SIEMENS

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syngo MR E11

Operator Manual – Dot Cockpit

Answers for life.

syngo MR E11

Operator Manual – Dot Cockpit

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

WARNING

Legend

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1 Introduction

In order to operate the MR system accurately and safely, the operating personnel must have the necessary expertise as well as knowledge of the complete operator manual. The operator manual must be read carefully prior to using the MR system.

1.1 Layout of the operator manual

Your complete operator manual is split up into several volumes to improve readability. Each of these individual operator manuals covers a specific topic:

- Hardware components (system, coils, etc.)
- Software (measurement, evaluation, etc.)

Another element of the complete operator manual is the information provided for the system owner of the MR system.

The extent of the respective operator manual depends on the system configuration used and may vary.

All components of the complete operator manual may include safety information that needs to be adhered to.

The operator manuals for hardware and software address the authorized user. Basic knowledge in operating PCs and software is a prerequisite.

1.2 The current operator manual

This manual may include descriptions covering standard as well as optional hardware and software. Contact your Siemens Sales Organization with respect to the hardware and software available for your system. The description of an option does not infer a legal requirement to provide it.

The graphics, figures, and medical images used in this operator manual are examples only. The actual display and design of these may be slightly different on your system.

Male and female patients are referred to as “the patient” for the sake of simplicity.

1.3 Intended use

Your MAGNETOM MR system is indicated for use as a magnetic resonance diagnostic device (MRDD) that produces transverse, sagittal, coronal and oblique cross sectional images, spectroscopic images and/or spectra, and that displays the internal structure and/or function of the head, body, or extremities. Other physical parameters derived from the images and/or spectra may also be produced. Depending on the region of interest, contrast agents may be used. These images and/or spectra and the physical parameters derived from the images and/or spectra when interpreted by a trained physician yield information that may assist in diagnosis.

Your MAGNETOM MR system may also be used for imaging during interventional procedures when performed with MR compatible devices such as in-room displays and MR Safe biopsy needles.

The MAGNETOM MR system is not a device with measuring function as defined in the Medical Device Directive (MDD). Quantitative measured values obtained are for informational purposes and cannot be used as the only basis for diagnosis.

For the USA only: Federal law restricts this device to sale, distribution and use by or on the order of a physician.

Your MR system is a medical device for human use only!

1.4 Authorized operating personnel

The MAGNETOM MR system must be operated according to the intended use and only by qualified persons with the necessary knowledge in accordance with country-specific regulations, e.g. physicians, trained radiological technicians or technologists, subsequent to the necessary user training.

This user training must include basics in MR technology as well as safe handling of MR systems. The user must be familiar with potential hazard and safety guidelines the same way the user is familiar with emergency and rescue scenarios. In addition, the user has to have read and understood the contents of the operator manual.

Please contact Siemens Service for more information on available training options and suggested duration and frequency of such training.

1.4.1 Definitions of different persons

Term used	Explanation
User/Operator/ Operating personnel	Person who operates the system or software, takes care of the patient or reads images Typically physicians, trained radiological technicians, or technologists
System owner	Person who is responsible for the MR environment. This includes legal requirements, emergency plans, employee information and qualifications, as well as maintenance/repair.
MR worker	Person who works within the controlled access area or MR environment User/Operator as well as further personnel (for example, cleaning staff, facility manager, service personnel)

Term used	Explanation
Siemens Service/service personnel	Group of specially trained persons who are authorized by Siemens to perform certain maintenance activities References to “Siemens Service” include service personnel authorized by Siemens.

2 Dot Cockpit

2 Dot Cockpit

2.1 Overview of the Dot Cockpit

With the help of the **Dot Cockpit** you can manage and expand the contents of the exam database, for example, for copying or modifying measurement programs.

Tasks of the **Dot Cockpit**

- **Explorer**: Organize directories and programs, as well as maintain the user exam database (→ Page 28 *General information*).
- **Program Editor**: Modify directories and programs (→ Page 106 *Components of the Program Editor*).

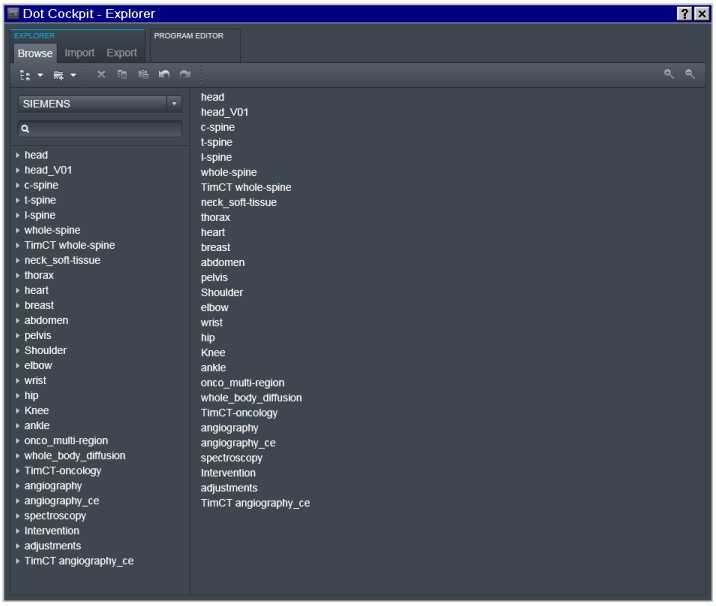
2.2 Opening the Dot Cockpit

- Click the **Dot Cockpit** icon in the tool bar of the **Exam** task card.

  – or –

  Select **View** > **Dot Cockpit** in the main menu.

  The **Dot Cockpit** is opened. By default, it will open in the same position it was last active in.



Dot Cockpit example: Browse subtask card of the Explorer is active and all components of the tree are shown in the content area.

Dot Cockpit icon is not visible.

This “split button” is extended via the arrow for accessing the **Dot Cockpit** or the **Program Card**.

If the **Program Card** icon is shown instead of the **Dot Cockpit** icon:

» ◆ Click the arrow-left to the left of the **Program Card** icon.

◆ Select the **Dot Cockpit** icon.

If you want the **Dot Cockpit** icon to be shown permanently in the tool bar of the **Exam** task card:

◆ Exchange the order of both icons by clicking the double arrow to the left of the icons.

2.2.1 Displaying full-screen mode

◆ Double-click the title bar of the **Dot Cockpit**.

The **Dot Cockpit** goes in full-screen mode. It is reversible by double-clicking the title bar again.

2.3 Drag & drop

All tasks in the **Dot Cockpit** support drag & drop to move and copy objects.

It is also possible to drag steps or entire measurement programs into the measurement queue (**prerequisite**: patient is registered).

You cannot perform drag & drop in the SIEMENS tree.

2.3.1 Moving and copying via drag & drop

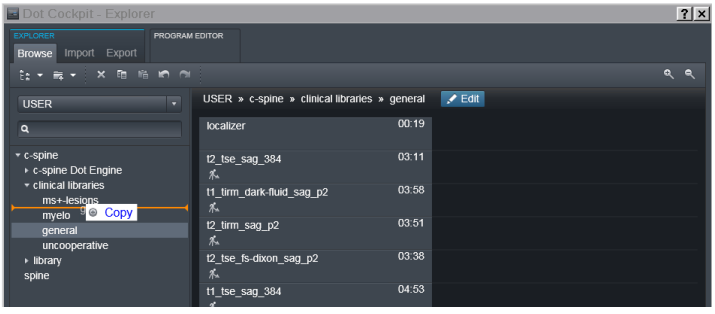
✓ **Explorer** or **Program Editor** is open

1 To **move** an object from one place to another, drag the object to the target position.

An icon, as well as an explaining text indicate what operation will be performed if you release the mouse button. The current drop position is indicated by an orange line.

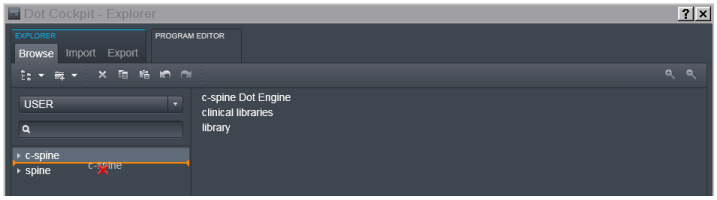
Example: Moving a program

2 To **copy** an object from one place to another, drag the object to the target position while pressing the **Ctrl** key.



Example: Copying a program

If the operation is not allowed, or a forbidden operation is chosen via keyboard key, the icon will show that the operation is forbidden and a drop will have no effect.



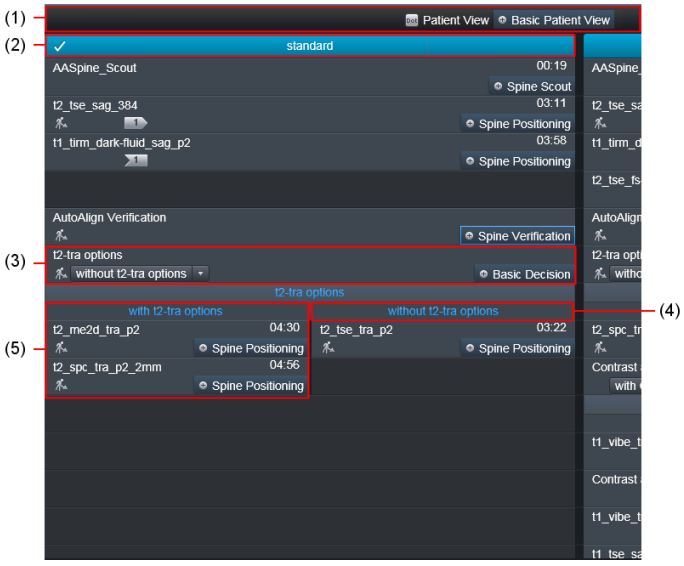
2.4 Structogram

The structogram visualizes programs, including Dot Engines, in a comprehensive, but concise and intuitive way. Programs are displayed in a grid so that all steps are visible at once.

The structogram is part of the **Explorer** as well as the **Program Editor**.

2.4.1 Layout of the structogram

In case of a linear program, the structogram resembles a simple sequence of program steps. In case of a measurement program with strategies or decisions, the appearance becomes more chart-like.



(1) Workflow step

(2) Strategy

(3) Decision step

(4) Decision (in this case “without t2-tra options”)

(5) Branch

2.4.2 Rows and columns

In the structogram:

- Each strategy is represented as a **column**
- Each step in the strategy is represented in a **row**
- Each row is equivalent across the strategies

(1) Column

(2) Row

Steps of different strategies positioned in the same row are treated as if they have the same notion. A strategy switch in the queue uses this information to decide which steps of the new strategy will be treated as already executed, such as in a strategy change (for example **Rerun from here with**).

If you switch the strategy during the examination, the last measured step defines which row is active. In this case, the next row after the measured step is the active row. A switch in strategy means that the step belonging to the same row but to the new strategy is taken for the next measurement, and from this point on all following steps belong to the new strategy.

In some cases, for certain strategies no equivalent steps exist for a given row. To create this scenario you can use an “empty step” cell. The cell remains empty and such no activation or sequence will be loaded into the queue for this strategy.

2.4.3 Drag & drop in the structogram

DICOM images: You can drag & drop DICOM images from the **Patient Browser** or the GSP to the structogram. The required information, for example, the protocol is extracted from the image. If the protocol is from an older version or different system, the protocol is converted. If an image of an unsupported software version is dropped into the structogram, an error is displayed.

Steps: It is possible to drag several steps at once. Any copy references attached to the sequence properties between the dragged steps, become part of the drag and will be contained in the sequence properties.

To select more than one step:

- Press the **Ctrl** key and click the desired steps
- Press the **Shift** key and click the first and the last desired step
- Press the key combination **Ctrl+A** to select all objects

Add-Ins: It is also possible to perform drag & drop of an Add-In Configuration.

2 Dot Cockpit

3 Exploring exam protocols

3.1 General information

The sequences and parameter settings of frequently performed MR examinations are stored in your system as measurement programs. The **Explorer** provides you with an overview of the measurement programs available.

The programs are subdivided into two groups: Siemens programs and user programs, each with a subdirectory (tree). The SIEMENS tree also contains libraries Siemens created for specific clinical questions. From these, you can compose your own measurement programs.

Measurement programs offered as defaults in the SIEMENS tree **cannot** be changed.

Purpose of the Explorer: The **Explorer** allows you to manage and maintain your measurement programs.

Usually you do not work directly in the **Explorer** during the examination in progress. In some cases, you may use the **Explorer** to search for measurement programs or protocols during an examination and transfer them directly to the queue.

The **Explorer** is primarily a tool for managing and maintaining your measurement programs. If you want to change a measurement program immediately prior to an examination (and for this particular examination only), use the queue in the program control instead.

Dot-Addins cannot be configured using the queue. They can only be configured using the **Dot Cockpit**.

The **Explorer** provides functions for printing out tables of contents as well as individual protocols including an overview of the parameter settings.

Non licensed measurement programs: Measurement programs that include non-licensed protocols or non-licensed Dot-Addins are normally not displayed in the **Explorer**. However, you may display non-licensed measurement programs and protocols.
(→ Page 43 *Showing non-licensed items*)

Examination database: The Siemens tree and the user tree are stored in databases on your system. You may also access examination regions, examinations, measurement programs and protocols stored on external data media (disk, CD ROM etc.) or on your hospital-wide data network.

You can also export objects from your database to external data media or network addresses – for example, to make your examinations and measurement programs available to other *syngo* MR users.

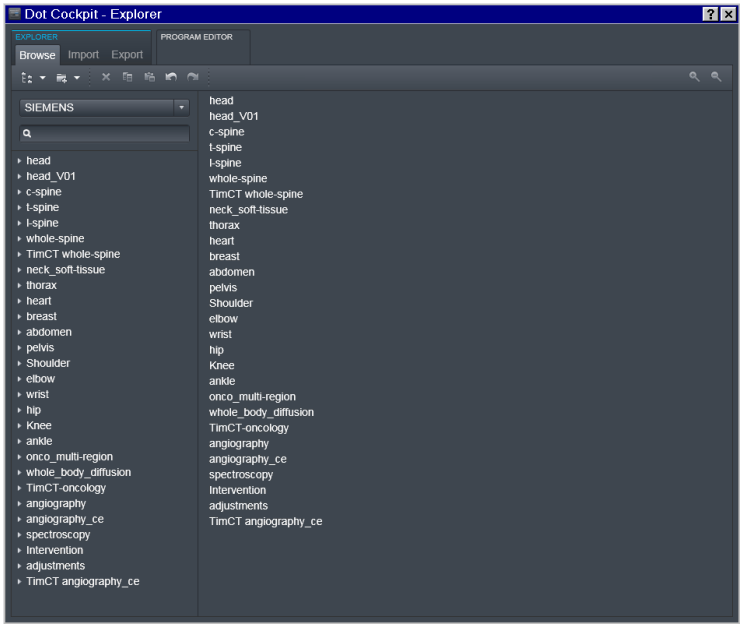
Print protocols: You can print the parameter overview of protocols, contents of measurement programs, examinations and regions to a PDF or XML file.

The parameter overview enables you to compare the parameters of the protocols directly.

The lists of contents provide you with an overview of the available examinations and scan programs, making selection easier.

3.2 Components of the Explorer

After starting a new session and opening the **Dot Cockpit** at first the **Explorer** task is active by default and all components of the tree are shown in the content area.

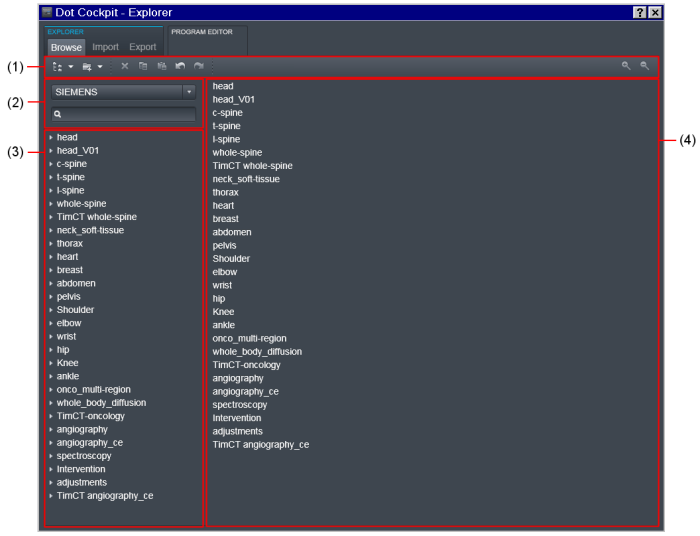


The **Explorer** is partitioned in the following three subtasks:

- **Browse**: Organize the exam database (→ Page 33 *Searching and browsing*).
- **Import**: Import items (regions, exams, programs, and steps) from an external data carrier (for example, memory stick) (→ Page 48 *Importing objects to the exam database*).
- **Export**: Export items from the local exam database to an external data carrier (→ Page 51 *Exporting objects from the exam database*).

All subtasks have a tree view and a toolbar.

3.2.1 Components of the browser



(1) Toolbar

(2) Tree selection and object search

(3) Tree view

(4) Content area

3.2.2 Toolbar

Icon	Functions
1	■ Organize trees (→ Page 38 *Managing user trees*) ■ Print protocols (→ Page 45 *Printing protocols*) ■ Open the **Update Filming Study Layout** dialog window (please refer to Operator Manual - Scanning and postprocessing for further information) ■ Show inconsistent objects (→ Page 43 *Showing non-licensed items*)
2	■ Create new directories (region, exam) in the currently selected object (**not** in the Siemens tree) (→ Page 40 *Managing regions and exams*) ■ Initiate the creation of new measurement programs (→ Page 43 *Creating new measurement programs*)
3	Delete the selected object (**not** in the Siemens tree)
4	Copy the selected object
5	Paste directories and programs (**not** in the Siemens tree). It is not possible to insert steps into a program.
6	Undo the last action
7	Redo the last undone action
8	Zoom in (only available in the content area)
9	Zoom out (only available in the content area)

3.2.3 Tree selection and object search

- To select a tree and the relevant system configuration (just possible on stand-alone installations).
- To search for objects in the exam database. (→ Page 33 *Searching and browsing*)

  Search results are highlighted within tree view and/or content area.

Tree view

- To browse in the exam database (→ Page 33 *Searching and browsing*).
- Display of all region directories.

3.2.4 Content area

- To select objects in the exam database.
- Multi-selection is possible.

3.3 Searching and browsing

Several parts of the **Dot Cockpit** support searching the exam database via arbitrarily entered text.

Browsing allows you to view all objects in the exam database.

✓ **Explorer** is open

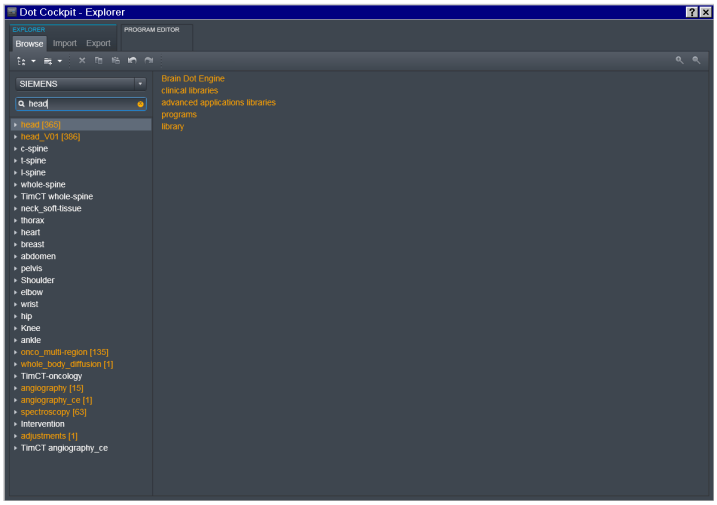
3.3.1 Searching for entries

The search field – identified by the magnifying glass – allows you to find programs or steps in a quick and easy way.

All unlicensed or inconsistent steps are ignored during the search. In this way, it is always ensured that only usable steps are valid hits.

1 Enter an arbitrary search text.

Any search results are highlighted in yellow in the tree view and, if applicable, in the content area. The number of contained matches is displayed next to the name in brackets.



Use the scroll bar to see all search results.

2 To completely delete the search text entered, click the yellow cross.

The highlighting is reset.

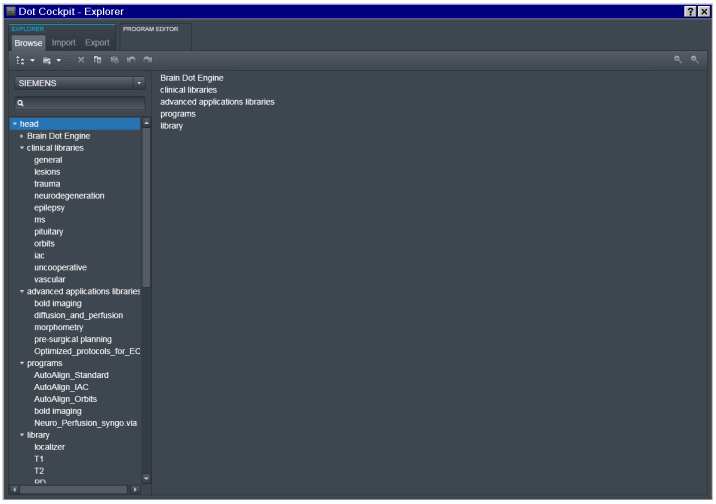
3.3.2 Browsing the database

Using the tree view, you are able to browse the complete exam database.

An arrow to the right indicates lower level categories.

- A down arrow indicates that the lower level categories are shown.
- No arrow is shown if no child elements are available.

◆ To see lower levels, double-click the object or click the arrow.

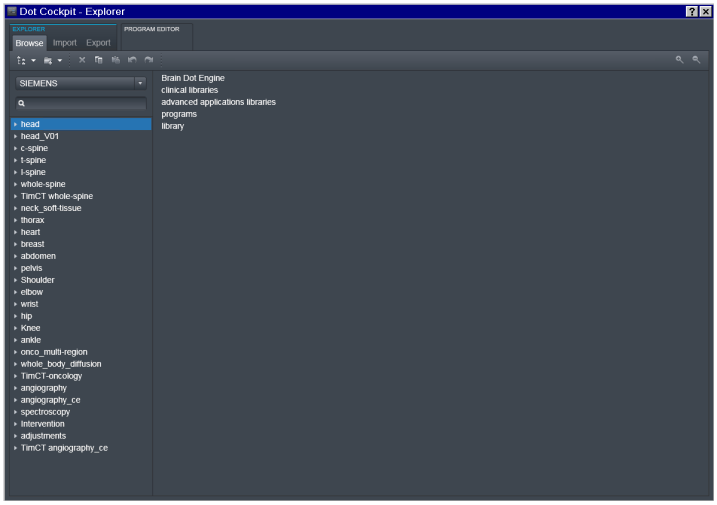


3.4 Displaying exams, programs, and steps

✓ **Explorer** is open

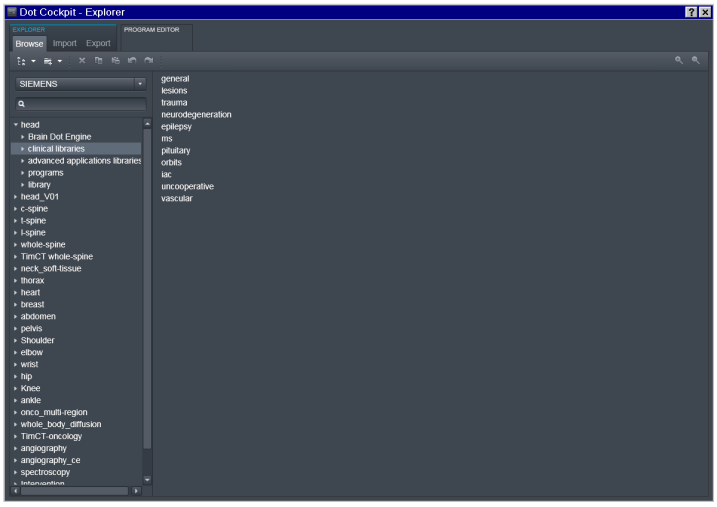
1 In the tree view: Single-click the name (**not** the arrow) of the desired region.

All contained exams are displayed in the content area.



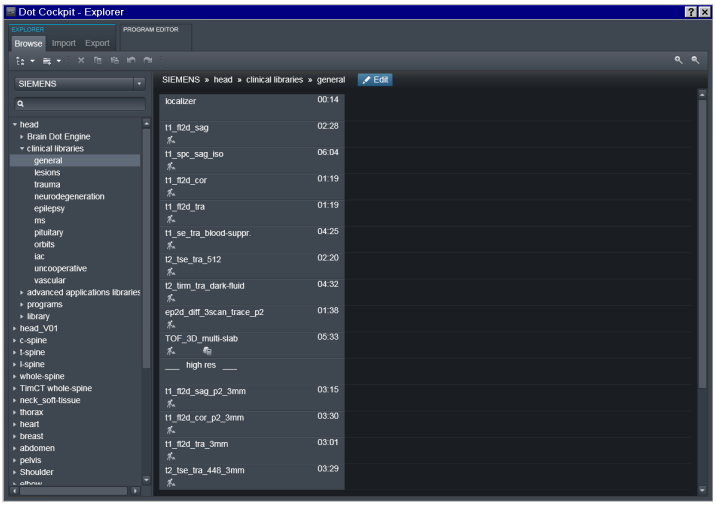
2 In the content area: Double-click an exam.

The contained measurement programs are displayed. In the tree view, the exams of the region are listed automatically.



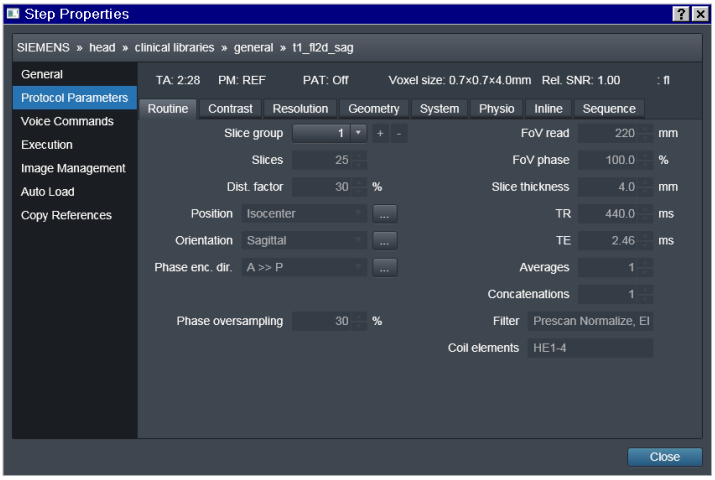
3 In the content area: Double-click a measurement program.

A preview of the measurement steps is shown in the content area.



4 In the content area: Double-click a step.

The **Step Properties** dialog window is opened (read-only) (➔ Page 61 *Editing measurement step properties*).



3.5 Managing user trees

A tree directory is the highest hierarchical level of the structure elements. (Overall hierarchy: Tree - Region - Exam - Measurement program).

The **Explorer** allows you to create, duplicate, rename, and delete user tree directories.

You cannot modify the SIEMENS tree.

✓ **Explorer** is open

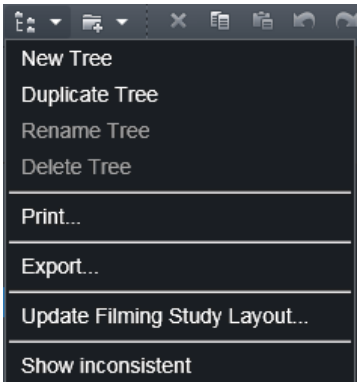
3.5.1 Selecting trees

- From the tree selection list, select the requested tree, for example USER.

  The regions of the selected tree are displayed in the tree view.

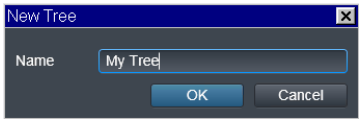
3.5.2 Creating new trees

You can create multiple user trees.



1 In the toolbar of the **Explorer**: Select **New Tree** from the context menu of the first icon.

  The **New Tree** dialog window is opened.



2 Enter a name for the new tree.

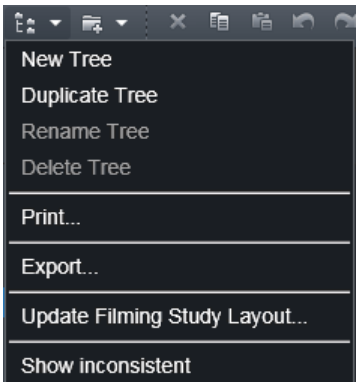
3 Confirm with **OK**.

  The dialog window is closed and the new tree is appended to the tree selection list.

3.5.3 Duplicating trees

The **Duplicate Tree** function combines the functions copy and paste.

1 Select the tree to be duplicated.

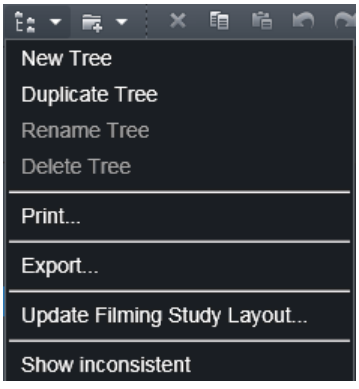


2 In the toolbar of the **Explorer**: Select **Duplicate Tree** from the context menu of the first icon.

A copy of the selected tree is appended to the tree selection list. The name changes in “Copy of original name” (“Copy of” in local language).

3.5.4 Renaming trees

1 Select the tree to be renamed.



2 In the toolbar of the **Explorer**: Select **Rename Tree** from the context menu of the first icon.

A dialog window is opened.

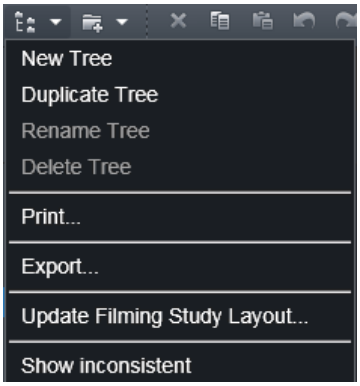
3 Enter a new name.

4 Confirm with **OK**.

If the name already exists, your entry will be ignored.

3.5.5 Deleting trees

1 Select the tree to be deleted.



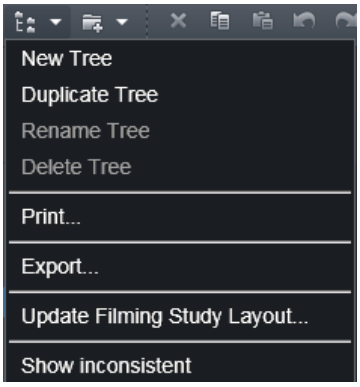
2 In the toolbar of the **Explorer**: Select **Delete Tree** from the context menu of the first icon.

3 Confirm the deletion with **Yes** in the dialog window displayed.

The tree is deleted from the tree selection list.

3.5.6 Exporting trees

1 Select the tree to be exported



2 In the toolbar of the **Explorer**: Select **Export...** from the context menu of the first icon.

The **Save As** dialog windows opens, the **Explorer** automatically changes to the **Export** subtask (→ Page 51 *Exporting objects from the exam database*).

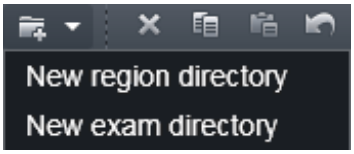
3.6 Managing regions and exams

The **Explorer** allows you to create, copy and paste, rename, and delete user regions and exam directories.

You cannot modify regions and exams in the SIEMENS tree.

✓ **Explorer** is open

3.6.1 Creating new regions and exams



1 Select an user tree.

2 In the toolbar of the **Explorer**: Select **New region (exam) directory** from the context menu of the second icon.

– or –

Select **New Region (Exam)** from the context menu of the tree view.

A new directory is created in the tree view. The directory name is editable.

3 Enter a name for the directory.

4 Accept the new name by either pressing the **Return** key on your keyboard or clicking anywhere outside the text box.

If the name already exists, your entry will be ignored.

3.6.2 Copying and pasting regions and exams

1 In the user tree view: Select the directory (region or exam) to be copied.

2 Select **Copy** from the context menu (right-click with the mouse).

– or –

In the toolbar of the **Explorer**: Select the **Copy** icon.

– or –

Press the key combination **Ctrl+C** on your keyboard.

3 In the tree view: Select a destination in the same hierarchical level.

4 Select **Paste** from the context menu (right-click with the mouse).

– or –

In the toolbar of the **Explorer**: Select the **Paste** icon.

– or –

Press the key combination **Ctrl+V** on your keyboard.

A copy of the selected directory is inserted in the tree view. If the copy is in the exact same level, the name changes in “Copy of original name” (“Copy of” in local language).

3.6.3 Renaming regions and exams

User regions and exams can be renamed without opening the **Properties** dialog window.

1 Select the directory to be renamed.

2 Click the directory name again.

– or –

Select **Rename** from the context menu (right-click with the mouse).

– or –

Press the **F2** key on your keyboard.

The name of the selected directory is now editable. You can always cancel renaming by clicking the **Esc** key on your keyboard.

3 Enter a new name.

4 Accept the new name by either pressing the **Return** key on your keyboard or clicking anywhere outside the text box.

3.6.4 Deleting regions and exams

1 Select the directory to be deleted.

2 Select **Delete** from the context menu (right-click with the mouse).

– or –

In the toolbar of the **Explorer**: Select the **Delete** icon.

– or –

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

3 Confirm the deletion with **Yes** in the dialog window displayed.

The directory is deleted from the tree view.

3.6.5 Expanding and collapsing directories

1 To display all sub-objects of a directory, select **Expand** from the context menu (right-click with the mouse).

2 To close the directory again, select **Collapse** from the context menu.

– or –

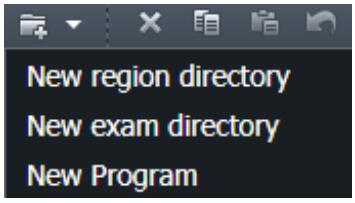
Click the corresponding arrow (right or down).

3.7 Creating new measurement programs

In the **Explorer** you can initiate the creation of a new measurement program.

✓ **Explorer** is open

1 In the tree view: Select an exam.



2 In the toolbar of the **Explorer**: Select **New Program** from the context menu of the second icon.

– or –

Select **New** > **Program** from the context menu of the exam.

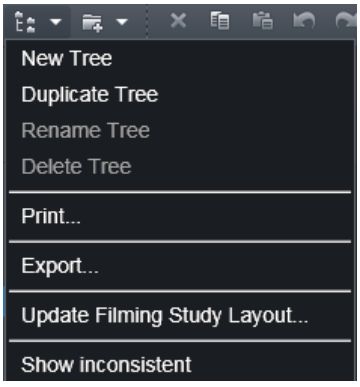
The **Dot Cockpit** switches to the **Edit** subtask of the **Program Editor**. An empty working area appears. (➔ Page 113 *Creating a new program*)

When saving the new program afterwards, the exam previously selected in the **Explorer** is set as default storage location of the new program.

3.8 Showing non-licensed items

Objects in the exam database that include non-licensed protocols are normally not displayed in the **Explorer**.

✓ **Explorer** is open



1 In the toolbar of the **Explorer**: Select **Show inconsistent** from the context menu of the first icon.

Non-licensed measurement programs, protocols, and Dot Add-ins are now shown as additional gray items in the **Explorer**. The menu entry **Show inconsistent** is marked with a check mark.

For an individual, non-licensed measurement program, you can establish that it is visible at all times in the directory structure, independent of the setting in the main menu (→ Page 83 *Editing directory properties*).

2 To hide the non-licensed items, deselect **Show inconsistent**.

The check mark of the menu entry is removed.

3.9 Checking licenses

The license check supports adding of licenses, removing of licenses, and updating of outdated licenses.

During start-up of the system, the current license configuration of the Siemens tree and all user trees is checked and a license update is automatically triggered.

Users without Dot-license can see the Dot workflows within the Siemens tree as read only if the option **Show inconsistent** is enabled (→ Page 43 *Showing non-licensed items*).

The license check ensures that only valid programs and steps are usable.

You are also able to start the license check manually.

✓ **Explorer** is open

- Start the license check by selecting **Check license** from the context menu of the tree view.

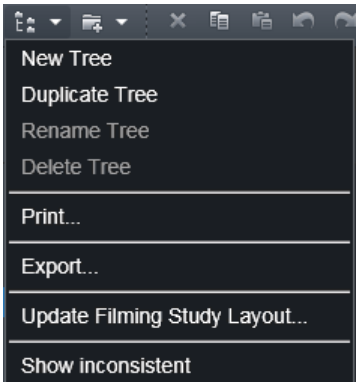
3.10 Printing protocols

From the **Browse** subtask of the **Explorer**, you can print parts of the exam database as PDF or XML files.

✓ **Explorer** is open

You may select one or more protocols, measurement programs, examinations or regions for printing and then open the **Print** dialog window.

1 In the tree view: Select the requested objects.

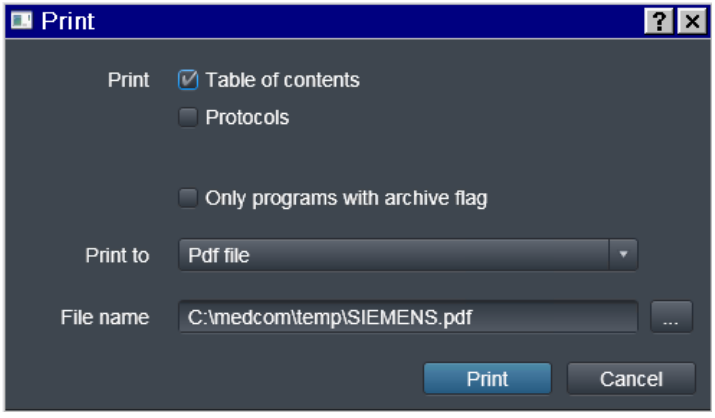


2 In the toolbar of the **Explorer**: Select **Print...** from the context menu of the first icon.

– or –

In the tree view: Select **Print...** from the context menu of a selected object.

The **Print** dialog window is opened.



3 Set the **Print** options.

Print option	Effect
Table of contents	A list of contents is printed for the selected measurement programs, examinations, or regions.
Protocols	An overview of the parameter settings is printed for all selected protocols. The settings are listed in the same way as on the parameter cards.
Table of contents and Protocols	Both the list of contents and the parameter overview are printed.
Only programs with archive flag	Limits the print range. Only the protocols of modified measurement programs are printed.

4 **Print to**: Select the desired print format (PDF or XML) from the selection list.

5 **File name**: Enter the name of the print file.

6 Start the creation of the print file with **Print**.

4 Importing/Exporting

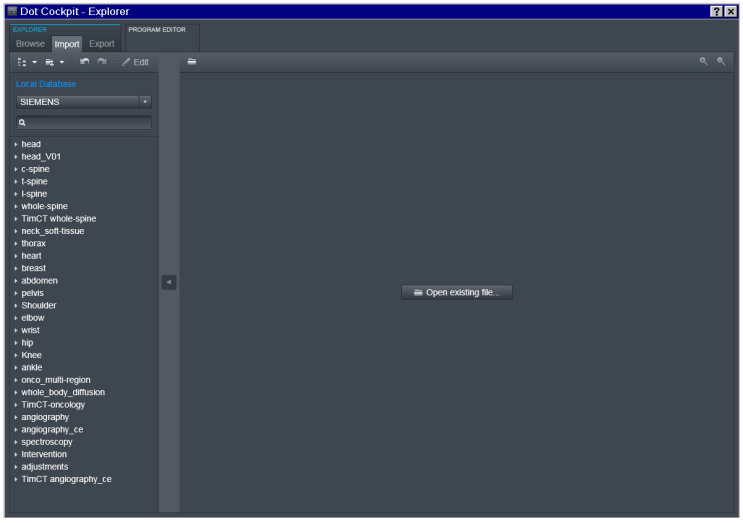
4.1 Importing objects to the exam database

Using the **Import** subtask of the **Dot Cockpit - Explorer**, you can import objects (regions, exams, programs, or steps) from a network address or an external data carrier (for example, memory stick) to the exam database.

You can import one or more programs from an external file.

- On the same system with the same version with the same configuration
- From another system. During the import all programs are converted to the current system.
- From an older software version. During the import all programs are converted to the current version and current system.

✓ **Import** subtask is open

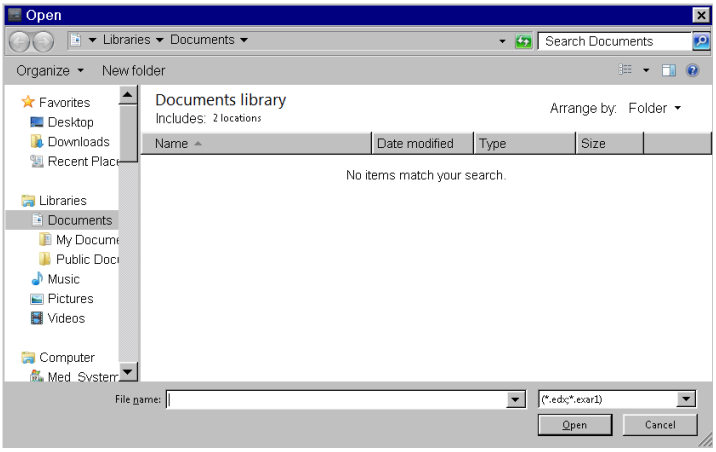


The left area is similar to the **Browser** subtask with the tree view, search&select and the toolbar.

1 In the tree view: Select the entry where you would like to import data.

2 Open the external files by clicking **Open existing file...**.

The **Open** dialog window opens.



3 Select the external file to be imported.

Supported import file formats:

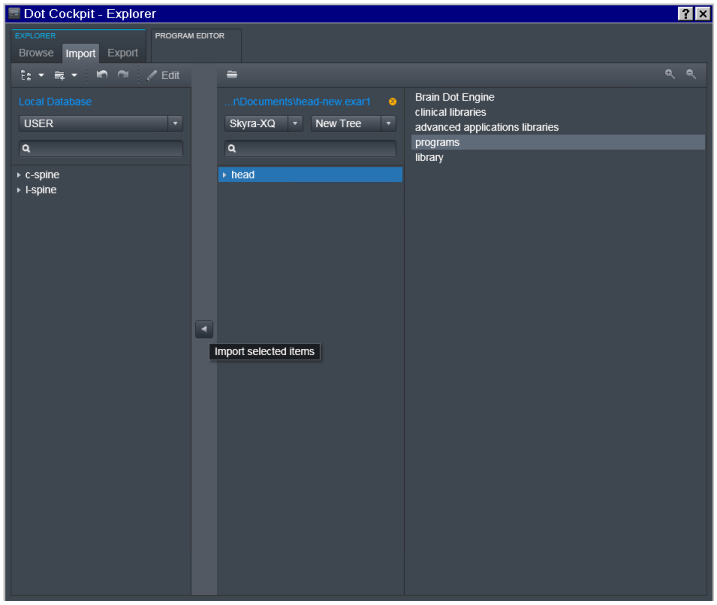
- edx
- exar1

4 Confirm your selection with **Open**.

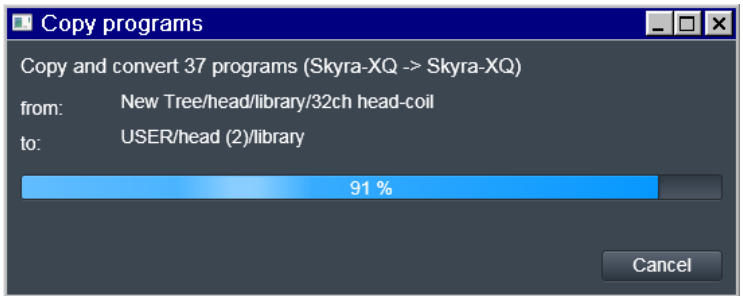
The selected file is displayed in the **Import** subtask. It shows the objects contained in the edx or exar1 file.

5 Select the objects to be imported.

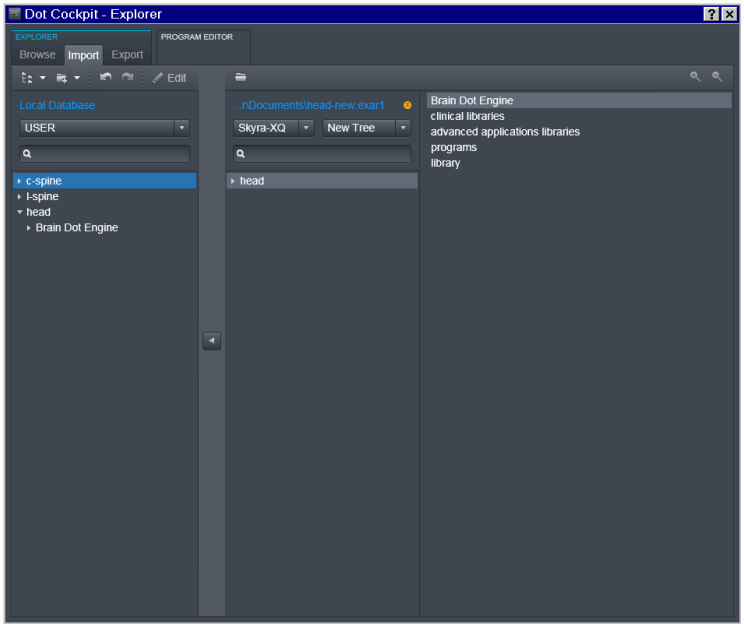
6 Start the import by clicking the arrow icon or via drag & drop.



During the import, the system checks whether the program can be executed, licensing exists for protocols/sequences, and protocol parameters are consistent.



The imported objects are appended in the tree view to the end of the directory selected.

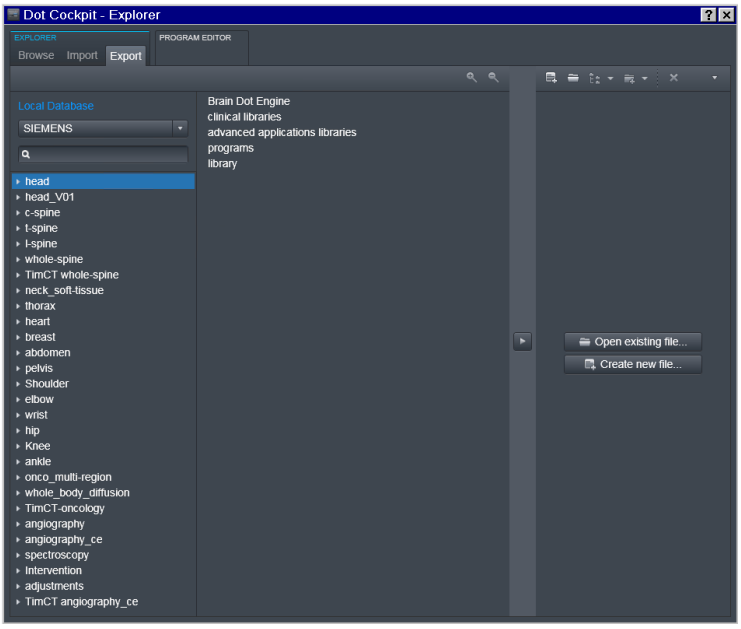


4.2 Exporting objects from the exam database

Using the **Export** subtask of the **Dot Cockpit - Explorer**, you can export objects (regions, exams, or programs) from your examination database to a network address or to an external data carrier (for example, memory stick).

The exported objects are retained on your system. The export function only copies the objects to the target drive or network address.

✓ **Export** subtask is open



The left area is similar to the **Browser** subtask with the tree view, tree selection, and object search.

The right area enables you to export to existing files, that is, databases or to create new files.

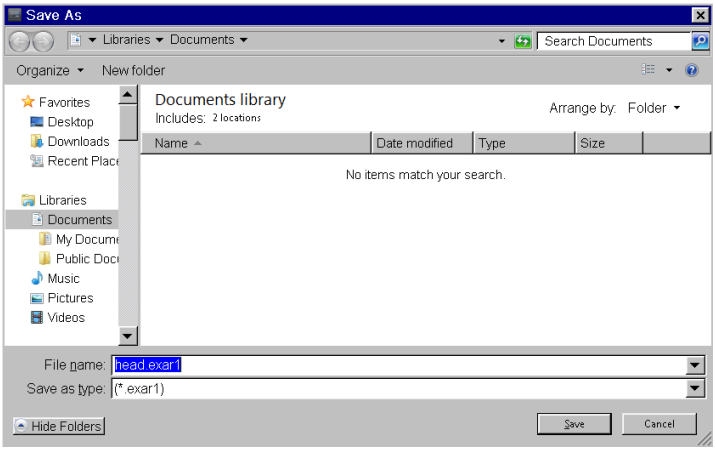
1 In the tree view or content area: Select the object to be exported.

2 Start the export by clicking the arrow icon.

– or –

Select **Create new file...**.

The **Save As** dialog window opens.

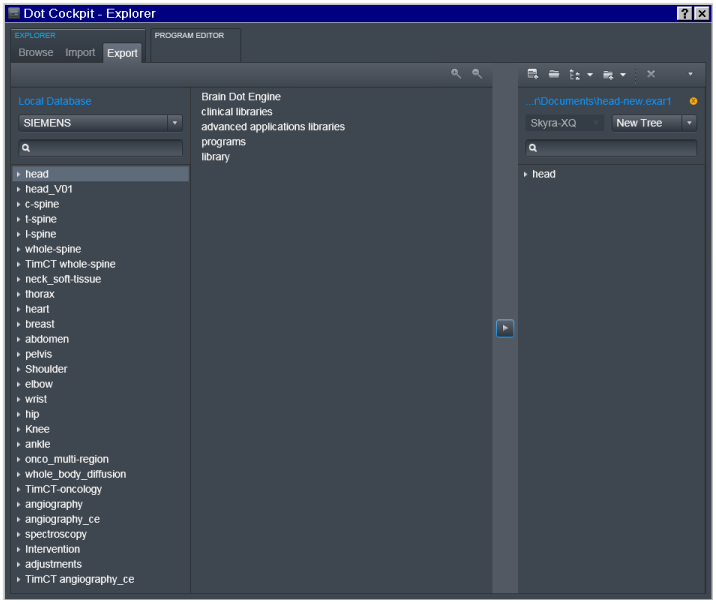


3 Select the export location.

4 Enter a name for the export file (file extension exar1)

5 Save the export file with **Save**.

The export file is displayed in the right area of the **Export** subtask.



6 Select the objects to be exported.

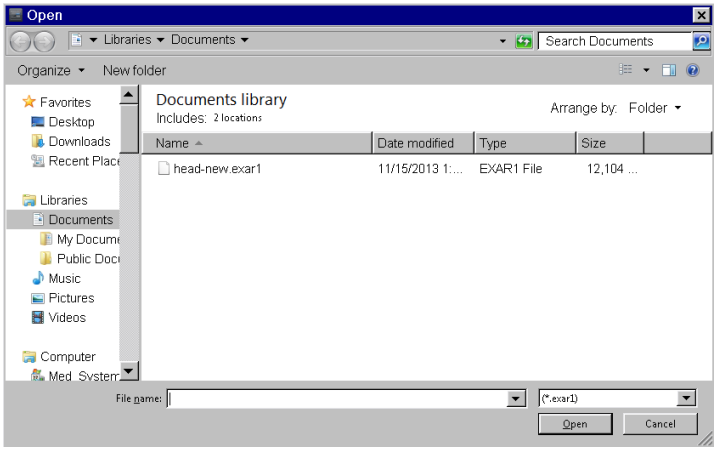
7 Start the export by clicking the arrow icon or via drag & drop.

4.2.1 Open existing files

If you want to export to an existing file:

1 Open the external files by clicking **Open existing file...**.

The **Open** dialog window opens.



2 Select the external file to be imported.

3 Confirm your selection with **Open**.

The selected file is displayed in the **Export** subtask. It shows the objects contained in the exar1 file.

4 Select the objects to be exported.

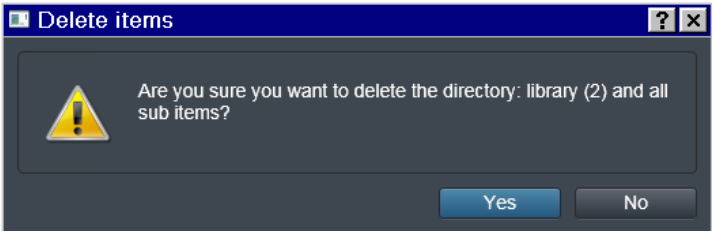
5 Start the export by clicking the arrow icon or via drag & drop.

4.2.2 Deleting objects from the export file

1 In the right area of the **Export** subtask: Select the objects to be deleted.

2 Click the **Delete** icon in the toolbar.

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



4 Importing/Exporting

5 Editing properties

5 Editing properties

5.1 Properties dialog windows

You can open the **Properties** dialog windows to obtain information about the characteristics of the program's steps.

- In the **Explorer**: read only
- In the **Program Editor**: changeable

The read-only mode of the **Properties** dialog windows is used in cases where storing is not possible (for example, Siemens Tree), or changing (already measured steps).

In the **Program Editor**, all parameters of a step are available for editing in the **Properties** dialog windows and in subsequent sub-dialog windows.

There is a **Properties** dialog window for each step type:

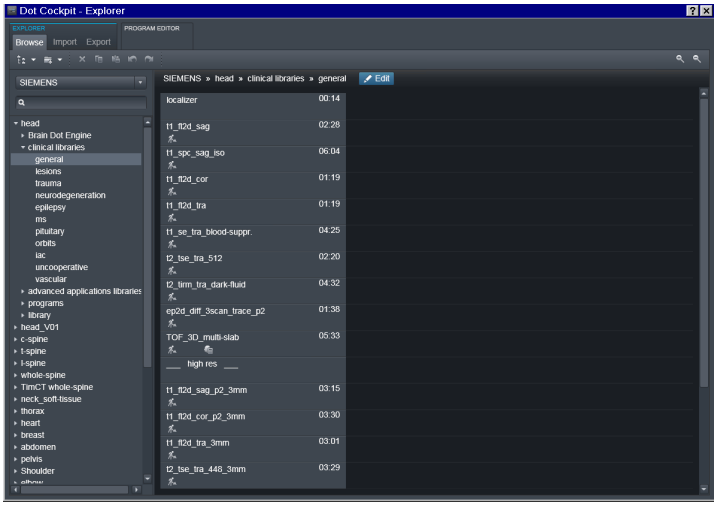
- Measurement **Step Properties** (→ Page 61 *Editing measurement step properties*)
- Workflow **Step Properties** (→ Page 82 *Editing workflow step properties*)
- Strategy **Step Properties** (→ Page 81 *Editing strategy properties*)
- Interaction **Step Properties** (→ Page 75 *Editing interaction step properties*)
- Pause **Step Properties** (→ Page 78 *Editing pause step properties*)
- Decision **Step Properties** (→ Page 73 *Editing decision step properties*)
- Decision **Properties** (→ Page 71 *Editing decision properties*)

5.2 Opening Properties dialog windows

Using the **Edit** subtask of the **Program Editor**, you can edit the properties of a program step by opening the corresponding **Properties** dialog windows.

1 Select a measurement program in the **Browse** subtask of the **Explorer**.

  In the content area, the **Edit** button is displayed.



2 Click the **Edit** button.

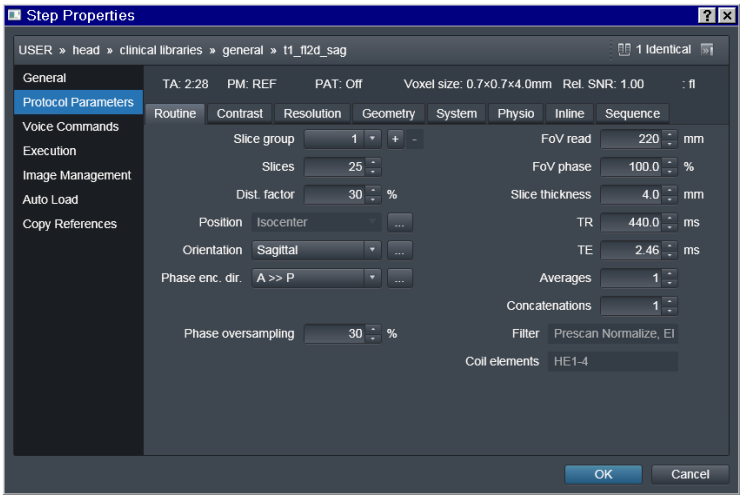
– or –

Select **Edit** in the context menu of the measurement program/ sequence (right-click with the mouse).

The selected measurement program is loaded in the working area of the **Edit** subtask of the **Program Editor**.

3 Double-click the program step.

The **Properties** dialog window of the selected step is opened. You can now edit all parameters of the corresponding step.

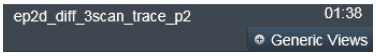


Example: Step Properties dialog window of a measurement step.

You may also open a read-only variant of the **Properties** dialog window by selecting **View Properties...** in the context menu.

5.3 Editing measurement step properties

A measurement step is a step with a protocol and optionally an Add-In configuration. Every measurement step contains an associated protocol.



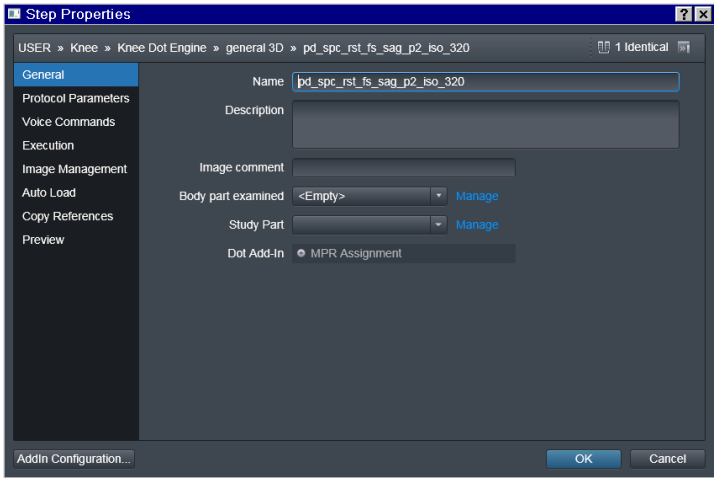
Display in the structogram

Using the **Step Properties** dialog window, all properties of the measurement step can be changed.

✓ **Step Properties** dialog window of a measurement step is open

5.3.1 Editing general step properties

1 Select the **General** card.



2 **Name**: Enter a protocol name.

The name of the protocol is used as a series description for the images acquired with this protocol. It is shown, for example, in the **Patient Browser**.

3 **Description**: Provide a description of the protocol.

You can enter free text as well as multiple lines by pressing the **Return** key on your keyboard.

When you put the mouse pointer on a protocol entry in the program control, the protocol designation and description are shown temporarily.

4 **Image comment**: Enter a comment for the image series, for example, left or right for extremities.

The image comment is displayed in the image text.

5 **Body part examined**: From the drop-down list, select the body region to be examined during the examination.

To edit, supplement, or reduce the list of selectable body regions, click the **Manage** button (→ Page 97 *Managing the list of selectable body parts*).

6 **Study Part**: From the drop-down list, select the procedure to which the step should be assigned.

To supplement or reduce the list of selectable procedures, click the **Manage** button (→ Page 99 *Managing the list of selectable procedures*).

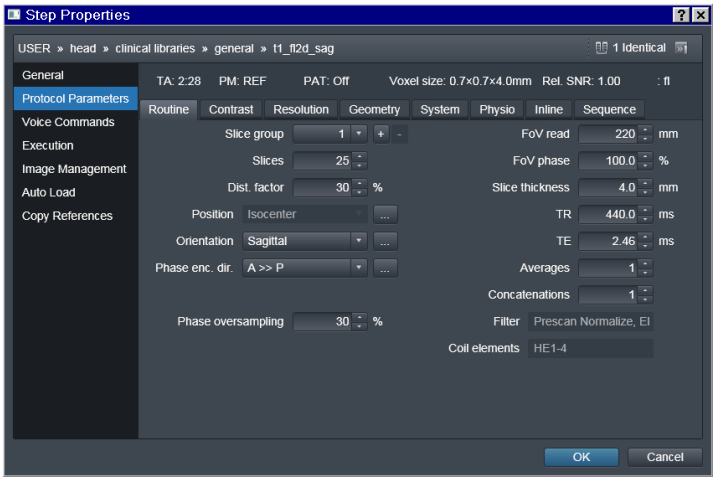
If the measurement step uses a Dot Add-In, it is displayed next to **Dot Add-In**.

7 If you want to attach a Dot Add-In to a step, drag the Add-In from the sidebar of the **Program Editor** to the step (→ Page 127 *Inserting default Add-Ins*).

8 Confirm your modifications with **OK**.

5.3.2 Editing protocol parameters

1 Select the **Protocol Parameters** card.



2 Set the required protocol parameters.

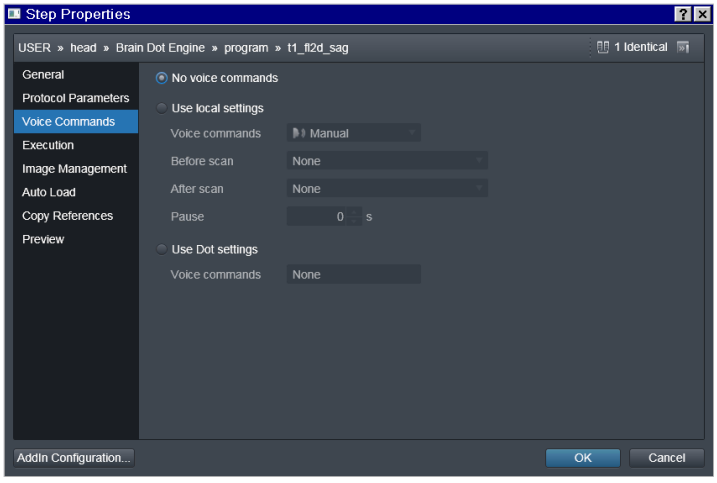
For a detailed description, please refer to the Online Help.

3 Confirm your modifications with **OK**.

5.3.3 Editing voice commands

Voice commands are patient instructions that occur mainly for measurements with breathholds.

1 Select the **Voice Commands** card.



2 **No voice commands**: Select the radio button if no voice commands are necessary.

3 **Use local settings**: Select the radio button to use voice commands.

4 If you want to give the voice commands via interphone, select **Manual**.

In the structogram, the measurement step will be marked with a sonic symbol.

5 If the voice commands should be played back automatically, select **Automatic**.

In the structogram, the measurement step will be marked with a loudspeaker symbol.

You can use several automatic voice commands.

- **Before scan/After scan**: From a list of available automatic voice commands, you can select a sound file played before/after the measurement.
- **Pause**: You can enter a pause value between the breathholds and before the first breathhold.

6 Set the required automatic voice commands.

7 **Use Dot settings**: Select the radio button if you want to use the Dot settings of the **Patient view**.

The displayed parameters are read-only.

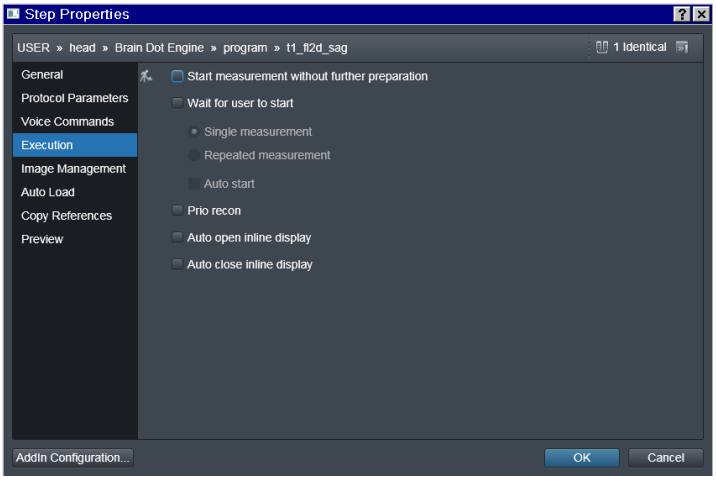
If no Dot settings exists, **None** is displayed.

8 Confirm your modifications with **OK**.

5.3.4 Editing the start options

On the **Execution** card you can define the start options of the protocol.

◆ Select the **Execution** card.



Starting the measurement with/without preparation

1 If you want to check the protocol parameters in the queue prior to the measurement, deactivate the **Start measurement without further preparation** checkbox.

In the structogram and the queue, the measurement step will be marked with the working man symbol.

2 To start the protocol automatically in the queue, select the **Start measurement without further preparation** checkbox.

The working man symbol is removed.

Localizers are usually started automatically without being checked.

Starting the measurement manually

For some examinations (for example, protocols with breathhold commands), it is better to set manual start-up. In this case, the MR system stops after the adjustment. You can then give the breathhold command and start the measurement manually.

1 Select the **Wait for user to start** checkbox.

2 Decide whether the protocol should be measured once or several times.

3 Select the **Single measurement** radio button.

In the structogram and the queue, the measurement step will be marked with an arrow.

– or –

Select the **Repeated measurement** radio button.

In the structogram and the queue, the measurement step will be marked with an arrow with three points

Prior to each new measurement, a dialog window is displayed allowing you to start the protocol.

The **Auto start** option is suitable for measurements with countdown (for example, angiographies). When clicking the **Start** button in the **Exam paused** dialog window, the measurement starts immediately after the countdown has expired.

4 Select the **Auto start** checkbox for countdown measurements.

Setting the priority of image reconstruction

◆ Select the **Prio recon** checkbox.

The image reconstruction for this protocol is performed with higher priority.

Setting options for the inline display

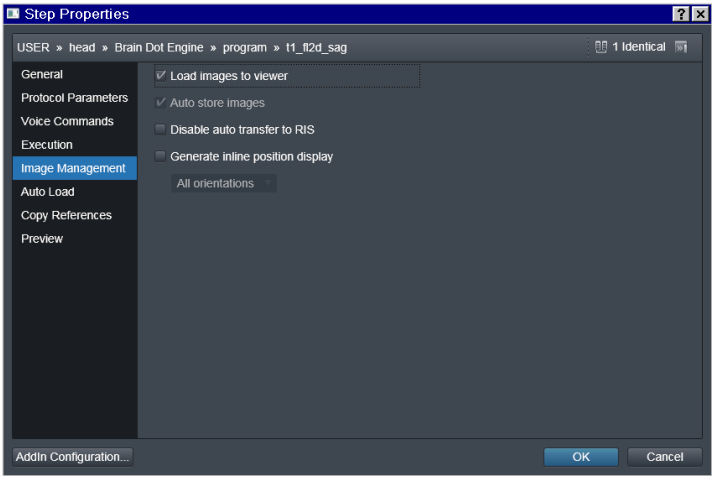
1 **Auto open inline display**: Select the checkbox if the inline display should be opened when the protocol is measured.

The images can be viewed and checked immediately after reconstruction.

2 **Auto close inline display**: Select the checkbox if the inline display should be closed when the measurement is finished.

5.3.5 Managing images

1 Select the **Image Management** card.



2 **Load images to viewer**: Select the checkbox to load the images automatically into the **Viewing** task card.

3 **Auto store images**: Select the checkbox to store the images measured automatically.

This option cannot be deactivated for most protocols. In a few cases (for example, real-time protocols), you are able to switch off **Auto store images** and manually save individual images displayed in the inline display.

4 **Disable auto transfer to RIS**: Select the checkbox to prevent automatic DICOM transfer of images from the current protocol.

5 **Generate inline position display**: Select the checkbox to create a position display for every measured series.

In the selection list, you can define which reference images should be used.

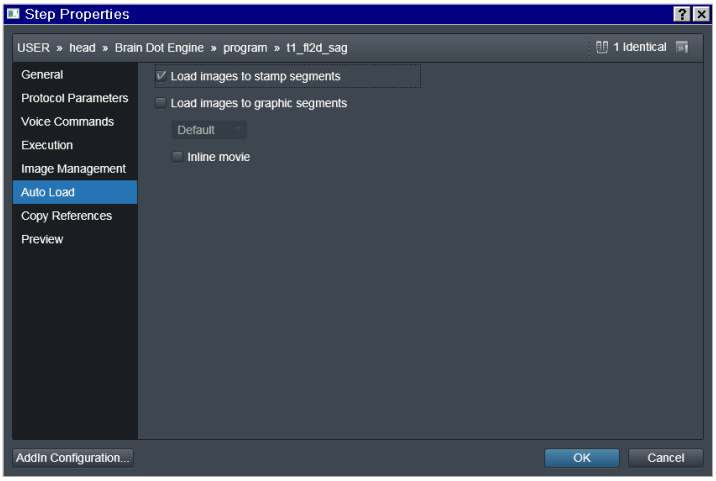
If you activate the **Load images to viewer** checkbox, the position display of the series is automatically loaded into the **Viewing** task card.

The **Generate inline position display** checkbox and the selection list are only enabled if the measurement sequence generates images, otherwise, they are disabled (for example, for spectroscopy no images will be generated).

6 Confirm your modifications with **OK**.

5.3.6 Loading images automatically

1 Select the **Auto Load** card.



2 **Load images to stamp segments**: Select the checkbox to load the measured images automatically into the stamp segments of the GSP.

3 **Load images to graphic segments**: Select the checkbox to load the measured images automatically into the planning segments of the GSP.

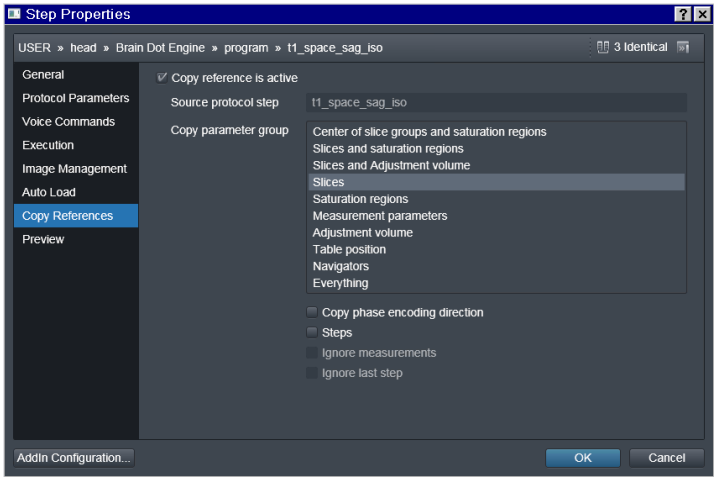
In the selection list, you can define which segments should be used.

4 **Inline movie**: Select the checkbox to start the movie display with the **Movie Properties** preset in the GSP.

5 Confirm your modifications with **OK**.

5.3.7 Editing copy references

1 Select the **Copy References** card.



2 Set the required options.

For a detailed description, please refer to (→ Page 89 *Creating copy references*).

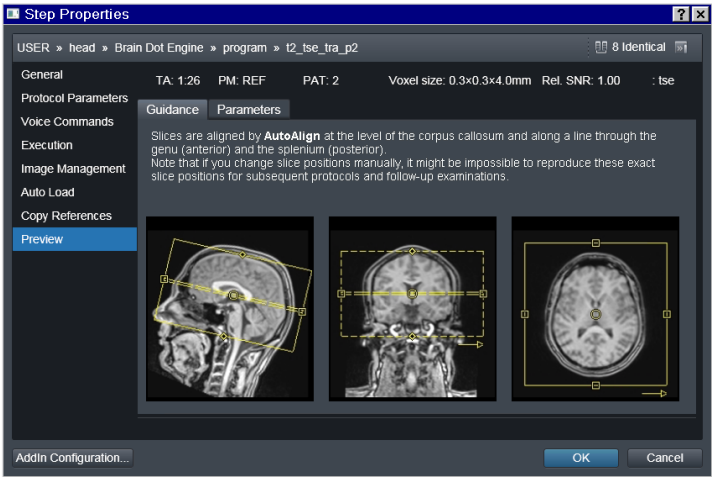
3 Confirm your modifications with **OK**.

5.3.8 Displaying Add-In previews

✓ Measurement step uses an Add-In

◆ Select the **Preview** card.

In general, the guidance as well as the reduced parameter views are displayed. The views are a preview of the views shown when the step is opened in the queue.

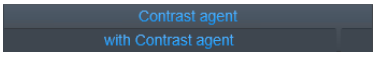


5.4 Editing decision properties

Decisions are the notion of a topic with several choices. They build the structure of an examination by offering different paths.

Examples:

- The topic **MRCP** with the choices **Yes** and **No**
- The topic **Contrast agent** with the choices **with** and **without**
- The topic **Voice Commands** with the choices **None**, **Manual** and **Auto**

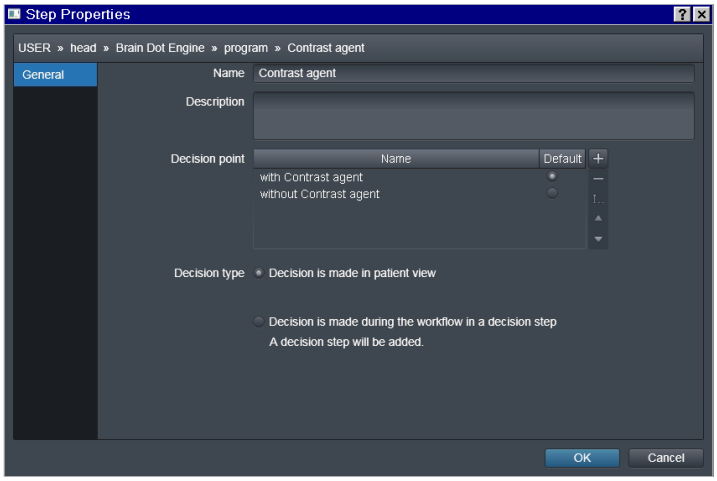


Display in the structogram

Using the **Properties** dialog window, all properties of the decision can be changed.

✓ **Properties** dialog window of a decision is open

1 Select the **General** card.



2 **Name**: Enter a unique decision name.

The name is automatically applied to the **Decision point** in the decision step (→ Page 73 *Editing decision step properties*).

3 **Description**: Provide a description of the decision.

You can enter free text as well as multiple lines by pressing the **Return** key on your keyboard.

4 **Decision point**: Select a decision point from the list by clicking the radio button.

You are able to edit the list of decision points (→ Page 73 *Editing decision points*).

The decision type defines if you can make the decision in the Patient View or within the workflow.

5 **Decision type**: Set the desired type of decision by selecting the corresponding radio button.

- **Decision is made in patient view**: All decision steps affecting the path of the selected decision are removed. The decisions are applied to the patient before examination begins.
- **Decision is made during the workflow...**: When changing from the Patient View to workflow, a decision step is added to all identical decisions affecting the path of the selected decision. This type of decision is taken during the examination based on patient findings.

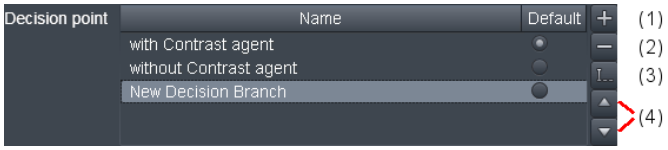
6 Confirm your modifications with **OK**.

5.4.1 Editing decision points

A decision point is associated with one specific decision. It is used like a fork in the road where a branch is available for each choice. The branches can be filled with steps so that just the relevant steps for this choice are included.

You can add, rename, remove, or change the order of the decision points.

◆ Select the required task by clicking the corresponding icon.



Example: New decision point added

(1) Add new decision point

(2) Delete decision point

(3) Rename decision point

(4) Move up/move down decision point

5.5 Editing decision step properties

A decision step is associated with one specific decision. It is a switch in the measurement queue, which allows to change the active choice of the associated decision. The active choice defines which branches of the decision points are used. During examination the queue reflects changes to the active choices immediately.

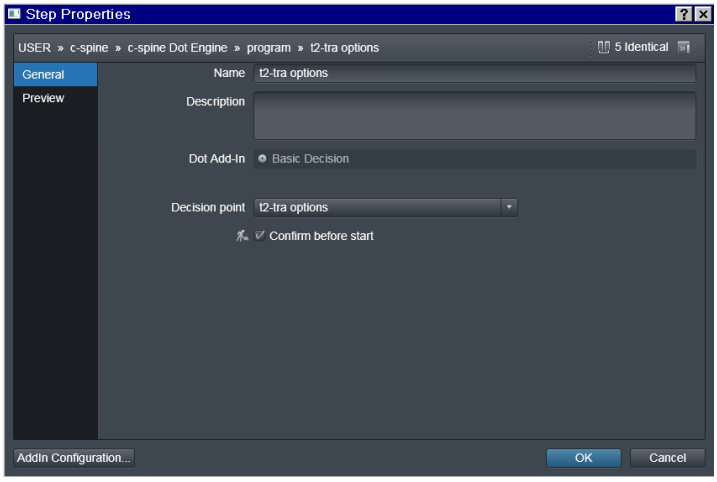
Display in the structogram

Using the **Step Properties** dialog window, all properties of the decision step can be changed.

✓ **Step Properties** dialog window of a decision step is open

5.5.1 Editing general step properties

1 Select the **General** card.



2 **Name**: Enter a unique decision step name.

3 **Description**: Provide a description of the decision step.

You can enter free text as well as multiple lines by pressing the **Return** key on your keyboard.

If the decision step uses a Dot Add-In, it is displayed next to **Dot Add-In**.

4 If you want to attach a Dot Add-In to a step, drag the Add-In from the sidebar of the **Program Editor** to the step (→ Page 127 *Inserting default Add-Ins*).

The name of the **Decision point** is automatically applied from the name of the decision (→ Page 71 *Editing decision properties*).

5 If you want to change the name of the **Decision point**, select it.

6 **Confirm before start**: Select the checkbox if you want to confirm the parameters in the queue prior to the measurement.

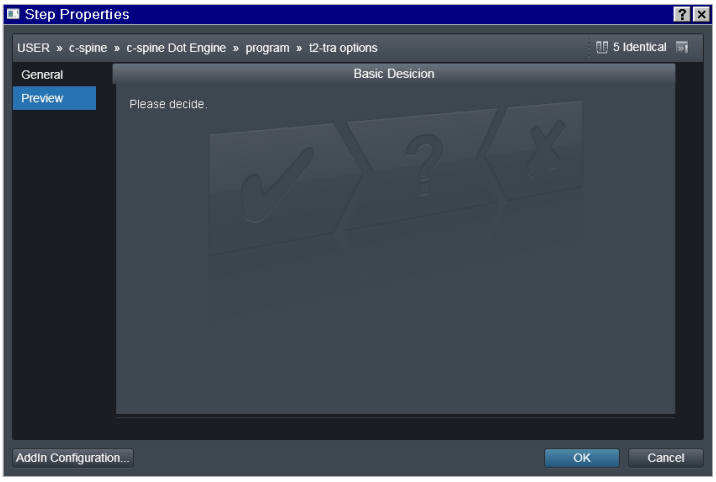
In the structogram and the queue, the decision step will be marked with the working man symbol.

7 Confirm your modifications with **OK**.

5.5.2 Displaying Add-In previews

◆ Select the **Preview** card.

The view displayed is a preview of the view shown when the step is opened in the queue.



5.6 Editing interaction step properties

Interaction steps are used for planning activities.

The handling of interaction steps in the measurement queue is very similar to the handling of measurement steps. They can be opened and applied, and they change their state from pending to done. The only difference is that interaction steps **do not contain a protocol** and therefore cannot have the running state.

You can open the interaction step and interact with its Guidance View. If you apply the interaction step, the results of the planning activity are written into the exam memory and can be reused in later steps of the measurement queue.

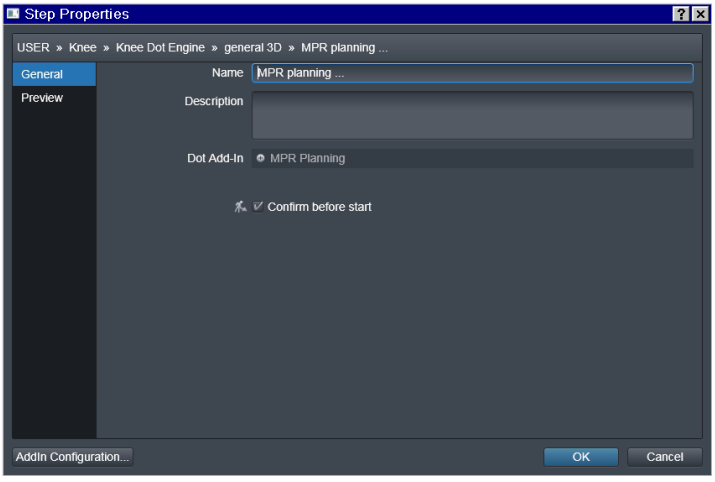
Display in the structogram

Using the **Step Properties** dialog window, all properties of the interaction step can be changed.

✓ **Step Properties** dialog window of an interaction step is open

5.6.1 Editing general step properties

1 Select the **General** card.



2 **Name**: Enter a unique interaction step name.

3 **Description**: Provide a description of the interaction step.

You can enter free text as well as multiple lines by pressing the **Return** key on your keyboard.

If the interaction step uses a Dot Add-In, it is displayed next to **Dot Add-In**.

4 If you want to attach a Dot Add-In to a step, drag the Add-In from the sidebar of the **Program Editor** to the step (→ Page 127 *Inserting default Add-Ins*).

5 **Confirm before start**: Select the checkbox if you want to confirm the parameters in the queue prior to the measurement.

In the structogram and the queue, the interaction step will be marked with the working man symbol.

6 Confirm your modifications with **OK**.

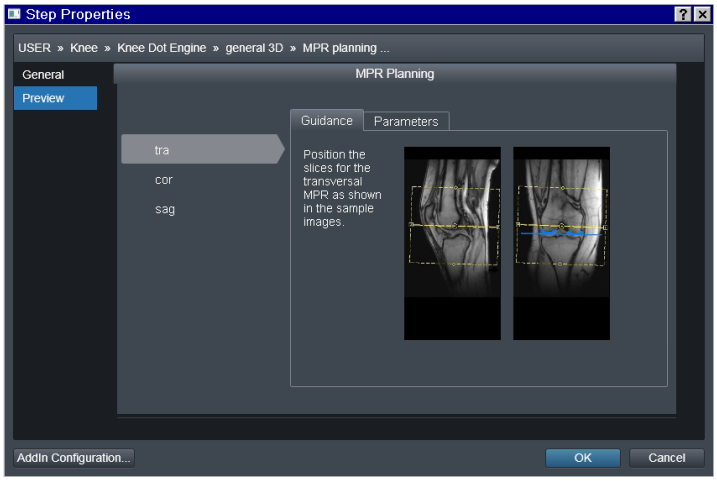
5.6.2 Displaying Add-In previews

The displayed parameters are determined from the used Add-In.

The default is the **Generic Views** Add-In.

◆ Select the **Preview** card.

The view displayed is a preview of the view shown when the step is opened in the queue.



5.7 Editing pause step properties

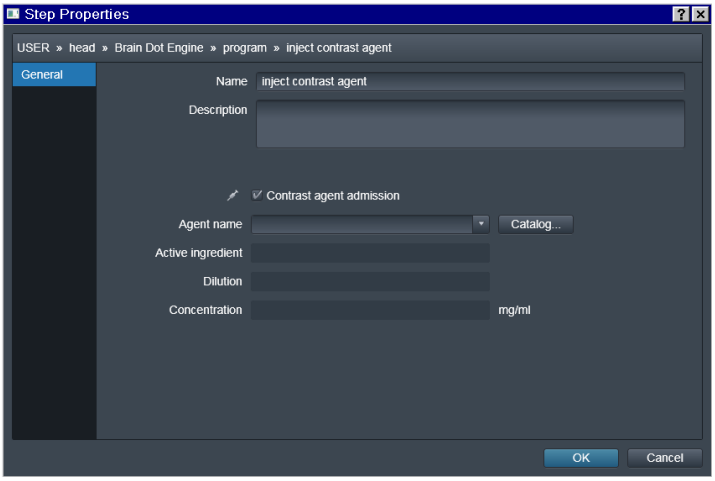
A pause step is a program step to stop the measurement queue. This way you are able to perform an interaction, for example, inject contrast agent. The pause step is considered completed, after you confirmed the step.

Display in the structogram

Using the **Step Properties** dialog window, all properties of the pause step can be changed.

✓ **Step Properties** dialog window of a pause step is open

1 Select the **General** card.



2 **Name**: Enter a unique pause name.

The name should describe the purpose of the pause.

3 **Description**: Provide a description of the pause.

You can enter free text as well as multiple lines by pressing the **Return** key on your keyboard.

4 **Contrast agent admission**: Select the checkbox if you want to use contrast agent.

The **Contrast agent** selection list and the **Catalog...** button are enabled.

5 Select a contrast agent from the list.

The fields **Active ingredient**, **Dilution**, and **Concentration** are filled with the help of the catalog.

You are able to edit the contrast agent catalog (→ Page 79 *Editing the contrast agent catalog*).

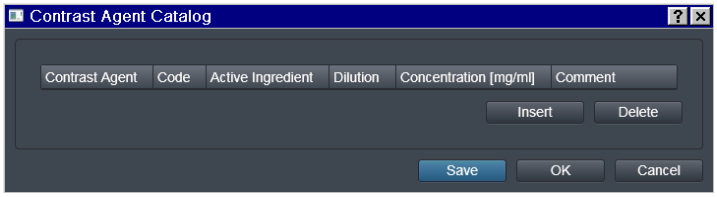
6 Confirm your modifications with **OK**.

5.7.1 Editing the contrast agent catalog

You are able to amend or reduce the contrast agent catalog.

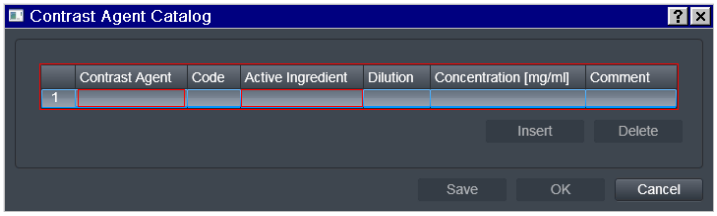
✓ **Contrast agent admission** checkbox is selected

1 Open the contrast agent catalog by clicking the **Catalog...** button.



2 To add a contrast agent, click **Insert**.

A new line is inserted into the catalog.



Data marked in red are mandatory.

3 Enter the required data.

You need the code if you want to document the contrast agent used via the HIS (Hospital Information System). The data are entered as consumables.

4 To delete a contrast agent from the catalog, click **Delete** and **OK**.

The contrast agent is removed from the catalog.

5 Confirm your entries with **Save**.

The modifications are applied to the catalog.

5.8 Editing strategy properties

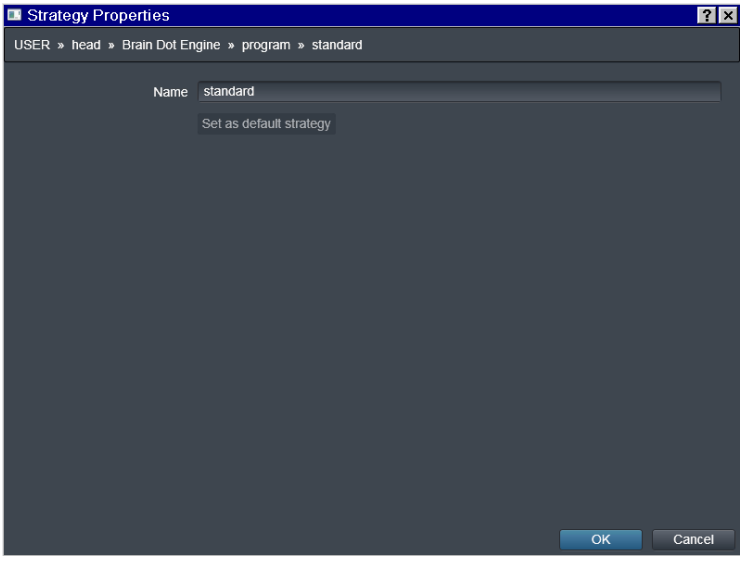
For Dot Engines several parallel program paths for a dedicated examination can be configured. These paths are called **strategies**. Prior and during an examination, you can change the measurement strategy according to the needs of the measurement and the patient behavior.

A strategy is a set of predefined steps, which together create a program for a specific patient situation.

Display in the structogram

Using the **Properties** dialog window, all properties of the strategy can be changed.

✓ **Properties** dialog window of a strategy is open



1 **Name**: Enter a unique strategy name.

2 **Set as default strategy**: Click the button to confirm the strategy selected as the default.

3 Confirm your modifications with **OK**.

5.9 Editing workflow step properties

A workflow step is a step which symbolizes the whole workflow and **always** has an associated Add-In configuration (Patient View).

Rule of thumb:

- maximum of one per program
- with Add-In configuration (Patient View)

Display in the structogram

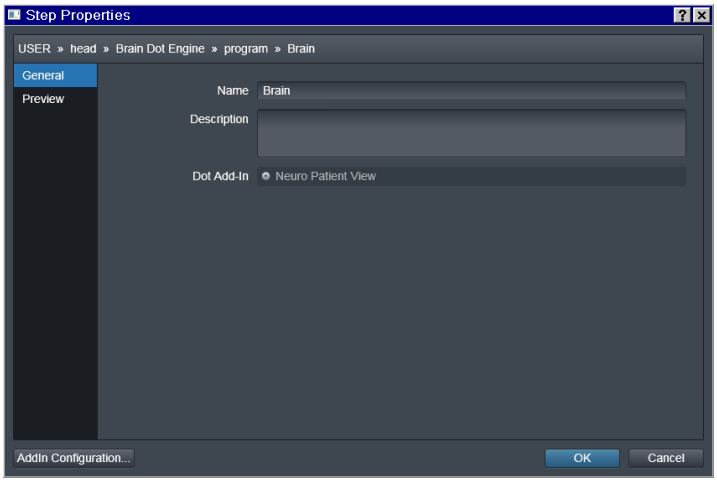
The Patient View is the View (User Interface) of the Workflow Add-In.

Using the **Step Properties** dialog window, all properties of the workflow step can be changed.

✓ **Step Properties** dialog window of a workflow step is open

5.9.1 Editing general step properties

1 Select the **General** card.



2 **Name**: Enter a unique workflow name.

3 **Description**: Provide a description of the workflow.

You can enter free text as well as multiple lines by pressing the **Return** key on your keyboard.

The used Patient View Add-In is displayed next to **Dot Add-In**.

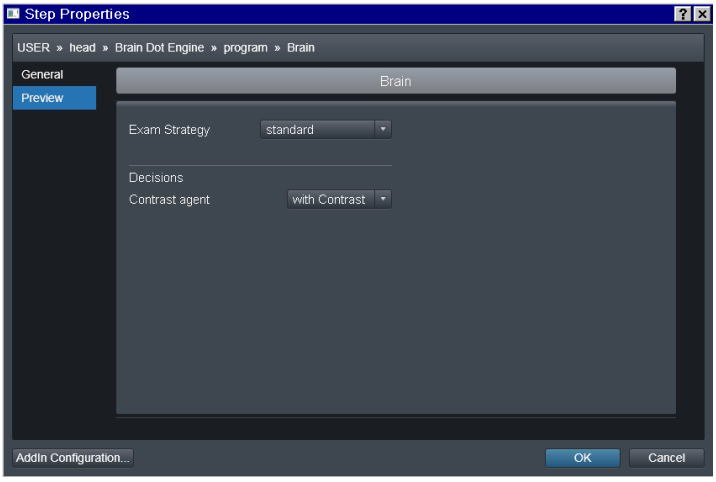
4 If you want to attach a Patient View Add-In to a step, drag the Add-In from the sidebar of the **Program Editor** to the step (→ Page 129 *Exchanging the Patient View Add-In*).

5 Confirm your modifications with **OK**.

5.9.2 Displaying Add-In previews

◆ Select the **Preview** card.

The Patient View displayed is a preview of the view shown when the step is opened in the queue.



5.10 Editing directory properties

To edit the properties of directories, that is regions, exams, and programs, use the **Directory Properties** dialog window.

✓ Directory is **not** part of the Siemens tree

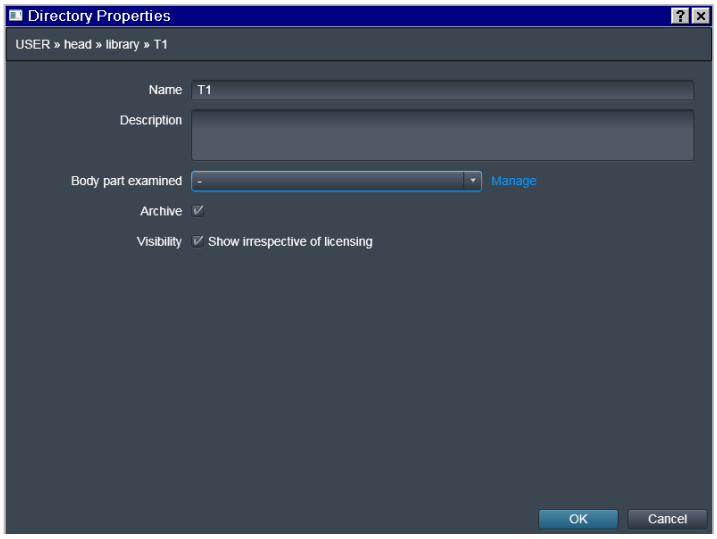
1 Select a directory in the tree view of the **Browse** subtask of the **Explorer**.

2 Select **Edit Properties...** in the context menu of the directory (right-click with the mouse).

– or –

Press the key combination **Alt**+**Enter**.

The **Directory Properties** dialog window of the selected element is opened.



3 **Name**: Enter a unique name.

4 **Description**: Provide a description of the element.

You can enter free text as well as multiple lines by pressing the **Return** key on your keyboard.

5 **Body part examined**: From the drop-down list, select the body region to be examined during the examination.

To edit, supplement, or reduce the list of selectable body regions, click the **Manage** button (→ Page 97 *Managing the list of selectable body parts*).

6 **Archive**: Select the checkbox if you want to preserve your programs in case of data recovery or software updates.

Any change within a program, for example, renaming the program, adding or removing steps, results in activating the **Archive** option.

Only the elements with enabled **Archive** option are copied to the new User Tree.

Elements for which the **Archive** option has not been set are usually replaced by original Siemens programs.

In contrast to programs, libraries are just collections of program steps. Normally, a program where one or more steps/Add-Ins are not licensed will not be displayed in the **Dot Cockpit**. Therefore, its steps cannot be accessed. To select a program as a library you can set the **Show irrespective of licensing** attribute.

7 **Visibility – Show irrespective of licensing**: Select the checkbox.

All measurement steps of the library are displayed, whereby all non-licensed steps are greyed out and cannot be used.

8 Confirm your modifications with **OK**.

5.11 Editing the properties for several protocols

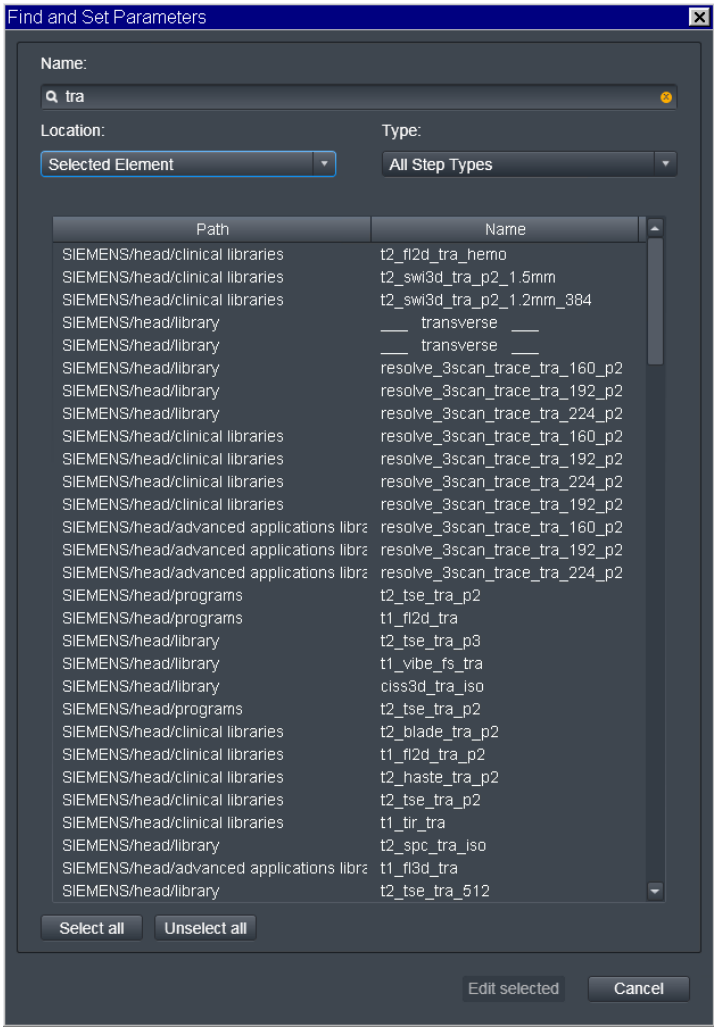
If you want to set the properties of several steps to a uniform setting, the **Dot Cockpit** enables you to do this.

Prior to editing the step properties, you have to select the requested protocols with a search dialog.

1 Select a directory (region, exam, or program) in the tree view of the **Browse** subtask of the **Explorer**.

2 Select **Find** in the context menu of the directory (right-click with the mouse).

The **Find and Set Parameters** dialog window opens.



3 Perform the required settings for the search.

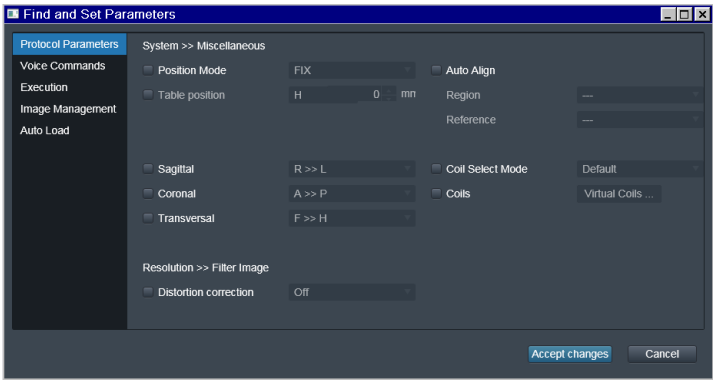
You will receive a list of the objects located including their path.

To set common parameters in different steps, it is helpful to limit the search result to a specific step type.

4 **Type**: Select the requested step type for the search.

5 In the search result list, mark or unmark single steps (multi-selection is possible).

6 Click **Edit selected** to open the dialog window for setting the parameters.



You can edit a subset of settings, for example, protocol parameters or voice commands.

7 Confirm your modifications with **Accept changes**.

The modifications are applied to all selected steps.

5.12 Displaying identical configurations

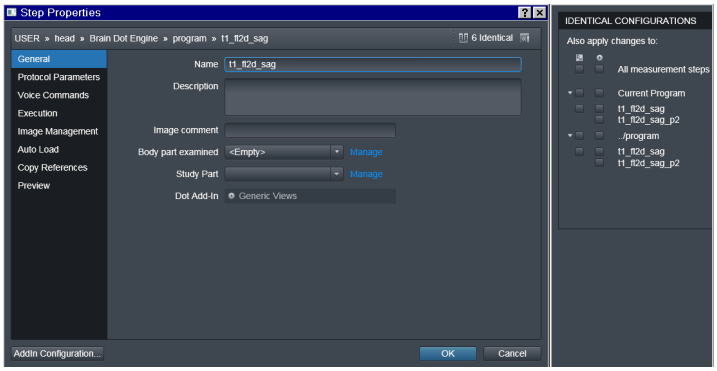
If you have edited a measurement step, you are able to apply the changes to all identical measurement steps. The **Identical Configurations** subtask card helps to prevent that changes are overlooked by mistake.

✓ **Step Properties** dialog window is open

✓ Step has been modified

1 To display the identical measurement steps, open the **Identical Configuration** subtask card by clicking the **Identical** field.

Clicking the field again closes the subtask card.

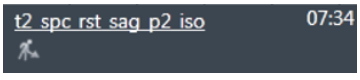


2 To display the path of the measurement step, move the mouse over the step.

3 Decide whether to apply your changes to all measurement steps (by clicking the respective checkbox) or just to a single one by selecting single checkboxes.

5.13 Displaying upgrade info

If a protocol has been modified by a software update, the **Step Properties** dialog window will include the **Upgrade Info** subtask card. It enables you to determine the day the changes were made as well as the changes.

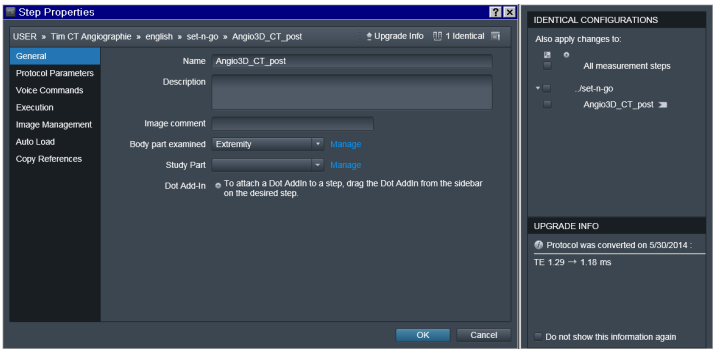


The names of the steps are underlined in the structogram.

✓ **Step Properties** dialog window is open

1 To see the change information, open the **Upgrade Info** subtask card by clicking the **Upgrade Info** field.

Clicking the field again closes the subtask card.



2 If you do not need the change information any longer, select the **Do not show this information again** checkbox.

The underlining of the name disappears. All upgrade information is removed from the subtask card and no longer available for this protocol.

5.14 Creating copy references

Copy references ensure copying of specific parameter groups from a source to one or several target protocols. In this way, a dependency between source and target protocol is established.

✓ Measurement program is open in the **Program Editor**

Copy references may be created via context menu or toolbar. The operation can only be performed if exactly two measurement steps are selected and there exists an execution path with both steps. The first step in the execution path is used as source, the other step as target of the copy reference. Therefore, it is not possible to create copy references if both steps are in different strategies.

For Dot Engines: **Copy References** cannot be set across strategies.

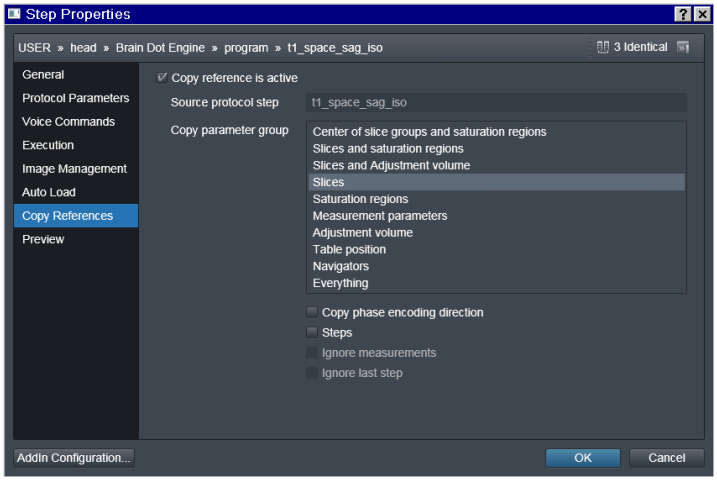
1 Select two measurement steps in the program.

2 In the toolbar of the **Program Editor**, select the **Create CopyRef** icon.

– or –

Select **Create CopyRef** from the context menu (right-click with the mouse).

The **Copy References** card of the **Step Properties** dialog window from the lower step is opened.



The **Copy reference is active** checkbox is selected.

The **Source protocol step** indicates the selected source step.

3 In the **Copy parameter group** list: Select the parameter settings you would like to apply from the source to the target protocol.

You can only apply the settings of parameter groups, but not those of individual parameters.

Copy parameter group	Parameters
Center of slice groups and saturation regions	■ Coil element selection (without matrix mode) ■ **Slice/slab groups** Position, orientation, and rotation ■ **Sat. regions** Position, orientation, and thickness ■ **Navigators** Position, orientation, rotation, extension in phase-encoding and readout direction, thickness
Slices and saturation regions	■ Coil element selection (without matrix mode) ■ Slice thickness ■ **Slice/slab groups** Number of slices/slab groups Number of slices/slabs per group Position, orientation, rotation, distance factor ■ **Sat. regions** Number, position, orientation, and thickness of sat. regions, Number, thickness and gap of parallel/tracking sat. regions, sat. mode ■ **Navigators** Position, orientation, rotation, extension in phase-encoding and readout direction, thickness

Copy parameter group	Parameters
Slices	■ Coil element selection (without matrix mode) ■ Image numbering ■ Slice thickness ■ **Slice/slab groups** Number of slices/slab groups Number of slices/slabs per group Position, orientation, rotation, distance factor ■ **Navigators** Position, orientation, rotation, extension in phase-encoding and readout direction, thickness
Saturation regions	■ **Sat. regions** Position, orientation, position, and thickness ■ **Parallel/tracking sat. regions** Number, thickness, and gap ■ Saturation mode

Copy parameter group	Parameters
Measurement parameters	■ Coil element selection (without matrix mode) ■ Image numbering ■ **FoV slice** FoV readout FoV phase Basic resolution, phase resolution, slice resolution phase oversampling, slice oversampling slice thickness ■ Radial views, radial interleaves, BLADE coverage ■ **Slice/slab groups** Number of slices/slab groups Number of slices/slabs Position, orientation, rotation, distance factor, phase-encoding direction ■ **Sat. regions** Number, position, orientation, and thickness of sat. regions, Number, thickness and gap of parallel/tracking sat. regions, Sat. mode ■ VOI for Spectroscopy ■ Interpolation resolution for CSI ■ **Navigators** Position, orientation, rotation, extension in phase-encoding and readout direction, thickness
Adjustment volume	■ Shim mode ■ Position, orientation, rotation, and extension of the adjustment volume
Table position	■ Table position of the protocol

Copy parameter group	Parameters
Navigators	■ Position, orientation, rotation, extension in phase-encoding and readout directions, thickness
Everything	■ All parameters including the sequence

A multi-selection of protocols can be copied, unless it contains decision steps or Dot Engine-specific workflow steps.

4 **Copy phase encoding direction**: Select the checkbox to copy the phase-encoding direction.

This checkbox is only visible if the phase-encoding direction is relevant in the selected parameter group.

The phase-encoding direction of navigators cannot be overwritten.

5 **Steps**: Select the checkbox to copy all steps to the target protocol of a Set-n-Go protocol.

6 **Ignore measurements**: Select the checkbox if you do not want to copy the number of measurements to the target protocol.

The checkbox is only enabled if the **Everything** parameter group is selected.

7 **Ignore last step**: Select the checkbox if you do not want to copy the setting of the parameter **Last Step** to the target protocol for Inline Composing.

The checkbox is only enabled if the **Everything** parameter group is selected.

8 Confirm your settings with **OK**.

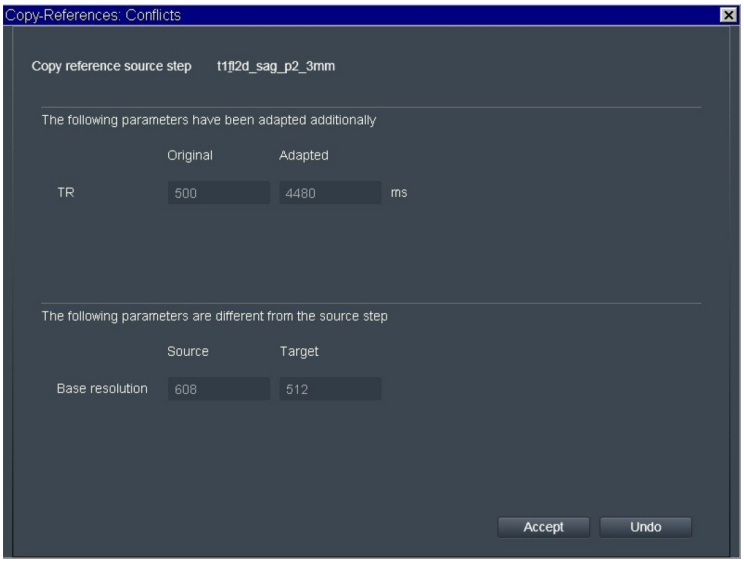
The target protocols of a copy reference are identified with the copy reference icon in the queue and the structogram. The number in the icon informs you about the source protocol used for applying the parameter settings. The applied parameter group is shown when you set the mouse pointer on the icon of the copy reference.

5.14.1 Resolving conflicts in copy references

There are two possible reasons for conflicts:

- If a value's change entails an additional parameter adaption because the value is set to extended limits, that is, a scan assistant would appear in the target step.
- If a parameter's value cannot be changed because the new value is not within the allowed soft or extended limits of the sequence.

If a conflict has been detected while applying the changes in copy reference targets, the **Copy References: Conflicts** dialog window is displayed. The window includes a proposal for resolving the conflict.



Example: Conflicts with different parameters.

- Decide whether to **Accept** or **Undo** the additional changes for the target step.

With **Accept**, the new settings are applied and a valid copy reference is set.

Undo results in a reversion of your change and all additional parameter changes.

5.14.2 Deleting copy references

Copy references can be deleted via context menu, toolbar, or the **Delete** key on your keyboard.

1 Select the copy reference icon in the structogram.

2 In the toolbar of the **Program Editor**, select the **Delete** icon.

– or –

Select **Delete** from the context menu (right-click with the mouse).

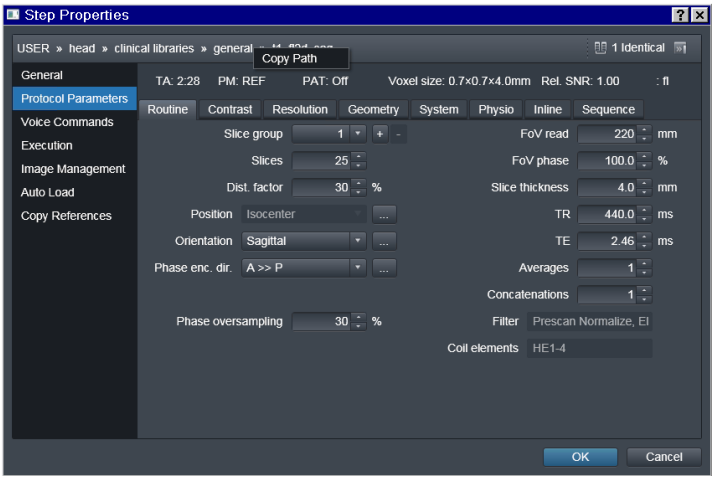
If the source of the copy reference is deleted, all copy references with the same source are deleted.

5.15 Copying the path

You can copy the path to the clipboard in all **Step Properties** dialog windows and in the **Explorer** window.

✓ **Step Properties** dialog window is open

◆ Select **Copy Path** in the context menu of the path (right-click with the mouse).



The path is copied to the clipboard and can be pasted to other applications.

5.16 Managing the list of selectable body parts

You can edit, supplement, or reduce the list of selectable body regions, which is available in the **Step Properties** dialog window.

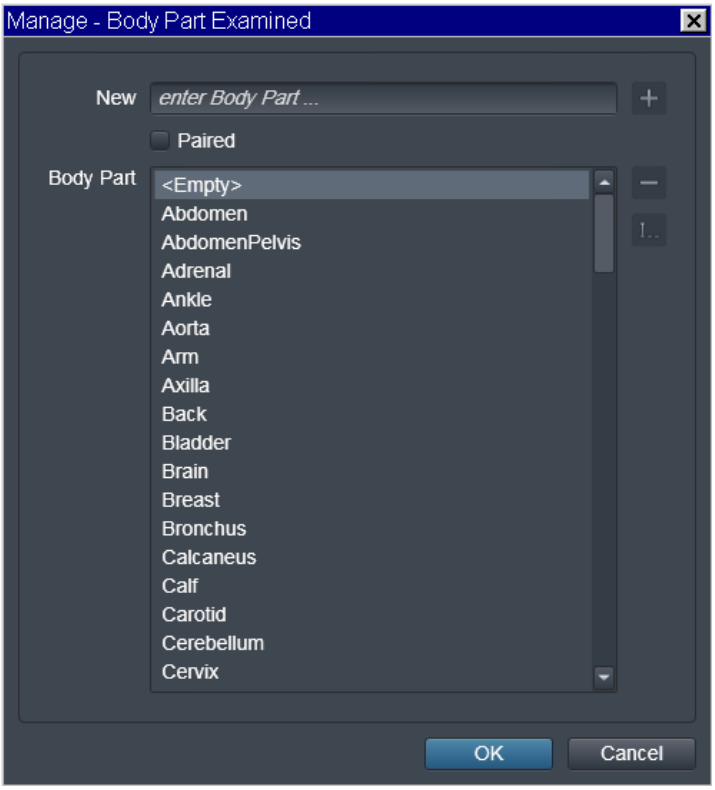
Only body parts added by the user can be deleted or renamed. The set provided by the system cannot be changed.

✓ **Step Properties** dialog window is open

✓ **General** card is selected

1 Click the **Manage** button to the right of the **Body part examined** drop-down list.

The **Manage - Body Part Examined** dialog window is opened.



2 To add a new body part, use the **Plus** icon.

3 To delete a body part, use the **Minus** icon.

4 To rename a body part, use the **Rename** icon.

Only body parts added by the user can be renamed.

5 Confirm your modifications with **OK**.

5.17 Managing the list of selectable procedures

You can supplement or reduce the list of selectable procedures, which is available in the **Step Properties** dialog window. For further information, please refer to **#**Assignment of study parts**#**.

Only procedures added by the user can be deleted or renamed. The set provided by the system cannot be changed.

Import is possible via .csv files which contain a list of procedures separated by semicolons.

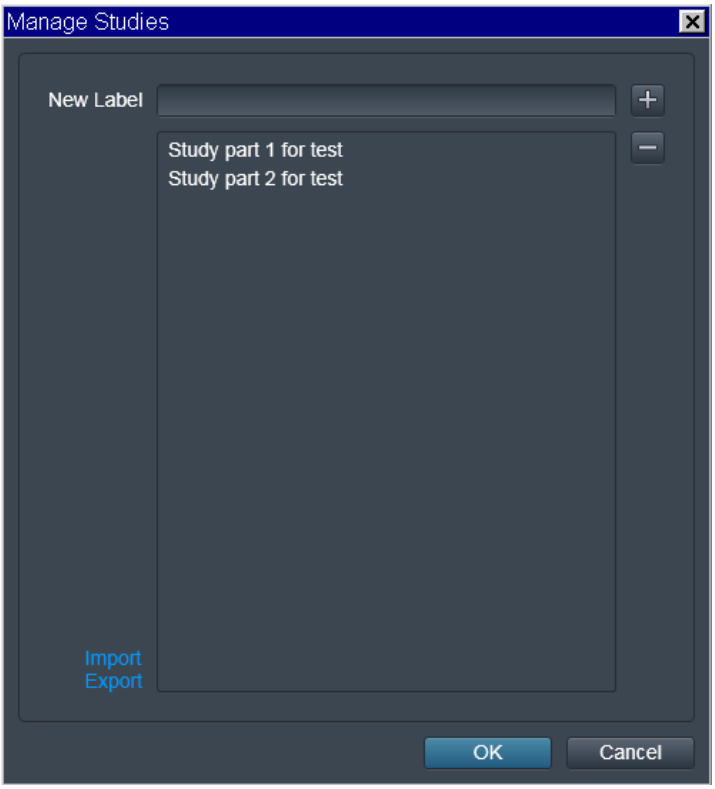
By importing, RIS procedures can be incorporated.

✓ **Step Properties** dialog window is open

✓ **General** card is selected

1 Click the **Manage** button to the right of the **Study Part** drop-down list.

The **Manage Studies** dialog window is opened.



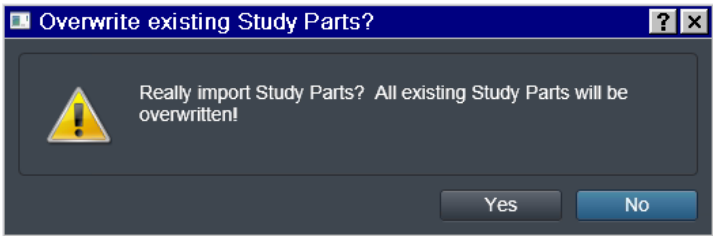
2 To add a new procedure, use the **Plus** icon.

3 To delete a procedure, use the **Minus** icon.

4 Confirm your modifications with **OK**.

5 To import procedures, click the **Import** button.

The existing study parts will be overwritten if you confirm the import with **Yes**.



6 To export procedures, click the **Export** button.

The **Save As** dialog window opens (→ Page 51 *Exporting objects from the exam database*).

5 Editing properties

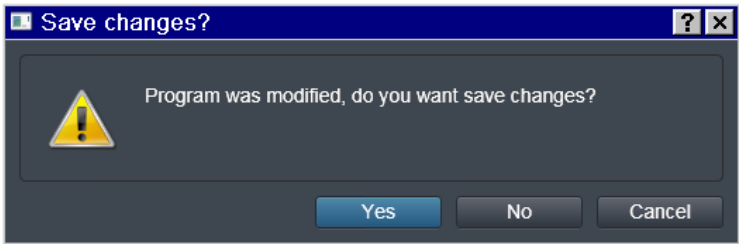
6 Program Editor

6.1 General information

The **Program Editor** allows you to create new or modify existing measurement programs, as well as review complete programs in simulation mode.

The “bridge” to the **Program Editor** is the **Edit** button in the **Explorer**.

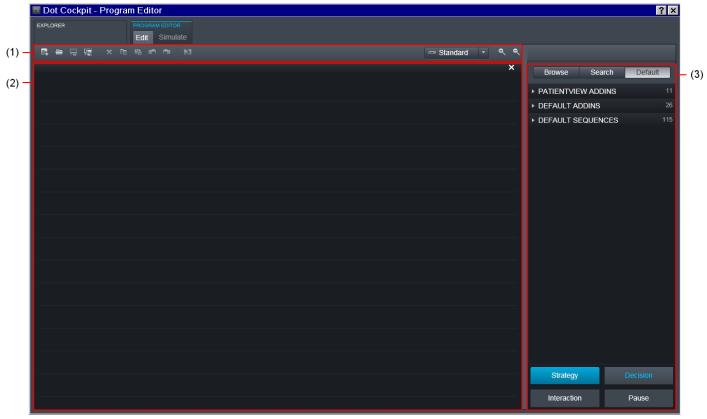
If you close the **Program Editor** or switch to another task, and there are unsaved changes, a **Save changes** dialog window appears. It ensures that no data loss happens.



The **Program Editor** is partitioned in the following two subtasks:

- **Edit**: Edit programs and protocols (→ Page 118 *Editing measurement programs*).
- **Simulate**: Verify new exam programs (→ Page 129 *Verifying a program in simulation mode*).

6.2 Components of the Program Editor



(1) Toolbar: Tools to manipulate the opened program.

(2) Working area: Visualizes the opened program as structogram, supports editing via drag & drop and context menus.

(3) Side bar: Main drag & drop source to insert new program steps into the opened program.

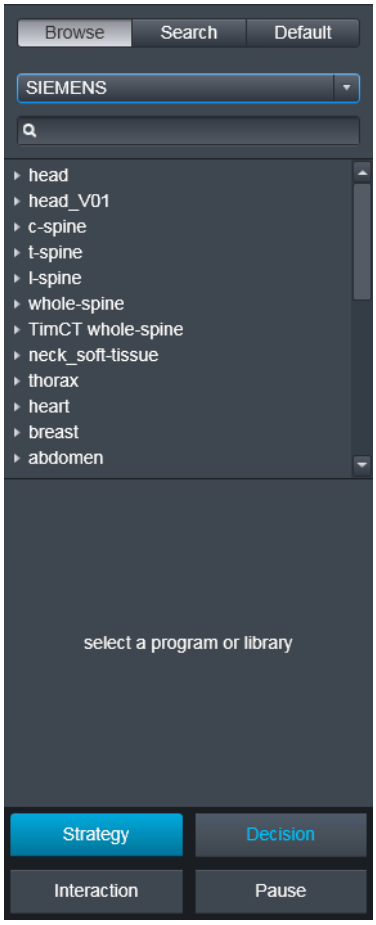
6.2.1 Toolbar

Icon	Functions
1	Create new measurement programs (➔ Page 112 *Creating a measurement program*)
2	Open existing measurement programs (➔ Page 115 *Opening a measurement program*)
3	Save changes of the edited measurement program (➔ Page 114 *Saving the measurement program*)
4	Save measurement program with a new name (➔ Page 115 *Opening a measurement program*)

Icon	Functions
5	Delete the selected object (→ Page 119 *Deleting steps*)
6	Copy selected objects (→ Page 118 *Copying and pasting steps*)
7	Paste objects (→ Page 118 *Copying and pasting steps*)
8	Undo the last action
9	Redo the last action
10	Create copy references (→ Page 89 *Creating copy references*)

6.2.2 Sidebar

The sidebar is your **main source** for program steps that should be inserted into the opened program.



The sidebar is partitioned in the following three subtasks:

Browse: Supports browsing of the exam database for existing programs and allows to reuse any parts of those programs.

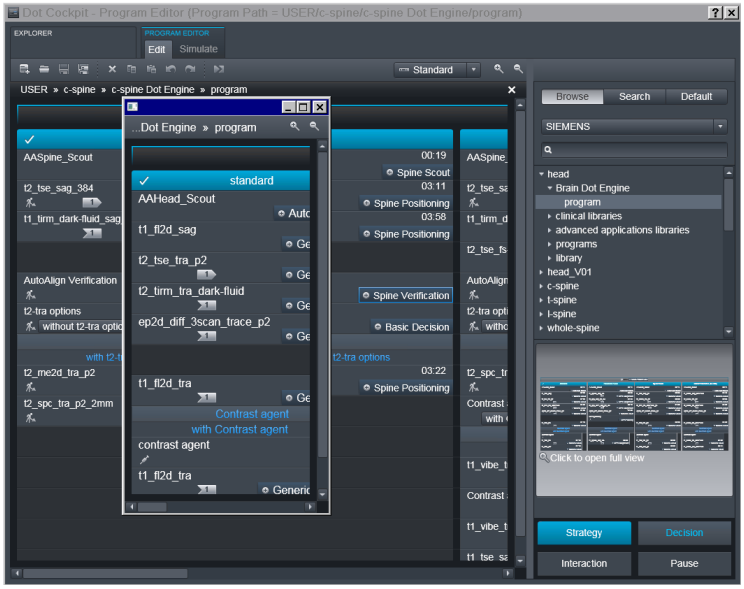
Search: Supports searching of the exam database for program steps (like search engines in the web).

Default: Allows to insert default steps, sequences, Add-Ins (→ Page 112 *Creating a measurement program*).

Display of programs in the sidebar browser

If a program with just one column has been selected, the program is displayed in original size. You can use drag & drop to insert items into the opened program.

If a program with multiple columns has been selected, just a small preview (thumbnail) of the program is displayed. This preview provides just an overview and does not allow drag & drop. By clicking the preview, a popup window with the complete program is opened. This dialog supports drag & drop to insert items into the opened program.



Popup window after clicking the program preview

"Building set" of the sidebar

Most program building steps are located on the **Default** subtask. However, frequently used steps are located as a "building set" in the **Browser** to be close at hand. They can be added to the current program via drag & drop.

The following steps are available:

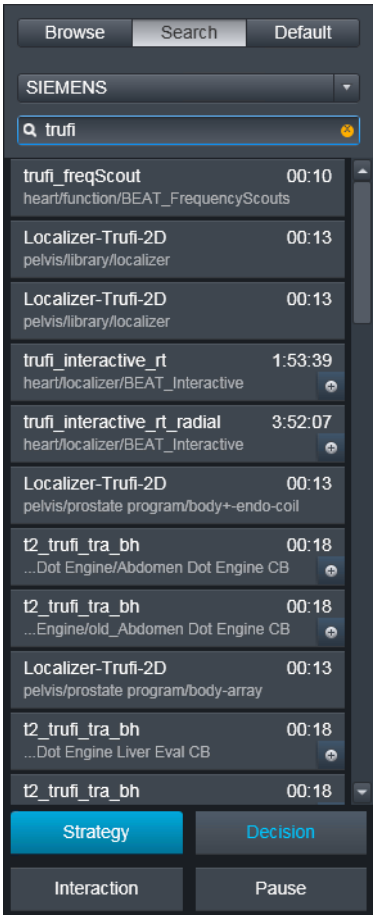
- Strategy
- Decision
- Interaction
- Pause

Users without a Dot-license do not have access to Dot elements. In this case, they are invisible. Pause steps are not Dot elements and are always visible.

Sidebar search

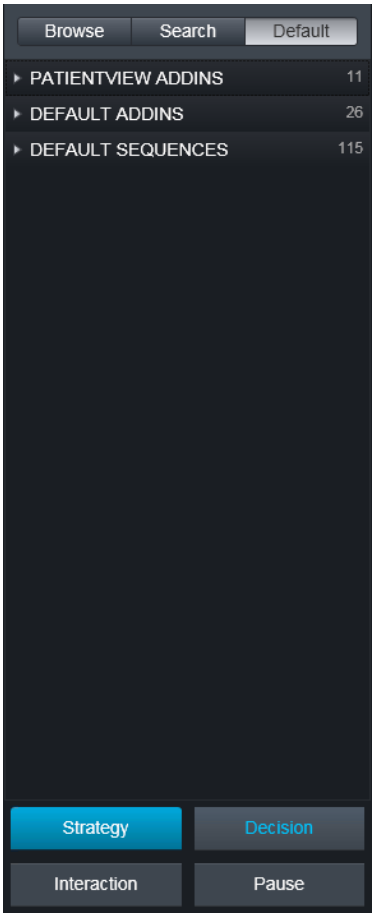
In the **Program Editor**, it is possible to reuse existing database items via drag & drop using the sidebar search. The matching items are ordered by relevance.

The difference to the search function in the browser is that just the matches are displayed without their context, for example, program. The results are ordered by their search relevance and not by the defined order in the program.



Default subtask

In the **Program Editor**, it is possible to drag & drop all default Add-Ins and default protocols using the **Default** subtask of the sidebar.



In the default mode of the sidebar you can select:

- Patient View Add-Ins (for workflow steps, only one per program)
- Default Add-Ins
- Default sequences

6.3 Creating a measurement program

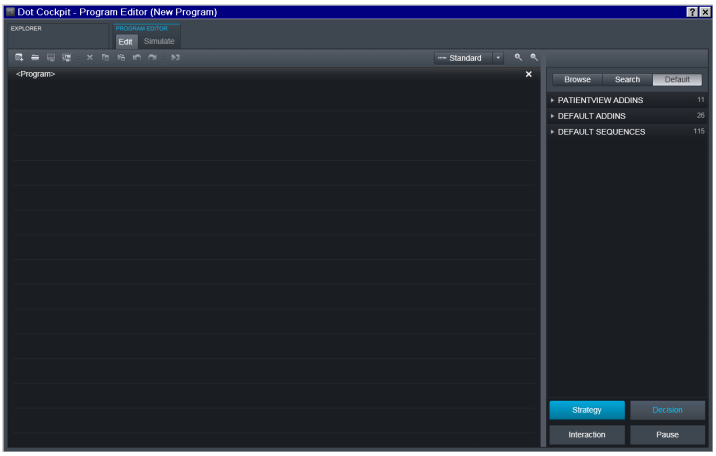
A measurement program includes a sequence of program steps to perform an MR examination.

✓ **Edit** subtask of the **Program Editor** is open

6.3.1 Creating a new program

- In the toolbar of the **Editor**: Select the **New Program** icon.

  An empty working area appears.



6.3.2 Inserting program steps

1. In the sidebar: **Browse** or **Search** for the program step you want to transfer to your measurement program.
2. Insert the selected step in the measurement program via drag & drop.

   The selected program step is copied into the measurement program.

6.3.3 Inserting a sequence as a protocol

1. In the sidebar: Select the desired sequence from the **Default Sequences** selection list.
2. Insert the selected sequence in the measurement program via drag & drop

   The sequence is copied as a protocol into the measurement program.

6.3.4 Inserting a measurement pause

You insert a pause, for example, to administer contrast agent to the patient prior to the measurement or to provide him with instructions.

1 From the “building set” of the sidebar: Select the **Pause** step.

2 Insert the pause in the measurement program via drag & drop.

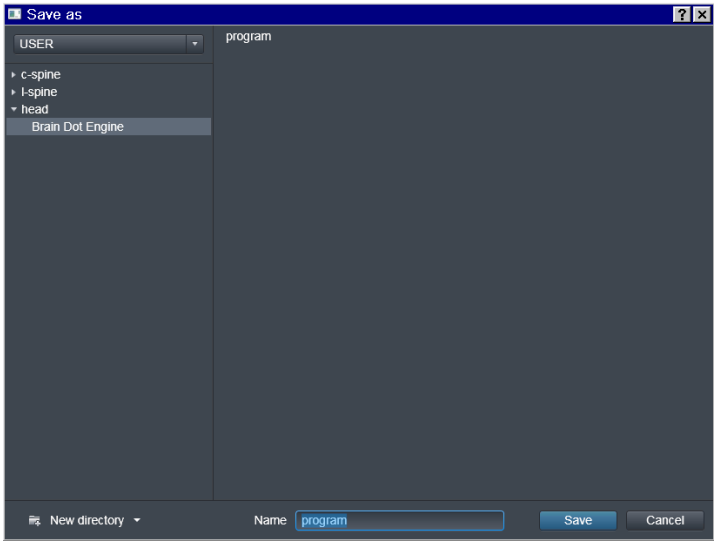
The pause is copied into the measurement program.

6.3.5 Saving the measurement program

1 In the toolbar of the **Editor**: Select the **Save Program** icon.

The **Save as** dialog window is opened.

If you created a new program, that is, one that has no specified storage location yet, the **Save Program** icon behaves like the **Save as** icon.



2 Select an user tree.

3 Select an exam either in the tree view or in the content area.

4 Enter a new program name in the **Name** field.

5 Save the program with **Save**.

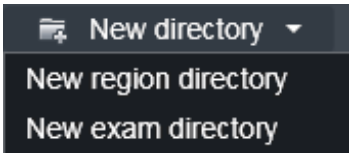
If the program name already exists or by pre-selecting an existing program, you have to confirm that the existing program should be overwritten.

The new program is added to the exam selected.

Creating new regions and exams

Prior to saving the measurement program, you are able to create a new region or exam for storing the program.

✓ **Save as** dialog window is open



1 Select **New region (exam) directory** from the context menu of the **New directory** icon.

A new directory is created in the tree view. The directory name is editable.

2 Accept the new name by either pressing the **Return** key on your keyboard or by clicking anywhere outside the text box.

If the name already exists, your entry will be ignored.

6.3.6 Opening a measurement program

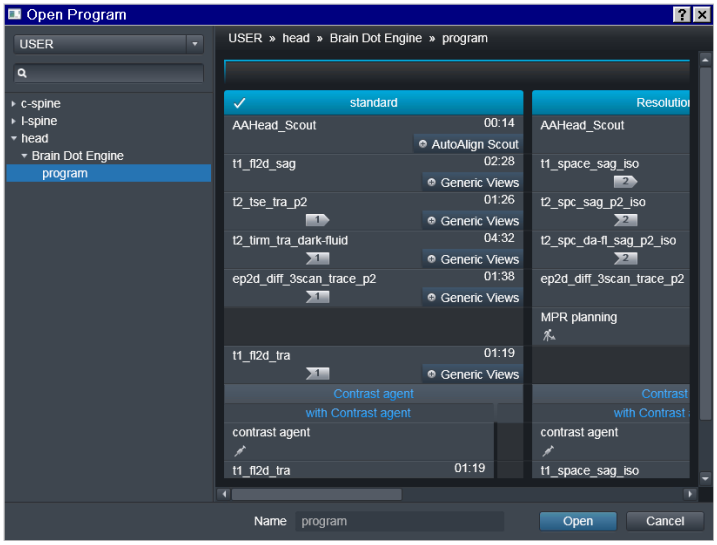
It is possible to change already existing programs. If the program is write-protected, you can open and change it, but save it in the user tree. The original program stays unchanged.

✓ **Edit** subtask of the **Program Editor** is open

To modify a program, you have to load it into the working area of the **Program Editor**.

1 In the toolbar of the **Editor**: Select the **Open Program** icon.

The **Open Program** dialog window is opened.



2 Select the desired program.

3 Load the original program in the working area by clicking the **Open** button.

4 Modify the program.

5 Save your program as a new program by clicking the **Save program as** icon.

The **Save as** dialog window is opened (→ Page 114 *Saving the measurement program*).

– or –

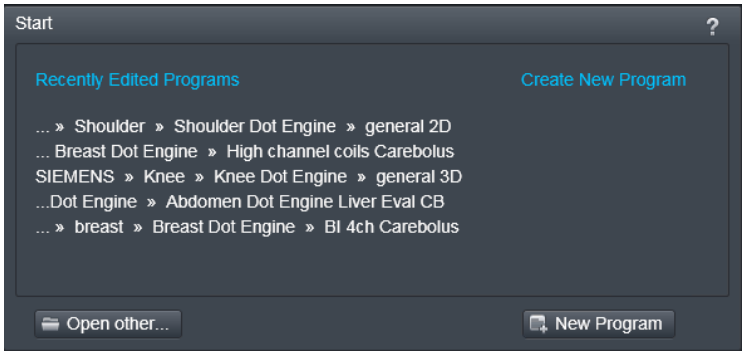
Overwrite the program by clicking the **Save program** icon.

The changes are stored immediately.

6.3.7 Opening most recently edited programs

✓ No program is opened in the working area of the **Program Editor**

When switching from another task to the **Program Editor**, and programs have been modified beforehand, the **Recently Edited Programs** dialog window is displayed.



Up to five last edited programs are shown with their program path.

1 Click a program to open it in the working area of the **Program Editor**.

  The program can be edited again.

2 If you do not want to open a recently edited program, open other programs by clicking **Open other...**.

  The **Open Program** dialog windows is displayed (→ Page 115 *Opening a measurement program*).

  – or –

  Create a new program by clicking **New Program**.

  An empty working area appears (→ Page 113 *Creating a new program*).

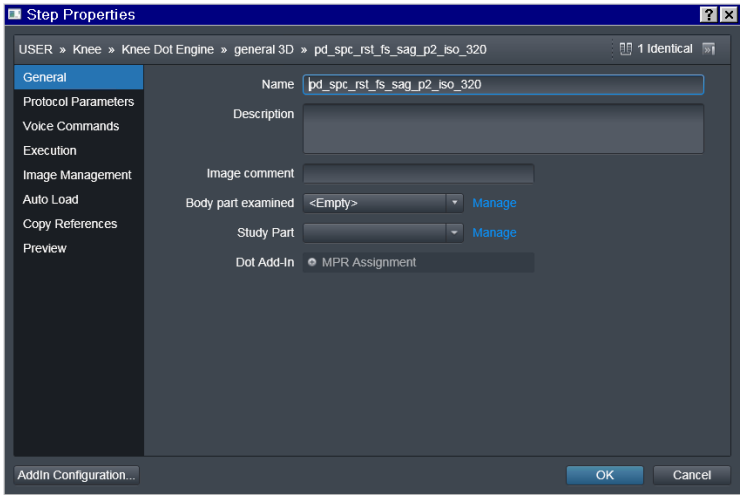
6.3.8 Editing default protocol and pause properties

You can change the default properties of a protocol or pause in the **Properties** dialog window.

✓ Measurement program is opened in the working area of the **Edit** subtask of the **Program Editor**.

◆ Double-click the program step.

  The **Properties** dialog window of the selected step is opened. You can now edit all parameters of the corresponding step.



Example: Step Properties dialog window of a measurement step.

For a detailed description, please refer to (→ Page 61 *Editing measurement step properties*) and (→ Page 78 *Editing pause step properties*).

6.4 Editing measurement programs

The **Program Editor** supports editing of measurement programs via drag & drop, context menus, and keyboard shortcuts.

For a description of how to move steps, please refer to (→ Page 20 *Drag & drop*).

✓ Program is open in the **Program Editor**

6.4.1 Copying and pasting steps

You can copy steps from any location.

1 In the structogram: Select the step to be copied.

2 Select **Copy** from the context menu (right-click with the mouse).

– or –

In the toolbar of the **Program Editor**: Select the **Copy** icon.

– or –

Press the key combination **Ctrl+C** on your keyboard.

3 In the structogram: Select a target position.

4 Select **Paste** from the context menu (right-click with the mouse).

– or –

In the toolbar of the **Program Editor**: Select the **Paste** icon.

– or –

Press the key combination **Ctrl+V** on your keyboard.

A copy of the selected step is inserted in the structogram. If the copy is in the exact same level, the name changes in "Copy of original name" ("Copy of" in local language).

If a conversion of the protocol is necessary (for example, step from another system configuration), a conversion dialog window opens.

6.4.2 Deleting steps

1 In the structogram: Select the step to be deleted.

2 Select **Delete** from the context menu (right-click with the mouse).

– or –

In the toolbar of the **Program Editor**: Select the **Delete** icon.

– or –

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

3 Confirm the deletion with **Yes** in the dialog window displayed.

The step is deleted from the structogram.

Deleting the workflow step deletes all steps contained in the program.

Deleting a strategy deletes all steps contained in this strategy. Deleting the last strategy deletes all steps contained in the program.

Deleting a decision choice is just possible if there are more than two decision choices. Deleting a decision choice deletes all steps contained in all branches of this decision choice.

Add-Ins cannot be deleted if the step type requires an Add-In Configuration (for example, the workflow step).

6.4.3 Adding and removing decision steps

A decision step can be added to or removed from a decision via context menu or within the **Properties** dialog window (→ Page 71 *Editing decision properties*).

1. In the structogram: Select the decision, where the decision step should be added.
2. Select **Add Decision Step** from the context menu (right-click with the mouse).

   A decision step is added to all the identical decisions, affecting the path of the selected decision.
3. In the structogram: Select the decision step which should be removed.
4. Select **Remove Decision Step** from the context menu (right-click with the mouse).

   The decision step is removed from all identical decisions.

When a decision has a corresponding decision step, it is not shown within the Patient View.

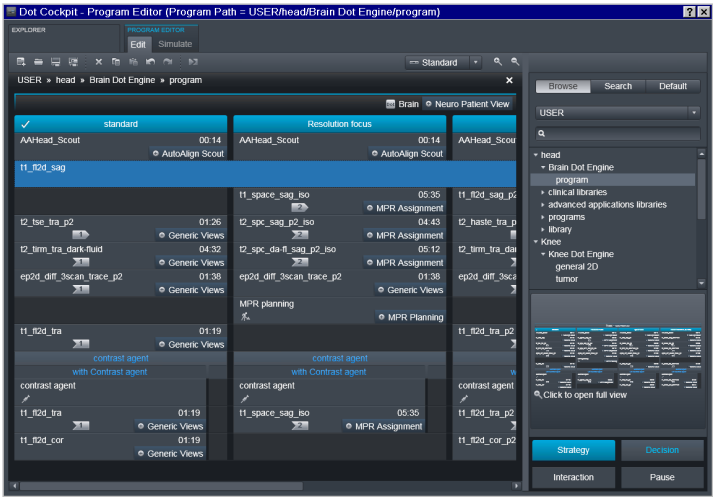
6.4.4 Modifying the range of a step

The range of a program step defines in how many execution paths (for example, one or all strategies) the step is used. You are able to increase or decrease the range.

1 In the structogram: Select the step to be modified.

2 Select **Expand** from the context menu (right-click with the mouse).

The range of the step is expanded.



Example: protocol t1_fl2d_sag is expanded

3 To decrease the range of the step, select **Collapse** from the context menu.

6.4.5 Converting steps

For stand-alone systems, you can select another system in the working area of the **Program Editor** as in the sidebar.

If you move a program or step into the working area via drag & drop, a conversion is necessary. The conversion starts automatically, and a conversion dialog window informs you about the current progress.

✓ **Show inconsistent** is selected in the toolbar of the **Explorer**

To repair an inconsistent step, you may start the conversion manually.

1 In the structogram: Select the inconsistent, dimmed step.

2 Select **Convert** from the context menu (right-click with the mouse).

If the conversion is successful, usage of the step is no longer restricted.

6.5 Dot Engine examinations

Examinations powered by a Dot Engine offer user guidance, patient personalization, and process automation. With the Dot technology, alternative decisions and strategies can be configured for measurement programs.

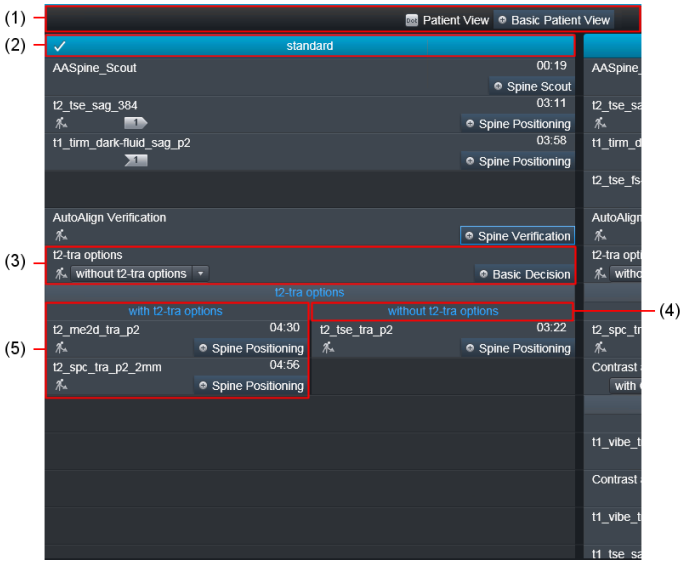
The context of a patient requires certain decisions (for example: "Are CA measurements possible? – yes/no") prior to the examination. The user also chooses the strategy for an examination according to the patient's capabilities.

During the examination, clinical findings (for example, tumor yes/no) can necessitate further decisions by the user. If the condition of a patient changes during an examination, a different strategy (for example, reducing the length of the examination or considering limited patient capability) might be necessary for the examination. These patient-specific and examination-specific requirements result in a complex tree-like structure when illustrating the course of an examination.

The Dot Engine serves as an answer to this complexity. It provides the tools and elements to facilitate the examination process. In addition, the Dot Engine offers user guidance with tips and instructions. Important measurement parameters can be displayed to lead the user through an examination.

6.5.1 Elements of a Dot Engine

The elements of a Dot Engine are visible in the structogram:



(1) Workflow step

(2) Strategy

(3) Decision step

(4) Decision (in this case “without t2-tra options”)

(5) Branch

6.6 Creating a Dot Engine

The following workflow describes how to create Dot Engines.

First, you define the structure of the Dot Engine by inserting strategies, decisions, etc., then you fill the structure with program steps and Dot Add-Ins. Finally, you can verify the program (➔ Page 129 *Verifying a program in simulation mode*) and save it (➔ Page 114 *Saving the measurement program*).

We recommend drawing a sketch of the program on paper prior to setting up the Dot Engine.

✓ **Program Editor** is open

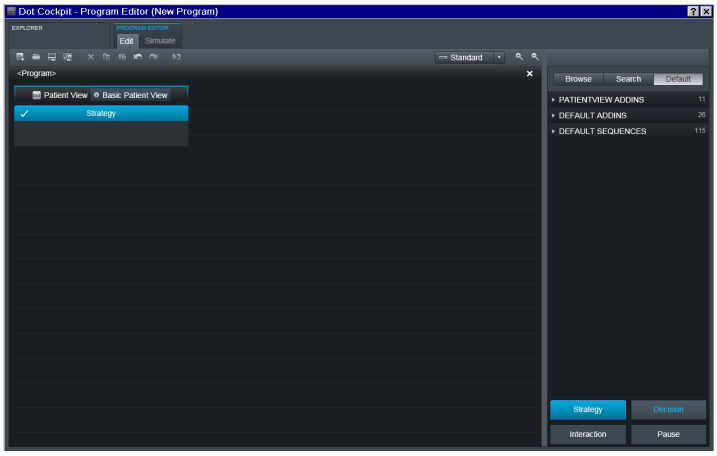
6.6.1 Defining the Dot Engine structure

1 Create a new program (→ Page 113 *Creating a new program*).

2 From the "building set" of the sidebar: Select the **Strategy** step.

3 Insert the strategy in the measurement program via drag & drop.

By inserting a strategy into a new program, a workflow step including the **Basic Patient View** Add-In is automatically appended.



– or –

Insert a **Decision** step in the measurement program via drag & drop.

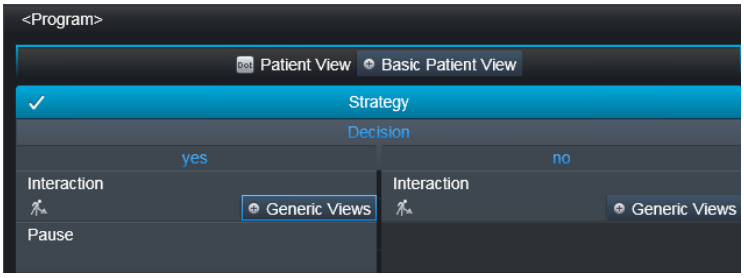
By inserting a decision into a new program, a workflow step including the **Basic Patient View** Add-In and a strategy step are automatically appended.

4 Insert an **Interaction** step in the measurement program via drag & drop.

By inserting an interaction, the **Generic Views** Add-In is automatically appended.

5 Insert a **Pause** step in the measurement program via drag & drop.

6 Complete the structure by inserting further steps from the "building set" of the sidebar.



You can edit all parameters of the corresponding steps by double-clicking the step.

The **Properties** dialog window of the selected step is opened.

For a detailed description, please refer to (→ Page 59 *Properties dialog windows*)

6.6.2 Tips and tricks

1 Sort the strategies according to their importance.

2 Name strategy branches according to the logical grouping, for example, MR contrast behavior, pre-contrast/post-contrast.

3 Pool protocols which should be measured together in a strategy branch.

4 Allocate protocols which should be measured independently to separate strategy branches.

If the strategy changes during examination, all protocols of unfinished strategy branches are inserted in the queue.

5 If applicable, reuse the structure of an existing program (strategies/decisions).

6.6.3 Inserting program steps

1 In the sidebar: **Browse** or **Search** for the program step you want to transfer to your measurement program.

2 Insert the selected step in the measurement program via drag & drop.

The selected program step is copied into the measurement program.

6.6.4 Inserting a sequence as a protocol

1 In the sidebar: Select the desired sequence from the **Default Sequences** selection list.

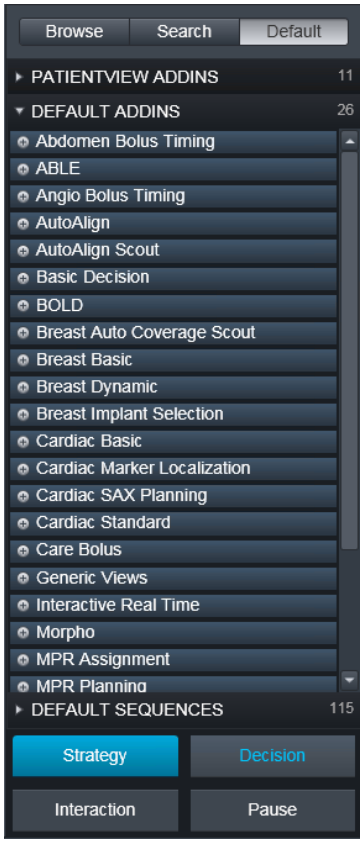
2 Insert the selected sequence in the measurement program via drag & drop

The sequence is copied as a protocol into the measurement program.

6.6.5 Inserting default Add-Ins

✓ **Default** subtask of the sidebar is open

◆ From the list of available **Default AddIns**: Drag & drop the requested Add-In to the program step.



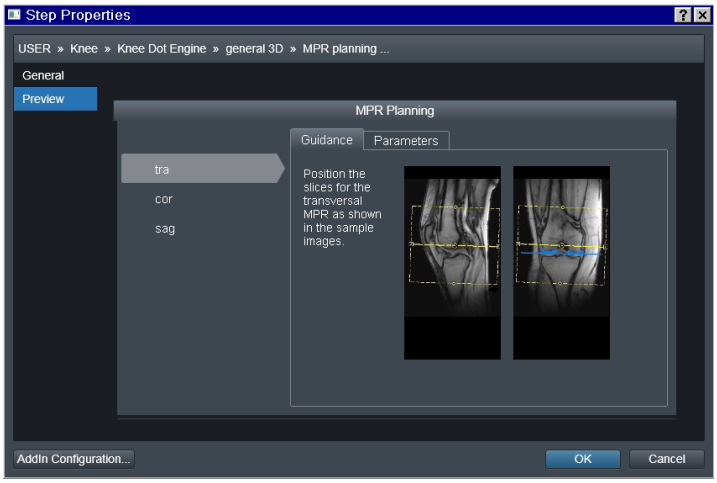
The Add-In is copied to the program step.

6.6.6 Defining the MPR Planning Add-In

The slice groups of the **MPR Planning** Add-In can be renamed using the **Properties** dialog window.

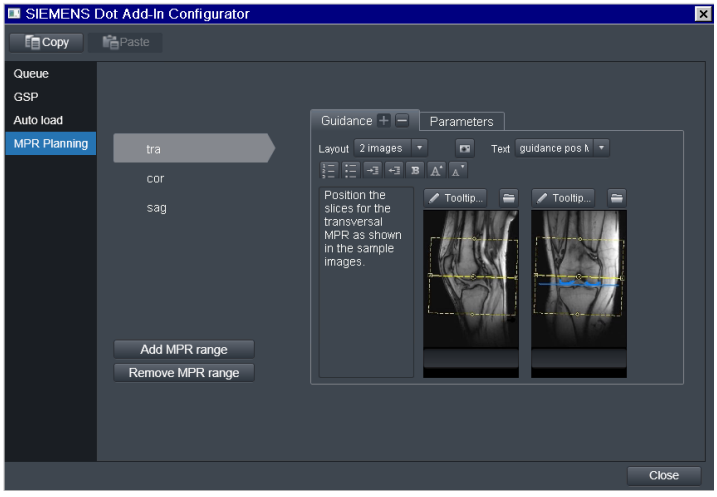
✓ Interaction step with **MPR Planning** Add-In exists

1 Double-click the step to open the **Step Properties** dialog window.



2 Open the **Dot Add-In Configurator**.

3 Select the **MPR Planning** card.



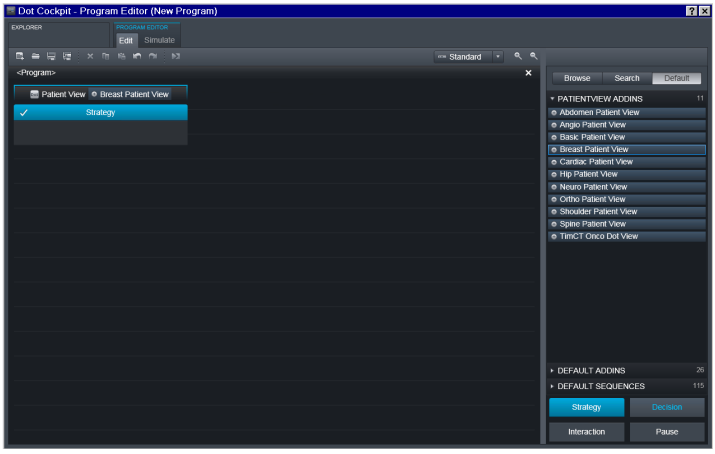
4 Add or remove a MPR range by clicking the corresponding button.

5 To rename the view, select **Rename** from the context menu of the view (right-click with the mouse).

6.6.7 Exchanging the Patient View Add-In

✓ **Default** subtask of the sidebar is open

◆ From the list of available **Patient View** Add-Ins: Drag & drop the requested Add-In to the workflow step.



For patients, who do not speak the local language, the **Abdomen Patient View** enables you to select the breathhold commands language, for example, Chinese or Japanese.

6.7 Verifying a program in simulation mode

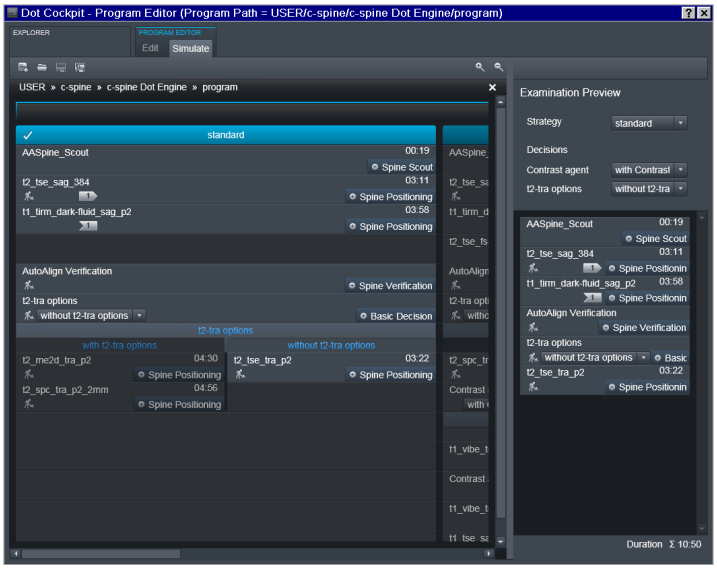
Prior to actually running the examination on a patient, you may want to verify that your program is working the way you intended.

You can simulate the different execution paths of a program by changing the choices of all strategies and all decisions. Steps which are part of the current execution path are displayed differently than the other steps.

✓ Program is open in the **Program Editor**

It is not possible to change the opened program.

1 Switch to the **Simulate** subtask of the **Program Editor**.



On the right side, the **Program Editor** simulates the display in the measurement queue.

2 In the **Examination Preview** area: Switch between strategies and decisions in order to test their effect by selecting them from the drop-down menus.

The steps outside the simulated execution path are displayed dimmed.

The total measurement time of the simulated execution path (**Duration**) is displayed at the bottom of the **Examination Preview** area.

3 To modify the simulated program, return to the **Edit** subtask of the **Program Editor**.

6.8 Setting protocol markers

In the selection list of the **Program Editor** toolbar, you can set the protocol markers which should be added to the protocols.

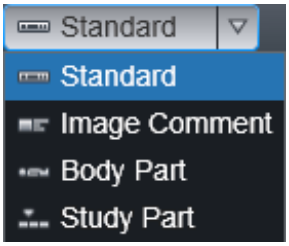


Image comments and body parts are valid for series, study parts specify the study allocation.

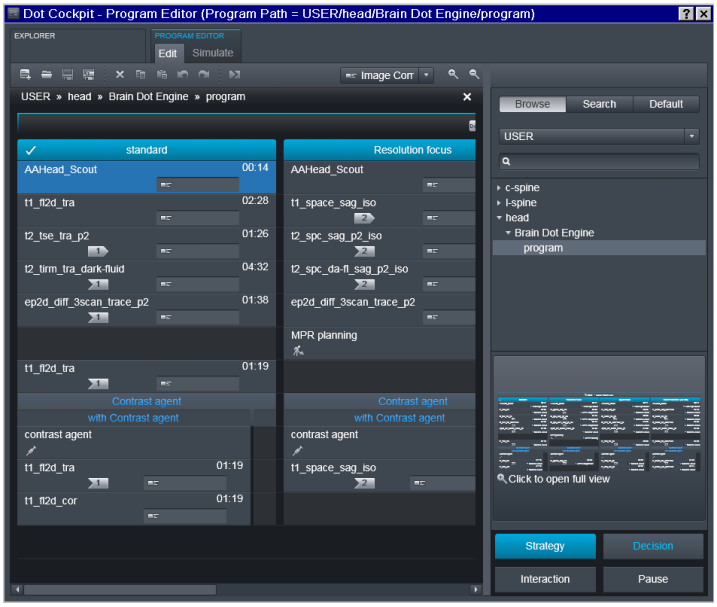
✓ Program is open in the **Program Editor**

6.8.1 Inserting an image comment

The same image comment can be applied to several steps by selecting more than one step.

1 To insert an image comment, select **Image Comment**.

A text field is displayed for each protocol.



2 Enter the image comment in the text field.

The comment appears as image text in the series.

6.8.2 Inserting a body part examined

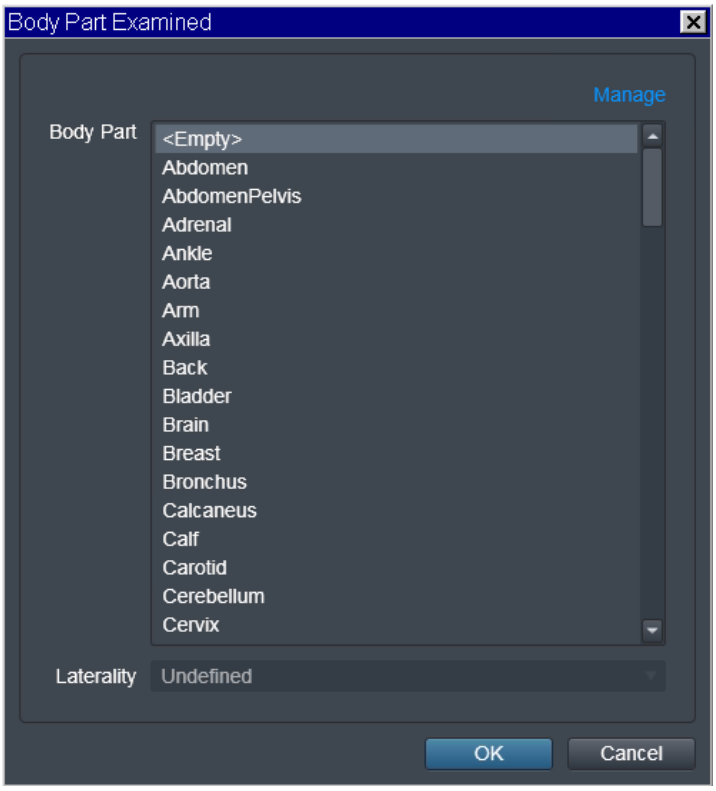
The same body part can be applied to several steps by selecting more than one step.

1 To insert a body part examined, select **Body Part**.

A body part field is displayed for each protocol.

2 Click the body part field.

The **Body Part Examined** dialog window is opened.



3 Select a body part from the selection list.

4 Confirm your selection with **OK**.

A marker for the new body part examined is inserted in the protocol.

6.8.3 Inserting a procedure label (Study Part)

You can configure which images will be assigned to which study in examinations with multiple studies. For a detailed description, please refer to #Assignment of study parts#.

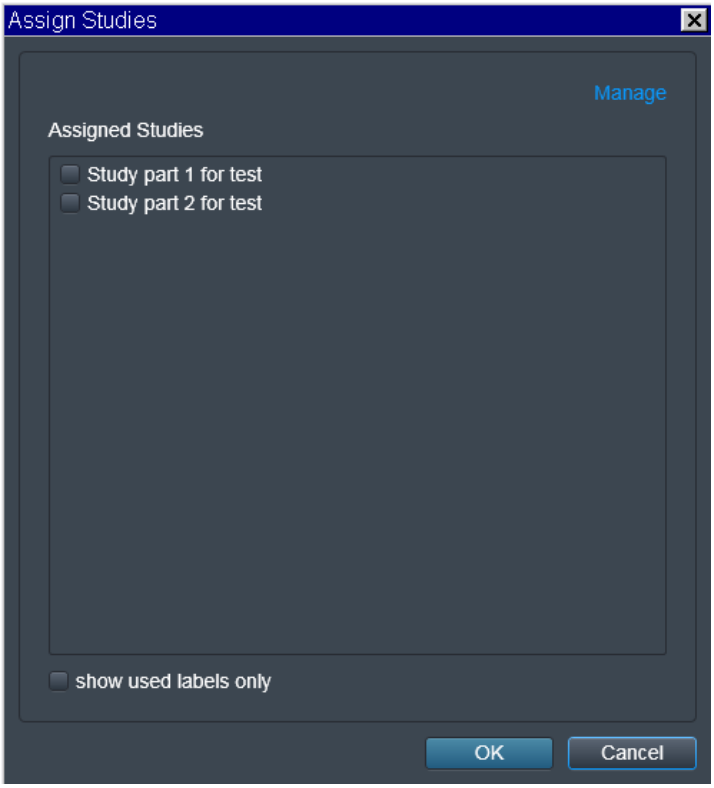
The same study part can be applied to several steps by selecting more than one step.

1 To insert a procedure label, select **Study Part**.

A study part field is displayed for each protocol.

2 Click the study part field.

The **Assign Studies** dialog window is opened.



3 Select a procedure label from the selection list.

4 Confirm your selection with **OK**.

A marker for the new procedure label is inserted in the protocol.

6.9 Assignment of Study Parts

Study Parts are needed for programs performing multiple requested procedures in one examination. For each requested procedure one study will be created. The procedure data belonging to it is assigned accordingly, for example, **Accession Number**.

In the **Program Editor**, placeholders for studies (Study Parts) can be defined. Each step of a program can be assigned to several of these placeholders.

With the combination of assigning steps to Study Parts in the **Program Editor** and mapping these Study Parts to actual requested procedures during patient registration, it is possible to configure exactly which images are assigned to which studies.

Advantage: The usage of Study Parts as placeholders allows that the assignment for a multi-study acquisition can be performed already in the **Dot Cockpit**, and just the mapping to actually requested procedures has to be performed during patient registration.

During patient registration, all placeholders of a program will be mapped to actually requested procedures.

HIS/RIS: If your system is connected to a RIS, you can obtain work requests via the HIS in the form of procedure steps for your MR system.

Example:

Program step	Study Part
t1_se_sag	Head
t2_tse_tra	Head
t1_tse_cor	Neck
t2_me2d_tra	Spine_I
t1_vibe_tra	Spine_II
Contrast	
t2_tse_sag	Head, Neck

Configuration Dot Cockpit: Multi-study program

Requested procedures	Mapping in Patient registration: Requested procedure → Study Part[1)]	Examination: Multi-study program	Study and series results
MRI Brain with contrast	MRI Brain with contrast [1] → Head	t1_se_sag [1] t2_tse_tra [1] t1_tse_cor [2] t2_me2d_tra [3] t1_vibe_tra [3] contrast t2_tse_sag [1] [2]	MRI Brain with contrast 1. t1_se_sag 2. t2_tse_tra 3. t2_tse_sag
MRI Neck with contrast	MRI Neck with contrast [2] → Neck		MRI Neck with contrast 1. t1_tse_cor 2. t2_tse_sag
MRI Spine	MRI Spine [3] → Spine_I, Spine_II		MRI Spine 1. t2_me2d_tra 2. t1_vibe_tra

Examination workflow

1) Learning mode: mapping will be saved and applied at next occurrence

7 Dot Add-Ins

7 Dot Add-Ins

7.1 Overview

Dot Add-Ins are auxiliary software components for the Dot Engines. As a kind of “backpack” or “plug-in” assigned to a program step, they enhance it with specific features. The Dot Add-In can be attached with its configuration (**AddIn Configuration**) to program steps. For example, the Add-In **Angio Bolus Timing** will display bolus timing guidance in the Guidance View.

All Dot Add-Ins available for your system are located in the sidebar of the **Program Editor**.

Dot Add-Ins enable application developers to enhance exam programs, for example, with user guidance.

The **Generic Views** Add-In is the most common Add-In, defining Guidance View and Parameter View. Without an Add-In assigned to a protocol, it will not have the Dot Views (Patient View, Guidance View, Parameter View) but will display the known *syngo*MR Exam subcards.

7.1.1 Common Dot Add-Ins

Protocols with unlicensed Dot Add-Ins are handled the same way as unlicensed sequences.

Dot add-in	Features
Generic Views	■ User guidance (text, images) ■ Reduced protocol parameter selection
MPR Planning	■ Definition of MPR reconstruction ■ Set-up of user guidance possible
MPR Assignment	■ Used for 3D protocols which are a basis for MPR reconstruction ■ User guidance and reduced parameter selection
Basic Decision	■ User guidance for decision steps ■ Automatically selected for decision steps

Dot add-in	Features
Basic Patient View	■ Basic Add-In for Dot Engine Steps ■ Definition of strategies and decisions ■ Naming of Patient view

For some combinations of Add-ins, full functionality cannot be guaranteed. **ABLE** and **AutoAlignScout** cause trouble when combined with views and add-ins outside their **Dot Engine**. It is not recommended to use them outside their respective **Dot Engine**.

7.2 Configuring Dot Add-Ins

You can edit the parameters of the Dot Add-Ins in the **Dot Add-In Configurator**.

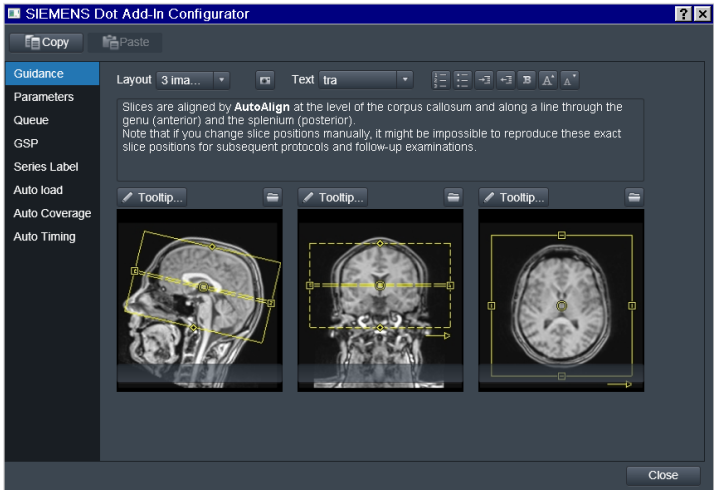
✓ **Properties** dialog window of the Dot Engine step is open

7.2.1 Configuring the Guidance View

The configuration of the Guidance View allows you to create texts and images that are displayed when a step is opened in the measurement queue.

1 Open the **Dot Add-In Configurator**.

2 Select the **Guidance** card.



3 **Layout**: Define the layout of the Guidance View.

4 Capture guidance images from the image segments of the **Exam** task card.

5 Set the guiding text for the user.

When the cursor is placed in the text field, the toolbox for standard text formatting appears.

6 Load guidance image in the respective image display.

You can select image files in JPG (recommended) or BMP format. Note that larger files use more memory capacity which influences system performance. To ensure high performance, choose the file format and size accordingly.

Image data are saved in the configuration. The displayed path only indicates the original location of an image.

7 Set the tooltip for the image.

8 Confirm your settings with **Close**.

7.2.2 Configuring the Parameter View

The configuration of the Parameter View allows you to set up a customized parameter card with freely configurable parameters. In standard mode, there is a pre-defined set of parameters available. If you switch to the **Advanced mode**, all parameters available in the protocol can be selected.

AddIn Configuration...

1 Open the **Dot Add-In Configurator**.

2 Select the **Parameters** card.

3 In the slots, insert the parameter or text to be displayed.

P	Slot displays corresponding parameter
T	Slot displays user-defined text

To search for a parameter, insert the beginning of the parameter name, for example, the first letter. Only parameters that match the inserted text are displayed for selection.

4 Confirm your settings with **Close**.

7.2.3 Configuring the queue

AddIn Configuration...

1 Open the **Dot Add-In Configurator**.

2 Select the **Queue** card.

3 **Disable Scan Button**: Define the availability of the **Scan** button.

4 **Proceed to next**: Define, when the next protocol is opened.

Normal	The next protocol is opened as soon as this protocol is started.
On Image Recon Finish	The next protocol is opened as soon as image reconstruction of this protocol is completed.

The following option **Open this step** can only be changed by a Siemens Application Specialist user.

5 **Open this step**: Define, how the current protocol is opened.

Normal	User can open the protocol manually.
When previous step has finished	Protocol is opened immediately after the images of the previous step are reconstructed. Opening the protocol manually is suppressed.

6 Activate the checkbox if the parameter card is to be shown.

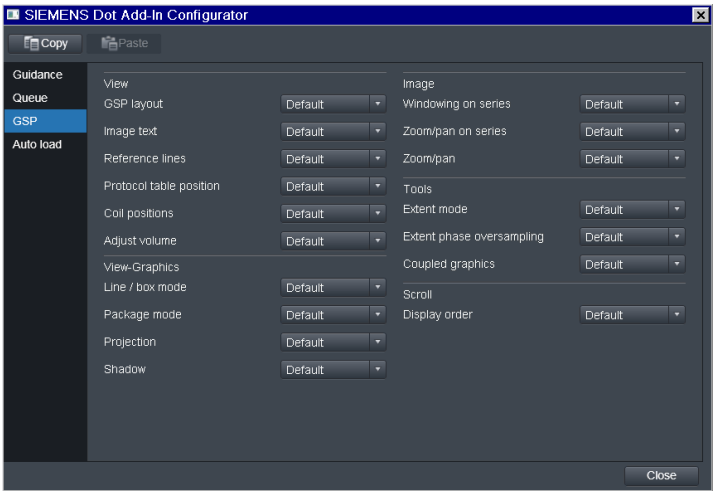
7 Confirm your settings with **Close**.

7.2.4 Configuring the GSP

AddIn Configuration...

1 Open the **Dot Add-In Configurator**.

2 Select the **GSP** card.



3 Define the automatic execution of the following functions of the GSP menu **View**, when the Add-in UI is opened from the measurement queue.

Item	Description
GSP layout	Defines the layout of the reference images (**2 Segments**, **3 Segments**, **Maestro UI**, **Tim Planning UI**).
Image text	Shows (**On**) or hides (**Off**) image text.
Reference lines	Displays the reference lines which show the positions of other reference images and facilitate spatial orientation.
Protocol table position	Displays the table position of the isocenter protocol as a blue line.

Item	Description
Coil positions	Displays the coils and the coil elements that have been connected for the examination.
Adjust volume	Displays the adjustment volume in the reference images.

4 Define the automatic execution of the following functions of the GSP menu **View-Graphics**.

Item	Description
Line/box mode	Defines the intersection display: ■ **Line Mode** Displays the center line of the intersection area ■ **Box Mode** Shows the actual intersection surface and therefore the anatomical region covered by the slice
Package mode	Hides the individual intersections of a slice group.
Projection	Switches on the projection display of slices/slabs.
Shadow	Displays the shadow lines to improve the visibility of graphic objects in light images.

5 Define the automatic execution of the following functions of the GSP menu **Image**.

Item	Description
Windowing on series	Activates windowing on complete series.
Zoom/pan on series	Transfers changes in one image to all images of the respective series.
Zoom/pan	Activates the Zoom/Pan mode.

6 Define the automatic execution of the following functions of the GSP menu **Tools**.

Item	Description
Extent mode	Activates the mode to change the extent of slices/slabs (e.g. distance, thickness, slice oversampling).
Extent phase oversampling	Activates the mode for changing phase oversampling.
Coupled graphics	Groups graphic objects in order to rotate or move them together.

7 Define the automatic execution of the following functions of the GSP menu **Scroll**.

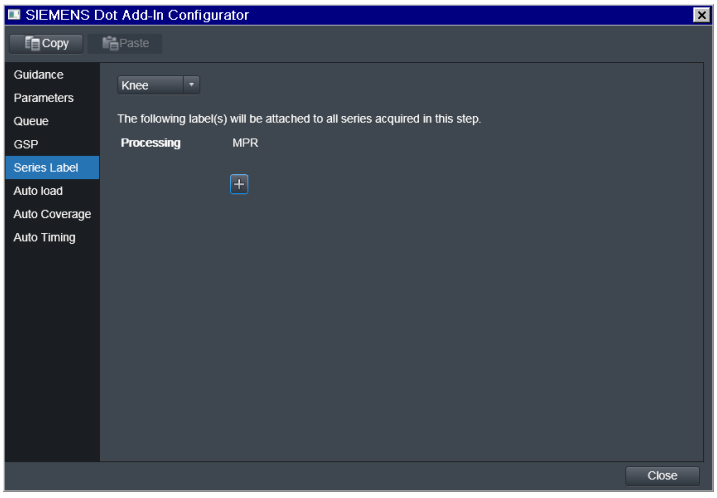
Item	Description
Display order	Defines a scheme for sorting images within a series. When set to **User defined**, three selection lists for defining the sort criteria are displayed.

8 Confirm your settings with **Close**.

7.2.5 Configuring the series label

1 Open the **Dot Add-In Configurator**.

2 Select the **Series Label** card.



3 From the selection list, select the set of provided labels.

If matching labels are defined in the **Series Label** card of a previous protocol, the latest images of this protocol are loaded.

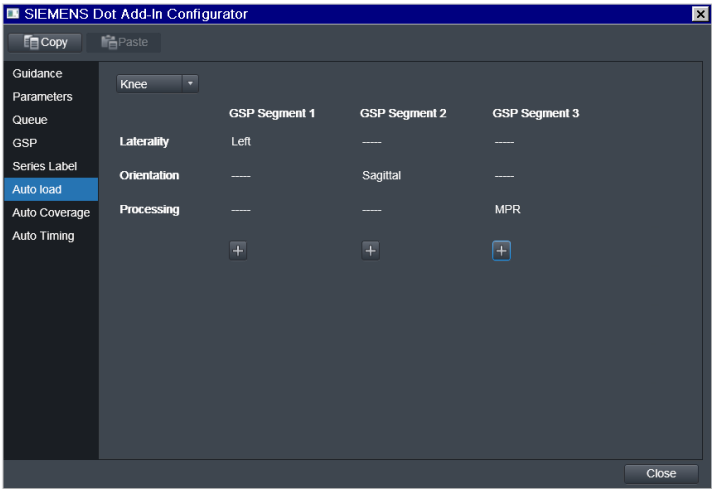
4 Confirm your settings with **Close**.

7.2.6 Configuring the auto load options for GSP

AddIn Configuration...

1 Open the **Dot Add-In Configurator**.

2 Select the **Auto load** card.



3 From the selection list, select the set of provided labels.

If matching labels are defined in the **Load to GSP** card of a subsequent protocol, images of this protocol are loaded into the image segments.

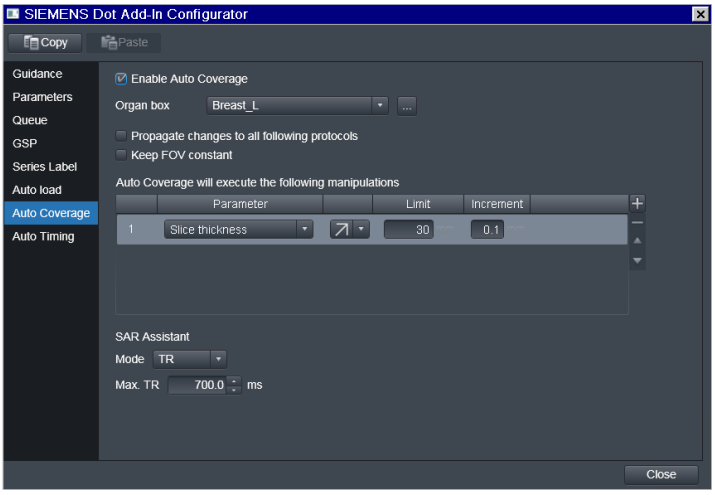
4 Confirm your settings with **Close**.

7.2.7 Configuring the auto coverage options

AddIn Configuration...

1 Open the **Dot Add-In Configurator**.

2 Select the **Auto Coverage** card.



3 **Organ box**: From the selection list, select the organ box.

This organ box will be covered by the defined manipulation routines.

If **Empty** is selected, no auto coverage is performed.

4 **Propagate changes to all following protocols**: Decide, whether manual changes of the organ box should be propagated to all following protocols that use the same organ box.

5 **Keep FOV constant**: Decide, whether the size of the field of view should not be adapted by the system.

Manual changes to the field of view are still permitted.

6 Define the manipulation steps for auto coverage.

	Value will be increased/decreased
Limit	Permitted minimum/maximum of the value
Increment	Increment of the manipulation step

The defined manipulation steps are executed one after another until the organ box is completely covered.

7 **Mode**: Define the strategy to avoid exceeding the SAR limit.

Off	No SAR assistant functionality
TR	TR is increased by the system to avoid exceeding the SAR limit
Min flip angle	Flip angle is reduced by the system to avoid exceeding the SAR limit

8 **Max. TR**: Set the permitted maximum value for the TR.

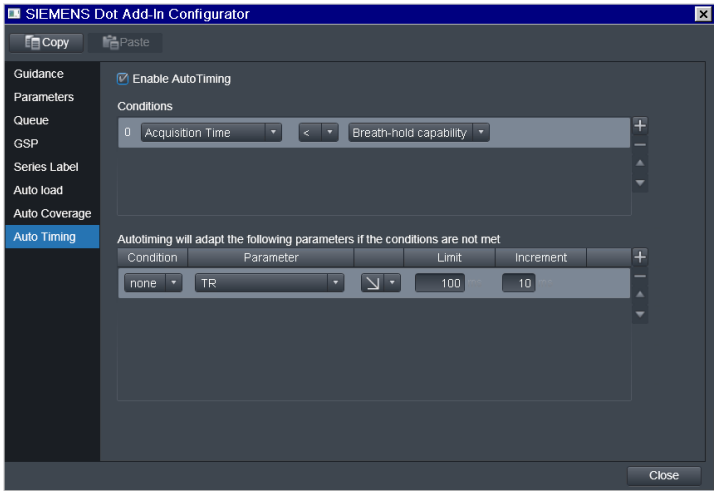
9 Confirm your settings with **Close**.

7.2.8 Configuring the auto timing options

AddIn Configuration...

1 Open the **Dot Add-In Configurator**.

2 Select the **Auto Timing** card.



3 Define the conditions for auto timing.

It is not necessary to define a condition to use the auto timing functionality.

4 Define the manipulation steps for auto timing.

	Value will be increased/decreased
Limit	Permitted minimum/maximum of the value
Increment	Increment of the manipulation step

The defined manipulation steps are executed one after another until the conditions are met.

5 Confirm your settings with **Close**.

7 Dot Add-Ins

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