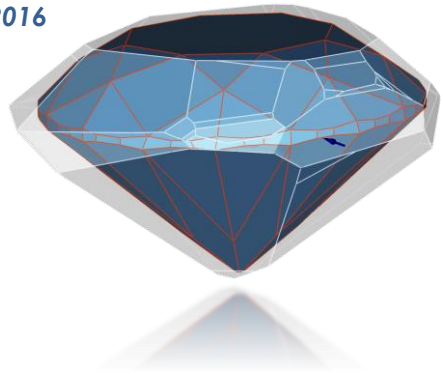
# Technical Notes

*May, 2016*



| Process Name | Build Number |
|---|---|
| Instructor Build | 3.7.71.164 |
| Report Editor Build | 3.7.99.13 |
| XCaliber 2.5 Build | 2.5.0.6 |
| XCaliber 2.6 Build | 2.6.0.3 |
| XCaliber 2.7 Build | 2.7.0.16 |

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# 1 Preface

This Document is intended for Technical, Support or IT engineer.

It concerns new, need to know, features and information concerning Instructor™ 3.7 support.

For other documents, please review below:

- Instructor™ 3.7 Release Notes
- Instructor™ 3.7 Installation Guide
- http://www.youtube.com/user/SarinTechnologiesLtd/videos

# 2 Operating System

## 2.1 Supported Operating Systems

Instructor™ 3.7 only supports **Windows 7 32/64 bit** and **Windows 8.1 64 bit** operation system.

**Instructor™ 3.7 does not Support Win XP Operating System**

## 2.2 64 bit installation

Instructor™ 3.7 is installed under, **Windows 7/8.1 – 64 bit**, as a **32 bit** application.



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# 3 Hardware Support

## 3.1 Officially supported Sarine machines

Instructor™ 3.7 supports **only** the following Sarine machine:

- ✓ **DiaMension™ AXIOM**
- ✓ **DiaMension™ HD**
- ✓ **DiaScan™ S+**
- ✓ **DiaExpert™**
- ✓ **DiaExpert-Eye™**
- ✓ **DiaMobile™ XL**
- ✓ **DiaMension™ Lab Edition Domino (Melody)** - See Domino Official support section

It is highly recommended for users to only work with these machines.

## 3.2 Unsupported Sarine machines

Instructor™ 3.7 does not support the following Sarine machines:

- ✗ **DiaExpert-XL™**
- ✗ **Old DiaMension (Metror2 grabber, old systems)**



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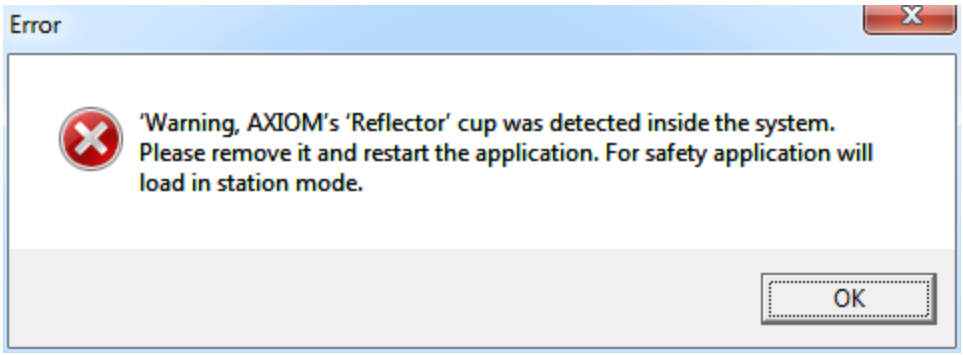
## 3.3 Changes for Axiom 2.0

### Reflector Cup safety

Below warning message will appear on application's start up, if the reflector cup is still inside of the Axiom. The reflector cup must be removed in order to not harm the machine. As a precaution, the Axiom machine will be launched in station mode. To start the machine in HW mode, the cup must be removed and then the user will need to relaunch the application:

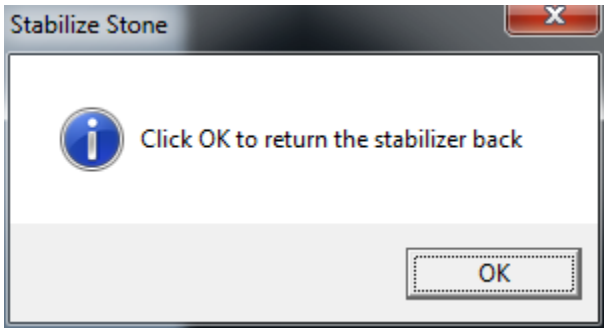



### Vacuum timeout

The vacuum timeout, for Axiom machine, is now set to stop 5 minutes after measure is finished.

### Stabilizer end process affirmation

Once the Stabilizer process finishes setting the tip onto the stone, below message will appear, alerting the user to exit the Stabilizer mode:




### Unsupported features on wide stage

The Center Stone, Stabilizer and Axiom scan are not supported for wide stages. This also goes for Lens 1, who currently only comes with a wide stage.

### Axiom measure's Table/Stage precondition error

When the measured stone's table width is equal or smaller than the stage width this error will be shown:

*"Stone table is too small for current stage"*

### New error will be displayed if Axiom measure is selected with wide stage.

New error will be displayed if Axiom measure is selected with a wide stage.

*"Axiom measure supports narrow stage only. Please replace the stage or select HD Scan level"*

### Lens 1 support

Lens 1 is supported on AXIOM-2016machine. However, the lens does not support the Axiom measure, center stone and stabilizer features.

Lens 1 is not supported for Axiom 1.0 machines.

## 3.4 Exposure parameter changes for Basler camera

These newly researched Basler parameters, for HD and Axiom, will improve measure time:

| Lens # | 3 | 2 | 1 |
|---|---|---|---|
| Gain | 10 | 10 | 10 |
| Offset | 10 | 10 | 10 |
| Exposure | 20 | 20 | 10 |

## 3.5 Driver updates

- Hasp 7.32
- uEye 4.60/4.61 + Frame grabber Testers
- CP210 Bridge 6.7.2.200

## 3.6 USB issues

See Appendix A

## 3.7 Supported NVidia cards

The installed NVidia card's *Compute Capability* needs to be greater than or equal to 2.0.

Click below link to check *Compute Capability* for your NVidia Card –

CUDA-Enabled Products

- Notice: The H&A feature has been updated, which means that the customer's current NVidia Card, which worked with Instructor™ 3.5, won't necessarily work with Instructor™ 3.7. See the links above in order to check if your card supports the current H&A feature.

See Appendix B



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# 4 Software Support

## 4.1 XCaliber support

The Instructor™ 3.7 Installation will support the install an XCaliber version, based on the machine the user will be installing for:

| Machine type | XCaliber version | Comments |
|---|---|---|
| Axiom 2016 models | XCaliber 2.7 | AXIOM-2016 comes with girdle light and an additional bottom light |
| Axiom 2014- 2015 | XCaliber 2.6 | Axiom 2014-2015 models Compatibility |
| Other | XCaliber 2.5 | No Axiom features support |

## 4.2 Borderline

The user can set a different borderline through the Grading Editor. Go to the desired shape/Institute/Cut grade and change the borderline value for the desirable parameter:

| | | Proportion Min | Proportion Max | Proportions Borderline | Symmetry Dev | Symetry Borderline |
|---|---|---|---|---|---|---|
| 1 | Table Size | - | - | 1.000 | 1.200 | 0.240 |
| 2 | Crown Angle | - | - | 0.500 | 1.200 | 0.240 |
| 3 | Pavilion Angle | - | - | 0.200 | 0.900 | 0.180 |
| 4 | Star Length | - | - | 5.000 | 9.000 | 1.800 |
| 5 | Lower Halves | - | - | 5.000 | 6.000 | 1.200 |
| 6 | Girdle Thickness | - | - | 0.500 | 1.200 | 0.240 |
| 7 | Crown Height | - | - | - | 1.200 | 0.240 |
| 8 | Pavilion Height | - | - | - | 1.200 | 0.240 |
| 9 | Total Depth | - | - | - | - | - |

- *Image from the Grading Editor under Settings menu

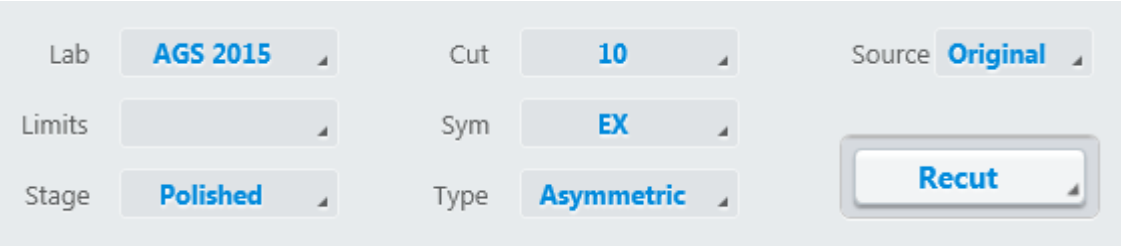
## 4.3 Accessors for Borderline

New ***Borderline*** Accessor keyword. The Borderline indication accessors are now available and show both direction and upgrade/downgrade. To use them, just add the suffix '*.borderline*' to the accessor supported by the borderline. For example:

| Export Template | Result on export |
|---|---|
| [mnf.stone.height.perc] [mnf.stone.height.perc.borderline] | 60.8 +-D |
| [t:mnf.girdle.height.grade] [mnf.girdle.height.grade.borderline] | Ex +-D |

## 4.4 AGS (PGS) new feature

Instructor™ 3.7 supports AGS Round recut:




## 4.5 Support for saving ASC files

You can now save measured or loaded stones as ASC files. Under the Save as dialog and in Automation.

## 4.6 New accessors

The new accessors are listed on the *Instructor 3_7 New Accessors* report

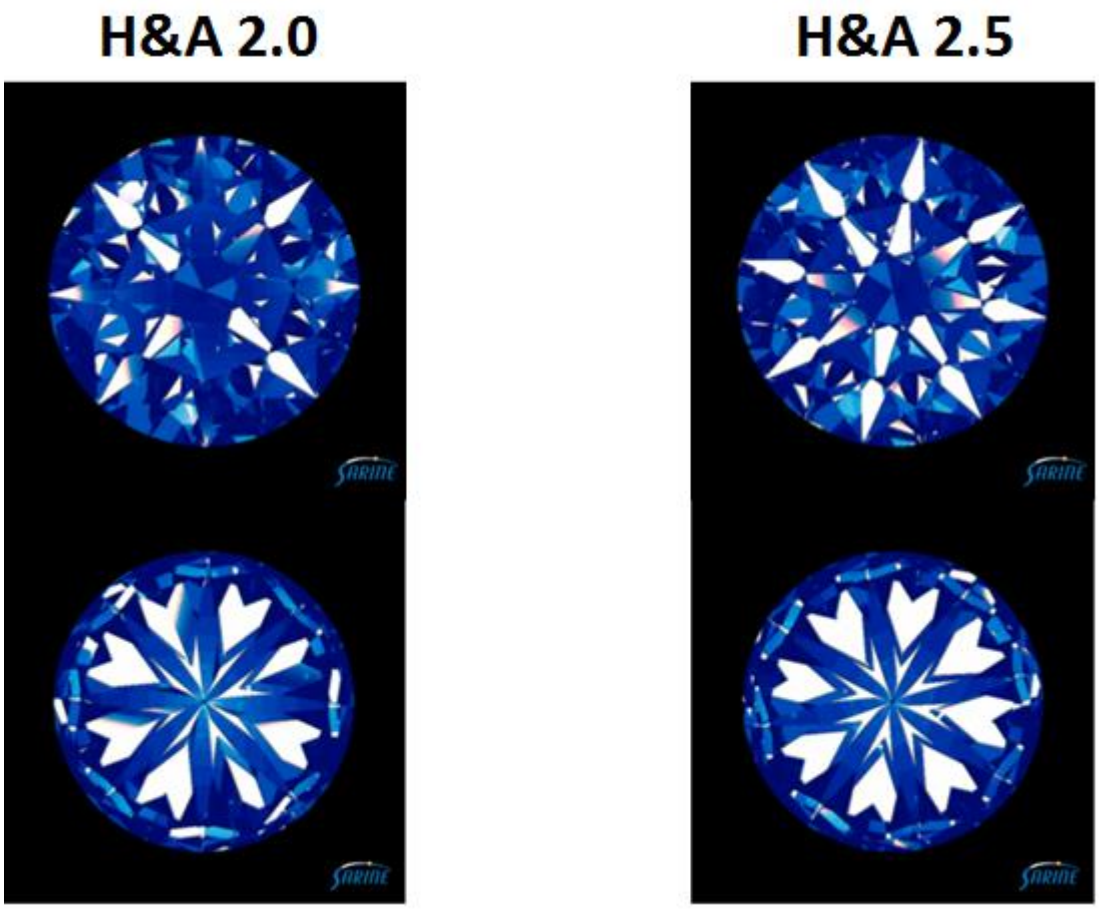
Here's a list of the new accessors:

| **New Fancy** | |
|---|---|
| Polish.table.offcenterwidth.perc | Polish.table.offcenterwidth.mic |
| Polish.table.offcenterlength.perc | Polish.table.offcenterlength.mic |
| Polish.table.offculetwidth.perc | Polish.table.offculetwidth.mic |
| Polish.table.offculetlength.perc | Polish.table.offculetlength.mic |
| Polish.culet.offcenterwidth.perc | Polish.culet.offcenterwidth.mic |
| Polish.culet.offcenterlength.perc | Polish.culet.offcenterlength.mic |
| **Shapes Backward Compatibility** | |
| general.facetarrangementbymainscount | general.shapebymainscount |
| **Length Direction** | |
| Polish.stone.lengthdirection | Polish.stone.lengthdir |

## 4.7 Hearts & Arrows 2.5

Instructor™ 3.7 comes with an improved Hearts & Arrows feature.

### Round Improvements



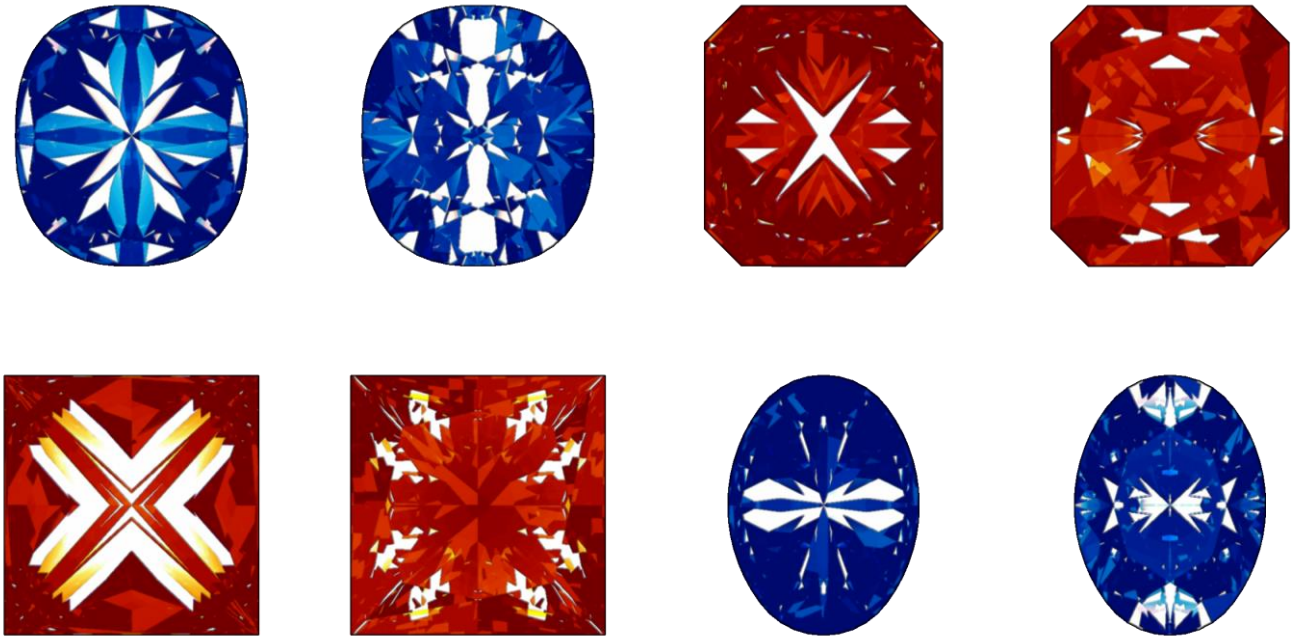

In above example, left side is before the change and right side is after.

As you can see on the left:

- The arrows' side is missing every second arrow, although the shape's symmetry is excellent.
- Every second heart is partially missing

## Fancy shapes support

You can now use the H&A mechanism for Fancy shapes:



## Alpha channel

H&A can now be saved with a **transparent background**. If the file format supports alpha channel, you can insert any color or image you desire as the background:

## 4.8 Changes in Reports mechanism

### Print Preview

The new Print Preview does not need reopening in order to update new or removed report.

### Reports Editor 3.0

The new report editor is supported only from Instructor™ 3.7.

New movie clip add, under:
C:\ProgramData\Sarin Technologies\Instructor\Docs\User Guide Movies\Instructor 3.7\Clip 13 - Reports Editor.mp4

### Support for Reports

The new reports mechanism supports reports/labels created on both Reports Editor 3.0 and 2.2.

**Note**:
In order to view defined preset of Facet information each time you load the report, it should be saved in the report file.

### Report Editor – path change

Report editor 3.0 files placed at a different path:

*C:\Program Files\Sarin Technologies\Instructor\Editor*

Instead of:
*C:\Program Files\Sarin Technologies\Instructor\Editor\Instructor*

## 4.9 Changes in cut identification mechanism

We've returned the favored behavior, which existed on Instructor™ 2.6, to the header,
With the following adjustments:

### Measure stone using AutoShape

Round and symmetric fancy shape's cut will be determined by their symmetry, for instance – If we have a round stone with only **7** completed mains, it will be still given a **P8** cut as its stage.
Pseudo-Round shapes will continue to be identified as they were on 3.5.
i.e. - an oval with **7** mains will be given a **P7** cut as its stage.

### Measure stone using shape and cut selection

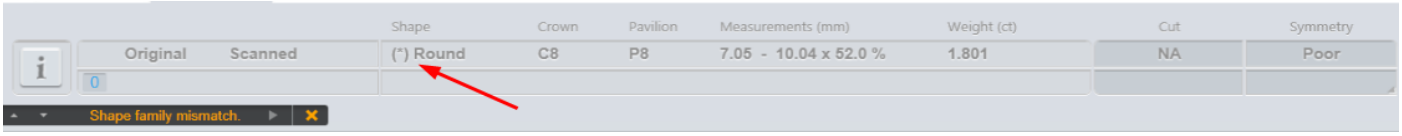
If a user chooses to force the shape's identification, the cut and shape will be displayed by the user's selection

### Load SRN stone, previous to Instructor™ 3.5

As on previous version, you could receive a stone without any cut stage, loading such stone will also present no cut stage on Instructor™ 3.7, even if you could see it on Instructor™ 3.5

### Mismatch identification

When a user forces a shape instead of the Instructor recognized one, the shape that will be displayed at the header will be the forced shape but an asterisk (*) will be shown to the right of the shape.
For example – If the user forced Round C8-P8 on a Pear shape:




**Note:** will appear on-

a. New forced measure.
b. Load of saved SRX file with forced shape.

## 4.10 Support for IIDGR

IIDGR institute is now supported By Instructor™ 3.7.
Including- Accessor mechanism, Template views, Reports, Labels and Exports.
Recut is not supported.

# 6 Known issues

## 6.1 Axiom Machine fails to start on initial connection ('Station' mode)

Instructor fails to either find the AXIOM machine or move its engines then alerts and starts in Station mode. Mostly occurs on first system setup, and first connection to the electric power. The work around is either wait a few minutes before starting the Instructor or close and reopen the Instructor once or twice. It will eventually start and you won't experience this issue until the next time the machine will be disconnected from the power grid.

## 6.2 Fix for idle camera on Windows 8.1

The Camera timeout key has been added under the SarinData.cnfg .

## 6.3 Xcaliber_Org.exe file for Windows 8.1 64 bit OS

The **Xcaliber_Org.exe** is now part of the XCaliber folder, under

*C:\Program Files\Sarin Technologies\Instructor\XCaliber*

XCaliber will not be able to initiate if this file is missing.



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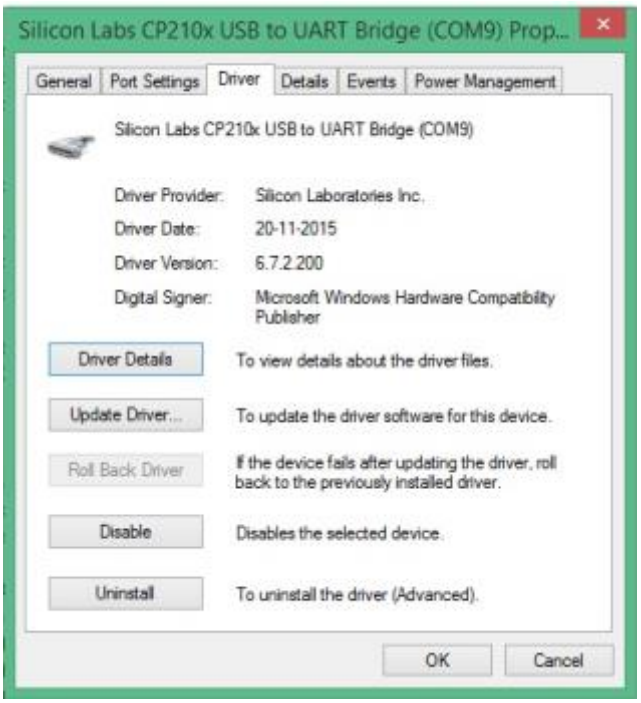
## 6.5 HW disconnections

The symptom: First time opening the Instructor, the HW is working properly. On the next attempts, none of Sarine's applications do not start, including Instructor, XCaliber and Advisor.
There are a few solutions:

### CP210 Bridge update

If the current CP210 bridge version is lower than 6.7.2.200, upgrade the version. See Appendix A for more information

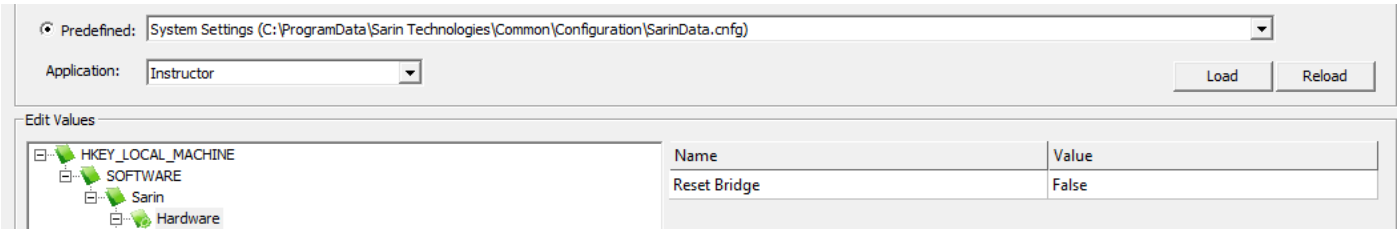
6.5.1




6.5.2

### Advisor's USB Reset Key

The USB Reset key enables Advisor to do a reset to the CP210 Bridge on startup.




If Advisor is installed **after** Instructor, it will add the key and set the USB Reset key to **True**.
In this case, the user should go to the SarinData.cnfg file, under C:*ProgramData\Sarin Technologies\Common\Configuration*, to the Hardware category, and set the key to **False**.

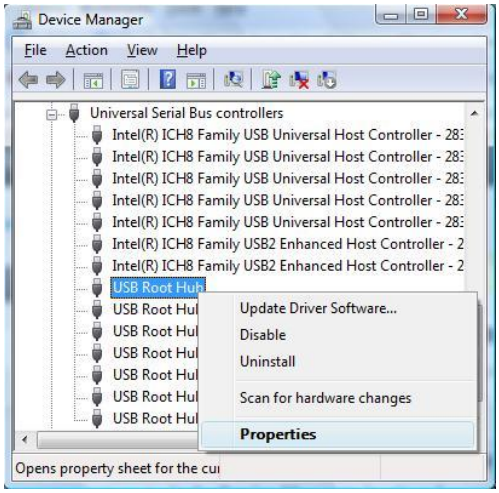
# 7 Appendix A - Overcoming USB Issues

## How to Disable Power Management for USB Root Hubs

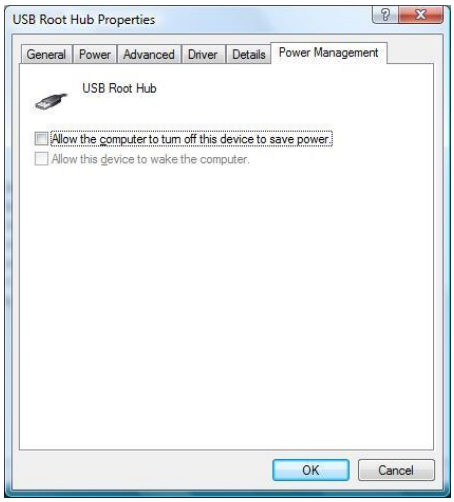
In some cases USB devices may stop working, in worse cases a complete USB hub may stop working. USB problems are always unwelcome, but if things are working fine and suddenly USB devices do not work anymore or are not recognized, troubleshooting can proof difficult.

If you have tried rebooting, unplugging and re-plugging, reinstalling all necessary USB device drivers, then you might want to try disabling the power management on the USB Root Hubs in Windows. We'll use Win7 as an example, but this method works just the same in Windows XP.

1. In the Windows **Start** menu, select **Run**.
2. In the **Run** dialog box, type **devmgmt.msc** and click **OK** or press **Enter**.
3. In the **Device Manager**, locate and open the **Universal Serial Bus controllers** branch.
4. You should now see a number of **USB Root Hub** entries.
5. Right-click the first of the **USB Root Hub** entries, and in the popup menu select **Properties**.




6. In the **USB Root Hub Properties** dialog box, select the **Power Management** tab.
7. Clear the checkbox named "**Allow the computer to turn off this device to save power**", and click **OK**.



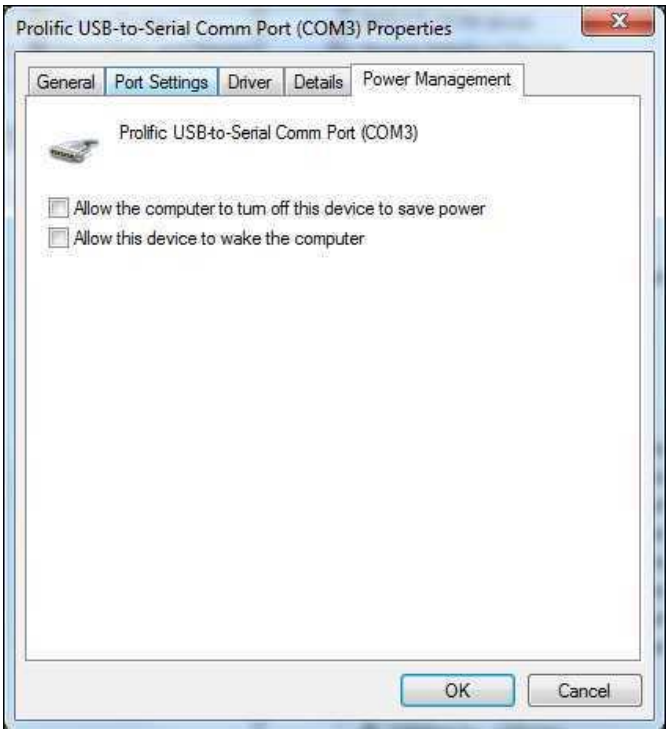

8. Repeat steps 5 till 7 for all **USB Root Hub** entries.
9. Now close the **Device Manager** and restart your computer.

Computer that works with Prolific USB-to-Serial Com Port:

1. In the **Device Manager**, locate and open the **Ports** branch.
2. You should now see the entry of **Prolific USB-to-Serial Com Port**.
3. Right-click the first of the **Prolific USB-to-Serial** entry, and in the popup menu select **Properties**.

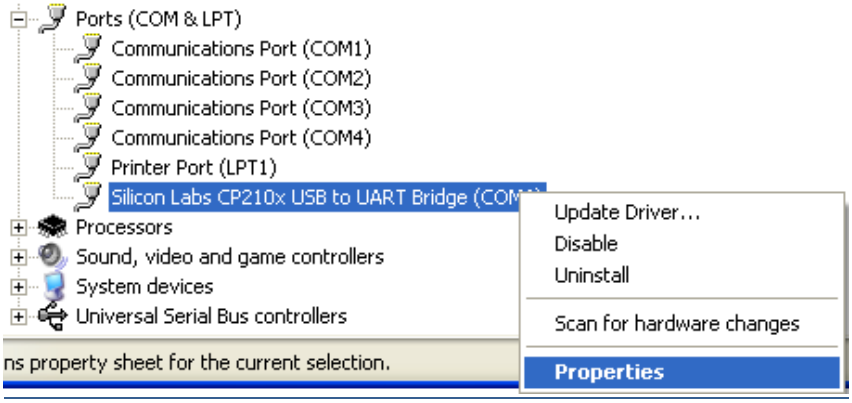
4. In the **Prolific USB-to-Serial Com Port** dialog box, select the **Power Management** tab.

5. Clear the checkbox named "**Allow the computer to turn off this device to save power**".
6. Clear the checkbox named "**Allow this device to wake the computer**", and click **OK**.



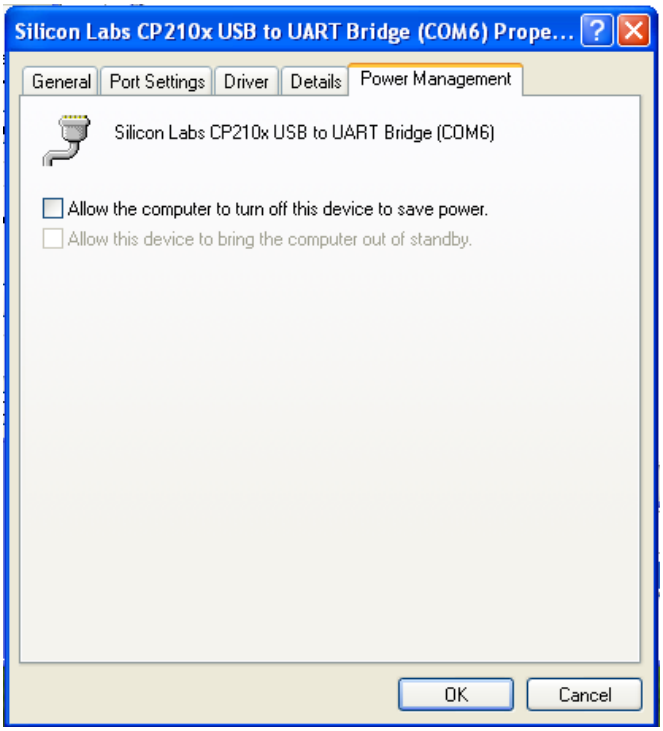

## Computer that works with Silicon Labs CP210x USB to UART Bridge

1. In the **Device Manager**, locate and open the **Ports** branch.
2. You should now see the entry of **Silicon Labs CP210x USB to UART Bridge**.
3. Right-click the first of the **Silicon Labs CP210x USB to UART Bridge** entry, and in the popup menu select **Properties**.




4. In the **Silicon Labs CP210x USB to UART Bridge** dialog box, select the **Power Management** tab.

5. Clear the checkbox named "**Allow the computer to turn off this device to save power**", and click **OK**.




Hopefully the USB problems will disappear after this.

If not, you can turn power management on again.

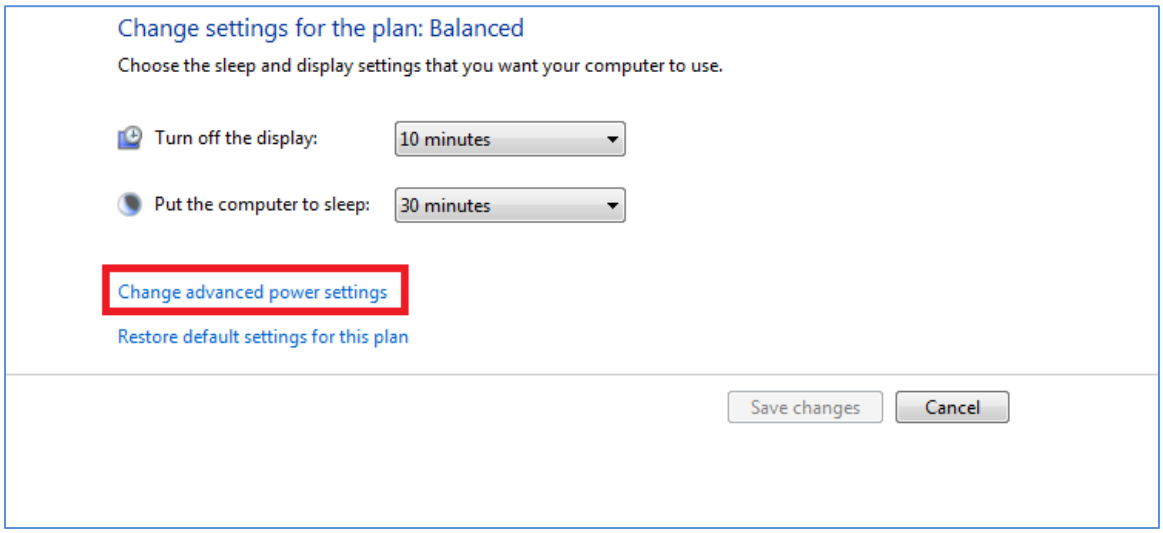
If the USB problems disappear, you can try to enable the power management for each of the USB Root Hubs again, to save power (especially on laptops and notebooks). By doing it one-by-one, you can try to identify the problematic USB hub. Do keep in mind that this requires you to keep your USB devices plugged to the same USB ports!

## No image from camera during idle time (USB connection)

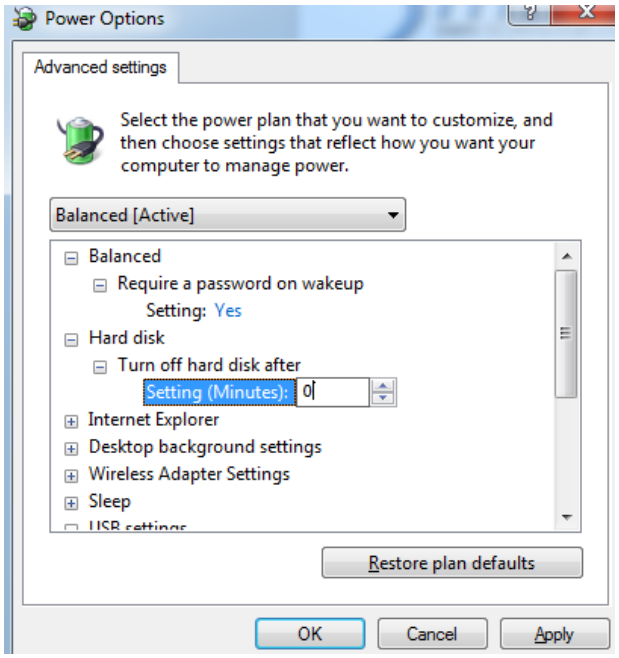
**Note: this section refers to users that work with Balanced power plan, if the user will work with Power saver plan or any other customize power plan, he will also need to follow the next prescription.**

In case that there is no image from the camera during idle time or calibration time you should do the following steps in order to overcome this issue:

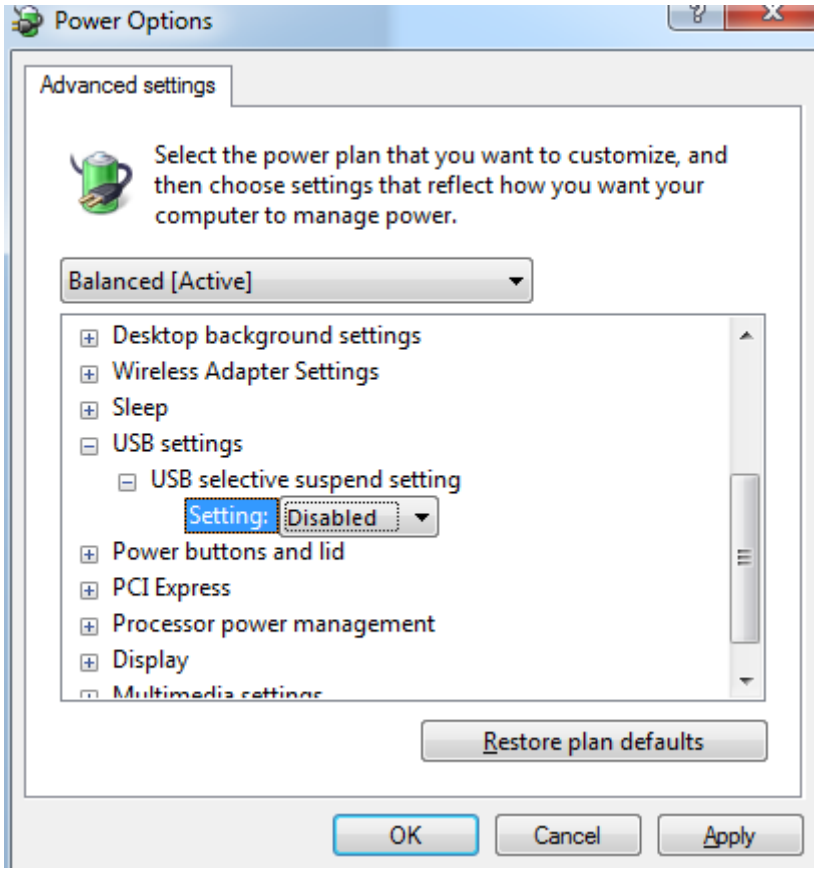
1) In **Control Panel** go to **Power Option.**
2) Choose "**Choose when to turn off display" ->** Change advanced power settings.




3) At **Hard disk ->** turn off hard disk after -> change the Settings to **0 minutes.**




4) At **USB settings ->** USB selective suspend setting -> change the settings to **Disable.**

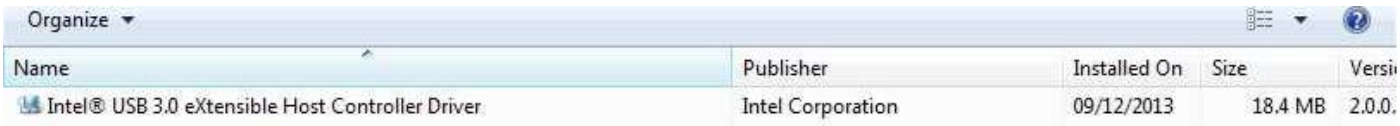



## Uninstall USB 3.0 drivers when using USB cameras

There is a frequent phenomenon when working with USB cameras (alike BDR, uEye, SUMIX), while USB 3.0 drivers are installed.

The USB 3.0 drivers may cause video slowness, loss of images (problems with the camera synchronization) and even 'blue screen'.

In order to overcome this issue we recommend uninstalling the USB 3.0 drivers from: **Add/Remove programs** (control panel):




After the installation in order to be sure that the drivers were uninstalled, check it in the device manager:

Before:

After:

# 8 Appendix B – List of supported NVidia drivers for H&A

The H&A feature will **not** work with any NVidia card.

Please verify that the card you're using is on this list.

The list of supported cards can be found **below**,

And In the CD, under Documents folder (Instructor support NVidia Cards 2015.pdf).

**Instructor™ NVIdia graphic card support for Hearts & Arrows**

## Instroctor 3.5

### DESKTOP

| Supported | | Not Supported | |
|---|---|---|---|
| GTX | TITAN Z | GTX | TITAN X |
| GTX | TITAN Black | GTX | 980 Ti |
| GTX | TITAN | GTX | 980 |
| GTX | 780 Ti | GTX | 970 |
| GTX | 780 | GTX | 960 |
| GTX | 770 | GTX | 950 |
| GTX | 760 TI | GTX | 750 Ti |
| GTX | 760 | GTX | 750 |
| GT | 740 | GT | 745 |
| GT | 730 (GDDR5) | | |
| GT | 730 (DDR3,128bit) | | |
| GT | 730 (DDR3,64bit) | | |
| GT | 720 | | |
| GT | 710 | | |
| GT | 705 | | |
| GTX | 690 | | |
| GTX | 680 | | |
| GTX | 670 | | |
| GTX | 660 Ti | | |
| GTX | 660 | | |
| GTX | 650 Ti | | |
| GTX | 650 | | |
| GTX | 645 | | |
| GT | 640 (GDDR5) | | |
| GT | 640 (DDR3) | | |
| GT | 640 | | |
| GT | 630 (GDDR5) | | |
| GT | 630 (DDR3) | | |
| GT | 630 | | |
| GT | 620 | | |
| GT | 610 | | |
| GTX | 590 | | |
| GTX | 580 | | |
| GTX | 570 | | |
| GTX | 560 Ti | | |
| GTX | 550 Ti | | |
| GT | 520 | | |
| | 510 | | |
| GTX | 480 | | |
| GTX | 470 | | |
| GTX | 465 | | |
| GTX | 460 | | |
| GTS | 450 | | |
| GT | 440 | | |
| GT | 430 | | |

### LAPTOP

| Supported | | Not Supported | |
|---|---|---|---|
| | 920M | GTX | 980M |
| GTX | 880M | GTX | 970M |
| GTX | 870M | GTX | 965M |
| | 825M | GTX | 960M |
| | 820M | GTX | 950M |
| | 810M | | 940M |
| GTX | 780M | | 930M |
| GTX | 770M | | 910M |
| GTX | 765M | GTX | 860M |
| GTX | 760M | GTX | 850M |
| GT | 755M | | 840M |
| GT | 750M | | 830M |
| GT | 745M | | |
| GT | 740M | | |
| GT | 735M | | |
| GT | 730M | | |
| GT | 720M | | |
| | 710M | | |
| | 705M | | |
| GTX | 680MX | | |
| GTX | 680M | | |
| GTX | 675MX | | |
| GTX | 675M | | |
| GTX | 670MX | | |
| GTX | 670M | | |
| GTX | 660M | | |
| GT | 650M | | |
| GT | 645M | | |
| GT | 640M | | |
| GT | 640M LE | | |
| GT | 635M | | |
| GT | 630M | | |
| GT | 625M | | |
| GT | 620M | | |
| | 610M | | |
| GTX | 580M | | |
| GTX | 570M | | |
| GTX | 560M | | |
| GT | 555M | | |
| GT | 550M | | |
| GT | 540M | | |
| GT | 525M | | |
| GT | 520MX | | |
| GT | 520M | | |
| GTX | 485M | | |
| GTX | 480M | | |
| GTX | 470M | | |
| GTX | 460M | | |
| GT | 445M | | |
| GT | 435M | | |
| GT | 425M | | |
| GT | 420M | | |
| GT | 415M | | |
| | 410M | | |

## Instroctor 3.7.1 (RayTracer 2.5)

### DESKTOP

| Supported | |
|---|---|
| GTX | TITAN X |
| GTX | TITAN Z |
| GTX | TITAN Black |
| GTX | TITAN |
| GTX | 980 Ti |
| GTX | 980 |
| GTX | 970 |
| GTX | 960 |
| GTX | 950 |
| GTX | 780 Ti |
| GTX | 780 |
| GTX | 770 |
| GTX | 760 TI |
| GTX | 760 |
| GTX | 750 Ti |
| GTX | 750 |
| GT | 745 |
| GT | 740 |
| GT | 730 (GDDR5) |
| GT | 730 (DDR3,128bit) |
| GT | 730 (DDR3,64bit) |
| GT | 720 |
| GT | 710 |
| GT | 705 |
| GTX | 690 |
| GTX | 680 |
| GTX | 670 |
| GTX | 660 Ti |
| GTX | 660 |
| GTX | 650 Ti |
| GTX | 650 |
| GTX | 645 |
| GT | 640 (GDDR5) |
| GT | 640 (DDR3) |
| GT | 640 |
| GT | 630 (GDDR5) |
| GT | 630 (DDR3) |
| GT | 630 |
| GT | 620 |
| GT | 610 |
| GTX | 590 |
| GTX | 580 |
| GTX | 570 |
| GTX | 560 Ti |
| GTX | 550 Ti |
| GT | 520 |
| | 510 |
| GTX | 480 |
| GTX | 470 |
| GTX | 465 |
| GTX | 460 |
| GTS | 450 |
| GT | 440 |
| GT | 430 |

### LAPTOP

| Supported | |
|---|---|
| GTX | 980M |
| GTX | 970M |
| GTX | 965M |
| GTX | 960M |
| GTX | 950M |
| | 940M |
| | 930M |
| | 920M |
| | 910M |
| GTX | 880M |
| GTX | 870M |
| GTX | 860M |
| GTX | 850M |
| | 840M |
| | 830M |
| | 825M |
| | 820M |
| | 810M |
| GTX | 780M |
| GTX | 770M |
| GTX | 765M |
| GTX | 760M |
| GT | 755M |
| GT | 750M |
| GT | 745M |
| GT | 740M |
| GT | 735M |
| GT | 730M |
| GT | 720M |
| | 710M |
| | 705M |
| GTX | 680MX |
| GTX | 680M |
| GTX | 675MX |
| GTX | 675M |
| GTX | 670MX |
| GTX | 670M |
| GTX | 660M |
| GT | 650M |
| GT | 645M |
| GT | 640M |
| GT | 640M LE |
| GT | 635M |
| GT | 630M |
| GT | 625M |
| GT | 620M |
| | 610M |
| GTX | 580M |
| GTX | 570M |
| GTX | 560M |
| GT | 555M |
| GT | 550M |
| GT | 540M |
| GT | 525M |
| GT | 520MX |
| GT | 520M |
| GTX | 485M |
| GTX | 480M |
| GTX | 470M |
| GTX | 460M |
| GT | 445M |
| GT | 435M |
| GT | 425M |
| GT | 420M |
| GT | 415M |
| | 410M |