

Masimo[®] Trace[™]



These operating instructions provide the necessary information for proper operation of all models of Trace. There may be information provided in this manual that is not relevant for your system. General knowledge of pulse oximetry and an understanding of the features and functions of Trace are prerequisites for its proper use. Do not operate Trace without completely reading and understanding these instructions.

Notice: Purchase or possession of this device does not carry any express or implied license to use with replacement parts which would, alone or in combination with this device, fall within the scope of one of the relating patents.

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About This Manual

This manual explains how to set up and use Masimo® Trace™. Important safety information relating to general use of Trace appears in this manual. Read and follow any warnings, cautions, and notes presented throughout this manual. The following are explanations of warnings, cautions, and notes.

A *warning* is given when actions may result in a serious outcome (for example, injury, serious adverse effect, death) to the patient or user.

WARNING: This is an example of a warning statement.

A *caution* is given when any special care is to be exercised by the patient or user to avoid injury to the patient, damage to this device, or damage to other property.

CAUTION: This is an example of a caution statement.

A *note* is given when additional general information is applicable.

Note: This is an example of a note.

Product Description and Intended Use

Product Description

Masimo® Trace™ is standalone PC software that can display, transfer, and store clinical data collected by Masimo technologies. The software allows a user to review clinical data, enter notes onto the cases, select a particular session, generate reports, and store a copy for the selected data.

Trace can be utilized to:

- Retrieve, transfer, and store data from from compatible Masimo devices. See **Appendix A: Compatible Masimo Devices** on page 53.
- Create a data file for subsequent retrieval.
- Export data as raw data .csv file or generate graphical .pdf reports.

Intended Use

Masimo® Trace™ is a software tool intended for non-real time data retrieval from compatible Masimo devices and report generation. Trace can be used wherever compatible Masimo devices are used.

Safety Warnings and Cautions

CAUTION: Trace is to be operated by, or under the supervision of, authorized personnel only. Read the manual, accessories directions for use, all precautionary information, and specifications before use.

Safety Warnings and Cautions

WARNING: Do not use Trace during patient monitoring to minimize risk of patient harm.

Performance Warnings and Cautions

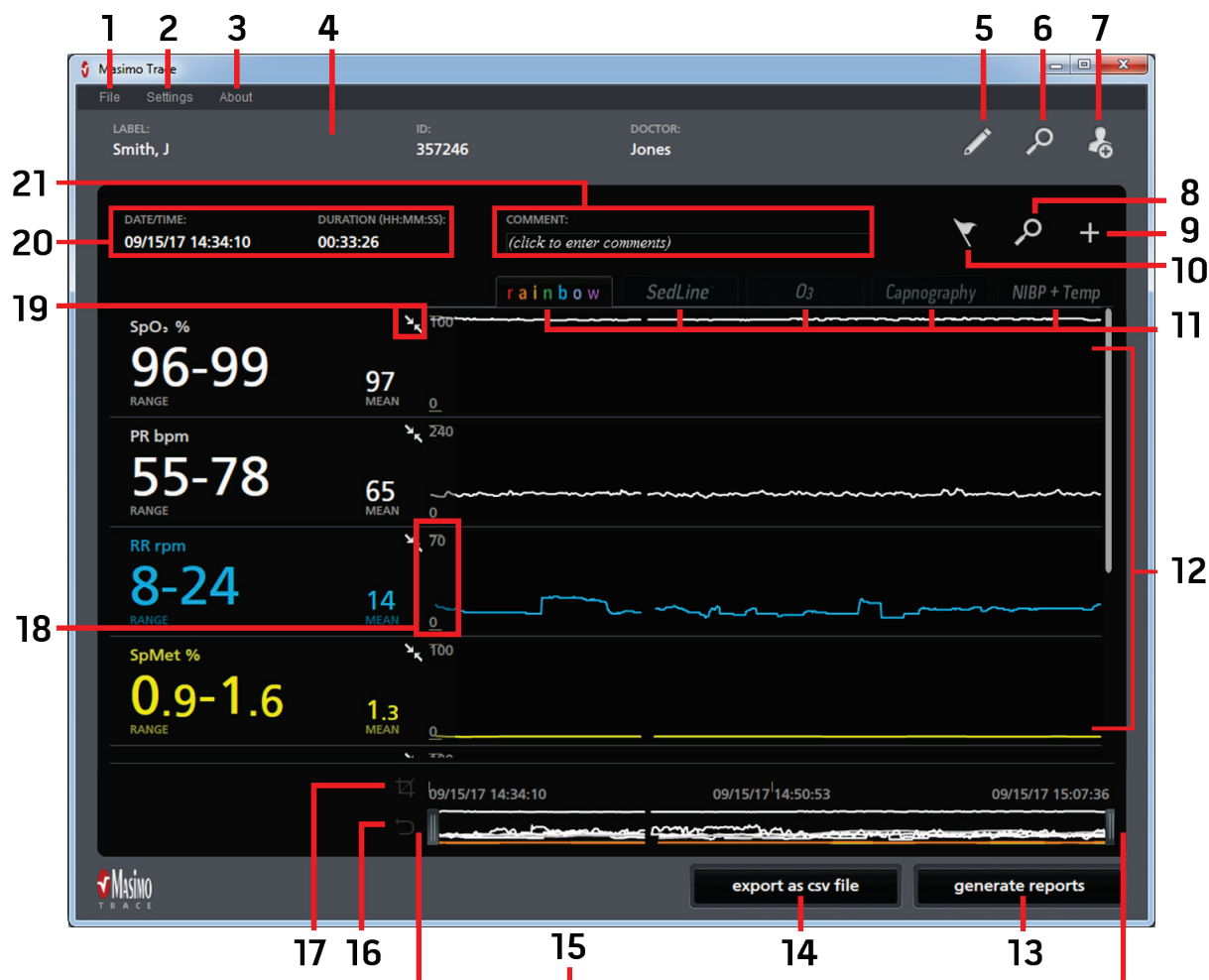
WARNING: Trace should not be used as the sole basis for medical decisions. Trace must be used in conjunction with clinical signs and symptoms.

Note: Trace is designed to work with compatible devices. Verify the compatibility before use.

Chapter 1: Description

Patient Home Screen

The diagram and corresponding table below describe Trace functions and features.



No.	Name	Description
1	File	Exits the Trace program.
2	Settings	Set the Parameter Y Axis, select a data library location, or move a data library to a different location. See Parameter Y Axis on page 31. See Data Library Location on page 28. See Move Data Library on page 29.
3	About	Displays current Trace software revision. See View Trace Software Version on page 13.
4	Patient Data	Label, ID, Doctor name information. See Add a New Patient on page 20.

No.	Name	Description
5	Edit	Edit current patient data. See Search, Edit, or Delete a Patient on page 23.
6	Search Patients	Search for stored patients. See Search, Edit, or Delete a Patient on page 23.
7	Add Patient	Add new patient. See Add a New Patient on page 20.
8	Imports	Displays the available data transfers for the patient currently in view. See Data Transfer List on page 24
9	Transfer Data	Displays the Transfer Data screen to Import data. See Import Patient Data on page 21.
10	Events	Add new events and delete previously added events to the current patient file. See Add, Edit, or Delete Events on page 25.
11	Channels	Displays available channel data. Select a tab to display channel data. See Channels on page 30.
12	Measurement Data Window	Displays data captured by the Masimo device and downloaded to Trace.
13	Generate Reports	Displays the Report Selection screen to export as PDF. See Chapter 4: Reports on page 33.
14	Export as a CSV file	Exports patient data to an Excel format. See Chapter 4: Reports on page 33.
15	Drag Handles	Increases or reduces the timeline. See Crop Timeline on page 30.
16	Reset	Reverts the timeline to its length prior to cropping. See Crop Timeline on page 30.
17	Crop	Crops the timeline after using drag handles to change start and end time. See Crop Timeline on page 30.
18	Parameter Y Axis	The Min/Max of the parameter can be adjusted. See Parameter Y Axis on page 31.
19	Expand/Collapse Parameter	Expands or collapses the parameter display in the Patient Home Screen. See Expand/Collapse Parameter on page 32.
20	Date/Timestamp	Displays date and time the data was captured from the patient by the Masimo device.
21	Comments	Click to add comments to the patient data. These comments are exported with the PDF reports. See Patient Data Comments on page 29.

General System Description

Trace includes the following:

- Trace software

Cables

The cables listed below are used to connect Masimo devices to the Trace host computer. If an adapter is required, it must be purchased separately.

Description	Image
Root and Rad-97 <i>USB Null Modem Cable</i>	
Radical-7 (docked to RDS) <i>USB-to-RS-232 Serial Adapter Cable</i>	

View Trace Software Version

To view the Trace current software version, click on *About* at the top left of the Trace window.

Chapter 2: Setting Up and Installing

The following system requirements are needed to install Trace:

- Minimum Windows 7
- Trace PC Software
- Compatible Masimo Device (see **Appendix A: Compatible Masimo Devices** on page 53).

Trace Installation

To install Trace on the host computer, perform the following:

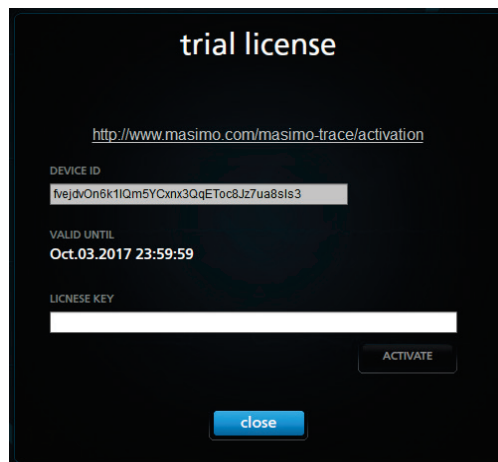
1. Remove the USB drive from the packaging.
2. Plug the USB drive into a USB port on the Trace host computer.
3. Locate the Trace installation (.exe) file .
4. Double click the Trace *Setup.exe* file to start Trace the installation process.
5. Read the End User License Agreement. The use of Trace software is subject to the End Users License Agreement found on <http://www.masimo.com/masimo-trace/activation/>. You must accept the terms of this agreement before continuing with the installation.
 - Click *I accept the agreement*, then *Next* to continue.
6. If a Desktop Shortcut to Trace is desired, check the box next to "Create a desktop shortcut". Click *Next* to continue.
7. Click *Next* to perform the installation.
8. By default, the check box to "Launch Masimo Trace" is selected (de-select if desired). Once Trace is installed, click *Finish*. Trace opens.
9. *License expiring in 14 days* displays in the lower left corner of the Trace Patient Data Screen and counts down until the license expires or a license key is generated by Masimo and entered into Trace. See **License Key** on page 15 to obtain and enter the license key into Trace.

License Key

The Trace trial license can be used for 14 days. The trial license expiration date is displayed on the *Trial License* screen under *VALID UNTIL*. During this trial period, a message indicating the number of days remaining on the trial license is displayed in the lower-left corner of the patient data screen. *TRIAL LICENSE* displays across the report preview screens during the trial period.

When the trial license expires, Trace indicates that the trial has expired and a license must be obtained to continue using Trace.

The license key is obtained from Masimo. This license key is entered into the Trace *Trial License* screen and allows the program to operate with all features and capabilities for the license period displayed under *Valid Until*.



Obtaining a License Key

The license key is obtained by going to <http://www.masimo.com/masimo-trace/activation/>. Follow the web page instructions to obtain a license key.

Note: If the same USB is used to install Trace on multiple computers, a separate license key is required for each installation of Trace. Go to <http://www.masimo.com/masimo-trace/activation/> to obtain license keys for the additional installations.

Entering License Key

Once a license key is obtained from Masimo, perform the following:

1. Click on *About* at the top left of the Trace Patient Home Screen. See **Patient Home Screen** on page 11.
2. Click on *License*. The *License* screen opens.
3. Enter the license key into the *License Key* field.
4. Click *New License*. Trace will now operate with all features and capabilities for the license period displayed under *Valid Until and License Activated!* displays.

Note: If an incorrect license key is entered, *This is not a valid license key* displays.

License Expiration

Starting at 30 days before the license expires, *License expiring in 30 days* displays in the lower left corner of the Trace Patient Data Screen and counts down until the license expires.

Once the license expires, Trace stops functioning and indicates that the license is expired. A valid license must be obtained and entered to continue using Trace.

Uninstall Trace

To remove (uninstall) Trace from the computer, perform the following procedure:

1. Locate the Trace uninstall ".exe" file.
2. Double click the Trace uninstall ".exe" file to start the process to uninstall Trace.
3. Follow the on-screen prompts to confirm uninstallation of Trace from the computer.

Trace Connection for Transferring Files

Data is imported to the Trace host computer using the following methods:

- Through a direct serial (cable) connection between a compatible Masimo device and the Trace host computer. See **Masimo Device Serial Connection Setup** on page 17.
- Using a network connection (the Trace host computer must be on the same wired or wireless (Wi-Fi) network as the Masimo device). Refer to the Operator's Manual for the Masimo device to locate the IP address as this will be necessary to import data. See **Working with Patient Data** on page 20.
- Using the Local option, data sets from previous Serial or Network data downloads can be retrieved from and viewed in Trace. See **Working with Patient Data** on page 20. Downloaded files may contain data sets from multiple patients. The original data set can be retrieved, trimmed and attached to each individual patient in Trace. See **Timeline Features** on page 30.

Masimo Device Serial Connection Setup

The following information is required to connect to the Trace host computer, and set the output on Root, Radical-7, and Rad-97 devices. To access device output and baud rate settings, refer to the Operator's Manual for the Masimo device.

1. Connect the correct cable to the Masimo device as shown in **Cables** on page 13.
 - To connect Root or Rad-97, connect the USB cable to the USB port on the rear of the device. On Root there are two (2) USB ports, select one.
 - To connect Radical-7 docked to RDS, connect the serial end of USB-to serial cable to the serial port on the rear of the RDS.
2. Connect the other end to a USB port on the Trace host computer system.

Note: Standard USB cables cannot import patient data into Trace software. The required cables must be used to successfully import patient data from Root or Rad-97 patient monitors. See **Cables** on page 13.

Note: If an adapter is required to connect the cable to the Trace host computer (USB-to-mini-USB or USB-to-micro-USB), the adapter must be purchased separately.
3. Change the settings for the USB or serial port on the device for proper communication with Trace.
 - USB: See **Root or Rad-97** on page 17.
 - Serial: See **Radical-7 Docked to RDS** on page 17.

Root or Rad-97

1. In the Device Output menu, set the USB Port (1 or 2 on Root) to IAP.
2. In the Access Control menu, set the USB Port (1 or 2 on Root) baud rate. See **Appendix A: Device Baud Rates**.

Note: If the Root or Rad-97 USB baud rate is changed, power-cycle the device for the newly selected baud rate to take effect.
3. Set the baud rate in the Serial option for Trace to the same setting as the baud rate set for USB port 1 or 2. See **Import Patient Data** on page 21.

Radical-7 Docked to RDS

Note: Radical-7 device output settings cannot be changed unless docked to RDS.

1. Determine the RDS Docking Station being used. With Radical-7 docked to RDS, select the *Main Menu* icon , then select *About* . The docking station field is located at the bottom of the About screen.
 - Docking station field indicates ASCII IAP FLEXPOT. In the Radical-7 Device Output menu, under Serial, select IAP.
 - Docking station field indicates DC. In the Radical-7 Device Output menu, Data Collection is the only available option.
2. Set the baud rate in the Serial option for Trace to the same baud rate as the selected in the previous step. See **Import Patient Data** on page 21.
 - For baud rate of each RDS Docking Station, see **Appendix A: Device Baud Rates**.

Chapter 3: Operation

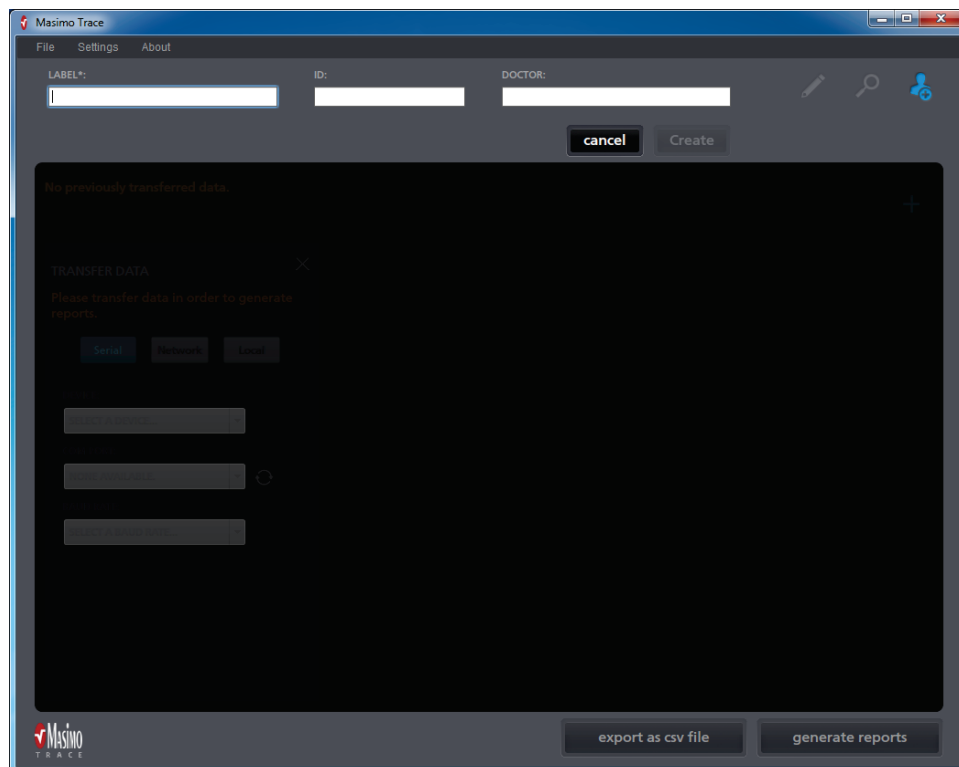
Trace allows users to store multiple patient data files, to change the current Patient, by selecting from a list of previously created Patients or for filtering the Patient list based on Label, ID, and Doctor name. The information in this chapter explains how to use Trace.

Getting Started

Click the desktop icon  to open the Trace software.

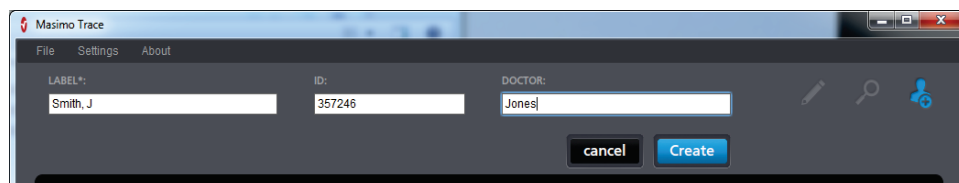
First Use

Using Trace for the first time prompts the user to enter a Label, ID and Doctor. See **Add a New Patient** on page 20.



Type in a label such as the patient's name, then enter an ID and doctors name. Once entered, select **create**.

Note: To create a patient, the Label field must be populated at minimum.

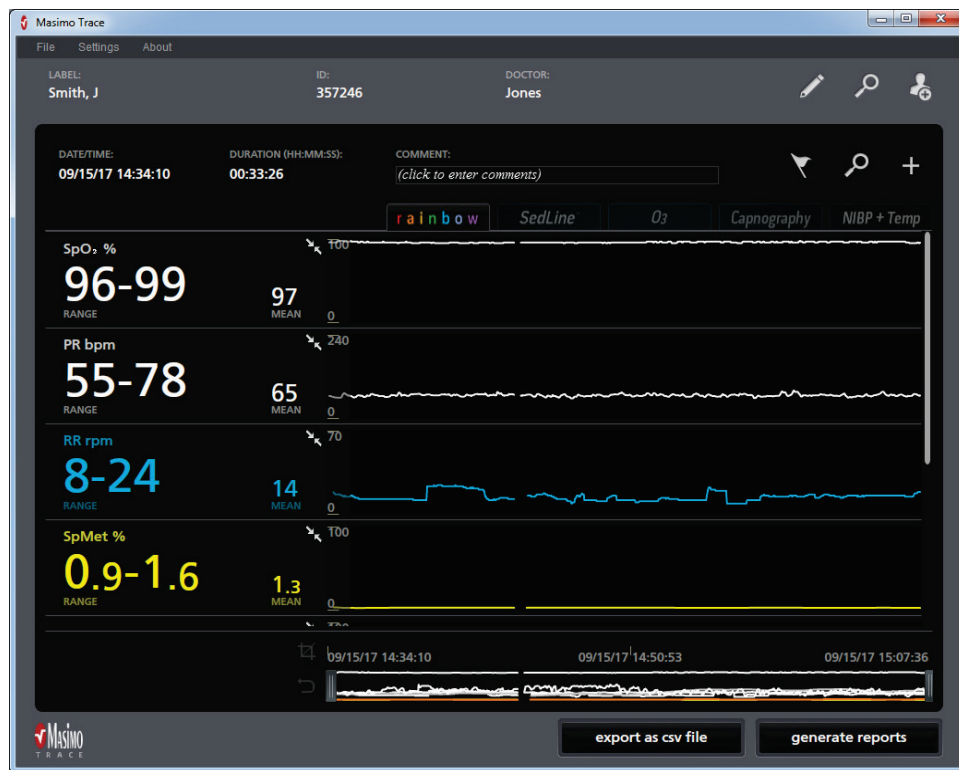


The *Transfer Data* screen appears to allow importing of patient data. See **Import Patient Data** on page 21.

After First Use

If Trace was previously used, the last patient data file viewed appears when the software is opened.

Note: Only parameters contained in the imported data display in Trace.



Working with Patient Data

Add a New Patient

1. Click on the Add Patient icon .
2. Enter the desired Label, ID, and Doctor for the patient into the corresponding field.

Note: Each field is 50 characters maximum.

The screenshot shows the 'Add Patient' form in the Masimo Trace software. It has three input fields: LABEL* (containing 'Smith, J'), ID (containing '357246'), and DOCTOR (containing 'Jones'). Below the fields are two buttons: 'cancel' and 'Create'.

3. After filling in the fields, select Create to create the new patient.
4. Next, the Transfer Data screen will display to import data and associate it with the patient. See **Import Patient Data** on page 21 for instructions to import data.

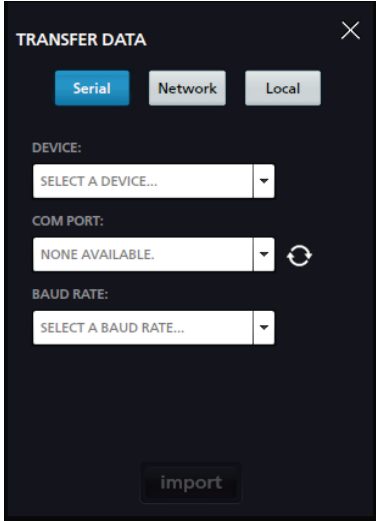
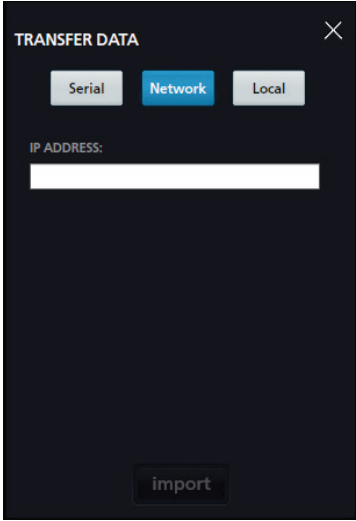
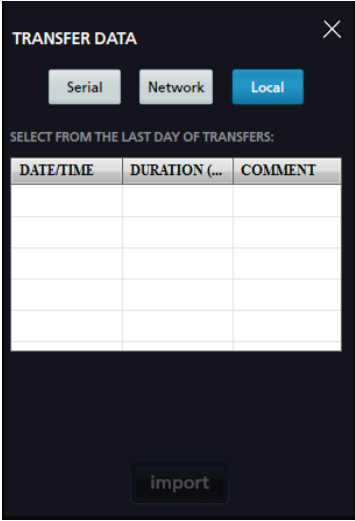
Import Patient Data

Patient data is imported when creating a new patient or by selecting the Transfer Data icon .

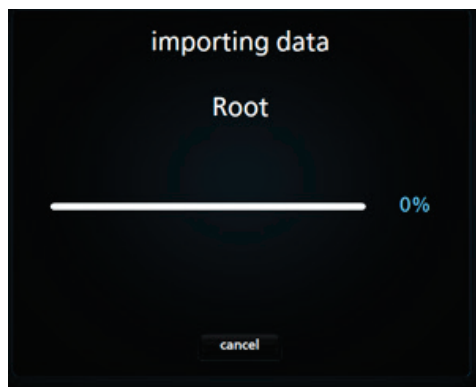
Note: Patient data can be added to an existing patient.

- After creating a new patient, the Transfer Data screen appears.

To import patient data, select the source of the data from one of the options shown.

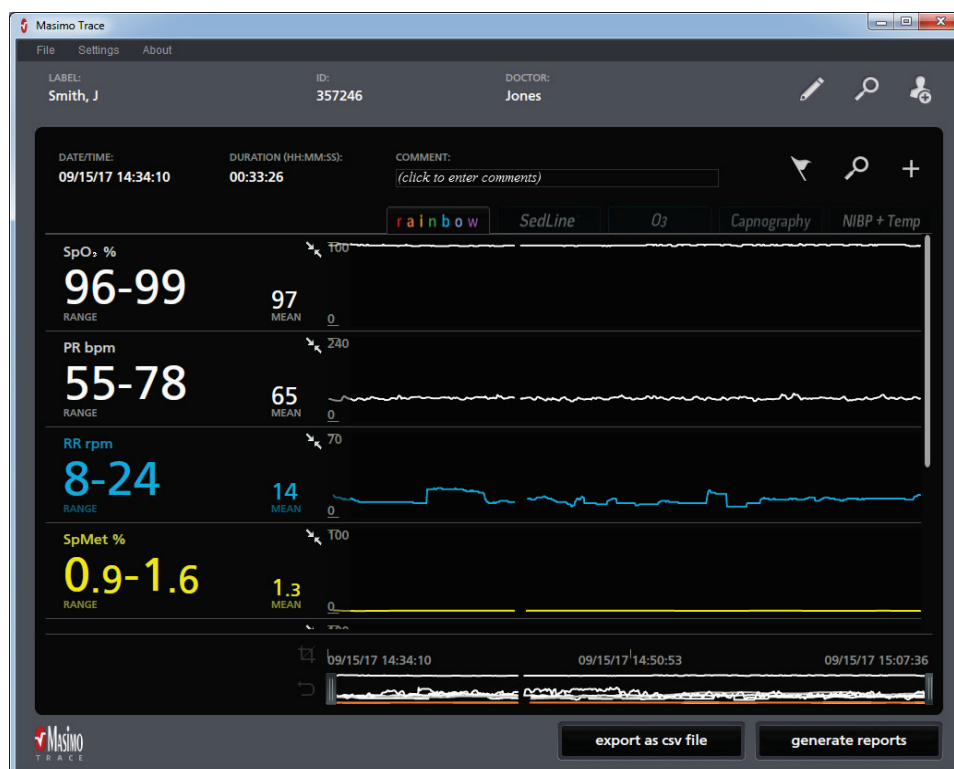
Serial	Network*	Local
 - Select the Serial option to download data from a Masimo device using a wired connection. - Select the compatible Masimo device. Note: When selecting Radical-7, determine the RDS Docking Station used. See <i>Radical-7 Docked to RDS</i> on page 17. Once RDS is determined, select device as follows: - DC = Radical-7 DC - Except DC = Radical-7 - Configure the Device Output and Baud Rate. See <i>Masimo Device Serial Connection Setup</i> on page 17. - Select the COM port on the Trace host computer that is used to connect to the device selected in the previous step. - Select a baud rate on Trace that is the same as the device baud rate. - Click Import to import the patient files.	 - Select the Network option to download data from a Masimo device using a network connection. - Enter the IP address of the device for Trace to connect to. The Trace host computer MUST be on the same network as the Masimo device (wired or wireless). Note: When using Radical-7 docked to Root, enter the IP address for Root. Refer to the Operator's Manual for the Masimo device to locate the IP address. - Click Import to import the patient files. * Network downloads are not supported for Rad-97.	 - Select the Local option to retrieve previously <i>Serial</i> or <i>Network</i> downloaded data sets and view in Trace. - Choose the desired data set from the table. - Click Import to import the patient files.

After selecting Import, a status bar displays the import progress.



After successful import, data appears and is associated with the patient information (Label, ID, and Doctor name).

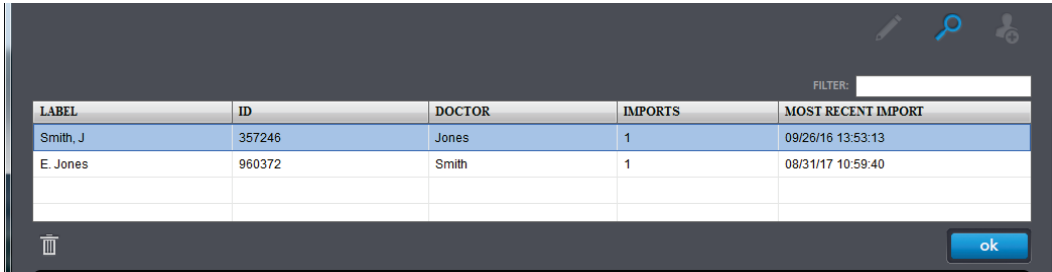
Note: Available channel tabs and parameters are in direct relation to imported data. See **Channels** on page 30.



Search, Edit, or Delete a Patient

Search for a Patient

1. Click the Patients icon  to view a list of previous patients.
2. Locate and click on the desired patient.

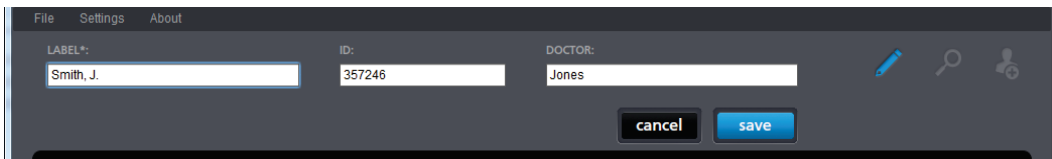


LABEL	ID	DOCTOR	IMPORTS	MOST RECENT IMPORT
Smith, J.	357246	Jones	1	09/26/16 13:53:13
E. Jones	960372	Smith	1	08/31/17 10:59:40

3. Select **OK** to view the data for the patient.
4. The data will display for selected patient.

Edit a Patients Information

1. To edit patient Label, ID, or Doctor information, from the Patient Home screen, click on the edit icon .
2. Edit information as desired.



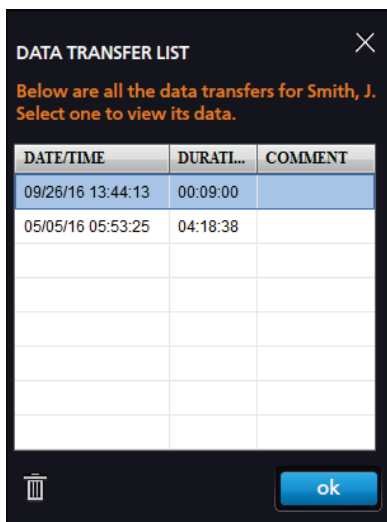
3. Select **Save** to make the change permanent or **Cancel** to discard changes.

Delete a Patient

1. To delete a patient, locate the patient using the Search function as described previously.
2. Select the patient from the list.
3. Click the delete icon  to delete the patient.
4. Confirm the deletion by selecting **OK** (or **Cancel** to cancel the deletion process).
5. The patient and all associated data is deleted from the Trace records.

Data Transfer List

1. To view all data imported for the current patient, click the Imports icon .
2. The Data Transfer List window displays.

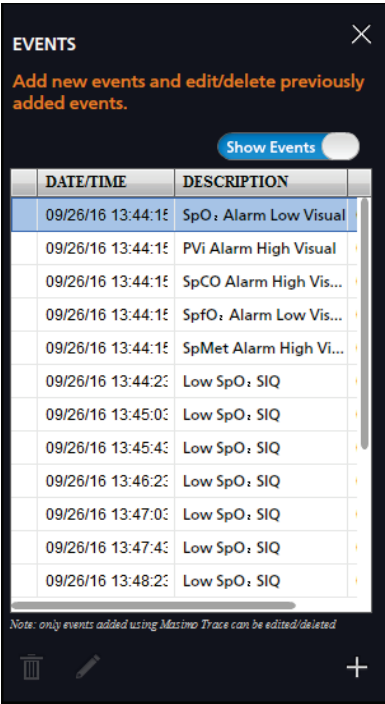


3. To view different imported data for the current patient, select the desired data and click OK.
4. The data will be displayed on the screen.

Delete a Patient Data Transfer Record

1. To delete a patient data transfer record, select a record from the list.
2. Click the delete icon  to delete the record.
3. Confirm the deletion by selecting OK (or Cancel to cancel the deletion process).
4. The patient data transfer is deleted from the Trace records.

Add, Edit, or Delete Events



Select the Events icon  to view the Events window.

For events to be edited or deleted, they must have the  icon in the far left column.

Add Event

To add an event to the current patient file:

- Right-click on the trend data on the Patient Home Screen and click *Add Event*.
- OR*
- Select the Add Event icon  located at the bottom right of the *Events* window.

ADD EVENT ✕

Add new events and edit/delete previously added events.

DATE: 05/05/16 TIME: 09:10:33 **1**

DESCRIPTION

OR ICU Vascular NICU **2**

Routine Cautionary Interventio... **3**

Miscellaneous

Set baseline

Intubated

Sternotomy

Cannulate

Decannulate

On CPB

Cross Clamp On

Cooling

Cardioplegia

cancel ok **5**

1. Select the date and time of the desired event.
2. Select OR, ICU, Vascular, or NICU from the description.
3. Select Routine, Cautionary, or Intervention from the description to view event items. **Note:** To view a full list of clinical events see **Appendix C: Clinical Events** on page 57.
4. Select an item from the list.
5. Select OK to add the event. The screen will return to the Events window.
6. Click the ✕ in the upper right to close the Events window and return to the Patient Home Screen.

Show/Hide Events

After an event is added:

- Move the slider to *Show Events* to display the events in the patient data on the Patient Home Screen.

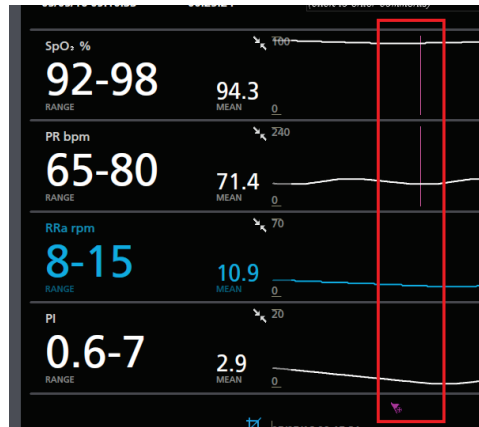
EVENTS ✕

Add new events and edit/delete previously added events.

Show Events ☒

	DATE/TIME	DESCRIPTI...	DURAT...
	05/05/16 09:19:43	Intubated	-
	05/05/16 09:20:31	SpO ₂ Alarm ...	00:03:44
	05/05/16 09:20:31	PR Alarm High	00:03:44

- Move the slider to *Hide Events* and the events will be hidden from the patient data on the Patient Home Screen.



Edit an Added Event

1. To edit an event added to the current patient file using Trace, view the event list as described previously.
2. Select the event from the list with the  icon in the left column.
3. Select the Edit icon .
4. Edit the information in the *Edit Event* window in the same manner as adding an event discussed previously.
5. Select OK to save the edits to the event. The screen will return to the Events window.
6. Click the **X** in the upper right to close the Event window and return to the Patient Home Screen.

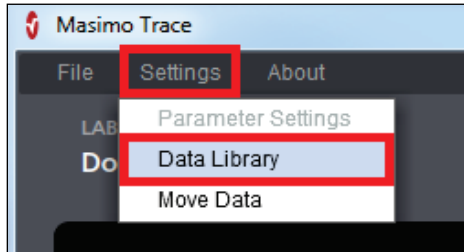
Delete an Added Event

1. To delete an event added to the current patient file using Trace, view the event list as described previously.
 2. Select the event from the list with the  icon in the left column.
 3. Click on the delete icon .
- Note:** The event is deleted without any confirmation.
4. The event is deleted from the patient data.

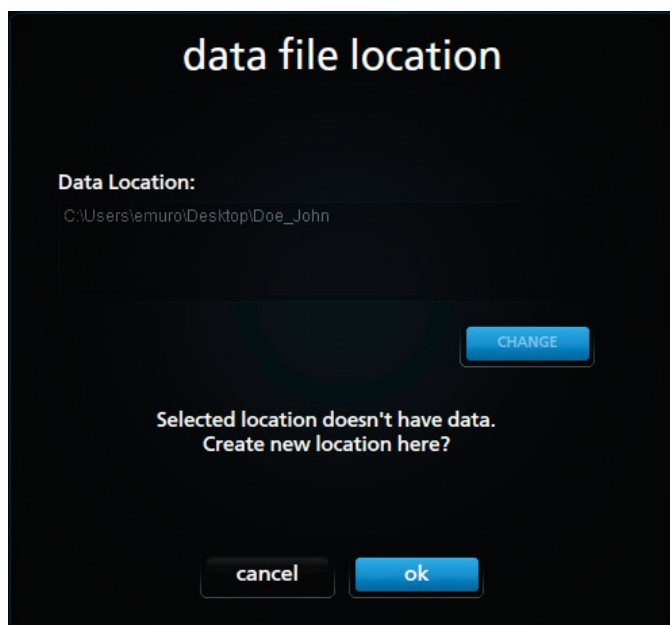
Data Library Location

See the instructions below to select a default or new data library location to store data transfer files.

1. Click *Settings*.
2. Select *Data Library*.



3. Select a data library location in the *Data File Location* window.
 - Click *Cancel* to keep the default data library location, or
 - Click *Change* to select a new data library location. Click *OK* when this message appears: *Selected location doesn't have data. Create new location here?*



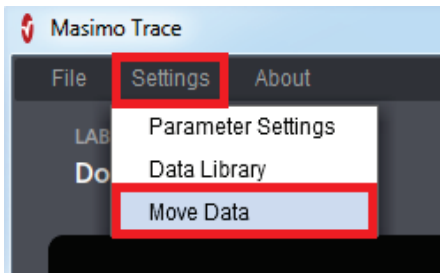
The data library location selection is complete. If an *Access Denied* message appears, see **Data Library Status Messages** on page 48. To move a data file to a different file location, see **Move Data** on page 29.

Move Data Library

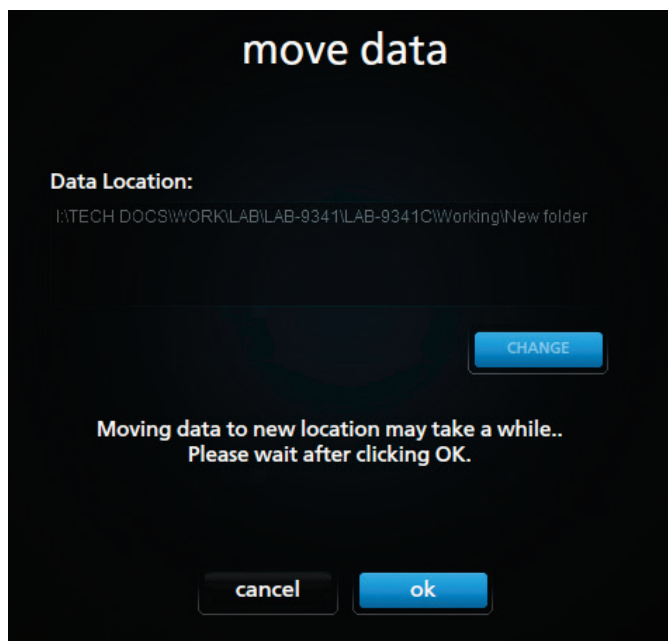
See the instructions below to move a data library to a new location.

Note: Only data transfer files are moved to a new data library location. The *Move Data* does not move CSV files and PDF reports saved in a data library.

1. Click *Settings*.
2. Select *Move Data*.



3. Select a new data library location in the *Move Data* window.
 - Click *Change* to browse and select a new data library location.
 - Click *OK*.



Moving a data library to a new location is complete. If an *Access Denied* message appears, see **Data Migration Status Messages** on page 48.

Patient Data Comments

Patient data comments display in the PDF reports header. See **Report Header/Footer Information** on page 65.

1. Click in the comments field.
2. Enter the desired comments to be included in the patient data on Trace.

Note: The comments field is limited to 150 characters maximum.
3. After filling in the fields, the comments are stored and can be edited or removed at anytime.

Channels

Channels are displayed on Trace as tabs above the parameter window on the Patient Home Screen. Select the desired channel to display data.

Note: Only one (1) channel can be displayed in Trace at a time.

- rainbow
- SedLine
- O₃
- Capnography
- NIBP + TEMP

Available channel tabs are in direct relation to imported data. If imported data contains all listed channels, then all channel tabs display. If imported data contains only rainbow and SedLine, then only the rainbow and SedLine channel tabs display.



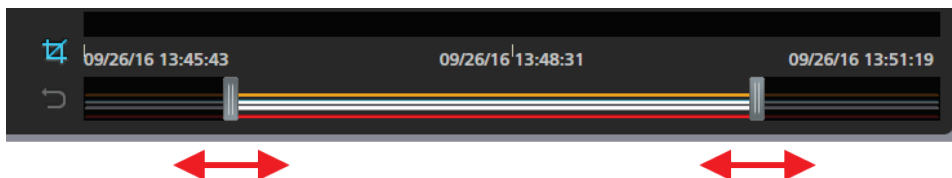
Timeline Features

Crop Timeline

The timeline can be cropped using the drag handles and crop tool.

Note: When the timeline is cropped and a report is generated, only the cropped portion of the timeline is included in the report.

1. Adjust the start and end times for the data by dragging the drag handles at the ends of the timeline.



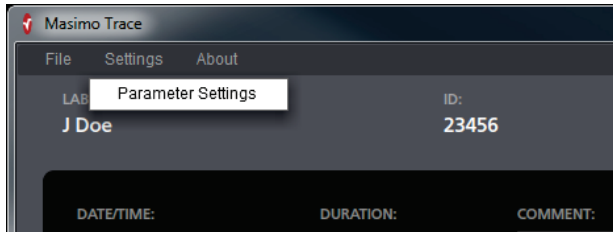
2. To crop the timeline to the handle locations, click the Crop tool .
3. To undo the timeline crop, click the Reset tool . The timeline will revert to the original length.

Note: The reset tool must be visible for a crop to be undone. When Trace is closed and reopened and a crop of the timeline has been performed, the crop remains, and the ability to reset the timeline also remains available.

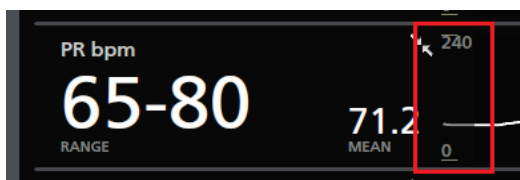
Parameter Y Axis

The *Parameter Settings* window allows modifications to the Graph Min/Max (Y axis) for each channel available in the displayed data.

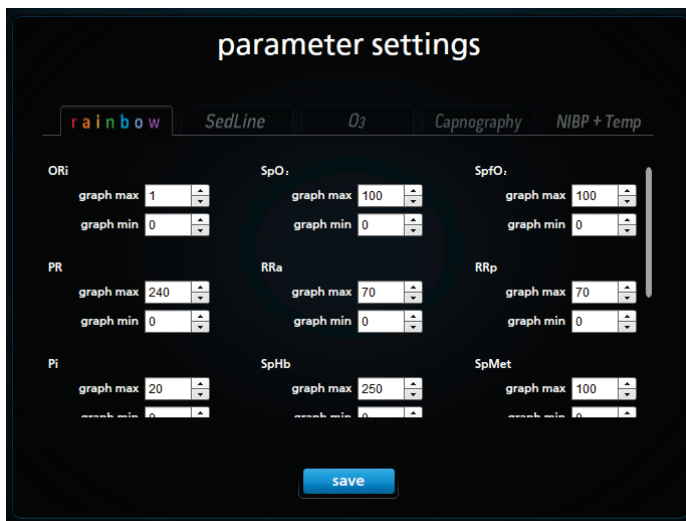
1. Click *Settings* at the top of Trace screen and select *Parameter Settings*.



Note: As an alternative, click the Graph Min/Max numbers in the parameter window.



2. The *Parameter Settings* window displays.
3. Change the settings for *graph min* and *graph max* for the selected channel as desired (rainbow in this example).



4. After changing the settings, select *save*. The *Parameter Settings* window closes and changes are reflected in the timeline.

Expand/Collapse Parameter

The parameter can be collapsed and expanded in the timeline.

1. To collapse the parameter, click the Collapse icon  in the parameter window.



2. The parameter collapses and displays only the parameter name.



3. To expand the parameter, click the Expand icon .

Chapter 4: Reports

Overview

Trace allows the exporting of patient data by two (2) methods available on the Patient Home Screen:

- Export raw data in .csv format. See **Export as CSV Raw Data File** on page 33.
- Generate customizable PDF report. See **Export as PDF Graphical Report** on page 34.

If the timeline for the data has been cropped, only the data within that cropped portion of the timeline is included in the reports. See **Crop Timeline** on page 30.

Export as CSV Raw Data File

Using this option, a .csv spreadsheet is generated with patient data that can be opened using Excel.

1. From the Patient Home Screen click the  button.
2. A pop-up window appears briefly and indicates the report is being generated.
3. When the explorer window opens and prompts for a location to save the csv file, navigate to the desired location for saving the csv file and click Save.
4. The csv file is saved to the selected location. Below is an example of the csv report.

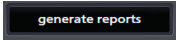
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	Epoch Time	Date	Time	SpO2 % Vi	PR bpm	Vt PR bpm	Vt RR rpm	Vt SpMet %	PVI Value	SpCO % Vi	PI Value	rSO2 (sen)	rSO2 (sen)	Temp Val	SYS mmHg	DIA mmHg	MAP mmHg	PR bpm Vi	Events
2	1.51E+12	9/15/2017	14:34:10	97	63	-	-	-	-	-	-	3	-	-	-	-	-	-	SPHB_UNIT_OF_I
3	1.51E+12	9/15/2017	14:34:12	97	62	-	-	-	-	-	-	3	-	-	-	-	-	-	SPHB_UNIT_OF_I
4	1.51E+12	9/15/2017	14:34:14	97	63	-	-	-	-	-	-	3.1	-	-	-	-	-	-	SPHB_UNIT_OF_I
5	1.51E+12	9/15/2017	14:34:16	97	62	-	-	-	-	-	-	3.1	-	-	-	-	-	-	SPHB_UNIT_OF_I
6	1.51E+12	9/15/2017	14:34:18	97	61	-	-	-	-	-	-	3.5	-	-	-	-	-	-	SPHB_UNIT_OF_I
7	1.51E+12	9/15/2017	14:34:20	97	60	-	-	-	-	-	-	3.7	-	-	-	-	-	-	SPHB_UNIT_OF_I
8	1.51E+12	9/15/2017	14:34:22	97	60	-	-	-	-	-	-	3.8	-	-	-	-	-	-	SPHB_UNIT_OF_I
9	1.51E+12	9/15/2017	14:34:24	97	59	18	-	-	-	-	-	3.8	-	-	-	-	-	-	SPHB_UNIT_OF_I
10	1.51E+12	9/15/2017	14:34:26	97	59	17	1.6	-	-	1	4	-	-	-	-	-	-	-	SPHB_UNIT_OF_I
11	1.51E+12	9/15/2017	14:34:28	97	58	17	1.6	21	1	4	-	-	-	-	-	-	-	-	SPHB_UNIT_OF_I
12	1.51E+12	9/15/2017	14:34:30	97	58	16	1.6	21	1	4.1	-	-	-	-	-	-	-	-	SPHB_UNIT_OF_I
13	1.51E+12	9/15/2017	14:34:32	97	58	16	1.6	21	1	4	-	-	-	-	-	-	-	-	SPHB_UNIT_OF_I
14	1.51E+12	9/15/2017	14:34:34	97	58	16	1.6	21	1	5.6	-	-	-	-	-	-	-	-	SPHB_UNIT_OF_I
15	1.51E+12	9/15/2017	14:34:36	97	57	16	1.6	21	1	5.4	-	-	-	-	-	-	-	-	SPHB_UNIT_OF_I
16	1.51E+12	9/15/2017	14:34:38	98	57	16	1.6	21	1	5	-	-	-	98.5	-	-	-	-	SPHB_UNIT_OF_I
17	1.51E+12	9/15/2017	14:34:40	98	57	16	1.6	21	1	4.8	-	-	-	-	-	-	-	-	SPHB_UNIT_OF_I
18	1.51E+12	9/15/2017	14:34:42	99	57	16	1.5	21	1	4.8	-	-	-	-	-	-	-	-	SPHB_UNIT_OF_I
19	1.51E+12	9/15/2017	14:34:44	99	57	16	1.5	21	1	4.9	-	-	-	-	-	-	-	-	SPHB_UNIT_OF_I
20	1.51E+12	9/15/2017	14:34:46	99	57	16	1.4	21	2	4.9	-	-	-	-	-	-	-	-	SPHB_UNIT_OF_I
21	1.51E+12	9/15/2017	14:34:48	99	57	16	1.4	21	2	5.2	-	-	-	-	-	-	-	-	SPHB_UNIT_OF_I
22	1.51E+12	9/15/2017	14:34:50	99	58	15	1.3	21	2	5.2	-	-	-	-	-	-	-	-	SPHB_UNIT_OF_I
23	1.51E+12	9/15/2017	14:34:52	99	60	15	1.3	21	2	5.1	-	-	-	-	-	-	-	-	SPHB_UNIT_OF_I
24	1.51E+12	9/15/2017	14:34:54	99	65	15	1.3	21	2	5	-	-	-	-	-	-	-	-	SPHB_UNIT_OF_I
25	1.51E+12	9/15/2017	14:34:56	99	67	15	1.2	21	2	5.1	-	-	-	-	-	-	-	-	SPHB_UNIT_OF_I
26	1.51E+12	9/15/2017	14:34:58	99	70	14	1.2	21	2	5.4	-	-	-	-	-	-	-	-	SPHB_UNIT_OF_I
27	1.51E+12	9/15/2017	14:35:00	98	70	14	1.2	21	2	5.2	-	-	-	-	-	-	-	-	SPHB_UNIT_OF_I
28	1.51E+12	9/15/2017	14:35:02	98	71	15	1.2	21	2	4.8	-	-	-	-	-	-	-	-	SPHB_UNIT_OF_I
29	1.51E+12	9/15/2017	14:35:04	98	69	15	1.2	21	2	4.4	-	-	-	-	-	-	-	-	SPHB_UNIT_OF_I
30	1.51E+12	9/15/2017	14:35:06	98	69	14	1.2	21	2	3.9	-	-	-	-	-	-	-	-	SPHB_UNIT_OF_I
31	1.51E+12	9/15/2017	14:35:08	98	66	14	1.1	21	2	3.5	-	-	-	-	-	-	-	-	SPHB_UNIT_OF_I
32	1.51E+12	9/15/2017	14:35:10	98	66	14	1.1	21	2	3.4	-	-	-	-	-	-	-	-	SPHB_UNIT_OF_I
33	1.51E+12	9/15/2017	14:35:12	98	65	14	1.1	21	2	3.6	-	-	-	-	-	-	-	-	SPHB_UNIT_OF_I
34	1.51E+12	9/15/2017	14:35:14	98	65	14	1.1	21	2	4.1	-	-	-	-	-	-	-	-	SPHB_UNIT_OF_I

For additional report information, see **Appendix D: Report Information** on page 61.

Export as PDF Graphical Report

Trace can capture and export patient data in a report that is customizable. Trace allows users to create patient parameter data graphs in varying time intervals ranging from 1 minute to 24 hours.

Report Preview

1. From the Patient Home Screen click the  button.
2. The *Report Selection* window appears allowing customization of the report to be generated for each available channel in the current data.
 - See **rainbow Report Options** on page 36.
 - See **SedLine Report Options** on page 38.
 - See **O3 Report Options** on page 40.
 - See **Capnography Report Options** on page 42.
 - See **NIBP + Temp Report Options** on page 44.

Note: Clicking *Settings > Report Preferences* in the upper left corner of the *Report Selection* window offers the ability to define a Facility Name and Facility Description for the report.

Note: At least one (1) report must be selected to generate a report for the channel. If there are multiple channels in the patient data, each channel must have at least one (1) report selected if a report containing all available channels is required.

3. After selecting the desired report options, click the *Preview Reports* button at the bottom of the *Report Selection* screen.

Note: Parameter calculations and statistics do not include data segments without measurement.

Note: The more parameters that are selected in the *Report Selection* window, the longer the report will be and the longer it will take to generate the report.

Note: When generating reports from data that includes more than one (1) channel, open the tab for each channel to customize or de-select reports for each individual channel.

4. A pop-up window appears briefly and indicates the report is being generated.
5. A preview of the report displays with the selected options (rainbow channel only).

Note: *TRIAL LICENSE* displays across the report preview screens until a valid license key is entered. See **License Key** on page 15.



6. All tables in the report can be sorted in ascending or descending order, prior to creating the PDF. Click on any table header to sort the table by the items in the column below.

REPORT PREVIEW

DESATURATIONS REPORT (RAINBOW)

Smith, J	ID 357246	DOCTOR Jones			
START 09/15/17 14:34:10	END 09/15/17 15:07:36	DURATION (HH:MM:SS) 00:33:26			

A Desaturation Event is defined as a decrease of SpO2 % below 97, for 5 seconds

START DATE ▲	END DATE	DURATION (...)	SPO2 % LOW	PR BPM LOW	RR RPM LOW

7. To generate the PDF file of the report, click

- To return to the *Report Selection* window to change options, click

8. When generating a PDF, a pop-up window appears briefly and indicates the PDF file is being generated.
9. When the explorer window opens and prompts for a location to save the PDF file, navigate to the desired location for saving the PDF file and click Save. All reports contain a header and a footer displaying patient information. For additional report information, see **Appendix D: Report Information** on page 61.

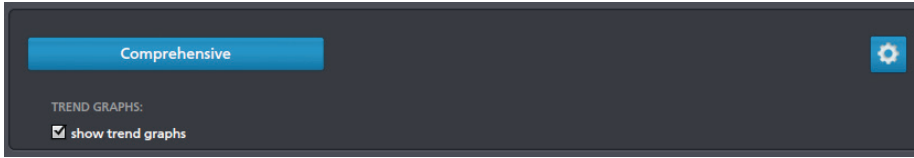
rainbow Report Options

At least one (1) parameter and one (1) report in a channel must be selected to display data in the report. The example below shows all parameters and reports selected are blue.

The numbers in the image correspond to the numbered steps that follow below. For additional information on report settings, see **Report Types and Settings** on page 61.

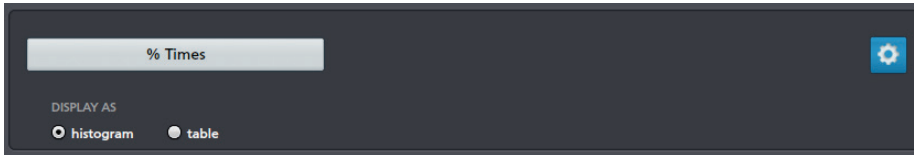
1. Select the rainbow channel tab.
2. Select parameters to include in the report. Only parameters contained in the imported data display in the Trace *Report Selection* window. When SpO₂ is selected, the option *Desaturations* appears.
 - When RR is selected, the option *Respiratory (RR) Events* appears.
Note: RR only appears if the imported patient data includes RR.
3. Select desired *Parameter Events* to include in the trend graph charts.

4. Select *Comprehensive* (default) to add this report or de-select to not include this report. Click the Settings icon  to modify settings for this option.



When *Show Trend Graphs* is selected, all available data for the selected parameter(s) are shown in one (1) graph and not in increments as in the Time Interval Reports settings. See *Graphic Reports at Time Interval* settings in the *Report Selection* window. Cropping the timeline results in only the cropped data being included. See **Timeline Features** on page 30.

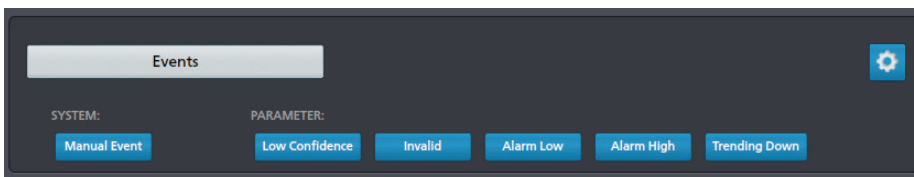
5. Select *% Times* to add this report or de-select to not include this report. Click the Settings icon  to modify settings for this option. Select the desired format for the % Times report by selecting a radio button.



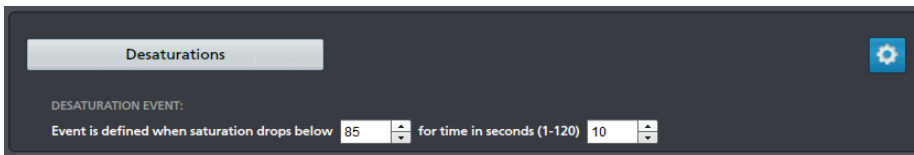
6. Select *Actual Times* to add this report or de-select to not include this report. Click the Settings icon  to modify settings for this option. Select either *histogram* or *table* to display a breakdown of the actual times for each selected parameter included in the report.



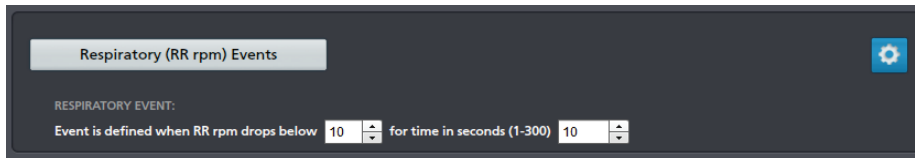
7. Select *Events* to add this report or de-select to not include this report. Click the Settings icon  to modify settings for this option. Select the events to be included in the Events report.



8. Select *Desaturations* to include desaturations or de-select to not include. Click the Settings icon  to modify settings for this option. Configure the desired definition a desaturation event by selecting a saturation threshold and time spent under that threshold.



9. If RR is selected as a parameter to display in the report, the option to add *Respiratory (RR) Events* is displayed. Click the Settings icon  to modify settings for this option. Configure the desired definition a respiratory event by selecting the RR threshold and time spent under that threshold.



10. Select the desired *Graphic Reports at Time Interval*. If data for other channels have been downloaded, select the tabs for these channels to configure reports as desired.
11. Click the *Preview Reports* button at the bottom of the *Report Selection* screen.

SedLine Report Options

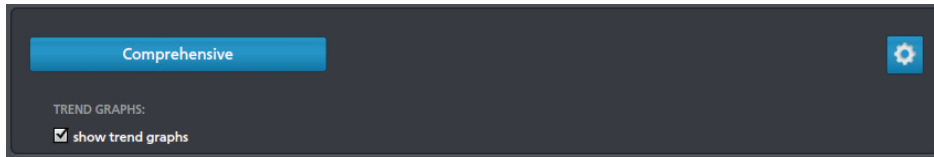
At least one (1) parameter and one (1) report in a channel must be selected to display data in the report. The example below shows all parameters and reports selected are blue.

The numbers in the image correspond to the numbered steps that follow below. For additional information on report settings, see **Report Types and Settings** on page 61.



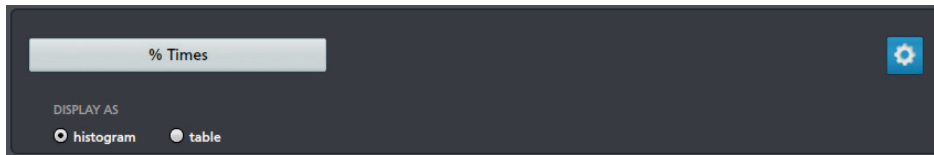
1. Select the SedLine channel tab.
2. Select parameters to include in the report. Only parameters contained in the imported data display in the *Trace Report Selection* window.
3. Select desired *Parameter Events* to include in the trend graph charts.

4. Select *Comprehensive* (default) to add this report or de-select to not include this report. Click the Settings icon  to modify settings for this option.



When *Show Trend Graphs* is selected, all available data for the selected parameter(s) are shown in one (1) graph and not in increments as in the Time Interval Reports settings. See *Graphic Reports at Time Interval* settings in the *Report Selection* window. Cropping the timeline results in only the cropped data being included. See **Timeline Features** on page 30.

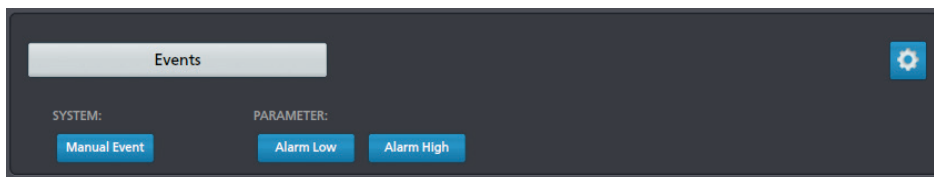
5. Select *% Times* to add this report or de-select to not include this report. Click the Settings icon  to modify settings for this option. Select the desired format for the % Times report by selecting a radio button.



6. Select *Actual Times* to add this report or de-select to not include this report. Click the Settings icon  to modify settings for this option. Select either *histogram* or *table* to display a breakdown of the actual times for each selected parameter included in the report.



7. Select *Events* to add this report or de-select to not include this report. Click the Settings icon  to modify settings for this option. Select the events to be included in the Events report. Items in blue are included in the report.



8. Select the desired *Graphic Reports at Time Interval*. If data for other channels have been downloaded, select the tabs for these channels to configure reports as desired.
9. Click the *Preview Reports* button at the bottom of the *Report Selection* screen.

O3 Report Options

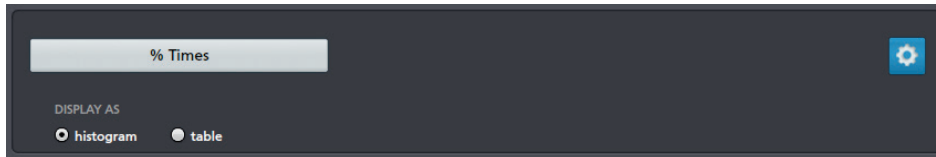
At least one (1) parameter and one (1) report in a channel must be selected to display data in the report. The example below shows all parameters and reports selected are blue.

The numbers in the image correspond to the numbered steps that follow below. For additional information on report settings, see **Report Types and Settings** on page 61.

1. Select the O3 channel tab.
2. Select parameters to include in the report. Only parameters contained in the imported data display in the Trace *Report Selection* window.
3. Select desired *Parameter Events* to include in the trend graph charts.
4. Select *Comprehensive* (default) to add this report or de-select to not include this report. Click the Settings icon  to modify settings for this option.

When *Show Trend Graphs* is selected, all available data for the selected parameter(s) are shown in one (1) graph and not in increments as in the Time Interval Reports settings. See *Graphic Reports at Time Interval* settings in the *Report Selection* window. Cropping the timeline results in only the cropped data being included. See **Timeline Features** on page 30.

5. Select *% Times* to add this report or de-select to not include this report. Click the Settings icon  to modify settings for this option. Select the desired format for the *% Times* report by selecting a radio button.



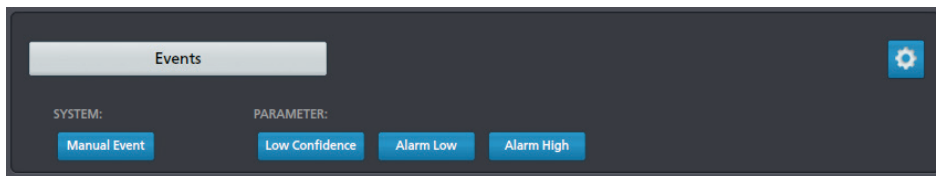
The screenshot shows a dark-themed configuration panel for the "% Times" report. At the top, there is a light gray button labeled "% Times" and a blue settings gear icon on the right. Below this, the text "DISPLAY AS" is followed by two radio buttons: "histogram" (which is selected) and "table".

6. Select *Actual Times* to add this report or de-select to not include this report. Click the Settings icon  to modify settings for this option. Select either *histogram* or *table* to display a breakdown of the actual times for each selected parameter included in the report.



The screenshot shows a dark-themed configuration panel for the "Actual Times" report. At the top, there is a blue button labeled "Actual Times" and a blue settings gear icon on the right. Below this, the text "DISPLAY AS" is followed by two radio buttons: "histogram" (which is selected) and "table".

7. Select *Events* to add this report or de-select to not include this report. Click the Settings icon  to modify settings for this option. Select the events to be included in the Events report. Items in blue are included in the report.



The screenshot shows a dark-themed configuration panel for the "Events" report. At the top, there is a light gray button labeled "Events" and a blue settings gear icon on the right. Below this, there are two sections: "SYSTEM:" with a blue button labeled "Manual Event", and "PARAMETER:" with three blue buttons labeled "Low Confidence", "Alarm Low", and "Alarm High".

8. Select the desired *Graphic Reports at Time Interval*. If data for other channels have been downloaded, select the tabs for these channels to configure reports as desired.
9. Click the *Preview Reports* button at the bottom of the *Report Selection* screen.

Capnography Report Options

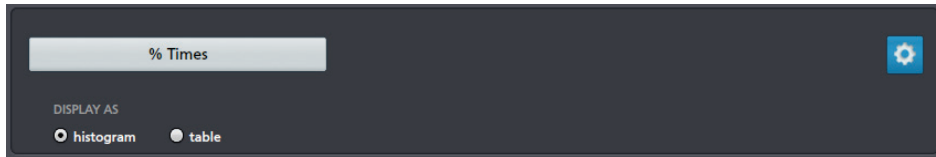
At least one (1) parameter and one (1) report in a channel must be selected to display data in the report. The example below shows all parameters and reports selected are blue.

The numbers in the image correspond to the numbered steps that follow below. For additional information on report settings, see **Report Types and Settings** on page 61.

1. Select the Capnography channel tab.
2. Select parameters to include in the report. Only parameters contained in the imported data display in the Trace *Report Selection* window.
3. Select desired *Parameter Events* to include in the trend graph charts.
4. Select *Comprehensive* (default) to add this report or de-select to not include this report. Click the Settings icon  to modify settings for this option.

When *Show Trend Graphs* is selected, all available data for the selected parameter(s) are shown in one (1) graph and not in increments as in the Time Interval Reports settings. See *Graphic Reports at Time Interval* settings in the *Report Selection* window. Cropping the timeline results in only the cropped data being included. See **Timeline Features** on page 30.

5. Select *% Times* to add this report or de-select to not include this report. Click the Settings icon  to modify settings for this option. Select the desired format for the *% Times* report by selecting a radio button.



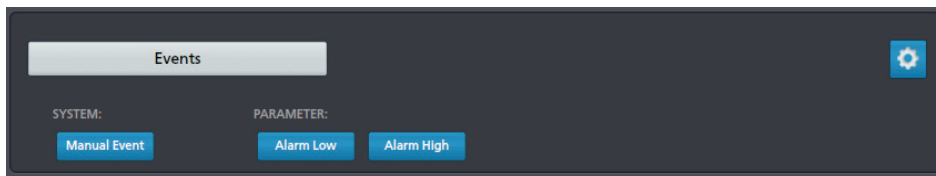
The screenshot shows a dark-themed configuration panel for the "% Times" report. At the top, there is a light gray button labeled "% Times" and a blue gear icon (Settings) to its right. Below this, the text "DISPLAY AS" is followed by two radio buttons: "histogram" (which is selected) and "table".

6. Select *Actual Times* to add this report or de-select to not include this report. Click the Settings icon  to modify settings for this option. Select either *histogram* or *table* to display a breakdown of the actual times for each selected parameter included in the report.



The screenshot shows a dark-themed configuration panel for the "Actual Times" report. At the top, there is a blue button labeled "Actual Times" and a blue gear icon (Settings) to its right. Below this, the text "DISPLAY AS" is followed by two radio buttons: "histogram" (which is selected) and "table".

7. Select *Events* to add this report or de-select to not include this report. Click the Settings icon  to modify settings for this option. Select the events to be included in the Events report. Items in blue are included in the report.



The screenshot shows a dark-themed configuration panel for the "Events" report. At the top, there is a light gray button labeled "Events" and a blue gear icon (Settings) to its right. Below this, there are two sections: "SYSTEM:" with a blue button labeled "Manual Event", and "PARAMETER:" with two blue buttons labeled "Alarm Low" and "Alarm High".

8. Select the desired *Graphic Reports at Time Interval*. If data for other channels have been downloaded, select the tabs for these channels to configure reports as desired.
9. Click the *Preview Reports* button at the bottom of the *Report Selection* screen.

NIBP + Temp Report Options

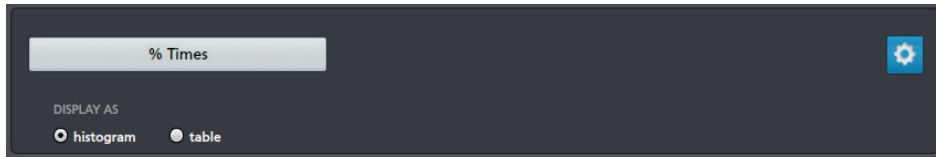
At least one (1) parameter and one (1) report in a channel must be selected to display data in the report. The example below shows all parameters and reports selected are blue.

The numbers in the image correspond to the numbered steps that follow below. For additional information on report settings, see **Report Types and Settings** on page 61.

1. Select the NIBP + Temp channel tab.
2. Select parameters to include in the report. Only parameters contained in the imported data display in the Trace *Report Selection* window.
3. Select desired *Parameter Events* to include in the trend graph charts.
4. Select *Comprehensive* (default) to add this report or de-select to not include this report. Click the Settings icon  to modify settings for this option.

When *Show Trend Graphs* is selected, all available data for the selected parameter(s) are shown in one (1) graph and not in increments as in the Time Interval Reports settings. See *Graphic Reports at Time Interval* settings in the *Report Selection* window. Cropping the timeline results in only the cropped data being included. See **Timeline Features** on page 30.

5. Select *% Times* to add this report or de-select to not include this report. Click the Settings icon  to modify settings for this option. Select the desired format for the *% Times* report by selecting a radio button.



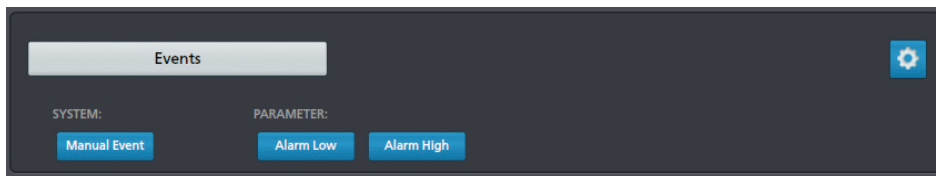
The screenshot shows a dark-themed configuration panel for the "% Times" report. At the top, there is a light gray button labeled "% Times" and a blue gear icon (Settings) to its right. Below this, the text "DISPLAY AS" is followed by two radio buttons: "histogram" (which is selected) and "table".

6. Select *Actual Times* to add this report or de-select to not include this report. Click the Settings icon  to modify settings for this option. Select either *histogram* or *table* to display a breakdown of the actual times for each selected parameter included in the report.



The screenshot shows a dark-themed configuration panel for the "Actual Times" report. At the top, there is a blue button labeled "Actual Times" and a blue gear icon (Settings) to its right. Below this, the text "DISPLAY AS" is followed by two radio buttons: "histogram" (which is selected) and "table".

7. Select *Events* to add this report or de-select to not include this report. Click the Settings icon  to modify settings for this option. Select the events to be included in the Events report. Items in blue are included in the report.



The screenshot shows a dark-themed configuration panel for the "Events" report. At the top, there is a light gray button labeled "Events" and a blue gear icon (Settings) to its right. Below this, there are two sections: "SYSTEM:" with a blue button labeled "Manual Event", and "PARAMETER:" with two blue buttons labeled "Alarm Low" and "Alarm High".

8. Select the desired *Graphic Reports at Time Interval*. If data for other channels have been downloaded, select the tabs for these channels to configure reports as desired.
9. Click the *Preview Reports* button at the bottom of the *Report Selection* screen.

Chapter 5: Troubleshooting

COM Port and Baud Rate Not Detected Automatically

After connecting the device to the Trace host computer, a compatible com port on the host computer may be identified automatically. If Trace does not detect a compatible COM port, contact your system administrator to access the COM Port for the Trace host computer.

Note: If the Root or Rad-97 USB baud rate is changed, power-cycle the device for the newly selected baud rate to take effect.

Error Messages

Message	Code	Next Steps
<i>Trend Database version not supported.</i>	208	Connect a compatible device.
<i>This is not a Valid License Key</i>	NA	Enter a valid license key provided by Masimo. See License Key on page 15.
<i>License Key not Valid for this Device</i>		
<i>License Key is Expired</i>		
<i>Cant' Read License, Enter a Valid License Key</i>		
<i>Cant' Read License, Access Denied to License File</i>	NA	Ensure user has read/write permissions to C:\ProgramData
<i>Unable to obtain unique device ID, please contact support</i>	NA	Contact Masimo support. Go to http://service.masimo.com

Data Retrieval Status Messages

Message	Code	Next Steps
<i>Unable to communicate to device</i>	400	Attempt to reconnect by restarting connection process.
<i>Unable to communicate to device</i>	401	Check connection ports, ensure correct serial port cable connection, ensure Baud rates match within Trace and Device, Ensure network connection, ensure correct IP address.
<i>Device protocol version not supported</i>	402	Device Not supported, requires revision 1022 or higher.
<i>Unable to communicate to device</i>	405	Check connection ports, ensure correct serial port cable connection, ensure Baud rates match within Trace and Device, Ensure network connection, ensure correct IP address.
<i>Trend file version not supported</i>	406	Trend file not supported by Trace.
<i>Unable to communicate to device</i>	407	Check connection ports, ensure correct serial port cable connection, ensure Baud rates match within Trace and Device, Ensure network connection, ensure correct IP address.
<i>Lost communication to the device</i>	408	Check connection ports, ensure correct serial port cable connection, ensure Baud rates match within Trace and Device, Ensure network connection, ensure correct IP address.
<i>Data transfer canceled</i>	409	Check connection ports, ensure correct serial port cable connection, ensure Baud rates match within Trace and Device, Ensure network connection, ensure correct IP address.

Data Library Status Messages

The following section lists data library status messages, their potential causes, and next steps. These messages may occur when selecting a data transfer location.

Message	Potential Causes	Next Steps
<i>This process may take a while. Please wait after clicking OK.</i>	Confirmation of data library selection.	N/A
<i>New file location successfully loaded.</i>	Successful data library location change.	N/A
<i>Selected file location doesn't have data. Create new location here?</i>	Confirmation to create new data library.	N/A
<i>New file location successfully created.</i>	Successful creation of new data library.	N/A
<i>You don't have access to the selected file location.</i>	- Host computer is not connected to the network. - User does not have permission to use the data library location.	- Save data transfer files in an accessible data library location. - Check network connections. - Contact IT administrator.
<i>You don't have access to current data location. Please change location.</i>	- Server where data library location resides is inaccessible. - Host computer is not connected to the network. - User does not have permission to use the data library location. - Data library location permissions have changed. - Data library location has been moved or deleted.	- Select an accessible data library location. - Check network connections. - Contact IT administrator.
<i>The selected location cannot be loaded because it is being used by another user. Please change location.</i>	Data library location in use by other user upon launch.	- Select a different data library location to save files. - Request other user to exit Trace.
<i>The selected location cannot be loaded because it is being used by another user.</i>	Data library location in use by other user.	- Select a different data library location to save files. - Request other user to exit Trace.
<i>The selected location cannot be found.</i>	- The data library location has been deleted. - The data library location has been moved. - Server where data library location resides is not inaccessible. - Host computer is not connected to the network. - Network location is down.	- Select a different data library location to save files. - Check network connections. - Contact IT administrator.
<i>The selected location cannot be found. Please change location.</i>	- The data library location has been deleted. - The data library location has been moved. - Server where data library location resides is not inaccessible. - Host computer is not connected to the network. - Network location is down.	- Select a different data library location to save files. - Check network connections. - Contact IT administrator.
<i>The selected location doesn't have enough space. Please change location.</i>	- Less than 150Mb of storage space available at data library location upon launch. - Less than 150Mb of storage space available at data library location upon import.	Save files in a different data library location.

Data Migration Status Messages

The following section lists data migration messages, their potential causes, and next steps. These messages may occur when moving data transfer files to a new location.

Message	Potential Causes	Next Steps
<i>Moving data to new location may take a while. Please wait after clicking OK.</i>	Confirmation of data migration in progress.	N/A
<i>Data was moved to new location.</i>	Confirmation of successful data migration to new data library location.	N/A
<i>Data already exists in this location. Your data cannot be moved.</i>	Transfer data already exists in desired data library location.	Select a different data library location to move data transfer files.
<i>You don't have access to selected location. Please choose a different location or cancel to keep data at current location.</i>	- Host computer is not connected to the network. - User does not have permission to use the data library location.	- Move data transfer files to an accessible data library location. - Check network connections. - Contact IT administrator.
<i>The selected location doesn't have enough space. Your data cannot be moved.</i>	Less than 150Mb of storage space available at data migration destination location.	Move files in a different data library location.

Chapter 6: Specifications

Minimum Requirements

Trace works on the following Windows Operating Systems:

Windows 7 (Minimum Requirement)
Windows 8
Windows 10

Symbols

Symbols	Definition
	Follow Instructions for use
	Non-Sterile
	Not made with natural rubber latex
	Instructions/Directions for Use/Manuals are available in electronic format @ http://www.Masimo.com/TechDocs Note: eIFU is not available in all countries.

Appendix A: Compatible Masimo Devices

The following Masimo devices are compatible with Trace:

Device	Minimum Software Level Requirement
Radical-7	v1.4.5.1 or above
Radius-7*	N/A
RDS	v5.1.3.2 or above
Root and Root with noninvasive blood pressure and temperature (NIBPT)	v1.6.2.1 or above
Rad-97	v1.0.3.5 or above
SedLine (MOC-9)**	N/A
O3 (MOC-9)**	N/A
Capnography (MOC-9)**	N/A

* Only when docked and paired to Root or Root NIBPT.

** Only when connected to Root or Root NIBPT.

Appendix B: Device Baud Rates

Device	Communication Protocol	RDS Version*	Available Maximum Baud Rates
Radical-7 docked to RDS	IAP	V1	9600**
		V2	9600, 19200, 28800***, 38400, 57600
	Data Collection	NA	57600**
Root, Rad-97	IAP	NA	9600, 19200, 38400, 57600, 115200, 230400***, and 921600

* Radical-7 must have software v1.5.5.8 or higher to allow identification of the RDS version.

** Baud rate is non-adjustable.

*** Baud rate is displayed on the Masimo device, but is not supported by Trace.

Appendix C: Clinical Events

The following tables contain available clinical events for specific report descriptions by care area and event types.

Care Area - OR Event Types

Routine	Cautionary	Intervention
Miscellaneous	Arrhythmia	Afterload Reduction
Set Baseline	Circulatory Arrest	Blood Transfusion
Intubated	Hypocapnia	Cardioversion
Sternotomy	Hypotension	Cell saver blood
Cannulate	One Lung Ventilation	Cerebral Perfusion O
DeCannulate	Pump Flow Down	ECLS On
On CPB	Reduced Venous Return	FFP/Platelets
Cross Clamp On		Fluid/Volume Expander
Cooling		Hemoconcentrate /MUF
Cardioplegia		Inotrope
Warming		Increase Anesthetic
Cross Clamp Off		Increase CO ₂
Off CPB		Increase FiO ₂
Closing Sternum		Increase Pump Flow
Induction		Paced
		Reposition Cannula
		Reposition Clamp
		Reposition Head
		Reposition Heart
		Vasopressor

Care Area - ICU Event Types

Routine	Cautionary	Intervention
Miscellaneous	Apnea	Afterload Reduction
Set Baseline	Arrhythmia	Anti-Arrhythmic
Enteral Feeding	Bradycardia	Anti-Epileptic
Extubated	Cardia Arrest	Anti-Pyretic
Cannulate	ICP Changes	Blood Transfusion
Intubated	Painful Procedure	Chest Closed
Reposition Patient	Seizure Activity	Dialysis/CRRT
Sensor Change	Tamponade	Diuretic
		ECLS On
		ECLS Circuit Change
		ECLS Off
		ET Tube Suctioned
		Fluid Bolus
		FFP / Platelets
		Hi Frequency Vent
		Hypothermia
		Inotrope
		Nitric Oxide
		Paralytic
		PDA Ligated
		Protaglandin
		Sedation
		Vasopressor
		Ventilator Change

Care Area - Vascular Event Types

Routine	Cautionary	Intervention
Miscellaneous	Arrhythmia	Balloon Inflated
Set Baseline	Blood Loss	Balloon Deflated
Intubated	Contrast Dye Injected	Blood Transfusion
Incision	Hypotension	EPD Deployed
Heparin Given	Hypocapnia	Fogarty Catheter In
Cannulate	Shunt Clamped	FFP/Platelets
Clamp On Vessel	Thrombus Suspected	Hemostasis Device In
Suturing Vessel/Graft		IAB Catheter In/On
Clamp Off Vessel		IAB Catheter Out/Off
Dcannulate		Increase Anesthetic
Induction		Increase EtCO ₂
Extubated		Increase FiO ₂
		Shunt Flushed
		Shunt Open
		Shunt Repositioned
		Stent Deployed
		Thrombus Removed
		Vasopressor
		Vasodilator
		Vessel Repaired

Care Area - NICU Event Types

Routine	Cautionary	Intervention
Miscellaneous	Apnea	Afterload Reduction
Set Baseline	Arrhythmia	Anti-Arrhythmic
Enteral Feeding	Bradycardia	Anti-Epileptic
Extubated-Intubated	Cardia Arrest	Anti-Pyretic
Bag Mask Ventilation	ICP Changes	Blood Transfusion
Conventional Vent	Painful Procedure	Chest Closed
Hi Frequency Vent	Seizure Activity	Dialysis/CRRT
Position Change	Tamponade	Diuretic

Appendix D: Report Information

The following tables list available report formats, PDF report settings, PDF report types, and PDF report header/footer information details.

Report Formats

Data can be exported in the formats shown in the table below.

Type	File Name	Information
.csv raw data file	[PATIENT_NAME] [DATE_OF_REPORT].csv	Spreadsheet Columns: • Epoch Time • Date • Time • [PARAM_NAME] Value (applicable for each parameter per Appendix I and the imported data) • Exception (applicable for each parameter per Appendix I and the imported data) • Manual Event See Export as CSV Raw Data File on page 33.
.pdf graphical report.	[PATIENT_NAME] [DATE_OF_REPORT].pdf	See PDF Report Information on page 61. See Export as PDF Graphical Report on page 34.

PDF Report Information

Report Types and Settings

The following information provides report types, settings and descriptions.

Parameters to Include in the Report

Select parameters to include in the report. Only parameters contained in the imported data display in the *Trace Report Selection* window.

Type	Channel	Default	Available Parameters (May Include)
Parameters to Display in Reports	rainbow	All Selected	SpO ₂ , Pulse Rate (PR), Perfusion Index (Pi), Respiratory Rate (RR), Pleth Variability Index (PVi), Carboxyhemoglobin (SpCO), Methemoglobin (SpMet), Total Oxygen Content (SpOC), Total Hemoglobin (SpHb), and Oxygen Reserve Index (ORi)*
	SedLine	All Selected	Patient State Index (PSi), Suppression Ratio (SR), Electromyography (EMG), Artifact (ARTF), Spectral Edge Frequency Right (SEFR), and Spectral Edge Frequency Left (SEFL)
	Capnography	All Selected	End-tidal CO ₂ (EtCO ₂), Fractional Concentration of Inspired CO ₂ (FiCO ₂), Respiration Rate (RR), EtN ₂ O, FiN ₂ O, EtO ₂ , FiO ₂ , EtENF, FiENF, EtDES, FiDES, EtHAL, FiHAL, EtISO, FiISO, EtSEV, FiSEV, MAC, N ₂ O, and O ₂
	O3**	All Selected	rSO ₂ , Delta Baseline (Δ base), Delta SpO ₂ (Δ SpO ₂), or Area under curve (AUC)
	NIBP + Temp	All Selected	Systolic (SYS), Diastolic (DIA), MAP, Pulse Rate (PR), and Temperature

* Parameter currently not available in the U.S.A. and territories relying on FDA market clearance.

** Data for up to four (4) sensors can be displayed at one time.

Parameter Events to Display on Charts

Type	Channel	Default	Available Events
Events to Display on Charts	rainbow	All Selected	Low Confidence, Invalid, Alarm Low, Alarm High or Trending Down
	O3	All Selected	Low Confidence, Alarm Low, or Alarm High
	SedLine, Capnography and NIBP + Temp	All Selected	Alarm Low, or Alarm High

Comprehensive

The comprehensive report displays the Highest, Lowest, and Mean statistics for each selected parameter.

Type	Channel	Default	Available Settings	Additional Settings
Comprehensive	All Channels	Selected	Selected or Deselected	Trend Graphs: Show Trend Graphs (selected by default)

Comprehensive Report Specifics

The following information is also displayed on the *Comprehensive Report* when *Show Trend Graphs* is selected.

- The report displays a trend graph for each selected parameter.
- Parameter events are displayed on the trend graph.
- When deselected, the channel is not included in the *Comprehensive* report.

% Times

Type	Channel	Default	Available Settings	Additional Settings
% times	All channels	Deselected	Selected or Deselected	Display As: Histogram or Table

- The report displays a histogram chart or table of the percent times each parameter spent at different values.
- The report indicates if *Display As: Histogram or Table* is selected.
- When deselected, the % times for the channel are not included in the report.

Actual Times

Type	Channel	Default	Available Settings	Additional Settings
Actual times	All channels	Deselected	Selected or Deselected	Display As: Histogram or Table

- The report displays a histogram chart or table of the actual times each parameter spent at different values.
- The report indicates if *Display As: Histogram or Table* is selected.
- When deselected, the actual times for the channel are not included in the report.

Events

Type	Channel	Default	Available Settings	Additional Settings
Events	rainbow	Deselected	Deselected or Selected	System: Manual Event Parameter: Low Confidence, Invalid, Alarm Low, Alarm High, or Trending Down
	O3	Deselected	Deselected or Selected	System: Manual Event Parameter: Low Confidence, Alarm Low, or Alarm High
	SedLine, Capnography and NIBP + Temp	Deselected	Deselected or Selected	System: Manual Event Parameter: Alarm Low or Alarm High

- The report lists the events selected.
- The report lists the events NOT selected.
- If there are no events, the report will display a statement indicating that.
- When deselected, the events for the channel are not included in the report.
- Events, if present, are displayed in a table with the following columns:
 - Indication whether an event is a manual event
 - Start date/time
 - Description
 - Duration (if applicable)

Desaturations

The Desaturation report setting is only available for the rainbow channel with SpO₂ parameter selected.

Type	Channel	Default	Available Settings	Additional Settings
Desaturations	rainbow	Deselected	Deselected or Selected	Event is defined when saturation drops below (default 85) 1 to 100 in steps of 1
				for time in seconds (1-120) (default is 10) 1 to 120 in steps of 1

- The report displays a statement declaring which *Report Settings* selections have been made.
- If no desaturation events occurred, the report will display a statement indicating that.
- When deselected, the desaturations are not included in the report.
- The table will have the following columns:
 - Start date/time
 - End date/time
 - Duration
 - SpO₂ Low
 - PR Low
 - RR Low (if selected in report settings)

Respiratory (RR) Events

The Respiratory (RR) Events report setting is only available for the rainbow channel when the RR parameter is available and selected.

Type	Channel	Default	Available Settings	Additional Settings
Respiratory (RR) events*	rainbow	Deselected	Deselected or Selected	Event is defined by RR rpm drops below (default 10) 1 to 70 in steps of 1
				for time in seconds (1-300) (default 10) 1 to 300 in steps of 1

- The report will display a statement that defines the *Report Settings* selections that have been made.
- If there were no respiratory events, the report will display a statement indicating that.
- If there were respiratory events recorded, the report will display a statement indicating the number of respiratory events with a duration greater than 1 minute.
- If there were respiratory events recorded, the report will display a statement indicating the number of respiratory events with a duration less than or equal to 1 minute.
- The report will display a statement indicating the mean length of respiratory events.
- The report will display a statement indicating the respiratory event index (events per hour).
- When deselected, the RR events are not included in the report.
- Respiratory events are displayed in a table with following columns:
 - Start date/time
 - End date/time
 - Duration
 - RR Low
 - SpO2 Low
 - PR Low

Graphical Time Interval Reports

Note: If the data set is too long, this option may be disabled.

Type	Channel	Default	Available Settings	Additional Settings
Graphical report at time intervals	All channels	None	24hr, 12hr, 8hr, 2hr, 1h, 30min, 10min, or 1min	NA

- The report shall split and display imported data trend graphs in time intervals of the selected duration.
- Up to 10 trend graphs per report can be generated.
- Each time split will have the date header indicating the start and end date/time.
- A trend graph will be displayed for each parameter with parameter events displayed on each graph.
- When all are deselected, time intervals for the channel are not included in the report.

Report Header/Footer Information

Header

Label	Location	Value
Report Name	Header	The name of the report
Patient Label	Header	Label of the patient
Patient ID	Header	Value representing the ID number of the Patient
Doctor	Header	Physician Name
Start Date/Time	Header	Date and time reflecting the start of the data set
End Date/Time	Header	Date and time reflecting the end of the data set
Duration	Header	Duration of the data set (end date – start date)
Comment	Header	Comments added for the patient file data (if applicable)
Facility Name	Header	Name of the facility
Facility Description	Header	Description of the facility

Footer

Label	Location	Value
Report Created	Footer	Date and time report was created.
Page Number	Footer	--
Masimo Logo	Footer	--

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