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syngo CT (CTWP)

Operator Manual – Volume 1

syngo CT 2013B

Answers for life.

syngo CT (CTWP)

Operator Manual – Volume 1

syngo CT 2013B

Legend

	Indicates a hint Is used to provide information on how to avoid operating errors or information emphasizing important details
»	Indicates the solution of a problem Is used to provide troubleshooting information or answers to frequently asked questions
■	Indicates a list item
✓	Indicates a prerequisite Is used for a condition that has to be fulfilled before starting a particular operation
◆	Indicates a one-step operation
1 2 3	Indicates steps within operating sequences
Italic	Is used for references and for table or figure titles
→	Is used to identify a link to related information as well as previous or next steps
Bold	Is used to identify window titles, menu items, function names, buttons, and keys, for example, the Save button
Blue	Is used to emphasize **particularly** important sections of the text
Courier	Is used for on-screen output of the system including code-related elements or commands
`Courier`	Is used to identify inputs you need to provide
Menu > Menu Item	Is used for the navigation to a certain submenu entry
<variable>	Is used to identify variables or parameters, for example, within a string
⚠ CAUTION	CAUTION Used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury or material damage. CAUTION consists of the following elements: ■ Information about the nature of a hazardous situation ■ Consequences of not avoiding a hazardous situation ■ Methods of avoiding a hazardous situation

WARNING

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

WARNING consists of the following elements:

- Information about the nature of a hazardous situation
- Consequences of not avoiding a hazardous situation
- Methods of avoiding a hazardous situation



Legend

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1 General

1.1 Basic Functionalities

This chapter provides information about general tools and frequently used basic functionalities. These functionalities are significant for most of the clinical applications available on your SOMATOM CT system.

Not all functionalities described within this chapter are available in all applications.

Pay attention to the storage capacity of the hard disk displayed by icons in the status bar of the task cards.

As soon as a predefined percentage of the storage capacity of the hard disk is reached, a warning icon is displayed in the status bar. The color of the icon depends on the storage capacity:

- Yellow icon: If 75% of the storage capacity is reached
- Red icon: If 90.25% of the storage capacity is reached

The following functionalities are described in the subsequent sections:

- (→ Page 14 *Configuration*)
- (→ Page 17 *Viewing the Event Log*)
- (→ Page 18 *Configuring Applications*)
- (→ Page 19 *Changing the application-specific configuration*)
- (→ Page 20 *Scrolling*)
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- (→ Page 32 *Using Shortcuts*)
- (→ Page 33 *Using syngo WebSpace*)
- (→ Page 33 *Starting the syngo.via client*)

Safety advice

CAUTION

Not observing the operator manuals of the system, system options and accessories!

Injury of the patient.

- Always use the manuals in conjunction with the manuals of the particular units used.
- Follow the safety instructions.

CAUTION

Insufficient memory or disk space may lead to an instable or blocked system!

System is not available in emergency cases.

- Do not ignore the storage capacity warning icons.

CAUTION

Unauthorized access to the operating system!

Software manipulation.

- Users are not authorized to work on operating system level. Any software manipulation is forbidden.

CAUTION

Impermissible or faulty manipulations, or changes of the software or hardware, or connection of the system to a network!

Unauthorized access; damage to the equipment.

- Make sure that all necessary precautions with respect to the existing level of security are considered when adding a functionality or altering the shipped configuration.
- You are not permitted to open or remove the housing of the equipment or to install third-party software.

CAUTION

Impermissible or faulty manipulations or changes of the hardware or software can cause the system to malfunction!

This can cause injury and/or damage to the equipment.

- Do not open or remove the cladding of the equipment nor install third-party software.

CAUTION

Using *syngo* directly on a public or private network may lead to insufficient system performance!

Possible degradation of system performance or unexpected system behavior.

- Only use *syngo* in a secure and load-adapted network.

CAUTION

User is not instructed in how to operate the applications!

Wrong basis for diagnosis.

- The operator must be qualified to use the applications.

CAUTION

Wrong configuration of **Presentation State** support when configuring network nodes!

Loss of post-processing results.

- When configuring network nodes, enable **Presentation State** support only after verifying the remote node for PR support.

1.1.1 Configuration

The following functionalities are described in the subsequent sections:

- Setting the language
- Adjusting the date format
- Setting date and time

Setting the language

CT supports the following user interfaces:

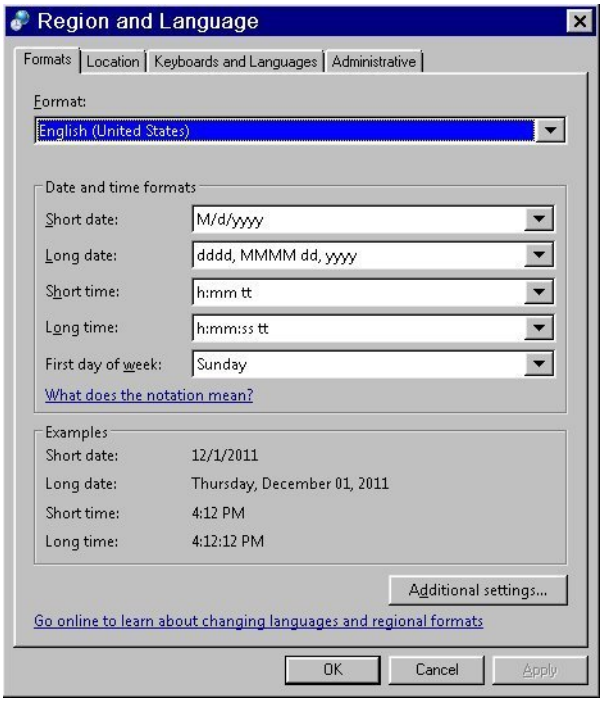
- English (United States)
- German (Germany)
- French (France)
- Spanish (Spain)
- Japanese
- Chinese (PRC)

syngo does not support local differences in languages.

If you change the language to Japanese or Chinese, an error message occurs after changing the language settings and confirming with **No** for logoff. Perform system restart to continue.

1 Select **Options > Configuration...** to open the **Somaris/7 – Configuration Panel**.

2 Double-click the **Regional and Language Options** button in the **Somaris/7 – Configuration Panel** to open the **Region and Language** dialog box.



3 In the **Format** area of the **Formats** tab card, select the language.

Select only the listed languages and locations. Otherwise system errors may occur.

4 Click the **OK** button to confirm the new language.

The **Regional Settings** dialog box pops up, asking you to restart the system in order to implement the changes.

5 Confirm with **OK** again to restart *syngo* with the new language.

For further information on changing the language or the supported keyboard, contact the Siemens service.

Adjusting the date format

You are recommended to use the following date formats:

- For western languages: dd-MM-yyyy
- For U.S. English: MM-dd-yyyy
- For Chinese and Japanese: yyyy-MM-dd

1 Select **Options > Configuration...** from the main menu.

2 Double-click the **Regional and Language Options** button in the **Somaris/7 – Configuration Panel** to open the **Region and Language** dialog box.

3 In the **Date and time formats** area of the **Formats** tab card, select the date format from the **Short date** selection list.

4 Confirm with **OK**.



You must adjust the date format after each change of the language settings (→ Page 14 *Setting the language*).

Setting date and time

Safety advice

CAUTION

The internal identification of patient data, for example, studies, series and images, uses the system time for generation of the patient identification. If it is necessary to turn the system clock back, duplicate identifiers may be created!

Data may be assigned to wrong patient.

- If it is necessary to turn the system clock back for synchronization purposes, wait until the previous clock setting has been passed before creating new patient data.

1 End the current examination and close all patients.

2 Select **Options > Configuration...** from the main menu.

3 Double-click the **Date and Time** button in the **Somaris/7 – Configuration Panel** to open the **Date and Time** dialog box.

4 On the **Date and Time** tab card, click the **Change date and time** button.

5 In the **Date and Time Settings** dialog box, adjust the date and time settings, and confirm with **OK**.

6 To open the **Time Zone Settings** dialog box, click the **Change time zone** button.

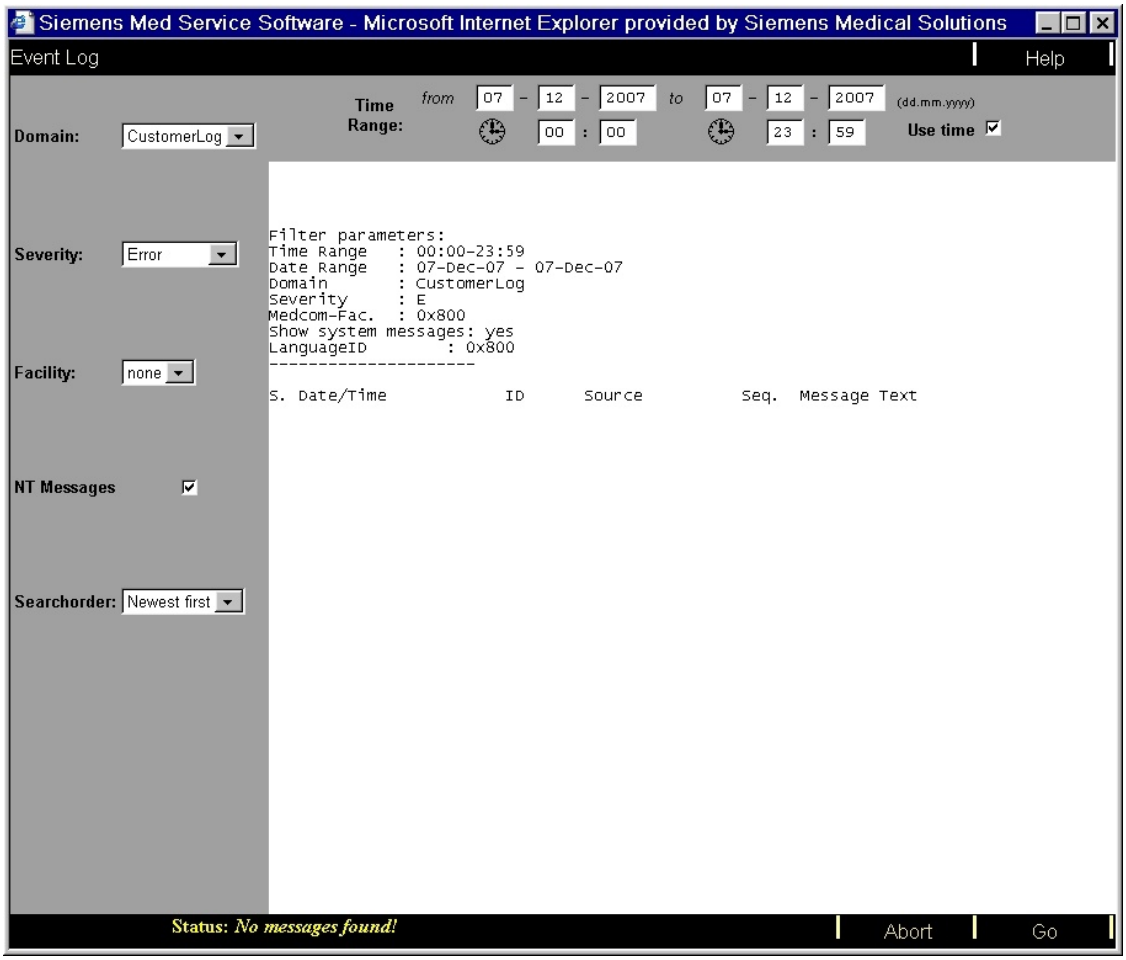
Keep the option **Automatically adjust clock for daylight saving changes** unchecked.

7 Reboot the system to update these settings.

If the difference to the previous time setting is more than 24 hours, the system will be reinstalled.

1.1.2 Viewing the Event Log

1 Select **Options > Service > Event Log...** to display the **Event Log** dialog box.



2 Enter the **Time** or **Time Range** and select additional filter parameters to specify your search for log entries.

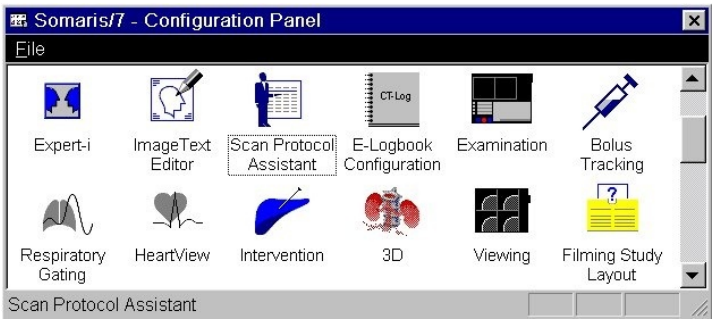
3 Click the **Go** button.

1.1.3 Configuring Applications

Depending on the application you can configure task cards, windows, and individual functions of the program, that is, adapt them to your requirements.

1 Select **Options > Configuration...** from the main menu.

The **Somaris/7 – Configuration Panel** opens.



2 Double-click the icon representing the desired application to open the corresponding configuration window.

3 Adapt the functions of the application to your individual requirements.

1.1.4 Changing the application-specific configuration

You can change the application-specific configuration in the **Local Service** configuration without entering a password in advance.

1 Select **Options** > **Service** > **Local Service...** from the main menu to open the **Local Service** configuration.

The **Authentication** window is displayed.

2 Delete all entries from the entry fields.

3 Click the **OK** button.

The **Service Software** window is displayed.

4 Click the **Configuration** button.

5 Select the **Application** option in the **Local Host** category from the navigation bar on the left and enter your changes.

The **Application Specific Configuration** window is displayed.

6 Click the **Save** button to save the changes you made.

7 Reboot the system.

1.1.5 Scrolling

Scrolling means moving through loaded images, series, or studies. You can scroll by using the following options:

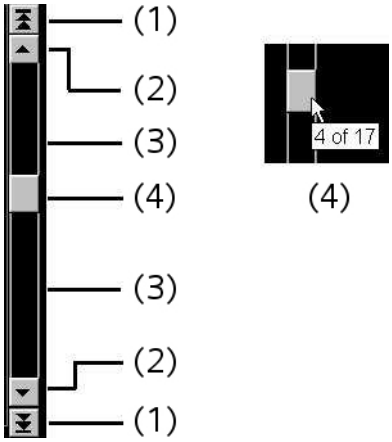
- **Scroll** menu
- Scroll bar
- Symbol keypad
- Dog ear
- Mouse wheel

The following functionalities are described in the subsequent sections:

- Using the scroll bar
- Using the dog ear
- Using the symbol keypad for scrolling

Using the scroll bar

- Click the different parts of the scroll bar or drag the slider.



(1) Display of first / last image

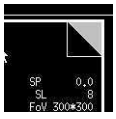
(2) Display of previous / next row (stack mode: previous / next image)

(3) Display of previous / next page (stack mode: previous / next image)

(4) Scrolling through image stack. The current image number is displayed.

Scrolling through the image stack, you can view the image number.

Using the dog ear



1 Click the outer triangle of an image to scroll forward by one image.

2 Click the inner triangle to scroll back by one image.

Using the symbol keypad for scrolling

- Press the keys on the symbol keypad to scroll image by image, series by series, or study by study (→ Page 31 *Using Symbol (Numeric) Keypad*).

1.1.6 Switching to the Next Patient

In the **Patient Browser**, you can switch to another patient.

- Switch to the desired patient by clicking the next patient folder in the **Patient Browser**.

1.1.7 Using SmartSelect Menu

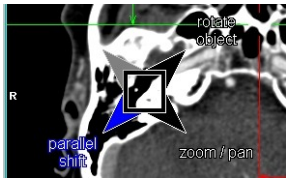
The SmartSelect menu allows you to choose a working mode or a function quickly without focusing away from the current image.

You can use the SmartSelect menu, for example, for the following procedures:

- Activating the parallel shift function
- Zooming and panning
- Rotating objects

The available functions of the SmartSelect menu depend on the application and the mode you are working in.

1 Click the right mouse button shortly.



The SmartSelect menu appears.

2 Move the mouse into the direction of the desired function.

The selected function is displayed in blue. A gray arrow indicates functions, which are not available in the current context. Available functions are displayed in black.

Deactivating SmartSelect menu

- Choose the center frame to deactivate all functions.

1.1.8 Using Context Menu

The available functions of the context menu depend on the current examination mode or the application you are working in.

1 Click the right mouse button.

The context menu is displayed.

2 Select the desired option from the context menu.

1.1.9 Selecting Images

Not all image-selection functionalities are available in all applications.

The following functionalities are described in the subsequent sections:

- Selecting a single image
- Selecting images explicitly
- Selecting images up to the end of series
- Selecting complete series
- Deselecting images

Safety advice

CAUTION

If you load large data sets, the image pixel data will be downsampled!

Possible insufficient image quality.

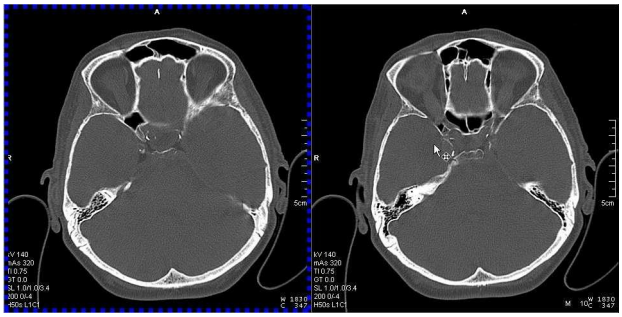
- Be aware of reduced image quality if indicated in image display.

Selecting a single image

- Click an image to select it.

  - or -

  Use the arrow keys of the keyboard to change the current selection.

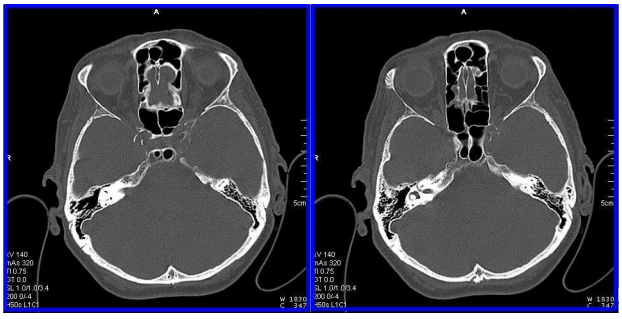


Selecting images explicitly

- Hold the **Ctrl** key down and click individual images (multi-select).

  - or -

  Hold the **Shift** key down to select several consecutive images.



Selecting images up to the end of series

1 Select a single image.

2 Select **Edit > Select On Succeeding** from the main menu.

Selecting complete series

1 Select an image from each required series individually.

2 Select **Edit > Select Series** from the main menu.



With **Select On Succeeding**, you have to select the first image of each required series to select all series completely.

Deselecting images

If none of the segments has a blue border, one or more images are selected in the background.

- Hold the **Ctrl** key pressed and click individually selected images again.

  - or -

  Select **Edit > Deselect All** from the main menu or select a single image.

1.1.10 Making notes

The **Note** function allows you to save and view site-specific instructions, or any other information as notes. Each user of the workplace can read the notes, but only the author of the notes can edit or delete them.



The maximum length of a note is limited to 3000 characters, and the maximum number of notes is limited to 50.

You can sort the notes by date and author.

- On the main menu of any task card, choose **Options** > **Notes** to open the **Notes** dialog box.

Adding a new note

1. On the menu, choose **Add** to open the **Add Note** dialog box.
2. In the entry field, enter the text of the note.
3. Click the **Save** button.

Editing a note

1. Select a note.
2. On the menu, choose **Edit** to open the **Update Note** dialog box.
3. Change the text of the note.
4. Click the **Save** button.

Deleting a note

1. Select a note.
2. On the menu, choose **Delete**.
3. Click the **Yes** button to confirm the deletion.

   - or -

   Click the **No** button to cancel the deletion.

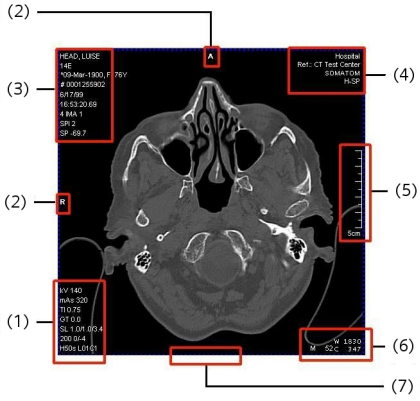
1.1.11 Using Image Text

The following functionalities are described in the subsequent sections:

- Text information in medical images
- Editing text in medical images
- Showing and hiding image text

Text information in medical images

There is the following text information displayed in medical images:



(1) Scan and reconstruction parameters

(2) Orientation labels

(3) Patient and examination data

(4) System-specific information and patient position

(5) Scale bar

(6) Window and pixel values and (for 3D images) orientation cube

(7) Image comment

Scan and reconstruction parameters

Image text	Example
Contrast/bolus agent (+C)	+C
Voltage (kV)	kV 120

Image text	Example
Dual Energy voltage (kV) for mixed series	kV 140/80 (M 0.3)
Dual Energy voltage (kV) for FAST DE series	kV 140/80 (F 0.3)
Dual Energy voltage (with Selective Photon Shield)	kV Sn140
mAs (exposure)	mAs 240
Dual Energy mAs (exposure) for mixed series	mAs 240/120
Scan time (TI)	TI 0.5
Gantry tilt (GT)	GT 5.0
Slice width (SL)	SL 1.25 / 0.6
Slice width/collimation/Pitch (for spiral only)	SL 0.75 / 0.6 / p 1.2
Size and center (x/y) of Field of View (FoV)	188 0/-26
Convolution kernel and reconstruction parameters	A10f L11C0

Patient and examination data

Image text	Example
Patient name	John Doe
Patient ID	210329160014
Date of birth, sex, age	*21-March-1929, M, 32Y
Accession number	#12345
Examination Number	STUDY 1
Acquisition date	5-Nov-2004

Image text	Example
Acquisition time	16:13:15.71
Series and image number	1 IMA 217
Compression Quality	CQ 75
Scan type or image type and scan number:	
TOP (topogram)	TOP 1
SEQ (sequence)	SEQ 7
SPI (spiral)	SPI 2
4D SPI	4D SPI 98
4D SEQ	4D SEQ 78
SEQ DE (Dual Energy)	SEQ DE 9
SEQ DS (Dual Source)	SEQ DS 2
SPI DE (Dual Energy)	SPI DE 9
SPI DS (Dual Source)	SPI DS 2
SPO (spiral oblique)	SPO 4
FLASH SPI DS	FLASH SPI DS 2
HI-PITCH SPI DS	HI-PITCH SPI DS 3
FLU (Fluoroscopy)	FLU 3
ROT (rotation mode)	ROT 8
RTD (real-time display)	RTD 8
RTD DS (Dual Source)	RTD DS 8
MON (monitoring)	MON 9
MUL (multiscan)	MUL 2

Image text	Example
STA (static)	STA 3
Slice position (SP)	SP 607.8
Table height (TH)	TH 100

System-specific information and patient position

Image text	Example
Institution	Hospital
Referring Physician	
Manufacturers model name	DEFINITION
Software version	*syngo* CT 2006G
Patient position (direction and position) and view position:	
H (head first) F (feet first) LL (left lateral) RL (right lateral) SP (supine) PR (prone) CR (cranial) CA (caudal)	H-SP-CR or H-SP (topogram mode)

Window and pixel values

Image text	Example
Window width (contrast) (W)	W 250
Window center (brightness) (C)	C 50
Mini mean (M)	M -3

Image comments

Image text	Example
TrueStack reconstruction	TS
With Selective Photon Shield	Sn

Editing text in medical images

You can configure the displayed text information via the entry **Customized Text**.

1 Select **Options > Configuration...** to open **Somaris/7 – Configuration Panel**.

2 Double-click the **Image Text Editor** button to enter or change text in medical images.



ImageText Editor

The **Image Text Configuration** dialog box opens.

Defining the text elements

1 Select the required image type from the **View Name** selection list.

2 Select the **Customized Text** option.

3 Define the text elements to be displayed in the images by selecting and deselecting the corresponding checkboxes on the left.

4 Click the **Apply** button to apply your changes.

5 Click the **OK** button to confirm your changes and to close the dialog box.

- or -

Click the **Cancel** button to discard your changes and to close the dialog box.

Changing the font properties

You can change the font properties for all text elements. Your changes of the font properties will be retained for the next evaluations.

1 Select the **Apply All** checkbox to change the format of all image text elements.

- or -

Select the text element desired in the preview image.



2 Click the **B** icon to display the selected text in bold typeface.

The selected text is displayed in bold typeface.

3 From the **Color** selection list, select the font color.

4 From the **ScaleFactor** selection list, select the font size.

5 In the preview area, check the appearance of the image text.

6 Adjust the settings, if necessary.

The orientation labels and scale bar cannot be formatted.

7 Click the **Apply** button to apply your changes.

- or -

Click **OK** to confirm your changes and to close the dialog box.

- or -

Click **Cancel** to discard your changes and to close the dialog box.

Showing and hiding image text

1 Select **View > All Text** to show the image text.

2 Select **View > Customized Text** to show the predefined image text elements.

3 Select **View > No Text** to hide all image text.

1.1.12 Using Symbol (Numeric) Keypad

The keys on the symbol keypad provide quick access to frequently performed operations and applications.

Here are the following symbol keypad functions configured for your system:

	Window Center - (Numeric: **Num**)		Window Center + (Numeric: **/**)
	Window Width - (Numeric: *****)		Window Width + (Numeric: **-**)

	Correct image text (Numeric: **6**)		Configurable (Numeric: **9**)
	Scroll study back (Numeric: **7**)		Scroll study forward (Numeric: **8**)
	Scroll series back (Numeric: **4**)		Scroll series forward (Numeric: **5**)
	Scroll image back (Numeric: **1**)		Scroll image forward (Numeric: **2**)
	Patient Browser (Numeric: **.**)		Mark (Numeric: **3**)
	Copy to Film Sheet (Numeric: **Enter**)		Send to Node 1 (Numeric: **+**)
	Patient Registration (Numeric: **0**)		

1.1.13 Using Shortcuts

Shortcut keys are keys or key combinations that you can press to perform an action that is available from a menu.

The following shortcuts are configured at your system:

- **Alt**+letter: Function of menu/button with underlined letter
- **Ctrl**+**Tab**: Switch active task card/page through stack of cards
- **Ctrl**+**Shift**+**Tab**: Switch to the backward direction
- **Ctrl**+**I**: Import data
- **Ctrl**+**V**: Paste

- **Ctrl**+**C**: Copy
- **Ctrl**+**P**: Expose film job
- **Ctrl**+**W**: Save window values
- **F5**: Switch to the **Examination** task card (*syngo* Acquisition Workplace only)
- **F6**: Switch to the **Viewing** task card
- **F7**: Switch to the **Filming** task card
- **F8**: Switch to the **3D** task card

1.1.14 Using *syngo* WebSpace

syngo WebSpace is a server/client technology that offers for example, workflow friendly interactive real-time 3D on any regular PC via remote access to radiologists and clinicians.

1 Install the client software on your PC.

2 Double-click the shortcut icon **WebSpace** on your desktop to start *syngo* WebSpace.

For more information on *syngo* WebSpace, refer to the specific documentation.

1.1.15 Starting the *syngo*.via client

This feature enables you to use the *syngo*.via client at the *syngo* CT Workplace. You can use almost all functionalities which are provided by the *syngo*.via server. The session will be launched in a separate dialog box.

A Siemens service technician installs and configures the *syngo*.via client on your *syngo* CT Workplace.

If you want to export or save data to the hard drive of *syngo* CT Workplace, use only the directories inside H:\Sitedata.

To film your activities on the desktop, use the **Camtasia Recorder** which is installed on the *syngo* CT Workplace (→ Page 139 *Opening the Camtasia Recorder*).

Starting the client

You can open the *syngo*.via client on the main menu of any task card.

1 On the main menu, choose **Applications** > **syngo.via** > **syngo.via** to open the *syngo*.via client.

2 In the *syngo*.via client dialog box, click the minimize icon in the upper right hand corner to return to *syngo* classic.

The client remains open in the background.



3 In the status bar, click the *syngo*.via icon to return to the *syngo*.via client.

Starting the image call-up

In the **Patient Browser**, you can start the image call-up of a patient from the *syngo*.via client.

✓ The image data of the selected patient is available on the *syngo*.via server.

1 On the main menu, choose **Patient** > **Browser...** to open the **Patient Browser**.

2 In the **Patient Browser**, select a patient.

3 On the main menu of the **Patient Browser**, choose **Applications** > **syngo.via** > **syngo.via (Current Patient)**.

- or -



In the **Patient Browser**, click the **Load to syngo.via** icon.

The data of the selected patient is displayed in the *syngo*.via client.

Updating the *syngo*.via client

When you start the *syngo*.via client, a message box appears if an update of the *syngo*.via client is available.

1 Click **Yes**.

The installation package is displayed.

2 Click the **Start syngo.via installation** button.

A message box is displayed.

3 Click the **Run** button.

When the update is finished, the *syngo*.via client starts automatically.

4 Close the client.

5 Restart the application.

Closing the client

- In the *syngo*.via client dialog box, click the **x** icon in the upper right hand corner to close the *syngo*.via client dialog box.

1.2 Standard Evaluation Methods

This chapter provides information about general tools and basic functionalities frequently used. These functionalities are significant for most of the clinical applications available on your SOMATOM CT system.

The following functionalities are described in the subsequent sections:

- Loading Images
- Windowing Images
- Zooming and Panning
- Performing 2D and 3D Evaluation
- Saving Images
- Saving screenshots
- Filming
- Transferring Data



If you are not familiar with the basic functionalities of the *syngo* software, refer to: *Basic Functionalities*. (→ Page 11 *Basic Functionalities*)

1.2.1 Loading Images

Safety advice

CAUTION

Patient mix-up is possible if different patients are open in different applications!

The diagnosis and treatment may be made on the basis of incorrect information.

- Check patient credentials in each application.
- Either close the patient in *syngo* post processing application or load the new patient as soon as you switch to another patient in PACS.
- Do not load another patient into *syngo* using the Browser while a patient is already loaded.

You load images via the **Patient Browser**.

1 Call up the **Patient Browser** by selecting **Patient > Browser...** from the main menu.

2 Select the patient, study, or series in the navigation or content area of the **Patient Browser**.

3 Click the corresponding application icon on the tool bar to load the selected images into the application task card.

If the **Close after Loading** option is selected in the **Options** menu the **Patient Browser** is closed.

1.2.2 Windowing Images

The imaging methods provide diagnostic information in the form of grayscale images with up to several thousand different gray-scale values. With windowing, you can focus on the range of gray-scales of the diagnostically relevant area and tissue type.

The following functionalities are described in the subsequent sections:

- Setting the scope of selection
- Assigning predefined window settings
- Windowing with the mouse
- Restoring window values

Setting the scope of selection

◆ Select **Image > Windowing On Succeeding** to be able to process all images up to the end of the series.

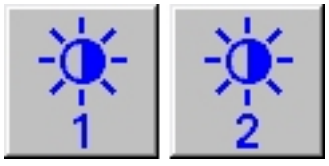
- or -

Select the series first if you want to window all images of a series.

An explicit selection of images overrides **Windowing On Succeeding**.

Assigning predefined window settings

1 Select the images you want to window.



2 Click one of the icons on the **Image** subtask card to switch between two window values stored with the image.

- or -

Select **Image > Windowing** and select a window setting from the submenu.

- or -

Use the corresponding keys of the symbol keypad for fine adjustment of the window settings.

You can modify the default values of **Window 1** and **Window 2** in the **Somaris/7 – Configuration Panel**. For more information, refer to: (→ Page 11 *Basic Functionalities*)

Windowing with the mouse

1 Move the mouse up or down with the mouse wheel pressed to change the window center.

2 Move the mouse to the right or to the left with the mouse wheel pressed to change the window width.

Restoring window values

- Select **Image > Home Window** to undo your changes.

1.2.3 Zooming and Panning

The following functionalities are described in the subsequent sections:

- Zooming and panning with the mouse
- Restoring the zoom factor
- Using the Blow up mode

Zooming and panning with the mouse

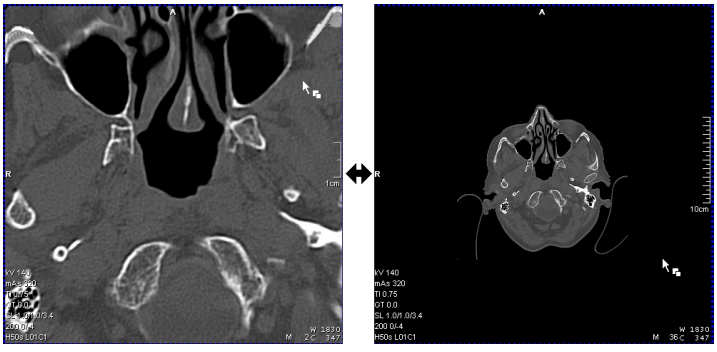
Zooming with the mouse is applied to all the selected images.



1 Click the **Zoom/Pan** icon.

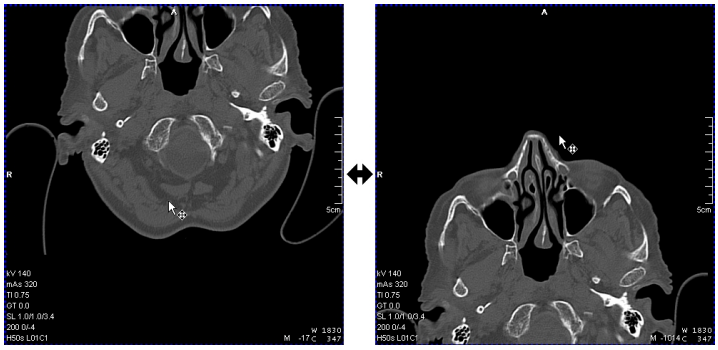


2 Drag the mouse cursor up or down at the edge of the segment to zoom the image.





3 Drag the mouse cursor within the center part of the segment to pan the image.



4 Click the **Zoom/Pan** icon to deactivate the **Zoom/Pan** function of the left mouse button.

Restoring the zoom factor



1 Click the **Home Zoom/Pan** icon.

The last saved zoom factor of the images in the database is restored.

- or -

Select **Image > Zoom Factor...** in the main menu.

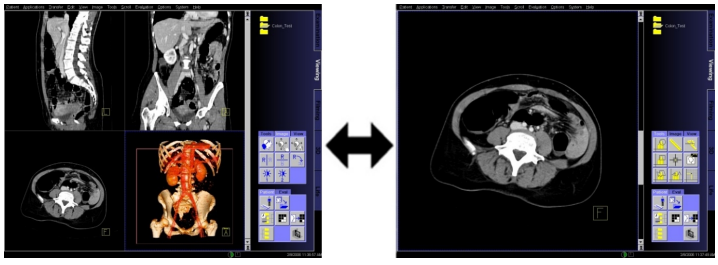
The **Zoom Factor** dialog box is displayed.

2 Enter a predetermined zoom factor.

Using the Blow up mode

1 Double-click a segment to activate the **Blow up** view.

2 Double-click the **Blow up** view again to return to the initial layout of the chosen segment.



1.2.4 2D and 3D Evaluation

Any graphic tool used for image evaluation is activated and switched off again by selecting it in the menu or by clicking the corresponding icon.

The following functionalities are described in the subsequent sections:

- Measuring distances
- Measuring angles
- Evaluating regions (ROIs)
- Configuring the result display of statistical evaluations
- Evaluating pixels with the pixel lens
- Entering comments
- Deleting graphic and textual elements

Safety advice

CAUTION

Distance and angle measurements in the topogram!

Incorrect measurement values due to the projection technique used.

- Only perform distance measurements in the topogram in the longitudinal direction (head-foot direction).
- Do not perform angle measurements.

Measuring distances

For distance measurements, the geometric accuracy of the measurement system in the center of rotation is ±0.1 mm.

If you change the imaging parameters (for example, window, reconstruction parameter, FoV, kernel), it may influence the image impression. It can have effects on the start- and endpoints of distance measurements you selected.

For volume measurements, the geometric accuracy of the measurement system in the center of rotation is ±0.1 mm in the scan plane.

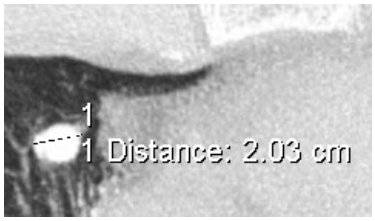
If you change the imaging parameters, it may influence the visual border line impression of the displayed evaluated structures (for example, nodule).



1 Click the **Distance** icon of the **Tools** subtask card.



2 Drag out a line between two points in the image while holding down the left mouse button to display the distance in the image.



Measuring angles



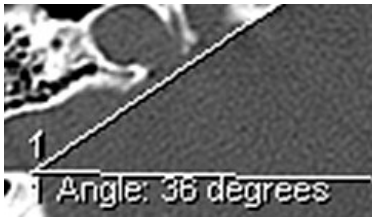
1 Click the **Angle** icon to activate angle measurement.



2 First drag out one line while holding the left mouse button down. The line represents the first leg of the angle.

3 Draw another line for the second leg.

The angle size is displayed in the image.



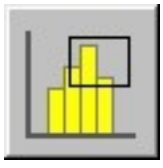
You must pull each line toward the origin of the angle or away from the origin of the angle. Otherwise the complementary angle with respect to 180° is calculated.

Evaluating regions (ROIs)

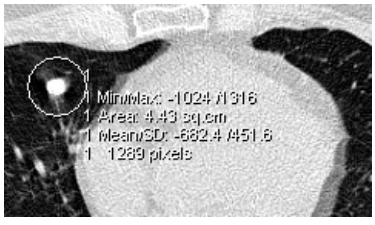
If you load a series that contains images with different resolutions, different values in the corresponding images may result when drawing ROIs.

The area values of the images with different resolutions might differ from each other. The calculation is based on the number of pixels contained in the ROI. Consequently, the calculated area is smaller in the image with the higher resolution.





1 Click the **Circle** or **Rectangle** icon on the **Tools** subtask card.



2 Click the image and draw the ROI (rectangle or circle).

3 Release the mouse button.

- or -



Click the **Freehand ROI** icon.

4 Drag the mouse around your region of interest, and double-click the end point.

You can also draw the region point to point by clicking with the mouse at each change of direction (polygon definition).

You can move the text block of the evaluation results to any location in the image.

Configuring the result display of statistical evaluations

You can configure the data displayed via **Somaris/7 – Configuration Panel**.



(1) Evaluated gray scale range

(2) Highest and lowest gray scale value

(3) Mean value and standard deviation

(4) Area of the ROI in cm^2

(5) Number of pixels in the ROI

- Select **Options** > **Configuration...** from the main menu and select the **Viewing** button.

You can also configure the data by right-clicking the different ROI icons on the **Viewing** task card.

Evaluating pixels with the pixel lens

You can display the average value of gray scales (for example, Hounsfield values for CT images) of a 5 x 5 pixels area.

The pixel marker does not reflect the area of 5 x 5 pixels currently measured. The marker has a constant size and is independent of the zoom factor of the image.

Safety advice

CAUTION

The pixel marker has a constant size and is independent of the zoom factor of the image!

Wrong diagnosis caused by misleading image information.

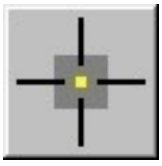
- Please note that the pixel marker is only a pointer indicating the *position* (not the size) of the measured area.

CAUTION

Use of pixel lens in the **Viewing** task card and in the **3D** task card!

The pixel lens may display different values.

- Be aware of differences in pixel lens measurements. The pixel lens measurement in the **Viewing** task card considers a rectangle around the clicked point, whereas measurement in the **3D** task card considers a cube surrounding the clicked point.



1 Click the **Pixel Lens** icon on the **Tools** subtask card.



2 Click the image to display the pixel values permanently.

The cursor changes shape. The pixel value at the position of the cursor in the image is displayed.

Entering comments



1 Click the **Annotation Text** icon on the **Tools** subtask card.

The mouse cursor changes to a cursor with a small rectangle attached.

2 Click the position in the image at which you want to insert the text.

3 Enter the text you want to insert.

Deleting graphic and textual elements

1 Click the graphic or text you want to delete or select **Edit > Select > All Graphics** to select all graphics and text in the image.

The graphic elements and text in all selected images are marked.

2 Select **Edit > Delete Graphics** from the main menu.

- or -

Press the **Del** key on your keyboard.

1.2.5 Saving Images

1 Select the images or series you want to save.

2 Click the **Save As** icon in the control area.

3 Select whether to save images in new series or append images to existing series in the upcoming **Save As** dialog box.

4 Click the **OK** button.

The images are saved in the local data base.

1.2.6 Saving screenshots

You can create screenshots of the user interface for non-diagnostic purposes in single monitor mode as well as in dual monitor mode.

This functionality is available only on the *syngo* Acquisition Workplace.

1 Select **System** > **Run** > **Save Screenshot** from the main menu.

The screenshot is created and saved in H:\Sitedata\SaveScreenshot.

2 Double-click the desired *.jpg file to open the screenshot.

The screenshot is displayed in the **Windows Photo Viewer** dialog box.

Use the File Browser to access the entire made screenshot.

1.2.7 Filming

You can expose the images of an examination on film.

You can film and print multiframe images only from the **Viewing** task card. You cannot film multiframe images from the **Patient Browser**. A message box is displayed if the selected images are multiframe images.

The following functionalities are described in the subsequent sections:

- Copy to Filming
- Exposing images

Copy to Filming

1 Select the images to be filmed in the **Patient Browser** or on the task cards.



2 Click the **Copy To Film Sheet** icon of the control area.

- or -

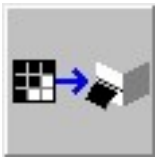


Press the **Copy to Film Sheet** key on the symbol keypad (Num **Enter**).

You can also select all images and results for filming via **Edit > Select All** in the main menu. This option is not available in all applications.

Exposing images

1 Check the layout settings in the **Filming** task card.



2 Click **Expose Film Task** to expose all images on the **Filming** card to film on a preset camera.

1.2.8 Transferring Data

The following functionalities are described in the subsequent sections:

- Transferring images to the **Viewing** task card
- Exporting data to CD-R and DVD-R
- Sending data to network nodes

Safety advice

CAUTION

Transferring manipulated non-square matrices or viewing segments!

Diagnostically relevant areas of images may be lost.

- When manipulated images are exported or sent to another workstation, the related original images should be sent, as well. It is strongly recommended to base the final diagnosis always on the original images and not on modified or manipulated images.

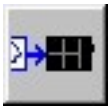
CAUTION

Lossy compression is selected for data transfer!

Image quality of the lossy compressed images may no longer be adequate for diagnostic purpose.

- Do not use lossy JPEG compression for sending data to a report or primary diagnosis workstation.
- Do not use lossy JPEG compression for archiving.
- Note: Application of lossy compression will be indicated in image text except if **No Text** is switched on.

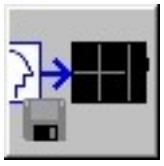
Transferring images to the Viewing task card



- Select the images and click the **Load to Viewing** icon to transfer images from the Patient Browser to the **Viewing** task card.

  - or -

  Select the images and click the **Save and Load to Viewing** icon to transfer images from the **3D** task card to the **Viewing** task card.



Exporting data to CD-R and DVD-R

Safety advice

CAUTION

When you simultaneously export data to a device, like CD-R or DVD-R drive, and try to read data from the same device with external (non-*syngo*-based) applications, one job or both jobs can fail (depending on the timing)!

Possible loss of data. When data is being written to a drive, any external access at the same time will destroy the current write job and could even damage the storage disk.

Data already stored on a multi-session disk might also become unreadable.

- Do not try to access the device with non-*syngo*-based applications while it is writing data or reading data.
- To ensure successful writing or reading, check the **Local Job Status** to see if there are any write or import jobs in progress.

CAUTION

Taking out the CD-R, CD or DVD too early!

Loss of data and destruction of the CD-R, CD or DVD possible.

- Do not remove the CD-R, CD or DVD from the recorder until the recording process has been completed and the status LED has gone out.
- Use the **Transfer** menu to eject media.

CAUTION

Switching to multi session mode may destroy data previously recorded on this medium!

Previously stored data can no longer be read.

- Only delete the data that you have exported on a CD-R from the local database after you have completed the session.

CAUTION

DVD-R Medium used for export or archive may get corrupted or may not be readable with other DVD devices!

Loss of data or user perception of loss of data.

- Configure and use local media only as 'archive' media if the requirements regarding retention and readability are sufficiently fulfilled, for example, the manufacturer approved the media for archiving.
- Verify readability of the data on the medium before the data is deleted in the database.



- Click the **Export data** icon to export data to CD-R or DVD-R.

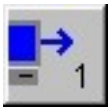
Do not use CD-R or DVD-R for longterm storage of data because data may get lost.

Depending on the configuration of your system the same icon is used for **Archive To**.

Sending data to network nodes

During installation, Siemens Service sets up various network connections as standard addresses in the network.

1 Select the data that you want to transfer.



2 Click the **Sending data to network node** icon to send the data to the configured network node.

3 Use **Storage Commitment** for **Send/Archive** actions to avoid deletion of images before you stored them. (Provided if your archive supports this functionality.)

If a network destination is configured to receive DICOM graphics encoded within the pixel data, color images like VRTs are sent without graphics.

1.3 Patient Browser

In the **Patient Browser** dialog box, the hierarchical structure of the patient and examination data is displayed. Patient data from the databases and the connected drives is displayed.

The icons for calling up different applications and functionalities are gathered in the toolbar.



You can search for patient data to examine a patient again, or to review, film, or archive the images.

You can search for patient data in the **Patient Browser** by navigating through the data levels, by mouse click, or by using the keyboard.

You can speed up your search by sorting the data displayed, or by filtering the data displayed and only viewing a certain subset.
(→ Page 58 *Sorting data*)

For enhanced data objects, you can display the following information in addition to the common image instance attributes:

- Number of frames
- Number of dimensions
- Textual description of the dimensions

In the **Browser Configuration,** you can define icons to be displayed in the tool bar of the **Patient Browser** dialog box. You can call up the configuration via **Options** > **Configuration...** from the main menu and clicking the **Patient Browser** icon.

The following functionalities are described in the subsequent sections:

- Displaying Patient Data
- Assigning Patients or Studies
- Searching for and Selecting Patient Data
- Correcting Data
- Storing and Sending Data
- Importing Data
- Deleting Data in Patient Browser

If you are not familiar with the basic functionalities of the *syngo* software, refer to: (→ Page 11 *Basic Functionalities*)

Safety advice

CAUTION

Not all graphic and evaluation results created by one software can be interpreted!

Not all information from post-processing available for diagnosis.

- A message box appears if not all information can be loaded and displayed.
- Be aware when using such data for diagnosis.
- Use original application to view the post processing results.

1.3.1 Displaying Patient Data

The following functionalities are described in the subsequent sections:

- (→ Page 52 *Calling up the Patient Browser*)
- (→ Page 53 *Viewing structured reports*)
- (→ Page 53 *Updating HIS/RIS information manually*)
- (→ Page 54 *Updating the display of the databases*)

Calling up the Patient Browser

You call up the **Patient Browser** to display patient data.



- Call up the **Patient Browser** by selecting **Patient > Browser...** from the main menu.

  - or -



Press the **Browser** key on the symbol keypad (Numeric: **.**).

Viewing structured reports

You can load structured reports (SR) in the SR Viewer.

1 In the **Patient Browser**, select a structured report from the series list in the tree view, for example, Circulation SR.



2 Click the **Load Last Report** icon.

The Circulation SR will be opened in the SR Viewer.

When you select a study or a patient in the tree view instead, all reports available for the selected study or patient are opened in the SR Viewer.

Updating HIS/RIS information manually

You can update the HIS/RIS information manually.

The default RIS name is configured in the **Registration Configuration** dialog box.

The Patient Browser shows the current active RIS node name in the navigation area below **Scheduler**. The active RIS node is displayed in the tree view and in the single view.

- Select **View > Update Worklist** to update the scheduler to ensure that you are always working with the latest data.

  - or -

  Double-click the **Scheduler** icon to update it.



If your system is connected to an HIS/RIS system, the scheduler is automatically updated at regular intervals (default 60 minutes). It is updated with information from the registration depending on the service configuration. You can also configure the maximum number of query results and the query waiting time.

Switching to another database

If the navigation area is hidden, you can switch to another database via the main menu.



- Select **View > Tree** and click the database symbol concerned.

Updating the display of the databases

You can update the display of the databases if necessary. The **Patient Browser** is not automatically updated. This is the case, for example, if you perform a constancy test scan for the quality assurance.

- Select **View > Refresh** from the main menu.

  - or -



  Click the **Refresh** icon.

  The display of the navigation and content area is updated.

1.3.2 Assigning Patients or Studies

In the **Patient Browser**, you can modify the assignment of patient groups or studies.

This information applies to users performing daily routine operations with patient data protected by the Security Package (HIPAA).

Assigning existing data

You need the privilege **Patient Browser > Edit > Modify Patient Groups** to assign patients or studies to patient groups.

1 Call up the **Patient Browser** by selecting **Patient > Browser...** from the main menu of any task card.

  - or -



  Press the **Browser** key on the symbol keypad (Numeric: **.**).

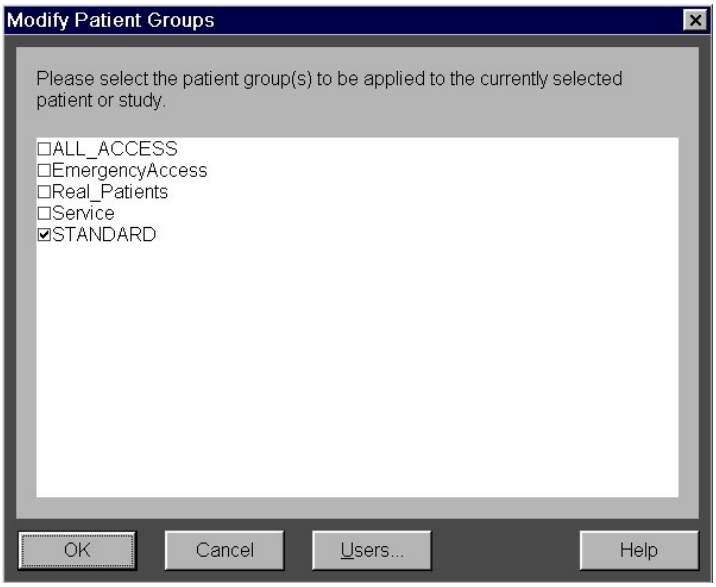


You must close the **syngo Security Configuration** dialog box to work with the **Browser** key on the symbol keypad.

2 Select the desired patient or study in the local database.

3 Select **Edit > Modify Patient Groups** from the main menu of the **Patient Browser**.

  The **Modify Patient Groups** dialog box is displayed.



CAUTION

Patient folders contain data from other patient or series, for example, after patient merge, import of data from external media!

The diagnosis or treatment may be made on the basis of incorrect information.

- Check that data is assigned to the correct patient and series before using the data.

4 Select the group you want the currently selected patient or study to be assigned to.

5 Confirm your selection with **OK**.

1.3.3 Searching for and Selecting Patient Data

Safety advice

CAUTION

If the Patient ID is not unique, studies may be listed, which do not belong to the patient selected and displayed in the information area!

Import of wrong patient data possible.

- Always check the patient data before importing them into your system.

The following functionalities are described in the subsequent sections:

- (→ Page 56 *Searching for data*)
- (→ Page 57 *Filtering data*)
- (→ Page 58 *Deactivating the filter*)
- (→ Page 58 *Sorting data*)
- (→ Page 59 *Searching for and retrieving patient data from storage media*)
- (→ Page 60 *Using Patient Search function on remote network nodes*)
- (→ Page 63 *Searching for and finding patients*)

Searching for data

You can search for patient data to examine a patient.

1 Scroll through the list of patients using the scroll bar until you find the required patient.

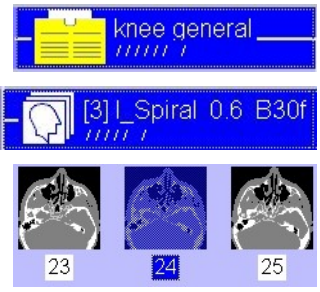


2 Click the patient entry in the navigation area to view the information levels stored for this patient.

All the studies of this patient are displayed in the content area.



If **View > Image Stamps** is activated, all data objects are displayed as image stamps on the image/data level.



3 Click a study in the navigation area to select it and to view all the associated series.

4 Click a series in the navigation area to select it and to obtain an overview of all the images in the content area.

5 Click an image in the content area to select it.

Filtering data

You can search for patient data easier if you filter it.

Additionally, menu entries corresponding to the icons for the filter options are in the **Filter** menu of the main menu.

1 Select a filter using the **Filter** menu or the tool bar (if configured).

You can configure all filter icons in the browser settings. You can call up the configuration via **Options** > **Configuration...** from the main menu and clicking the **Patient Browser** icon.



2 Click the **Not Archived** icon.

Only the data, which is not stored, is displayed.



3 Click the **Not Printed** icon.

Only the data, which is not printed yet, is displayed.



4 Click the **Not Sent** icon.

Only the data, which is not sent to the network yet, is displayed.



5 Click the **Not Marked** icon.

Only the data, which is not marked, is displayed.



6 Click the **Marked** icon.

Only marked data is displayed.

If you do not find the specific patient data in a search, make sure that no filter is activated.

Creating filter criteria

- Call up the **Filter Specification** dialog box to create your own filter criteria by selecting **Options > Filter Settings...** from the main menu.

  These user-defined filters are placed in the **Filter** menu as additional menu entries.

Deactivating the filter

You can also deactivate all filters.

- Select **Filter > Off** from the main menu.

  - or -

  Click the **Not Filtered** icon.



  All the data is displayed unfiltered.

A filter remains active until you replace it by another filter or turn off the filter. If you exit the **Patient Browser**, and call it up again later on, the last filter selected is still active.

Sorting data

The search for patient data is easier if you sort it.

1. Select a data level in the navigation area to display its elements in the content area.
2. Choose the **Sort** menu.
3. Choose one of the menu items to sort the navigation tree, for example, **Patient ID**.
4. Select **Sort > Reverse Order** to reverse the order of selected data level.

In case the selected sort order cannot be applied, the following default order is automatically used:

- Patient Name
- Study Description
- Series Number
- Instance Number

Searching for and retrieving patient data from storage media

You can also import patient data from storage media.

You can find information on the storage media released by Siemens in the Hardware Operator Manual.

When you insert a disc, wait for a few seconds until the system has read the disc before you continue to work.



1 Click the icon of a data medium in the navigation area to display all the patient data stored there.

Select **View > Source** to hide or display storage media individually in the navigation area.

2 Search for, and select patient and examination data by clicking through the data levels in the navigation area.



3 Click the **Import** icon to import the selected data into your local database.

You can process only data stored in the local database.

Using Patient Search function on remote network nodes

With **Patient Search** and **Search Selected**, you can retrieve patient and examination data from workstations and long-term storage systems that are working with other DICOM program systems or previous *syngo* program versions. These systems are not displayed in the navigation area.

For information about DICOM structures and features, read the actual DICOM conformance statement.

Safety advice

CAUTION

If *syngo* receives images but the study or series UID is already available in the local database, the data will be assigned to this locally existing patient. This happens regardless of the patient identification (name, date of birth, gender and patient ID) of the received images. Changes of patient information on other systems will not automatically change the patient information in *syngo*!

Data retrieved from PACS or other nodes seems to be misaligned or lost, but is stored elsewhere in the database.

- Imported data will always be appended to the already existing patient on the local system, based on matching DICOM UIDs.
- If you imported data, but cannot find them on the local system under a certain name, use other criteria from the study or series to search for the imported data, or filter the data.
- To completely avoid these inconsistencies, always delete the local patient data after you have successfully archived them.

Opening the Patient Search dialog box

1 Select **Patient** > **Search** in the main menu.

The **Patient Search** dialog box is displayed.

2 Click the triangle to the left of the dialog box to display any collapsed search area.

3 Click the triangle to the left of the dialog box to hide any of the search areas.

Searching for patient studies

1 Open the **Patient Search** dialog box.

2 In the **Basic Search** area, enter or select your desired search criteria, for example, **Patient ID**.

3 In the **Advanced Search** area, enter or select further search criteria.

4 From the **Node** selection list, select the network node where the data being searched for is located.

5 Click the **Search** button to start the search.

All patients and studies that are found are displayed in the information area.

Each study is displayed as a folder which shows the modalities and the study date.



In case the query exceeds the configured maximum number of matches, it is aborted. The matched queried results are displayed even though they are incomplete. The matched queried results are displayed in red. At the end of the result list, the message **Incomplete patient list** is displayed.

While searching, the **Search** button is renamed to **Stop Search**. By clicking this button, you can stop a search if the expected match already appears in the matching list, or if you have entered the wrong search criteria.

Searching for patient series

1 In the **Patient Search** dialog box, click the desired study at the top of the results area.

All series that belong to the study are displayed in the table below. Use the series information such as **Modality** or **Body Part Exam** to identify the desired series.

2 Select a series in the table.

3 Click the **Image List** button to see the instance numbers of a series.

The **Image Search** dialog box displays all instances, their IDs, and all numbers of frames in cases of multiframe images.

4 Click the header of the column to sort in ascending or descending order.

5 Import the desired studies or series, or import single images of the patient.

Saving and loading search attributes

1 In the **Type New Query Name** selection list, enter the name for the search you want to save.

2 Click the **Save** button to save the search.

3 From the **Type New Query Name** selection list, select the search you want to load.



To delete a saved query, you can select it in the **Type New Query Name** selection list and click the **OK** button.

Importing patient data, studies, series, or structured reports

After searching for the desired patient study or series, you can import the images belonging to a patient, study, or series. The importing of structured reports is handled the same as the importing of series. You can also import multiple studies of a patient and multiple series of a study.

1 Click a study to display the corresponding series.

The series are displayed in the series details list.



2 From the information area or the search details list, select one or more patients, studies, or series.

- or -

In the series details list, select a series and click the **Image List** button.

3 In the **Image Search Results** dialog box, select the desired instances.

4 Click the **Import** button.

The selected data is copied from the network node to your workstation and displayed in the navigation and content area of the **Patient Browser**.

Once a previous import request has been made by clicking the **Import** button or by double-clicking, a new query can be initiated for a different node. Then the queried results can be imported by selecting the required information.

5 In the **Patient Search** dialog box, click the **Import Job Status** button to view the current status of the import jobs.

In the **Import Job Status** dialog box, you can also delete and stop import jobs.

Searching for and finding patients

In the **Patient Browser**, it is possible to find a patient using one of the following attributes:

- **Patient Name**: The search is conducted using the entire patient name (first name, middle name, and last name)
- **Patient ID**

The **Find** function supports all databases and is available in both views – tree view and single view – but only when the display level is **Patient**.

1 In the **Patient Browser**, choose **Edit** > **Find** to open the **Find** dialog box.

- or -

Press **Ctrl** + **S** on your keyboard.

2 From the **Select** selection list, choose an attribute for a patient search, for example, **Patient Name**.

3 In the **Find What** entry field, enter a search string.

You can also use wildcards (*).

4 Select the **Match whole word only** checkbox if you know exactly the name or ID.

5 Select the **Match case** checkbox if you want to search case sensitively.

6 Click the **Up** or **Down** radio button to determine the search direction in the **Patient Browser**.

7 Click the **Find Next** button to start or continue the search.

The first or next found patient will be focussed in the **Patient Browser**.

Once the **Find** function is initiated from the **Study/Series/Instance** level in the tree view, the focus will be shifted to the corresponding patient level.



When you are trying to find Japanese patient names while using the **Patient Name** attribute, all name component groups (SINGLEBYTE, IDEOGRAPHIC, PHONETIC) are considered. The patient is selected if one of the component groups matches the entered patient name string.

1.3.4 Correcting Data

On the *syngo* Acquisition Workplace, you can correct, add, or rearrange patient data and information already stored in the database.

The following functionalities are described in the subsequent sections:

- Using the Correct dialog box
- Modifying the patient position
- Displaying the history of changes

Safety advice

CAUTION

Rearranging series or images to another series may lead to wrong image information if the selected images or series are not compatible!

Wrong diagnosis caused by wrong image information.

- Correct the attributes which do not correspond first and then rearrange the series or images.

CAUTION

If any Radiotherapy (RT) object is involved in a correction or rearrangement, the references to and from other objects are not updated. The Correct and Rearrange function checks if any RT objects are involved and prompts for confirmation!

Possible loss of references between images and RT objects.

- Use the application that was used to generate the RT object for managing their references.
- First correct images, for example, patient demographics, before using them within RT.

CAUTION

Correcting or rearranging objects containing references!

Possible loss of references.

- Rearrange the entire hierarchical group containing all objects with references in order to maintain the references.
- Only references found within the selection will be adapted.

Using the Correct dialog box

You use the **Correct** dialog box for correcting or modifying patient data and information.

Safety advice

CAUTION

Inconsistent patient data or image information for *syngo* applications like Osteo CT, Pulmo CT, Volume, Circulation, Dental CT, LungCARE CT or Calcium Scoring!

Wrong basis for diagnosis.

- Do not modify patient data (**Edit > Correct** in the **Browser** menu) after results have been calculated.

1 Select the patient, study, series, or images that you want to correct in the navigation or content area of the **Patient Browser**.

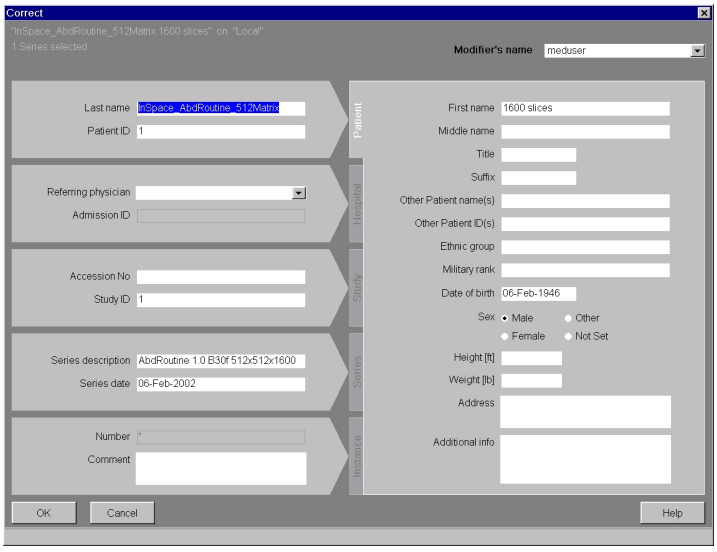
2 Select **Edit > Correct** from the main menu of the **Patient Browser**.

- or -



Click the **Correct** icon on the tool bar.

The **Correct** dialog box opens.



Depending on the data level, some fields of the dialog box are dimmed.

3 Select the required tab, and correct the relevant data.

4 Enter your name under **Modifier's name** or select your name from the selection list.

5 Click **OK** to save the new data.

If you want to correct data that is delete-protected, remove the delete-protection by selecting **Edit > Remove Protection** from the main menu.

Modifying the patient position

Correcting the patient position for multistudies

You can correct the patient position of multistudies consistently.

1 Select the series in the **Patient Browser**.

2 Select **Edit** > **Correct Patient Position** menu entry from the main menu.

The **Patient Position Dialog** dialog box is displayed.

3 Click the desired icon.

4 Click the **OK** button to correct the patient position of the selected series and all other series having the same frame of reference UID.

The frame of reference (FoR) establishes the relation between the horizontal table position and the position of the patient. A FoR is related to series, so all images of one series always have the same FoR.

Displaying the history of changes

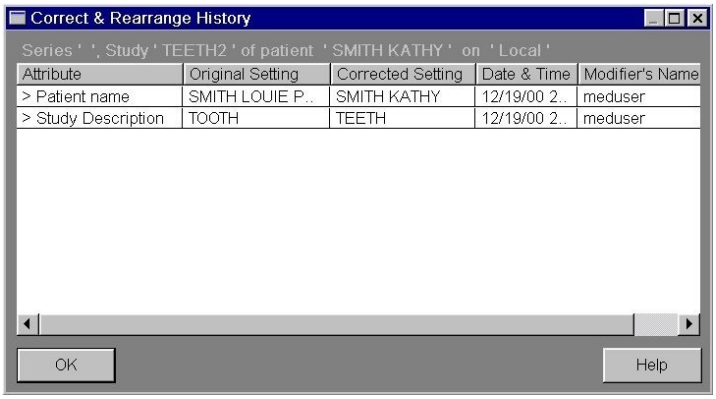
You can view the modifications and the examination data of the patient in the **Patient Browser**.

1 Select the patient, study, series, or image stored in the local database whose history of changes you want to view.



2 Click the **History** icon on the tool bar.

The **Correct & Rearrange History** dialog box is displayed.



3 Click **OK** to close the history display.

The entries in the **Correct & Rearrange History** dialog box are generated by your system. You cannot make changes by yourself.

If an object was moved, the entry is marked with > under **Attribute**.

1.3.5 Storing and Sending Data

The following functionalities are described in the subsequent sections:

- (→ Page 70 *Exporting to offline media*)
- (→ Page 72 *Exporting or importing raw data*)
- (→ Page 73 *Exporting to Plug and Play devices*)
- (→ Page 75 *Storing data on storage media*)
- (→ Page 77 *Ejecting DVD/CD*)
- (→ Page 77 *Obtaining the Local Job Status*)
- (→ Page 78 *Sending data via the network*)
- (→ Page 79 *Obtaining Network Job Status*)

You can find information on the storage media released by Siemens in the Hardware Operator Manual.

Safety advice

CAUTION

Systems that do not use storage commitment only report back to the sending system when the data has been fully received (flags A and S). A user or an auto-delete mechanism at the sending system might subsequently delete the sent data. However, this response does not imply that the data has already been stored at the receiving system!

In the case that the receiving system cannot store the data, the data might irrevocably be lost.

- Double-check that the data is actually stored on the receiving system. Use storage commitment whenever it is supported by the sending and receiving systems.

CAUTION

Misleading or misinterpretation of the storage commitment flags AC/SC. Storage Commitment means storage to hard disk but this may not fulfill or guarantee regulatory requirements about long-term archiving. You can delete the committed objects!

Possible loss of data within the required period for retention.

- Observe the regulatory requirements regarding long-term archiving.

CAUTION

Switching off a device while writing to the device!

Possible loss of all data and damage of media.

- Never switch off the device while writing to the device.

Transferring data

You can transfer data in several ways by using the menu items of the **Transfer** menu of each application card.

1 Click the **Export to...** menu item to transfer data, for example, to CD-R or DVD-R.

2 Click the **Send to...** menu item to transfer data, for example, to other workstations and network nodes.

3 Click the **Export to Off-line...** menu item to export data to a directory on the local hard disk/to the File Browser.
(→ Page 136 *Transferring CT Data*)

4 Click the **Record Off-line Files** menu item to burn data from the **CDBurn** folder on CD selected by **Export to Off-line...**.

Depending on your system configuration, not all described options may apply.

Exporting to offline media

You can export patient or examination images from the database to the local file system, to a remote folder in the network, or to a USB device (such as a USB hard drive or memory stick
(→ Page 73 *Exporting to Plug and Play devices*)). There are several file formats for exporting available.

A service technician must configure the paths used by this function.

It is also possible to make the exported data anonymous, for example, for presentations.

You cannot write data to a CD-R/DVD if you use the **Export to Off-line** function.

To access a folder at a remote network node, the following prerequisites must be fulfilled:

✓ The folder must be configured as “shared” at the remote node.

✓ The Windows operating system must be able to establish a network connection.

1 Select the data objects you want to copy from the **Patient Browser**.

- or -

Select the images (or single frames of a multiframe) in the **Viewing** task card.

For multiframes exported as BMP or JPEG, the first frame will be exported.

2 Choose **Transfer** > **Export to Off-line...** to open the **Export to Off-line** dialog box.

3 From the **Path** selection list, select one of the predefined paths.

4 From the **Select format** selection list, select a graphics format.

JPEG images should not be used for diagnosis.

5 From the **Quality factor** selection list, select the quality factor (only for JPEG images).

Note that the higher the quality, the larger the size of the exported images.

6 In the **Frame Rate** entry field, enter the desired number (only for the AVI format).

7 Select the resize factor (only for Bitmap and JPEG images).

- **none** (default): Images will be exported in original size.
- **2X**: Images will be exported in double size.
- **4X**: Images will be exported in quad size.

8 Select the **anonymously** option to export data anonymously, for example, for presentations.

You cannot export data to the root directory of a USB device. If you choose the root directory of a USB device for an anonymous export, the data is exported to the folder **NON_DICOM_ANONYM_FILES** which is created automatically.

9 Click the **OK** button.

If a remote share is selected as an offline directory, you must connect it by using the **Connect As...** button.

Exporting or importing raw data

You can export raw data from the *syngo* Acquisition Workplace only.

Using **Export CT Data** and **Import CT Data** you can store and fetch data > 4 GB to storage media.

In case the data exceeds a size of 4 GB the raw data symbol is marked with **XL** in the content area of the **Patient Browser**.

For the export and the import of data, you must use the same method.

1 Select **View > Image Stamps** as display mode to display the raw data symbol in the content area of the **Patient Browser**.



2 Select the raw data symbol.

3 Select **Patient > Export CT Data** or **Patient > Import CT Data** from the main menu.

The selected data is exported to the export root determined in the File Browser. For more information, refer to:
(→ Page 136 *Transferring CT Data*)

Exporting of raw data is very time consuming.

Exporting to DICOM media

For the export of data smaller than 4 GB, you are recommended to export to DICOM media (storage media released by Siemens).

- Select **Transfer > Export to...** in the **Patient Browser**.

  - or -

  Choose **Transfer > Export to Off-line...** to create DICOM files.

Exporting to Plug and Play devices

Plug and play (PNP) devices provide you with flexibility in data exchange on portable storage media. You can connect external media via the USB interface.

The following PNP devices are recommended:

- USB memory stick
- USB external hard disk 2.5"
- USB external hard disk 3.5"

No other USB devices like USB CD or USB DVD drives/burners, PDAs, audio players, card readers, digital cameras, USB devices with security features, or flash memories with multiple partitions, e.g., U3 sticks, are supported. Their usage is not recommended and on your own responsibility.

Make sure that the USB sticks or hard disks are preformatted (FAT 32/NTFS) and that they provide enough storage capacity. It is neither possible to format the devices nor to delete data currently stored on the devices.

You can export patient data, images, and reports to an external USB device.

Safety advice

CAUTION

Removal of USB device without deactivation by the software!

Possible loss of data, damage of the operating system, and damage of media.

- Do not immediately unplug a USB device.
- Always use the software functionality for safe removal before unplugging.

CAUTION

Plugging or unplugging USB devices during acquisition can make the system unstable which may affect other processes like running acquisition tasks!

Loss of data, acquisition process disturbed.

- Do not plug in or unplug USB devices during acquisition tasks or other critical processes.

CAUTION

Using USB devices without own power supply!

The USB controller can be permanently damaged.

- Use USB devices as recommended in the operator manual.

CAUTION

Use of non-integrated USB storage device!

Reboot request of the operating system.

- Ignore the reboot request and press **Cancel**.
- Finish your examination or application.
- Restart the system with **System** > **End** > **Restart System**.

1 Connect the USB device.
2 Select the data you want to export.
3 Select **Transfer** > **Export to Off-line...** in the **Patient Browser**.
The **Export to Off-line** dialog box opens.
4 From the **Path** selection list, select **(USB)**.
5 Click **OK** to store the data on your USB device.
6 Click the **USB** icon in the status bar to eject the USB device.



You have to ensure that the data was completely written prior to removing the USB device.

If the **USB** icon is not updated when a new USB device has been plugged in, you have to contact your system administrator. The default Windows drivers might not detect the new hardware.

Storing data on storage media

You can store data on storage media, for example, CD-R, or DVD-R.

You can find information on the storage media released by Siemens in the Hardware Operator Manual.

CD-Rs and DVD-Rs are not suitable for long-term storage.

In the **Transfer Configuration** dialog box, you can activate the **Display Recordable Patient Size dialog** checkbox. The **Recordable Patient Size** dialog box displays the needed storage space before you start to burn the CD or DVD.

CAUTION

A recording error may make a medium unusable!

In multi-session mode, all data previously stored on that medium could be lost, too.

If this happens, any archive flags set to this data in the database become invalid.

- Only delete the data that you have archived on a media from the local database after you have successfully finalized and verified the media.

CAUTION

A medium is not finalized!

Another system or device may show this medium as empty or defective, or the data of the last session is missing.

- Use 'Eject with finalize' to complete the work on this medium and to ensure that the medium is readable on other systems or devices.
- If a medium on which you expected to find data seems to be empty or defective or the last data is missing, try to use original or another *syngo* system to finalize the medium for further read-only access.

1 Select the data that you wish to store in the navigation and content area of the **Patient Browser**.

2 Select **Transfer > Export to...** from the main menu of the **Patient Browser**.

The **Export To** dialog box opens.

It is recommended to clear all entries in the Local Job Status before transferring data. For more information, refer to: (→ Page 77 *Obtaining the Local Job Status*)

3 Select **[CD/DVD-Writer]** from the selection list of the **Export To** dialog box.



4 Click the **Export** button to store the data on the default CD/DVD drive.

5 Enter a unique designation for the CD-R/DVD-R in the dialog box displayed.

6 Click the **OK** button.

Ejecting DVD/CD

You eject the DVD-R only by using **Eject from...** from the main menu after the export is finished and not by using the **Eject** key at the DVD drive.

Safety advice

CAUTION

Taking out the CD-R, CD or DVD too early!

Loss of data and destruction of the CD-R, CD or DVD possible.

- Do not remove the CD-R, CD or DVD from the recorder until the recording process has been completed and the status LED has gone out.
- Use the **Transfer** menu to eject media.

1 Select **Transfer > Eject from...** from the main menu of the **Patient Browser**.

The **Eject From** dialog box opens.

2 Select **[CD/DVD]** from the selection list of the **Eject From** dialog box.



3 Click the **Eject** button to eject the CD-R/DVD-R from the drive.

Obtaining the Local Job Status

You can obtain the status of pending and active storing local jobs.

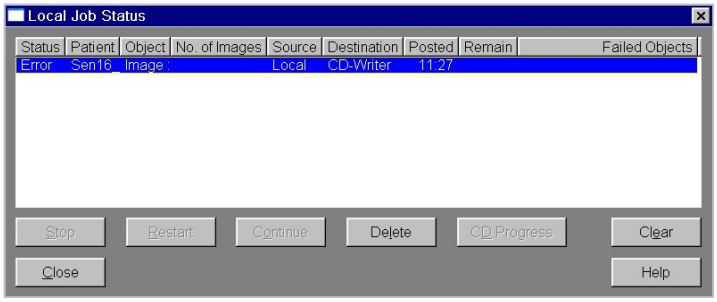
1 Select **Transfer > Local Job Status...** from the main menu to obtain an overview of pending and active storing jobs (importing and exporting).

- or -



Click the status bar on one of the icons for local data transfer.

The dialog box **Local Job Status** opens.



2 Double-click the desired job to get detailed information of the job status.

Sending data via the network

During installation, Siemens Service sets up various network connections (for example, **Node 1** and **Node 2**) as standard addresses in the network.

1 Select the patient, study, series, or the images in the navigation area or content area.



2 Press the **Send to Node 1** key on the symbol keypad to send the data to the preconfigured network address.

- or -

Select **Transfer > Send to...** from the main menu of the **Patient Browser**.

The **Send To** dialog box opens.

Do not configure non-archive nodes as longtime archive.

3 Select the desired destinations from the selection list of the **Send To** dialog box.



4 Click the **Send** button to send the data to the selected node.

You are recommended not to transfer raw data to a DICOM node. If necessary, use the other **Transfer** functions respectively **Export CT data** function depending on the data size.

Obtaining Network Job Status

You can obtain the status of pending and active network jobs.

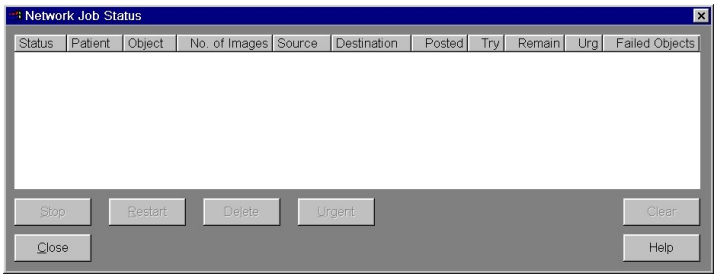
1 Select **Transfer > Network Job Status...** from the main menu to obtain an overview of pending and active network jobs (sending and receiving).

- or -



Click the status bar on an icon for remote data transfer.

The dialog box **Network Job Status** opens.



2 Double-click the desired job to get detailed information of the job status.

1.3.6 Importing Data

The following functionalities are described in the subsequent sections:

- Importing data from storage disks
- Importing data from the hard disk
- Importing data from PNP devices

Importing data from storage disks

You can import data from storage disks.



Data from hard disk, DVD-R, or CD-R must be imported into the local database first before it is possible to load them into a task card.

1 Insert the disk on which the patient or examination data is stored.

2 Click the corresponding icon of the drive in the navigation area of the **Patient Browser** and select the required data.

3 Select **Transfer > Import**.

The selected data is copied from the external storage disk to the database and placed at the corresponding position in the database.



You can watch the progress of the import process in the **Local Job Status** dialog box. For more information, refer to:
(→ Page 77 *Obtaining the Local Job Status*)

Importing data from the hard disk

You can copy objects, for example, images or series, from your local hard disk, or from a remote folder into the local database.

1 On the main menu of the **Patient Browser**, choose **Transfer > Import from Off-line...** to open the **Import from Off-line** dialog box.



You can only import images in the DICOM format, for example, IMA files.

2 Select the required drive and directory from the **Path** selection list.

3 Select the files or directories you want to import.



If a remote share is selected as an offline directory, you must connect it by using the **Connect As...** button.

4 Click the **OK** button.

The objects are imported into the database and appended to any existing patient data objects or a new patient folder is created.

Importing data from PNP devices

Plug and play (PNP) devices provide you with flexibility in data exchange on portable storage media. You can connect external media via the USB interface.

You can import patient data, images, or raw data from an external USB device.

The following PNP devices are recommended:

- USB memory stick
- USB external hard disk 2.5"
- USB external hard disk 3.5"

Make sure that the USB sticks or hard disks are preformatted (FAT 32/NTFS) and that they provide enough storage capacity. It is neither possible to format the devices nor to delete data currently stored on the devices.

1 Insert the USB device on which the patient or examination data is stored.

2 Select **Transfer** > **Import from Off-line...** in the main menu of the **Patient Browser**.

The **Import from Off-line** dialog box pops up displaying the files saved on the USB device.

3 Select the files you want to import.

4 Click the **OK** button.

The selected data is copied from the USB device to the database and placed at the corresponding position in the database.

1.3.7 Deleting Data in Patient Browser

The following functionalities are described in the subsequent sections:

- Deleting data manually
- Deleting data automatically
- Protecting data from deletion
- Removing delete protection

Series that are protected or locked, studies that contain protected or locked series and not reconstructed raw data are not deleted.

If deletion is started it cannot be stopped or suspended by other jobs.

You can delete patient data in the Patient Browser only if no other application wants to access the same data.

Safety advice

CAUTION

A recording error may make a medium unusable!

In multi-session mode, all data previously stored on that medium could be lost, too.

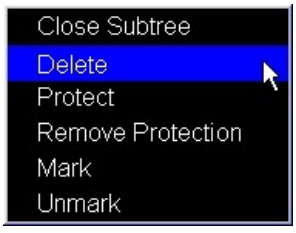
If this happens, any archive flags set to this data in the database become invalid.

- Only delete the data that you have archived on a media from the local database after you have successfully finalized and verified the media.

Deleting data manually

You can explicitly delete patient data in the **Patient Browser** manually.

1 Select the data that you want to delete in the navigation area or content area.



2 Select **Edit > Delete** from the main menu.

- or -



Click the **Delete** icon on the tool bar.

3 Confirm with **Yes** in the dialog box displayed.

You can turn off the confirmation dialog box, when selecting **Options** > **Configure Browser...** from the main menu and deactivate the **Confirm Deletion** checkbox.

Unprotected data is then always deleted immediately without confirmation.

The deleted data remains in the system until the garbage collector starts running.

Deleting data automatically

You can configure the automatic deletion in the **Auto Delete Configuration** dialog box to be performed regularly meeting selected criteria.

Configuring automatic deletion is only possible at the *syngo* Acquisition Workplace.

To open the configuration dialog box select **Options** > **Configuration** from the main menu and select the **Auto Delete** icon.

If automatic deletion is not configured for regular deletion, you can always start it manually.

Safety advice

CAUTION

Deletion confirmation deactivated!

Possible loss of data.

- The option in the **General** tab card to configure the **Delete Confirmation** dialog box should not be switched off.
- Be careful when activating a filter for auto deletion of data sets that it fits to your workflow as well.

CAUTION

Deletion confirmation deactivated!

Possible loss of data.

- The option in the **General** tab card to configure the **Delete Confirmation** dialog box should not be switched off.
- Be careful when setting permissions to delete documents without check if flags are not set.

CAUTION

Deactivation of the **Delete Confirmation** dialog box for **Auto Delete**!

Loss of data, delay of diagnosis or therapy.

- The **Delete Confirmation** dialog box for **Auto Delete** should always be switched on, especially on modalities.
- If the **Delete Confirmation** dialog box for **Auto Delete** is switched off, **Auto Delete** will start without user confirmation.

CAUTION

The **Delete Confirmation** dialog box for auto deletion is kept open for a long time on scanner systems!

Loss of data if objects chosen for auto deletion are updated by acquisition when the Delete Confirmation dialog box is open.

- Do not keep the **Delete Confirmation** dialog box open for a long time in parallel during a patient examination, and close it before a patient registration.

CAUTION

Conflicting **Auto Delete Configuration** and **Transfer Configuration**!

Loss of data if both functionalities start in parallel.

- Do not use the **Sent** flag for rule "Delete all Series with flags..." if auto transfer is configured to start when the **Sent** flag is set in combination.
- Use storage commitment whenever the sending and receiving systems supported it.
- If this combination is not avoidable, always crosscheck if the data chosen for auto deletion is actually stored on the receiving system before confirming auto deletion.

1 On the main menu of the **Patient Browser**, choose **Edit** > **Auto Delete**.

- or -

On the main menu of the **Patient Browser**, choose **Edit** > **Auto Delete RawData**.

If automatic deletion is activated manually or automatically, the **Auto Delete** dialog box is displayed. It asks you whether you want to delete the selected series or studies. Depending on the amount of data to be deleted, opening the dialog box may take up to a few minutes.

You can delete raw data only on the *syngo* Acquisition Workplace. Only if you have already performed a reconstruction of the raw data, you can delete them with the **Auto Delete RawData** function.

2 Click the **Delete** button to delete the corresponding data.

- or -

Click the **Cancel** button to close the dialog without deleting.

3 Click the **Change Default Settings** button to open the **Auto Delete Configuration** dialog box where you can modify the deletion settings.

4 Click the **Show list** button to verify or change the data to be deleted.

The **Patient Browser** in list mode is displayed and all studies that fulfill the criteria are listed. You can now select and delete the studies.

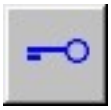
Protecting data from deletion

You can protect data from deletion.

1 Select the data that you want to protect against deletion in the navigation or content area.

2 Select **Edit > Protect** from the main menu.

- or -



Click the **Protect** icon on the tool bar.

Removing delete protection

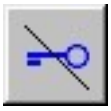
You can remove delete-protection. Delete-protection always includes all lower data levels and the related entries of the higher data levels.

Removing delete protection of separate data

1 Select the delete-protected data in the navigation or content area.

2 Select **Edit** > **Remove Protection** from the main menu.

- or -



Click the **Remove Protection** icon.

Removing delete protection of multiple data

1 In the navigation or content area, select a patient, study, or series with delete-protected data in the lower data levels.



2 Click the **Unprotect All** icon.

The **Patient Browser** closes.

The **Unprotect All Showlist** dialog box opens and displays all related protected data.

3 To adapt the selection, deselect separate data.



4 Click the **Unprotect All** icon of the **Unprotect All Showlist** dialog box.

A message box opens informing you about the data levels for which delete protection will be removed.

5 Confirm with **Yes**.

1.4 FAST Cardio Wizard

On the **Examination** task card of the *syngo* Acquisition Workplace, you can use **FAST Cardio Wizard** as a user guidance to help you during the whole cardiac examination.

There are two different modes for **FAST Cardio Wizard**: **Default** mode and **Custom** mode.

Under the **Default** mode, you can view the respective wizard for scan or reconstruction for the following cardiac related entries provided by Siemens:

- CaScoring
- Coronary CTA
- ChestPain
- Test Bolus or Bolus Tracking

Under the **Custom** mode, you are able to edit the default content and save the modification.

The following functions of the **FAST Cardio Wizard** are described in the subsequent sections:

- Configuring the **FAST Cardio Wizard**: For selecting the mode or the language of the wizard
- Using the **FAST Cardio Wizard**: For loading, viewing or editing the wizard

1.4.1 Configuring the FAST Cardio Wizard

On the *syngo* Acquisition Workplace, configuration changes are visible after registration of the next patient for the **FAST Cardio Wizard**.

1 Choose **Options** > **Configuration...** to open the **Somaris/7 – Configuration Panel** from the main menu.

2 Double-click the **Examination** icon in the **Somaris/7 – Configuration Panel**.

The **Examination Configuration** dialog box is displayed.

3 Select the **Workflow** tab card on the **Examination Configuration** dialog box.

The **FAST Cardio Wizard** pane is displayed at the bottom of the **Workflow** tab card.

Selecting default mode for FAST Cardio Wizard

1 Select the **Activate Wizard** checkbox.

If **Activate wizard** is unchecked, the **FAST Cardio Wizard** icon will not be shown on the **Patient Model Dialog**.

2 Select the **Default** checkbox.

3 Click the **OK** button to confirm.

The **Default** mode is activated and the system will display the default content of the wizard.

The default content of the **FAST Cardio Wizard** contains 1 to 6 steps, each of which has its index, title, image and description. The images may have tooltips.

Selecting custom mode for FAST Cardio Wizard

1 Select the **Custom** checkbox.

2 Deselect the **Lock edit mode** checkbox if this is activated.

If the **Lock edit mode** is activated with the **Custom** mode, the edit mode will be locked and the system will display the custom content of the **FAST Cardio Wizard**.

3 Click the **OK** button to confirm.

You are able to make the following modifications in the **Custom** mode:

- Edit the wizard title
- Edit the wizard image
- Edit the wizard description
- Add or delete steps in the wizard

You are also able to restore the **FAST Cardio Wizard** back to the default wizard when editing.

Setting language for FAST Cardio Wizard

1 Select one language in the **Language** list.

2 Click the **OK** button to confirm.

When you have selected a language for the **FAST Cardio Wizard**, you can only edit the wizard text using the selected language in **Custom** mode.

Following languages are provided: Chinese, English, French, German, Japanese and Spanish.

The default language of the wizard is the same as the system language. The language of the wizard can also be different from the system language.

1.4.2 Using the FAST Cardio Wizard

The **FAST Cardio Wizard** enables you to view and edit cardiac workflow information during the whole cardio examination.

If you want to see the recorded workflow of the **FAST Cardio Wizard** in the video by using **Camtasia Recorder**, you need to check on the **Capture layered window** under **Applications** > **Desktop** > **Camtasia Recorder** > **Tools options** > **Program**.

Loading a FAST Cardio Wizard protocol

The **FAST Cardio Wizard** button is visible on the **Patient Model Dialog** window if the following conditions are met:

- ✓ The license key is available.
- ✓ A cardiac protocol is linked to the **FAST Cardio Wizard** in the **Scan Protocol Assistant**.
- ✓ The **FAST Cardio Wizard** is activated in **Examination configuration**.
- ✓ The body size is **Adult**.



1 Click the **FAST Cardio Wizard** icon on the **Patient Model Dialog** window during the examination of the current patient.

The protocol reset as a **FAST Cardio Wizard protocol** in the **Scan Protocol Assistant** is loaded into the chronicle.

2 Select another cardiac protocol from the **Cardiac** group in the **Patient Model Dialog** to replace the reset one, or to append after the reset one if necessary.

If you load a cardiac protocol from the regular **Cardiac** group directly, the **FAST Cardio Wizard** will not be available.

3 Click the **OK** button.

4 Select **View** > **FAST Cardio Wizard** in the main menu if it is deactivated.

The wizard is displayed.

The **FAST Cardio Wizard** menu item is disabled if one of the following conditions is met:

- The **FAST Cardio Wizard** is not activated in **Examination configuration**.
- The **FAST Cardio Wizard** is not activated in the **Patient Model Dialog**.

Viewing the FAST Cardio Wizard

You can view cardio workflow information in the **FAST Cardio Wizard** when it is activated in **Default** mode.

You can view the content of the current step. Other steps are displayed in miniatures. You can click the minature of a step to display its content.

Showing or hiding the FAST Cardio Wizard

When the **FAST Cardio Wizard** has been activated, you can show or hide it if necessary.

- Select or deselect **View** > **FAST Cardio Wizard** in the main menu to show or hide the wizard.

Positioning the FAST Cardio Wizard

You can move the wizard, but cannot resize it.

The default position of the wizard is above the **Examination** card at the right-top corner of the display.

If the wizard is closed and opened again, it will be displayed at its previous position even after rebooting the system.

- Drag and drop the wizard to the place you want.



The position of the wizard can be memorized in the following ways:

- When no scan entry is scanned, all the individual wizards will be displayed at the same position.
- If at least one scan entry has been scanned, each individual wizard will be displayed at its own memorized position.

Using automatic wizard navigation

When the **FAST Cardio Wizard** is activated and shown, it will provide automatic wizard navigation for some entries, for example, for the **Topogram** entry.

1 Click the **Topogram** entry in the chronicle.

The corresponding wizard for **Topogram** entry is displayed.

2 Select the **Trigger** subtask card.

The ECG signal information will be displayed in the wizard.

3 Press the **Load** button.

The patient breathing instruction information will be displayed.

There is no triggering to display certain steps in the **Custom** mode.

The **FAST Cardio Wizard** also provides special information for positioning of the ECG electrodes and images for US users.

Editing the FAST Cardio Wizard

You can edit the **FAST Cardio Wizard** if the wizard is in **Custom** mode with the **Lock Edit Mode** deactivated.

The cardiac wizard always contains 1 to 6 steps and you can switch between steps during editing.

1 Select one of the steps as the current step in the wizard.



2 Click the **Start Editing** icon in the top right corner of the wizard.

The wizard changes to edit mode. The background color of the title box and description box turns to white.

3 Click the edit boxes to activate them and make modifications to the content if necessary.

- or -

Right-click the edit box.

The context menu is displayed.

4 Select **Undo**, **Cut**, **Copy**, **Paste**, **Delete** or **Select All** to make necessary modifications.

When you edit the steps in **Custom** mode, the description for each step is limited to 8 lines.

Editing the image



1 Click the **Remove current image** icon to delete the image if needed.

The image disappears from the current step and a new image with several icons is displayed with tooltips.

You can capture different screenshots or load a new image by following the tooltips.

You are not able to carry out the following actions:

- To capture snapshots in blow-up mode
- To load images from the local disk when the scan status is not idle
- To capture a snapshot of the subtask card or load images from the local disk when the dialog for the E-Logbook appears.

2 Click the **Take a screenshot of topogram** icon to capture a snapshot of the topogram.

- or -

Click the **Take a screenshot of tomogram** icon to capture a snapshot of the tomogram.

- or -

Click the **Take a screenshot of Subtask Card** icon to capture a snapshot of the subtask card.

- or -

Click the **Load image from file** icon to load an image from the local disk.

You can load the image from the files in H:\SiteData\ScanGuide.

Inserting or deleting a step

You are able to insert or delete steps of the wizard, but if no more steps are allowed to be inserted or deleted, the corresponding button for inserting or deleting steps is disabled.



1 Click the **Insert a Step** button to insert a step before the current step.



2 Click the **Delete a Step** button to delete the current step.

Restoring Wizard



- Click the **Restore Wizard to default setting** icon if you want to restore the wizard to default setting.

Confirming the changes



- Click the **Save Changes** icon to save the modifications and end editing.

  The captured screenshot will be stored in the H:\SiteData \ScanGuide\Screenshot folder if the changes are saved.

  - or -



Click the **Discard Changes** to discard the modifications and end editing.

1.5 Viewing

On the **Viewing** task card, you can view the results of an examination and evaluate it or prepare it for diagnostics.

You can process and evaluate images as follows:

- Change window values
- Enlarge, pan, rotate, and flip images
- Highlight regions of interest (ROIs) using drawing tools (circles, rectangles, freehand regions)
- Provide them with comment texts
- Evaluate them statistically (CT, MR only)
- Display measured values for pixel points or ranges
- Measure distances and angles on the images

You can also use the **Viewing** task card to compare image material of different examinations and, depending on configuration, of different patients.

You can first load the images using the **Patient Browser** or from the **3D** task card into the **Viewing** task card. Here you can select one of various ways of arranging the image material and displaying it in the most beneficial way for your diagnostic viewing.

You can then process and evaluate the images.

You can then save the processed and evaluated images, print them, expose them on film or send them to other locations in your network.

The following functionalities are described in the subsequent sections:

- Loading and Displaying Images
- Changing Image Settings
- Subtracting Images
- Calculating the Average
- Filtering Images
- 2D Evaluation
- Saving Images

If you are not familiar with the basic functionalities of the *syngo* software, refer to: (→ Page 11 *Basic Functionalities*)

1.5.1 Loading and Displaying images

You can load a series that contains images with different resolutions. It may result in different values when calculating areas of ROIs.

The following functionalities are described in the subsequent sections:

- (→ Page 95 *Transfering images*)
- (→ Page 96 *Loading multiple studies or patients*)
- (→ Page 96 *Loading multiframe images*)
- (→ Page 97 *Using the image-stripe or stack display*)
- (→ Page 97 *Dividing the image area*)
- (→ Page 99 *Displaying images in the Mother-in-Child function*)
- (→ Page 99 *Displaying segments in a blow-up window*)

Transfering images

You have to open the **Patient Browser** to display patient data.

1 Open the **Patient Browser** by selecting **Patient** > **Browser...** from the main menu.

2 Select the patient, study, or series in the navigation or content area of the **Patient Browser**.

You can transfer the images of more than one patient, study, or series to the **Viewing** task card. To do so, use multiple selection in the navigation or content area.



3 Click the **Load to Viewing** icon on the tool bar to transfer the associated images to the **Viewing** task card.

The **Patient Browser** closes if the **Close after Loading** option is selected in the **Options** menu.

Loading multiple studies or patients

With Multi View, you can have multiple patients displayed simultaneously in the **Viewing** task card.

Patients with different patient IDs, but otherwise identical data, are handled as different patients by the system.



1 Click the **Multi View** icon on the **View** subtask card to activate this display mode.

2 Use drag-and-drop to load multiple studies or patients (multi study layout).

3 Drop each patient in a different study view.

Loading multiframe images

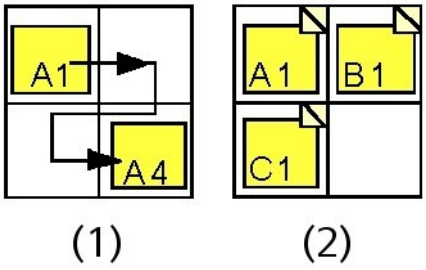
When you load multiframe images, each multiframe is treated as a series. If you load a series consisting of several multiframe images and normal images, each multiframe image and each normal image will be loaded in a separate segment.

- Load a single enhanced data object in all types of layouts into the **Viewing** task card.

If images belong to different patients, the **Viewing** task card changes automatically to multi view layout. It is not possible to load two series of the same patient in stripe layout into the **Viewing** task card, even if one of the series contains an enhanced multiframe.

Using the image-stripe or stack display

You can display series and images as an image stripe or a stack.



(1) Image Stripe display

(2) Series Stack display



- Click the **Image Stripe** icon on the **View** subtask card to activate this display mode.

  The loaded series and images are shown one after the other.

  - or -

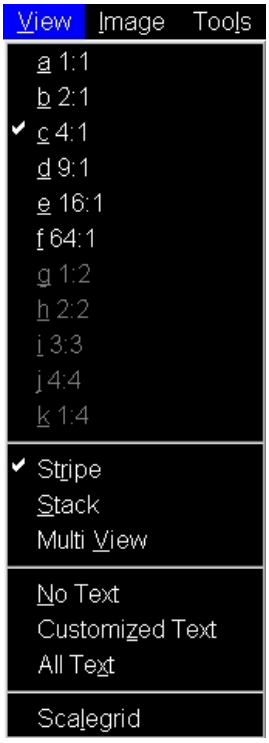
  Click the **Series Stack** icon on the **View** subtask card to activate this display mode.

  All images of a series are stored in a stack one on top of the other. You can see the first image of each series.

Dividing the image area

You can change the appearance of the image area according to your needs.

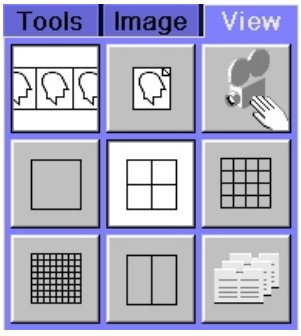
A large format display is suitable to see diagnostic details while a small format display allows you to obtain an overview.



- Select a layout in the **View** menu.

  The active view is now marked with a checkmark.

  - or -



Select a layout with the icons on the **View** subtask card.

The corresponding icon is now active.

For more information on changing the image settings, refer to: (→ Page 11 *Basic Functionalities*).

Displaying images in the Mother-in-Child function

The Mother-in-Child function allows you to display an additional reference image in a small area of the image segments.

The first reference image of the loaded series is used as the mother image, by default.

Activating the Mother-in-Child mode

1 On the main menu, choose **Options** > **Configuration...** to open the **Somaris/7 – Configuration Panel**.

2 Double-click the **Viewing** button to open the **Viewing Configuration** dialog box.

3 Select the **MIC General** tab card.

4 Select the **Position of Mother Image** checkbox.

5 Select the **Top Right** option to position the mother segment in the top right-hand corner of the basic segments.

- or -

Select the **Bottom Right** option to position the mother segment in the bottom right corner of the basic segments.

6 If you want to show the mother segment even when it is empty (no suitable mother image is defined), activate the **Enable display of empty mother segment** checkbox.



In stack mode, a dog-ear occupies the top right-hand corner of the image segment. In this case, the mother segment is automatically positioned in the bottom right-hand corner and is independent of the selected position.

Selecting the mother image

✓ The mother image and the child image must be in the same frame of reference.

1 In the image area of the **Patient Browser**, select the new mother image.

2 Drag-and-drop the new mother image into one of the mother segments of the **Viewing** task card.

The mother image is changed for the whole loaded series.

Displaying segments in a blow-up window

You can blow-up the contents of a small segment on a large window to view its details.



This function is available only for small segments. Otherwise, an error message is displayed.

1 Select a segment.

2 Press the **Space** key on your keyboard.

1.5.2 Changing Image Settings

The following functionalities are described in the subsequent sections:

- (→ Page 100 *Selecting images*)
- (→ Page 100 *Windowing images*)
- (→ Page 101 *Zooming and panning*)
- (→ Page 101 *Rotating and flipping*)
- (→ Page 102 *Changing dimensions*)
- (→ Page 102 *Fitting images to the Field of View*)
- (→ Page 102 *Using the interactive movie*)

Selecting images

You have the following possibilities to select the required images:

- Select a single image
- Select individual images
- Select images up to the end of one series
- Select complete series
- Deselect images

◆ Perform one or more of the described actions.

Windowing images

You have the following possibilities to window images:

- Select the desired images
- Assign predefined window settings
- Window with the mouse and the keypad
- Restore window values

In the image in which you are currently windowing, the changed window values are displayed immediately. As soon as you release the mouse wheel, the new window values are applied to all images of the same selection.

- Perform one or more of the described actions.

Zooming and panning

You have the following possibilities of zooming/panning images:

- Zoom/pan with the mouse
- Activate the Blow up mode
- Restore the zoom factor

With **Tools** > **Capture Area**, you can define an area in the image for zooming.

Safety advice

CAUTION

The zoom factor for reference image display is selected such that the complete volume can be displayed. This pre-selected zoom factor influences the spatial resolution for reconstruction. The spatial resolution may be lower than the spatial resolution of the original images!

Reduced image quality (lower resolution) due to default zoom level.

- Center the relevant area, and select a suitable zoom factor before starting calculation of ranges or resampling.

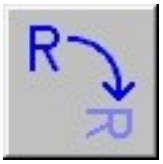
- Perform one or more of the described actions.

Rotating and flipping

You can rotate and flip images according to your needs.

Orientation labels are rotated and flipped together with the image. Any annotations and graphics you enter are deleted when you rotate or flip an image.

1 Select the images that you want to edit.



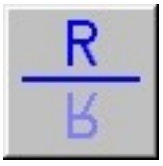
2 Click the **Rotate 90** icon on the **Image** subtask card to rotate the image 90 degrees clockwise.

- or -



Click the **Flip Vertically** icon on the **Image** subtask card to flip the images vertically.

- or -



Click the **Flip Horizontally** icon on the **Image** subtask card to flip the images horizontally.

Changing dimensions

This feature is available for enhanced data sets having different dimensions. The data is loaded with the first dimension. To modify the order of the data set, proceed as follows:

- Select **Scroll** > **Change Dimension** from the main menu.

  The data sets will be sorted accordingly.

> In multi view, **Change Dimension** will only be enabled if you have selected a frame of an enhanced data object. **Change Dimension** will be dimmed if you have selected frames of different patients.

Fitting images to the Field of View

You can display the anatomy in the same size in all images by fitting images to the Field of View (FoV). This function is useful if you want to compare images of a patient with different FoV phases.

1 Display the images in the series stack mode.

2 Choose **Image** > **Fit to FoV** to adjust all images in the stack.

Using the interactive movie

You can use the interactive movie function to play back your evaluation.



1 Click the **Interactive Movie** icon on the **View** subtask card.

2 Hold the left mouse button down in the image and move the mouse up or down to play back the movie forward or backward.

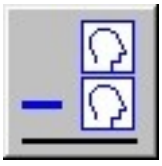
3 Click the **Interactive Movie** icon again to terminate the Movie mode.

1.5.3 Subtracting Images

In order to subtract original images, you perform the following steps:

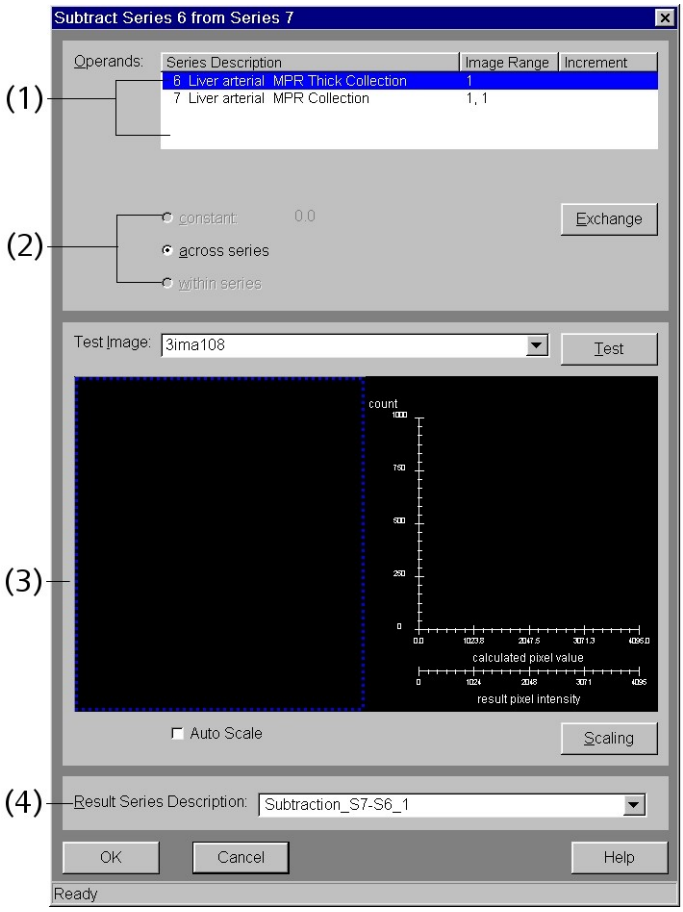
- Restricting the original images
- Deleting operands and operation modes
- Starting subtraction

1 Select individual images/series in the **Viewing** task card or in the **Patient Browser**.



2 Click the **Subtract** icon on the **Eval** subtask card.

The **Subtract** dialog box is displayed.



(1) Operand field with a list of loaded images and series

(2) Operation mode

(3) Test image

(4) Name of the result series

Restricting the original images

1 Select a series (line) in the operand field.

2 Double-click the selected series in the column **Increment**.

3 Enter an increment in the spin box displayed.



For example, if you only want to apply subtraction to every second original image, the value 2 is entered in the Increment column.

4 Complete your entry by clicking outside the spin box with the mouse.

Deleting operands and operation modes

The type of subtraction you can apply (subtracting images or constants) depends on the number and assignment of original images (one or more series).



- Select operation mode **constant** and enter a value.

If you want to subtract one or more images from a constant, reverse the operands with **Exchange**.

- or -



Select operation mode **within series** to subtract the gray scale values of one image from the gray scale values of the other images (one series loaded).

- or -

In the operand field click the series whose images are to be subtracted from the images of the remaining series (two or more series loaded).

The sequence of subtraction is always remaining series – selected series.

If there are more than two series in the operand list, the selected list is subtracted from the remaining series.

A new series with the subtraction images is generated for every other series and saved in the **Patient Browser**.

Starting subtraction

- Click **OK** to start calculation.

In the input field **Result Series Description**, you can change the suggested name.

1.5.4 Calculating the Average

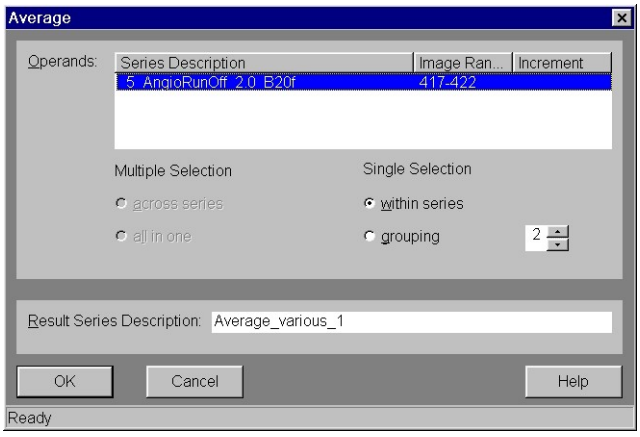
The system provides the possibility of average calculation.

1 Select one image or a set of images or series.



2 Click the **Average** icon on the **Eval** subtask card.

The **Average** dialog box is displayed.



3 Enter an increment, if you want to use a subset of the original images for the evaluation.

4 Click **OK** to start the calculation.

1.5.5 Calculating temporal minimum or maximum projections

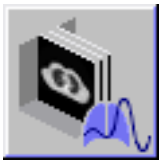
The t-MIP function calculates temporal minimum intensity projection (tMinIP) or temporal maximum intensity projection (tMaxIP) volumes from multiphase data, for example, respiratory gating data. Each voxel of a result volume displays the minimum or maximum HU value of all voxels at the same image position of all phases that are used for calculation. The result is saved as a new series within the study.

✓ Individual series for each phase are available. By using the Conversion tool, you can split-up a multiphase reconstruction, that contains only one series, into multiple series according to the phases included. (→ Page 133 *Splitting-up Heartview 4D series*)

1 Select individual series in the **Viewing** task card or in the **Patient Browser**.

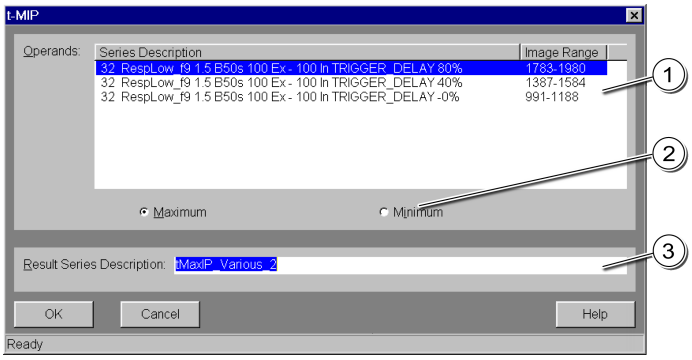
2 From the main menu, choose **Evaluation** > **ImageManipulation** > **t-MIP**.

- or -



On the **Eval** subtask card, click the **t-MIP** icon.

The **t-MIP** dialog is displayed.



(1) **Operands**

Lists the series that are used for calculation. You can add further series by dragging them from the Patient Browser. You can remove series by choosing **Delete** from the context menu.

(2) **Maxmium**/**Minimum** projection

Select the corresponding checkbox to calculate the result using either the maximum HU values or the minimum HU values across input phases.

(3) **Result Series Description**

Name of the result series. You can change the suggested name.

3 Adjust the calculation settings and click **OK**.

The calculation is started.



4 To show the progress of the calculation, click the corresponding icon in the status bar.

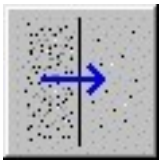
The **Calculation Status** dialog is displayed.

After completion of the calculation job, the new series is available in the study. The Patient Browser is automatically updated.

1.5.6 Filtering Images

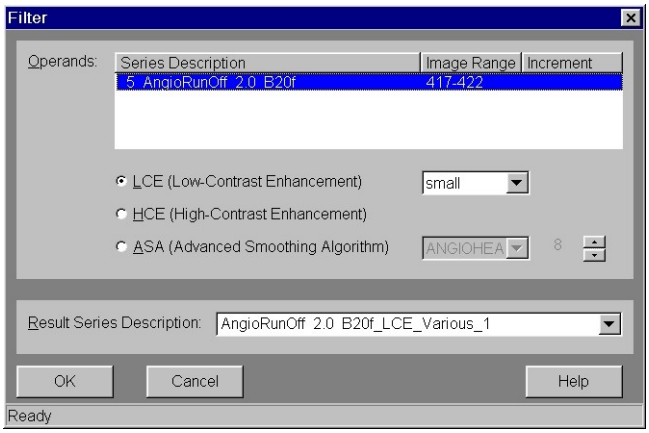
You can make your selection from three preset filter effects. The option **Low Contrast Enhancement** also offers you a drop-down list in which you can set four different levels of contrast from small to very strong.

1 Select one image or a set of images or series.



2 Click the **Filter** icon on the **Eval** subtask card.

The **Filter** dialog box is displayed.



3 Enter an increment, if you want to use a subset of the original images for the evaluation.

4 Select one of the filters.

5 Click **OK** to start calculation with the set filter strengths.

If large amounts of data are selected processing may take some time.

1.5.7 2D Evaluation

To evaluate result images in the Viewing task card, you can measure distances and angles, and evaluate Regions Of Interest (ROIs).

ROIs are used to mark anomalies in the images and evaluate the gray scale within these regions statistically. ROIs can be circular, rectangular, or freehand regions.

The following functionalities are described in the subsequent sections:

- (→ Page 109 *Annotating images*)
- (→ Page 110 *Measuring length*)
- (→ Page 110 *Customizing the graphic text*)
- (→ Page 111 *Deleting graphic elements and text*)

For more information on changing the image settings, refer to: (→ Page 40 *2D and 3D Evaluation*)

Safety advice

CAUTION

Thickness, length, and angular measurements on MIP and SSD images do not reflect the actual anatomical conditions!

Wrong basis for diagnosis.

- Do not perform thickness and length measurements on MIP and SSD images.

Annotating images

You can write up to 30 characters into a line, after that, line breaks are inserted automatically.



You can force a line break by pressing **Shift** + **Enter**.

- Click the **Annotation Text** icon on the **Tools** subtask card.

Measuring length

You can measure the length of a structure, i.e., a blood vessel.

1. Draw the shape with a freehand line (**Tools** > **Freehand Distance**).
2. End the line with a double-click.

Customizing the graphic text

You can change the font color and the font size for the graphic objects which contain text.

The changes are applied only to the currently selected graphics and are retained for the next evaluations.

1. Right-click the selected graphic object and choose **Font** from the context menu.

   - or -

   On the **Tools** subtask card, right-click the corresponding graphic tool icon, and choose **Font** from the context menu.
2. From the **Type** selection list, select the graphic type.
3. Select the **Select All Graphics** option to apply the font properties to all types of graphic objects.
4. From the **Color** selection list, select the font color.
5. From the **Scale Factor** selection list, select the font size.
6. Click the **Apply** button to apply your changes.

   - or -

   Click **OK** to confirm your changes and close the dialog box.

   - or -

   Click **Cancel** to discard your changes and to close the dialog box.

Deleting graphic elements and text

1 Select individual, several, or all graphic and text elements you want to delete.

With **Edit** > **Select** > **All Graphics**, you can select all graphic elements and text in the selected image segments.

2 Select **Edit** > **Delete Graphics** or press the **Del** key on your keyboard.

1.5.8 Saving Images

Evaluated images can be saved.

Safety advice

CAUTION

Modifications in medical images are not saved automatically in the same way as image comment. Additionally, in case of a user switch where the new user has no adequate access rights, modifications of the image text may also be lost!

Image modifications may be lost.

- Use **Patient** > **Save...** in order to save the image comment and **Patient** > **Save As...** to save the image with modifications as a new image.

CAUTION

Modifications in medical images are not saved automatically in the same way as image comment! Additionally, in case of a user switch where the new user has no adequate access rights, modifications of the image text may also be lost.

Possible loss of image modifications.

- Choose **Patient** > **Save As...** in order to save the image with modifications as a new image.

1 Select the images or series that you want to save.

2 Select **Patient** > **Save As...**.

3 In the **Save As** dialog box, click the **Save images in new series** option.

4 Enter the new series description in the text input field and confirm with **OK**.

- or -

Click the **Append images to series** option.

5 Select the series in the selection list using the serial number and serial description and confirm with **OK**.

Saving window values only

Alternatively, you can save the window values only.

- Select **Image** > **Save Window Values**.

  The current window values are saved for the selected images.

1.6 Filming

You can expose the images of an examination on film or print them on paper for documentation and reporting.

The following functionalities are described in the subsequent sections:

- (→ Page 114 *Transferring Images to Filming*)
- (→ Page 115 *Selecting Images and Sheets*)
- (→ Page 116 *Editing Film Jobs*)
- (→ Page 125 *Associating layouts with a study, series, or protocol*)
- (→ Page 127 *Setting a film task layout*)
- (→ Page 129 *Exposing on Film*)



If you are not familiar with the basic functionalities of the *syngo* software, refer to: (→ Page 11 *Basic Functionalities*)

Safety advice

CAUTION

Using scalable page mode may reduce the image quality. The resulting image quality may no longer be sufficient. The scalable page mode does not support real size!

Possible wrong diagnosis.

- Be aware of image quality reduction if scalable page mode is configured.

CAUTION

Use of paper printouts for diagnosis!

Wrong diagnosis caused by wrong image information.

- Only use images on film for diagnostic purpose.

CAUTION

The printed flag is set if the images are successfully transferred to the printer control. Not all printers, for example, paper printers, may be able to solve printing problems themselves!

Possible loss of image printout.

- Verify that the printouts are available before you delete images.

1.6.1 Transferring Images to Filming

Safety advice

CAUTION

Transferring manipulated non-square matrices or viewing segments!

Diagnostically relevant areas of images may be lost.

- When manipulated images are exported or sent to another workstation, the related original images should be sent, as well. It is strongly recommended to base the final diagnosis always on the original images and not on modified or manipulated images.

1 First select the images that you want to film in the **Patient Browser** or on the task cards.



2 Click the **Copy to Film Sheet** icon.

- or -



Push the **Copy to Film Sheet** key on the symbol keypad (Num: **Enter**).

Filming images with Window 1 and Window 2

By performing the following workflow steps you can film images with **Window 1** and **Window 2**, either interleaved or appended.

1 Select **Options** > **Configuration...** from the main menu of any task card.

2 Double-click the **Filming Layout** icon on the **Somaris/7 – Configuration Panel**.

3 Activate **Copy series** (for Double window) on the **Series** tab card in the **Filming Layout** dialog box and confirm with **OK**.

4 Copy the images from the **Patient Browser** or **Viewing** via **Copy to Film** sheet icon, main menu, or keyboard key.

1.6.2 Selecting Images and Sheets

You can select or deselect images and sheets for filming:

- Select one or more images
- Select complete series
- Deselect images

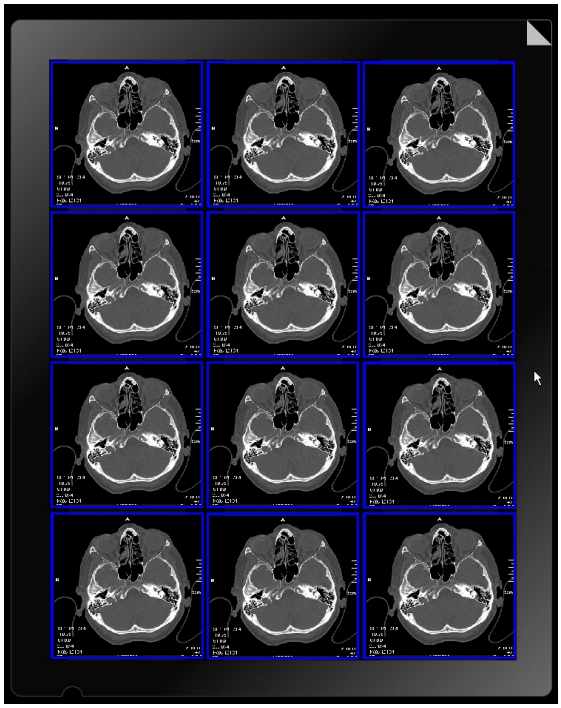
For more information, refer to: (→ Page 11 *Basic Functionalities*)

The following functionalities are described in the subsequent sections:

- Selecting film sheets
- Selecting an entire film job

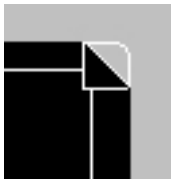
Selecting film sheets

1 Click the border of the film sheet to select all the images it contains.



- or -

Click the border of the first film sheet of your choice holding the **Ctrl** key down.



2 Page to another film sheet using the dog-ears.

3 Extend your selection by a single film sheet (hold the **Ctrl** key pushed).

- or -

Extend your selection by all the film sheets in between (hold the **Shift** key pushed).

Selecting an entire film job





- Click the opened film job to select all the film sheets with all images of this job.

The folder icon of a selected film job is highlighted (blue). All the images of this job are shown with a continuous blue line border.

1.6.3 Editing Film Jobs

The following functionalities are described in the subsequent sections:

- (→ Page 116 *Creating a layout*)
- (→ Page 118 *Changing the layout*)
- (→ Page 119 *Modifying the current Filming properties*)
- (→ Page 121 *Windowing images*)
- (→ Page 122 *Copying and moving images or film sheets*)
- (→ Page 122 *Changing the reference image*)
- (→ Page 122 *Deleting images or film sheets*)
- (→ Page 123 *Showing or hiding image text and graphics*)
- (→ Page 124 *Selecting another camera*)

Creating a layout

You can create new layouts or open existing layouts and edit them.

1 Select **Options** > **Configuration...** from the main menu and double-click the **Filming Layout Editor** icon.

The **Filming Layout Editor** dialog box is displayed.

2 Click the **Create** button.

The **Create Regular Layout** dialog box is displayed.

3 Click in the upper left-hand corner, and drag the mouse to define the number of rows and columns in the new layout.

As soon as you release the mouse button, the selected division is displayed in the title bar of the dialog box.

4 Click the **OK** button to confirm the number of rows and columns.

Merging segments

1 Press the **Ctrl** key on your keyboard and select the segments you want to merge.

2 Click the **Merge** button.

The selected segments merge into a single segment.

Splitting segments

1 Select the segment you want to split.

2 Right-click and select the required division mode from the context menu, e.g., **Split Horizontally**.

The segment is split accordingly.

Saving layouts

1 Click the **Save** button if you are finished.

- or -

Click the **Save As** button to save the layout with a new name.

2 Enter a name for the new layout.

3 Click the **OK** button.



If you want to create more layouts, create all layouts first, then restart the application after all desired layouts are done.

Deleting layouts

1 Click the **Delete** button to open the **Delete Layout** dialog box.

The **Delete Layout** dialog box contains the following tab cards:

- **User-Defined** layout tab card: Once layouts have been deleted, they cannot be restored.
- **Siemens Default** layout tab card: You can restore layouts from hidden layouts.

2 Select the layouts to be deleted.

It is not possible to delete the layout buttons that are present as icons on the **Filming** task card.

3 Click **OK**.

Applying the settings

1 Click **OK**.

2 Restart the application.

You will find the new layouts in the selection list on the **Filming** task card.

If you want to edit a layout, click the **Open** button in the **Filming Layout Editor**, and select the desired layout from the selection list. Now you can merge and split segments.

Changing the layout

With the layout of the film sheet, you define the number and size of the segments on a film sheet.

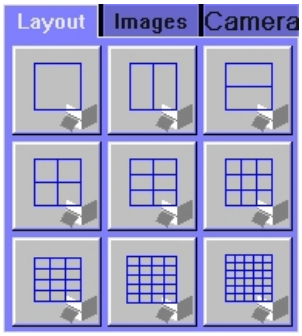
To change the size and position of an image within the segment, select **Image** > **Zoom/Pan**.

Information Segment

You can display an information segment as the first image of the series. It contains patient overview and common information. For that purpose, activate the **Information Segment** checkbox on the **Series** tab card in the **Filming Layout** dialog box. You can open it by selecting **Patient** > **Filming Layout...** from the main menu.

You can change the content of the Information Segment with the Image Text Editor. You can open the Image Text Editor by selecting **Options** > **Configuration...** in the main menu. There, double-click the **Image Text Editor** icon.

1 Select individual images or a film sheet or select an entire film job.



2 Click the **Layout** subtask card on the **Filming** task card into the foreground.

3 Click the icon for a film layout to display the selected images in this format.

4 From the **Layouts** selection list in the lower right-hand control area, select a layout.

If you want to add new images from the **Patient Browser** to a film job, you can do that easily by drag-and-drop. The images are inserted into the film job in front of the target segment.

Modifying the current Filming properties

In the **Film Properties** dialog box, you can modify the properties of the currently selected images and set the options for the current film task.

1 In the **Filming** task card, select the images that you want to modify.

2 Choose **Film** > **Properties...** to open the **Film Properties** dialog box.

Setting the film sheet division

The division determines the number of segments on the film sheet. If single images have been selected, instead of the film sheet or film task itself, a new film sheet is created which displays the images in this selected division. The sequence of images in this film task is kept.

1 From the **Layout** selection list, select a film sheet division, for example, **2x2**.

2 Select the **Preview** checkbox to display a preview of the selected layout.

The preview is displayed instead of the text elements list.

3 Deselect the **Preview** checkbox to display the text elements list again.

Defining the aspect ratio

- Select the **Fit to segment** option to display the image as large as possible.

  - or -

  Click the **Original Image** option to display the image in real-size (that is 1 cm in reality corresponds to 1 cm on the screen).



If the real-size image is too big for the segment, it will be clipped on all 4 sides. The displayed image clip may be smaller when it is printed.

You are notified if the system cannot display the images in real-size, for example, because pixel information is missing. Instead, the images will be displayed with the aspect ratio: **Fit to Segment**.

- or -

Select the **Clip document** option to zoom the image so that it matches the larger side of the segment.

The image parts beyond the segment boundaries are clipped: either the top and bottom, or the right and left side.

Showing and hiding overlay graphics

1 Select the **Hide** option to hide all graphics.

2 Select the **Show** option to display the graphics again.

Setting up the reference image

1 Select the **Reference image** checkbox to display the reference (mother) image in tomograms (Mother-in-Child).

Each segment of the selected series include a small reference image in the upper right or lower right-hand corner.



You can replace the default reference image or insert a new one. See (→ Page 122 *Changing the reference image*).

2 Select the position of the reference image, for example, **Top right**.

Setting the image text display

- Select the **No text** option to hide the text.

  - or -

  Select the **All text** option to show the text.

  - or -

  Select the **Customized text** option to specify the text elements to be displayed on the images.

Gray checkboxes indicate that images with varying image text settings have been selected.

In the customized options, you can display or hide the scale bar.

Displaying a preview

- Select the **Preview** checkbox to display a preview of the created layout.

Applying the properties

- Click **OK** to apply the properties.

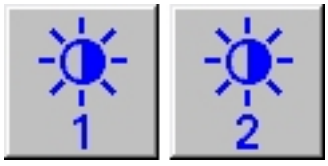
  - or -

  Click **Cancel** to abort the action.

Windowing images

If you use the function (F) keys on your keyboard for windowing images, the windowing is only applied to the selected images but not on the whole series. You can select the **Select series** menu entry from the context menu first to change the windowing value on the whole series.

1 Select the images for processing.



2 Click either the **Window 1** or the **Window 2** icon to switch between two predefined window values.

Additionally, you can use the pressed mouse wheel or the keypad for windowing the images manually.

Copying and moving images or film sheets

If you only want to move images within a film sheet, you can also do that easily by drag-and-drop. In this case, deselect the **Zoom/Pan** icon.

1 Select the images/film sheets that you want to copy or move.

2 Select **Edit** > **Copy** in the main menu.

- or -

Select **Edit** > **Cut** in the main menu.

3 Select the image in front of which you want to insert the selected images.

4 Insert the images with **Edit** > **Paste** in the main menu.

Changing the reference image

If the display of reference images (Mother-in-Child) is specified for a series, each segment of the Virtual Film Sheet (VFS) includes a small reference image in the upper right or lower right-hand corner.

A reference line indicates the location of the large image which is displayed in the basic segment.

You can replace the default reference image, or insert a new one.

1 Open the **Patient Browser** and select a reference image for the series.



Only one image is allowed as the reference image for a series.

2 From the **Patient Browser**, drag-and-drop the single image on the reference part of an image segment of the VFS.

After dropping the image, the reference image is changed for the whole series.



To switch the reference image display on or off, or to set the position of the reference image for this film job, use the **Filming Properties** dialog box. See (→ Page 120 *Setting up the reference image*).

Deleting images or film sheets

1 Select one or more images or film sheets.

2 Select **Edit** > **Delete** in the main menu.

- or -



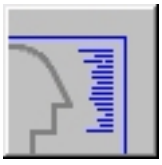
Click the **Delete** icon or push the **Del** key on the keyboard.

You can also delete images with **Film** > **Clear Document(s)** in the main menu. In this case, the segments of the deleted images remain empty. Use **Film** > **Repack** afterwards to reorganize the film sheet or the entire film job (gaps are filled again).

Showing or hiding image text and graphics

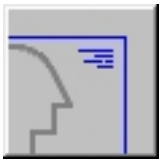
If you want to set **Customized Text**, you can call up the **Film Properties** dialog box with **Properties...** in the context menu.

Showing or hiding image text



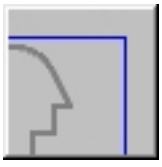
- Click the **All Text** icon on the **Images** subtask card to have all text information about the images filmed.

- or -



Click the **Customized Text** icon to have only part of the text information exposed on film.

- or -



Click the **No Text** icon to hide all text information in the segments.

Showing or hiding graphics



- Click the **Show Graphics** icon to display graphics (for example, ROIs) and annotations.

- or -



Click the **Hide Graphics** icon to hide graphics and annotations.

If you click the **Hide Graphics** icon, you also hide the Patient Protocol.

Selecting another camera

Safety advice

CAUTION

Exposing images with a non-verified camera!

Wrong basis for diagnosis.

- Only use cameras that have been released by Siemens.

CAUTION

Missing camera test!

Wrong basis for diagnosis.

- Perform the camera test regularly at the recommended intervals.

1 Click the **Camera** subtask card on the **Filming** task card into the foreground.



- or -

Select **Film** > **Change Camera...** to call up the **Change Camera and Film Size** dialog box.



2 Select a camera from the list.

This selection list contains all the cameras connected to your system.

1.6.4 Associating layouts with a study, series, or protocol

In the **Filming Study Layout** dialog box, you can assign a specific layout to a study. It can either be a layout you have created yourself, or one that has been created by the Siemens Service during configuration of your system.

The following functionalities are described in the subsequent sections:

- Assigning film layouts
- Canceling a layout assignment
- Deleting a layout

◆ Select **Options** > **Configuration...** from the main menu and double-click the **Filming Study Layout** icon.

The **Filming Study Layout** dialog box is displayed.

Assigning film layouts

You can only assign one specific layout to each study, series, or protocol. This layout is then automatically used for filming the images.

You can assign a layout by selecting a study, series, or protocol stored on your system, and the required layout, and then linking the two.



If a layout other than the standard layout is already assigned, you must first cancel this link before you can assign a new study-specific layout.

Selecting a film layout

In the **Film layouts** selection list, you will find a list of the available layouts.

◆ Select the required film layout.

Selecting a study/series/protocol

In the **Available Studies** area, you can see a list of the studies with their series/protocols.

1 Click the **+** symbol in front of a study to display the series or protocols associated with it.



You can only select entire studies if they are not subdivided into series/protocols. In such cases, the **+** or **-** symbol in front of the entry is missing.

2 Click a study, series, or protocol to select it.

Linking the layout

◆ Click the down arrow icon to assign the layout to the selected study, series, or protocol.

As soon as you have assigned a study-specific layout, the corresponding study, series, or protocol is entered in the **Studies/ Series linked to selected layout** list. Here you can see for what studies, series, or protocol the displayed layout is set. In the **Currently linked layout** column in the **Available Studies** area, you can see which layout is linked with a certain study.

If an image belongs to a study linked to two layouts (one for study/series and one for study/protocols), the layout assigned to the protocol will be chosen when sending the image to the film sheet.

Canceling a layout assignment

If you want to assign a different study-specific film layout to a study, series, or protocol, you must first cancel the old layout assignment.

1 Select the study, series, or protocol in question in the **Studies/ Series linked to selected layout** list.

2 Click the up arrow icon.

The standard layout is now assigned to the study, series, or protocol again and you can assign a new study-specific layout.

Deleting a layout

Your system can store and manage up to 100 layouts. Therefore, you should regularly delete those film layouts that you do not require any longer to make space for new study-specific layouts.

1 Select a layout that you do not require any longer from the **Film layouts** selection list.

2 Click the **Delete Layout** button.

The entry will be deleted from the list.

You cannot delete the standard layout.

1.6.5 Setting a film task layout

The **Filming Layout** dialog box is used to define a new film layout as well as change an existing layout. These layouts can be linked to a certain type of examination. A film layout is composed of the elements on the **Film Job** and **Film Sheet** tab cards.

The following functionalities are described in the subsequent sections:

- Defining and changing film layouts
- Setting a film task layout

Defining and changing film layouts

You can define up to 100 different layouts.

1 From the main menu, choose **Patient** > **Filming Layout...** to open the **Filming Layout** dialog box.

2 Select the **Film Task** tab card.

3 In the **Layout name** selection list (above the tabs), enter a name for the new layout.

- or -

Select the layout that you want to modify from this list.



The system provides a default film layout: **Layout General Default**.

4 Use the **Film Task** and **Series** tab cards to define your layout.

5 Click the **Apply** button to save your settings.

- or -

Click the **OK** button to save your settings and exit the dialog box.

- or -

Click the **Cancel** button to abort the action.

Setting a film task layout

The layout configuration for film tasks consists of the following steps:

- On the **Film Task** tab card, you can define the settings for a film job.
- On the **Series** tab card, you can define the settings for the film sheet layout.

1 Open the **Filming Layout** dialog box.

2 Select the **Film Task** tab card.

3 Select the **New film job by patient** checkbox to start a new film job whenever images of a new patient are copied to **Filming**.

4 Select the **New film sheet by** checkbox, and select one of the options to define when the images should be copied to a new film sheet.

5 Select the **New row of images by** checkbox, and select one of the options to define when images should be displayed in the next row.

6 In the **Number of copies** entry field, enter the number of copies.

7 In the **Expose every n-th document** entry field, enter a number to define which images you want to be filmed.

8 From the **Film size** selection list, select the size of the film (printout).

9 Select the corresponding **Segment lines** option either to hide or to display and print the segment lines.

10 Select the **Page number on print out** checkbox to print a page number on every film sheet.

11 Click the **Apply** button to save your settings.

- or -

Click **OK** to save your settings and exit the dialog box.

- or -

Click **Cancel** to abort the action.

1.6.6 Exposing on Film

Adding a paper printer

1 On the main menu of any task card, choose **Options** > **Configuration...**.

2 Click the **Add Printer** button to open the wizard for adding a printer.



When adding a network printer, make sure you click **Select a shared printer by name**. Clicking **Add a printer using a TCP/IP address or hostname** may lead to an error message.

3 Follow the instructions given by the wizard and finish the installation.

4 Restart the system.

After a system restart, the new printer is available in the **Filming** task card.

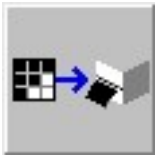
Exposing a film sheet

1 Select one or more film sheets in the **Filming** task card.

2 Select **Film** > **Expose Film Sheet** to process only the selected film sheets.

Exposing a film job

1 In the **Expose every n-th document** entry field, enter a number to define which images you want to be filmed.



2 Click the **Expose Film Task** icon as soon as you want to expose one of the film jobs in the queue.

You can call up the **Film Job Status** dialog box by clicking the **Film Job Status** icon on the **Filming** task card. In the dialog box, you can get information about film jobs that are waiting to be executed in the queues for each camera and printer.

1.7 Data Set Conversion

The **Data Set Conversion** tool prepares DICOM images of other manufacturers that are already imported into the *syngo* database, making them accessible for CT applications.

Additionally, the tool splits up a series from Siemens CT multi-phase reconstruction into series of different phases or slice positions.

The tool can be started alongside other applications.

If you are not familiar with the basic functionalities of the *syngo* software, refer to: (→ Page 11 *Basic Functionalities*)

1.7.1 Converting Data Sets

The following functions are described in the subsequent sections:

- Configuring Data Set Conversion
- Starting Data Set Conversion
- Splitting-up Heartview 4D series
- Ending Data Set Conversion

Configuring Data Set Conversion

In case pixel values of the original data exceed the range compatible with existing Siemens systems, the original images are lossy compressed during data set conversion.

Safety advice

⚠ CAUTION

Compression method is set to irreversible compression (Lossy JPEG)!

The resulting images are no longer completely identical to the original images. Information of medical relevance may be lost.

- Lossy compressed images should not be used for primary diagnosis, the image quality may not be sufficient.
- Lossy compression is indicated in the image displayed. The indication will be displayed except if “No Text” is in effect.
- Pay attention to corresponding entries in the image text.

1 Select the **Options > Configurations...** menu item.

The **Somaris/7 – Configuration Panel** appears.

2 Double-click the **Conversion** button.



The **DICOM Converter Configuration** dialog box appears.

3 Deselect the option **Mark images as lossy compressed**, if indispensable, if you do not want images with modified pixel range to be marked.

As the option **Mark images as lossy compressed** is activated by default, images with modified pixel range are labeled with, for example, CQ!, CF 10 (Compressing Factor 10).

If marked as lossy compressed, images are not accepted for further processing by CT applications.

4 Click **OK** to close the **DICOM Converter Configuration** dialog box.

Starting Data Set Conversion

You start **Data Set Conversion** via the **Patient Browser**.

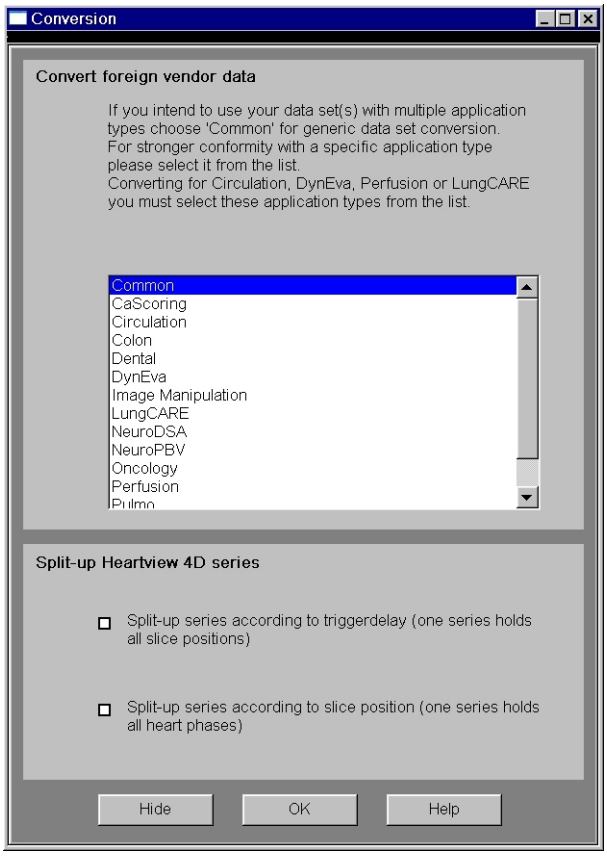
1 Call up the **Patient Browser** by selecting **Patient > Browser...** from the main menu.

2 Select one or more series of a study in the navigation or content area of the **Patient Browser**.

If you want to convert more series simultaneously, merge the series first. You can select all the series you want to convert, and drag-and-drop the selected series onto the remaining series. One series has to remain unselected.

3 Select **Applications > Conversion** from the menu of the **Patient Browser**.

The **Conversion** dialog box opens.



4 Select **Common**, if you intend to use the converted series for more than one application type.

- or -

Select a specific application from the list for which you want to convert the data, e.g., **DynEva**, or **Perfusion**.

5 Click **OK** to start the conversion.

You are informed of the status of conversion on the status bar, where any conversion risks are indicated by error messages.

Splitting-up Heartview 4D series

You can split-up the Heartview 4D series. On the **Conversion** dialog box, the following options are possible.

1 Select **Split-up series according to triggerdelay**, to split-up the series of multi-phase heart reconstruction according to the different heart phases included.

- or -

Select **Split-up series according to slice position** to split-up the series according to the different slice positions it contains.



2 Click **Hide** if you want to put the dialog box into the background.

- or -

Click **OK** to start the conversion.

You are informed of the status of conversion on the status bar, where any conversion risks are indicated by error messages. The **Conversion** dialog box remains open in the background.



If you want to perform another conversion, select another series in the **Patient Browser** and start conversion. For more information, refer to: (→ Page 132 *Starting Data Set Conversion*)

Ending Data Set Conversion

- Select **Applications > Close Conversion** from the menu of the **Patient Browser** to quit **Data Set Conversion**.

1.8 File Browser

The **File Browser** provides a capability to access and to manage a well-defined part of the file system of **Somaris/7**.

The **File Browser** is used for the following procedures:

- Transferring DICOM images to the CDBurn folder
- Accessing generated reports and AVIs
- Transferring raw data

The following functionalities are described in the subsequent sections:

- Calling up the **File Browser**
- Opening Files and Directories
- Transferring Files and Directories

- Transferring CT Data
- External Accessing to a File Share
- Deleting, Cutting, Copying, and Pasting Files and Directories
- Renaming or Creating New Folders
- Closing the **File Browser**



If you are not familiar with the basic functionalities of the *syngo* software, refer to: (→ Page 11 *Basic Functionalities*)

1.8.1 Calling up the File Browser

◆ Select **Options > File Browser** from the main menu.

The **File Browser** opens.



You can call up only one instance of the **File Browser**.

1.8.2 Opening Files and Directories

◆ Select **File > Open** from the menu of the File Browser.



You cannot open files that would endanger the system (for example, executable files).

1.8.3 Transferring Files and Directories

1 Select the desired file or directory.

2 Select **File > Send to > Burn Folder** from the menu of the File Browser to copy the selected file or directory to the CDBurn folder.

- or -

Select **File > Send to > USB Storage Device** from the menu to copy the selected file or directory to a USB device.



3 Click the **USB** icon in the status bar to eject the USB device.

In case data is not available after a DICOM data transfer, you are recommended to read the actual DICOM conformance statement. There you find information on DICOM structures and features.

Please ensure that the data was completely written prior to removing the USB device.

1.8.4 Transferring CT Data

You can export or import CT data to or from a standard location of the file system. This standard location is the same directory used for import and export of the CT data.

1 Select **CT Data Transfer > Set as Export Root** from the menu of the File Browser.

The currently selected directory is defined as export directory. You may select any directory visible in the File Browser. Configure a suitable export directory before starting the export.

2 Select **CT Data Transfer > Raw Data Compression** from the menu of the File Browser to activate or deactivate the data compression.

3 Select **CT Data Transfer > Show Export Root** from the menu to unfold the file browser tree to show the marked export directory.

4 Select one or more "*.CTR", or "*.PTR" files and select **CT Data Transfer > Import** from the menu of the File Browser.

The names of the selected "*.CTR", or "*.PTR" files are sent to a job manager.

5 Select **CT Data Transfer > Anonymous Export** from the menu to enable or disable the anonymization of CT raw data sets during export.

1.8.5 External Accessing to a File Share

You can access a file share of your CT scanner from an external PC.

1 Open the Windows Explorer of the external PC.

2 Select **Tools > Map Network Drive...** from the main menu.

The dialog box **Map Network Drive** opens.

3 Select the letter you want to assign to the mapped drive from the **Drive** selection list.

4 Enter [Name of your CT scanner]/SiteData in the **Folder** entry field.

5 Click **Different user name**.

6 In the dialog box displayed, log in as meduser with meduser1 or with a password you selected.

7 Click **OK**.

8 Click **Finish**.

The file share appears in your Explorer and you can access the files.



You can only view the files, you cannot modify them.

1.8.6 Deleting, Cutting, Copying, and Pasting Files and Directories

You can delete, cut, copy, and paste files and directories in the **File Browser**. You can also move files and directories within the **File Browser** via drag-and-drop.



Be aware to delete only files with the extension “ptr”. To delete other files or folder may disrupt your external system.



You cannot delete, rename, or transfer directories and files installed by default.

- Right-click the selected file or directory and choose the desired option from the context menu:

  Click **cut** to relocate the selected file/directory.

Click **copy** to create a copy of the selected file/directory when pasting it.

Click **paste** to insert the file/directory into the selected directory.

Click **delete** to delete the selected file/directory after confirming a corresponding notice window.

Using the **File Browser** for deleting files or directories is only possible in the directory **H:\SiteData** and its subdirectories.

1.8.7 Renaming or Creating New Folders

- Select **File > Rename** or **New Folder** from the menu of the **File Browser**.

1.8.8 Closing the File Browser

- Select **File > Exit** from the menu of the **File Browser** to close the **File Browser**.

1.9 Camtasia

Camtasia is a separate software tool to film your desktop activities. Use it only for postprocessing.

You can save these recordings as AVI files for documentation and presentation purposes.

The recorder is available on both the *syngo* Acquisition Workplace and the *syngo* CT Workplace.

To ensure an accurate run of the single **Camtasia** functionality, only start one action at a time.

After the installation of the **Camtasia** software, new menu entries are added to the main menu of any task card and the **Patient Browser** menu.

You find additional information about the **Camtasia** recorder by clicking the **Help** button.

The following functionalities are described in the subsequent sections:

- Opening the Camtasia Recorder
- Capturing a Video
- Saving the Video File
- Workflow Example

Safety advice

CAUTION

Using results from Camtasia for diagnosis or reading!

Wrong diagnosis due to inadequate image quality.

- The results from Camtasia are only intended to be used for training and communication.

CAUTION

Due to Camtasia screen capturing, the data disk fills up!

Examination is no longer possible or examination may be aborted.

- Only use Camtasia for short recording sequences. Do not use Camtasia for recording in parallel to the acquisition.

1.9.1 Opening the Camtasia Recorder

First you open the **Camtasia Recorder** for capturing.

1 Select **Applications > Desktop > Camtasia Recorder**.

The **Camtasia Recorder** dialog box opens.



The entire **Camtasia Recorder** dialog box and the menu of the **Camtasia Recorder** dialog box is visible only if the **Standard** view is selected. By default **Minimal** is selected and only the title bar and the icon bar is displayed.

2 Click the **Toggle View** dropdown list and select **Standard**.

1.9.2 Capturing a Video

The following functionalities are described in the subsequent sections:

- Calling up the Camtasia Recorder
- Selecting the capture area
- Starting capturing
- Pausing capturing
- Stopping capturing
- Deleting the current video
- Adding annotations and effects during recording

Calling up the Camtasia Recorder

For capturing a video, call up the **Camtasia Recorder**.

◆ Select **Applications > Desktop > Camtasia Recorder**.

The **Camtasia Recorder** dialog box opens.

Selecting the capture area

You can select the capture area by clicking the arrow button next to the **Record** button.

1 Select **Screen** to capture the entire screen.



A bullet in the dropdown list shows you the currently selected capture area. When you pass over selectable areas they are highlighted.

- or -

Select **Window** to capture a selected object in the screen, e.g., a screen segment, dialog box, subtask card, etc.

2 After clicking the **Record** button, click into the selected object to capture it.

- or -

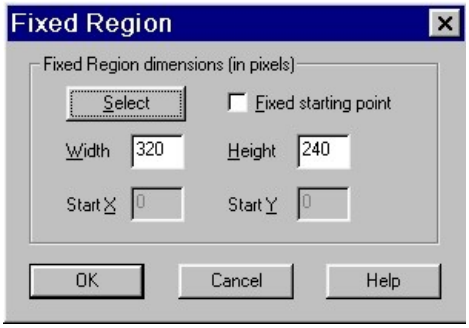
Select **Region** to capture a user-defined region.

3 After clicking the **Record** button, click and drag the mouse cursor over the area you want to capture.

- or -

Select **Fixed Region...** to capture a pre-defined region.

The **Fixed Region** dialog box is displayed.



4 Define the size of the fixed region using the options in the **Fixed Region** dialog box.

Starting capturing



1 Click the **Record** button in the toolbar after selecting the capture area to start capturing.

- or -

Press **F9**.

During recording process, the **Camtasia Recorder** dialog box is visible. You can move the dialog box as far as possible out of the region of interest to make sure that you do not capture it in the video.

2 Click the top of the dialog box, and keep the mouse button pressed while moving into another screen area.

If you selected either **Window** or **Region** as your capture area, click the **Record** button, and mark the area you want to capture.

Calling up the minimized Camtasia dialog box

If you minimized the **Camtasia** dialog box, you cannot reopen it as usual.

- Select **Applications** > **Desktop** > **Camtasia Recorder** to reopen Camtasia.

Pausing capturing

You can pause the capturing process.



- Click the **Pause** button in the toolbar to pause the capturing process.

  - or -

  Press **F9**.

Stopping capturing



- Click the **Stop** button in the toolbar to stop capturing.

  - or -

  Press **F10**.

Deleting the current video

You can delete the captured video.



- Click the **Delete** button in the toolbar to delete the currently captured video.

  The recording pauses and a message box is displayed.

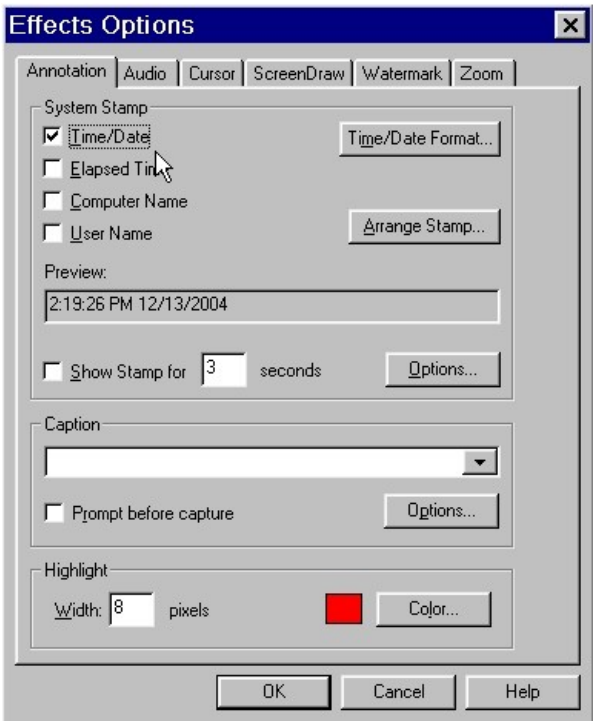
After confirming the message dialog box any captured frames are discarded.

Adding annotations and effects during recording

During AVI recording, you can add various annotations and effects to the file, which is being recorded.

1 Select **Effects > Options** to define several options.

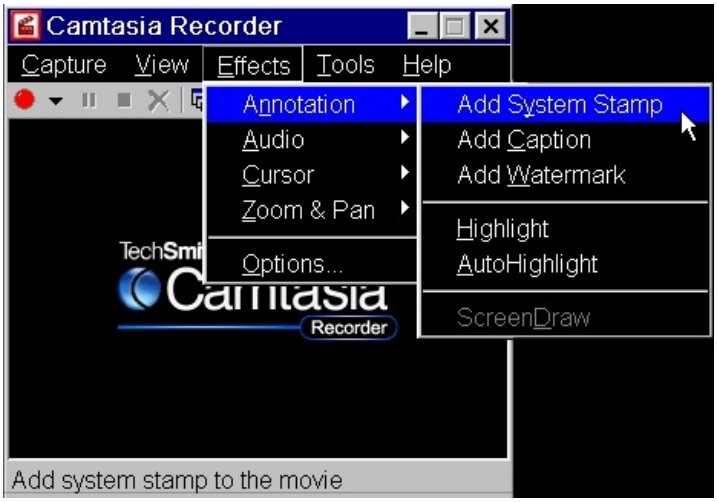
The **Effects Options** dialog box opens.



2 Add the features you want to be displayed in your video.

You can add following features to your video:

- Date and time
- Caption
- Watermarks
- Auto-/highlights
- Cursor effects
- Audio effects
- Zoom & pan effects



3 Select the corresponding menu entry in **Effects** to activate the features.

1.9.3 Saving the Video File

During recording, the video is stored as AVI file. It is stored automatically in your offline file system under **H:\SiteData**.

Safety advice

CAUTION

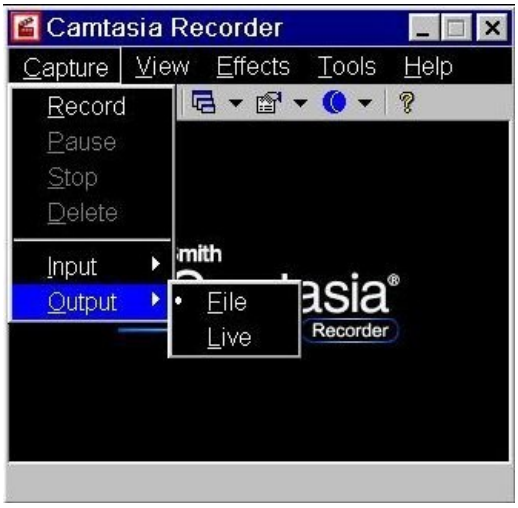
Using another directory for Camtasia data files!

Data disk is full and no further examination possible. You cannot delete files any more.

- Use only the configured directory for saving the Camtasia data files.

Defining the output options

You can define the output options of the captured video.



1 Select **Capture > Output > File** to save the captured video as AVI (video) file.

2 Select **Tools > Options > File** to set the name and the location of the video file to run automatically.

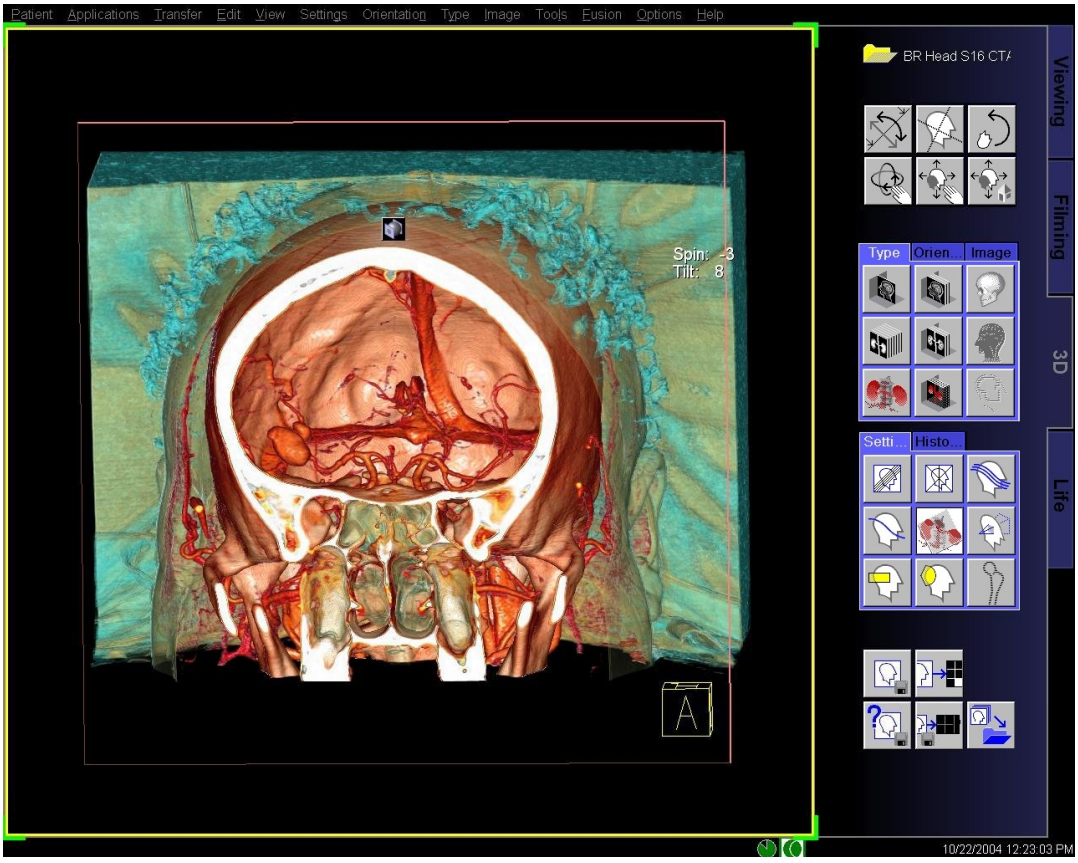
The AVI files you create, are imported, or edited in any third-party application that supports the AVI format.

1.9.4 Workflow Example

You can record your desktop activities on any application card.

1 Load a CT Head Angiography data set into the **3D** task card.

2 Apply a VRT preset on this data set.



3 Select **Applications > Desktop > Camtasia Recorder**.

The **Camtasia Recorder** dialog box opens.

4 Select the capture area.



5 Click the **Record** button in the toolbar.

6 Click into the segment you want to record your desktop activities in.

Recording starts.

7 Start working in this segment.



8 When you finished, click the **Stop** button in the toolbar to stop recording.

1.10 *syngo* Security Package

With the *syngo* Security Package (Health Insurance Portability and Accountability Act (HIPAA)), *syngo* provides competent user management and highly configurable access control. These features implement privacy, integrity, and consistency of patient data in health care, which may be required by country-specific regulations.

For security reasons, only authorized persons have access to sensitive data, such as diagnostic images, results, or reports. The system administrator notifies you about your user account and password.

syngo allows you to work only with the data and functions that you are authorized to use.

CAUTION

Behavior of secured systems. The hospital's security policy affects the behavior of the *syngo* system. For example, password strength requirements, enabled empty passwords, or locking of an account after a specific number of failed logins!

Inaccessible system or data.

- Establish a user model for your hospital and verify it before the security system is activated.
- Establish a proper procedure for emergency access.
- Note that if you enable an empty password for the emergency account, this is enabled for all other users as well. Nevertheless, instruct the users to use strong passwords.
- Always back up your system before enabling the security system and before any major changes.
- Inform all users about any changes and settings. Contact the administrator immediately in case of problems.

Pay attention to the storage capacity of the hard disk displayed by icons in the status bar of the task cards. If necessary, at the latest when the red icon occurs, inform your system administrator to archive the Audit Trail.

The Audit Trail logs your identity and all activities you perform on sensitive data.

If you configure the screen saver under **Options > Configuration...** a reboot is necessary afterwards so that it functions correctly.

The following functions are described in the subsequent sections:

- Logging On and Off
- Changing the Password
- Generating a Service Password for Local Access

If you are not familiar with the basic functionalities of the *syngo* software, refer to: (→ Page 11 *Basic Functionalities*)

1.10.1 Logging On and Off

The following functions are described in the subsequent sections:

- Logging on
- Sharing the workstation with other users
- Logging off temporarily
- Logging off

Safety advice

CAUTION

Switch user, shut down, logoff or restart without saving data!

Possible loss of unsaved changes.

- Save data before switching user, shutting down, or restarting the system.

CAUTION

Switching off the computer in Standby mode or without shutting down!

Possible loss of data, data corruption or system damage.

- Shut down the computer before switching off.

Logging on

Except for emergency access, you are only allowed to work with a *syngo* workstation if you are logged into your personal user account.

1 Type in your user name and password to log on to a workstation.

A warning message appears.

2 Read the message thoroughly.

3 Click the **OK** button.

After confirming the message box, you get access to the *syngo* application.

In emergency cases you can log on under the general emergency account, depending on the security configuration. The system administrator supplies you with account name and password.

Sharing the workstation with other users

You can share the workstation with other users.

1 Select **System > End** to open the **End Session** dialog box.



2 Click the **Log in Different User** icon to switch the user at your workstation.

If HIPAA is activated, you can view the privileges of the current user by selecting **Options > Security > View...** and then the **Privileges** tab card.

Logging off temporarily

You can log off for a longer period without quitting your session.

1 Select **System > End** to open the **End Session** dialog box.



2 Click the **Lock Computer** icon to lock your computer for a longer period without quitting your session.

Running tasks are completed in the background.

Logging off and on again to the *syngo* Acquisition Workplace is not possible during a patient examination.

Logging off

You can close all patient data, and all applications to ensure secure user management before logging off.

1 Select **System** > **End** to open the **End Session** dialog box.



2 Click the **Log off** [user name] icon to log off if you finished your work.

1.10.2 Changing the Password

You are recommended to change the password assigned by the administrator.

1 Select **System > End** to open the **End Session** dialog box.



2 Click the **Change Password** icon to change your password.

3 Enter the old password for authentication.

4 Type the new password and repeat the new password for verification.

1.10.3 Generating a Service Password for Local Access

To allow local service activities without a personal account, the system generates a temporary service password for the general **LocalServiceUser** account.

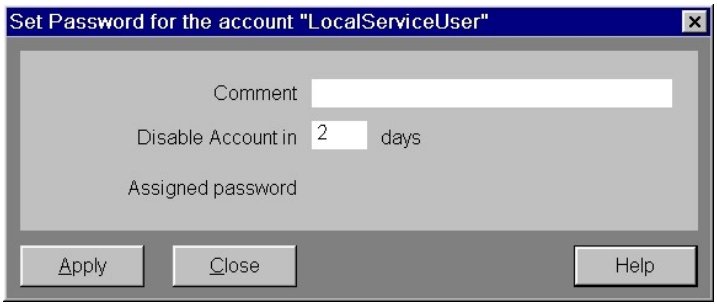
Using the temporary service password, a service technician can log on to the computer under the **LocalServiceUser** user account.

Generating a temporary password

You can generate a temporary password.

1 Select **Options > Service > Service Account** from the main menu of any task card.

The **Set Password for the account "LocalServiceUser"** window is displayed.



You need the privilege **EnableServiceAccount** to use the **Service User** menu item.

2 Enter the reason for a service access and the name of the service technician in the **Comment** field.

3 Enter the expire period in days.

4 Click the **Apply** button to generate the password.

The generated password is displayed next to **Assigned password**.

5 Note the password.

6 Click the **Close** button to end.

7 Keep the password confidential and pass it only to the service technician.

You can change the password with double-clicking on the **LocalServiceUser** account in the **syngo Security Configuration** window. The **syngo Security Configuration** window opens if you choose **Options** > **Configuration** from the main menu.

1.11 Software Remote Update Handling

Siemens has established a software remote update process to provide software updates as early as possible.

The software update package is transferred onto the CT system using the secure and certified Siemens Remote Service (SRS) infrastructure.

Make sure that your remote connection to the Siemens Remote Service infrastructure is always active and running. Otherwise your system will not receive the latest updates.

Depending on the content and the urgency of a software update, Siemens provides update packages that are executed during system operation and ones that are executed during system start-up:

- Updates executed during system operation
- Updates executed during system start-up

Updates executed during system operation



While the system is running, an icon is displayed in the status bar.

- The icon is used for updates to be installed during system operation to ensure that the update is executed in time (for example, virus pattern updates).
- The installation of the update is recommended between two patient examinations.
- Clicking the icon opens the **Software Distribution / Installation** dialog box.

Updates executed during system start-up

While the system is shutting down, a message box indicates a software update for the next system start-up.

- The message box informs you about the number of packages that will be installed and the time the installation will take.
- During the next system start-up, the **Software Distribution / Installation** dialog box will automatically be displayed.
(→ Page 153 *Installing the update package*)

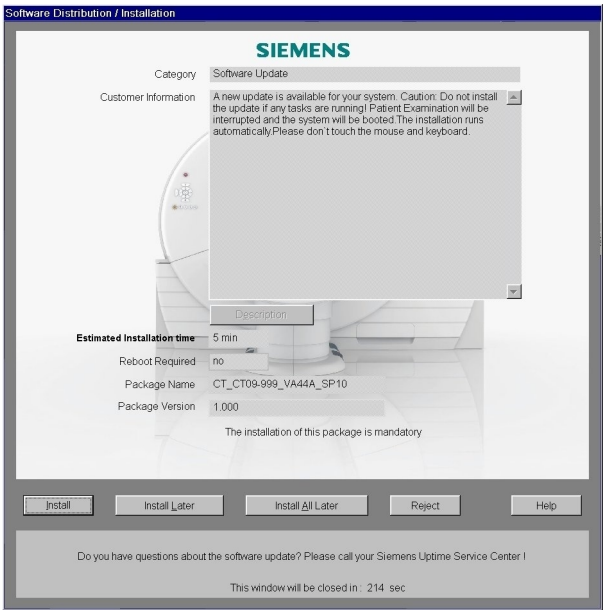
The following functionalities are described in the subsequent sections:

- (➔ Page 153 *Installing the update package*)
- (➔ Page 154 *Completing the installation*)
- (➔ Page 155 *Deferring the installation*)

1.11.1 Installing the update package

The installation process of updates executed during system operation and updates executed during system start-up is the same.

The **Software Distribution / Installation** dialog box is displayed.



The **Customer information** field contains information on the new software package.

- Click **Install** to install the new update package immediately.

  Installation starts and its progress is displayed.

If you do not click any button in the **Software Distribution / Installation** dialog box, it is closed automatically after a certain time period. The time remaining is displayed in its lower area.

In case the scheduled update was missed during system start-up, a **Software Distribution / Installation** message box will be displayed after system start-up. It informs you that a new software update package will be available for installation during next system start-up.

1.11.2 Completing the installation

After completing the installation, you receive a corresponding message.

- Click **OK** to close the **Software Distribution / Installation** dialog box.

  The following icons indicate the installation result:

	Installation was successfully completed.
	Installation failed with successful software rollback. The system has not been updated but can be used for patient examination.
	Installation failed, and software rollback was not successful. The system cannot be used for patient examination.

If the installation did not complete successfully, contact your local service.

You can view the installed update packages as well as the update packages that are available for installation in the **Software Distribution** dialog box. You can open the dialog box by choosing **Options** > **Configuration** from the main menu and double-clicking the **Software Distribution** icon.

1.11.3 Deferring the installation

- Click **Install Later** if you do not want to install the new update package immediately.

  - or -

  Click **Install All Later** if you do not want to install any new update packages.

  The **Software Distribution / Installation** dialog box is closed without installation.

If the **Reject** button is displayed, you can reject the installation of the new update package. The **Software Distribution / Installation** dialog box is closed without installation. The update package will not be offered again.

1.12 Siemens Virus Protection

Siemens took preventive measures to keep computer viruses off your CT system.

Nevertheless, data transmission within the clinic network or from external data media (for example, CD-ROM) can lead to virus infections on your CT system.

The virus scanner is used to detect viruses as early as possible and thus avoid major damage.

The virus scanner continuously checks files on the system for known viruses.

As long as no virus is detected, it runs entirely in the background. Your clinical work on the SOMATOM CT scanner is not affected.

As soon as a virus is detected, a message pops up including information on how to proceed.

Please contact your local Siemens Service, if you wish to order Siemens Virus Protection. Before it can be applied, Siemens Service must activate and configure it.

The following functionalities are described in the subsequent sections:

- Virus Infection
- Update Handling

If you are not familiar with the basic functionalities of the *syngo* software, refer to: (→ Page 11 *Basic Functionalities*)

Safety advice

CAUTION

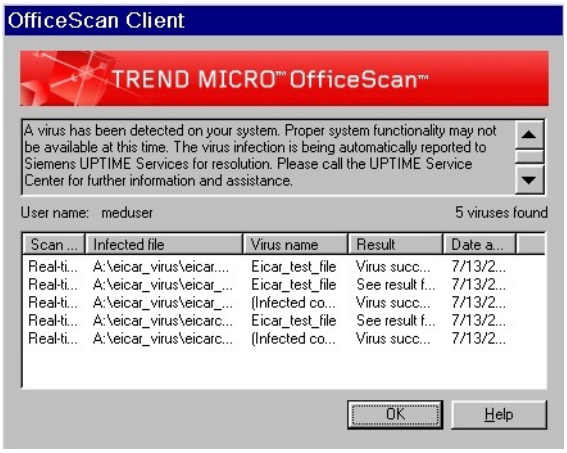
System infected by computer virus!

Manipulation of the software.

- *Never* use a data medium that could contain a computer virus, for example game CD.
- Check disks for viruses *before* using them.

1.12.1 Virus Infection

If the virus scanner detects a virus, a message window is displayed.



1 Click **OK** to close the message window.

2 Contact Siemens Uptime Services to receive all relevant information about this virus, before using your system again.

The information about the infection is automatically forwarded to Siemens Uptime Services.

1.12.2 Update Handling

The required updating of virus patterns and scan software is accomplished by remote updates.

Make sure that your remote connection to the Siemens Remote Service infrastructure is always active and running. Otherwise your system will not receive the latest updates.

The following functionalities are described in the subsequent sections:

- (→ Page 158 *Information about a new update package*)
- (→ Page 159 *Installing the update package*)
- (→ Page 160 *Failure of installation*)

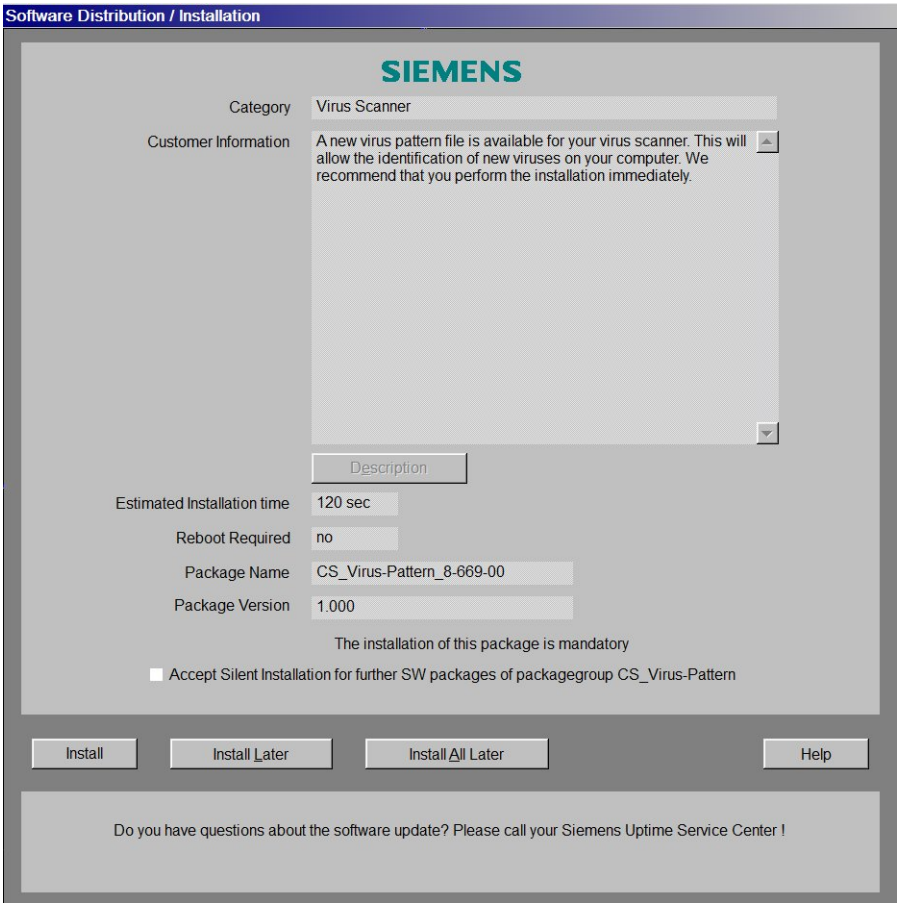
Information about a new update package

If a new virus pattern is downloaded, an icon occurs in the status bar of the screen. If a yellow exclamation mark is displayed next to the icon, we strongly recommended installing the update immediately after completing the current patient examination. For hotfix updates, the **Software Distribution / Installation** dialog box is displayed during system startup.



- Click the icon to install the update.

  The **Software Distribution / Installation** dialog box is displayed.



The upper part of the dialog box contains information on the new software package.

If you do not click any button in the **Software Distribution / Installation** dialog box, it is closed automatically after a certain time period. The time remaining is displayed in its lower area.

Installing the update package

You are recommended to carry out updates immediately after completing the current patient examination. If you have to postpone any updates, make sure that you catch up on them as soon as possible. Otherwise the virus scanner may not be able to detect new types of viruses. Hotfixes offer enhanced protection of your SOMATOM CT system.

If you want to install several new update packages, install them one by one.

As long as the new data is not installed yet, the icon in the status bar keeps blinking.

If you activate the **Accept Silent Installation for further SW packages of packagegroup...** option, all packages are installed silently.

1 Click **Install** to install the new update package immediately.

Installation starts and its progress is displayed.

If the installation was completed successfully, you receive a corresponding message.

2 Click **OK** to close the **Software Distribution / Installation** dialog box.

Deferring the installation

- Click **Install Later** if you do not want to install the new update package immediately.

  - or -

  Click **Install All Later** if you do not want to install any new update packages.

  The **Software Distribution / Installation** dialog box is closed without installation.



You can view the installed update packages as well as the update packages that are available for installation in the **Software Distribution** dialog box. You can open the dialog box by choosing **Options** > **Configuration** from the main menu and double-clicking the **Software Distribution** icon. In the **Software Distribution** dialog box, you can deactivate the silent installation.

Failure of installation

If the installation failed you receive a corresponding message.

Siemens Uptime Services search for the error cause and resolve the problem.

Nevertheless you can continue to use your CT system without restrictions.

1.13 SaveLog

For service purposes and better error investigation, the **SaveLog** function allows you to save relevant data.

Only Siemens Service has access to the file for evaluation purposes.

The generation of the savelog backup takes place in multiple stages.

1.13.1 Using the SaveLog Function

You can use the **SaveLog** function to save relevant data.

Generating a savelog backup file

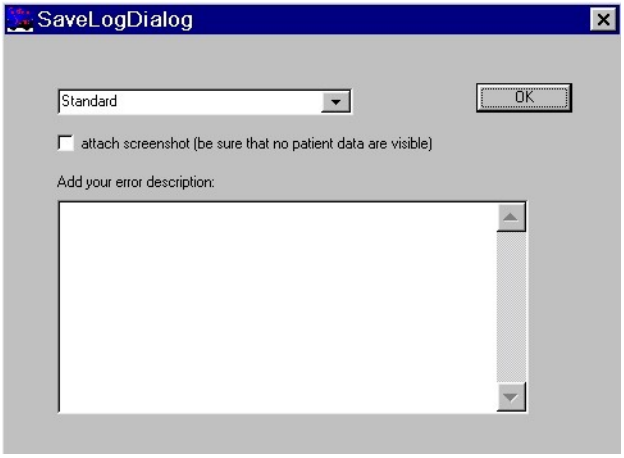
1 Press **Ctrl** + **Alt** + **s** to save all log files and information to a savelog backup file.

A dialog box is displayed.



A savelog file is generated in case the system is not responding anymore or a malfunction appears.

After the backup generation, the **SaveLogDialog** dialog box is displayed.



2 Depending on the files you want to add, select a category in the drop-down list.

You can select the following categories in the drop-down list of the **SaveLogDialog** dialog box:

- **Applications** (problems with applications)
- **HangUp of system** (after bluescreens or system hangup, also after rebooting)
- **SelfTest** (result files of the self-test)
- **Standard**(general problems)
- **UI freeze** (problems with the user interface)
- **Hardware** (obvious problems with the tube or other hardware components)
- **IRS** (problems with or during image reconstruction)
- **Service** (problems with the service program used by service technician)
- **Security** (files of the security system)

3 Check the **attach screenshot** checkbox to add a screenshot to the savelog backup. Make sure that no patient data is visible.

   A screenshot of the active screen is made when the checkbox is activated.

4 Add an error description in the text field if you want to.

5 Click the **OK** button to confirm your selection.

6 Notify the Siemens Service.

1.14 IRS RAID

Raw data are stored on a redundant array of independent disks (based on RAID level 4).



If one of the redundant disks of the RAID system is disabled, a message box informs you about it. Nevertheless, you can continue your work. Additionally an icon is displayed in the status bar on the *syngo* Acquisition Workplace showing a disabled disk.

After closing the message box, the icon is still displayed indicating the status of the disks.

The message box is displayed in the following case:

- After the examination, if a redundant disk is disabled the first time
- The Scan UI is restarted and a redundant disk is disabled
- No patient is loaded

If you have a pro-active remote connection, the Siemens Service is informed automatically about the decreased reliability.

Please contact the Siemens Service.

1.15 *syngo* Remote Assist

syngo Remote Assist allows the Siemens customer service to access and to control your *syngo* CT system from outside the network. The service technician or application specialist has access with a remote connection via Wide Area Network (WAN).

Service technicians or application specialists can support local users at any *syngo* Workplace, accessing the *syngo* Workplace remotely with a single-session password. It enables the simultaneous operation from the *syngo* Workplace as well as from the remote computer.

The software provides full-screen display and allows the remote user to use all *syngo* Workplace functionalities, for example:

- Viewing and filming images
- Exporting data
- 3D reconstruction
- Data processing

If the *syngo* Security Package is available, you can switch to a user account with fewer rights. Thus, you can ensure that your data is protected before you grant the remote user access to the *syngo* Workplace.

You can only establish either a *syngo* Remote Assist connection or a *syngo* Expert-i connection on your *syngo* Workplace at the same time.

The following functionalities are described in the subsequent sections:

- Establishing the connection
- Disconnecting remote assistance

If you are not familiar with the basic functionalities of the *syngo* software, refer to: (→ Page 11 *Basic Functionalities*)

1.15.1 Establishing the connection

If you need help or support from a Siemens service technician or application specialist, the technician can access the *syngo* Workplace via the secure Siemens Remote Service (SRS) environment.

The following functionalities are described in the subsequent sections:

- Activating a single connection
- Activating a multi-user access
- Granting full access
- Restricting access

Safety advice

CAUTION

Service session, for example, with limited access, running in parallel to data acquisition!

Dialog box may appear and cause confusion.

- Always close Service UI when work is done; do not minimize it.

CAUTION

Remote and uncontrolled patient movement!

Possible injury of the patient by moving parts.

- Do not leave the *syngo* Acquisition Workplace unattended if full access is enabled. Local user still has full responsibility for appropriate usage of system.

Activating a single connection

For remote access, the service technician or application specialist has to log in to the *syngo* Workplace. The service technician or application specialist generates a password for this purpose.

If the *syngo* Security Package is available, the external access and the sessions are entered into the audit trail.

1 Notify the Siemens customer service that you need support.

If a remote connection via *syngo* Remote Assist is required, the service technician or application specialist generates a single-session password: the session number.

2 Select **Options** > **Service** > **syngo Remote Assist...** from the main menu at the *syngo* Workplace.

The **syngo Remote Assist** dialog box opens.

If there are sensitive data on your system, a corresponding message box is displayed, referring to privacy rules for these data.

3 Enter the session number in the **Session Number** entry field.

4 Click the **Login** button to activate the connection.



If remote assistance has been started successfully, the single connection tray icon appears in the status bar. The service technician or application specialist has access to your system in **View Only** mode. The service technician or application specialist can only point to items on the screen with a separate mouse cursor.

You can click the tray icon at any time to get all information on the current connection.

If a remote connection could not be established, a corresponding message box is displayed. In this case, contact your service technician or application specialist.

Activating a multi-user access

You can grant access to several service technicians or application specialists at the same time.

If another service technician or application specialist wants to access your system, the single connection tray icon in the status bar starts blinking.



1 Click the single connection tray icon in the status bar.

A corresponding request appears in the **syngo Remote Assist** dialog box.

2 Click the **OK** button if you agree to further access.

- or -

Click the **Cancel** button to cancel the dialog box and refuse the request.



If remote assistance is started successfully, the multiple connections tray icon is displayed in the status bar. Another service technician or application specialist has access to your system in **View Only** mode. The service technician or application specialist can only point to items on the screen with a separate mouse cursor.

Granting full access

You can grant access to your *syngo* Workplace either in **View Only** mode or in **Full Access** mode:

- **Full Access** mode: The whole screen is visible without restrictions. The service technician or application specialist can operate your system.
- **View Only** mode (default): The remote user is not able to perform keyboard or mouse actions. The remote user can only point to items on the screen with a separate mouse cursor.

If any technician wants to take over your system, the current remote assistance tray icon in the status bar starts blinking.

1 Click the tray icon in the status bar.

  A corresponding request appears in the **syngo Remote Assist** dialog box.

2 Click the **OK** button if you agree to grant full access.

  - or -

  Click the **Cancel** button to cancel the dialog box and refuse the request.

  If transferring control access is started successfully, the remote user can operate the system. Only one remote user can operate the system at the same time. If you allow a remote user to operate the system, another remote user who is operating the system will lose control automatically.



If dual monitor mode is activated, only one of the monitors may be displayed on the remote computer.

To switch between the primary and the secondary monitor in **Full access** mode, press **Ctrl** + **Shift** + **U** either on the CT system or on the remote computer. In **View only** mode, you can switch between the two monitors on the CT system only.

Restricting access

You can switch back to the **View Only** mode at any time during the session.

1 Click the tray icon in the status bar.

  The **syngo Remote Assist** dialog box opens.

2 Click the **View Only** button.

- or -

Press **Ctrl** + **Alt** + **Backspace** on your keyboard.

The service technician or application specialist has **View Only** access to your system.

1.15.2 Disconnecting remote assistance

You can terminate the remote session at any time. If the connection is inactive for a certain time, the connection is canceled automatically.

Safety advice

CAUTION

Terminating remote service without consultation with the service engineers!

Terminating the remote service ends all service processes and may cause system malfunctions.

- Always coordinate termination with the service engineer before terminating the remote service.

1. Click the remote assistance tray icon in the status bar to open the **syngo Remote Assist** dialog box.
2. Click the **Disconnect** button.

   - or -

   Press **Ctrl** + **Alt** + **Del** on your keyboard to terminate the connection immediately.

   - or -

   Press **Ctrl** + **Alt** + **Backspace** on your keyboard to terminate the connection immediately.

Because this shortcut also switches from **Full Access** mode back to **View Only** mode, you have to press this shortcut twice if you are in **Full Access** mode.

The connection to the service technician or application specialist is disconnected, and the remote assistance tray icon disappears.

The service technicians or application specialists can also disconnect the remote assistance. If you have established a multiple connection, and one of the remote users disconnects, the tray icon changes to the single connection tray icon.

1.16 Known Issues and Solutions

Known Issues and Solutions provides you with additional information on examinations, applications and your system.

The following functionalities are described in the subsequent sections:

- General Hints
- Reporting
- Storing and Networking
- Applications
- Additional Information for Operation
- Native Language Support

If you are not familiar with the basic functionalities of the *syngo* software, refer to: (→ Page 11 *Basic Functionalities*)

1.16.1 General Hints

In this chapter, you will find information on the common *syngo* applications.

The following functionalities are described in the subsequent sections:

- Patient Browser
- Viewing

- Filming
- 3D

Patient Browser

On the following pages, you will find additional information on the **Patient Browser** together with workarounds, if possible.



For more information on the available workarounds, refer to:
(→ Page 170 *Loading a series to a task card*)

Correcting the patient position

If a series has been sent to the PACS, changing the patient position with **Edit** > **Correct Patient Position** leads to data inconsistencies.

Do not change the patient position after sending a series to the PACS.

Using the function Correct & Rearrange

Do not use the **Total injection dose** entry field on series and image level. The values are not taken into account correctly by the system.

Loading images in Dual Monitor mode

If the **Patient Browser** is opened on the second monitor, it is only possible to load the images via drag-and-drop on the primary monitor. You can also move the dialog box of the **Patient Browser** to the first monitor and load the images via double-click.

Loading a series to a task card

If you perform the following procedures, it may happen that a series is not loaded in any task card or the series is loaded in two task cards:

- You have selected the option **Close after loading**.
- You load a series via doubleclick from the **Patient Browser** into a task card.
- You change the task card fast afterwards.

◆ Do not change to another task card right after loading a series.

Viewing

On the following pages, you will find additional information on **Viewing** together with workarounds, if possible.



For more information on the available workarounds, refer to:
(→ Page 171 *Changing image text configuration*)

Configuring windowing values

If more than 50 organ windowing values are configured, the scroll down icon is not visible at the bottom of the list of the **Windowing** menu.

Changing image text configuration

1 Do not load additional images into **Viewing** after changing the image text configuration (for example, from **Customized Text** to **All Text**) if you are using the 1:1 layout.

The image text displayed in **Viewing** might be a mixture of **Customized Text** and **All Text**. The images are correctly displayed on the film sheet or in the PACS.

2 Close the patient and reload all images if you want to view further images in the 1:1 layout after changing the image text configuration.



You can also select the whole series in **Viewing** and then the desired text configuration.

Interrupting 2D Viewing tool operations

Tool operations, which need more mouse clicks, for example, **Angle**, **Freehand ROI**, are not interruptible by mouse operation.

- Use the **Esc** key on your keyboard.

  After finishing these kinds of operations, you can select another tool or switch off the tool.

Filming

On the following pages, you will find additional information on **Filming** together with workarounds, if possible.



For more information on the available workarounds, refer to:
(→ Page 172 *Display of the Window Center value*)

Histogram

The shape of the histogram of a ROI and the notation of the axis in the 2D viewer, e.g., **Viewing**, is different when copied to the virtual film sheet.

Changing the film layout

It is not possible to change the film layout of film sheets with different layouts at the same time. You can only change the film layout for selected images or series if they have the same layout. Otherwise, you have to unify the layout of the selected images first before changing the layout.

Display of layout names

In the Layout list box, layout names with more than 10 characters are displayed incompletely.

Display of the Window Center value

If you perform a 3D calculation, and send the images from **3D** to **Filming**, it may occur that the Window Center value on the film sheet is automatically changed to 0.

- Reload the images to **Filming**.

Sending images with evaluation text to the film sheet

If you add image text or perform measurements close to the image segment border, both might not be visible anymore after sending to the film sheet.

- Reposition the evaluation and the image text, or change the image zoom.

3D

On the following pages, you will find additional information on **3D** together with workarounds, if possible.



For more information on the available workarounds, refer to:
(→ Page 172 *Dilating objects*)

Changing the Slice Thickness

The slice thickness can be selected in the range dialog boxes (parallel, radial, curve) and the filter thickness dialog boxes, for example MPR. You can select it with the precision of one decimal place. In some cases, the calculation of the planar slices is more precise. The slice thickness in the image segment is displayed with two decimal places.

Undoing steps during Bone Removal

During step 2 of bone removal, you can define additional structures as bone or non-bone.

If a **3D: Warning** dialog box pops up and you confirmed with **OK**, it is not possible to return to the starting point by clicking the **Undo** or **Undo All** icon. Therefore, it is not possible to undo a reprocessing of data.

Dilating objects

If you start calculation via **Settings** > **Editor Region Growing**, **Editor Object Punching**, or **Editor Morphological Operations** from the main menu, it may occur that calculation stops. The progress bar pauses, and a warning message is displayed: **Not enough memory available, please try closing other applications or unloading some images.**

1 Confirm the dialog with **OK**.

2 In case the progress bar still pauses, select **Settings** > **Editor Region Growing**, **Editor Object Punching**, or **Editor Morphological Operations** again from the main menu.

The progress bar disappears and calculation continues.

Copying images to the film sheet without reference lines

If you copy images to the film sheet, the reference lines displayed within the reference image may not be correct. All reference lines of all slices may be displayed.

If you want to get a film sheet without reference lines, you need to disable the configuration options.

1 Select **Options** > **Configuration...** from the main menu.

2 Double-click the **3D** icon.

3 Select the **Ranges** tab card and disable the options **Include the reference image when saving ranges or curved cuts** and **Include the reference image when filming ranges or curved cuts**.

4 Click the **OK** button.

Setting up parallel ranges

If the **Constant number of images** icon is deactivated, it may occur that the **Distance between images** value will be changed by the system after clicking the **Start** button.

1 Enable the **Constant number of images** icon.

2 Set the **Distance between images** value.

3 Click the **Start** button.

4 Disable the **Constant number of images** icon and click the **Start** button again.

1.16.2 Reporting

On the following pages, you will find additional information on reporting together with workarounds, if possible.



For more information on the available workarounds, refer to:
(→ Page 174 *Opening reports*)

Opening the SR Viewer

If you call up the SR Viewer for data sets created by **Calcium Scoring**, **Circulation**, **LungCARE**, or **Oncology**, automatically the associated style sheet is used. For other data sets, the SR Viewer uses a generic style sheet.

Modifying flags

If a field (flag) has been modified, select another field with the cursor before saving. Otherwise, the changes will not be saved.

Opening reports

- Double-click the report in the **Patient Browser** to open it.

If you double-click a series, the series may be loaded into the active task card application.

Importing images

In the report configuration only logos with three letter file extensions (*.jpg, *.png and *.bmp) can be imported. Logos with the file extension *.jpeg cannot be imported.

- Rename *.jpeg files accordingly before importing them.

Printing Structured Reports (SR)

It is not recommended to use the **File** > **Export** > **PDF** menu entry to print out structured reports in the SR Viewer.

- Select **File** > **Print...** from the main menu.

1.16.3 Storing and Networking

On the following pages, you will find additional information on storing and networking together with workarounds, if possible.

For more information on the available workarounds, refer to: (→ Page 176 *Sending a report to a network node*)

Transferring data to a non-*syngo* system

If you transfer data sets from a *syngo* to a non-*syngo* remote node, information that had been added to the data in **Viewing** may not be displayed on the non-*syngo* system.

Import from DVD

The import of data from a DVD may be slower than from CD-R if the DVD is filled only with a few data. When saving small volumes of data, it is recommended to use a CD-R. If the DVD is filled up with more data than the capacity of a CD-R, the import performance of a DVD is good, too.

Exporting images

For reasons of data protection, it is recommended not to create folders under the patient name in offline directories when exporting images.

Sending lossy compressed images to a network node

If lossy compressed images are sent to a network node, and the same instances are already stored uncompressed on that network node, the newly sent images will appear as duplicates in the database.

Archiving data

The saving of patient and examination data to local exchangeable data media via the **Archive to...** function is not possible anymore. It is still possible to save data to a data medium with the **Export to...** function.

Loading patients from PACS

If you load another patient from PACS, you have to wait until the first loading process has been finished. Meanwhile, you can choose **stop import**.

It is not possible to select another patient for retrieving (importing). Also it is not possible to select two or more patients for importing at once.

Storage commitment

Storage Commitment within a standard *syngo* configuration means storage on a hard disk.

Be aware of the fact that any end user can delete these objects.

Sending data to a network node

Avoid using duplicated node names during network configuration.

Sending or exporting data to DICOM node

When sending or exporting new large series (> 2000 images), and the series remains selected in the **Patient Browser**, the system can freeze for 5 s to 20 s. To avoid this, the study or the patient has to be selected in the **Patient Browser**. It is not sufficient to close the **Patient Browser**.

Transfer of compressed images

With fast network connections, the transfer of compressed images takes significantly longer than uncompressed. To assure full performance, you can deactivate the image compression.

Restarting an application

Before restarting an application while an **Archnet** job is active, delete the completed jobs in the **Local Job Status** dialog box.

Restrictions related to DVD-R

Note the following restrictions:

- Maximum number of sessions is limited to 30.
- The time of finalizing a DVD depends on the amount of data on the DVD. If the amount of essential data is less than 1 GB, the time to finalize may be several minutes.

Sending a report to a network node

If you send an SR-series to network node with images copied to the report before, it may occur that the images are not transferred.

- Also send the series including the images copied to report, to display the report correctly.

Importing images

If you try to import more than 10 000 images via DICOM, the import job is aborted. A misleading message is displayed in the status bar that the network job has been completed successfully. But if you look in the history of the status bar, you can see that the network job was aborted.

1 Do not import more than 10 000 images at the same time.

2 Check the history of the status bar to ensure that all images have been imported.

3 Import the missing images, if necessary.

CD Burn

When selecting **Record Off-line Files** to export images from the **Patient Browser** to CD a dialog box pops up asking for the label although **Record Off-line Files** is running. The CD is invalid after starting the export jobs and the files from the **CDBurn** folder are removed, but not burned.

1 Make sure that no other processes are accessing to the CD drive, e.g., burning patient data automatically on CD.

2 Do not start DICOM export to CD when **Record Off-line Files** is used.

The process of burning offline data takes time. When the process is finished, a message appears in the status bar.

Chinese characters in patient names

The patient name is omitted in the naming of the exported file if the patient name contains Chinese characters and the images acquired with a former software version are exported via **Export to offline**.

1 Export a single patient only.

2 Select **Options** > **File Browser** from the main menu to open the **File Browser**.

3 Create a file folder as target folder for exported files to identify clearly the exported file.

4 Correct the patient name in the offline directory immediately.

Exporting data in a new directory

It can happen, that it is not possible to export data to offline into a newly created directory.

- Reboot the system.

  After reboot, the directory can be created and the images will be exported into this directory.

No Medium inserted before auto job transfer

After an auto job transfer to DVD/CD was started when no medium was inserted, the **No Medium** dialog box pops up. The **Eject** buttons are dimmed.

1 Press the hardware button to open the DVD/CD drive.

2 Click the **OK** button in the **No Medium** dialog box.



Do not click the **Cancel** button because the job will go into error state.

Burning in Multisession mode

In Multisession mode, if you click the **Cancel** button in the **Medium full** dialog box, the job goes to failed state.

- Insert a new writeable CD and restart.

1.16.4 Applications

In this chapter, you will find further information on using the applications.



If you open any application while scanning, an error message may be shown which recommends to reboot the system. Although the application will not open, rebooting is not required. This behavior is intended not to disturb scanning.

While scanning, do not open applications on the *syngo* Acquisition Workplace.

The following functionalities are described in the subsequent sections:

- (→ Page 178 *syngo CaScoring*)
- (→ Page 179 *syngo InSpace 4D CT*)
- (→ Page 182 *syngo LungCARE CT*)
- (→ Page 183 *syngo Pulmo CT*)
- (→ Page 183 *syngo Circulation*)
- (→ Page 185 *syngo Dental CT*)
- (→ Page 185 *syngo Dual Energy*)
- (→ Page 186 *syngo Dynamic Evaluation*)
- (→ Page 186 *syngo Colonography CT*)
- (→ Page 187 *syngo Volume Perfusion CT – Neuro*)
- (→ Page 187 *syngo Volume Perfusion CT – Body*)

syngo CaScoring

On the following pages, you will find additional information on *syngo* **CaScoring** together with workarounds, if possible.



For more information on the available workarounds, refer to: (→ Page 179 *Changing Export Option*)

3D Edit

When using **3D Edit**, the **Sliding MIP Thickness** should only be changed in the dialog, not graphically in the lower left segment.

PROCAM risk calculation

The PROCAM risk calculation for men is based on the algorithm described in "International Task Force for Prevention of Coronary Heart Disease, Pocket Guide to Prevention of Coronary Heart Disease, Boerm Bruckmeier Verlag GmbH, 2003".

For women, newer statistical data is available. The absolute risk shows a ratio men : women = 4:1. In case of diabetes the ratio is 1:1. The PROCAM algorithm for women is implemented accordingly.

Reference: "Arzneimittelkommission der deutschen Aerzteschaft: Arterielle Hypertonie, 2. Auflage. Arzneiverordnung in der Praxis, 2004"

Limitations of DICOM structured reports

The PROCAM and the Framingham risk score and the corresponding additional risk factors are not included in the Dicom SR.

For safety reasons, results that are based on user-defined calibration factors, are not included in the Dicom structured report. (If the HU threshold is selected, the calcium mass is not exported, if the density threshold is selected, the **Calcium Scoring** results are not exported.)

Scoring in consortium mode

Scoring in consortium mode requires three calibration factors. This set of three calibration factors is not available for all scanner types. Currently, SOMATOM Definition scanners and SOMATOM Sensation (40 and 64 slice configuration) scanners are supported.

Changing Export Option

When creating a report with the List & Label software and changing the options for the export module, the application might crash and the system needs to be rebooted.

- Cancel with the **Cancel** button but never cancel this dialog with **Esc** key.

Using special characters in Report Wizard

If special country-specific characters are entered in the **Report Wizard** entry fields **History** or **Comment**, it is not possible to save the evaluation.

- Do not enter special characters in the **Report Wizard**.

Closing a patient

If you close a patient while the **Preview** window of the **Report Wizard** dialog box is still open, the **Preview** window of the next patient may still display the data of the previous patient.

- Close the **Preview** window before you close a patient.

  Otherwise the data of the previous patient may be redisplayed every time a **Preview** window is opened.

***syngo* InSpace 4D CT**

On the following pages, you will find additional information on *syngo* **InSpace 4D CT** together with workarounds, if possible.



For more information on the available workarounds, refer to:
(→ Page 181 *Changing task cards while loading*)

Loading data sets

The size of data sets for InSpace on an FX3500 graphical system without graphic acceleration (Volume Pro Hardware) is limited to 256 images. A larger number of images may lead to memory problems with the graphical device and the InSpace evaluation cannot be performed. To avoid such problems, reduce the number of images.

Deleting bookmark series

In case an **InSpace** bookmark series fails to be deleted, remove the **InSpace** bookmark instances. Once the bookmark series is empty, you will be able to delete it.

Switching to InSpace from any task card

When switching from any task card back to **InSpace**, the initial rendering of the image data might be defective. After interacting, e.g., rotating, the images will be displayed correctly.

Saving images

When saving images, in some cases the segments do not show the saved or filmed label. Nevertheless, the images are saved and filmed correctly.

Generating movies

While generating a range, input to the volume renderer is not allowed. This action is an exclusive action and it is not recommended to do anything while it is running by InSpace. Hence, if you changes the tab, InSpace stops generating the ranges.

Selecting image segments during Lung Parenchyma Analysis (LPA)

To select the image segments with tables and diagrams during LPA, click close to the segment border.

Performing Dual Energy Bone Removal

The Dual Energy Bone Removal algorithm might not work with Dual Energy data sets at 256 x 256 matrix.

Using Open Additional Volume for Parenchyma Analysis

If two volumes are loaded using the Open Additional Volume feature then the **Parenchyma** icon is disabled.

If Parenchyma is running on one volume and you try to load a second volume then you are asked to save the segmentation results. Afterwards, Parenchyma closes.

Setting trace points on a CPR

When setting trace points on a CPR, for example, to correct an already existing trace by Insert or to define a new trace by Trace, the click points will not be shown on the CPR. Nevertheless, the trace points are accepted by the application.

Changing task cards while loading

If you click another task card while loading images to the **InSpace** task card, the functionalities of the **InSpace** task card are not available.

1 Click again the task card that you have selected during the loading process.

2 Click the **InSpace** task card.

The InSpace functionalities are available again.

Bone removal

You can lower the detection threshold, if you are not satisfied with the result/behavior.

- Click **Step 1: Advanced Settings** and change the defined value.



The default detection threshold value is 175 HU. For older patients it is recommended to use lower threshold volumes, as osseous tissue in these cases might have lower HU.

Using large data sets for Bone Removal

If a very large (4D) data set is loaded, then the Bone Removal algorithm might take some time. The segments might appear black for a while before the results are displayed.

- Do not click other user interface elements until the algorithm result display finishes.

Performing a Lung Parenchyma Analysis

The Lung Parenchyma Analysis bookmark handling may disable the capability to save a report.

If your system has an FX3500 graphics card configuration, the Lung Parenchyma Analysis bookmark handling may also cause an error message saying that you have to reload a patient due to two plugins loaded at the same time.

- Ensure that the **Lung Parenchyma Analysis** dialog box is closed, while you load a patient.

Image impression of VRTs

The image impression of VRTs may differ when comparing it to older versions of InSpace.

To adjust the image impression, perform the following steps:

1 Right-click the **Advanced Lighting** icon to adjust the lighting.

2 Move the **Shading** slider to the right to increase shading.

3 Move the **Surface Enhancement** slider to the left to decrease the surface enhancement.

syngo LungCARE CT

On the following pages, you will find additional information on *syngo* **LungCARE CT** together with workarounds, if possible.



For more information on the available workarounds, refer to:
(→ Page 182 *Printing reports*)

Acquiring images for LungCare CT

LungCARE CT evaluation supports only CT images scanned with patient position “supine”.

Loading data sets

The center slice of the data set must contain the patient lung. Otherwise, automated calculations or counterpart finding may fail.

Using reports

The term **Location** in UI is the same as the term **Region** in a printed report or **Anatomic Region** in a DICOM SR report.

Printing reports

To use report templates for **LungCARE** from versions before *syngo* CT 2006G, the report templates have to be newly generated using the **Designer** dialog box.

1 Select **Options** > **Configuration** from the main menu and double-click the **Report Configuration** icon.

The **Report Configuration** dialog box opens.

2 Select **LungCare** from the **Application** selection list.

3 Click the **Select Basic Template** button.

4 Select the required template.

If a template, for example, from *syngo* CT Version B10, has been selected, an error message will be displayed. It indicates that the attributes and fields that have to be adapted.

5 Check and save the template after modification.

Changing Export Option

When creating a report with the List & Label software and changing the options for the export module the application might crash and the system needs to be rebooted.

- Never cancel this dialog with **Esc** key but cancel with the **Cancel** button.

syngo Pulmo CT

On the following pages, you will find additional information on *syngo* **Pulmo CT** together with workarounds, if possible.



For more information on the available workarounds, refer to:
(→ Page 183 *Drawing contours*)

Drawing contours

If you use the BOTH Lungside configuration, in some cases, the software finds a contour where no lung tissue is available. The left lung side is shorter than the right lung side, for example.

In such situation, when the software falsely interprets a contour as lung tissue, you cannot delete this contour explicitly. Therefore, you have to draw a small dummy contour.

- Click the **Draw Right Lung Contour** icon or the **Draw Left Lung Contour** icon and draw a dummy contour (for example, a line) into the former detected area.

syngo Circulation

On the following pages, you will find additional information on *syngo* **Circulation** together with workarounds, if possible.



For more information on the available workarounds, refer to:
(→ Page 184 *Performing a PE evaluation*)

Viewing reports

If you view reports created by older versions of **Circulation** with the DICOM SR Viewer, the layout may be displayed improperly, or the report may be displayed incomplete. A dialog box will inform you if the report is incomplete.

Loading volumes

In the **Circulation Series List** dialog box, the volumes are not sorted correctly if ms is used for reconstruction.

Keep it in mind if you do not want to load the complete range of phases.

Loading multiphase data sets

If absolute (minus) or relative (minus) reconstructed data sets are loaded to Circulation, ES and ED phases cannot be labeled automatically. Additionally, the sorting of the phases used for displaying the movie is not correct if positive and minus reconstructed data sets are loaded at the same time. If all data sets are reconstructed positive, there is no problem with labeling or with the movie.

Reconstruction of the coronaries

In the QCA function it is possible to reconstruct coronary arteries in the 3D volume by defining a path. With long coronaries and with long drawn paths in the reconstruction, the entire path is not displayed.

To see the entire path, navigate through the complete vessel. When the end of the path is reached, the "curved" window will switch to the next part of the curved view. Then it is ensured, that the complete vessel is evaluated.

Using the Heart Isolation function

The **Heart Isolation** function could lead to incorrect segmentation results if patient data was obtained with a third vendor scanner.

Setting markers

For QCA stenosis or plaque evaluation, always make sure to position boundary or reference markers (a, b) on opposite sides of the stenosis marker.

If a message box about misplacement is displayed, replace the current marker by a new marker with the boundaries set properly.

Loading Structured Reports

To use Structured Reports generated with Version Circulation 1 (VE21), load the original data set again. These results can be displayed with the SR Viewer and the Reporting functionality provided by Circulation. The old examination results can be displayed and printed there.

Using color lookup-tables

When using certain lookup-tables (CT Dual Energy (DE)), the Circulation Hybrid Results View shows black polar maps in the left column. Just the AHA 17-segment grid is visible. In this case, select an MPR segment and then pick a different lookup-table by right-clicking the color bar next to the MPR segments.

Performing a PE evaluation

In some cases (for example, if no bolus flag was set) it is necessary to change the series description of the data set to a specific form. Otherwise a Pulmonary Embolism evaluation is not possible. In such a case, you have to change the series description so it starts with the string **Tho** or with the string **Pe**.



For all the default protocols, e.g., the triple rule out protocol, this correction is not necessary.

- You first have to change the series description and then load the data set into Circulation to be able to make a PE evaluation.

Changing Export Option

When creating a report with the List & Label software and changing the options for the export module the application might crash and the system needs to be rebooted.

- Never cancel this dialog with **Esc** key but cancel with the **Cancel** button.

syngo Dental CT

On the following pages, you will find additional information on *syngo* **Dental CT** together with workarounds, if possible.



For more information on the available workarounds, refer to:
(→ Page 185 *Loading images into Dental*)

Displaying image text

In Dental, the **Customized Text** settings are interpreted as **All Text**. Therefore, if you deselect some checkboxes in the **Customized Text** settings, they will still not be displayed when you select **All Text**.

Loading images into Dental

Mouse cursor is blocked by a message box during loading of images into Dental by drag-and-drop.

- Use keyboard and press **Enter** or **Esc** to close message box.

syngo Dual Energy

On the following pages, you will find additional information on *syngo* **Circulation** together with workarounds, if possible.



For more information on the available workarounds, refer to:
(→ Page 186 *Optimizing the evaluation results*)

Improving performance

Calculation times in *syngo* Dual Energy can be reduced if the hardware has at least 6 GB of memory. You can also close other applications and terminate parallel activities like **Filming** to improve the performance.

In the **Dual Energy Configuration** dialog box, you can select the **Matrix Resolution (352 x 352)** option. Then the matrix will be reduced but the calculation time will speed up.

Modifying the Rel. CM parameter

Do not modify the **Rel. CM** parameter for the **Heart PBV** application class or application classes derived from **Heart PBV** in the **Dual Energy Configuration** dialog box.

Instead, you can modify the parameter in *syngo* Dual Energy for the currently loaded data set.

- On the **Application** subtask card, click the **Advanced Parameter Definition** icon to open the corresponding parameter definition dialog box.

Viewing scans in the Heart PBV application class

- If Dual Energy cardiac scans from SOMATOM Definition and SOMATOM Definition Flash scanners are viewed alternately, close *syngo* Dual Energy before loading a new data set.

Optimizing the evaluation results

In some cases user interaction is necessary to obtain best results for a given set of reconstructed images.

- Use the advanced parameter dialog box to modify the standard calculation parameters, if the algorithm results are not as expected, i.e., too noisy, loss of fine details, or no visualizations of areas with exceptionally high/low CT-values.



- Increasing the parameter **Range** reduces noise.
- Fine details can be resolved by decreasing it.
- If areas of low CT-values are ignored, the threshold parameter **Minimum** should be lowered.
- If areas of high CT-values are ignored, the threshold parameter **Maximum** should be increased.

These changes will be kept until the patient is closed. Only in the configuration dialog box it is possible to change calculation parameters permanently.

More information for each application class is available in the online help.

syngo Dynamic Evaluation

Here you will find additional information on *syngo* **Dynamic Evaluation** together with workarounds, if possible.

Loading fused multi-slice images

When loading fused multi-slice images into *syngo* Dynamic Evaluation the kV value might incorrectly be displayed as zero.

syngo Colonography CT

On the following pages, you will find additional information on *syngo* **Circulation** together with workarounds, if possible.

For more information on the available workarounds, refer to:
(→ Page 187 *Changing Export Option*)

Changing Export Option

When creating a report with the List & Label software and changing the options for the export module the application might crash and the system needs to be rebooted.

- Never cancel this dialog with **Esc** key but cancel with the **Cancel** button.

Loading data sets

With some **Colon** data sets, it can happen that the application hangs up during loading the images.

1 On the main menu, choose **Applications** > **Close Colon** to close the application.

It can take some time to close the application.

2 Select the images in the **Patient Browser** except slices 1-3 on caudal side.

3 Load the images into the **Colon** task card.

You can load the second series completely.

Loading an MR data set

- Before loading an MR data set, close *syngo* Colonography CT if a CT data set was loaded last.

Closing the application first avoids error messages when centering segments around a click point.

***syngo* Volume Perfusion CT – Neuro**

Tilted consecutive spiral scans cannot be loaded into *syngo* Volume Perfusion CT – Neuro.

***syngo* Volume Perfusion CT – Body**

Tilted consecutive spiral scans cannot be loaded into *syngo* Volume Perfusion CT – Body.

1.16.5 Additional Information for Operation

Here you will find additional information for operation together with workarounds, if possible.

The following functionalities are described in the subsequent sections:

- (→ Page 188 *USB devices*)
- (→ Page 189 *Online Help*)



For more information on the available workarounds, refer to: (→ Page 188 *Starting the Image Reconstruction System (IRS)*)

Changing the time settings

After changing the time and date settings, the system has to be shut down and restarted in order to ensure a correct synchronization between Image Reconstruction System (IRS) and *syngo* Acquisition Workplace.

Using the Siemens DICOM Viewer

The Siemens DICOM Viewer does not include a ROI tool. If you want to draw a ROI by using a DICOM viewer, you can download it via the following link: http://dicom.online.fr

Starting the Image Reconstruction System (IRS)

In some cases, when IRS is defective, the system may shut down immediately after start. Contact your Siemens local Customer Service.

- Disconnect IRS from Ethernet and power and restart the system to allow extraction of service relevant information from the event log.

USB devices

On the following pages, you will find additional information on USB devices together with workarounds, if possible.



For more information on the available workarounds, refer to: (→ Page 189 *Ejecting the USB device*)

It is only possible to connect USB hard disk drives and USB flash drives, but no other devices.

Only the following types of devices are allowed:

- USB flash drives with one partition and without security features, for example, password protection
- USB hard disk drives with one partition and without security features, for example, password protection

Recommended USB hard disk drives

It is necessary to format your USB hard disk drive as NTFS file system to transfer raw data > 4 GB to your USB hard disk drive.

For more information on formatting the USB hard disk drive, refer to the Operator Manual of the **Life** task card.

Using USB devices during scanning

We do not recommend performing scans during data transfer to USB devices. Otherwise, the user interface maybe frozen while the transfer is running.

Using memory devices with enabled security features

The system does not support USB memory devices (USB flash drives, USB hard disk drives) having security features enabled (for example, password protection) and/or having multiple partitions.

The following types of devices are not allowed:

- Disk burner, for example, CD, DVD, Blu-ray
- USB floppy drives
- Cell phones
- MP3 players
- USB flash drives and hard disk drives with multiple partitions and enabled security features
- Card reader
- Printers with storing function

Do not use such devices with this system.

Ejecting the USB device



- Click the USB icon in the status bar to eject the USB device securely.

  Do not use USB devices during an examination, or unplug them in another way than mentioned above. You also should not remove the USB devices if they are busy or if you cannot remove them securely.

Exporting raw data to USB

- Use **Export to off-line...** to export raw data to the USB device.

  Do not export raw data by copy and paste, or by drag-and-drop.

  Do not start scans while exporting raw data to the USB device.

Online Help

On the following pages, you will find additional information on the Online Help together with workarounds, if possible.



For more information on the available workarounds, refer to:
(→ Page 190 *Japanese installations*)

Chinese installations

If you use the **Search** function in the Chinese online help, some content may not be displayed correctly.

Japanese installations

To activate the **Search** function for Japanese installations:

- Select **Help** > **Contents and Index...** from the main menu.

1.16.6 Native Language Support

This section provides information on the native language support together with workarounds, if applicable.

Regional Settings

syngo Acquisition Workplace and *syngo* CT Workplace shall have the same regional language setting to avoid failures of automatic transfer of organ windows and film layouts.

Chinese and Japanese language

To change the language to Japanese or Chinese, contact SIEMENS Service.

The input fields do not accept Japanese or Chinese characters. Patient or examination entries are only possible using Latin characters.

2 Glossary

Air Kerma Kinetic energy released per unit mass of air in Gray (Gy).

Algorithm General computation procedure.

In this case: image reconstruction from the measured *raw data*.

Anode Positive electrode in the X-ray tube (source of radiation).

AP Anterior-Posterior, from front to back.

API Automatic Patient Instruction; breathing instructions to the patient.

Artifact Structure in a medical image which does not represent any anatomical structure and which impairs the representation of the anatomical structure (e.g., streaks).

Attenuation The ratio of X-ray beam intensity prior to and after passing through an attenuating object.

Attenuation profile Local distribution of attenuation values from one direction of projection of the fan beam.

Beam hardening artifact *Artifact* caused by the change in the X-ray spectrum as radiation passes through the object being scanned.

Bolus tracking A *CARE* application (optional). With the bolus tracking function you can directly monitor the contrast medium bolus in the ROIs of a reference scan defined by the user.

As soon as the preset contrast medium threshold is reached, the acquisition is automatically started.

Calibration Procedure for adjusting the sensitivity of the individual detector channels; used for correction of measurement data.

CARE CARE (Combined Applications to Reduce Exposure) aims to achieve optimum image quality while at the same time reducing the radiation and contrast medium dose for the patient.

2 Glossary

CD-R Compact Disk Recordable.

Cluster A chain of slices acquired rapidly in Sequence CT mode within a breath-hold.

Convolution Mathematical procedure for image reconstruction in computed tomography.

Coupled operation mode (optional) A mode in CARE Contrast CT (optional). The CT system and an injector are in coupled operation mode when a coupled start is activated in the **Scan** subtask card, or in the **Contrast** subtask card.

You only have to initiate the injection *or* the scanning to have both operations starting simultaneously.

CPU Central Processing Unit, part of the computer that performs the calculations.

The speed of the CPU not only determines factors such as the *RAM* configuration but also the processing speed of the computer.

CT Computed Tomography.

CTA CT Angiography Display of the vascular system using CT.

CTDI CT Dose Index, calculated as absorbed dose to PMMA (lucite) according to 21 CFR 1020:33. The Integral of the dose profile is calculated along a line perpendicular to the tomographic plane (from -7T to +7T, T is the nominal tomographic slice thickness). CTDI is calculated in mGy.

$CTDI_{100}$ CT Dose Index, calculated as absorbed dose to air according to IEC 60601-2-44. The Integral of the dose profile is calculated along a line perpendicular to the tomographic plane (from -50 mm to +50 mm).

$CTDI_{vol}$ The CT Dose Index volume (IEC 60601-2-44) is the approximation of the average dose over a single slice in the standard head or body CT dosimetry phantom, expressed in terms of absorbed dose to air (mGy).

CT value Beam attenuation characteristic of an object measured in Hounsfield Units (HU). The scale uses water as a reference with a CT value of 0 (air: CT value of -1000).

Density determination Quantitative evaluation of the *CT values* in a CT image.

Detector Component of the scanning system which measures the beam intensity after radiation has passed through the object being scanned.

Detector array System of *detectors* for acquiring radiation intensities.

DICOM Digital Imaging and Communications in Medicine. Standard for exchanging medical images.

Digital camera Camera to which image data is digitally transferred.

DLP Dose Length Product. When examining with i-Fluoro, the DLP value is displayed in the **Patient Protocol** and **Dose Report** for each tomogram scan mode.

The DLP is calculated as follows: DLP [mGy x cm] = CTDIvol [mGy] x SliceWidth x No Of Slice Positions Per Scan.

Documentation Transfer of image results to transparent film.

Dose The total effect of radiation on a defined absorption volume of the body. The effective dose (E) (mSv) is expressed as a weighted sum of the dose applied not only to the organs in the scanned range, but also to the rest of the body.

Dual Source CT CT system using two X-ray tubes and two detectors for improving the imaging performance.

Dual Topo Combination of *two Topograms* with different tube positions (AP and lateral).

DVD Digital Versatile Disk. Optical storage medium for data exchange.

Dynamic Multiscan Scanning technique of continuous data acquisition of *multiple scans* at the same slice position.

Exporting Image data can be transferred to an external medium (CD, DVD, PACS, USB storage media) for storage.

Fan beam device CT system in which an arc-shaped detector array and an X-ray tube generating a fan-shaped beam rotate about the patient.

2 Glossary

FAST Fully Automated Scanner Technology

File Unit of data stored on the storage medium in the computer. A file might be an image, a database or a program.

Flying focal spot Electromagnetic deflected focal spot for sampling each object detail from two slightly different perspectives. Used to reduce sampling artifacts.

Focal spot Focal spot of an X-ray tube.

FoV (Reconstruction) Field of View. Used as an aid to calculate the tomogram.

Gantry Scanning unit of a CT system including the X-ray tube and the *detector array*.

Hard disk Part of the computer on which data and programs are stored for quick access.

Hardware Technical physical equipment of a computer system, in contrast to software.

High contrast resolution Spatial resolution; ability to display minute structures.

Highlighting Bright display of a range of CT values during windowing.

HIS Hospital Information System.

Network for transmitting patient data and images within a hospital.

Histogram Graphic and numerical display of frequency of CT values in a selected region.

Homogeneity Characteristic of image quality which describes how accurately CT values are measured when a homogeneous object is scanned and displayed by the CT system.

Hounsfield unit Unit used to measure the *CT value*.

HU Abbreviation of Hounsfield Unit.

i-Control Component that can be used during interventional examinations to control the functionalities of the CT system or of the software.

Image data compression Data is compressed when storing images for more efficient use of the storage capacity of the data carrier. The *image matrix* is maintained.

Image matrix Size of a medical image in *pixels*, e.g.: 512 x 512, 1024 x 1024.

Image mode In image mode filming, the transfer of the images to the camera takes place image by image (see also *page mode*).

Image reconstruction Computation of the CT image from the measured *raw data*.

Image reconstruction system (IRS) Computer for reconstruction of the CT images from the measured *raw data*.

Isocenter Center of the *scan plane*.

kV Kilovolt (1 kV = 1000 Volt); unit used to measure the tube voltage.

Laser camera Camera which utilizes a laser beam for exposing images.

LED Light Emitting Diode, semi-conductor element that lights up like a bulb.

Low contrast resolution Resolution of minute image details when there is little differentiation in density. For example, in soft tissue.

mA Milliampere (1 mA = 1/1000 A); unit used to measure the tube current.

mAs Milliampere per second product; unit used to measure the product of the tube current (mA) and scan time (s). Equivalent to the applied radiation dose.

MCA Motion Artifact Correction Algorithm: algorithm correcting motion artifacts.

Measurement field The field from which the *detector array* acquires data in the *gantry*.

Media Collective term for exchange media, e.g., CD, DVD.

MinIP Minimum Intensity Projection, like *MIP* but visualization of the darkest *voxels* (areas of least absorption).

2 Glossary

MIP Maximum Intensity Projection is a method for 3D display: Along the viewing direction through a volume, the voxel with the strongest absorption is displayed in the result image in each case.

Motion artifact *Artifact* caused by patient movement during the scan.

Mouse Operating element at the computer to direct the input cursor on the monitor and to adjust window values.

Move Table Top Only mode Mode applicable for interventional examinations, providing more space between the patient table and gantry, for example, for use of a C-arm.

MPR Multi Planar Reconstruction: using an image data set, you have the ability to perform retrospective reconstruction in different planes of orientation (i.e., from axial images create coronal, sagittal and paraxial images).

MTF Modulation Transfer Function; the frequency-dependent ratio of object contrast to image contrast. The MTF permits qualitative determination of the spatial resolution of an imaging system.

Multiformat camera Camera with selectable segmented film format; allows for exposures of multiple images on a single film.

NM Nuclear Medicine. Medical imaging that uses radioactive substances for diagnosis such as PET, PET-CT or gamma cameras.

Noise Unwanted interference in the signal caused by random factors and containing no information regarding the object being scanned.

Open Interface Connector at the CT system that is capable to run any Open Interface compatible respiratory sensor system that is compatible with your CT system.

Operating system Group of computer programs required for general operation of the computer and its periphery.

Osteo CT Semiautomatic bone mineral density measurement and evaluation method for the quantitive assessment of bone mineral content in the lumbar spine.

PA Posterior Anterior, from back to front.

PACS Picture Archiving & Communication System.

Siemens network for archiving and transmitting medical images.

Page Mode In page mode filming, the entire film sheet is composed in the computer and then transferred to the camera (see also *image mode*).

Partial scan *Scan* for which only a section (240°) of the rotation of the X-ray tube is used to measure a body slice.

Partial volume artifact *Artifact* caused by dense structures (e.g., bones) which are only partially included in the slice being scanned.

Phantom Measuring object whose attenuation properties are similar to human; Reference body used for functional and quality assurance tests.

Pitch factor Term applicable only for spiral CT. It is defined as the ratio of table feed per rotation to the collimated width of the entire detector. Example: 16*0.75 mm collimation, table feed 18 mm/sec. This gives a volume pitch of 18 / 0.75 = 24 and a pitch factor of 18 / (16*0.75) = 18/12 = 1.5.

Pixel Image element of the two dimensional image.

PMM Physiological Measurement Module. Connection box on the patient table providing receptacles for different functionalities.

RAM Fast, non-permanent memory (Random Access Memory) with which the computer operates. The size of the available RAM determines other factors, including the processing speed. Data are stored long-term on *hard disk* or *CD-R*.

Raw data Preprocessed measurement data. A raw data file corresponding to each scan is used to reconstruct the CT image.

Real Time Display The display of measured images is updated at the same rate at which the scanner acquires new image data.

Real Time Recon Reconstruction synchronous to scanning with an additional delay for displaying the first image.

Reconstruction FoV see FoV.

Rendering General procedure for constructing images using a computer.

2 Glossary

RIS Radiology Information System.

Network for transmitting patient data and displays to radiology departments, see also HIS.

ROI A region of the CT image which can be selected with respect to position, size and shape, and in which quantitative evaluations are performed (Region Of Interest).

RTD Real Time Display, see there.

Scan Acquisition of one or more slices for imaging. Prior to scanning, certain scan protocols for the corresponding body regions can be selected, and the parameters (e.g. scan time) can be defined.

Scan FoV Determines the size of the area that you expose during acquisition. The Scan FoV is the maximum possible reconstruction FoV.

Scan plane Plane in which the X-rays penetrate the patient's body.

Scan time Duration of radiation exposure during a CT scan.

Scatter radiation Radiation whose direction of dispersion is modified through the interaction with a material.

Secondary slice Calculation of a selectable slice from a series of adjacent or overlapping slices.

Sequence CT Scanning technique with single scans and optional table feed between the scans.

Slice thickness Thickness of slice to be reconstructed. The slice thickness determines the collimation during scanning.

Software Programs of a computer.

Spiral CT Scanning technique with continuous rotation, continuous data acquisition and continuous table travel.

SSD Shaded Surface Display: Rendering technique for the 3D surface construction; only *voxels* of *CT values*, which exceed a defined threshold value are considered.

Tomogram *Scan* of a slice perpendicular to the longitudinal axis of the patient.

Topogram Frontal or lateral survey *scan*, similar to a conventional X-ray exposure.

UFC Ultra-Fast Ceramic.

Detectors from Siemens with short decay time for fast *scans*.

UHR Ultra High Resolution.

Procedure for achieving a high resolution.

UPS Uninterruptible Power Supply. Ensures operation even during short power failures.

USB device Storage medium that is connected directly to the USB port of a PC.

VAR Volume Artifact Reduction.

Procedure for reducing *partial volume artefacts*.

Volume Pitch Term applicable only to *Spiral CT*. It is defined as the ratio of table feed per rotation to slice width of one detector row.

Voxel Mapped volume element determined by the pixel size of the image matrix and the slice thickness.

VRT Volume Rendering Technique.

Rendering technique for 3D visualization.

Windowing Display of a selectable portion of the CT values using optimized contrast range of the monitor.

Working memory see *RAM*.

2 Glossary

T

tMaxIP 106

tMinIP 106

t-MIP 106

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CE 0123

Manufacturer's note:

This product is provided with a CE mark in accordance with the regulations stated in Council Directive 93/42/EEC of June 14th 1993, concerning Medical Devices.

The CE marking applies only to Medical Devices which have been put on the market according to the above-mentioned EC Directive.

Unauthorized changes to this product are not covered by the CE mark and the related Declaration of Conformity.

Federal law restricts this device to sale by or on the order of a physician (21 CFR 801.109(b)(1)).

The original language of this document is English.

Global Business Unit
Siemens AG
Medical Solutions
Computed Tomography &
Radiation Oncology
Siemensstraße 1
DE-91301 Forchheim
Germany
Phone: +49 9191 18-0
www.siemens.com/
computedtomography

Global Siemens Headquarters
Siemens AG
Wittelsbacherplatz 2
80333 Muenchen
Germany

Global Siemens Healthcare Headquarters
Siemens AG
Healthcare Sector
Henkestraße 127
91052 Erlangen
Germany
Phone: +49 9131 84-0
www.siemens.com/healthcare

Legal Manufacturer
Siemens AG
Wittelsbacherplatz 2
DE-80333 Muenchen
Germany

Print No. C2-029.626.12.01.02 | © 2013, Siemens AG

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