



# LOGIQ™ E10 Series

## End to End Workflow Guide

Simple guide for empowering concise workflow from the beginning to the end of the ultrasound study.



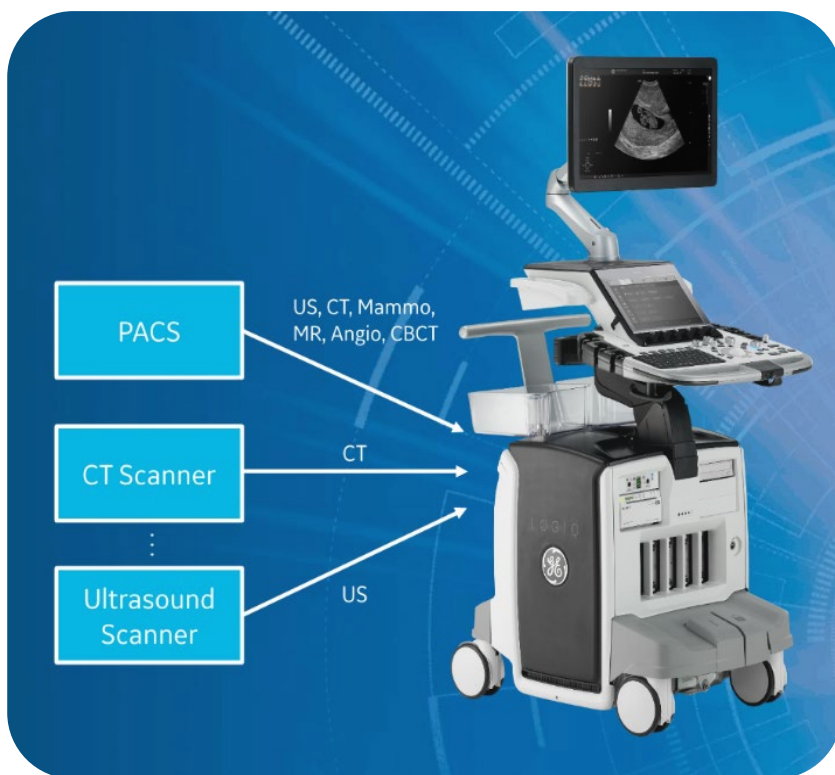
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## Easy Access to PACS

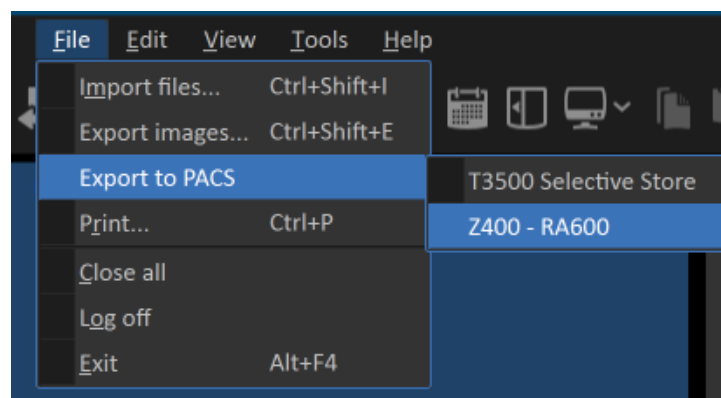
This feature enables scanner to receive exams from configured PACS in the background without interrupting user workflow. Exams can also be pulled via DICOM® Q/R.



*Note: Operates with both Wired and Wireless connections to receive images/studies.*

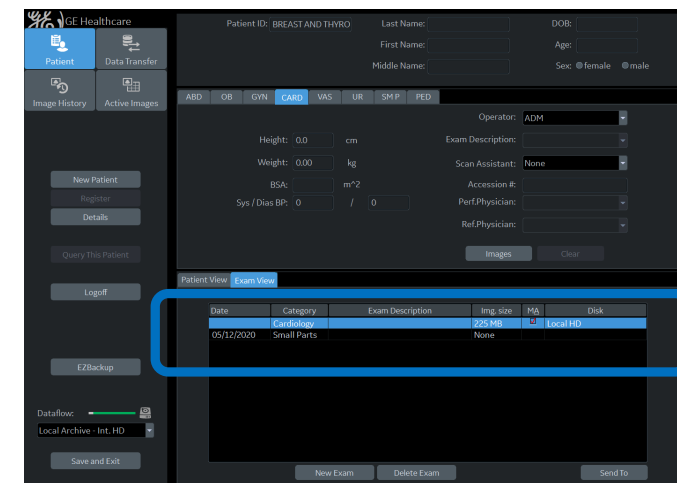
## Pushing Exams from PACS or DICOM Device:

- Set up connectivity on the sending device by GE Field Engineer or site support.
- Export desired Exam or Images from PACS (or CT/MR/US) system to ultrasound system.
- Scanner will receive the exams from sender and automatically save to scanner database.
- Exam will then be visible in patient/exam screen.



## To Open the Imported Study:

- From the patient entry page, double click on the patient name from the list at the bottom of the screen.
- Select Save and exit or push the freeze button.
- The prior images will be visible on the clipboard.
- Select any image from the clipboard to bring into full screen view.
- Select the Active Images icon to view the exam in multi-image format.



## Easy Access to PACS

### Image Transfer

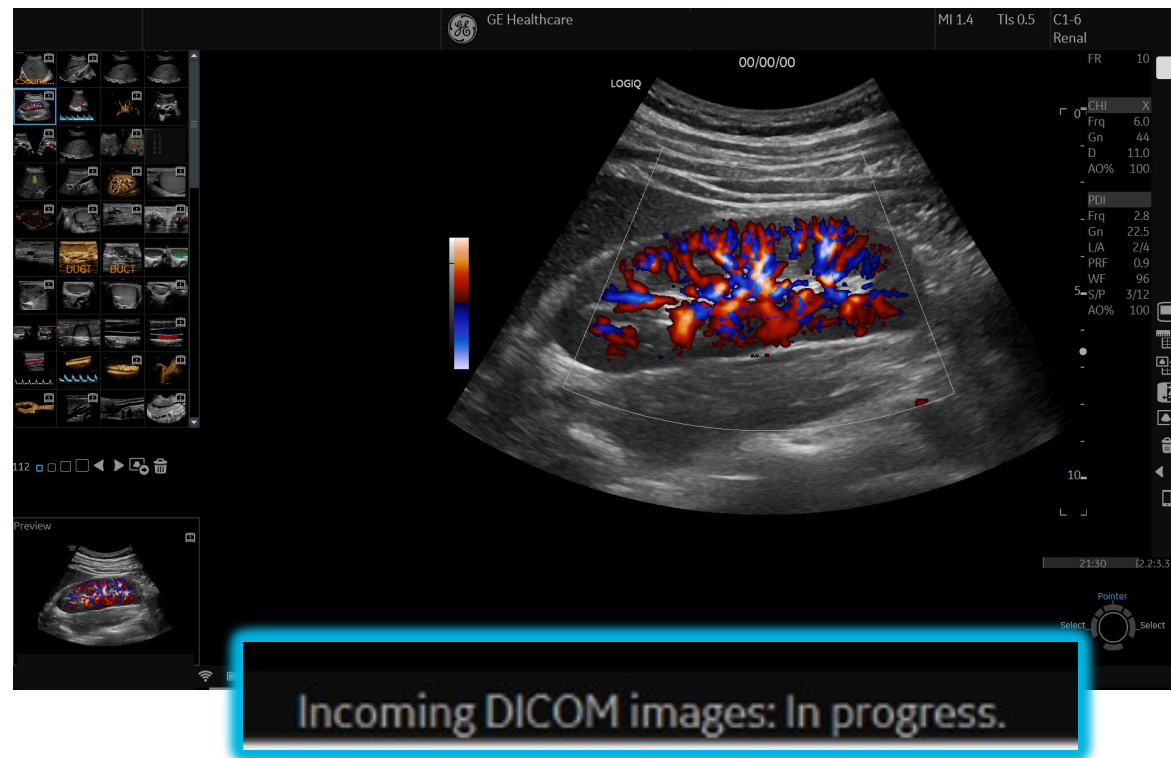
- Press F4 on the keyboard to enter the DICOM Job Spooler.
- Spooler displays the progress of the receiving exams/patients and provides the status of the receive operation.
- Under the Contents, you can see how many images have transferred and the Status of the jobs can be seen.

Contents    Status

#	Last Name	Patient ID	Destination	Type	Contents	Status	Error	Inform
7		110617-02	Dicom Imag Storage	1	1	Storage Cor		
6		110617-02	Dicom Imag Storage	1	1	Done		
5		110617-02	Dicom Perf MPPS	1	1	Pending		
4		110617-02	Dicom Imag Storage	1	1	Pending		
3			Dicom Imag Storage	0/1	0/1	Active		
2	SMITH	110617-02	Dicom Imag Storage	2	2	Failed	Failed	

↑  
Type will be Receive

Refresh    Delete...    Resend    Send To...    Hide    Select All



The system displays the incoming exam status at the bottom of the screen as:

- Incoming DICOM Images: In progress
- Incoming DICOM Images: Completed
- Incoming DICOM Images: Failed- check spooler

## Start Assistant- saves exam settings automatically, based on each exam description.

### Initial Activation

- Register Patient from Worklist
- Select Exam Category
- Select Scan Assistant(SA) Protocol
- Exit Patient Screen
- Select Probe
- Select Model
- Start Assistant mapping will automatically be saved after first image is acquired during an exam.

Saved Start Assistant exam mappings are automatically recalled when a worklist patient is chosen.

### New Workflow:

- Select Patient From Worklist
- Exam Description will Auto-Populate
- Exit Patient Screen
- System will select previously saved category, scan assistant, preset and probe.

### Notes:

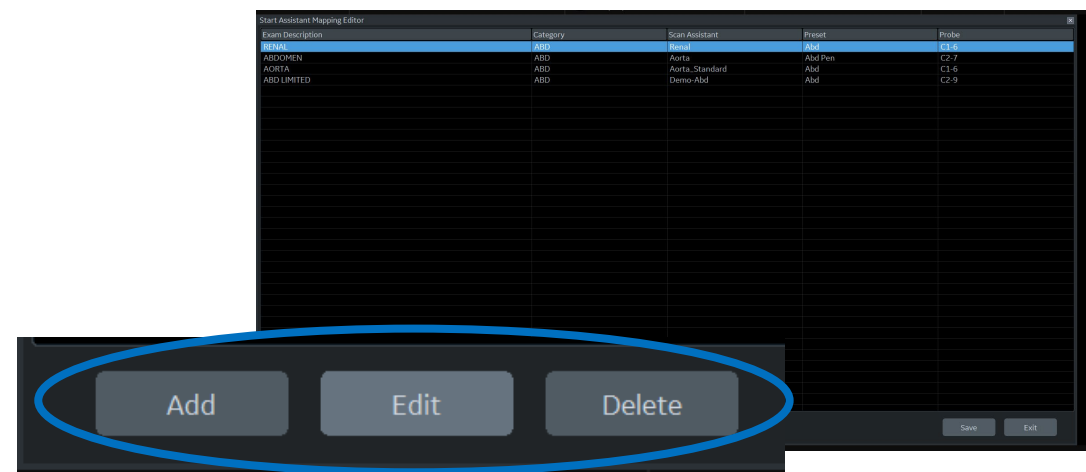
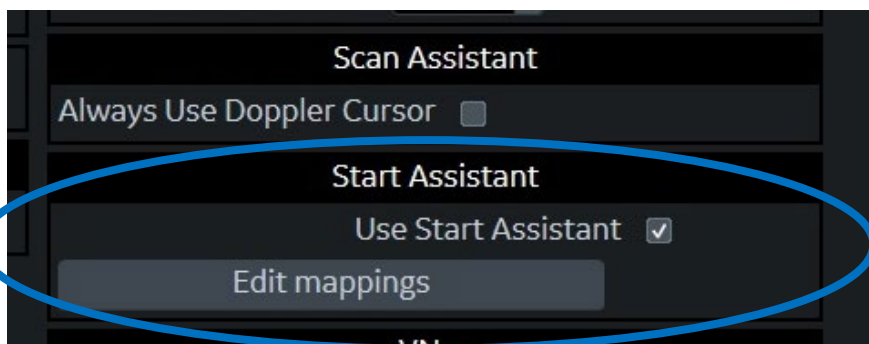
- *If the specified probe is not attached, Start Assistant does not select a probe or preset.*
- *If the new patient is entered manually (without using a worklist), and no Exam Description is entered, Scan Assistant will become the key by which the mapping is saved.*
- *An Exam Description or Scan Assistant program entry must be present for Start Assistant to save the Mapping.*
- *If you prefer to use a default probe for a selected application the Start Assistant should be unchecked. Utility-System-General Uncheck "Use Start Assistant".*

The screenshot shows the patient registration interface. At the top, there are fields for Patient ID (1000), Last Name, First Name, Middle Name, DOB, Age, and Sex (female/male). Below these are exam category buttons: ABD, OB (selected), GYN, CARD, VAS, UR, SM P, PED. Further down are fields for LMP, Gravida, Para, AB, Ectopic, Fetus #, Exam Description, Scan Assistant (set to None), Accession #, Perf.Physician, and Ref.Physician. At the bottom, there is a toolbar with various icons and settings: L2-9, C1-6 OB-2/3, RIC5-9, M5Sc, and TGC.



## Start Assistant Mapping Editor

To Add, Edit or Delete Start Assistant Programs:  
Go to Utility>System>General  
Select Edit Mappings

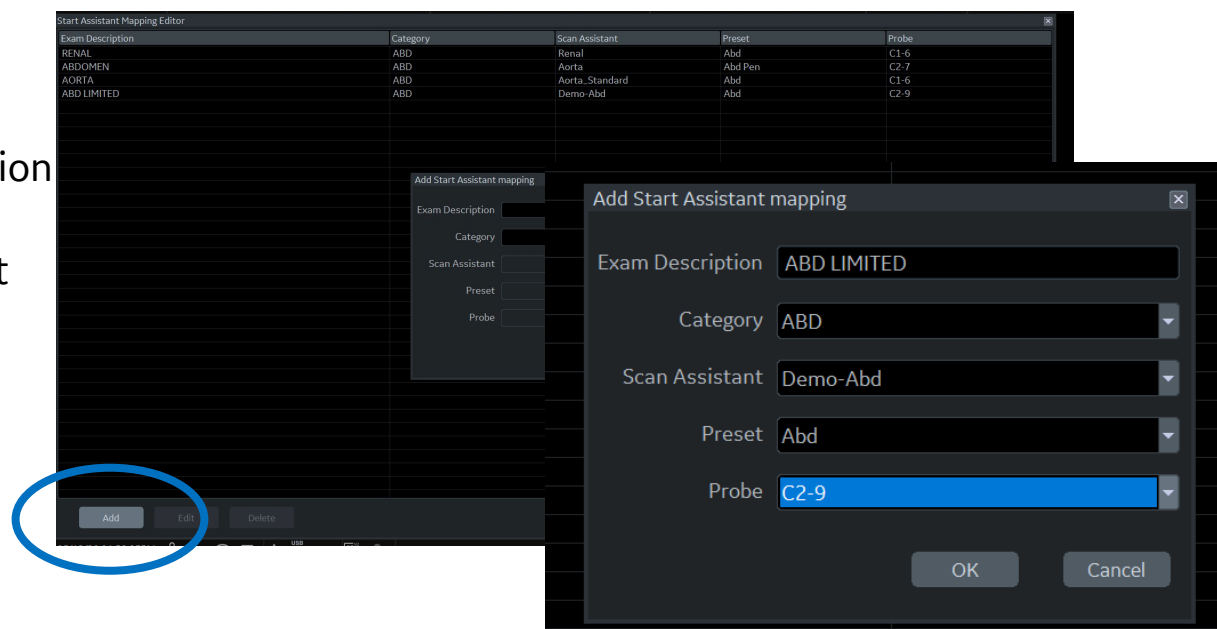


### Edit a Mapping

- Highlight an existing mapping
- Select Edit or double click the item to edit a mapping

### Add a Mapping

- Select Add
- Type in Exam Description
- Select Category
- Choose Scan Assistant Program
- Select Preset
- Select Probe
- Select OK
- Save and Exit



### Delete a Mapping

- Highlight an existing mapping
- Select Delete to delete a mapping

## Combining Scan Assistant with Start Assistant

In Edit Mappings, setting scan assistant to None means that NO Scan Assistant program will be used or that the Operator will manually select it.

### **TIPS:**

[Saving a new User Defined Scan Assistant](#), save as (example):

- Generic: CompleteAbdomen
- User Specific: CompleteAbdomen\_USR (user initials)
  - Acceptable separators are underscore, dash, or space.

### [User Specific Program name options:](#)

If several users have their own version of a Scan Assistant Program, these “User Specific” programs need to contain the User’s Initials at the beginning or the end of the program name.

Examples:

- USR\_CompleteAbdomen
- USR-CompleteAbdomen
- USR Complete Abdomen
- CompleteAbdomen\_USR
- CompleteAbdomen-USR
- CompleteAbdomen USR

### **Notes:**

*Scan Assistant selections are for the current user. You may want to put all scan assistant programs under ADM and log in under ADM before going in to edit mappings*

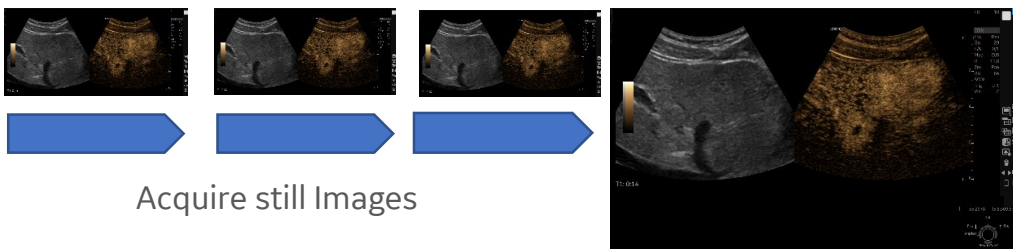
### **Example of workflow using a User Defined Scan Assistant:**

- User is logged in with their initials
- Select Patient From Worklist
- Exam Description will Auto-Populate
- Exit Patient Screen
- System will select previously saved category, preset and probe.
- Scan Assistant selected will vary dependent on Generic or User Specific program name per category
  - [First:](#) Generic – (Example: CompleteAbdomen will be selected)
  - [If NO generic program-](#) system will look for the user specific program (Example: USR\_CompleteAbdomen)
  - [Neither-](#) no scan assistant will be selected. Status bar message will appear

## Still Capture Feature Workflow

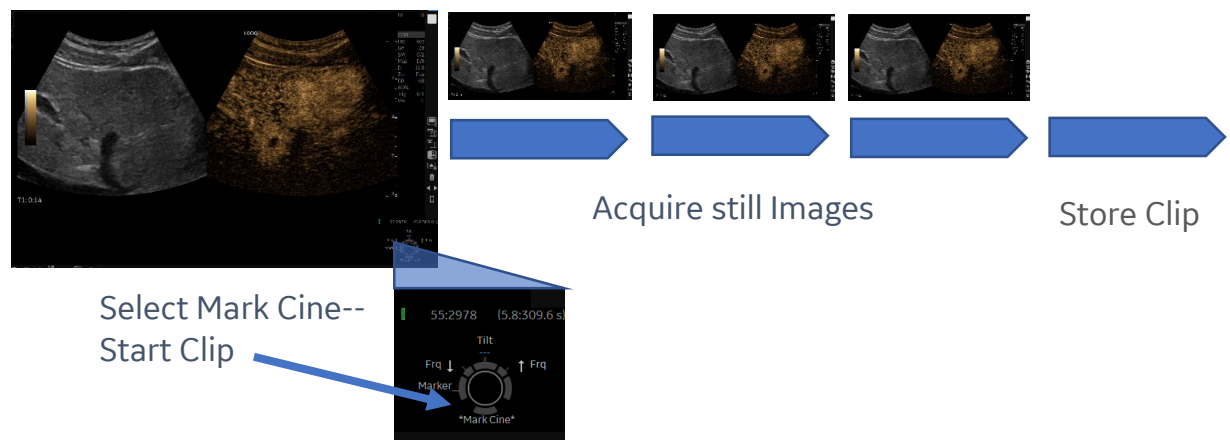
Still Capture Feature enables users to store a still image without affecting Mark CINE loop start/end and Retrospective or Prospective clip store during a contrast Exam. This is useful when a single image acquisition is desired during the Arterial, Portal Venous, or Late Phase of a contrast Exam.

### Using Still Capture feature with Retrospective Clip

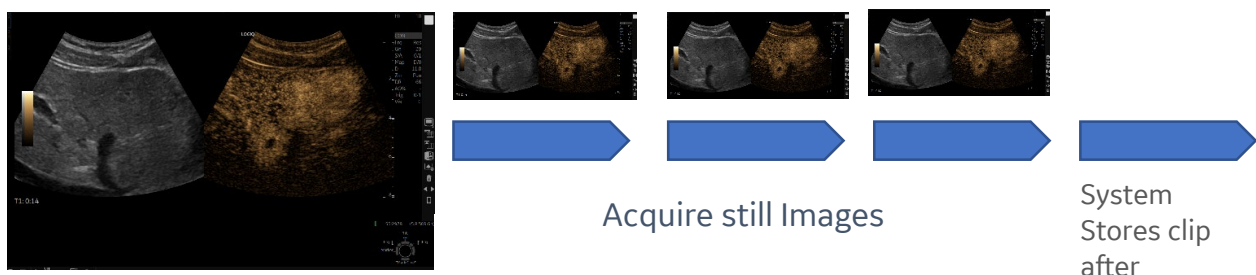


Select Print Control set up for Retrospective store. (For Ex. P2) Last amount of designated time of cine gauge will be stored.

### Using Still Capture feature with Mark Cine



### Using Still Capture Feature with Prospective Store



Select Print Control set up for prospective store (For Ex. P3)

**Note: Still Capture Clip Store feature can be used during any type of exam. This feature is not specific to Contrast package.**



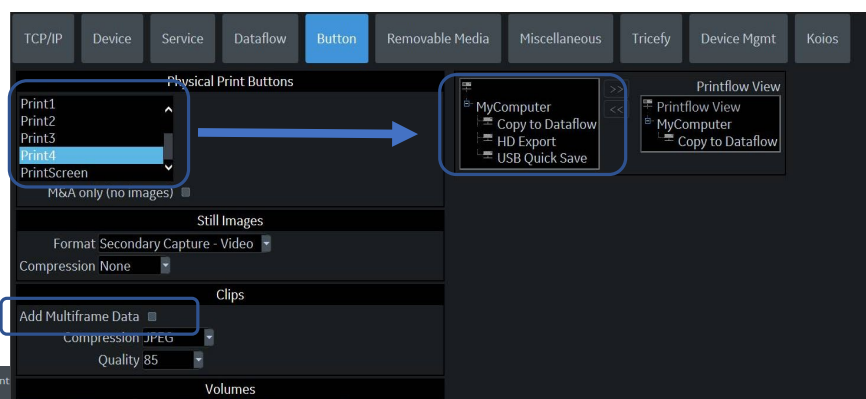
## Still Capture Feature Set-Up

Two separate print controls will need to be set up. One to acquire still images and one to acquire clip

- Select Utility>Application>Print Controls
- Specify Print control in drop down as Still Capture (For Ex. P1)
- Designate another print control as Single Image, Prospective or retrospective Clip. This will depend on what your current workflow is for acquiring clips.

## Configure data flow

- Select Utility>Connectivity>Button
- Move Copy Data Flow over to Printflow view for each assigned Print control button
- Uncheck “Add Multiframe Data”

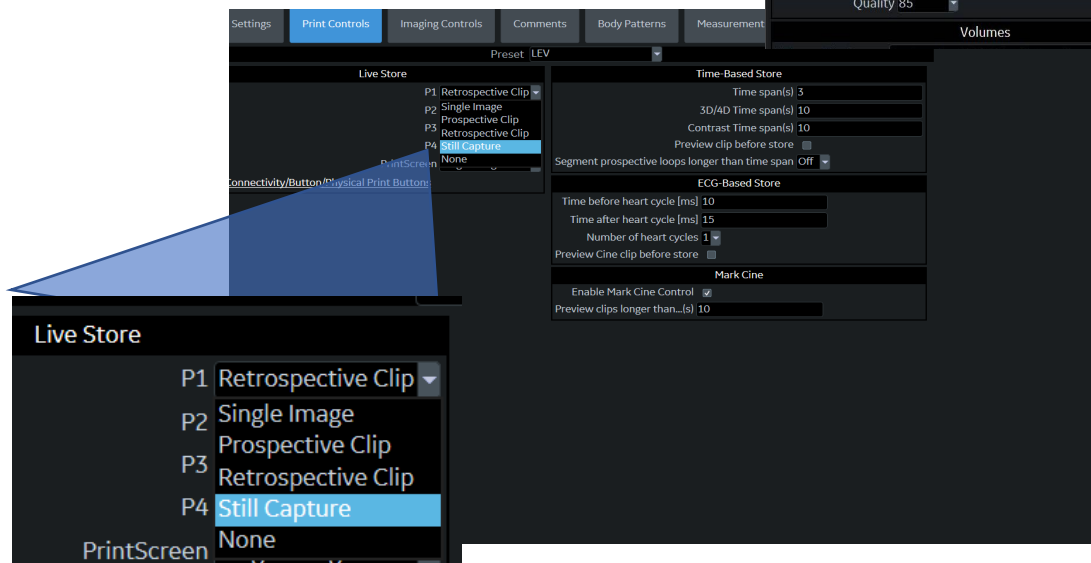


## Take Still Image during Clip Store (Mark Cine, Prospective, and Retrospective)

- Select designated print control to start Cine clip or Prospective Store. For example: Retrospective> P1
- Select designated Print Control to store still capture image as needed. For Ex. Still Capture>P2

## Tips

- Use feature when performing contrast exam and a single image needs to be acquired during clip storage
- Uncheck “Preview Clip before store”
- Under mark cine, change length of preview clip to at least 200

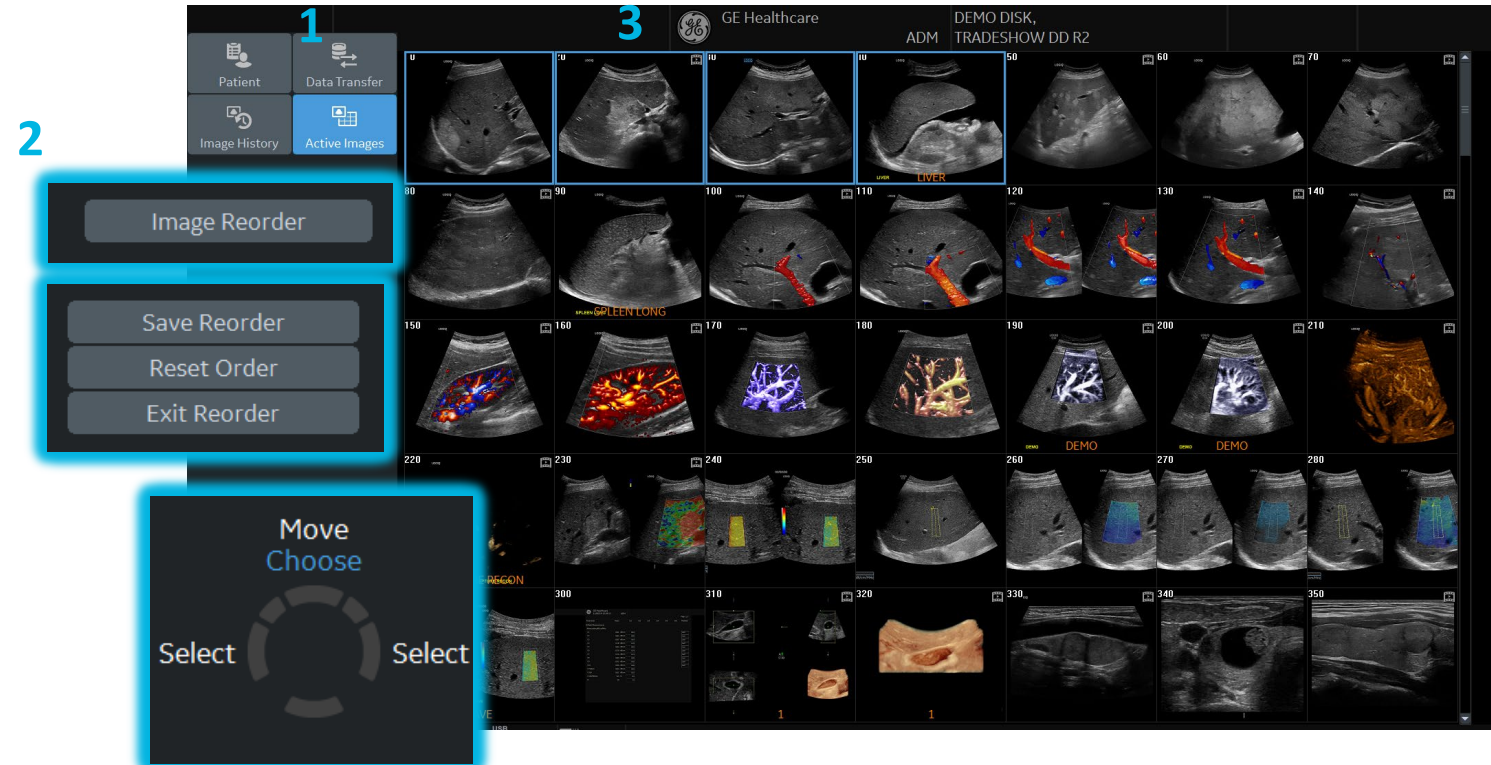


**Note:** When Mark cine is first selected, Cine Gauge will appear green. After initial single image store, gauge will turn gray, but clip is still running in the background.

## Image Reordering

Reorder the sequence of the images displayed on the Active Images screen. Images can then be sent to PACS in the new order.

1. Select Active Images
2. Select Image Reorder on the left side of the screen
3. Select the image(s) you wish to move with the left and right trackball buttons.
4. 3 ways you can freeze the selection and toggle from Choose to Move mode:
  1. Press the top trackball button
  2. Double-click the left or right trackball button
  3. Drag and drop by holding the left or right trackball button
5. Move the placement cursor with the trackball to the desired image location
6. Press the top trackball button to place the image(s) in the new location
7. Select Save, Reset, or Exit



**Save Reorder:** Saves the reordered images.

**Reset Order:** Rolls back any unsaved changes made in the order of the images.

**Exit Reorder:** Exits from the reorder mode in the active images screen. User is prompted to save or discard any changes made to the order/numbering.

Note: To use this feature, make sure system is not set to direct store

## Breast Productivity Package

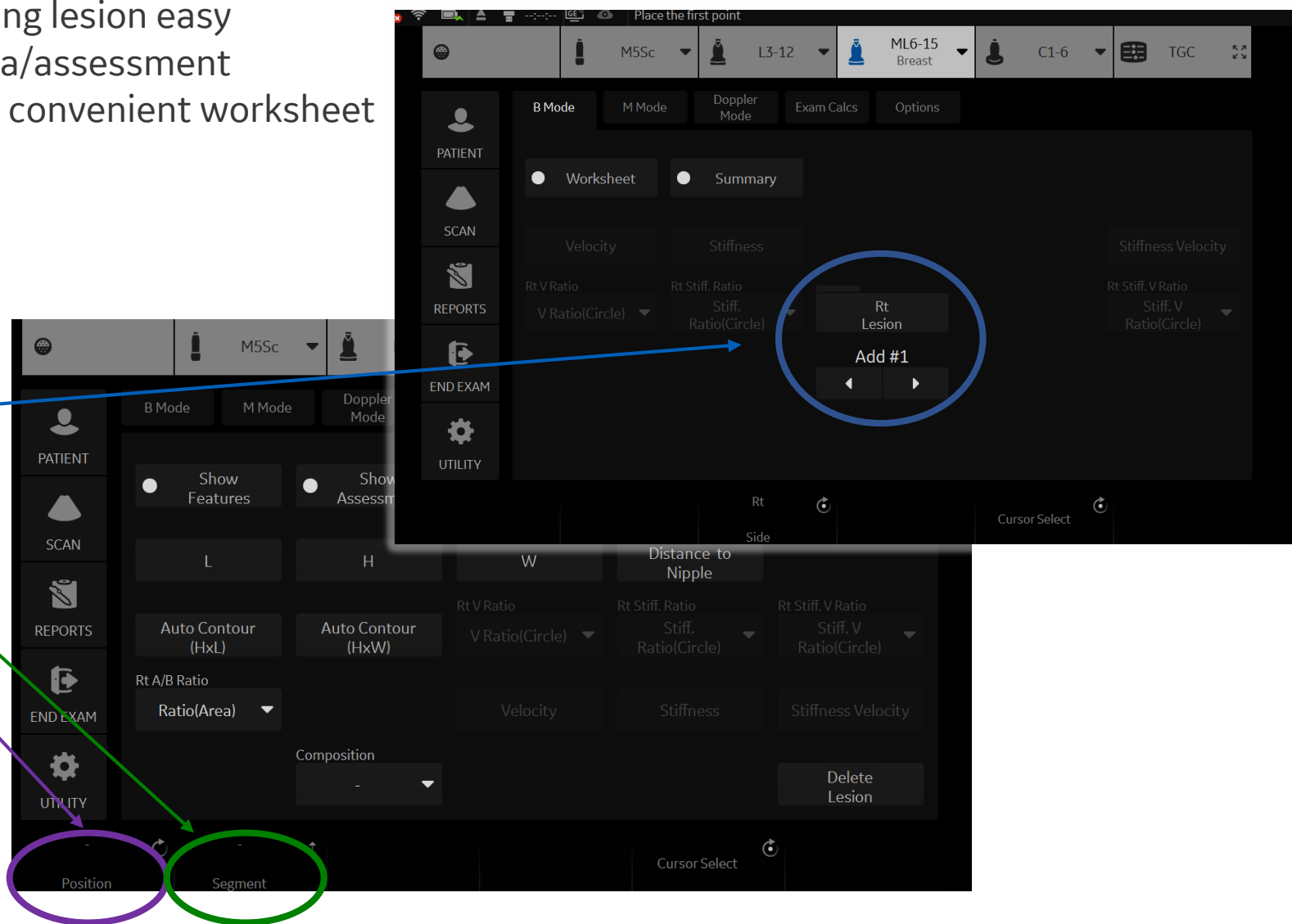
- Make labeling, measuring and describing lesion easy
- Leverage the BI-RADS® Lexicon criteria/assessment
- Organize multiple measurements into convenient worksheet
- Send results via DICOM SR

### Getting Started

1. Select Measure to activate Breast Productivity package.
2. Select **Lesion** Folder on the Touch Panel
3. Select side of scan-Use Rotary knob to change between Left/Right side at the bottom of the Touch Panel (TP)
4. Select **Position** and **Segment** using rotary knobs on the left lower region of the TP

### Measurement Options:

- Breast lesion M&A- includes lesion measurement folders, show features, summary, etc.
- Breast Measure Assistant-contains the Auto Contour feature. It also has measurements related to breast (distance to nipple, ratio).



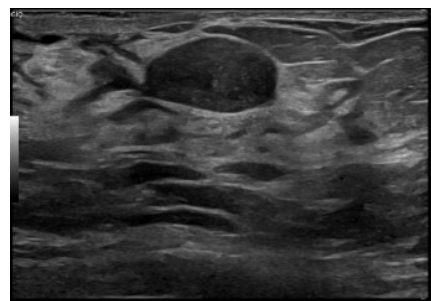
## ✓ Identify the Lesion

1. Select Lesion folder on TP
2. Press Measure



## ✓ Breast Lesion M&A

Select Length/Height/Width



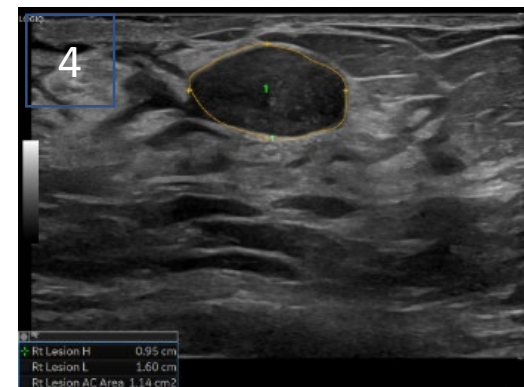
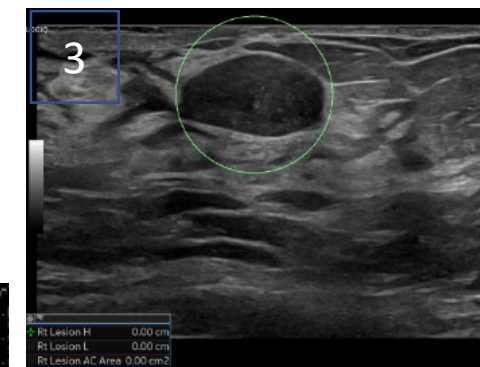
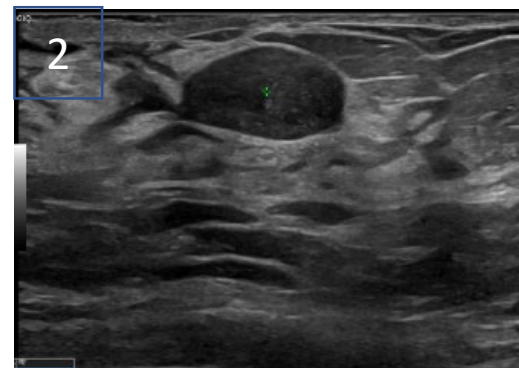
OR

## ✓ Distance to Nipple-

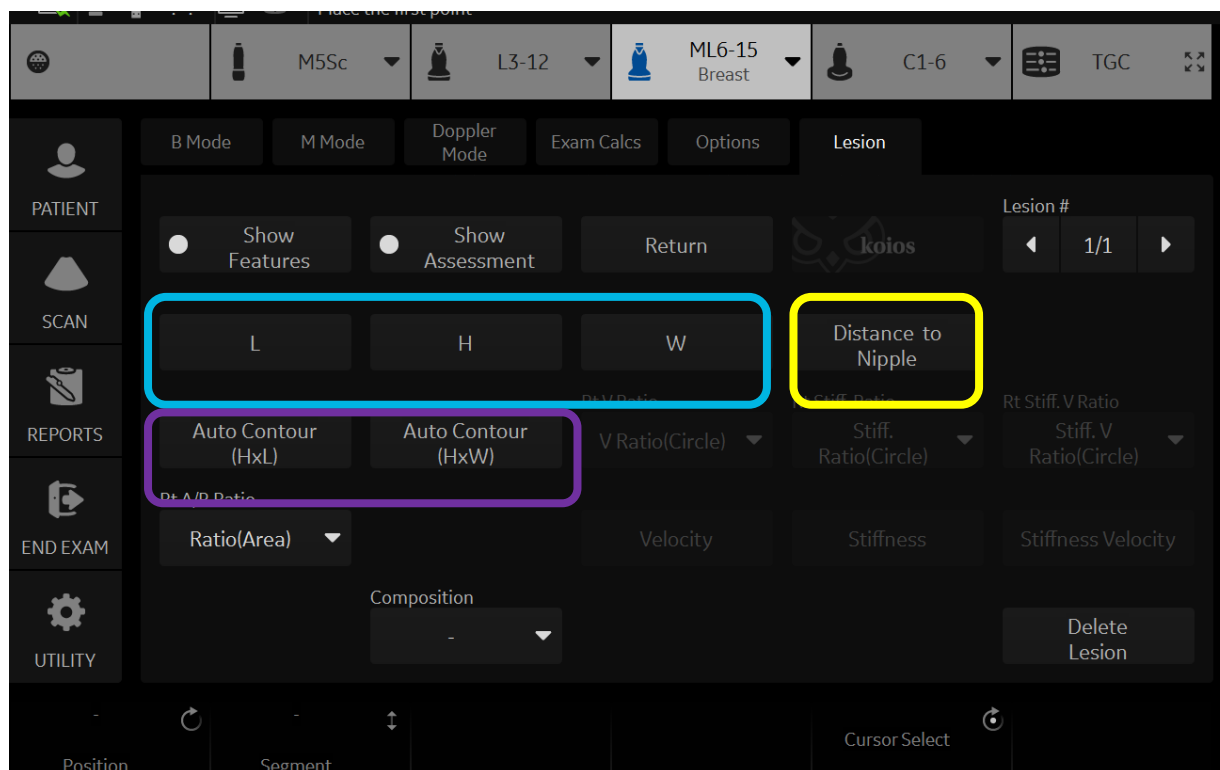
Manually enter the distance the lesion is from the nipple

## ✓ Automated Lesion Segmentation

1. Select Auto Contour on the TP- (HxL) or (HxW)
2. Place the cursor in the center of the lesion and press the Set key.
3. Identify borders of the lesion and change the size of the ROI using the trackball. Encompasses the entire lesion to include surrounding tissue. Select the Set key.



4. System will then segment lesion and generate measurements.



## Tips and Tricks

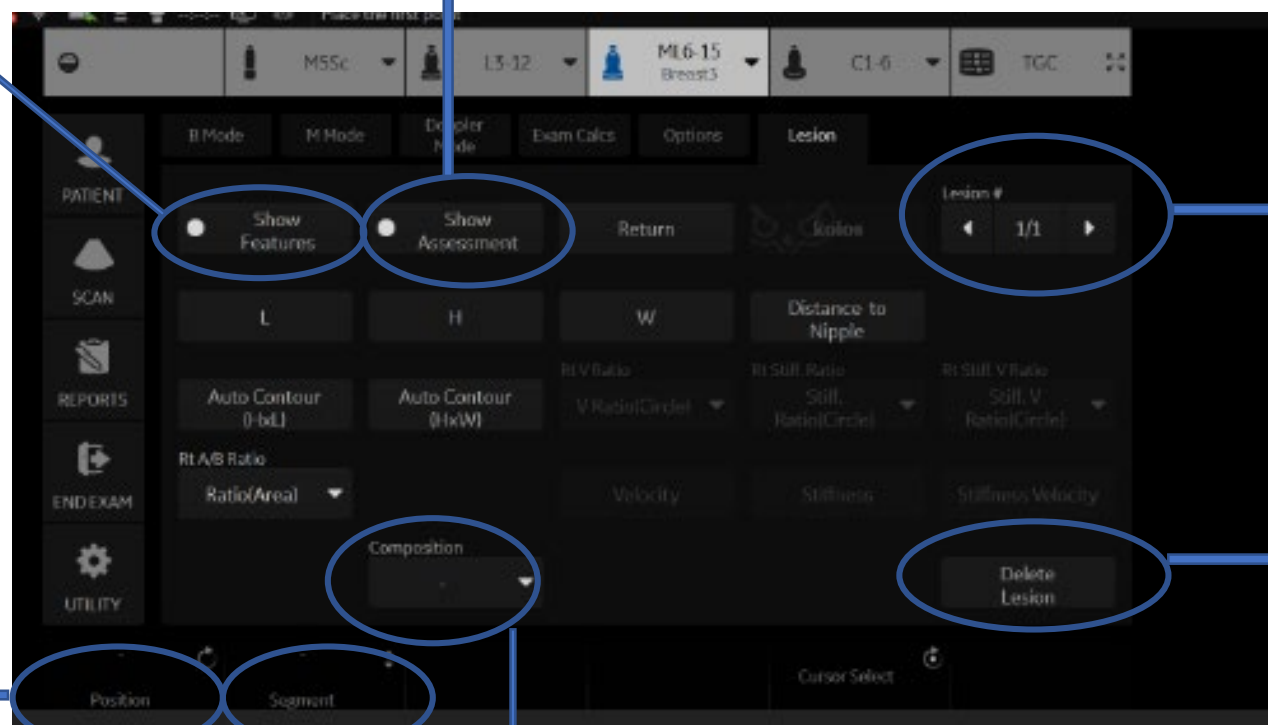
**Show Features-** Choose features to describe the lesion. Add notations for features by highlighting notation and press set.

### Available Features:

- Shape
- Orientation
- Margin
- Echo Pattern
- Posterior Features
- Associated Features
- Calcifications
- Special Cases

**Show Assessment-** specify the BI-RADS assessment:  
none(-), 0, 1, 2, 3, 4a, 4b, 4c, 5, 6  
A comment field is available directly below the BI-RADS assessment

**Elastography-** An A/B Ratio is available on the TP.  
Choices of measurements for this function include Area or Diameter



**Lesion #-** indicates which Lesion you are viewing  
Multiple lesions may be added by selecting the lesion folder and adding a new lesion

**Delete Lesion-**  
Press to delete lesion

**Position-** specify the position of the lesion:  
Clock position 1-12 O'Clock,  
Areolar, Subareolar  
Axillary, or "-" (default)

**Segment-** specify A, B, C, none or "-" (default)

**Composition-** specify the composition of the lesion:  
None, solid, cystic, or complex

**Worksheets and Summary Pages** are provided for all documented lesions.

**Note:** only defined features are displayed on the summary. To display the undefined features, select "Show Undefined Features" at the bottom of the summary worksheet.



# Thyroid Productivity Package

## Getting Started

1. Select Measure to activate Thyroid Productivity Package.
2. Use Rotary knob to change between Right or Left thyroid, and isthmus at the bottom of the Touch Panel (TP).
3. Choose folder specific to the area of interest (Options are: Isthmus, Thyroid, Parathyroid, Lymph node, Nodule).

## Measure

1. Once folder is selected, the L, H, and W measurements will become available. Use Trackball and Set keys on either side of the trackball to measure.
2. After measuring area of interest, select Location A and Location B. Toggle rotary knobs up and down between selections, then choose desired locations.
3. Store image after measurements are completed. These measurements will then transfer to the Worksheet/Summary page.

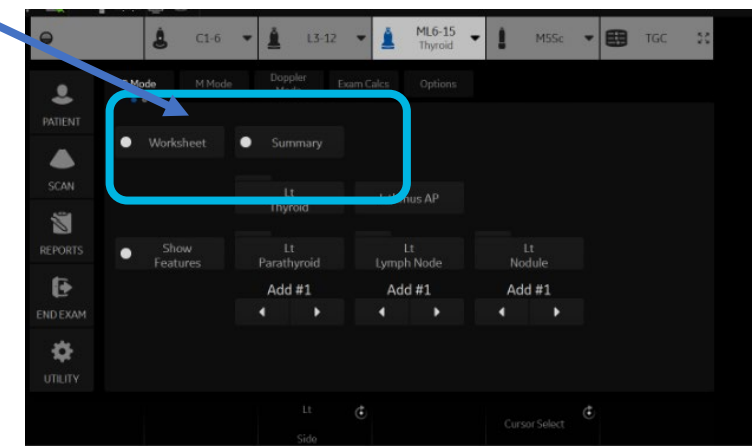
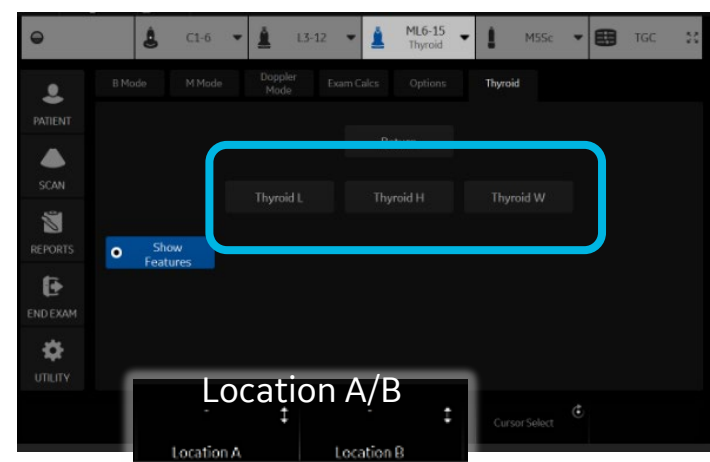
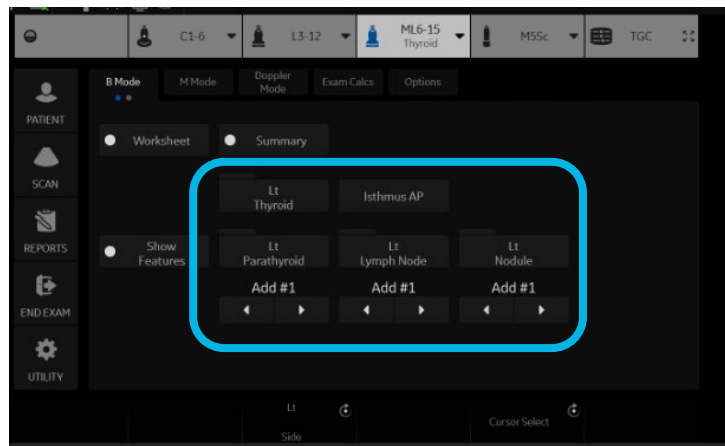
## Location:

**Parathyroid:** Specify Upper Gland or Lower Gland

**Lymph Node:** Supraclavicular fossa, Lower cervical, Middle cervical, Upper cervical, Parotid, Submandibular, Submental, Posterior triangle

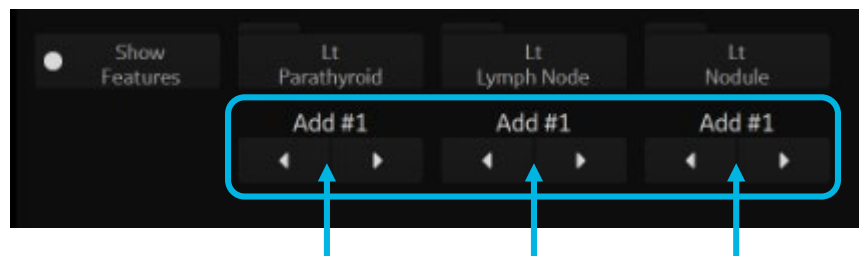
## Nodule:

- Location A: Upper, Lower, Mid, None
- Location B: Lateral, Medial, Midline, None



## Adding/Editing

Enter multiple measurements by selecting the Nodule, Lymph Node or Parathyroid Folder. When adding a new nodule, add #2, 3, 4, etc. For example, after measuring first nodule, select Return on the Touch Panel. Then select nodule folder. This will add an additional nodule to be measured. When editing, folder will appear open and Edit will be shown.



This selection control indicates what action the folder above it is going to take when pushed.

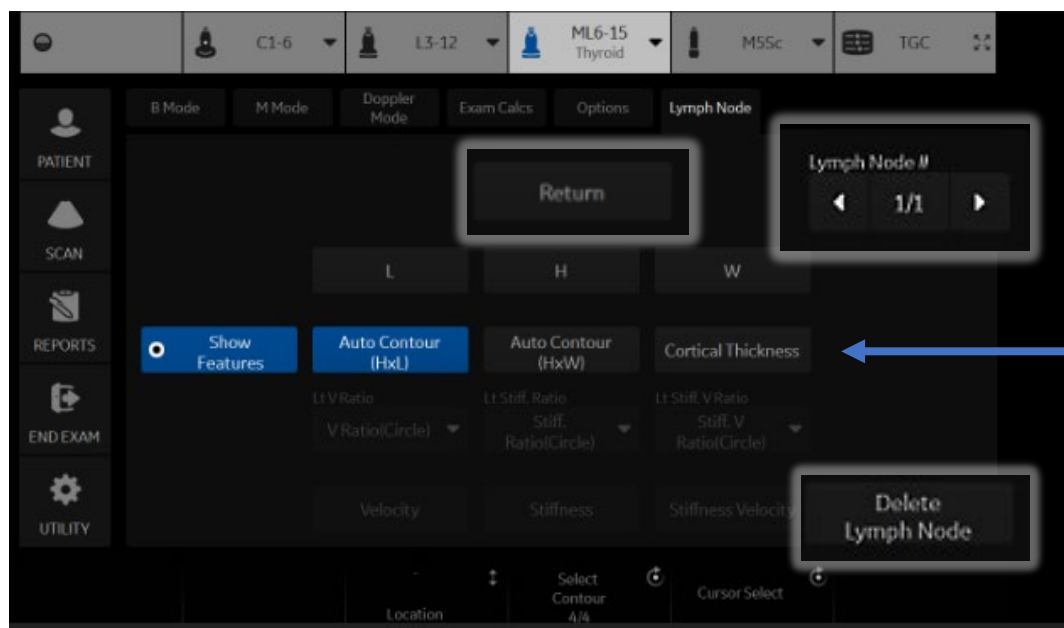
**Note:** Up to 30 Rt/Lt thyroid, lymph nodes and nodules can be added or edited

## Deleting

Select Delete Button on Touch Panel to delete current nodule or node that you are measuring.

## Tips

- At any time, select Return on the Touch Panel to return to previous page or select measure again to exit the productivity package.
- More than one characteristic may be selected. Features/Characteristics that have an (\*) allow user to select more than one Feature within those selections.



Cortical Thickness Is available for Lymph nodes

## Characterize Thyroid, Parathyroid, Lymph node or Nodule

1. Select the show features button on the TP to describe the characteristics of the Thyroid, Parathyroid, Lymph node or Nodule which is being measured.
2. Place arrow over selection and choose from items in Drop Box.
3. Add additional comments as needed in Comments box.
4. At the end of the exam, select Worksheet to view measurements and Summary to view Features and Measurements.
5. Select Exit to get back to Measurement Package.

### ACR® TI-RADS™

**Lt/Rt/Isthmus Nodule**-The selections for each category/feature and associated points match the ACR TI-RADS (Thyroid Imaging Reporting & Data System) risk-stratification system as published in 2017 by ACR. After assigning one or more value to each feature, the points are summed and the corresponding ACR TI-RADS level is determined.



**1** Show Features

**2** Round

**3** Comment

**4**

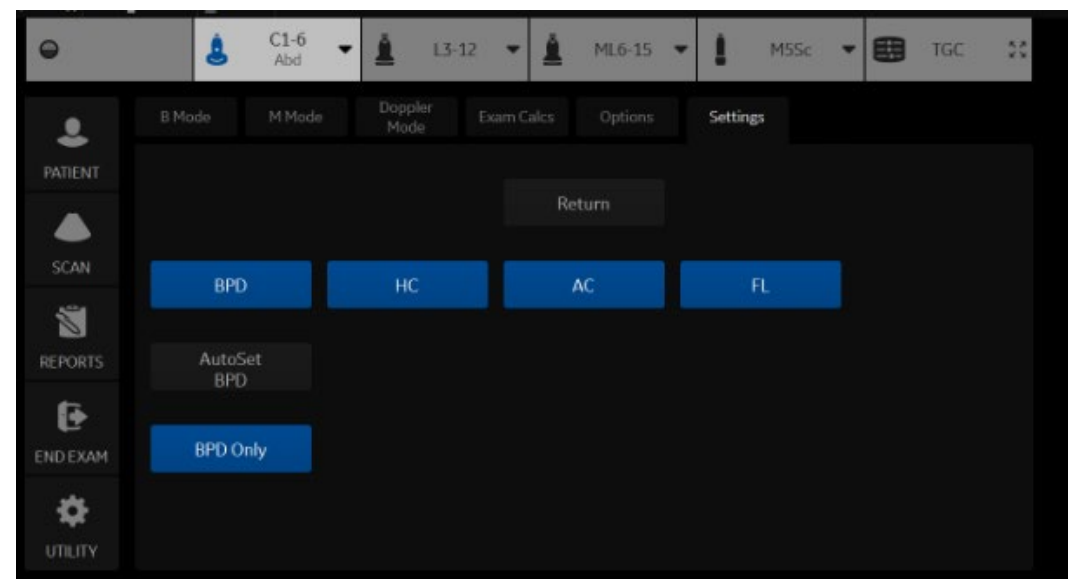
Rt Nodule 1	
Size(LxHxW)	- x 1.12 cm x 0.72 cm
Composition	Spongiform (0 point)
Echogenicity	Hypoechoic (2 points)
Shape	Taller-than-wide (3 points)
Margin	Smooth (0 point)
Echogenic Foci	Comet (0 point)
<b>Total points</b>	<b>5</b>
<b>TI-RADS level</b>	<b>TR4</b>
<b>TI-RADS source</b>	<b>ACR 2017</b>

## OB Measure Assistant- system will auto-detect the borders of specified OB Measurements

Touch Panel Settings	Description
Default	When you first activate the Measure Assistant Touch Panel, the following measurements are highlighted: BPD, HC, AC, FL. This means that OB Measure Assistant is active for all these measurements.

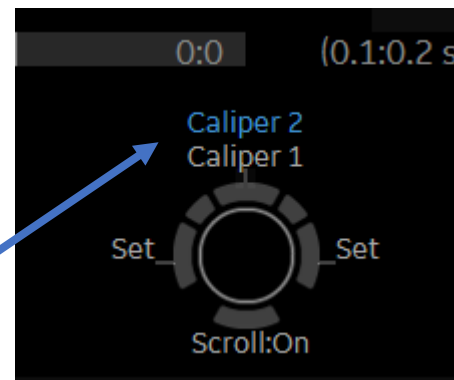
There are four (4) BPD Auto Custom Settings:

1. BPD Highlighted	BPD and HC OB Measure Assistant is generated one at a time. BPD is auto generated→Edit/Set HC is auto generated→Edit/Set→Done
2. BPD + Auto Set BPD	BPD and HC generated at the same time. BPD +HC is auto generated the HC is in an editable state→Edit/Set→Done Use the cursor select to toggle to BPD for edit if needed.
3. BPD + BPD Only	Only the BPD is auto generated→Edit/Set→ Done
4. No Highlight	User must perform these measurements manually

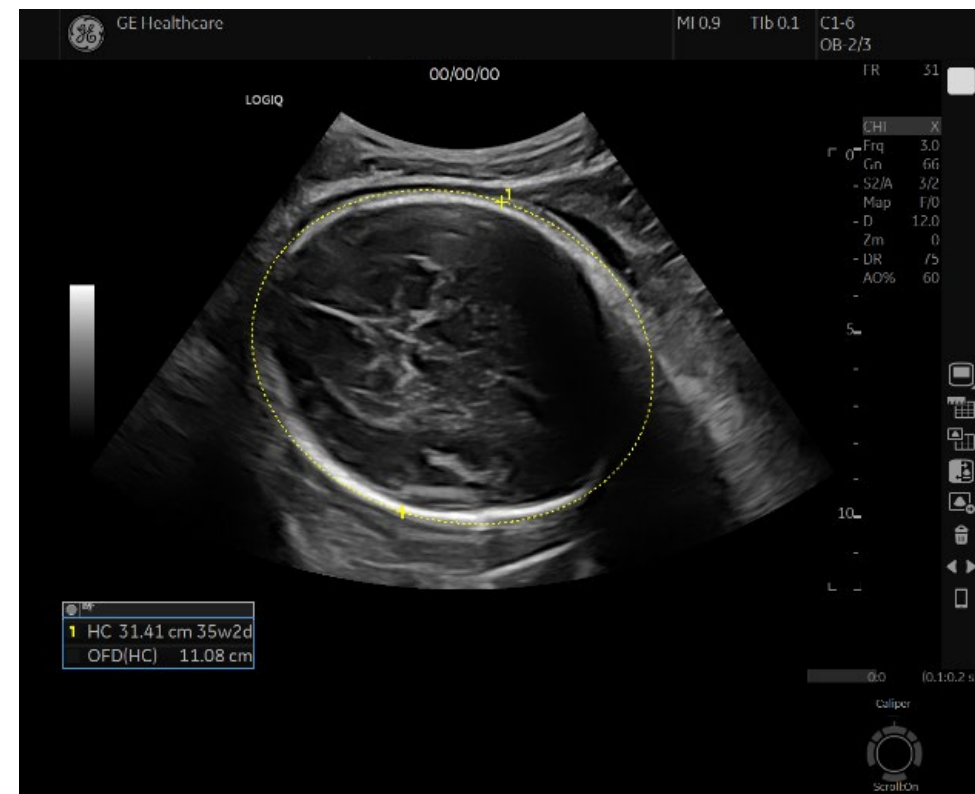
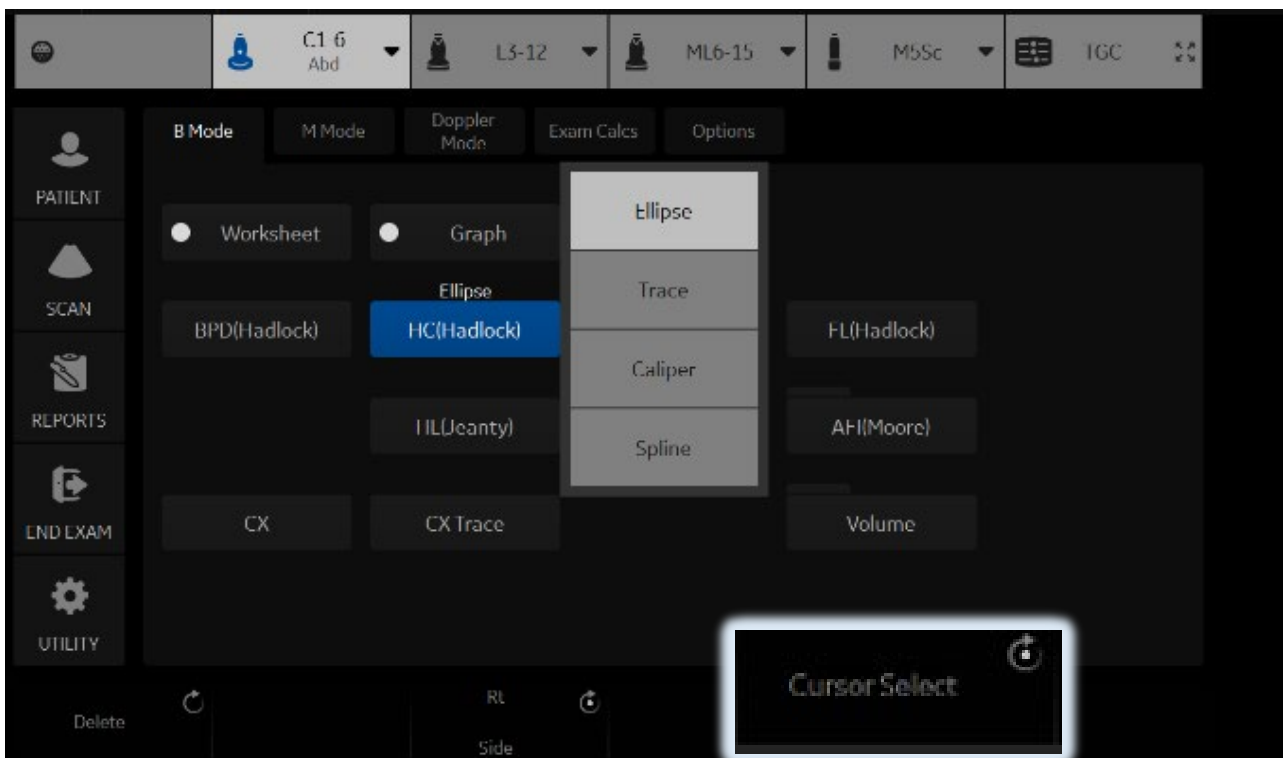


## To automatically trace the fetal anatomy on the display:

1. Press Measure on the OB Touch Panel
2. Press the measurement (BPD, HC, AC, FL). The trace is auto generated on the display
3. To edit the selected measurement graphics:
  1. Move the trackball to appropriately size the region of interest
  2. Edit the calipers by selecting Caliper 1 or Caliper 2 on the trackball
  3. Adjust the circumference using the Ellipse key
  4. Press set on the trackball to complete the measurement



**Note:** If the system was not able to detect the anatomy automatically, measurement calipers are displayed in the center of the screen in an editable state and a message is displayed on the status bar.



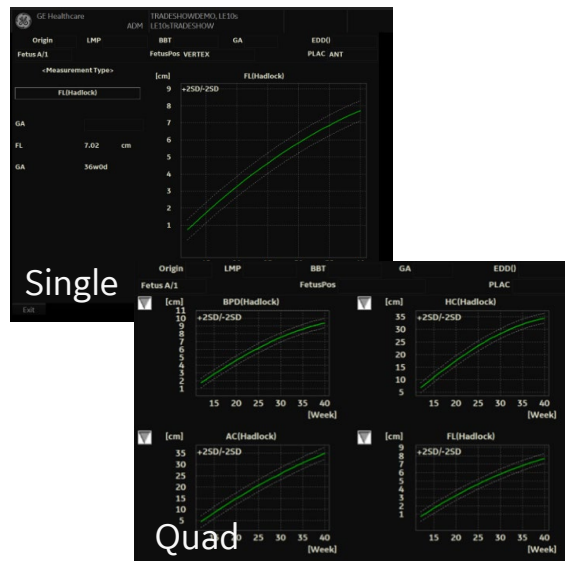


## OB Graphs- allow you to assess fetal growth compared to a normal growth curve.

**Fetal Growth Curve Graphs** – Shows one measurement per graph. These graphs show the normal growth curve, positive and negative standard deviations or applicable percentiles, and ultrasound age of the fetus using the current measurement.

To view OB Graphs:

1. Press Measure
2. Select Graph.



**Note:** For multi-gestational patients you can plot all fetuses and compare the growth on the graphs.

### The Fetal Growth Bar Graph-

Shows current exam measurements and the normal growth range based on the gestational age. It shows all measurements on one graph.

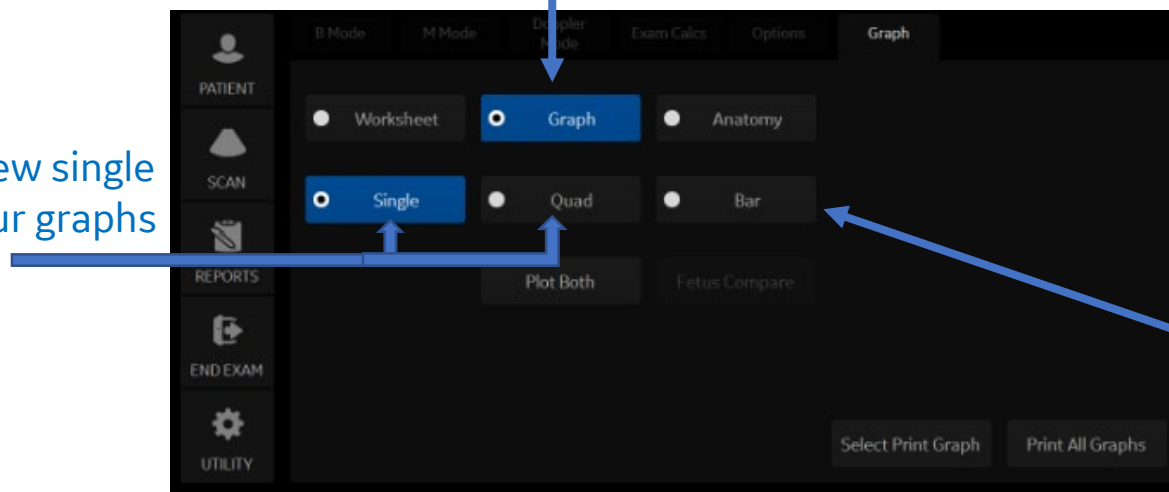


To view the Fetal Growth Bar:

1. Press Measure
2. Select Graph
3. Select Bar

**Note:** You cannot do fetal trending or view multiple gestation data on the bar graph.

To view single or four graphs



The Fetal Growth Curve Graph shows the following information for the selected measurement:

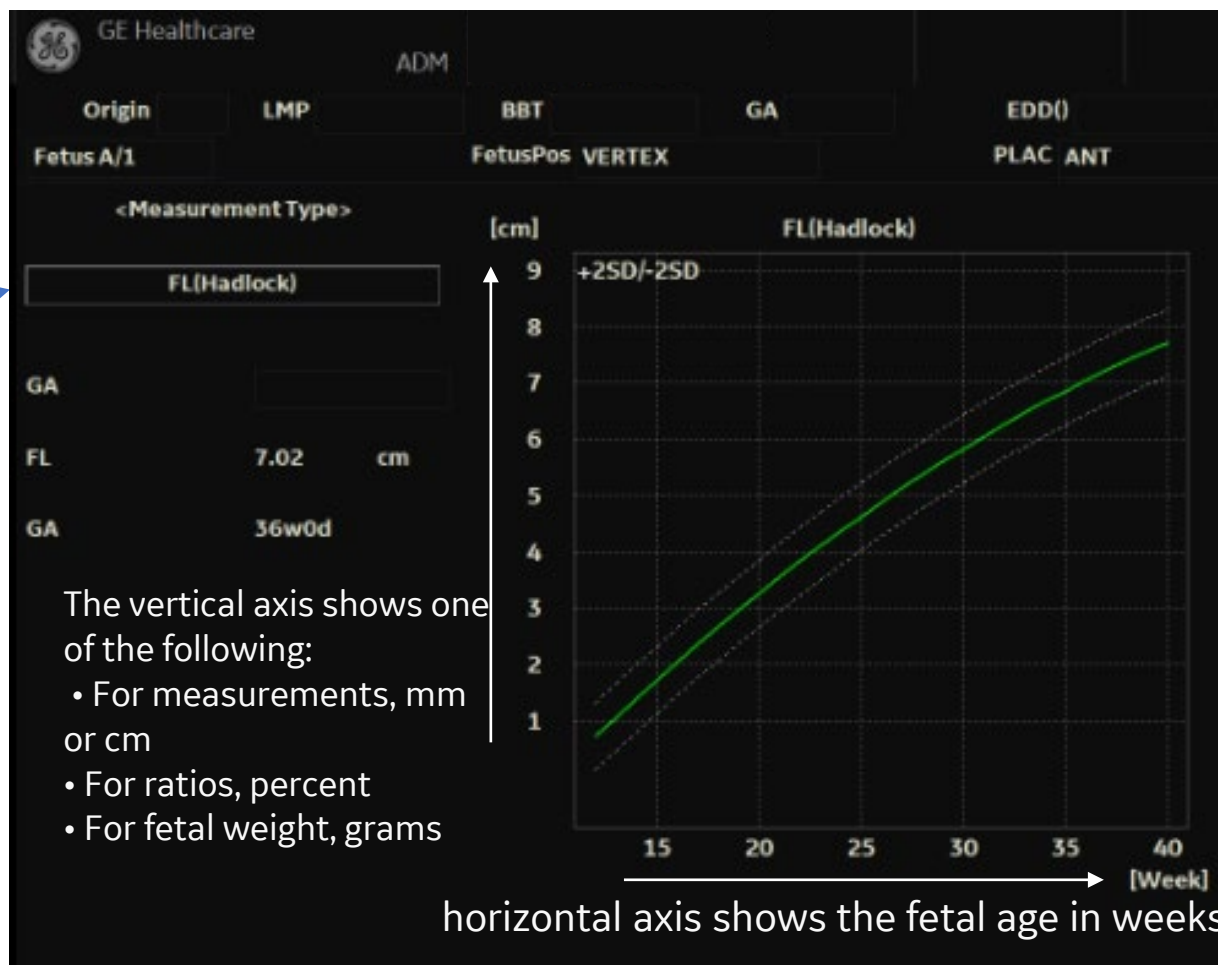
- The normal growth curve
- The standard deviations or relevant percentiles
- The gestational age of the fetus, using patient data (vertical dotted line)
- Using the current ultrasound measurement data, where the fetus is on the growth curve

To select which measurement you want to display on the Fetal Growth Curve Graph, do one of the following:

- To select a specific measurement:
  - On the graph display, move the **Trackball** to the Measurement Type field and press **Set**. The system displays a list of measurements.
  - Move the **Trackball** to select the desired measurement and press **Set**. The system displays the Fetal Growth Curve Graph for the selected measurement.
- To scroll through all Fetal Growth Curve Graphs, adjust the Graph Change control on the Touch Panel.



To plot the fetus age: the system allows you to use the gestational age (GA) from the LMP by using the “Select GA” control on the Rotary knob. You may also choose to use the ultrasound age by selecting CUA or AUA on the worksheet.



**Fetal Trending** -When you have ultrasound data for more than one exam for a patient, you can use the data to look at fetal trending on the Fetal Growth Curve Graphs.

1. Select Graph Display and select the desired Fetal Growth Curve Graph.
2. Select Plot Both.

The system automatically finds the data from previous ultrasound exams and displays it on the graph with the present data.



**Note:** The legend at the bottom of the graph shows the symbols and colors that indicate Past and Present data.

**To Manually Enter Past Exam Data**-If you have data from a previous ultrasound exam that you want to use for fetal trending, but it is not in the system, you can manually enter the data.

1. After you have registered the patient for this exam, on the Patient Data Entry screen, in the Exam Information (Obstetrics) section, select Past Exam. The system displays the Input Past Exam screen.

The screenshot shows the 'Input Past Exam Data' screen. At the top, there are 'Prev' and 'Next' buttons. Below them is a table with columns for Exam Date, EFW, BPD, HC, AC, and FL. The units are g, cm, cm, cm, and cm respectively. The 'Exam Date' column has a sub-label '(mm/dd/yyyy)'. Below the table, there is a note: 'Past Exam Data is used for plotting on Fetal Trend Graph only.' At the bottom, there are 'Cancel' and 'Exit to Save' buttons. A blue arrow points to the 'Next' button.

2. To enter data on page 2, select Next.

3. After you enter the previous exam data, select Exit to Save.

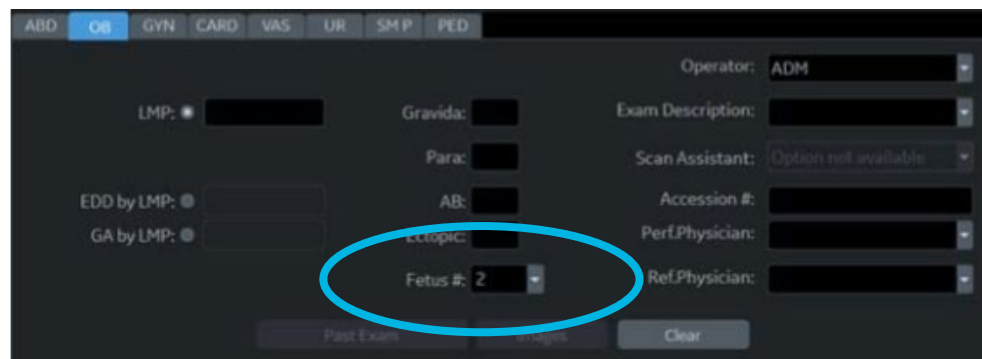
The system saves the previous exam data. When you view the Fetal Growth Curve Graphs, select Plot Both to view fetal trending. The system automatically uses the data you entered.

## Multiple Gestation- measure and report multi-gestation development. (Maximum of four fetuses)

### To view multi-gestation data on graphs:

After you have made measurements for each fetus, select Graph.

- To view the graph for each fetus, do one of the following:
  - Adjust the Fetus selection.
  - In the Patient Data section, move the Trackball to highlight the Fetus# field. Using the drop-down menu, select the fetus number you want, and press Set.



- To display data for multiple fetuses on the same graph, select Fetus Compare.

**Note:** The legend at the bottom of the graph shows the symbols and colors that represent each fetus.

### To compare multi-gestation data on a worksheet:

With multiple fetuses, you can list and compare measurements of the fetuses on the worksheet.

- Select Worksheet, then select Fetus Compare. When you select Fetus Compare, the system lists the measurement results for each fetus on the Worksheet.

### To Show Fetal Trending for Multiple Fetuses:

When you have data for more than one exam, you can show fetal trending and compare fetuses on one graph.

- Select Graph.
- Select Fetus Compare.
- Select Plot Both.

**Note:** You can only view fetal trending for multiple fetuses in single graph display.

The symbol key for fetal trending and multiple fetuses is shown at the bottom of the graph.



## Imagination at work

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