

Fluke Metrology Software

MET/CAL®
MET/CAL® LITE
5500/CAL
MET/TRACK®
MET/BASE

Getting Started Guide

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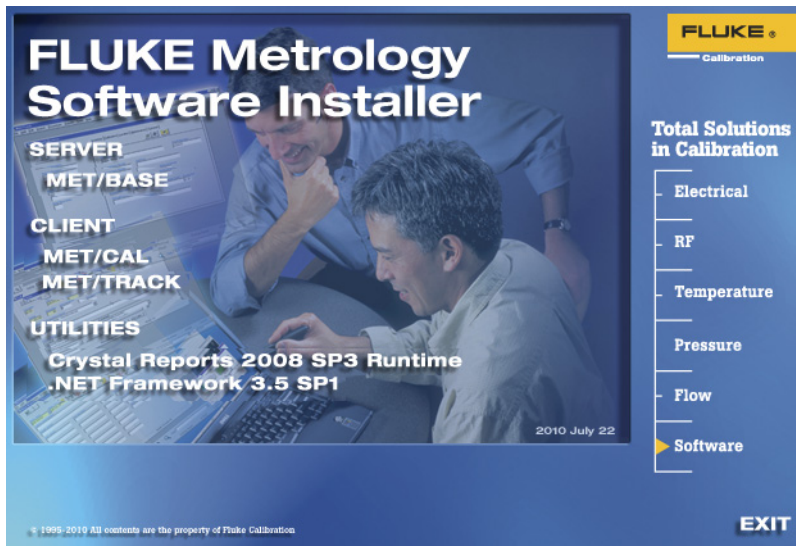
Introduction

Welcome to the *Getting Started Guide* for Version 7.3 of Fluke Metrology Software. Fluke Metrology Software is a software distribution that bundles three software products: MET/CAL[®], MET/TRACK[®], and MET/BASE. MET/CAL LITE and 5500/CAL are part of the MET/CAL installation. MET/BASE is required to run MET/CAL or MET/TRACK, since both are clients of the MET/BASE server. The server stores calibration data that the clients create and manage. This guide describes how to install and upgrade the various software packages. It also includes tips and examples of how to get started.

Both stand-alone and networked installations are supported. In a stand-alone setup, both the MET/BASE server and the MET/CAL and MET/TRACK clients are installed on the same PC. In a networked installation, MET/BASE is installed on a server PC and the MET/CAL and MET/TRACK applications are stored on individual client PCs. Floating licenses for the clients are stored in MET/BASE. A MET/CAL license is valid for both MET/CAL and MET/TRACK. A MET/TRACK license is valid for MET/TRACK only.

MET/BASE, MET/CAL, and MET/TRACK are all distributed as Windows Installer installation packages, also known as MSI files. Each MSI file has a version suffix (major, minor, build).

All required installation files are accessible from the Fluke Metrology Software Installer. This application automatically launches when you insert the MET/CAL distribution media into the host PC. Click the link to the installation to begin the corresponding installation process (see Figure 1). The Fluke Metrology Software Installer application remains open after the installation of a specific application completes. Use the Exit option to close the program.



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Figure 1. Fluke Metrology Software Installer

The runtime files accessed by the installer are:

- Fluke-METBASE-7.3.x.msi
- Fluke-METTRACK-7.3.x.msi
- Fluke-METCAL-7.3.x.msi
- CRRuntime_12_3_mlb.msi
- Microsoft .NET Framework 3.5 SP1.exe

The exercises in this Guide give MET/CAL, MET/CAL LITE, and 5500/CAL licenses a quick familiarity with the software, and demonstrate typical tasks for setting up calibration workstations. Throughout this Guide, the term “MET/CAL” refers to MET/CAL, MET/CAL LITE, and 5500/CAL workstations where calibrations are performed.

Safety Information

Calibrating instruments may require dangerous voltages to be generated or measured by the calibration system. Both the operator and procedure writer must be aware of possible hazards. To avoid electrical shock and fire hazards, follow the instructions below.

⚠ ⚠ Warning

To prevent possible electrical shock, fire, or personal injury:

- **Never use a screen saver when using the Run Time or Procedure Editor applications. Screen savers will hide the high voltage safety symbol. The Run Time and Editor programs control test instruments and can cause them to output dangerous voltage levels. The high voltage safety symbol indicates when dangerous voltage is present.**
- **Use interconnect wiring and adapters rated for the highest voltage and current levels carried.**
- **Never touch exposed conductive portions of signal interconnect wiring, even after instruments have been turned off.**
- **Only touch the insulated portion of a connector. First disconnect the interconnect wiring at the source, then at the measurement side.**
- **Always use insulated adjustment tools.**
- **If the calibration program is abnormally terminated, verify that the front panels of source instruments indicate standby mode.**
- **When writing procedures, make sure that procedures minimize the time during which dangerous voltages are applied.**

How to Access MET/SUPPORT™

Fluke Metrology Software is supported by a highly skilled and conscientious team of professionals who are available to answer questions, help solve unique problems, and assist in troubleshooting in the event you run into difficulties.

Telephone Support

Some free telephone support is available, but only to registered users of Fluke software. Be sure to register your software as soon as possible so you can make use of this service should the need arise. Within the United States, toll free telephone support is available from 8:00 AM to 4:30 PM, Pacific Standard Time at **1-800-825-7411**.

Priority support is available to any current **MET/SUPPORT Gold Support** customer. A special-access line is included in the Gold program information pamphlet.

To call Fluke from anywhere in the world, call **1-425-446-5400**.

Mail, E-mail, and FAX Support

Contact Fluke by mail, E-mail, and FAX.

FLUKE Corporation

PO Box 9090

Everett, WA 98206-9090

Attention: MET/SUPPORT, M/S 275G

E-mail metsupport@fluke.com

FAX 1-425-446-5992

Before Calling Technical Support

You may be able to discover the answer for yourself, so take the following steps before calling for support:

- Check the manual
- Check the online help

If you do find it necessary to call for assistance, take a few moments to jot down some information. If this information is readily available, the support person can more quickly get to the exact details of the difficulty you are having, and will be able to resolve the issue more efficiently.

- Product name, applicable licenses, version and serial numbers
- Manual title, part number and version
- Operating system and version
- Network information if applicable
- List of steps necessary to recreate the problem
- Version of *Crystal Reports*

Worldwide Support

For more information on worldwide MET/SUPPORT™, please contact the Fluke office nearest you (Table 1) or your local representative.

Table 1. Contact List

Location	Phone	Fax
Canada	1-905-890-7600	1-905-890-6866
China	86-10-6-512-3435	86-10-6-516-3437
UK/Europe	44 1603-256600	44-1603-256688
Japan	81-3-3434-0181	81-3-3434-0170
Singapore	65-276-5161	65-276-5759
United States	1-800-825-7411	1-425-446-5992
All other locations	1-425-446-6476	1-425-446-5992

Web Support

Fluke provides a website exclusively for the Metrology Software user. This site provides the most current phone numbers, downloadable procedures, reports, application notes, and other pertinent information. To access this support site:

1. Enter <http://support.fluke.com/register> in your browser's URL address input box.
2. Enter met-support in the "Name of the Site where you want to go:" box.
3. Click Register.
4. Complete the registration questionnaire.
5. Approval of your registration should be complete within one or two days. You will receive an email notice of your Web/Support user name, password and the Web/Support site address.

System Requirements

Microsoft.NET Framework 3.5 SP1 must be installed on the host PC. The installation media from Fluke contains a copy of the .NET framework installation. MET/CAL installation files that you download from the web do not contain the .NET framework. In this case, use Microsoft Update (<http://www.update.microsoft.com>) to install the framework. Use the manual options in Microsoft Update to specifically select the framework for installation.

Note

Microsoft .NET Framework is not automatically installed with security patches.

Fluke Metrology Software runs on a variety of platforms:

- Windows® XP SP2
- Windows Server 2003
- Windows Vista
- Windows 7 (32 and 64-bit)
- Windows 2008 (32 and 64-bit)

Note

Windows 2000 is no longer supported.

Hardware Requirements

In addition to the operating system support mentioned above, the minimum recommended PC requirements are:

MET/BASE Server

- 1.5 G Hz Pentium 4 processor or equivalent
- 1 GB of Ram
- 2 GB of available hard drive space on the server

MET/CAL or MET/TRACK Client

- 1 G Hz Pentium 4 processor or equivalent
- 512 MB of Ram
- 500 MB of available hard drive space

The optional General Purpose Interface Bus (GPIB) connects a PC to a programmable instrument. Before installation, check that the optional GPIB (IEEE 488) Interface is installed. Fluke Metrology Software only supports GPIB controllers from National Instruments.

You can download hardware drivers from the National Instruments website: <http://www.ni.com/support/>.

File Locations

Table 2 is a cross-reference for file locations between program versions. As you compare the directory structures, you will see that the Version 7.3 structure is very different than the previous versions. The table includes the default file locations. Custom installations may differ.

Note

During installation, all paths can be customized except for the path to the metcal.ini file. As of Version 7.3, the file will always reside in the ProgramData folder (see Table 2).

Table 2. File Locations

File Type	MET/BASE MET/CAL MET/TRACK 7.20	MET/BASE 7.2 SP3	MET/BASE 7.3 ^[1]		
Database	C:\metdata	C:\metbase	%ProgramFiles%\Fluke\METBASE		
			%ProgramData%\Fluke\METBASE		
Reports	C:\metcal	C:\metbase\shared\reports	%ProgramData%\Fluke\METBASE\shared\reports		
Accuracy Files	C:\metcal\acc	C:\metbase\shared\acc	%ProgramData%\Fluke\METBASE\shared\acc		
FSC Help	C:\metcal\help	C:\metbase\shared\help	%ProgramData%\Fluke\help ^[2]		
Procedures	C:\metcal\proc	C:\metbase\shared\proc	%ProgramData%\Fluke\METBASE\shared\proc		
Pictures	C:\metcal\pic	C:\metbase\shared\pic	%ProgramData%\Fluke\METBASE\shared\pictures		
SQL Files (for dbupdate)	C:\metcal	C:\metbase\utilities	%ProgramFiles%\Fluke\METBASE\dbupdate		
User Program	C:\metcal	C:\metcal	%ProgramData%\Fluke\METBASE\shared\UserPrograms		
		MET/CAL 7.2 SP3	MET/TRACK 7.2 SP3	MET/CAL 7.3	MET/TRACK 7.3
Executables	C:\metcal	C:\metcal	%ProgramFiles% ^[3] \Fluke METTRACK	%ProgramFiles% \Fluke\METCAL	%ProgramFiles% \Fluke\METTRACK
				%ProgramData% ^[4] \Fluke\METCAL	
DLLs	C:\metcal	C:\metcal	%ProgramFiles% \Fluke METTRACK	%ProgramFiles% \Fluke\METCAL	%ProgramFiles% \Fluke\METTRACK
Manuals	C:\metcal\manuals	C:\metcal\manuals	%ProgramData% \Fluke\Help	%ProgramFiles% \Fluke\Help	%ProgramData% \Fluke\Help
DATs	C:\metcal\station	C:\metcal\station	%ProgramFiles% \Fluke METTRACK	%ProgramFiles% \Fluke\METCAL\station	%ProgramFiles% \Fluke\METTRACK
				%ProgramData% \Fluke	
metcal.ini^[5]	C:\WINDOWS	C:\WINDOW		%ProgramData% \Fluke\COMMON	
Client Install Files	C:\metcal\client				
<p>[1] All items associated with MET/BASE 7.3 are file paths on the MET/BASE server PC. These paths cannot be changed during the installation.</p> <p>[2] This file is installed with MET/CAL and not MET/BASE.</p> <p>[3] %ProgramData% Windows XP – c:\Documents and Settings\All Users\Application Data\ Windows Vista – c:\Program Data\ Windows 7 – c:\Program Data\ [4] %ProgramFiles% All OS – c:\Program Files\ [5] To access the metcal.ini file, use the shortcut to the %ProgramData% folder installed with 7.3.</p>					

Note

In the Start Menu, “Fluke Calibration program group” is a shortcut to the ProgramData folder for Version 7.3.

Legacy Applications

There are many applications that support Fluke Metrology software that directly reference the metcal.ini file in the Windows directory. These programs should be modified to use the path described in Table 2 to properly function with MET/CAL 7.3. In the interim, a copy of the metcal.ini file can be maintained in the Windows directory to allow these programs to work. In this case, the information in the ini file located in the Windows directory is not updated based on operations within MET/CAL and MET/TRACK. It is up to the user to copy the file from the MET/CAL maintained location to the Windows directory if a relevant edit is made. A shortcut to the Program Data folder is provided in the Fluke Calibration program group.

Upgrading Fluke Metrology Software

Before upgrading, it is recommended that all database files, procedures, accuracy files, correction files and other support files are properly archived. The process of installing Fluke Metrology Software for the first time and upgrading is the same. The difference is that after an upgrade there are specific steps required to update the database to be compliant with the Sybase 11 run-time engine. See “*DBUpdate*” on page 15 for more information.

Not all files and menus created by a previous installation are removed when upgrading. For example, Sybase 8 will remain intact on the Server PC after MET/BASE is upgraded. This allows applications not related to Fluke Metrology Software to function unaltered by the upgrade. Directories specific to MET/CAL, MET/TRACK, and MET/BASE are also left intact. These directories can be deleted only after all references to these folders are removed from the metcal.ini. The default file locations described in Table 2 are different for version 7.3 compared to previous versions.

Not all versions of MET/CAL can be upgraded. Table 3 summarizes the version upgrade requirements and restrictions.

Table 3. MET/CAL Upgrades

MET/CAL Version	Upgrade
7.3	Direct upgrade support in 7.3. After installation, the Sybase 8 database service must be manually disabled to prevent it from launching when the server PC is rebooted. See <i>Starting and Stopping the Database Engine</i> on page 17 for more information.
7.2 SP3	Direct upgrade support in 7.3. No special requirements. Existing folders and files specific to the current version are not automatically removed by the installation. Custom application shortcuts must be removed manually.
7.2 SP1	
7.2	
7.1.1 SP1	
7.1	
7.0.1	
7.0	
6.1.1A	An upgrade to an intermediate version is required. For example, upgrade to 7.0 or 7.2 SP3. Follow the upgrade steps for the selected upgrade version. Then run the 7.3 installation.
6.1.1 and less	Upgrade is not supported.

MET/BASE Server Installation and Upgrade

The steps that follow describe the MET/BASE Server installation process. The steps are the same for both networked and stand-alone installations of MET/CAL. When upgrading an existing version of MET/CAL, there is an additional step to upgrade the database after the installation is complete.

To install and upgrade:

1. Ensure that the minimum PC requirements described in this document are met. If the .NET 3.5 SP1 framework is not installed, use the Fluke Metrology Software Installer to install the framework before you continue.
2. To upgrade, verify that none of the Fluke Metrology applications are running and that the database engine is not running. See *Starting and Stopping the Database Engine* on page 17 for more information.

Note

The active user must be logged into the PC as system administrator in order to complete the installation process.

3. Insert the distribution media. When AutoRun is enabled on the host PC the Fluke Metrology Software Installer will launch.

4. Select the MET/BASE option to begin the installation.
5. When AutoRun is not enabled, manually select the “AutoRun.exe” file on the distribution media to launch the MET/CAL installation utility. Or, launch the Fluke-METBASE-7.3x.msi file directly from the distribution media.
6. Follow the installation prompts to complete the installation. After each prompt, click **Next** to proceed to the next step in the installation process.
7. Accept the license agreement.
8. Select the MET/BASE language.

Note

The language selection defines the database collation that is installed.

9. Enter the MET/BASE database name. The value entered is used as the name for the Sybase 11 database service.
10. Choose the setup type. The Custom option is recommended for all upgrades. The choices are:
 - Typical – Install the typically used installation files using the default installation settings. There are no options to alter the file and folder paths. The default paths defined in table 2 are used. There is one more prompt to begin the installation process.
 - Custom – All installation folders and paths are customizable. The default options are pre-selected.
 - Complete – Install all options using the default installation settings. There are no options to alter the file and folder paths. The default paths defined in Table 2 are used. There is one more prompt to begin the installation process.

When Typical or Complete is selected, a final confirmation dialog displays to begin the installation process:

11. Click **Install** on the dialog to begin the file transfer process.

When Custom is selected there are several remaining steps provided to customize the installation:

1. Select the path to MET/BASE. The default database file is installed to this location.

Note

The database file cannot be installed onto a Network drive. It must be installed on a local drive of the MET/BASE server PC. When upgrading, use the file path selections in DB Update to move the file to a Network path. For a new installation, the file must be transferred after the installation is complete.

2. Select the path to the MET/BASE shared folder. The default procedures, accuracy files, and other support files are installed in a directory structure relative to the shared folder.
3. Use the **Browse** option to select the location of the MET/BASE installation files. These are the dll files and executables that represent MET/BASE. A final confirmation dialog displays before transferring all files.
4. Click **Install** to begin the file transfer process.

At this point, MET/BASE is installed. For a networked installation the MET/BASE shared folder selected during a Custom installation or the **%ProgramData%\Fluke\METBASE\shared** folder for a Typical or Complete installation must be shared for all client PCs (see footnote in Table 2). Each client PC requires full read/write permissions to this file path.

When installing on a network:

1. Create a **\Client** folder in the MET\BASE shared directory selected during the installation.
2. Copy the respective MET\CAL, MET\TRACK and Crystal *.msi files from the distribution media to the **\Client** folder.

These steps allow installations to be run from the network on each client PC rather than using the distribution media on each PC.

When upgrading from a prior version of MET\CAL, run **DBUpdate** to migrate the existing database to the format required for MET\CAL 7.3. See *DBUpdate* on page 15 for more information.

MET\CAL, MET\CAL LITE, 5500\CAL, 5000A RH/T Client

The process of upgrading and a new installation are the same. Before you begin, ensure that MET/BASE is installed either on the PC or the METBASE\Shared folder in a networked instance of MET/BASE is mapped to a logical drive on the PC. The mapped drive is required to complete the installation process for networked installations.

To install:

1. Verify that the PC meets the minimum system requirements.

2. Verify that the .NET Framework 3.5 SP1 is installed on the PC.
3. Install the Crystal Reports runtime engine. Use the **Fluke Metrology Software Installer** to install the runtime. The runtime must be installed one time on each client installation. It can be installed before you install MET/CAL or MET/TRACK.

Note

The active user must be logged into the PC as system administrator in order to complete the installation process.

The MET/CAL installation (**Fluke-METCAL-7.3.x.msi**) can be run from the MET/BASE shared folder, directly from the installation media, or from the **Fluke Metrology Software Installer** program.

4. Follow the on-screen instructions.
5. Click **Next** to confirm each step and continue the installation process.
6. Accept the software license agreement.
7. Select a product language.
8. Enter your company name. The text entered is used for the default procedure author name.
9. Enter the name of the MET/BASE server. The default value is **metbase**. Custom MET/BASE installations will vary.
10. Enter the path to the MET/BASE shared folder.

For a networked installation this should be a mapped drive on the MET/BASE server PC. In a stand-alone installation, this is typically a local folder.

When installing MET/CAL LITE, 5500/CAL, or 5000A RH/T, always choose **Custom Installation** for the Setup Type (see Figure 2). Select the specific applications and choose the option to install it on the local hard drive.

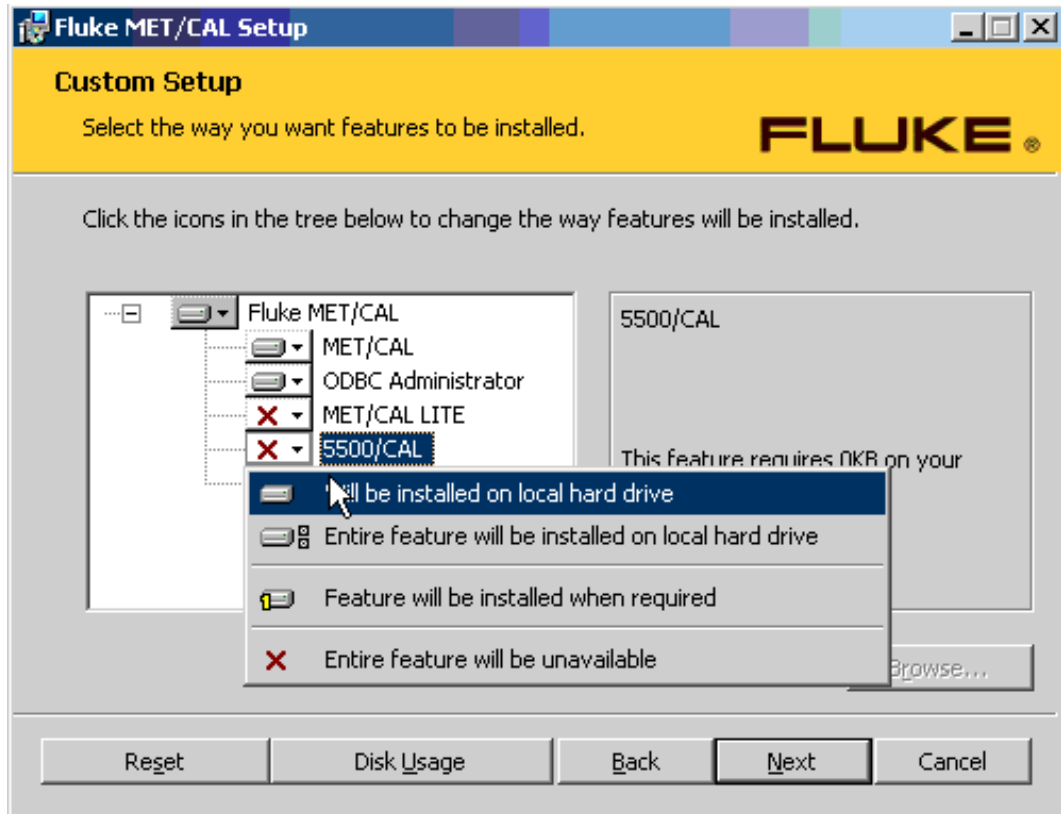


Figure 2. Custom Setup Installation

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Note

*All available applications are automatically installed when **Complete** is selected for installation. The complete list of features is:*

- *MET/CAL*
- *MET/CAL LITE*
- *5500/CAL*
- *5000A RH/T*
- *ODBC Administrator*

11. Click **Browse** on the Custom Setup dialog box to alter the installation location.

When all required selections are made, a final prompt opens with the **Install** button.

12. Click **Install** to transfer all of the installation files and selections.

When upgrading MET/CAL, the metcal.ini file located in the Windows directory is automatically transferred to the **%Programdata%** path defined in Table 2.

13. When the installation is complete, click **Finish**.
14. Remove or replace custom MET/CAL icons when the installation is complete. Icons created in previous installations are not removed when upgrading.

MET/TRACK Client New Installation

The process of upgrading and a new installation are the same. Before you begin, ensure that MET/BASE is installed either on the PC or the METBASE\Shared folder in a networked instance of MET/BASE is mapped to a logical drive on the PC. The mapped drive is required to complete the installation process for networked installations.

To install:

1. Verify that the PC meets the minimum system requirements.
2. Verify that the .NET Framework 3.5 SP1 is installed on the PC.
3. Install the Crystal Reports runtime engine. Use the **Fluke Metrology Software Installer** to install the runtime. The runtime must be installed one time on each client PC. It can be installed before you install MET/CAL or MET/TRACK.

Note

The active user must be logged into the PC as system administrator in order to complete the installation process.

The MET/TRACK installation (**Fluke-METTRACK-7.3.x.msi**) can be run from the MET/BASE shared folder, directly from the installation media or from the **Fluke Metrology Software Installer** program.

4. Follow the on-screen instructions.
5. Click **Next** to confirm each step and continue the installation process.
6. Accept the software license agreement
7. Select the product language.
8. At the **Choose Setup Type** screen, choose **Typical** to install to the default installation location. Use the **Custom** option to alter the installation paths.
9. Click **Browse** on the **Custom Setup** dialog to alter the installation path of the MET/TRACK application files.

When installing on a networked system and MET/CAL is not installed, the installer prompts for the path to the METBASE\shared folder. A second prompt asks for the entry of a Procedure Author. Most users enter their company name.

When all required selections are made, a final prompt opens with the **Install** button.

10. Click **Install** to transfer all of the installation files and selections.

When upgrading MET/TRACK the metcal.ini file located in the Windows directory is automatically transferred to the **%Programdata%** path defined in Table 2.

11. When the installation is complete, click **Finish**.
12. Remove or replace custom MET/TRACK icons when the installation is complete. Icons created in previous installations are not removed when upgrading.

DBUpdate

DBUpdate is a program located in the Fluke Calibration program group. Use it to migrate a Sybase 8 database to a Sybase 11 format that is compatible with MET/CAL 7.3. The update process does not alter the original Sybase 8 database file. Before you run DBUpdate, ensure that all Sybase services are stopped and that all Fluke Metrology Software is shut down. On Windows 7 and Windows Vista, right-click the DBUpdate shortcut and choose “Run as Administrator” in addition to being logged in as administrator to run the program.

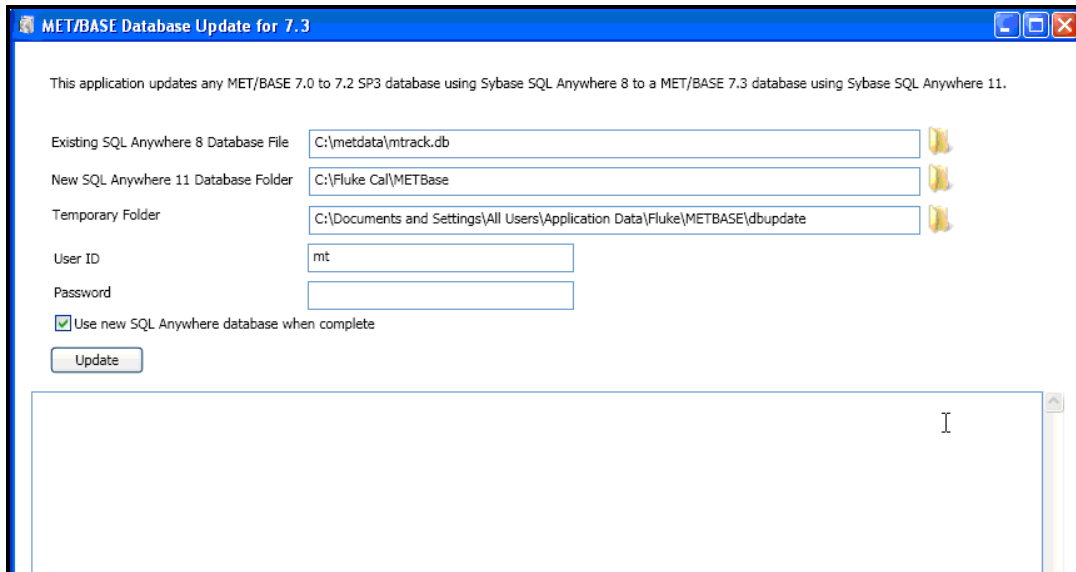
Note

The active user must be logged into the PC as system administrator in order to run DBUpdate.

The main program interface requires the selection of the database to upgrade, the location of the new database, and a temporary folder (see Figure 3). Use the folder icon next to each selection to browse to files and folders using dialog box. Ensure that both the new database location and the temporary folder location each have enough disk space to support the database size.

Enter the “mt” user credentials in the **User ID** and **Password** fields. By default, the ID and password are “mt”. The **Use new SQL Anywhere database when complete** option is provided to automatically create a database service for the new database when the migration is complete. The service name is determined by the database service name entered during the MET/BASE installation. If you use multiple databases, only select the option for one database. Services for the other databases must be created using Sybase Central.

Click **Update** to begin the process. Transactional information is listed in the text box below the **Update** button. Data transfer information is listed to the right of the folder selections at the top of the program. This information is provided as a progress indication. A prompt displays when the process is complete.



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Figure 3. Database Update Selection

Note

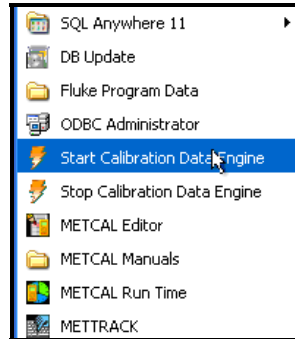
The update process can take several minutes to several hours depending on the size of the database and the performance characteristics of the PC.

Common errors that will prevent DBUpdate from completing successfully are:

- “mt” User ID/Password is incorrect.
- Temporary folder location is not empty.
- Sybase 8 or Sybase 11 database engine is active.
- Insufficient disk space in the new folder location or the temporary folder location.
- Existing database does not correspond to the log file associated with the database. This can occur if a database file is copied over an existing database file with the same name but the original log file is not copied at the same time.

Starting and Stopping the Database Engine

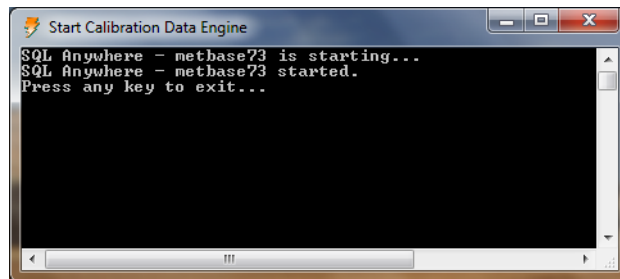
The MET/BASE installation installs the database engine service. After the installation is complete the service automatically runs each time the PC is booted. The installation also provides shortcuts in the Fluke Calibration program group to start and stop the database (see Figure 4).



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Figure 4. Database Start/Stop Shortcuts

When these shortcuts are used, a DOS window displays indicating the status of the start/stop operation (see Figure 5). Success or failure of the operation displays in the window. Press any key to close the DOS window.



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Figure 5. Database Status

Note

The active user must be logged into the PC as system administrator in order to start and stop the database. Windows 7 and Windows Vista have an additional security policy that requires that a user right-click the shortcut and specifically select "Run as Administrator" in order to complete the operation.

The Sybase Central application also provides the ability to start and stop the database engine as well as create and edit database services when more than one

database is in use. The MET/BASE installation creates a shortcut to common Sybase tools in the *SQL Anywhere 11* shortcut link in the *Fluke Calibration* program group.

To start or stop the database:

1. Launch **Sybase Central**.
2. Double click the **SQL Anywhere 11** plug-in.
3. Right-click the icon and choose “Run as Administrator” when using a Windows Vista or Windows 7 operating system. A second dialog displays including a Servers and Services tab.
4. On the Services tab, right-click the metbase server (or the server named during the MET/BASE installation).
5. Choose **Start** or **Stop** to enable or disable the Sybase 11 engine (see Figure 6).
6. Use the Services tab to create multiple services when multiple databases are active.
7. Refer to the Sybase Central Help menu for more information on creating multiple database servers.

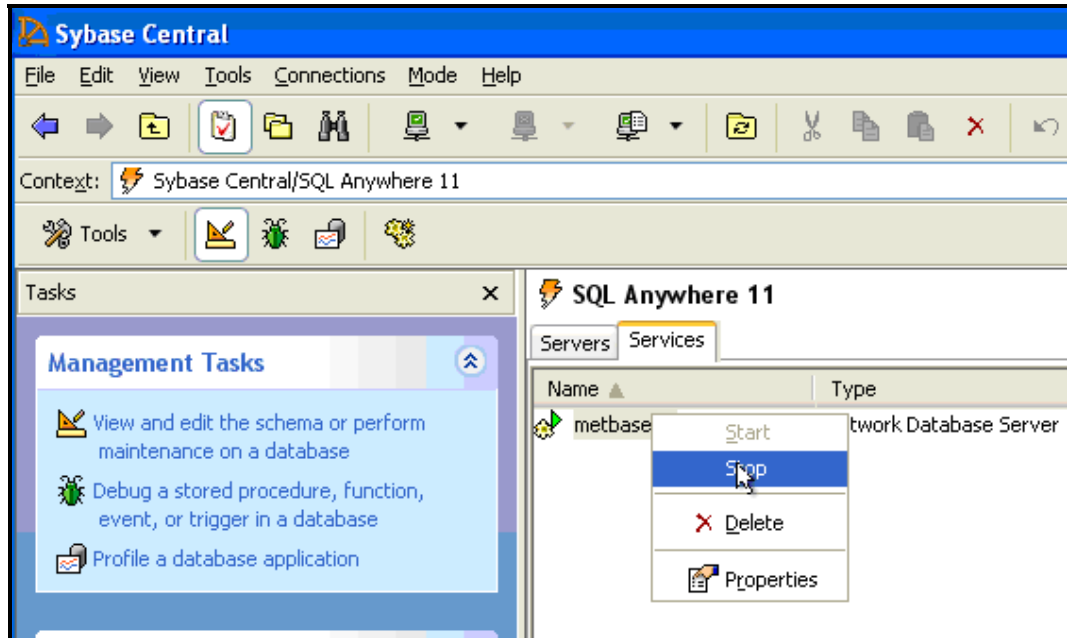


Figure 6. Sybase Central

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Licenses

To apply a license:

1. Check that the Calibration Data Engine is running.
Use the Fluke Calibration program group in the Windows Start menu to access shortcuts to start and stop the Calibration Data Engine.
2. Log into Fluke MET/TRACK with the administrative password (default is User ID: **mt**, Password: **mt**).
3. Select **Setup** from the menu bar.
4. Select **Licenses** from the Setup dropdown menu.
5. Select **Add License** from the Licenses dialog box.
6. Insert the license disk, choose the drive location of the license disk, and select **OK**.
7. Remove the license disk.
8. Repeat this process for each license disk.

Crystal Reports

Crystal Reports software enables you to design report templates (.rpt files) for Fluke Metrology Software. Your MET/BASE purchase includes a license for *Crystal Reports 12 Professional Edition*. Additional licenses are available from Fluke. MET/CAL and MET/TRACK installations include the *Crystal Reports 12 Runtime*. Several report templates are distributed with MET/CAL and MET/TRACK[®] that you may use as-is or customize.

To install Crystal Reports:

1. Insert the Crystal Reports CD into your CD drive.
2. At the prompt, run **setup.exe**.
3. Follow the on-screen instructions.
4. When asked for a Product Key Code, use the code included with the Fluke Metrology Software package.

Getting Started

This section is a tutorial that helps to set up a Fluke Metrology Software database and takes the user through a practical exercise using the database.

The calibration exercises are written for a variety of Fluke Calibrators, including the Fluke 5700A and 5720A Multi-Function Calibrator, Fluke 5500A and 5520A

Multi-Product Calibrators, and the Fluke 5800A and 5820A Oscilloscope Calibrators.

Note

Each step in the exercise reminds the user to start the Calibration Data Engine on the Server.

This exercise should take approximately 45 minutes (excluding installation time), during which time the following tasks are performed:

- Connect the calibrator to the PC.
- Add a new user to the database.
- Add to the database a calibration standard and its initial calibration record
- Specify the Port Settings.
- Change the Run Time application from its practice mode (Demo Mode) to the mode that actively controls the calibrator (Real Mode).
- Run the procedure to test communication with the calibrator.
- Load Calibration Procedures from disk.

Some of these tasks may already be completed, but are presented here to ensure this exercise provides a complete set of instructions for running a calibration. If none of these tasks have been performed, it is possible that Fluke Metrology Software will be unable to communicate with the calibrator.

Connect the Calibrator to the PC

Connecting the Calibrator involves these activities:

- Installing IEEE-488 cards if necessary. (Refer to the instructions provided by National Instruments.)
- Connecting the Calibrator to the PC.
- Configuring the Calibrator. (Consult the *Users Manual* for your calibrator.)

Below are listed the front panel configuration steps for popular calibrators.

Note

This procedure assumes that the hardware and software have been properly installed as described in the Installation and Upgrade Guide, which contains the instructions for starting and logging on to the SQL database server.

- f. Select a unique IEEE-488 address for the instrument. The following list shows the default addresses for the subject calibrators. For a different value, be sure to set MET/CAL to match the address.

Calibrator	Default Address
5500A	4
5520A	4
5800A	8
5820A	8

- g. Click **PREV MENU** until given the option to **STORE CHANGES**.
- h. Store the changes.
- i. Click **PREV MENU** button to return to the initial menu.

Connecting the 5500A, 5520A, 5800A, and 5820A Calibrators to a Serial Port

This procedure assumes that the available serial port is COM2. If connecting your Calibrator to a different port, substitute your port number for COM2.

To connect:

1. Connect the correct serial cable between the serial port COM2 on the PC and the Calibrator.
2. Use the front panel controls to configure the Calibrator to accept information on the serial port:
 - a. Click **SETUP**.
 - b. Click **INSTMT SETUP**.
 - c. Select **REMOTE SETUP**.
 - d. Change **Host** to **Serial**.
 - e. Select **Host Setup**.
 - f. Set the parameters:
 - Data Bits = 8
 - Stop Bits = 1
 - Stall = XON/XOFF
 - Parity = None
 - Baud Rate = 9600
 - g. Click **PREV MENU** until given the option to **STORE CHANGES**.
 - h. Store the changes.

- i. Click **PREV MENU** to return to the initial menu.
3. Go to the Windows Control Panel > Windows Device Manager to configure the COM2 port.
4. Open the COM2 port properties and configure the parameters to match those specified above.

Add a User to the Database

Explanation

New users are added to the Fluke Metrology Software by starting the MET/TRACK application. The MET/TRACK application has two modes. The Configuration Mode allows the initial database configuration including Adding Users and Password. This mode requires a special log in name and password, which is different from log in names and passwords established for all other Fluke Metrology Software applications. The system is set up this way to limit the number of users that can add new users to Fluke Metrology Software. This helps to establish security and control access to Fluke Metrology Software applications. Users that add and remove other users from MET/TRACK are considered as the Fluke Metrology Software administrator.

The second mode is the MET/TRACK mode. This mode requires log in names and passwords different than the log in name and password used to configure the system. As shipped, the default User Name is **fluke** and the password is **fluke** for the MET/TRACK application.

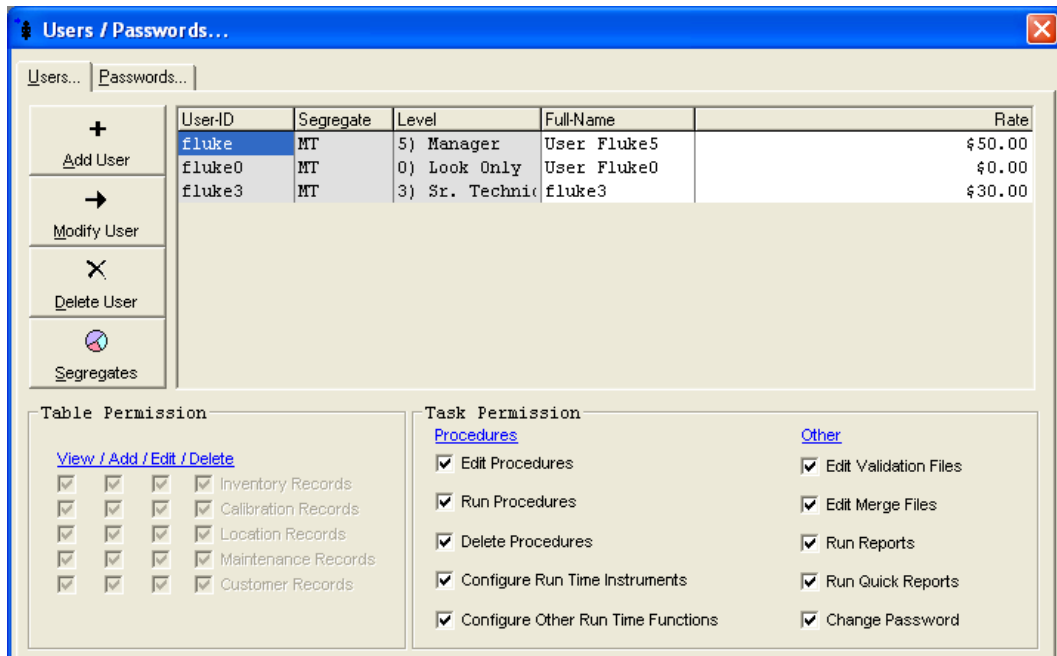
In this exercise, start MET/TRACK and add a new user name and password to the system. Later, this user name will be used to execute a calibration procedure. To do this, you need to know the administrator-level log in name and password. As shipped, Fluke Metrology Software is pre-configured with an administrator user. The log in name is **mt**, and the password is also **mt**. When you are directed to “log in as the mt user,” this means to log into an application using the mt log in name and password. Later, you can change the password, so access to MET/TRACK will require a unique password for your site that only your Fluke Metrology Software administrator knows.

Procedure

This procedure describes how to set up additional users. To add a user to the database:

1. Start the Calibration Data Engine on the server, if it is not already running.
2. Start the MET/TRACK application and connect to the database as the MT user. This opens the MET/TRACK application in the Configuration Mode.

3. On the Main Menu, select **Set-up, Users/Passwords**. The Users/Passwords dialog box opens, see Figure 7.

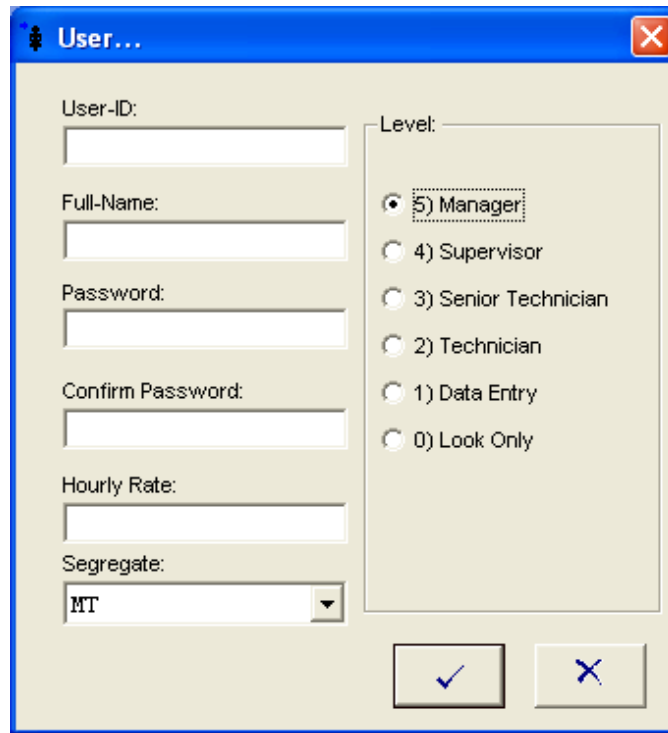


zu01s.bmp

Figure 7. Users/Passwords Dialog Box

4. Select **Add User**.

The User dialog box opens, see Figure 8.



zu02.bmp

Figure 8. User Dialog Box

5. Fill in the **User-ID** and **Full-Name**. The full name is used in the MET/CAL reports and should not be fictitious.
6. Confirm the password by typing it again in the **Confirm Password** field.
7. Enter a labor rate for this user in the **Hourly Rate** field.
8. Select the access level.
 - A level 0 user has read-only access to the database.
 - Level 1, 2, and 3 users have access that can be defined by the MT user using the MET/TRACK configuration mode application.
 - A level 4 user has access to all calibration functions and administrative functions that deal with the administration of procedures.
 - A level 5 user has access to all Fluke Metrology Software functions (except those reserved for the MT user).

For this exercise, level 4 is appropriate.

9. Users in the MT segregate can access assets in all segregates. If you are not using customized segregates, it is best to assign all users to the MT segregate. Refer to the *MET/TRACK Users Manual* for more information on segregates.
10. Select **OK** to complete the addition of a user to the database.

Add a Standard to the Database

Explanation

The default calibration database installed with MET/TRACK contains a number of sample assets for demonstration purposes. Later in this tutorial, you will run a MET/CAL procedure using a 5700A, 5720A, 5500A, 5520A, 5800A, or 5820A Calibrator. If the calibrator is not identified as a standard in the database, the MET/CAL procedure will not execute.

In addition, the new calibrator must be in calibration so that the traceability hierarchy has a valid starting point. Any time a new standard is added to the database, add at least one calibration history record indicating the standard to be currently in calibration.

Procedure

To add a standard to the database:

1. Start the Calibration Data Engine on the server, if it is not already running.
2. Launch **MET/TRACK**.
3. Log in.
4. From the main menu select **Add, Inventory Record**. The New Instrument dialog box opens (Figure 9).

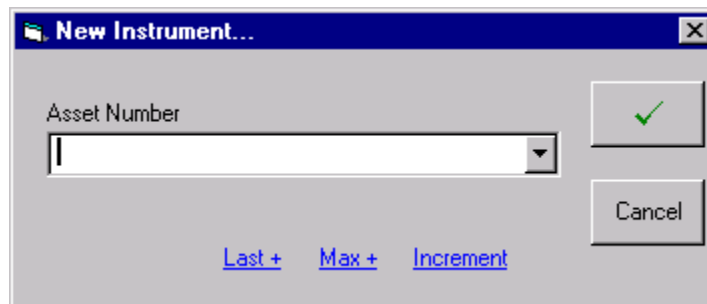



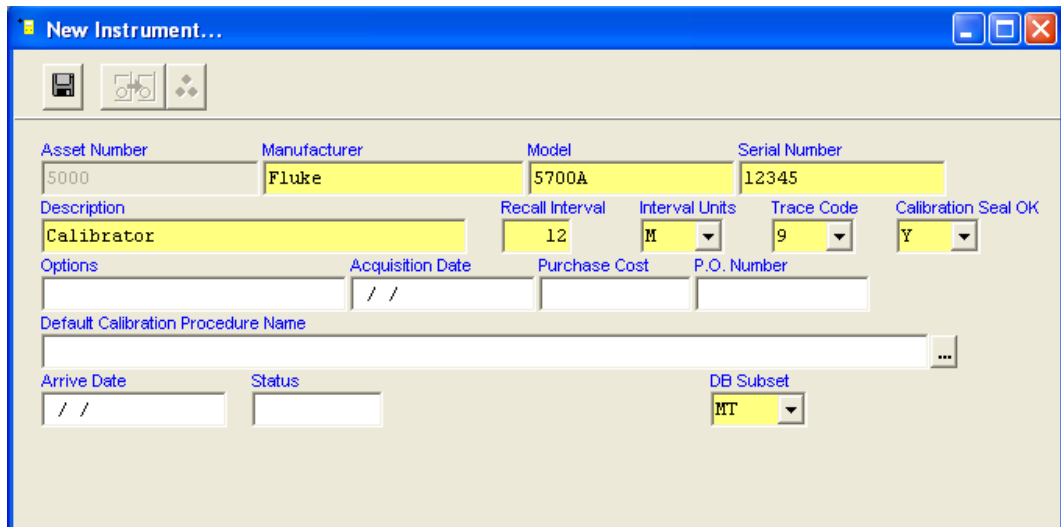
Figure 9. New Instrument Asset Number

zu03.bmp

5. Enter the **Asset Number** for your Calibrator and click .

At this point, the MET/TRACK application checks the Inventory records to see if the asset already exists in the database. If not, the Inventory form is displayed with your new asset number filled in (Figure 10). All of the fields that require data will be displayed in yellow, the default color for required fields.

6. Press **Enter** or **Tab** to move to the next field.



zu04.bmp

Figure 10. New Instrument Inventory Form

7. Enter the model name in the **Model** field. Press **Enter** or **Tab** to advance to the next field.
8. Enter the remaining required instrument data.

If a field is not applicable, leave it blank. You must fill in certain fields (called required fields) before you can exit the form. The administrator can change the required fields by customizing the database. See the *MET/TRACK Users Manual* for details.

These fields require some explanation:

- **Interval Units** defines the units in which the calibration interval is measured; for example, days (**D**), weeks (**W**), months (**M**), (**U**) uses, or (**N**) never requires calibration. **Master Recall Interval** is the maximum number of **Interval Units** between required calibration events. For example, 90 days, 12 weeks, or 12 months.

- **Trace Code** determines the standards hierarchy. Each asset is assigned a particular value reflecting whether one instrument is capable of acting as a standard for another. The default specifies “0” through “9” with “0” being the most accurate standard. The trace codes are completely user configurable alphanumeric values. It is recommended to set the trace code to 1 for a calibrated standard.
9. When you have entered data, click **Save**.

If any required fields are left blank, a prompt indicates that required data is missing. The record cannot be saved until you update all required fields.
 10. Enter the initial calibration for the standard. (Assume the calibration standards are calibrated by an outside vendor.) From the main menu, click **Add Calibration Record** or press **F3**. The New Calibration Record form opens (Figure 11).


The screenshot shows a software window titled "New Calibration Record...". The window contains several input fields and sections. At the top, there are icons for Save, Print, and other functions. Below that, there are fields for "Cal-date" (02/10/2010), "Cal-Time" (15:46:07), "Pass" (Y), "Due-Date" (//), and "Due-Time" (_:_:_). There are also fields for "Work Order", "Temp" (23.0), "Humidity" (45), "Interval" (12), "Interval Units" (M), "Failed Tests", and "Marginal Tests". Below these fields, there is a section for "Calibration Procedure Used" with a text area and a button. There is also a "Comment" field. Below that, there is a section for "Standards Used" with a table that has columns for "Asset Number", "Comments", and "Standards". At the bottom of the form, there are buttons for "Last Used", "Any Used", "STD SEG", and "STD Table". The status bar at the very bottom shows "Asset Number: BulbRef", "Manufacturer: Bulb Inc", and "Model: BulbRef".

Figure 11. New Calibration Record Form

zu05.bmp

11. Enter the calibration date (**Cal-date**) for your calibrator or, for this exercise, simply accept the default date.
12. Under the **Pass** field drop-down menu, select **Y**.

As you tab through the remaining fields, the **Due Date** automatically updates based on the calibration interval you entered on the Inventory form.

- Click  to select the **Calibration Procedure Used**.
- To enter **Standards Used**, go to the menu.
- Select the **STD Table** button and select “FLUKE CORPORATION” as the standard from this table. The standard now appears in the standards used window and on the calibration record.

Note

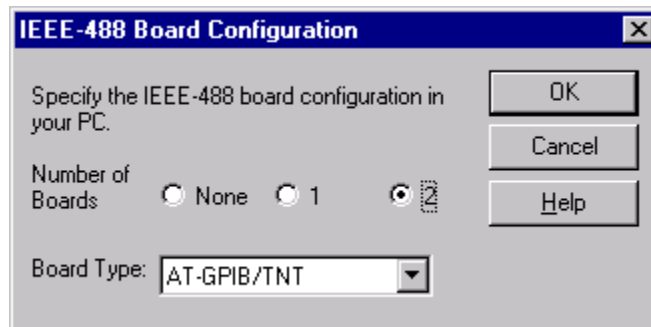
To represent outside vendor calibrations, an asset with the Asset Number of “FLUKE CORPORATION” is loaded in the Fluke Metrology Software database when it is shipped.

- Save data and close the MET/TRACK application.

Specify the Communications Settings

If your calibrator is connected to the IEEE-488 interface:

- Open the MET/CAL Run Time application.
- Select **Configure** and **IEEE-488 Boards**. The dialog box shown in Figure 12 opens.



zu06.bmp

Figure 12. IEEE Board Configuration

- In this dialog box, specify ALL of the following:
 - Number of IEEE-488 Boards that are in the computer.
 - What type of IEEE-488 boards they are by manufacturer’s model names.
 - If your computer contains two boards, they must be the same manufacturer and model type.
- Once you have specified the required information, click **OK**.

Configure the Standard

Explanation

The record for the calibration standard added in the previous section of this exercise placed traceability information for the Calibrator in the database. Next, the individual workstation must be configured to tell Fluke Metrology Software that the calibration instrument at a specific workstation corresponds to a standard in the database.

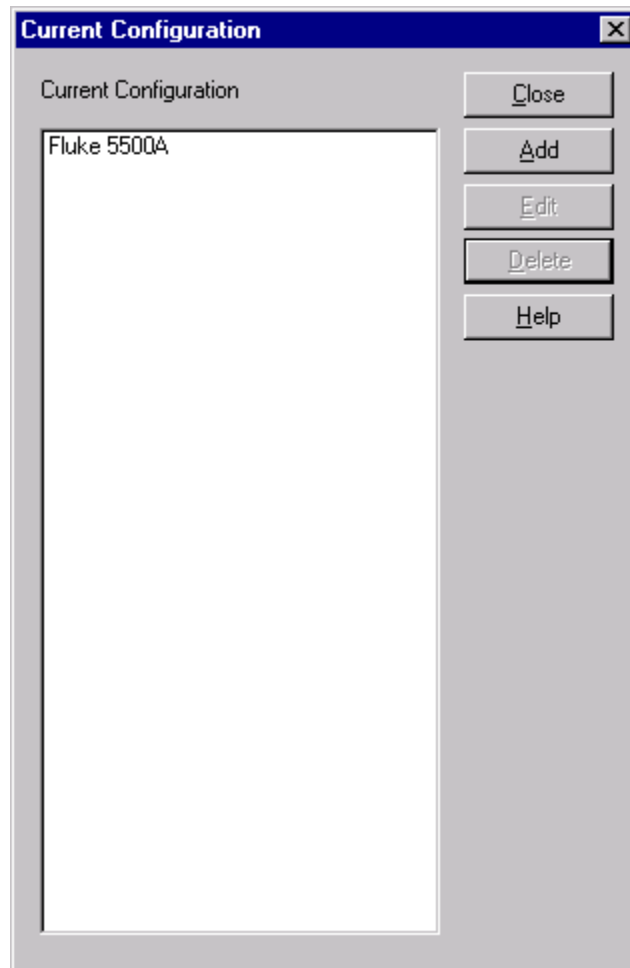
To understand why this is necessary, consider a network that includes two or more workstations, each with a Fluke 5500A performing calibrations. The procedure that follows would inform MET/CAL which 5500A was connected to which workstation.

Procedure

To establish the communication bus on which the calibrator will be connected and configure a calibration instrument:

1. Start the Calibration Data Engine on the server if it is not already running.
2. Start the MET/CAL Run Time application.
3. Log in as the user created in “*Add a User to the Database*” on page 23.
4. From the **Configure** menu, select **Instruments** or press **F12**.

The configuration displays in a dialog box (Figure 13).



zu07.bmp

Figure 13. Current Configuration Dialog Box

This dialog box displays the currently configured instruments for the workstation, and provides the opportunity to edit the configuration, add a new instrument, delete an instrument, and to specify the I/O location where the instrument is connected to the computer.

5. To configure a specific calibrator, do either **a** or **b**:
 - a. If the Current Configuration contains the calibrator attached to the system, use the mouse (or Up or Down arrow key) to select the calibrator and click **Edit** or double-click the mouse.
A System Instrument dialog box for your calibrator opens.

OR

- b. If the Current Configuration window *does not contain* the calibrator attached to the system, click **Add**. A new instrument list displays.

Use the mouse (or Up or Down arrow key) to select the calibrator and click **OK** or double-click the mouse.

The System Instrument dialog box in Figure 14 opens:

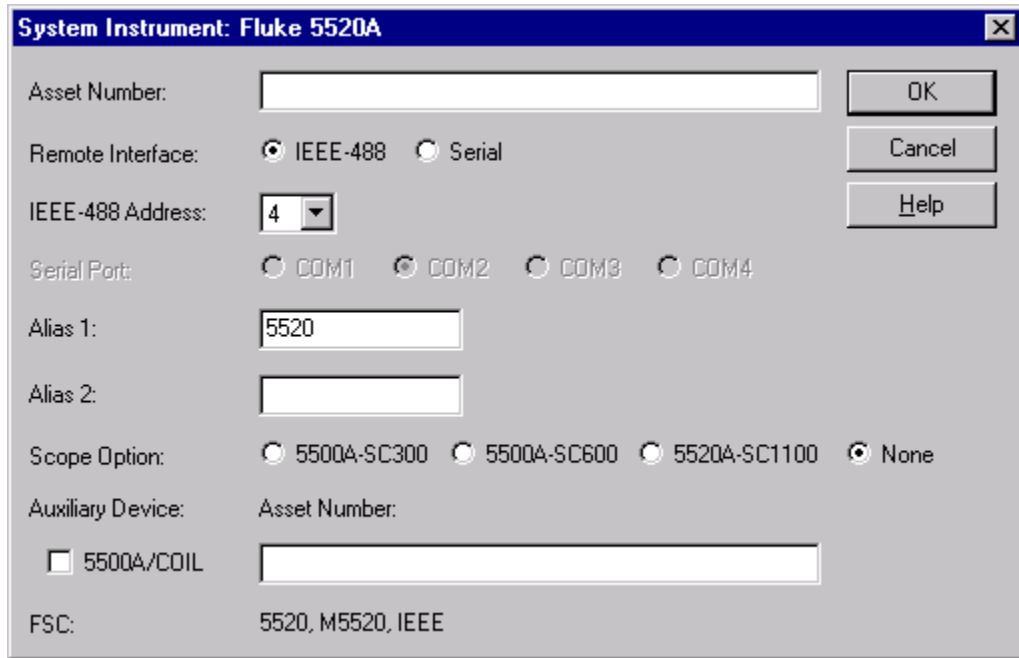


Figure 14. System Instrument Configuration Window

6. Enter data that corresponds to the selected calibrator.
7. Close the System Instrument dialog box. The instrument is now configured in MET/CAL for this workstation. Close the application.

The next step is to establish the communication bus (i.e., IEEE-488 or Serial Port).

Change the Run Time Application to Real Mode

Explanation

Fluke Metrology Software is shipped so the Run Time application will start up in Demo Mode, a practice mode in which calibration procedures will execute, but the software does not actually control the calibrator. This permits you to explore the

various features and test run procedures even though you do not yet have any hardware configured or connected.

For this exercise it is best to work with the actual equipment and database that you will be using and change the Run Time application out of the Demo Mode and into Real Mode.

Procedure

To switch MET/CAL Run Time from Demo Mode to Real Mode, do the following:

1. Start the Calibration Data Engine on the server if it is not already running.
2. Start the Run Time application.
3. Log in as FLUKE or the user created in “*Add a User to the Database*” on page 23.
4. Select the **Options** menu.
5. Click the check in the **Demo Mode** box to switch to Real Mode. The **Options** menu will close.

The system is now in Real Mode. Close the Run Time application or leave it open to start the next step.

Run a Procedure to Test Communication with the Calibrator

Explanation

Several simple calibration procedures have been pre-installed to test system operation. If you are using a 5700A, 5720A, 5500A, 5520A, 5800A or 5820A with MET/CAL, you can proceed with this example. If you do not have one of these instruments connected to the system, you can still proceed with this test, but you must put the Run Time application back into Demo mode. The supplied test procedures are:

- Simple Test of 5700A Operation
- Simple Test of 5720A Operation
- Simple Test of 5500A Operation
- Simple Test of 5520A Operation
- Simple Test of 5800A Operation
- Simple Test of 5820A Operation

In the test that follows, select the appropriate procedure, depending on your choice of calibrators.

This section demonstrates the MET/CAL Run Time application by running an actual procedure. It also verifies that the Calibrator is set up properly to work with Fluke Metrology Software.

Procedure

To run a calibration procedure:

1. Turn on the Calibrator and allow it to warm up and stabilize.
2. Start the Calibration Data Requester on the client, if it is not already running.
3. Start the Run Time application and log in as the user created in “*Add a User to the Database*” on page 23.
4. Select **Calibrate** on the menu bar. The Procedure Selection dialog box opens.
5. Use the mouse (or Up or Down arrow key) to select the appropriate test procedure for the selected calibrator.
6. Click **OK**.
7. At the prompt, enter the Asset Number for the UUT.
8. Enter **SAMPLE-87** and press **Enter**.

Additional screens prompt for other required data, such as environmental data that should be available in your lab.

9. Move through the fields with the Tab key, entering data as appropriate. When finished, click **OK** or press **Enter**.

A series of screens display as the system establishes communication with the calibrator. If the calibrator is not found, an error message may display such as “COM2 Timeout” or “IEEE-488: Bus timeout error.”

10. If this should occur, click **Terminate** to stop the procedure.
11. Solve the communication problem before proceeding.

Note

The cause of the communication problem is likely to be that:

- *The calibrator is not set to the proper address.*

OR

- *The calibration instrument is not correctly entered in the system configuration file.*

Check these two items first. If the problem persists, it is possible there is an internal address conflict with the COM port or IEEE card. Consult the hardware documentation to correct the problem.

After communication is established with the calibrator, the procedure runs to completion.

12. Follow the prompts and input data as required.
13. When the procedure is complete, remove all connections to the UUT when prompted to do so.

An additional prompt for comments and other pertinent data displays. It is possible to customize what information is prompted. Finally, the Post Run Results dialog box displays.

You can set up a number of formatted reports with the radio buttons on the left. The control buttons on the right allow you to view, save, or print the reports.

Note

- *Notice the Discard Data on Close checkbox at the bottom of the screen. This option is disabled when Fluke Metrology Software is shipped. When enabled, this option discards the just completed calibration event from the database.*
- *Notice the Test Results icon in the Run Time screen. Double-click it to view the test result listed in text form. This data is stored in the Results table of the SQL database and can also be viewed using the MET/TRACK application.*

14. Click **Close** on the Post Run Results dialog box.

The calibration procedure is complete and the results can be viewed, printed, or edited using the MET/TRACK application.

15. Close the Run Time application.

Load a Procedure

Thousands of calibration procedures are available to Fluke Metrology Software Gold Plan members. Because of their great number and the amount of disk space they can potentially occupy, installing them is a separate task from the main installation. In addition, those who purchase only MET/TRACK licenses require no procedures at all, and others may want to install only a few of the many that are available.

The Procedure Installation program simplifies the process, because it automatically detects and includes all files needed for each procedure it installs. Follow the on-screen instructions provided by the procedure installation program. The steps guide you through the procedure installation process.

What to Do Next

The supplied examples are provided as an operational overview of the Fluke Metrology Software. For more information about the software function, see the *MET/TRACK Users Manual* and *Metrology Software Users Manual*.

Running a Calibration Procedure

To calibrate instruments, open the Run Time application and select the procedure to use from the **Calibrate** menu. If you have installed a procedure for an instrument to calibrate, it appears on the Run Time list.

Fluke strongly advises that you put in place a backup plan before adding new information to the database. Refer to the Sybase Central Help file for more information on how to backup the database.

Before you start a calibration:

- Ensure that the Calibration Data Engine is running.
- Log into the Run Time application.

Adding Users

In the Getting Started exercise, one user was added to the database. Follow the same steps to add other users. It is important to add users and their respective access rights to protect the integrity of the system.

Adding Company Information

Besides adding users, the Database Setup application has a selection for adding company information. This information can be automatically substituted into any custom reports and certificates.

Configuring the System or the Workstation

It is possible to set a number of operating parameters that control the way Fluke Metrology Software operates at both the system level and at each workstation. System-level settings are done using the MET/TRACK configuration mode application. Individual workstations are set up using the Run Time application. Both topics are covered in the *MET/TRACK Users Manual*.

Advanced Topics

After using Fluke Metrology Software for a while, it is common to investigate the features provided for more advanced tasks.

Customizing a Provided Report

Frequently, one of the first things that a new site wants to customize is the appearance or content of a report. The report formats provided with Fluke Metrology Software are an excellent starting place for creating reports tailored specifically to your needs. See the *MET/TRACK Users Manual*, the *Crystal Reports Users Manual*, or refer to the Fluke Metrology Software on-line help.

After you customize a report, it must be added to Fluke Metrology Software. To install reports, log into MET/TRACK as the "mt" user, select the **Setup** menu and then the **Install Reports** option. See the *MET/TRACK Users Manual* for more information.

Customizing Database Fields and Forms

Some sites use all Fluke Metrology Software forms as they are, while others need to customize some of the forms or fields. For example, a particular field may never be used. In this case, including that field may be a source of confusion. Alternatively, there may be additional fields used to track assets. In this case, a custom field or one of the many additional database fields can be used to expand the database to the application.

The use of custom fields typically leads to customizing reports to include the custom fields. It is recommended to customize reports only after all field and form changes are complete. For more information about custom database fields and forms, see the *MET/TRACK Users Manual*.

License Agreement

Components of Fluke Metrology Software use open sources libraries that fall under different license agreements. All such libraries and their corresponding license agreements are installed in the executable directories of MET/CAL, MET/TRACK and MET/BASE. See Table 2 on page 7. By default the libraries and corresponding license agreements are hidden files.

The license agreement for MET/CAL, MET/TRACK, and MET/BASE displays during the installation process.

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