RELEASE NOTES

NI TestStand™

Version 2013

These release notes contain NI TestStand 2013 system requirements, installation instructions, information about new features, and other changes since TestStand 2012 SP1.

Contents

Getting Started

The best way to familiarize yourself with TestStand is to explore the *Guide to TestStand Documentation* topic in the *NI TestStand Help*, which contains links to all the TestStand documentation in electronic format. You can access the *NI TestStand Help* in the following ways:

- Select **Help**»**NI TestStand Help** in the TestStand Sequence Editor.
- **(Windows 8)** Click the **NI Launcher** tile on the Start screen and select **TestStand**»**Documentation**»**TestStand Help**.
- **(Windows 7 or earlier)** Select **Start**»**All Programs**»**National Instruments**»**TestStand**»**Documentation**»**TestStand Help**.

Software Requirements

Refer to the following sections for information about the software National Instruments requires or supports for use with TestStand 2013.

Recommended System Requirements

National Instruments recommends the system requirements described in the following table to run TestStand 2013.

Table 1. Recommended and Minimum System Requirements

Requirement	Recommended	Minimum
Processor	Pentium 4/M or equivalent	Pentium III, 1 GHz or equivalent
Memory	2 GB	512 MB
Disk space for TestStand	1 GB	—
Disk space for Microsoft .NET Framework version 4.0, if not already installed	2 GB	—
Disk space for device drivers from the National Instruments Device Drivers DVD	Amount of space required varies depending on the drivers you install. Install only the drivers necessary for the hardware you will use.	—
Video adapter	—	1024 x 768 resolution

Supported Microsoft Windows Operating Systems and Recommended Service Packs

Use the Microsoft Windows operating systems and service packs described in the following table with TestStand 2013.

Table 2. Supported Microsoft Windows Operating Systems

Operating System	Recommended Service Pack	Required Service Pack	Comments
Windows 8 (32- and 64-bit)	—	—	Refer to the *How to Use NI Software with Microsoft Windows 8* section of the *TestStand 2013 Readme* for more information about using TestStand on Windows 8.
Windows 7 (32- and 64-bit) Starter, Professional, Enterprise, or Ultimate	Service Pack 1	—	Refer to the *TestStand and Windows 7/Vista* section of the *NI TestStand Version 2012 Release Notes* for more information about using TestStand on Windows 7/ Vista. Visit ni.com/info and enter the Info Code exgmjr to locate the *NI TestStand 2012 Release Notes*.
Windows Vista (32- and 64-bit) Business, Enterprise, or Ultimate	Service Pack 2	Service Pack 1	
Windows XP (32-bit) Professional	—	Service Pack 3	—
Windows Server 2008 R2 (64-bit)	—	Service Pack 2	TestStand supports only R2 editions of Windows Server.
Windows Server 2003 R2 (32-bit)	—	Service Pack 2	

Supported Microsoft Software

Use the following Microsoft software with TestStand 2013:
- Microsoft Internet Explorer 10, 9, 8, or 7
- Microsoft Visual Studio 2012, 2010, or 2008. Visual Studio 2005 is allowed but not supported.
- Microsoft .NET Framework 4.5 or 4.0

TestStand includes features that automate Visual Studio for debugging, generating, and editing code module source code. Visual Studio Express Editions do not support these features.

The .NET and Microsoft Foundation Class (MFC) examples include projects and solutions created in Visual Studio 2008.

Supported National Instruments ADEs

Use the National Instruments application development environments (ADEs) described in the following table with TestStand 2013:

Table 3. Supported National Instruments ADEs

ADE	Supported	Allowed but Not Supported	Comments
LabVIEW	2013, 2012 SP1, 2011 SP1, or 2010 SP1	2012, 2011, 2010, 2009 SP1, 2009, 8.6.1, or 8.6	LabVIEW examples and user interfaces use files created with LabVIEW 2010 SP1. TestStand API support files for LabVIEW use files saved with LabVIEW 8.6.1. LabVIEW 2013 is required for LabVIEW Property Node call support. LabVIEW 2012 or later is required for directly calling LabVIEW classes from TestStand. Visit ni.com/info and enter the Info Code tslv64 for information about LabVIEW 64-bit compatibility with TestStand.
LabWindows/CVI	2013, 2012 SP1, 2010 SP1, and 2009 SP1	2012, 2010, 2009, and 9.0.1	LabWindows/CVI examples, user interfaces, and API use files created with LabWindows/CVI 2009 SP1.
Measurement Studio	2013, 2012, 2010, or 2009	8.6.1	Measurement Studio 2010 or later no longer includes C++ MFC classes the TestStand C/C++ DLL Adapter previously supported.

TestStand can execute code modules developed with versions of ADEs other than the listed supported versions, but National Instruments performs only limited testing with earlier versions of ADEs. TestStand might be able to execute code modules developed with versions of ADEs later than the listed supported versions, but National Instruments cannot ensure support for versions released after TestStand 2013. Visit ni.com/info and enter the Info Code tslcp for more information about the TestStand life cycle policy.

Recommended Database Client Software

Use the following recommended database client software with the database components included with TestStand:

- **Microsoft Access**—Use the Microsoft Jet 4.0 Object Linking and Embedding Database (OLE DB) Provider.
- **Microsoft SQL Server**—Use the SQL Server Native Client or the Microsoft OLE DB Provider for SQL Server provider.

- **Oracle**—Use the latest Oracle Provider for OLE DB and Oracle Client software. You can download the Oracle Provider from the Oracle website at `www.oracle.com`.

> **Note** National Instruments does not recommend using the Microsoft OLE DB Provider for Oracle because it does not support all the OLE DB features TestStand requires.

> **Note** Oracle recommends using Oracle Provider 11.1.0.6.0 or later if you want to read 64-bit integer values stored in NUMBER columns.

- **MySQL**—Use the MySQL Open Database Connectivity (ODBC) Driver 3.51 or later.
- **Sybase SQL Anywhere**—Use the Adaptive Server Anywhere ODBC Driver 9.0 or later.

Refer to the *NI TestStand Help* for information about suggested database client software providers, versions of Open Database Connectivity (ODBC) drivers, and client DBMS software.

Activating TestStand Licenses

After you install TestStand, you must use the NI Activation Wizard to activate the software or initiate the evaluation period for the software. You must have the serial number and the name of the software kit to activate TestStand. You can find both of these items on the Certificate of Ownership card included in your software kit. Refer to the *Activating Your Software* topic in the *NI TestStand Help* for more information about how to activate TestStand.

National Instruments offers a variety of licenses for the different ways you can use TestStand in development and deployment applications. You can select from the following types of licenses:

- TestStand Development System License
- TestStand Custom Sequence Editor License
- TestStand Debug Deployment Environment License
- TestStand Base Deployment Engine License

In most cases, when you first install TestStand, you activate a TestStand Development System License. Use the other licenses to activate TestStand on computers to which you deploy TestStand custom sequence editors or user interfaces you develop.

Contact a local National Instruments representative for more information or for questions about specific licensing needs.

> **Note** If you upgrade TestStand with a service pack release by installing TestStand or a deployment that includes the TestStand Engine, the TestStand Engine on the computer becomes unlicensed. You must reactivate the license on the computer. A TestStand Development System License or a Debug Deployment Environment License must be current with the Standard Service Program (SSP) to reactivate a service pack license. You can reactivate a Custom Sequence Editor License for a service pack upgrade, even if the SSP for the original license lapsed. A TestStand Base Deployment License does not require SSP to reactivate a service pack license.

Refer to the *Licensing Options for TestStand Systems* section of Chapter 1, *Introduction to TestStand*, of the *Getting Started with TestStand* manual for information about how to use the

available licenses when you build a TestStand-based test solution. Use the following descriptions only as a reference for the licensing options. Visit `ni.com/activate` for more information about activating TestStand licenses. Visit `ni.com/teststand` to purchase a TestStand license.

> **Note** This document does not replace the National Instruments Software License Agreement installed in the `<Program Files>\National Instruments \Shared\MDF\Legal\license\NIReleased` directory.

TestStand Evaluation Package

When you run TestStand in Evaluation Mode, the software expires after 7 days. You can generate a User Profile at `ni.com` to extend the evaluation period for an additional 45 days.

The Evaluation Mode software runs as a fully functional TestStand Development System during the evaluation period. You can activate a license at any point during or after the evaluation period.

TestStand Development System License (777777-09)

Activate the TestStand Development System License to develop and edit test sequences and to save sequence files within the TestStand Sequence Editor, within a TestStand custom sequence editor, or programmatically using the TestStand API. This license also grants the ability to develop custom sequence editors and operator interfaces. You must have an `ni.com` User Profile to activate a TestStand Development System license.

TestStand Custom Sequence Editor License (777775-01)

Activate the TestStand Custom Sequence Editor License to develop and edit test sequences and sequence files within a custom sequence editor or programmatically using the TestStand API.

TestStand Debug Deployment Environment License (779851-09)

The TestStand Debug Deployment Environment License offers the most flexibility for deploying TestStand and LabVIEW-based, LabWindows/CVI-based, and Measurement Studio-based systems.

Activate this license to install the development versions of TestStand, LabVIEW, LabWindows/CVI, Measurement Studio, and any corresponding add-on toolkits on a single test station so you can debug deployed test applications on the test station. This license grants the ability to make minor edits to fix bugs in deployed test applications but does not grant the ability to perform any development tasks using TestStand, LabVIEW, LabWindows/CVI, or Measurement Studio on the test station.

You cannot activate and deactivate the TestStand Debug Deployment Environment License and reuse it on multiple computers. If you need to use a single debug license across multiple computers, contact National Instruments for more information about the Concurrent TestStand Debug Deployment Environment License.

TestStand Base Deployment Engine License (777774-03)

The TestStand Base Deployment Engine License is the minimum license required for all deployed TestStand-based applications. Activate this license to deploy the TestStand Engine, a TestStand Operator Interface, and sequence files to the single test station to which the license applies. This license does not grant the ability to perform any development tasks using the TestStand Sequence Editor, a TestStand custom sequence editor, or the TestStand API.

Installation Instructions

Unless you specify another location during installation, the TestStand installer copies core files to `<Program Files>\National Instruments\TestStand 2013`.

Note You cannot install TestStand to a network path or a mapped network path. You must install TestStand on a local computer.

National Instruments recommends exiting all programs before running the TestStand installer. Applications that run in the background, such as virus scanning utilities, might cause the installer to take longer than necessary to complete.

Complete the following steps to install TestStand.

1. Log on as an administrator or as a user with administrator privileges.
2. Insert the TestStand installation media and follow the instructions that appear on the screen.

   National Instruments recommends installing the complete TestStand program. If you perform a custom installation and do not install all the TestStand features, you can run the installation program again later to install additional features.

   Note If you do not install some TestStand features and then you later use the standard Windows Control Panel facility for adding and removing programs to install the features, the features might not correctly register, and TestStand will display a COM error the next time you launch TestStand. This error occurs even if you restart the computer after you use the Windows Control Panel to install the features. National Instruments recommends that you reactivate TestStand using the TestStand Version Selector after you install the features.

Installing Additional Software Components

Note TestStand includes the device driver software on a DVD. If you require device driver software on CDs, visit `ni.com/info` and enter the Info Code `drivercd`.

TestStand installs the following additonal software components:
- .NET Framework 4.0
- LabVIEW 2012 SP1 Run-Time Engine (RTE) and LabVIEW 2010 SP1 RTE

- LabWindows/CVI 2013 RTE
- LabWindows/CVI SQL Toolkit DLL version 2.2, `cvidb32.dll`
- National Instruments Session Manager
- NI Update Service
- NI License Manager
- TestStand Version Selector

> **Note** TestStand can use newer versions of the LabVIEW RTE when you install LabVIEW on a development system. You can include newer versions of the LabVIEW RTE in deployments using the Drivers and Components dialog box of the TestStand Deployment Utility. Refer to the *NI TestStand Help* for more information about the Drivers and Components dialog box.

The National Instruments Device Driver DVD contains the following suggested components:
- National Instruments Measurement & Automation Explorer (MAX)
- Interchangeable Virtual Instrument (IVI) Compliance Package (ICP)

To use IVI, download and install IVI-compliant drivers from the Instrument Driver Network, located at `ni.com/devzone/idnet`.

Installing Multiple Versions of TestStand on the Same Computer

You can install TestStand 2013 on a computer that contains a previous TestStand version, but you cannot install TestStand 2013 over a previous TestStand version. You cannot install TestStand 2013 in the default installation directory for a previous version of TestStand. For example, TestStand 2013 does not install in `<Program Files>\National Instruments \TestStand 2012 SP1`. If you installed a previous version of TestStand in a non-default directory, you can uninstall the previous version of TestStand and install TestStand 2013 to that directory.

Related Information

Using the TestStand Version Selector

> **Note** If you installed the Beta version of TestStand 2013, navigate to the standard Windows Control Panel facility for adding and removing programs and select **National Instruments Software** to uninstall the beta versions of the TestStand Version Selector and NI TestStand Service before installing the released version of TestStand 2013.

The TestStand Version Selector application indicates the active version of TestStand and can activate a different version of TestStand. Although you can install more than one version of TestStand on a computer, only one version of TestStand can be active and can run at a time. If you must install the current version of TestStand on the same computer as a previous version, use the TestStand Version Selector to specify the active version.

The TestStand Version Selector application, `TSVerSelect.exe`, is located in the `<Program Files>\National Instruments\Shared\TestStand Version Selector` directory. You can launch the TestStand Version Selector in the following ways:

- **(Windows 8)** Click the **NI Launcher** tile on the Start screen and select **TestStand**»**TestStand Version Selector**.
- **(Windows 7 or earlier)** Select **Start**»**All Programs**»**National Instruments**»**TestStand**»**TestStand Version Selector**.

If you activate TestStand 2013 and run a TestStand User Interface from the previous TestStand version, the user interface uses the TestStand 2013 Engine, step types, and components. If you activate the previous TestStand version and run a TestStand 2013 User Interface or the sequence editor, those applications do not function correctly.

📝 **Note** The TestStand Version Selector does not typically require administrator privileges to activate a specific version of TestStand on Microsoft Windows 8/7/Vista. To require administrator privileges for using the TestStand Version Selector, add the `/reqadmin` command-line option to the selector shortcut.

Refer to the *NI TestStand Help* for more information about using the TestStand Version Selector.

Upgrading TestStand 2013 Beta to TestStand 2013

You must uninstall TestStand 2013 Beta before you install TestStand 2013. When you uninstall TestStand 2013 Beta, the user interface files remain in the `<TestStand Public>\UserInterfaces` directory. Installing TestStand 2013 does not overwrite these files.

Because the C# and Microsoft Visual Basic .NET user interface executables are strongly bound to the specific assemblies that TestStand 2013 Beta uninstalls, you cannot run the C# or Visual Basic .NET user interface executables after you install TestStand 2013. To work around this issue, remove the C# and Visual Basic .NET user interfaces before you install TestStand 2013 so TestStand 2013 installs the new user interfaces in the `<TestStand Public>\UserInterfaces` directory. Alternatively, rebuild the C# and Visual Basic .NET user interfaces after you install TestStand 2013.

Complete the following steps to successfully uninstall TestStand 2013 Beta and remove the user interface files in the `<TestStand Public>\UserInterfaces` directory before you install TestStand 2013.

1. Navigate to the standard Windows Control Panel facility for adding and removing programs and run the TestStand 2013 Beta and TestStand 2013 Beta Version Selector uninstallers.
2. Navigate to the TestStand 2013 `<TestStand Public>` directory and delete the `UserInterfaces` directory.
3. Install TestStand 2013.

Migrating to the Current Version of TestStand

If you are upgrading from TestStand 2010 or later, you can use the TestStand Migration Utility to migrate customizations and configuration settings from the earlier version of TestStand. You can also upgrade manually. Visit ni.com/info and enter the Info Code tsmigrate for more information about migrating to the current version of TestStand, including information about tasks you need to perform to upgrade manually from TestStand 4.2.1 or earlier.

Migrating from TestStand 2010 or Later Using the TestStand Migration Utility

Complete the following steps to use the TestStand Migration Utility to copy settings, configuration, and public component files from the directories of TestStand 2010 or later to the current version of TestStand.

1. Launch the TestStand Migration Utility.

Platform	Description
Windows 8	Click the **NI Launcher** tile on the Start screen and select **TestStand»Tools»Compatibility»TestStand Migration Utility**.
Windows 7 or earlier	Select **Start»All Programs»National Instruments»TestStand» Tools»Compatibility»TestStand Migration Utility**.

   If you have more than one version of TestStand installed on the computer, the utility launches a dialog box in which you can specify the previous version of TestStand from which you want to migrate.

   📝 **Note** When you migrate from TestStand 2010 SP1 or TestStand 2010 to the current version of TestStand, the utility migrates the report and database options to the format for result processing configuration options for the current version of TestStand. Refer to the the *NI TestStand Help* for more information about the using the TestStand Migration Utility. Visit ni.com/info and enter the Info Code tsmigrate for more information about using the utility to migrate result processing configuration options.

2. Select the previous version of TestStand.

   The utility checks the computer for all the files you can migrate to determine whether the files have changed since installation. The utility launches a status indicator dialog box during this process. When the utility finishes checking the files for changes, the utility main window launches.

3. Use the **Files to Copy** control to select the files you want to copy.

   By default, the utility selects files you added or modified in the previous version of TestStand.

4. Expand the directories in the Files to Copy control to view the files you can migrate and whether those files have changed since installation.

The Conflicts column includes any conflicts that might affect the migration of the files you specify.

📝 **Note** The utility overwrites any file you create or modify in the current version of TestStand if the file also exists in the corresponding directory of the previous version of TestStand and if you select the file in the Files to Copy control. Although the utility creates a backup copy of all overwritten files, verify that the utility will not overwrite any files you intend to keep in the version of TestStand to which you are migrating.

5. Click **Migrate Files** to begin the migration.

When the migration completes successfully, the utility generates a text file report that contains the results of the migration, including where the utility stored the file backups and which files were moved.

📝 **Note** Consider the following behavior when using the TestStand Migration Utility:

- The utility only moves files and does not update any other information or settings, such as registry keys.
- If the `<TestStand Public>\Components` directory of the previous version of TestStand includes files installed by an installer other than the TestStand installer, you might need to use that specific installer to move the files for the files to function and uninstall properly from the `<TestStand Public>\Components` directory of TestStand 2013. National Instruments recommends that you use an installer that targets TestStand 2013 to install any such components instead of using the utility to copy the components. However, some installed components can function properly when copied to another directory and are safe to migrate with the utility.

Migrating TestStand 2010 SP1 or Earlier Result Processing Options to the Current Version of TestStand

The TestStand 2012 or later process models include significant changes to implement a plug-in architecture for model sequence files. TestStand 2012 or later uses the plug-in mechanism to decouple result processing from the process models. As part of this change, the result processing options move from the `TestStandModelReportOptions.ini` and `TestStandDatabaseOptions.ini` files into a single `ResultProcessing.cfg` file, located in the `<TestStand Application Data>\Cfg` directory, that stores configuration information for all result processing model plug-ins.

The result processing options files from TestStand 2010 SP1 or earlier are not compatible with TestStand 2012 or later process models. Refer to the *Process Model Result Processing Plug-in Architecture* section of the *TestStand 2012 New Features* topic in the *NI TestStand Help* for more information about the TestStand 2012 or later process models. Refer to the *Using the Legacy Model Switcher Tool* section of the *TestStand 2012 New Features* topic in the *NI TestStand Help* for more information about using the Legacy Model Switcher tool to use the equivalent legacy TestStand 2010 process models.

The following table describes the migration actions you can select in the TestStand Migration Utility to migrate the result processing configuration options from TestStand 2010 SP1 or earlier to the current version of TestStand.

> **Note** The utility does not support migrating the configuration files from TestStand 2010 SP1 or earlier if you modified the ReportOptions or DatabaseOptions data types defined in the default process models.

Table 4. Migration Actions

Migration Action	Description
Apply to new models	Creates a new configuration in a configuration set named **Migrated from TestStand <*Version*>**. The utility automatically selects a unique name for the configuration if the utility has already used the default name in a previously completed migration. Refer to the migration report for the specific configuration names the utility uses.
Apply to legacy models	Copies the options files from TestStand 2010 SP1 or earlier to the current TestStand directory so you can use the previous configurations with the equivalent legacy TestStand 2010 process models in the current version of TestStand. When you migrate database options, the utility renames `TestStandDatabaseOptions.ini` to `TestStandDatabaseSchemas.ini`.
Apply to new and legacy models	Adds a new configuration in the **Migrated from TestStand <*Version*>** configuration set and copies the options files from a previous version of TestStand.

If you are upgrading from TestStand 4.2.1 or earlier, you can manually migrate result processing options for use with TestStand 2012 or later process models or the equivalent legacy TestStand 2010 process models. Visit `ni.com/info` and enter Info Code `tsmigrate` for more information about manually migrating result processing options to TestStand 2013.

Behavior Changes in TestStand 2013

TestStand introduces the following behavior changes in version 2013:

> **Note** Refer to the *NI TestStand Help* for more information about behavior changes between earlier versions of TestStand.

- In TestStand 2013, the LabWindows/CVI Adapter no longer supports calling `.lib`, `.obj`, and `.c` code modules. The LabWindows/CVI Adapter supports calling only `.dll` code modules. If you have a sequence that contains a step that calls a `.lib`, `.obj`, or `.c` code module, you must build that code module into a DLL and then reconfigure the step to call the DLL.
- When comparing floating-point numbers for equality, TestStand uses approximately 14 digits of precision. In earlier versions of TestStand, if the two numbers differed near the 14th digit, the equality comparison could return different results depending on which

value was on the right-hand side of the comparison and which was on the left-hand side. TestStand 2013 returns the same result regardless of which side of the comparison the values are on.

In addition, in earlier versions of TestStand, $0.0 == x$ would evaluate to TRUE if x was approximately 1e-14 or smaller, but $x == 0.0$ would evaluate to FALSE unless x was exactly 0.0. In TestStand 2013, a value of 0.0 is equal to another value only if the other value is exactly 0.0, regardless of the comparison order.

- The <TestStand Public> directory is now located higher in the list of search directories module adapters use to resolve relative paths of code modules for steps and substeps in step types and to locate code modules when executing steps. Refer to the *NI TestStand Help* for the full list of search directories, in order of precedence.

- In TestStand 2013, when a .NET code module returns an error, TestStand now uses the HResult value for the error code that TestStand reports. In previous versions, TestStand always reported the error code as −17500, Operation Failed.

- TestStand 2013 introduces a change in the comparison behavior for string array elements. In TestStand 2012 SP1 or earlier, Select and Case steps used case-sensitive comparisons for string array elements and case-insensitive comparisons for individual string values. In TestStand 2013, all data types use the Case Sensitive setting to specify case comparison. The default value for the Case Sensitive setting is OFF, so the default case comparison behavior in TestStand 2013 or later for array elements in Select and Case steps saved in TestStand 2012 or earlier is now case-insensitive. Use the step edit tabs in the TestStand Sequence Editor or the step configuration dialog boxes in a TestStand User Interface to modify the Case Sensitive setting.

What's New in TestStand 2013

TestStand 2013 includes the following new features and other changes since TestStand 2012 SP1. Refer to the *TestStand 2013 New Features* topic in the *NI TestStand Help* or visit ni.com/info and enter the Info Code ts2013new for more information about each new feature.

- Patching deployments with the TestStand Deployment Utility
- Large Address Aware support
- LabVIEW support enhancements
- Microsoft Visual Studio 2012 support
- Thread-safety improvements to the PropertyObject API and TestStand variables
- Logging database values for binary and string arrays
- Additional enhancements in TestStand 2013

TestStand API and TestStand UI Controls API Additions

Refer to the *TestStand 2013 API and UI Controls Additions and Changes* topic in the *NI TestStand Help* for more information about new API classes, methods, and properties.

Additionally, some API methods and properties are now obsolete. The *NI TestStand Help* also documents API changes and additions for some earlier versions of TestStand.

Note Although some components, such as the sequence editor, expose .NET assemblies, TestStand does not support the use of undocumented assembly API.