

ARCHIMEDES SOFTWARE: v1.21 (PSS0052-04) SOFTWARE UPDATE NOTIFICATION

Introduction

This document details the release of software version 1.21 (PSS0052 -04) for the Archimedes system. This is a software update from the previous release version 1.10. Installation instructions are provided, and improvements, bug fixes and known issues are detailed.

ARCHIMEDES SYSTEM COMPATIBILITY - IMPORTANT NOTE

Archimedes v1.21 software is compatible with Revision 4 electronics build onwards, corresponding to instruments with serial numbers RMM2000/1-0048 and higher, and all instruments with serial numbers prefixed MAL#####.

For instruments with serial numbers RMM2000/1-0047 and below, please contact Malvern for advice before upgrading to v1.21 Archimedes software.

Installation

It is assumed that you have authority to install or update software within your company's Standard Operating Procedures. If you do not have this authority, please consult your computer support department before proceeding.

It is assumed that you have Administrator rights for the computer. This is required by the installation process.

It is recommended that any previous Archimedes Software version be uninstalled before version 1.21 is installed. This should be done by following the Uninstall Procedure instructions given below.

Recommended System Requirements

The recommended computer system requirements for running this software are highlighted in *table 1* below.

Table 1: Recommended system requirements for Archimedes software.

Feature	Specification
Processor Type	Intel Multi-Core processor
Memory	4 GB RAM
Hard Disk Storage	500 GB free hard disk space
Additional Storage Media	CD-ROM drive
Display Resolution	1600 x 900 screen resolution running in 16 bit color mode
Connectivity	3 free USB port
Operating System	Windows 7 Professional operating system or Windows 10 Pro operating system

Supported operating systems

Archimedes Software v1.21 is compatible with Windows 7 and Windows 10. Both the 32 bit and 64-bit versions are supported.

Windows XP, Windows Vista and Windows 8 are not supported.

Supported Languages

- English

Installation Instructions



IMPORTANT:

Uninstall any previous Archimedes Software versions on computer before installing update

It is recommended that any previous Archimedes Software version be uninstalled before version 1.21 is installed. This should be done by following the *Uninstall Procedure* instructions below.

If version 1.21 software is being installed on a new computer, please go to *Installing the Software/Firmware* section.

Uninstall Procedure

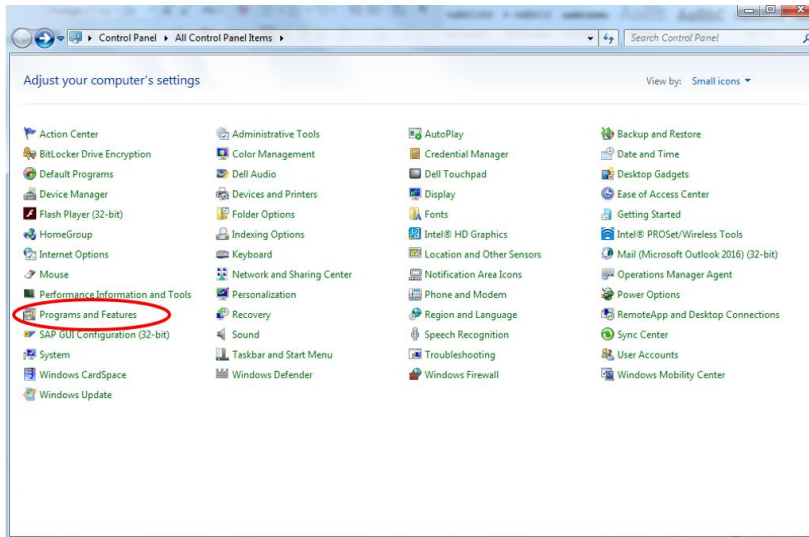
It is important to uninstall all previous versions of the software prior to attempting to install Archimedes v 1.21 software on any computer. Note that an earlier version of the 'Archimedes' software was called 'Particle Lab' software.

To uninstall *Particle Lab* or earlier versions of Archimedes software, use the standard **Add/Remove** feature in the Windows **Control panel**.

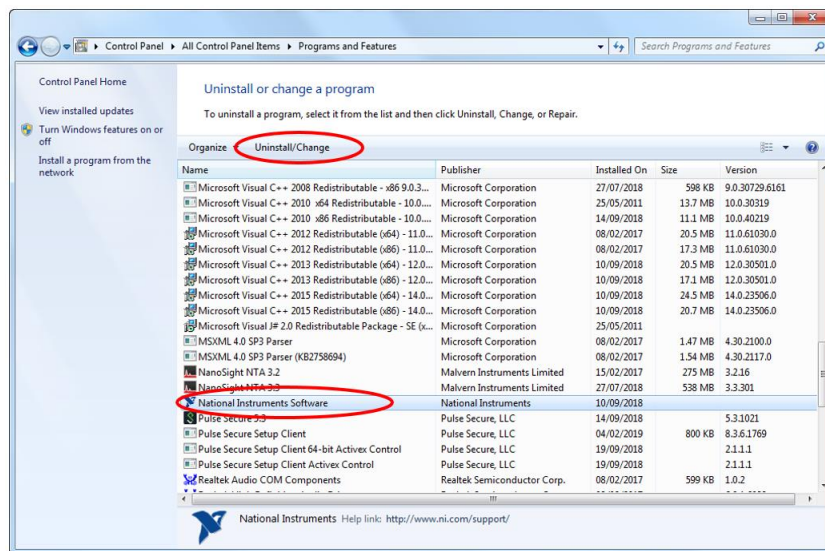
Some of the software is based on algorithms completed with National Instruments software and it is important this is also removed prior to attempting any new installation. Details of how to remove this software are given in the section, *Uninstalling National Instruments Software* below.

Uninstalling National Instruments software

1. Restart the computer to make sure that no application or relevant driver is actively running while doing installation.
2. Go to the Windows Control Panel (**Start–Control panel**).
3. In Control Panel select the **Uninstall a program** to open the **Uninstall** window.



4. Highlight the National Instrument Software and Uninstall/Change and remove all the files within the product.



5. When the uninstallation of the *National Instrument Software* is completed, follow the prompt message to restart the computer again. The Archimedes v 1.21 software can then be installed.

Installing the Software: Windows 7

The install is initiated by running the executable file *Archimedes.1.21.Extractor.PSS0052-04.exe* which opens the following installation wizard.



Proceed through the installation but do not restart the computer until the entire install process is complete. Select **Restart later** when prompted.

When the full Archimedes software installation is completed, the following window will be presented – please restart the computer at this point only.



Installing the Software: Windows 10

The Installation process for Windows 10 is similar to that for Windows 7 but requires that the computer is restarted at a specific point early in in the process. 10 PCs. Two Windows 10 specific software bugs have been identified and seems seem to occur when the PC is switched between multi-display setups. These are detailed below

- 1) **Bug:** The information panels within the Archimedes software are the wrong size, colour, and any refreshed text overlays the old text.
Solution: Open Display Settings. If using multiple monitors, navigate to the primary display. Ensure that Scale and Layout is set to 100% on the primary display.
- 2) **Bug:** When Open, Add, or Overlay functions are clicked, the software freezes and cannot be closed or minimised.
Solution: Press the Esc key and try again.

Installation is broadly the same as on previous Windows iterations. However, on a clean install of Windows 10, the installer requires the PC to restart after installation of .NET Framework, or an error will be encountered later on.

- 1) Turn on the PC.
- 2) Allow the PC to setup Windows 10 and enter any Windows preferences and logins.
- 3) Insert the USB drive or DVD that contains the Archimedes software and open the extractor within the drive.
- 4) Select Install when the extractor opens.
 - a. Close the “Windows can’t open this file” dialogue.
- 5) Select Install when the second extractor opens.
- 6) Agree to the Malvern Instruments Ltd. Software License Agreement, press next and then press install.
- 7) Accept the license terms for .NET Framework and then press install.
 - a. When “do you want setup to close your programmes?” dialogues appear, select yes.
 - b. Select Finish.
- 8) Select cancel on all further installation prompts from Device Driver Installation Wizard, IC Capture Setup Wizard, IC Imaging Control 3.4 Setup Wizard, Archimedes National Instrument Components Installer, SAP Crystal Reports, and Archimedes Setup Wizard.
- 9) When Completing the Archimedes Software Package Setup Wizard opens, select yes, restart the computer now and press finish. Allow the PC to restart.

From this point onwards, install the Archimedes software as normal. Continue to progress through the installer and deny all requests to restart until all components have been installed.

Once the software has been installed, open the start menu, type “Device Manager” and open the program. Expand “Universal Serial Bus controllers”. Right click each device and open properties. If a Power Management tab is present, open it, and uncheck “Allow the computer to turn off this device to save power” before pressing OK.

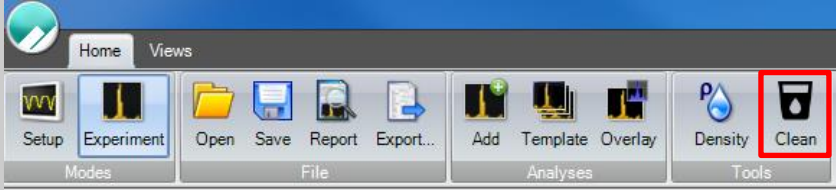

Connecting the Archimedes to the computer

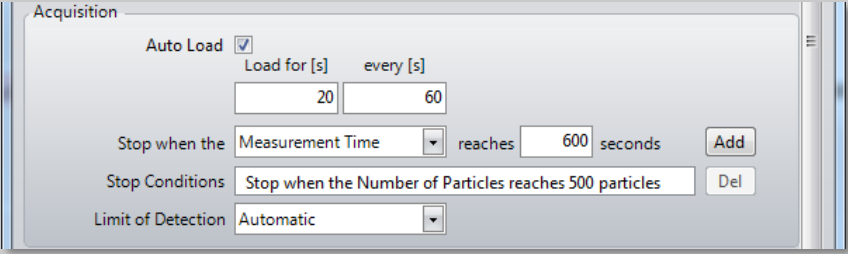
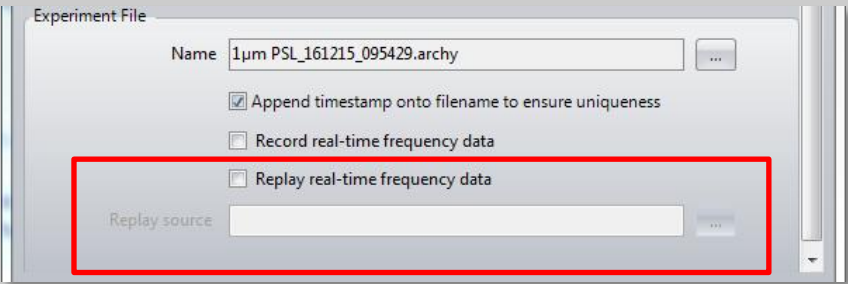

With the software installed, the instrument should be connected to the computer via the three USB connections and the system switched on. Once the connection is detected, the Windows system will automatically start to install the drivers for the Archimedes hardware.

Once the driver installation is completed, Windows will indicate that the new device driver software is installed and ready to use.

New Features, Improvements and Bug Fixes

The following new features, improvements and bug fixes have been added and addressed in Archimedes v1.21.

Item Description	Comments
<p>Feature: System Setup Wizard</p>	<p>Guides through the recommended steps for installing or replacing a sensor from inserting the sensor to checking for blockages and calibration of the sensor.</p>
<p>Feature: Integrated Cleaning Function</p>	<p>Simplifies cleaning the system and removing blockages by combining the loading and sneezing functions into a series of user defined cycles.</p> 
<p>Feature: Integrated Help Portal</p>	<p>Information from the user manual can be accessed in a searchable Help Portal by pressing the F1 key whilst the Archimedes software is open, or using the help icon indicated below.</p> 
<p>Feature: Variable pressure measurements</p>	<p>Measurement and measurement pneumatics functions (Load, Hiccup, Snort etc.) can be performed at user specified pressures. The sneeze function is not available during a measurement at non-default pressures.</p> <p><i>Note: This is an advanced user feature designed to give improved capabilities for certain aspects of micro/nano bubble measurements. Please contact your local Malvern technical support representative for further advice on this functionality.</i></p>
<p>Improvement: Warnings flagged during acquisition when measurement parameters are out of bounds</p>	<p>Conditions indicating potential problems with a measurement are flagged in a warning window box during the measurement. All warnings are recorded in the ARCHY file and can be viewed in the 'Experiment Info' pane post measurement.</p> <p>Warnings are given when the LOD is greater than 1Hz and when the pressure drop increases significantly during a measurement.</p>
<p>Improvement: Additional measurement set up options added to the New Experiment window</p>	<p>The Auto Load function, which enables regular sample replenishment in the sample bypass channel, can be set prior to the beginning of a measurement. This function is important for obtaining accurate and repeatable concentration measurements, particularly for large or dense particles.</p> <p>Multiple stop conditions can be specified for a measurement by adding or deleting conditions from the 'Stop Conditions' box.</p>

	
<p>Improvement: Sample loading integrated into New Experiment set up</p>	<p>Sample can be loaded directly after the experiment has been configured in the New Experiment window.</p>
<p>Improvement: Real-time frequency data replay is accessible from a New Experiment window</p>	<p>Real-time frequency data can be replayed directly from a New Experiment window by checking the 'Replay real-time frequency data' box.</p> 
<p>Improvement: System Setup values now required to be within operation range before data acquisition commences</p>	<p>SUM, Amplitude and Baseline values must be within operational range before the 'Acquire' button can be selected. This ensures measurements cannot be undertaken when the system is outside of the defined operational limits. The SUM limit has been raised to 1V as a more appropriate operational limit.</p>
<p>Improvement: Calibration defaults preset within New Experiment window</p>	<p>The New Experiment window for calibrations are populated with default values for the recommended calibration samples provided by Malvern. These values are editable for user specific calibration samples, if required.</p>
<p>Improvement: Setup and Experiment tabs can be restored to default views</p>	<p>Default views for the Setup and Experiment tabs can be restored using the reset button highlighted below.</p> 

Known Issues

The following known issues have been discovered within the software and will be investigated as part of a future release. Please follow the suggested work-around where applicable.

Issue	Workaround
Occasional issue when 'stop' button pressed during the measurement, all buttons turned grey	Restart the software
Failure to install NI components during installation of Archimedes Software – seen on computers with prior versions of Particle Lab or Archimedes software installed.	Restart the computer, follow the steps necessary to uninstall 'National Instrument Software' through the Windows 'Control panel,' restart the computer and install Archimedes Software.
After changing sensor, the tune plot and Q value for the previous sensor persists (Bug 47652)	Optimizing the amplitude and tuning the sensor are required when using a new sensor.
Software is grey after starting despite all hardware being attached. Log file states: InvalidOperationException: Cannot load Counter Name data because an invalid index " was read from the registry.	Click Start, type cmd, right click cmd.exe and select Run as administrator. At the prompt, type lodctr /r and press ENTER.

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