Image Viewing Solution App

Quick Start Guide

Overview

The Image Viewing Solution (IVS) mobile application (app) allows U.S. Department of Veterans Affairs (VA) clinicians and other medical professionals to search for and view patients' clinical images. The IVS aggregates images from VA enterprise medical facilities, offering easily accessible diagnostic-grade images, capabilities to work with images (e.g., scrolling, panning, zooming, adjusting window/level) and a tool to collaborate with other VA clinical staff.

General Info

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Prerequisites

To use the IVS, you must be a VA health care professional with credentials for the Veterans Health Information Systems and Technology Architecture (VistA).
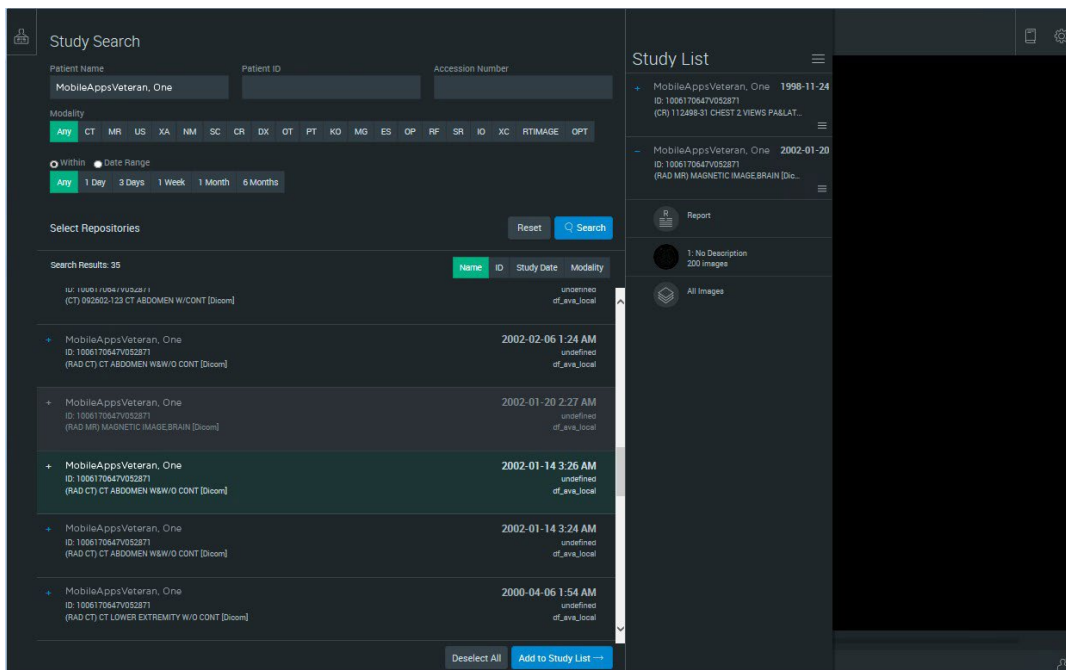
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Logging In

To access the IVS, click **Login**. Enter your VistA Username and Password. Begin typing in a VA Hospital Location, a list of matching facilities will appear in a drop-down menu, and click your VA facility. Click **Sign In**.

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Getting to Know the Screen

When you log into the IVS, you will see the Study Search screen, which is where you can search for patients and select images you would like to view. The screen is split into two panes: the Study Search panel where you search for and select patients and the Study List which is a preview area on the right. The icon in the top left corner (a person with an x-ray) takes you to the Image Viewer where you can view and manipulate selected images. You may also double click the entry from Study Search to load the image(s) and make them available for viewing and manipulation..

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Learning About the App

Click the Image Viewer icon (person with x-ray) in the top right corner, and you will go to the Image Viewer screen. Click the book icon in the top right of your screen, and a drop-down menu will appear. Click **User Guide**, and a built-in user guide will open in another window.

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Logging Off

Click the gear icon in the top right corner of your screen. A drop-down menu will appear, and click **Logout**.

Patient Search

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Using Study Search

When you log into the IVS, the search will default to Search options. Fill out any or all of the criteria:

- Patient Name – Type the patient's full social security number (SSN) with hyphens or SSN without hyphens or FirstName,LastName (no spaces) or, LastName (may return too many results and will not display) or the first letter of his or her last name and the last four numbers of SSN (no spaces).

- Patient ID and Accession Number should not be used in the IVS.

- Modality – Click **Any** or a specific modality.

- Within – Click the radio button next to Within heading, and click either **Any**, **One Day**, **Three Days**, **One Week**, **One Month** or **Six Months**.

- Date Range – Click the radio button next to Date Range, and the Within time options will change to date fields and calendar icons. Either:
  1. Type in the start and end dates in format YYYY-MM-DD.
  2. Click each calendar icon, and a pop-up calendar will appear. Click days on the calendar to choose start and end dates of the time frame you wish to view.

- Select Repositories – Click **Select Repositories**, and a new screen will appear. Check which repositories you would like to search, or click **Deselect All** to uncheck everything or **Reset Defaults** to return to the default selections. Click **Done** to save your selection and return to Patient Search with the options to choose to search your local location or the entire VA.

Click **Search** to go to the Results tab showing all patient entries that match your search. You can also tap **Reset** to clear all the forms.

Image Viewing

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You can view a patient's images from different perspectives (2D, MIP/MPR or 3D) as well as work with images in a variety of ways, such as zooming, mirroring, measuring and making notes on an image.

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Choosing an Image to View

After you have searched for a patient on the Search tab, a list of patients whose information matches your search criteria will appear on the Results tab and will show:
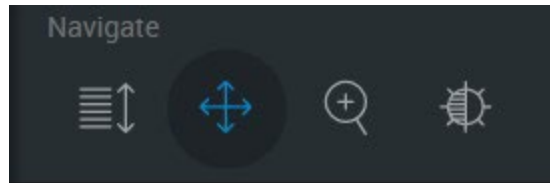
- Patient Name
- Patient ID/Accession
- Modality
- Study Description

- Date and Time of Images
- Date of Birth/Sex
- Archive

Select the image search results you would like to view and work with, and click **Add to Study List**. The image(s) will appear in the Study List (right side of the screen). Double click the image under the **Study List** you would like to view in the Image Viewer, or from the Image Viewer, click and drag the image you would like to view to the Image Viewer (or to the desired location if in a multiple image layout).

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Navigation

You can navigate images in the Image Viewer with the navigation tools. In the top left corner of the image under Navigate, click one of the following, and your cursor will change to that icon and you can manipulate the image:

- Scroll (several lines with an up and down arrows icon) – When selected, click and drag up and down to scroll through the images in a series. This view is available for 2D and MIP/MPR view modes only.

- Pan (two multidirectional arrows in a cross icon) – When selected, click and drag in any direction to pan (move an image one direction or another) the image.

- Zoom (magnifying glass with a + icon) – When selected, click and drag up and down to zoom in and out of the image.

- Window/Level (half shaded sun icon) – When selected, click and drag left and right or up and down to adjust window level.

2D Images

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Working with 2D Images

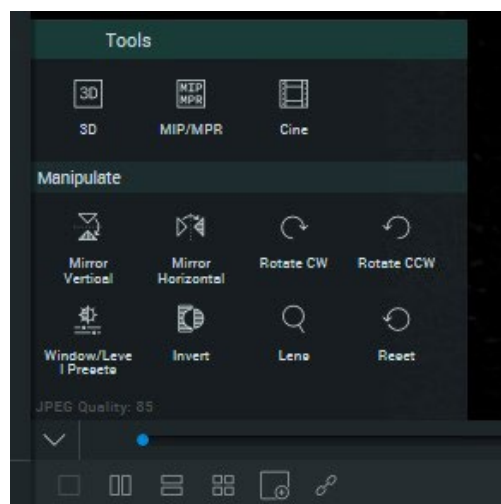There are a few ways you can work with 2D images:

- Scrolling through slices – Either use the wheel on your mouse or use the scroll icon.

- Zooming in – Either (1) press the = key, (2) hold the Alt key, and scroll up with your mouse wheel or (3) hold Ctrl-Shift while clicking and holding down the left side of your mouse, then drag your cursor up. (On a Mac, hold Cmd instead of Ctrl).

- Zooming out – Either (1) press the – key, (2) hold the Alt key, and scroll down with your mouse wheel or (3) hold Ctrl-Shift while clicking and holding down the left side of your mouse, then drag your cursor up. (On a Mac, hold Cmd instead of Ctrl).

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Manipulate the Image

To manipulate the image, including rotating, mirroring and preset views, click the three line icon at the bottom left of the image, and the Tools menu will appear. Under Manipulate click one of the following to manipulate the image as desired:

- Mirror Vertical – The image will flip vertically.

- Mirror Horizontal – The image will flip horizontally.

- Rotate CW (clockwise) – The image will rotate 90 degrees to the right.

- Rotate CCW (counter clockwise) – The image will rotate 90 degrees to the left.

- Window/Level Presets – Several preset views will appear. These presets are to view certain elements or materials within an image, such as soft tissue or blood. For 2D images, click the preset you would like to use, and the width and level will adjust accordingly.

- Invert – The intensity of the image will invert.

- Lens – A magnifying glass tool will appear. Click and drag to move the magnifying glass across the image.

- Reset – Only the image you are accessing from the Tools menu will reset.

MIP/MPR Images

The MIP/MPR (maximum-intensity projection/multiplanar reconstruction) view allows you to see and interact with cross sections of 2D images

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Changing to MIP/MPR View

When you load images into the Image Viewer, the view will default to 2D. To change the view, click on the three line icon at the bottom of the image. The Tools menu will appear, and click **MIP/MPR**.

Getting to know MIP/MPR View

The MIP/MPR screen is divided into four images: three small images in a vertical strip on the left, and one large image on the right. The small images on the left show three perspectives and are color coded:

- Green - Slices taken from left to right (sagittal).
- Blue - Slices taken from front to back (coronal).
- Red - Slices taken from top to bottom (axial).

The larger image will be a close-up of one of the smaller images. Double-clicking on a small image will change the image in the big window for viewing. To emphasize from which perspective the larger image is being viewed, the larger image outline will match the color (green, blue or red) of the small image it duplicates. Any changes or mark-ups made to one image will be reflected in the other images of the series being viewed.

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Manipulating Planes

In each of the small images on the left, there are two perpendicular positional lines that represent the cross sections or slices you are viewing. You can move lines to view the image from different perspectives. To change the view, you can:

- Move a plane perpendicularly or in parallel orthogonally – Click on any solid part of the perpendicular positional lines over the image. Hold down and drag up, down, right or left to reposition.

- Freely move positional lines – Click on the center of the cross hair at the bottom left of the large image and drag.

- Re-center the positional lines – Click on the intersection of the perpendicular positional lines. Hold down and drag to reposition

- Triangulate a point – Hold down the **Ctrl** (or **Cmd** on a Mac), and click anywhere on any of the three smaller images in the strip view. The point will be reflected in the other two smaller images, and the large image on the right will adjust accordingly.

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Using Curved MPR

While the MIP/MPR view is generally used to show images at right angles to each other, you can create a curved MPR (CMPR), which is a series of 2D images that follow the curvature of a specified part of anatomy. When viewed together, they present a continuous (elongated) depiction of the entire anatomical structure in a single plane. To enable CMPR click on the three line icon at the bottom left of the image, and the Tools menu will display. Under Manipulate click **CMPR** (curved line icon). By default, the bottom left pane becomes the curved MPR. Then you can:

- Draw to define a centerline – Left click your mouse and hold down, and draw a line on any of the images to designate your centerline. Points will appear on the line you have drawn, and the line will be reflected in the other three images.

- Adjust the centerline – Click any of the points on the centerline you have drawn, and hold down and drag to reposition.

3D Images

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The 3D view allows you to see and interact with images as they would seem in real life.
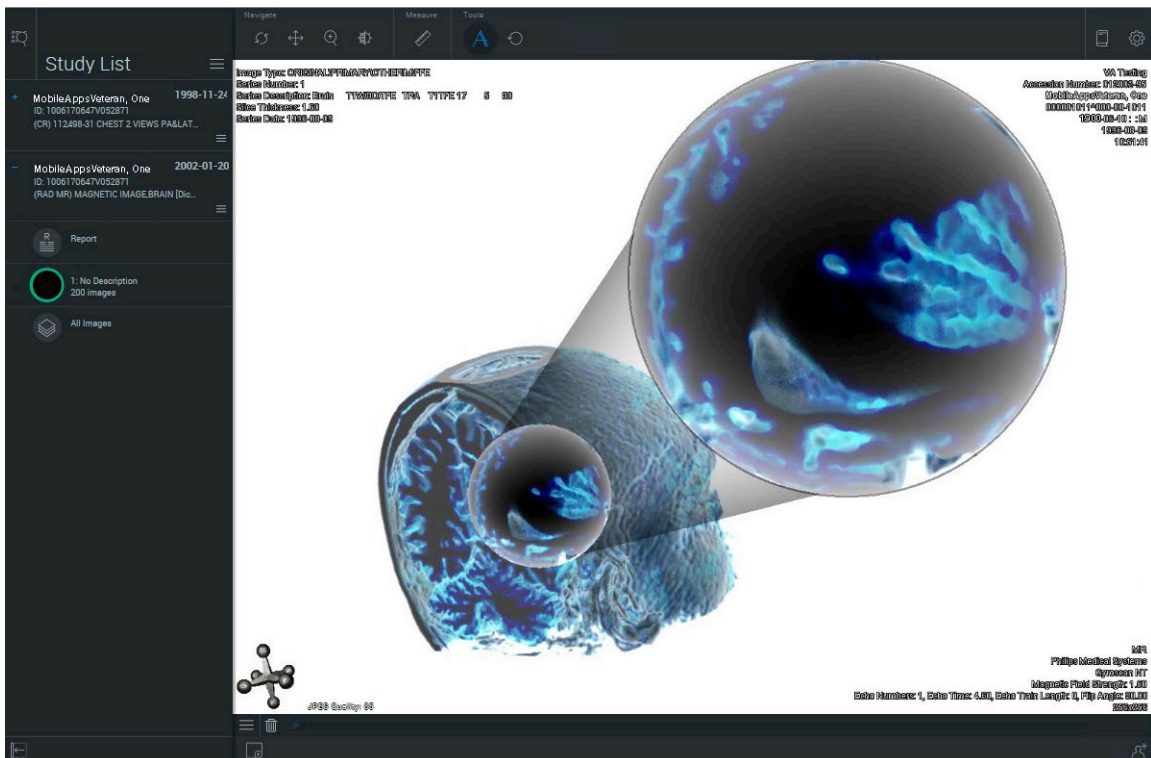
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Changing to 3D View

When you load images into the Image Viewer, the view will default to 2D. To change the view, click on the three line icon in the bottom left of the image to display Tools, and click **3D**.

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Magnifying Part of an Image

The lens feature allows you to magnify a section of a 3D image while keeping the entire volume in the main view. Press the O key and click on the area you would like to magnify. The magnified area will appear in a circular lens. You can then:

- Move the lens over the volume – Left click on the magnified area in the lens and hold down. Drag the lens to reposition.

- Move the lens through the volume – Click on the magnified part of the lens. Scroll the wheel of your mouse up or down to push the lens deeper into the volume and back out.

- Adjusting the level of the lens's magnification – Click on the magnified part of the image in the circular lens. Scroll the wheel of your mouse up to increase magnification, or scroll the wheel of your mouse down to decrease magnification.

Collaboration

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Collaboration allows multiple physicians to view a patient's images simultaneously and offer feedback. **NOTE:** When collaborating, only the host's images will be of diagnostic quality.

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Hosting Sessions

To host a collaboration session, click the **Collaboration Panel** button (the person with a + icon in the bottom right corner). A pop-up Collaboration box will appear, and click **Start Session**. As a host, you can send invites, allow participants to interact with the images, show or hide confidential personal information and end the session.

NOTE: Each session has its own link, so once you end a session, you cannot use the same link again to host or enter a collaboration session. You must send a new invite to begin every session.

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Joining Sessions

In order to join a session, you must have received an emailed invite (or received the session link by some other tool, like Skype) for the session and be actively connected to the VA network. Open the emailed invite, and click the link to the session provided in the email. A pop-up Participant Info box will appear. Type your name and email address, and click **Join**. You will enter the meeting and be able to see the host's screen.

Help and Additional Information

Additional Training Materials for the Image Viewing Solution App

The IVS offers a built-in User Guide. To access the built-in User Guide click the Image Viewer icon (person with x-ray) in the top left corner to go to the Image Viewer screen > Click the book icon in the top right of your screen, and a User Guide will open in another window. In addition to the User Guide built into the app, more resources, such as a User Manual, Slideshow and FAQs, can be found on *mobile.va.gov/appstore*, and search for the app to access the resources.

Help Desk Information

If you need assistance with the Image Viewing Solution App, dial **1-844-482-6624** to speak with a VA representative. The Help Desk is open weekdays from 7 a.m. to 7 p.m. CT. For TTY assistance, dial 711.

Emergencies

If you feel that your information may have been compromised, contact your local VA facility to obtain the contact information for your Privacy Officer. To locate your local VA facility, visit VA's Facility Locator: *http://www.va.gov/directory/guide/home.asp?isflash=1*. Note that you should never use this app in an emergency situation. If you encounter an emergency, call your local medical center or dial 911.