

# RaySafe View

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# OVERVIEW

RaySafe View is used with instruments in the RaySafe X2 and 452 families and is suitable for:

- remote control of instruments
- viewing and analyzing measurement data and waveforms
- storing measurements
- transferring data to Microsoft Excel or other software

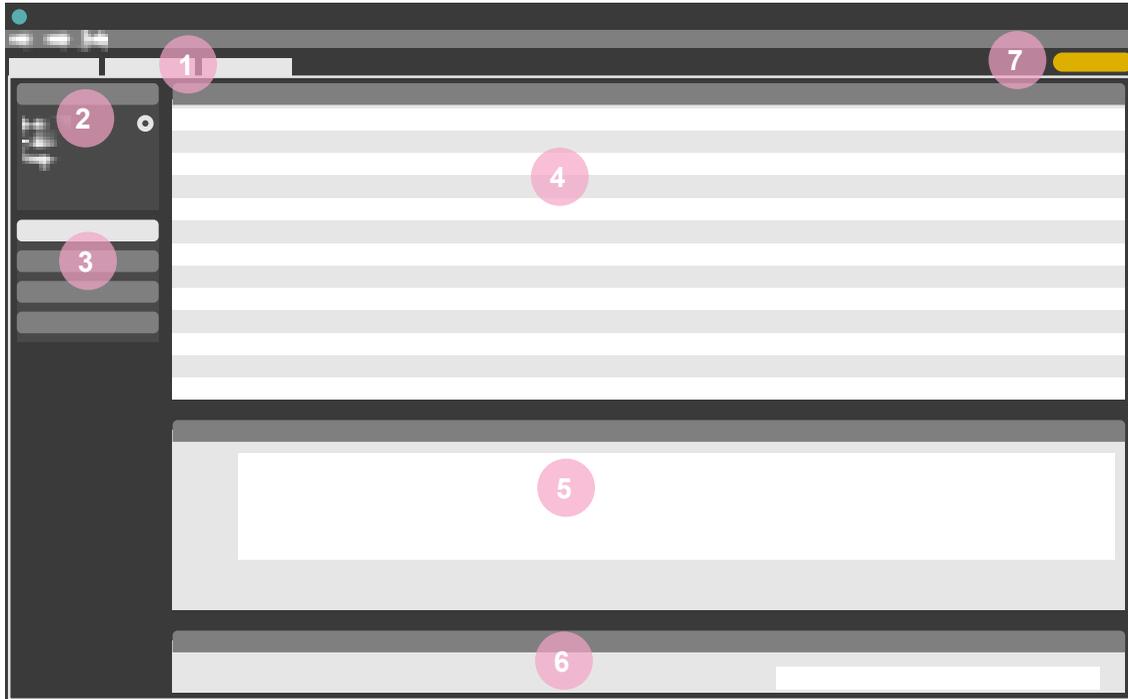


Figure 1. Main window overview.

1. Tabs with open files (see “Windows and tabs” on page 5).
2. Instrument panel, shows settings for connected instrument (see “Settings” on page 15).
3. Excel panel, manages export of measurements to Excel (see “Export to Excel” on page 12).
4. Measurements (see “View measurements” on page 9).
5. Waveforms (see “View waveforms” on page 11), for the selected measurement.
6. Measurement information and metadata for the selected measurements (see “View measurements” on page 9).
7. “Updates available” symbol (see “Updates” on page 17).

## WINDOWS AND TABS

In RaySafe View, you can have multiple files open at the same time. Click **File – New** in the menu or **Ctrl+N** to create a new file. The files are arranged in tabs. In each individual tab, you can connect an instrument and export to Excel.

If you want to view more than one tab at a time, click on a file tab and drag to arrange the tabs in the window. You can also drag a tab out from the main window.

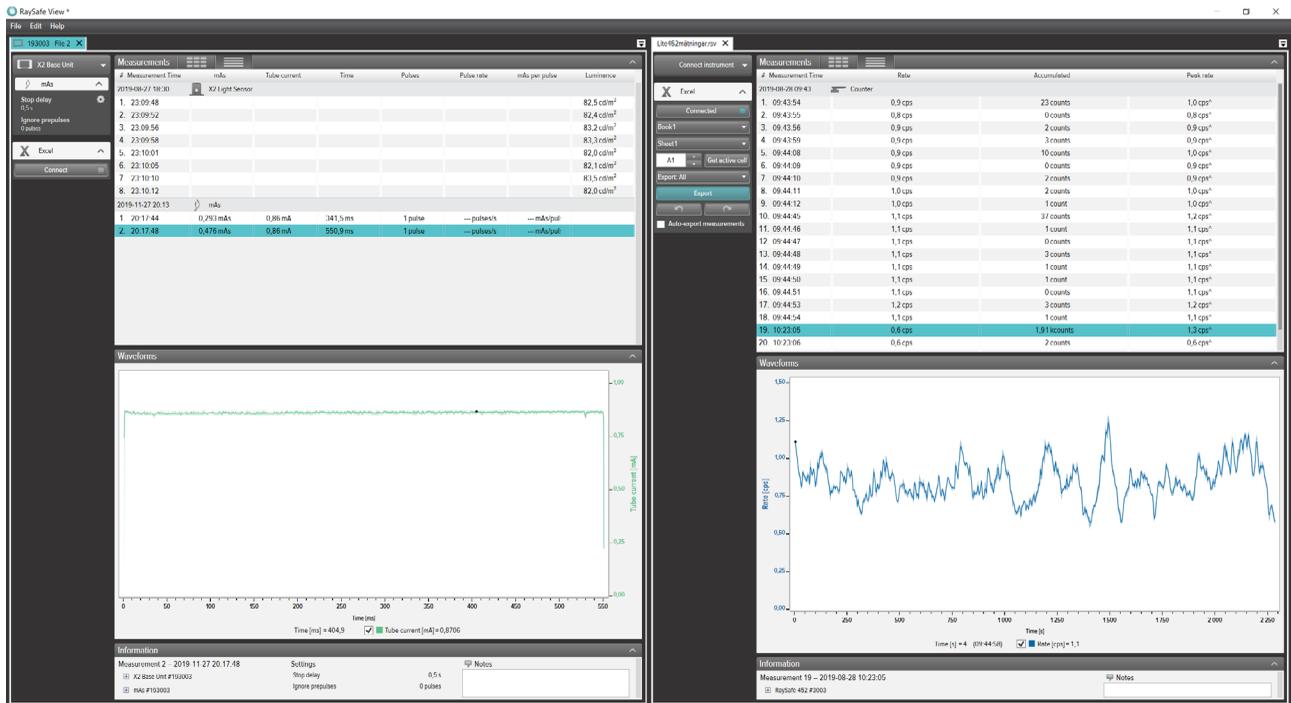


Figure 2. Example of tab arrangement with two files open.

# IMPORT MEASUREMENTS

## CONNECT INSTRUMENT

There are three ways to connect an instrument to RaySafe View:

1. USB cable 
2. Bluetooth 
3. Ethernet cable 

**TIP!** You can disconnect an instrument by selecting **No instrument** in the instrument panel in RaySafe View.

## CONNECT WITH USB CABLE



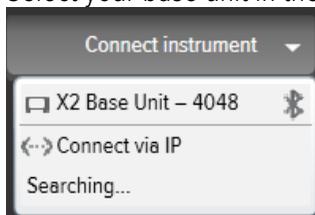
Figure 3. Connect instruments with USB cable.

Use the USB cable delivered with the instrument and connect the instrument to a computer running RaySafe View.

## CONNECT WITH BLUETOOTH (OPTION)

If you have an X2 Base Unit Bluetooth adapter, you can connect to the base unit wirelessly. It is possible to connect up to two X2 Base Units via Bluetooth at the same time.

1. Connect the Bluetooth adapter to a port marked **SENSOR** on the base unit.
2. Select your base unit in the instrument panel in RaySafe View.



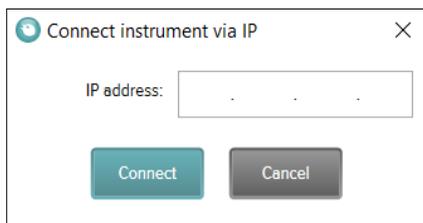
If no Bluetooth connections are found, search by selecting **Search** in the instrument menu.

**NOTE 1:** *RaySafe View will try to reconnect a previously connected instrument via Bluetooth at program start.*

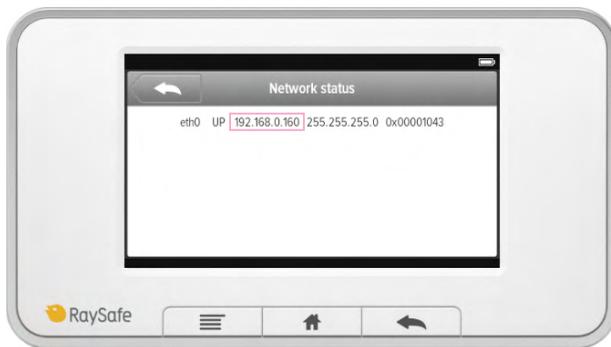
**NOTE 2:** *Your computer discovers the X2 Base Unit without any pairing configuration. It may take a while before the X2 Base Unit is discovered when pressing **Search**.*

### CONNECT WITH ETHERNET CABLE

Use an Ethernet cable to connect a RaySafe X2 Base Unit to your local network. Press **Search** in the instrument menu in RaySafe View to find the instrument. If search doesn't add your instrument to the list (if your instrument is on a different subnet or due to other network restrictions), you can select **Connect via IP** to enter the IP address manually:



The IP address to use is stated on the Network status page on the X2 Base Unit. The IP address consists of four numbers (see marking in the example below):



### IMPORT AS YOU MEASURE

Connect the instrument to RaySafe View. RaySafe View shows the connected instrument in the instrument panel to the left (2 in Figure 1 on page 4). All new measurements will now automatically show up in RaySafe View.

If you want to change which tab the instrument is connected to, select the instrument in the connection list in the wanted tab.

**TIP!** *You can connect one instrument per tab (1 in Figure 1 on page 4).*

## IMPORT MEASUREMENTS FROM INSTRUMENT

1. Connect the instrument to the computer running RaySafe View.
2. Select *File – Import from instrument* in the menu or press F8.
3. Select the measurement session(s) you want and click *Import*.

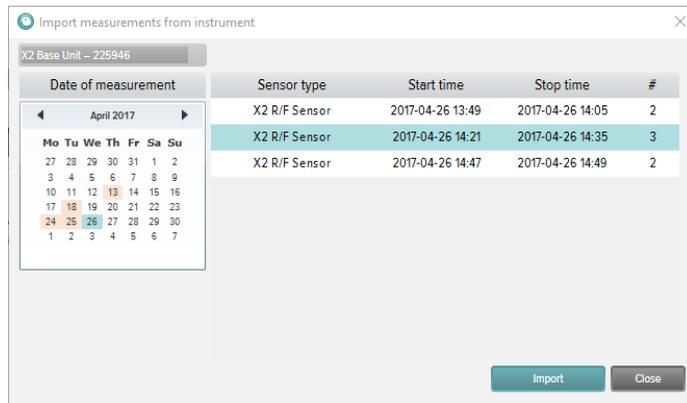


Figure 4. Import window.

Each row is a measurement session, with sensor type, start time, stop time and number of measurements.

# VIEW MEASUREMENTS

## VIEW MEASURED VALUES

You can view all measurements in a list overview, or focus on one measurement at a time. Switch between views with the buttons in the measurement panel:

#	Measurement Time	Tube voltage	Dose	Time	Half-value layer	Dose rate	Pulses	Total filtration	Dose per pulse	Pulse rate
1.	2017-09-26 12:33	39,8 kVp	2,041 mGy	320,3 ms	--- mm Al H	6,373 mGy/s	1 pulse	--- mm Al 1	--- mGy/pu	--- pulses/s
2.	12:54:30	44,5 kVp	1,889 mGy	320,0 ms	--- mm Al H	5,903 mGy/s	1 pulse	--- mm Al 1	--- mGy/pu	--- pulses/s
3.	12:55:50	50,3 kVp	2,301 mGy	320,1 ms	--- mm Al H	7,188 mGy/s	1 pulse	--- mm Al 1	--- mGy/pu	--- pulses/s
4.	12:56:30	61,1 kVp	2,094 mGy	319,9 ms	--- mm Al H	6,546 mGy/s	1 pulse	--- mm Al 1	--- mGy/pu	--- pulses/s
5.	12:57:10	70,7 kVp	2,008 mGy	320,1 ms	--- mm Al H	6,273 mGy/s	1 pulse	--- mm Al 1	--- mGy/pu	--- pulses/s
6.	12:57:50	80,5 kVp	1,973 mGy	319,8 ms	--- mm Al H	6,170 mGy/s	1 pulse	--- mm Al 1	--- mGy/pu	--- pulses/s
7.	12:58:30	90,3 kVp	1,964 mGy	319,9 ms	--- mm Al H	6,139 mGy/s	1 pulse	--- mm Al 1	--- mGy/pu	--- pulses/s
8.	12:59:10	100,0 kVp	2,288 mGy	319,7 ms	--- mm Al H	7,155 mGy/s	1 pulse	--- mm Al 1	--- mGy/pu	--- pulses/s
9.	12:59:50	110,1 kVp	2,617 mGy	319,9 ms	--- mm Al H	8,180 mGy/s	1 pulse	--- mm Al 1	--- mGy/pu	--- pulses/s

Figure 5. List view of measurements.

# Measurement Time	70,7 kVp	2,008 mGy	320,1 ms
1. 12:54:30	---	---	---
2. 12:55:10	---	---	---
3. 12:55:50	---	---	---
4. 12:56:30	---	---	---
5. 12:57:10	---	---	---
6. 12:57:50	---	---	---
7. 12:58:30	---	---	---
8. 12:59:10	---	---	---
9. 12:59:50	---	---	---

Figure 6. Single measurement view.

You can also enlarge one parameter at a time, to be able to see the value from a distance. Click on a parameter to toggle the large parameter view.

# Measurement Time	70,7 kVp
1. 12:54:30	---
2. 12:55:10	---
3. 12:55:50	---
4. 12:56:30	---
5. 12:57:10	---
6. 12:57:50	---
7. 12:58:30	---
8. 12:59:10	---
9. 12:59:50	---

Figure 7. Single parameter view.

The information panel shows metadata connected to the selected measurement. Each measurement also has an associated notes field. The notes are saved along with the measurements, and are also exported to Excel.

Information	Settings	Notes
Measurement 14 – 2016-07-25 12:09:02	Units	Exposure, 90kV 100 mA 100 ms, meter in Auto mode
X2 Base Unit #209975	Stop delay	
Serial number 209975	Trig mode	
Firmware X2 Base Unit 3.1 Louis		
X2 Survey Sensor #214803		

Figure 8. Information panel with Notes field.

## MEASUREMENT NOTIFICATIONS

A notification may be present for the entire measurement. This is a *measurement notification*. It is indicated by a symbol **i** next to the measurement time (**1** in Figure 9). The notification text is displayed in the information panel.

A notification may be present for a specific parameter. This is a *parameter notification*. It is indicated by a symbol **i** next to the parameter value (**2** in Figure 9). You can hover the mouse over the symbol to view the notification text.

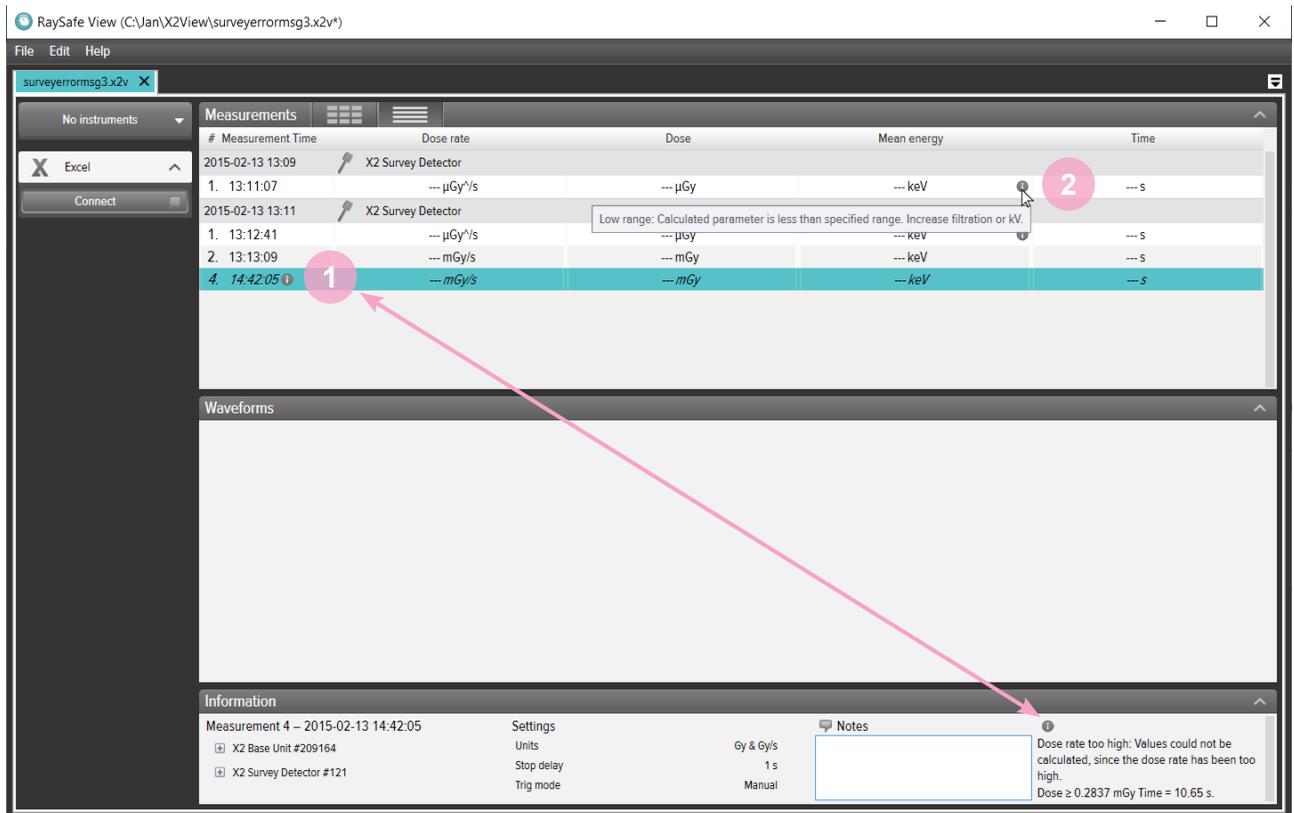


Figure 9. Measurement and parameter notifications.

## VIEW WAVEFORMS

The waveforms panel consists of the waveforms and checkboxes for showing/hiding waveforms.



Figure 10. Waveforms panel.

You can analyze the waveform by zooming, panning and selecting sections.

**Zoom in:** mouse scroll wheel up *or* hold Ctrl and left click and drag.

**Zoom out:** mouse scroll wheel down.

**Pan:** left click and drag.

**Select section and view details:** hold Shift and left click and drag, press Esc to deselect.

**Reset (zoom, pan and selection):** double click.

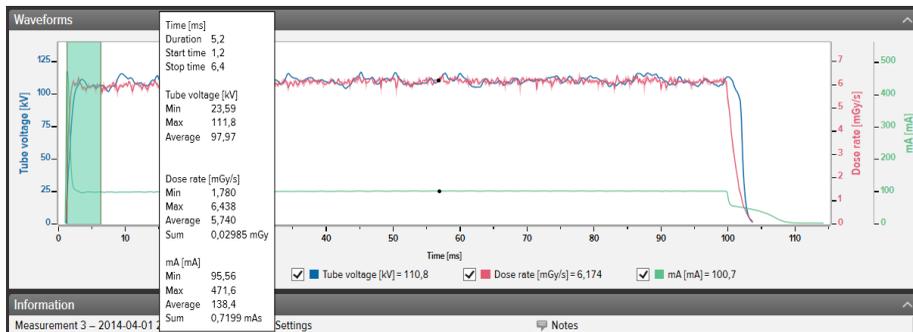


Figure 11. Waveform with a selection.

Right click on the waveform to *save* or *copy* the waveform as an image (png format). You can also right click to export the waveform to Excel for further analysis.

# SAVE AND EXPORT MEASUREMENTS

## OPEN FILES

Open a file using the File menu (**Open** or **Open Recent**), double click directly on a file, or use drag and drop. RaySafe View can also open X2 View files (.x2v).

## SAVE FILES

Click **File – Save** in the menu, or press Ctrl+S, to save a file with all completed measurements and notes.

Click **File – Save As** in the menu, or press Ctrl+Shift+S, to save a file with a new name.

The file is saved in RaySafe View format (.rsv).

**TIP!** *You can also open X2 View files (.x2v) in RaySafe View. If you save the file in RaySafe View, it will be converted to the RaySafe View file format (.rsv).*

## EXPORT TO CSV FILE

Click **File – Export to csv file** in the menu to export all measurements and notes to a CSV (comma-separated values) file.

## EXPORT TO EXCEL

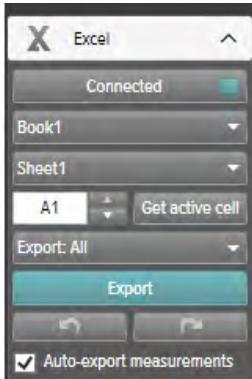
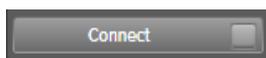


Figure 12. Excel export panel.

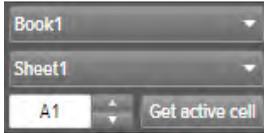
## EXPORT TO EXCEL AS YOU MEASURE

Follow the steps below to export each new measurement to Excel:

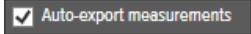
1. Click **Connect** in the Excel area.



2. Select Excel settings (workbook, sheet, start cell).



3. Verify that the box *Auto-export measurements* is checked.



**NOTE:** *With some instruments, you can also select **Include waveform**.*

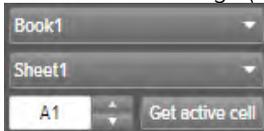
## EXPORT STORED MEASUREMENTS TO EXCEL

You can export stored measurements to Excel. To do this, import measurements from an instrument or open a file on the computer to view the measurements. Then use the Excel Export button to export:

1. Click **Connect** in the Excel area.



2. Select Excel settings (workbook, sheet, start cell).



3. In the drop down list, select what to export: *All* or *Selected*.



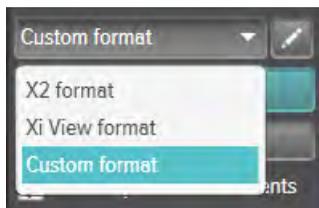
4. Press the Export button.



**TIP!** *Right click on a measurement row to find the option to export the selected measurement(s) to Excel.*

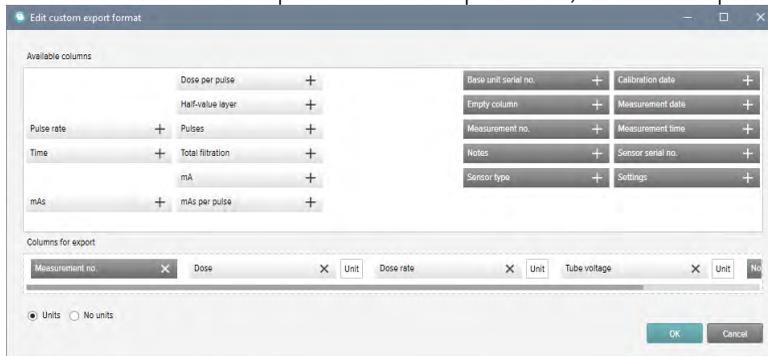
## EXPORT FORMATS

When working with data from RaySafe X2, you can change export format by selecting one of the predefined formats, or by defining your own custom format:



**NOTE:** *The main difference between the **X2 format** and the **Xi View format** is the order of the columns. **Xi View format** is used with most RaySafe Excel templates.*

1. To create a custom format, select **Custom format** and click the edit button. 
2. Select columns and drop them in the export area, or click the plus signs.



3. Activate **Units** if you want to add a column with the unit (for example mGy/s) after each measurement parameter.  Units  No units
4. Press **OK** and your custom export format is defined.

**TIP!** You can change the default export format for RaySafe X2 in Settings (Figure 13 on page 15).

## EXPORT WAVEFORMS

When connected to Excel, right click on the waveform and select **Export to Excel** to export the waveform data to Excel.

# SETTINGS

Click on **File – Settings** or press F12 to open the settings window.

## CHANGE PROGRAM SETTINGS

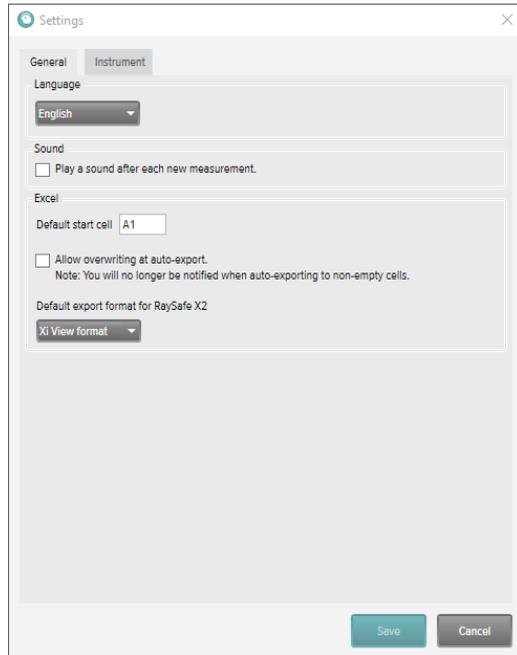


Figure 13. Settings window, General tab.

**NOTE:** *The default export format setting is only applicable for measurement data from RaySafe X2.*

Change the desired settings and click **Save**.

## CHANGE INSTRUMENT SETTINGS

Click on the cog wheel in the instrument panel (2 in Figure 1 on page 4) to open the settings window.

**NOTE:** *You can only change settings for a currently connected instrument.*

For explanations of the different instrument settings, see the User Manual for the instrument.

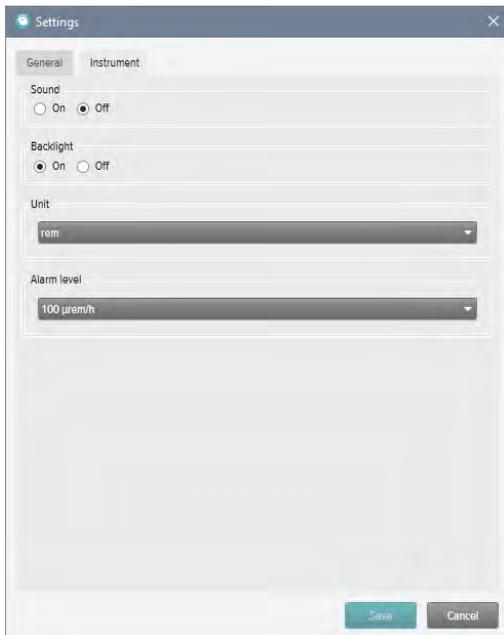


Figure 14. Settings window, Instrument tab, example content.

Change the desired instrument settings and click **Save**.

## UPDATES

RaySafe View will automatically check for software and firmware updates when your computer is connected to internet. A notification symbol will appear in the upper right corner of the main window (7 in “Figure 1. Main window overview.” on page 4) if there are any updates available for you.



Figure 15. Update notification symbol.

Click on the symbol to go to the update window (below).

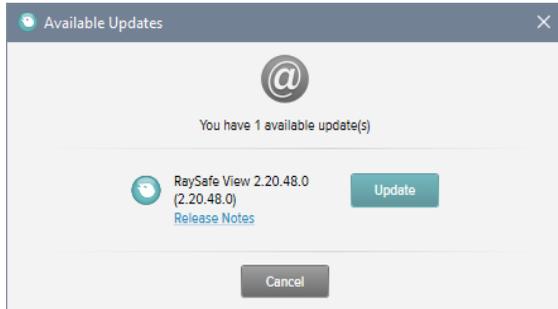


Figure 16. Available updates window.

Click **Update** to download and install the update or **Cancel** to postpone the update.

You can also manually check for updates using **Help – Check for updates**.

## SEND FEEDBACK

Click **Help – Send feedback** to report any feedback about RaySafe View or the connected instruments. Please have the instrument connected if you report a problem that occurs when the instrument is connected, since an instrument log file will be attached to the feedback.

**NOTE:** *To send feedback from RaySafe View, you must have an e-mail software installed. It will open when you click **Send**. A new e-mail is created with the log files attached. You can edit the e-mail before sending it.*

# HINTS

KEYBOARD SHORTCUT	ACTION
<b>Up arrow</b>	Show previous measurement
<b>Down arrow</b>	Show next measurement
<b>Ctrl+N</b>	Make a new file
<b>Ctrl+O</b>	Open an existing file
<b>Ctrl+S</b>	Save file
<b>Ctrl+Shift+S</b>	Save file with a new name (Save As)
<b>F1</b>	View Help
<b>F2</b>	Open About RaySafe View window
<b>F8</b>	Open Import from instrument window
<b>F12</b>	Open Settings window
<b>Ctrl+A</b>	Select all measurements
<b>Ctrl+C</b>	Copy selected measurements to the clipboard
<b>Delete</b>	Delete the selected measurement.
<b>Alt+X</b>	Exit RaySafe View

MOUSE EVENT	ACTION
Mouse wheel up in waveforms area	Zoom in
Mouse wheel down in waveforms area	Zoom out
Double click in waveforms area	Reset zoom and pan and selection
Left click and drag in waveforms area	Pan
Shift+left click and drag in waveforms area	Select a section
Ctrl+left click and drag in waveforms area	Select a region to zoom in to
Right click	Open a menu in the measurement or waveforms area

## TECHNICAL SUPPORT

Contact our support desk if you have any questions. Visit [www.raysafe.com](http://www.raysafe.com) for contact information.