

USER MANUAL

StrokeSENS
Version 1.2



CIRCLE
NEUROVASCULAR IMAGING



StrokeSENS

User Manual

May 2021

Regulatory Information

Manufactured by:



Circle Neurovascular Imaging Inc.
1100, 800 5th Avenue SW Calgary,
Alberta, T2P 3T6, Canada

Telephone: 1 (403) 338-1870

Fax: 1 (403) 338-1895

Website: circlenvi.com

Supported Languages

- English

European Union



StrokeSENS is qualified as a class IIa medical device.

UDI: *+B926SSSX10*



EU Authorized Representative

Circle Cardiovascular Imaging BV
SingelStaete
Singel 250
1016 AB Amsterdam
The Netherlands



IMPORTANT: US Federal law restricts this device to sale by
or on the order of a licensed healthcare practitioner.

R_x Only

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1 Regulatory

1.1 Regulatory Information

AGENCY	Authorized Representative	Approval/ Clearance Reference
CE Mark (MDD)	Circle Cardiovascular Imaging BV	CE Mark Certificate US21/819944332 and UKAS US21/819944331 issued by SGS for StrokeSENS.

2 Basic Components and Indication for Use

2.1 Indication for Use

StrokeSENS is a decision-aid software package to be used by clinicians to perform image processing, analysis, viewing and communication of computed tomography (CT) scans of the brain in patients with suspected acute stroke. Data and images are acquired through DICOM-compliant imaging devices prior to processing and analysis in StrokeSENS.

The StrokeSENS software provides analysis capabilities for imaging datasets acquired with standard CT imaging and contrast-enhanced CT Angiography (CTA) modalities. Analysis of non-contrast CT images is provided by the StrokeSENS ASPECTS module, which includes assessment of regions with suspected acute ischemic tissue (ie. ASPECTS scoring). Analysis of contrast-enhanced CT images is provided by the StrokeSENS LVO module, which includes automated detection of suspected large vessel occlusion (LVO).

StrokeSENS ASPECTS is a computer-aided diagnosis software device used to assist the clinician in the assessment and characterization of brain tissue abnormalities using CT image data. The Software automatically registers images and segments and analyzes ASPECTS Regions of Interest (ROIs). StrokeSENS ASPECTS extracts image data for the ROI(s) to provide analysis and computer analytics based on morphological characteristics. The imaging features are then synthesized by an artificial intelligence algorithm into a single ASPECT (Alberta Stroke Program Early CT) Score. StrokeSENS ASPECTS is indicated for evaluation of patients presenting for diagnostic imaging workup with anterior circulation Large Vessel Occlusion (LVO), for evaluation of extent of disease. Extent of disease refers to the number of ASPECTS regions affected which is reflected in the total score. This device provides information that may be useful in the characterization of early ischemic brain tissue injury during image interpretation (within 6 hours). StrokeSENS ASPECTS provides a comparative analysis to the ASPECTS standard of care radiologist assessment using the ASPECTS atlas definitions and atlas display including highlighted ROIs and numerical scoring.

StrokeSENS LVO is a radiological computer-aided triage and notification software indicated for use in the analysis of CTA head images. The device is intended to assist hospital networks and trained clinicians in workflow triage by flagging and communication of suspected positive findings of Large Vessel Occlusion (LVO) in head CTA images.

StrokeSENS LVO uses a software algorithm to identify suspected LVO findings. In the case of a suspected LVO, the system will send a notification to a pre-configured destination(s), notifying the clinicians of the existence of a suspected LVO that requires review. The notification system is intended to be used in parallel to the standard of care workflow to notify clinicians of the existence of the case earlier that they may have been notified as part of the standard of care workflow.

Notifications may include a compressed preview of images. Notifications are meant for informational purposes only and are not intended for diagnostic use beyond notification. The StrokeSENS LVO device does not alter the original medical image and is not intended to be used as a diagnostic device.

The results of StrokeSENS LVO are intended to be used in conjunction with other patient information and based on professional judgement, to assist with triage / prioritization of medical images. Notified clinicians are responsible for viewing full images per standard of care.

3 Warnings and Cautions



WARNING: Patient Data

The displayed study/patient data as well as information used for processing images are initially derived from the DICOM information where available. Note that editing these values in the original DICOM may affect the calculations in the software. It is the responsibility of the user to verify the results before being used for making diagnostic or treatment decisions.



WARNING: Artificial Intelligence (AI) algorithms are used to produce visualizations, predict scores, and identify suspicious findings in CT images for the purpose of aiding the clinician in the assessment of patients with suspected acute stroke. Inaccurate results may be produced. Results are not to be considered a primary diagnosis. Users are intended to review all available information, including the original CT images, before making patient management decisions.



WARNING: StrokeSENS is a parallel workflow tool intended to be used in conjunction with standard of care procedures. StrokeSENS should not replace the standard of care procedure.



WARNING: Misleading information due to user error, inadequate source images, and/or inaccurate Artificial Intelligence predictions may lead to misdiagnosis.



WARNING: Software may slow down when other software applications are being run on the same machine.



IMPORTANT: No known susceptibilities to other software applications have been identified, however, it is the end-user's responsibility to ensure the environment in which the StrokeSENS application is installed is maintained and free of other applications that may jeopardize the safe and effective use of the software.



IMPORTANT: This user manual is considered adequate training for the safe and effective use of the product. Training will be made available to the customer at time of installation and for major product upgrades, however training is not mandatory or required. Ongoing technical support and customer service is available. See Technical Support section below.



IMPORTANT: StrokeSENS relies on the quality and correctness of the image source data, for the software to satisfy its intended use. Clinicians are intended to confirm findings on original images prior to making diagnostic or treatment decisions. Information provided by StrokeSENS is intended to be used as an adjunct to standard of care procedures, and should not be considered as primary diagnosis.



IMPORTANT: StrokeSENS undergoes rigorous Cybersecurity and Systems testing prior to release. Once deployed on-site, the security and connectivity of the StrokeSENS system within the hospital IT infrastructure is managed by the on-site/customer's IT and Security professionals. It is therefore the responsibility of the customer to ensure appropriate security measures are in place to promote safe and effective use of the product within their local and jurisdictional regulations.



IMPORTANT: Note on IEC 60601-1: As a software-only solution, StrokeSENS does not fall under the safety and compliance considerations of the IEC 60601-1 standard. Complying with these standards for medical electrical equipment used in conjunction with StrokeSENS is the responsibility of the relevant clinicians and institutions.

4 System Hardware and Software Specifications

4.1 Virtual Machine for Backend Services

The following specification can be applied to provision one virtual machine which is capable of supporting 2 concurrent studies and up to 2 concurrent users per study.

Requirement	Recommendations
CPU	Quad core 8 th Gen Intel Core i7 or Xeon to support up to 2 concurrent study analysis. (Analysis of a single study requires 2 cores to support up to 2 concurrent users, and an additional 2 cores to perform machine learning computation tasks)
RAM	16 GB DDR3 to support to 2 concurrent study analysis (A single study analysis requires 8 GB RAM to support study loading, data caching, and other tasks)
Storage	1 TB SSD (for data storage server) (Depending on the number and the sizes of studies stored, this number may be varied.)
OS	Windows Server 2016 or greater
Network	1 GB ethernet minimum, 10 GB preferred

4.2 Client Web Browser

Device	Web browser
Desktop	Chrome (after Jan 2019 / after version 72.0.3626) Safari (after Sept 2019 / version 13.0.4 and above) Microsoft Edge (after Jan 2020 / after version 79.0.309)
Mobile	Safari (after Sept 2019 / version 13 and above) Chrome (after Jan 2019 / after version 72.0.3626)

4.3 Client Device Specifications

Desktop	Recommendations
CPU	8 th Gen Intel Core i5
RAM	8 GB DDR3
Storage	128 GB
OS	Windows 10, macOS Catalina
Android phone	Recommendations
CPU	4 core @ 2.7 GHz +
RAM	4GB+
Storage	64GB+
Screen resolution	1440 x 2960 (18.5:9 ratio)
OS	Android 8+
Tested devices	Samsung Note 9, Samsung S9
Apple phone	Recommendations
CPU	Apple A12+ (Max. Clock rate 2.49 GHz+)
RAM	3GB+
Storage	64GB+
Screen resolutions	1792 x 828p (326ppi)
OS	iOS 12+
Tested devices	iPhone XR, iPhone 11

4.4 Clinical Module DICOM requirements for Algorithm Processing

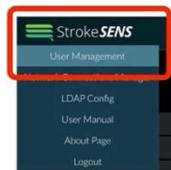


IMPORTANT: For accurate processing by the Artificial Intelligence (AI) algorithms, StrokeSENS requires DICOM standard CT images of the head that align with the following parameters

Non-contrast CT for ASPECTS Scoring
1. ImageType = Original/Primary
2. Volumes = 1
3. WindowWidth < 210
4. SliceThickness >= 2.5 mm & <= 5mm
CTA for LVO Detection
1. Volumes = 1
2. WindowWidth > 210 & <= 1000
3. SliceThickness <= 2.5 mm

5 User Management

From the Patient List, Network Connections Manager or LDAP Configuration pages, if user has admin rights, a *'User Management'* option will be present in the workspace menu, as seen below.

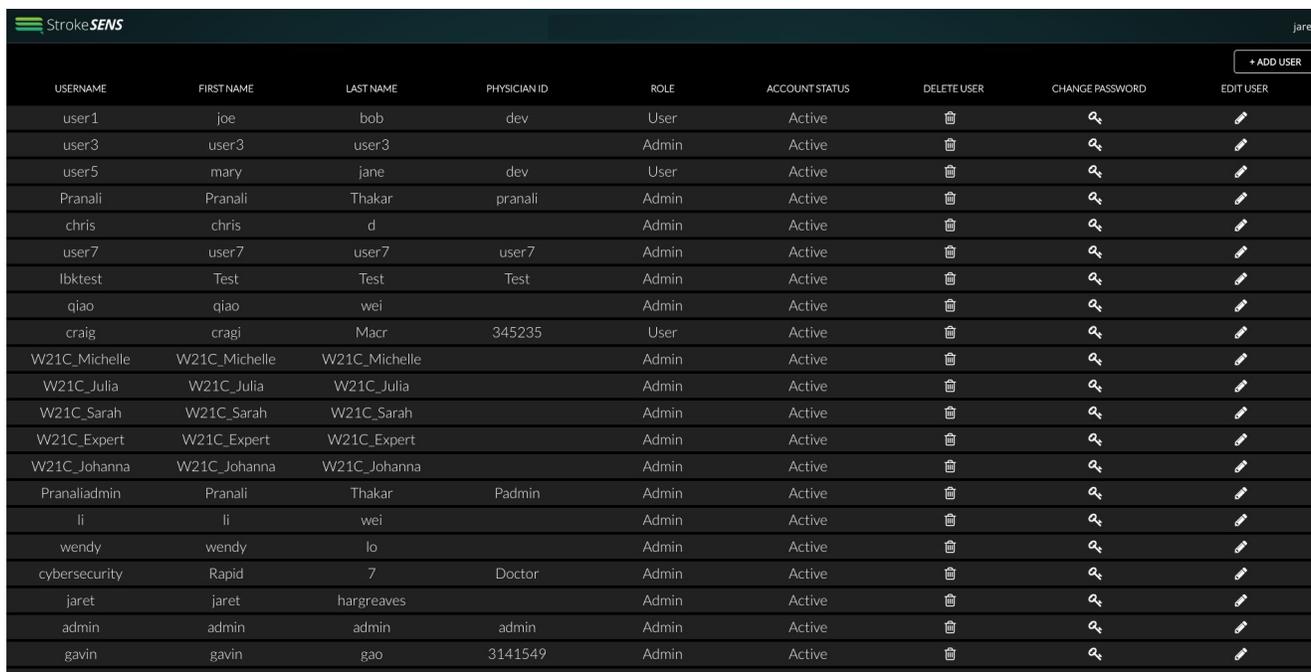


NAME	SEX	AGE	STUDY DATE
RSNA_01_031*	F	77	2012-07-30
PRoVe-IT-01-410	M	78	2015-12-06
PRoVe-IT-01-410	M	78	2015-12-06
PRoVe-IT-01-408	M	65	2015-12-01
PRoVe-IT-01-408	M	65	2015-11-30
PRoVe-IT-01-408	M	65	2015-11-30
PRoVe-IT-01-327	M	76	2014-12-28
PRoVe-IT-01-327	M	76	2014-12-28
Test	N/A	--	2016-03-02
ESCAPENA1 12-042	N/A	--	2019-06-22
ESCAPENA1 12-042	N/A	--	2019-06-23
PRoVe-IT-03-007_benchmark	N/A	00	2015-03-03
PRoVe-IT-04-021_benchmark	N/A	74	2014-12-17
ESCAPE 03-012_benchmark	F	63	2014-06-25
PRoVe-IT-01-302_benchmark	F	75	2014-10-14
ESCAPENA1 22-003_benchmark	N/A	--	2018-01-04
PRoVe-IT-01-218_benchmark	M	65	2014-03-12
PRoVe-IT-01-145_benchmark	M	58	2013-06-07
ESCAPENA1 70-003_benchmark	N/A	--	2018-02-09
ESCAPENA1 70-001_benchmark	N/A	--	2017-12-22
1111-8375_benchmark	M	78	2012-08-25
PRoVe-IT-03-051_benchmark	N/A	116	2016-03-06
PRoVe-IT-03-043_benchmark	N/A	116	2016-02-10

When *'User Management'* is clicked, a list of all users within the network will be displayed, as seen in the image below. From this page, user can:

- Add a new user
- Edit user details, including user privileges (Admin or User account)
- Change a user password and
- Delete a user

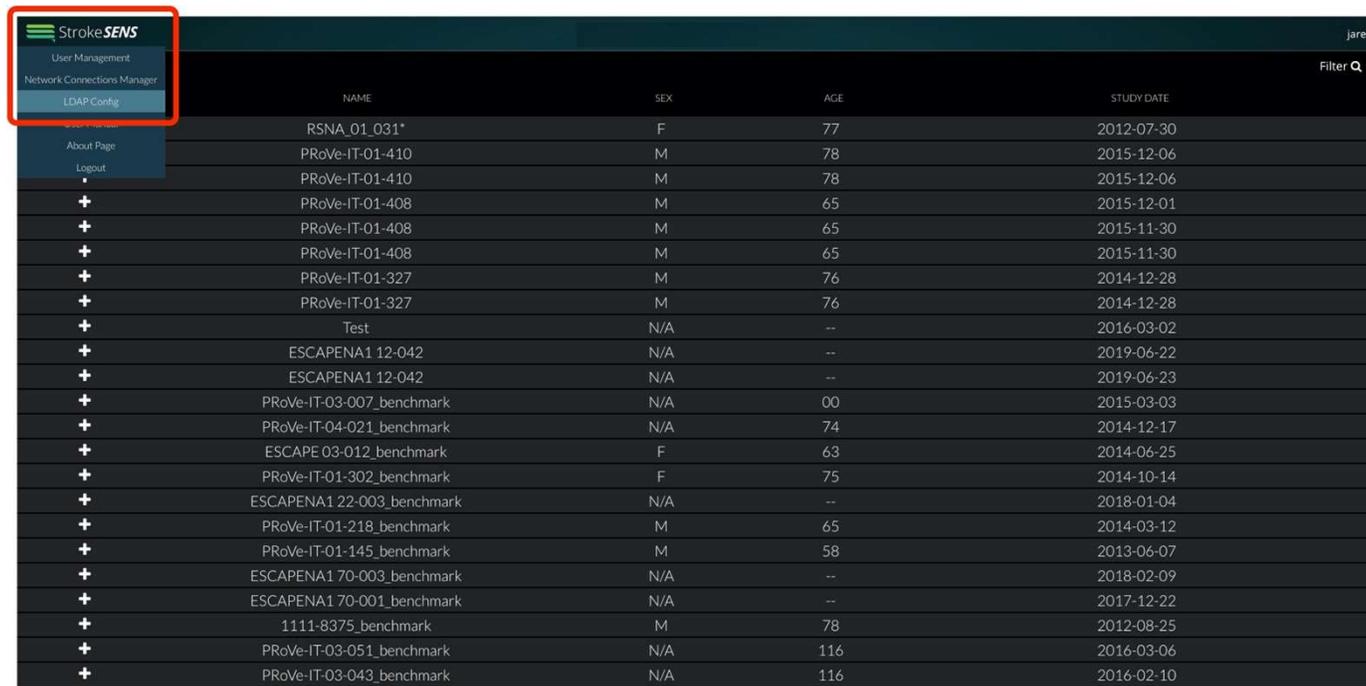
An Admin user cannot change an Admin user's status to a standard User if they are the only Admin user on the network.



USERNAME	FIRST NAME	LAST NAME	PHYSICIAN ID	ROLE	ACCOUNT STATUS	DELETE USER	CHANGE PASSWORD	EDIT USER
user1	joe	bob	dev	User	Active			
user3	user3	user3		Admin	Active			
user5	mary	jane	dev	User	Active			
Pranali	Pranali	Thakar	pranali	Admin	Active			
chris	chris	d		Admin	Active			
user7	user7	user7	user7	Admin	Active			
lbktest	Test	Test	Test	Admin	Active			
qiao	qiao	wei		Admin	Active			
craig	cragi	Macr	345235	User	Active			
W21C_Michelle	W21C_Michelle	W21C_Michelle		Admin	Active			
W21C_Julia	W21C_Julia	W21C_Julia		Admin	Active			
W21C_Sarah	W21C_Sarah	W21C_Sarah		Admin	Active			
W21C_Expert	W21C_Expert	W21C_Expert		Admin	Active			
W21C_Johanna	W21C_Johanna	W21C_Johanna		Admin	Active			
Pranaliadmin	Pranali	Thakar	Padmin	Admin	Active			
li	li	wei		Admin	Active			
wendy	wendy	lo		Admin	Active			
cybersecurity	Rapid	7	Doctor	Admin	Active			
jaret	jaret	hargreaves		Admin	Active			
admin	admin	admin	admin	Admin	Active			
gavin	gavin	gao	3141549	Admin	Active			
ibktest	ibk	Test		Admin	Active			

6 LDAP Configuration

From the Patient List, User Management or Network Connections Manager pages, if user has admin rights, an *'LDAP Config'* option will be present in the workspace menu, as seen below.



	NAME	SEX	AGE	STUDY DATE
	RSNA_01_031*	F	77	2012-07-30
	PRoVe-IT-01-410	M	78	2015-12-06
	PRoVe-IT-01-410	M	78	2015-12-06
+	PRoVe-IT-01-408	M	65	2015-12-01
+	PRoVe-IT-01-408	M	65	2015-11-30
+	PRoVe-IT-01-408	M	65	2015-11-30
+	PRoVe-IT-01-327	M	76	2014-12-28
+	PRoVe-IT-01-327	M	76	2014-12-28
+	Test	N/A	--	2016-03-02
+	ESCAPENA1 12-042	N/A	--	2019-06-22
+	ESCAPENA1 12-042	N/A	--	2019-06-23
+	PRoVe-IT-03-007_benchmark	N/A	00	2015-03-03
+	PRoVe-IT-04-021_benchmark	N/A	74	2014-12-17
+	ESCAPE 03-012_benchmark	F	63	2014-06-25
+	PRoVe-IT-01-302_benchmark	F	75	2014-10-14
+	ESCAPENA1 22-003_benchmark	N/A	--	2018-01-04
+	PRoVe-IT-01-218_benchmark	M	65	2014-03-12
+	PRoVe-IT-01-145_benchmark	M	58	2013-06-07
+	ESCAPENA1 70-003_benchmark	N/A	--	2018-02-09
+	ESCAPENA1 70-001_benchmark	N/A	--	2017-12-22
+	1111-8375_benchmark	M	78	2012-08-25
+	PRoVe-IT-03-051_benchmark	N/A	116	2016-03-06
+	PRoVe-IT-03-043_benchmark	N/A	116	2016-02-10

When *'LDAP Config'* is clicked, options to configure user authentication via Active Directory/Lightweight Directory Access Protocol (AD/LDAP) will be displayed, as seen in the image below. If configured, these protocols will allow users to log in to StrokeSENS with the same credentials configured for them by hospital IT.

Utilizing LDAP configuration is optional (see interface below). If it is not used, Admins still have the ability to add users accounts as described in the User Management section above.



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AD/LDAP Settings

Scheme

Address

Port

TLS

StartTLS

Initial Bind Settings

Base DN

Username

Password

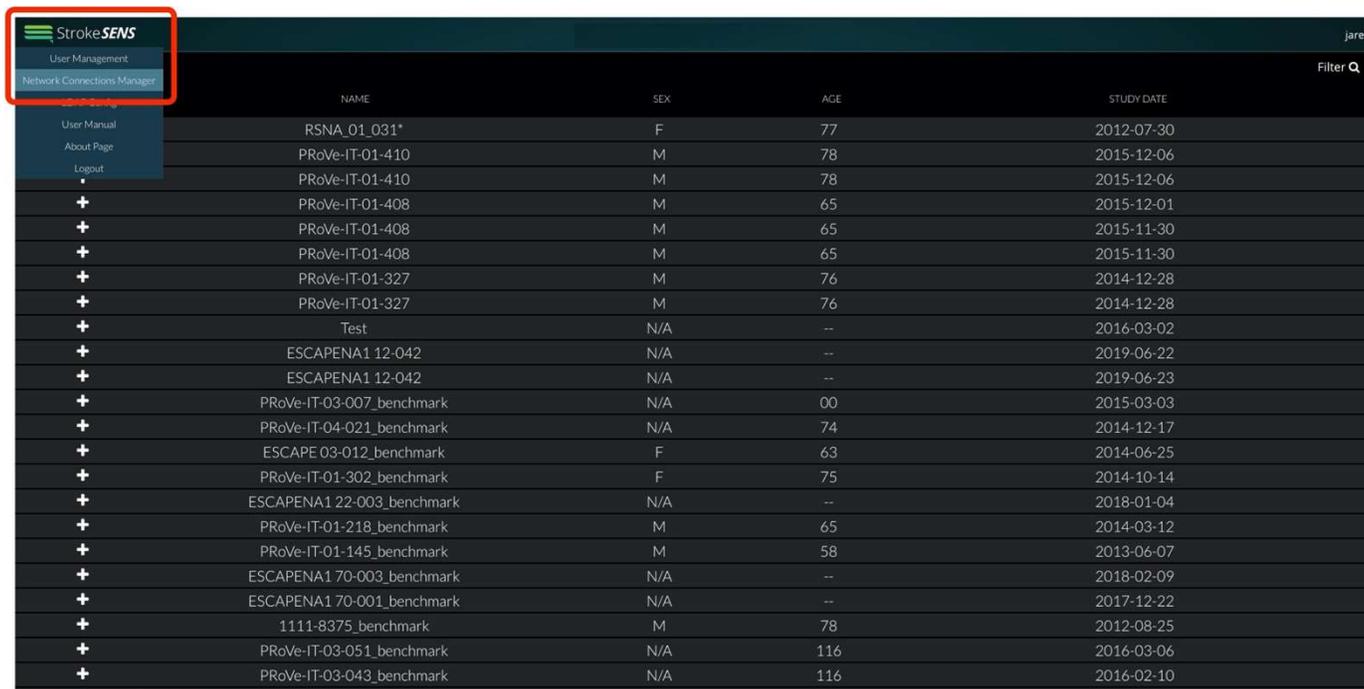
AD/LDAP Specific Information

Username

EDIT

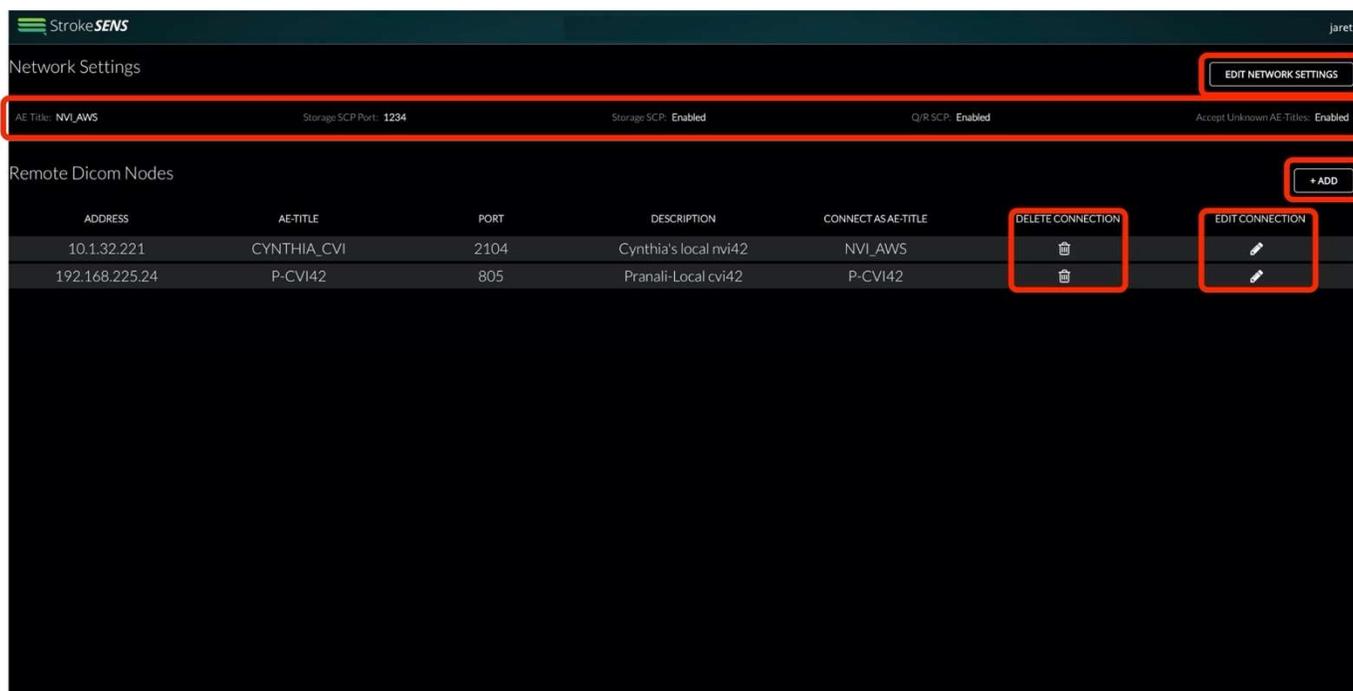
7 Network Connections Manager

From the User Management or LDAP Configuration pages, an Admin can go to the Network Connections Manager page. Both Admins and Users also have access to this page from the Patient List page.



	NAME	SEX	AGE	STUDY DATE
	RSNA_01_031*	F	77	2012-07-30
	PRoVe-IT-01-410	M	78	2015-12-06
	PRoVe-IT-01-410	M	78	2015-12-06
+	PRoVe-IT-01-408	M	65	2015-12-01
+	PRoVe-IT-01-408	M	65	2015-11-30
+	PRoVe-IT-01-408	M	65	2015-11-30
+	PRoVe-IT-01-327	M	76	2014-12-28
+	PRoVe-IT-01-327	M	76	2014-12-28
+	Test	N/A	--	2016-03-02
+	ESCAPENA1 12-042	N/A	--	2019-06-22
+	ESCAPENA1 12-042	N/A	--	2019-06-23
+	PRoVe-IT-03-007_benchmark	N/A	00	2015-03-03
+	PRoVe-IT-04-021_benchmark	N/A	74	2014-12-17
+	ESCAPE 03-012_benchmark	F	63	2014-06-25
+	PRoVe-IT-01-302_benchmark	F	75	2014-10-14
+	ESCAPENA1 22-003_benchmark	N/A	--	2018-01-04
+	PRoVe-IT-01-218_benchmark	M	65	2014-03-12
+	PRoVe-IT-01-145_benchmark	M	58	2013-06-07
+	ESCAPENA1 70-003_benchmark	N/A	--	2018-02-09
+	ESCAPENA1 70-001_benchmark	N/A	--	2017-12-22
+	1111-8375_benchmark	M	78	2012-08-25
+	PRoVe-IT-03-051_benchmark	N/A	116	2016-03-06
+	PRoVe-IT-03-043_benchmark	N/A	116	2016-02-10

In the Network Connections Manager page, the user has the option of adding new DICOM nodes from which images can be pushed into the current network. Clicking the 'Edit Network Settings' button, the current network details can be changed. Using the '+ADD' button, the details for new DICOM nodes can be added to the list. Existing nodes on the list can also be deleted and edited by clicking the icon in the relevant column for that node. The details of the current network are also present on this page.



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Network Settings **EDIT NETWORK SETTINGS**

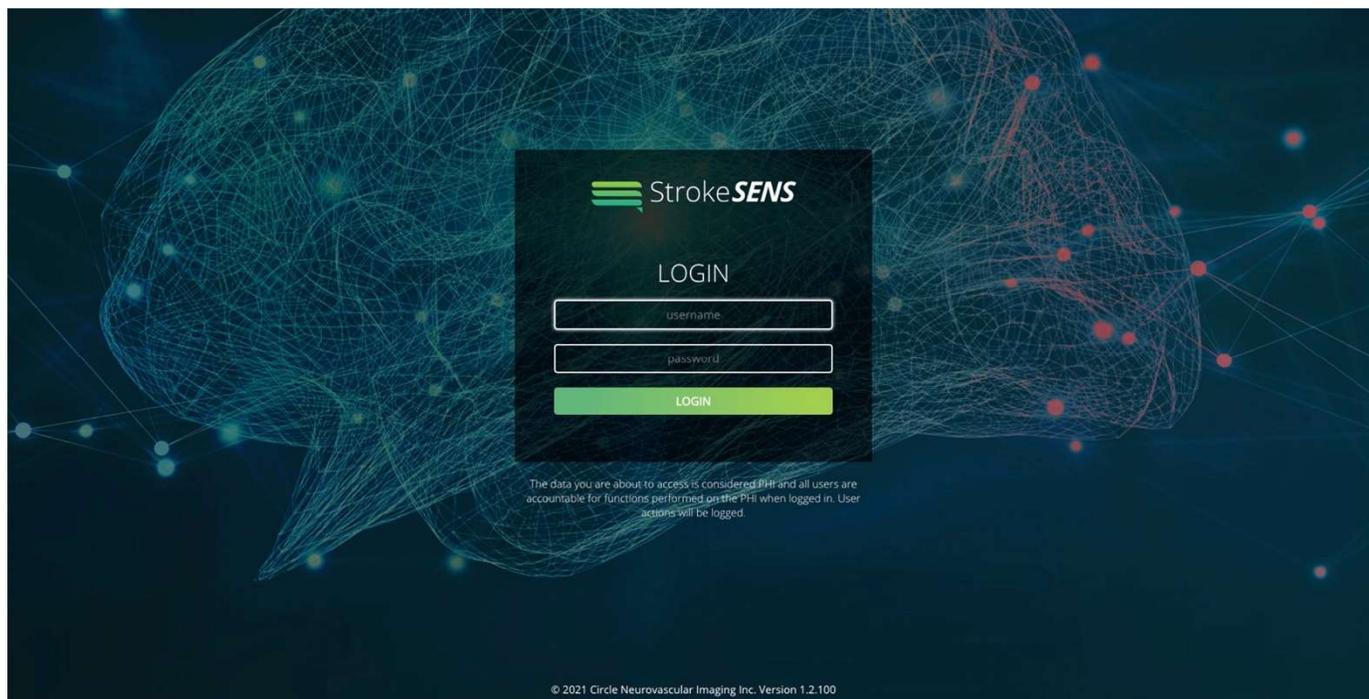
AE Title: NVI_AWS Storage SCP Port: 1234 Storage SCP: Enabled Q/R SCP: Enabled Accept Unknown AE Titles: Enabled

Remote Dicom Nodes **+ ADD**

ADDRESS	AE-TITLE	PORT	DESCRIPTION	CONNECT AS AE-TITLE	DELETE CONNECTION	EDIT CONNECTION
10.1.32.221	CYNTHIA_CVI	2104	Cynthia's local nvi42	NVI_AWS		
192.168.225.24	P-CVI42	805	Pranali-Local cvi42	P-CVI42		

8 Worklist

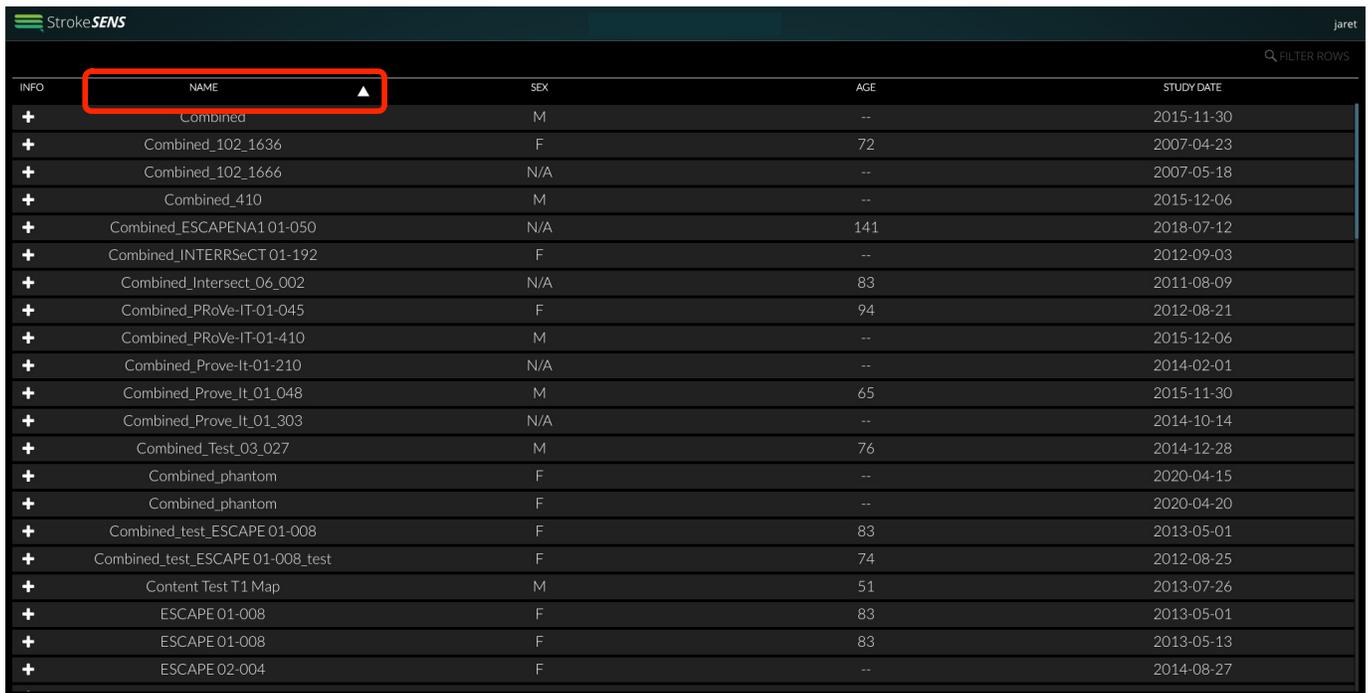
Upon launching StrokeSENS, the user will be prompted to enter their login details in the form of a username and password. Following a temporary "loading worklist" message, the Patient List interface will open. (see Login and Patient List interfaces below)



INFO	NAME	SEX	AGE	STUDY DATE
+	RSNA_01_031*	F	77	2012-07-30
+	PRoVe-IT-01-410	M	78	2015-12-06
+	PRoVe-IT-01-410	M	78	2015-12-06
+	PRoVe-IT-01-408	M	65	2015-12-01
+	PRoVe-IT-01-408	M	65	2015-11-30
+	PRoVe-IT-01-408	M	65	2015-11-30
+	PRoVe-IT-01-327	M	76	2014-12-28
+	PRoVe-IT-01-327	M	76	2014-12-28
+	Test	N/A	--	2016-03-02
+	ESCAPENA1 12-042	N/A	--	2019-06-22
+	ESCAPENA1 12-042	N/A	--	2019-06-23
+	PRoVe-IT-03-007_benchmark	N/A	00	2015-03-03
+	PRoVe-IT-04-021_benchmark	N/A	74	2014-12-17
+	ESCAPE 03-012_benchmark	F	63	2014-06-25
+	PRoVe-IT-01-302_benchmark	F	75	2014-10-14
+	ESCAPENA1 22-003_benchmark	N/A	--	2018-01-04
+	PRoVe-IT-01-218_benchmark	M	65	2014-03-12
+	PRoVe-IT-01-145_benchmark	M	58	2013-06-07
+	ESCAPENA1 70-003_benchmark	N/A	--	2018-02-09
+	ESCAPENA1 70-001_benchmark	N/A	--	2017-12-22
+	1111-8375_benchmark	M	78	2012-08-25
+	PRoVe-IT-03-051_benchmark	N/A	116	2016-03-06
+	PRoVe-IT-03-043_benchmark	N/A	116	2016-02-10
+	ESCAPENA1 70-012_benchmark	N/A	--	2019-03-28

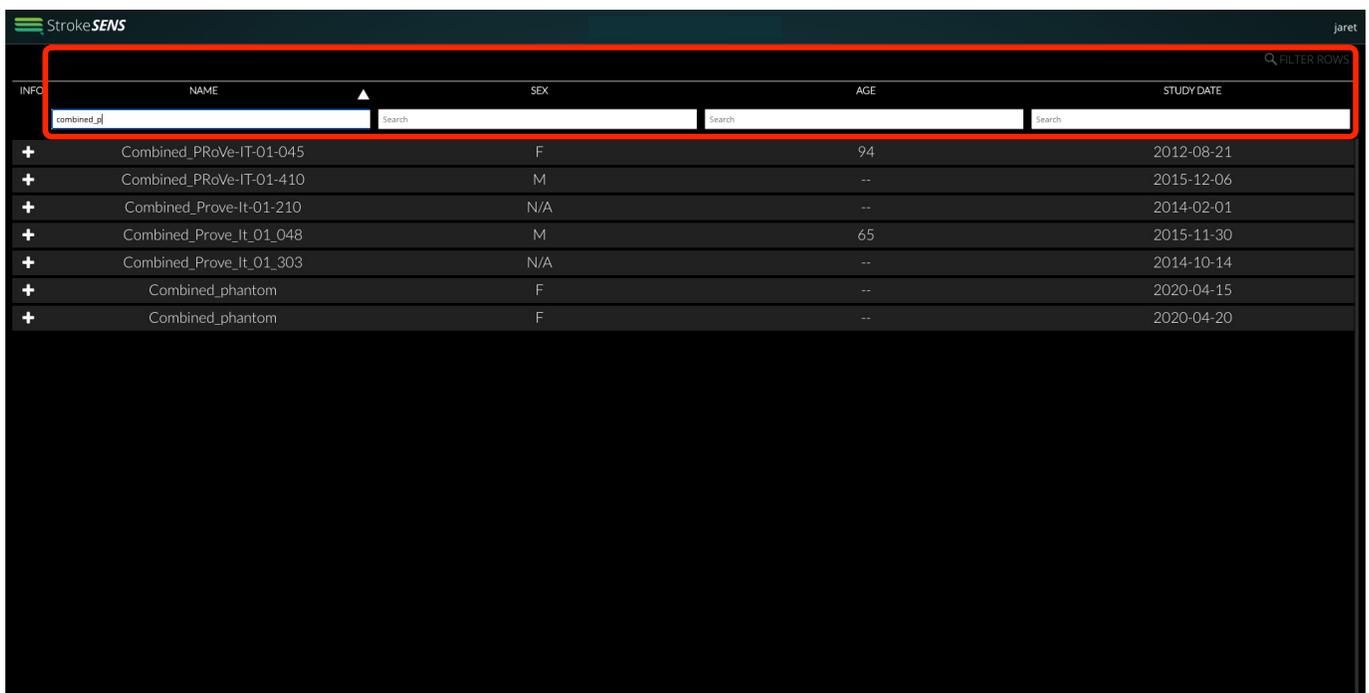
By default, the studies most recently pushed to StrokeSENS will be displayed at the top of the list. To locate other studies the user can:

- Sort the list by any of the columns by clicking the column header (alternates between ascending and descending order)



INFO	NAME ▲	SEX	AGE	STUDY DATE
+	Combined	M	--	2015-11-30
+	Combined_102_1636	F	72	2007-04-23
+	Combined_102_1666	N/A	--	2007-05-18
+	Combined_410	M	--	2015-12-06
+	Combined_ESCAPENA1 01-050	N/A	141	2018-07-12
+	Combined_INTERRSeCT 01-192	F	--	2012-09-03
+	Combined_Intersect_06_002	N/A	83	2011-08-09
+	Combined_PRoVe-IT-01-045	F	94	2012-08-21
+	Combined_PRoVe-IT-01-410	M	--	2015-12-06
+	Combined_Prove-It-01-210	N/A	--	2014-02-01
+	Combined_Prove_It_01_048	M	65	2015-11-30
+	Combined_Prove_It_01_303	N/A	--	2014-10-14
+	Combined_Test_03_027	M	76	2014-12-28
+	Combined_phantom	F	--	2020-04-15
+	Combined_phantom	F	--	2020-04-20
+	Combined_test_ESCAPE 01-008	F	83	2013-05-01
+	Combined_test_ESCAPE 01-008_test	F	74	2012-08-25
+	Content Test T1 Map	M	51	2013-07-26
+	ESCAPE 01-008	F	83	2013-05-01
+	ESCAPE 01-008	F	83	2013-05-13
+	ESCAPE 02-004	F	--	2014-08-27

- Use the 'Filter Rows' functionality to narrow Patient List entries to those matching provided search criteria for a given column



INFO	NAME ▲	SEX	AGE	STUDY DATE
+	Combined_PRoVe-IT-01-045	F	94	2012-08-21
+	Combined_PRoVe-IT-01-410	M	--	2015-12-06
+	Combined_Prove-It-01-210	N/A	--	2014-02-01
+	Combined_Prove_It_01_048	M	65	2015-11-30
+	Combined_Prove_It_01_303	N/A	--	2014-10-14
+	Combined_phantom	F	--	2020-04-15
+	Combined_phantom	F	--	2020-04-20

Studies in the worklist can be combined by multi-selecting studies from the Patient List (Windows: Ctrl-left click; Mac: Cmd-left click), then right clicking to reveal the *Combine Studies* option.

INFO	NAME	SEX	AGE	STUDY DATE
+	RSNA_01_042_AS9_Right_LVO	N/A	--	2012-08-17
+	RSNA_01_040_AS9_Left_noLVO	N/A	--	2012-08-15
+	RSNA_01_031*	F	77	2012-07-30
+	ProveIT_04_027_LVO	N/A	--	2015-03-03
+	ProveIT_04_027_AS10	N/A	--	2015-03-04
+	ProveIT_04_025_AS5_Left_LVO	N/A	--	2013-02-21
+	ProveIT_01_312_AS8_Right_LVO	N/A	--	2014-11-11
+	ProveIT_01_303_CTP	N/A	--	2014-10-14
+	ProveIT_01_303_AS7_Right_LVO	N/A	--	2014-10-14
+	ProveIT_01_219_AS10_noLVO	N/A	--	2014-03-12
+	ProveIT_01_210_CTP	N/A	--	2014-02-01
+	ProveIT_01_210_AS6_Left_LVO	N/A	--	2014-02-01
+	ProveIT_01_194_AS8_Right_LVO	N/A	--	2013-12-01
+	ProveIT_01_172_AS10_noLVO	N/A	--	2013-08-26
+	ProveIT_01_125_AS10_noLVO	N/A	--	2013-04-16
+	ProveIT_01_103_AS9_Left_noLVO	N/A	--	2013-03-19
+	ProveIT_01_099_LVO	N/A	--	2013-03-13
+	ProveIT_01_092_AS10_LVO	N/A	--	2013-01-28
+	ProveIT_01_087_AS8_Left_LVO	N/A	--	2012-12-22
+	ProveIT_01_073_AS10_LVO	N/A	--	2012-11-17
+	ProveIT_01_042_AS9_Right_LVO	N/A	--	2012-08-17

Once *Combine Studies* is selected, the user will have the option to name the combined study.

INFO	NAME	SEX	AGE	STUDY DATE
+	RSNA_01_031*	F	77	2012-07-30
+	ProveIT_01_410	M	78	2015-12-06
+	ProveIT_01_410	M	78	2015-12-06
+	PRoVe-IT-01-408	M	65	2015-12-01
+	PRoVe-IT-01-408	M	65	2015-11-30
+	PRoVe-IT-01-408	M	65	2015-11-30
+	Combined_MPR-PranaliJitter	F	--	2020-04-20
+	Combined_MPR-PranaliJitter	F	--	2020-04-15
+	Combined_jitter3	N/A	--	2014-02-01
+	Combined_jitter2	F	--	2020-04-20
+	Combined_jitter2	F	--	2020-04-15
+	Combined_test_jitter	N/A	--	2011-08-09
+	Combined_test_pranali1	N/A	--	2011-08-09
+	Mammoth Series	N/A	116	2015-02-05
+	Combined_410	M	--	2015-12-06

To load a study for viewing, the user can double-click that entry in the Patient List. The entry will briefly animate during loading, then display the study in the Workflow view. (see the Workflow section for additional details)

INFO	NAME	SEX	AGE	STUDY DATE
+	PRoVe-IT-02-024	U	116	2016-03-09
+	PRoVe-IT-01-410	M	78	2015-12-06
+	PRoVe-IT-01-410	M	78	2015-12-06
+	Combined_phantom	F	--	2020-04-20
+	Combined_phantom	F	--	2020-04-15
+	RSNA_01_031*	F	77	2012-07-30
+	PRoVe-IT-01-408	M	65	2015-12-01
+	PRoVe-IT-01-408	M	65	2015-11-30
+	PRoVe-IT-01-408	M	65	2015-11-30
+	PRoVe-IT-01-327	M	76	2014-12-28
+	PRoVe-IT-01-327	M	76	2014-12-28
+	PRoVe-IT-08-001	N/A	--	2016-03-02
+	PRoVe-IT-08-001	N/A	--	2016-03-03
+	PRoVe-IT-05-011	N/A	--	2016-04-26
+	PRoVe-IT-01-222	M	86	2014-03-30
+	PRoVe-IT-01-210	F	38	2014-02-01
+	Mammoth Series	N/A	116	2015-02-05
+	Combined_410	M	--	2015-12-06
+	Combined	M	--	2015-11-30
+	Combined_PRoVe-IT-01-410	M	--	2015-12-06
+	Combined_INTERRSeCT 01-192	F	--	2012-09-03



IMPORTANT: If a user is not active on any page for more than 10 minutes, the user will automatically be logged out with a 30 second countdown notification that the user can interrupt by clicking the 'OK' button.

STROKE WORKSPACE

PROTOTYPE - NOT FOR CLINICAL USE

STUDY TAG: Top priority | usera_import | + New tag

Name	Study Tags	Sex	Age	Birth Date	Study Date	Study Descri	Referring Ph	Performing I	Institution Na	Modality	Series	Images
Combined	Top priority	F	76	1935-12-03	2007-08-13	CT ANGIO H	unknown	unknown	unknown	CT	3	1432
PRoVe-IT-01												
PRoVe-IT-01												
PRoVe-IT-01												
Combined_B3												
Anonymized usera		unknown		N/A	2007-08-13	CT HEAD PET	unknown	unknown	unknown	CT	3	1432
Combined_B3	Top priority	M	80	1919-10-28	2012-08-15	CT HEAD PET	unknown	unknown	unknown	CT	3	1516
Combined_B3		F	88	1923-03-02	2012-08-17	CT ANGIO H	unknown	unknown	unknown	CT	3	1410
Combined_B3		F	87	1935-03-11	2012-08-11	CT HEAD PET	unknown	unknown	unknown	CT	3	1449

You have been inactive for 10 minutes, you will be logged out in: 20s

Ok ✓

Anonymize Study | Show Extended View | Play Cine

9 Workflow



IMPORTANT: If the user is viewing a patient case while the image is being processed for Artificial Intelligence (AI), a progress indicator will appear in the results tab. The user can still interact with the original images while the AI is running in the background.

When multiple series of the same image type are available, the first (earliest acquisition time) is selected for automated ML analysis.

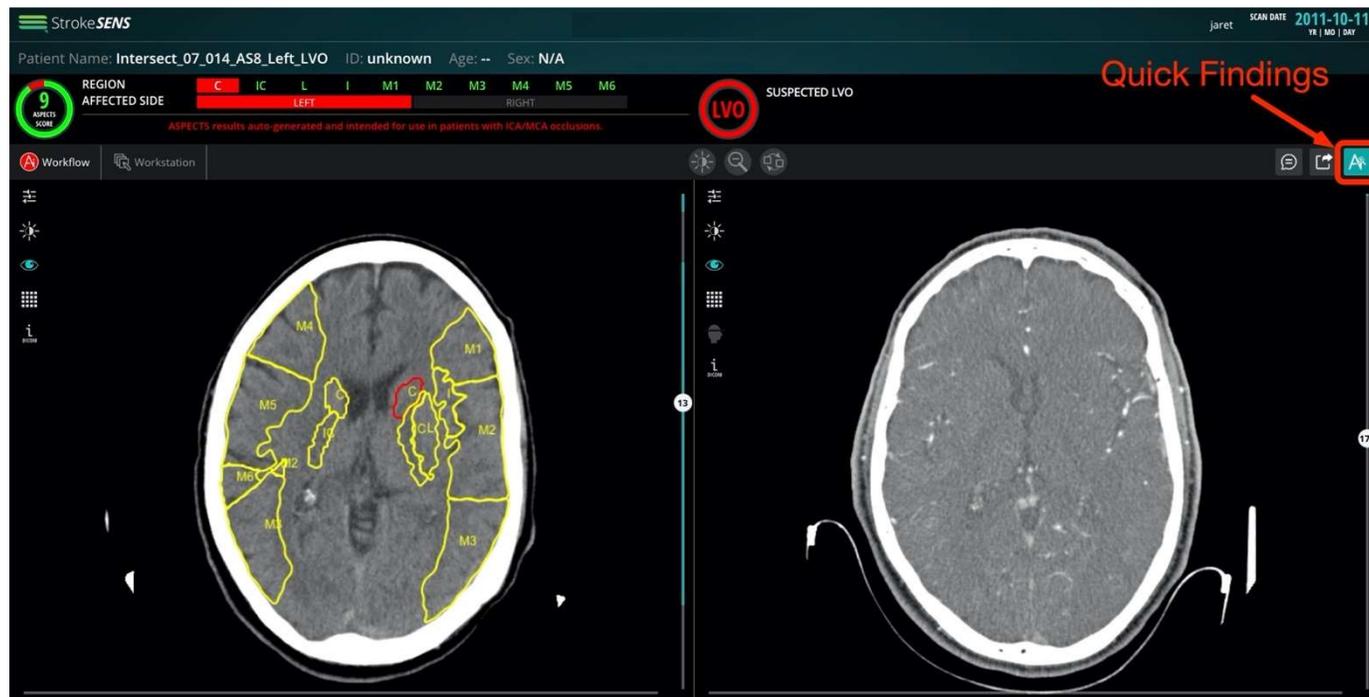
Automated processing occurs in the following priority:

1. Large Vessel Occlusion (LVO) Detection
2. ASPECTS Scoring

Results of the processing modules are returned individually as they become available.

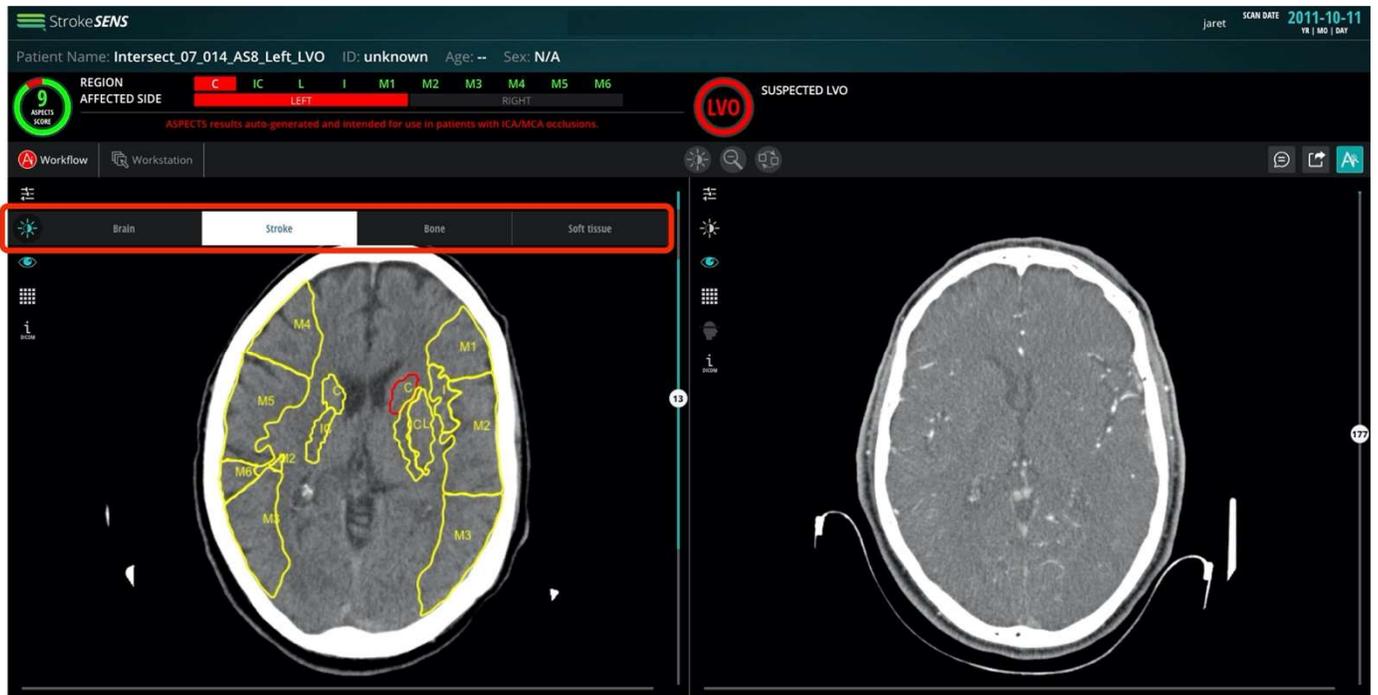
9.1 Quick Findings

Upon loading a study, the workflow page will display the first scanned NCCT (left) and CTA (right) images. The output of the ML algorithm can be viewed/hidden by clicking the *'Quick Findings'* button (see following diagram). The NCCT ASPECTS regions can also be seen on the NCCT image as well as whether a suspected LVO has been identified on the CTA image.



9.2 Windowing

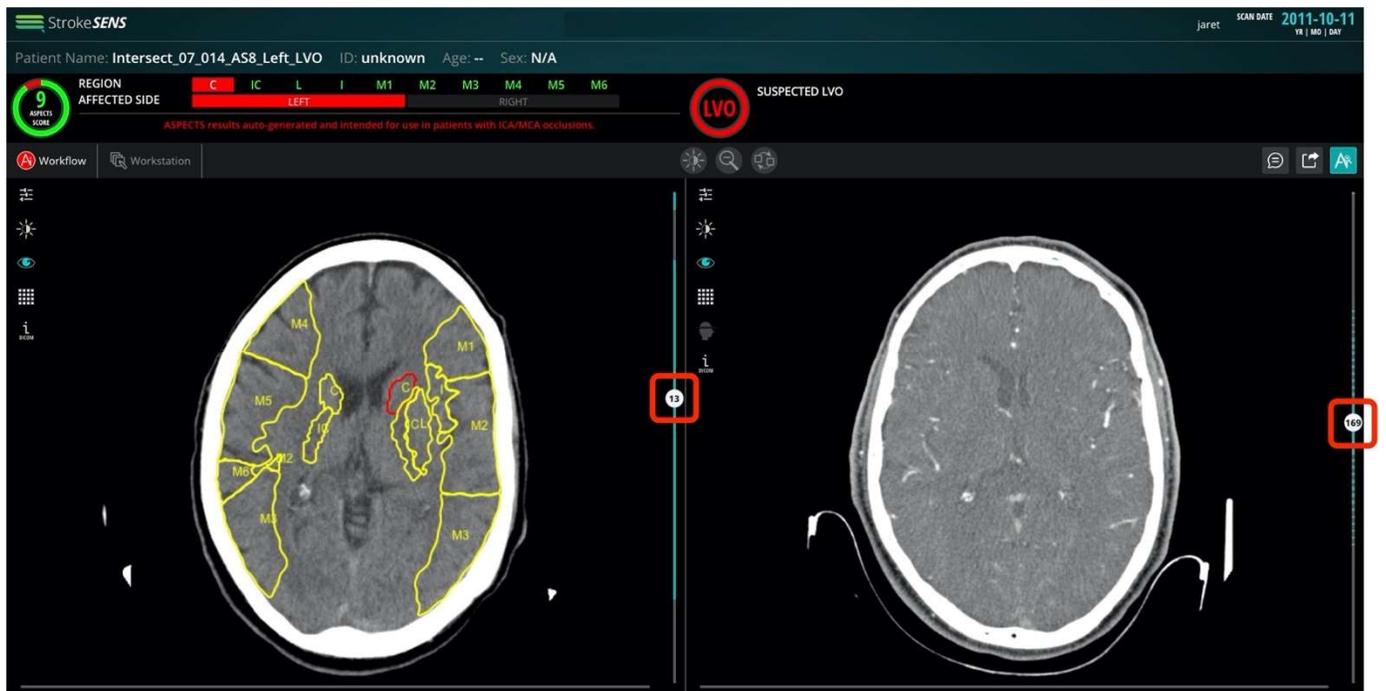
In any of the viewers, a windowing pre-set can be selected by clicking on the windowing icon within the view, as shown below.



To further adjust window to satisfaction, the manual windowing button can be selected from above the views, and the windowing adjusted by clicking and dragging in the view of interest.

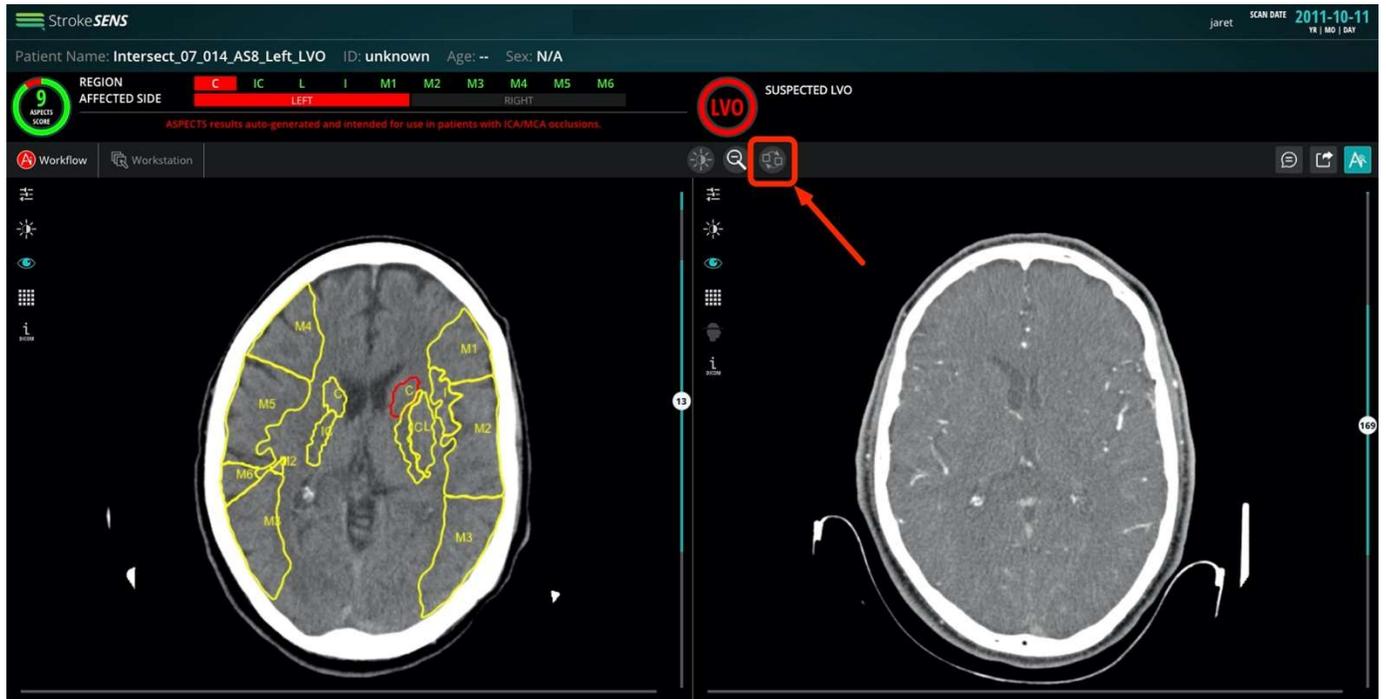
9.3 Slice Scrolling

Users can navigate through the slices of any of the image series by either clicking and dragging within a view or using the slice scroller on the right-side of the view, as shown below.



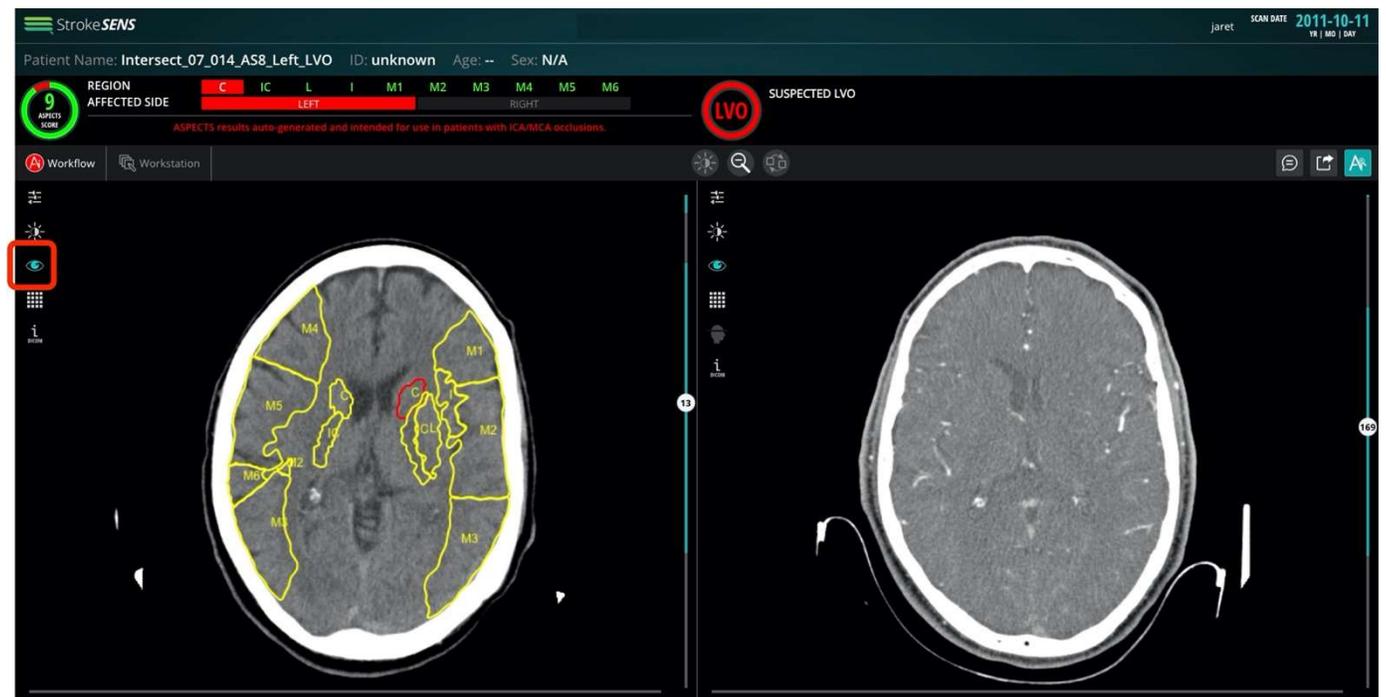
9.4 Synchronized Slice Scrolling

The user can scroll through images in each view simultaneously by clicking on the synch button and scrolling with the mouse scroller button or scrolling through any of the image slice scrollers. The images will scroll in synch when they are in similar slice locations as seen from the info icon output.



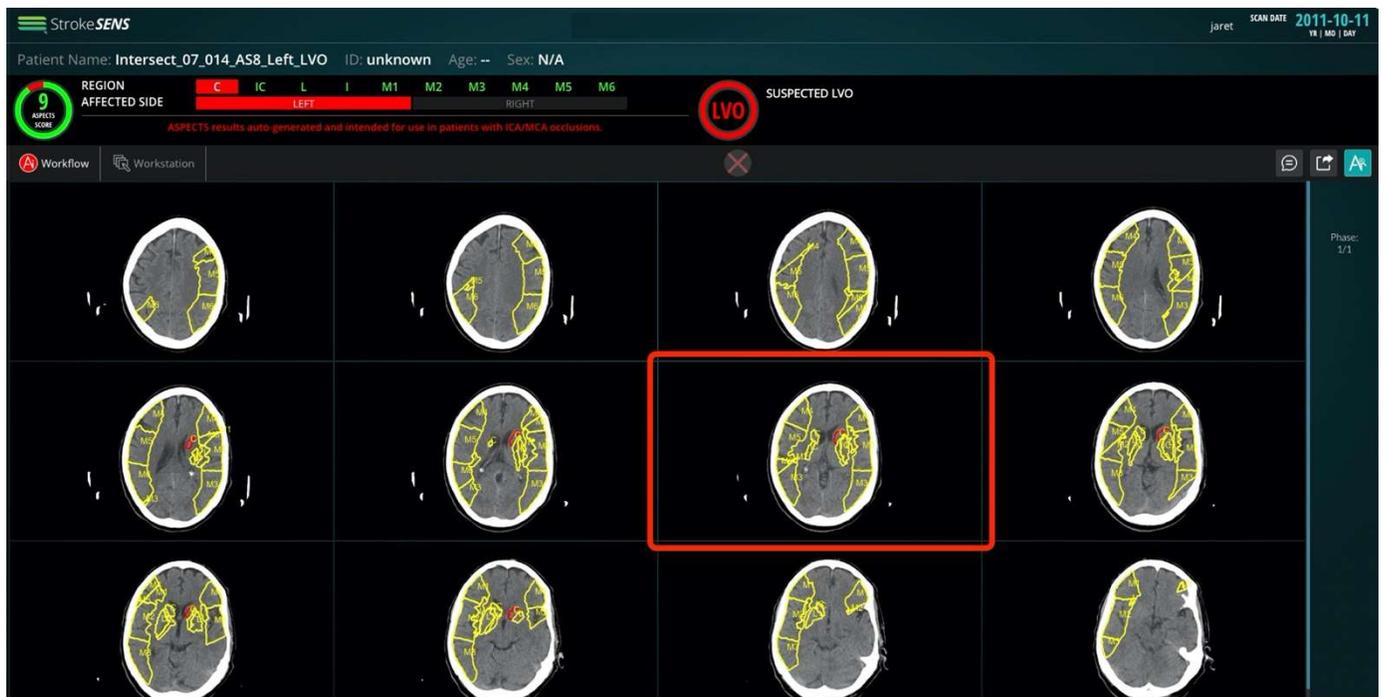
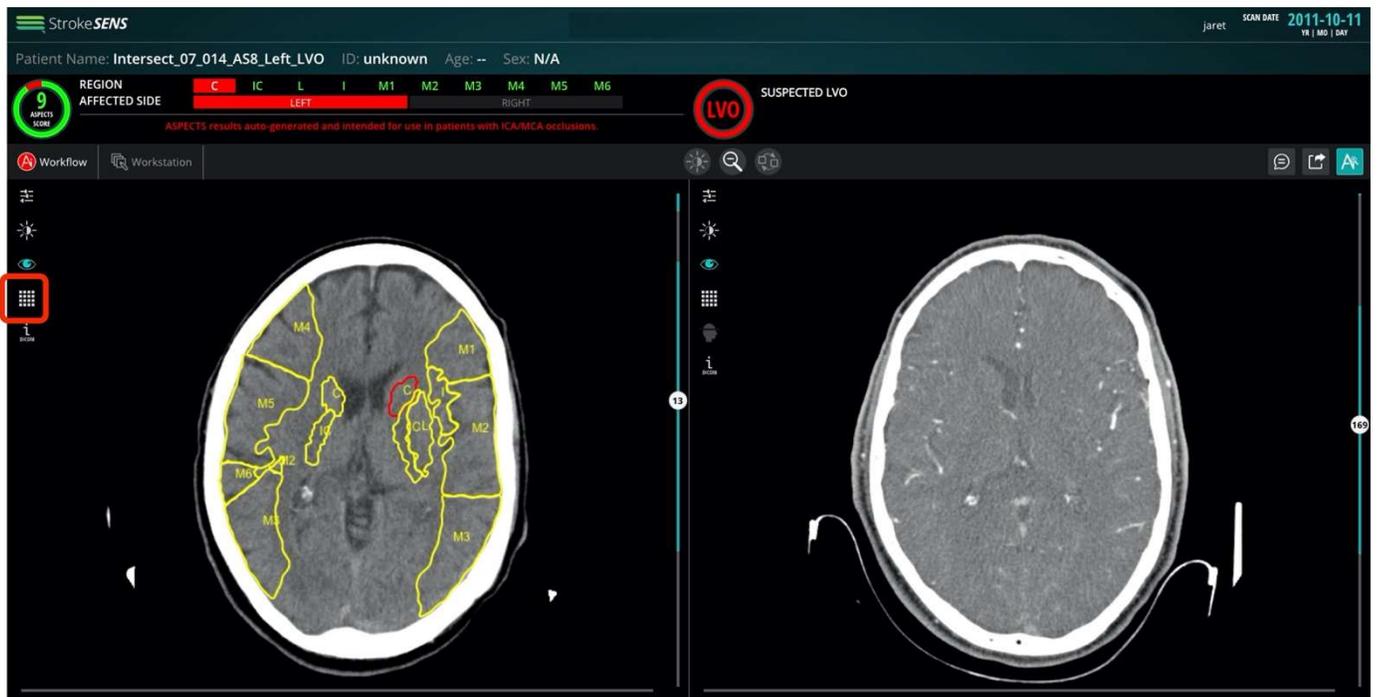
9.5 ASPECTS Regions

The ASPECTS region contours can be toggled on and off with the toggle button as seen below.



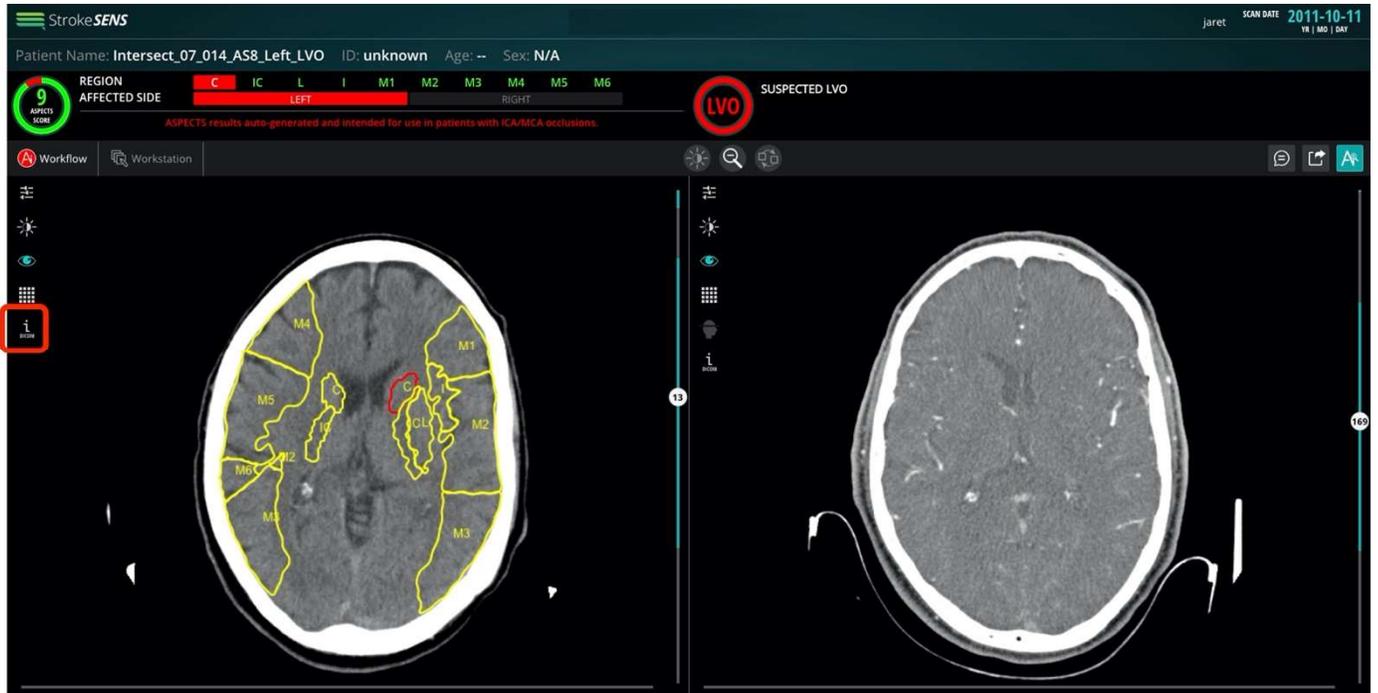
9.6 Multiview Mode

Any image can be viewed in Multiview mode by clicking the Multiview button. Multiview mode will then appear with the current slice from which Multiview was selected in the second row and third column.



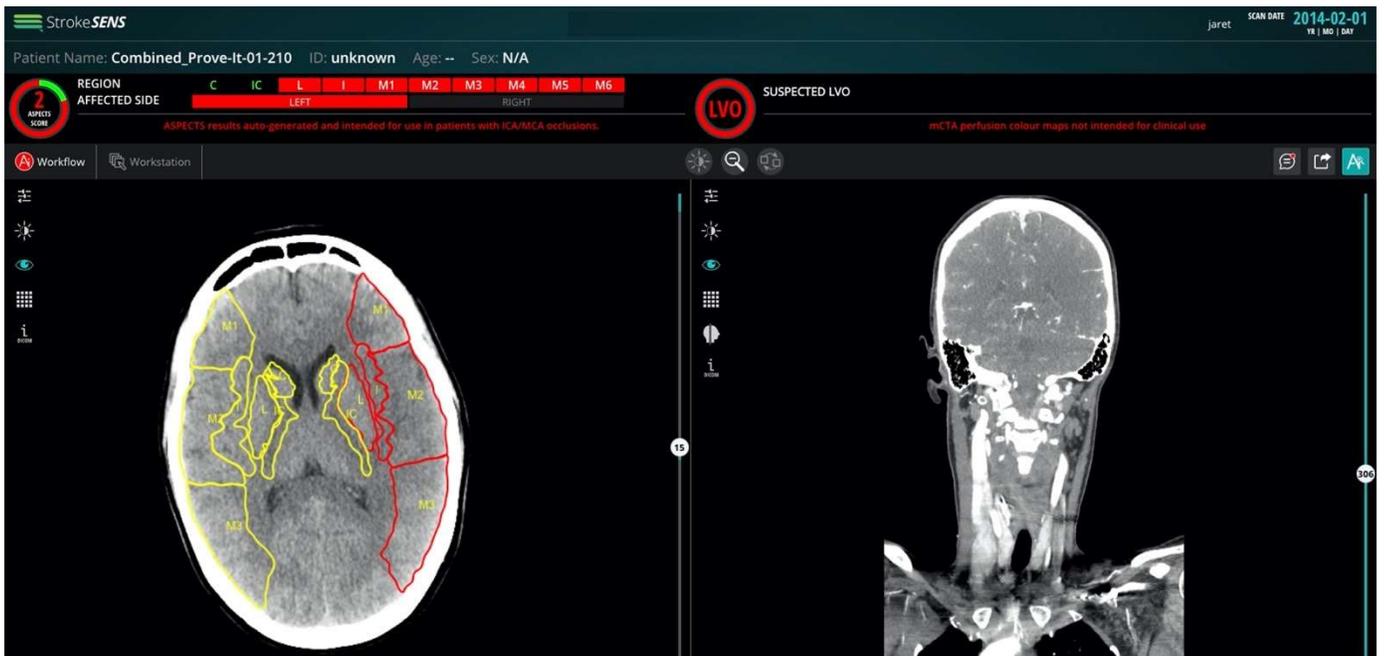
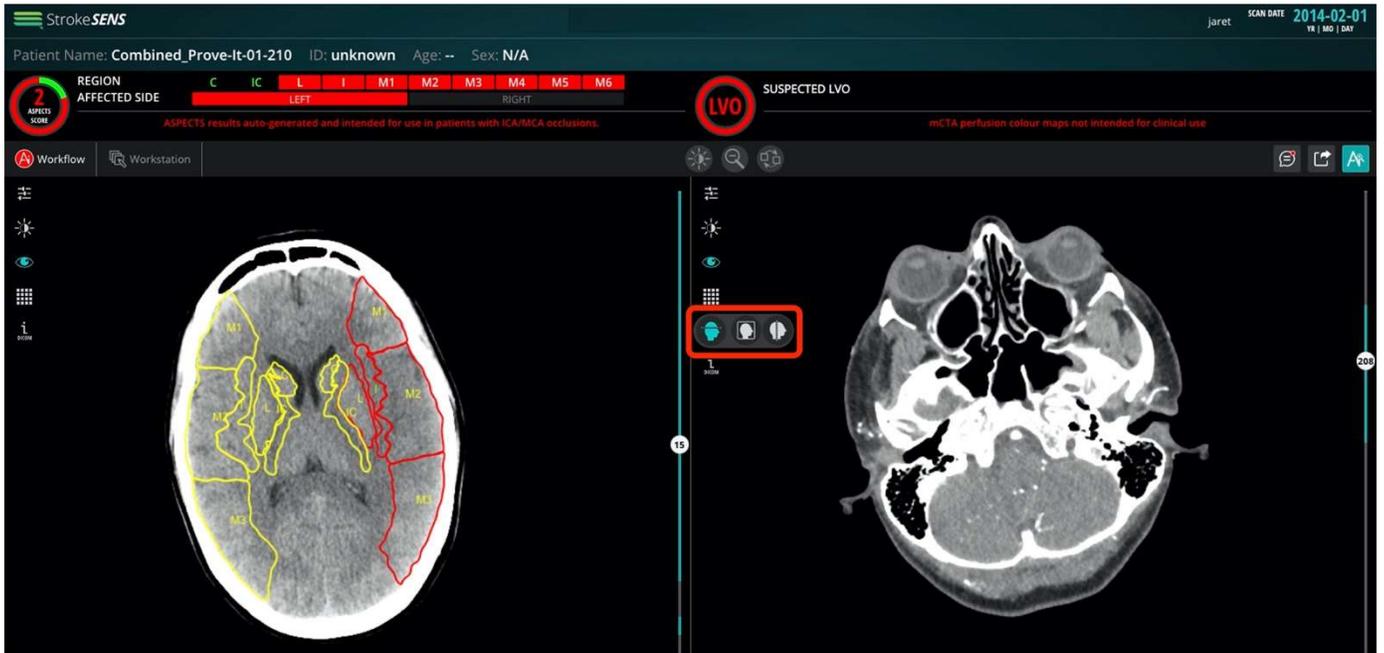
9.7 Study Metadata

Image metadata for the study can be toggled on and off by clicking on the info button in any of the viewers.



9.8 Multiplanar Reconstruction (MPR) Viewing

MPR mode for any of the desired three planes (axial, sagittal and coronal) can be selected by clicking on the MPR button as shown in the image below. The MPR mode will first show a 'fetching MPR images...' loading page and then display the reformatted images.



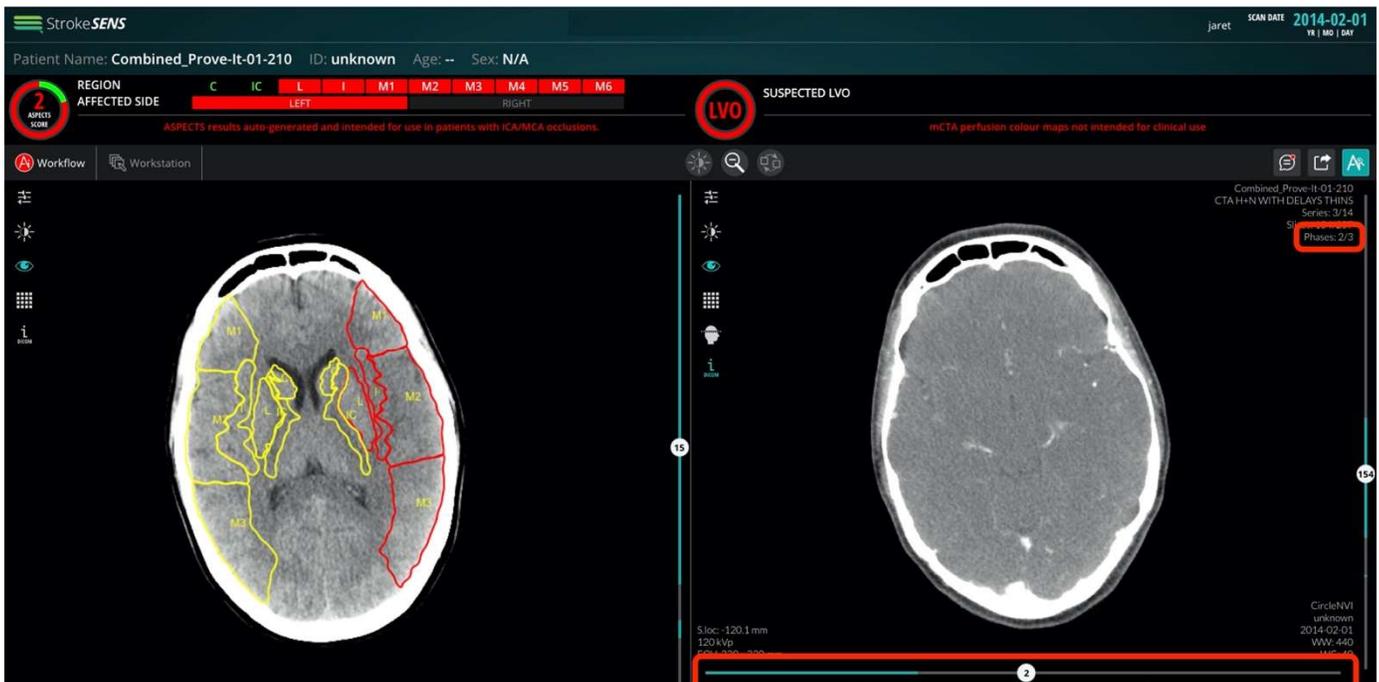
9.9 Maximum/Mean Intensity Projection (“MIPs”/“Mean”) Viewing

In any of the MPR orientations, the MIPS/Mean buttons can be selected to view the images as Maximum/Mean Intensity Projections. A slider is provided to adjust the slab thickness for each of these modes.



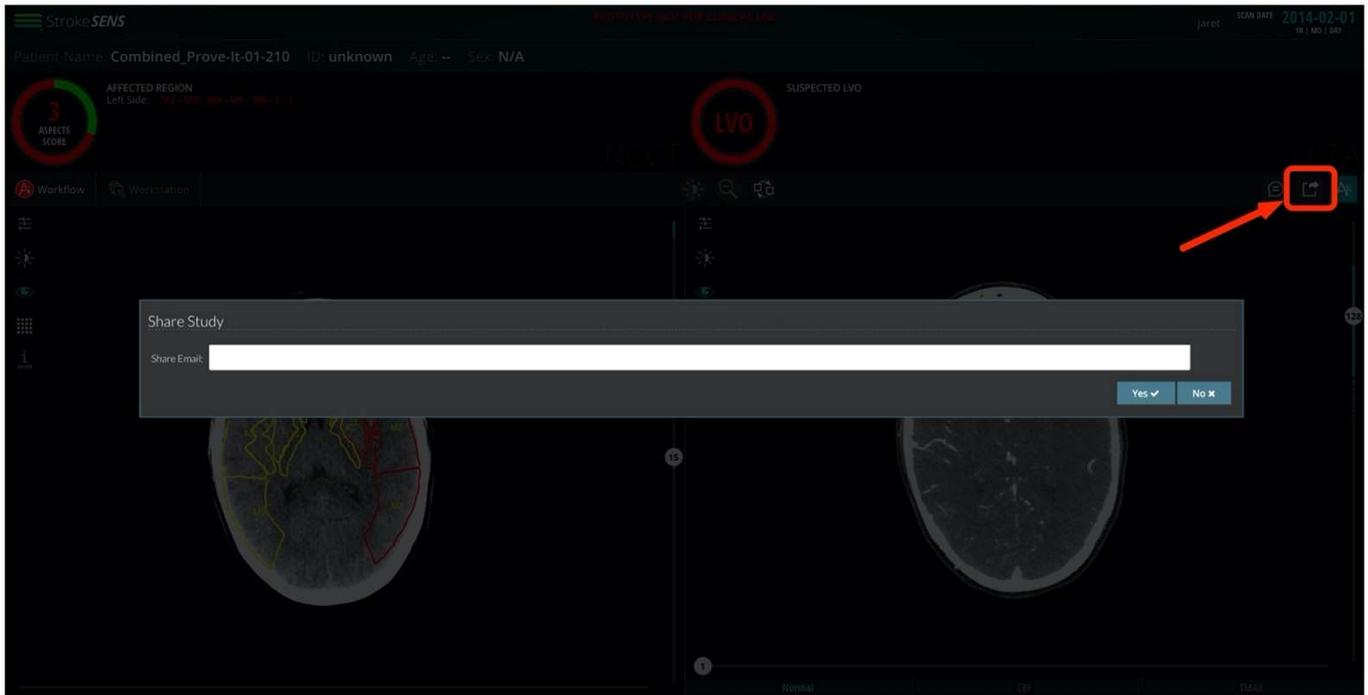
9.10 Multi-phase Viewing

In an image with more than one phase, the user can navigate through the phase with the scrollbar at the bottom of the view by clicking and dragging across the bar. Multi-phase image sets will also indicate the phase being viewed and the total number of phases in the top-right corner when meta-data is displayed.



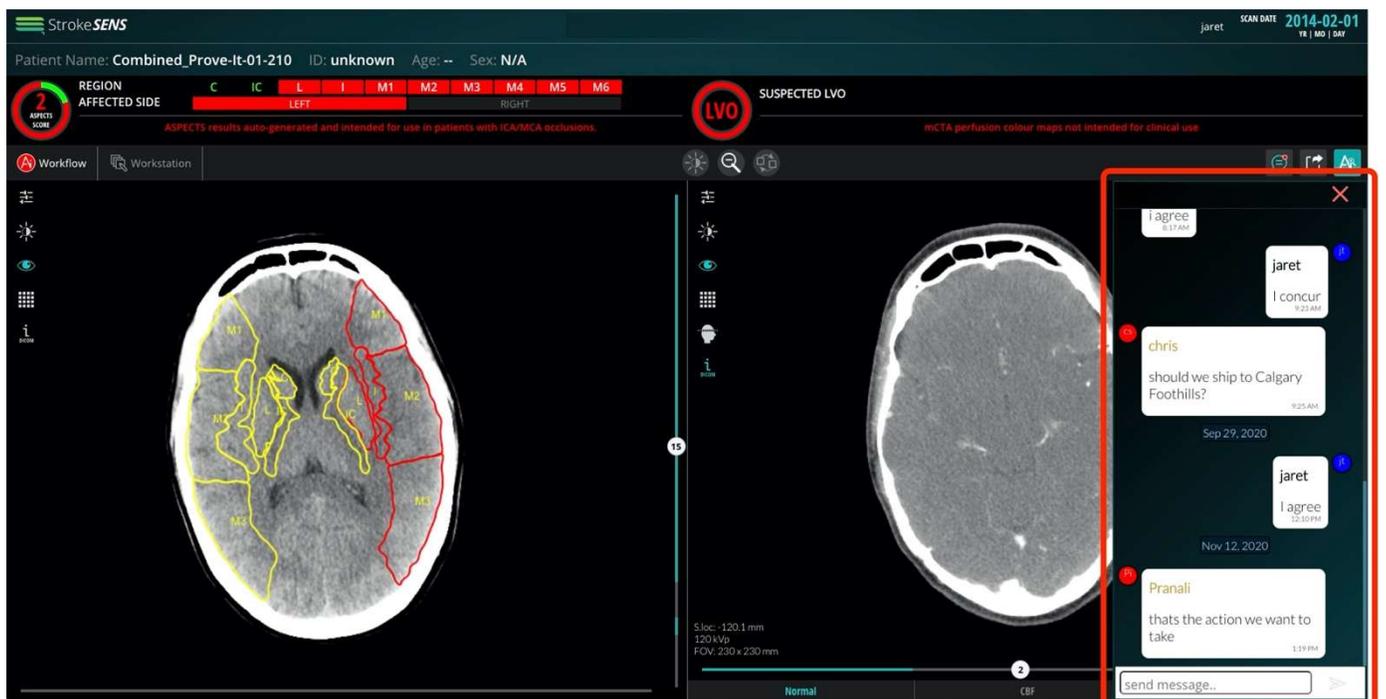
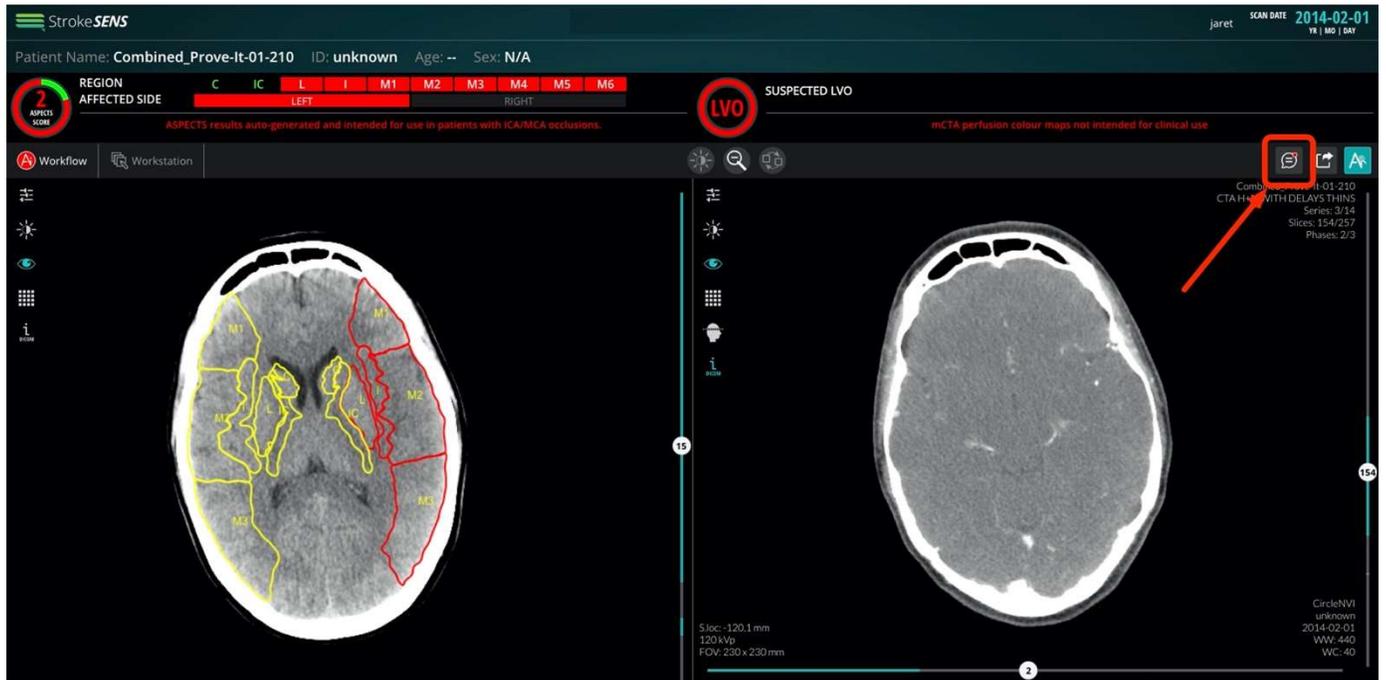
9.11 Study Sharing

A user can share a unique link with another user to view the current study by clicking on the 'Invite' button in the upper-right and entering the receiver's email address in the field provided. With this link, the shared study will be automatically displayed after the second user logs in.



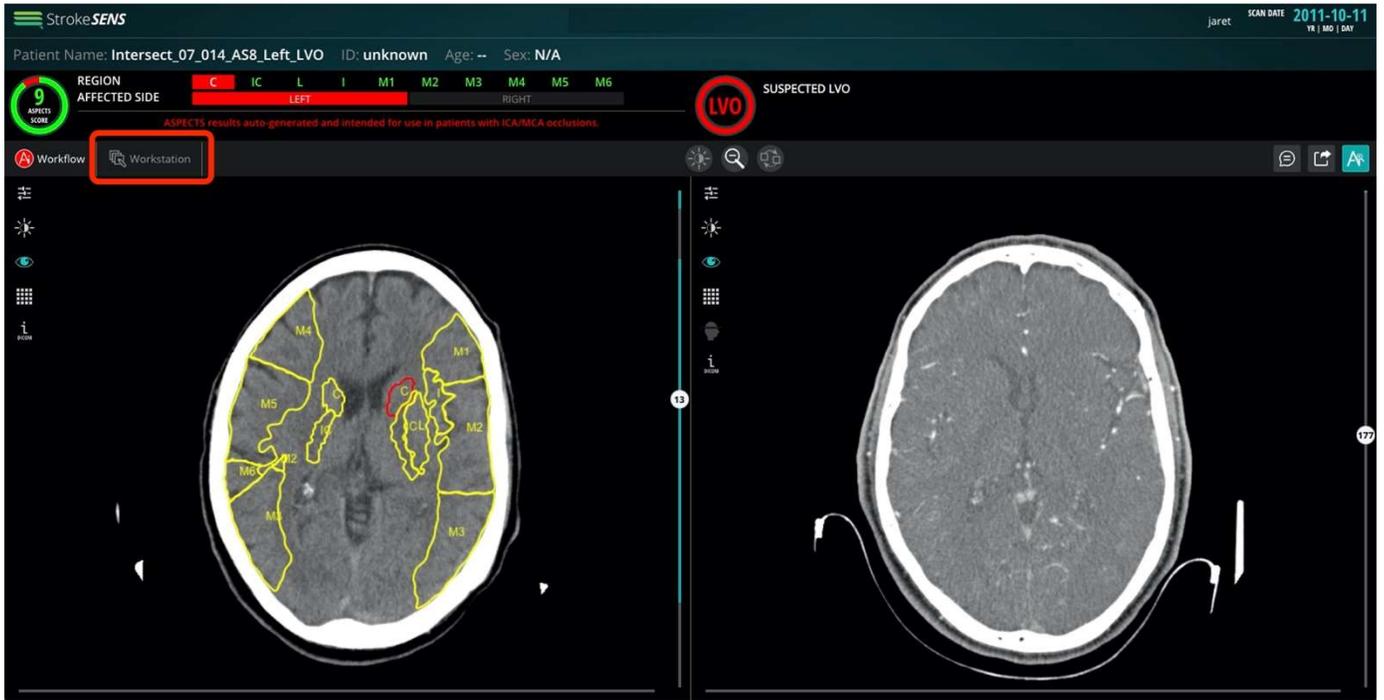
9.12 Text Chat

When users are viewing the same study, they can communicate via the text chat functionality. When a message is received, a small notification dot is seen by the chat icon. When the chat icon is clicked, the chat bar is open with a message field and a send button. Messages can be typed and sent by either the keyboard 'Enter' key or the send button. The chat bar can either be closed by clicking the 'x' button or clicking the chat icon again.



10 Workstation

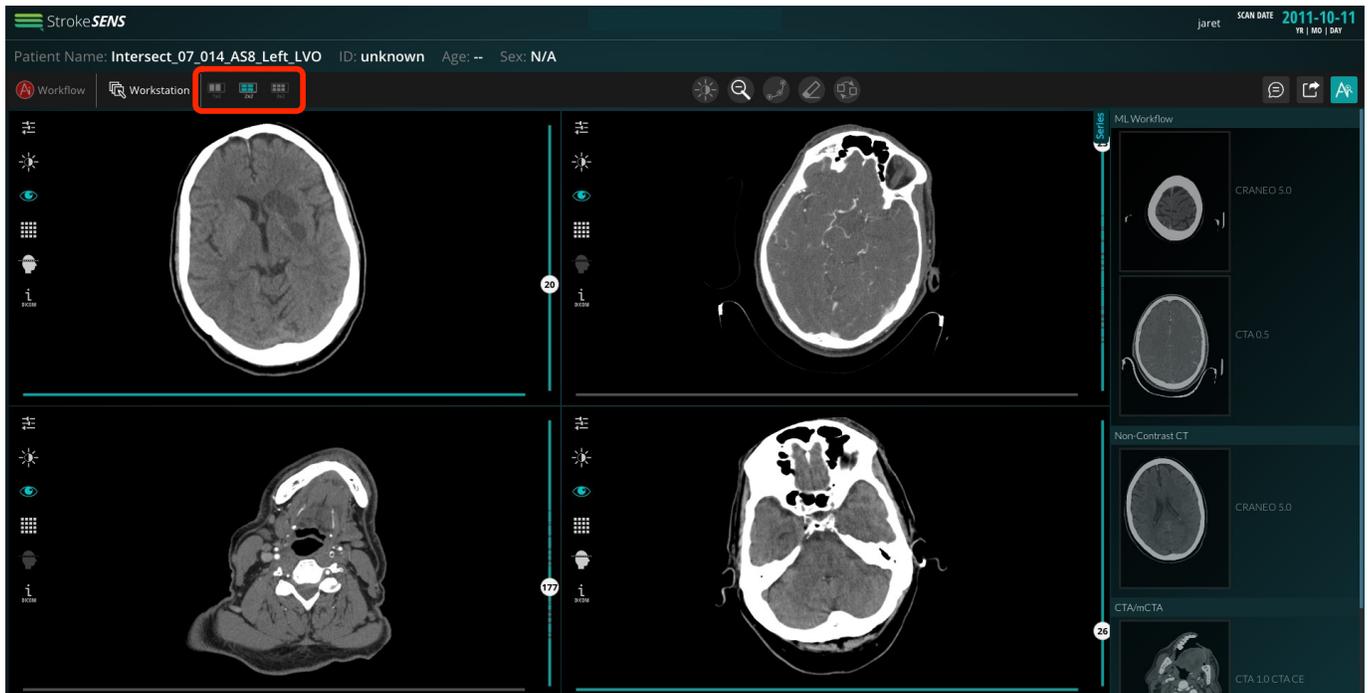
The user can navigate to the Workstation module by clicking on the Workstation tab from the Workflow module (in the upper-left).



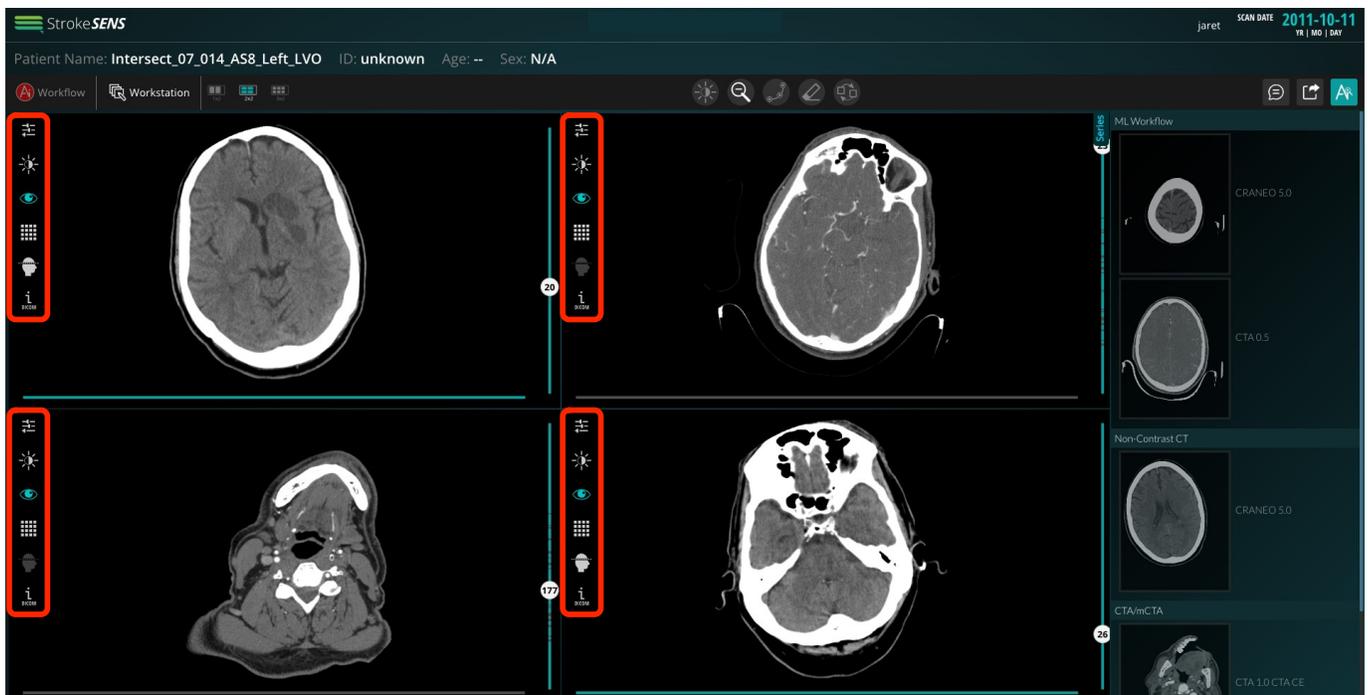
In the workstation tab, the default viewer is '1x2' and any image within that study can be loaded by dragging them into any of the viewing panes from the 'Series' tab.



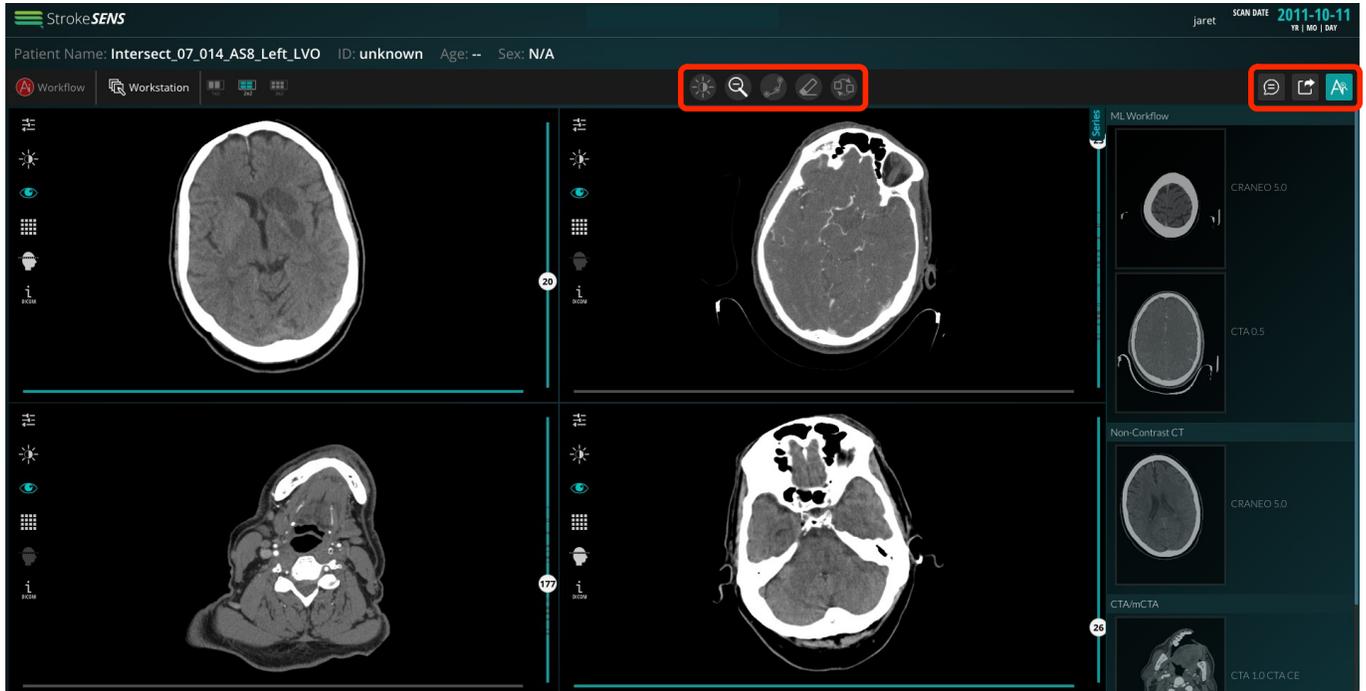
Users can also display more images simultaneously by selecting other layouts – '2x2' or '3x2'- and loading additional images for viewing.



In any of the viewers in the Workstation module, the same local functionalities (MIPS/Mean, window pre-set, toggle contour, Multiview, MPR, info) as described for the workflow module can be carried out on every image.



The global functionalities (manual windowing, zoom, synch, invite, chat, quick findings) also work the same as they do in the workflow module, for all the images within the viewers in this module (Workstation).



11 Technical Support

For technical questions please contact our team by phone or e-mail:

North America

Circle Neurovascular Imaging Inc.

1100, 800 5th Avenue SW Calgary,
Alberta, T2P 3T6

Canada

P: +1 403 338 1870

F: +1 403 338 1895

E: support@circlenvi.com

Website: circlenvi.com