

# **Data Acquisition Toolbox™**

## **Release Notes**

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*Data Acquisition Toolbox™ Release Notes*

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## Summary by Version

This table provides quick access to what's new in each version. For clarification, see "Using Release Notes" on page 3.

<b>Version (Release)</b>	<b>New Features and Changes</b>	<b>Version Compatibility Considerations</b>	<b>Fixed Bugs and Known Problems</b>
<b>Latest Version V3.1 (R2012a)</b>	Yes Details	No	Bug Reports Includes fixes
V3.0 (R2011b)	Yes Details	No	Bug Reports Includes fixes
V2.18 (R2011a)	Yes Details	No	Bug Reports Includes fixes
V2.17 (R2010b)	Yes Details	No	Bug Reports Includes fixes
V2.16 (R2010a)	Yes Details	No	Bug Reports Includes fixes
V2.15 (R2009b)	Yes Details	No	Bug Reports Includes fixes
V2.14 (R2009a)	Yes Details	No	Bug Reports Includes fixes
V2.13 (R2008b)	Yes Details	Yes Summary	Bug Reports Includes fixes
V2.12 (R2008a)	Yes Details	No	Bug Reports Includes fixes
V2.11 (R2007b)	Yes Details	Yes Summary	Bug Reports Includes fixes
V2.10 (R2007a)	Yes Details	Yes Summary	Bug Reports Includes fixes
V2.9 (R2006b)	Yes Details	Yes Summary	Bug Reports Includes fixes
V2.8.1 (R2006a)	No	No	Bug Reports Includes fixes

<b>Version (Release)</b>	<b>New Features and Changes</b>	<b>Version Compatibility Considerations</b>	<b>Fixed Bugs and Known Problems</b>
V2.8 (R14SP3+)	Yes Details	No	Bug Reports Includes fixes
V2.7 (R14SP3)	No	No	Bug Reports Includes fixes
V2.6 (R14SP2)	Yes Details	No	Bug Reports Includes fixes
V2.5.1 (R14SP1)	No	No	Fixed bugs
V2.5 (R14)	No	No	Fixed bugs

## Using Release Notes

Use release notes when upgrading to a newer version to learn about:

- New features
- Changes
- Potential impact on your existing files and practices

Review the release notes for other MathWorks® products required for this product (for example, MATLAB® or Simulink®). Determine if enhancements, bugs, or compatibility considerations in other products impact you.

If you are upgrading from a software version other than the most recent one, review the current release notes and all interim versions. For example, when you upgrade from V1.0 to V1.2, review the release notes for V1.1 and V1.2.

## What Is in the Release Notes

### New Features and Changes

- New functionality
- Changes to existing functionality

### Version Compatibility Considerations

When a new feature or change introduces a reported incompatibility between versions, the **Compatibility Considerations** subsection explains the impact.

Compatibility issues reported after the product release appear under Bug Reports at the MathWorks Web site. Bug fixes can sometimes result in incompatibilities, so review the fixed bugs in Bug Reports for any compatibility impact.

### Fixed Bugs and Known Problems

MathWorks offers a user-searchable Bug Reports database so you can view Bug Reports. The development team updates this database at release time

and as more information becomes available. Bug Reports include provisions for any known workarounds or file replacements. Information is available for bugs existing in or fixed in Release 14SP2 or later. Information is not available for all bugs in earlier releases.

Access Bug Reports using your MathWorks Account.

## **Documentation on the MathWorks Web Site**

Related documentation is available on [mathworks.com](http://mathworks.com) for the latest release and for previous releases:

- Latest product documentation
- Archived documentation



## Version 3.1 (R2012a) Data Acquisition Toolbox Software

This table summarizes what's new in Version 3.1 (R2012a):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems
Yes Details below	No	Bug Reports Includes fixes

New features and changes introduced in this version are:

- “Session Synchronization Capability” on page 5
- “Support Added for Microphone Channels” on page 5
- “Support Added for IEPE Channels” on page 5
- “Support Added for New National Instruments CompactDAQ Chassis” on page 6
- “Support Added for New National Instruments Devices” on page 6
- “Support Added for New Measurement Computing Devices” on page 7

### Session Synchronization Capability

You can now synchronize operations in the session-based interface using hardware triggers and scan clocks.

### Support Added for Microphone Channels

You can now perform microphone measurements on National Instruments® devices using the session-based interface.

### Support Added for IEPE Channels

You can now perform generic IEPE measurements on National Instruments devices using the session-based interface.

## **Support Added for New National Instruments CompactDAQ Chassis**

Additional data acquisition support was added for the Ethernet chassis NI cDAQ-9188 and these 1-Slot CompactDAQ chassis:

NI cDAQ-9171

NI cDAQ-9181

NI cDAQ-9191

## **Support Added for New National Instruments Devices**

Additional data acquisition hardware support was added for these National Instruments devices:

NI USB-6341

NI USB-6343

NI USB-6351

NI USB-6353

NI USB-6356

NI USB-6361

NI USB-6363

NI USB-6366

NI PCI-6601

NI PCI-6602

NI PCI-6713

NI PCIe-6509

NI PXI-4472

NI PXI-6602

NI PXI-6608

NI PXI-6624

NI PXI-6723

NI PXI-6733

NI PXIe-4492

NI PXIe-4497

NI PXIe-4499

NI WLS-9163

## **Support Added for New Measurement Computing Devices**

Additional data acquisition hardware support was added for USB-1608G, USB-1608GX and USB-1608GX-2AO. You can use these Measurement Computing™ devices in the legacy interface.

## Version 3.0 (R2011b) Data Acquisition Toolbox Software

This table summarizes what's new in Version 3.0 (R2011b):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems
Yes Details below	No	Bug Reports Includes fixes

New features and changes introduced in this version are:

- “Expanded Support for National Instruments Devices in the Session-Based Interface” on page 8
- “Support Added for Bridge Measurements” on page 8
- “Support Added for RTD Channels” on page 8
- “Support Added for New Thermocouple Device” on page 9
- “Support Removed for Two National Instruments USB Devices” on page 9

### Expanded Support for National Instruments Devices in the Session-Based Interface

You can now use most supported National Instruments devices in the session-based interface. See the Supported Hardware page for a list of supported National Instruments devices.

### Support Added for Bridge Measurements

You can now perform bridge measurements on National Instruments using the session-based interface.

### Support Added for RTD Channels

You can now perform RTD measurements on National Instruments using the session-based interface.

## **Support Added for New Thermocouple Device**

You can now use the National Instruments NI USB-TC01 Thermocouple measurement device with Data Acquisition Toolbox™, using the session-based interface.

## **Support Removed for Two National Instruments USB Devices**

Support for NI USB-9263 and NI USB-9264 devices removed from the legacy interface of Data Acquisition Toolbox. Use these devices with the session-based interface.

## Version 2.18 (R2011a) Data Acquisition Toolbox Software

This table summarizes what's new in Version 2.18 (R2011a):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems
Yes Details below	No	Bug Reports Includes fixes

New features and changes introduced in this version are:

- “Support Added for Counters and Timers” on page 10
- “Support Added for IEPE Accelerometer Measurements” on page 10
- “Support Added for NI-DAQmx Devices” on page 10
- “New Hardware Support for National Instruments Chassis-Based Devices” on page 11
- “64-Bit Windows Support” on page 11
- “NI-DAQmx Driver Requirement” on page 11

### Support Added for Counters and Timers

You can now use counter and timer subsystems on National Instruments CompactDAQ devices in Data Acquisition Toolbox.

### Support Added for IEPE Accelerometer Measurements

You can now directly access IEPE accelerometer measurements on a National Instruments CompactDAQ device.

### Support Added for NI-DAQmx Devices

Additional data acquisition hardware support was added for NI-DAQmx Version 9.2.1 devices as follows:

NI PCIe-6509	NI USB-6351
NI PXIe-4492	NI USB-6353
NI PXIe-4497	NI USB-6356
NI PXIe-4499	NI USB-6361
NI USB-6341	NI USB-6363
NI USB-6343	NI USB-6366

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**Note** You must use NI-DAQmx driver Version 9.1 or greater with Data Acquisition Toolbox.

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## **New Hardware Support for National Instruments Chassis-Based Devices**

Additional data acquisition hardware support was added for NI 9222, and NI 9223 devices.

## **64-Bit Windows Support**

You can now use the session-based interface of Data Acquisition Toolbox with a Windows® 64-bit system. The legacy interface does not support use of the 64-bit system.

## **NI-DAQmx Driver Requirement**

You must use Version 9.1 of the NI-DAQmx driver with Data Acquisition Toolbox.

## Version 2.17 (R2010b) Data Acquisition Toolbox Software

This table summarizes what's new in Version 2.17 (R2010b):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems
Yes Details below	No	Bug Reports Includes fixes

New features and changes introduced in this version are:

- “Support Added for National Instruments CompactDAQ Devices” on page 12
- “Current and Thermocouple Measurements for CompactDAQ Devices” on page 12
- “New Hardware Support” on page 13

### Support Added for National Instruments CompactDAQ Devices

You can use the session-based interface of the Data Acquisition Toolbox to communicate with National Instruments CompactDAQ devices. Currently the toolbox only supports devices with analog input and output channels. For a complete list of supported CompactDAQ devices, visit the Data Acquisition Toolbox Supported Hardware page at the MathWorks Web site.

### Current and Thermocouple Measurements for CompactDAQ Devices

You can use CompactDAQ devices that support current and thermocouple measurement types with the session-based interface of the Data Acquisition Toolbox.



## **New Hardware Support**

Data Acquisition Toolbox now supports the analog and digital I/O subsystems in the National Instruments Educational Laboratory Virtual Instrumentation Suite (ELVIS) II+ devices.

## Version 2.16 (R2010a) Data Acquisition Toolbox Software

This table summarizes what's new in Version 2.16 (R2010a):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems
Yes Details below	No	Bug Reports Includes fixes

New features and changes introduced in this version are:

- “New Hardware Support for National Instruments (NI) X Series Devices” on page 14
- “New Hardware Support for National Instruments (NI) Devices” on page 15
- “New Hardware Support for Measurement Computing Corporation (MCC) Devices” on page 15
- “New Hardware Support for NI-ELVIS II Devices” on page 15

### New Hardware Support for National Instruments (NI) X Series Devices

Additional data acquisition hardware support was added as follows:

NI PCIe-6320	NI PCIe-6363
NI PCIe-6321	NI PXIe-6341
NI PCIe-6323	NI PXIe-6356
NI PCIe-6341	NI PXIe-6358
NI PCIe-6343	NI PXIe-6361
NI PCIe-6351	NI PXIe-6363
NI PCIe-6353	NI PXIe-6366
NI PCIe-6361	NI PXIe-6368

## **New Hardware Support for National Instruments (NI) Devices**

Additional data acquisition hardware support was added as follows:

NI USB-6212 (BNC)	NI ENET-9206
NI USB-6216 (BNC)	NI ENET-9213
NI USB-6218 (BNC)	NI WLS-9205
NI USB-9213	NI WLS-9205 (DSUB)
NI ENET-9205	NI WLS-9206
NI ENET-9205 (DSUB)	NI WLS-9213

## **New Hardware Support for Measurement Computing Corporation (MCC) Devices**

Additional data acquisition support was added as follows:

MCC USB-1602HS	MCC USB-1604HS-2AO
MCC USB-1602HS-2AO	MCC PCIe-DIO24
MCC USB-1604HS	MCC PCIe-DIO96H

## **New Hardware Support for NI-ELVIS II Devices**

Data Acquisition Toolbox now supports the analog and digital I/O subsystems of the National Instruments Educational Laboratory Virtual Instrumentation Suite (ELVIS) II devices.

## Version 2.15 (R2009b) Data Acquisition Toolbox Software

This table summarizes what's new in Version 2.15 (R2009b):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems
Yes Details below	No	Bug Reports Includes fixes

New features and changes introduced in this version are:

- “New Hardware Support for National Instruments (NI) Devices” on page 16
- “New Hardware Support for Measurement Computing Corporation (MCC) Devices” on page 17
- “New Version of InstaCal Driver Required” on page 17
- “Change in daqmem Output” on page 17

### New Hardware Support for National Instruments (NI) Devices

Additional data acquisition hardware support was added as follows:

NI USB-4431	NI ENET-9421 (DSUB)
NI USB-4432	NI ENET-9472
NI USB-9263	NI ENET-9472 (DSUB)
NI USB-9264	NI ENET-9481
NI PCIe-6535	NI WLS-9421
NI PXIe-6535	NI WLS-9421 (DSUB)
NI PXIe-6536	NI WLS-9472

NI PXIe-6537

NI WLS-9472

NI ENET-9421

NI WLS-9481

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**Note** For the latest information about supported hardware, visit the Data Acquisition Toolbox product page at the MathWorks Web site [www.mathworks.com/products/daq](http://www.mathworks.com/products/daq).

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## **New Hardware Support for Measurement Computing Corporation (MCC) Devices**

Additional data acquisition support was added as follows:

MCC USB-3101FS

MCC USB-1208HS-2AO

MCC USB-1208HS

MCC USB-1208HS-4AO

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**Note** For the latest information about supported hardware, visit the Data Acquisition Toolbox product page at the MathWorks Web site [www.mathworks.com/products/daq](http://www.mathworks.com/products/daq).

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## **New Version of InstaCal Driver Required**

To use MCC devices with the Data Acquisition Toolbox software, install MCC InstaCal driver Version 5.89 or later.

## **Change in daqmem Output**

Starting with Data Acquisition Toolbox Version 2.15, the `daqmem` function returns a MATLAB object instead of a structure. Although the properties of the object are identical to the fields within the structure, executing `isstruct` will return `false`.

## Version 2.14 (R2009a) Data Acquisition Toolbox Software

This table summarizes what's new in Version 2.14 (R2009a):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems
Yes Details below	No	Bug Reports Includes fixes

New features and changes introduced in this version are:

- “New Hardware Support for National Instruments (NI) Devices” on page 18
- “New Hardware Support for Measurement Computing Corporation (MCC) Devices” on page 19

### New Hardware Support for National Instruments (NI) Devices

Additional data acquisition hardware support was added as follows:

NI USB-6259 (USB)	NI ENET-9219 (ENET)
NI USB-9234 (USB)	NI ENET-9234 (ENET)
NI PCI-6521 (PCI)	NI ENET-9237 (ENET)
NI PXI-6521 (PXI)	NI WLS-9211 (WLS)
NI PXIe-4496 (PXIe)	NI WLS-9215 (WLS)
NI PXIe-4498 (PXIe)	NI WLS-9234 (WLS)
NI ENET-9211 (ENET)	NI WLS-9219 (WLS)
NI PXIe-6124 (PXIe)	NI WLS-9237 (WLS)
NI ENET-9215 (ENET)	

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**Note** For the latest information about supported hardware, visit the Data Acquisition Toolbox product page at the MathWorks Web site [www.mathworks.com/products/daq](http://www.mathworks.com/products/daq).

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## **New Hardware Support for Measurement Computing Corporation (MCC) Devices**

Additional data acquisition support added for the MCC USB-DIO24H/37 device.

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**Note** For the latest information about supported hardware, visit the Data Acquisition Toolbox product page at the MathWorks Web site [www.mathworks.com/products/daq](http://www.mathworks.com/products/daq).

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## Version 2.13 (R2008b) Data Acquisition Toolbox Software

This table summarizes what's new in Version 2.13 (R2008b):

<b>New Features and Changes</b>	<b>Version Compatibility Considerations</b>	<b>Fixed Bugs and Known Problems</b>
Yes Details below	Yes—Details labeled as <b>Compatibility Considerations</b> below. See also Summary.	Bug Reports Includes fixes

New features and changes introduced in this version are:

- “Keithley® and VXI Technology Adaptors Deprecated” on page 20
- “Warning Added for Future Deprecation of National Instruments Traditional NI-DAQ Adaptor” on page 21
- “Warning Added for Future Deprecation of Parallel Port Adaptors” on page 21
- “Data Acquisition Toolbox RTSI Bus Support” on page 21
- “New Hardware Support for National Instruments (NI) Devices” on page 21
- “New Hardware Support for Measurement Computing Corporation (MCC) Devices” on page 22
- “Expanded Data Acquisition Toolbox Demos” on page 22

### **Keithley® and VXI Technology Adaptors Deprecated**

Keithley® and VXI Technology® adaptors will no longer work in the current release of the Data Acquisition Toolbox.

### **Compatibility Considerations**

The change for this toolbox release is that you cannot create a Data Acquisition Toolbox object for the 'keithley' or 'hp1432' adaptors. You can



get unsupported adaptors from the **Data Acquisition Adaptors** page in the File Exchange area on MATLAB Central.

## **Warning Added for Future Deprecation of National Instruments Traditional NI-DAQ Adaptor**

You will see a warning when you create a Data Acquisition Toolbox object for devices that use the Traditional NI-DAQ driver. Support for devices using the Traditional NI-DAQ driver will be removed in a future release.

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**Notes** NI-DAQmx drivers will continue to be supported. This change only affects Traditional NI-DAQ devices.

For the latest information about supported hardware, visit the Data Acquisition Toolbox product page at the MathWorks Web site [www.mathworks.com/products/daq](http://www.mathworks.com/products/daq).

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## **Warning Added for Future Deprecation of Parallel Port Adaptors**

You will see a warning when you create a Data Acquisition Toolbox object for the 'parallel' device. The support for the 'parallel' device will be removed in a future release.

## **Data Acquisition Toolbox RTSI Bus Support**

New support for synchronizing multiple National Instruments devices using a National Instruments RTSI bus.

## **New Hardware Support for National Instruments (NI) Devices**

Additional data acquisition hardware support was added as follows:

NI PXI-6529 (PXI)

NI USB-9219 (USB)

NI USB-6212 (USB)

NI USB-9229 (USB)

NI USB-6216 (USB)	NI USB-9229 (BNC) (USB)
NI USB-6281 (USB)	NI USB-9239 (USB)
NI USB-6281 (Mass Termination) (USB)	NI USB-9239 (BNC) (USB)
NI USB-6289 (USB)	NI SCXI-1112 (SCXI)
NI USB-6289 (Mass Termination) (USB)	NI SCXI-1122 (SCXI)
NI USB-6509 (USB)	

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**Note** For the latest information about supported hardware, visit the Data Acquisition Toolbox product page at the MathWorks Web site [www.mathworks.com/products/daq](http://www.mathworks.com/products/daq).

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## **New Hardware Support for Measurement Computing Corporation (MCC) Devices**

Additional data acquisition support was added for the MCC USB-1616HS-BNC device.

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**Note** For the latest information about supported hardware, visit the Data Acquisition Toolbox product page at the MathWorks Web site [www.mathworks.com/products/daq](http://www.mathworks.com/products/daq).

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## **Expanded Data Acquisition Toolbox Demos**

Data Acquisition Toolbox product now has a new demo for synchronizing analog input and output using a RTSI bus.

## Version 2.12 (R2008a) Data Acquisition Toolbox Software

This table summarizes what's new in Version 2.12 (R2008a):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems
Yes Details below	No	Bug Reports Includes fixes

New features and changes introduced in this version are:

- “Data Acquisition Toolbox Block Library” on page 23
- “New Hardware Support for National Instruments (NI) Devices” on page 23
- “New Hardware Support for Measurement Computing Corporation (MCC) Devices” on page 24

### Data Acquisition Toolbox Block Library

There are two new Simulink blocks that can acquire or output a single point of analog data in a Simulink model.

- **Analog Input (Single Sample)** — Acquire a single sample from multiple analog channels of a data acquisition device.
- **Analog Output (Single Sample)** — Output a single sample to multiple analog channels of a data acquisition device.

### New Hardware Support for National Instruments (NI) Devices

Additional data acquisition hardware support was added, as follows:

NI PXI-4496 (PXI)

NI SCXI-1102b (SCXI)

NI PXI-4498 (PXI)

NI SCXI-1102c (SCXI)

NI USB-6225 (USB)	NI SCXI-1104 (SCXI)
NI USB-6229 (USB)	NI SCXI-1104c (SCXI)
NI USB-6251 (USB)	NI SCXI-1120 (SCXI)
NI USB-6255 (USB)	NISCXI-1120d (SCXI)
NI USB-6259 (USB)	NI SCXI-1125 (SCXI)

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**Note** For the latest information about supported hardware, visit the Data Acquisition Toolbox product page at the MathWorks Web site [www.mathworks.com/products/daq](http://www.mathworks.com/products/daq).

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## **New Hardware Support for Measurement Computing Corporation (MCC) Devices**

Additional data acquisition hardware support was added, as follows:

MCC USB-1608HS	MCC USB-1616HS-2
MCC USB-1608HS-2AO	MCC USB-1616HS-4
MCC USB-1616HS	MCC AI-EXP48

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**Note** For the latest information about supported hardware, visit the Data Acquisition Toolbox product page at the MathWorks Web site [www.mathworks.com/products/daq](http://www.mathworks.com/products/daq).

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## Version 2.11 (R2007b) Data Acquisition Toolbox Software

This table summarizes what's new in Version 2.11 (R2007b):

<b>New Features and Changes</b>	<b>Version Compatibility Considerations</b>	<b>Fixed Bugs and Known Problems</b>
Yes Details below	Yes—Details labeled as <b>Compatibility Considerations</b> , below. See also Summary.	Bug Reports Includes fixes

New features and changes introduced in this version are:

- “New Hardware Support for National Instruments (NI) Devices” on page 25
- “Enhanced Performance of getsample and putsample Functions” on page 26
- “StandardSampleRates Property Defaults Changed” on page 26
- “Upgrading from an Earlier Release” on page 26
- “Three Analog Properties Hidden” on page 26

### New Hardware Support for National Instruments (NI) Devices

Additional data acquisition hardware support was added, as follows:

NI USB-6221 (USB)	NI PCI-6601 (PCI)
NI USB-6229 (USB)	NI PCI-6602 (PCI)
NI USB-9211A (USB)	NI PXI-6255 (PXI)
NI PCIe-6536 (PCI Express®)	NI PXI-6602 (PXI)
NI PCIe-6537 (PCI Express)	NI PXI-6608 (PXI)
NI PCI-6255 (PCI)	

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**Note** For the latest information about supported hardware, visit the Data Acquisition Toolbox product page at the MathWorks Web site [www.mathworks.com/products/daq](http://www.mathworks.com/products/daq).

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## Enhanced Performance of `getsample` and `putsample` Functions

The `getsample` and `putsample` functions perform faster when acquiring and sending a single data sample using NI-DAQmx driver software.

## StandardSampleRates Property Defaults Changed

The default value of the `StandardSampleRates` property is changed from “on” to “off”.

## Upgrading from an Earlier Release

This section describes the issues involved in upgrading from Data Acquisition Toolbox Version 2.10 (Release 2007a) or earlier.

### Obsolete daq Functions

Two functions with `daq` in their name are obsolete in Version 2.11 and are replaced with other functions. The toolbox will no longer support these obsolete functions and will display an error if you try to use them. If your code still uses these obsolete function names, you must update it to use the new function names.

Obsolete Function Name	New Function Name
<code>daqaction</code>	<code>daqcallback</code>
<code>daqpropedit</code>	<code>inspect</code>

### Three Analog Properties Hidden

The following three properties of analog input objects in the NI-DAQmx adaptor are now hidden:

- `DriveAISenseToGround`
- `NumMuxBoards`
- `TransferMode`

These properties are used only by Traditional NI-DAQ devices. If you have code that explicitly uses these properties it will continue to work, but code that puts the object's properties in a structure will no longer find these three properties. Tab completion for these three properties will no longer work.

### **Compatibility Considerations**

In this release of the toolbox, the three properties `DriveAISenseToGround`, `NumMuxBoards`, and `TransferMode` are hidden for NI-DAQmx boards. You can, however, explicitly access these properties, but changing their values will not have any effect on NI-DAQmx boards.

## Version 2.10 (R2007a) Data Acquisition Toolbox Software

This table summarizes what's new in Version 2.10 (R2007a):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems
Yes Details below	Yes—Details labeled as <b>Compatibility Considerations</b> , below. See also Summary.	Bug Reports Includes fixes

New features and changes introduced in this version are:

- “New Hardware Support” on page 28
- “Time Series Support” on page 29
- “Warning Added for Future Deprecation of Keithley and VXI Technology Adaptors” on page 29

### New Hardware Support

Additional data acquisition hardware support was added, as follows:

- **Support added for additional National Instruments (NI) data acquisition devices** — NI USB-6210 (USB); NI USB-6211 (USB); NI USB-6215 (USB); NI USB-6218 (USB); NI PCI-6230 (PCI); NI PCI-6232 (PCI); and NI PCI-6233 (PCI).
- **Support added for additional Measurement Computing Corporation (MCC) data acquisition devices** — USB-3110; USB-3112; USB-3114; USB-3102; USB-3104; USB-3106; USB-3101; USB-3103; USB-3105; USB-2523; USB-2527; USB-2533; USB-2537; PCI-2511; PCI-2513; PCI-2515; and PCI-2517.



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**Note** For the latest information about supported hardware, visit the Data Acquisition Toolbox product page at the MathWorks Web site [www.mathworks.com/products/daq](http://www.mathworks.com/products/daq).

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## **Time Series Support**

Time series support has been added to the toolbox to enable easier analysis and visualization of time domain data in the MATLAB. This functionality extends three Data Acquisition Toolbox functions, `daqread`, `getdata`, and `putdata`, to support the MATLAB timeseries and `tscollection` objects.

## **Warning Added for Future Deprecation of Keithley and VXI Technology Adaptors**

Keithley and VXI Technology adaptors will be deprecated in a future version of the toolbox. If you create a Data Acquisition Toolbox object for the 'keithley' or 'hp1432' adaptors, you will receive a warning.

## **Compatibility Considerations**

The change for this toolbox release is that you will see a warning if you create a Data Acquisition Toolbox object for the 'keithley' or 'hp1432' adaptors. The warning is being introduced now, but the adaptors will continue to be supported and will be removed in a future release.

## Version 2.9 (R2006b) Data Acquisition Toolbox Software

This table summarizes what's new in Version 2.9 (R2006b):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems
Yes Details below	Yes—Details labeled as <b>Compatibility Considerations</b> , below. See also Summary.	Bug Reports Includes fixes

New features and changes introduced in this version are:

- “Data Acquisition Toolbox Block Library” on page 30
- “New Hardware Support” on page 30
- “Corrected Spelling of InputType Value Pseudodifferential” on page 31

### Data Acquisition Toolbox Block Library

You can use these blocks to acquire analog or digital data in a Simulink model, or to output analog or digital data from the model to a hardware device. The toolbox block library contains four blocks:

- **Analog Input** — Acquire data from multiple channels of an analog data acquisition device.
- **Analog Output** — Output data to multiple channels of an analog data acquisition device.
- **Digital Input** — Acquire the latest set of values from multiple lines of a digital data acquisition device.
- **Digital Output** — Output data to multiple lines of a digital data acquisition device.

### New Hardware Support

Additional data acquisition hardware support was added, as follows:

- **Support added for four additional National Instruments (NI) data acquisition devices** — NI USB-6251 (USB); NI USB-6259 (USB); NI PCIe-6251 (PCI Express); and NI PCIe-6259 (PCI Express).
- **Support added for an additional Measurement Computing Corporation (MCC) data acquisition device** — MCC USB-1408FS (USB).

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**Note** For the latest information about supported hardware, visit the Data Acquisition Toolbox product page at the MathWorks Web site [www.mathworks.com/products/daq](http://www.mathworks.com/products/daq).

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## Corrected Spelling of InputType Value Pseudodifferential

Analog input objects have a number of acceptable values for their `InputType` property: `NonReferencedSingleEnded`, `SingleEnded`, `Differential`, and `Pseudodifferential`. In the initial release of the NI-DAQmx adaptor in Version 2.8 (R14SP3+), `Pseudodifferential` was incorrectly spelled as `Psuedodifferential`. The toolbox change now correctly spells this input type as `Pseudodifferential`.

### Compatibility Considerations

This change is backward compatible; users that saved analog input objects with the `InputType` property set to the misspelled `Psuedodifferential` will be able to load the object in R2006b and later with no changes on their part. The compatibility issue is that if you save an analog input object with this `InputType` value in R2006b, you will not be able to share it with users of R2006a and earlier versions. Analog input objects that have their `InputType` set to `Pseudodifferential` will be unusable in R2006a and previous releases. Analog input objects that use the other `InputType` values are unaffected.

**Obsolescence Process.** If you use the `set` function to assign the incorrectly spelled value `Psuedodifferential`, in Version 2.9 (R2006b), you will get a warning and it will be changed to the correct spelling. In the following release of the toolbox, you will get an error advising you to use the new spelling. The `get` function will always return the correctly spelled value.

## Version 2.8.1 (R2006a) Data Acquisition Toolbox Software

This table summarizes what's new in Version 2.8.1 (R2006a):

<b>New Features and Changes</b>	<b>Version Compatibility Considerations</b>	<b>Fixed Bugs and Known Problems</b>
No	No	Bug Reports Includes fixes

## Version 2.8 (R14SP3+) Data Acquisition Toolbox Software

This table summarizes what's new in Version 2.8 (R14SP3+):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems
Yes Details below	No	Bug Reports Includes fixes

New features and changes introduced in this version are:

- “NI-DAQmx Support” on page 33
- “Upgrading from an Earlier Release” on page 34

### NI-DAQmx Support

The Data Acquisition Toolbox™\_dataacquisitiontoolbox; software supports National Instruments hardware that uses the NI-DAQmx software interface.

The adaptor name in the Data Acquisition Toolbox software is `nidaq`, which can be used in all syntax requiring the adaptor name.

To display your installed hardware that can be accessed using the NI-DAQmx adaptor, type

```
daqhwinfo('nidaq')
```

`daqhwinfo` returns information about the hardware that is installed, and the IDs that the National Instruments Measurement & Automation Explorer has assigned to these devices. Typically, these IDs start with the letters `Dev` followed by a number.

The toolbox supports both Traditional NI-DAQ and NI-DAQmx. For information about choosing which driver to use, see in “Troubleshooting Your Hardware” of the Data Acquisition Toolbox User’s Guide.

## **Upgrading from an Earlier Release**

This section details the issues to be aware of when upgrading from Data Acquisition Toolbox Version 2.7 to Version 2.8.

### **DriveAISenseToGround Property**

The DriveAISenseToGround property is ignored by National Instruments devices. For information on configuring AI referencing properties, see the reference page for the InputType property.

## Version 2.7 (R14SP3) Data Acquisition Toolbox Software

This table summarizes what's new in Version 2.7 (R14SP3):

<b>New Features and Changes</b>	<b>Version Compatibility Considerations</b>	<b>Fixed Bugs and Known Problems</b>
No	No	Bug Reports Includes fixes

## Version 2.6 (R14SP2) Data Acquisition Toolbox Software

This table summarizes what's new in Version 2.6 (R14SP2):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems
Yes Details below	No	Bug Reports Includes fixes

New features and changes introduced in this version are:

- “New Functions: islogging, isrunning, and issending” on page 36
- “Using PFI or RTSI Channels for Triggers and Clocks” on page 37
- “peekdata Allows Type Parameter” on page 37
- “Property Inspector Replaces daqpropedit” on page 37
- “waittilstop Function Renamed wait” on page 38
- “Upgrading from an Earlier Release” on page 38

### New Functions: islogging, isrunning, and issending

Three new functions are provided to query the status of data acquisition device objects.

Function	Purpose
islogging	Determine whether analog input object is logging data.
isrunning	Determine whether device object is running.
issending	Determine whether analog output object is sending data.

For further details on each function, see its reference page in the documentation. Use of these functions is recommended over directly accessing the Running, Logging, and Sending properties.



## Using PFI or RTSI Channels for Triggers and Clocks

Three new properties for National Instruments cards are:

- `HwDigitalTriggerSource`
- `ExternalSampleClockSource`
- `ExternalScanClockSource`

These properties allow you to select a PFI or RTSI channel as the source for a hardware digital trigger, external sample clock, or external scan clock. See the reference pages for these properties to read about valid property settings and when they are in effect.

## peekdata Allows Type Parameter

The `peekdata` function now accepts a third parameter specifying data format. When the data format is specified as `native`, data is returned in the native format of the data acquisition device, similar to the behavior of the `getdata` function. For detailed information on `peekdata`, type

```
help analoginput/peekdata
```

## Property Inspector Replaces daqpropedit

The Property Inspector replaces the Data Acquisition Toolbox Property Editor (`daqpropedit`) graphical user interface.

You open the Property Inspector for object `obj` with the `inspect` function.

```
inspect(obj)
```

For more information about the `inspect` function, type

```
help daqdevice/inspect
```

Typing `daqpropedit` at the command line now opens the Property Inspector.

## waittilstop Function Renamed wait

The waittilstop function has been renamed wait. All functionality remains the same. waittilstop still works in Version 2.6, but may be removed from a future version of the toolbox. For more information on wait, type

```
help daqdevice/wait
```

## Upgrading from an Earlier Release

This section describes the issues involved in upgrading from Data Acquisition Toolbox Version 2.5.1 (Release 14SP1), 2.5 (Release 14), or 2.2 (Release 13SP1).

### Obsolete Action Properties

All object properties with Action in their name are obsolete in Version 2.6. These have been replaced by properties with the same name using Fcn instead of Action. These Fcn properties have existed in several recent versions of the Data Acquisition Toolbox software. The toolbox supported the Action properties during these transition releases, but they are no longer supported. If your code still uses these obsolete property names, you must update it to use the new property names.

Obsolete Property Name	New Property Name
DataMissedAction	DataMissedFcn
InputOverRangeAction	InputOverRangeFcn
RuntimeErrorAction	RuntimeErrorFcn
SamplesAcquiredAction	SamplesAcquiredFcn
SamplesAcquiredActionCount	SamplesAcquiredFcnCount
SamplesOutputAction	SamplesOutputFcn
SamplesOutputActionCount	SamplesOutputFcnCount
StartAction	StartFcn
StopAction	StopFcn
TimerAction	TimerFcn
TriggerAction	TriggerFcn

## Deleting a Running Object

In past releases, you could not delete a running object. Now in Version 2.6, when you attempt to delete a running object, the toolbox stops the object, issues a warning, then deletes the object.

```
ai.SamplesPerTrigger = Inf
start(ai);
delete(ai)
Warning: Object stopped before deleting.
```

## Return Format of daqfind

In past versions, the `daqfind` function returned a 1-by-1 cell array of N-by-1 objects. Now in Version 2.6, this function returns an N-by-1 cell array of objects.

```
ai1 = analoginput('winsound');
ai2 = analoginput('winsound');
objs = daqfind('Type','Analog Input')
objs =
    [1x1 analoginput]
    [1x1 analoginput]
```

## peekdata and getdata Number of Samples

The functions `peekdata` and `getdata` no longer accept `Inf` as an argument for specifying the number of samples. In the past, specifying `Inf` for the number of samples was accepted, and returned zero samples. Now specifying `Inf` samples causes an error.

```
data = getdata(ai, Inf)
??? The number of samples requested must be less than Inf.
```

## waittilstop Function Renamed wait

The `waittilstop` function has been renamed `wait`. All functionality remains the same. `waittilstop` still works in Version 2.6, but may be removed from a future version of the toolbox. For more information on `wait`, type

```
help daqdevice/wait
```

### **daqpropedit Replaced by inspect**

The Data Acquisition Toolbox™\_dataacquisitiontoolbox; Property Editor (daqpropedit) graphical user interface has been replaced by the Property Inspector.

You open the Property Inspector for object `obj` with the `inspect` function.

```
inspect(obj)
```

For more information about the `inspect` function, type

```
help daqdevice/inspect
```

Typing `daqpropedit` at the command line now opens the Property Inspector.

## Version 2.5.1 (R14SP1) Data Acquisition Toolbox Software

This table summarizes what's new in Version 2.5.1 (R14SP1):

<b>New Features and Changes</b>	<b>Version Compatibility Considerations</b>	<b>Fixed Bugs and Known Problems</b>
No	No	Fixed bugs

## Version 2.5 (R14) Data Acquisition Toolbox Software

This table summarizes what's new in Version 2.5 (R14):

<b>New Features and Changes</b>	<b>Version Compatibility Considerations</b>	<b>Fixed Bugs and Known Problems</b>
No	No	Fixed bugs

## Compatibility Summary for Data Acquisition Toolbox Software

This table summarizes new features and changes that might cause incompatibilities when you upgrade from an earlier version, or when you use files on multiple versions. Details are provided in the description of the new feature or change.

Version (Release)	New Features and Changes with Version Compatibility Impact
Latest Release V3.1 (R2012a)	None
V3.0 (R2011b)	None
V2.18 (R2011a)	None
V2.17 (R2010b)	None
V2.16 (R2010a)	None
V2.15 (R2009b)	None
V2.14 (R2009a)	None
V2.13 (R2008b)	<p>See the <b>Compatibility Considerations</b> subheading for these changes:</p> <ul style="list-style-type: none"> <li>• “Keithley® and VXI Technology Adaptors Deprecated” on page 20</li> <li>• “Warning Added for Future Deprecation of National Instruments Traditional NI-DAQ Adaptor” on page 21</li> <li>• “Warning Added for Future Deprecation of Parallel Port Adaptors” on page 21</li> </ul>
V2.12 (R2008a)	None

<b>Version (Release)</b>	<b>New Features and Changes with Version Compatibility Impact</b>
V2.11 (R2007b)	See the <b>Compatibility Considerations</b> subheading for this change: <ul style="list-style-type: none"><li>• “Three Analog Properties Hidden” on page 26</li></ul>
V2.10 (R2007a)	See the <b>Compatibility Considerations</b> subheading for this change: <ul style="list-style-type: none"><li>• “Warning Added for Future Deprecation of Keithley and VXI Technology Adaptors” on page 29</li></ul>
V2.9	See the <b>Compatibility Considerations</b> subheading for this change: <ul style="list-style-type: none"><li>• “Corrected Spelling of InputType Value Pseudodifferential” on page 31</li></ul>
V2.8.	None
V2.8 (R14SP3+)	None
V2.7 (R14SP3)	None
V2.6 (R14SP2)	None
V2.5.1 (R14SP1)	None
V2.5 (R14)	None