Add regions to be redacted

You can add multiple regions to a mask.

1. Select **Settings**.
2. Under **Preferences**, select **Confidentiality Masks**.
3. In the **Masks** area, select a mask. The **Mask Regions** area shows the regions defined for the mask.
4. Under the **Mask Regions** area, select **Add**. You can also select an existing region and select **Copy**.
5. Enter the following information:
   - **Top** Top of the region to be redacted (in pixels).
   - **Left** Left side of the region to be redacted (in pixels).
   - **Width, Height** Height and width of the region to be redacted (in pixels).
6. Select **Save**.

Edit or delete a confidentiality mask or region

1. Select **Settings**. Under **Preferences**, select **Confidentiality Masks**.
2. Select a mask or mask region.
3. Select **Edit**. Modify the details, then select **Save**.
   or
   Select **Delete**.

Refresh the confidentiality masks or regions list

1. Select **Settings**. Under **Preferences**, select **Confidentiality Masks**.
2. Select **Refresh** to view the latest changes made by all users.

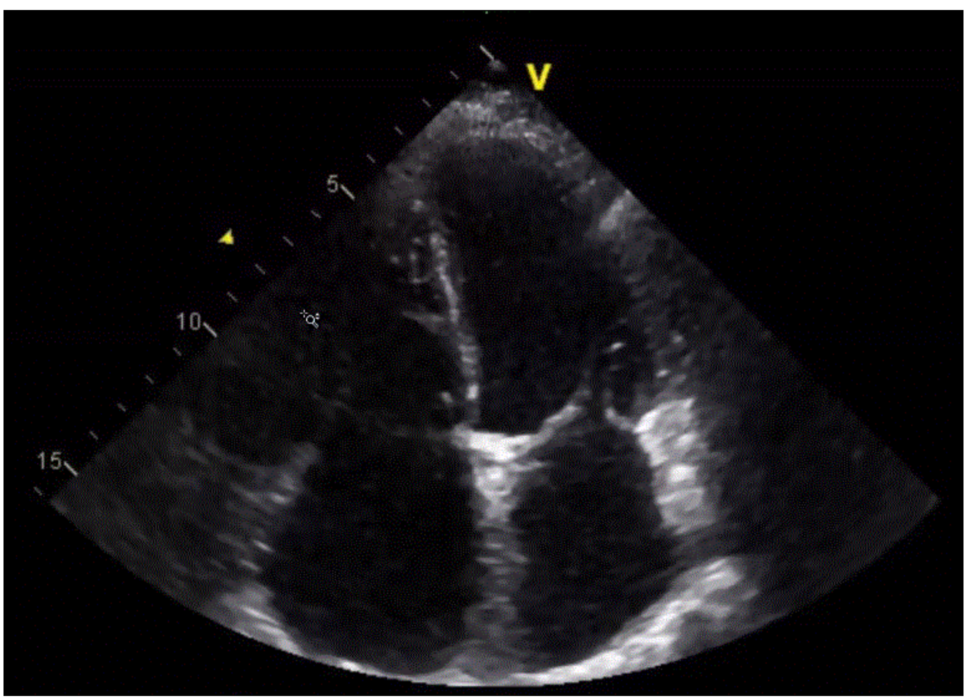
Left Ventricle Ejection Fraction (LVEF)

The Left Ventricle Ejection Fraction (LVEF) function is used to estimate the volume of blood pumped out by the left ventricle of the heart.

The LVEF measurement is based on estimation of the volume of left ventricle at two different states: End Diastole (when the left ventricle is at its maximum volume) and End Systole (when the left ventricle is at its minimum volume). The volume of the left ventricle is estimated using the Simpson method on cardiac ultrasound images in Apical 4 Chamber (A4C) and Apical 2 Chamber (A2C) views.

> **Note**
> It is more convenient to perform this measurement in 1x1 view. Switch to 1x1 view if the current view is different.

1. Begin the measurement by loading an ultrasound series with an Apical 4 Chamber view of the heart.
2. If Cine is playing, stop it by selecting the **Cine Stop** button on the toolbar.

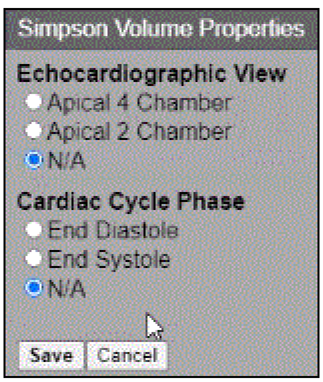


Selecting the end diastole

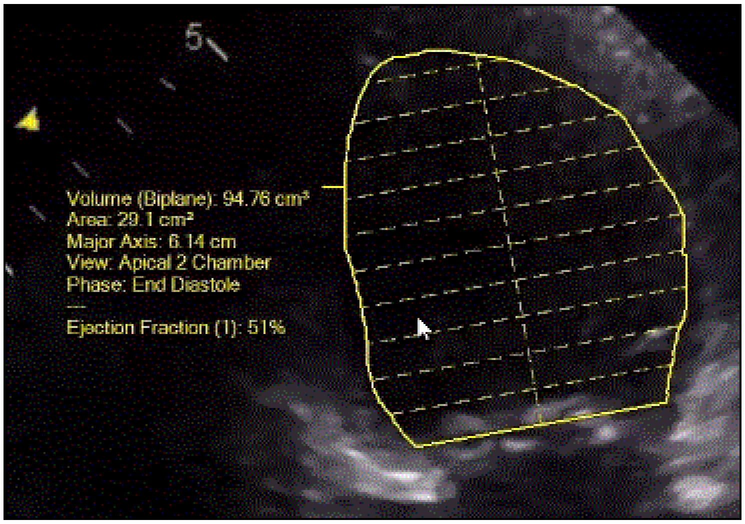
Find the image of end diastole inside the series by using the ECG signal as an aid, or visually locating the image with maximum contraction of the left ventricle..

Measuring the volume using the Simpson method

1. From the menu bar, select **Annotation | Cardiology | Simpson Volume**.
2. To start marking the area of the left ventricle, click in the corner at one end of the mitral valve annulus, and drag the mouse around to the other end of the annulus, encapsulating the entire chamber. When the mouse is released, the Simpson Volume Properties dialog box is displayed.



3. Under **Echocardiographic View**, select the type of the view in this image.
4. Under **Cardiac Cycle Phase**, select the phase to which this cycle corresponds.
5. Click **Save**. An information box displays on the image and contains the measurement details including volume, area, major axis, view, and phase. If an end systole measurement has not been performed, the Ejection Fraction information is not shown.



Notes

The Ejection Fraction value will be displayed only after volumes for both End Diastole and End Systole phases are measured. The Biplane label on volume measurement means that the measurement uses biplane Simpson method, which requires performing the measurement on both Apical 4 Chamber and Apical 2 Chamber views as will be explained further below.

You can adjust the position and direction of the major axis of the ventricle by moving the apex point along the ventricle contour. Specifically, you can:

- Adjust end points of the contour by moving them slightly
- Adjust direction of the major axis by moving the apex point along the ventricle contour
- Adjust part of the contour by redrawing only this portion, beginning at some position on the contour
- As you make the adjustments, measurement values will be updated

Selecting the end systole

1. With the current series still selected, locate and open the image of end systole by using the ECG signal as an aid, or visually locating the image with maximum contraction of the left ventricle.
2. Repeat steps 1-6 outlined in the previous section.

The measurements made are automatically saved. In addition, after the Simpson Volumes are measured for end diastole and end systole, the ejection fraction value is computed and displayed on each of the measurements.

Improving precision using biplane Simpson volume

If the study contains a series of Apical 2 Chamber views, additional measurements can be performed on this view to improve precision of the left ventricle volume and ejection fraction.

1. Select the series with the Apical 2 Chamber view.
2. Measure the Simpson Volumes at the end diastole and end systole points, as done for the Apical 4 Chamber view.
3. From the menu bar, select **Annotation | Cardiology | Simpson Volume**.
4. In the Simpson Volume Properties dialog box, select **Apical 2 Chamber**.
5. Select the appropriate **Cardiac Cycle Phase**.

The following occurs:

- The values of the volumes are computed using biplane Simpson method.
- The value of ejection fraction will be updated.
- The values are updated on the measurements of the Apical 4 Chamber view as well.

Viewing all volumes used for ejection fraction calculation

There are two methods for viewing the calculation volumes:

Method 1:

Right-click on any of the Simpson volumes and select **Show Related volumes**.

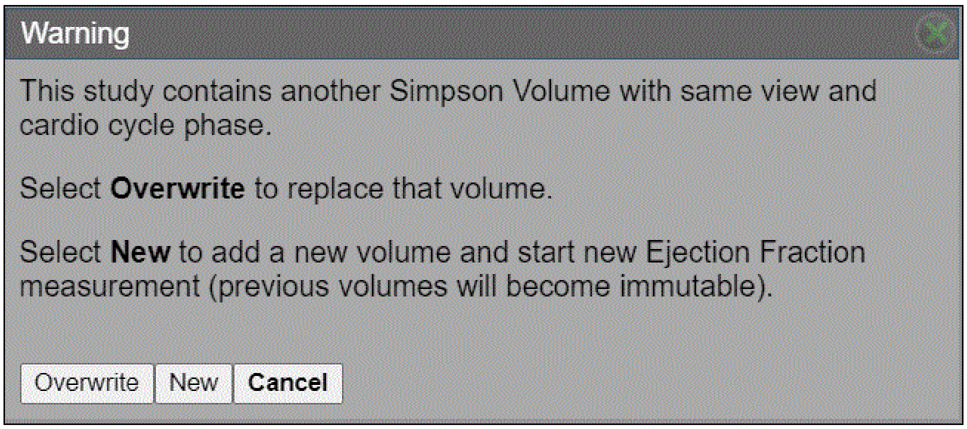
Method 2:

1. Right-click on any image in the study.
2. Select **View Study Annotations**.
3. Select the ejection fraction measurement.
4. Click the **View** icon.

Replacing one volume with another

It is possible to recompute the existing ejection fraction measurement by again measuring a volume with particular cardiac view and phase. This can be useful if a better image is found, and would like to use that image instead.

1. Measure the Simpson Volume on a new image as described under **Measuring the volume using the Simpson method**. The Warning dialog box is displayed.



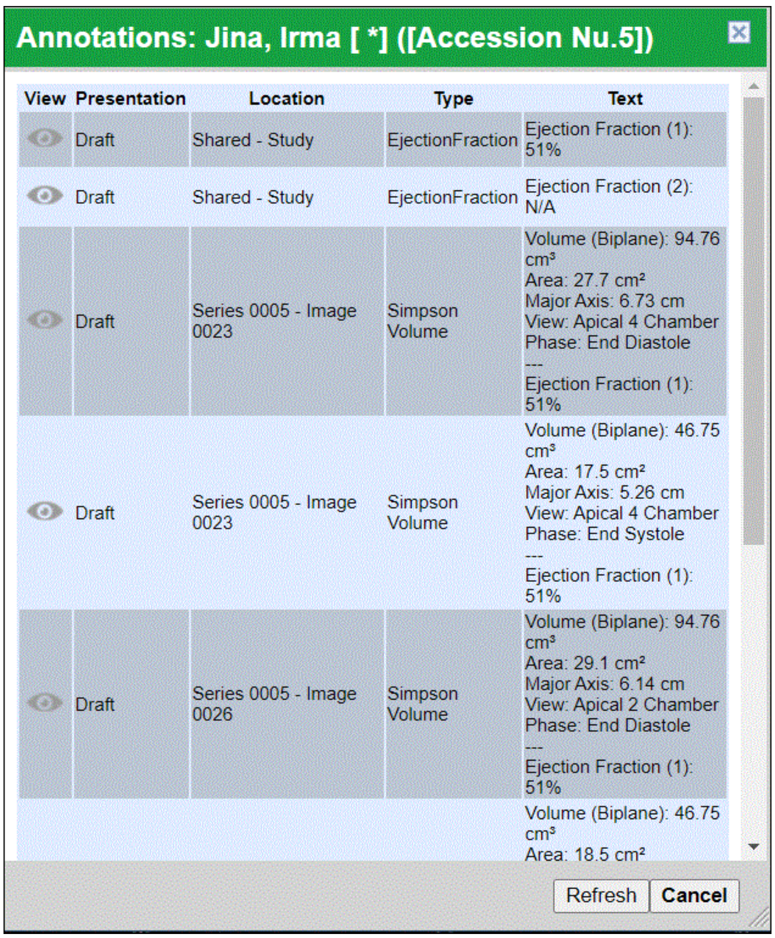
2. Select **Overwrite** to replace a previously measured Simpson Volume with the new one. The ejection fraction value will be recomputed, and the values will be updated on all other Simpson Volume measurements in the study.

Performing another ejection fraction measurement in the same study

It is possible to measure ejection fraction more than once using a different set of images.

1. Select an image with A4C view.
2. Start with measuring the Simpson Volume at end diastole point (as described previously). The Warning dialog box is displayed.
3. Select **New** to add the new volume measurement and start a new ejection fraction measurement. The previous ejection fraction measurement remains unchanged and becomes immutable and cannot be updated.

4. Continue measuring additional Simpson Volumes (as described above) to complete this ejection fraction measurement.
5. To view all measured Simpson Volumes and ejection fractions, right-click on any image.
6. From the menu, select **View study annotations**. The Annotations dialog box is displayed and contains information about an annotation, and includes a View icon, which can be selected to open the image with selected measurement.



Collaborate

Use online meetings

Online meetings allow you to collaborate with other physicians and interactively review a patient study. Meeting participants all see the same screen and can annotate images at the same time. The person who starts the meeting is the organizer.

> **Note**
> The displayed screen size may be reduced if a participant uses an small resolution device such as a phone.

Create a meeting for a folder

You can start a meeting based on a folder. All of the studies in the folder are opened in the image viewer separately (as separate patients) when the meeting starts. Users with access to the folder can quickly join the meeting. You can also invite participants using **Invite** on the meeting control panel.

Start a meeting for a folder

Right-click (or touch and hold) a folder, select **Meeting**, then select **Start Meeting**.

Send the meeting link to participants

You can copy the meeting link.

1. Right-click (or touch and hold) the folder, select **Meeting**, then select **Copy Meeting Link**.
2. A box appears with the link. Copy the link and paste it into an email or instant message.

You can create an email with the meeting link.

1. Right-click (or touch and hold) the folder, select **Meeting**, then select **Send Meeting Link**.
2. A new email is created using your default email application. Enter the user’s email address and any additional information, then send the email.

Join a meeting for a folder

If you have access to the folder, right-click (or touch and hold) the folder, select **Meeting**, then select **Join Meeting**. You can also use the meeting link, if one is provided by the meeting organizer.

Create a general meeting

You can start a meeting and invite participants.

Start a meeting

1. Open a patient study.
2. Select **Collaboration** (side panel). The Collaboration tools appear below the side panel.
3. Select **Share**. The meeting control panel opens. You can drag the control panel to any location on the screen.
4. To invite participants, select **Invite** on the meeting control panel. A new email is created using your default email application. Enter the email addresses for the participants and any additional information, then send the email.

Join a meeting

If you receive a meeting link by email:

1. Click (or tap) the link. The NilRead Waiting Room will open in your browser.
2. In the Waiting Room, enter the meeting ID and your name. Select **Join**.

If you are logged into NilRead, you can:

- In the Patient Study Directory, select **Waiting Room**. Enter the meeting ID and your name, then select **Join**.
- While viewing a patient study, select **Collaboration** (side panel), then select **Join**. Enter the meeting ID, then select **Join**.

Use meeting controls

Participants currently in the meeting are shown in **Active Users** (below the side panel). The symbols beside a participant's name indicate if they are the meeting organizer (O) or the presenter currently in control of the meeting (P). * is shown beside your own name.

You can use the following controls during an online meeting. Some controls are only available to the meeting organizer.

	**Transfer control** The organizer can transfer control of the meeting to another participant. Only the participant in control is able to use the NilRead toolbar containing the image tools. To transfer control, select a participant from the **Control** list. The organizer can regain control by selecting their own name.
 	**Annotate images** To draw on an image, select **Highlighter**. To add an arrow and note, select **Arrow**. Participants can annotate images at the same time. Annotations made by a participant are shown in the same color as the participant name in the **Active Users** list.
	**Undo all** Select **Undo all** to remove all annotations made by all of the meeting participants.
	**Undo** Select **Undo** to remove the last annotation made by any meeting participant.

	Invite others Select **Invite**. A new email is created using your default email application. Enter the recipient's email address and any additional information, then send the email.
	End meeting Select **Quit**. This can only be done by the meeting organizer. **Note** All annotations are removed from images when the meeting ends. If you want to save the image with annotations, capture the image before ending the meeting (see **Share secondary capture images**).

Use Skype

You can use Skype™ calls and instant messaging to communicate with other physicians associated with a study. You can initiate a Skype session at any time when viewing a study, including during an online meeting.

> **Note**
> You can only initiate Skype sessions with physicians who are associated with your user profile (see **Manage your user profile**). Skype must be enabled in your user preferences (see **Change your user preferences**). Skype software must also be installed and running on participants' devices.

1. Open a patient study.
2. Select **Collaboration** (side panel). The names of any physicians associated with both the study and your user profile are listed below **Settings**.
3. Select **Settings**. Select the type of Skype session:
   - **Call** Voice call. Note that you can enable video once the Skype session is in progress.
   - **Chat** Instant messaging.

4. To start a Skype session, select a physician below **Settings**.
5. To search for a physician in the list:
   a. Enter the physician's first name, last name or NilRead user name in the **Search Users** field.
   b. Select **Search**. Any matching physicians are shown below the **Search** button.
   c. Select a physician to start a Skype session.

Send secure study links

Share a patient study with others by sending them a secure link. The link is temporary and does not contain any identifying information about the study.

Send a secure link by email

In the Patient Study Directory:

1. Right-click (or touch and hold) a study, worklist or folder, then select **Send Link**.
2. End users are responsible for complying with privacy regulations and ensuring that study links are only provided to authorized users. Users cannot disable a study link once it has been sent. To indicate that you understand this, select the checkbox beside **Note: authorization cannot be removed once the secure link is sent**.

   > **Note**
   > The site's NilRead administrator is able to revoke a study link. However, the recipient may receive and use the link before it is revoked.

3. Choose the security options you want to use. Depending on your organization's NilRead configuration, some of the following options may not be available.
   - **Send via email** If you want to send an email with the study link, select this option and enter the user's email address.
   - **Limit number of uses to** To limit number of times the user can use the link to access the study, select this option and enter the number of uses.
   - **Link will expire in** To set an expiry date, select this option and enter the number of days and/or hours until the link expires.

- **User must login to see images** Select this option if the user must login to their NilRead account before using the link. If this option is not selected, the user does not require a NilRead account to use the link.
- **Require user to enter this password** If the user does not have a NilRead account and you want to create a password for the link, select this option and enter the password. You must give this password to the user; for security reasons, it is not sent to them automatically.
- **Display this password hint** Select this option to display a password hint to the user. Enter a password hint in the provided field.
- **Require confirmation via email** Select this option to use a two-step verification process. The user will receive an email with a link to confirm they are the intended recipient. When the user clicks the link, they will be sent a second email with the study link. Note that this option is only available if your organization uses an IIS SMTP mail server.

4. Select **Get Link**.
5. Choose how to send the link.
   - **Copy link to clipboard** Copy the link and paste it into an email or instant message.
   - **Click to send link by email** Automatically create a new email using your default email application. The user's email address is entered automatically. Add any additional information, then send the email.
6. Select **Close**.

Copy a link

In the Patient Study Directory:

1. Right-click (or touch and hold) a study, worklist or folder, then select **Copy Link**.
2. A box appears with the link. Copy the link and paste it into an email or instant message.

Send series links

Share a series of images with another user by sending them a link. The series specified in the link will open by default; however the entire study is still available to the user. Note that when you send a series link, the user will see the default view of the series, not the view you are using.

> **Note**
> Depending on your organization's NilRead configuration, users may require a login name and password for NilRead to view the study.

1. Open a patient study.
2. Right-click (or touch and hold) a series, then select **Send Series Link**.
3. End users are responsible for complying with privacy regulations and ensuring that study links are only provided to authorized users. Users cannot disable a study link once it has been sent. To indicate that you understand this, select the checkbox beside **Note: authorization cannot be removed once the secure link is sent**.

   > **Note**
   > The site's NilRead administrator is able to revoke a study link. However, the recipient may receive and use the link before it is revoked.

4. Choose the security options you want to use. Depending on your organization's NilRead configuration, some of the following options may not be available.
   - **Send via email** If you want to send an email with the study link, select this option and enter the user's email address.
   - **Limit number of uses to** To limit number of times the user can use the link to access the study, select this option and enter the number of uses.
   - **Link will expire in** To set an expiry date, select this option and enter the number of days and/or hours until the link expires.
   - **User must login to see images** Select this option if the user must login to their NilRead account before using the link. If this option is not selected, the user does not require a NilRead account to use the link.
   - **Require user to enter this password** If the user does not have a NilRead account and you want to create a password for the link, select this option and enter the password. You must give this password to the user; for security reasons, it is not sent to them automatically.
   - **Display this password hint** Select this option to display a password hint to the user. Enter a password hint in the provided field.

- **Require confirmation via email** Select this option to use a two-step verification process. The user will receive an email with a link to confirm they are the intended recipient. When the user clicks the link, they will be sent a second email with the study link. Note that this option is only available if your organization uses an IIS SMTP mail server.

5. Select **Get Link**.
6. Choose how to send the link.
   - **Copy link to clipboard** Copy the link and paste it into an email or instant message.
   - **Click to send link by email** Automatically create a new email using your default email application. The user's email address is entered automatically. Add any additional information, then send the email.
7. Select **Close**.

Share bookmarked images

Use a bookmark to tag an image in a patient study that you want to find again quickly or that you want to share with others.

Create a bookmark

Select **Save**, then select **Bookmark** (toolbar). A bookmark is created for the current screen. Bookmarks are saved in the Presentations panel.

View a bookmark

1. Select **Presentations** (side panel). Presentations and bookmarks for the study are shown below the side panel.
2. Select a bookmark thumbnail.
3. While viewing a bookmark, select **Series** (side panel) to see which series the image belongs to. The series is highlighted.