

## RELEASE NOTES

# Measurement Studio™

Version 2013

These release notes introduce Measurement Studio 2013. Refer to this document for information about installation requirements, driver support version information, installation instructions, deployment requirements, new features and functionality, and resources in Measurement Studio 2013.

For a complete introduction to Measurement Studio and to learn about Measurement Studio concepts, controls, and features, refer to the *Getting Started with Measurement Studio* guide. To access the guide, select **Start»All Programs»National Instruments»<Measurement Studio>>Getting Started Guide** or, in Windows 8, select **NI Launcher»<Measurement Studio>>Getting Started Guide**.

For a list of fixed bugs and known issues, refer to the *Measurement Studio Readme*. There is a different *Measurement Studio Readme* for each supported version of Visual Studio. The *Measurement Studio Readme* files are available in the `Readme` folder under the root directory of your installation media and are linked from the Autorun application. After installing Measurement Studio 2013, select **Start»All Programs»National Instruments»<Measurement Studio>>Readme** to access the *Measurement Studio 2013 Readme* or, in Windows 8, select **NI Launcher»<Measurement Studio>>Readme**.

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## About Measurement Studio

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Measurement Studio is an integrated suite of tools and class libraries designed to help developers create measurement and automation Windows Forms, Windows Presentation Foundation (WPF), and Web Forms applications using Microsoft .NET technologies.

Measurement Studio provides object-oriented measurement hardware interfaces, advanced analysis libraries, scientific user interface controls, measurement data networking libraries, wizards, interactive code designers, and highly extensible .NET classes. You can use Measurement Studio to develop a complete measurement and automation application that includes data acquisition, analysis, and presentation functionalities.

## What's New in Measurement Studio 2013

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Measurement Studio 2013 includes the following new features:

- .NET class library support for Visual Studio 2012
- Additional improvements
  - Measurement Studio support for Visual Studio 2010 help on the Web
  - Bug fixes

## Installation Requirements

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Measurement Studio 2013 includes support for Microsoft Visual Studio 2012, Visual Studio 2010, and Visual Studio 2008. The following are the installation requirements for each supported version of Visual Studio.

### Installation Requirements for Visual Studio 2012 Support

To install and run Measurement Studio support for Visual Studio 2012, your computer must have the following:

- Microsoft operating system:
  - Windows 8 (32-bit or 64-bit)
  - Windows 7 (32-bit or 64-bit), including Starter Edition (32-bit)
  - Windows Server 2008 R2 (64-bit)
- Microsoft Framework 4.5
- Visual Studio 2012:
  - Ultimate Edition
  - Premium Edition

- Professional Edition
- Express Edition for Web
- Express Edition for Windows Desktop
- 1.6 GHz or faster processor
- DirectX 9-capable video card running at 1024 × 768 or higher-resolution display
- 1 GB (32-bit) or 2 GB (64-bit) RAM
- 1.2 GB of free hard disk space
- Microsoft-compatible mouse
- Microsoft Internet Explorer 6.0

## Installation Requirements for Visual Studio 2010 Support

To install and run Measurement Studio support for Visual Studio 2010, your computer must have the following:

- Microsoft operating system:
  - Windows 8 (32-bit or 64-bit)
  - Windows 7 (32-bit or 64-bit), including Starter Edition (32-bit)
  - Windows Vista, Service Pack 2 (32-bit or 64-bit)
  - Windows XP, Service Pack 3 (32-bit)
  - Windows Server 2003 R2 (32-bit)
  - Windows Server 2008 R2 (64-bit)
- Microsoft .NET Framework 4.0
- Visual Studio 2010:
  - Ultimate Edition
  - Premium Edition
  - Professional Edition
  - Visual C# Express Edition
  - Visual Basic Express Edition
  - Visual Web Developer Express Edition



**Note** You must have Visual Studio 2010 Service Pack 1 or later installed on your machine for Measurement Studio to function properly.

- Intel Pentium III class processor, 1.6 GHz or higher
- DirectX 9-capable video card running at 1024 × 768 or higher-resolution display
- 1 GB (32-bit) or 2 GB (64-bit) RAM
- 1.2 GB of free hard disk space
- Microsoft-compatible mouse
- Microsoft Internet Explorer 6.0

# Installation Requirements for Visual Studio 2008 Support

To install and run Measurement Studio support for Visual Studio 2008, your computer must have the following:

- Microsoft operating system:
  - Windows 8 (32-bit or 64-bit)
  - Windows 7 (32-bit or 64-bit), including Starter Edition (32-bit)
  - Windows Vista (32-bit or 64-bit)
  - Windows XP, Service Pack 3 (32-bit)
  - Windows Server 2003 R2 (32-bit)
  - Windows Server 2008 R2 (64-bit)
- Microsoft .NET Framework 3.5
- Visual Studio 2008:
  - Team System Edition
  - Professional Edition
  - Standard Edition
  - Visual C# Express Edition
  - Visual Basic .NET Express Edition
  - Visual Web Developer Express Edition



**Note** You must have Visual Studio 2008 Service Pack 1 or later installed on your machine for Measurement Studio to function properly.

- Intel Pentium III class processor, 1.6 GHz or higher
- Video display—1024 × 768
- 512 MB of RAM (1024 MB or more recommended)
- 800 MB of free hard disk space
- Microsoft-compatible mouse
- Microsoft Internet Explorer 6.0

## Installation Notes

- Measurement Studio does not support:
  - Windows Vista Starter Edition
  - Non-R2 editions of Windows Server
- Microsoft Visual Studio Express Editions do not support Measurement Studio Visual Studio-integrated tools.
- This version of Measurement Studio supports, and was tested with, the latest Visual Studio service pack and the latest operating system service pack that was available at the time this version of Measurement Studio was released. National Instruments strongly recommends using Measurement Studio with the latest Visual Studio service pack and the latest operating system service pack.

- If you want to upgrade your operating system from one major version to another, National Instruments recommends first uninstalling all National Instruments software, including application software and drivers. This is typically not necessary when installing an operating system service pack.
- There are additional considerations for installing the Measurement Studio Help. Refer to the *Installation Notes for Integrated Help* section of this document for more information.

## Driver Support

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To use .NET class libraries that interface to National Instruments device drivers, you must install the underlying device drivers in addition to the .NET class libraries. You can run the underlying device driver installers from the NI Device Drivers DVD included with Measurement Studio or download the latest version of the NI Device Drivers by selecting NI Device Drivers from [ni.com/drivers](http://ni.com/drivers).



**Note** The DAQ Assistant and the Instrument I/O Assistant are installed from the NI Device Drivers DVD. You must install the NI Device Drivers DVD to use the assistants. The Instrument I/O Assistant is only supported in Measurement Studio support for Visual Studio 2008 and Visual Studio 2010.

Use the following table to determine what drivers are supported for each version of Visual Studio, whether the driver supports 32-bit or 64-bit applications, and the location of the installer files.

Driver	Visual Studio version	Bitness		Installer Download Location
		32-bit	64-bit	
NI-DAQmx	2008	Yes	Yes, available in NI-DAQmx 8.9.5 and later	NI Device Drivers DVD - or - <a href="http://ni.com/drivers">ni.com/drivers</a>
	2010	Yes	Yes, available in NI-DAQmx 9.2.3 and later	
	2012	Yes	Yes, available in NI-DAQmx 9.6.2 and later	

Driver	Visual Studio version	Bitness		Installer Download Location
		32-bit	64-bit	
NI-VISA	2008	Yes	Yes, available in NI-VISA 4.5.1 and later	NI Device Drivers DVD - or - ni.com/drivers
	2010	Yes	Yes, available in NI-VISA 5.0.3 and later	
	2012	Yes	Yes, available in NI-VISA 5.3 and later	
NI-488.2	2008	Yes	Yes, available in NI-488.2 2.7.1 and later	NI Device Drivers DVD - or - ni.com/drivers
	2010	Yes	Yes, available in NI-488.2 2.8.1 and later	
	2012	Yes	Yes, available in NI-488.2 3.1.1 and later	
NI-SCOPE	2008	Yes	No	ni.com/drivers
NI-IMAQ	2008	Yes	No	ni.com/drivers
NI-IMAQdx	2008	Yes	No	ni.com/drivers
NI-Vision	2008	Yes	No	ni.com/drivers
MAX (Measurement & Automation Explorer)	2008	Yes	Yes, available in MAX 4.6 and later	NI Device Drivers DVD - or - ni.com/drivers
NI-DCPower	2010	Yes	Yes	NI Device Drivers DVD (for underlying driver support) - and - ni.com/drivers (for .NET class libraries)

Driver	Visual Studio version	Bitness		Installer Download Location
		32-bit	64-bit	
NI-DMM	2010	Yes	Yes	NI Device Drivers DVD (for underlying driver support) - and - <a href="http://ni.com/drivers">ni.com/drivers</a> (for .NET class libraries)
NI-RFSA	2010	Yes	Yes	NI Device Drivers DVD (for underlying driver support) - and - <a href="http://ni.com/drivers">ni.com/drivers</a> (for .NET class libraries)
NI-RFSG	2010	Yes	Yes	NI Device Drivers DVD (for underlying driver support) - and - <a href="http://ni.com/drivers">ni.com/drivers</a> (for .NET class libraries)
NI-SWITCH	2010	Yes	Yes	NI Device Drivers DVD (for underlying driver support) - and - <a href="http://ni.com/drivers">ni.com/drivers</a> (for .NET class libraries)

## Installation Instructions

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Complete the following steps to install Measurement Studio. These steps describe a typical installation. Please carefully review all additional licensing and warning dialog boxes.

National Instruments recommends that you exit all programs before running the Measurement Studio installer. Applications that run in the background, such as virus scanning utilities, might cause the installer to take longer than necessary to complete.

# Installing Measurement Studio

Complete the following steps to install Measurement Studio:

1. Log on as Administrator or as a user with administrator privileges.
2. Launch `autorun.exe`, either from the installation media or from the location to which you extracted the downloaded disc image. Select **Install Measurement Studio 2013**.
3. In the Select Installation Option window, you can choose to activate Measurement Studio if you have a serial number, or you can choose to evaluate Measurement Studio.
4. Select Measurement Studio 2013 support for the version or versions of Visual Studio you want to install support for.
5. Select Device Drivers to install support for hardware.
6. Follow the instructions that appear on the screen.



**Tip** You can use a spec file to programmatically control the Measurement Studio installer for a single distribution or for the entire suite. An example spec file for a single distribution is located on your installation media at `<drive>:Distributions\Measurement Studio for VS20xx\Bin\template_spec.txt`. For more information, refer to KnowledgeBase Article **4CJDP38M: Automating the Installation of a Single Installer** on [ni.com](http://ni.com). Alternately, you can generate a spec file for the entire Measurement Studio suite. Refer to KnowledgeBase Article **4GGDQH0: Automating the Installation of a Suited Installer** on [ni.com](http://ni.com) for instructions on how to generate a spec file for your suite.

## Activating Measurement Studio Licenses

If you did not activate Measurement Studio during installation, you can use the NI Activation Wizard to activate the software after installation. To activate Measurement Studio, you need the serial number printed on the Certificate of Ownership included in your software kit. Refer to the *Licensing, Evaluation, and Activation* topic in the *NI Measurement Studio Help* for more information about how to activate Measurement Studio.

National Instruments offers a variety of Measurement Studio licenses, with certain licensed features available for each license type: Standard Edition, Professional Edition, and Enterprise Edition. Refer to the *Measurement Studio Editions* topic in the *NI Measurement Studio Help* for more information on Measurement Studio editions, and the *Licensing Measurement Studio* topic in the *NI Measurement Studio Help* for more information about licensing Measurement Studio.



**Note** To move to a different Measurement Studio edition, you can activate the new edition by using NI License Manager. Select **Start»All Programs»National Instruments»NI License Manager** to access NI License Manager, or in Windows 8, select **NI Launcher»NI License Manager**.

For general license activation information, refer to [ni.com/activate](http://ni.com/activate). Refer to [ni.com/mstudio](http://ni.com/mstudio) to purchase a Measurement Studio license. Contact a local National Instruments representative at [ni.com/contact](http://ni.com/contact) for more information or for questions about specific licensing needs.



## Concurrent Licensing

Measurement Studio supports concurrent licensing as part of a volume license agreement. If your software is a part of a Volume License Agreement (VLA), contact your VLA administrator for installation and activation instructions.

## Installation Notes for Integrated Help

The *NI Measurement Studio Help* is integrated into the Visual Studio help. To view the integrated *NI Measurement Studio Help*, you must have the local Visual Studio help installed and your Help settings set to launch the help in the local help viewer.

- In Visual Studio 2012, you can use the Manage Content tab in the Help Viewer to install or uninstall Measurement Studio help content. Refer to the *Measurement Studio 2013 for Visual Studio 2012 Readme* for more information on configuring the Measurement Studio help.
- In Visual Studio 2010, you can use the Help Configuration Utility to install Measurement Studio Help to locales other than English or to install or uninstall Measurement Studio help content. Refer to the *Measurement Studio 2013 for Visual Studio 2010 Readme* for more information on configuring the Measurement Studio help.

## Installing the Current Version of Measurement Studio over Previous Versions of Measurement Studio

You can have only one version of Measurement Studio installed on a system for each version of Visual Studio or the Microsoft .NET Framework installed on the system. For example, you can have Measurement Studio 2013 for Visual Studio 2010 installed on the same system as Measurement Studio 2012 for Visual Studio 2008, but you cannot have Measurement Studio 2013 for Visual Studio 2010 installed on the same system as Measurement Studio 2012 for Visual Studio 2010.

If you install a newer version of Measurement Studio on a machine that has a prior version of Measurement Studio installed, the newer version installer replaces the prior version functionality, including class libraries. However, the prior version assemblies remain in the global assembly cache (GAC); therefore, applications that reference the prior version continue to use the prior version .NET assemblies.



**Note** `NationalInstruments.Common.dll` uses a publisher policy file to redirect applications to always use the newest version of `NationalInstruments.Common.dll` installed on the system, for each version of the .NET Framework. However, prior versions of `NationalInstruments.Common.dll` remain in the GAC after you install a newer version of Measurement Studio. National Instruments exerts extra effort to ensure that `NationalInstruments.Common.dll` is backward-compatible so that applications built against prior versions of Measurement Studio continue to work as expected.

# Deployment Requirements

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To deploy an application built using Measurement Studio .NET class libraries, refer to the following table to determine the operating system and .NET Framework version required by the target machine.

Measurement Studio Support Used to Build Application	Target Machine	
	Operating System	.NET Framework Version
Measurement Studio support for Visual Studio 2012	Windows 8/7/Vista SP2/Server 2008 (R2 edition)	4.5
Measurement Studio support for Visual Studio 2010	Windows 8/7/Vista SP2/XP SP3/Server 2003 and 2008 (R2 editions)	4.0 or 4.5
Measurement Studio support for Visual Studio 2008	Windows 8/7/Vista SP1/XP SP3/Server 2003 and 2008 (R2 editions)	3.5

## Deploying 64-bit Applications

All Measurement Studio class libraries that support 64-bit include both 32-bit and 64-bit deployment merge modules. This is true regardless of whether the class library includes platform-specific (i.e., x86 or x64) or platform-agnostic (i.e., Any CPU) assemblies. Refer to *Deploying Windows Applications* in the *NI Measurement Studio Help* for more information on using 64-bit merge modules.

## Merge Modules Deployment in Visual Studio 2012

National Instruments recommends creating your installer in Visual Studio 2012 with the Windows Installer XML (WiX) toolset, available at [WixToolset.org](http://WixToolset.org). The WiX toolset is a set of open source build tools that integrates into Visual Studio.



**Note** Measurement Studio merge modules for Visual Studio 2012 install the Measurement Studio assemblies by default to the global assembly cache (GAC). Measurement Studio merge modules for Visual Studio 2010 and 2008 install the Measurement Studio assemblies by default to the application folder. To install Measurement Studio assemblies for Visual Studio 2012 to the application folder, you must set the `ConfigurationData` element in your `.wx`s file for that component. For information on how to use this element, refer to the `Deployment` example installed with Measurement Studio.



**Note** Measurement Studio support for Visual Studio 2012 and Visual Studio 2010 uses the same `NationalInstruments.Common.dll` assembly, which is built against the .NET Framework version 4.0.

# New Features in Measurement Studio 2013

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## .NET Class Library Support for Visual Studio 2012

Measurement Studio 2013 introduces .NET support for Visual Studio 2012, including a complete set of .NET class libraries, example projects, and tools that integrate into Visual Studio 2012. To use these new libraries, you can either create new projects in Visual Studio 2012 or use Visual Studio 2012 to upgrade your existing Visual Studio 2008 or Visual Studio 2010 projects that use Measurement Studio libraries.

The Measurement Studio class libraries for Visual Studio 2012 have different versions and different public key tokens than the corresponding Measurement Studio class libraries for Visual Studio 2010 and Visual Studio 2008. The version numbers for Visual Studio 2012 support assemblies begin with 13.0.45; the version numbers of Visual Studio 2010 support assemblies begin with 13.0.40; and the version numbers of Visual Studio 2008 support assemblies begin with 13.0.35. If you use the public key token to verify the identity of Measurement Studio class libraries, you need to modify your code or system configuration to accommodate the new public key token.

## Integrated Help for Visual Studio 2012 Support

In addition to new class libraries, Measurement Studio 2013 also includes documentation integrated into the Microsoft Help Viewer 2.0. You can view the *NI Measurement Studio Help* by selecting it in the Measurement Studio menu or by selecting **View Help** in the Visual Studio Help menu.



**Tip** From within Visual Studio 2012, you can select **Help»Set Help Preference»Launch in Help Viewer** to configure the Help Viewer to view local help, including the integrated Measurement Studio help. If you have **Launch in Browser** selected, the Measurement Studio help does not appear.

## Related Documentation

Refer to the following topics for more information about Visual Studio 2012 support and working with different versions of Measurement Studio:

- Conceptual help—Refer to the following topics in the *NI Measurement Studio Help* for more information:
  - *Deploying Measurement Studio Windows Applications*
  - *Measurement Studio Year-Based and Major.Minor Version Equivalents*
  - *Measurement Studio .NET Class Library Versioning for Development and Deployment*
  - *Using the Measurement Studio Help*
- Web resources—Review the information from the Microsoft Web site on using Visual Studio 2012 at [microsoft.com/visualstudio](http://microsoft.com/visualstudio).

# Additional Improvements

Measurement Studio 2013 also introduces the following new improvements:

- **Measurement Studio Support for Visual Studio 2010 Help on the Web**—*NI Measurement Studio Help* for Visual Studio 2010 support is now available online on [ni.com](http://ni.com). You can access the Measurement Studio help by selecting **Measurement Studio 2012 for Visual Studio 2010 Help** from [ni.com/manuals](http://ni.com/manuals). The online Measurement Studio help contains the same help topics that are installed with Measurement Studio.



**Note** Accessing the help from within Measurement Studio returns the Measurement Studio help that is installed on your machine, not the online version of the help.

- **Bug Fixes**—Measurement Studio 2013 includes many fixes for previously reported bugs. Refer to the *Measurement Studio Bug Fix Information Web* page on [ni.com](http://ni.com) for a complete listing of the bugs fixed in Measurement Studio 2013.

## Legacy Languages and Frameworks

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The Measurement Studio life cycle support policy states a commitment to support the three most recent versions of Microsoft Visual Studio. As a result, Measurement Studio 2013 does **not** provide feature support for Visual Studio 2005, Visual Studio 2003, Visual C++ MFC, and Visual Studio 6.0. However, legacy support is available in the following products:

- *Measurement Studio 2012*, which includes support for Visual Studio 2010 (Visual C#, Visual Basic .NET), Visual Studio 2008 (Visual C#, Visual Basic .NET), Visual Studio 2005 (Visual C#, Visual Basic .NET), and compatible hardware drivers.
- *Measurement Studio 2009*, which includes support for Visual Studio 2008 (Visual C++ MFC, Visual C#, Visual Basic .NET), Visual Studio 2005 (Visual C++ MFC, Visual C#, Visual Basic .NET), Visual Studio 2003 (Visual C++ MFC, Visual C#, Visual Basic .NET), Visual Studio 6.0 (Visual Basic 6.0, Visual C++ 6.0), and compatible hardware drivers.
- *Measurement Studio C++ MFC for Visual Studio 2010 (Measurement Studio MFC 10)*, which includes Visual C++ MFC support for Visual Studio 2010.

To qualify to receive these products, you must meet one of the following criteria:

1. You must maintain an active Measurement Studio Standard Service Program (SSP) contract; or
2. You must have purchased the most recent version of Measurement Studio.

Refer to [ni.com/mstudio/legacysupport](http://ni.com/mstudio/legacysupport) for additional information about Measurement Studio legacy support, including installation and configuration information, or contact a Technical Sales Representative at [ni.com/contact](http://ni.com/contact).

# Learning Measurement Studio

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As you work with Measurement Studio, you might need to consult additional resources. For detailed Measurement Studio help, including function reference and in-depth documentation on developing with Measurement Studio, refer to the *NI Measurement Studio Help* within the Visual Studio environment. The *NI Measurement Studio Help* is fully integrated with the Visual Studio help.

You can launch the *NI Measurement Studio Help* in the following ways:

- From the Windows Start menu, select **Start»All Programs»National Instruments»<Measurement Studio>»Measurement Studio Documentation**. In Windows 8, click **NI Launcher**, open the Measurement Studio folder in the window that appears, and select **NI Measurement Studio Help**.
- In Visual Studio 2008, select **Help»Contents** to view the Visual Studio table of contents. In Visual Studio 2010 and Visual Studio 2012, select **Help»View Help** to view the Visual Studio table of contents. The *NI Measurement Studio Help* is integrated into the Visual Studio help.
- In Visual Studio, select **Measurement Studio»NI Measurement Studio Help**.

## Where to Go Next

The following resources are also available to provide you with information about Measurement Studio.

- Getting Started information—Refer to the *Measurement Studio Core Overview* topic for an introduction to Measurement Studio. For an introduction to Measurement Studio features and functionality, refer to the *Getting Started with Measurement Studio* manual, accessible through the Measurement Studio menu.
- Examples—Measurement Studio installs examples organized by class library, depending on the component, the version of Visual Studio or the .NET Framework that the example supports, the version of Measurement Studio installed on the system, and the operating system. For more information on example locations, refer to the *Where to Find Examples* topic in the *NI Measurement Studio Help*.
- Measurement Studio Web site, [ni.com/mstudio](http://ni.com/mstudio)—Contains Measurement Studio news, support, downloads, white papers, product tutorials, and purchasing information.
- NI Developer Zone, [zone.ni.com](http://zone.ni.com)—Provides access to online example programs, tutorials, technical news, and Measurement Studio discussion forums.
- Review the information from the Microsoft Web site on using Visual Studio at [microsoft.com/visualstudio](http://microsoft.com/visualstudio).

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