

Remote Pipeline®

Operation and Setup Manual

Revision 1.1

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Section 1- Introduction

Remote Pipeline Overview

Remote Pipeline allows you to merge added and changed data from a remote MET/CAL Plus database (Version 6.x and 7.x) with a MET/CAL Plus *Master Database*. This gives the calibration laboratory the added flexibility of performing calibrations and database updates with a remote computer and updating the master server at a later time through the company's Local Area Network (LAN) or Wide Area Network (WAN). The following diagrams show the two basic modes of operation with Remote Pipeline.

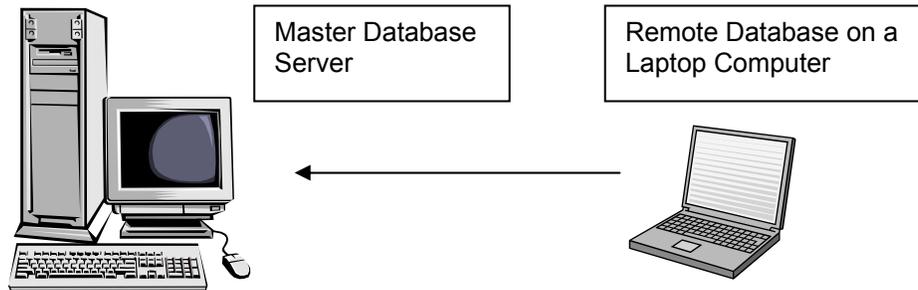


Figure 1 - Single Remote with a laptop Computer

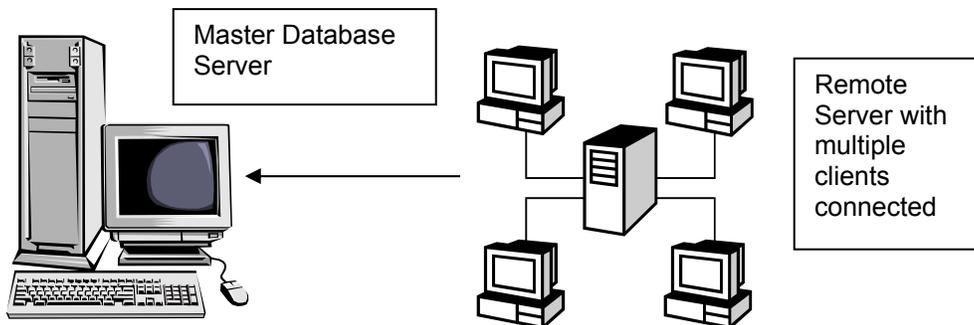


Figure 2 - Remote Server with Multiple Clients

In Figure 1, we have a simple laptop installation. The *Master Database* on the server is copied to the laptop computer. The laptop computer is operated as a standalone system. After the remote work with the laptop is completed, the additions and updates are uploaded to the *Master Database* via networking.

In Figure 2, we have a remote server with clients. The *Master Database* from the master server is copied to the remote server. The remote server operates with the client computers connected via networking. An example of this configuration might be used where a remote server is taken to another site, and connected to client computers on a small LAN to perform calibrations. After the work is complete, the remote server is connected via WAN or LAN to the master server and the updates are sent to the *Master Database*.

The following terminology is defined for this document and will aid in understanding the different operational modes of Remote Pipeline:

Replication – The process of creating a complete copy of the *Master Database* and then replacing the previous *Remote Database* with a copy of the *Master Database* on the remote system.

Synchronization – The process of updating the *Master Database* from the *Remote Database*. This process will update modified records and add new records to the *Master Database* from the *Remote Database*.

Remote Pipeline Restrictions

The following is a list of restrictions on the use of Remote Pipeline with the *Remote Database*:

- If you are using MET/CAL version 6.x, DBSETUP is disabled on the *Remote Database*. If you are using MET/CAL version 7.x, the "MT" administrator logon is disabled on the *Remote Database*. Be sure that any user accounts required by the *Remote Database* are entered into the *Master Database* before creating the *Remote Database*.
- Merge Data is not updated from the *Remote Database* to the *Master Database*. This includes any changes, additions, or deletions.
- Deleted records on the *Remote Database* are not deleted on the *Master Database*. For example, if you delete an existing calibration record or inventory item on the *Remote Database*, this deletion will not occur on the *Master Database* during synchronization.
- Licenses must be installed on the *Master Database* first and then transferred to the *Remote Database* using Remote Pipeline. When the data is synchronized from the *Remote Database* back to the *Master Database*, these licenses can be transferred back to the *Master Database*. You cannot load license disks into a *Remote Database* since DBSETUP is disabled.
- There is only one level of *Remote Databases* supported in Remote Pipeline. For example, you cannot have a *Master Database* connected to a *Remote Database*, then the first *Remote Database* connected to another *Remote Database*. There is no peer-to-peer mode in Remote Pipeline. Two *Remote Databases* cannot synchronize with each other.
- Both the *Master Database* and *Remote Database(s)* must be the same version/revision of software and the database applications used on the *Master Database* and *Remote Database(s)* must be the same version and revision. Remote Pipeline supports all of the 6.x and 7.x versions
- **The *Master Database* and *Remote Database(s)* must have the same physical file name for each database.** You must apply an alias name for these databases to make them appear unique through ODBC. This subject will be discussed in more detail under "Configuring ODBC".
- Remote Pipeline does not replicate or copy MET/CAL procedures and Crystal reports. It is the responsibility of the database administrator to provide the procedures and reports on the remote system.
- *Remote Pipeline* users must exist in the MT segregate. They cannot be associated with another segregate.
- When using the remote database as a server (servicing multiple clients as opposed to just running standalone on a laptop), Remote Pipeline MUST access the *Remote Database* server and not a client on the remote system.
- The user must have a security level of 4 or 5 for a normal user to sync data. The MT user is OK.

Database Licenses Supported by Remote Pipeline

The following database licenses are supported by Remote Pipeline and can be transferred from the *Master Database* to the *Remote Database* and back to the *Master Database* when required:

- **MET/CAL-L** (Fluke) – Used for automated calibration systems that require IEEE-488 automation.
- **5500/CAL-L** (Fluke) – Used for automated calibration systems that do not require IEEE-488 automation. Great for manual type procedures.
- **MET/TRACK-L** (Fluke) – Used for manual data entry updates and new record database entries.
- **Barcode Magician** (ON TIME SUPPORT) – Used for automating redundant database entries such as inventory status updates and adding new location records.
- **PROCESS/TRACK** (ON TIME SUPPORT) – Used to automate the Fluke Documenting Calibrators (702, 743B, 744A) and record the data using the existing MET/CAL format.

Later in this document, we will describe the procedure to allocate licenses between the *Master Database* and *Remote Database(s)*.

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Section 2-Installation

Program Installation

Before actually installing the software, **the remote system must already have a standalone MET/CAL Plus installation** using a separate MET/BASE system engine than what is installed on the *Master Database*. In order for the remote system to operate properly, all of the MET/CAL applications, OTS applications, and a database have to be installed on the remote system. The customer should purchase a separate MET/BASE system engine for each *Remote Database*.

The installation procedure comprises two steps. First, the Remote Pipeline application should be installed on the computers that will host the *Remote Database(s)*. If you have more than one remote computer with a database, then Remote Pipeline will have to be installed on each remote system and each remote system requires a separate MET/BASE system engine and Remote Pipeline software license.

Second, the Remote Pipeline software will have to be registered with the *Master Database*. The software registration should be performed for each installation of Remote Pipeline.

Insert the CD into the CD-ROM drive. If the installation does not automatically start, select **Start** followed by **Run** and enter "D:\rempipe\setup.exe" where 'D' is the drive letter of your CD-ROM, then select 'OK'. Select the Metcal folder to install the program files and place the "OTS Registration Manager" in the "Fluke Metrology Software" program group.

Software Registration

Remote Pipeline is not able to operate until it has been registered. A registration certificate may have been included in the materials that Remote Pipeline was shipped in. If no registration certificate was included, then please contact On Time Support using one of the methods listed on the back cover of this manual.

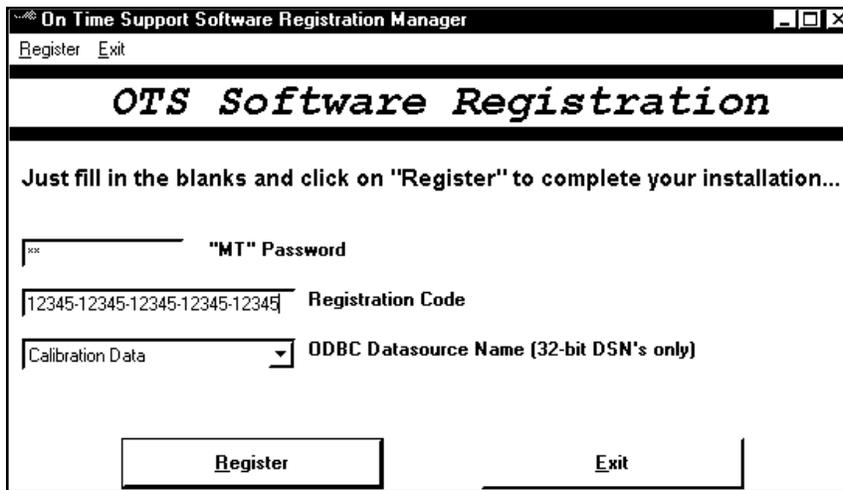
If you were given a registration certificate, or have obtained a registration code from On Time Support, then you are ready to proceed. **You should backup your database before installing Remote Pipeline.**

Choose a workstation that is configured for operation with the *Master Database* and close all the Fluke client applications. Make sure all users are disconnected from the database prior to installing the Remote Pipeline Program.

NOTE: If you already have Remote Pipeline installed on a version of MET/CAL and you upgrade to a newer version of MET/CAL, then you will need to re-register Remote Pipeline. Remote Pipeline is customized to the database format of each version of MET/CAL. Remote Pipeline installs the appropriate components into the database for your version of MET/CAL. Remote Pipeline cannot automatically update the database when a MET/CAL version is updated. If you have questions about this process, please call ON TIME SUPPORT for assistance.

In the "Fluke Metrology Software" program group (or wherever you instructed the installer to place the icons); you should see an icon titled "OTS Registration Manager". Double-click on this icon to start the software registration utility.

You will be presented with a screen with 3 boxes requiring information. The first one requires your "MT" (MET/CAL system administrator) password. Enter the password for the "MT" user. The next box is for the entry of the registration code. Enter the registration code provided, including the "dashes" (-). In the final box, select the 32BIT-ODBC data source that is used to connect to the **Master** MET/CAL database. This is normally a source called "Calibration Data".



The screenshot shows a window titled "On Time Support Software Registration Manager". At the top, there are "Register" and "Exit" buttons. Below this is a header area with the text "OTS Software Registration" in a stylized font. Underneath the header, a message reads: "Just fill in the blanks and click on 'Register' to complete your installation...". The form contains three input fields: a password field labeled "'MT' Password" with a masked input (asterisks), a text field labeled "Registration Code" containing the value "12345-12345-12345-12345", and a dropdown menu labeled "ODBC Datasource Name (32-bit DSN's only)" with "Calibration Data" selected. At the bottom of the form, there are two buttons: "Register" and "Exit".

Click on Register, and the program will install and register Remote Pipeline and update MET/CAL to allow for Remote Pipeline operation.

If there is an ODBC connection problem during the registration process, then refer to the section of this manual on configuring ODBC, and then re-register Remote Pipeline after making modifications.

Figure 3 - OTS Registration Manager

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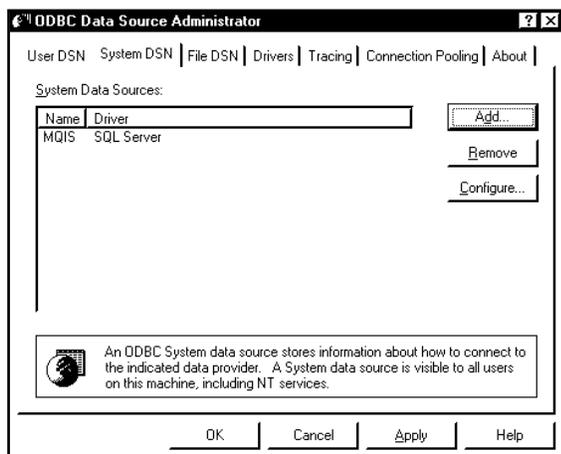
Section 3-ODBC Configuration

MET/CAL Plus Ver 6 ODBC Configuration for the *Remote Database*

NOTE: Before using Remote Pipeline with MET/CAL Plus version 6.x for the first time be sure to review this section.

Configuring the ODBC Data Source name for the MET/CAL version 6.x *Remote Database* is a different configuration than for the *Master Database*. For example, if Remote Pipeline is going to be installed on a laptop computer, then two different database sources have to be configured, one for the *Master Database* and one for the *Remote Database*. In our example, the remote laptop computer is going to communicate with the *Master Database* via the Sybase Network Requester over the network. With the *Remote Database*, the ODBC source is configured differently and does not use the Sybase Network Requester, but instead actually starts the database server engine. Each remote system should have a different "alias name" and this will be described later in this section. In our example, we are going to assume that the remote laptop computer is already communicating with the *Master Database*. We are only going to describe the ODBC configuration for the *Remote Database*.

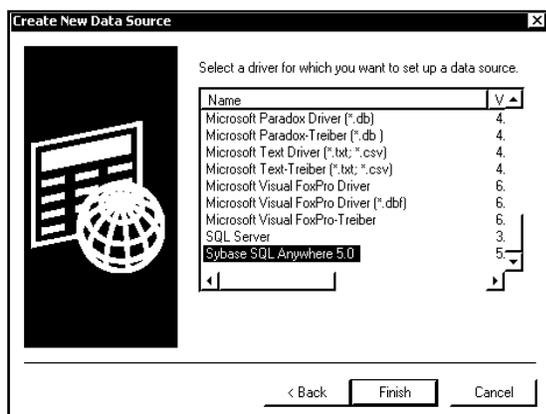
Adding the Sybase Anywhere 5.5 Data Source for the *Remote Database*



This step configures the 32-Bit ODBC for use by Remote Pipeline. To start the configuration for Windows 95, 98, and NT, select **Start | Settings | Control Panel | 32-Bit ODBC**. If you are using Windows 2000 select **Start | Settings | Control Panel | Administrative Tools | Data Sources (ODBC)**. If the 32-Bit ODBC icon is not visible, close the Control Panel and select **Start** followed by RUN, and enter "odbcad32.exe". The following example is shown with Windows 98.

Select **System DSN** and you should have a screen like the one at left. Select **Add**.

Figure 4 – MET/CAL 6.x - 32 Bit ODBC Data Source Listing (Win 98)

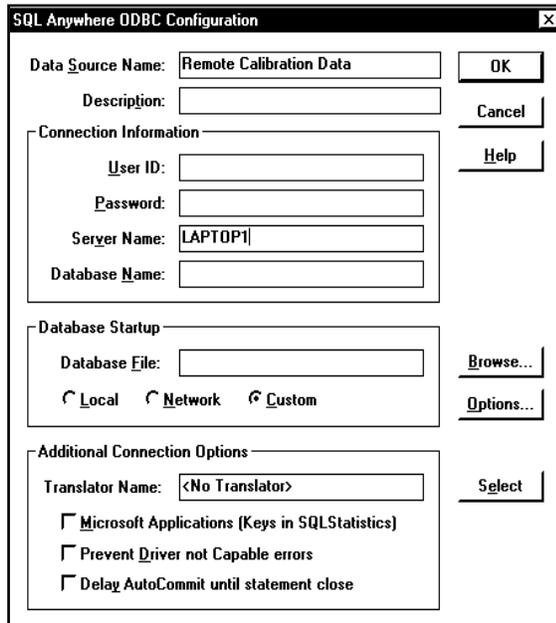


You should see the screen at left: (may be different for various versions of the operating system). You need to select the data source, which is Sybase SQL Anywhere 5.5.

As stated earlier, these instructions assume that the 32 Bit Sybase drivers have been installed. After selecting the Sybase driver, click on **Finish**.

Figure 5 – MET/CAL 6.x - Selecting the Sybase Drivers (Win 98)

Setting the Remote ODBC Data Source Name



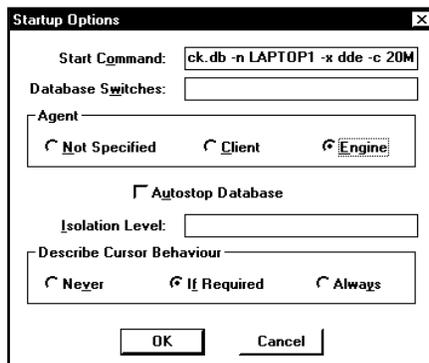
Because the *Master Database* uses Calibration Data for the ODBC **Data Source Name**, we need to add a data source name for the *Remote Database*. Enter "Remote Calibration Data" for the *Remote Database*. NOTE: It is possible to use another data source name, especially when more than one database has been configured.

Note: It is very important to determine an "alias name" for the *Remote Database*. If you do not configure an alias name, the server name will be "mtrack", and if the *Master Database* uses mtrack, you will not be able to run the *Remote Database*. For practical purposes the *Master Database* should not use "mtrack" either and also should have an alias name.

So for our example, we are going to make up an alias name for our *Remote Database* and our alias name is **LAPTOP1**. We have added **LAPTOP1** for the Server Name in our example at left. Click the **Options** button.

Figure 6 – MET/CAL 6.x - ODBC Data Source Name

The next step is to create the Start Options for the *Remote Database*. When you added the new "Remote Calibration Data" source name, the program defaulted to the following command on the Start Command line: C:\SQLANY50\WIN32\dbeng50.exe. **This command line must be changed.**



A screen similar to the one at left is displayed. For our example we have entered the following in the Start Command:

C:\SQLANY50\WIN32\dbsrv50.exe C:\metdata\mtrack.db -n LAPTOP1 -x dde -c 20M

Replace "C:" with the drive letter where the Sybase software is installed. You must enter the complete path and file name for the database. Notice that the actual database filename is mtrack.db. However, by adding -n LAPTOP1, This alias will associate LAPTOP1 with the mtrack.db database file. Select "Engine" in the Agent window and be sure to leave Autostop Database unchecked.

Figure 7 – MET/CAL 6.x - ODBC Options Configuration

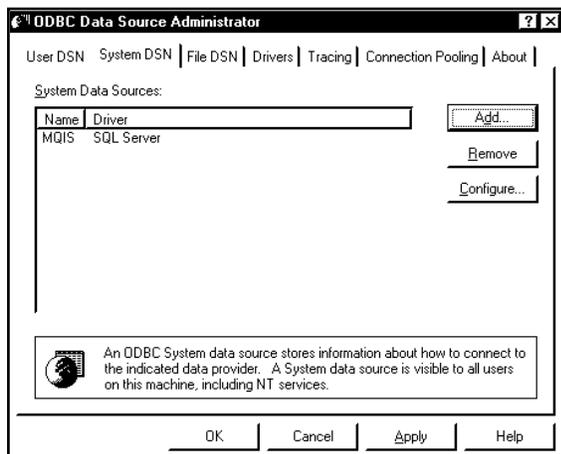
For Windows 95, 98, and ME, we added the -x dde switch. This will limit the database engine from attempting to start all of the various Network Transports. For Windows NT or 2000, use -x NamedPipes. This option allows our remote laptop computer to operate more efficiently and does not require a physical network connection to operate. When networking the *Remote Database* with multiple clients, be sure to add the appropriate network protocol. For example: -x dde, tcpip. In our example, we have also added the -c 20M to the command line that allocates 20 Mbytes of memory for the Sybase Engine to cache data, thereby improving performance. You need to check the remote computer and determine if there is enough memory to use this cache method. It is not necessary to use cache. Select **OK** and then select **OK** again to exit the ODBC configuration.

MET/CAL Plus Ver 7 ODBC Configuration for the *Remote Database*

NOTE: Before using Remote Pipeline with MET/CAL Plus version 7.x for the first time, be sure to review this section.

Configuring the ODBC Data Source name for the *Remote Database* is a different configuration than for the *Master Database*. For example, if Remote Pipeline is going to be installed on a laptop computer, then two different database sources have to be configured, one for the *Master Database* and one for the *Remote Database*. In our example, the remote laptop computer is going to communicate with the *Master Database* via the client's Sybase ODBC configuration over the network. The *Remote Database* ODBC source is configured differently and actually starts the database server engine. Each remote system should have a different "alias name" and this will be described later in this section. In our example, we are going to assume that the remote laptop computer is already communicating with the *Master Database*. We are only going to describe the ODBC configuration for the *Remote Database*.

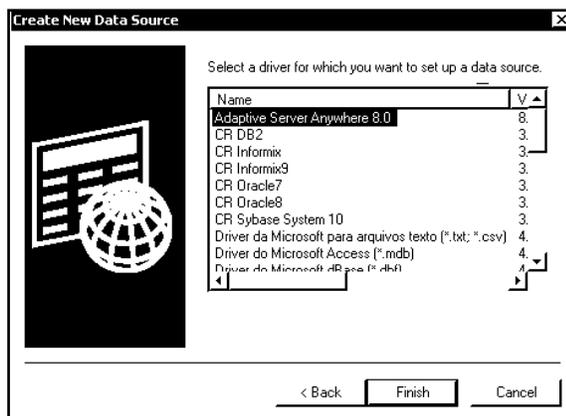
Adding the Sybase Data Source for the *Remote Database*



This step configures the 32-Bit ODBC for use by Remote Pipeline. To start the configuration for Windows 95, 98, and NT, select **Start | Settings | Control Panel | 32-Bit ODBC**. If you are using Windows 2000 select **Start | Settings | Control Panel | Administrative Tools | Data Sources (ODBC)**. If the 32-Bit ODBC icon is not visible, close the Control Panel and select **Start** followed by RUN, and enter "odbcad32.exe". The following example is shown with Windows 2000.

Select the **System DSN** tab and you should have a screen like the one at left. Select **Add**.

Figure 8 – MET/CAL 7.x - 32 Bit ODBC Data Source Listing (Win 2000)

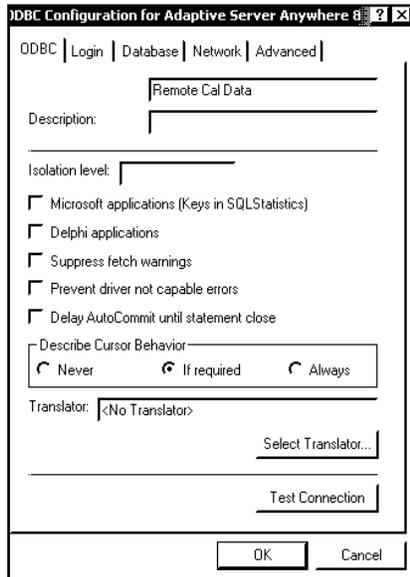


You should see the screen at left: (may be different for various versions of the operating system). You need to select the data source, which is Adaptive Server Anywhere 8.0.

As stated earlier, these instructions assume that the 32 Bit Sybase drivers have been installed. After selecting the Sybase driver, click on **Finish**.

Figure 9 – MET/CAL 7.x - Selecting the Sybase Drivers (Win 2000)

Setting the Remote ODBC Data Source Name



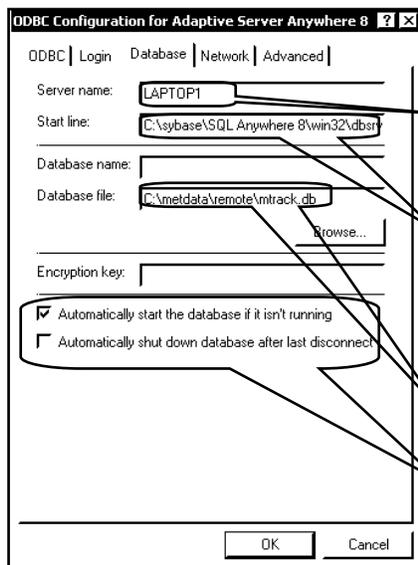
Because the *Master Database* uses Calibration Data for the ODBC Data Source Name, we need to add a data source name for the *Remote Database*. Enter “Remote Cal Data” for the *Remote Database*. NOTE: It is possible to use another data source name, especially when more than one database has been configured.

Note: It is very important to determine an “alias name” for the *Remote Database*. If you do not configure an alias name, the server name will be “mtrack”, and if the *Master Database* uses mtrack, you will not be able to run the *Remote Database*. For practical purposes the *Master Database* should not use “mtrack” either and also should have an alias name.

So for our example, we are going to make up an alias name for our *Remote Database* and our alias name is **LAPTOP1**. Select the **Database** Tab so we can add the database alias name.

Figure 10 – MET/CAL 7.x - ODBC Data Source Name (Win 2000)

The next step is to create the Start Options for the *Remote Database*. We will need to add the commands to start the *Remote Database* automatically when Remote Pipeline is started.



A screen similar to the one at left is displayed. For our example we have entered the following in the Database screen.

We have entered **LAPTOP1** in the “Server name” field. That will be our database alias name. We also need to enter the commands to start the database engine in the “Start line” field.

C:\sybase\SQL Anywhere 8\win32\dbsrv8.exe

Replace C: with the drive letter that the Sybase software is installed on and enter the complete path. In the “Database file” field enter the path of the *Remote Database*. In our example we entered:

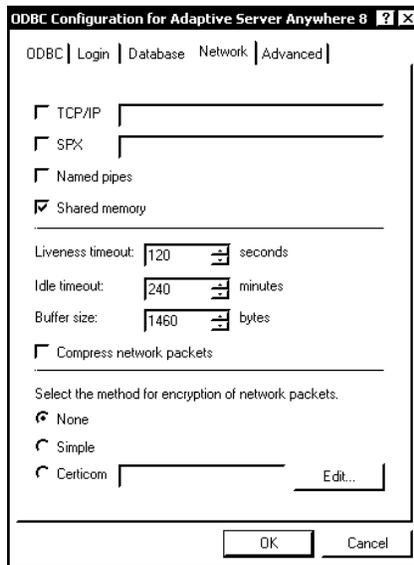
C:\metdata\remote\mtrack.db

Make sure these two boxes are checked as illustrated. It is necessary for the database engine to start automatically. However, please make sure the database does not automatically shutdown when an application terminates.

Figure 11 – MET/CAL 7.x – Database Start Options Configuration

Select the **Network** tab so we can verify the network options.





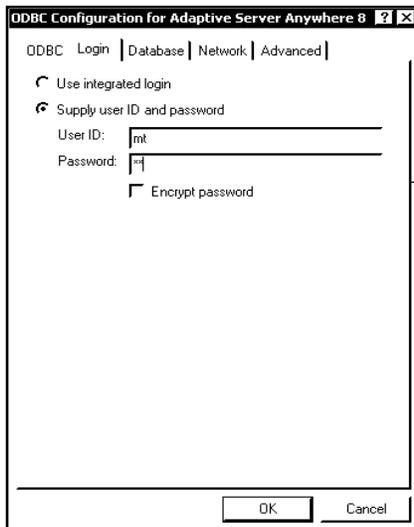
After selecting the **Network** Tab, a screen similar to the one at left should be displayed. For the majority of the applications you can select Shared Memory as the network transport and not select the other options. This is because the majority of the applications will run in a standalone mode on the computer.

Note: When networking the *Remote Database* with multiple clients, be sure to add the appropriate network protocol. For example: -x Name Pipes, tcpip. You may want to add the -c 20M to the command line that starts the database engine. This option allocates 20 Mbytes of memory for the Sybase Engine to cache data, thereby improving performance. You need to check the remote computer and determine if there is enough memory to use this cache method. It is not necessary to use cache.

Figure 12 – MET/CAL 7.x - Network Options Configuration (Win 2000)

Testing the ODBC Configuration

A feature of Sybase Adaptive Server Anywhere 8.0, is the ability to perform an ODBC test. After setting up the ODBC configuration, it is suggested that you test the configuration and make sure it works. The procedure is quite simple. First, click on the **Login** Tab.



As shown at the screen at left, enter MT as the User ID and enter your MT Password. Click on the ODBC Tab.



Click on the **Test Connection** button. A dialog box will appear asking if you want to leave the database running after test has completed. You can answer either **Yes** or **No**. It does not matter.

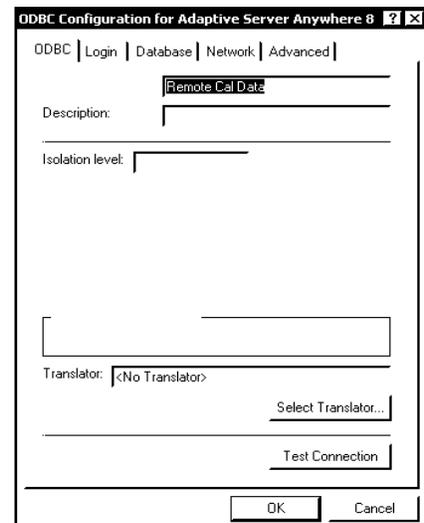


Figure 13 – MET/CAL 7.x - Testing the ODBC Connection

If the test has completed successfully, then you have completed a successful ODBC Configuration. If the test does not work, go back through these instructions and review the configuration. **VERY IMPORTANT, be sure to go back to the Login Tab and remove the MT login and Password.** Select **OK** to exit the ODBC configuration program.

Section 4 – Configuring MET/CAL Plus on the Remote System

Installing MET/CAL Plus on the Remote System – MET/CAL Ver 6.x

When Installing MET/CAL plus Ver 6.x on the Remote System, follow the standard installation procedure, but always install MET/CAL plus as a **Standalone Database**, even if the *Remote Database* has other client computers connected to it.

Modifying the MET/CAL INI File – MET/CAL Ver 6.x Only

NOTE: This step is only required if you want to connect the client to the *Master Database* or the *Remote Database* on demand.

When MET/CAL Plus is installed, the installation program assumes that the system will use the **Calibration Data** ODBC Source. This is acceptable while running the MET/CAL programs, Barcode Magician, and Process/Track on the *Master Database*. This name has to be changed according to the ODBC Data Source Name used for the remote system. However, some installations will want to be able to log into the *Master Database* when the computer is back in the lab. During the installation process, the METCAL.INI file is only configured to operate with one Database.

Note: If you decide to configure the remote computer to be able to operate as a client for the *Master Database* and a Standalone system for the *Remote Database*, you will have to keep track of all the Crystal Reports and MET/CAL Procedures. Remote Pipeline does not synchronize procedures or reports.

You can modify the METCAL.INI file to allow you to choose the database source every time you run the MET/CAL programs. Using Windows Explorer, open the METCAL.INI program, located in the Windows directory on Windows 95,98, or ME, or the WINNT directory on Windows NT or 2000. If you double click the METCAL.INI file, the file will automatically open in Notepad.

The image shows a Notepad window displaying the METCAL.INI file. The file content is as follows:

```
[import]
import_src=c:\metcal\station\data.txt
import_def=c:\metcal\station\data.def
delimiter="
separator=,

[report_queue]
timeslice=60

[database]
;DB_login=dsn=Calibration Data
workstation=Workstation 0
floppy=A:
Forcecase=0
version=C

[Install]
Icons=51380588
Reset_Toolmenu=0
Stand_Alone=1
```

A callout box points to the line `;DB_login=dsn=Calibration Data` in the `[database]` section. The text in the callout box reads: **;DB_login=dsn=Calibration Data** (Add the semicolon).

Scroll through the INI file and search for an entry similar to the one highlighted at left. When you add a semicolon (;) to the beginning of this line, the line will be commented out. Save the METCAL.INI file. When you start any of the MET/CAL programs, you will be prompted for the ODBC connection that you want to use. This is very useful when you want to log into the *Master Database* and *Remote Database* at different times.

Figure 14 - Configuring the METCAL.INI system file

Installing MET/CAL Plus on the Remote System – MET/CAL Ver 7.x

When Installing MET/CAL plus Ver 7.x on the Remote System, follow the standard installation procedure, but always install MET/CAL plus as a **Standalone Database**, if the *Remote Database* is not going to have any other clients connected to it. If the *Remote Database* is going to have other client computers connected to it, such as a Remote Server, install the MET/CAL database as a server only and then perform a separate client installation. This will allow the computer to function as a client and/or a database server.

The MET/CAL INI File – MET/CAL Ver 7.x Only

NOTE: This step is only required if you want to connect the client to the *Master Database* or the *Remote Database* on demand.

When MET/CAL Plus is installed, the installation program assumes that the system will use the **Calibration Data** ODBC Source. This is acceptable while running the MET/CAL programs, Barcode Magician, and Process/Track on the *Master Database*. This name has to be changed according to the ODBC Data Source Name used for the remote system. However, some installations will want to be able to log into the *Master Database* when the computer is back in the lab. During the installation process, the METCAL.INI file is only configured to operate with one Database.

Note: If you decide to configure the remote computer to be able to operate as a client for the *Master Database* and a Standalone system for the *Remote Database*, you will have to keep track of all the Crystal Reports and MET/CAL Procedures. Remote Pipeline does not synchronize procedures or reports.

Configuring Program Icons for MET/CAL version 7.x

With MET/CAL version 7, we recommend that you do not modify the METCAL.INI as described in the previous section for a MET/CAL version 6 system. There are several differences in the ODBC configurations between the two MET/CAL software versions. If you try to comment out the "DSN" entry in the METCAL.INI file and run the MET/TRACK program, the program will not start properly



Instead, you will need to create dedicated Program icons. This is a simple process. You will notice that we have two icons at left. The first icon is created by the standard MET/CAL Plus installation. We renamed the icon and added "Master" so that we will identify it with the Master Database. We used the Windows copy and paste to copy the "MET_TRACK Master" icon and then pasted the icon into the program group. We renamed the new icon to "MET_TRACK Remote". You can modify the properties of the icon with the -I option and specify the **Data Source Name (DSN)**. In our example we changed the icon properties to:

C:\metcal\mettrack.exe -I dsn=Remote Cal Data

This will change the ODBC source without having to modify the METCAL.INI file. This is also an easier way to start the application because you do not have to select a Data Source. You can also use the same method to create additional remote icons for the other METCAL programs.

Using Barcode Magician and Process/Track on the Remote System

If you plan to use Barcode Magician or Process/Track, you will have to perform a Standalone installation for these programs. These programs require additional Windows files that are installed on the remote system

NOTE: When installing these programs, there are two steps to follow:

1. Make sure the program files are installed on the local computer.
2. When the programs are registered, the registration must be pointed at the *Master Database*. This must be performed prior to replicating the *Remote Database*.

By following these two steps during the installation, these programs will operate properly and the licenses will move between the *Master Database* and *Remote Database*.

Refer to the installation manual for the proper installation for both products.

Using Change/Log with Remote Pipeline

Change/Log keeps track of changes made to the database using a series of carefully implemented triggers and procedures. Change/Log should be installed on the *Master Database*. During database replication, Change/Log will also be implemented on the *Remote Database*. There are some differences in how Change/Log will report changes when the *Remote Database* is synchronized to the *Master Database*. The following is a list of observations describing the operation on how Change/Log operates when data is synchronized to the *Master Database*.

1. The Change/Log triggers and tables are copied to the *Remote Database* during replication.
2. Change/Log acts normally in the *Remote Database*.
3. When synchronization occurs, the Change/Log entries are not transferred from the *Remote Database* to the *Master Database*. Any Change/Log entries on the *Remote Database* are lost during replication.
4. When synchronization occurs, the transfer of the Standard used is treated as a change and every Cal record with STD's used that is synchronized, will have an entry in mt.ots_cl_log. These changes are time stamped for when the synchronization occurred and the "mtuser" listed is who logged into Remote Pipeline for the synchronization.
5. When synchronization occurs, If any change was made to a record that was created on the *Remote Database*, but had not been synchronized yet are not registered as changes in the *Master Database*.
6. When synchronization occurs, any change made to a record that existed at the time of replication is registered as a change at the time of synchronization. These changes are time stamped for when the synchronization occurred and the "mtuser" listed is who logged in for the synchronization. The Change-DateTime & Change-User fields in the Database will reflect the correct information for the last change.

Section 5 – Replicating and Synchronizing Databases

Getting Started with Remote Pipeline

After Remote Pipeline has been registered and the ODBC has been configured, then you are ready to start the database replication process. Start Remote Pipeline by clicking on **Start | Programs | Fluke Metrology Software | Remote Pipeline**.

First Time to Use Remote Pipeline

If this is the first time to use Remote Pipeline on the remote computer, then you must log in as the database administrator (MT Login). A MET/CAL user can log in and perform the synchronization/replication process after the initial configuration of Remote Pipeline. If you do not log in as the MT user the first time, the *Remote Database* will not be created.



If this is the first time to log in with Remote Pipeline and you do not log in as the MT administrator you will see the message displayed at left.

Figure 15 - Login Warning Screen

If you see this warning message, then someone else is using Remote Pipeline and you may want to add more licenses.

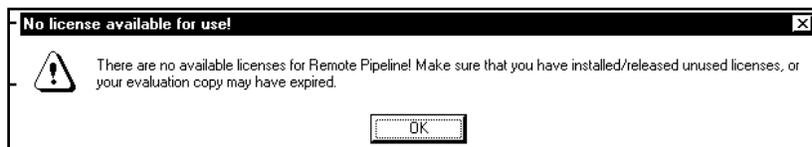


Figure 16 - License Available Warning Message

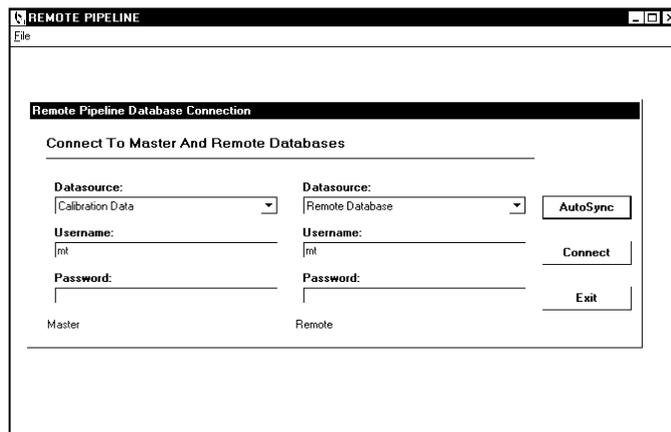


Figure 17 - Database Login Screen

When Remote Pipeline starts, a dual database entry screen is presented to the operator.

On the left side of the screen you will log in to the *Master Database*. On the right side you must log in to the *Remote Database*. In our example at left, we are logging in as the MT Administrative user. Click the **AutoSync** Button. After successfully logging into both databases, Remote Pipeline checks both databases and determines whether this is the first time the *Remote Database* has been started.

If this is the first time that Remote Pipeline has been used on the *Remote Database*, the program will display the message box at the right.

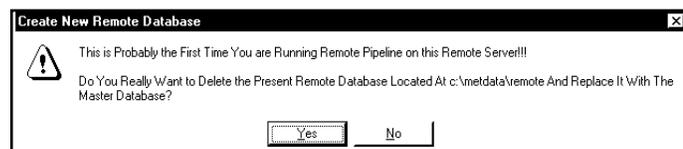


Figure 18 - First Time to Sync Remote Database Message

It is necessary to replicate a new *Remote Database*. If the operator selects **Yes**, the replication process will continue and a new *Remote Database* will be created on the remote system. **NOTE: This will overwrite the existing *Remote Database* with a copy of the *Master Database*.**

Remote Pipeline utilizes the Sybase DBBACKUP utility to replicate the database from the *Master Database* to the *Remote Database*. Even though the Sybase backup utility can backup a database while the users are logged in, the backup utility will pause the backup if it detects a record is locked on the *Master Database*. Because there is a potential conflict, **it is highly recommended that the users log out of the *Master Database* before the *Master Database* is replicated to the *Remote Database*.**

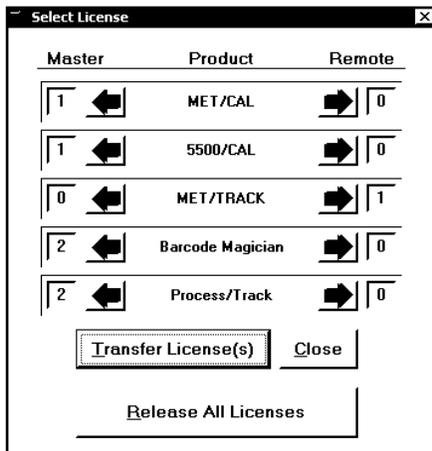


If you selected **Yes**, then Remote Pipeline stops the existing *Remote Database* engine and performs a replication using the Sybase Backup utility. The screen at left displays the Sybase DBBACKUP utility during the *Remote Database* replication process.

Figure 19 - Sybase DBBACKUP utility during replication

After the replication process has completed, the program will display a message alerting the operator that the replication process was successful.

Allocating Program User Licenses



The next step is to allocate the required user licenses for the remote system to operate. From the menu bar, click on **Transfer | Select License**. This is automatically selected if this is the first time use of Remote Pipeline.

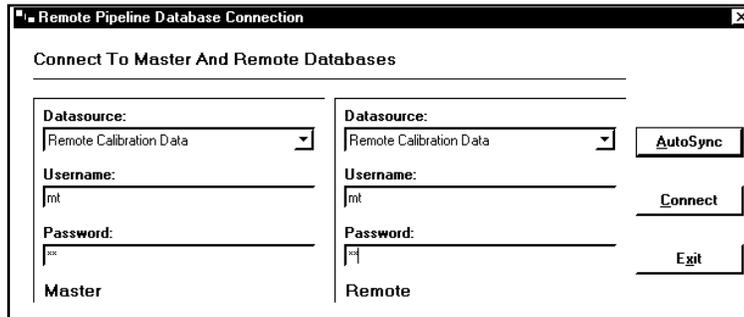
A similar screen to the one at left will appear. Remote Pipeline supports 5 user license types for MET/CAL Plus. They are MET/CAL, 5500/CAL, MET/TRACK, Barcode Magician, and Process/Track. When the license allocation is selected, Remote Pipeline detects the licenses that currently reside on the *Master Database*. If a product label is grey'd out, then the license was not detected on the *Master Database*. In our example we have only one MET/TRACK license that is allocated to the *Remote Database*, but since the license was originally installed on the *Master Database*, it is not grey'd out.

Figure 20 - Allocating User Licenses

By clicking on the arrows, you can easily allocate a user license from the *Master Database* to the *Remote Database*. In our example above, we have allocated one MET/TRACK license. After all the desired licenses have been allocated to the *Remote Database* and *Master Database*, click **Transfer License(s)** and the changes will be implemented. Clicking on **Release All Licenses** will release the licenses back to the *Master Database*. At this point, the *Remote Database* and *Master Database* are synchronized. The user can now exit the Remote Pipeline program, disconnect the remote system from the LAN, and start using the remote system.

Releasing "In Use" Licenses on the *Remote Database*

There may be a situation where the "in use" licenses need to be released on the *Remote Database*. This could be attributed to a Windows program that froze, or the computer had to be re-booted while an application was still open. If this situation occurs, you will need to release the licenses. Since the DBSETUP program is disabled on the *Remote Database*, there is another way to release and reset the licenses without re-connecting Remote Pipeline to the *Master Database*.



In our example at left, we are logging into the *Remote Database* on both sides of the log in screen. If you enter the Remote Data source in both the Master and Remote log in areas and click on **Connect**, you should see the following message.

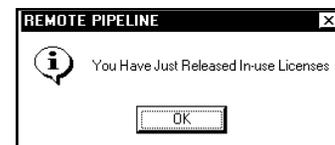
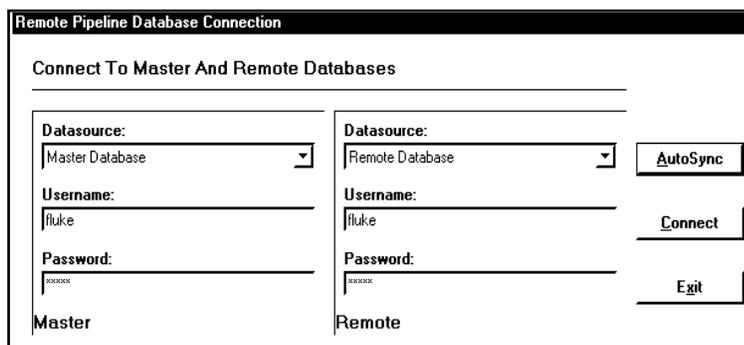


Figure 21 - Resetting "In Use" Licenses on the *Remote Database*

Synchronizing the *Remote Database* and *Master Database*

NOTE: When using the remote database as a server (servicing multiple clients as opposed to just running standalone on a laptop), Remote Pipeline **MUST** access the *Remote Database* server and not a client on the remote system.

NOTE: It is a good idea to back up the *Master Database* and *Remote Database* prior to synchronizing the databases. Refer to the section on Database Backups. It is assumed that the *Remote Database* has been used to add and change records and the operator is ready to update the *Master Database*. The remote computer must be connected to the LAN or WAN in order for the synchronization process to work. **Be sure to close any applications, like Manual Entry, that are connected to both databases prior to synchronization.**



You can log into both databases either as an MT administrator or as MET/CAL user. In our example at left, we logged in as a normal user. Click on the **AutoSync** button. The program will automatically synchronize the changes and new records to the *Master Database*. After the records are synchronized, the program will replicate a new *Remote Database* from the *Master Database*.

Figure 22 - Performing an AutoSync

After logging in, if you see the message displayed at right, then there is no changed data in the *Remote Database* to synchronize to the *Master Database*.

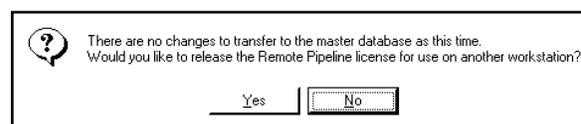


Figure 23 - No Data to Transfer Message

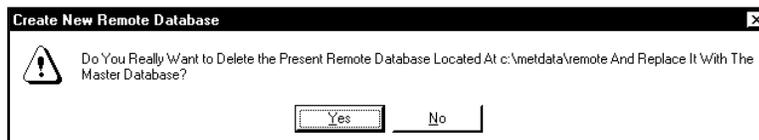
The screenshot shows a window titled "Data Transfer Statistics" with a sub-header "Database Records". Below this is a table with columns: Tables, Records, Inserted, Changes, and Inserted. The table lists various database tables and their corresponding statistics. Below the table is a progress bar labeled "Transfer Completed" and the text "Successfully".

Tables	Records	Inserted	Changes	Inserted
Inventory	0	0		
Calibration	0	0		
Standards	0	0		
Cal Results	0	0		
Full Results	0	0		
Raw Results	0	0		
Location	1	1		
Repair	0	0		
Customers	0	0		
Totals	1	1		

During the synchronization process, Remote Pipeline will display a table similar to the one at left with statistics of added records and changed records. This table will disappear after the synchronization process is complete.

If you are upgrading from the previous version of Remote Pipeline, you will notice that the new results tables are also updated from the *Remote Database*.

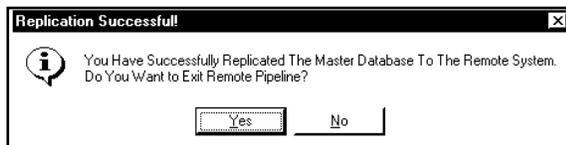
Figure 24 - Data Transfer Statistics



When the synchronization is complete, the program will display a dialog box asking if you want to download a new copy of the *Master Database*.

Figure 25 - Create New Database Message

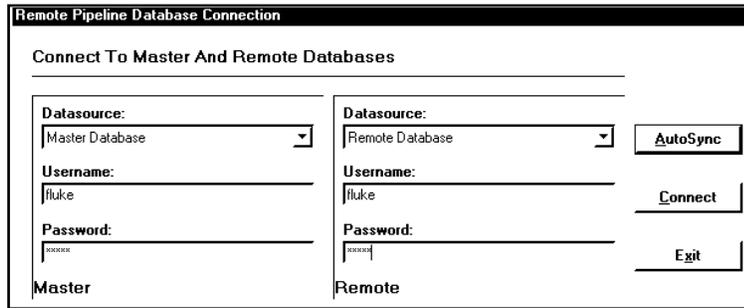
When you see this message, you can create a new *Remote Database* by clicking **Yes**. There may be cases where it does not make sense to create a new *Remote Database* each time you synchronize. For example, if other users have not updated the *Master Database*, you may want to wait and replicate a new database the next time you perform an AutoSync.



After the database has been successfully replicated, the confirmation message, like the one at left, will be displayed. You can click **Yes** to close Remote Pipeline or click **No** to continue working with Remote Pipeline.

Figure 26 - Replication Successful Message

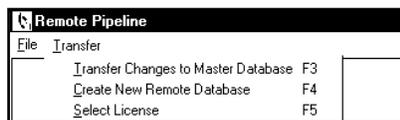
Synchronizing the Database Manually



You can also synchronize the *Remote Database* to the *Master Database* manually, without using AutoSync. After closing any open applications connected to both databases, log into Remote Pipeline. You can log in as the MT administrator or as a normal MET/CAL user. Click **Connect**.

Figure 27 - Remote Pipeline Database Connection Screen

Remote Pipeline will log in, but will not perform a synchronization. Remote Pipeline will analyze the *Remote Database* to see if there is any data to transfer. If there is no data to transfer, Remote Pipeline will allow you to exit the program or continue. A possible reason to continue without changed data is to transfer licenses to or from the *Master Database*.



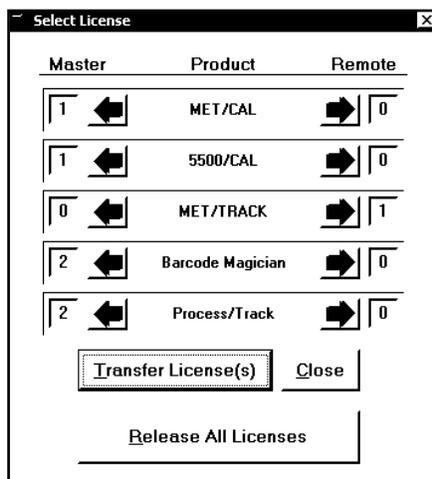
Click on **Transfer** on the Menu Bar. There are three choices available

- Transfer Changes to *Master Database*
- Create New *Remote Database*
- Select License

Figure 28 – Application Menu Bar

NOTE: You should back up your databases prior to synchronizing or replicating the databases.

You can manually synchronize the databases one step at a time. If you click on “Transfer Changes to *Master Database*” or press F3, Remote Pipeline will transfer any changes or additions from the *Remote Database* to the *Master Database*.



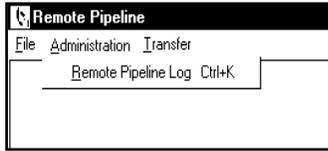
If you click on “Create New *Remote Database*” or press F4, Remote Pipeline will replicate a new *Remote Database* from the *Master Database* using the Sybase DBBACKUP utility.

If you click on “Select License” or press F5, you can select the application licenses that you want to transfer to the *Remote Database*. These licenses have been described in an earlier section of this manual. By clicking on the arrow, you can move the licenses between the databases. You must click on **Transfer License(s)** for the changes to take effect.

If the product label is grey'd out, then the license does not exist on the *Master Database*. **NOTE: Always load product licenses on the *Master Database* and use Remote Pipeline to transfer these licenses.**

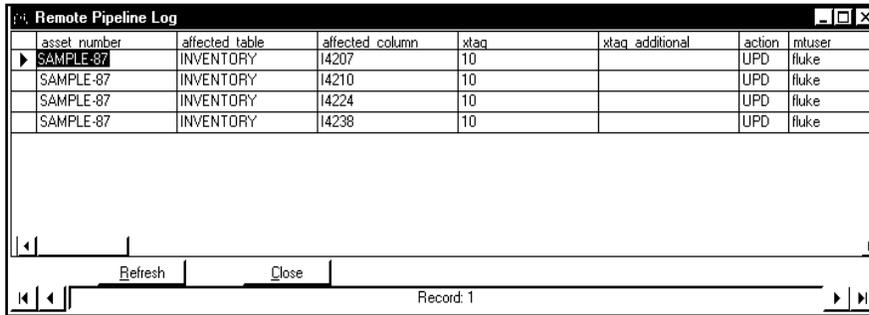
Figure 29 - Transfer Product Licenses

Logging in as the Administrator



If you log into both databases as the MT administrator, you will notice one difference from the normal log on. There is an Administration selection on the Menu Bar. When you click on that selection, the "Remote Pipeline Log" is available. By clicking on this item, or pressing CTRL-K, the log of changes that have not been transferred will be displayed.

Figure 30 - Selecting the Remote Pipeline Log

A screenshot of a window titled "Remote Pipeline Log". It contains a table with the following data:

asset number	affected table	affected column	xtag	xtag_additional	action	mtuser
SAMPLE-87	INVENTORY	I4207	10		UPD	fluke
SAMPLE-87	INVENTORY	I4210	10		UPD	fluke
SAMPLE-87	INVENTORY	I4224	10		UPD	fluke
SAMPLE-87	INVENTORY	I4238	10		UPD	fluke

Below the table is a toolbar with "Refresh" and "Close" buttons, and a status bar showing "Record: 1".

The example at left shows data that has not been synchronized yet. The administrator can scroll through the data and see what changes are going to be implemented during the synchronization. You cannot change any of the data in this screen.

Figure 31 - Remote Pipeline Log

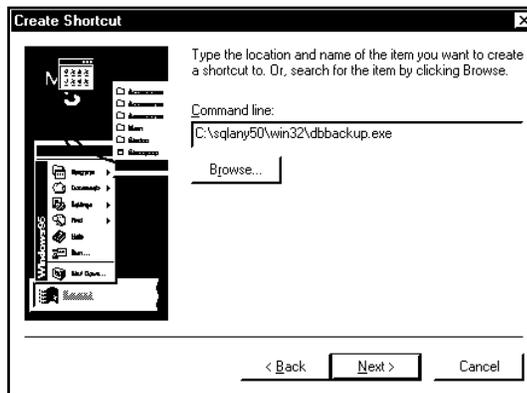
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SECTION 6 – Appendix A

Database Backups

Backing up the *Remote Database* – MET/CAL Ver 6.x

As stated earlier in this manual, it is a good idea to back up your databases. This section describes an example procedure for backing up the *Remote Database* with MET/CAL version 6.x. The procedure for MET/CAL version 7.x is the same except for the Sybase directory name and the "DSN=Calibration Data" should be included. A recommended procedure is to create an icon on the computer's desktop. We are going to assume that this is a standalone laptop computer running MET/CAL Plus. When the backup program is started, it will make a copy of the *Remote Database* and put it in a separate backup directory.



First, from the desktop, point the mouse cursor at a blank space on the desktop and right click your mouse. Click on **New | Shortcut**. A form similar to the one at left should be displayed. Next, click on **Browse**. Normally the Sybase database programs are located on the C Drive. Use the browse feature to locate the SQLANY50 directory. Next, click on WIN32. Next, click on DBBACKUP.EXE. and then click **Open**. This will insert **C:\SQLANY50\WIN32\DBBACKUP.EXE** on the command line. Next, we need to add more to the command line to identify the database to be backed up.

Figure 32 - Creating the Remote Backup Shortcut

With your mouse, click on the end of the command line. Press the space bar to add a space, and then add the following:

-x -y -cuid=mt;pwd=mt c:\metcal\remote\backup

The complete command line now reads:

C:\sqlany50\win32\dbbackup.exe -x -y -cuid=mt;pwd=mt; c:\metcal\remote\backup

The **-x** tells the system to start a new transaction log.

The **-y** tells the system to answer yes to any questions.

The **-c** tells the system that commands are to follow.

If you have a different MT password than MT, then you have to enter your MT password after the "**pwd=**". Be very careful when changing your MT administrative password. Unless the password is updated on the command line, the Backup program will not work.

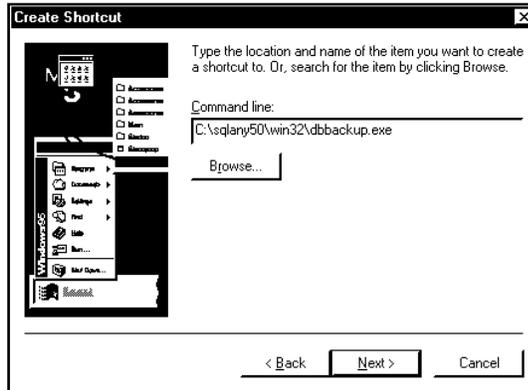


Click **Next >**. Next, enter a name for the icon. In our example we will use Remote DB Backup. Click **Finish**, and your backup icon should be ready to use. Be sure that the database engine for the *Remote Database* is running.

When you run the database backup, a copy of the *Remote Database* and transaction log are placed in the C:\METCAL\REMOTE\BACKUP directory. If you need to replace the database file with the backup, just copy the 2 files in the backup directory and overwrite the files in the C:\METDATA directory. Be careful replacing database files and ask for help if there are any questions about the procedure.

Backing up the Master Database – MET/CAL Ver 6.x

As stated earlier in this manual, it is a good idea to back up your databases. This section describes the procedure for backing up the *Master Database*. The procedure for MET/CAL version 7.x is the same except for the Sybase directory name. A recommended procedure is to create an icon on the computer's desktop. We are going to assume that this is a laptop computer that is connected to the *Master Database* via a LAN running on a separate server. When the backup program is started, it will make a copy of the *Master Database* and put it in a separate backup directory.



First, from the desktop, point the mouse cursor at a blank space on the desktop and right click your mouse. Click on **New | Shortcut**. A form similar to the one at left should be displayed. Next, click on **Browse**. Normally the Sybase database programs are located on the C Drive. Use the browse feature to locate the SQLANY50 directory. Next, click on WIN32. Next, click on DBBACKUP.EXE. and then click **Open**. This will insert

C:\SQLANY50\WIN32\DBBACKUP.EXE on the command line. Next, we need to add more to the command line to identify the database to be backed up.

Figure 33 - Creating the Master Backup Shortcut

With your mouse, click on the end of the command line. Press the space bar to add a space, and then add the following:

-x -y -cuid=mt;pwd=mt c:\metcal\master\backup

The complete command line now reads:

C:\sqlany50\win32\dbbackup.exe -x -y -cuid=mt;pwd=mt; c:\metcal\master\backup

The **-x** tells the system to start a new transaction log.

The **-y** tells the system to answer yes to any questions.

The **-c** tells the system that commands are to follow.

If you have a different MT password than MT, then you have to enter your MT password after the **"pwd="**. Be very careful when changing your MT administrative password. Unless the password is updated on the command line, the Backup program will not work.



Click **Next>**. Next, enter a name for the icon. In our example we will use Master DB Backup. Click **Finish**, and your backup icon should be ready to use. Be sure that the Sybase Database Network Requester for the *Master Database* is running.

When you run the database backup, a copy of the *Master Database* and transaction log are placed in the C:\METCAL\MASTER\BACKUP directory. If you need to replace the database file with the backup, just copy the 2 files in the backup directory and overwrite the files in the C:\METDATA directory. Because this is the *Master Database*, you should acquire help from the server administrator before replacing database files. Be careful replacing database files and ask for help if there are any questions about the procedure.

MET/CAL Ver 6.x - Configuring ODBC for the *Master Database*

The following installation instructions require that you have a successful installation of MET/CAL Plus. For our example, we are going to assume that we have a laptop computer that is running a standalone MET/CAL Plus system and that we also want to connect our laptop computer to the *Master Database* server, allowing us to use our laptop as a client for the *Master Database*. This adds versatility to the use of the laptop computer. Use it as a standalone system, or use it as a connected client

If you are configuring a Windows NT/2000 workstation, you may be required to use the local administrator password in order for the programs and libraries to register properly. **During the setup instructions, we are assuming that the Sybase Programs are already installed on the client. If they are not, these programs are provided on the MET/CAL Plus CD and must be installed first before continuing the installation.** Refer to the Sybase installation guide if you do not have these programs installed. Then install and configure the Sybase programs on each client.

This step configures the 32-Bit ODBC for use by the MET/CAL Plus programs. To start the configuration, click on START | SETTINGS | CONTROL PANEL | 32-Bit ODBC. If the 32-Bit ODBC icon is not visible, close the Control Panel and click on START | RUN and enter "odbcad32.exe". Click on OK.

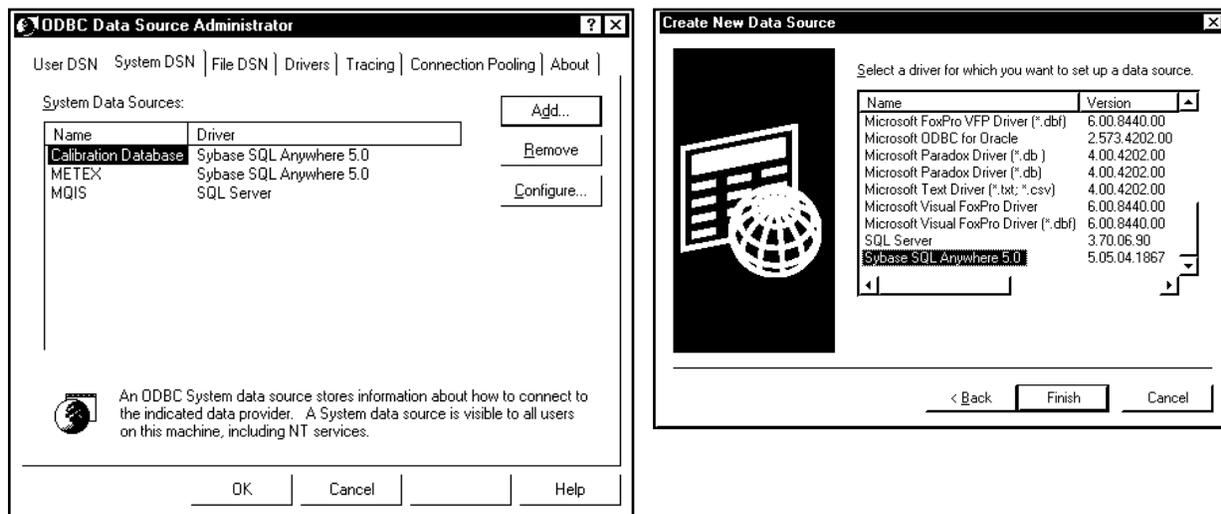
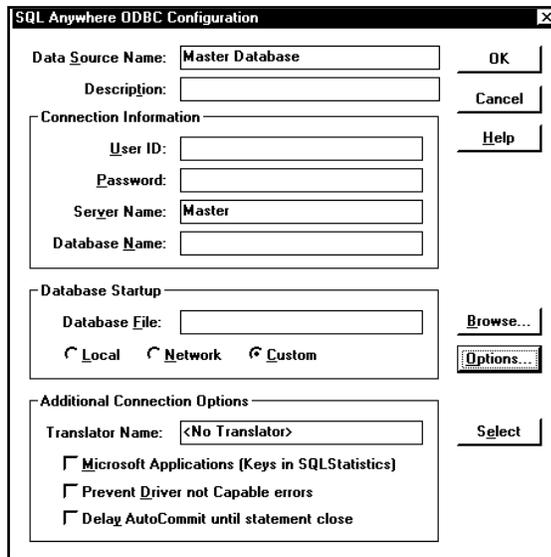


Figure 34 - 32 Bit ODBC Data Source Configuration

We are adding another database source. Click on **System DSN...** and click on **Add...** and then double-click on Sybase SQL Anywhere 5.0.

You should see the two screens above: (may be different for various versions of the operating system)

As stated earlier, these instructions assume that the 32 Bit Sybase drivers have been installed.



For **Data Source Name** enter “*Master Database*”. NOTE: It is possible to use another data source name, especially when more than one database has been configured.

For **Server Name** replace “<default>” with the name of your MET/BASE database engine. Traditionally it is named mtrack. However, most database installations will have an alias name assigned to the database. If in doubt, click on the database engine icon in the taskbar and look at the title of the window. The window title is the same as the engine name. In our example we used Master as our server name.

Figure 35 - Sybase Anywhere ODBC Configuration

Click on options. Enter `c:\sqlany50\win32\dbclient.exe -x tcpip` in the Start Command box. Replace C: with the drive letter that the Sybase software is installed on. Make sure that Autostop Database is not checked.

There may be situations where you have to enter a host name on the command line in order for the Network Requester to connect properly. An example of using the host name is:

`c:\sqlany50\win32\dbclient.exe -x tcpip{HOST=MYSERVER}`

Replace MYSERVER with the actual network name of your server.

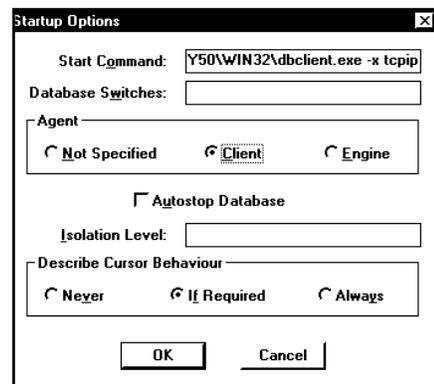


Figure 36 - Configuring ODBC Startup Options

Click on OK, and then OK again to complete 32-Bit ODBC configuration. You may now close the data sources window.

Custom Labels and Phrases

Remote Pipeline has new features that will allow the system administrator to customize all of the program labels. For example, instead of having the program prompt for "AutoSync", it might say "Sync Data". If there is a need to operate Remote Pipeline in a different language, then the phrases can be customized for that language. Remote Pipeline utilizes a file called "rplphrases.txt". It is a simple text file. A default file is provided for Remote Pipeline. The simple file format is as follows:

```
101 Remote Pipeline
102 &File
103 E&xit
104 &Transfer
```

The example above is a small section of the "rplphrases.txt" file. There are a lot of entries. The format is the line number, a tab character, and then the phrase with no carriage returns or line breaks. Edit the phrase file using the Notepad Editor that comes with MS Windows. Remote Pipeline does not write to the phrase file. You can save this file as read only if there is a concern about it being accidentally edited or deleted. The phrase file must exist in the same directory as the Remote Pipeline executable programs. If the phrase file is not available, Remote Pipeline will not start properly and it will display a message with the following error:



Automating Replication Functions

This version of Remote Pipeline has a new function, the ability to perform a complete “AutoSync” or just a one-way data transfer. There are many possibilities that include the creation of an icon or even setting up an automated schedule. For example, you could have Remote Pipeline perform a complete “AutoSync” during off hours after work. This requires setting up parameters.

```
C:\metcal\remote\rpl1.exe -autosync;mdsn=calibration data;muid=mt;mpwd=mt;rdsn=remote cal data;ruid=mt;rpwd=mt
```

or

```
C:\metcal\remote\rpl1.exe -transfer;mdsn=calibration data;muid=mt;mpwd=mt;rdsn=remote cal data;ruid=mt;rpwd=mt
```

You could paste either of these examples into the properties field of a new icon, but make sure the Remote Pipeline executable is in the same directory or change the command for your system.

You could also set up the automatic scheduler with Windows 2000 using the AT commands. For example, we are going to create a DOS batch file called RP.BAT and we are going to save it in the same directory as Remote Pipeline. Our file has the following entries.

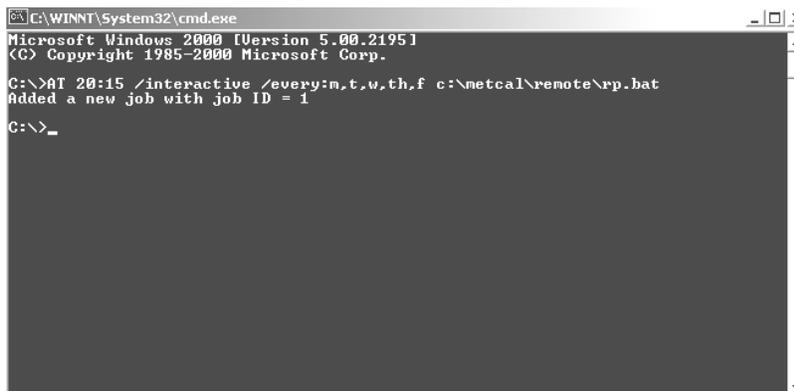
```
cd \metcal\remote
```

```
C:\metcal\remote\rpl1.exe -autosync;mdsn=calibration data;muid=mt;mpwd=mt;rdsn=remote cal data;ruid=mt;rpwd=mt
```

The first command in our batch file set the directory where Remote Pipeline is installed. This is because Remote Pipeline must have access to the rplphrases.txt file.

Next we go to the AT scheduler in the command line mode. Click on **Start | Run** and enter **CMD**. This will bring up the command line mode. We will enter the following command:

```
AT 20:15 /interactive /every:m,t,w,th,f c:\metcal\remote\rp.bat
```



```
C:\WINNT\System32\cmd.exe
Microsoft Windows 2000 [Version 5.00.2195]
(C) Copyright 1985-2000 Microsoft Corp.
C:\>AT 20:15 /interactive /every:m,t,w,th,f c:\metcal\remote\rp.bat
Added a new job with job ID = 1
C:\>_
```

Figure 37 - Configuring the AT Scheduler for Automatic Transfers

This method may save you a lot of time. However, please remember that our example used the administrators MT password, and this information could be easily accessible to someone else.

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