IVI™ Compliance Package Release Notes

Version 2.0

These release notes contain installation and uninstallation instructions, system requirements, features, and upgrade considerations for the IVI Compliance Package 2.0.

If you are upgrading from a previous version of National Instruments IVI software, read the *Special Considerations* section before you continue with this installation. The following list includes sections that cover upgrading from various IVI products. Refer to the appropriate subsections in the *Upgrade Notes* section.

- Upgrading from Basic IVI Class Drivers 2.*x*

- Upgrading from IVI Engine 1.8*x*

- Upgrading from IVI Driver Toolset 1.1

- Upgrading from Basic IVI Class Drivers 1.*x*

- Upgrading from IVI Driver Library 1.0

Introduction

The IVI Compliance Package is a software package that contains IVI class drivers and the support libraries necessary for the development and use of applications that leverage IVI instrument interchangeability. The IVI Compliance Package also is based on and is compliant with the latest version of the instrument programming specifications defined by the IVI Foundation. You can use the IVI class drivers in the IVI Compliance Package with IVI specific drivers.

IVI class drivers implement functions and attributes for controlling an instrument within a specified class, as defined by the IVI Foundation. The IVI Compliance Package provides IVI class drivers for the IviScope, IviRFSigGen, IviPwrMeter, IviSpecAn, IviDmm, IviFgen, IviSwtch, and IviDCPwr specifications.

IVI specific drivers are drivers for the most popular instruments from all eight currently defined IVI Foundation classes and from the largest

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instrument manufacturers including National Instruments, Agilent Technologies, and Tektronix. You can create IVI specific drivers yourself, or download them from `ni.com/idnet`.

The features of IVI Compliance Package 2.0 are as follows:

- Complete architectural compliance with the latest IVI Foundation specifications.

- All class drivers conform to the latest revision of the IVI Foundation class specifications.

- Three new class drivers have been added to this distribution: `IviRFSigGen`, `IviPwrMeter`, and `IviSpecAn`.

- Updated configuration user interface in National Instruments Measurement & Automation Explorer (MAX).

Installation

National Instruments recommends that you close all other applications before you install the IVI Compliance Package.

The following list includes minimum system requirements for the IVI Compliance Package.

- Windows 2000/NT/XP/98 or later. If you are using Windows NT 4.0, you must have Service Pack 6 or later installed to run the IVI Compliance Package. If you are using Windows 98, you must have DCOM 98 installed to run the IVI Compliance Package.

- Internet Explorer 4.0.1

- 133 MHz Pentium or higher microprocessor

- 64 MB of memory

- 50 MB of free hard disk space

- LabVIEW version 6.1 or later, if you are using LabVIEW

- LabWindows™/CVI™ version 6.0 or later, if you are using LabWindows/CVI

You can get the IVI Compliance Package from various distributions such as the National Instruments Device Drivers CD, the Switch Executive CD, the Calibration Executive CD, and a stand-alone Web-only distribution.

If you install a product that is dependent on the IVI Compliance Package, such as Switch Executive, you do not need to install this separate IVI Compliance Package because it is already included in the product installation.

To install the IVI Compliance Package from the National Instruments Device Driver CD, follow the installation steps provided by the Device Driver CD. When prompted with feature selections, enable the IVI Compliance Package.

To install the IVI Compliance Package Web distribution, complete the following steps:

1. Download the IVI Compliance Package self-extracting archive from `ni.com/ivi/ivi_prod.htm`.

2. Double-click the self-extracting archive and click **OK** to begin installation.

3. Follow the directions that appear onscreen.

Additional Installation Issues

The following sections include details about installation issues for the IVI Compliance Package.

NT 4.0

If you use Windows NT 4.0 and do not have Windows NT Service Pack 6.0 installed, you will encounter an error during installation. To prevent the error condition, install NT Service Pack 6.0 before installing the IVI Compliance Package.

Internet Explorer

The IVI Shared Components, which is provided by the IVI Foundation and is required for the IVI Compliance Package, requires Internet Explorer 4.0.1 or later. National Instruments strongly recommends you install Internet Explorer 4.0.1 or later, but if you choose not to install this product, you can install an alternate IVI package that enables you to use IVI specific drivers. The alternate package does not include IVI Shared Components, configuration functionality, or class driver support. Contact National Instruments for more information about the alternate IVI package.

Windows 98

If you use Windows 98 and do not have DCOM installed, you will encounter an error message upon launching the IVI Compliance Package installation executable, `setup.exe`. To prevent the error condition, install DCOM before installing the IVI Compliance Package.

Web Distribution

The IVI Compliance Package Web distribution does not install NI-Spy or MAX. NI-Spy tracks the calls your application makes to National Instruments test and measurement drivers, such as NI-VXI and NI-VISA. You can use MAX for IVI configuration support. You can use IVI software without these components, but you will not have the features these products supply unless you install them. If you have installed other National Instruments products, such as the National Instruments Device Driver CD, you might already have NI-Spy and MAX installed.

Note If you install a National Instruments product that installs MAX after installing the Web distribution of the IVI Compliance Package, you must reinstall the IVI Compliance Package to be able to use the updated IVI configuration user interface in MAX.

Uninstallation

If you no longer want to use IVI software components, complete the following steps to uninstall them.

1. Select **Start»Settings»Control Panel»Add/Remove Programs**.

2. Select **National Instruments Software** and click **Change**.

3. Select **IVI Compliance Package 2.0** and click **Uninstall**.

4. Visit www.ivifoundation.org to download and install the IVI Foundation IVI Shared Component Cleanup Utility.

5. Run the IVI Foundation IVI Shared Component Cleanup Utility.

Note After you uninstall the IVI Compliance Package, IVI Shared Components remain on the system. To remove the remaining components, you *must* run the IVI Foundation IVI Shared Component Cleanup Utility to remove the IVI Shared Components. These components are *not* uninstalled by the Windows uninstallation utility.

Note If you installed the IVI Compliance Package as part of another distribution that depends on the presence of the IVI Compliance Package, you cannot uninstall the IVI Compliance Package without uninstalling the dependent product.

Installed Components

Depending on the software support you select when you install the IVI Compliance Package, the installation includes one or more of the following components:

• IVI Class Drivers

• IVI Class Driver LabWindows/CVI Support

- IVI Class Driver C++ Wrappers for Measurement Studio 6.0 and .NET

- IVI Class Driver Wrappers for LabVIEW 6.1 and 7.0

- Examples for LabWindows/CVI and LabVIEW

- INI-XML Converter

- IVI Shared Components

- MAX Plug-in for IVI Configurations

Note The IVI Compliance Package does not install example programs or C++ wrappers for the following class drivers: `IviRFSigGen`, `IviPwrMeter`, and `IviSpecAn`.

Note The IVI Compliance Package Web distribution does not install NI-Spy or MAX. You can install NI-Spy and MAX using several other National Instruments products, including the IVI Device Driver CD.

Upgrade Notes

This section describes the process of upgrading your IVI software to IVI Compliance Package 2.0, issues you might encounter when you upgrade, and new features included in the upgrade.

The installation process of IVI Compliance Package 2.0 automatically converts all IVI configuration data for logical names, virtual instruments, devices, and driver software that exist on your system to a new data file format specified by the IVI Foundation. The installation creates a backup `ivi.ini` file with your original configuration data. For more details about how configuration data are converted to the new data file format, refer to the *Migrating Existing Configuration Data* section.

Upgrading from Basic IVI Class Drivers 2.*x*

This section describes the issues you might encounter when you upgrade to IVI Compliance Package 2.0 from Basic IVI Class Drivers 2.*x*.

Note Calibration Executive 2.1 does not support IVI Compliance Package 2.0. If you are using Calibration Executive 2.1, do *not* upgrade to IVI Compliance Package 2.0. Visit `ni.com` for information about the next release of Calibration Executive.

Tip National Instruments recommends you uninstall Basic IVI Class Drivers 2.*x* before installing the IVI Compliance Package.

The Basic IVI Class Drivers 2.*x* were installed as a free Web distribution and as part of the following products:

- Switch Executive 1.0
- Calibration Executive 2.1
- Measurement Studio 6.*x*
- Measurement Studio LabWindows/CVI 6.*x*
- TestStand 2.*x*

The following issues might affect you if you are upgrading from Basic IVI Class Drivers 2.*x*:

- *New Installation Directory*
- *IVI Shared Components*
- *Migrating Existing Configuration Data*
- *IVI Configuration Utility in MAX*
- *Effects of Splitting the Class and Specific Driver Sessions (Non-LabVIEW Users Only)*
- *Default Setup Changes*
- *IVI Engine API Changes*

Refer to the appropriate subsections in the *Special Considerations* section for information about these issues.

Upgrading from IVI Engine 1.8*x*

This section describes the issues you might encounter when you upgrade to IVI Compliance Package 2.0 from IVI Engine 1.8*x*.

Tip National Instruments recommends you uninstall IVI Engine 1.8*x* before installing the IVI Compliance Package.

The IVI Engine 1.8*x* was installed as a free Web distribution and as part of the following products:

- Basic IVI Class Drivers 2.*x*
- LabVIEW 6.1

The following issues might affect you if you are upgrading from IVI Engine 1.8*x*:

- *New Installation Directory*
- *IVI Shared Components*
- *IVI Engine API Changes*

Refer to the appropriate subsections in the *Special Considerations* section for information about these issues.

Upgrading from IVI Driver Toolset 1.1

This section describes the issues you might encounter when you upgrade to IVI Compliance Package 2.0 from IVI Driver Toolset 1.1.

The IVI Driver Toolset 1.1 is a CD distribution available as an independent product (part number 777855-01) and as part of the National Instruments Developer Suite CD.

To install the IVI Compliance Package, you must first uninstall IVI Driver Toolset 1.1. If you install the IVI Compliance Package, the following features will not be available in existing or new applications that use the IVI Class Drivers: advanced simulation, soft front panels, and NI-Spy. You are entitled to a free upgrade of the IVI Driver Toolset when it is available during the third quarter of 2003.

✎ **Note** If upgrading to IVI Compliance Package 2.0 is going to cause you to lose functionality in applications you created with IVI Driver Toolset 1.1, National Instruments suggests you wait to upgrade to IVI Driver Toolset 2.0. This product encompasses the core features of the IVI Compliance Package 2.0 as well as features such as advanced simulation, soft front panels, and NI-Spy.

The following issues might affect you if you are upgrading from IVI Driver Toolset 1.1:

- *New Installation Directory*
- *IVI Shared Components*
- *Migrating Existing Configuration Data*
- *IVI Configuration Utility in MAX*
- *Effects of Splitting the Class and Specific Driver Sessions (Non-LabVIEW Users Only)*
- *Default Setup Changes*
- *Inherent API Changes*
- *Class Driver API Changes*
- *IVI Engine API Changes*

Refer to the appropriate subsections in the *Special Considerations* section for information about these issues.

Upgrading from Basic IVI Class Drivers 1.*x*

This section describes the issues you might encounter when you upgrade to IVI Compliance Package 2.0 from Basic IVI Class Drivers 1.*x*.

Note Calibration Executive 2.0 does not support IVI Compliance Package 2.0. If you are using Calibration Executive 2.0, do *not* upgrade to IVI Compliance Package 2.0. Visit ni.com for information about the next release of Calibration Executive.

Tip National Instruments recommends you uninstall Basic IVI Class Drivers 1.*x* before installing the IVI Compliance Package.

The Basic IVI Class Drivers 1.*x* were installed as a free Web distribution and as part of the following products:

- Calibration Executive 2.0
- LabWindows/CVI 5.*x*
- TestStand 1.*x*

The following issues might affect you if you are upgrading from Basic IVI Class Drivers 1.*x*:

- *New Installation Directory*
- *IVI Shared Components*
- *Migrating Existing Configuration Data*
- *IVI Configuration Utility in MAX*
- *Effects of Splitting the Class and Specific Driver Sessions (Non-LabVIEW Users Only)*
- *Default Setup Changes*
- *Inherent API Changes*
- *Class Driver API Changes*
- *IVI Engine API Changes*

Refer to the appropriate subsections in the *Special Considerations* section for information about these issues.

Upgrading from IVI Driver Library 1.0

There are significant API and architectural differences between IVI Driver Library version 1.0 and IVI Compliance Package 2.0. To understand all the possible changes that affect you, National Instruments strongly recommends that you first read the *Release Notes for IVI Driver Toolset 1.1*. This document is available at ni.com/manuals. Also, refer to the *Special Considerations* section for more information.

If you have not upgraded to IVI Driver Library 1.1 and are upgrading from IVI Driver Library 1.0 to IVI Compliance Package 2.0, send an email to instrument.driver@ni.com. National Instruments will assist you with the upgrade.

Special Considerations

The following sections describe specific issues that affect upgrade users. To determine the sections which may apply to you, refer to the appropriate subsection in the *Upgrade Notes* section.

Terminology Changes

The IVI Foundation specifications changed the terminology on several existing IVI concepts. The following table lists key terminology changes that you should be aware of to avoid confusion.

Replace	With
Virtual Instrument	Driver Session
Device	Hardware Asset
Default Setup	Configurable Initial Settings
Driver	Software Module

Additionally, the terms IVI Engine and IVI Library are used interchangeably throughout the documentation. Both terms refer to the same software component.

New Installation Directory

The IVI Foundation defined the following default installation directory, called the IVI Standard Root Directory. This is the directory to which IVI drivers and other IVI components install: <ProgramFilesDir>\IVI.

IVI Compliance Package 2.0 installs class driver files to the IVI Standard Root Directory. The IVI Compliance Package installation does not move IVI specific drivers. IVI applications that access specific drivers with files currently installed in the VXI*plug&play* directory continue to function as they did before you installed the IVI Compliance Package.

If you use the Web distribution or Driver CD to install the IVI Compliance Package, you can specify the IVI Standard Root Directory.

To comply with the IVI Foundation's installer specifications, the IVI Compliance Package installer places the following restrictions on how you can modify the IVI Standard Root Directory:

- The IVI Standard Root Directory cannot be set to the VXI*plug&play* directory nor set to a subdirectory of the VXI*plug&play* directory.

- If the IVI Standard Root Directory is already defined, you cannot change the location of the IVI Standard Root Directory when you install the IVI Compliance Package.

IVI Specific Drivers

When you upgrade your specific driver installer to a version that uses the IVI Standard Root Directory, your IVI specific drivers install to the IVI Standard Root Directory.

You do not need to move your existing drivers from the VXI*plug&play* directory to the IVI Standard Root Directory after installing the IVI Compliance Package. Existing driver information, including the location of the driver, is moved to the new IVI Configuration Store through the conversion process as described in the *Migrating Existing Configuration Data* section. Only newly installed drivers are installed into the IVI Standard Root Directory.

IVI Shared Components

The IVI Shared Components are owned and distributed by the IVI Foundation. These components form the underlying structure of an IVI-compliant system. Because the IVI Compliance Package components are designed to work with the IVI Shared Components, the IVI Shared Components are installed as part of the IVI Compliance Package. The IVI Foundation considers the IVI Shared Components system components, and as such, you cannot uninstall them using the standard Windows uninstallation process. Refer to the *Uninstallation* section for instructions for removing the IVI Shared Components.

One of the most prominent changes between existing IVI products and the IVI Compliance Package is the way that the IVI Engine, IVI MAX configuration utility, and other IVI products included in the IVI Compliance Package access and store configuration information. The Configuration Server included in the IVI Shared Components provides a database for storing configuration data and an API for accessing this data. This database is called the Master Configuration Store. Various IVI products have been redesigned to work with the Configuration Server instead of the previous method, which involved using the ivi.ini file.

Migrating Existing Configuration Data

If you have any configuration information stored in the `ivi.ini` file, the installer converts the existing `ivi.ini` data into a new format that is used by the Configuration Server and stored in the Master Configuration Store file. This conversion process, which takes place when you install the IVI Compliance Package, removes the converted items from the original `ivi.ini` file as it places them in the Master Configuration Store database. The installer also creates a backup copy of the `ivi.ini` in the same directory as the original `ivi.ini`.

If, after you install the IVI Compliance Package, you run an older specific instrument driver installer that adds entries to the `ivi.ini` file, you can convert the newly installed configuration data by running MAX, which monitors the `ivi.ini` file for changes. If MAX detects any changes, it launches a conversion utility automatically before loading the configuration from the Master Configuration Store file. Also, you can run the converter utility manually by selecting **Start»Programs»IVI»Tools» INI to XML Converter**.

IVI Configuration Utility in MAX

The IVI Compliance Package provides an improved user interface in MAX 3.0, which is designed to work with the IVI Configuration Server to provide easy access to the configuration data for your drivers.

Default Setup Changes

In MAX 3.0, there are no longer any **Default Setup** data available for drivers. This data has been replaced by **Configurable Initial Settings**, which the driver developer publishes. The use of Configurable Initial Settings is more restrictive than the Default Setup. The set of attributes available to your driver sessions in the Configurable Initial Settings is restricted to what is published by the driver developer in the software module entry for that driver. You can edit the value of these attributes for your driver session but you cannot add additional attributes to this list of Configurable Initial Settings. If you need attributes that are not available in the Configurable Initial Settings list, National Instruments recommends you contact the specific driver supplier.

Effects of Splitting the Class and Specific Driver Sessions (Non-LabVIEW Users Only)

In previous releases of the National Instruments class drivers, the class drivers and the specific drivers that the class drivers loaded used the same IVI session. The class drivers and specific drivers now have unique sessions when the class driver is initialized. This distinction does not affect programs that use only specific driver APIs, nor does it affect programs that

use only the class driver APIs. However, if a program is using the class driver APIs, but still makes calls to specific driver functions to access functionality that is not available through the class driver, the program might not function correctly. National Instruments suggests you modify application programs to call the `<ClassPrefix>_GetSpecificDriverCHandle` function before calling any specific driver functions, and use the session returned by that function when calling the specific driver functions. You do not need to modify LabVIEW programs that make use of both class and specific driver VIs because LabVIEW automatically handles the mixed use of class and specific driver VIs.

Inherent API Changes

As a result of the changes in the inherent capabilities specified by the IVI Foundation, the following attributes and functions were added, modified, or removed in all class drivers.

The following attribute was added to the class drivers:

- `<PREFIX>_ATTR_DRIVER_SETUP`

The following functions were added to the class drivers:

- `<PREFIX>_InvalidateAllAttributes`
- `<PREFIX>_ResetWithDefaults`
- `<PREFIX>_Disable`
- `<PREFIX>_GetError`
- `<PREFIX>_ClearError`

The following table lists existing attributes and the new names for each.

Replace	With
`<PREFIX>_ATTR_QUERY_INSTR_STATUS`	`<PREFIX>_ATTR_QUERY_INSTRUMENT_STATUS`
`<PREFIX>_ATTR_RESOURCE_DESCRIPTOR`	`<PREFIX>_ATTR_IO_RESOURCE_DESCRIPTOR`
`<PREFIX>_ATTR_NUM_CHANNELS`	`<PREFIX>_ATTR_CHANNEL_COUNT`

The following attributes were made obsolete in the class drivers:

- `<PREFIX>_ATTR_ATTRIBUTE_CAPABILITIES`
- `<PREFIX>_ATTR_IO_SESSION_TYPE`
- `<PREFIX>_ATTR_IO_SESSION`
- `<PREFIX>_ATTR_CLASS_DRIVER_MAJOR_VERSION`
- `<PREFIX>_ATTR_CLASS_DRIVER_MINOR_VERSION`

- `<PREFIX>_ATTR_SPECIFIC_DRIVER_MAJOR_VERSION`
- `<PREFIX>_ATTR_SPECIFIC_DRIVER_MINOR_VERSION`
- `<PREFIX>_ATTR_PRIMARY_ERROR`
- `<PREFIX>_ATTR_SECONDARY_ERROR`
- `<PREFIX>_ATTR_ERROR_ELABORATION`

The following functions were made obsolete in the class drivers:

- `<PREFIX>_GetErrorInfo`
- `<PREFIX>_ClearErrorInfo`

Obsolete Attributes and Functions in Legacy Code

The attributes and functions that were made obsolete in this release of the class drivers are available in a `<PREFIX>Obsolete.h` file for each class. Legacy programs that use these attributes and functions will continue to work correctly. However, these attributes and functions will no longer be upgraded or documented by National Instruments. National Instruments recommends that you update your applications to use the new API.

Class Driver API Changes

The following class drivers were added to IVI Compliance Package 2.0: `IviRFSigGen`, `IviSpecAn`, and `IviPwrMeter`.

Minor API changes were made to the following IVI class drivers: `IviDCPwr`, `IviFgen`, `IviScope`, and `IviSwtch`.

If you are upgrading from any of the following products, these API changes do not affect your application:

- IVI Driver Toolset 1.1
- Basic IVI Class Drivers 1.*x* or 2.*x*

If you are upgrading from IVI Driver Library 1.0, these API changes will affect your application.

Tip If you are upgrading from IVI Driver Library 1.0 to IVI Compliance Package 2.0, National Instruments strongly recommends you read the *Release Notes for IVI Driver Toolset 1.1* to understand all the possible changes that affect you. This document is available at `ni.com/manuals`.

IviDCPwr

As a result of the changes to the IviDCPwr 3.0 specification, the following attributes and functions were added, modified, or removed in the `IviDCPwr` class driver:

- The `IVIDCPWR_ATTR_CHANNEL_COUNT` attribute was added to the `IviDCPwr` class driver to replace the `IVIDCPWR_ATTR_NUM_CHANNELS` attribute, which is now available in `IviDCPwrObsolete.h`.

- The `IviDCPwr_GetChannelName` function was added to the `IviDCPwr` class driver.

IviFgen

As a result of the changes to the IviFgen 3.0 specification, the following attributes and functions were added, modified, or removed from the `IviFgen` class driver:

- The `IVIFGEN_ATTR_CHANNEL_COUNT` attribute was added to the `IviFgen` class driver to replace the `IVIFGEN_ATTR_NUM_CHANNELS` attribute, which is now available in `IvifgenObsolete.h`.

- The `IVIFGEN_VAL_AM_INTERNAL_DC` was removed from the valid list of values for the attribute.

- The `IVIFGEN_VAL_FM_INTERNAL_DC` was removed form the valid list of values for the `IVIFGEN_ATTR_AM_INTERNAL_WAVEFORM` attribute.

- The function `IviFgen_GetChannelName` was added to the `IviFgen` class driver.

IviScope

As a result of the changes to the IviScope 3.0 specification, the following attributes and functions were added, modified, or removed from the `IviScope` class driver:

- The `IVISCOPE_ATTR_CHANNEL_COUNT` attribute was added to the `IviScope` class driver to replace the `IVISCOPE_ATTR_NUM_CHANNELS` attribute, which is now available in `IviScopeObsolete.h`.

- The function `IviScope_GetChannelName` was added to the `IviScope` class driver.

IviSwtch

As a result of the changes to the IviSwtch 3.0 specification, the following attributes and functions were added, modified, or removed from the `IviSwtch` class driver:

- The `IVISWTCH_ATTR_CHANNEL_COUNT` attribute was added to the `IviSwtch` class driver to replace the `IVISWTCH_ATTR_NUM_CHANNELS` attribute, which is now available in `IviSwtchObsolete.h`.

- The function `IviSwtch_GetChannelName` was added to the `IviSwtch` class driver.

- The `IVISWTCH_ERROR_MAX_TIME_EXCEEDED` value was added to the `IviSwtch` class error and completion codes.

IVI Engine API Changes

This section includes information about changes to the IVI Engine API for the IVI Compliance Package.

Creating Configuration Data at Runtime

Prior versions of the IVI Engine exposed several functions for creating and persisting configuration data at runtime. The functions are no longer supported and now return the following error: `IVI_ERROR_FUNCTION_NOT_SUPPORTED`. If you want to design programs to create configuration data at runtime, use the new IVI Engine function, `Ivi_GetConfigServerHandle`. You can use the handle that this function returns with the IVI Foundation-defined Configuration Server C API to edit the configuration data that the IVI Engine is using.

Note Visit `ni.com` for more information about the changes regarding creating configuration data at runtime.

Note Any configuration data created at runtime is lost if the contents of the Configuration Store file change.