

Micro Focus[®]

Modernization Workbench[™]

Installing MW Enterprise Edition



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Contents

- Overview5**
- Installation Tasks5
- Deployment6
 - Mainframe and Network Server7
 - Repository Server7
 - MW Server7
 - MW Client7
- Database Setup7
 - DB/2 User Privileges7
 - Oracle User Privileges8
 - SQL Server Database Setup9
- Hardware and Software Requirements11**
- Repository Server Hardware Requirements11
- Repository Server Software Requirements11
- MW Server Hardware Requirements12
- MW Server Software Requirements12
- MW Client Hardware Requirements13
- MW Client Software Requirements13
- Installing and Uninstalling Modernization Workbench15**
- Installing the Database Client15
 - Installing the DB/2 Client15
 - Installing the Oracle Client16
- Installing MW on the Server17
- Installing the MW File Server (Optional)17
- Installing MW on the Client18
- Installing the MW File Server Client (Optional)19
- Installing the Java Add-On19
- Uninstalling Modernization Workbench20
- Post-Installation Administrative Tasks21**
- Configuring Modernization Workbench21
- Licensing22
 - Application Analyzer Licensing22
 - Business Rule Manager and Application Architect Licensing23
- Configuring an ODBC Data Source Name23
 - Configuring a DB/2 ODBC Data Source Name23

Configuring an Oracle ODBC Data Source Name	26
Creating a Shared Folder for Workspaces	28
File Server Setup	28
Upgrading Workspaces	29
Troubleshooting the Installation	30
Troubleshooting Oracle Errors	30
ORA-00958: name is already used by an existing object	30
ORA-01034: ORACLE not available; ORA-27101	30
Troubleshooting Workspace Access	30

Overview

This manual describes how to install and configure Micro Focus Modernization Workbench (MW) Enterprise Edition, a suite of software products for analyzing, mining, and re-architecting legacy applications:

- Application Analyzer is the base Modernization Workbench product, used to analyze and document legacy systems at both the application and program levels.
- Business Rule Manager mines business logic from program code and encapsulates the logic in *business rules*.
- Application Architect offers a variety of advanced algorithms for "slicing" logic from program source: all the code needed for a computation, for example, or to "specialize" a program based on the value of a variable.

All three products are installed with Modernization Workbench. Each product is separately licensed.

MW Enterprise Edition is deployed in a multiuser environment with access to a common repository of application objects. Repository setup is the responsibility of a master user, leaving team members free to focus on their tasks. The database for the repository is assumed to be the customer's own.

MW Enterprise Edition installations consist of the following components:

- The MW Server hosts MW workspace files and related support files.
- MW Clients host the link files used to connect to workspaces on the server.
- The MW File Server is an optional product for sites that want to restrict Windows access to application source files. As long as you set up workspace folder privileges correctly, ordinary users can view and analyze source files in MW, but cannot access them otherwise. Only the master user has Windows access to the source files.

This manual also describes how to install and configure the database client used to connect to repositories, for sites at which the database client is not already installed. If you store repositories in Oracle or DB/2, a database client must be installed wherever the workbench client or workbench server is installed.

Installation Tasks

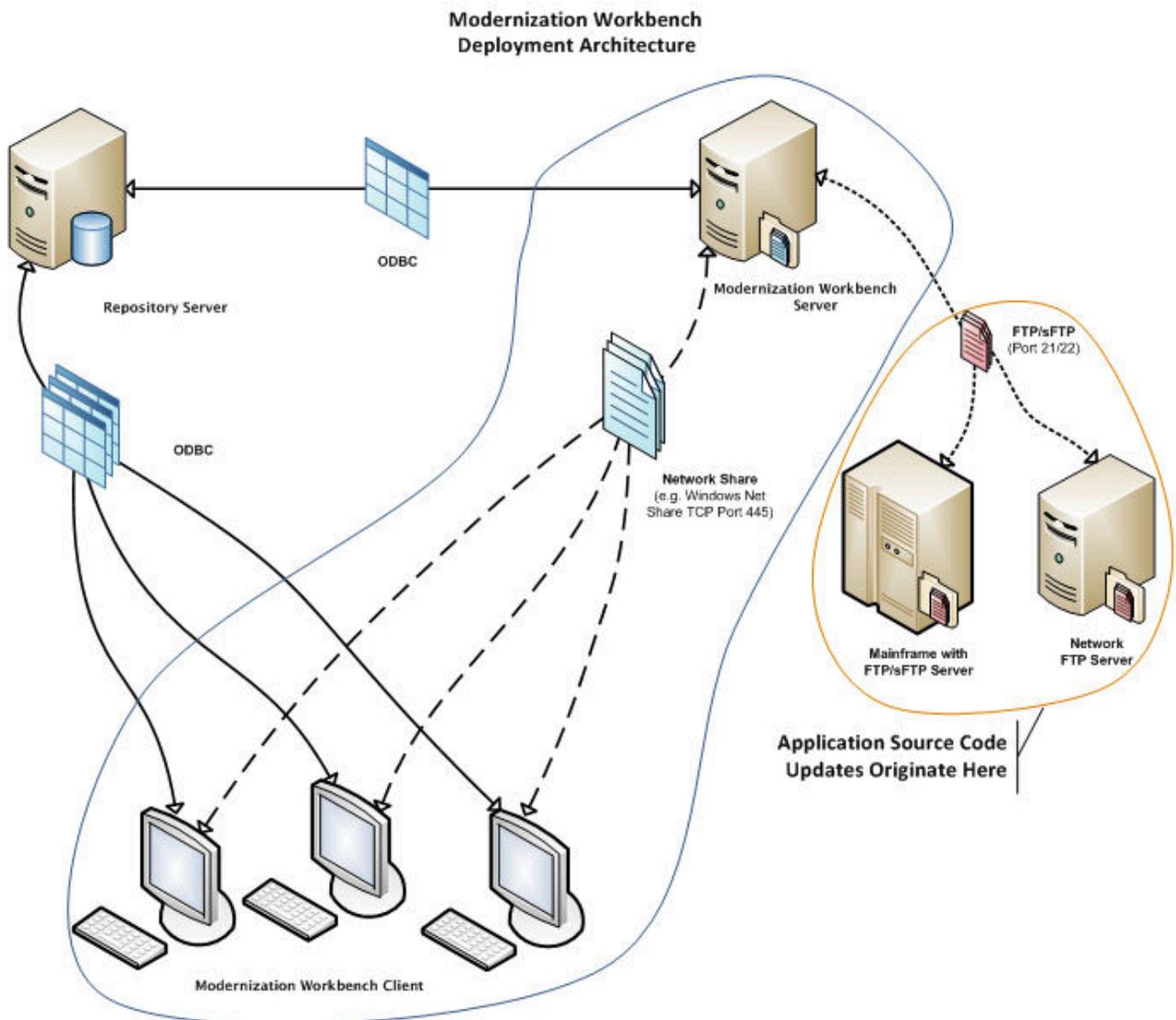
The table below describes the tasks involved in installing MW Enterprise Edition and the order in which the tasks must be performed.

Task	Order	Notes
Install Database Client	1	An Oracle or DB/2 database client must be installed wherever the workbench client or workbench server is installed. Install only if the database client is not already installed.
Install MW on Server	2	
Install Java add-on on Server	3	Optional.
Install File Server	4	Optional.

Task	Order	Notes
Install MW on Clients	5	
Install Java add-on on Clients	6	Optional.
Install File Server Clients	7	Optional.

Deployment

The figure below shows the standard MW deployment scenario. Nodes inside the blue lasso comprise the product. The role each machine performs and its key relationships are described in the following sections.



Mainframe and Network Server

The mainframe typically hosts the application to be modeled in MW. Application source files are downloaded from the mainframe (and, if necessary, a network server) to the MW server via FTP or SFTP.

Repository Server

The Repository Server hosts the database for one or more multiuser repositories, one repository per MW workspace. This server provides centralized, network-accessible storage for parsed data and analysis output.

MW Server

The MW Server hosts workspaces, workspace support files (including the copies of application source files the workbench creates at workspace loading), and workspace output. This server leverages multiple processes to enhance parsing performance in online or batch mode.

Parsed data is sent via ODBC to the repository server. Some analysis output is stored on the workbench server as well.



Note: The MW Server cannot reside on the same machine as the MW Repository. The installation program is the same for the MW client and MW server.

MW Client

MW Clients host the link files that let team members connect to workspaces on the workbench server. These clients access repository data stored in the repository server via ODBC.



Note: The installation program is the same for the MW client and MW server.

Database Setup

If you use Oracle or DB/2, your DBA must set up a schema for each repository you plan to create. Each workbench user who accesses the repository must supply credentials for a database user with appropriate access privileges to the repository.

If you use Microsoft SQL Server, the DBA must set up an SQL Server database for each workspace repository you plan to create. Workbench users typically supply Windows credentials to access the repository.

DB/2 User Privileges

If your site uses a DB/2 database, your DBA must set up a database schema for each repository you plan to create. Use the scripts provided with MW to create the DB/2 database and tablespace, and the required schemas. The scripts are located in the \DB2 Scripts folder in the MW installation directory.

Creating a Database and Tablespace

Run the following scripts provided with MW to create the DB/2 database and tablespace. In the \DB2 Scripts folder:

1. Double-click crtmwdb.cmd to create the database.
2. Open crttblspace.cmd in an editor. Replace [ADMINISTRATOR_USER_NAME] and [PASSWORD] with the user name and password of a user with administrative privileges for the database. Save and close the file.
3. Double-click crttblspace.bat to create the tablespace.

You can modify the database (mwdb), buffer pool (mwbp), and tablespace (mwtblsp) names if you wish. Make sure to modify the names in any scripts that reference them.

 **Note:** The tablespace page size must be 32K. For performance reasons, you may want to specify a second tablespace for use in storing database indexes. Users specify both tablespaces when they create an MW workspace. For instructions on how to create a workspace, see *Getting Started* in the workbench documentation set.

Creating a Schema

Set up a DB/2 schema for each repository you plan to create. Run the following scripts provided with MW to create a schema. In the \DB2 Scripts folder:

1. Open crtschema.cmd in an editor. Replace [ADMINISTRATOR_USER_NAME] and [PASSWORD] with the user name and password of a user with administrative privileges for the database. Replace each instance of [SCHEMA_NAME] with the name of the schema and [USER_NAME] with the database user name. Save and close the file.
2. Double-click crtschema.bat to create the schema.

Repeat these steps for each schema you need to create.

Each workbench user who accesses a repository must supply credentials for a database user with appropriate access privileges to the schema. These credentials are typically those for the Windows domain user. The table below shows the required privileges.

Type	Privilege
Database Privileges	BINDADD CREATETAB CONNECT IMPLICIT_SCHEMA
Schema Privileges	CREATEIN DROPIN ALTERIN
Tablespace Privileges	USE OF

Oracle User Privileges

If your site uses an Oracle database, your DBA must set up a database schema for each repository you plan to create. Each workbench user who accesses the repository must supply the name and password of a

database user with appropriate access privileges to the schema. The table below shows the required privileges.

Type	Privilege
Roles	GATHER_SYSTEM_STATISTICS (required only for Compute Database Statistics method. See <i>Getting Started</i> in the workbench documentation set.)
System Privileges	ALTER SESSION CREATE SESSION CREATE PROCEDURE CREATE SEQUENCE ALTER ANY SEQUENCE CREATE SYNONYM CREATE TRIGGER CREATE ANY TABLE DROP ANY TABLE ALTER ANY INDEX CREATE ANY INDEX DROP ANY INDEX [UNLIMITED TABLESPACE]1
Object Privileges	SELECT on SYS.V_\$INSTANCE SELECT on SYS.V_\$SESSION SELECT on SYS.V_\$PARAMETER

SQL Server Database Setup

If you use Microsoft SQL Server, you must set up an SQL Server database for each workspace repository you plan to create. If MW users will connect to the repository through an SQL Server login account, make sure the server authentication property is set to **SQL Server and Windows Authentication mode**, as described below.

The following instructions assume you are using the SQL Server Management Studio tool for SQL Server 2008. The procedure for the SQL Server Management Studio Express tool for SQL Server 2005 is similar.

You can use Microsoft SQL Server Express to create a workspace on your local machine. Modernization Workbench creates a database for the workspace "on the fly," with no intervention on your part. If you do use SQL Server Express, keep in mind that the Windows user who creates the workspace must have been configured with appropriate permissions in SQL Server Express. The user who installed SQL Server Express will always have the appropriate permissions. See the SQL Server Express documentation for configuration instructions.

 **Note:** For Windows XP installations using the Italian locale, you must set the Time format in the Control Panel Regional Language Options to "HH:mm:ss" before attempting to verify an MW workspace with a SQL Server repository. Click **Settings > Control Panel > Regional and Language Options > Customize > Time** and choose "HH:mm:ss" from the **Time format** drop-down.

1. Choose **Start > Programs > Microsoft SQL Server 2008 > SQL Server Management Studio**.
2. In the Connect to Server screen, select:
 - Database engine in the **Server type** drop-down.
 - The server on which you want to create the repository database in the **Server name** drop-down.
 - Windows Authentication in the **Authentication** drop-down.

3. Click **Connect**. The Microsoft SQL Server Management Studio window opens. In the Object Explorer pane, expand the folder for the server. Click Databases and choose **New Database...** in the right-click menu. The New Database window opens.
4. Select the General page. In the **Database name** field, enter the name of the database for the repository. Modify the logical name and initial sizes of the database and log files if needed, then click **OK**. The new database is displayed in the Object Explorer pane.



Note: Check the SQL Server Management Studio documentation for details on other database settings.

5. If MW users will connect to the workspace repository through a Windows user account, skip the remaining steps. If MW users will connect to the workspace repository through an SQL Server login account, click the server name in the Object Explorer pane and choose **Properties** in the right-click menu. The Server Properties window opens.
6. Select the Security page. In the Server authentication area, select **SQL Server and Windows Authentication mode**, then click **OK**.
7. In the Object Explorer pane, click Security > Logins and choose **New Login...** in the right-click menu. The Login - New window opens.
8. Select the General page. In the **Login name** field, enter the database login name, then choose **SQL Server authentication**. Enter the password for the database login in the **Password** and **Confirm password** fields, then click **OK**. The new login is displayed in the Object Explorer pane.
9. In the Object Explorer pane, expand the database you created for the workspace repository. Click Security > Users and choose **New User...** in the right-click menu. The Database User - New window opens.
10. Select the General page. Define the database user:

- In the **User name** field, enter the database user name.
- In the **Login name** field, enter the database login name. Use the browse button to browse for the login name.



Note: You specify the login name, not the database user name, when you create or connect to a workspace, so it is usually best to make the user name and login name the same.

- In the Database role membership pane, place a check mark next to db_owner, then click **OK**. The new user is displayed in the Object Explorer pane.



Tip: You can use the same login and database user for multiple databases/workspaces.

Hardware and Software Requirements

The following sections describe the hardware, disk space, operating system, and software requirements for MW installations.

 **Note:** Hardware requirements for the database client are shown in the tables for the workbench client and workbench server. Software requirements for the database client are the same as the software requirements for the workbench client and workbench server. Hardware and software requirements for the file server are the same as the hardware requirements for the workbench client and workbench server.

Repository Server Hardware Requirements

The table below lists the hard drive storage requirements for the Repository Server. For other hardware recommendations, check with support services.

Type	Requirement	Notes
Hard Drive Storage	Variable	Minimum of 20GB disk space needed for the software installation of the RDBMS and the MW template database. Plus approximately 60X the size in bytes of the application source code modeled in MW (e.g., 100MB source = 6GB).

Repository Server Software Requirements

The table below lists the software requirements for the Repository Server.

Type	Requirement
DB/2	DB/2 9.5
Oracle	Oracle 10g, 11g  Note: If you run the Batch Refresh Process (BRP) on the repository server, Oracle must be .NET-enabled. Oracle requirements for local BRP execution are as follows: <ul style="list-style-type: none">• For Windows XP and Windows Server 2003, Oracle 10g, Fix Pack 2, Oracle 11g• For Windows Vista and Windows Server 2008, Oracle 10g, Fix Pack 3, Oracle 11g• For Windows 7, Oracle 11g
SQL Server	MS SQL Server 2005 or 2008

MW Server Hardware Requirements

The table below lists the hardware requirements for MW Server installations. Hardware requirements may vary depending on the size of the application you are analyzing.

Type	Requirement	Notes
Processor	2.6 GHz Dual Core or 2x 3.0+ GHz Processors	Dual processing capability with multiple cores in a processor or separate physical processors.
Physical Memory	3GB RAM	
Virtual Memory	1GB to 3GB	
Hard Drive Storage	Variable	<p>For MW workspaces, approximately 40X size in bytes of the application source code modeled in MW (for example, 100MB source = 4GB).</p> <p>For MW software, minimum 200MB.</p> <p>For Java add-on, minimum 115MB.</p> <p>For database client, minimum 200MB.</p>

MW Server Software Requirements

The table below lists the software requirements for MW Server installations.

Type	Requirement
Operating System	<p>Microsoft Windows XP Professional, Service Pack 3 or higher, 32-bit and 64-bit</p> <p>Microsoft Windows Server 2003, 32-bit and 64-bit</p> <p>Microsoft Windows 7, 32-bit and 64-bit</p> <p>Microsoft Windows Vista, 32-bit</p> <p>Microsoft Windows Server 2008, 32-bit and 64-bit</p>
Database Client	<p>For Oracle or DB/2, one configured ODBC data source name (DSN) per database instance. The database client must be .NET-enabled. Oracle database client requirements are as follows:</p> <ul style="list-style-type: none"> For Windows XP and Windows Server 2003, Oracle 10g, Fix Pack 2, Oracle 11g For Windows Vista and Windows Server 2008, Oracle 10g, Fix Pack 3, Oracle 11g For Windows 7, Oracle 11g

Type	Requirement
Internet Explorer 6.0 or higher (optional)	Required to view HTML report outputs.
Microsoft Office (optional)	Required by MW tools with reporting capabilities to save to Microsoft Office file formats.
Microsoft Visio (optional)	Required to generate output as Microsoft Visio .VSD files.  Note: Visio .VDX files are XML-based and may be generated without Visio being installed on the MW client.
JRE 1.5.0 or higher (optional)	Required for Java add-on.

MW Client Hardware Requirements

The table below lists the hardware requirements for MW Client installations. Hardware requirements may vary depending on the size of the application you are analyzing.

Type	Requirement	Notes
Processor	3.0 GHz Processor	Single processor (single or dual core).
Physical Memory	1GB RAM	
Virtual Memory	1GB to 3GB	
Hard Drive Storage	Variable	For MW software, minimum 200MB. For Java add-on, minimum 115MB. For database client, minimum 200MB.

MW Client Software Requirements

The table below lists the software requirements for MW Client installations.

Type	Requirement
Operating System	Microsoft Windows XP Professional, Service Pack 3 or higher, 32-bit and 64-bit Microsoft Windows Server 2003, 32-bit and 64-bit Microsoft Windows 7, 32-bit and 64-bit Microsoft Windows Vista, 32-bit Microsoft Windows Server 2008, 32-bit and 64-bit
Database Client	For Oracle or DB/2, one configured ODBC data source name (DSN) per database instance. The database client must be .NET-enabled. Oracle database client requirements are as follows:

Type	Requirement
	<ul style="list-style-type: none"> • For Windows XP and Windows Server 2003, Oracle 10g, Fix Pack 2, Oracle 11g • For Windows Vista and Windows Server 2008, Oracle 10g, Fix Pack 3, Oracle 11g • For Windows 7, Oracle 11g
Internet Explorer 6.0 or higher (optional)	Required to view HTML report outputs.
Microsoft Office (optional)	Required by MW tools with reporting capabilities to save to Microsoft Office file formats.
Microsoft Visio (optional)	<p>Required to generate output as Microsoft Visio .VSD files.</p> <p> Note: Visio .VDX files are XML-based and may be generated without Visio being installed on the MW Client.</p>
JRE 1.5.0 or higher (optional)	Required for Java add-on.

Installing and Uninstalling Modernization Workbench

Before running an installation program described in this section, make sure you have administrative permissions for the machine on which you are performing the installation. If you do not have administrative permissions, the installation program will not let you continue.

 **Note:** You can run the Windows Installer (.msi) installation programs "silently." That's particularly useful when you are installing clients on a network. Check with support services for the appropriate sequence of commands.

Installing the Database Client

If you use Oracle or DB/2, a database client must be installed wherever the workbench client or workbench server is installed. If the RDBMS client software is not already installed on your machine, follow the instructions in this section to install it.

Installing the DB/2 Client

Follow the instructions in this section to install the DB/2 client.

 **Note:** The DB/2 client must be .NET-enabled. Choosing the Typical DB/2 client installation ensures that .NET support is available.

1. Double-click the setup.exe program for the DB/2 client installation. The Welcome screen opens. Click **Install a Product**.
2. A screen prompts you to select the product you want to install. Under IBM Data Server Client, click **Install New**.
3. The DB/2 Setup Wizard opens. **Click Next**.
4. The Software License Agreement screen opens. Read the License Agreement carefully. Click **I accept the terms in the license agreement** to accept its terms, then click **Next**.
5. A screen prompts you to select the installation type. Select **Typical**, then click **Next**.
6. A screen prompts you to install the IBM Data Server Client. Select **Install IBM Data Server Client on this computer**, then click **Next**.
7. A screen prompts you to select an installation folder. To accept the prefilled value, click **Next**. To specify a different folder, click **Change** and follow the substeps below.
 - a) Navigate the folder structure to find a suitable location. If the destination folder does not exist, the installation creates it.
 - b) Click **OK** to exit the screen and return to the installation folder screen.
 - c) Click **Next** in the installation folder screen.
8. A screen prompts you to enable operating system security for DB/2 objects. Unless otherwise instructed by your system or database administrator, deselect **Enable operating system security**, then click **Next**.
9. A screen prompts you to start copying installation files to your computer. Click **Install** to begin transferring files to your machine. A progress meter indicates the progress of the transfer.

10. When the transfer is complete, a screen informs you that setup is complete. Click **Next**.

11. A screen prompts you to install additional products. Click **Finish**.

Installing the Oracle Client

You will need the following information from your DBA to install and configure Oracle client software:

- The TNS Service Name for the database your workspace repositories will be stored in.
 - The host name for the computer on which the database resides.
 - The port number for communications with the host, if it is not the standard port number.
 - A database user ID and password.
1. Double-click the setup.exe program for the Oracle client installation. The Welcome screen opens.
 2. Click **Next**. The Select Installation Type screen opens. Select Custom.
 3. Click **Next**. The Specify Home Details screen opens. Enter an alternate name and path for the installation, if desired. Otherwise, accept the defaults.
 4. Click **Next**. The Available Product Components screen opens. Select the following components:
 - SQL *Plus
 - Oracle JDBC/THIN Interfaces
 - Oracle Windows Interfaces. Deselect every choice under Oracle Windows Interfaces except Oracle ODBC Driver.
 - Oracle Call Interface (OCI)
 - Oracle Net
 5. Click **Next**. The installer checks for prerequisites to ensure your environment meets the minimum requirements for installation. Resolve any flagged items, if necessary.
 6. Click **Next**. Review the Summary screen to confirm your selections. Use the Back button to correct any errors. When you are satisfied that all the information is correct, click **Install**.
 7. When installation completes, the Oracle Net Configuration Assistant is launched.
 8. Click **Next**. The Naming Methods Configuration screen opens. Verify that Local Naming is shown in the Selected Naming Methods field.
 9. Click **Next**. The Net Service Name Configuration screen opens. In the **Service Name** field, enter the TNS Service Name for the database your workspace repositories will be stored in. This name is provided by your DBA.
 10. Click **Next**. The Select Protocols screen opens. Select TCP.
 11. Click **Next**. The TCP/IP Protocol screen opens. Enter the host name for the computer on which the Oracle database resides. This name is provided by your DBA. Use the standard port number of 1521 unless otherwise instructed by your DBA.
 12. Click **Next**. The Test screen opens. Select **Yes, perform a test**.
 13. Click **Next**. You should receive a message that the test did not succeed. This is because the default login used for the test is the Oracle SYSTEM login. You must change the user name and password to those provided by your DBA.
 14. Click **Change Login**. In the Change Login dialog, enter the user ID and password provided by your DBA.
 15. Click **OK**. You should now receive a message that the connection test was successful. If the test remains unsuccessful, click **Change Login** and confirm that you entered the correct credentials as provided by your DBA. If problems persist, contact your DBA for assistance.
 16. Click **Next**. The Net Service Name screen opens.
 17. The **Net Service Name** field is prefilled with the TNS Service Name you specified in Net Service Name Configuration screen. Click **Next**. The Additional Net Service Names screen opens.

18. In the Additional Net Service Names screen, configure additional TNS Service Names, one per database instance you need to connect with. This step is optional. Select **Yes** to configure additional TNS Service Names. Select **No** to complete the configuration.



Note: If you need to connect to additional database instances at a later date, you can add TNS Service Names by manually editing the `tnsnames.ora` file in `Repository_Client_HOME`. See your DBA for details.

19. Click **Next**. Then click **Next** on the following two screens to complete the Oracle Net Configuration.

20. On the Oracle Net Configuration completion screen, click **Finish** to exit the Net Configuration Assistant.

21. The Oracle Installer window opens. Click **Exit**. You are prompted to confirm that you want to exit. Click **Yes**.

Installing MW on the Server

The MW Server hosts MW workspace files and related support files. Follow the instructions in this section to install MW on the server. The Micro Focus License Manager is packaged with the installation.



Note: The MW Server cannot reside on the same machine as the MW Repository. The installation program is the same for the MW client and MW server.

1. In the installation folder for the product, double-click the `setup.exe` program.
 - If the prerequisite software is installed on your machine, the Welcome screen opens.
 - If the prerequisite software is not installed on your machine, the Modernization Workbench Setup screen prompts you to install the missing software. Click **Install**. When the software been installed, the Welcome screen opens.
2. Click **Next**. The License Agreement screen opens. Read the License Agreement carefully. Click **I accept the terms in the license agreement** to accept its terms, then click **Next**.
3. The Customer Information screen opens. Enter your user name and organization in the **User Name** and **Organization** fields, respectively. Click **Next**.
4. The Destination Folder screen opens. Choose an installation folder. To accept the prefilled value, click **Next**. To specify a different folder, click **Change** and follow the substeps below.
 - a) Navigate the folder structure to find a suitable location. If the destination folder does not exist, the installation creates it.
 - b) Click **OK** to exit the Change Current Destination Folder screen and return to the Destination Folder screen.
 - c) Click **Next** in the Destination Folder screen.
5. The Ready to Install the Program screen opens. Click **Install** to begin transferring files to your machine. A progress meter indicates the progress of the transfer.



Note: To make changes to the settings, click **Back** repeatedly until you find the information you are looking for, make the required changes, then click **Next** until you return to the Ready to Install the Program screen.

6. When the transfer is complete, the Setup Complete screen opens. Click **Finish**.

Installing the MW File Server (Optional)

The MW File Server is an optional product for sites that want to restrict Windows access to application source files. As long as you set up workspace folder privileges correctly, ordinary users can view and

analyze source files in MW, but cannot access them otherwise. Only the master user has Windows access to the source files. If you use the file server, it must be installed on the same machine as the MW server.

1. In the file server installation folder, double-click the setup.exe program. The Welcome screen opens.
2. Click **Next**. The License Agreement screen opens. Read the License Agreement carefully. Click **I accept the terms in the license agreement** to accept its terms, then click **Next**.
3. The Destination Folder screen opens. Choose an installation folder. To accept the prefilled value, click **Next**. To specify a different folder, click **Change** and follow the substeps below.
 - a) Navigate the folder structure to find a suitable location. If the destination folder does not exist, the installation creates it.
 - b) Click **OK** to exit the Change Current Destination Folder screen and return to the Destination Folder screen.
 - c) Click **Next** in the Destination Folder screen.
4. The Setup Type screen opens. Choose **Custom**, then click **Next**.
5. The Custom Setup screen opens. Choose **RMW File Server**, then click **Next**.
6. The Ready to Install the Program screen opens. Click **Install** to begin transferring files to your machine. A progress meter indicates the progress of the transfer.



Note: To make changes to the settings, click **Back** repeatedly until you find the information you are looking for, make the required changes, then click **Next** until you return to the Ready to Install the Program screen.

7. When the transfer is complete, the Setup Complete screen opens. Click **Finish**.

Installing MW on the Client

MW Clients host the link files used to connect to workspaces on the server. Follow the instructions in this section to install MW on a client. The Micro Focus License Manager is packaged with the installation.



Note: The installation program is the same for the MW client and MW server.

1. In the installation folder for the product, double-click the setup.exe program.
 - If the prerequisite software is installed on your machine, the Welcome screen opens.
 - If the prerequisite software is not installed on your machine, the Modernization Workbench Setup screen prompts you to install the missing software. Click **Install**. When the software been installed, the Welcome screen opens.
2. Click **Next**. The License Agreement screen opens. Read the License Agreement carefully. Click **I accept the terms in the license agreement** to accept its terms, then click **Next**.
3. The Customer Information screen opens. Enter your user name and organization in the **User Name** and **Organization** fields, respectively. Click **Next**.
4. The Destination Folder screen opens. Choose an installation folder. To accept the prefilled value, click **Next**. To specify a different folder, click **Change** and follow the substeps below.
 - a) Navigate the folder structure to find a suitable location. If the destination folder does not exist, the installation creates it.
 - b) Click **OK** to exit the Change Current Destination Folder screen and return to the Destination Folder screen.
 - c) Click **Next** in the Destination Folder screen.
5. The Ready to Install the Program screen opens. Click **Install** to begin transferring files to your machine. A progress meter indicates the progress of the transfer.



Note: To make changes to the settings, click **Back** repeatedly until you find the information you are looking for, make the required changes, then click **Next** until you return to the Ready to Install the Program screen.

6. When the transfer is complete, the Setup Complete screen opens. Click **Finish**.

Installing the MW File Server Client (Optional)

The MW File Server is an optional product for sites that want to restrict Windows access to application source files. As long as you set up workspace folder privileges correctly, ordinary users can view and analyze source files in MW, but cannot access them otherwise. Only the master user has Windows access to the source files. If you use the file server, the file server client must be installed on the same machine as the MW client.

1. In the file server client installation folder, double-click the setup.exe program. The Welcome screen opens.
2. Click **Next**. The License Agreement screen opens. Read the License Agreement carefully. Click **I accept the terms in the license agreement** to accept its terms, then click **Next**.
3. The Destination Folder screen opens. Choose an installation folder. To accept the prefilled value, click **Next**. To specify a different folder, click **Change** and follow the substeps below.
 - a) Navigate the folder structure to find a suitable location. If the destination folder does not exist, the installation creates it.
 - b) Click **OK** to exit the Change Current Destination Folder screen and return to the Destination Folder screen.
 - c) Click **Next** in the Destination Folder screen.
4. The Setup Type screen opens. Choose **Custom**, then click **Next**.
5. The Custom Setup screen opens. Choose **RMW File Client**, then click **Next**.
6. The Ready to Install the Program screen opens. Click **Install** to begin transferring files to your machine. A progress meter indicates the progress of the transfer.



Note: To make changes to the settings, click **Back** repeatedly until you find the information you are looking for, make the required changes, then click **Next** until you return to the Ready to Install the Program screen.

7. When the transfer is complete, the Setup Complete screen opens. Click **Finish**.

Installing the Java Add-On

Follow the instructions below to install the Java add-on. If you are installing in a distributed environment, make sure to install the add-on on MW clients as well as the MW server.

1. In the installation folder for the product, double-click the setup.exe program.
2. Click **Next**. The License Agreement screen opens. Read the License Agreement carefully. Click **I accept the terms in the license agreement** to accept its terms, then click **Next**.
3. The Ready to Install the Program screen opens. Click **Install** to begin transferring files to your machine. A progress meter indicates the progress of the transfer.



Note: To make changes to the settings, click **Back** repeatedly until you find the information you are looking for, make the required changes, then click **Next** until you return to the Ready to Install the Program screen.

4. When the transfer is complete, the Setup Complete screen opens. Click **Finish**.

Uninstalling Modernization Workbench

Follow the instructions below to uninstall a Modernization Workbench product. Make sure to close any open MW programs before running the uninstall program.

1. Choose **Start > Settings > Control Panel**.
2. In the Control Panel window, double-click the **Add/Remove Programs** icon.
3. In the Add/Remove Programs window, select the product you want to uninstall, then click **Remove**. You are prompted to confirm that you want to uninstall the product. Click **Yes**.
4. When the uninstall process completes, it prompts you to restart your computer. Click **Yes** to restart immediately, click **No** if you plan to restart later.

Post-Installation Administrative Tasks

Before you can work in MW, you must complete the basic administrative tasks described in this section. You are prompted to perform the first of these tasks, configuring the workbench, when you complete the installation.

Configuring Modernization Workbench

Use the Configuration Manager in the Modernization Workbench Administration tool to configure workbench options and displays for the programming languages, dialects, character sets, and products in use at your site.

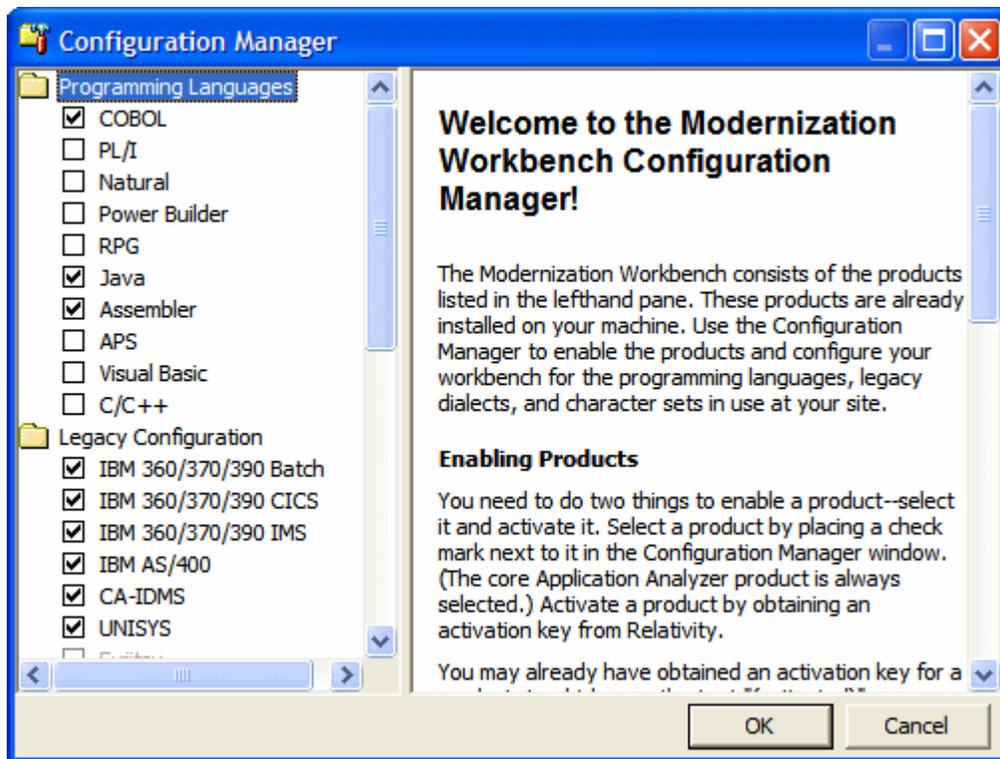
If you configure your workbench for Cobol, for example, you will see only the workbench options and displays appropriate for Cobol modernization. If it turns out that you need to configure your workbench for PL/I as well, you can always come back to the Configuration Manager and select PL/I in addition to Cobol.

1. Open the Configuration Manager window.

- If you are installing MW, the Configuration Manager window opens after you finish the installation.
- If you have previously installed MW and want to reconfigure it, choose **Start > Programs > Micro Focus > Modernization Workbench Administration**. The Modernization Workbench Administration window opens. In the **Administer** menu, choose **Configure Workbench**. The Configuration Manager window opens.



Note: If the workbench is open, you are prompted to exit. Click **OK**, then close the workbench.



2. Select each programming language, dialect, and character set in use at your site. Select each workbench product you want to use at your site. The core Application Analyzer product is always selected. Select **Additional Tools** to enable tools not used in typical workbench configurations. When you are satisfied with your choices, click **OK**.

 **Note:** If you modify your workbench configuration, make sure to upgrade workspaces created under the previous configuration.

Licensing

All three Modernization Workbench products (Application Analyzer, Business Rule Manager, and Application Architect) are installed with the workbench. Each product is separately licensed. Follow the instructions in the topics linked below to manage your licenses for MW products.

Application Analyzer Licensing

Application Analyzer users are issued 30-day trial licenses at installation, so that they can work in the product out-of-the-box. A Sentinel RMS license server is installed with the product.

Depending on the licensing model in use at your site, you can manage your license:

- Locally, using the installed Sentinel RMS license server.
- Remotely, using a Sentinel RMS license server that has been configured to manage licenses centrally.

 **Note:** The remote license server uses the same software as the local license server that is installed with Application Analyzer.

Each time you start Application Analyzer during the trial period, the Micro Focus Licensing System Administration tool notifies you how much of the trial period remains and prompts you to enter a code authorizing a full license:

- If you use a local license server, enter the 16-character license authorization code for Application Analyzer in the **Authorization** field of the Trial License window, then click **Authorize**.
- If you use a remote license server, click **Advanced** on the Trial License window, then click **Change** in the **License server** field. Enter the IP address or server name of the license server, then click **Save**.

 **Note:** You can start the Licensing System Administration tool at any time by choosing **Start > Programs > Micro Focus License Manager > License Management System**.

Your License System Administrator can tell you which licensing model your site uses and provide you with the name of the remote license server if needed. For complete information, including how to configure a remote license server, refer to the help provided with the Licensing System Administration tool.

 **Note:** Application Analyzer licenses provide support for a subset of the parsers available in Modernization Workbench. If you need support for additional parsers, contact support services.

Business Rule Manager and Application Architect Licensing

Trial licenses are not provided for Business Rule Manager and Application Architect. Before you can work in these products, you must enter the 16-character license authorization code for the product. Each product is separately licensed.

Choose **Start > Programs > Micro Focus License Manager > License Management System**. In the Licensing System Administration tool, click the **Authorize** tab, then enter the authorization code in the **Enter authorization code** field and click **Authorize**.

Configuring an ODBC Data Source Name

An ODBC data source name (DSN) is a set of credentials for connecting with a database instance. If you use Oracle or DB/2, you must configure a DSN for the database that holds your workspace repositories.

Configuring a DB/2 ODBC Data Source Name

You will need the following information from your DBA to configure a DB/2 ODBC data source name (DSN):

- The name of the database your workspace repositories will be stored in.
- The host name for the computer on which the database resides.
- The port number for communications with the host, if it is not the standard port number.

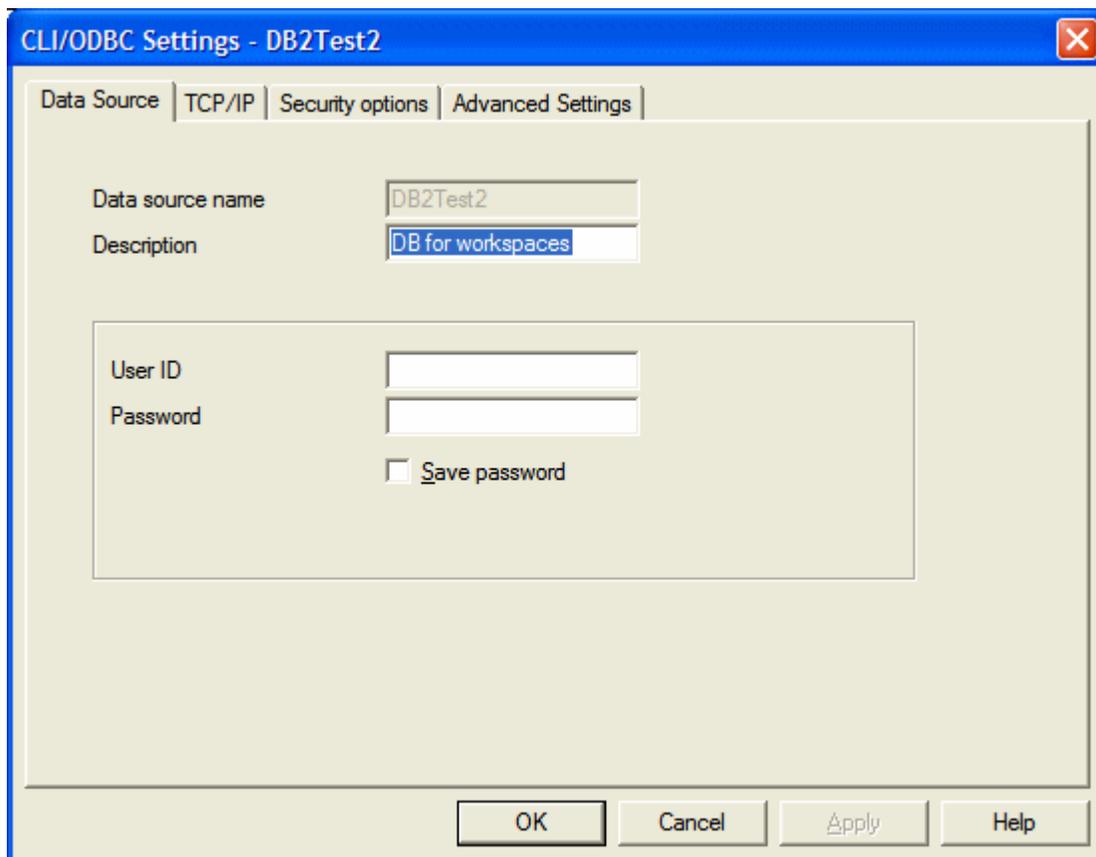
 **Note:** Keep the DSN handy. You will need to specify it when you create an MW workspace. For instructions on how to create a workspace, see *Getting Started* in the workbench documentation set.

1. In the Windows Control Panel, double-click **Administrative Tools**. The Administrative tools window opens.
2. Double-click **Data Sources (ODBC)**. The ODBC Data Source Administrator window opens.
3. Select the System DSN tab and click **Add**. The Create New Data Source window opens.

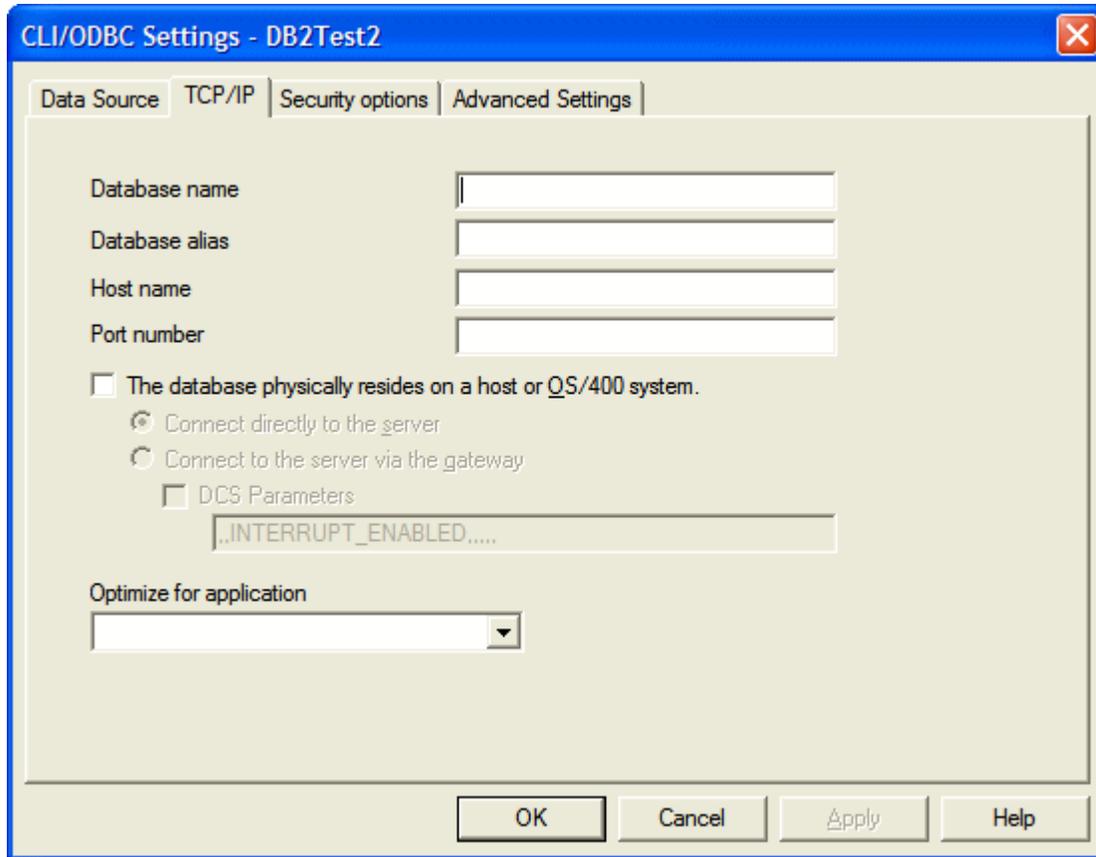
4. Select IBM DB2 ODBC DRIVER - DB2COPY1 and click **Finish**. The ODBC IBM DB2 Driver configuration dialog opens.



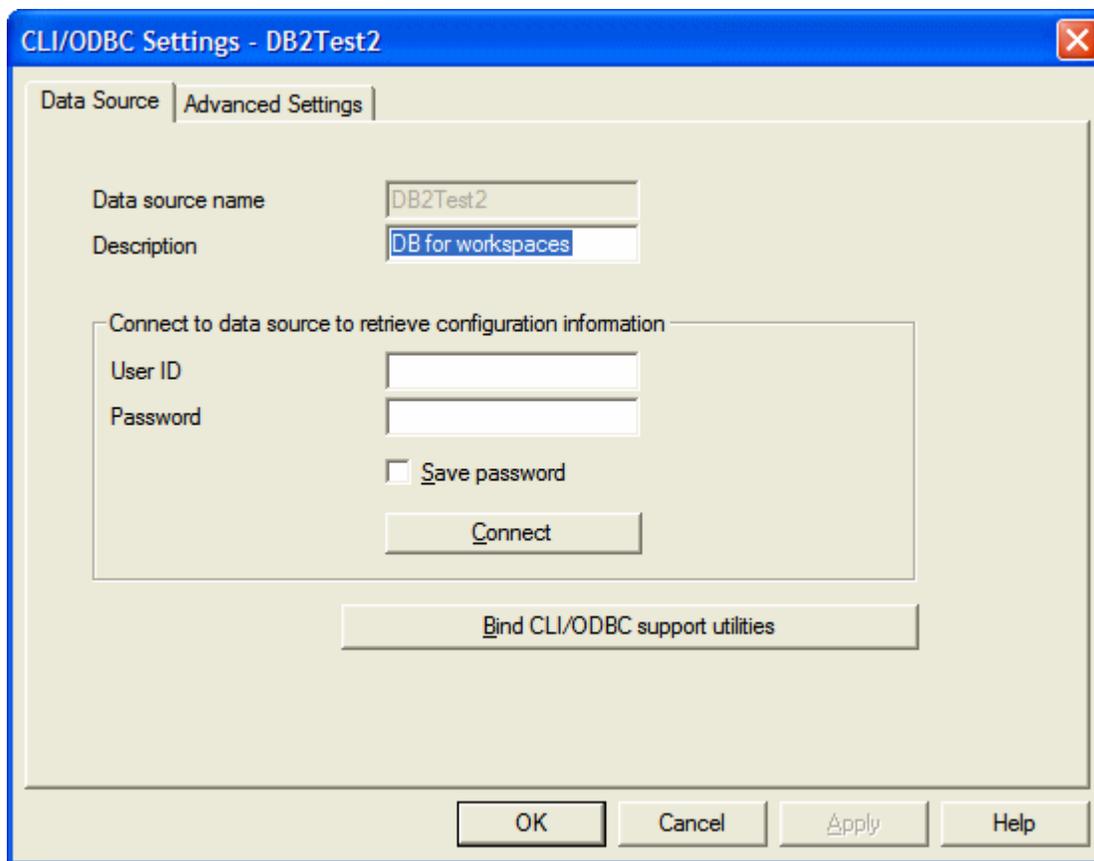
5. In the **Data Source Name** field, enter a name of your choice to identify the data source. If your DBA has supplied a common DSN for use across the enterprise, enter it here.
6. In the **Description** field, enter an optional description for the data source.
7. In the **Database alias** field, select an existing database alias from the drop-down, then click **OK**.
8. If a database alias has not been defined, click **Add**. The CLI/ODBC Settings window opens.



9. In the Data Source tab, the **Data source name** and **Description** fields are prefilled with the information you supplied in the ODBC IBM DB2 Driver configuration dialog. In the **User ID** field, enter your domain user name. In the **Password** field, enter your domain user password. The fields are case-sensitive.
10. Select the TCP/IP tab.



11. Specify the following information on the TCP/IP tab:
 - In the **Database name** field, enter the name of the database your workspace repositories will be stored in.
 - In the **Database alias** field, enter a database alias.
 - In the **Host name** field, enter the host name for the computer on which the database resides.
 - In the **Port number** field, enter the port number for communications with the host. Use the standard port number of 50000 unless otherwise instructed by your DBA.
12. Click **OK**. You are returned to the ODBC Data Source Administrator window. Select the new data source name and click **Configure**. The CLI/ODBC Settings window for the data source opens.



13. In the Data Source tab, the **Data source name** and **Description** fields are prefilled with the information you supplied in the ODBC IBM DB2 Driver configuration dialog. In the **User ID** field, enter your domain user name. In the **Password** field, enter your domain user password. The fields are case-sensitive. Click **Connect** to test the database connection. You are notified that the connection was created successfully. Click **OK**.



Note: If you receive an error, verify the driver configuration settings and retest the connection. See your DBA if the problem persists.

14. Click **OK** to exit the CLI/ODBC Settings window. Then click **OK** again to exit the ODBC Data Source Administrator window.

Configuring an Oracle ODBC Data Source Name

To configure an Oracle Data Source Name (DSN), you must have specified a TNS Service Name for the database your workspace repositories will be stored in. This is the TNS Service Name you entered when you installed the repository client.

Check the file `tnsnames.ora` in `Repository_Client_HOME` to make sure the TNS Service Name exists. The entry should look like this, where `RMWPROD` is the TNS Service Name:

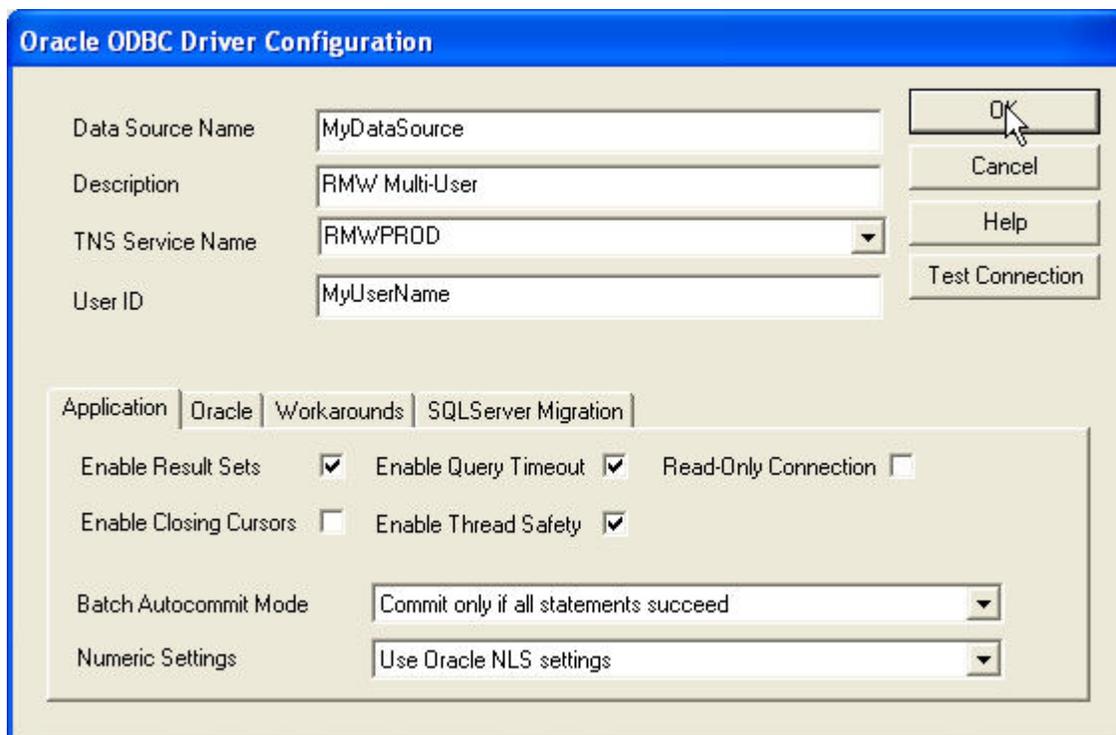
```
RMWPROD
  (DESCRIPTION=
    (ADDRESS_LIST=
      (ADDRESS=(PROTOCOL=TCP)(HOST=tiger)(PORT=1521))
    )
    (CONNECT_DATA=
```

```
(SID=lnx)
```

You will also need to obtain a database user ID and password from your DBA to configure the Oracle DSN.

 **Note:** Keep the DSN handy. You will need to specify it when you create an MW workspace. For instructions on how to create a workspace, see **Getting Started** in the workbench documentation set.

1. In the Windows Control Panel, double-click **Administrative Tools**. The Administrative tools window opens.
2. Double-click **Data Sources (ODBC)**. The ODBC Data Source Administrator window opens.
3. Select the System DSN tab and click **Add**. The Create New Data Source dialog opens.
4. Select an appropriate Oracle driver and click **Finish**. The Oracle ODBC Driver Configuration window opens.



5. Specify the following information in the Oracle ODBC Driver Configuration window:
 - In the **Data Source Name** field, enter a name of your choice to identify the data source. If your DBA has supplied a common DSN for use across the enterprise, enter it here.
 - In the **Description** field, enter an optional description for the data source.
 - In the **TNS Service Name** drop-down, select the TNS Service Name for the database your workspace repositories will be stored in. If no choices are shown, or if you are unsure which name to select, contact your DBA.
 - In the **User ID** field, enter the database user ID supplied by your DBA.
6. Click **Test Connection**. The Oracle ODBC Driver Connect window opens.
7. In the Oracle ODBC Driver Connect window the **Service Name** and **User ID** fields are prefilled with the information you supplied in the Oracle ODBC Driver Configuration window. Enter the password for your user ID and click **OK**. You are notified that the connection was created successfully. Click **OK**.



Note: If you receive an error, verify the driver configuration settings and retest the connection. See your DBA if the problem persists.

8. Click **OK** to exit the Driver Configuration window. Then click **OK** again to exit the ODBC Data Source Administrator window.

Creating a Shared Folder for Workspaces

The folder in which you plan to create workspaces must be shared with team members. It's typically more convenient to share the folder before you create workspaces, but you can do it afterward if necessary, then refresh the workspace path as described in *Getting Started* in the workbench documentation set.

Follow the instructions below to create a shared folder for workspaces. You must be an administrator to create a shared folder.

1. On the MW server, create a folder for MW workspaces.
2. Select the folder and choose **Sharing and Security** in the right-click menu. The Properties dialog for the folder opens. In the Sharing tab for the Properties dialog, select **Share this folder on the network** (or, on a machine in a Windows domain, **Share this folder**). Enter the share name in the **Share name** field and click **Apply**.



Note: Do not embed spaces in the share name. Doing so may cause other users to be unable to access the folder.

3. Click **Permissions**. The Permissions for *Folder* dialog opens. Specify the appropriate permissions for users sharing the folder and click **OK**.

File Server Setup

The MW File Server is an optional product for sites that want to restrict Windows access to application source files. As long as you set up workspace folder privileges correctly, ordinary users can view and analyze source files in MW, but cannot access them otherwise. Only the master user has Windows access to the source files.

Follow the instructions below to set up workspace folder privileges. You must be an administrator to perform the first two steps.



Note: If your site uses the MW File Server, you cannot configure master users on MW client machines. All users on client machines must be ordinary users.

1. On the MW server machine, open **Settings > Control Panel > Administrative Tools > Computer Management**. In the Computer Management window, create two groups, MW Masters and MWUsers. The MWMasters group should contain master users, including the administrator. The MWUsers group should contain ordinary users and, if you use the Three-Group Security Policy, subject matter experts (SMEs).



Note: Group names are arbitrary. You can use any names you want.

2. On the MW server machine, create a folder for MW workspaces. Select the folder and choose **Sharing and Security** in the right-click menu. The Properties dialog for the folder opens. In the Sharing tab for the Properties dialog, select **Share this folder on the network** (or, on a machine in a Windows domain, **Share this folder**). Enter the share name in the **Share name** field and click **Apply**.

 **Note:** Do not embed spaces in the share name. Doing so may cause other users to be unable to access the folder.

3. On the Security tab for the Properties dialog, give full access permissions for the shared folder to the MWMasters and MWUsers groups and to the local SYSTEM account, then click **OK**.
4. Create a new workspace in the shared folder. After defining the connection parameters on the Connection tab, click the Security tab and choose **Secure sources access via RMW file server**. The server name should be the name of the MW server machine. Leave the port number value as is, then click **OK**.

 **Note:** For complete instructions on creating a new workspace, see **Getting Started** in the workbench documentation set.

5. In the folder for the workspace, right-click the Sources subfolder and choose **Properties**. In the Sources Properties dialog, click the Security tab. On the Security tab, click **Advanced**. In the Advanced Security Settings for Sources dialog, deselect **Inherit from parent...** A Security dialog opens. In the Security dialog, click **Copy**. You are returned to the Advanced Security Settings for Sources dialog.
6. In the Advanced Security Settings for Sources dialog, select **Replace permission entries...** In the Permission entries list, select the MWUsers group and click **Remove**.
7. In the Advanced Security Settings for Sources dialog, click **Add**. The Select Computer, User, or Group dialog opens. In the Select Computer, User, or Group dialog, enter MWMasters (or whatever name you chose for the MW master users group) and click **OK**. The Permission Entry for Sources dialog opens. For the **Full Control** setting, check **Allow**, then click **OK**. You are returned to the Advanced Security Settings for Sources dialog.
8. In the Advanced Security Settings for Sources dialog, click **OK**. You are prompted to continue. Click **Yes**. In the Sources Properties dialog, click **OK**.

Upgrading Workspaces

When you modify your workbench configuration, you must *upgrade* every workspace created with the previous configuration. Only the master user can upgrade a workspace.

1. Choose **Start > Programs > Micro Focus > Modernization Workbench Administration**. The Modernization Workbench Administration window opens.
2. In the Administration window, choose **Administer > Upgrade Workspace**. The Upgrade workspace dialog opens, where you can choose the workspace to upgrade.

Troubleshooting the Installation

Follow the instructions in this section to troubleshoot a Modernization Workbench installation.

Troubleshooting Oracle Errors

Follow the instructions in this section to troubleshoot common Oracle errors.

ORA-00958: name is already used by an existing object

This error occurs because the schema for the workspace was created with an Oracle ID already used to create another schema. A unique Oracle ID must be used to create an Oracle schema.

ORA-01034: ORACLE not available; ORA-27101

These errors occur because the Oracle instance is not running. You could be receiving ORA-27101 because you tried to modify database parameters such as SGA size.

Troubleshooting Workspace Access

The folder in which you plan to create workspaces must be shared with team members. If users are unable to access workspaces, it may be because:

- You have not shared the folder for workspaces. Share the folder, then refresh the workspace path as described in *Getting Started* in the workbench documentation set.
- You shared the folder for workspaces after creating a workspace. Refresh the workspace path as described in *Getting Started* in the workbench documentation set.
- You embedded spaces in the value of the **Share name** field for the folder. Remove the spaces, then refresh the workspace path as described in *Getting Started* in the workbench documentation set.

Index

C

- client hardware requirements 13
- client installation 18
- client software requirements 13
- Configuration Manager 21

D

- database setup 7
- DB/2 DSN configuration 23
- DB/2 privileges 7
- deployment scenario 6

F

- file server client installation 19
- file server installation 17
- file server setup 28

I

- installation overview 5
- installation tasks 5
- installing DB/2 client 15
- installing Oracle client 16

J

- Java add-on installation 19

L

- licensing 22, 23

O

- Oracle DSN configuration 26
- Oracle user privileges 8

R

- repository server hardware requirements 11
- repository server software requirements 11

S

- server hardware requirements 12
- server installation 17
- server software requirements 12
- shared folder setup 28
- SQL Server database setup 9

U

- uninstallation 20
- upgrading workspaces 29