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General information

This document describes the features added to the Keithley Instruments Automation Characterization Suite (ACS) Standard Edition software (version 6.2.1).

The Keithley Instruments ACS Standard Edition software supports component characterization testing of packaged parts and wafer-level testing using probers. ACS Standard Edition software can be installed on any computer, including Keithley Instruments Model 4200A-SCS Parameter Analyzer and Model 4200 Semiconductor Characterization System (4200-SCS).

Supported operating systems

ACS Standard Edition software is supported on the following operating systems:

Microsoft Windows® 11, 64-bit

Microsoft Windows 10, 64-bit

Microsoft Windows 10, 32-bit

Microsoft Windows 7, 64-bit (with Service Pack 1)

Microsoft Windows 7, 32-bit (with Service Pack 1)



ACS Standard revision history

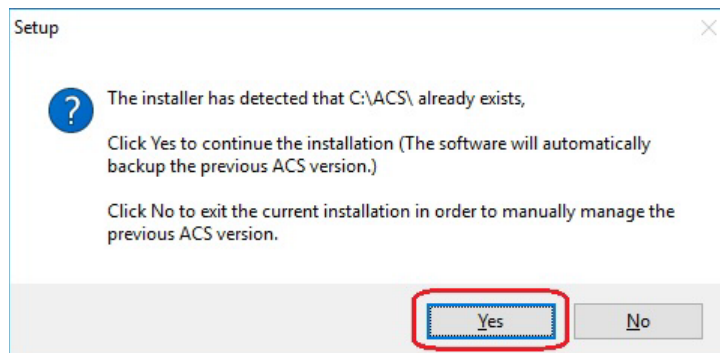
Version	Release date
6.2.1	March 2023
6.2	November 2022
6.1	March 2022
6.0	August 2021
5.4	February 2021
5.3	December 2017
5.2.1	September 2015
5.2	December 2014
5.1	May 2014
5.0	February 2013
4.4	December 2011
4.3.1	June 2011
4.3	March 2011
4.2.5	October 2010
4.2	June 2010

Install ACS

To install ACS software:

1. Log in to your computer as an Administrator.
2. Open the ACS executable file.
3. Select **Yes** if you have an older version of ACS installed.

Figure 1: ACS Software installation



4. Follow the instructions to specify how you want to install the software on your system.

Once the updated version of ACS is installed, the older version is renamed. You can copy the projects and libraries from the previous version using the following steps.

To copy and paste folders:

1. Find the `C:\ACS_DDMYYYY_HHMMSS\Projects\` folder; copy and paste to the current `C:\ACS\Projects` folder.
2. Find the `C:\ACS_DDMYYYY_HHMMSS\library\pyLibrary\PTMLib\` folder; copy and paste to the current `C:\ACS\library\pyLibrary\PTMLib\` folder.
3. Find the `C:\ACS_DDMYYYY_HHMMSS\library\26library\` folder; copy and paste to the current `C:\ACS\library\26library\` folder.

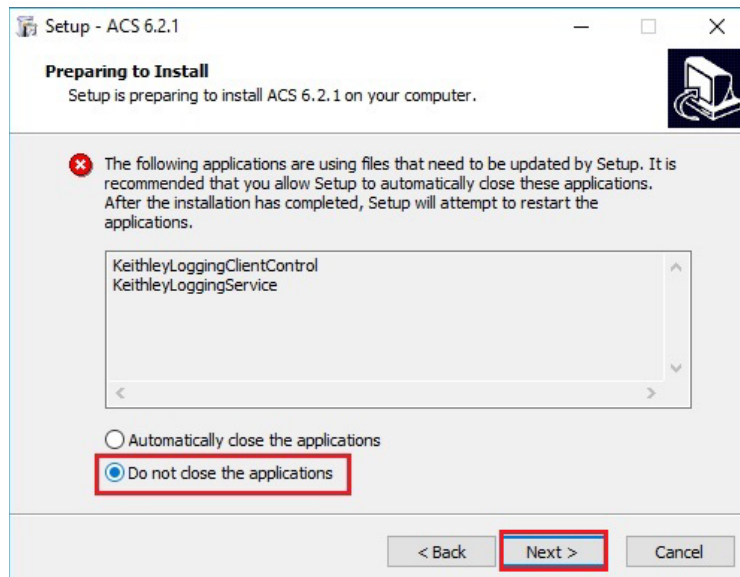
NOTE

ACS 6.2.1 is based on the Python® 3.7 programming language. If you customized your projects in a previous version of ACS you may need to change the projects created in the older version of ACS, which includes the Python language test module (PTM) script libraries. You can go to this site to review the Python changes for more detail: <https://docs.python.org/3/whatsnew/3.7.html#porting-to-python-37>

Install applications on a 4200A-SCS

If you are installing ACS on a 4200A-SCS Parameter Analyzer, you will see the following dialog box indicating that the applications identified are needed for installation. Make sure you select **Do not close applications** and **Next** to install (see the following figure). If you select **Automatically close the applications**, you must restart the computer after the installation is completed.

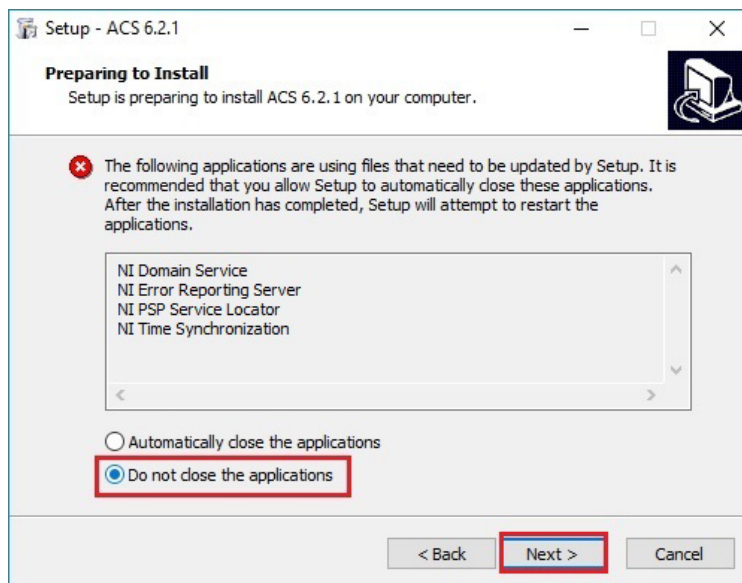
Figure 2: ACS 6.2.1 prepare to install



Install applications on a system with NI-488.2 drivers

If you are installing ACS on a system that contains NI-488.2 drivers, you will see the following dialog box indicating that the applications identified are needed for installation. Make sure you select **Do not close applications** and **Next** to install (see the following figure). If you select **Automatically close the applications**, you must restart the computer after the installation is completed.

Figure 3: ACS 6.2.1 prepare to install



Supported models and test configurations

ACS software is used with the following Keithley Instruments in a variety of different test configurations. The *ACS Fundamentals Reference Manual* (part number ACS-914-01) and *ACS Advanced Features Reference Manual* (part number ACS-908-01) contain detailed information about the supported hardware and test configurations.

- Perform multigroup testing with Series 2600B System SourceMeter® instruments and Series 2400 SourceMeter® instruments using ACS software installed on a personal computer or laptop.
- Control hardware using ACS software installed on the Model 4200A-SCS Parameter Analyzer or Model 4200-SCS.
- Perform combined group testing with a 4200A-SCS Parameter Analyzer or 4200-SCS, and Series 2600B SourceMeter® instruments using the combined test-execution engine in ACS software.
- Control other external GPIB, LAN, or USB instruments using ACS software installed on a personal computer or laptop.

The following table summarizes the instruments supported in the ACS test libraries.

Instrument type	Supported models
SMU instruments	2600B Series: 2601B-PULSE (DC only), 2601B, 2602B, 2604B, 2611B, 2612B, 2614B, 2634B, 2635B, 2636B
	2600A Series: 2601A, 2602A, 2611A, 2612A, 2635A, 2636A
	2400 Graphical Touchscreen Series SMU (KI24XX TTI): 2450, 2460, 2460-NFP, 2460-NFP-RACK, 2460-RACK, 2461, 2461-SYS, 2470
	2400 Standard Series SMU: 2401, 2410, 2420, 2430, 2440
	2606B High Density SMU
	2650 Series for High Power: 2651A, 2657A
Parameter analyzers	4200A and the following modules: 4210-CVU, 4215-CVU 4225-PMU/4225-RPM, 4225-RPM-LR, 4200-SMU, 4201-SMU, 4210-SMU, 4211-SMU, 4200-PA, 4200A-CVIV
DMMs	DMM6500, DMM7510, 2010 Series
Switching and data acquisition systems	DAQ6510, 707A/B, 708A/B, 3700A
Pulse generators	3400 Series

The following probers are supported in ACS:

Probers	Manual Prober Micromanipulator 8860 Prober Suss MicroTec PA200/Cascade CM300 Prober Cascade 12000 Prober Cascade S300 Prober Electroglas EG2X Prober Electroglas EG4X Prober TEL P8/P12 Prober TEL 19S Prober Tokyo Semitsu TSK9 (UF200/UF3000/APM60/70/80/90) Prober Wentworth Pegasus 300S Prober with SRQ check Micromanipulator P300A Prober Yang Sagi3 Prober with SRQ check Signatone CM500 Prober (WL250) TEL T78S/80S Prober MPI SENTIO Prober Semiprobe SPFA Prober MJC AP-80 prober Apollowave AP200/AP300 Prober Vector Semiconductor AX/VX Series prober
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NOTE

The graphical interactive test module (ITM) supports Series 24xx Touch Test Invent® (TTI) instruments and 26xx instruments at the same time. The 24xx instrument should be connected as the primary instrument and the 26xx connected as the subordinate.

You can control any test script processor (TSP™) instrument using script test module (STM) scripts. You can control any instrument using the Python language test module (PTM) script, including instrumentation from other vendors.

Also, existing ACS STM and PTM libraries support specific instruments based on the library definition.

Supported communication interfaces

- GPIB
- LAN (Auto Scan and LAN)
- USB
- RS-232

NOTE

If you are using a RS-232 connection, the instrument is not automatically added to the hardware configuration. You will have to add instruments connected with RS-232 manually. Change the hardware configuration file that is in the following directory on your computer:

C:\ACS\HardwareManagementTool\HWCFG_pref.ini. In this file you must change the baud rate, parity, byte, and stopBit settings. Review the following figure for details.

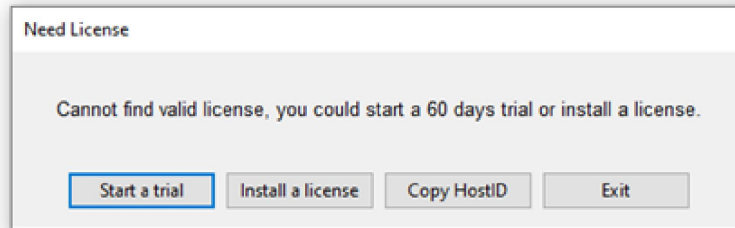
Figure 4: RS-232 connection



Software license

ACS allows you to create tests, manipulate settings, and view previous data without a license. However, you must have a license for ACS to control and retrieve data from a physical instrument. You can launch a one-time, 60-day trial for ACS after the initial installation. Once the license expires, you must purchase a full license to use the software.

Figure 5: ACS 6.2.1 license information



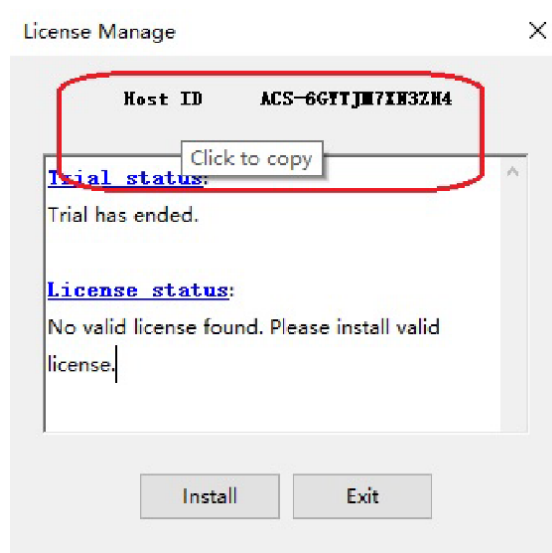
License management

The ACS software license is managed using the Tektronix Asset Management System (TekAMS).

To generate a license file:

1. You must submit your Host ID to TekAMS. For more information about TekAMS, see tek.com/products/product-license.
2. To find the host ID, open the License Manage dialog box from the ACS Help menu. Select **License > Host ID > Click to copy** the Host ID.
3. Select **Install**.

Figure 6: ACS Host ID 6.2.1 license information



ACS Standard version 6.2.1

Enhancements

Hardware configuration	
Issue number:	ACS-652
Enhancement:	Added support in ACS to configure the DMM6500 instrument and the DAQ6510 instrument using TSP-Link.

ACS software and libraires	
Issue number:	ACS-624
Enhancement:	Added hold time during testing for the sweep-step, which is enabled for each step.
Issue number:	ACS-544
Enhancement:	Added the option to stop testing during compliance and power compliance for each step.

Resolved issues

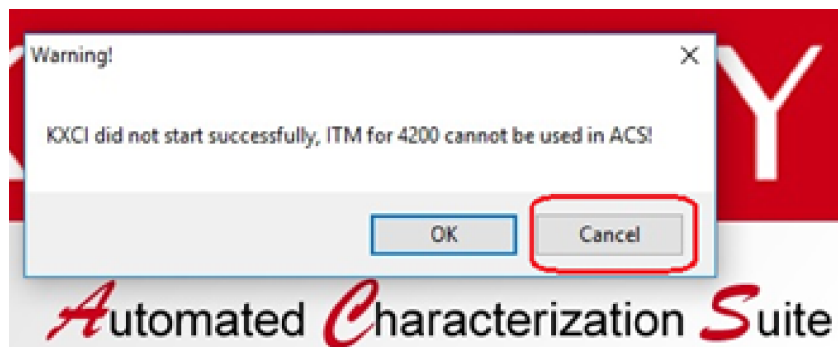
Issue number:	ACS-667
Symptom:	When running multiple group testing using TSP-Link with a 2430 instrument in Group3, there is no output after the test has completed.
Resolution:	This issue has been corrected.
Issue number:	ACS-666
Symptom:	A hardware scan error occurs when connecting TSP-Link using 24xx TTI SMU instruments.
Resolution:	This issue has been corrected.
Issue number:	ACS-665
Symptom:	A hardware scan error occurs when connecting multiple 2410 and 2430 instruments.
Resolution:	This issue has been corrected.
Issue number:	ACS-663
Symptom:	The error code -1014 is due to the MPI prober failing when using the <code>PrRelReturn</code> function.
Resolution:	This issue has been corrected.
Issue number:	ACS-662
Symptom:	The voltage drain output is not correct when used with the 100 A compliance.
Resolution:	This issue has been corrected.
Issue number:	ACS-661
Symptom:	When combining the 100 A compliance for the ITM, it will not refresh with new data.
Resolution:	This issue has been corrected.
Issue number:	ACS-660
Symptom:	There is no data output when pulse transient mode for the ITM is enabled.
Resolution:	This issue has been corrected.
Issue number:	ACS-657
Symptom:	Selecting the pulse sweep function in ITM mode does not work.
Resolution:	This issue has been corrected.

Issue number:	ACS-655
Symptom:	The Sweep2V and Sweep2I from the ITM function list have been removed from ACS software testing.
Resolution:	This issue has been corrected.
Issue number:	ACS-648
Symptom:	If the stress count is too high during a Subsite Loop, the test will not complete.
Resolution:	This issue has been corrected.
Issue number:	ACS-554
Symptom:	ACS software will crash when you select the <code>Ron_5A_PULSE_check</code> function.
Resolution:	This issue has been corrected.

Software compatibility

Issue number:	N/A
Resolution:	When you start ACS on the 4200A-SCS system with Clarius software version 1.4 or newer (with the Windows 10 operating system), a warning message may appear indicating that Keithley External Control Interface (KXCI) did not start successfully. Select Cancel to dismiss the warning.

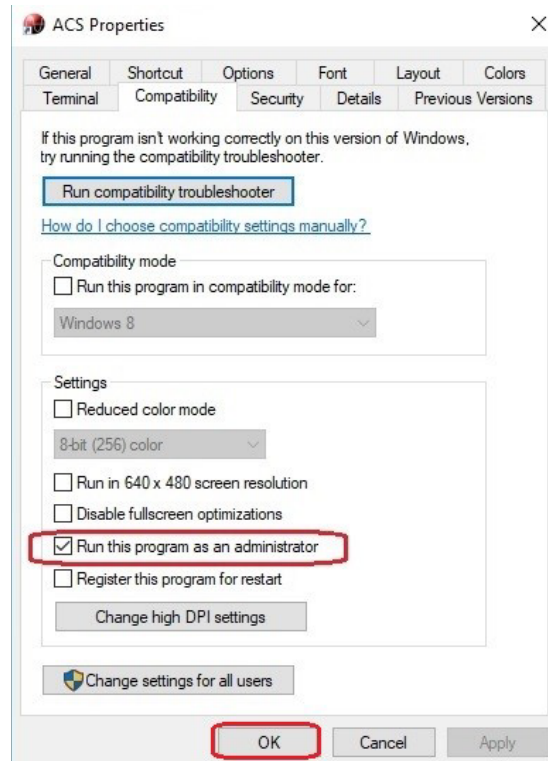
Figure 7: KXCI did not start



To manually configure the compatibility settings:

1. Right-click the **ACS icon** and select **Properties**.
2. Open the **Compatibility** tab.
3. Select **Run this program as an administrator** and select **OK** to save.

Figure 8: ACS properties



Usage note

Issue number:	N/A
Resolution:	If you install a KUSB-488B GPIB driver, you will see the following message. You must select the Keithley Command Compatible option. Select Next to continue the installation.

Figure 9: ACS command compatible option

