Instrument Control Toolbox™ Release Notes

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Instrument Control Toolbox™ Release Notes

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Summary by Version

This table provides quick access to what is new in each version. For clarification, see "Using Release Notes" on page 2.

Version (Release)	New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
Latest Version V2.11 (R2010b)	Yes Details	No	Bug Reports Includes fixes	Printable Release Notes: PDF Current product documentation
V2.10 (R2010a)	Yes Details	No	Bug Reports Includes fixes	No
V2.9 (R2009b)	Yes Details	No	Bug Reports Includes fixes	No
V2.8 (R2009a)	Yes Details	No	Bug Reports Includes fixes	No
V2.7 (R2008b)	Yes Details	Yes Summary	Bug Reports Includes fixes	No
V2.6 (R2008a)	Yes Details	No	Bug Reports Includes fixes	No
V2.5 (R2007b)	Yes Details	Yes Summary	Bug Reports Includes fixes	No
V2.4.2 (R2007a)	Yes Details	Yes Summary	Bug Reports	No
V2.4.1 (R2006b)	No	No	Bug Reports	No
V2.4 (R2006a)	Yes Details	No	Bug Reports	No
V2.3 (R14SP3)	No	No	Bug Reports	No
V2.2 (R14SP2)	Yes Details	No	Bug Reports	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®). 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.

Version 2.11 (R2010b) Instrument Control Toolbox Software

This table summarizes what is new in Version 2.11 (R2010b):

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:

- "Support for IVI Class for Digitizers" on page 4
- "Support for IVI Class for Switches" on page 4
- "Support for National Instruments NI-SCOPE Driver Software" on page 5
- "Support for National Instruments NI-FGEN Driver Software" on page 5
- "Enhanced TCP/IP Performance for fread and binblockread Functions" on page 5
- "Two New UDP Packet Size Properties" on page 5

Support for IVI Class for Digitizers

You can now use the IviDigitizer class with the Instrument Control Toolbox™ software. See Using MATLAB IVI Wrappers for more information.

Support for IVI Class for Switches

You can now use the Iviswtch class with the Instrument Control Toolbox software. See Using MATLAB IVI Wrappers for more information.

Support for National Instruments NI-SCOPE Driver Software

You can now use Instrument Control Toolbox with instruments using the NI-SCOPE version 3.4 driver software.

Support for National Instruments NI-FGEN Driver Software

You can now use Instrument Control Toolbox with instruments using the NI-FGEN version 2.7.2 driver software.

Enhanced TCP/IP Performance for fread and binblockread Functions

`fread` and `binblockread` functions are now enhanced with better TCP/IP throughput.

Two New UDP Packet Size Properties

The `InputDatagramPacketSize` and `OutputDatagramPacketSize` properties allow you to control the size of the datagram packets and work with larger packets.

Version 2.10 (R2010a) Instrument Control Toolbox Software

This table summarizes what is new in Version 2.10 (R2010a):

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:

- "Expanded spoll Function" on page 6
- "Enhanced Test and Measurement Tool" on page 6
- "Support for Agilent 64-Bit GPIB on Windows 64" on page 6

Expanded spoll Function

You can now use the spoll function to execute a serial poll on VISA objects.

Enhanced Test and Measurement Tool

The Test and Measurement Tool interface is enhanced as follows:

- Enhanced desktop environment
- Two new menu items, **Desktop** and **Window**, which give you more control of the tool's size, location and layout

Support for Agilent 64-Bit GPIB on Windows 64

You can now use Instrument Control Toolbox with an Agilent® 64-bit GPIB interface on a Windows 64-bit platform.

Version 2.9 (R2009b) Instrument Control Toolbox Software

This table summarizes what is new in Version 2.9 (R2009b):

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 Class-Compliant Interface for IVI-COM Drivers" on page 7
- "Support for Agilent 64-Bit VISA on Windows 64" on page 7
- "Warning Added for Future Deprecation of UDP Binblock Support" on page 7

New Class-Compliant Interface for IVI-COM Drivers

Instrument Control Toolbox includes a class-compliant interface for IVI-COM drivers that lets you switch among instruments with different interfaces that use a class-compliant IVI-COM driver.

Support for Agilent 64-Bit VISA on Windows 64

You can now use Instrument Control Toolbox with an Agilent 64-bit VISA interface on a Windows 64-bit platform.

Warning Added for Future Deprecation of UDP Binblock Support

A warning has been added for the deprecation of binblock read and write operations over an UDP network in a future release of the toolbox. You will receive a warning message if you read or write to an instrument over an UDP network.

Version 2.8 (R2009a) Instrument Control Toolbox Software

This table summarizes what is new in Version 2.8 (R2009a):

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:

- "Expanded Platform Support Added for Instrument Control Toolbox" on page 8
- "Using the Status Function with an IVI Driver Can Cause Namespace Conflicts" on page 8
- "Expanded Platform Support Added for NI-VISA and GPIB Interfaces" on page 9
- "IVI-COM Driver Support" on page 9

Expanded Platform Support Added for Instrument Control Toolbox

You can now install the Instrument Control Toolbox software on all platforms.

Using the Status Function with an IVI Driver Can Cause Namespace Conflicts

If you are creating an IVI driver, use the InstrumentStatus function to set the status group for the vendor-specific driver status. Using Status can cause a namespace conflict. If you are using a MATLAB provided driver, you can continue to use the Status function.

Expanded Platform Support Added for NI-VISA and GPIB Interfaces

You can now use Instrument Control Toolbox with a National Instruments® VISA or a GPIB interface on a Windows Vista™ 64 platform.

IVI-COM Driver Support

This version of the Instrument Control Toolbox software offers expanded IVI-COM driver coverage.

Version 2.7 (R2008b) Instrument Control Toolbox Software

This table summarizes what is new in Version 2.7 (R2008b):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
Yes Details below	Yes—Details labeled as **Compatibility Considerations**, below. See also Summary.	Bug Reports Includes fixes	No

New features and changes introduced in this version are:

- "Enhanced IVI-COM Driver Support" on page 10

- "Enhanced Functionality of the Test and Measurement Tool" on page 12

- "Enhanced IVI-C Driver Support" on page 12

- "Expanded Instrument Control Toolbox Demos" on page 12

- "Expanded spoll Documentation" on page 13

Enhanced IVI-COM Driver Support

The Instrument Control Toolbox devices can now correctly initialize collections and items.

Compatibility Considerations

IVI-COM drivers generated using MAKEMID in the Instrument Control Toolbox, Version 2.7 (R2008b) will not work with versions prior to Version 2.7 (R2008b), and will throw an error. If you need to use the drivers created with Instrument Control Toolbox Version 2.7, make sure you update your license to the latest release of the MATLAB software.

After you install Instrument Control Toolbox Version 2.7, if you regenerate the MDD file, you will need to update your code. To update your code, change

the way you call your collections and items. Collections are now spelled as a plural noun and items are spelled as a singular noun. For example, if you had an item called Measurements and a collection called Measurement, you need to change the code so that the item name reads Measurement and the collection name reads Measurements. The following table shows you an example of the interface and the corresponding methods as it should look once you have updated your code. The example uses the item Measurement and the collection, Measurements. The example also compares the model with the Agilent RFPowerMeter driver model.

Interface	Instrument Control Toolbox Version 2.7 driver model methods	Agilent RFPowerMeter driver methods
Measurement	ClearLimitFails ConfigureRelative Fetch Configure ConfigureTimeGated Measure ConfigureAnalogOutput ConfigureTTLOutput Read ConfigureLimits EnableAnalogOutput ConfigureOffset EnableTTLOutput	ClearLimitFails ConfigureRelative Fetch Configure ConfigureTimeGated Measure ConfigureAnalogOutput ConfigureTTLOutput Read ConfigureLimits EnableAnalogOutput ConfigureOffset EnableTTLOutput
Measurements	Abort IsOperationComplete Initiate	Abort IsOperationComplete Initiate

Here is another example showing the corresponding properties of the two sample interfaces, Measurement and Measurements. This example also compares the model with the Agilent RFPowerMeter driver model.

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Interface	Instrument Control Toolbox Version 2.7 driver model properties	AgilentRFPowerMeter driver model properties
Measurement	`Feed1Channel Feed1Gate Feed1Type Feed2Channel Feed2Gate Feed2Type LimitAutoClear LimitEnabled LimitFails LimitLower LimitUpper Offset OffsetEnabled Operation RatioUnits RelativeEnabled Resolution Units`	`Feed1Channel Feed1Gate Feed1Type Feed2Channel Feed2Gate Feed2Type LimitAutoClear LimitEnabled LimitFails LimitLower LimitUpper Offset OffsetEnabled Operation RatioUnits RelativeEnabled Resolution Units`
Measurements	`Count Name Item`	`Count Name Item`

Enhanced Functionality of the Test and Measurement Tool

Test and Measurement Tool now has advanced interaction between the hardware interfaces and the instrument driver.

Enhanced IVI-C Driver Support

Instruments that require a reset will now work with IVI-C drivers in the Instrument Control Toolbox product.

Expanded Instrument Control Toolbox Demos

The Instrument Control Toolbox product now has a new demo that uses an IVI-COM driver with a mixed signal oscilloscope.

Expanded spoll Documentation

The low-level GPIB `spoll` function now has more documentation to help you work with serial poll.

Version 2.6 (R2008a) Instrument Control Toolbox Software

This table summarizes what is new in Version 2.6 (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	No

New features and changes introduced in this version are:

- "Instrument Control Toolbox Block Library" on page 14
- "Improved Throughput" on page 14
- "Instrument Drivers" on page 15
- "Enhanced Capability of the TM Tool" on page 15
- "Support for Agilent IO Libraries Suite 15.0" on page 15
- "fprintf Timeout Errors" on page 15

Instrument Control Toolbox Block Library

There are three new Simulink blocks that can send and receive data via a serial port in Simulink.

- **Serial Configuration** — Configure the parameters for a serial port that you can use to send and receive data.
- **Serial Receive** — Receive binary data over a serial port.
- **Serial Send** — Send binary data over a serial port.

Improved Throughput

Throughput is improved in the Instrument Control Toolbox Serial interface and TCP/IP Receive blocks.

Instrument Drivers

Several new instrument drivers have been added to MATLAB Central.

Enhanced Capability of the TM Tool

The capability for discovery of VISA-USB and VISA TCP/IP (VXI-11) instruments in the TM TOOL is now enhanced.

Support for Agilent IO Libraries Suite 15.0

The Instrument Control Toolbox software now supports the Agilent IO Libraries Suite 15.0.

fprintf Timeout Errors

You will no longer see sporadic timeouts when you write to the serial port using `fprintf`.

Version 2.5 (R2007b) Instrument Control Toolbox Software

This table summarizes what is new in Version 2.5 (R2007b):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
Yes Details below	Yes—Details labeled as **Compatibility Considerations**, below. See also Summary.	Bug Reports Includes fixes	No

New features and changes introduced in this version are:

- "Instrument Control Toolbox Block Library" on page 16
- "Instrument Drivers" on page 17
- "spoll GPIB Status Information" on page 17
- "Obsolete Functions" on page 17
- "New Error Message" on page 17

Instrument Control Toolbox Block Library

There are four new Simulink blocks that can send and receive data over TCP/IP and UDP in Simulink.

- **TCP/IP Receive** — Receive data over a TCP/IP network from a specified remote machine.
- **TCP/IP Send** — Send data over a TCP/IP network to a specified remote machine.
- **UDP Receive** — Receive data over an UDP network from a specified remote machine.
- **UDP Send** — Send data over an UDP network to a specified remote machine.

Instrument Drivers

- Additional instrument drivers are now available for Agilent, LeCroy®, Tabor, and Tektronix® instruments.

- Support for Keithley® version 8.3 GPIB drivers is updated.

spoll GPIB Status Information

Additional GPIB status information is now provided with the spoll function.

Obsolete Functions

The following functions are obsolete as of this release. Any attempt to use these functions now results in an error message.

Obsolete Function Name	New Function Name
freeserial	fclose
instrcomm	tmtool
instrcreate	tmtool

Compatibility Considerations

In the previous release, freeserial was nonoperational and generated a warning. Now any call to this function generates an error.

In previous releases, instrcomm and instrcreate opened their own graphical user interfaces. The functionality of these interfaces is available in the tmtool GUI.

New Error Message

The fwritef and the fprintf functions will return an error message if the flowcontrol property is set to hardware and a hardware connection is not detected. Previously, MATLAB software would fail to respond while it waited for the connection.

Compatibility Considerations

In the previous release, MATLAB software would become unresponsive if the `flowcontrol` property was set to `hardware` and a hardware connection was not detected. The `fwrite` and the `fprintf` functions will now return an error message.

Version 2.4.2 (R2007a) Instrument Control Toolbox Software

This table summarizes what is new in Version 2.4.2 (R2007a):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
Yes Details below	Yes—Details labeled as **Compatibility Considerations**, below. See also Summary.	Bug Reports	No

Confirmation Dialog Preference Settings Moved

The preferences for setting whether a dialog box confirms that you want the MATLAB Instrument Driver Editor and the MATLAB Instrument Driver Testing Tool to create new files are in a new location. You now access them in the General > Dialog Confirmations node of the MATLAB Preferences dialog box.

For details on these Instrument Control preference settings, see "General Preferences for Instrument Control" in the Instrument Control User's Guide documentation.

Compatibility Considerations

In previous versions of MATLAB and Instrument Control Toolbox software, these dialog box preferences were found under the Instrument Control node of the Preferences dialog box.

Version 2.4.1 (R2006b) Instrument Control Toolbox Software

This table summarizes what is new in Version 2.4.1 (R2006b):

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

Version 2.4 (R2006a) Instrument Control Toolbox Software

This table summarizes what is new in Version 2.4 (R2006a):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
Yes Details below	No	Bug Reports	No

New features and changes introduced in this version are:

- "Generic Instrument Drivers Supported" on page 21
- "LeCroy Driver" on page 21
- "Agilent Instrument Simulations" on page 22

Generic Instrument Drivers Supported

This release includes support for generic instrument drivers that allow Instrument Control Toolbox software to communicate with devices or software that do not use industry-standard drivers or protocols.

For more information, see "Using Generic Instrument Drivers" in the Instrument Control Toolbox documentation.

LeCroy Driver

This release includes support for LeCroy instrument drivers.

Several drivers ship with the toolbox. You can find these drivers by looking in the directory

```
matlabroot\toolbox\instrument\instrument\drivers
```

where *matlabroot* is the MATLAB installation directory, as seen when you type

```
matlabroot
```

in the MATLAB Command Window.

Many other drivers are available on the MathWorks Web site at

```
http://www.mathworks.com/matlabcentral/fileexchange
```

including drivers specifically for Instrument Control Toolbox software under the Test and Measurement category.

Agilent Instrument Simulations

Instrument Control Toolbox software includes simulations of the Agilent 33120a function generator and Agilent e3648 DC power supply. These simulations are available as instrument drivers.

You can see the drivers shipped with the release by looking in the directory

```
matlabroot\toolbox\instrument\instrument\drivers
```

where *matlabroot* is the MATLAB installation directory, as seen when you type

```
matlabroot
```

in the MATLAB Command Window.

The Agilent simulations are provided by the drivers

```
generic_agilent_33120a.mdd
generic_agilent_e3648a.mdd
```

Version 2.3 (R14SP3) Instrument Control Toolbox Software

This table summarizes what is new in Version 2.3 (R14SP3):

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

Version 2.2 (R14SP2) Instrument Control Toolbox Software

This table summarizes what is new in Version 2.2 (R14SP2):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
Yes Details below	No	Bug Reports	No

Advantech GPIB Supported

Supported GPIB interfaces now include Advantech® GPIB.

For further information, type

```
instrhelp gpib
```

Compatibility Summary for Instrument Control 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 Version V2.11 (R2010b)	None
V2.10 (R2010a)	None
V2.9 (R2009b)	None
V2.8 (R2009a)	None
V2.7 (R2008b)	See the **Compatibility Considerations** subheadings for this change: • "Enhanced IVI-COM Driver Support" on page 10
V2.6 (R2008a)	None
V2.5 (R2007b)	See the **Compatibility Considerations** subheadings for these changes: • "Obsolete Functions" on page 17 • "New Error Message" on page 17
V2.4.2 (R2007a)	See the **Compatibility Considerations** subheading for this change: • "Confirmation Dialog Preference Settings Moved" on page 19
V2.4.1 (R2006b)	None
V2.4 (R2006a)	None

Version (Release)	New Features and Changes with Version Compatibility Impact
V2.3 (R14SP3)	None
V2.2 (R14SP2)	None