![MAICO]

Operation Manual
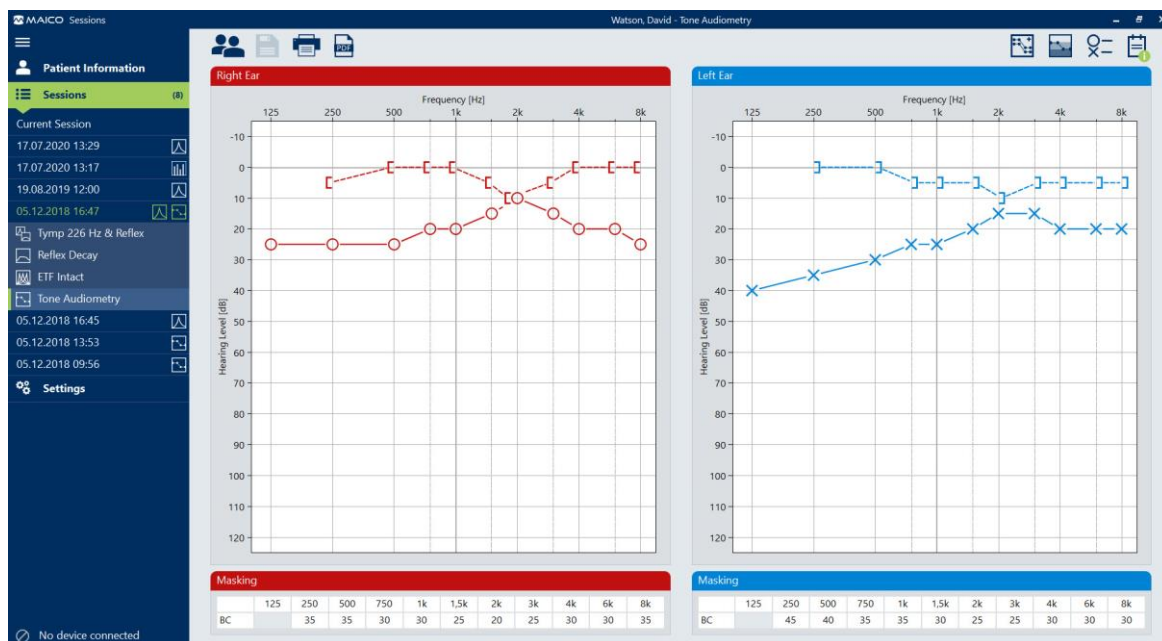# MAICO Sessions

Table of Contents

Title: MAICO Sessions – Operation Manual

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Compliance

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1 Introduction

1.1 General

This operation manual is meant to make it as easy as possible for the operator to become familiar with the operation and functions of MAICO Sessions when performing tests. If you have questions or suggestions for further improvements, please, do not hesitate to contact MAICO.

i The information sign displays alternative documents or sections in this operation manual that provide more detailed information.

NOTE: Figures shown in the operation manual are exemplary and may vary depending on the device used.

MAICO Sessions is capable of showing measurements of:

- Tone Audiometry
- High Frequency Audiometry
- Speech Audiometry
- QuickSIN™
- Freiburger Speech Test
- Tympanometry and Acoustic Reflexes (Tymp & Reflex)
- Eustachian Tube Function (ETF) Intact and Perforated
- Reflex Decay (Decay)
- DPOAE
- TEOAE

MAICO Sessions can be run with the following MAICO devices:

- easyTymp
- ERO•SCAN® (FW version 108.10 or later)
- MA 25e
- MA 27e
- MA 28
- MA 42 (2021 and later)
- MA 52 (2021 and later)
- MI 44 (2017 and later)
- PILOT TEST
- touchTymp

MAICO Sessions can be used as a standalone version or be run with one of the following databases:

- OtoAccess® Database (version 2.0 or later)
- Noah 4 (version 4.6 or later)
- Practice Management Software via GDT and XML integration interface in the MAICO Sessions settings or
- Practice Management Software via GDT-interface (OtoAccess 2.0 plug-in required)

Using MAICO Sessions together with the OtoAccess® Database allows you to organize the patient management on the following devices with MAICO Sessions:

- easyTymp
- ERO•SCAN®
- MA 28 (FW version 2.1 or higher)

1.2 PC and System Requirements

System Requirements

 NOTE: You need administrator privileges to install the MAICO Sessions.

MAICO Sessions can be run under the following systems:

- Windows® 10 SP1 (x86 and x64)
- Windows® 8 / 8.1 (x86 and x64)

NOTE: If you have been using the MAICO database up to now, there are two tools available for converting the MAICO database data. To do this follow instructions in the respective quick guides:

Quick Guide DB Converter AUDIO-TYMP
Quick Guide DB Converter OAE

PC-Requirements

The PC-requirements are as follows:

- 2 GHz Intel Core 2 Duo CPU
- 2 GB RAM
- 1 GB available disk space
- USB drive

Display Requirements

- 1024 x 768 resolution
- Hardware accelerated DirectX/Direct3D graphics card

Needed Components

The following components are needed to transfer data to MAICO Sessions:

- USB cable

2 Installation

2.1 Starting the Installation Process

NOTE: If you want to connect MAICO Sessions to a database the database has to be installed prior to starting the installation process for MAICO Sessions.

Make sure that the device is not connected with your computer while installing.

The update process is the same as the installation process.

Close all open or running programs. To start the installation process double-click **SessionsSetup.msi** from the USB. Click **Cancel** if you want to cancel the installation.

|	
After starting the installation process and pressing **Next**, the **End User License Agreement** is shown. Accept the terms in the Licsense agreement by setting the check mark. You can also print the License Agreement by pressing the **Print** button (Figure 1).	It is possible to change the install directory from where it is located automatically. Press the **Change…** to change the directory and press **Next** to proceed (Figure 2).

Figure 1
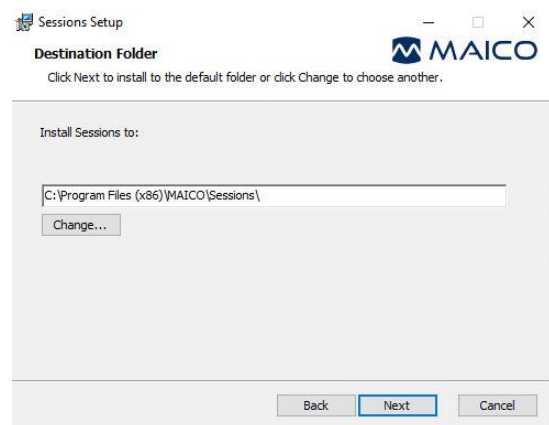
Figure 2

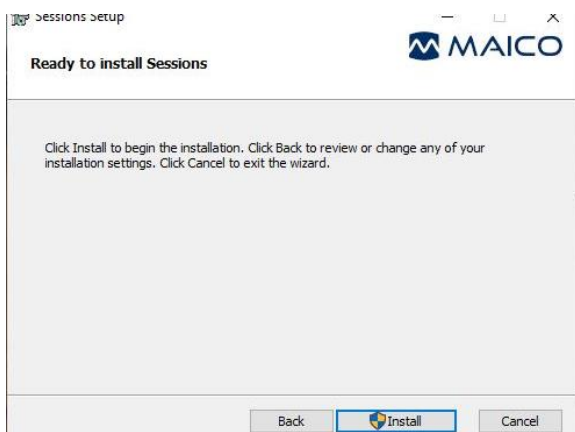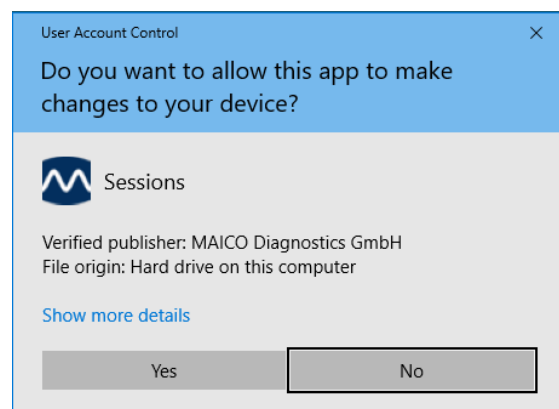|	
Click **Install** to start the installation process (Figure 3).	The User Account Control ask if you want to allow this app to make changes to your PC. Press **Yes** to proceed (Figure 4).

Figure 3

Figure 4

The installation process starts. When 100 % is reached, an Installation Complete message will be shown. Press **Finish** to finish the installation (Figure 5).
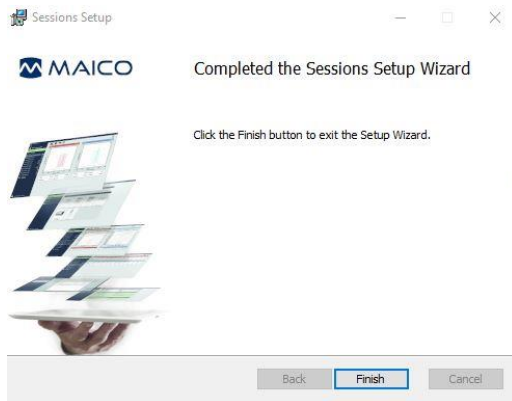

Figure 5

2.2 Repair or Remove

In case a repair or removal of MAICO Sessions is required, start the process with **SessionsSetup.msi**.

You are asked to **Repair** or **Uninstall** (Figure 6) the program. Select one of the options to proceed and start the repair (Figure 7) or the removal process (Figure 8). Proceed as shown in Figure 4 and Figure 5 to finish the process.
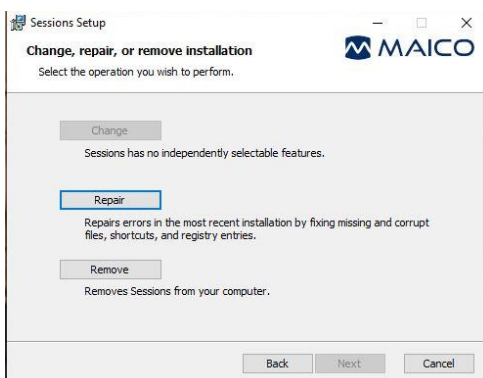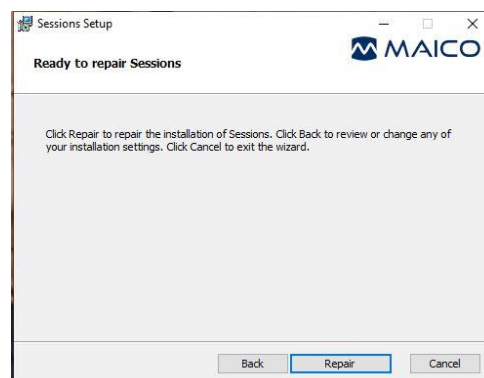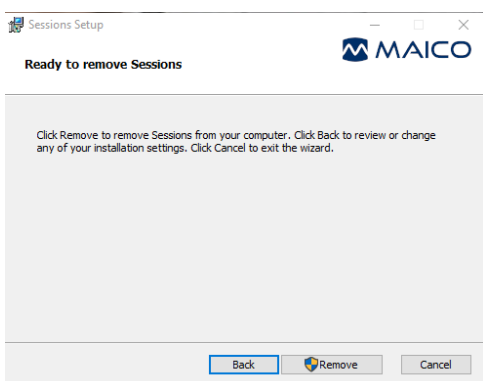

Figure 6

Figure 7

Figure 8

2.3 Database Connection

2.3.1 Connection to OtoAccess® Database and Noah 4

The OtoAccess® Database and Noah 4.6 (or later) have to be installed prior to installation of MAICO Sessions. MAICO Sessions gets automatically connected to the installed database.

2.3.2 Connection to Practice Management Software

2.3.2.1 General

If you want to connect MAICO Sessions to an existing practice management software, you can do so

- via GDT interface using the OtoAccess® Database plug-in or
- via XML interface or GDT interface using MAICO Sessions as a standalone version.

NOTE: Some functions of MAICO Sessions are only available if you connect via the OtoAccess® Database plug-in. These include displaying former measurements or comparing audiometry data in MAICO Sessions.

2.3.2.2 Connection via GDT Interface

MAICO Sessions can be connected with a practice management software via the GDT Interface for the OtoAccess® Database. The necessary plug-in can be installed after installation of the OtoAccess® Database on your PC.

i OtoAccess® GDT operation manual

2.3.2.3 Connection via XML or GDT Interface (Standalone Version)

NOTE: Once the connection between MAICO Sessions and practice management software has successfully established, the data exchange is updated each time MAICO Sessions is started or ended.

Proceed as follows to connect MAICO Sessions as stand-alone version to your existing practice management software:

1. Install MAICO Sessions.
2. Open MAICO Sessions as a standalone version by navigating to the MAICO folder in the Start menu or entering Sessions via the Windows® search function.
3. Select *Settings* – *Integration Type*
4. Select *XML* or *GDT* as integration type and follow the instructions below.

Integration Type – GDT or XML

In order to use MAICO sessions with an external database via GDT or XML interface, the import and export settings must be made. Select GDT or XML (Figure 9, **1**) and make the settings as described below.

Figure 9

Import Directory and File (Figure 9**, 2):** Click ![folder] to select the directory for the data based communication with the Practice Management Software. Changes will be activated after restart of the application.

Validate Patient Information (**2a**, for GDT only): Activate this setting if only those patients are to be transferred to MAICO Sessions for whom the first name, last name, ID and date of birth are valid.

Note: By default, an asterisk * is selected in the *Import file name* field. This means that the first valid XML file in the selected in the selected folder is automatically selected.

Export Directory and Files (Figure 9, 3): Click ![folder] to select an export file. *Patient* is automatically offered as *Export File Name* and can be changed if necessary.

If you activate the *Create PDF report* (**3a**) or the *Create XML session data* (**3b**, *GDT only*) function, you can make further settings for file name and PDF page format.

NOTE: The PDF report is based on the report settings.

![info icon]   Section 3.12.3   Settings – Report

3 Working with MAICO Sessions

3.1 Starting MAICO Sessions

3.1.1 General

MAICO Sessions can be started

- from the connected database (OtoAccess® Database, Noah 4 or Practice Management Software) or

- as a standalone version (also for use of alternate database via GDT or XML interface).

 NOTE: For a detailed description of how to work with the database see

i   respective software manual

3.1.2 Starting MAICO Sessions from the OtoAccess® Database

Start the OtoAccess® Database and enter a new patient (**1a**) and/or select an existing patient (**1b**). Double-click the MAICO Sessions icon (**2**) to start MAICO Sessions (Figure 10).
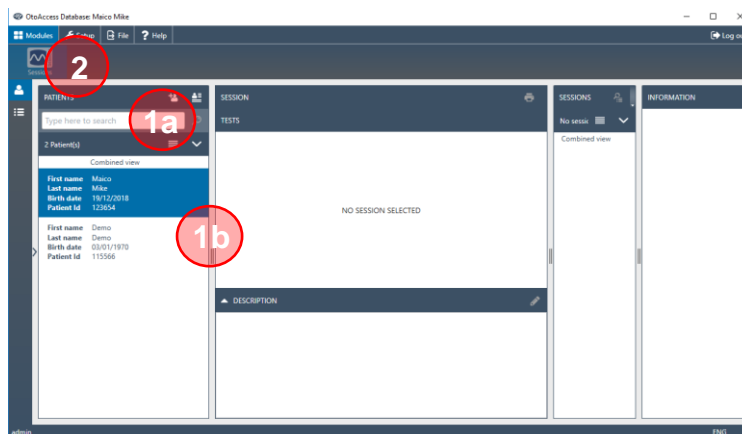
Figure 10

3.1.3 Starting MAICO Sessions from Noah 4

Start Noah 4 and enter a new patient (**1a**) and/or select an existing patient (**1b**). Select the MAICO Sessions icon (**1**) from the Noah 4 *Menu bar*. An overview of the installed measurement modules will appear under *Measurements* (Figure 11).
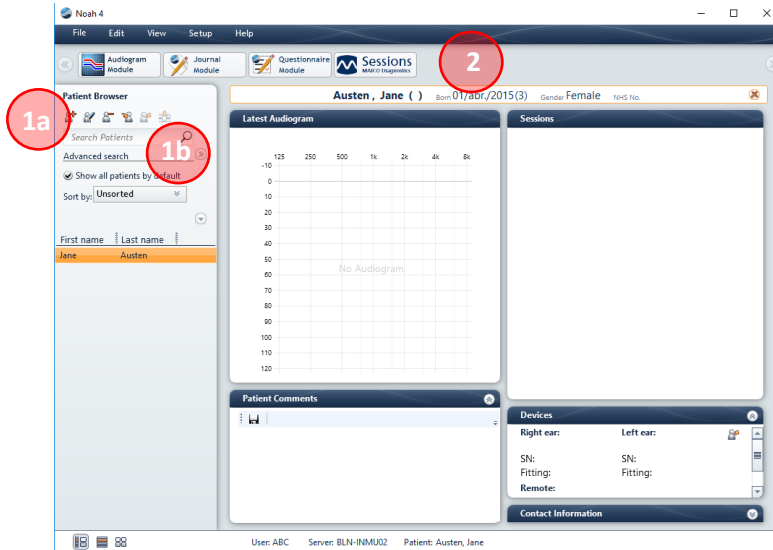
Figure 11

3.1.4 Starting MAICO Sessions as a Standalone Version
   (Also for Database Connection via GDT or XML Interface)

ℹ️   Section 2.3.2.3   Connection via XML or GDT Interface (Standalone Version)

You start the program as a standalone version by navigating to the MAICO folder in the *Start menu* or entering *Sessions* via the *Windows®* search function.

3.2 Making Basic Settings

Make the following basic settings to start working with MAICO Sessions:
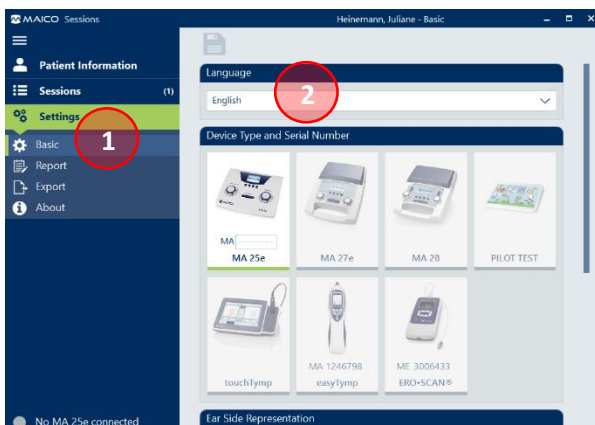
Figure 12

Open the *Settings – Basic* menu (Figure 12, **1**) and choose a language (**2**).

ℹ️   3.12.2   Settings – Basic

Select a language using the drop-down menu.

Changing the language requires a restart of the application.

3.3 Screen Areas, Buttons and Shortcuts

Figure 13 shows the 3 main screen areas. See Table 1 for more information.

Figure 13

Table 1 Explanation of Screen Areas

SCREEN AREAS		
#	**AREA**	**INFORMATION**
1	Title bar	Shows the name of the Software, the patient's first and last name as well as the title of the displayed main screen. Furthermore, it shows the icons to collapse, expand or close the window: – ◻ ×.
2	Menu bar	The **Menu** allows for the following: • **Hamburger button:** Press ☰ to reduce the menu bar and only show the menu icons (Figure 14). Press ☰ or any **other icon** to show the full bar again (Figure 15). **Figure 14** **Figure 15** • **Sessions:** Select any of the sessions available for the selected patient by clicking on it. Select the **Current Session** or a formerly saved session. The Current Session shows the recently transferred, unsaved session. The selected session is highlighted green. The number of available sessions is displayed on the right of the **Sessions** title. Session selection is facilitated by the display of the **test date**, **test time** (format based on the
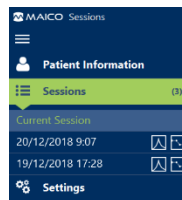
actual Windows® settings) and category symbol (⊼ – *Immittance*, ⊠ – *Audiometry*, ⊞ – *OAE*).

As soon as the session is selected the available tests of the sessions are expanded and displayed below. Select a test by pressing the test button. The selected test is displayed with a green bar on the left (Figure 16).
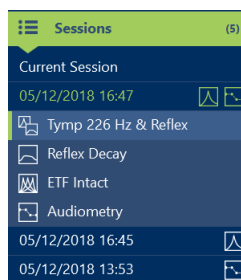

Figure 16

Single measurements can be deleted from an unsaved session. The ***Delete*** 🗑 button appears as soon as a measurement is selected (Figure 17).

Figure 17

NOTE: Data of a saved session cannot be deleted.

- **Settings:** Selection of *Settings* flaps out the different settings menus to be selected (Figure 18). See section 3.9 for more information on the *Settings* menus.
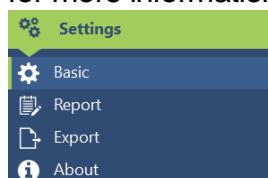
Figure 18

- **Connected Devices**: Shows which devices are connected to MAICO Sessions. If more than 1 device is connected, you can select a device by clicking on its name.
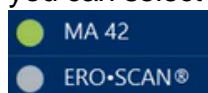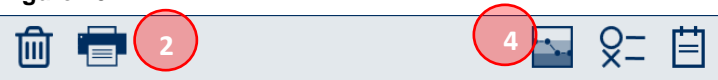
Figure 19

NOTE: Fore information on how to change the device order see

🛈   Section 3.12.2   Settings – Basic

SCREEN AREAS

#	AREA	INFORMATION
3	Main Screen	Shows the *test* or *setting screen* selected in the **Screen Selection Area**.
		![i] Section 3.5 Test Screens (Sessions)
		Section 3.12 Settings
4	Toolbar	Shows the function buttons on the left and buttons which affects the current main screen view. See Table 2 for more explanation.
		Action buttons are shown on the left of the bar (Figure 20 and Figure 21, **1** and **2**), view buttons on the right (**3** and **4**). The buttons offered depend on the selected test and the settings made. Greyed out buttons are inactive (**5**).

Figure 20

Figure 21

Buttons and shortcuts

NOTE: For a more detailed description of the functions see

![i]   Section 3.5   Test Screens (Sessions)

![Session notes (Ctrl+N)]
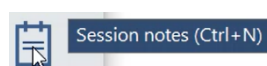
Figure 22

Table 2 gives a short overview of the shortcuts that can be used when working with MAICO Sessions.

The available shortcuts are explained in a tooltip with a short explanation when moving the mouse over the button (Figure 22).

Table 2 Shortcuts

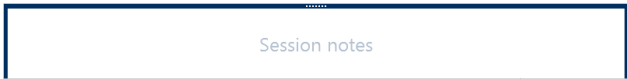| SCREEN	BUTTON	SHORTCUT	DESCRIPTION
Menu bar			
With database	🗑	*DEL*	**Delete**: to delete the current session.
Toolbar			
All	🗑	*Ctrl + D*	**Delete** all data: to delete the current session.
Standalone	👥	*Ctrl + O*	**Switch patient**: to select another patient from the connected database. See section for more information.
All	💾	*Ctrl + S*	**Save**: Saves the selected session. Save patients (Upload patients screen): Saves the actualized patient list to the device.

SCREEN	BUTTON	SHORTCUT	DESCRIPTION
Standalone with XML/GDT integration		*Ctrl + Q*	**Save and exit**: Saves unsaved session and ends MAICO Sessions. The XML, GDT and/or PDF files are automatically generated.
Download sessions		**-**	**Cancel**: Ends upload or download without saving.
All		*Ctrl+ P*	**Print**: Opens the *Print preview* from where the print process can be started**.**
All (if activated in settings)		*Ctrl + F1*	**Export Session Report to PDF:** exports the session report to PDF according to the settings made.
All (if activated in settings)		*Ctrl + F2*	**Export Session Data to XML:** exports the session data into an XML-file according to the settings made.
MA 25e/ MA 27e/ MA 28/ PILOT TEST		*Ctrl + G*	**Get Measurement**: gets the measurement data from the device (only active if device is connected).
Tymp 226 Hz & Reflex/ Reflex Decay		*Ctrl + R*	**Reflexes with noise**: shows/hides the *Ipsi/ Contra* reflexes with noise. This icon is displayed green if activated.
Tone Audiometry		*Ctrl + L*	**Symbol Legend**: Shows/hides a legend of symbols below the *Audiogram*. This icon is displayed green if activated.
Tone Audiometry		*Ctrl + H*	**Grades of Hearing Loss:** Shows the coloured areas for the degree of hearing loss according to WHO recommendations[1]
Tone Audiometry		*Ctrl +T*	**Compare tests**: Leads to a *Compare Tests* screen that allows comparing test results from different sessions. This icon is displayed green if activated and shows the number of tests selected. Press to close the comparison mode again.
All		*Ctrl + N*	**Session Notes**: Shows/hides a *Session notes* field at the bottom of the test screen (Figure 23).

Figure 23

When starting to type in the *Session notes* field various text formatting options are displayed (Figure 24).

Figure 24

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[1] Scientific Committee on Emerging and Newly Identified Health Risks (SCENIHR): Potential health risks of exposure to noise from personal musicplayers and mobile phones including a music playing function, European Commission, 2008

3.4 Patient Selection

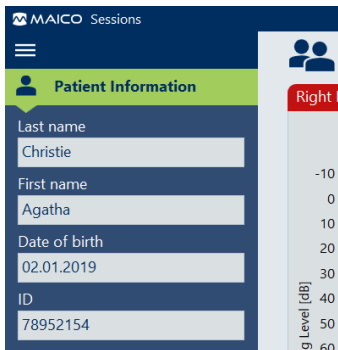### 3.4.1 Patient Selection in the Connected Database

Figure 25

It is possible to select a patient in the connected database before starting to work with MAICO Sessions. Patient information is displayed in the *Menu bar.*

A patient can also be switched while MAICO Sessions is already running. Press the *Switch patient* button in the *Toolbar* to open the windows for patient selection in the OtoAccess® Database (Figure 26) or Noah 4 (Figure 28).

NOTE: It is only possible to edit patient information in the connected database, not in MAICO Sessions.

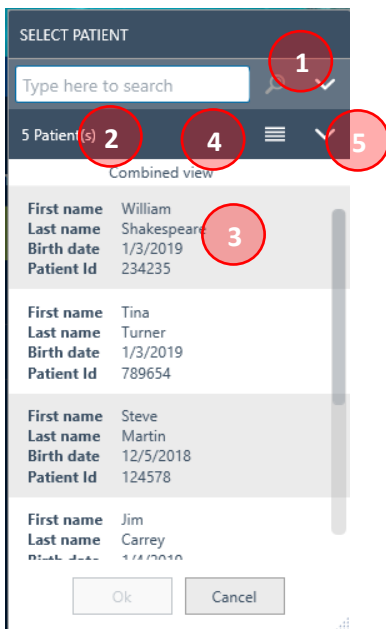### 3.4.2 Patient Management with MAICO Sessions and the OtoAccess® Database

Figure 26

Patients can be searched by *First name*, *Last name* or *Patient ID* in the search field (Figure 26, **1**). The number of patients matching the search criteria is shown below the search field (**2**). The result (**3**) view can be switched between *Combined view* and *Grid view* (**4**). Single search items can be selected or deselected to change the appearance of search results in the *Grid View* (**5**, Figure 27).

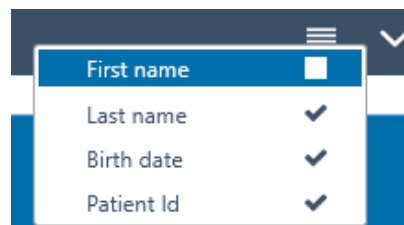MAICO Sessions starts automatically after patient selection.

Figure 27

If you use the OtoAccess® Database, you can also use MAICO Sessions to organize patient management on the following MAICO devices:

- ERO•SCAN® (Firmware Version 1.108 or higher)
- MA 28 (Firmware Version 2.1 or higher)
- easyTymp

MAICO Sessions offers the option to upload a list of patients to be tested from the OtoAccess® Database and save the session in a few worksteps.

NOTE: To learn how to use the patient management on your ERO•SCAN®, MA 28 or easyTymp see:

Section 3.11 Patient Management (MA 28, easyTymp and ERO•SCAN® Only)
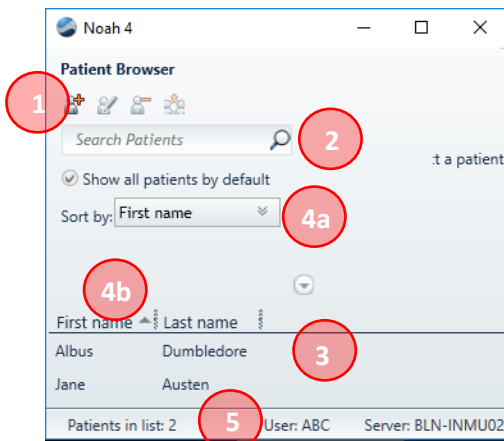
3.4.3 Patient Selection with MAICO Sessions and Noah 4

Figure 28

Enter a new patient by pressing the ***Add patient*** button (Figure 28, **1**) or select an existing patient from by searching the database by ***First name*** or ***Last name*** or ***Patient no.*** (**2**). The patient list (**3**) is automatically updated with the entered numbers and letters. It is possible to sort the search results by using the ***Sort by*** (**4a**) function or using the sort function in the header of the patient list (**4b**). The number of listed patients is shown at the bottom of the ***Patient Browser*** (**5**). It is possible to adjust the search categories shown in the ***Sort by*** a drop-down menu (**4a**) or the patient list (**4b**) by pressing the ***arrow*** (Figure 29, **6**) button above the patient list and select/deselect items.

Figure 29

3.4.4 Patient Selection in the Standalone Version (for Integration Setting None Only)
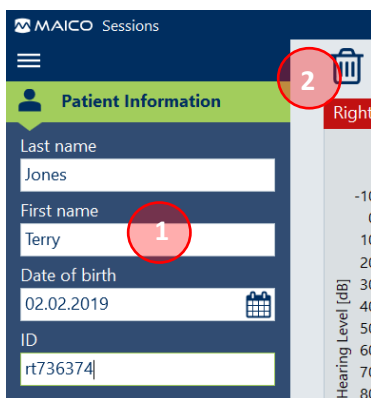

Figure 30

In the Standalone-Version it is not possible to select a patient. Therefore, patient information can be entered when starting the program (**1**). It is possible to use the calendar widget to select the ***Date of Birth***.

To delete the current patient information press the ***Delete*** button in the ***Toolbar*** (**2**) or ***Ctrl + D***. The data for the next patient can then be entered.

NOTE: It is possible to print a patient's test data without the prior entry of patient information. In this case, the fields in the printout remain empty.

3.5 Test Screens (Sessions)

3.5.1 General

Based on the test selected, the screen display changes.

The different test screens are explained in the following sections.

Graphs, tables, and values presented in

- **Red** belong to measurements of the right ear.
- **Blue** belong to measurements of the left ear.

3.5.2 Test Screen Tympanometry and Acoustic Reflexes (Tymp & Reflex)

Figure 31 shows the test screen for **Tympanometry and Acoustic Reflexes**. Table 3 gives an explanation of the different screen areas.
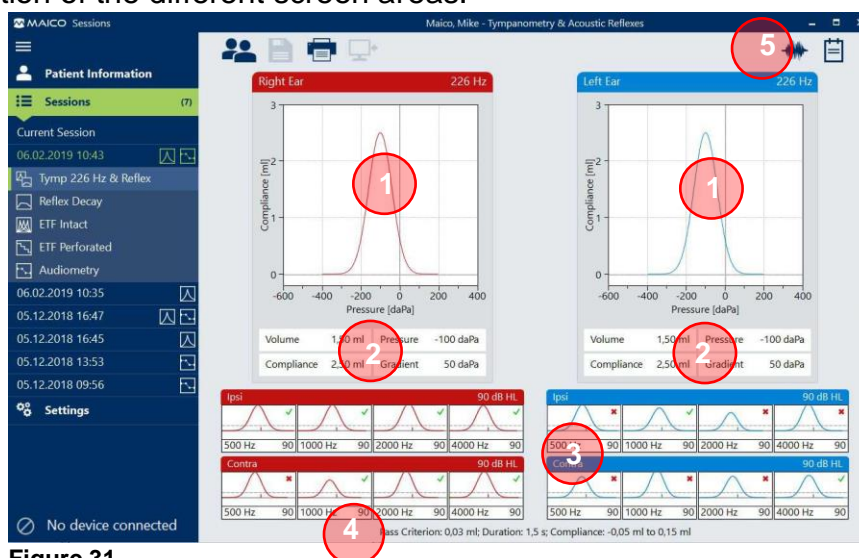
Figure 31

Table 3 Explanation of Test Screen Tympanometry and Acoustic Reflexes (Tymp & Reflex)

#	ITEM	INFORMATION
	TEST SCREEN TYMPANOMETRY AND ACOUSTIC REFLEXES (TYMP & REFLEX)	
1	**Tympanograms**	Shows the **Tympanograms** for the measured ears with the frequency of the measurement (e.g. 226 Hz). MAICO Sessions supports 2 zoom levels in the Tympanogram and automatically selects the best one. The display can be changed by pressing on the Tympanogram.
2	**Volume (ml)**	Indicates the **Volume** of the section of the ear canal between the ear tip and the eardrum.
	Compliance (mmho/ml)	Indicates the maximum value of the **Compliance** from the tympanogram.
	Pressure (daPa)	Indicates the **Pressure** with the highest measured compliance.
	Gradient (daPa)	Calculations are reported as the Tympanogram width at half of the peak compliance.
3	**Acoustic Reflexes**	Shows the Acoustic Reflex measurements if existing as a graph or table with the sound pressure level for **Ipsilateral Reflexes** or **Ipsilateral and Contralateral Acoustic Reflexes**.
4	**Pass Criterion (ml)**	Defines the deflection value that must be measured for the reflex to be considered an accepted measurement.
	Duration (s)	Defines test duration.
	Compliance (mmho/ml)	Compliance specifies the display range (Y-axis) for the reflexes.
5	**Noise Reflexes** **Ctrl + R**	Press ![icon] to show **Reflexes with noise** (**BB** – Broadband, **LP** – Low Pass, **HP** – High Pass, Figure 32). Press ![icon] to return to standard view. **Figure 32**

3.5.3 Test Screen Eustachian Tube Function (ETF) – Intact

Figure 33 shows the test screen for **ETF Intact**. Table 4 gives an explanation of the different screen areas.

Figure 33

Table 4 Explanation of Test Screen Eustachian Tube Function (ETF) – Intact

TEST SCREEN EUSTACHIAN TUBE FUNCTION (ETF) – INTACT		
#	ITEM	INFORMATION
1	**ETF diagram boxes**	Show the **ETF diagrams**. The color of the graphs matches with the color of the pressure (see item 2 Pressure (daPa) below in this table). MAICO Sessions supports 2 zoom levels in the Tympanogram and automatically selects the best one. The display can be changed by pressing on the Tympanogram.
2	**Volume (ml)**	Indicates the **volume** of the section of the auditory canal between the ear tip and the eardrum.
	Pressure (daPa)	**Pressure 1** (**Red**/**Blue** – depending on the ear): Pressure value at the maximum compliance of the first tympanogram. **Pressure 2:** Pressure value at maximum compliance of second tympanogram. **Pressure 3**: Pressure value at maximum compliance of third tympanogram.
		NOTE: For easyTymp **Pressure 2** always represents **Swallow** and **Pressure 3** always **Valsalva**. For touchTymp or MI 44 measurements, the display order follows the device settings.

3.5.4 Test Screen Eustachian Tube Function (ETF) – Perforated

Figure 34 shows the test screen for **ETF Perforated**. Table 5 gives an explanation of the different screen areas.

Figure 34

Table 5 Explanation of Test Screen ETF Perforated

TEST SCREEN EUSTACHIAN TUBE FUNCTION (ETF) – PERFORATED		
#	**ITEM**	**INFORMATION**
1	**ETF diagram boxes**	Show the **ETF diagrams**.
2	**Open (daPa)**	Pressure value when pressure started to drop.
3	**Close (daPa)**	Pressure value when pressure stopped dropping.

NOTE: ETF diagrams of easyTymp are displayed within a range from 0 daPa to 300 daPa (y-axis). ETF diagrams of touchTymp or MI 44 are automatically adjusted to the display in the device (dependent on start pressure value).

ETF diagrams of easyTymp are always displayed within a range from 0 s to 40 s (x-axis). ETF diagrams of touchTymp or MI 44 are displayed within a range of 0 s and 40 s, 70 s or 100 s depending on the test duration set in the device.

3.5.5 Reflex Decay

Figure 35 shows the test screen for **Reflex Decay**. Table 6 gives an explanation of the different screen areas.
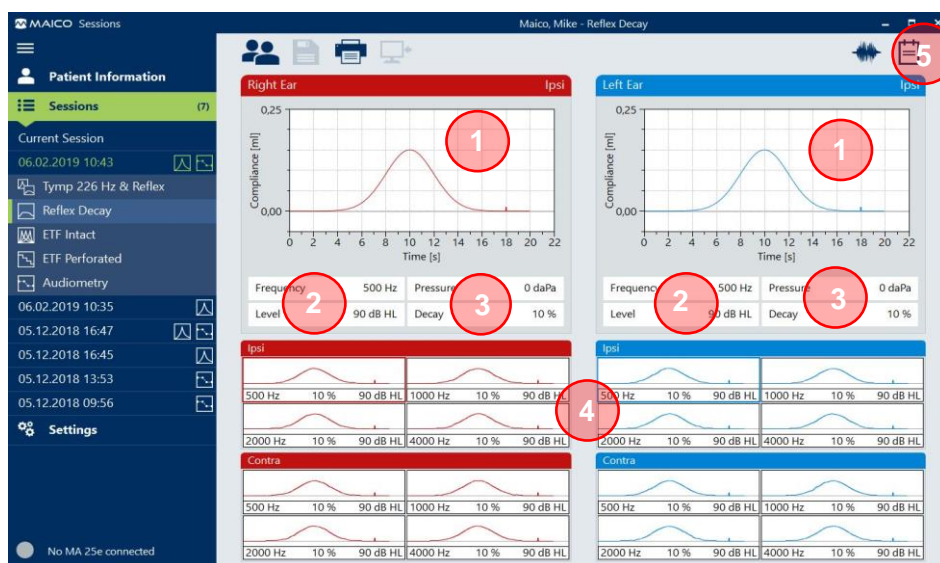
Figure 35

Table 6 Explanation of Test Screen Reflex Decay

TEST SCREEN REFLEX DECAY	
# ITEM	**INFORMATION**
1 Reflex Decay Graph	Shows the **Reflex Decay diagrams**.
2 Frequency (Hz)	Shows the selected frequency in Hz.
Level (dB HL)	Indicates the selected level in dB HL.
3 Pressure (daPa)	Displays the pressure (pressure is automatically set at the peak pressure for maximal compliance).
Decay (%)	Displays the percentage of the gradient of the test graph.
4 Test Frequencies	Press **500 Hz**, **1000 Hz**, **2000 Hz** or **4000 Hz** diagram boxes to display the measurements of the different test frequencies in the diagram on top.
Reflexes with noises **5 Ctrl + R** 	Press to show **Noise Reflexes wit noises** (**BB** – Broadband, **LP** – Low Pass, **HP** – High Pass, Figure 36). Press to return to standard view. **Figure 36**
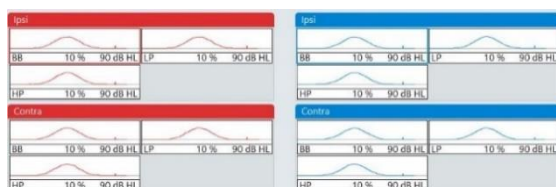
NOTE: Reflex Decay diagrams of easyTymp (x-axis) are always displayed within a range from 0 s to 13 s (10 s duration of tone presentation plus 3 s of further test proceeding).

Reflex Decay diagrams of touchTymp or MI 44 (x-axis) are displayed within a range from 0 s to 13 s or 33 s (10 s or 30 s duration of tone presentation plus 3 s of further test proceeding) depending on the duration of tone presentation set in the device.

3.5.6 Tone Audiometry

Figure 37 shows the test screen for **Tone Audiometry**. Table 7 gives an explanation of the different screen areas.

NOTE (MA 42/MA 52 only): As soon as values are stored in the High Frequency range, MAICO Sessions shows the test screen with the extended range. The screen areas are slightly shifted here. The functionality remains the same.

Figure 37

Table 7 Explanation of Test Screen Audiometry

TEST SCREEN AUDIOMETRY		
#	**ITEM**	**INFORMATION**
1	**Audiograms**	Shows the measured **Audiogram** for the left or right ear.
2	**PTA**	Displays the Pure Tone Average. It is calculated according to the device settings.
3	**Masking Tables**	Shows the masking values for the right and left ear (**AC** – Air Conduction and/or **BC** – Bone Conduction). The appearance of the table automatically adjusts to the available values.
4	**Compare Tests** **Ctrl + T**	Leads to a **Compare Tests** screen shown that allows comparing Audiometry test results of different sessions. (ℹ) Figure 40 and Table 8
5	**Grades of Hearing Loss** **Ctrl + H**	Shows the coloured areas for the degree of hearing loss according to WHO recommendations (Figure 38). **Figure 38**
6	**Symbol Legend** **Ctrl + L**	Shows/hides the **Symbol Legend** below the audiograms (Figure 39). **Figure 39**
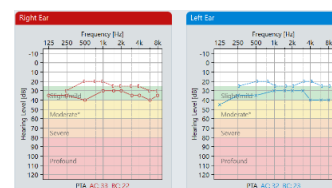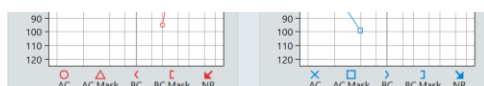
Compare Audiometry Tests (Not for Standalone Version)

Figure 40

Table 8 Explanation of Test Screen Audiometry – Compare Tests

#	ITEM	INFORMATION
	TEST SCREEN AUDIOMETRY – COMPARE TESTS	
1	**Select Tests**	Select **Audiometry** Tests.
2	**Combined Audiograms**	Shows the measurement values for the right and left ear (**AC** – Air Conduction and/or **BC** – Bone Conduction).
		Masking tables are hidden in the test comparison screen, because they are not relevant for comparison.
3	**Compare Tests Strg + T**	All sessions with an Audiometry test are shown in the sessions menu. Use the **Show** 👁 and **Hide** 🚫 buttons to show or hide the tests in the combined **Audiograms** view. Select a main session by clicking on it. The test results of the main session are shown in red and blue colors indicating the right and the left ear. The main session is marked with a green bar on the left (Figure 41).
		Figure 41
		The other sessions can be identified by color coding.
		Example: In the example given in Figure 40 the first session is the main session shown with red/blue lines and symbols in the audiograms. The second session is shown in green in the sessions menu and with a green line and symbols in the audiograms. The third session is not selected and therefore not shown in the audiograms.

3.5.7 Speech Audiometry

The *Speech Audiometry* test screen is displayed according to the display type selected in the device settings (*Diagram* or *Table* view). The parameters are automatically adjusted to the ones set in the device.

Figure 42 shows the results in the Diagram view. Table 9 gives an explanation of the different screen areas.
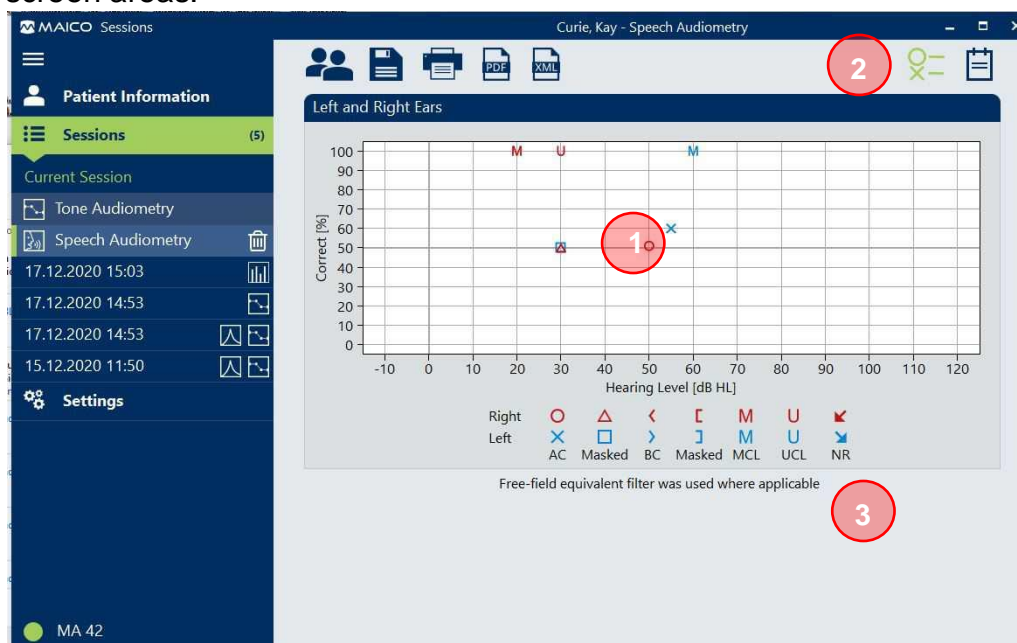
Figure 42

Table 9 Test Screen Speech Audiometry – Diagram View

#	ITEM	INFORMATION
1	**Diagram**	Shows the test results in a diagram. Level units (dB HL and dB SPL) and symbol set are according to device settings.
		Each symbol represents the result of a specific test setting (selected transducer, ear, test type and masking). See 2.
2	**Symbol Legend** **Ctrl + L**	Shows/hides the *Symbol Legend* below the audiograms (Figure 43).
		Figure 43
3	**Free-field equivalent**	Notice that appears if free-field equivalent threshold filter was used.

Figure 44 shows the results in the Table view. Table 10 gives an explanation of the different screen areas.

Figure 44

Table 10 Test Screen Speech Audiometry – Table View

TEST SCREEN SPEECH AUDIOMETRY – TABLE VIEW		
#	**ITEM**	**INFORMATION**
1	Table	The table shows the following information: • **Ear**: displays the tested ear (R – Right or L – Left). • **Type**: displays the test type. • **Correct [%]**: Percentage of words correctly recognised by the patient during WRS testing. • **dB HL/dB SPL**: displays the hearing level in dB HL or dB SPL (depening on device settings). • **Masking [dB HL]:** displays the masking level. • **Test**: displays the test files if WAVE files are used. • **Input**: displays the source of the speech material presented. • **Transducer**: Transducer used during testing
2	Free-field equivalent	Notice that appears if free-field equivalent threshold filter was used.

3.5.8 Freiburger Speech Test

Figure 45 shows the test screen for the **Freiburger Speech Test**. Table 11 gives an explanation of the different screen areas.
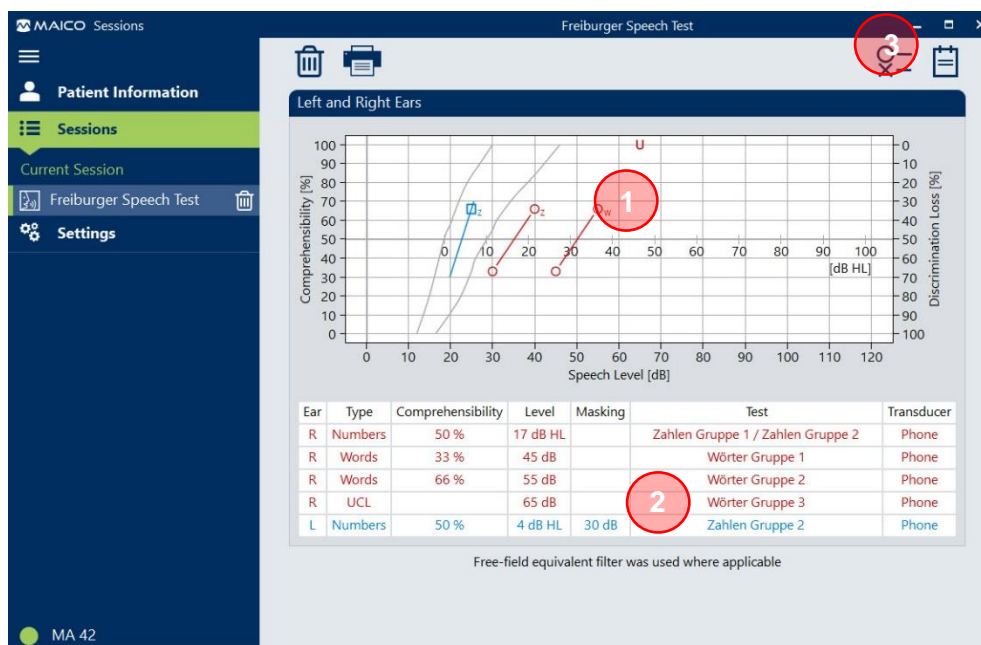
Figure 45

Table 11 Explanation of Test Screen Freiburger Speech Test

TEST SCREEN AUDIOMETRY		
#	**ITEM**	**INFORMATION**
1	**Diagram**	Shows the test results in a diagram. Each symbol represents the result of a specific test setting (selected transducer, ear, test type, masking and Test type (subscripts Z = Zahlen/numbers, W = Wörter/words)). See 3.
2	**Table**	The table shows the following information: **Ear**: displays the tested ear (Right or Left). **Type**: displays the test type. **Comprehensibility [%]**: Percentage of words correctly recognised by the patient during testing. **Level**: for numbers it displays the level at which 50 % of the Numbers were correctly recognized (in dB HL). For words it displays the stored level (in dB). **Masking:** displays the masking level (in dB). **Test**: displays the test files if WAVE files are used. **Transducer**: Transducer used during testing.
3	**Symbol Legend** **Ctrl + L**	Shows/hides the **Symbol Legend** below the audiograms (Figure 39). **Figure 46**
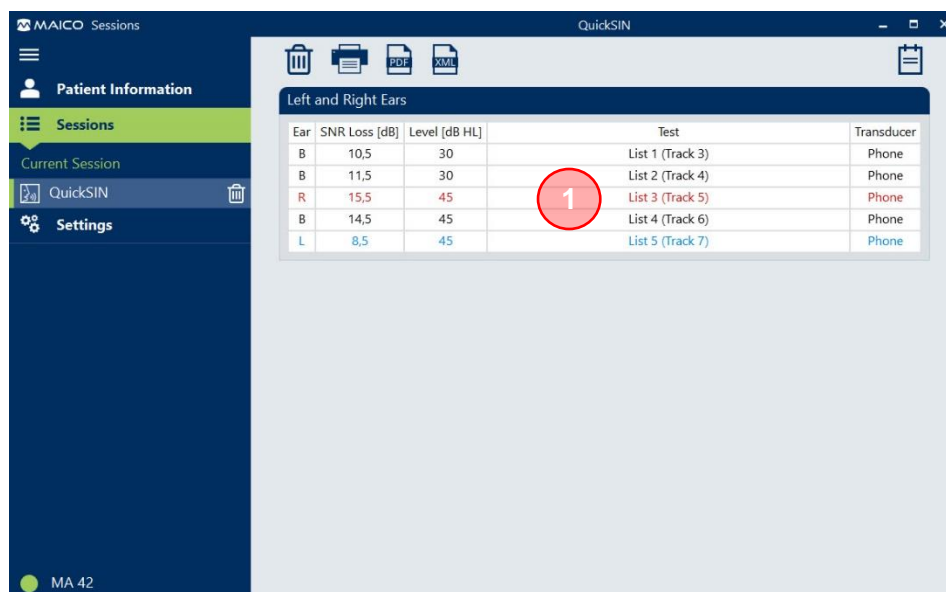
3.5.9 QuickSIN™

Figure 45 shows the test screen for the *QuickSIN™* test. Table 11 gives an explanation of the different screen areas.

Figure 47

The table (**1**) shows the following information:

- **Ear**: displays the tested ear (R – Right, L – Left or B – Binaural).
- **SNR loss [dB]:** displays the loss in the ability to understand speech at the SNR (signal-to-noise-ratio) used by those with normal hearing ability.
- **Level [dB HL]**: Displays the hearing level (in dB HL).
- **Test**: displays the test files if WAVE files are used.
- **Transducer**: Transducer used during testing.

3.5.10 OAE

Figure 48 shows the test screen for **OAE**. Table 12 gives an explanation of the different screen areas.
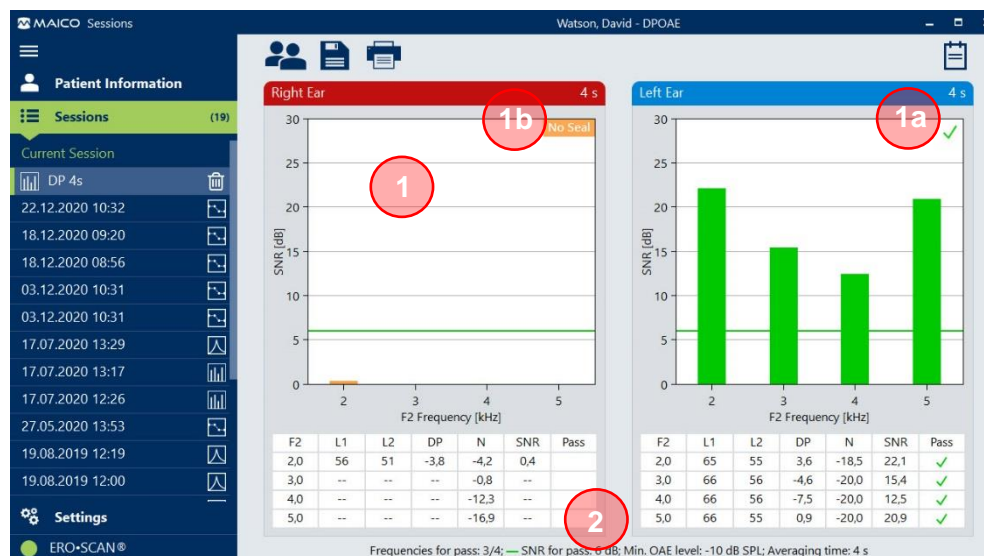
Figure 48

Table 12 Explanation of Test Screen OAE

TEST SCREEN AUDIOMETRY – COMPARE TESTS		
#	**ITEM**	**INFORMATION**
1	Diagram	The test results are displayed in the form of a bar or line graph according to the settings in the device during the test (**Graph SNR** (Figure 48) or **Graph Value** (Figure 49) view). **Figure 49** The colouring of the bars corresponds to that of the ERO•SCAN®. In the upper right corner of the diagram the result (✓ = **Pass**, ✗ = **Refer** (**1a**)) or the reason for an invalid result is displayed according to the error status in the ERO•SCAN® (**1b**). **NOTE**: When using the **Save L/R mode** in the ERO•SCAN®, the test results for the left and right ear are displayed separately to prevent possible mis-assignment.
2	Result Table	Shows the results in the form of numerical values.

3.6 Transferring Measurement Data to MAICO Sessions

3.6.1 General
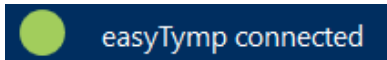
Figure 50
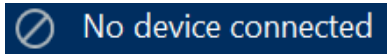
Figure 51
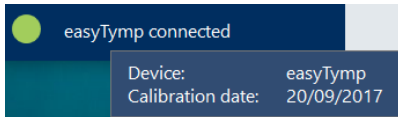
Figure 52

Transferring a measurement requires MAICO Sessions to be open, and connection established. See in the left lower corner of the MAICO Sessions screen if the device has been successfully connected (Figure 50 and Figure 51).

Sliding the mouse cursor over the field shows a tooltip providing the following information, if available: *Device*, *Calibration Date* and *Serial Number* (Figure 52).

Perform the measurement within the MAICO device as described in the device operation manual. Data transfer between the device and the MAICO Sessions is performed differently based on the MAICO device.

Figure 53

The message box in Figure 53 is shown if a measurement of the same type has been transferred.

Press *Replace* to replace the measurement in the *Current Session* with the new measurement. Press *Add* to add the measurement to a new session and save the previous session.

3.6.2 Data Transfer Between MA 42/MA 52/touchTymp/MI 44 and MAICO Sessions

Figure 54

Figure 55

Connect the device to the PC via USB. The connection status 🟦 (MA 42/MA 52)/⟷ (touchTymp/MI 44) on the device will be highlighted green and show the status connected. MAICO Sessions will show *MA 42/MA 52/touchTymp/MI 44 connected*. Perform the measurement within the device as described in the device operation manual.

The data transfer takes place in real time as soon as a partial measurement is completed or value has been stored. The measurement will still be available on the device after transfer.

NOTE: If you perform a new test on the device without having saved results from a prior test to the software, the prior results will be overwritten.

3.6.3 Data Transfer Between easyTymp/ERO•SCAN® and MAICO Sessions

Figure 56

Figure 57

To transfer data between the easyTymp or ERO•SCAN® (Figure 56) and MAICO Sessions, complete the measurement and connect the easyTymp to the PC.

For both devices the connection can be made via the USB cable inserted directly into the USB port on the device. Alternatively, you can place the easyTymp on the connected cradle.

The transfer process starts automatically.

It is possible to combine different test types in one session when the easyTymp is connected to MAICO Sessions multiple times with different test types.

After transfer, the measurement will be deleted on the easyTymp.

3.6.4 Data Transfer between MA 25e, MA 27e, MA 28 and PILOT TEST and MAICO Sessions

If the MA 25e, MA 27e, MA 28 or the PILOT TEST is connected, the **Get Measurement** 🖥 button appears (Figure 58, **1**). To transfer stored data from the device, click on 🖥 or press **Ctrl + G** and the audiometry values are displayed in the current session.
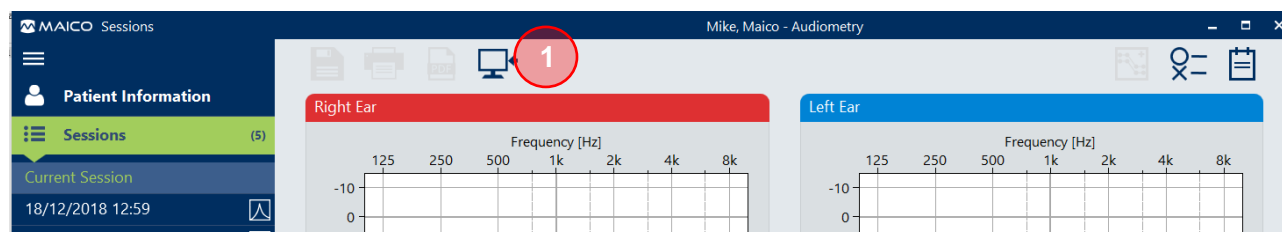
Figure 58

3.7 Saving a Measurement

NOTE: It is not possible to save a measurement when using the standalone version without XML or GDT connection to a connected database. It is only possible to use the export functions (XML/PDF) or print the results.

To learn how to save sessions when using patient management, see:

ℹ️   Section 3.11   Patient Management (MA 28, easyTymp and ERO•SCAN® Only)

MAICO Sessions with database:	Press the **Save measurement** 💾 button in the **Toolbar** or **Ctrl + S** to save a measurement.
MAICO Sessions as a standalone version with integration settings:	Press the **Save and Exit** button in the **Toolbar** or **Ctrl + Q** to save a measurement and end the program.

3.8 Deleting a Measurement

Single measurements can be deleted from an unsaved session. The **Delete** 🗑 button appears as soon as a measurement is selected (Figure 59). Once the button is pressed a message box opens where you can decide if you really want to delete the selected test by pressing **Yes** or **No** (Figure 60).

Figure 59
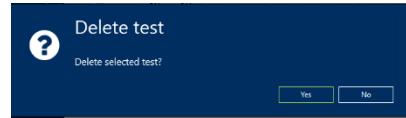
Figure 60

NOTE: Data of a saved session cannot be deleted.

3.9 Printing Session

Press the **Print Session** 🖨 button or use the shortcut **Ctrl + P** to open the **Print** screen (Figure 61). This screen allows to

- view a **Preview** of the printed session (**1**) and the total number of pages to be printed (**2**),

- select a **Printer** (**3**) and

- select a **Page size, Color mode, Pages** and **Copies** (**4,** dependent on the selected printer)

- **Zoom in** ⊕, **Zoom out** ⊖ or **Fit page** ✣ (**5**) of the page preview (buttons appear when moving the mouse over the page preview).

- Start or cancel the printing process (**6**).
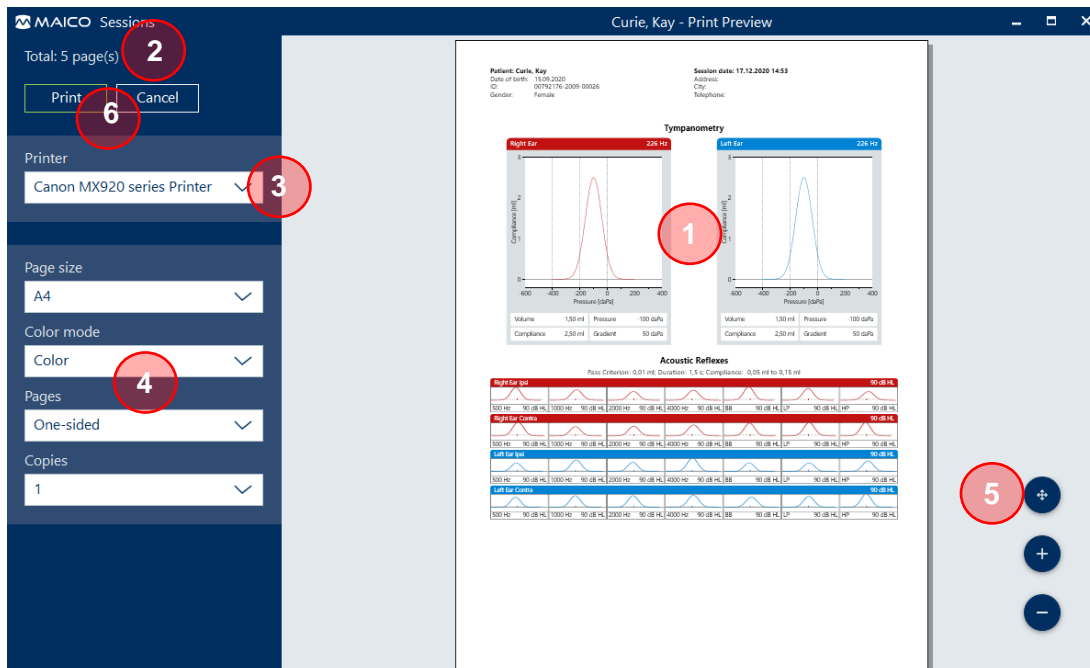
Figure 61

3.10 Exporting Sessions

It is possible to activate the *Export session report to PDF* and/or the *Export session data to XML* options in the *Settings – Export* menu (*Export Type*) and define an *Export Directory* as well as the *File Name Configuration*.

ⓘ   Section 3.12.4   Settings – Export

Only if an option is activated the correspondent button is shown in the *Toolbar* on the *Session screen* (compare Figure 62 and Figure 63).

Figure 62   **Figure 63**

3.11 Patient Management (MA 28, easyTymp and ERO•SCAN® Only)
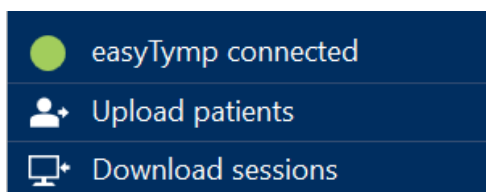
Figure 64

As soon as you connect MAICO Sessions with the device the connection status turns green and the *Upload patients* and *Download sessions* buttons appear (Figure 64).

NOTE: With the easyTymp the patient management must be deactivated to use this function.

With the ERO•SCAN® you have to activate the *Save 250* resp. *Save 500* mode (depending on FW version).

Upload Patients

Press [🧑‍➕ Upload patients]   to open the ***Upload patients*** screen (Figure 65).
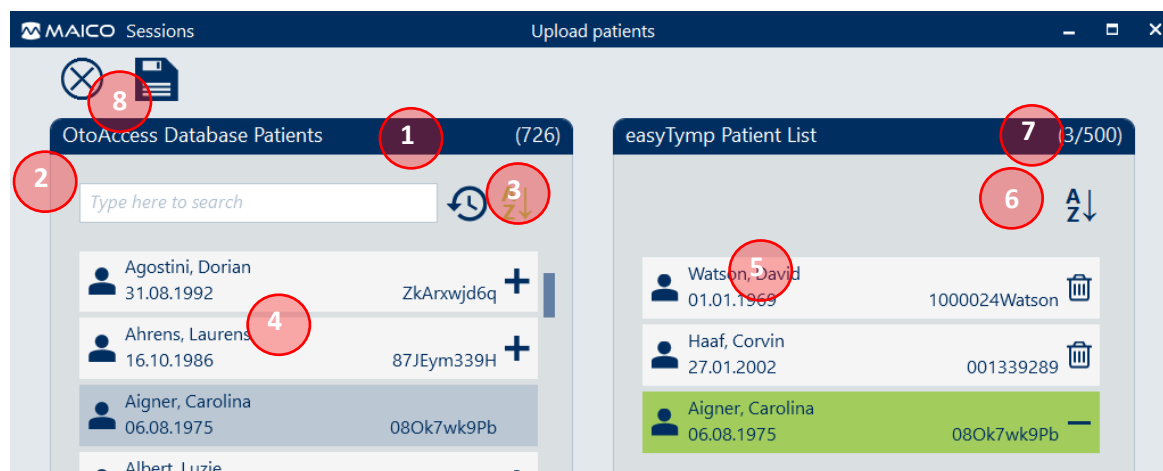
Figure 65

Table 13 Uplaod patients Screen – Explanation

#	INFORMATION
1	Total number of patients in the OtoAccess® Database
2	Search a patient by first name, surname or patient id.
3	Sort patients alphabetically or by date on which the patient was created.
4	Select a patient from the OtoAccess® Database. The patient is automatically added to the patient list on the right side of the screen (**5**).
5	Shows the patients in the patient list that are going to be uploaded to the device. You can use the drag and drop function to sort the patients manually.
6	Sort patients alphabetically.
7	Shows the number of patients in the patient list and the maximum number of patients that can be uploaed to the device.
8	Press 💾 to save the patients to the device. Press ⊗ to close the window without saving.

Download Sessions

Press 🖥️ Download sessions to open the **Download sessions** screen. The screen shows all sessions that have been saved to the device.

The functionality allows easy download and storage of test data for uploaded patients. But you can also edit the test data before saving it to the database. See Figure 66 and Table Table 14 for explanation.
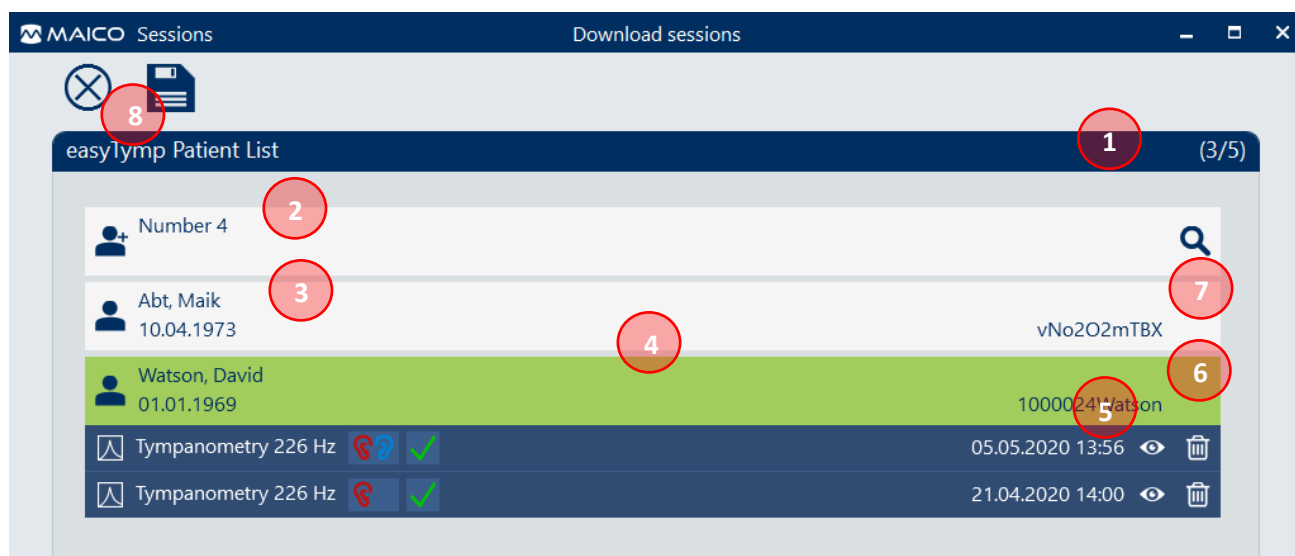
Figure 66

Table 14 Download sessions Screen – Explanation

#	INFORMATION
1	The number of available sessions and the number of uploaded patients.
2	The sessions are automatically assigned to the uploaded patients.
3	If you have saved a session without patient on the device, **Patient #** is displayed instead of the patient name and other patient data.
4	If you select a session it is displayed green and additional information is shown. This includes the test description, the test results (✓ = **Pass**, ✗ = **Refer**) as well as time and date of the session.
5	Press 👁️ to show a preview of the session (Figure 67).
6	Press 🗑️ to delete a single session.
7	If you have a session not assigned to a patient it is possible to search the database and select a patient there. Press 🔍 to start searching (Figure 68). Press ↩️ to undo the selection if needed. **NOTE**: If you accidentally saved a patient without a name or assigned a session incorrectly, you can change the name or assignment in the database.
8	Press 💾 to save the sessions to the database. Press ⊗ to close the window without saving.
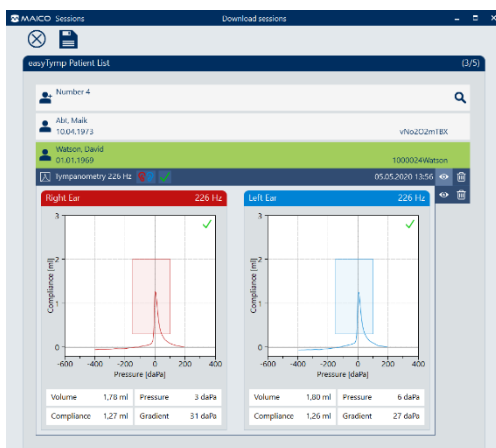
Figure 67
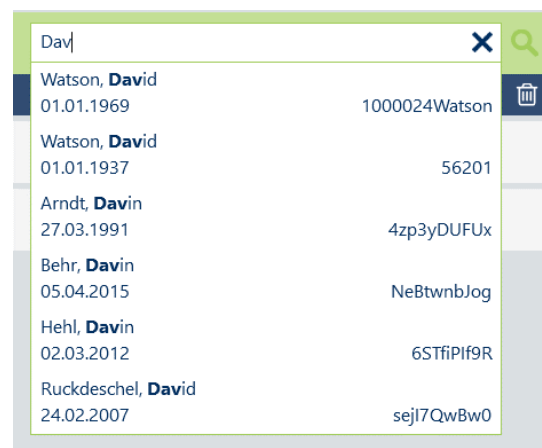
Figure 68

3.12 Settings

3.12.1 General

The following settings menus allow you to adjust MAICO Sessions to your needs:

- Basic
- Report
- Export
- Feedback
- About

The settings menus are explained in the following sections.
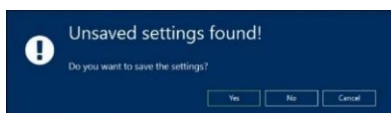
Figure 69

The message box in Figure 69 is shown if you select another menu after having changed settings without saving. Press **Yes** to save the new settings, **No** to keep the settings or **Cancel** to stay in the settings menu without saving the new settings.

3.12.2 Settings – Basic

NOTE: Some of the following setting options are not available for all devices since they might not apply to the device type selected and/or can only be set in the device and are automatically adopted during transfer.

The **Basic Settings** menu allows for making the following settings:

- **Language**
- **Device Order and Serial Number**
- **Ear Side Representation** (only for MA 25e, MA 27e, easyTymp and ERO•SCAN®)
- **Diagram Type** (only for MA 25e and MA 27e)
- **Symbol Set** (only for MA 25e and MA 27e)

Language

A different language can be selected in the drop-down menu (Figure 70). After changing the language, you will be asked to restart the application (Figure 71).
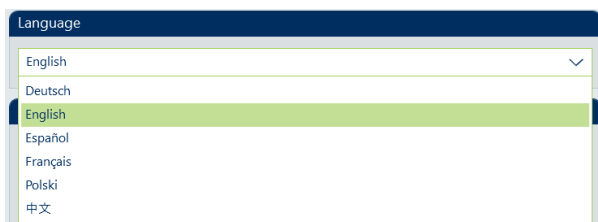
Figure 70
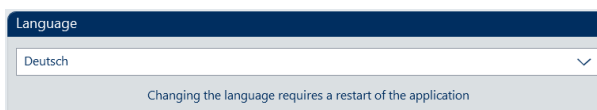
Figure 71

Device Order and Serial Number

MAICO Sessions automatically detects the devices that has been connected earlier. These devices are displayed in full colour on white background. Devices MAICO Sessions has not been connected to are displayed greyed out.

Press the *Edit* ☑ button if you want to make any changes. Optionally, it is possible to enter the device's serial number into the field (this works automatically for touchTymp, MA 42, MA 52, MI 44 and ERO•SCAN® devices). This information will then be available for *Print* and *Export* files (Figure 72, **2**).

Furthermore, you can change the device order per drag and drop (Figure 73). MAICO Sessions follows the device order if it is connected to more than 1 device.

Figure 72

Figure 73

Selection of the device type changes the availability of the submenu items *Ear Side Representation*, *Diagram Type* and *Symbol Set*.

After changing a setting save the new configuration by pressing the *Save* 💾 button. If the setting menu is left without saving the new setting a message box appears asking if you want to save the settings (Figure 74).
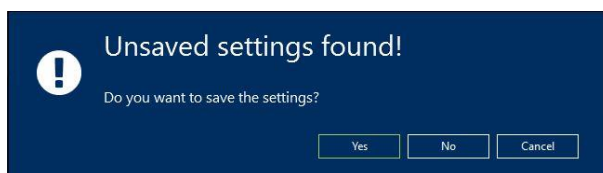
Figure 74

Ear Side Representation

Ear Side Representation defines on which side of the screen the button and graph for the left and the right ear shall be displayed (Figure 75).

Figure 75

Diagram Type

Diagram Type allows for selection of the test screen display. Choose between *Two Audiograms*, *One Audiogram*, and *Table* (Figure 76).
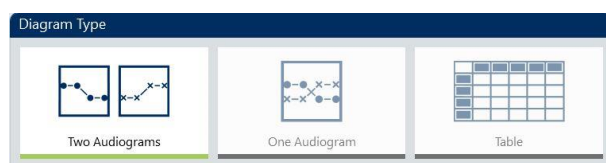
Figure 76

Symbol Set

Symbol set allows for the selection of country-specific symbols to be plotted on the audiogram displays (Figure 77). Select from the drop-down menu (Figure 78).

NOTE: *Symbol Set* options are only shown if an Audiogram view is selected.
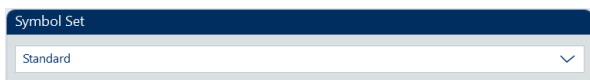
Figure 77

Figure 78

3.12.3 Settings – Report

The *Report Settings* allow editing the data shown on the *Report print* or *PDF* file. Following submenu items can be edited:

- Facility Information
- Patient Information (only if used with Database)
- Miscellaneous Information

Facility Information

Enter information of the screening facility. Pressing the ![icon] icon or the ![+] icon allows selecting a logo from your network. Press ![trash] to remove a selected logo again (Figure 79).
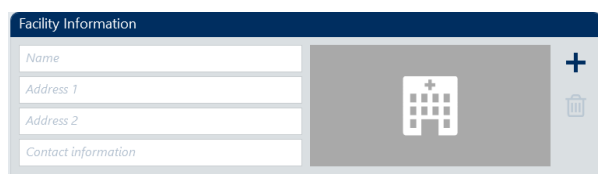
Figure 79

Patient Information (Only if Used with a Database)

Patient Information shows the most important patient information items from database selected for report (Figure 80). Select the *Edit Layout* ⧉ icon (**1**) to enter the *Edit mode* (Figure 82).
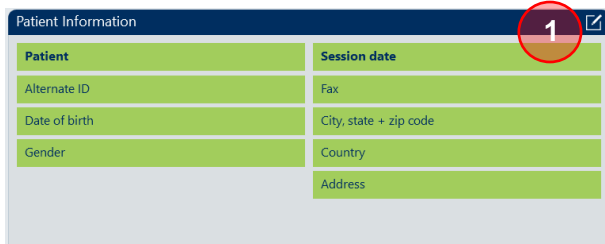
Figure 80
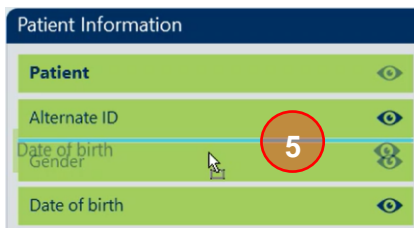
Figure 81

Figure 82

All items are marked with an eye symbol:

- 👁 (**2**): Items selected are displayed in blue at the top with an 👁 icon. Press 👁 to *Hide* the item again.

- 👁̸ (**3**): Items that can be selected are displayed in white at the bottom with an 👁̸ icon. Press 👁̸ to *Display* the item.

- 👁̸ (**4**): Items that cannot be selected, because the maximum number of items (6 for each side) has already been selected, are displayed in white at the bottom with an 👁̸ icon.

Furthermore, it is possible to change order of the selected items per drag and drop (**5**). Close the *Edit mode* again by pressing the *Edit Layout* ⧉ button and save the setting by pressing the *Save* 💾 button. *Patient* and *Session date* are mandatory and cannot be deactivated.

Miscellaneous Information

Miscellaneous Information shows the additional items selected for the report (Figure 83). Select the *Edit Layout* ⧉ button (**1**) to enter the *Edit mode* (Figure 84).
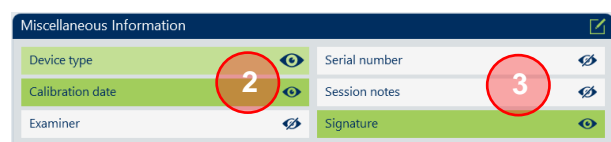
Figure 83

Figure 84

All items are marked with an eye symbol:

- 👁 (**2**): Items selected are displayed in blue with an 👁 icon. Press 👁 to *hide* the item again.

- 👁̸ (**3**): Items that can be selected are displayed in white with an 👁̸ icon. Press 👁̸ to *display* the item.

Close the *Edit mode* again by pressing the *Edit Layout* ⧉ button and save the setting by pressing the *Save* 💾 button.

3.12.4 Settings – Export

The **Export Settings** allow editing the configuration for the export files. It is possible to export to **PDF** or to an **XML** file.

NOTE: XML-exports are made in Noah 500 standard format. For further information consult documentation offered by the Hearing Instrument Manufacturer's Software Association (HIMSA).

Select **Export sessions report to PDF** or **Export session data to XML** under submenu **Export Type** by pressing the 👁 icon (**1**) to flap out further submenus.

Following submenus can be edited:

- Export Type
- Export Directory
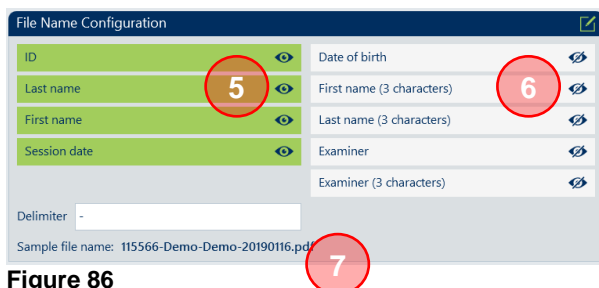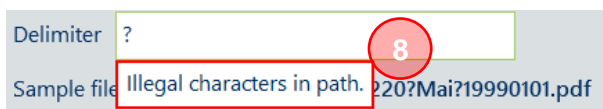- File Name Configuration

Figure 85

Figure 86
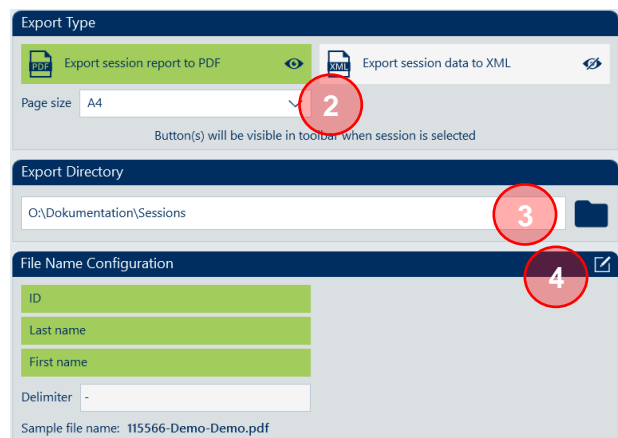

Figure 87

Figure 88

Export Type

Once the submenus are displayed the **Export Type** (Figure 88 submenu offers the option to modify **Page size** (**2**). Select from the drop-down menu **A4** or **Letter** format.

File Name Configuration

File Name Configuration allows adjusting the file name to your needs. Select the **Edit configuration** 🖉 button (**4**) to enter the **Edit mode** (Figure 86).

All items are marked with an eye symbol:

- 👁 (**2**): Items selected are displayed in blue on the left with an 👁 icon. Press 👁 to **hide** the item again.

- 🚫👁 (**3**): Items that can be selected are displayed in white on the right with an 🚫👁 icon. Press 🚫👁 to **display** the item. A maximum of 6 items can be selected to create a file name.

Optionally, a delimiter can be defined and the order of items selected can be modified per drag and drop function (**7**). A sample file name is shown below the entry field. In case you enter a delimiter not allowed for file names a message will be shown (**8**) and the field is marked red. It is not possible to save the settings as long as a non-valid delimiter is entered. If all fields are inactive the standard name *report.pdf* is automatically used.

Close the *Edit mode* again by pressing the *Edit Layout* 🔲 button and save the setting by pressing the *Save* 💾 button.

3.12.5 Settings – Integration (Standalone Version Only, GDT and XML Interface)

ℹ️   Section 3.1.4   Starting MAICO Sessions as a Standalone Version (Also for Database Connection via GDT or XML Interface)

Here you can select an integration type for the connection to your patient management software and choose the corresponding settings.
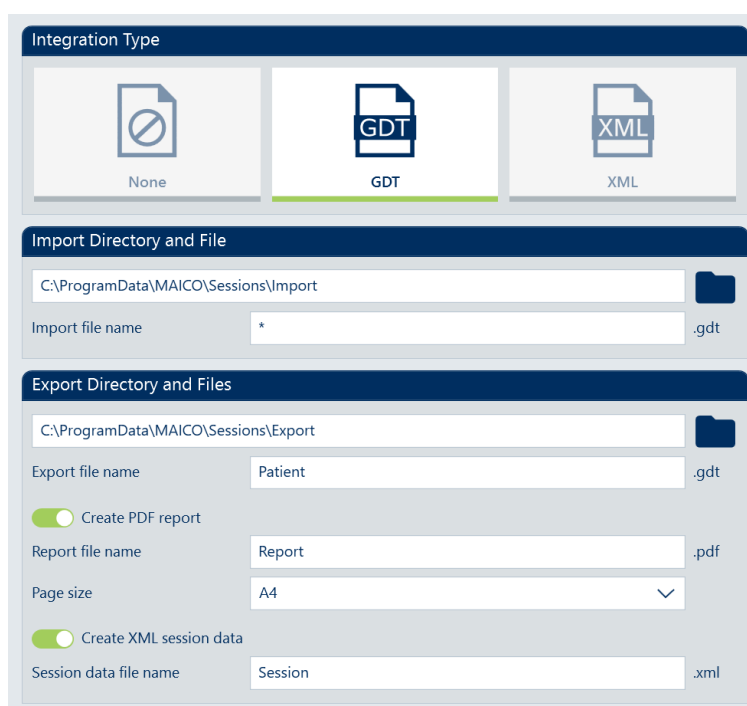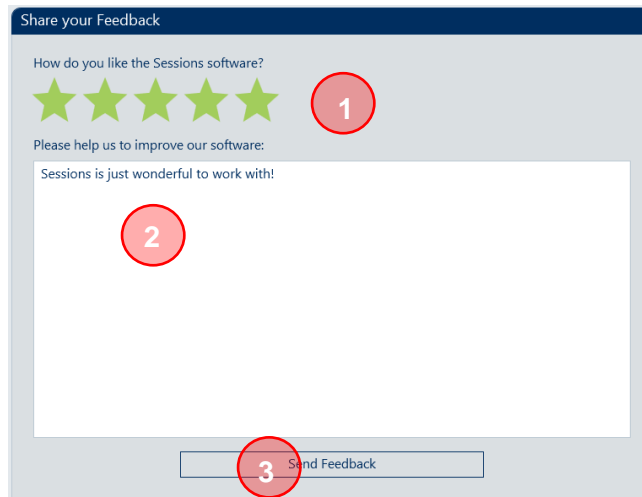

Figure 89

Integration Type – None

Select the integration Type *None* if you want to use MAICO Sessions as a standalone version without database connection and with manual patient entry .

Integration Type – GDT or XML

ℹ️   Section 2.3.2.2   Connection via GDT Interface

3.12.6 Settings – Feedback

If you want to give MAICO feedback on your experiences with MAICO Sessions you can use the integrated Feedback form. Leave a star rating (**1**) and/or let us know how MAICO Sessions can be improved (**2**). Press the **_Send Feedback_** (**3**) button to share your ideas with MAICO.


Figure 90

3.12.7 Settings – About

Selecting **_About_** in the **_Screen selection_** area opens the **_Product information_** screen. It shows diverse product information (e.g. Manufacturer information).

It is possible to **_Allow usage statistics_** (**1**) or to forbid it moving the slider to the left or the right (= allowed, = forbidden). Change of this setting requires a restart of the application.

It is possible to show and hide information about **_Third-party software_** by clicking on the text or arrow (**2**).

Figure 91

3.13 Troubleshooting

3.13.1 Error messages

Figure 92
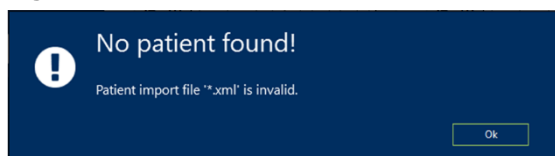
Figure 93
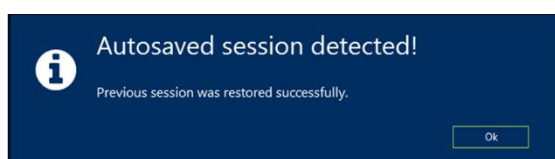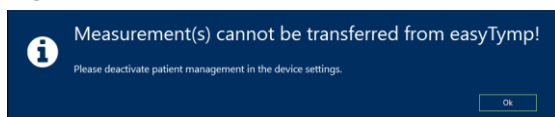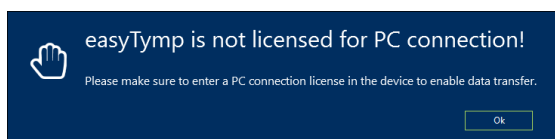
MAICO Sessions couldn't find a valid XML or GDT import file (Figure 92 and Figure 93). Contact your database provider and/or MAICO for more information.

As an interim solution you can enter patient data manually for print or PDF.

Figure 94

If MAICO Sessions is terminated unexpectedly without having saved the last session, the test is restored after restarting MAICO Sessions (Figure 94).

Figure 95

If you have Patient Management activated in your easyTymp or ERO•SCAN® and you are using it with the MAICO Sessions Standalone version or Noah you will see this message box to change the mode on the device (Figure 95).
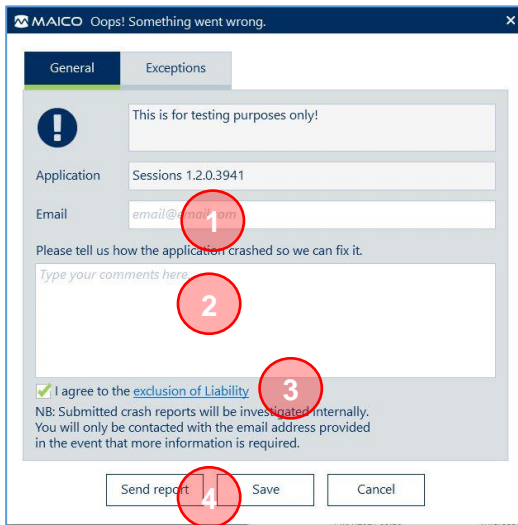
Figure 96

A PC-connection license is needed to enable data transfer. Make sure you have entered a valid license in your device (Figure 96).

3.13.2 Error Reporter

If MAICO Sessions happens to crash for some reason, a troubleshooting window with three tabs opens automatically:

- **General**: contains general information as fields to describe the experienced problem and save a report or contact MAICO for help (Figure 97).

- **Exceptions**: gives a detailed technical description of the problem (Figure 98).

To contact MAICO for help enter your email address (**1**) and a description of the circumstances in which the failure occurred (**2**). It is necessary to agree to the ***exclusion of Liability*** (**3**) to be able to use the ***Send report*** function (**4**). Otherwise, it is only possible to ***Save*** the data on your PC and to send it to MAICO via email or to ***Cancel***.

Figure 97

Figure 98

4 Ownership, Warranty, and Disclaimer

4.1 Ownership

MAICO Sessions (hereinafter the "SOFTWARE") is solely owned by MAICO Diagnostics GmbH, Sickingenstr. 70-71, D-10553 Berlin, Germany. By purchasing the SOFTWARE the buyer is entitled the right of usage, but not ownership of the SOFTWARE. The SOFTWARE is to be used in accordance to the agreed terms of usage provisioned by MAICO.

4.2 Copyrights

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4.3 Restrictions

You may not:

Reverse engineer or attempt in any manner to discover the source code of the SOFTWARE.

Attempt to defeat any mechanisms in the SOFTWARE, including those mechanisms responsible for password protection of data and limiting the number of concurrent users.

Rent, lease, sublicense or in any manner, copy or transfer (except as permitted above) the SOFTWARE.

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MAICO specifically calls your attention to the fact that, any violation or infringement of above restrictions will result in legal action.

The SOFTWARE can be used by any number of users, on any number of computers, and in any place, provided but not on more than one display screen at the same time.

4.4 Limited Warranty

MAICO warrants that any physical media and physical documentation provided by MAICO are free of defects in materials and workmanship. This limited warranty is effective for a period of ninety (90) days from the original purchase date.

If MAICO receives notification within the warranty period of defects in materials or workmanship and determines that such notifications are correct, MAICO will replace defective media or documentation.

Do not return any product until you have obtained authorization to do so from your supplier. The entire and exclusive liability and remedy for breach of this limited warranty shall be limited to replacement of defective media or documentation supplied by MAICO, and shall not include or extend to any claim for or right to recover any other damages, including but not limited to, loss of profit, data, or use of the SOFTWARE, or special, incidental or consequential damages, or other similar claims, even if MAICO has been specifically advised of possibility of such damages. In no event will MAICO's liability for any damages to you or any other person ever exceed the lowest list price or the actual price paid for the license to use the SOFTWARE, regardless of the form of the claim.

4.5 Disclaimer

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Furthermore, MAICO does not guarantee that the SOFTWARE or Documentation is free of bugs, or fulfill the relevant standards, requirement or needs of a user. In this case, all the warranties, guarantees and terms and conditions on all MAICO delivered physical disk and documentation shall be limited to the 90 days warranty period.

MAICO is not liable for any third party's product, disks, SOFTWARE or documentation that is used in conjunction with MAICO's SOFTWARE or programs, but is not directly manufactured or supplied by MAICO.

4.6 General Terms and Conditions

Any change made to this Agreement shall be notified in writing, agreed and signed between both parties, namely the purchaser of the SOFTWARE and a representative of MAICO.

In the event that the essential purpose of the above remedy (limited warranty) is not fulfilled, all other limited liability including the liability limits and exclusions of damage claims shall continue to apply.

This SOFTWARE License Agreement shall be interpreted and construed according to, and governed by, the laws of Jurisdiction of Federal Republic of Germany.

In the event that any legal or commercial dispute or controversy arising out of, or relating to this agreement; provided MAICO is in all case violated of the rights, to the SOFTWARE or other intellectual property protection right related to the SOFTWARE; shall be presented under the Jurisdiction of Federal Republic of Germany in the court of Berlin.

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Specifications are subject to change without notice.