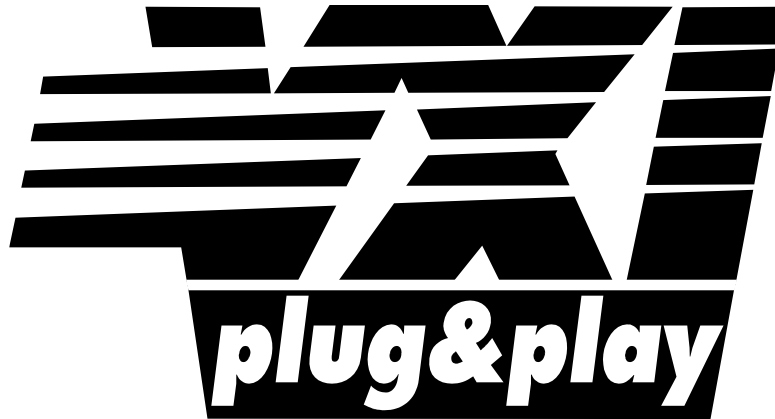# Systems Alliance

VPP-6: Installation and Packaging Specification

Revision 6.2

August 6, 2015

Systems Alliance

VPP-6 Revision History

This section is an overview of the revision history of the VPP-6 specification.

Revision 1.0, July 15, 1994

This edition reflects a non-technical revision for style and format issues.

Revision 1.1, August 17, 1994

This edition reflects edits to technical omissions and inconsistencies between VPP documents.

Revision 1.2, Nov 11, 1994

This edition reflects changes made in the Nov 1-4 technical working group.

Revision 2.0, Nov 28, 1994

Update to revision number as requested by Ron Wolfe.

Revision 3.0, Feb 8, 1995

Updated to incorporate VTL installation and to include directory structure modifications requested by the instrument driver technical working group.

Revision 3.0, Mar 7, 1995

Updated to fix inconsistancies found by Dan Mondrik.

Revision 4.0, Dec 11, 1995

Updated to remove DOS framework, and added the new WIN95, WINNT, SUN, HP-UX, GWIN95, WINNT, GSUN, and the GHPUX frameworks.

Revision 4.1, Jan 26, 1996

Added guidance for the installation of auto-loaded child instrument drivers and corrected the default installation path sections for both VISA and instrument drivers. Made minor clarifications and changes at the request of members of the VPP-6 TWG.

Revision 4.2, December 4, 1998

Made minor clarifications and changes at the request of members of the VPP-6 TWG. The information regarding contacting the Alliance was also updated. References to the VPP-5 Component Knowledge Base specification, which was obsoleted by the alliance, were removed.

Draft Revision 5.0, October 4, 2005

Added installation information for WIN64 framework for use by VISA. We are keeping the older operating systems and frameworks in this document because the definitions remain valid. This does not imply ongoing active IVI support for those frameworks.

Draft Revision 5.0, April 14, 2006

This edition removes the following frameworks: WIN, GWIN, WIN95, GWIN95, HPUX, GHPUX, SUN, and GSUN. The definitions of those frameworks in versions 4.2 and earlier of this document remain valid, and vendors may continue to claim compliance with those frameworks.

Revision 5.0, October 12, 2006

Approved at IVI Board of Directors meeting.

Draft Revision 5.1, October 25, 2006

Adds Windows Vista to the list of supported operating systems.

Revision 5.2, July 1, 2007

Changed default installation directory to <Program Files>\IVI Foundation\VISA.

Revision 5.3, February 14, 2008

Updated the introduction to reflect the IVI Foundation organization changes. Replaced Notice with text used by IVI Foundation specifications.

Revision 5.3, April 14, 2008

Editorial change to update the IVI Foundation contact information in the Important Information section to remove obsolete address information and refer only to the IVI Foundation web site.

Revision 6.0, October 16, 2008

Added WIN64 installation requirements to the specification. The additions to this spec deal exclusively with vendor-specific components; the new shared component was moved to VPP 4.3.5.

Revision 6.1, January 4, 2011

Updated the Sections 5 and 7 to reflect the current installation requirements for LabVIEW drivers

Revision 6.2, March 6, 2013

Added Windows 7 and Windows 8 to the list of supported operating systems.

Revision 6.2, August 6, 2015

Removed Windows 2000 and added Windows 10 to the list of supported operating systems.

NOTICE

No investigation has been made of common-law trademark rights in any work.

Table of Contents

Section 1

Introduction to the VXI*plug&play* Systems Alliance and the IVI Foundation

The VXI*plug&play* Systems Alliance was founded by members who shared a common commitment to end-user success with open, multivendor VXI systems. The alliance accomplished major improvements in ease of use by endorsing and implementing common standards and practices in both hardware and software, beyond the scope of the VXIbus specifications. The alliance used both formal and de facto standards to define complete system frameworks. These standard frameworks gave end-users "plug & play" interoperability at both the hardware and system software level.

The IVI Foundation is an organization whose members share a common commitment to test system developer success through open, powerful, instrument control technology. The IVI Foundation's primary purpose is to develop and promote specifications for programming test instruments that simplify interchangeability, provide better performance, and reduce the cost of program development and maintenance.

In 2002, the VXI*plug&play* Systems Alliance voted to become part of the IVI Foundation. In 2003, the VXI*plug&play* Systems Alliance formally merged into the IVI Foundation. The IVI Foundation has assumed control of the VXI*plug&play* specifications, and all ongoing work will be accomplished as part of the IVI Foundation.

All references to VXI*plug&play* Systems Alliance within this document, except contact information, were maintained to preserve the context of the original document.

Section 2

Overview of the Installation and Packaging Specification

2.1 Introduction

This section introduces the *Installation and Packaging Specification*. It describes the intended audience and usage of the specification. It also provides references and contains general information that the reader may need in order to understand, interpret, and implement aspects of this specification.

2.2 Objectives of the Specification

The *Installation and Packaging Specification* ensures that a VXI*plug&play* distribution can be easily identified and installed. Each VXI*plug&play* system component that claims conformance to a system framework must have a properly identified distribution disk that meets the requirements in the VXI*plug&play* documentation. The requirements for packaging and installation ensure that VXI*plug&play* distributions will install correctly on a specific framework, and that the distribution disk can be easily identified as being VXI*plug&play* compliant.

2.3 Audience for the Specification

The primary audience for this specification consists of developers of system components either component vendors, system integrators, or end users who want to implement system components that are compliant with this specification. This specification may also be of interest to end users who want to know the detailed requirements for the installation and packaging of a particular system framework. However, the intent of the *Installation and Packaging Specification* is to ensure end user success without any knowledge of this specification.

2.4 Scope and Organization of the Specification

This specification is organized in sections. Each section discusses a particular independent level of the implementation. The first sections give background and general information on installation and packaging, and subsequent sections describe the details of the installation and packaging requirements for individual frameworks.

2.5 Assumptions

This specification assumes some familiarity with and understanding of VXI modules, PC and SUN operating systems, the VISA specification (VPP-4), the *Instrument Drivers Architecture and Design Specification* (VPP-3.1), the *System Frameworks Specification* (VPP-2), and selected application development environment software applications including LabWindows/CVI, LabVIEW, Microsoft and Borland C, BASIC languages, and others.

2.6 Application of the Specification

This specification is intended to be used by developers of VXI*plug&play* system components. The rules in this specification ensure success for end users who choose VXI*plug&play* frameworks for their applications.

2.7 References

Numerous other documents were used as source material in the creation of this specification. In addition, other VXI*plug&play* documents may be of interest as you read this specification.

These other related documents are as follows:

- VPP-1   *Charter Document*

- VPP-2   *System Frameworks Specification*

- VPP-3.x   *Instrument Driver Specification*

- VPP-4.x   *VISA-1 Virtual Instrument Software Architecture Main Specification*

- VPP-7   *Soft Front Panel Specification*

- VPP-9   *Instrument Vendor Abbreviations*

- VXI-1   *VXIbus System Specification*, Revision 1.4, VXIbus Consortium

2.8 Definitions of Terms and Acronyms

The following are some commonly used terms within this document.

- auto-loaded child instrument drivers: Those instrument drivers which include a function panel file that is listed in another function panel file. (autoLoadList facility).

- VXIVMEbus Extensions for Instrumentation (IEEE 1155).

- VISA   Virtual Instrument Software Architecture.

- WINNT   System framework based on the Microsoft Windows XP, Windows Vista 32, Windows Vista 64 (32-bit applications only), Windows 7 (32-bit applications only), Windows 8 (32-bit applications only), and Windows 10 (32-bit applications only) operating systems.

- WIN64   System framework based on the Microsoft Windows Vista 64 or higher 64-bit operating system.

- GWINNT   System framework supporting graphical programming in the Microsoft Windows XP, Windows Vista 32, Windows Vista 64 (32-bit applications only) , Windows 7 (32-bit applications only), Windows 8 (32-bit applications only), and Windows 10 (32-bit applications only) operating systems.
- GWIN64   System framework supporting graphical programming in the Windows Vista 64 or higher 64-bit operating system.

2.9 Conventions

This section describes the conventions of the *Installation and Packaging Specification*. It describes the style, numbering conventions, terms, and global constraints under which this specification was written. All subsequent changes to this document for future revisions should use these conventions.

2.9.1 Text and Numbering Conventions

Text in the font `Courier` indicates source code, or file names that must be used exactly as displayed.

2.9.2 Definition of Terms of the Specification

The following headings appear on paragraphs throughout this specification. These headings give special meaning to these paragraphs.

Rules must be followed to ensure compatibility with the system framework. A rule is characterized by the words **SHALL** or **SHALL NOT** in bold upper case characters. **SHALL** and **SHALL NOT** are not used in this manner for any other purpose.

Recommendations contain advice to implementers. This advice affects the usability of the final device. Recommendations are included in this specification to draw attention to particular characteristics that the authors believe are important to end-user success.

Permissions authorize specific implementations or uses of system components. A permission is characterized by the word **MAY** in bold upper case characters. These permissions are granted to ensure that specific system framework components are well defined and can be tested for compatibility and interoperability.

Observations spell out implications of rules and bring attention to details that might otherwise be overlooked. They also give the rationale behind certain rules so that the reader understands why the rule should be followed.

Section 3
Introduction to Installation and Packaging

3.1 Introduction

This section gives a detailed description of VXI*plug&play* installation and packaging issues. It describes the need for standard installation procedures and the implementation philosophy for those procedures. The specific implementation of the installation procedures and packaging issues is described in the following paragraphs.

3.2 The VXI Standard

The VXI standard supports the integration of instrumentation from many vendors into a single mainframe. A primary goal of the VXI standard is interoperability between instruments. VXI instruments must meet well defined interface specifications to ensure system compatibility.

VXI provides many mechanisms that support instrument interoperability. It provides a standard backplane electrical interface, standard mechanical packaging, and standard system management and communications methods, and sets limits on local electromagnetic radiation and susceptibility. All of these requirements guarantee hardware compatibility and interoperability.

3.3 Need for Further Standards

Although the VXI standard ensures hardware interoperability, it does not address the implementation of system software and other system interfaces. These interfaces connect hardware and software products together to form an integrated system. Because of the broad array of computers, operating systems, and programming languages, selecting components that work together to control a VXI system can be challenging.

A VXI system is unique in that individual instruments do not provide integral user interfaces such as knobs, buttons, or displays. System software must be written to perform the simplest of tasks within a VXI system. When two system components do not work together, identifying and resolving the problem can be tedious and difficult for the user.

Without additional standards, the system designer must determine the compatibility of all of the software components. Because this is a difficult task, the designer often selects components from a single vendor with the hope that all components from that vendor are compatible. If compatibility problems arise, the designer knows which vendor to call for help. Unfortunately, this single-vendor approach locks the designer into a closed system, and removes the benefits of the open, multi-vendor VXI systems approach.

3.4 System Frameworks

To address the problem of selection and integration of system components, VXI*plug&play* defines a series of system frameworks. Each framework supports a popular test system design approach and framework has a specific name, which can be referenced and advertised by component manufacturers. System designers may then select specific frameworks for their applications and select from the available system components that conform to that framework.

See VPP-2: System Frameworks Specifications for a list of the defined frameworks.

Designing a system using a VXI*plug&play* system framework means that the selected components will be compatible and interoperable. Following the framework requirements ensures that all necessary system components have been included to provide a complete operational system. Following the installation requirements ensures that all instrument drivers, soft front panels, and documentation files are installed in a consistent manner.

3.5 Directory Structure

VXI*plug&play* install programs use the following directory structure by default. The root directory for all VXI*plug&play* drivers is [VXIPNPPATH]. However, [VXIPNPPATH] can be dependent on the bitness of both the target system architecture and the binaries being installed on the system. In general, all 32-bit components are installed under the same root directory; similarly, all 64-bit components are installed under the same root directory. By default, these root directories are not the same.

Each framework is a subdirectory below this root directory. For example, all instrument drivers for the WINNT framework are installed under the `WINNT` subdirectory. The directory structure is modified to accomodate auto-loaded child instrument drivers. A <support> directory is created at the same level as the <instrument driver> directory. In this <support> directory a <prefix> directory holds the auto-loaded child instrument driver files.

```
┌─────────────────────┐     ┌─────────────────────┐
│   [VXIPNPPATH]      │     │       KBASE         │
│ (32-bit root        ├─────┤ (directory for      │
│  directory)         │     │  knowledge          │
│                     │     │  base files)        │
└─────────────────────┘     └─────────────────────┘
            │
            │         ┌─────────────────────┐
            └─────────┤       WINNT         │
                      └─────────────────────┘
                                  │      ┌─────────────────────┐
                                  ├──────┤        Bin          │
                                  │      └─────────────────────┘
                                  │      ┌─────────────────────┐
                                  ├──────┤      include         │
                                  │      └─────────────────────┘
                                  │      ┌─────────────────────┐
                                  ├──────┤        lib          │
                                  │      └─────────────────────┘
                                  │      ┌─────────────────────┐
                                  ├──────┤      lib_x64         │
                                  │      └─────────────────────┘
                                  │      ┌─────────────────────┐
                                  └──────┤ <instrument driver> │
                                         └─────────────────────┘

┌─────────────────────┐     ┌─────────────────────┐
│   [VXIPNPPATH]      │     │       WIN64         │
│ (64-bit root        ├─────┤                     │
│  directory)         │     └─────────────────────┘
└─────────────────────┘                 │      ┌─────────────────────┐
                                        ├──────┤        Bin          │
                                        │      └─────────────────────┘
                                        │      ┌─────────────────────┐
                                        ├──────┤      include         │
                                        │      └─────────────────────┘
                                        │      ┌─────────────────────┐
                                        ├──────┤      lib_x64         │
                                        │      └─────────────────────┘
                                        │      ┌─────────────────────┐
                                        └──────┤ <instrument driver> │
                                               └─────────────────────┘
```
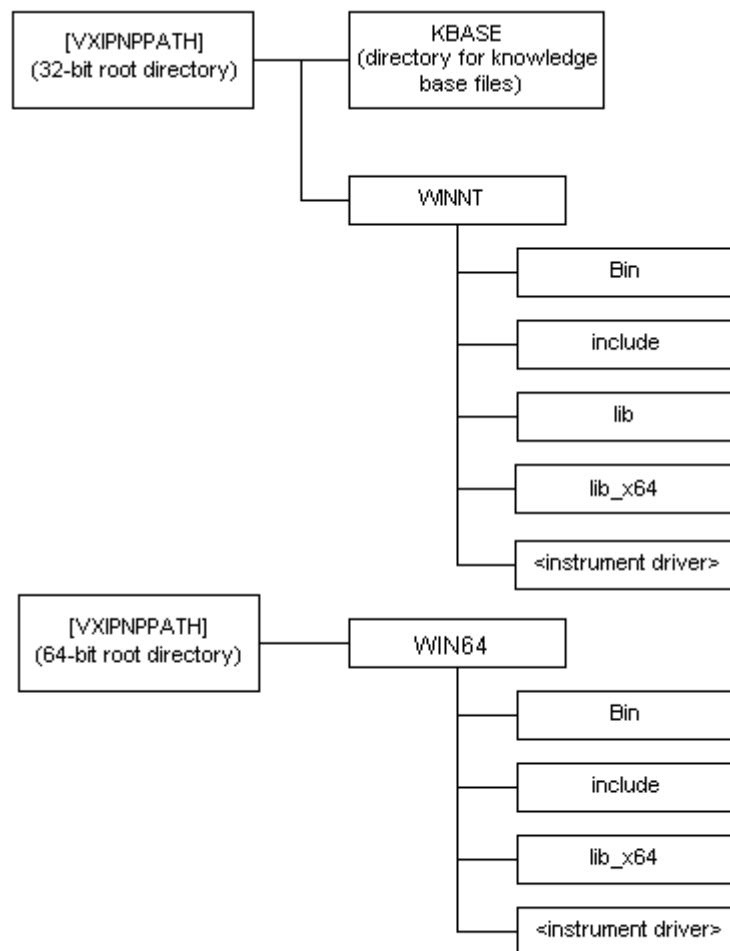
Each instrument has a directory under the framework subdirectory. For example, a Tektronix VX4385 will be found in the directory TKVX4385, which is the name of the instrument driver.

3.6 Installation and Packaging Definition

This document describes the installation and packaging procedures for several system frameworks. These frameworks were selected because they are popular with VXI system designers and end users. As computer and software technology evolves, other hardware and software products may become popular within the VXI user community. As this change occurs, new frameworks will be defined to incorporate the capabilities of these products, and there may be new installation requirements.

The intention of the *Installation and Packaging Specification* is to allow VXI*plug&play* compliant distributions to be consistently defined between VXI*plug&play* vendors. In addition, it makes identification of VXI*plug&play* distributions easier because of standard labeling, and installation easier because of a well defined installation procedure.

Section 4
Installation Requirements for the WINNT Framework

4.1 Introduction

This section describes the requirements for the installation media of the VXI*plug&play* WINNT system framework. Where appropriate, it references other documents and standards that specifically define these components.

4.2 The Installation Application

The user executes the installation application in order to install the instrument drivers, soft front panels, documentation, and other files defined in this section onto an IBM PC compatible computer.

RULE 4.1

>   If a VXI*plug&play* instrument claims conformance to the WINNT system framework, then its installation media **SHALL** include an installation program that is a native MS-Windows application.

RULE 4.2

>   If a VXI*plug&play* instrument claims conformance to the WINNT system framework, then its floppy disk or CD-ROM **SHALL** have an installation program named `SETUP.EXE`. *[Note that this name will collide with the installation program for GWINNT. If you want to create a single distribution set for more than one of those frameworks you must create a single setup.exe that can automatically recognize the OS the installation has been executed in and perform the correct installation.]*

RULE 4.3

>   If a VXI*plug&play* instrument claims conformance to the WINNT system framework, then its installation media **SHALL** provide a standard installation selection that places files in the standard location (`[VXIPNPPATH]\WINNT\<inst_name>`).

OBSERVATION 4.1

>   A custom installation selection may also be provided to allow the user more flexibility on installation.

RECOMMENDATION 4.1

>   The user should be given the option to run the soft front panel, if one has been installed, after the installation is complete.

4.3 The Directory Structure

RULE 4.4

>   If a VXI*plug&play* instrument claims conformance to the WINNT system framework, then its installation procedure **SHALL** query the registry item

HKEY_LOCAL_MACHINE\SOFTWARE\VXIPNP_Alliance\VXIPNP\CurrentVersion, Name: VXIPNPPATH for the installation directory. If that registry entry does not exist then the environment variable VXIPNPPATH **SHALL** be queried for the default installation directory. If neither the registry item or the environment variable exists then "$(PROGRAMFILES)\IVI Foundation\VISA" (for example C:\Program Files\IVI Foundation\VISA) SHALL be used.

OBSERVATION 4.2

The mechanism to determine the location where Program Files are installed is left up to the vendor.

RECOMMENDATION 4.2

If a VXI*plug&play* instrument claims conformance to the WINNT system framework, then its installation procedure should add the following entry into the registry: HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\App Paths\<instr_name>.exe, Name: (default) with Data: "[VXIPNPPATH]\WINNT\<instr_name>\<inst_name>.exe", and Name: Path with Data "[VXIPNPPATH]\WINNT\BIN".

RULE 4.5

If a VXIplug&play instrument claims conformance to the WINNT system framework, then its installation procedure **SHALL** not modify VXIPNPPATH registry variable. This value may only be modified by the VISA installation procedure or by the user by directly editing registry item.

RULE 4.6

If a VXI*plug&play* instrument claims conformance to the WINNT system framework, then its installation media **SHALL** offer the directory path `[VXIPNPPATH]\WINNT\<inst_name>` as the default installation path, where `<inst_name>` is the base name of the instrument driver as described *in VPP-2 and VPP-3.1*.

RULE 4.7

If a VXI*plug&play* instrument claims conformance to the WINNT system framework, then its installation prodecure **SHALL** place all the required files and the optional `.sub` file in the instrument driver directory except the instrument .dll file which it **SHALL** place in the [VXIPNPPATH]\WINNT\BIN directory and the instrument .h and .bas file which it **SHALL** place in [VXIPNPPATH]\WINNT\INCLUDE directory, the Microsoft library file **SHALL** be placed in [VXIPNPPATH]\WINNT\LIB\MSC and the recommended Borland library file should be placed in [VXIPNPPATH]\WINNT\LIB\BC.

RULE 4.8

If a VXI*plug&play* instrument claims conformance to the WINNT system framework then it**SHALL** name all .dll files as <inst_name>_32.dll, where `<inst_name>` is the base name of the instrument driver as described in *VPP-2 and VPP-3.1*.

RULE 4.9

If a VXI*plug&play* auto-loaded child instrument driver claims conformance to the WINNT system framework, then its installation procedure **SHALL** place all the required files in the [VXIPNPPATH]\ WINNT\SUPPORT\<prefix> directory, except the support `.dll` file, which it **SHALL** place in the [VXIPNPPATH]\WINNT\BIN directory, the support `.h` and `.bas` file, which it **SHALL** place in the [VXIPNPPATH]\WINNT\INCLUDE directory, and the Microsoft library file, which **SHALL** be placed in the [VXIPNPPATH]\WINNT\LIB\MSC directory**. IF** the recommended Borland library file is installed, **THEN** it **SHALL** be placed in the [VPNPPATH]\VXIPNP\WINNT\LIB\BC directory. **IF** a 64-bit Microsoft library file is provided, **THEN** it **SHALL** be placed in the [VXIPNPPATH]\WINNT\lib_x64\MSC directory.

4.4 The Required Files

The files required for a VXI*plug&play* installation are defined in VPP-2 and VPP-3.1.

The following files must be installed by the WINNT framework installation media:

• An MS-Windows stand-alone executable soft front panel.

• Function Panel File (`.fp` file).

• ANSI C source files (`.h` and `.c` files).

• The Visual Basic declaration file (.bas)

• MS-Windows 32 bit DLL (`_32.dll` file).

• An MS C/C++ .lib file created from the DLL.

• Documentation in a widely accepted documentation file format, such as Portable Document Format (`.pdf`) or compiled HTML (`.chm`).

• An MS-Windows based installation program.

The following optional files may be installed by the WINNT framework installation disk:

• The `.sub` file.

• An MS-Windows group file that contains icons for the soft front panel and the help file.

• A MS C/C++ `.lib` file created from a 64-bit version of the DLL.

RULE 4.10

> If a VXI*plug&play* instrument claims conformance to the WINNT system framework, then its installation media **SHALL** give the user the option during installation to create a group named VXIPNP and place icons for the soft front panel and the help documentation in that group. The soft front panel and help files **SHALL** be appropriately identified with the name of the instrument being installed (see VPP-2 and VPP-3.1 for naming conventions). The name of the soft front panel used in the group **SHALL** indicate that the executable is a 32 bit file.

RULE 4.11

> If a VXI*plug&play* instrument claims conformance to the WINNT system framework, then its installation media **SHALL** place all compressed or zipped files in their fully expanded form in the target installation directory.

RULE 4.12

> If a VXI*plug&play* instrument claims conformance to the WINNT system framework, then its installation media **SHALL** include any utilities required to convert compressed files into their expanded form.

PERMISSION 4.1

> Files **MAY** be zipped or compressed to save space on the installation media, as long as all files are installed in their original uncompressed form.

RECOMMENDATION 4.3

It is recommended that additional files, besides the required files, be included in the WINNT system framework distribution. This includes the following files:

- A makefile or equivalent for MS Visual C/C++ 2.0 or higher and a .def that would allow the _32.dll file to be recreated by the user.

- An uninstall application is highly recommended.

- A Borland C/C++ .lib file created using the Borland IMPLIB command. This file should be placed in the [VXIPNPPATH]\ WINNT\LIB\BC subdirectory.

Section 5
Installation Requirements for the GWINNT Framework

5.1 Introduction

This section describes the requirements for the installation media of the VXI*plug&play* GWINNT system framework. Where appropriate, it references other documents and standards that specifically define these components.

5.2 The Installation Application

The user executes the installation application in order to install the instrument drivers, soft front panels, documentation, and other files defined in this section onto an IBM PC compatible computer.

RULE 5.1

> If a VXI*plug&play* instrument claims conformance to the GWINNT system framework, then its installation media **SHALL** include an installation program that is a native MS-Windows application.

RULE 5.2

> If a VXI*plug&play* instrument claims conformance to the GWINNT system framework, then its floppy disk or CD-ROM **SHALL** have an installation program named `SETUP.EXE`. *[Note that this name will collide with the installation program for WINNT. If you want to create a single distribution set for more than one of those frameworks you must create a single setup.exe that can automatically recognize the OS the installation has been executed in and perform the correct installation.]*

RULE 5.3

> If a VXI*plug&play* instrument claims conformance to the GWINNT system framework, then its installation media **SHALL** provide a standard installation selection that places files in the standard LabVIEW location (`[LabVIEW]\instr.lib\<inst_name>`).

OBSERVATION 5.1

> A custom installation selection may also be provided to allow the user more flexibility on installation.

RECOMMENDATION 5.1

> The user should be given the option to run the soft front panel, if one has been installed, after the installation is complete. An uninstall application is highly recommended.

5.3 The Directory Structure

RULE 5.4

> If a VXI*plug&play* instrument claims conformance to the GWINNT system framework, then its installation procedure **SHALL** query the registry item HKEY_LOCAL_MACHINE\SOFTWARE\National Instruments\LabVIEW for the installation directory.

OBSERVATION 5.2

> It is left up to the vendor to decide whether to install the LabVIEW driver files into a specific LabVIEW version(s) or into the current version of LabVIEW.

RULE 5.5

> If a VXIplug&play instrument claims conformance to the GWINNT system framework, then its installation procedure **SHALL NOT** modify VXIPNPPATH registry variable. This value may only be modified by the VISA installation procedure or by the user by directly editing registry item.

RULE 5.6

> If a VXI*plug&play* instrument claims conformance to the GWINNT system framework, then its installation media **SHALL** offer the directory path `[LabVIEW]\instr.lib\<`*inst_name*`>` as the default installation path, where `<`*inst_name*`>` is the base name of the instrument driver as described *in VPP-2 and VPP-3.1*.

5.4 The Required Files

The files required for a VXI*plug&play* installation are defined in VPP-2 and VPP-3.1.

The following files must be installed by the GWINNT framework installation media:

- An MS-Windows stand-alone executable soft front panel.

- LabVIEW driver files.

- Documentation in a widely accepted documentation file format, such as Portable Document Format (`.pdf`) or compiled HTML (`.chm`).

- Optionally, an MS-Windows group file that contains icons for the soft front panel and the help file.

- An MS-Windows based installation program.

RULE 5.7

> If a VXI*plug&play* instrument claims conformance to the GWINNT system framework, then its installation media **SHALL** give the user the option during installation to create a group named `VXIPNP` and place icons for the soft front panel and the help documentation in that group. The soft front panel and help files **SHALL** be appropriately identified with the name of the instrument being installed (see VPP-2 and VPP-3.1 for naming conventions). The name of the soft front panel used in the group **SHALL** indicate that the executable is a 32 bit file.

RULE 5.8

> If a VXI*plug&play* instrument claims conformance to the GWINNT system framework, then its installation media **SHALL** place all compressed or zipped files in their fully expanded form in the target installation directory.

RULE 5.9

If a VXI*plug&play* instrument claims conformance to the GWINNT system framework, then its installation media **SHALL** include any utilities required to convert compressed files into their expanded form.

PERMISSION 5.1

Files **MAY** be zipped or compressed to save space on the installation media, as long as all files are installed in their original uncompressed form.

Section 6
Installation Requirements for the WIN64 Framework

6.1 Introduction

This section describes the requirements for the installation media of the VXI*plug&play* WIN64 system framework. Where appropriate, it references other documents and standards that specifically define these components.

6.2 The Installation Application

The user executes the installation application to install the instrument drivers, soft front panels, documentation, and other files defined in this section onto a 64-bit MS-Windows PC.

RULE 6.1

> If a VXI*plug&play* instrument claims conformance to the WIN64 system framework, then its installation media **SHALL** include an installation program that is a native MS-Windows application.

RULE 6.2

> If a VXI*plug&play* instrument claims conformance to the WIN64 system framework, then its installation media **SHALL** have an installation program named SETUP.EXE. *(Note that this name collides with the installation program for WINNT. To create a single distribution set for more than one of those frameworks, you must create a single* setup.exe *that can automatically recognize the OS the installation has been executed in and perform the correct installation.)*

RULE 6.3

> If a VXI*plug&play* instrument claims conformance to the WIN64 system framework, then its installation media **SHALL** provide a standard installation selection that places files in the standard location ([VXIPNPPATH]\WIN64\<*inst_name*>).

OBSERVATION 6.1

> A custom installation selection may also be provided to allow the user more flexibility on installation.

RECOMMENDATION 6.1

> The user should be given the option to run the soft front panel, if one has been installed, after the installation is complete.

6.3 The Directory Structure

RULE 6.4

> **IF** a VXI*plug&play* instrument claims conformance to the WIN64 system framework, **THEN** its installation procedure **SHALL** query the registry item

HKEY_LOCAL_MACHINE\SOFTWARE\VXIPNP_Alliance\VXIPNP\CurrentVersion, Name: VXIPNPPATH for the installation directory. **IF** that registry entry does not exist, **THEN** the environment variable VXIPNPPATH64 **SHALL** be queried for the default installation directory. **IF** neither the registry item or the environment variable exists, **THEN** "$(PROGRAMFILES)\IVI Foundation\VISA" (for example C:\Program Files\IVI Foundation\VISA) **SHALL** be used.

OBSERVATION 6.2

The mechanism to determine the location where program files are installed is left up to the vendor.

OBSERVATION 6.3

On a 64-bit Windows system running Windows Vista or higher, the registry hive used depends on the application's target architecture. This is why no VXIPNPPATH64 registry entry is required, but a VXIPNPPATH64 environment variable is.

RECOMMENDATION 6.2

If a VXI*plug&play* instrument claims conformance to the WIN64 system framework, then its installation procedure should add the following entry into the registry: HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\App Paths\<instr_name>.exe, Name: (default) with Data: "[VXIPNPPATH]\WIN64\<instr_name>\<inst_name>.exe", and Name: Path with Data "[VXIPNPPATH]\WIN64\BIN".

RULE 6.5

If a VXIplug&play instrument claims conformance to the WIN64 system framework, then its installation procedure **SHALL** not modify the VXIPNPPATH registry variable. This value may be modified only by the VISA installation procedure or by the user by directly editing the registry item.

RULE 6.6

If a VXI*plug&play* instrument claims conformance to the WIN64 system framework, then its installation media **SHALL** offer the directory path [VXIPNPPATH]\WIN64\<inst_name> as the default installation path, where <inst_name> is the base name of the instrument driver as described in VPP-2 and VPP-3.1.

RULE 6.7

If a VXI*plug&play* instrument claims conformance to the WIN64 system framework, then its installation prodecure **SHALL** place all the required files and the optional `.sub` file in the instrument driver directory, except the instrument `.dll` file, which it **SHALL** place in the [VXIPNPPATH]\WIN64\BIN directory, and the instrument `.h` and `.bas` files, which it **SHALL** place in the [VXIPNPPATH]\WIN64\INCLUDE directory, and the Microsoft library file, which **SHALL** be placed in [VXIPNPPATH]\WIN64\lib_x64\MSC.

RULE 6.8

If a VXI*plug&play* instrument claims conformance to the WIN64 system framework, then it **SHALL** name all `.dll` files as `<inst_name>_64.dll`, where `<inst_name>` is the base name of the instrument driver as described in VPP-2 and VPP-3.1.

RULE 6.9

If a VXI*plug&play* auto-loaded child instrument driver claims conformance to the WIN64 system framework, then its installation procedure **SHALL** place all the required files in the [VXIPNPPATH]\ WIN64\SUPPORT\<prefix> directory, except the support `.dll` file, which it SHALL place in the [VXIPNPPATH]\WIN64\BIN directory, the support `.h` and `.bas` files, which it SHALL place in the [VXIPNPPATH]\WIN64\INCLUDE directory, and the Microsoft library file, which SHALL be placed in the [VXIPNPPATH]\WIN64\LIB\MSC.

6.4 The Required Files

The files required for a VXI*plug&play* installation are defined in VPP-2 and VPP-3.1.

The WIN64 framework installation media must install the following files:

- All files required for conformance with the WINNT framework.

- The Function Panel File (`.fp` file).

- ANSI C source files (`.h` and `.c` files).

- The MS-Windows 64-bit DLL (64.`dll` file).

- An MS C/C++ `.lib` file created from the `.dll`.

- Documentation in a widely accepted documentation file format, such as Portable Document Format (`.pdf`) or compiled HTML (`.chm`).

- An MS-Windows-based installation program.

The WIN64 framework installation disk may install the following optional files:

- The `.sub` file.
- An MS-Windows standalone 64-bit executable soft front panel.

- An MS-Windows group file that contains icons for the 64-bit soft front panel and help file.

RULE 6.10

If a VXI*plug&play* instrument claims conformance to the WIN64 system framework, then it **SHALL** also install the files necessary to conform with the WINNT system framework.

OBSERVATION 6.4

Due to the above rule, a WIN64-compliant driver is also a WINNT-compliant driver, and the installer for the WIN64-compliant driver must also install the WINNT driver.

RULE 6.11

If a VXI*plug&play* instrument claims conformance to the WIN64 system framework, then its installation media **SHALL** give the user the option during installation to create a group named VXIPNP and place icons for the soft front panel and the help documentation in that group. The soft front panel and help files **SHALL** be appropriately identified with the name of the instrument being installed (see VPP-2 and VPP-3.1 for naming conventions). The soft front panel name used in the group **SHALL** indicate that the executable is a 64-bit file.

RULE 6.12

If a VXI*plug&play* instrument claims conformance to the WIN64 system framework, then its installation media **SHALL** place all compressed or zipped files in their fully expanded form in the target installation directory.

RULE 6.13

If a VXI*plug&play* instrument claims conformance to the WIN64 system framework, then its installation media **SHALL** include any utilities required to convert compressed files into their expanded form.

PERMISSION 6.1

Files **MAY** be zipped or compressed to save space on the installation media, as long as all files are installed in their original uncompressed form.

RECOMMENDATION 6.3

It is recommended that additional files, besides the required files, be included in the WIN64 system framework distribution. This includes the following files:

- A makefile or equivalent for MS Visual C/C++ 8.0 or higher and a `.def` that allows the user to recreate the `64.dll` file.

- An uninstall application is highly recommended.

Section 7
Installation Requirements for the GWIN64 Framework

7.1 Introduction

This section describes the requirements for the installation media of the VXI*plug&play* GWIN64 system framework. Where appropriate, it references other documents and standards that specifically define these components.

7.2 The Installation Application

The user executes the installation application in order to install the instrument drivers, soft front panels, documentation, and other files defined in this section onto an IBM PC compatible computer.

RULE 7.1

> If a VXI*plug&play* instrument claims conformance to the GWIN64 system framework, then its installation media **SHALL** include an installation program that is a native MS-Windows application.

RULE 7.2

> If a VXI*plug&play* instrument claims conformance to the GWIN64 system framework, then its floppy disk or CD-ROM **SHALL** have an installation program named SETUP.EXE. *[Note that this name will collide with the installation program for WIN64. If you want to create a single distribution set for more than one of those frameworks you must create a single setup.exe that can automatically recognize the OS the installation has been executed in and perform the correct installation.]*

RULE 7.3

> If a VXI*plug&play* instrument claims conformance to the GWIN64 system framework, then its installation media **SHALL** provide a standard installation selection that places files in the standard LabVIEW location ([LabVIEW]\instr.lib\<*inst_name*>).

OBSERVATION 7.1

> A custom installation selection may also be provided to allow the user more flexibility on installation.

RECOMMENDATION 7.1

> The user should be given the option to run the soft front panel, if one has been installed, after the installation is complete. An uninstall application is highly recommended.

7.3 The Directory Structure

RULE 7.4

> If a VXI*plug&play* instrument claims conformance to the GWIN64 system framework, then its 32-bit installation procedure **SHALL** query one of the following registry items for the installation directory: LabVIEW 64-bit: HKEY_LOCAL_MACHINE\SOFTWARE\National Instruments\LabVIEW

LabVIEW 32-bit: HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\National
Instruments\LabVIEW
The 64-bit installation procedure **SHALL** query the registry item
HKEY_LOCAL_MACHINE\SOFTWARE\National Instruments\LabVIEW for the installation
directory.

OBSERVATION 7.2

It is left up to the vendor to decide whether to install the LabVIEW driver files into a specific
LabVIEW version(s) or into the current version of LabVIEW.

RULE 7.5

If a VXIplug&play instrument claims conformance to the GWIN64 system framework, then its
installation procedure **SHALL NOT** modify VXIPNPPATH64 registry variable. This value may only
be modified by the VISA installation procedure or by the user by directly editing registry item.

RULE 7.6

If a VXI*plug&play* instrument claims conformance to the GWIN64 system framework, then its
installation media **SHALL** offer the directory path `[LabVIEW]\instr.lib\<inst_name>` as
the default installation path, where `<inst_name>` is the base name of the instrument driver as
described *in VPP-2 and VPP-3.1.*

7.4 The Required Files

The files required for a VXI*plug&play* installation are defined in VPP-2 and VPP-3.1.

The following files must be installed by the GWIN64 framework installation media:

- An MS-Windows stand-alone executable soft front panel.

- LabVIEW driver files.

- Documentation in a widely accepted documentation file format, such as Portable Document Format (`.pdf`)
or compiled HTML (`.chm`).

- Optionally, an MS-Windows group file that contains icons for the soft front panel and the help file.

- An MS-Windows based installation program.

RULE 7.7

If a VXI*plug&play* instrument claims conformance to the GWIN64 system framework, then its
installation media **SHALL** give the user the option during installation to create a group named
`VXIPNP` and place icons for the soft front panel and the help documentation in that group. The soft
front panel and help files **SHALL** be appropriately identified with the name of the instrument being
installed (see VPP-2 and VPP-3.1 for naming conventions). The name of the soft front panel used in
the group **SHALL** indicate that the executable is a 64 bit file.

RULE 7.8

If a VXI*plug&play* instrument claims conformance to the GWIN64 system framework, then its
installation media **SHALL** place all compressed or zipped files in their fully expanded form in the
target installation directory.

RULE 7.9

If a VXI*plug&play* instrument claims conformance to the GWIN64 system framework, then its installation media **SHALL** include any utilities required to convert compressed files into their expanded form.

PERMISSION 7.1

Files **MAY** be zipped or compressed to save space on the installation media, as long as all files are installed in their original uncompressed form.

Section 8
Installation Requirements for VISA

8.1 Introduction

This section describes the requirements for the installation media for VISA. Where appropriate, it references other documents and standards that specifically define these components.

8.2 The Installation Application

The user executes the installation application in order to install the required VXI*plug&play* files defined in this section onto a VXIplug&play compliant computer.

RULE 8.1

> If a VISA implementation claims conformance to the VXI*plug&play* specification, then its installation media **SHALL** identify the system frameworks that the install program is compatable with.

RULE 8.2

> If a VISA implementation claims conformance to the VXI*plug&play* specification, then its installation media **SHALL** use the same naming convention for the installation program that is defined in the system framework the install program is compatable with.

RULE 8.3

> If a VISA implementation claimsconformance to the VXI*plug&play* specification, then its installation process **SHALL** create the default directory structure as described in section 3.5 of this document if it does not already exist.

RULE 8.4

A VISA installer **SHALL** create the kbase directory inside of the VXI*plug&play* directory. This is for backward compatibility for instrument drivers that continue to distribute .kb files that are no longer required by this specification

OBSERVATION 8.1

> A custom installation selection may also be provided to allow the user more flexibility on installation.

PERMISSION 8.1

> An installation media may support more than one framework on a computer platform.

8.3 Framework-Specific Installation Requirements

The files required for a VXI*plug&play* VISA installation media are defined in VPP-2. This section lists those files, but the description and justification for the inclusion of the files is found in VPP-2.

8.3.1 WINNT Framework

RULE 8.5

> If a VISA implementation claims conformance to the WINNT system framework, then its installation procedure **SHALL** query the environment variable VPNPPATH and the VXIPNPPATH registry entry for the default installation directory. If neither of these exists then the default installation directory **SHALL** be "$(PROGRAMFILES)\IVI Foundation\VISA" (for example C:\Program Files\IVI Foundation\VISA).

OBSERVATION 8.2

> The mechanism to determine the location where Program Files are installed is left up to the vendor

RULE 8.6

> If a VISA implementation claims conformance to the WINNT system framework, then its installation procedure **SHALL** allow the user the option to change the default path (VXIPNPPATH). This change **SHALL** be reflected in the registry item VXIPNPPATH. The installation prorgam **SHALL** try to modify the environment variable VPNPPATH defined in AUTOEXEC.BAT and the equivalent entry in the win.ini file to a subportion of the altered VXIPNPPATH variable if possible. Some user changes to VXIPNPPATH may not be compatiable with the VPNPPATH, the install program **SHALL** inform the user of the incompatiblity and allow the user to back out the requested change if they chose.

- The header files visa.h, visatype.h, and vpptype.h must be placed in the directory [VXIPNPPATH]\WINNT\INCLUDE.

- A MSC library file for connecting to the visa32.dll must be placed in the directory [VXIPNPPATH]\WINNT\LIB\MSC. A Borland C/C++ library file for connecting to the visa32.dll must be placed in the directory [VXIPNPPATH]\WINNT\LIB\BC. The 64-bit MSC library file for connecting to visa64.dll must be placed in the directory [VXIPNPPATH]\WINNT\lib_x64\MSC.

- The file visa32.dll will be placed in the Windows system directory.

- The file visa32.bas which contains the a 32bit version of Visual Basic bindings will be placed in [VXIPNPPATH]\WINNT\INCLUDE.

RULE 8.7

> On Windows Vista or higher, a VISA implementation installer **SHALL** adhere to the following additional rules:
>
> 1. If the installer is invoked in dialog mode without admin privileges, the installer **SHALL** prompt for elevation. If the installer is invoked in silent mode without admin privileges, a failure condition exists and the installer **SHALL** abort.
>
> 2. The installer **SHALL** set the attributes of the VXIplug&play directory to disable virtualization and allow modification without admin privileges. (This is an interim solution that will be reverted when the IVI Foundation specifies a revised directory structure that avoids placing writable files in the Program Files directory. Therefore, drivers and applications should not rely on users having write access to the VXIplug&play directory.)

3. The installer **SHALL NOT** install 32-bit shared components in the ProgramFilesDir for 64-bit applications on 64-bit versions of the operating system. If the user specifies a directory that would result in 32-bit shared components being installed in the ProgramFilesDir for 64-bit applications, the installer **SHALL** redirect the path to the 32-bit ProgramFilesDir.

8.3.2 GWINNT Framework

*   The file visa32.dll will be placed in the Windows system directory.

8.3.3 WIN64 Framework

A new feature added for the WIN64 framework is the ability to install multiple vendors' VISA libraries onto the same system. Accomplishing this required the creation of a new shared component that accesses vendor-specific VISA libraries based on user settings. Details about this shared component can be found in *VPP-4.3.5, VISA Shared Components*.

RULE 8.8

If a VISA implementation claims conformance to the WIN64 system framework, then its installation procedure **SHALL** ensure that the 64-bit shared VISA components are installed. If the components are not installed, then the vendor specific installer **SHALL** execute the shared component installer.

RULE 8.9

If a VISA implementation claims conformance to the WIN64 system framework, then its installation procedure **SHALL** install files so that it also conforms to the WINNT system framework.

RULE 8.10

IF a VISA implementation claims conformance to the WIN64 system framework, **THEN** its installation procedure **SHALL** query the VXIPNPPATH registry entry for the default installation directory. **IF** neither of these exist, **THEN** the default installation directory **SHALL** be "$(PROGRAMFILES)\IVI Foundation\VISA" (for example, C:\Program Files\IVI Foundation\VISA).

OBSERVATION 8.3

The mechanism to determine the location where program files are installed is left up to the vendor.

RULE 8.11

A vendor-specific VISA installer **SHALL NOT** install 64-bit binaries into a folder set to hold 32-bit files or 32-bit binaries into a folder set to hold 64-bit files.

OBSERVATION 8.4

The VISA shared component installer will not install files to a directory set to hold files of another bit size.

RULE 8.12

If a VISA implementation claims conformance to the WIN64 system framework, then its installation procedure **SHALL** allow the user the option to change the default path (VXIPNPPATH). This change **SHALL** be reflected in the registry item VXIPNPPATH.

*   The header files `visa.h`, `visatype.h`, and `vpptype.h` must be placed in the directory [VXIPNPPATH]\WIN64\INCLUDE.

OBSERVATION 8.5

The shared VISA component provides library files for linking to `visa64.dll`.

PERMISSION 8.2

A vendor-specific installer **MAY** provide header and/or library files for use with the vendor-specific VISA implementation.

RULE 8.13

A vendor-specfic WIN64 VISA library **SHALL NOT** be named `visa64.dll`.

RECOMMENDATION 8.1

A vendor-specfic WIN64 VISA library should be named with the vendor's two-letter vendor abbreviation followed by "visa" and then the file extension (`.dll`).

RULE 8.14

IF a VISA implementation claims conformance to the WIN64 system framework, **THEN** its VISA library **SHALL** have a properly generated UUID associated with it.

RULE 8.15

IF a VISA implementation claims conformance to the WIN64 system framework, **THEN** a VISA C and VISA COM utilizing the same underlying driver **SHALL** use the same UUID.

RULE 8.16

IF a VISA implementation claims conformance to the WIN64 system framework, **THEN** a conforming registry entry **SHALL** be created to enumerate the existence of the vendor's VISA library. This registry entry **SHALL** be removed if the vendor-specific component is removed from the system.

- A registry entry must be created for the newly installed VISA library. This new registry key must conform to the following details:

  - The new registry key must be a subkey of HKEY_LOCAL_MACHINE\Software\VXIPNP_Alliance\VISA_Installs\Current_Version.

  - The name of the new subkey must be the UUID of the vendor-specific VISA library.

RULE 8.17

The vendor-specific VISA installer **SHALL** check for the existence of the HKEY_LOCAL_MACHINE\Software\VXIPNP_Alliance\VISA_Installs\Current_Version registry key, because the shared component installation owns this key. If this key does not exist, a failure condition exists, and the installer **SHALL** abort.

OBSERVATION 8.6

This implies that the shared component installer must run before the vendor-specific component installer.

- The created key for the new VISA library must contain the following fields:

  - A REG_SZ named "Location" that contains the absolute path the the vendor's VISA library.

  - A REG_SZ named "FriendlyName" that contains the name of the vendor-specific library to possibly be displayed to end users.

  - A REG_SZ named "Comments" containing any comments for the vendor-specific VISA.

  - A REG_DWORD named "VendorID" containing the vendor's assigned vendorID.

RULE 8.18

On Windows Vista or higher, a VISA implementation installer **SHALL** adhere to the following additional rules:

- If the installer is invoked in dialog mode without admin privileges, the installer **SHALL** prompt for elevation. If the installer is invoked in silent mode without admin privileges, a failure condition exists, and the installer **SHALL** abort.

- The installer **SHALL** set the attributes of the VXIplug&play directory to allow modification without admin privileges. (This is an interim solution that will be reverted when the IVI Foundation specifies a revised directory structure that avoids placing writable files in the Program Files directory. Therefore, drivers and applications should not rely on users having write access to the VXIplug&play directory.)

8.3.4 GWIN64 Framework

NOTE: The definition of instrument drivers for the GWIN64 framework is not complete. The IVI Foundation will incorporate this definition into a future version of this document.

Section 9

Installation Requirements for System Controllers and Mainframes

9.1 Introduction

This section describes the requirements for the installation media for VXI devices that are not instruments. Where appropriate, it references other documents and standards that specifically define these components.

9.2 The Installation Application

The user executes the installation application in order to install the required VXI*plug&play* files defined in this section onto an IBM PC compatible computer for a VXI System Controller or VXI mainframe.

RULE 9.1

If a VXI System Controller or VXI mainframe claims conformance to the VXI*plug&play* specification, then its installation media **SHALL** identify the system framework that the install program is compatable with.

RULE 9.2

If a VXI System Controller or VXI mainframe claims conformance to the VXI*plug&play* specification, then its installation media **SHALL** use the same naming convention for the installation program that is defined in the system framework the install program is compatable with.

OBSERVATION 9.1

A custom installation selection may also be provided to allow the user more flexibility on installation.

9.3 The Required Files

The files required for a VXI*plug&play* installation media are defined in VPP-2. This section lists those files, but the description and justification for the inclusion of the files is found in VPP-2 and VPP-3.

The following files must be installed by the VXI*plug&play* installation for VXI System Controllers and VXI mainframes:

- Documentation in the form required by the system framework that the installation program claims conformance.

- An installation program that is compatable with the system framework that the installation program claims conformance.

RULE 9.3

If a VXI System Controller or VXI mainframe claims conformance to the VXI*plug&play* specification, it **SHALL** place all compressed or zipped files in their fully expanded form in the target installation directory.

RULE 9.4

If a VXI System Controller or VXI mainframe claims conformance to the VXI*plug&play* specification, it **SHALL** include any utilities required to convert compressed files into their expanded form.

PERMISSION 9.1

Files **MAY** be zipped or compressed to save space on the installation media, as long as all files are installed in their original uncompressed form.

Section 10
Packaging

10.1 Introduction

This section describes the rules that a VXI instrument, an instrument driver distribution disk, and instrument drivers in electronic form must follow to claim VXI*plug&play* compliance. It also describes the information that must be displayed on the labels for each set of distribution disks.

10.2 Definition of VXI*plug&play* Compliance

10.2.1 Instrument Cards

OBSERVATION 10.1

For a VXI instrument to claim VXI*plug&play* compliance, it must meet all of the requirements described as rules in the VXI*plug&play* documentation.

10.2.2 Distribution Disks

PERMISSION 10.1

More than one VXI*plug&play* framework **MAY** be distributed on a single distribution set, provided that the label indicates the VXI*plug&play* frameworks supported, and that the user may choose to ignore one or more of the frameworks in the install program.

10.2.3 Optical Storage Disc Distributions

Multiple drivers and/or VXI*plug&play* frameworks **MAY** be distributed on a single CD-ROM or DVD.

RULE 10.1

An optical storage disc driverdriver distribution for the WINNT or GWINNT frameworks **SHALL** contain an installable disk image for each instrument driver available for that framework**.** This is so that the user can copy the installation proceed onto floppy disk(s) if their VXI controller doesn't have the capability to read a CD-ROM or a DVD.

PERMISSION 10.2

Other installation procedures **MAY** be used, however they are in addition to installation process required by rule 16.1. Other information **MAY** be placed on the VXI*plug&play* distribution media besides just the instrument drivers. Instrument drivers for multiple frameworks may also be placed on the same CD-ROM or DVD. The optical storage disc may be identified using the VXI*plug&play* logo**.**

10.3 Electronic Distribution

RULE 10.2

>   If an instrument driver intended for electronic distribution claims VXI*plug&play* conformance, it **SHALL** be delivered with all the files found on the VXI*plug&play* compliant distribution disk(s), and the company responsible for support and maintenance of the electronic distribution **SHALL** be registered with the VXI*plug&play* technical support subcommittee, and there **SHALL** be an additional text file included with the driver distribution that contains the same information that would have been found on the label of a VXI*plug&play* compliant distribution disk.

10.4 Media Labeling

10.4.1 VXI Devices

RULE 10.3

>   If a VXI device claims VXI*plug&play* conformance, the distribution media **SHALL** have a label with the following information:

>   The software supplier's logo and the VPP logo.

>   The manufacturer (if different from the software supplier), device model number, and description. This line may be split into two or more lines for installation disks that install several instruments of the same family.

>   The framework name followed by "[System] Framework" (omitted for VXI device category 1 and 3 components).

>   "Disk 1 of *n*," where *n* is the total number of disks in the distribution.

>   The first disk gives instructions for launching the setup program appropriate for the framework.

>   The instrument driver revision number (omitted for VXI device category 1 and 3 components).

>   The framework revision number (on left, omitted for VXI device category 1 and 3 components), and optionally a date (on right).

>   In addition to the the lines of the label there are label areas reserved for the vendor. The vendor may use these areas for whatever purpose they deem necessary. These areas are found at the top and bottom of the label.

RULE 10.4

>   If the distribution media is an optical storage disc and multiple devices are supported, the disc label **SHALL** indicate the location and name of a file that documents all devices supported.

10.4.2 VXI Software

RULE 10.5

If a VXI software product claims VXI*plug&play* conformance, the distribution media **SHALL** have a label with the following information:

The software supplier's logo (upper left corner) and the VPP logo (upper right corner).

The manufacturer (if different from the software supplier), the name and description of the software.

The framework name followed by "[System] Framework" (if applicable).

"Disk 1 of *n*," where *n* is the total number of floppy disks, CD's or DVD's in the distribution.

On this line, the first disk gives instructions for launching the setup program appropriate for the framework.

The software revision number.

The framework revision number (if applicable), and optionally a date (on right).

In addition to the the lines of the label there are label areas reserved for the vendor. The vendor may use these areas for whatever purpose they deem necessary. These areas are found at the top and bottom of the label.