

# ACUSON Sequoia Ultrasound System

Measurement Configuration  
3.5 (VB30)

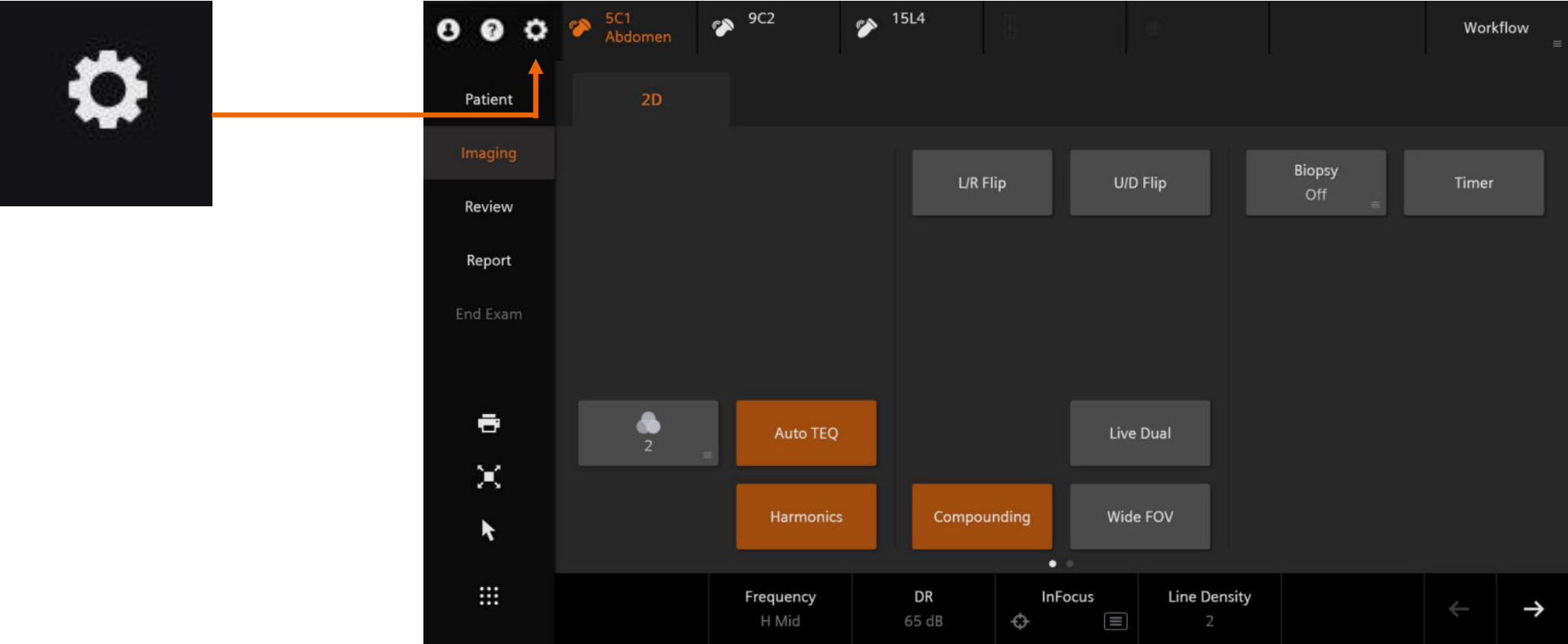


# Objectives

- **Identify access to system configuration**
- Outline the measurement subgroup
- Describe the Touch Screen configuration
- Explain custom measurement labels
  - Homepage layout
  - What is DICOM SR?
  - Steps to define a custom label
  - Create a new custom label
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- Review the report



# Measurement configuration access



# Measurement & Report configuration home page



System Configuration

- System Settings
- Workflow Enhancement
- Imaging Settings
- Measurement & Report
  - Measurement
    - Touch Screen Measurement Config
    - Custom Measurement Label
    - Custom Calculations
    - Report
    - OB Tables
  - Annotations
  - Features
  - Transducer
  - Connectivity & Network
  - Peripheral Devices
  - System Management

General | Exam Package | Exam Specific | Per Label Configuration

2D Mode

2D Calipers

Draw Dotted Lines Between Calipers

Doppler Mode

Velocity

Show Negative Symbol

Heart Rate Tool

Number of Heart Cycles: 2

Calculation Display Area

Both	Measured Results	Report	Calculations
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	(Fetal M-Mode)LV CO
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	(Fetal M-Mode)LV EF
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	(Fetal M-Mode)LV Mass
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	(Fetal M-Mode)LV SV
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	(Fetal M-Mode)LV Vol d
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	(Fetal M-Mode)LV Vol s
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	(Fetal)Ao Root/MPA Diam
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	(Fetal)AoV Annulus Area s
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	(Fetal)AoV Area (Vmax)
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	(Fetal)AoV Area (VTI)
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	(Fetal)AoV AT/ET
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	(Fetal)AoV SV
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	(Fetal)AoV/PV Annulus s
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	(Fetal)APADxTAD
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	(Fetal)AR PHIT
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	(Fetal)BPDA
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	(Fetal)CCO
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	(Fetal)CI
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	(Fetal)Cor Sinus Length/Diam
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	(Fetal)CTR Area
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	(Fetal)CTR Circum
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	(Fetal)Ductus V SID Vmax

Restore Defaults

# Objectives

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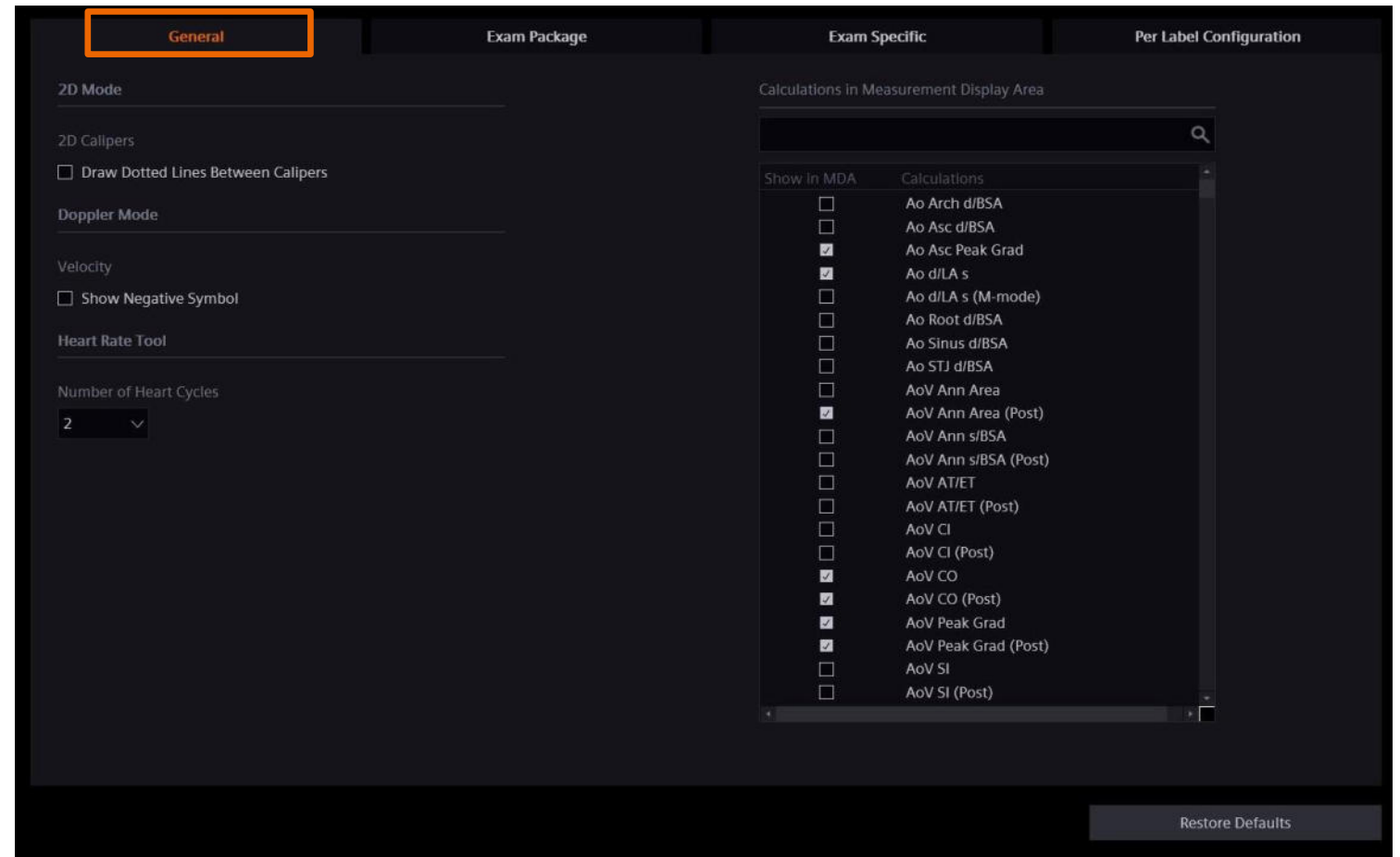


# Measurement subgroup

## General tab

System wide settings for:

- Dotted line between calipers
- Heart rate tool
- Show negative symbol
- Measurement Display Area (MDA) configuration



# Measurement subgroup Exam Package tab

Individual exam package settings for:

- Cine measurement behavior
- 2D measurement tool type
- Doppler default tool type
- Volume Flow Tool
- Individual label precision and unit

Exam Package

Abdomen

CINE Measurement Behavior

- Erase in CINE

2D Tools

Volume Tool

3 Distances

Area %Stenosis Tool

Ellipse + Trace

Generic Area Ratio Tool

Trace

Doppler Tools

Default Tool

Velocity

Volume Flow Tool

Volume

Distance

Flow

Heart Cycle

Result Format	Show	Unit	Precision
IVS		cm	0.00
LVPW		cm	0.00
LVID		cm	0.00
%Stenosis		%	0
A	<input checked="" type="checkbox"/> Show	cm <sup>2</sup>	0.00
A (B)		cm <sup>2</sup>	0.00
A (E)		cm <sup>2</sup>	0.00
Accel	<input checked="" type="checkbox"/> Show	cm/s <sup>2</sup>	0.0
Angle		°	0
Area Ratio			0.00
AT	<input type="checkbox"/> Show	ms	0
Average Distance		cm	0.00
C		cm	0.00
C10	<input type="checkbox"/> Show	mm	0.00
D		cm	0.00
D (B)		cm	0.00

Restore Defaults: Abdomen

# Measurement subgroup

## Exam Specific tab

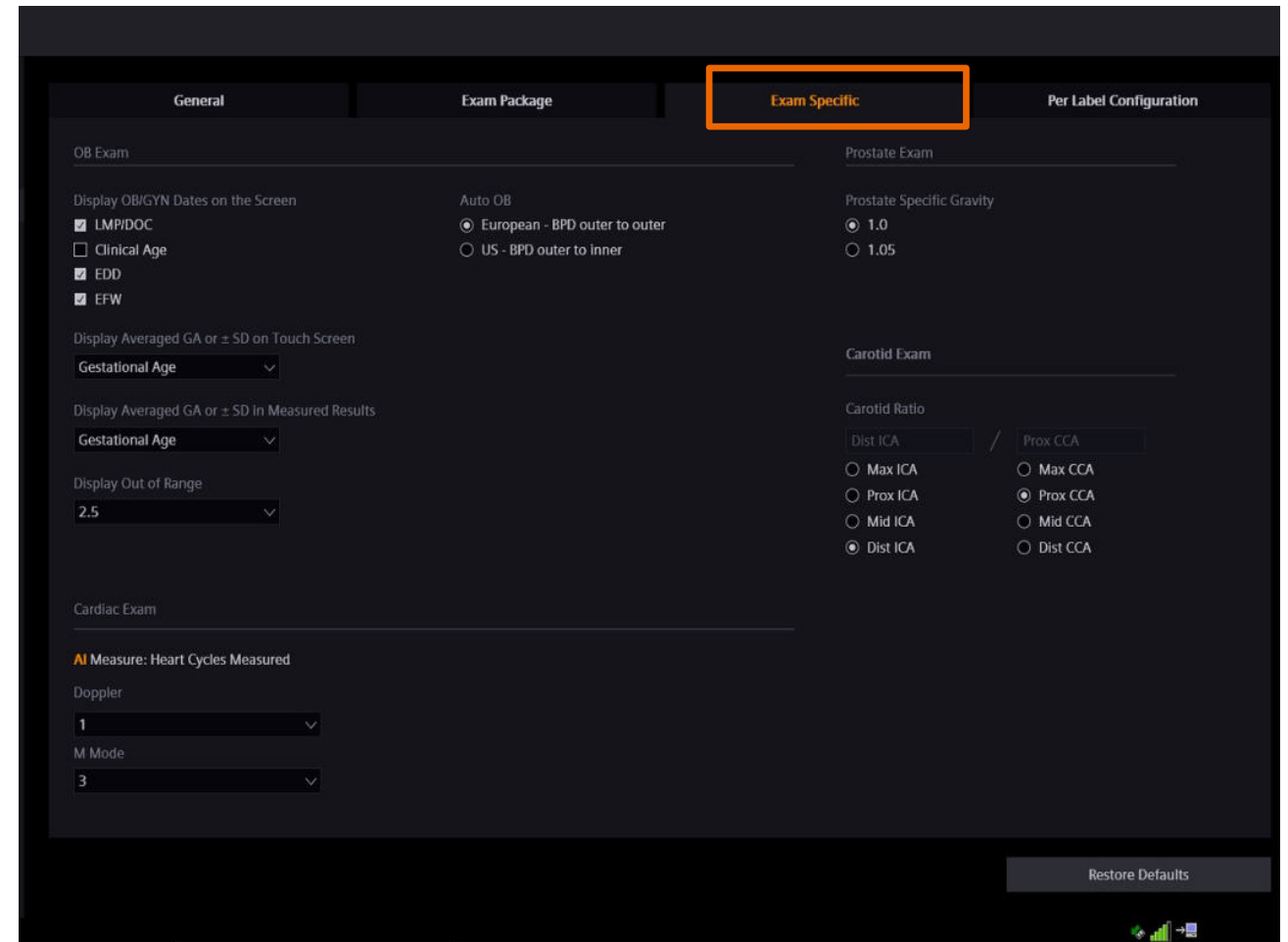
OB exam options for:

- Date display types (screen)
- Standard deviation
- Ratio display types (report)
- Measurement tool types
- Auto OB

Prostate specific gravity options

- 1.0
- 1.05

Carotid Ratio default selections

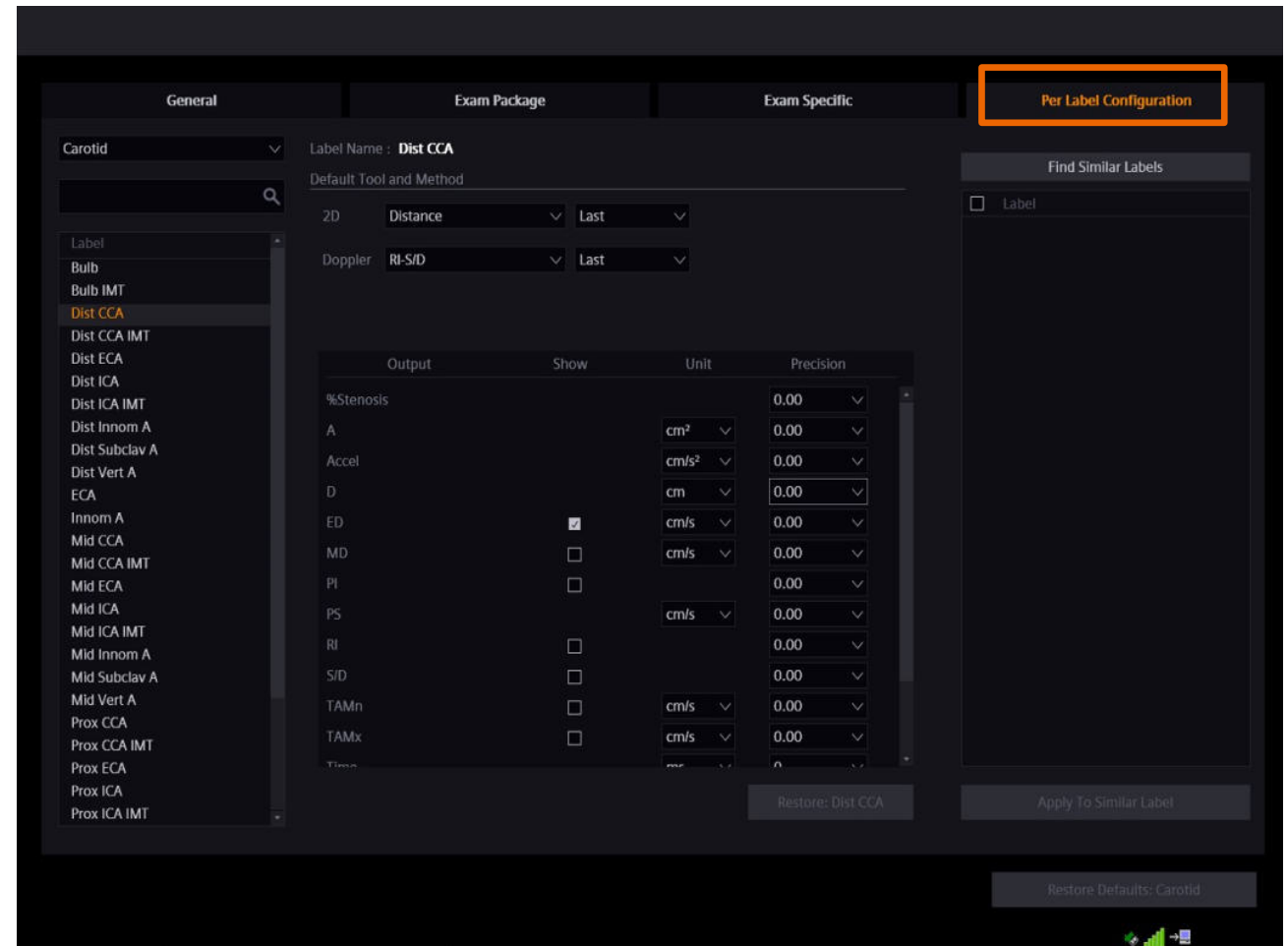


# Measurement subgroup Per Label Configuration

Labels can be configured on an individual basis for

- Unit
- Precision
- Default tool type
- Method (Last, Max, Mean, Average)
- Show/Hide in MDA

Use Find Similar Labels option to change multiple labels to the same settings.



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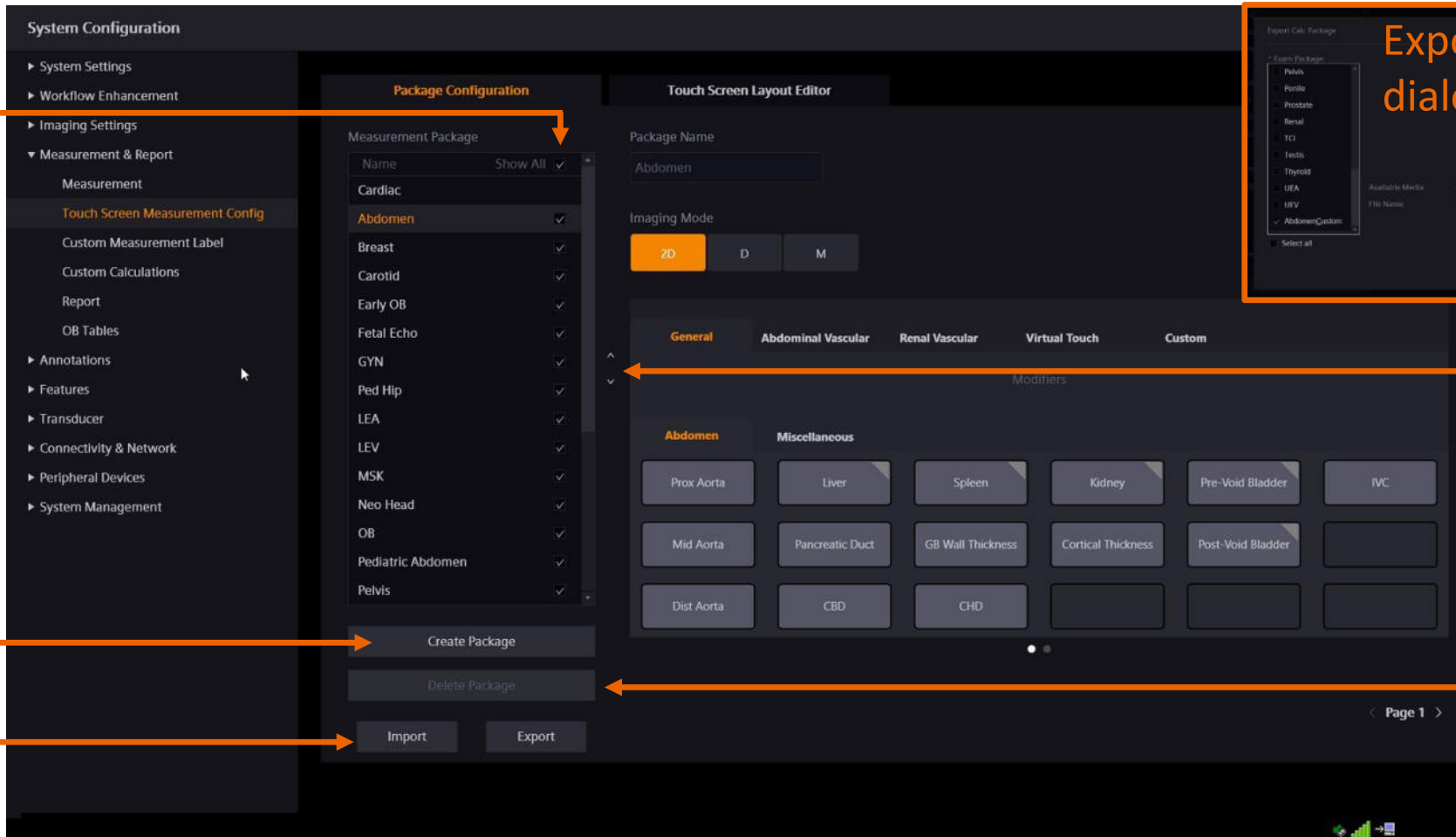


# Touch Screen Measurement Config

Show/Hide measurement packages

Create custom measurement packages

Import/Export



Export  
dialogue box

Re-order measurement packages

Delete custom packages

# Touch Screen Measurement Config

## GI example

The screenshot shows the 'Touch Screen Layout Editor' interface. On the left, the 'Package Configuration' panel includes a 'Name' dropdown set to 'Abdomen', a 'Measurement Label Library' dropdown also set to 'Abdomen', and a search field. Below these is a 'Master list of label options' containing various anatomical and measurement terms like 'AAA', 'AAA (Post Repair)', 'AAA AP Diam', etc. The main area is the 'Touch Screen Layout Editor' with 'Imaging Mode' set to '2D'. It features a grid of measurement buttons under 'Abdomen' and 'Miscellaneous' sub-groups. Buttons include 'Prox Aorta', 'Liver', 'Spleen', 'Kidney', 'Pre-Void Bladder', 'IVC', 'Mid Aorta', 'Pancreatic Duct', 'GB Wall Thickness', 'Cortical Thickness', 'Post-Void Bladder', 'Dist Aorta', 'CBD', and 'CHD'. A 'New Page' button is at the bottom left, and a 'Restore Defaults: Abdomen' button is at the bottom right. The interface is annotated with orange arrows pointing to various elements.

Touch Screen mode

Exam type

Label search field

Touch Screen layout grid

Master list of label options

Add new page

Specialized measurement groups

Sub-groups

Indicates a folder of measurements (i.e., volume)

Restore defaults

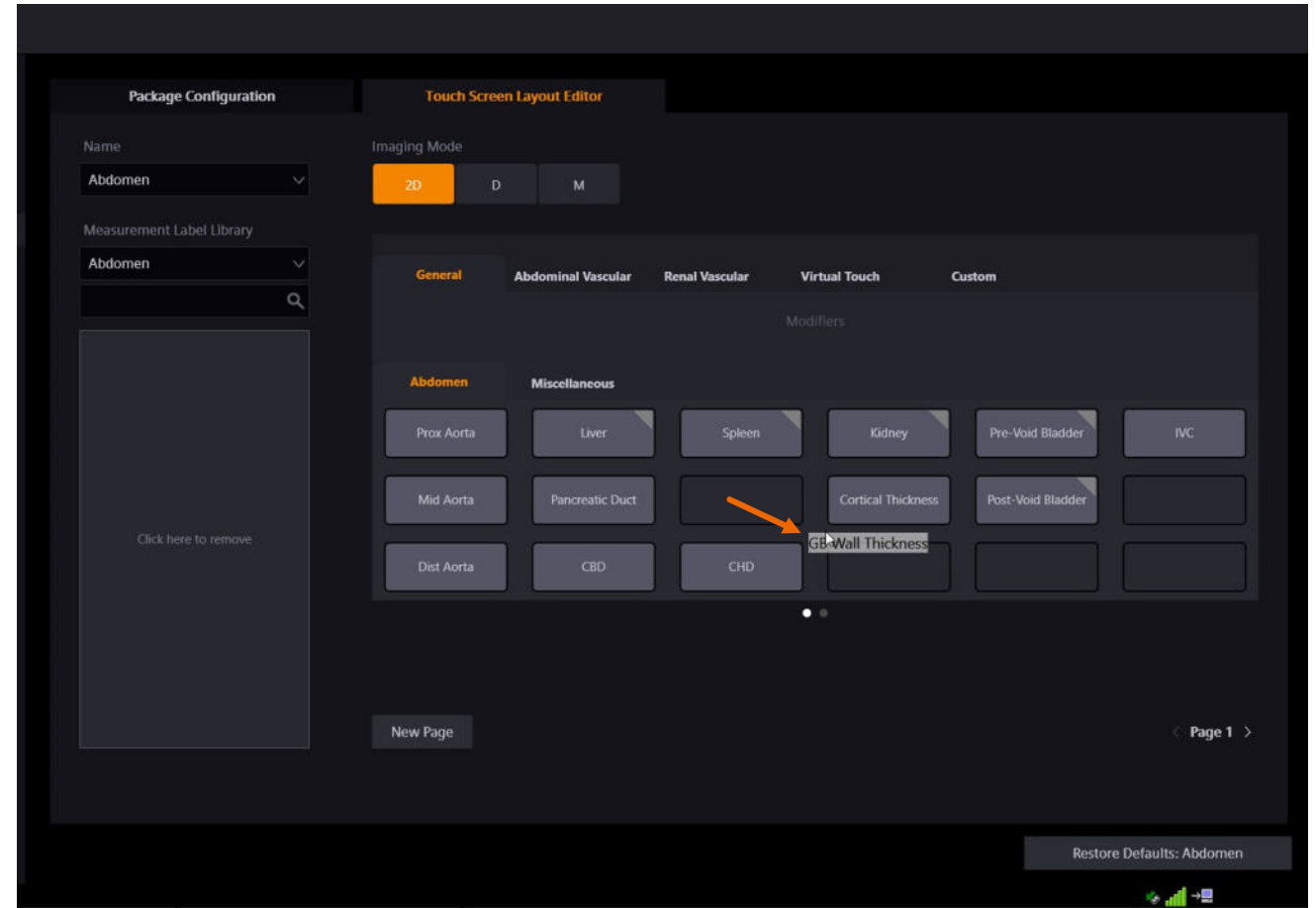


# Touch Screen Measurement Config

## Moving labels

To move a label to different blank location on the Touch Screen:

- Use the **Pointer** and **Set** key to highlight and “pick up” the label
- Move the label to the new blank location
- Use the **Set** key to “drop” the label in the new location

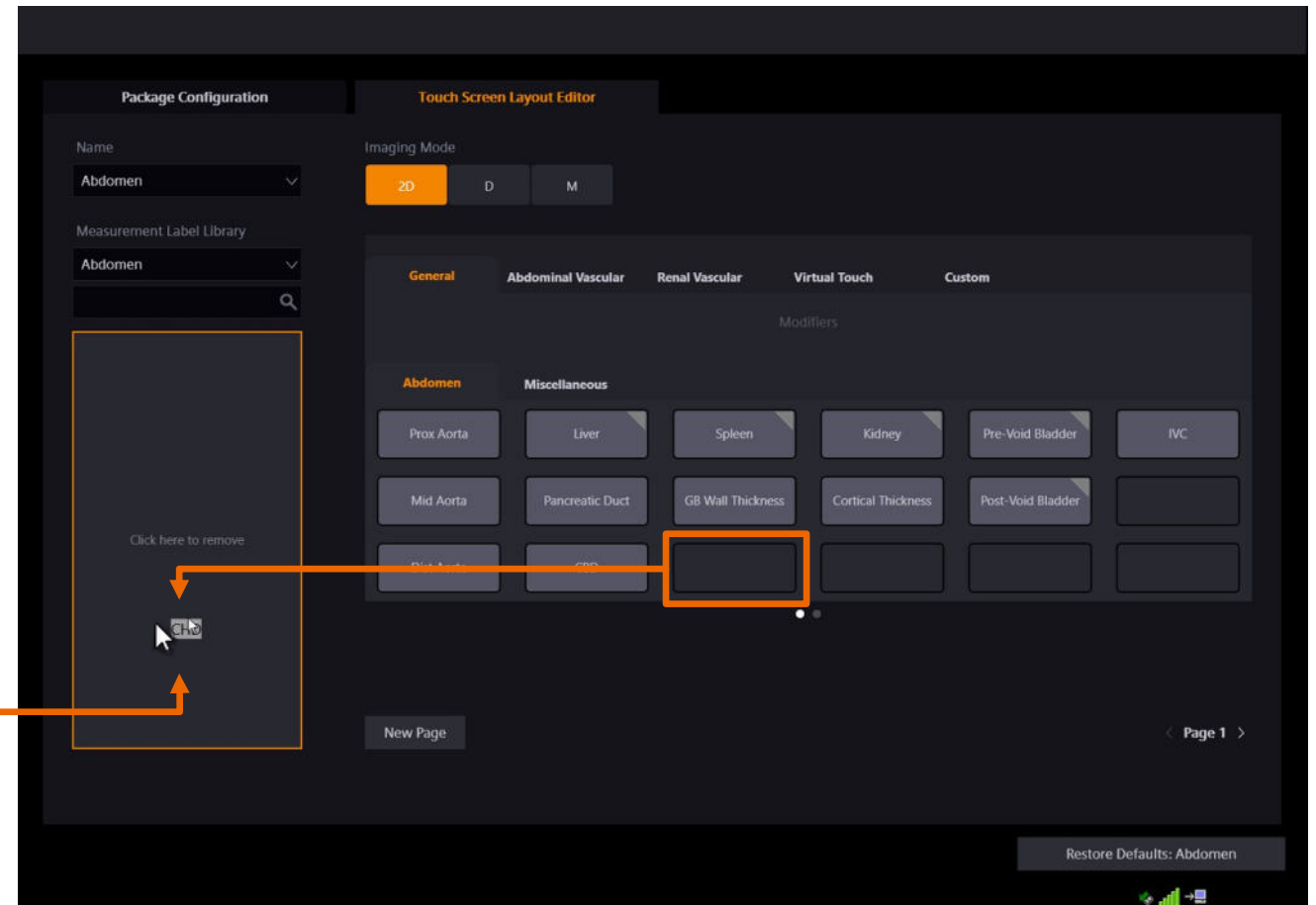


# Touch Screen Measurement Config

## Removing a label

Two options to remove a label:

- Pick up the label to be removed
- Drag label to master list and drop using the **Set** key, or “Double click” on the Touch Screen label



# Touch Screen Measurement Config

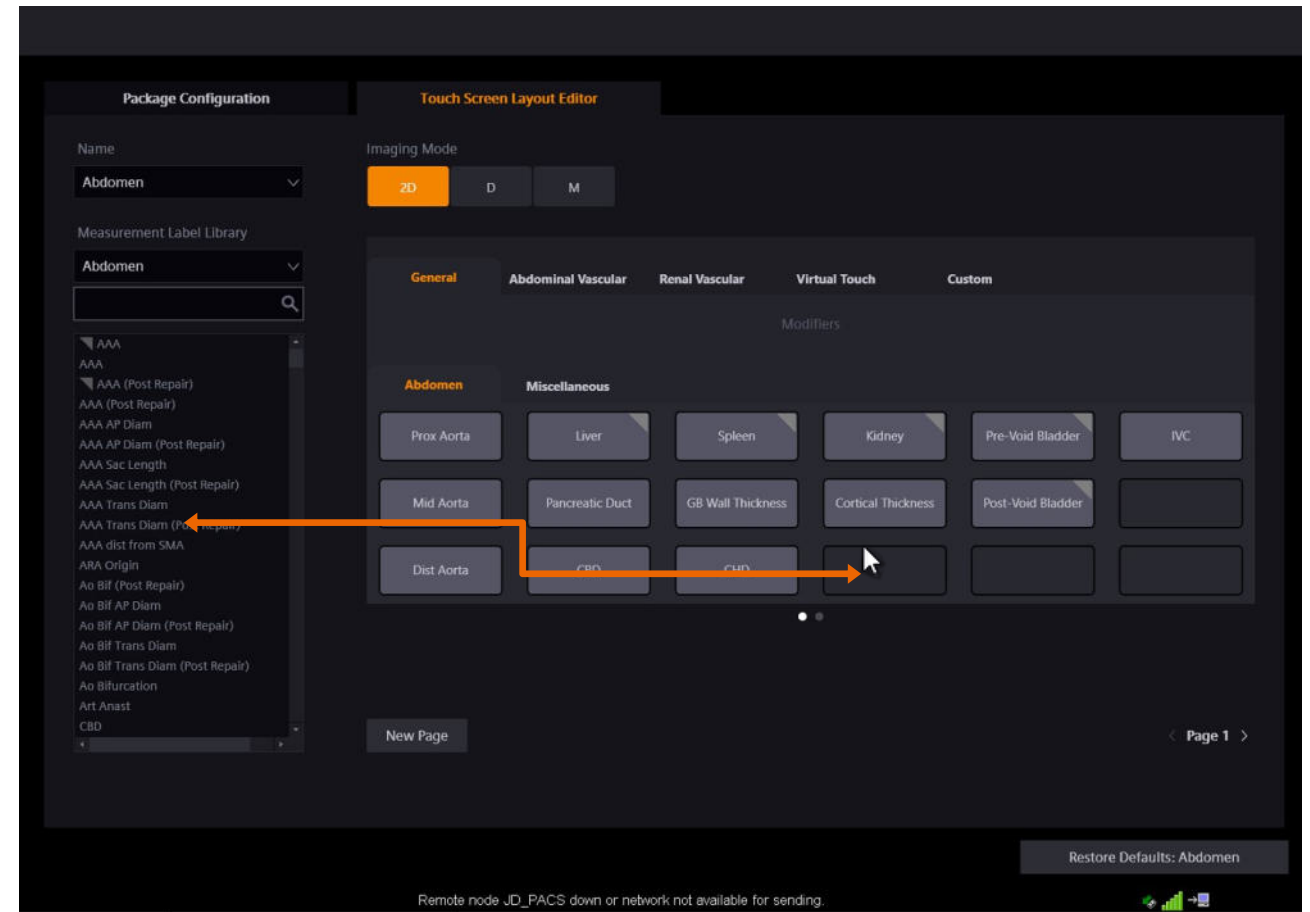
## Adding a label

Adding a label:

- Find the desired label in the master list
- Pick up the label using the **Pointer** and **Set** key
- Move to desired location and place the label



To quickly add a label, double-click on the label name in the master list – the label is added to the next available label spot.



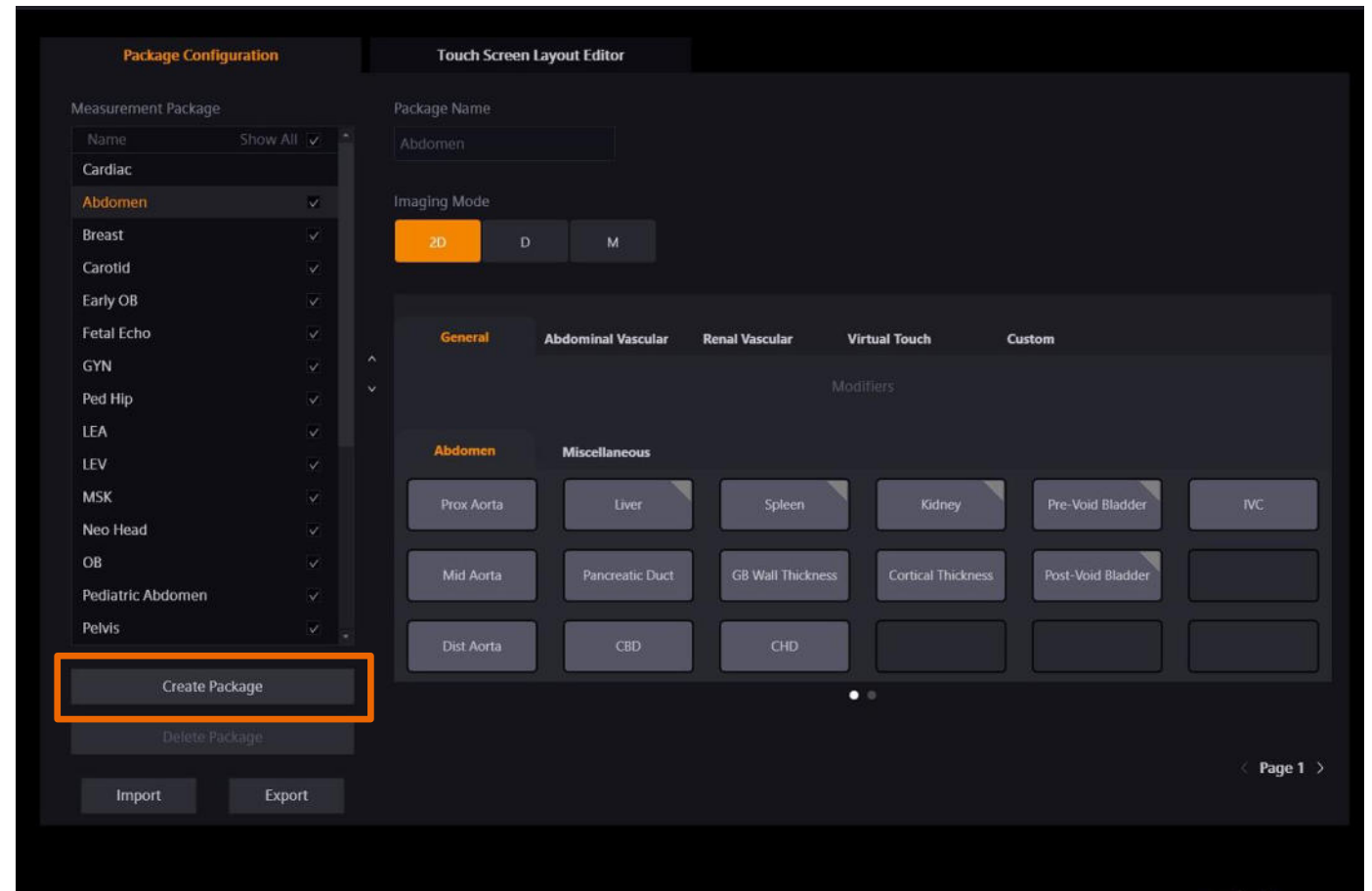
# Touch Screen Measurement Config

## “Blank” measurement Touch Screens

Not all exam packages have labels populated on the Touch Screen:

- MSK
- Neo Head
- TCI

Custom labels must be created for these exam packages.

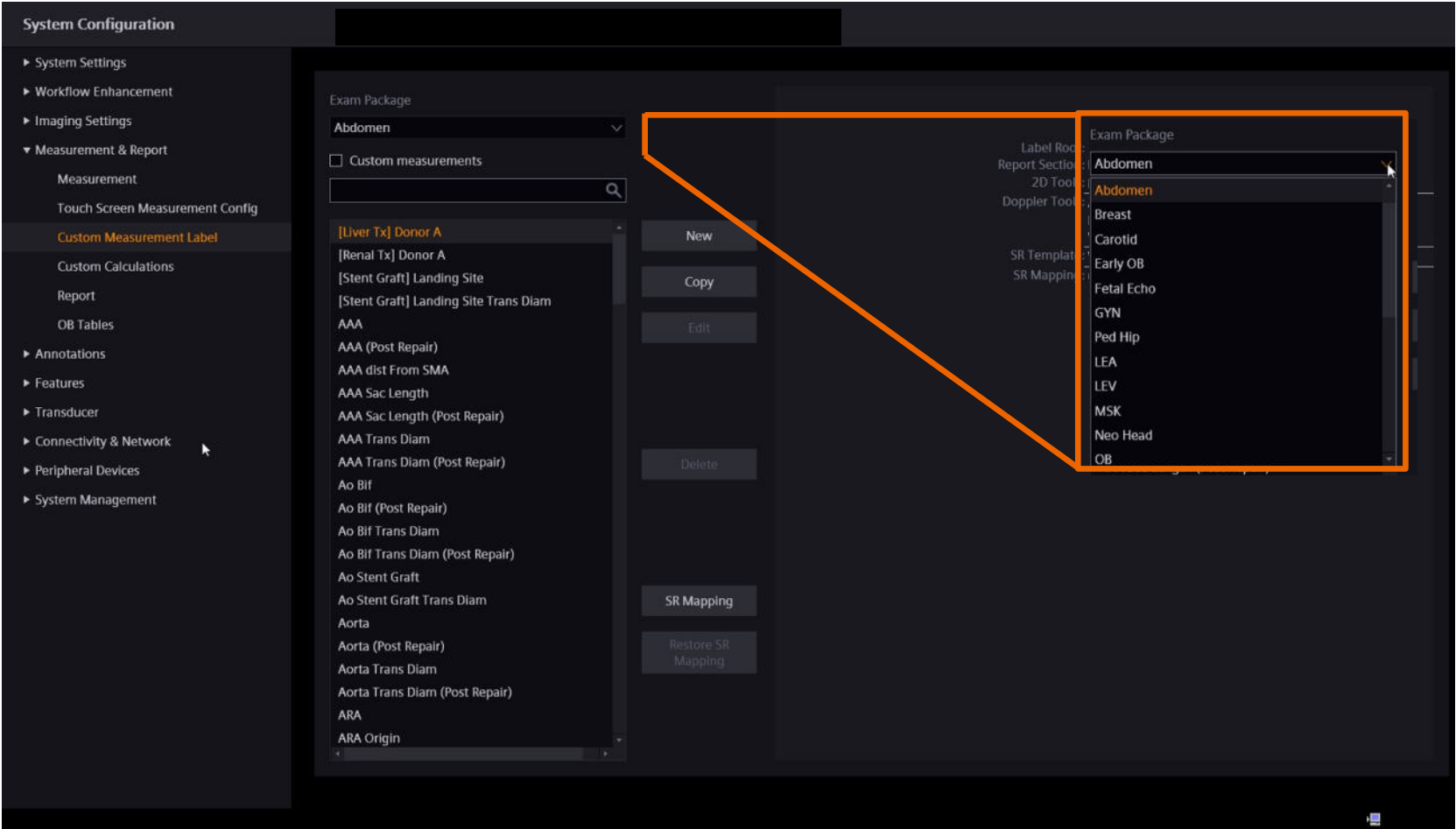


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# Custom measurement label subgroup Homepage layout



# Custom measurement label subgroup

## Homepage layout

1. Master list of all labels
2. Label management options
3. Display of label information/content
4. SR Mapping options

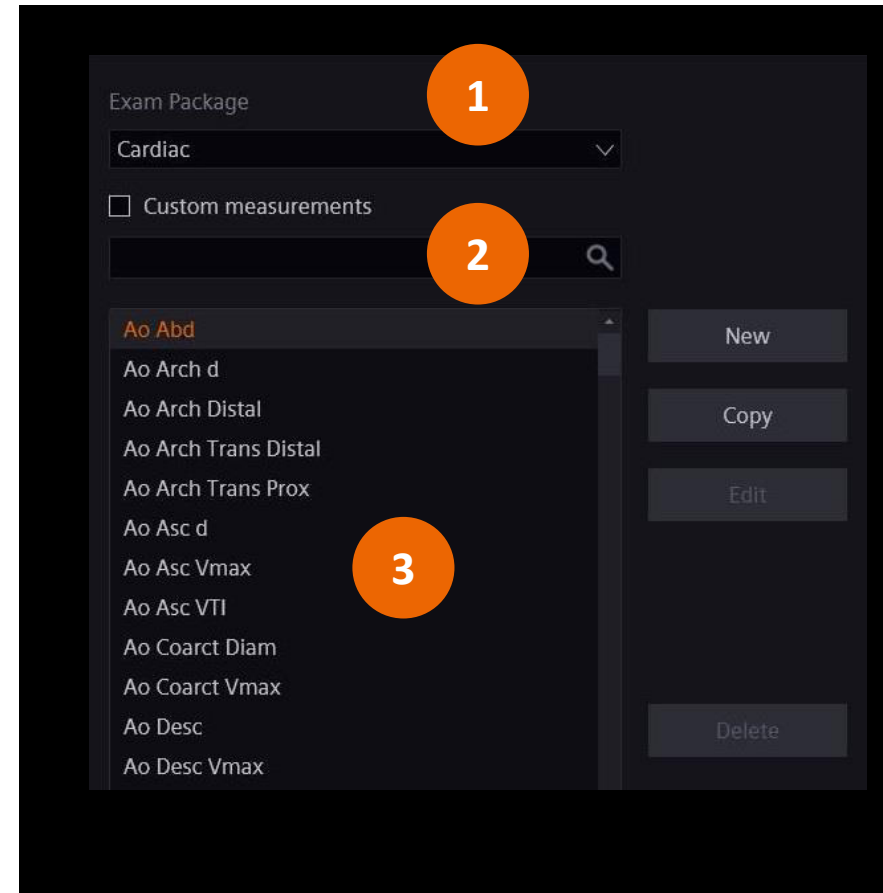
The screenshot displays the 'Exam Package' interface for 'Abdomen'. It features a search bar and a list of labels under the 'Custom measurements' section. The labels include: [Liver Tx] Donor A, [Renal Tx] Donor A, [Stent Graft] Landing Site, [Stent Graft] Landing Site Trans Diam, AAA, AAA (Post Repair), AAA dist From SMA, AAA Sac Length, AAA Sac Length (Post Repair), AAA Trans Diam, AAA Trans Diam (Post Repair), Ao Bif, Ao Bif (Post Repair), Ao Bif Trans Diam, Ao Bif Trans Diam (Post Repair), Ao Stent Graft, Ao Stent Graft Trans Diam, Aorta, Aorta (Post Repair), Aorta Trans Diam, Aorta Trans Diam (Post Repair), ARA, and ARA Origin.

Section 1 (Master list of all labels) is highlighted by an orange circle around the label list. Section 2 (Label management options) is highlighted by an orange box around the 'New', 'Copy', 'Edit', and 'Delete' buttons. Section 3 (Display of label information/content) is highlighted by an orange box around the label details: Label Root: [Liver Tx] Donor A, Report Section: Liver Transplant, 2D Tools: Distance, Doppler Tools: Acceleration, Heart Cycle, Vol Flow, SR Template: Vascular, and SR Mapping: Completed. Section 4 (SR Mapping options) is highlighted by an orange box around the 'SR Mapping' and 'Restore SR Mapping' buttons.

# Custom measurement label subgroup

## Measurement master list display options

1. Measurement list options display
  - All measurements\*
  - Custom measurements
  - Exam type
  
2. Search box will match any part of the name
  
3. Measurement master list
  - Display is based on selected list (1)
  - Alphabetical, scroll bar to view list
  - Selected label is highlighted in orange



\* Virtual Touch applications, Amniotic Fluid Index quadrants, Mean Sac Diameter, and Volumes labels are currently unavailable for custom structured reporting.

# Custom measurement label subgroup

## Label management options

### New

- Create a new custom measurement label

### Edit

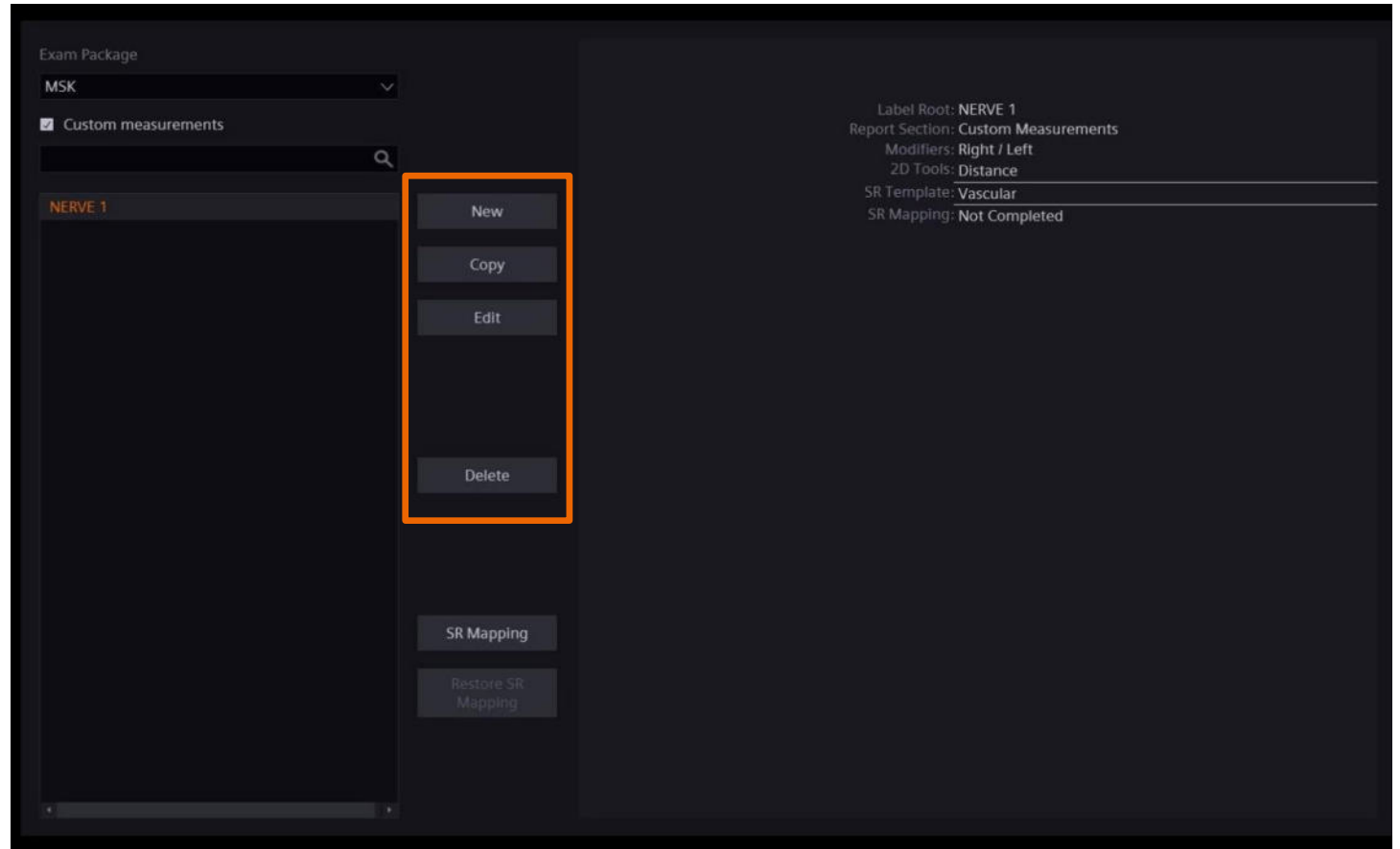
- Edit the selected custom label

### Copy

- Copy a selected factory label

### Delete

- Delete a custom label



# Custom measurement label subgroup

## Label information

- Highlighting a label displays a summary of the measurement information
- Use as a quick reference for mode types, attached modifiers, tool types, or report section location
- Displays general SR mapping information

The screenshot displays the 'Exam Package' interface. On the left, a list of custom measurements is shown, with '[Liver Tx] Donor A' highlighted. On the right, a summary panel provides details for the selected label:

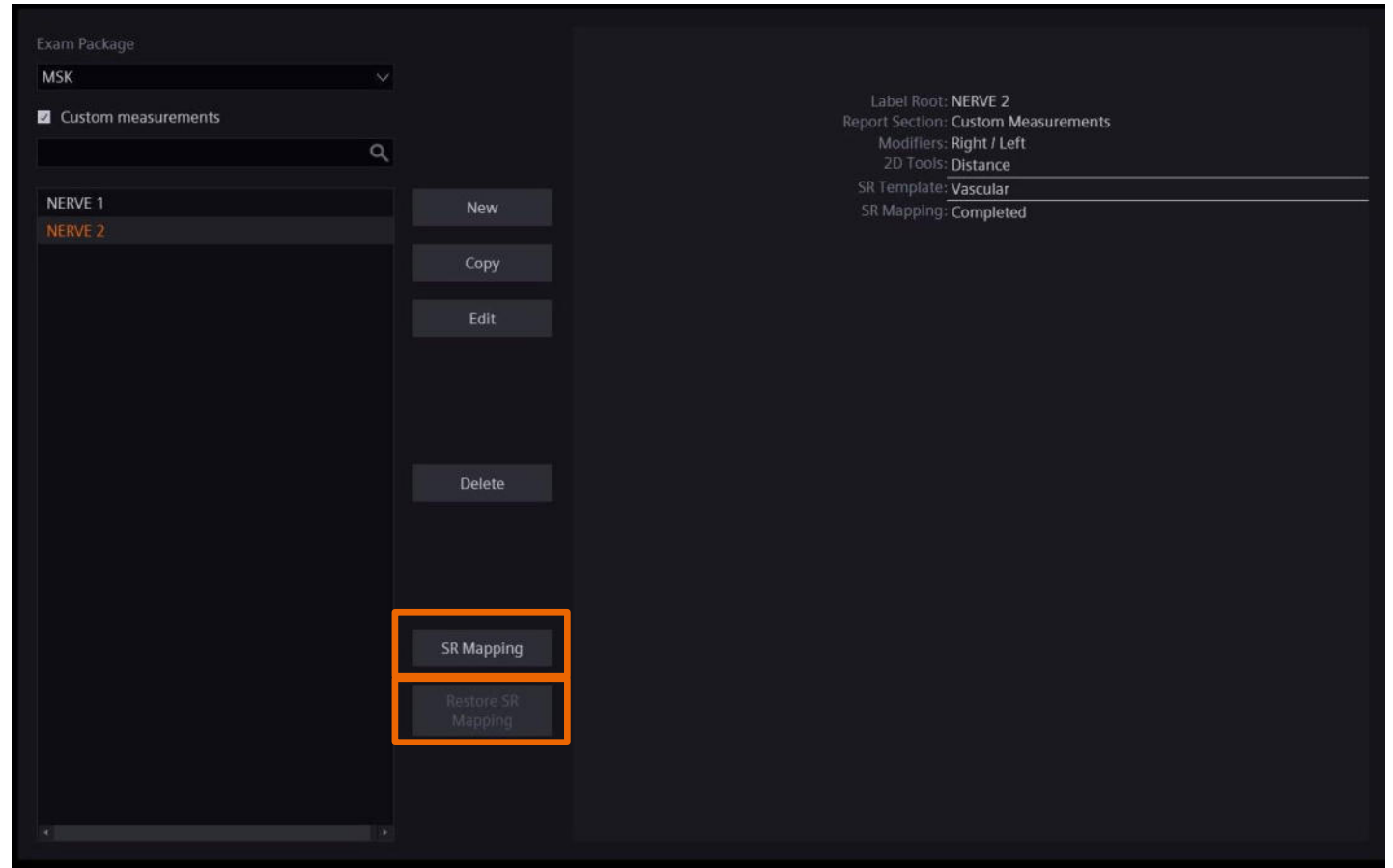
- Label Root: [Liver Tx] Donor A
- Report Section: Liver Transplant
- 2D Tools: Distance
- Doppler Tools: Acceleration, Heart Cycle, Vol Flow
- SR Template: Vascular
- SR Mapping: Completed

# Custom measurement label subgroup

## Other available functions

Other available functions include:

- SR Mapping “quick access” key
- Restore label defaults to any factory label that has been modified



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# What is DICOM and DICOM Structured Reporting (SR)?

DICOM is an acronym for ***D**igital **I**maging and **C**ommunications in **M**edicine*

DICOM was the result of manufacturers and users of radiological imaging equipment attempting to standardize image exchange between different systems.

This included:

- Storage of the images and all relevant information
- A network transfer mechanism

These specifications became the DICOM Standard.

The development of DICOM Structured Reporting (SR) was an extension of the initial standard; it was created to help communicate non-imaging information, such as measurements or post-processing results, in a standardized way.

# What is a DICOM Structured Report (SR)?

A DICOM SR is *not*:

- A report that can be printed “as is” on the ultrasound system or offline printer
- The customized reporting package
- An “off the shelf” (or predefined) product

A DICOM SR is

- A document consisting of structured or mapped data that defines the file content and organization for ultrasound procedure reports

This data is read by a PACS or offline workstation but requires additional software to translate the data into a format that can be printed as a tangible report.

Ultimately, a DICOM SR is a highly organized transfer mechanism between the ultrasound system and PACS or workstation.

Why is DICOM SR important to the ACUSON Sequoia ultrasound system?

In system configuration, the ACUSON Sequoia ultrasound system will allow the user to define custom measurements and associate a custom SR mapping to it.

This custom data can be transferred as a SR if it matches the mapping expected by the PACS/Offline reporting package.

Expected “mapping” behavior is only achieved if during the creation/mapping of a new measurement label the user follows the DICOM SR template structure.

If the template structure is not followed, the measurement data will not be displayed in an SR, as the PACS or offline workstation will not be able to “read” the data.

# DICOM SR template data components

The DICOM SR template has a specific set of rules for “coding” data for a readable transfer.

The ultrasound data is constructed in sections (or “containers”) based on anatomy, which are further separated into “concept names”.

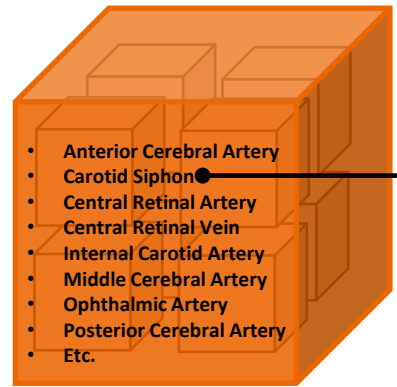
Each concept name is associated with a coded “result” which defines the specifics of that result – measurements and other data – within that concept name.

There are four templates supported by the DICOM standard for ultrasound. They are:

- OB/Gyn
- Vascular
- Adult Echocardiography
- Pediatric and Fetal Echocardiography

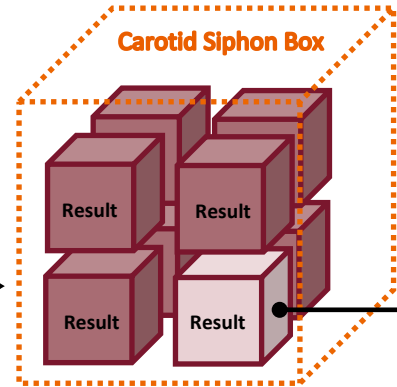
<b>Template ID 5100 Vascular Ultrasound Procedure Report</b>	<b>Structured Reporting “coding” rules</b>
--	--

- TID 5103: Blood Vessel of Head, Left
- TID 5103: Blood Vessel of Head, Right
- TID 5103: Blood Vessel of Head, Unilateral
- TID 5103: Artery of Neck, Left
- TID 5103: Artery of Neck, Right
- Etc.



**Section or Container**

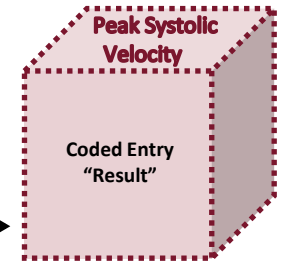
TID 5103  
Blood Vessel of Head, Left



**Concept Names**

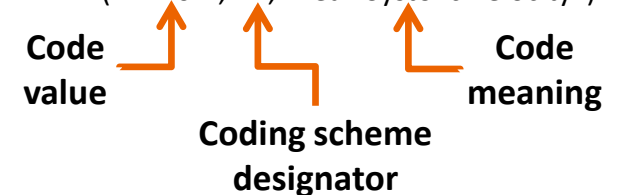
Example results for Carotid Siphon such as:

- Peak Systolic Velocity
- End Diastolic Velocity
- Diameter
- Etc.



**Context ID**

Example:  
(11726-7, LN, “Peak Systolic Velocity”)



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# Defining custom measurement labels

## Creating a custom label

To create a custom label, begin by defining the label basics:

1. Label Root (name)
2. Choose exam package
3. Select modifiers (if applicable)
4. Measurement Type
5. Select segments (if applicable)

The screenshot shows the 'Label Basics' configuration window. The 'Label Root' field contains 'NERVE 1' (marked with a 1). The 'Exam Package' dropdown is set to 'MSK' (marked with a 2). Under 'Modifiers', the 'Right / Left' checkbox is checked (marked with a 3). Under 'Measurement Type', the 'Fetal' checkbox is checked (marked with a 4). Under 'Segments', the 'None' checkbox is checked (marked with a 5). The 'Tools' tab is active, showing a list of measurement tools: Angle, Area, Circumference, Distance, Vol MOD, Area Ratio, Distance Ratio, Stenosis, Volume, and IMT. The 'Imaging Mode' is set to '2D Mode'. The 'Report Section' is set to 'Custom Measurements'. At the bottom, there are 'Save All & Close' and 'Cancel All' buttons. A small asterisk indicates a required field.

# Defining custom measurement labels

## Creating a custom label

Once the name and package basics have been defined, there are three tabs to complete the label parameters:

- Tools
- SR Template
- SR Mapping

The screenshot displays the configuration window for a custom measurement label. The 'Label Root' is set to 'NERVE 1' and the 'Exam Package' is 'MSK'. The 'Report Section' is 'Custom Measurements'. The 'Tools' tab is highlighted, showing a list of measurement tools: Angle, Area, Circumference, Distance, Vol MOD, Area Ratio, Distance Ratio, Stenosis, Volume, and IMT. The 'SR Template' and 'SR Mapping' tabs are also visible. The 'Save All & Close' and 'Cancel All' buttons are at the bottom.

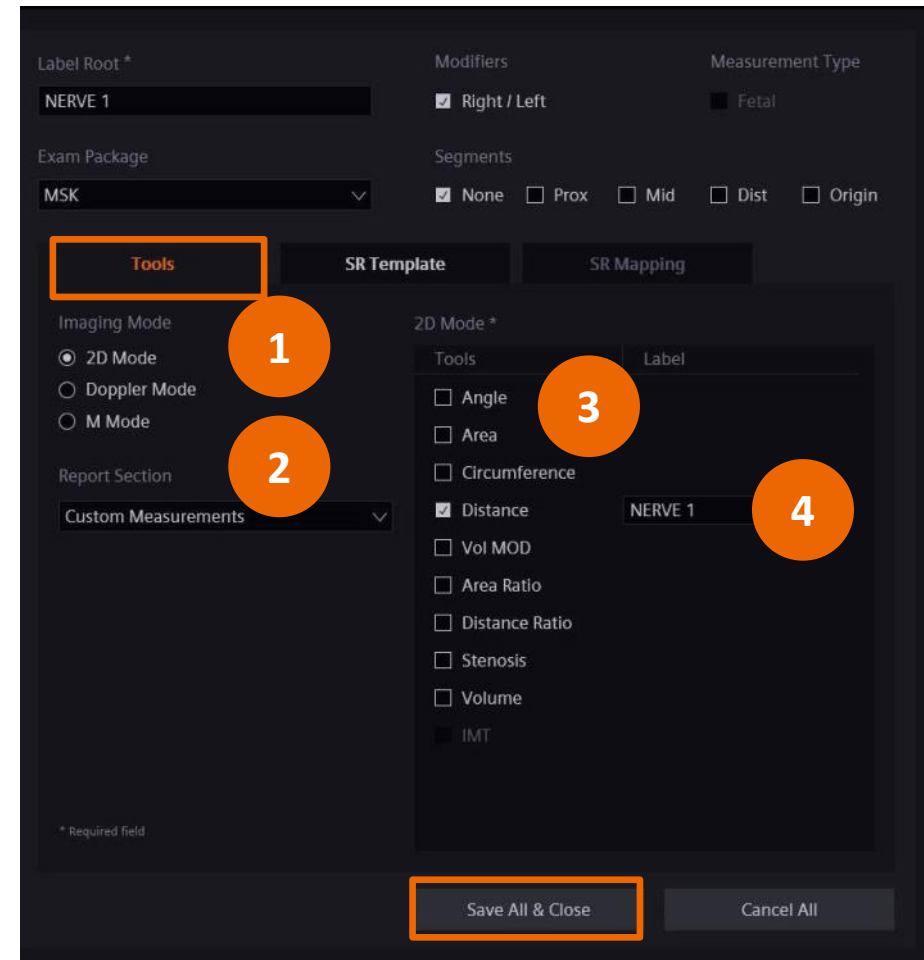
# Defining custom measurement labels

## Creating a custom label – Tools tab

The **Tools** tab defines:

1. Imaging Mode
  - 2D
  - Doppler
  - M-Mode
2. Report Section
3. Measurement tools associated with the chosen imaging mode, i.e., Distance, Area, etc.
4. Label display name options

Use Save All & Close to complete the tool selections.



# Defining custom measurement labels

## Creating a custom label – SR Template tab

SR Template tab defines the:

1. SR Template
2. SR Template Section
3. Anatomy or Vessel
4. Coding Scheme Designator
5. Code Value

Use Save All & Close to complete the SR Template selections.

The screenshot shows the 'SR Template' configuration window. At the top, there are fields for 'Label Root \*' (CBD3), 'Modifiers' (Right / Left), and 'Measurement Type' (Fetal). Below these are 'Exam Package' (General) and 'Segments' (None, Prox, Mid, Dist, Origin). The main area has three tabs: 'Tools', 'SR Template' (highlighted with an orange box), and 'SR Mapping'. Under the 'SR Template' tab, there are five numbered callouts: 1 points to the 'SR Template' radio button group (with 'Vascular' selected); 2 points to the 'SR Template Section \*' dropdown menu (showing 'Artery of Abdomen'); 3 points to the 'Anatomy or Vessel \*' dropdown menu; 4 points to the 'Coding Scheme Designator \*' text field; and 5 points to the 'Code value \*' text field. At the bottom, there are two buttons: 'Save All & Close' (highlighted with an orange box) and 'Cancel All'. A legend at the bottom left indicates '\* Required field'.

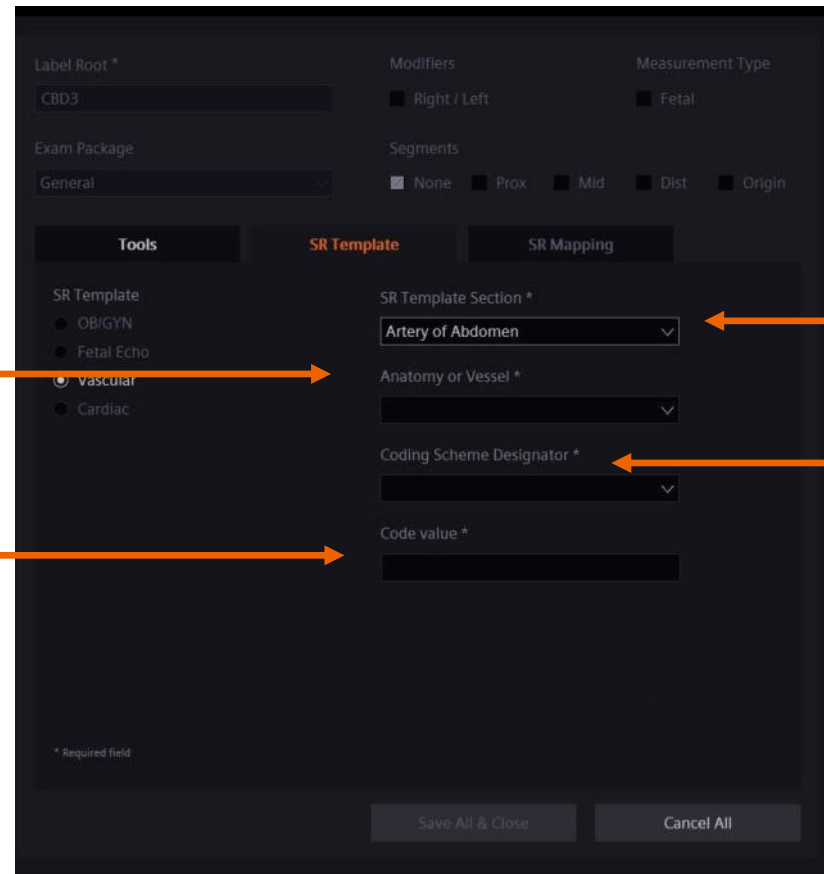
# Defining custom measurement labels

## Creating a custom label – SR Template options

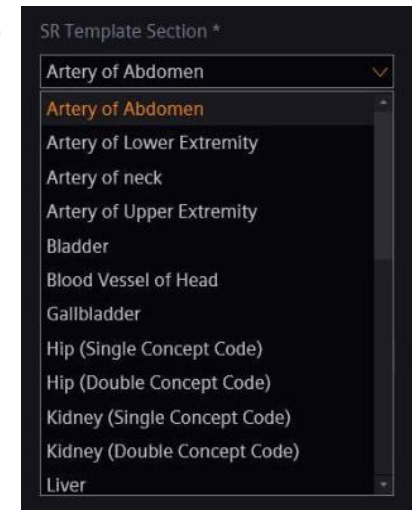
Anatomy or Vessel



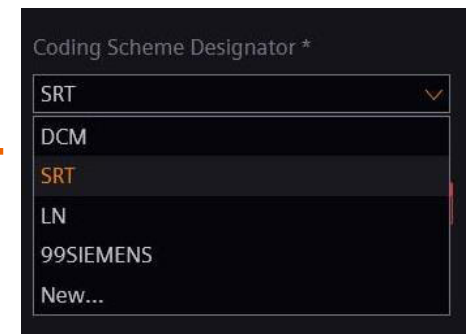
Code value linked to Anatomy or Vessel entry



SR Template Section



Coding Scheme Designator



# Defining custom measurement labels

## Creating a custom label – SR Mapping tab

SR Mapping defines\*

1. Tools & Output
2. Text String for SR
3. Concept Code Meaning
4. Coding Scheme Designator
5. Code Value
6. Measurement Orientation
7. Post prandial

Use Save All & Close to complete the SR Mapping selections.

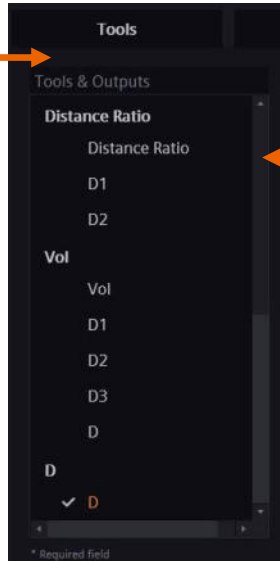
\*Options are for GI label coding – additional options for cardiac include Image View, Cardiac Cycle Point, Flow Direction, Finding Site, and Measurement Method

The screenshot shows the 'SR Mapping' configuration window. At the top, 'Label Root' is set to 'NERVE 2' and 'Exam Package' is 'MSK'. The 'SR Mapping' tab is selected and highlighted with an orange box. The interface is divided into two main sections: 'Tools & Outputs' on the left and 'Text String for SR' on the right. The 'Tools & Outputs' section shows a list with 'D' selected, indicated by a checkmark and a circled '1'. The 'Text String for SR' section contains several fields: 'Text String for SR' (empty), 'Concept Code Meaning' set to 'Distance' (circled '3'), 'Coding Scheme Designator' set to 'DCM' (circled '4'), 'Code value' set to '121206' (circled '5'), 'Measurement Orientation' (empty, circled '6'), and a 'Post-prandial' checkbox (circled '7'). At the bottom, the 'Save All & Close' button is highlighted with an orange box. The 'Previous Output' and 'Next Output' buttons are also visible.

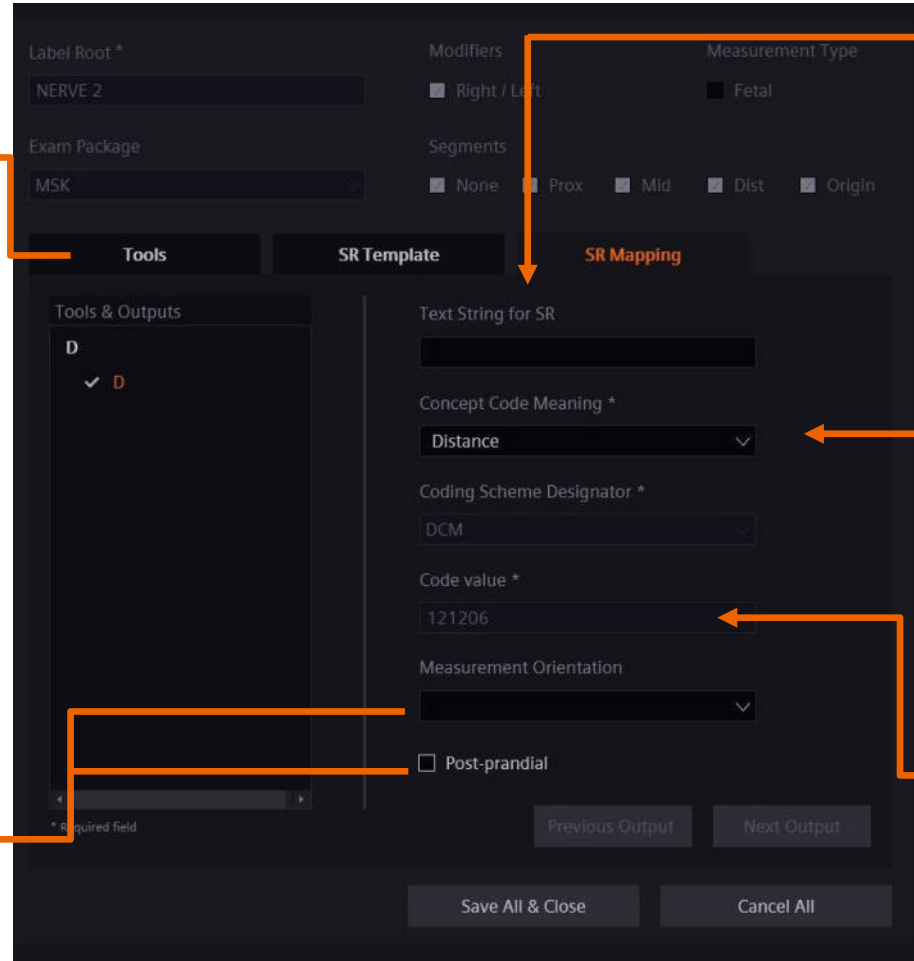
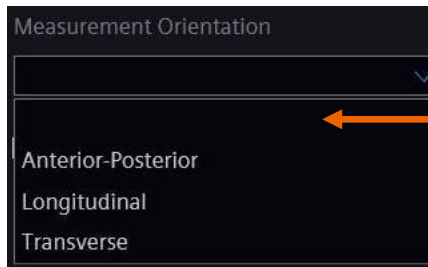
# Defining custom measurement labels

## Creating a custom label – SR Mapping options

Each tool output parameter must be defined

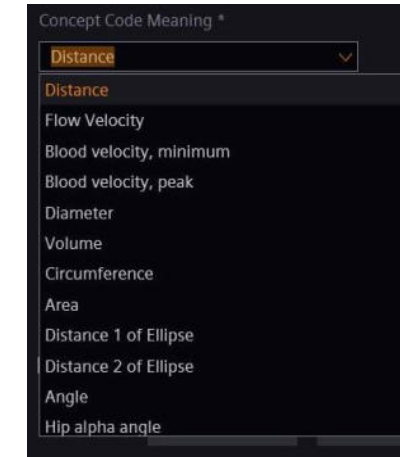


Optional fields



Optional field for a text descriptor

Related to Tool



Concept code meaning choice auto populates the code value

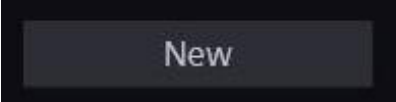
# Objectives

- Identify access to system configuration
- Outline the measurement subgroup
- Describe the Touch Screen configuration
- **Explain custom measurement labels**
  - Homepage layout
  - What is DICOM SR?
  - Steps to define a custom label
  - **Create a new custom label**
- Describe Custom Calculations
- Discuss the OB tables
- Review the report



# Creating a new label – GI example

- Select the **Exam Package** to add the label to
- Select the **New** option



# Creating a new label – GI example

## Tools tab

- Enter the unique label name → NERVE 1
- Select the **Exam Package** from drop-down menu → MSK
- Select **Modifiers** →  Right/Left
- Select **Segments** →  None,  Prox, etc.
- Select **Imaging Mode** → 2D Mode
- Select **Report Section** → MSK
- Select **Tool** → Distance
- Select **Save All & Close** if SR Mapping is not required, otherwise select SR Template tab

The screenshot displays the 'Tools' tab in the software interface. Key elements include:

- Label Root \***: NERVE 1
- Exam Package**: MSK
- Modifiers**:  Right / Left
- Measurement Type**:  Fetal
- Segments**:  None,  Prox,  Mid,  Dist,  Origin
- Imaging Mode**:  2D Mode,  Doppler Mode,  M Mode
- Report Section**: MSK
- 2D Mode \***:
  - Tools**:  Angle,  Area,  Circumference,  Distance,  Vol MOD,  Area Ratio,  Distance Ratio,  Stenosis,  Volume,  IMT
  - Label**: NERVE 1
- Buttons**: Save All & Close, Cancel All

# Creating a new label – GI example

## SR Template tab

- Pre-selected SR Template → Vascular\*
- Select the **SR Template Section** from drop-down menu → User Defined Results
- Select/input **Anatomy or Vessel** → Wrist
- Select or create new **Coding Scheme Designator** → 99 MAYO
- Enter the Code Value → 1234567890\*\*
- Selecting **Save All & Close** will stop the SR Mapping process\*\*\*

\* Will be automatically selected unless the label is created in OB/GYN or Fetal Echo

\*\* The Code Value is linked to the Coding Scheme Designator

\*\*\* SR Mapping will be incomplete

# Creating a new label – GI example SR Mapping tab

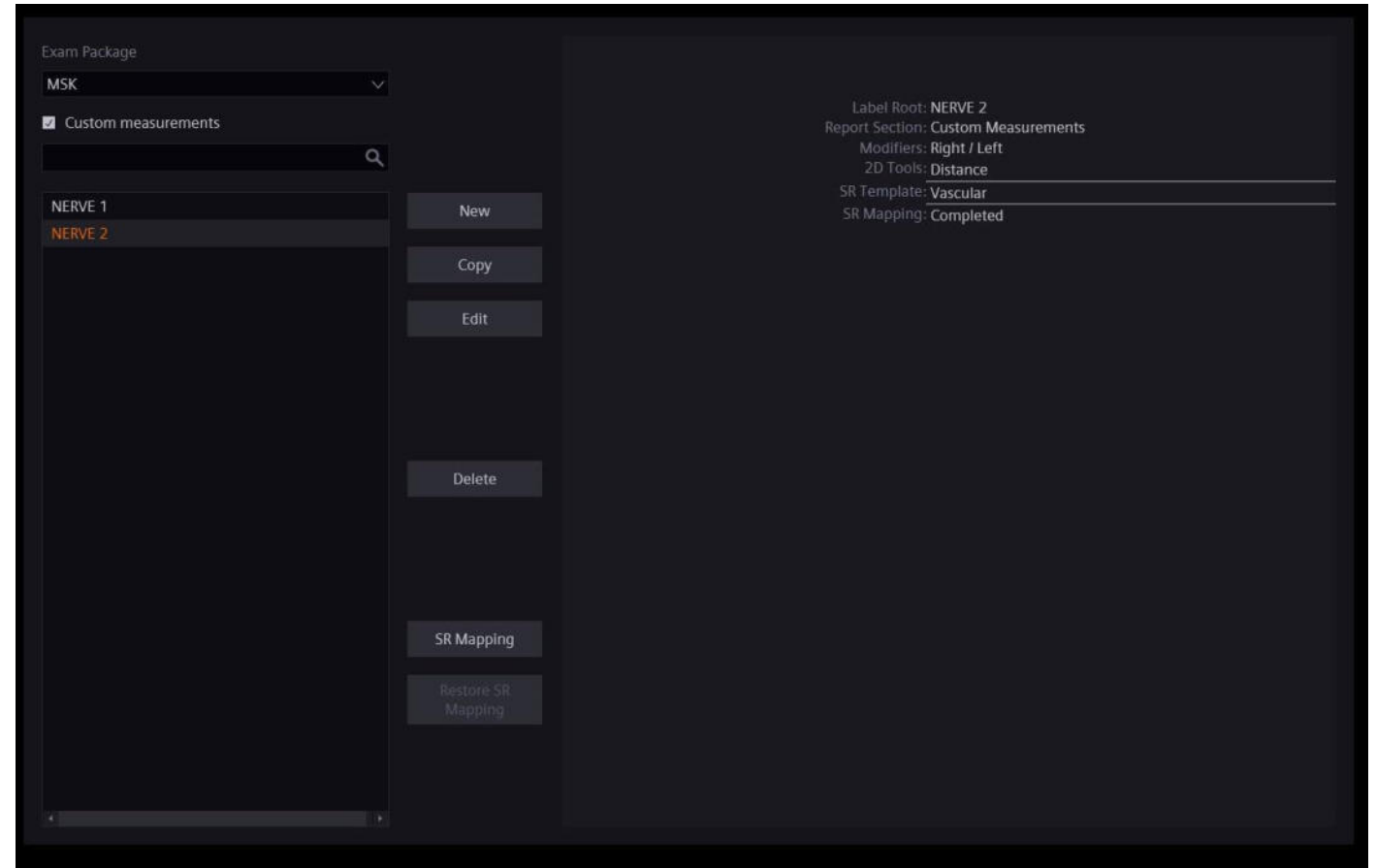
- Tools & Outputs →  beside all listed tools\*
- Text String for SR → Optional field
- Select **Concept Code Meaning** → Distance
- Coding Scheme Designator → DCM
- Code Value → linked to Concept Code
- Optional fields → None selected
- Select **Save All & Close** to complete

\* Each tool will need to be selected and confirmed with the steps listed above. Only then will the SR Mapping be completed for the custom label.

# Creating a new label – GI example

## Custom label summary

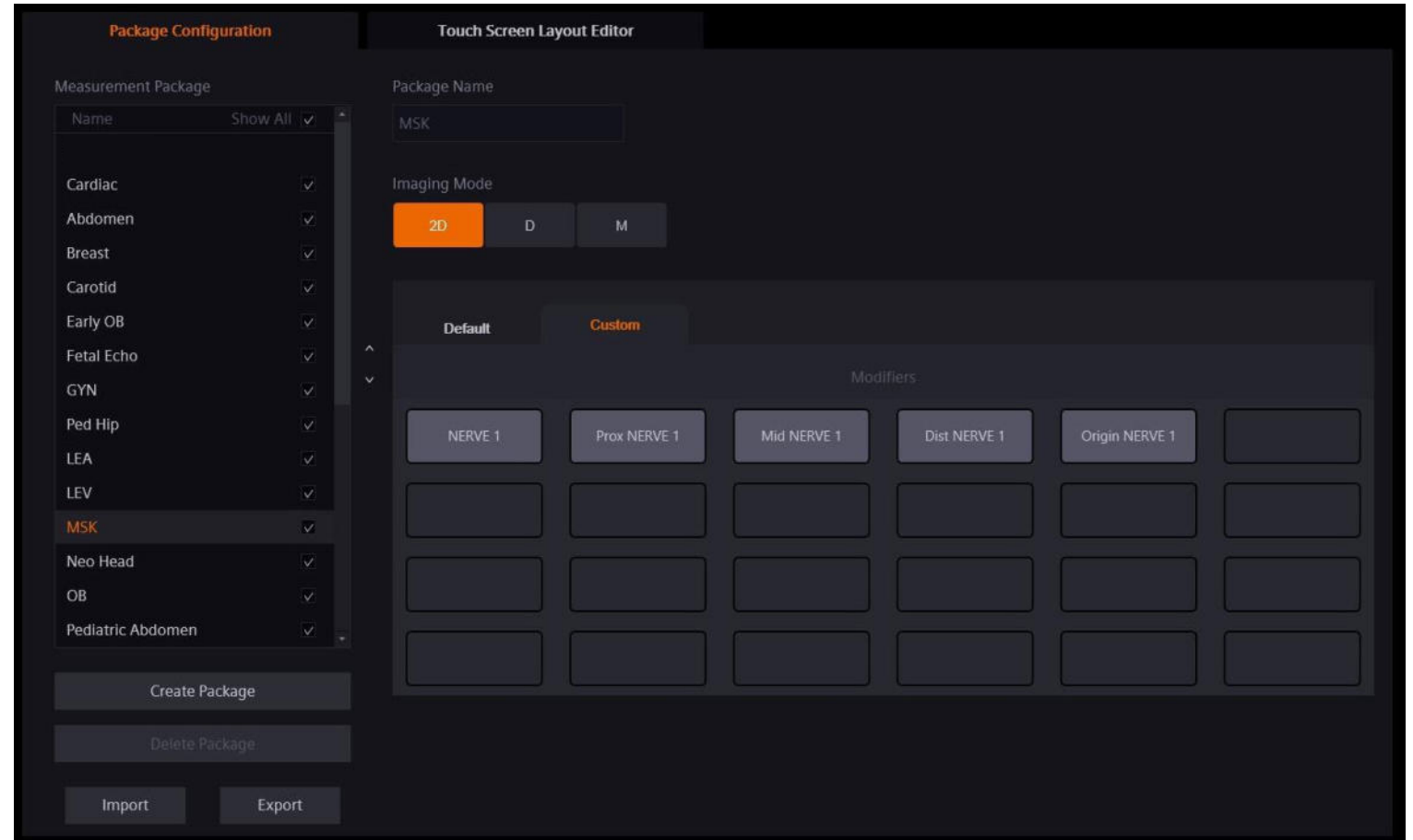
- Check listed label summary for accuracy
- Label will be listed in the master menu under exam
- Label will be automatically added to the Touch Screen upon completion
- Use the Per Label Configuration to alter units or precision
- Copy, Edit, Delete are all available



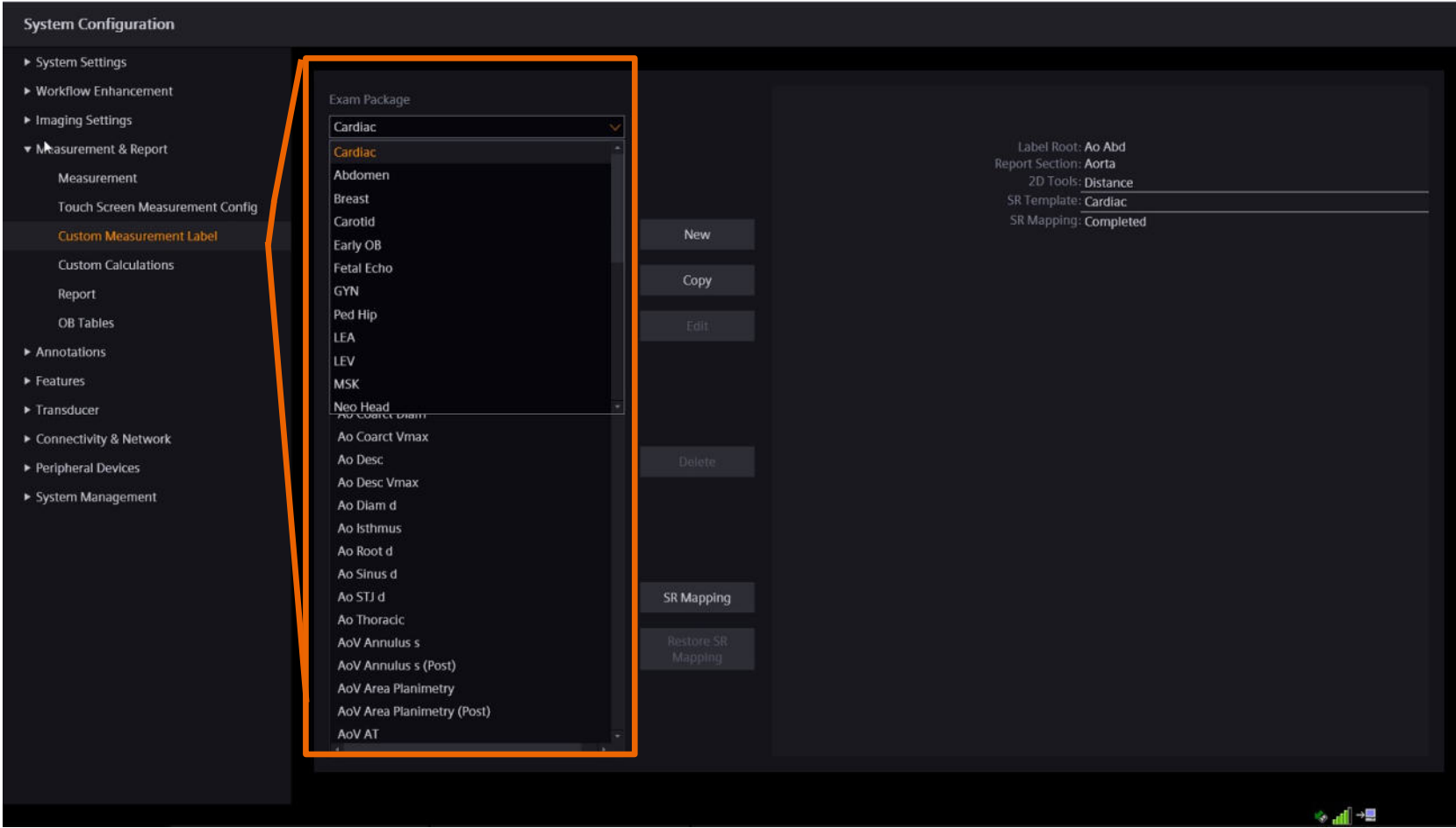
# Creating a new label – GI example

## Touch Screen

- Custom label will automatically be added to the Touch Screen
- Modifiers (if selected) are embedded in the custom label
- Access the Touch Screen Layout Editor touch tab to change label position if necessary



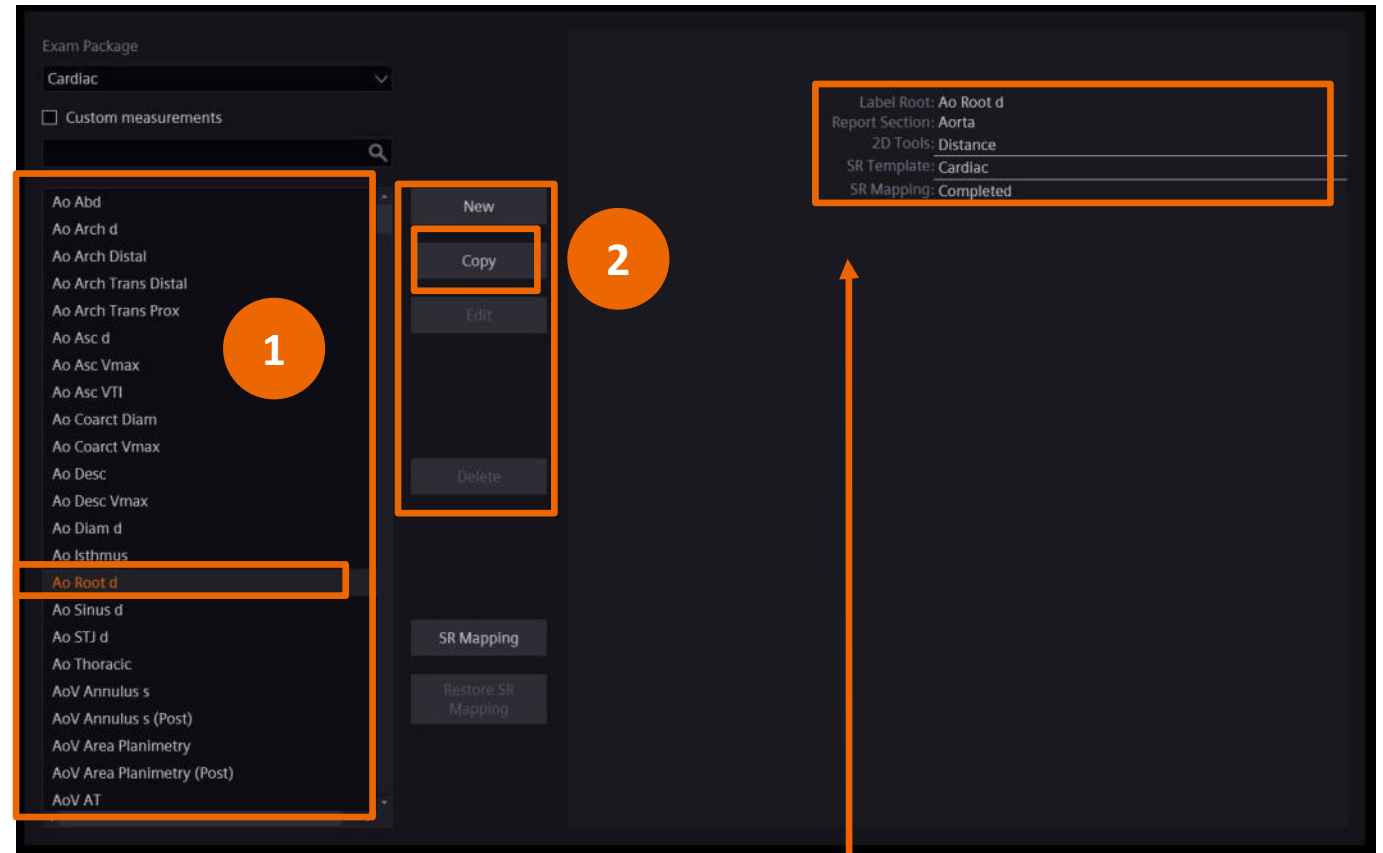
# Creating a new custom label using the copy label feature - Cardiac example



# Copying a label – Cardiac example

1. Select the label you want to copy from the master list (selected label is back lit in orange)
2. Select **Copy** from the label management options

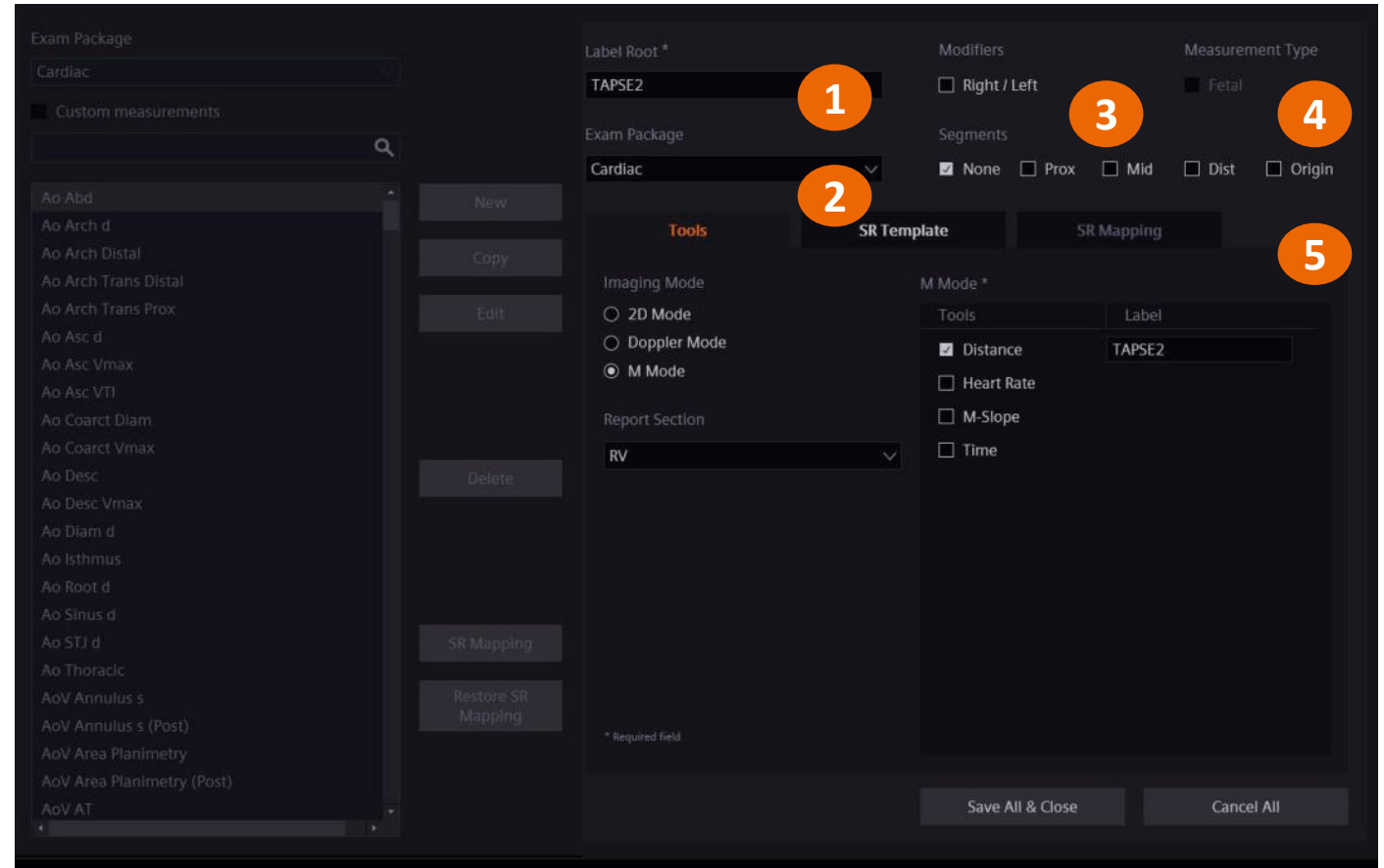
Summary of selected label parameters



# Copying a label – Cardiac example

## Defining label parameters

1. Define label root (name)
2. Select Exam Package from drop-down menu
3. Select Modifier (if applicable)
4. Measurement Type
5. Select Segment (if applicable)

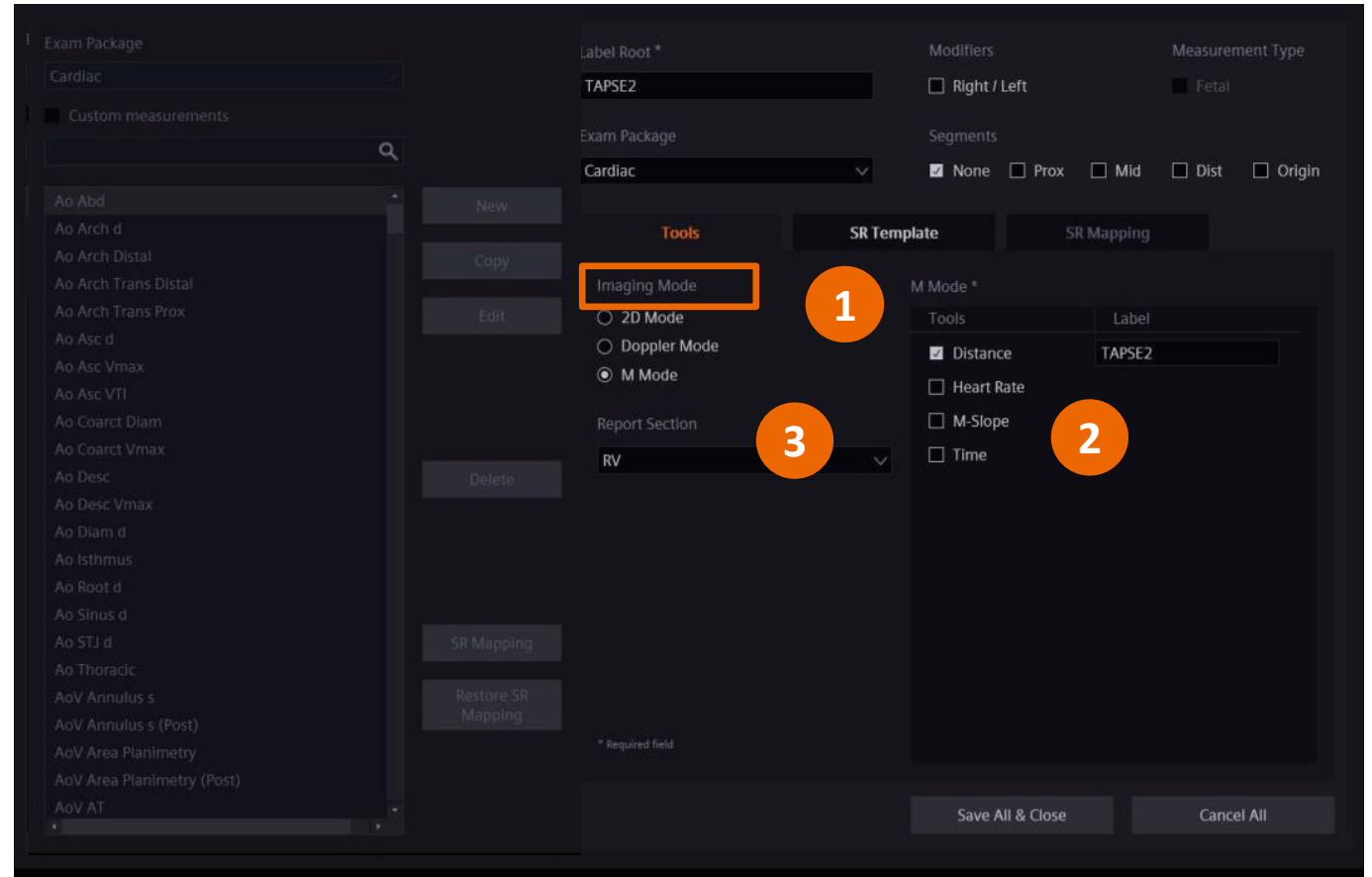


# Copying a label – Cardiac example

## Tools tab

The Tools tab defines the following label parameters:

1. Select the **Active Mode** for the label (2D, Doppler, etc.)  
→ M Mode
2. Select the **Tool** type (distance, time, etc.)  
→ Distance
3. Select **Report Section**  
→ Right ventricle (RV)

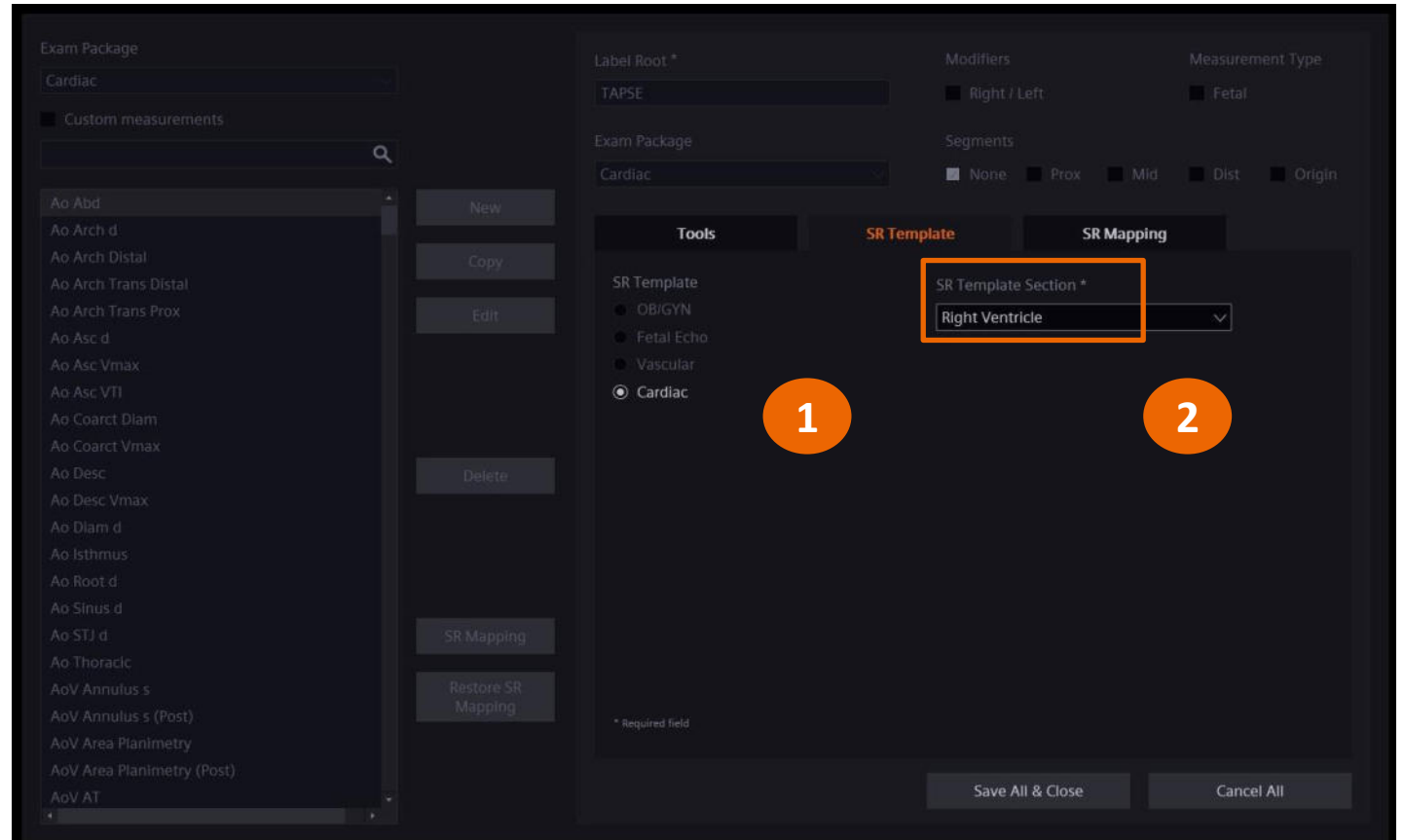


# Copying a label – Cardiac example

## SR Template tab

The SR Template tab allows the user to edit the copied labels data for the following:

1. SR Template type  
→ Cardiac
2. SR Template section  
→ Right ventricle

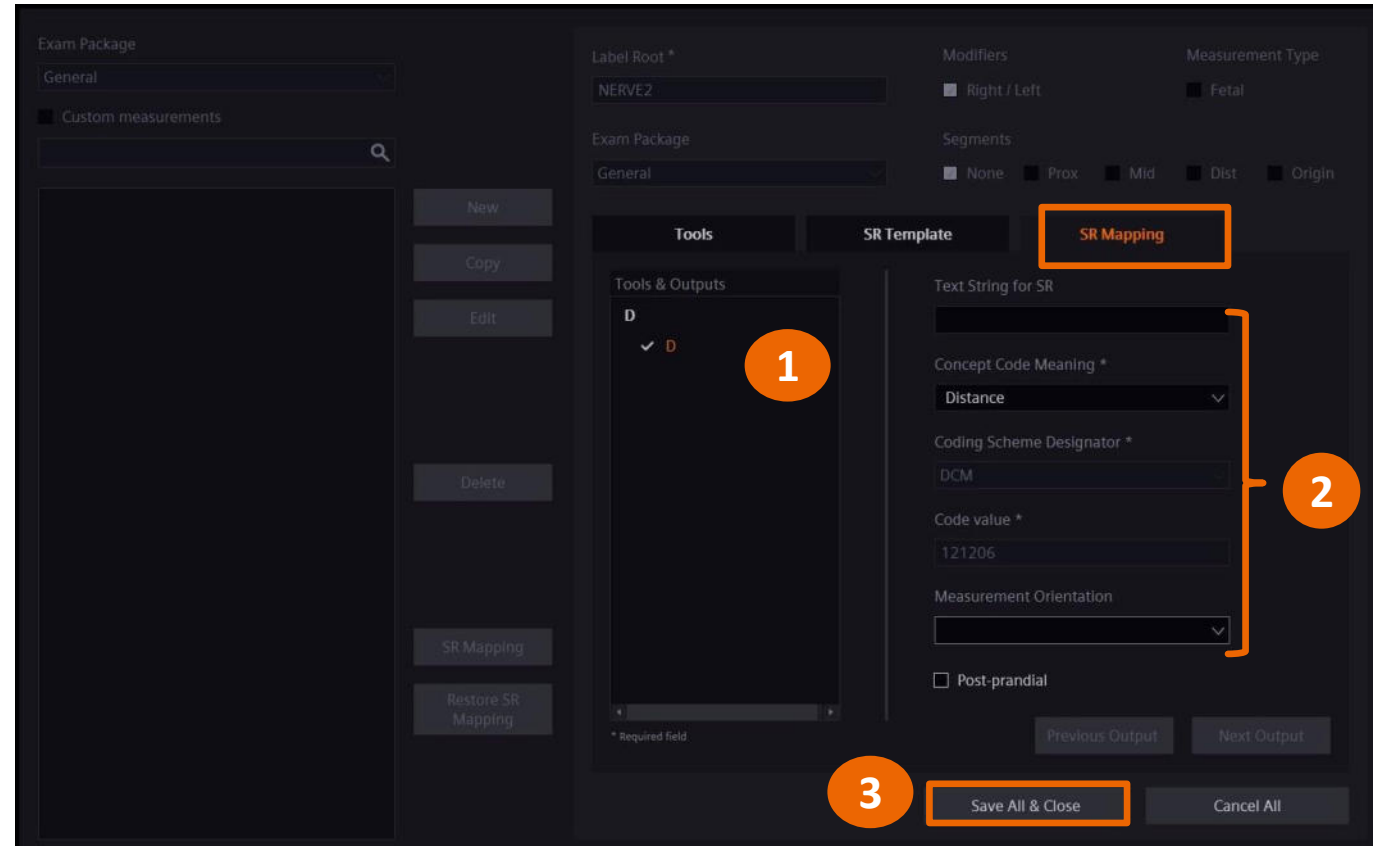


# Copying a label – Cardiac example

## SR Mapping tab

The SR Mapping tab contains the following:

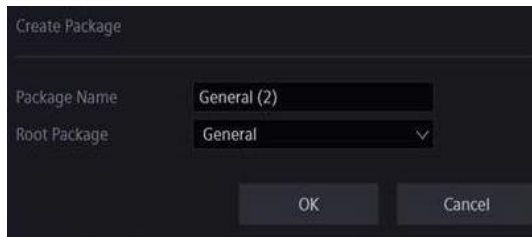
1. Displays the measurement tool and output type
2. Allows edits to copied labels SR mapping parameters for:
  - Concept Code Meaning
  - Coding Scheme Designator
  - Code Value
  - Optional fields such as Text String or Measurement Method
3. Use Save All & Close to complete the SR Mapping selections



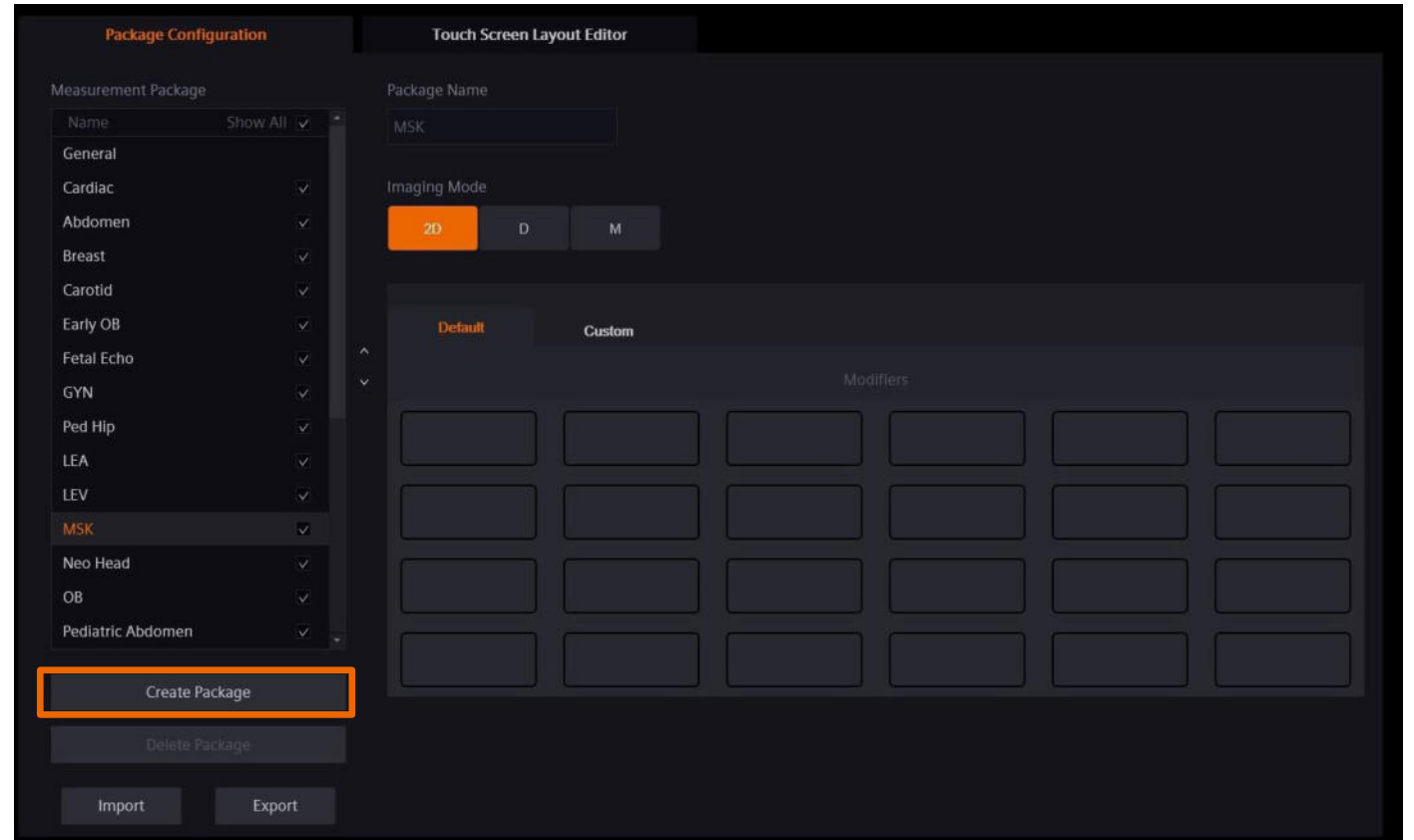
# Create new custom calculation package

Custom calculation packages can be created for any exam:

- Select **Create Package**
- A dialogue box will appear
  - Enter Package Name
  - Select specific Root Package or None (empty)



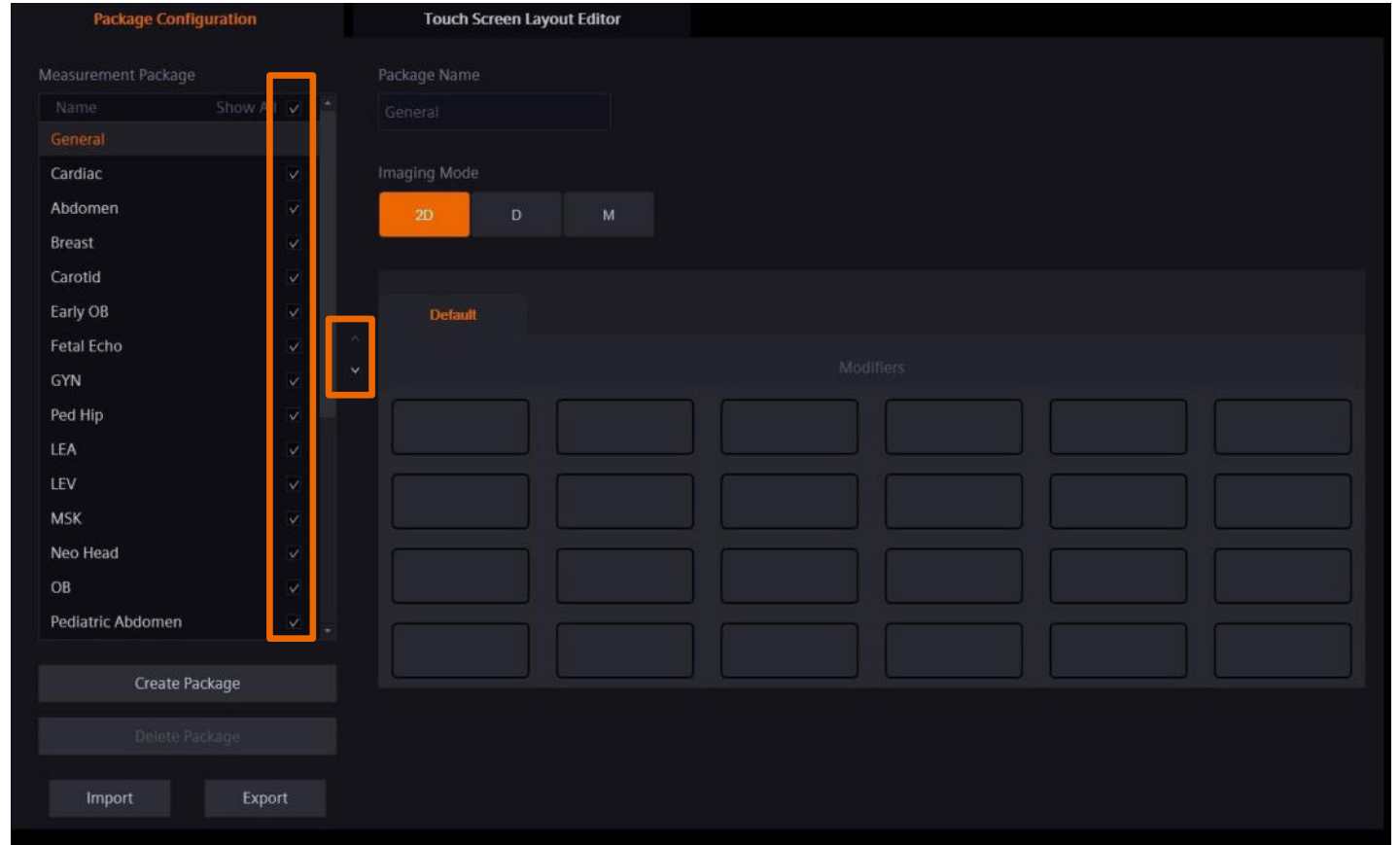
- Select **OK** to save



# Calculation package visibility and order

All calculation packages are listed in the master list

- Change the visibility (“hide”) of any package by unchecking the associated box  →
- Re-order packages within the list by using the up/down arrows



To display a calculation package, check this tab for visibility.

# Objectives

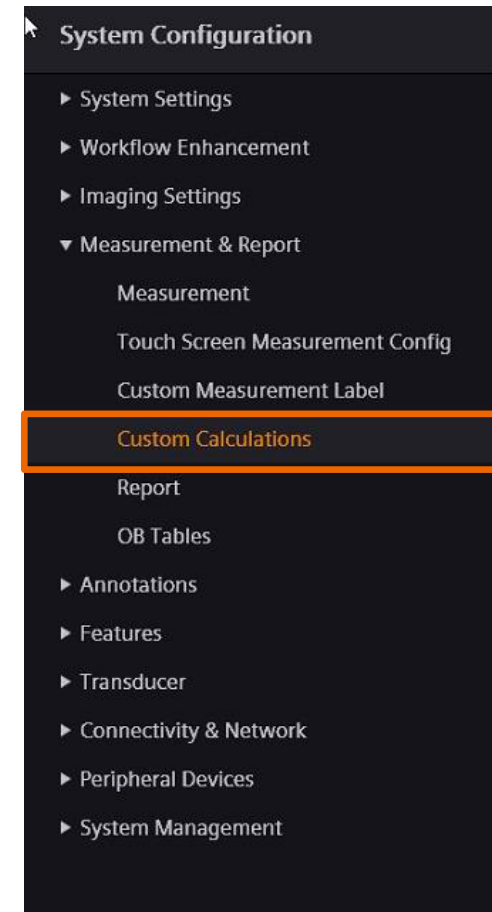
- Identify access to system configuration
- Outline the measurement subgroup
- Describe the Touch Screen configuration
- Explain custom measurement labels
  - Homepage layout
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# Custom Calculations

Custom Calculations are clinical calculations that are specific to a user, department, institution, or region that are not available as factory calculations.

- **System Configuration > Measurement & Report > Custom Calculations**
- The tool will not let users save a mathematically incorrect formula
- Provides utility for a variety of equations from simple volumes to regression formula
- Full accessibility for General Imaging, Cardiac, and Shared Service



# Custom Calculations

**System Configuration**

- System Settings
- Workflow Enhancement
- Imaging Settings
- Measurement & Report
  - Measurement
  - Touch Screen Measurement Config
  - Custom Measurement Label
  - Custom Calculations**
  - Report
  - OB Tables
- Annotations
- Features
- Transducer
- Connectivity & Network
- Peripheral Devices
- System Management

**Custom Calculations**

**Formula 1**

**New** **Copy** **Edit** **Delete** **SR Mapping**

**Formula** **SR Mapping**

Name	Units	Precision	Report Section
Formula 1	cm	3	Congenital Heart Disease

Max([Ao Arch Distal,cm],[Ao Arch Trans Distal,cm])

Ensure the formula and units are correct and then click Save.

Show in Measured Results  Show in Report

**Save** **Cancel**

**Exam Package**

- Abdomen
- AAA
- AAA (Post Repair)
- AAA (Post Repair) AP
- AAA (Post Repair) Diam
- AAA (Post Repair) Trans Diam
- AAA AP
- AAA Diam
- AAA dist from SMA
- AAA Sac Length
- AAA Sac Length (Post Repair)

**Result Labels**

- Accel
- Time
- V1
- V2
- PS
- ED

**Units**

- mm<sup>2</sup>
- cm<sup>2</sup>
- ml<sup>2</sup>

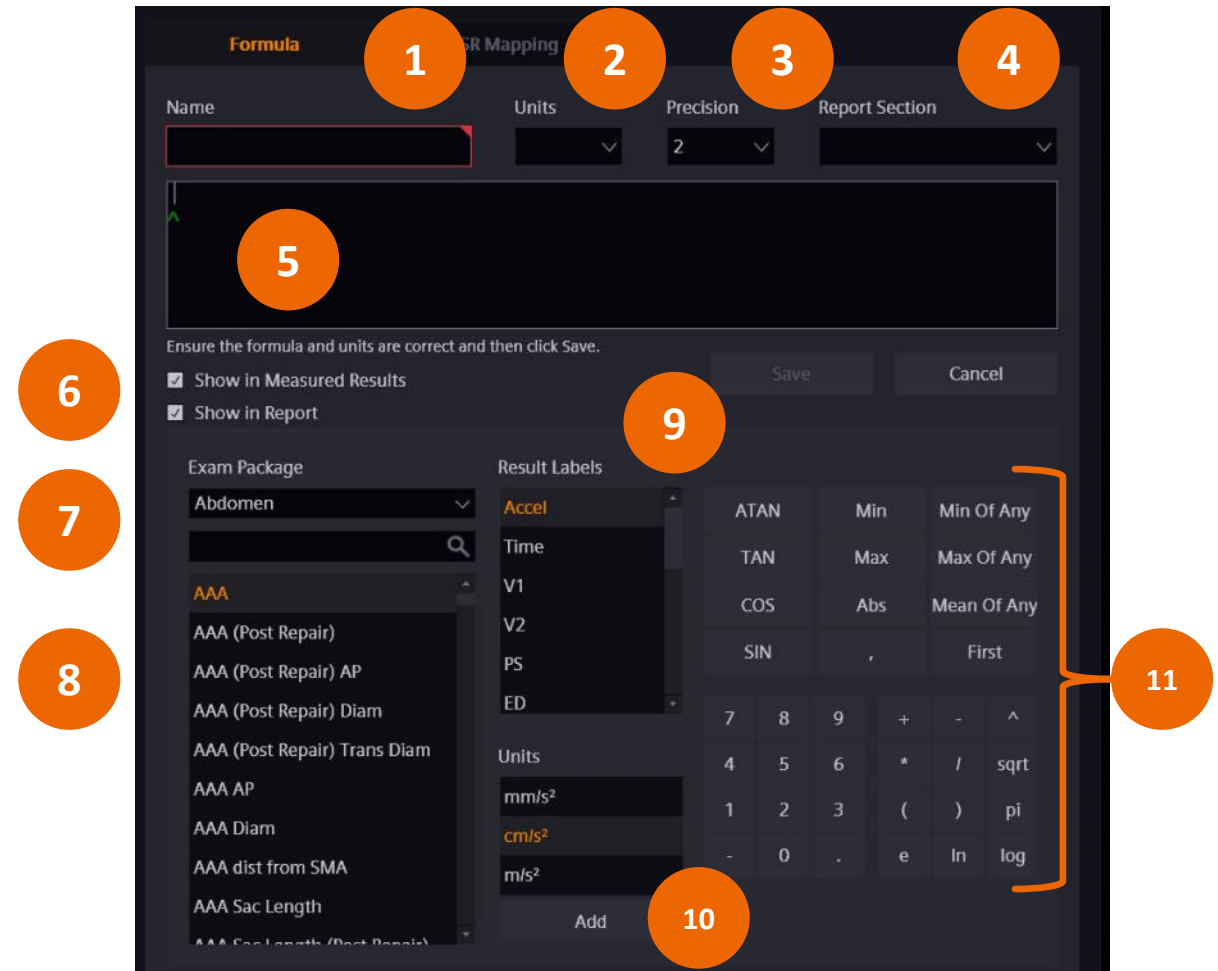
**Calculator**

7	8	9	+	-	^
4	5	6	*	/	sqrt
1	2	3	(	)	pi
.	0	.	e	ln	log

**Add**

# Custom Calculations

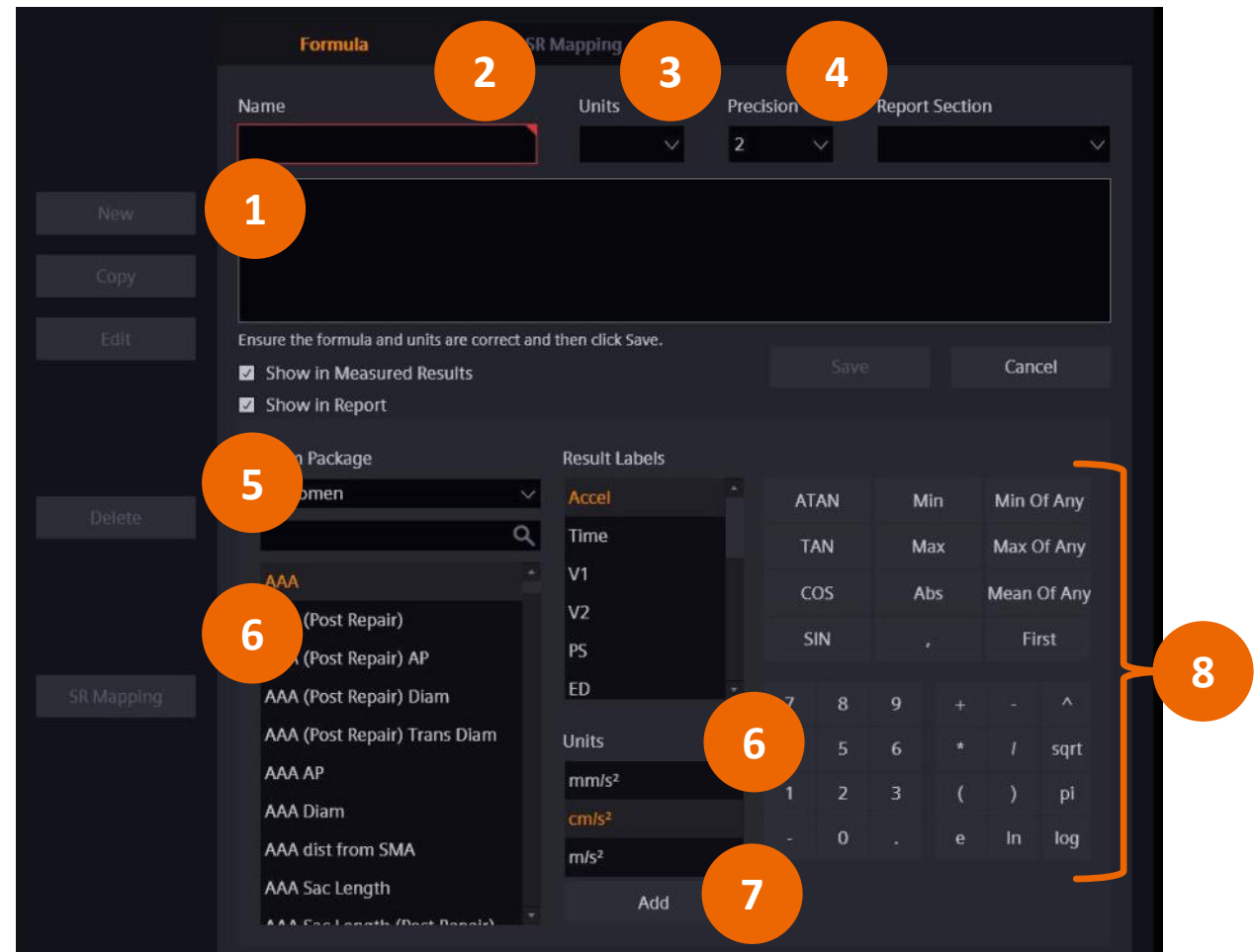
1. Name of equation (14-character limit)
2. Output units of equation
3. Decimal point precision
4. Report display area
5. Area of equation input
6. Display results in onscreen measurement display area or within Report
7. Exam package drop-down
8. Library of labels to create an equation
9. Result labels when type of measurement needs to be specific
10. Input units
11. Mathematical input area



# Custom Calculations – entry

Basic entry of a Custom Calculation:

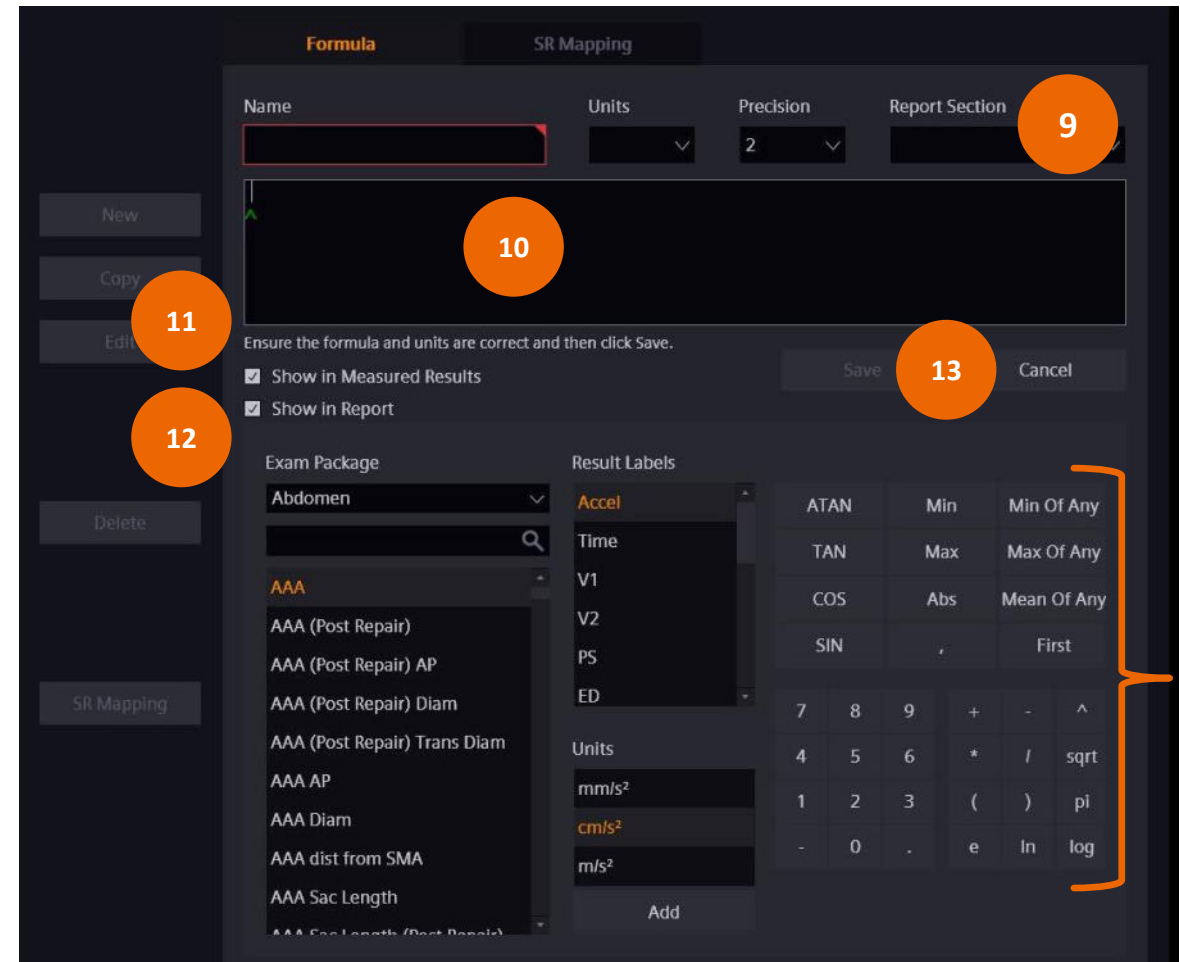
1. Select **New**
2. Enter a unique formula name (14-character limit)
3. Select output **Units**
4. Select result **Precision**
5. Select appropriate **Exam Package**
6. Select a label from the exam package library and choose the input **Units** and results label for that measurement
7. Select **Add** to add measurement to equation area
8. Use calculator functions to enter mathematical equation



# Custom Calculations – entry cont.

Basic entry of a Custom Calculation (cont.):

9. Select **Report Section** area for formula results to display
10. Check for accuracy and no red lines
11. Select **Show in Measured Results** to display results in MDA
12. Select **Show in Report** to display formula results in the report
13. Select **Save**



# Custom Calculations

## SR Mapping

1. Select **SR Mapping**
2. Select appropriate SR Template
3. Select SR Template section
4. Complete SR Mapping for given equation

Custom Calculations

Lt Lambert  
LVOT/BSA  
Rt Lambert

New  
Copy  
Edit  
Delete  
SR Mapping

Formula SR Mapping

SR Template

OB/GYN  
 Fetal Echo  
 Vascular  
 Cardiac

SR Template Section \*

Left Ventricle

Text String for SR

LVOT/BSA

Concept Code Meaning \*

Cardiac Index

Coding Scheme Designator \*

SRT

Code value \*

F-32110

Measurement Method

Continuity Equation by Velocity Time I

Finding Site

Left Ventricle Outflow Tract

Flow Direction

Antegrade Flow

Cardiac Cycle Point

Peak Systolic

Image View

Apical four chamber

\* Required field

Save Cancel

# Objectives

- Identify access to system configuration
- Outline the measurement subgroup
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  - Homepage layout
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# OB Tables tab Homepage layout

OB tables homepage configurable options:

- Default OB Author
- Custom GA Table
- Custom Growth Curves

The screenshot displays the 'System Configuration' interface with the 'OB Tables' tab selected. The interface is divided into three main sections: 'Default OB Author', 'Custom GA Table', and 'Custom Growth Curves'. The 'Default OB Author' section lists various measurements with their corresponding authors. The 'Custom GA Table' section lists measurements with their corresponding authors. The 'Custom Growth Curves' section lists measurements with their corresponding authors. At the bottom, there are two dropdown menus: 'US Age (Ultrasound Age)' set to 'Average' and 'EFW (Estimated Fetal Weight)' set to 'Hadlock (BPD, HC, AC, FL)'.

Measurement	Author
AC	Lasser
APTDxTTD	Tokyo*
BinocD	Tongsong
BPD	Hadlock
Cerebellum	Hill
CRL	Hadlock
EFW Age	Osaka*
FL	Hadlock
Foot	Mercer
FTA	Osaka*
GSD	Rempen
HC	Hadlock
HL	Jeanty
MSD	Rempen
OFD	ASUM 2003
Tibia	Jeanty
Ulna	Jeanty

Measurement	Author
AC	Hadlock
AFI	Moore
AFI 2	Moore
AFI 3	Moore
APTDxTTD	Tokyo
BPD	Merz
Cerebellum	Verburg
Cist Magna	Nicolaidis
Clavicle	Sherer
CRL	Hadlock
EFW	Hadlock
FL	Hadlock
Foot	Chitty
FTA	Osaka
GSD	Hellman
HC	Hadlock
HC/AC	Campbell
HL	Jeanty
Lt CP Ratio	Ebbing

US Age (Ultrasound Age): Average

EFW (Estimated Fetal Weight): Hadlock (BPD, HC, AC, FL)

# OB Tables tab

## Default OB Author

- Select default author from drop-down menu for each parameter
- Custom tables will have an asterisk (\*) in the table name
- Factory tables will not have an asterisk (\*) in table name

The screenshot shows the 'System Configuration' interface with the 'OB Tables' tab selected. It displays two main configuration panels: 'Default OB Author' and 'Custom GA Table'.

**Default OB Author:**

Measurement:	Author
AC	Lasser
APTDxTTD	Tokyo*
BinocD	Tongsong
BPD	Hadlock
Cerebellum	Hill
CRL	Hadlock
EFW Age	Osaka*
FL	Hadlock
Foot	Mercer
FTA	Osaka*
GSD	Rempen
HC	Hadlock
HL	ASUM 2003
MSD	Chitty
OFD	Hadlock
Tibia	Hansmann
Ulna	Lasser
	Merz

**Custom GA Table:**

Measurement:	Author
AC	Hadlock
AFI	Moore
AFI 2	Moore
AFI 3	Moore
APTDxTTD	Tokyo
BPD	Merz
Cerebellum	Verburg
Cist Magna	Nicolalides
Clavicle	Sherer
CRL	Hadlock
EFW	Hadlock
FL	Hadlock
Foot	Chitty
FTA	Osaka
GSD	Hellman
HC	Hadlock
HC/AC	Campbell
HL	Jeanty
Lt CP Ratio	Ebbing

At the bottom, there are two dropdown menus: 'US Age (Ultrasound Age)' set to 'Average' and 'EFW (Estimated Fetal Weight)' set to 'Hadlock (BPD, HC, AC, FL)'.

# OB Tables tab

## Custom GA Table

Two options to create a custom gestational age (GA) table:

1. Manually input a new table
2. Copy an existing table

The screenshot shows the 'Custom GA Table' interface. On the left, there is a list of tables under the 'AC' measurement: ASUM 2003, Hadlock, JSUM 2003 (highlighted), Lasser, and Merz. A red box highlights the 'New' button, and a red circle with the number '1' is next to it. On the right, there is a table with columns for AC, Weeks, Days, and 2SD days. A red circle with the number '2' is next to the table. The table data is as follows:

	AC	Weeks	Days	2SD days
	10.00	15	3.0	16
2	10.50	16	0.0	16
3	11.00	16	4.0	16
4	11.50	17	0.0	16
5	12.00	17	4.0	18
6	12.50	18	0.0	18
7	13.00	18	4.0	18
8	13.50	19	0.0	18
9	14.00	19	4.0	18
10	14.50	20	0.0	18
11	15.00	20	3.0	20
12	15.50	21	0.0	20

At the bottom right, there is a button labeled 'Restore Defaults: AC'.

# OB Tables tab

## Custom GA Table – copy existing table

- Highlight desired table
- Select **Copy**
- Change Author name or leave copied name with number
- Alter data (if required)
- Validate table Table is valid.
- If table is valid, select **Save**

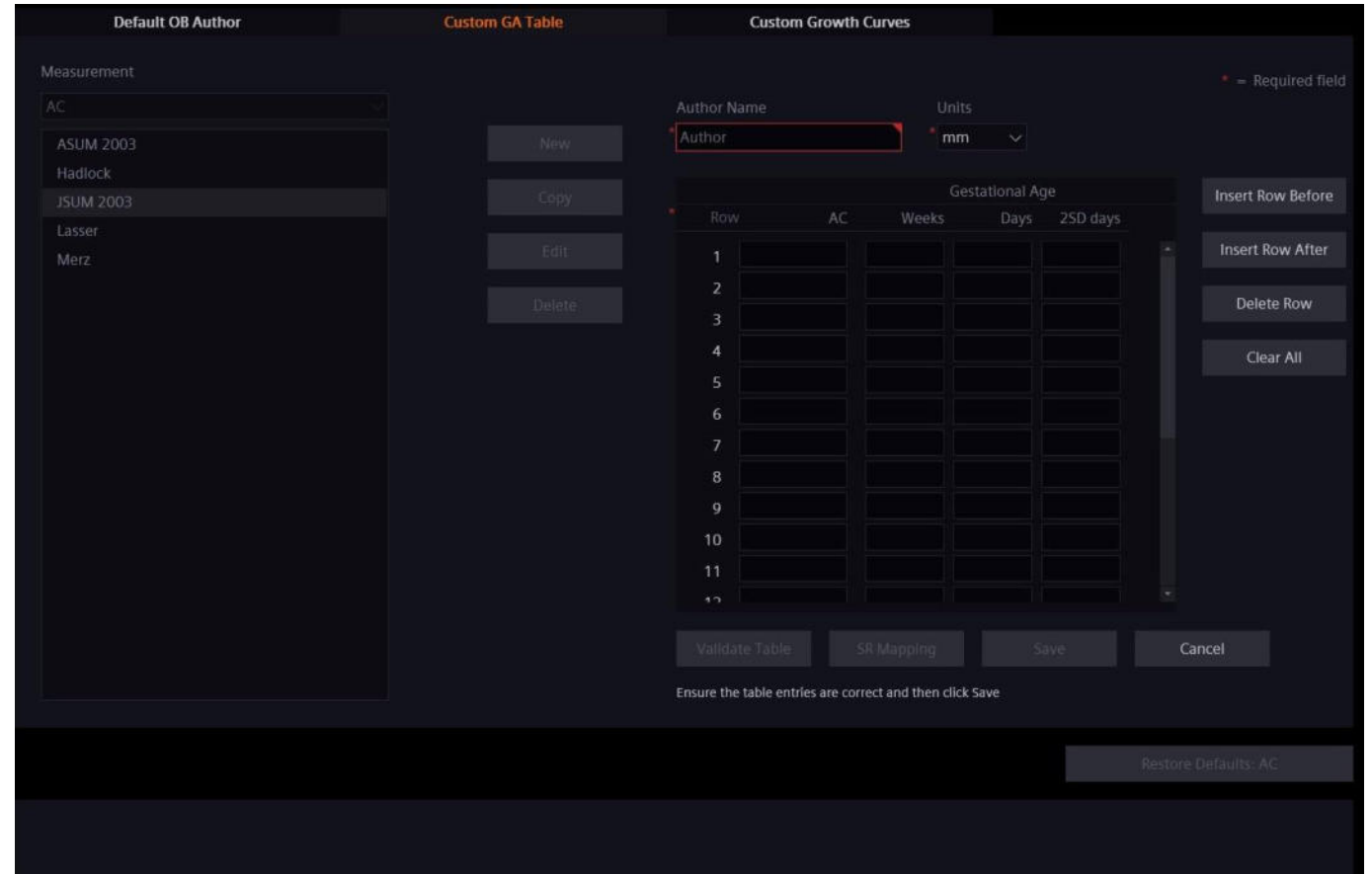
The screenshot shows the 'Custom GA Table' interface. On the left, a list of tables includes 'ASUM 2003', 'Hadlock', 'JSUM 2003' (highlighted), 'Lasser', and 'Merz'. The 'Copy' button is highlighted with an orange box. An orange arrow points from the 'Copy' button to the 'Validate Table' button, which is also highlighted with an orange box. A dark box displays the message 'Table is valid.'. The right side of the interface shows a table with columns for Row, AC, Weeks, Days, and 2SD days. The 'Validate Table' button is located at the bottom of the table area.

Row	AC	Weeks	Days	2SD days
1	10.00	15	3.0	16
2	10.50	16	0.0	16
3	11.00	16	4.0	16
4	11.50	17	0.0	16
5	12.00	17	4.0	18
6	12.50	18	0.0	18
7	13.00	18	4.0	18
8	13.50	19	0.0	18
9	14.00	19	4.0	18
10	14.50	20	0.0	18
11	15.00	20	3.0	20
12	15.50	21	0.0	20

# OB Tables tab

## Custom GA Table – create new

- Select **New**
- Name table and select units
- Input table data – use the “tab” key to advance
- Insert/delete rows as required
- Validate table
- Complete the SR Mapping process (if required)
- Select **Save** to complete table



Default OB Author      **Custom GA Table**      Custom Growth Curves

Measurement: AC

ASUM 2003  
Hadlock  
JSUM 2003  
Lasser  
Merz

New  
Copy  
Edit  
Delete

Author Name: Author      Units: mm

Gestational Age

Row	AC	Weeks	Days	2SD days
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				

Insert Row Before  
Insert Row After  
Delete Row  
Clear All

Validate Table    SR Mapping    Save    Cancel

Ensure the table entries are correct and then click Save

Restore Defaults: AC

# OB Tables tab

## Custom Growth Curves

- Steps to add custom growth curves are like custom GA tables using Copy or New
- Custom growth curves require a Low/High range selection – options are:
  - 5%/95%
  - 10%/90%
  - 3%/97%
  - +/- 1.5SD
  - +/- 2SD
  - +/- 1SE
- Maximum number of weeks that can be entered is 43

Default OB Author      Custom GA Table      Custom Growth Curves

Measurement: AC

ASUM 2003 (2)      mm      5%/95%

Row	GA		AC		
	weeks	Days	Low (5%)	Mean (50%)	High (95%)
1	11	0.0	43.8	52	60.2
2	12	0.0	54.8	63	71.2
3	13	0.0	65.8	74	82.2
4	14	0.0	75.8	84	92.2
5	15	0.0	87.8	96	104.2
6	16	0.0	97.8	106	114.2
7	17	0.0	107.7	120	132.3
8	18	0.0	118.7	131	143.3
9	19	0.0	127.7	140	152.3
10	20	0.0	138.7	151	163.3
11	21	0.0	147.6	164	180.5

Buttons: New, Copy, Edit, Delete, Insert Row Before, Insert Row After, Delete Row, Clear All, Validate Table, SR Mapping, Save, Cancel, Restore Defaults: AC

Ensure the table entries are correct and then click Save

# OB Tables tab

## Custom Growth Curves

### Flexibility with input

- Low/High percentile range options
- Custom defined Low/High percentile - 0.1–99.9%
- Auto calculation of Low/High percentile

**Custom Growth Curves**

Author Name: AUTHOR Units: mm Low/High Range: 5%/95%

\* = Required field

5%/95%  
10%/90%  
3%/97%  
+/-1SD  
+/-1.5SD  
+/-2SD  
+/-1SE

Insert Row Before  
Insert Row After  
Delete Row  
Clear All

Row	GA		AC	
	weeks	Days	Low (5%)	Mean (50%)
1				
2				
3				
4				
5				

# Objectives

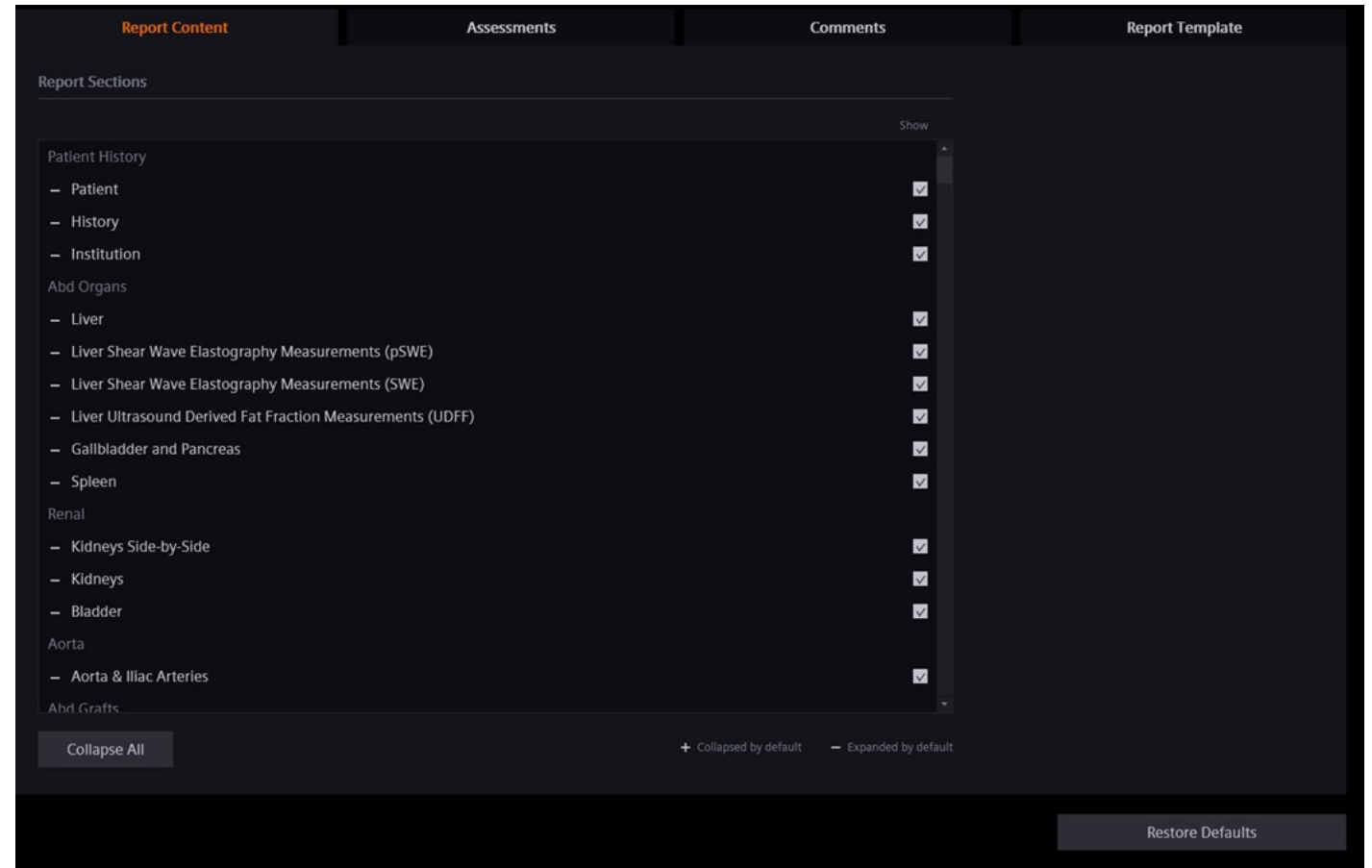
- Identify access to system configuration
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- Discuss the OB tables
- **Review the report**



# Report configuration tab

## Homepage layout

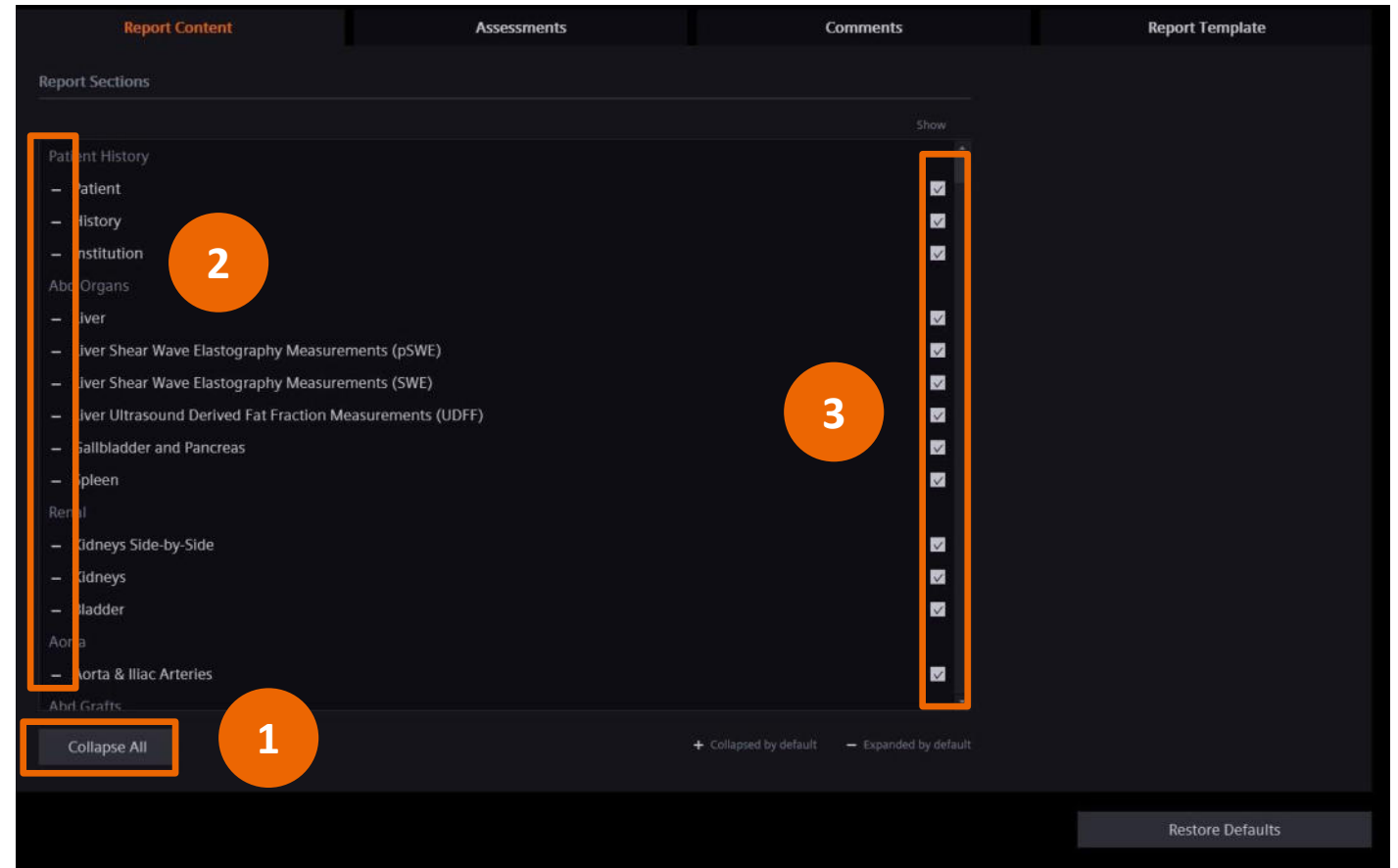
- Organ-based/anatomic reporting structure
- Homepage contains four configurable option areas:
  - Report Content
  - Assessments
  - Comments
  - Report Template



# Report configuration tab

## Report Content

1. Default option to expand or collapse all report content
2. Expand/collapse option for individual sections
3. Check  option to show/hide report sections\*



\*Hidden sections will not show on a printed report even if a measurement is performed for that section.

# Report configuration tab

## Assessments

Pre-loaded list of assessments from factory:

- Abdomen
- OB Fetal
- OB Maternal
- Early OB Fetal
- Early OB Maternal
- GYN
- Carotid
- Lt Hip Description
- Rt Hip Description
- Fetal Echo

Check  option to show/hide assessment in report.

The screenshot displays the 'Assessments' configuration tab for a 'Carotid' report. The interface is organized into a grid with columns for 'Rt' (Right) and 'Lt' (Left) for various assessment categories. A vertical orange box highlights the 'how' column, which contains checkboxes for each assessment item, indicating whether it should be shown or hidden in the report. The categories include CCA, BIF, ICA, and ECA, each with sub-items for 'Plaque Description', 'Diameter Reduction', and 'Comments'. On the right side, there is a 'Create Custom Assessment Items' section with a 'Type' dropdown (radio buttons for 'Checklist' and 'Comment Text Box') and a 'Label' input field. At the bottom right, there is a 'Restore Defaults: Carotid' button.

# Report configuration tab

## Add custom assessment item

Two types of custom assessment items can be added:

- Checklist
- Comment text box

To add a custom assessment:

1. Select assessment **Type**
2. Enter label in field
3. Select **Add**

Assessment label can only be moved around custom area of the report.

Create Custom Assessment Items

Type: 1

Checklist

Comment Text Box

Label: 2

Test Label

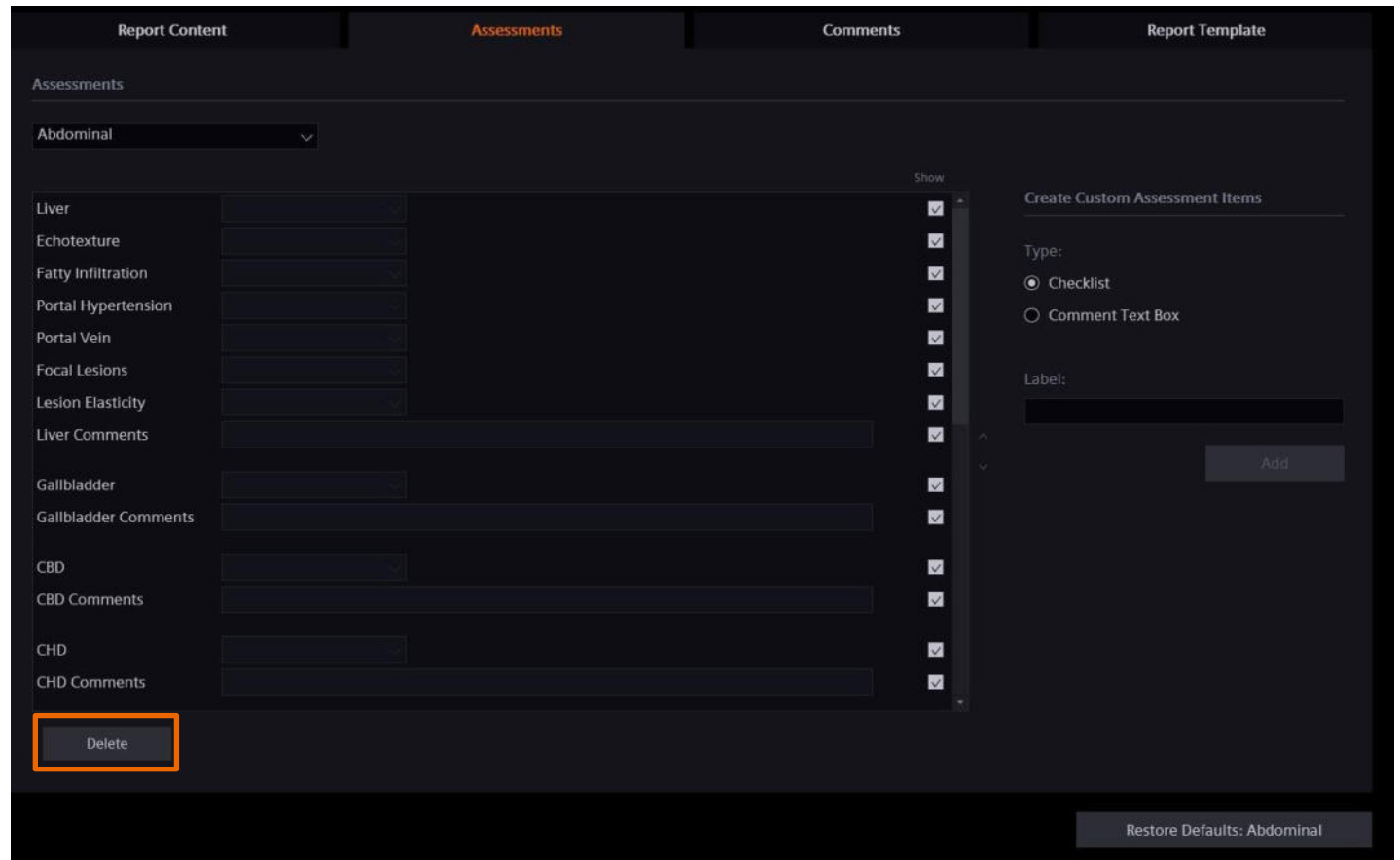
3 Add

# Report configuration tab

## Delete custom assessment item

To delete a custom assessment item:

- Highlight the desired label
- Select **Delete**



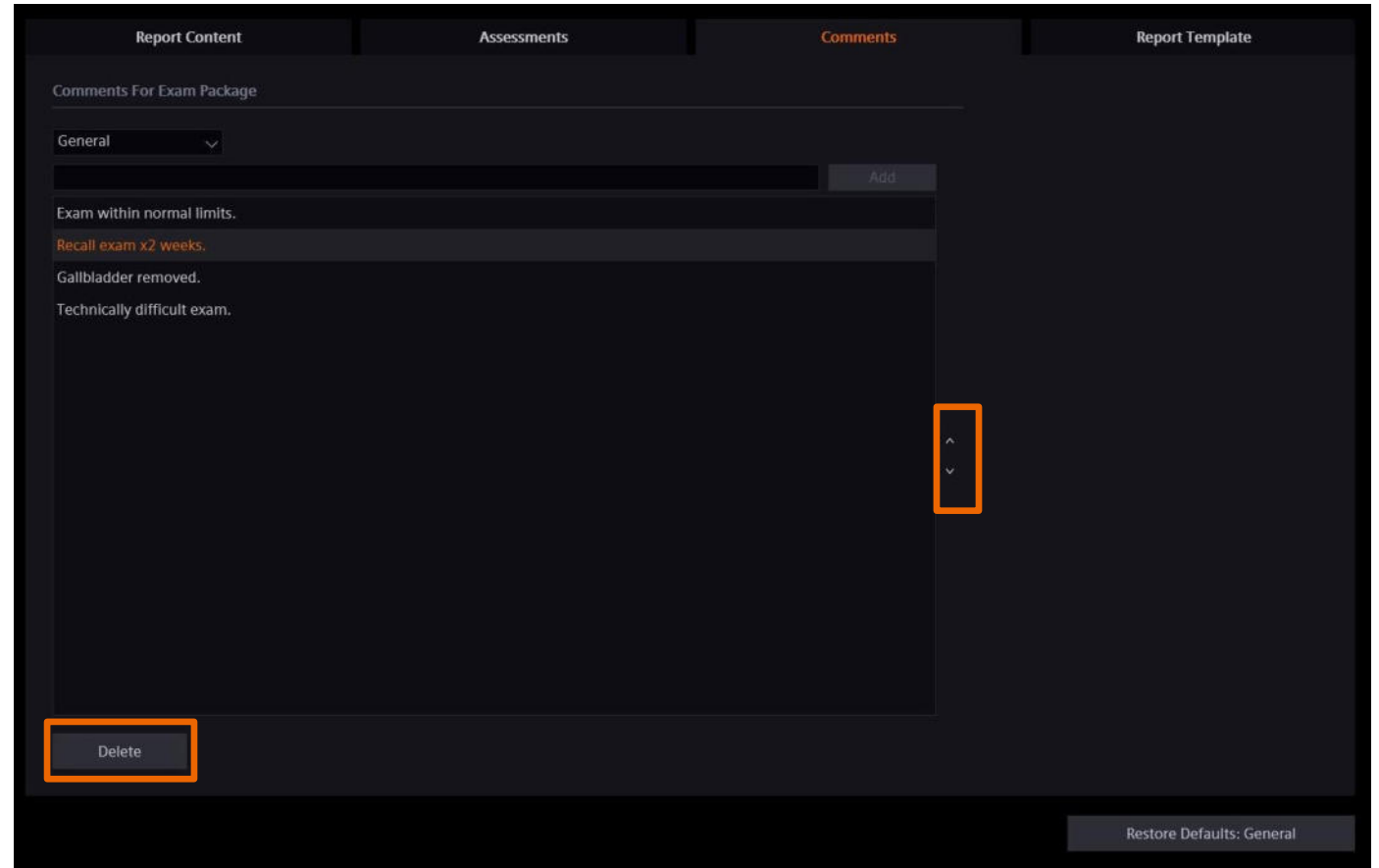
# Report configuration tab Comments

Pre-defined comments can be added to the report

- Select the exam package
- Enter comment in the space provided
- Select **Add**
- Re-order (if required) with the directional arrows

To delete a comment

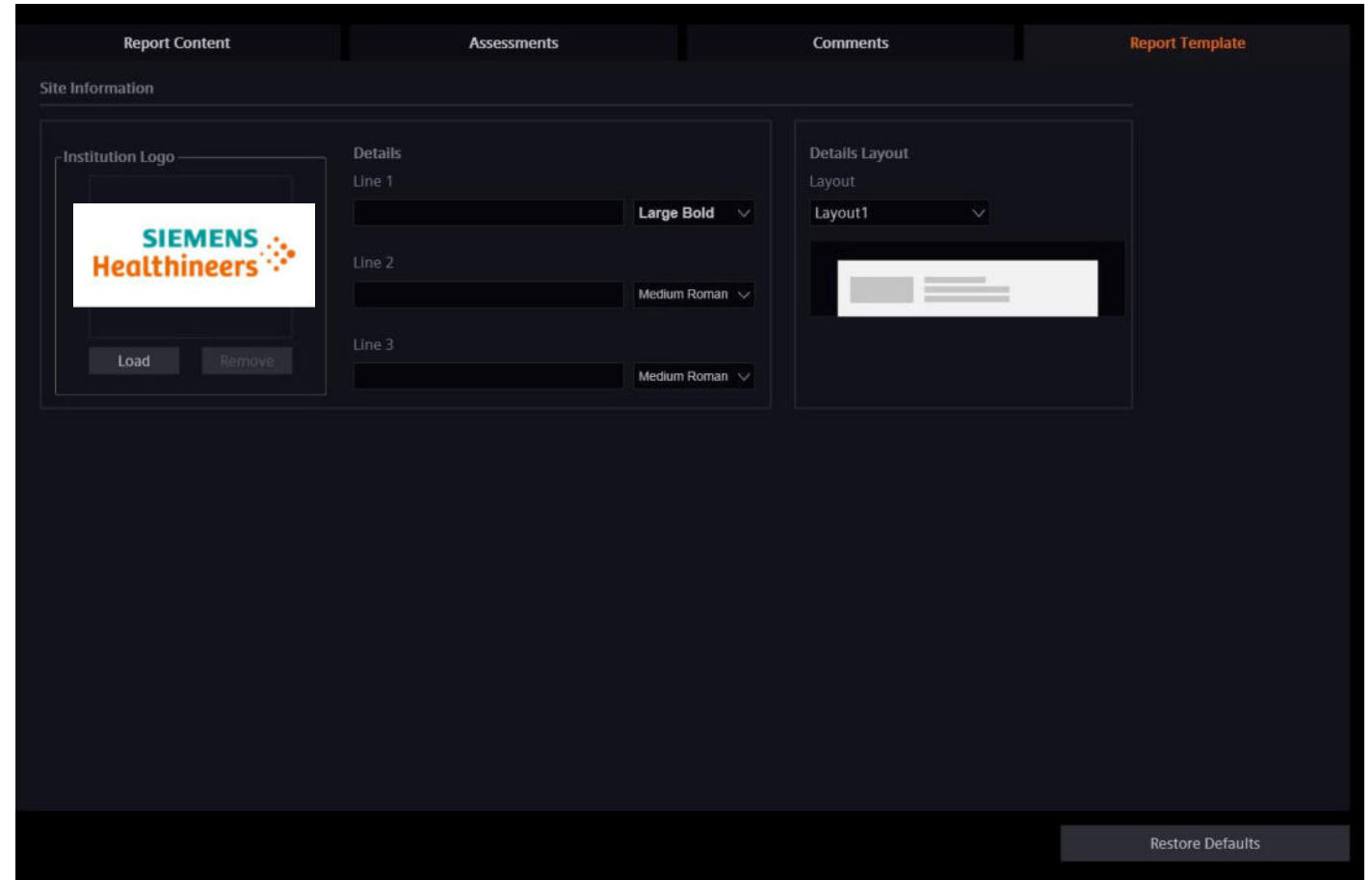
- Highlight comment
- Select **Delete**



# Report configuration tab

## Report Template

- Customized logo and text can be added to the report via USB
- Three layout options for logo and text
- Logo file must be JPEG or PNG
- Three lines of text can be added and customized for style and font



# Summary

- Identify access to system configuration
- Outline the measurement subgroup
- Describe the Touch Screen configuration
- Explain custom measurement labels
  - Homepage layout
  - What is DICOM SR?
  - Steps to define a custom label
  - Create a new custom label
- Describe Custom Calculations
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- Review the report



# Trademarks and disclaimers

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Thank you for your enthusiasm!

# Questions?