RELEASE AND UPGRADE NOTES

LabVIEW™ Datalogging and Supervisory Control Module

Version 2009

This document describes the system requirements and the process of installing the LabVIEW 2009 Datalogging and Supervisory Control (DSC) Module and the DSC Module Run-Time System. This document also describes the new features available with version 2009 and compatibility and upgrade issues you might encounter when you use version 2009.

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NATIONAL INSTRUMENTS™

System Requirements

To use the DSC Module, the computer must meet the following minimum system requirements.

- Windows Vista, Windows XP Service Pack 2, or Windows 2000 Service Pack 4.
- 800 MB free disk space.
- 512 MB of RAM. National Instruments recommends 1 GB of RAM.
- LabVIEW 2009 Base, Full, or Professional Development System. Refer to the *LabVIEW Release Notes* for information about the LabVIEW development system.
- Internet Explorer 6 Service Pack 1 or later.

The DSC Module does not support Windows NT/Me/98/95/Server 2003.

Installing the DSC Module

This section includes information about installing the DSC Module on a development computer.

Complete the following steps to install the DSC Module.

1. Log in to the computer as an administrator or as a user with administrative privileges.
2. Disable any automatic virus detection programs before you install. Some virus detection programs interfere with installation.
3. Insert the LabVIEW Platform DVD Disc 1.

Tip You also can double-click `setup.exe` from the media to launch the installer.

4. In the **Product List**, select **DSC Module** in the **Industrial Monitoring** folder.
5. Enter the serial number from the DSC Module software kit to install the licensed version.
6. Follow the instructions to finish installing and activating the DSC Module.
7. After installation, enable any virus detection programs you disabled.
8. Refer to the *Where to Go from Here* section of this document for more information about getting started with and using the DSC Module.

The DSC Module installs program files, documentation, and examples.

Note By default, the NI Keyboard Filter Driver is not installed. The NI Keyboard Filter Driver activates special security features, including the ability to restrict users from switching between applications by pressing the <Alt-Tab> keys. This driver does not work on laptop computers or on computers with hibernation enabled.

Activating the DSC Module

The DSC Module relies on licensing activation. You have a temporary license for a 30-day evaluation period. When the evaluation period expires, you must activate a valid DSC Module license to continue using the DSC Module.

You can use the NI License Manager, available by selecting **Start»All Programs»National Instruments»NI License Manager**, to activate National Instruments products. Refer to the *National Instruments License Manager Help*, available by selecting **Help»Contents** in the NI License Manager, for information about activating NI products.

Refer to `ni.com/support` if you encounter errors during installation.

LabVIEW 2009 DSC Module New Features

The following sections describe the new features in the DSC Module.

Enhancements to the NI Distributed System Manager

Use the NI Distributed System Manager to create and monitor shared variables, network variables, processes, and I/O servers. You also can use the System Manager to manage security and aliases. In LabVIEW, select **Tools»Distributed System Manager** to launch the System Manager.

The DSC Module includes the following enhancements to the System Manager.

- **Monitoring historical data**—Use the **Historical Trend** view, available by right-clicking a system tree pane object and selecting **View Historical Data** from the shortcut menu, to monitor historical trends for one or multiple shared variables.
- **Registering computers**—Use the **Register Computer** dialog box, available by selecting **Action»Register Computer**, to register remote computers. The System Manager adds the registered computers under the **Network Items** folder in the system tree pane.
- **Enabling logging for processes**—Use the **Add Process** dialog box, available by right-clicking a system on the system tree pane and selecting **Add Process** from the shortcut menu, to enable logging for processes. You need to enable logging for shared variables and processes to log data from the Shared Variable Engine to the Citadel database.

Enhancements to Custom I/O Servers

The DSC Module includes the following enhancements to custom I/O servers.

Distributing Custom I/O Servers Automatically

When you build an application that includes custom I/O servers, the LabVIEW Application Builder detects and copies all dependent custom I/O servers to the `LVDSC` folder inside the same directory as the build. When you deploy the built application to the target computer, LabVIEW distributes the custom I/O servers to the target computer automatically. You no longer have to copy the dependent custom I/O servers to the target computer.

Upgrading Custom I/O Servers Automatically

LabVIEW upgrades dependent custom I/O servers to the latest version automatically when you deploy an application in the DSC Module or the DSC Module Run-Time System.

Note The automatic upgrade feature supports only custom I/O servers configured in LabVIEW 8.5 or later.

Monitoring Custom I/O Servers

The System Manager displays status and error information about the custom I/O servers that you deploy to the Share Variable Engine. Use the System Manager to monitor and debug custom I/O servers.

Using EPICS Server I/O Servers

EPICS, or the Experimental Physics and Industrial Control System, is a set of open-source software tools you can use to develop large, distributed control systems. EPICS systems use the Channel Access (CA) network protocol to pass data between EPICS client and EPICS servers, also known as input/output controllers (IOCs). The CA network protocol is an Ethernet-based protocol.

The DSC Module acts as an EPICS server and an EPICS client. You can create EPICS Server I/O servers in the DSC Module to publish local and remote shared variables and I/O data to an EPICS network. Use EPICS Client I/O servers or third-party EPICS clients to monitor and update these shared variables.

In the **Project Explorer** window, right-click a target, such as the **My Computer** target, and select **New»I/O Server** from the shortcut menu. In the **Create New I/O Server** dialog box, select **EPICS Server** and click the **Continue** button to create an EPICS Server I/O server.

New DSC Module VIs

The DSC Module includes the following new VIs.

Tags VIs

Use the Tags VIs to perform the following tasks on multiple shared variables programmatically.

- Read and write multiple shared variables.
- Read and acknowledge alarms for a process, an alarm area, or multiple shared variables.
- Configure bindings between front panel controls and shared variables.
- Read trends for multiple shared variables.
- Redirect operations to shared variables under different processes or machines.

Other New VIs

- Configure Process Log State VI
- Shared Variable Error from Quality VI
- Configure Alarming VI
- Configure Description VI
- Configure Initial Value VI
- Configure Logging VI
- Configure Network VI
- Configure Scaling VI
- Configure Update Deadband VI

Refer to the **DSC Module VIs and Functions** book on the **Contents** tab of the *LabVIEW Help* for more information about the DSC Module VIs.

DSC Module Run-Time System Support for Touch Panel Devices

You can distribute a built application to a Touch Panel target by installing the DSC Module Run-Time System on the Touch Panel device.

Navigation Controls for Multi-Panel Applications

Use the navigation controls located on the **System** and **Modern** palettes to navigate through multiple front panels in an application. Navigation controls include the **Previous Button**, **Next Button**, and **Jump Button** controls.

Upgrade and Compatibility Issues

Refer to the following section for upgrade and compatibility issues specific to different versions of the DSC Module.

Upgrading from the DSC Module 8.2

If you open a VI saved in the DSC Module 8.2 or earlier, the VI might be broken if the VI contains an indicator, constant, or control created from the **shared variable value change notification** output of the following VIs.

- Cancel Value Change Notifications VI
- Enable Value Change Notifications VI
- Request Value Change Notifications VI

To fix the broken VI, delete the indicator, constant, or control. Then create a new indicator, constant, or control from the **shared variable value change notification** output and wire it to the appropriate parameter.

Upgrading from the DSC Module 7.*x*

If you are upgrading from the DSC Module 7.*x* or earlier, refer to the *Upgrading from the LabVIEW DSC Module 7.x* section of the *LabVIEW 8.2 Datalogging and Supervisory Control Module Release and Upgrade Notes* for important upgrade information. Refer to the National Instruments Web site at `ni.com/info` and enter the info code `dsc820` to access the *LabVIEW 8.2 Datalogging and Supervisory Control Module Release and Upgrade Notes*.

Installing the DSC Module Run-Time System

To run applications built with LabVIEW, the DSC Module, and the LabVIEW Application Builder on a computer without the DSC Module installed, you must install the DSC Module Run-Time System on that computer. The DSC Module Run-Time System contains components that enable the DSC Module features in the built applications. Refer to the National Instruments Web site at ni.com/info and enter the info code dscrts for information about the DSC Module Run-Time System.

To use the DSC Module Run-Time System, the computer must meet the following minimum system requirements.

- Windows Vista, Windows XP Service Pack 2, or Windows 2000 Service Pack 4.
- 700 MB free disk space.
- 512 MB of RAM.

Complete the following steps to install the DSC Module Run-Time System.

1. Log in to the computer as an administrator or as a user with administrative privileges.
2. Install the DSC Module 2009 Run-Time System from the LabVIEW 2009 DSC Module Run-Time System installation CD.
3. Follow the instructions that appear on the screen.
4. Restart the computer.

Configuring the Microsoft SQL Server

The DSC Module requires the Microsoft SQL Server 2005 Express Edition (SQL Express). This component is installed by default when you install the DSC Module. During the installation process, the DSC Module installer creates an instance of SQL Express named CITADEL. To prevent unauthorized access to SQL Express, the installer also generates a password for the default SQL Express administrator sa. The default password is the computer ID.

Complete the following steps to find the computer ID using the NI License Manager.

1. Launch the NI License Manager by selecting **Start»All Programs» National Instruments»NI License Manager**.
2. Click the **Display Computer Information** button on the toolbar.

The DSC Module installer enables a mixed security mode on existing SQL Servers. If the target computer does not have an SQL Server installed, the DSC Module installer installs SQL Express in the mixed security mode.

Use the following command line prompt to change the default password for the `sa` user:

```
Sqlcmd -S"localhost\CITADEL" -U"sa" -P"COMPUTER_ID"
-Q"sp_password 'COMPUTER_ID', 'NEW_PASSWORD', 'sa'"
```

If the mixed security mode is not acceptable, change both the SQL Express and Citadel login modes. You must set the registry `DWORD` values `HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\MSSQLServer\MSSQLServer\LoginMode` and `HKEY_LOCAL_MACHINE\SOFTWARE\National Instruments\Citadel\5.0\IntegratedSecurity` to `1`.

National Instruments recommends that you change the login mode immediately after you install the DSC Module. Otherwise, you must relink all existing Citadel databases. Restart the SQL Express and Citadel services in order for changes to take effect. If you use integrated NT security, you might need to configure the server machine and all clients explicitly.

Note The DSC Module 8.2 uses Microsoft SQL Server 2000 Desktop Engine (MSDE 2000), not SQL Express. If you are upgrading from the DSC Module 8.2, any existing databases continue to use MSDE 2000 for alarm logging, but new databases you create use SQL Express. If you detach an existing database from the DSC Module and then reattach the database, the DSC Module migrates the database to SQL Express.

You might want to uninstall MSDE 2000 after installing the DSC Module 2009. Complete the following steps to uninstall MSDE 2000.

1. Stop all running processes in the NI Distributed System Manager.
2. Open Measurement & Automation Explorer (MAX) and select **My System»Historical Data»Citadel 5 Universe** from the **Configuration** tree.
3. On the **Databases** page, detach all databases from the local computer.
4. Open the Windows **Control Panel** and uninstall MSDE 2000.
5. Restart the computer.
6. Open MAX and reattach all databases.

Where to Go from Here

National Instruments provides many resources to help you succeed with your NI products. Use the following resources as you start exploring the DSC Module.

Getting Started

Refer to the *Getting Started with the LabVIEW Datalogging and Supervisory Control Module* manual in the `labview\manuals` directory for exercises you can complete to familiarize yourself with the DSC Module.

DSC Module Examples

Use the NI Example Finder, available by selecting **Help»Find Examples** from LabVIEW, to browse or search for the DSC Module example VIs. You also can access the example VIs from the `labview\examples\lvdsc` directory.

Related Documentation

Refer to the *LabVIEW Help* for information about LabVIEW and the DSC Module, and refer to the **Context Help** window for information about using VIs and functions.

- *LabVIEW Help*—Available by selecting **Help»Search the LabVIEW Help** in LabVIEW. Browse the **DSC Module** book on the **Contents** tab for an overview of the DSC Module.
- **Context Help** window—Available by selecting **Help»Show Context Help** in LabVIEW.

NI Web Site

Visit `ni.com/dsc` for the latest NI Developer Zone articles, examples, and support information for the DSC Module.

Refer to `ni.com/info` and enter the info code `dsctrn` to access online training for the DSC Module.

Known Issues

You can access the software and documentation known issues list online. Refer to the National Instruments Web site at `ni.com/info` and enter the info code `excia4` for an up-to-date list of known issues in the DSC Module and the DSC Module Run-Time System.

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