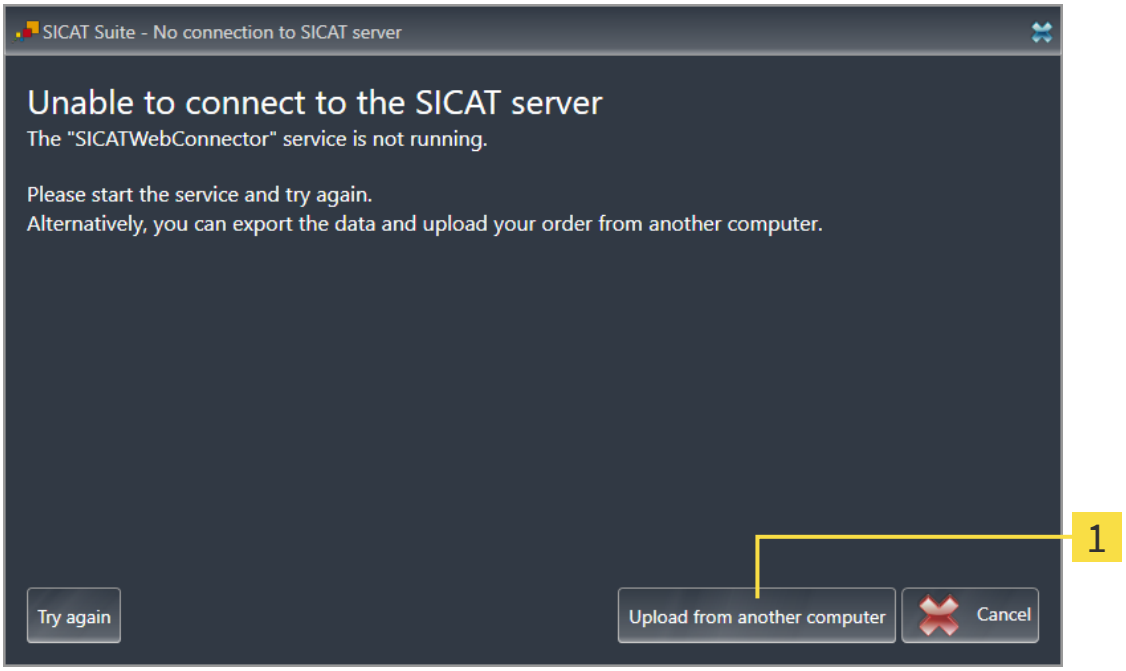
If you have deactivated the **Allow access to the Internet for placing orders** checkbox in the settings on the **General** tab, the **Sending the order from another computer** window opens directly.

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:

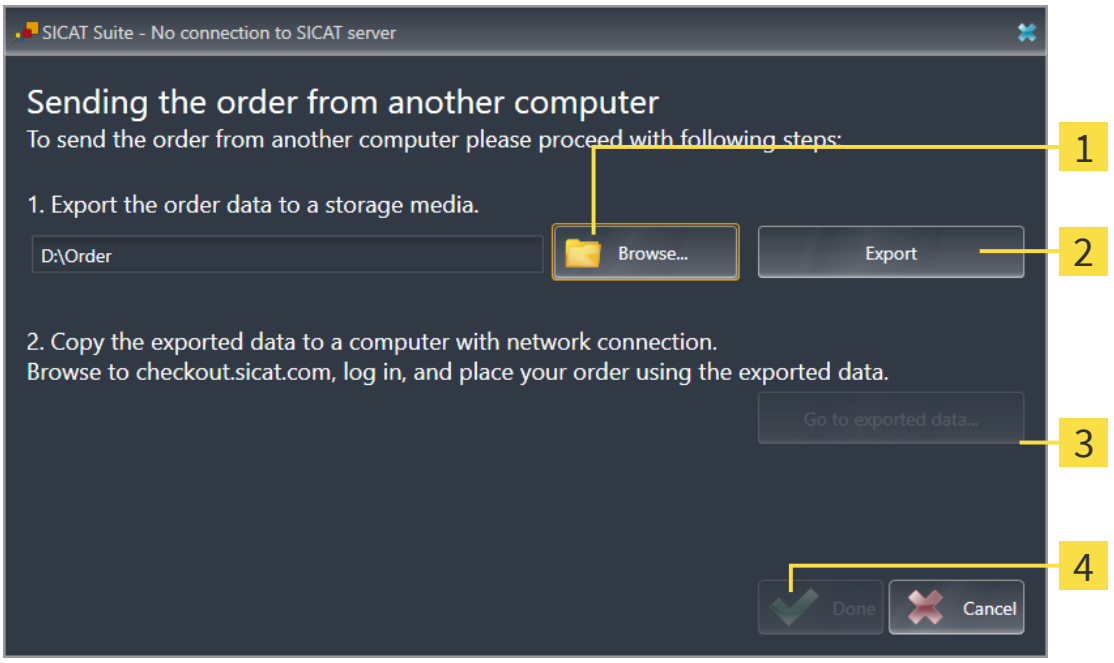
☑ The computer on which SICAT Suite is running does not have an active Internet connection.

☑ 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:



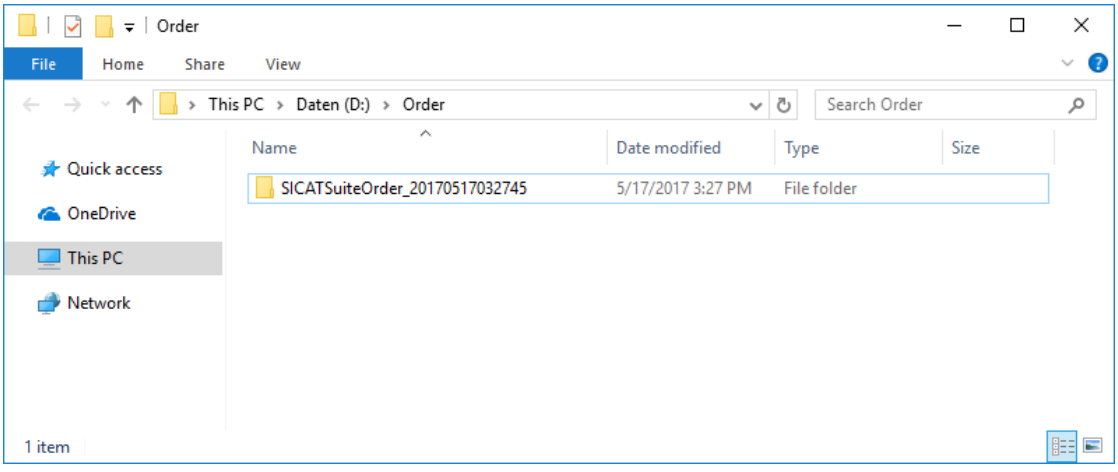
1	**Browse** button	3	**Go to exported data** button
2	**Export** button	4	**Done** button

2. Click on the **Browse** button.
   ▶ A Windows Explorer window opens.

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

4. Click on the **Export** button.
   ▶ SICAT Suite will export all data required for ordering the shopping cart contents to the selected folder. SICAT Suite will create a sub-folder for each patient.

5. Click on the **Go to exported data** button.
   ▶ A Windows Explorer window opens and shows the directory with the exported data:



6. Copy the folder that contains the data of the required appliances to a computer with an active Internet connection, for example using a USB stick.

7. Click on **Done** in the **Sending the order from another computer** window.
   ▶ SICAT Suite closes the **Sending the order from another computer** window.
   ▶ SICAT Suite removes all products included in the order from the shopping cart.

8. Open a web browser on the computer with the active Internet connection and open the www.sicat.com web page.

9. Select the link for the SICAT portal.
   ▶ The SICAT portal opens.

10. Register or log in to the SICAT portal using your username and password if you have not already done so.

11. Click on the link to upload the order.

12. Select the desired order on the computer with the active Internet connection. This is an XML file whose name starts with **SICATSuiteOrder**.
    ▶ The ordering overview opens and shows the patients contained therein, the corresponding product and the price.

13. Follow the instructions in the section *Performing ordering steps in the SICAT Portal [▶Page 178]*.

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

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

You can change or view general settings in the **Settings** window. After you have clicked on the **Settings** group, the menu will show the following buttons on the left-hand side:

- **General** - Information on this can be found in the section *Using general settings [▶Page 185]*.
- **Licenses** - Information on this can be found in the section *Licenses [▶Page 46]*.
- **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 189]*.
- **Hub** - SIDEXIS 4 applies the hub connection settings and the connection status is displayed. Information on this can be found in the section *Viewing Hub connection status [▶Page 190]*.
- **Visualization** – Changing general visualization settings. Information on this can be found in the section *Changing visualization settings [▶Page 191]*.
- **SICAT Function** – Changing application-specific settings of SICAT Function. Information on this can be found in the section *Changing SICAT Function settings [▶Page 193]*.

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

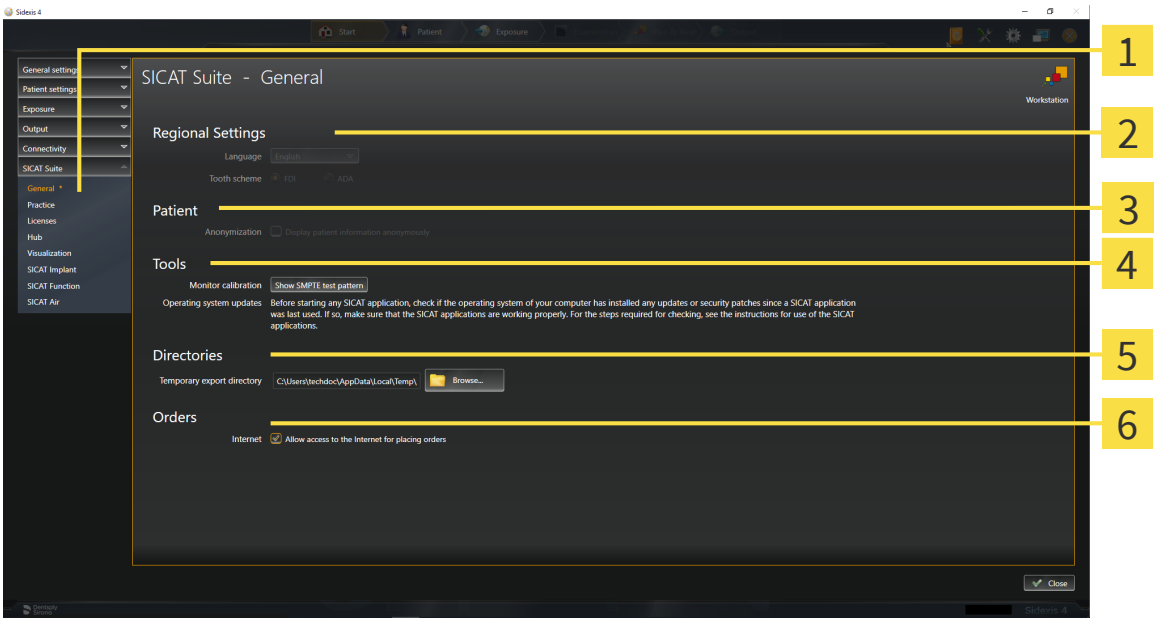
The settings in SICAT Suite are valid for the active user of the current workstation. SICAT Suite applies all changes in the settings immediately. If you switch to another category in the settings, SICAT Suite will also save changes to the settings permanently.

36.1 USING GENERAL SETTINGS

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

To open the general settings, proceed as follows:

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



1 **General** tab

2 **Regional Settings** area

3 **Patient** area

4 **Tools** area

5 **Directories** area

6 **Orders** area

SICAT Function applies the following settings from SIDEXIS, which you can view here:

- You can view the language of the user interface in the **Language** list in the **Regional Settings** section.
- You can view the current tooth scheme in the **Regional Settings** area under **Tooth scheme**.
- You can view the status of the **Display patient information anonymously** check box in the **Patient** area. If the check box is activated, SICAT Function will apply the anonymized patient data from SIDEXIS.

You can change the following settings:

- In the **Directories** area, you can enter a folder in the **Temporary export directory** field in which SICAT Suite is to save order information. You must have full access to this folder.
- You can change the status of the **Allow access to the Internet for placing orders** check box in the **Orders** area. If the checkbox is activated, SICAT Suite connects to the Internet to place orders.

Besides viewing or changing general settings, you can open the SMPTE test image to calibrate your monitor:

- Click on the **Show SMPTE test pattern** button under **Tools**, **Monitor calibration** to calibrate your monitor. Information on this can be found in the section Monitor calibration with the SMPTE test image.

If you select a language in SIDEXIS Selecting, which SICAT Function does not support, SICAT Function will display English text in the user interface.

The supported tooth schemes are FDI and ADA.

36.2 MONITOR CALIBRATION WITH THE SMPTE TEST IMAGE

CAUTION

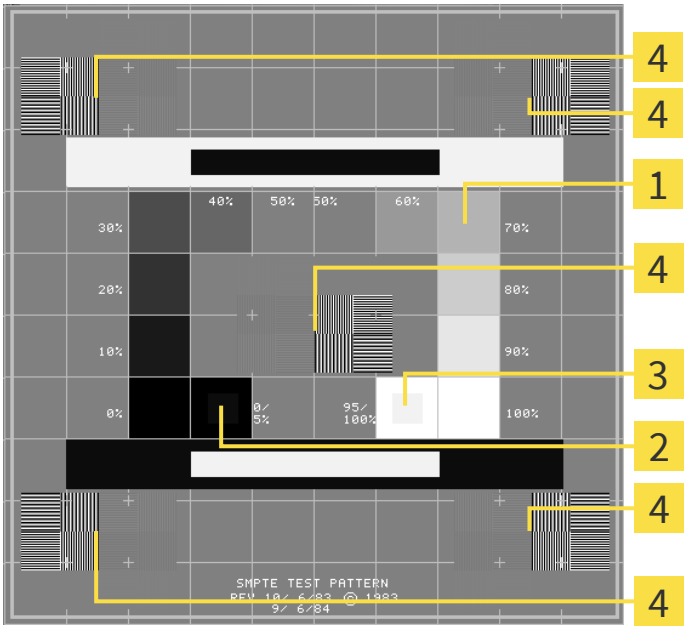
Insufficient environmental visualization conditions could result in incorrect diagnosis and treatment.

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	3 100% square
2 0% square	4 Squares containing a sample bar with a high contrast

CHECKING BRIGHTNESS AND CONTRAST

In the middle of an SMPTE test image there is a series of squares, showing the gray scale progression from black (0% brightness) to white (100% brightness):

- The 0% square contains a smaller square to show the difference in brightness between 0% and 5%.
- The 100% square contains a smaller square to show the difference in brightness between 95% and 100%.

To check or configure your monitor, proceed as follows:

☑ The SMPTE test image is already open.

- Check whether you can see the visual difference between the inner square and outer square in the 0% square and 100% square. Change the settings of your monitor where necessary.

Several monitors can only show the difference in brightness in the 100% square, but not the 0% square. You can reduce ambient light to improve the ability to distinguish between the different brightness levels in the 0% square.

CHECKING THE LOCAL RESOLUTION AND DISTORTION

In the corners and the middle of the SMPTE test image, there are 6 squares showing a sample bar with a high contrast. In terms of local resolution and distortion, you should be able to differentiate between horizontal and vertical lines with different widths, which change between black and white:

- From wide to narrow (6 pixels, 4 pixels, 2 pixels)
- Horizontal and vertical

To check or configure your monitor, proceed as follows:

- Check in the 6 squares containing a sample bar with a high contrast whether you can see the differences between all of the lines. Change the settings of your monitor where necessary.

CLOSING THE SMPTE TEST IMAGE

To close the SMPTE test image, proceed as follows:

- Press the **ESC** key.

▶ The SMPTE test image closes.

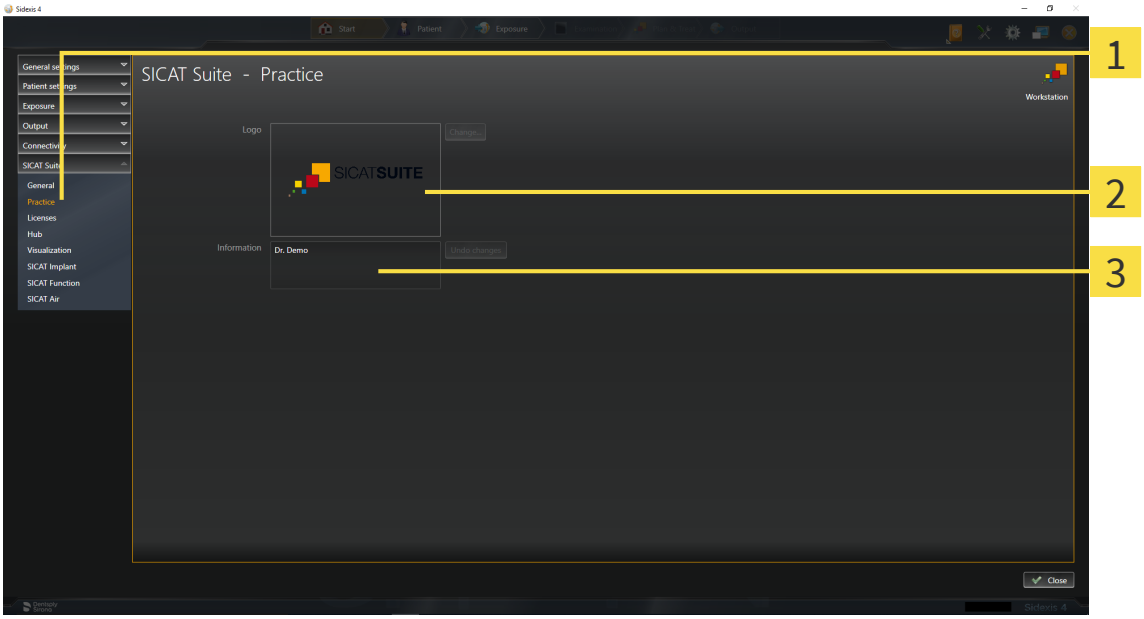
36.3 USING PRACTICE INFORMATION

The version of SICAT Suite connected to SIDEXIS 4 uses the practice logo and the informational copy from SIDEXIS 4. Therefore, you can only view the values of these settings in the SICAT Suite settings. Please make the desired changes to these settings in SIDEXIS 4.

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

To open the practice information, proceed as follows:

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



1 **Practice** tab

2 **Logo** area

3 **Information** area

You can view the following settings:

- You can view the logo of your practice in the **Logo** section.
- You can view a text, which identifies your practice, for example the name and address, in the **Information** section.

36.4 VIEWING HUB CONNECTION STATUS

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

☑ The license for using the Hub is activated. Information on this can be found in the section *Licenses* *[▶Page 46]*.

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

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

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

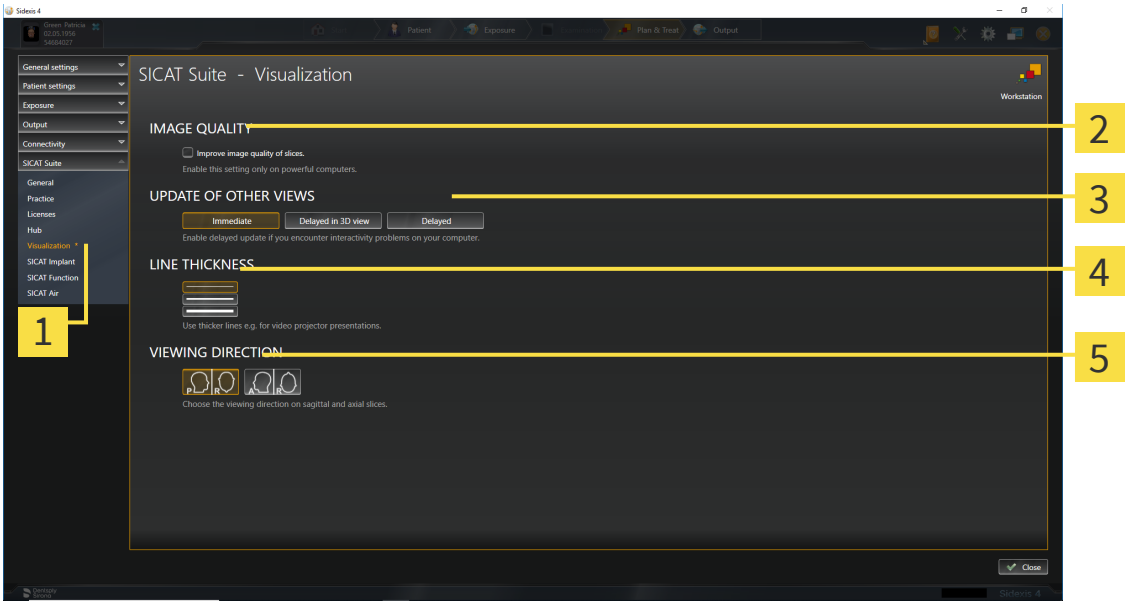
Insufficient environmental visualization conditions could result in incorrect diagnosis and treatment.

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 in the title bar of SIDEXIS 4.
   ▶ The **Settings** window opens.
2. Click on the **SICAT Suite** group.
   ▶ The **SICAT Suite** group opens.
3. Click on the **Visualization** button.
   ▶ The **Visualization** window opens:



1 **Visualization** tab

2 **IMAGE QUALITY** area

3 **UPDATE OF OTHER VIEWS** area

4 **LINE THICKNESS** area

5 **VIEWING DIRECTION** area

The settings are:

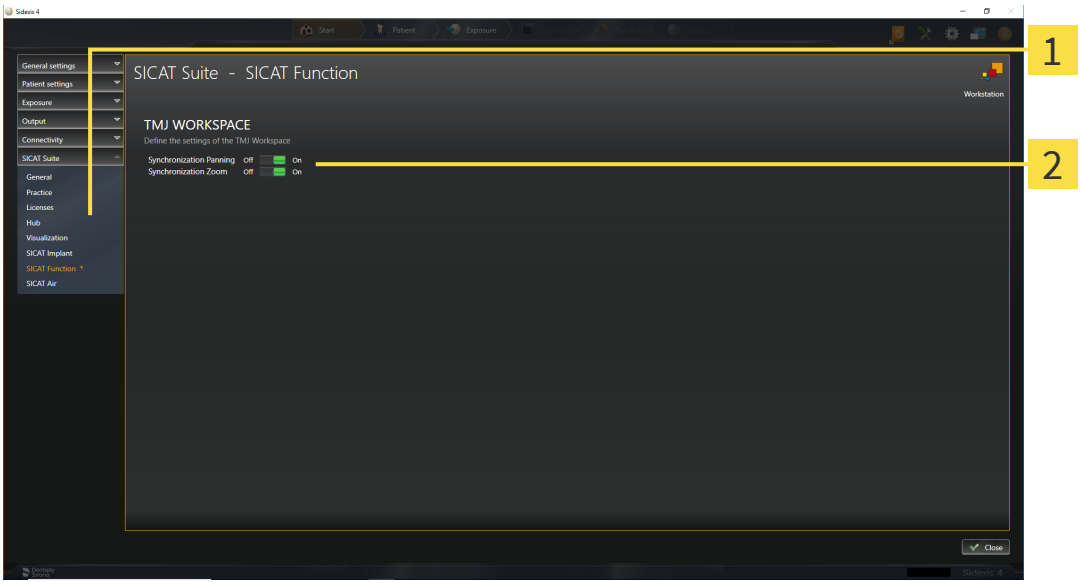
- **Improve image quality of slices** – Improves the image quality of slices as the software averages adjacent slices. Activate this setting only on high-performance computers.
- **UPDATE OF OTHER VIEWS** – Delayed updates improve the interactivity of the active view but causes delays in the updating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

36.6 CHANGING SICAT FUNCTION SETTINGS

SICAT Function settings determine the synchronization of panning and zooming in the **TMJ** workspace of SICAT Function.

To change the SICAT Function settings, proceed as follows:

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



1 **SICAT Function** tab

2 **Define the settings of the TMJ Workspace** area

The settings are:

- **Synchronization Panning**
- **Synchronization Zoom**

You can use the settings to activate or deactivate SICAT Function synchronizing the panning or zooming of views in the **TMJ** workspace between the left and right condyles.

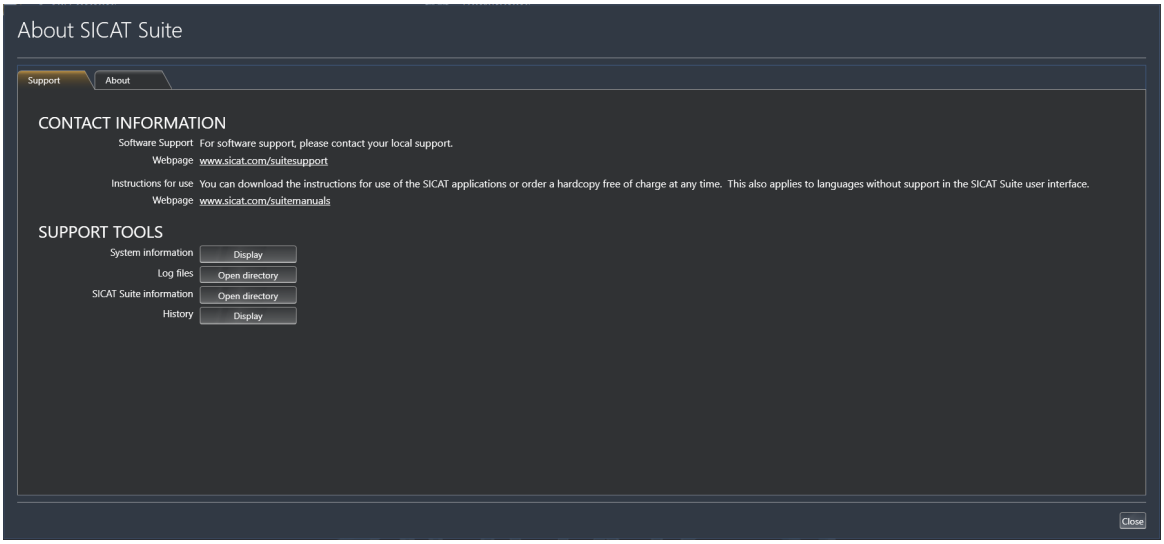
37 SUPPORT

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 195]*



37.1 OPENING THE SUPPORT OPTIONS

To open the **SICAT Suite information** window, proceed as follows:

1. Click on the **Help** icon.
2. Click on the **SICAT Suite information** entry.

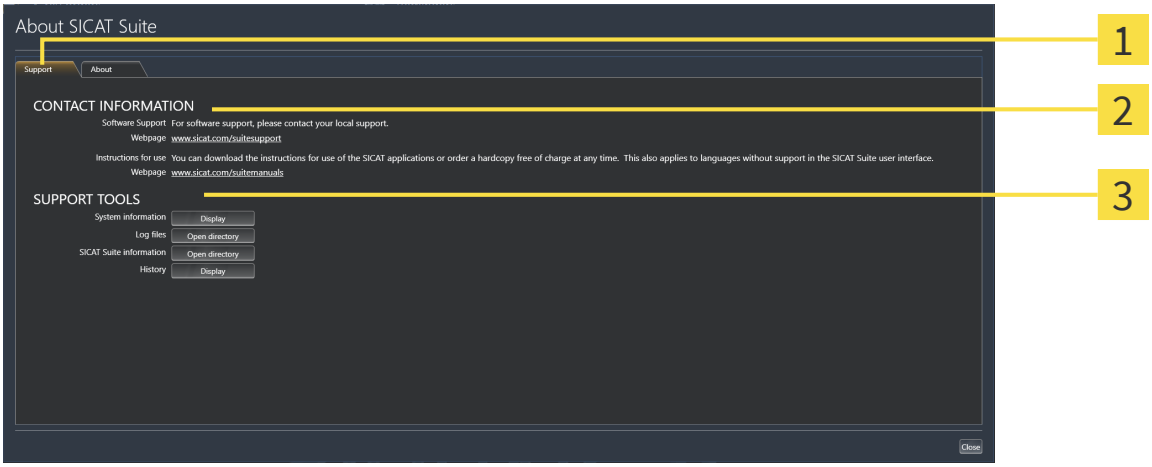
▶ The **SICAT Suite information** window opens.

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

- **Support** - Information on this can be found in the section *Support [▶Page 194]*.
- **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

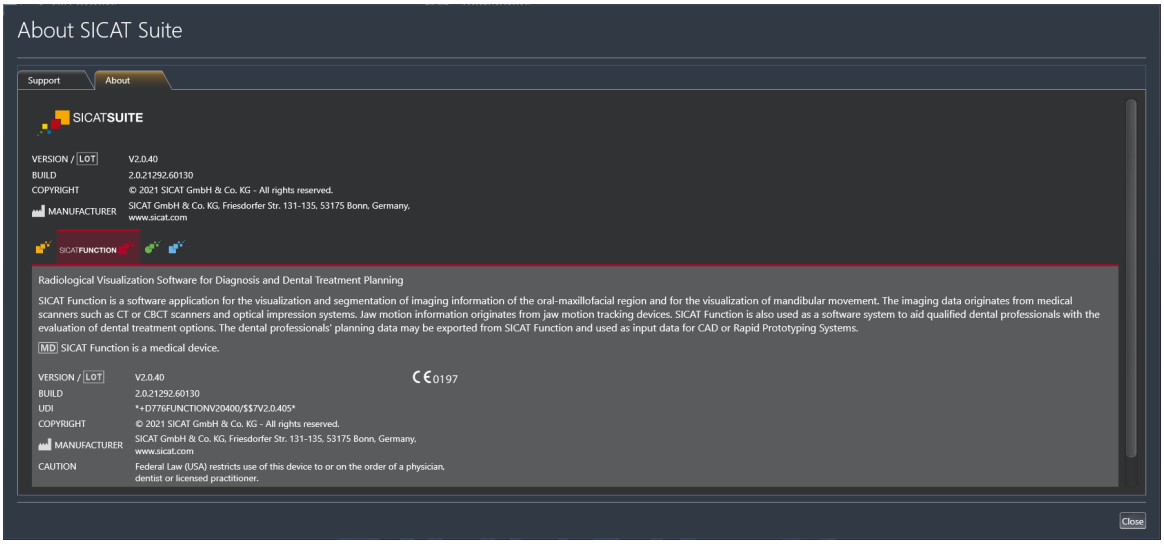
The **CONTACT INFORMATION** area contains information about where you can find the instructions for use.

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

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

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

TYPE OF SICAT FUNCTION LICENSE	VIEWING WITHOUT CHANGES POSSIBLE?
None	No
Viewer	Yes
Full version	Yes, if the patient record is locked

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

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

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

If the computers on which SIDEXIS 4 and SICAT Suite are running are in a network environment, and where permitted by SIDEXIS 4 and the network configuration, SIDEXIS 4 could be part of a multi-workstation installation. One of the results of this is that when SIDEXIS 4 opens a data record, it checks whether the data record is already in use. If this is the case, the data record in SICAT Suite is opened in read-only Viewer mode and you cannot save changes to SICAT Function studies.

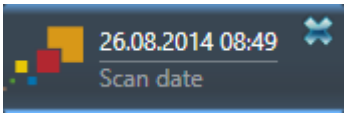
To open data without being able to make and save changes, proceed as follows:

- Start SICAT Suite with a 3D X-ray scan from SIDEXIS 4. Information on this can be found in the section *Starting SICAT Suite [▶Page 41]*.

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

▶ If this is the first data transfer from SIDEXIS 4 and the settings in SIDEXIS 4 are compatible with the settings in SICAT Suite, SICAT Function will apply the volume orientation and panoramic curve of SIDEXIS 4. Information on this can be found in the section *Adjusting volume orientation and panoramic region [▶Page 102]*.

39 CLOSING SICAT SUITE



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

► SICAT Suite closes.

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

40 KEYBOARD SHORTCUTS

If you move the mouse pointer over certain functions, SICAT Function 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 **Mandible segmentation** window of SICAT Function:

KEYBOARD SHORTCUTS	DESCRIPTION
N	Navigation
M	Segmenting the mandible
F	Segmenting the fossa
B	Segment the background

41 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 54]*.

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 179]*.

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.

42 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.

JAW MOTION TRACKING DATA

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

Unsuitable jaw motion tracking devices could result in incorrect diagnosis and treatment.

Only use jaw tracking data from devices cleared as medical devices.

CAUTION

The use of jaw motion tracking devices with an unsuitable intended use may result in an incorrect diagnosis and treatment.

Only use jaw tracking data from devices with an intended use that covers the use of the jaw motion tracking data with SICAT Function.

CAUTION

The use of unsupported jaw motion tracking devices or incompatible registration devices may result in an incorrect diagnosis and treatment.

Only use jaw motion tracking data that has been recorded using a supported combination of a jaw motion tracking devices (such as SICAT JMT⁺) and a compatible registration device (such as SICAT Fusion Bite).

CAUTION

Incorrect recording of jaw motion tracking data and 3D X-ray scans may result in an incorrect diagnosis and treatment.

Ensure that jaw motion tracking data and 3D X-ray scans have been recorded in accordance with the device manufacturer's instructions. Use the stated type of registration device.

CAUTION

Jaw motion tracking data that does not match the patient and date of the 3D X-ray scans may result in an incorrect diagnosis and treatment.

Make sure that the patient and date of the jaw motion tracking data match the patient and date in the 3D X-ray scan shown.

CAUTION

Insufficient integrity or quality of jaw motion tracking data may result in an incorrect diagnosis and treatment.

Check the integrity and quality of the jaw motion tracking data imported.

⚠ **CAUTION**

Insufficient quality, precision and resolution of jaw motion tracking data may result in an incorrect diagnosis and treatment.

Only use jaw motion tracking data of a sufficient quality, resolution and precision for the intended diagnosis and treatment.

⚠ **CAUTION**

Excessive artifacts, insufficient resolution or insufficient quality of the 3D X-ray scans may mean that the marker and registration device detection mechanism fails. Examples of excessive artifacts in 3D X-ray scans include movement artifacts and metal artifacts.

Use only 3D X-ray scans that enable the correct detection of markers and registration devices.

⚠ **CAUTION**

Incorrect positions, types and orientations of the registration device may result in an incorrect diagnosis and treatment.

After the JMT wizard has identified the registration device, check the correct position, type and orientation of the registration device, taking into account the 3D X-ray scans.

⚠ **CAUTION**

The incorrect registration of jaw motion tracking data for 3D X-ray scans may result in an incorrect diagnosis and treatment.

Check that the registered jaw motion tracking data is correctly aligned to the 3D X-ray scans.

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.

43 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
Representation accuracy of jaw motion tracking data	< 0.6 mm

GLOSSARY

ADA

American Dental Association

Application

SICAT applications are programs belonging to SICAT Suite.

Bite fork

A bite fork is a bite plate with radiopaque fiducial markers that SICAT uses to register data from 3D X-ray images and jaw motion tracking data.

Crosshairs

Crosshairs are lines of intersection with other slice views.

FDI

Fédération Dentaire Internationale, World Dental Federation

Frames

In the 3D view, frames show the positions of the 2D slice views.

Hub

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

Message window

The message window shows messages on completed procedures in the bottom right corner of the screen.

Optical impressions

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

Planning project

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

SICAT JMT⁺

SICAT JMT⁺ saves the movements of the lower jaw.

SICAT Portal

SICAT Portal is a website, which you can use to order appliances from SICAT, amongst other things.

SIXD

File format to exchange optical impressions.

SMPTE

Society of Motion Picture and Television Engineers

SSI

File format to exchange optical impressions.

STL

Surface Tessellation Language, standard file format to exchange mesh data, which may contain optical impressions, for example.

Study

A study consists of a 3D X-ray scan and the corresponding planning project.

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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

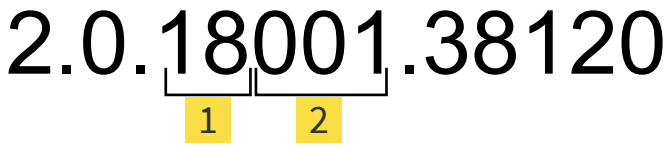
The lot number indicated in the software. Information on this can be found in the section *About [▶Page 197]*.

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 197]*.

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

CONTACT

MANUFACTURER

SICAT GMBH & CO. KG

FRIESDORFER STR. 131-135

53175 BONN, GERMANY

WWW.SICAT.COM

CE 0197

DOCUMENT ID: DA70IFU021

LOCAL SUPPORT

WWW.SICAT.COM/SUITESUPPORT

SICAT