Universal Library™

Redistribution Guide

MEASUREMENT COMPUTING™

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Table of Contents

Redistributing Applications with the Universal Library

Overview

The information in this document explains how to distribute applications developed using the 32-bit Universal Library (UL). Developers wishing to redistribute the files associated with the Universal Library and *Insta*Cal may do so only if they are not altered or edited in any way.

This document includes information on how to install the Measurement Computing device drivers, Universal Library, and *Insta*Cal under Windows Vista, Windows XP, and Windows 2000.

These instructions assume that Measurement Computing-specific files are installed to a directory named C:\Program Files\Measurement Computing\DAQ.

Installing the Universal Library for Windows Vista, Windows XP, and Windows 2000

This section describes explains how to install the Measurement Computing device drivers, the Universal Library, and *Insta*Cal under Windows Vista, Windows XP, and Windows 2000. The general steps to install an application are:

1. Copy your application files to a directory on your system.
2. Update the registry and system files as needed by your application.
3. Create a desktop folder for your program and associated files.
4. Restart the computer, if necessary.

These instructions describe how to install the Universal Library manually, and to supply an appropriate CB.CFG for the installed Measurement Computing hardware. These instructions assume that *Insta*Cal has not been installed. For instructions on installing *Insta*Cal, refer to ""Installing *Insta*Cal with the Universal Library" on page 7.

In addition to your application files, the following Universal Library files must be installed:

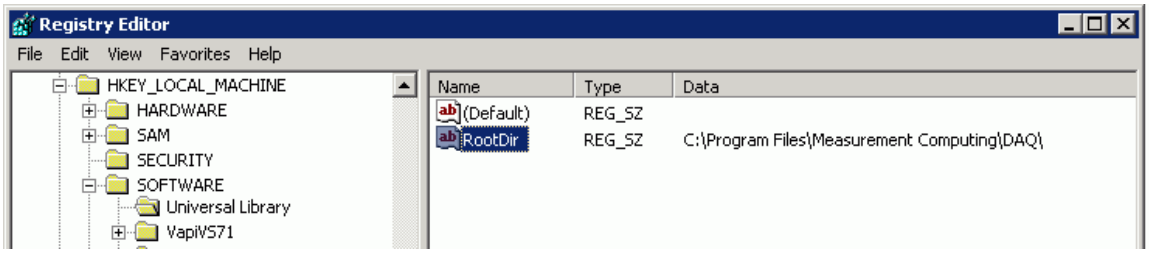
File description	File name
Universal Library Windows 2000, Windows XP, and Windows Vista device drivers	▪ CBUL32.sys ▪ CBULWDM.sys ▪ pcidaqlib.sys ▪ mccusb.sys ▪ usbdaqlib.sys ▪ usblddaqdlib.sys
Universal Library DLL files	▪ CBW32.DLL ▪ DaqLib.DLL ▪ mccsktsifc.dll
Measurement Computing UL support files	▪ CBERRCODE.TXT ▪ ULPROPS.TXT
Hardware configuration files	▪ CB.CFG (created using *Insta*Cal) ▪ CBI95.INF ▪ CBICOM.INF (For Measurement Computing COM port devices only) ▪ DAQLIB.INF ▪ MCCUSB.INF

In addition, the Windows system configuration must be updated to access the Universal Library.

To update the system configuration:

1. Copy `CBW32.DLL`, `CBERCODE.TXT`, `ULPROPS.TXT`, and `DaqLib.DLL` to a directory on your hard drive, such as `C:\Program Files\Measurement Computing\DAQ`.
2. Update the Windows registry to include the following key:

   `[HKEY_LOCAL_MACHINE]\Software\Universal Library\RootDir`
3. Add a New String Value to the key that was just created: `RootDir = C:\Program Files\Measurement Computing\DAQ`.



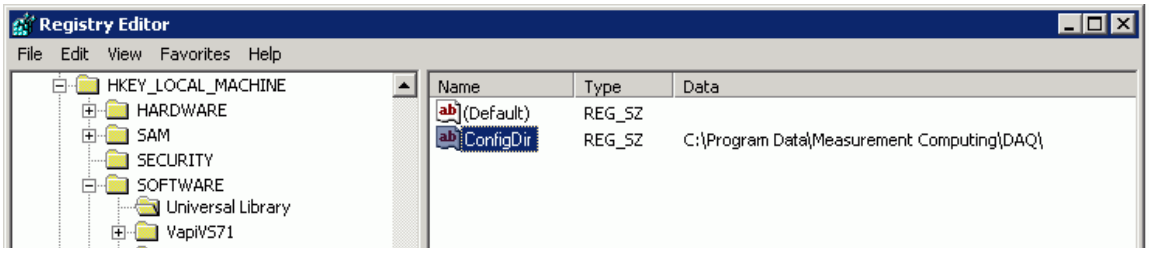
4. Copy `CB.CFG` (created using *Insta*Cal) to a directory on your hard drive:
   - When running Windows Vista, copy `CB.CFG` to `C:\ProgramData\Measurement Computing\DAQ`.
   - When running on Windows platforms other than Windows Vista, copy CB.CFG to `C:\Program Files\Measurement Computing\DAQ`.

Note: Steps 5 and 6 apply to Windows Vista only. If you are running Windows XP or Windows 2000, proceed to step 7.

5. When running Windows Vista, update the Windows registry to include the following key:

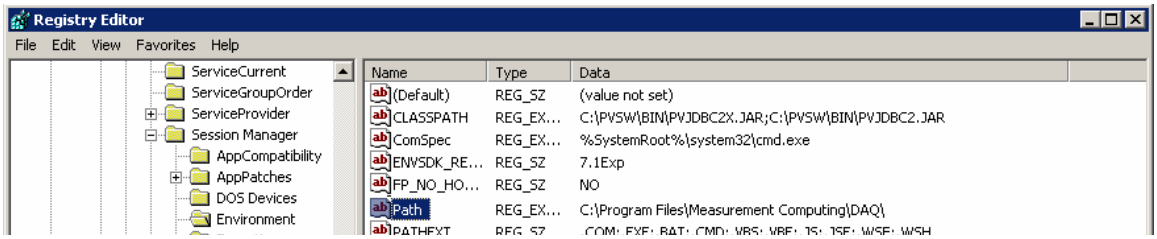
   `[HKEY_LOCAL_MACHINE]\Software\Universal Library\ConfigDir`
6. When running Windows Vista, add a New String Value to the new ConfigDir key:

   `ConfigDir = C:\ProgramData\Measurement Computing\DAQ`. This value sets the directory where the CB.CFG file is created when you run *Insta*Cal.



7. Update the `PATH` environment variable to include the directory containing CBW32.DLL: Edit the following registry key as shown below:

   `[HKEY_LOCAL_MACHINE]\System\CurrentControlSet\Control\Session Manager\Environment`



8. Install the device driver files: copy `CBUL32.sys`, `CBULWDM.sys`, `pcidaqlib.sys`, `mccusb.sys`, `usbdaqlib.sys`, and `usblddaqdlib.sys` to the System Drivers directory (usually `C:\WINDOWS\system32\drivers`).
9. Update the Windows registry to include the following keys:

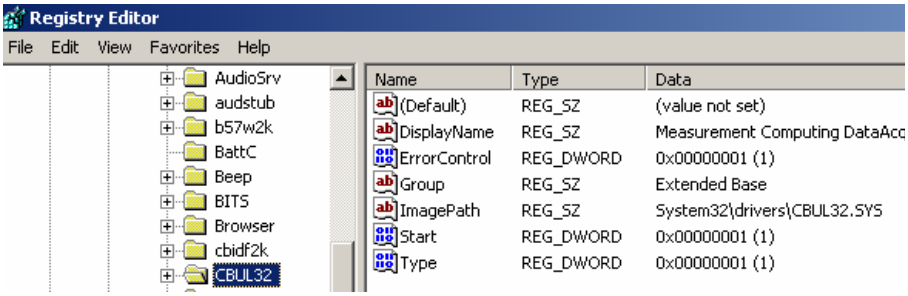
   `[HKEY_LOCAL_MACHINE]\System\CurrentControlSet\Services\CBUL32\CBUL32`

   `[HKEY_LOCAL_MACHINE]\System\CurrentControlSet\Services\CBUL32`

   Add the following fields to the `[HKEY_LOCAL_MACHINE]\System\CurrentControlSet \Services\CBUL32` key to include the device driver (cbul32.sys). Refer to the image below:

```
DisplayName = Measurement Computing DataAcq
ImagePath = System32\Drivers\CBUL32.SYS
Type = 1
Start = 1
Group = Extended Base
ErrorControl = 1
```

Note that `Type`, `Start` and `ErrorControl` must all be DWORD values, while the rest are String values.



10. Copy `CBI95.INF`, `CBICOM.INF`, and `DAQLIB.INF`, and `MCCUSB.INF` to the Windows INF directory (usually `C:\WINDOWS\inf`).

Note

If you install a Measurement Computing plug-and-play device before you install the device driver, you must find the device in the device manager and update the driver. Refer to the ReadMe.txt file for details.

Installing *Insta*Cal with the Universal Library

The following instructions are applicable to Windows Vista, Windows XP, and Windows 2000.

The CB.CFG configuration file must be available to the Universal Library, and must contain information that is accurate with respect to the installed Measurement Computing devices. We recommend that you run *Insta*Cal on each target machine to update the CB.CFG when the hardware configuration has changed.

*Insta*Cal also provides field-calibration and testing for Measurement Computing devices. *Insta*Cal requires the Universal Library DLL and device driver to be installed, as explained in "Installing the Universal Library for Windows Vista, Windows XP, and Windows 2000" on page 5. To distribute *Insta*Cal with your application, add the following files to the distribution:

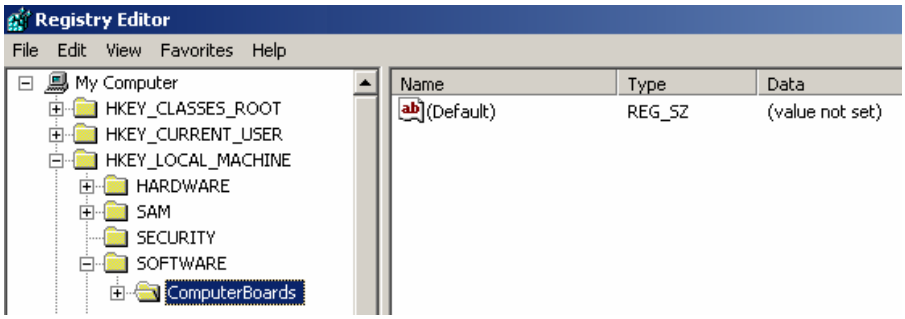
File description	File name
*Insta*Cal executable	`INSCAL32.EXE`

File description	File name
*Insta*Cal support files	▪ LOGO.BMP ▪ NDERCODE.TXT ▪ SCANVIEW.EXE ▪ CBI_CAL.DLL ▪ CBI_NODE.DLL ▪ CBI_PROP.DLL ▪ CBI_TEST.DLL ▪ VICOMPONENTS.OCX
System support files	▪ MFC42.DLL ▪ MSVCRT.DLL ▪ OLEPRO32.DLL ▪ OLEAUT32.DLL It is likely that these files already exist on the target machine. Check the version of existing files against those being installed. More recent versions on the target machine should not be overwritten. These files should be installed to the system directory – usually C:\Windows\System32

*Insta*Cal requires the following changes to the Windows registry:

1. Copy the *Insta*Cal files inscal32.exe, logo.bmp, ndercode.txt, scanview.exe, cbi_cal.dll, cbi_node.dll, cbi_prop.dll, cbi_test.dll, and vicomponents.ocx to the C:\Program Files\Measurement Computing\DAQ directory.
2. Create the registry key:

   [HKEY_LOCAL_MACHINE]\Software\ComputerBoards



3. Copy the system support files mfc42.dll, olepro32.dll and oleaut32.dll to the system directory – usually C:\Windows\System32.

Note

The support files mfc42.dll, olepro32.dll, and oleaut32.dll may already exist on the target machine. Do not overwrite them if they are a more recent version than those you are trying to install.

4. The support files MFC42.DLL, OLEPRO32.DLL, OLEAUT32.DLL, and VICOMPONENTS.OCX must also be registered. If they already exist on the target machine, they may be in use (and therefore locked). The full installation and registration for some or all of these files may only occur at boot time.

   The files can be made to self-register when Windows restarts. Create the following keys under:

   [HKEY_LOCAL_MACHINE]\Software\Microsoft\Windows\CurrentVersion\RunOnce

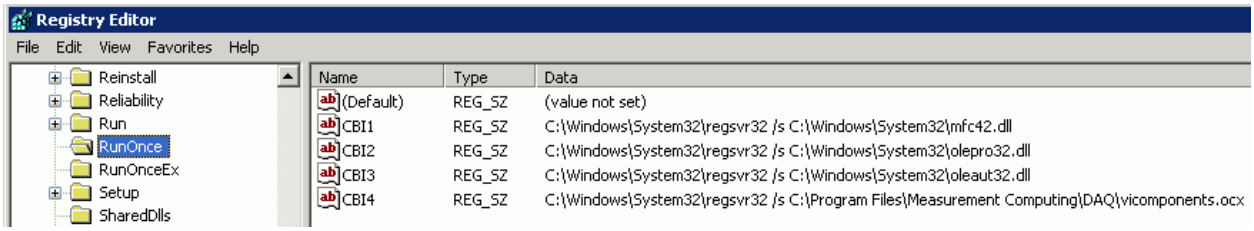
   with these values:

   CBI1 = C:\Windows\System32\regsvr32 /s C:\Windows\System32\mfc42.dll

   CBI2 = C:\Windows\System32\regsvr32 /s C:\Windows\System32\olepro32.dll

   CBI3 = C:\Windows\System32\regsvr32 /s C:\Windows\System32\oleaut32.dll

   CBI4 = C:\Windows\System32\regsvr32 /s C:\Program Files\Measurement Computing\DAQ\vicomponents.ocx



Distribution software also provides solutions to handle the complexity of this situation, providing the capacity to:

- Overwrite only older versions of these files.
- Delay overwriting until restarting Windows.
- Allow the files to self-register upon restart.
- Prompt the user to restart the computer.

  The necessary support files will register on startup.

Running a Silent *Insta*Cal Installation

Perform a "Silent Install" to use the *Insta*Cal installer instead of copying the files and editing the registry yourself. Your installer will launch the *Insta*Cal installation, but you will not see the installation window or any prompts from the installation when using the "`/qn`" parameter.

To include the *Insta*Cal setup program, do the following:

1. Add the following to your installation code to launch the file:

   ```
   msiexec /i "path to InstaCal.msi" /qn REBOOT=ReallySuppress
   ```

2. Place all *Insta*Cal files in a folder:

▪ `CBI95.IN_`	▪ `logo.bmp`
▪ `CBICOM.IN_`	▪ `MCCBoardCfg.mde`
▪ `DAQLIB.IN_`	▪ `ReadMe.txt`
▪ `ICalUL.msi`	▪ `ulprops.txt`

When performing a silent installation, *Insta*Cal installs to the `Measurement Computing\DAQ` directory in the `Program Files` directory (usually `C:\Program Files\Measurement Computing\DAQ`).

The installation will not prompt the user to reboot the computer. Since rebooting is required, the master installation should either prompt the user to reboot or force them to do so.

The CB.CFG configuration file is created the first time that you run *Insta*Cal.

- When running Windows Vista, the CB.CFG file is created in `C:\ProgramData\Measurement Computing\DAQ`. You must be logged into *Insta*Cal with Administrative rights in order to make configuration changes.
- When running Windows XP and Windows 2000, the CB.CFG file is created in `C:\Program Files\Measurement Computing\DAQ`.

Installing Universal Library support for the .NET Framework

The .NET support is an extension of the Universal Library. It requires that both the Microsoft .NET Framework and *Insta*Cal or Universal Library be installed. Refer to the previous sections for information about installing *Insta*Cal and/or the Universal Library.

To install Universal Library support for the Microsoft .NET Framework, do the following:

1. Install either *Insta*Cal or the Universal Library.
2. Copy the .NET Universal Library file MccDaq.DLL to your target installation directory.

When `MccDaq.DLL` is in the same directory as your application, you do not need to add it to the Global Assembly Cache.

Tips and techniques

This section includes tips and suggestions regarding common problems that are encountered when deploying an application. This list is intended only to provide guidance to those who are redistributing their applications with the Universal Library, and may not apply to all situations.

Digital signing

In order to avoid "Unknown Publisher" messages when installing a custom application, you should digitally sign the installation driver and application package with your unique Software Certificate. This will notify your customers that you are the author of the software being installed.

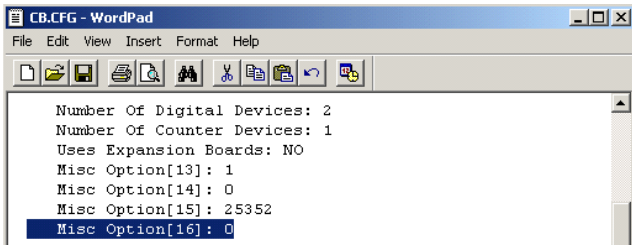
Deploying applications with devices that have serial numbers

If the application you are deploying is to be used with a device that has a custom serial number — such as a USB or Ethernet based device — you may need to alter that configuration file to allow it to operate with the device regardless of the serial number.

Note

You only need to alter the configuration file when you install the Universal Library with your installation and are providing your own CB.CFG configuration file. If you are installing *Insta*Cal and intend on the user running *Insta*Cal, you do not need to alter the configuration file.

When a device has a serial number, the configuration file stores the serial number as miscellaneous option 16 (Misc Option [16]). If your device does not have a serial number that matches this configuration item, such as when you run *Insta*Cal or replace the device), an error will occur. To avoid this error and force the Universal Library to ignore the serial number of the device, change miscellaneous option 16 to "0" in the configuration file:



Deploying applications when using PCI boards

Devices that are assigned resources dynamically—such as PCI boards—require the use of *Insta*Cal for board configuration to determine the system resources assigned to the board.

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