Data Acquisition Toolbox Release Notes

Contents

Summary by Version

This table provides quick access to what's new in each version. For clarification, see "About Release Notes" on page 1.

Version (Release)	New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
Latest Version V2.10 (R2007a)	Yes Details	Yes Summary	Bug Reports Includes fixes	Printable Release Notes: PDF Current product documentation
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

About Release Notes

Use release notes when upgrading to a newer version to learn about new features and changes, and the potential impact on your existing files and practices. Release notes are also beneficial if you use or support multiple versions.

If you are not upgrading from the most recent previous version, review 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 New Features and Changes, Version Compatibility Considerations, and Bug Reports for V1.1 and V1.2.

New Features and Changes

These include

- New functionality

- Changes to existing functionality

- Changes to system requirements (complete system requirements for the current version are at the MathWorks Web site)

- Any version compatibility considerations associated with each new feature or change

Version Compatibility Considerations

When a new feature or change introduces a known incompatibility between versions, its description includes a **Compatibility Considerations** subsection that details the impact. For a list of all new features and changes that have compatibility impact, see the "Compatibility Summary for Data Acquisition Toolbox" on page 20.

Compatibility issues that become known after the product has been released are added to Bug Reports at the MathWorks Web site. Because bug fixes can sometimes result in incompatibilities, also review fixed bugs in Bug Reports for any compatibility impact.

Fixed Bugs and Known Problems

MathWorks Bug Reports is a user-searchable database of known problems, workarounds, and fixes. The MathWorks updates the Bug Reports database as new problems and resolutions become known, so check it as needed for the latest information.

Access Bug Reports at the MathWorks Web site using your MathWorks Account. If you are not logged in to your MathWorks Account when you link to Bug Reports, you are prompted to log in or create an account. You then can view bug fixes and known problems for R14SP2 and more recent releases.

The Bug Reports database was introduced for R14SP2 and does not include information for prior releases. You can access a list of bug fixes made in prior versions via the links in the summary table.

Related Documentation at Web Site

Printable Release Notes (PDF). You can print release notes from the PDF version, located at the MathWorks Web site. The PDF version does not support links to other documents or to the Web site, such as to Bug Reports. Use the browser-based version of release notes for access to all information.

Product Documentation. At the MathWorks Web site, you can access complete product documentation for the current version and some previous versions, as noted in the summary table.

Version 2.10 (R2007a) Data Acquisition Toolbox

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	Printable Release Notes: PDF Current product documentation

New features and changes introduced is this version are:

- "New Hardware Support" on page 4

- "Time Series Support" on page 5

- "Warning Added for Future Deprecation of Keithley and VXI Technology Adaptors" on page 5

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 (MCC) data acquisition devices** — PCI-2511; PCI-2513; PCI-2515; and PCI-2517.

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`.

Time Series Support

Time series support has been added to the toolbox to enable easier analysis and visualization of time domain data in 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 release of the toolbox 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

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 is this version are

- "Data Acquisition Toolbox Block Library" on page 6
- "New Hardware Support" on page 6
- "Corrected Spelling of InputType Value Pseudodifferential" on page 7

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 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).

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`.

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

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

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
No	No	Bug Reports Includes fixes	No

Version 2.8 (R14SP3+) Data Acquisition Toolbox

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 10
- "Upgrading from an Earlier Release" on page 11

NI-DAQmx Support

Data Acquisition Toolbox supports National Instruments hardware that uses the NI-DAQmx software interface.

The adaptor name in Data Acquisition Toolbox 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 documentation.

Upgrading from an Earlier Release

This section details the issues to be aware of when upgrading from Data Acquisition Toolbox 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

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

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
No	No	Bug Reports Includes fixes	No

Version 2.6 (R14SP2) Data Acquisition Toolbox

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 13
- "Using PFI or RTSI Channels for Triggers and Clocks" on page 14
- "peekdata Allows Type Parameter" on page 14
- "Property Inspector Replaces daqpropedit" on page 14
- "waittilstop Function Renamed wait" on page 15
- "Upgrading from an Earlier Release" on page 15

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

- `HwDigitalTriggerSoruce`
- `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 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 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 Data Acquisition Toolbox. 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 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

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

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
No	No	Fixed bugs	No

Version 2.5 (R14) Data Acquisition Toolbox

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

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
No	No	Fixed bugs	No

Compatibility Summary for Data Acquisition Toolbox

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 Version V2.10 (R2007a)	See the **Compatibility Considerations** subheading for this change: • "Warning Added for Future Deprecation of Keithley and VXI Technology Adaptors" on page 5
V2.9 (R2006b)	See the **Compatibility Considerations** subheading for this change: • "Corrected Spelling of InputType Value Pseudodifferential" on page 7
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