

# **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 2.

<b>Version (Release)</b>	<b>New Features and Changes</b>	<b>Version Compatibility Considerations</b>	<b>Fixed Bugs and Known Problems</b>	<b>Related Documentation at Web Site</b>
<b>Latest Version V2.12 (R2008a)</b>	Yes Details	No	Bug Reports Includes fixes	Printable Release Notes: PDF  Current product documentation
v2.11 (R2007b)	Yes Details	Yes Summary	Bug Reports Includes fixes	No
V2.10 (R2007a)	Yes Details	Yes Summary	Bug Reports Includes fixes	No
V2.9 (R2006b)	Yes Details	Yes Summary	Bug Reports Includes fixes	No
V2.8.1 (R2006a)	No	No	Bug Reports Includes fixes	No
V2.8 (R14SP3+)	Yes Details	No	Bug Reports Includes fixes	No
V2.7 (R14SP3)	No	No	Bug Reports Includes fixes	No
V2.6 (R14SP2)	Yes Details	No	Bug Reports Includes fixes	No
V2.5.1 (R14SP1)	No	No	Fixed bugs	No
V2.5 (R14)	No	No	Fixed bugs	No

## 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®) for enhancements, bugs, and compatibility considerations that also might impact you.

If you are upgrading from a software version other than the most recent one, review the release notes for all interim versions, not just for the version you are installing. For example, when upgrading from V1.0 to V1.2, review the release notes for V1.1 and V1.2.

## What's 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 is released appear under Bug Reports at the MathWorks Web site. Bug fixes can sometimes result in incompatibilities, so you should also review the fixed bugs in Bug Reports for any compatibility impact.

### Fixed Bugs and Known Problems

The 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. This includes 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.

## 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	Related Documentation at Web Site
Yes Details below	No	Bug Reports Includes fixes	Printable Release Notes: PDF Current product documentation

New features and changes introduced in this version are:

- “Data Acquisition Toolbox™ Block Library” on page 4
- “New Hardware Support for National Instruments® (NI) Devices” on page 5
- “New Hardware Support for Measurement Computing™ (MCC) Devices” on page 5

### 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™ (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):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
Yes Details below	Yes Summary	Bug Reports Includes fixes	Printable Release Notes: PDF Current product documentation

New features and changes introduced in this version are:

- “New Hardware Support for National Instruments® (NI) Devices” on page 7
- “Enhanced Performance of getsample and putsample Functions” on page 8
- “StandardSampleRates Property Defaults Changed” on page 8
- “Upgrading from an Earlier Release” on page 8
- “Three Analog Properties Hidden” on page 9

### **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.

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

## 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	Related Documentation at Web Site
Yes Details below	Yes Summary	Bug Reports Includes fixes	No

New features and changes introduced in this version are:

- “New Hardware Support” on page 10
- “Time Series Support” on page 11
- “Warning Added for Future Deprecation of Keithley® and VXI Technology Adaptors” on page 11

### 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	Related Documentation at Web Site
Yes Details below	Yes Summary	Bug Reports Includes fixes	No

New features and changes introduced in this version are:

- “Data Acquisition Toolbox™ Block Library” on page 12
- “New Hardware Support” on page 12
- “Corrected Spelling of InputType Value Pseudodifferential” on page 13

### 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>	<b>Related Documentation at Web Site</b>
No	No	Bug Reports Includes fixes	No

## 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	Related Documentation at Web Site
Yes Details below	No	Bug Reports Includes fixes	No

New features and changes introduced in this version are:

- “NI-DAQmx Support” on page 15
- “Upgrading from an Earlier Release” on page 16

### NI-DAQmx Support

The Data Acquisition Toolbox™ 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 “National Instruments Hardware” 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>	<b>Related Documentation at Web Site</b>
No	No	Bug Reports Includes fixes	No

## 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	Related Documentation at Web Site
Yes Details below	No	Bug Reports Includes fixes	No

New features and changes introduced in this version are:

- “New Functions: islogging, isrunning, and issending” on page 18
- “Using PFI or RTSI Channels for Triggers and Clocks” on page 19
- “peekdata Allows Type Parameter” on page 19
- “Property Inspector Replaces daqpropedit” on page 19
- “waittilstop Function Renamed wait” on page 20
- “Upgrading from an Earlier Release” on page 20

### 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 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>	<b>Related Documentation at Web Site</b>
No	No	Fixed bugs	No

## 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>	<b>Related Documentation at Web Site</b>
No	No	Fixed bugs	No

## 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.

<b>Version (Release)</b>	<b>New Features and Changes with Version Compatibility Impact</b>
<b>Latest Release V2.12 (R2008a)</b>	None
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 9</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 11</li> </ul>
V2.9 (R2006b)	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 13</li> </ul>
V2.8.1 (R2006a)	None
V2.8 (R14SP3+)	None
V2.7 (R14SP3)	None
V2.6 (R14SP2)	None
V2.5.1 (R14SP1)	None
V2.5 (R14)	None