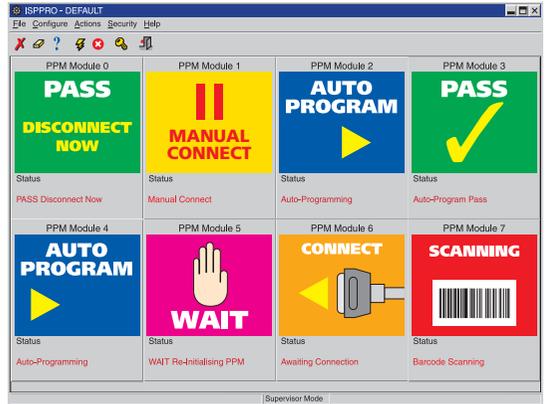


ISP PRO

Production ISP Monitoring Software



Software Installation & User Guide



The Embedded Solutions Company

Contents

Copyright Information	iv
Technical Support.....	v
1.0 Overview	1
1.1 Supported Programmers.....	1
1.2 ISP-PRO Features	2
1.3 Remote Application Control Overview.....	3
1.4 ISP-PRO PC Operating System (O/S) compatibility	3
1.5 Minimum PC Hardware Requirements	3
1.6 PC Software Requirements.....	4
2.0 Pre-installation Notes	5
2.1 Overview.....	5
2.2 Installation of associated Software Applications	5
2.3 Interface Database Issues.....	5
2.3.1 Overview	5
2.3.2 Default 'ADO' Interface Database connection	6
2.3.3 Setting up a database alias for ODBC applications	6
2.3.4 Overwriting / backing up Database Files	6
2.4 Upgrading ISP-PRO V2 to V3	7
2.4.1 Overview	7
2.4.2 Differences between ISP-PRO Version 2 and Version 3	7
2.5 Windows 2000 / NT / ME / XP considerations.....	8
2.5.1 Overview.....	8
2.5.2 Installing ISP-PRO software under Windows 2000, NT or ME	8
2.6 Windows 95 installation issues	8
3.0 Installation Procedure	9
3.1 Launching the ISP-PRO installation.....	9
3.2 Typical Installation - Installing ISP-PRO onto a PC for the first time	10
3.3 Compact Installation – Upgrading an existing ISP-PRO installation.....	11
3.4 Custom Installation – Manually configuring the installation process.....	12
3.5 Installation Directory Structure	13
4.0 ISP-PRO – Getting Started Guide	14
4.1 Overview.....	14
4.2 Using EQTools to develop and test programming scripts.....	15
4.3 Launching ISP-PRO	16
4.4 ISP-PRO Icon Descriptions	18
4.5 ISP-PRO Channel Icons.....	20
4.5.1 Overview	20
4.5.2 Table of ISP-PRO Channel Icons	20
4.5.3 Defining your own custom icons	22
4.6 ISP-PRO Security Login	23
4.6.1 Logging into ISP-PRO.....	23
4.6.2 Changing the ISP-PRO login password.....	23
5.0 Changing / saving the ISP-PRO default settings	24
5.1 Overview.....	24

5.2 Launching the ISP-PRO <Setup> menu	24
5.3 Saving / recalling the ISP-PRO session settings to / from a file	24
5.3.1 Saving ISP-PRO session settings to a file.....	24
5.3.2 Recalling ISP-PRO session settings from a file.....	25
5.4 Setting up the Communications Parameters.....	26
5.5 Configuring the Script Settings	27
5.5.1 Overview.....	27
5.5.2 Configuring the Script Directory path.....	27
5.5.3 Placing scripts in sub-directories of the main \scripts directory	29
5.5.4 EQTools – Source files & output files overview	30
5.5.5 Files required by ISP-PRO to execute a programming script.....	32
5.5.6 Default Script Directory.....	33
5.5.7 Distributing scripts and associated files in a ZIP file.....	34
5.5.8 Setting up ISP-PRO to execute scripts from a ZIP file	35
5.6 Configuring Programming Channels to run a selected Script File.....	37
5.6.1 Overview.....	37
5.6.2 Configuring the Script Selection for each programming channel	37
5.6.3 Passing the Script Name via the Interface Database	38
5.6.4 PPM Settings descriptions.....	39
5.7 Administrator Settings	40
5.7.1 Only Allow Supervisor Shutdown	40
5.7.2 Only Allow Supervisor Production	40
5.7.3 Operation Logging	40
5.7.4 Batch Counting	41
5.7.5 Show as Tray Icon and hide when Minimized	41
5.7.6 Start Application Minimized	41
5.7.7 Autoprogram at Startup	41
5.7.8 Clear all Errors at Startup	41
5.7.9 Clear all Programming Errors	41
5.8 Barcode Scanning settings.....	42
5.8.1 Overview.....	42
5.8.2 Equinox '4 Channel Barcode Scanner Multiplexing System'	42
5.8.3 Single Barcode Scanner via a spare PC COM Port	43
6.0 Running a Programming Script.....	44
6.1 Overview	44
6.2 Setting up ISP-PRO to run your Programming Script(s)	44
6.3 Running your Programming Script(s).....	45
7.0 Remote Application Control (RAC) of ISP-PRO	46
7.1 Overview	46
7.2 Remote Application Control – Frequently Asked Questions (FAQ)	47
Q1. What is the Remote Application ?.....	47
Q2. What is the Remote Control Interface ?.....	47
Q3. What programming languages can the Remote Application be written in ?	47
Q4. What software is required when using the Remote Application Control upgrade ?	47
Q5. Why do I need the ISP-PRO application ?.....	48
Q6. Can the ISP-PRO application be hidden from the operator ?.....	48
Q7. Can I save all the ISP-PRO settings to a file and recall them ?.....	48
Q8. How can I check my programmer is enabled for Remote Application Control ?.....	49
Q9. How do I upgrade a programmer to be controlled from a Remote Application ?.....	49
7.3 Automatically Minimising the ISP-PRO application	50
8.0 Installation Troubleshooting Guide	51

Appendix 1 - Setting up a Database Alias	54
1.1 Overview	54
1.2 ODBC Data Source Definition.....	55
1.3 Default Interface Databases installed with ISP-PRO	55
1.4 Swapping to a different Interface Database	55
1.5 Creating an ODBC Data source	55
1.5.1 Overview	55
1.5.2 Procedure to set up a new ODBC Data source	56
1.5.3 Creating an alias to the default Paradox Database	57
1.5.4 Creating an alias to a Microsoft Access Database	59
1.6 Selecting an Interface Database within ISP-PRO	61
1.6.1 Overview	61
1.6.2 Testing the default 'ADO' database connection.....	61
1.6.3 Establishing an 'ADO' database connection to a different database	63
Appendix 2 - Borland Database Engine (BDE) Installation	65
1.1 Overview.....	65
1.2 Installation instructions	65
1.3 Verifying that the BDE has been installed	66

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It is often the case that users experience problems when installing or using a product for the first time. Equinox is unable to answer technical support questions about this product or its use by telephone.

If you have a technical support problem, please consult the following list for help:

i. **Manual**

ii. **Internet Web Site**

Please refer to the 'ISP-PRO' page on the Equinox website' at <http://www.equinox-tech.com>.

iii. **E-mail**

Please e-mail any technical support questions about this product to:
support@equinox-tech.com

Equinox will try our best to answer your questions about this product as quickly as possible. However, we cannot promise an immediate reply. Please consult our web site for new software updates as the problem that you are enquiring about may have already been fixed in a new version.

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1.0 Overview

These instructions detail how to install the Equinox 'ISP-PRO' software suite plus associated software and database utilities. The ISP-PRO software is a dedicated Windows application used to control Equinox ISP programmers in a 'production programming' environment. The software is capable of supporting up to 16 asynchronous programming channels from a single PC COM port. The software features an 'Interface Database' which allows each programming channel to be independently controlled from a custom Remote Application written in eg. Labview, Visual Basic, C++. The results of every programming operation are logged to this database giving a full history of exactly what happened and when.

The ISP-PRO software is supplied either on a CD-ROM or it can be downloaded from the Equinox Web Site.

1.1 Supported Programmers

The ISP-PRO software is capable of operating with the following Equinox programmers:

Programmer	Programming channels	Comments
Epsilon5	1	Chargeable License Upgrade
FS2000A	1	Chargeable License Upgrade
FS2003	1	Chargeable License Upgrade
PPM3-MK2	1 - 16	Chargeable License Upgrade

ISP-PRO is available as a chargeable License Upgrade for the above programmers. Please see the 'Upgrades' section for each programmer on the Equinox Website for further details of how to upgrade your programmer to support the ISP-PRO application.

Please note:

- All programmers require a chargeable License Upgrade in order to execute Programming Scripts using the ISP-PRO utility.
- All supported programmers must be upgraded to firmware 3.xx in order to run ISP-PRO V3.xx.
- The PRO101 and PPM3-MK1 programmers are NOT supported by ISP-PRO V3.xx. Please use ISP-PRO V2.xx with these programmers.

1.2 ISP-PRO Features

- Capable of controlling up to 16 'Production Programming Modules' (PPM's) at the same time
- Each PPM operates independently allowing for full asynchronous programming
- Simple ergonomic display of programmer status for each programming station
- Automatic target product insertion detection, auto-program and release detection
- Display is automatically updated for each programmer station
- No operator intervention necessary unless there is a fault
- Supports integration of barcode label scanning for each programming station
- Supports fast downloading of 'Target Product Firmware' to one or many programmer stations
- Automatic 'Target Product Firmware' verification to prevent different versions being programmed by mistake
- Powerful 'Programming Script Technology' allows programming operations to be tailored to user requirements
- Fully ADO compliant 'Interface Database' allows for remote control of programming operations by an external application
- Supports integration with the 'Personalised Data Utility' which allows unique data such as serial numbers and MAC addresses to be programmed into the target device
- Supports programming of 'Test Firmware' followed by 'Production Firmware'
- Multi-level security allowing 'Supervisor' and 'Operator' mode
- All diagnostic information (Pass/Fail, error conditions, programming times) is logged to the Interface Database
- Supports control via a custom Remote Application eg. Labview, Visual Basic, C++

1.3 Remote Application Control Overview

The ISP-PRO application can be controlled from a custom Remote Application. The Remote Application can be written in any language which supports reading/writing to databases using either ADO or ODBC connectivity. A chargeable license upgrade called 'Remote Application Control' is required per programming channel to enable this functionality.

Control method	License upgrade
Labview Control (Labview V6 – Labwindows CVI is NOT currently supported)	<ul style="list-style-type: none"> • Labview Developer's License • Labview Production License
Remote Application Control e.g. Microsoft Visual Basic, C++ Borland C Builder, Delphi	<ul style="list-style-type: none"> • Remote Application Control – Developer's License • Remote Application Control – Developer's License

Key:

Developer's License – for use by engineer developing the control application

Production License – for use by each programmer which is to run the control application

1.4 ISP-PRO PC Operating System (O/S) compatibility

- ISP-PRO is a true 32-bit application
- ISP-PRO is compatible with Windows 98, NT4 Client, Windows 2000, Windows ME, Windows XP
- ISP-PRO has **NOT** been tested on **Windows Vista** and so is not guaranteed to run properly on this platform.
- ISP-PRO can be run under Windows 95 version C as long as all the latest service packs have been installed. It may also be necessary to install the latest MDAC – Database Drivers. Please note – execution under Windows 95 may be very slow so it is not recommended for production use.
- ISP-PRO will not operate under DOS, UNIX or Windows 3.11

1.5 Minimum PC Hardware Requirements

- 100% IBM compatible PC 486+ (Pentium recommended)
- 10 MB free hard disk space
- Spare PC COM (serial) port
- Equinox ISP-PRO compatible Programmer upgraded to work with ISP-PRO

1.6 PC Software Requirements

- **Windows 95c, 98, NT4 (client), Windows 2000, Windows ME, Windows XP**
If Windows 95 is to be used, please make sure the installation is upgraded to version C and the latest MDAC Database Drivers are installed.
- **Equinox EQTools V2.x.xxx application**
EQTools Version 2.x.x.xxx must be installed as part of the overall installation. The EQTools installation program is supplied as a separate installation. This version of ISP-PRO is NOT compatible with projects / scripts generated by EQTools Version 1.x.x.xxx.
- **MDAC Database Drivers (ADO Connection)**
ISP-PRO requires that the latest MDAC Database Drivers layer is installed on the client PC. These drivers are used to communicate with the default Access Interface Database supplied with ISP-PRO.
- **ODBC Database Drivers**
If your Remote Application does not support 'ADO Database Connectivity' then it is necessary to use an 'ODBC Database Connection' instead for your Remote Application to communicate with the Equinox Interface Database. In this instance, a suitable 'ODBC' database alias must be set up on the client PC. No change is required to the ISP-PRO application as it will use an ADO connection to communicate with the database.
- **Winzip**
The Winzip utility is very useful for transferring project/script files between the developer and the production facility. This utility must be purchased separately from 'Winzip Computing Inc.' at www.winzip.com.

2.0 Pre-installation Notes

2.1 Overview

This installation can be used to:

1. Install ISP-PRO onto a PC for the first time i.e. a virgin installation
- OR
2. To update a previously installed version of the ISP-PRO application to the latest version.

2.2 Installation of associated Software Applications

It is necessary to install the following software as part of the overall installation of ISP-PRO:

1. **Equinox EQTools V2.x.xxx**
 - see EQTools Installation Instructions (separate instructions)The EQTools install files can be found on the CD-ROM supplies with your programmer or on the **<Downloads>** page of the programmer on the Equinox web site at www.equinox-tech.com.

You may also find it useful to install the **Winzip** application for zipping and unzipping files. Winzip provides an ideal and secure method of transferring programmer related files between EQTools and ISP-PRO and between a 'developer' and a 'production facility'.

2.3 Interface Database Issues

2.3.1 Overview

The ISP-Pro application uses a so-called 'Interface Database' to control each programming channel and also to log all diagnostics data for each programming cycle. It is necessary to configure your PC and also your personal login profile so that ISP-PRO and EQTools can connect to this Interface Database.

Please note:

If your Remote Application uses an 'ODBC' database connection to the Interface Database, you do not need to alter the database connection within ISP-PRO. ISP-PRO will connect to the database via the default 'ADO' connection and the Remote Application can then independently connect using an 'ODBC' connection.

For example:

National Instruments 'Labview' cannot use the 'ADO' database connection and therefore must use an 'ODBC' connection instead. However, the ISP-PRO connection would remain set to 'ADO' and then Labview would connect via 'ODBC'. You therefore do not have to change the database connection settings within ISP-PRO.

2.3.2 Default 'ADO' Interface Database connection

The 'Typical' Installation of ISP-PRO establishes an 'ADO' connection to the Access 2000 Interface Database called **ac_isppro.mdb** which is installed by default into **/program files/equinox/db**. The 'ADO' connection is suitable for use with ISP-PRO, EQTools and most Remote Applications.

2.3.3 Setting up a database alias for ODBC applications

If you wish to use a Remote Application which does not support 'ADO Database Connectivity' eg. National Instruments 'Labview', then you can still use the 'ADO' Connection within ISP-PRO and EQTools. The Remote Application will, however, need to communicate to the database via a different connection method e.g. ODBC. This is completely independent of the ISP-PRO ADO database connection.

Please see Appendix 1 – setting up a Database Alias for further details.

2.3.4 Overwriting / backing up Database Files

The 'Typical' Installation of ISP-PRO will overwrite any existing database files in the **lequinoxldb** directory if ISP-PRO has been previously installed and run on your PC. If you wish to retain this data, please backup the contents of the **lequinoxldb** directory before running the installation and then restore these files after the installation is complete. Alternatively, run the 'Compact' ISP-PRO installation as this does not install any database files.

2.4 Upgrading ISP-PRO V2 to V3

2.4.1 Overview

ISP-PRO version 3 is not compatible with earlier script / programming projects created using EQTools Version 1. In order to run Programming Scripts in ISP-PRO Version 3, it is necessary to re-create / re-compile any existing projects / scripts using EQTools Version 2.

2.4.2 Differences between ISP-PRO Version 2 and Version 3

The main differences between ISP-PRO Version 2 and Version 3 are as follows:

- ISP-PRO V3 supports all the newer Equinox programmers including the PPM3-MK2, Epsilon5, FS2000A and FS2003.
- ISP-PRO V3 does NOT support the PRO101 or PPM3-MK1 programmers.
- ISP-PRO V3 only executes Script Files created using EQTools Version 2.
- ISP-PRO V3 supports programming of the entire Atmel ATmega AVR family, AT89C51Rx2 and Philips P89C66x / Rx2 families.
- ISP-PRO V3 used an MDAC (JET) database connection as default rather than the ODBC connection which was the default in Version 2. This allows ISP-PRO to communicate to the Interface Database using the 'ADO' database connectivity.
- ISP-PRO V3 features an updated Interface Database with some new fields. The 'Diagnostics' table has been renamed to 'ProgInfo'.

If you have any questions please contact Equinox Technical Support by e-mailing support@equinox-tech.com.

2.5 Windows 2000 / NT / ME / XP considerations

2.5.1 Overview

If you are installing this software under Windows NT, Windows 2000, Windows ME or Windows XP, it is necessary to ensure that whichever user profile the software is installed under has the relevant privileges to write into the **\program files** directory and also the PC registry. Please contact your System Administrator for help on this subject.

Please note: The software installation instructions as detailed in the next section must be carried out while logged in as the 'System Administrator' or a domain user who has full 'administrator' privileges. Failure to do this may cause errors during installation and execution of this software.

2.5.2 Installing ISP-PRO software under Windows 2000, NT or ME

Please follow the steps listed below:

1. Log in as the 'System Administrator' or a domain user who has full 'administrator' privileges
2. Make sure that all the '**Domain Users**' who will be using the software have the required file privileges to write files into the **\program files** directory.
3. Make sure that all the '**Domain Users**' who will be using the software have read/write access to the ISP-PRO directory structure (**\program files\isppro**), as this is required by the software at run-time.
4. The easiest way to make sure that all '**Domain Users**' can use the software is to make them all so-called '**Local Administrators**' on your PC.

Please note:

If you encounter any problems during installation of this software, please consult your 'IT Administrator' to check that your PC is set up correctly with FULL ADMINISTRATOR PRIVILEGES.

2.6 Windows 95 installation issues

The ISP-PRO application can be installed on a Windows 95 PC as long as the following points are observed:

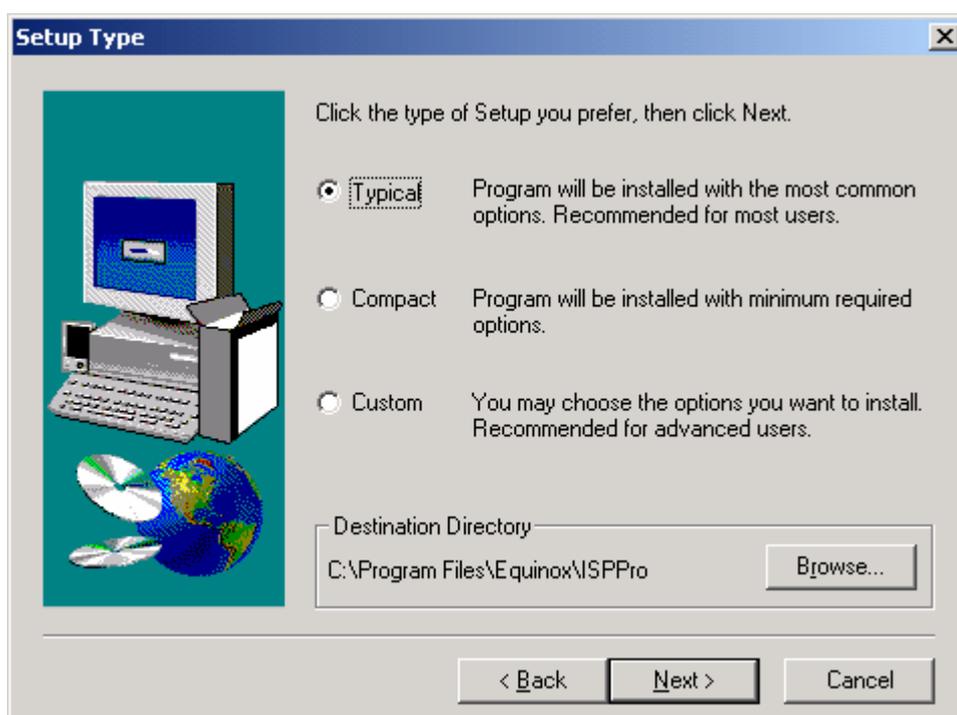
- The Windows 95 installation must be upgraded to Windows 95 issue C.
- The latest Microsoft - **MDAC – Database Drivers Update** must be installed. This database layer is usually installed by Internet Explorer 4 or above but may not be present on older installations of Windows 95. The MDAC drivers can be downloaded free-of-charge from the Microsoft Website.

3.0 Installation Procedure

3.1 Launching the ISP-PRO installation

Close down all other applications which are currently running on your PC

1. Log in as the '**System Administrator**' or as a domain user with administrator privileges
2. Use your file browser to find the ISP-PRO installation software called **isppro.exe**
3. Double-click the **isppro.exe** installation file
→ The ISP-PRO installation program will launch and display the screen below.



4. Select the required install directory:
The default is: **c:\program files\equinox\isppro_V3**.
The program files should be installed on the local hard drive of the PC, not on a network file server.
5. Choose the required installation method from the table below:

Method	Comments	Section
Typical	Full installation of ISP-PRO. Recommended for installing ISP-PRO on a PC for the first time.	3.2
Compact	Installs only the ISP-PRO application. Recommended for upgrading of an existing ISP-PRO installation.	3.3
Custom	Allows manual selection of which files are to be installed.	3.4

3.2 Typical Installation - Installing ISP-PRO onto a PC for the first time

If you are installing the ISP-PRO software onto your PC for the first time:

Select **<Typical>** installation and click **<Next>**

This will perform the following tasks:

- Installs the ISP-PRO application
- Installs the Upload Wizard application. This supports uploading of Standalone Programming Projects to any attached programmer(s).
- Copies the Access Interface Databases into the **isppro_V3\db** directory. All tables in these databases are blank (i.e. no data in them). This will **overwrite** any existing databases in this directory, so you should back these files up before running the installation.
- Sets up a program group called 'ISPPROV3'
- Updates your PC registry with the details of the ISP-PRO application
- Writes the database alias settings for the **current user** (System Administrator) into the **HKEY CURRENT USER** section of the registry. For Windows 2000, NT, ME & XP installations, these settings will therefore only be applicable when logged in as the System Administrator. If another user logs in on the same PC with a different logon profile e.g. user1, the database alias must be manually set up within ISP-PRO in the 'Database Setup' tab. See section 2.5.2 for full instructions.
- When the ISP-PRO application is run, an 'ADO' database link to the **ac_isppro.mdb** database in the **program files\equinox\db** directory is automatically created and maintained by the software.

3.3 Compact Installation – Upgrading an existing ISP-PRO installation

If you are upgrading an existing installation of ISP-PRO and do not wish to overwrite your database files:

Select **<Compact>** installation and click **<Next>**

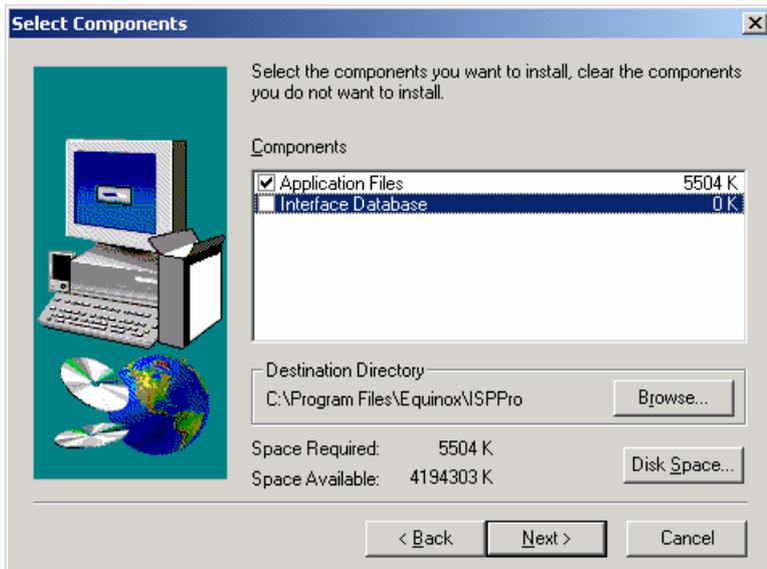
This will perform the following tasks:

- Installs the ISP-PRO application overwriting the existing version
- Sets up a program group called 'ISPPROV3'
- Updates your PC registry with the details of the updated ISP-PRO application
- This installation does NOT copy any files into the **lequinoxldb** directory and does NOT set up or alter any database alias settings.

3.4 Custom Installation – Manually configuring the installation process

If you are updating a previously installed version of the ISP-PRO application to the latest version and wish to manually select which files are installed:

Select **<Custom Installation>**



You are now given the option as whether to install the 'ISP-PRO Application Files' and/or the 'Interface Database' files. Simply check the relevant box to select installation of the required components as detailed below:

Application Files

Selecting to install the 'Application Files' performs the following tasks:

- Overwrites the currently installed ISP-PRO application with the latest version of the application.
- Updates your PC registry with the details of the updated ISP-PRO application
- The database files and database aliases are NOT overwritten

Interface Database

Selecting to install the 'Interface Database' performs the following tasks:

- Overwrites the existing Access Interface Databases into the **ldb** directory with the default versions with blank tables
- If you already have valuable data stored in the Access database, do NOT select this option as your database files will be overwritten with the default databases and your data will be lost!

3.5 Installation Directory Structure

The default installation directory is: ***\\program files\equinox\isppro_V3***.

The installation creates the folders listed in the table below:

Directory	Description
<i>isppro_V3</i>	Main ISP-PRO application + associated files
<i>equinox\db</i>	Database directory Access Interface Database files (*.mdb) Paradox Interface Database files (*.db, *.px)
<i>equinox\UploadWizard</i>	Upload Wizard utility The Upload Wizard utility supports uploading of Standalone Programming Projects to any attached programmer(s).
<i>isppro_V3\scripts</i>	Scripts Directory This is the default directory where all scripts and project files are stored. The installation will only install a default script file. It will not overwrite or delete any other user files already in this directory.
<i>isppro_V3\log</i>	Log File Directory This is where all log files will be written. This is not to be confused with data 'logged' to the Interface Database.
<i>isppro_V3\bitmaps</i>	Bitmap Directory This is where the bitmap images for the icons used in ISP-PRO are stored.

4.0 ISP-PRO – Getting Started Guide

4.1 Overview

The ISP-PRO application is a high-end software utility designed to co-ordinate up to 16 Production Programming Modules (PPM's) concurrently. The software can be run stand-alone or can be controlled from a Remote Application such as Labview (from National Instruments) or Visual Basic. This guide explains the main features of the application and guides you through the process of running a Programming Script. Please refer to the EQTools on-line help for details of how to create Programming Projects, Project Collections and Script Files.

ISP-PRO Features:

- Capable of controlling up to 16 'Production Programmer Modules' (PPM's) at the same time
- Each PPM operates independently allowing for full asynchronous programming
- Simple ergonomic display of programmer status for each programming station
- Automatic target product insertion detection, auto-program and release detection
- Display is automatically updated for each programmer station
- No operator intervention necessary unless there is a fault
- Supports integration of barcode label scanning for each programming station
- Supports fast downloading of 'Target Product Firmware' to one or many programmer stations
- Automatic 'Target Product Firmware' verification to prevent different versions being programmed by mistake
- Powerful 'Programming Script Technology' allows programming operations to be tailored to user requirements
- Fully ODBC compliant 'Interface Database' allows for remote control of programming operations by an external application
- Supports integration with the 'Personalised Data Utility' which allows unique data such as serial numbers to be programmed into the target device
- Supports programming of 'Test Firmware' followed by 'Production Firmware'
- Multi-level security allowing 'Supervisor' and 'Operator' mode
- All diagnostic information (Pass/Fail, error conditions, programming times) is logged to the Interface Database
- Supports control via a custom Remote Application eg. Labview, Visual Basic, C++

4.2 Using EQTools to develop and test programming scripts

The EQTools application is used to create '**Programming Projects**' and '**Programming Scripts**' for use within the ISP-PRO application. It is also used to upload Project Collections to each programmer. It is also possible to fully test a 'Programming Script' within EQTools without using ISP-PRO at all using the EQTools – Script Builder / Debugger utility. EQTools features a full 'Script Debugger' which allows scripts to be single-stepped and provides full debug information which is very useful during the development stages of a script.

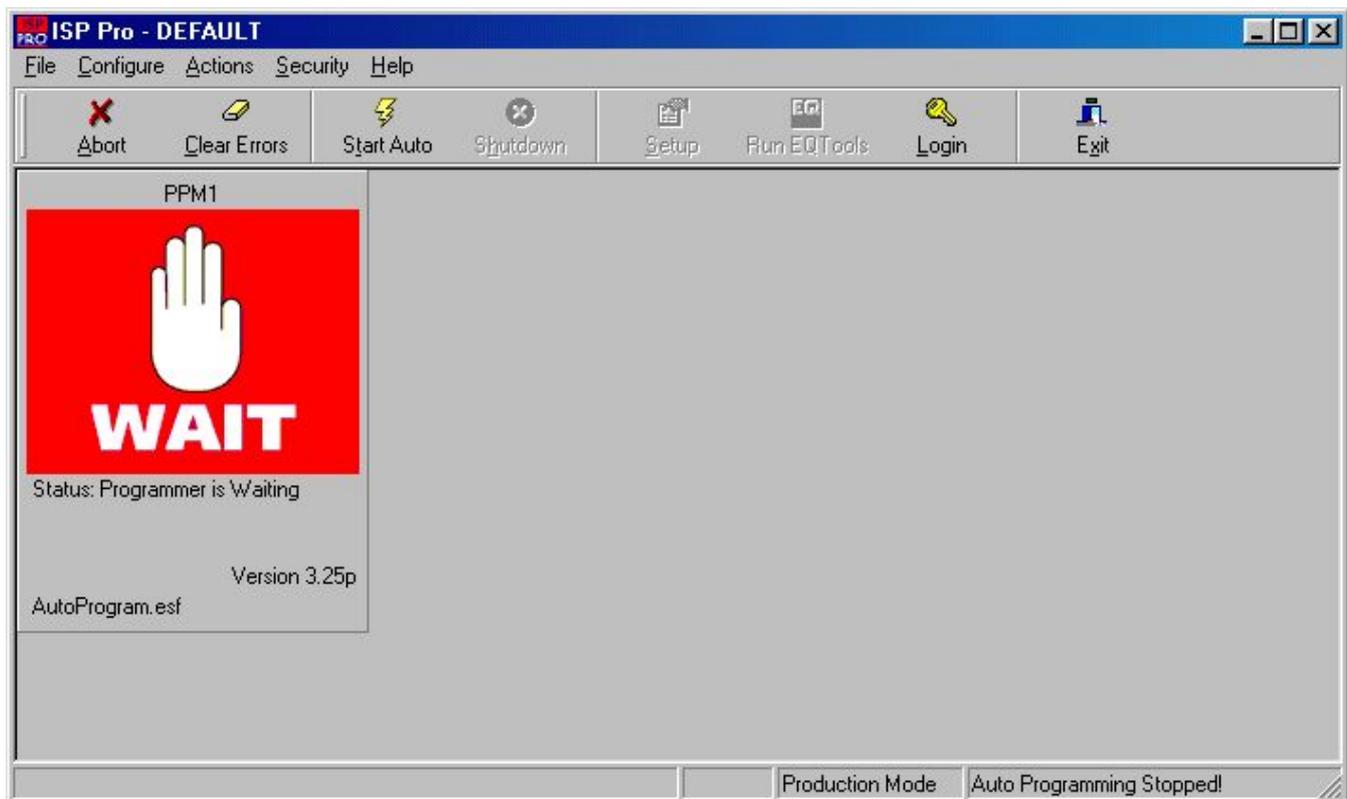
EQTools should be used to perform the following functions:

- Create 'Programming Projects' (*.ppm / *.prj)
- Create 'Project Collections' (*.ppc) which contain the Programming Projects (*.prj)
- Create 'Programming Scripts' (*.esf) to run within ISP-PRO
- Upload 'Programming Projects' (Project Collections) to the programmer(s)
- Test / debug 'Programming Scripts' on a single programming channel before running them in ISP-PRO.
- Upload Project Collection(s) to programmer(s)

For further information about using EQTools to create and debug 'Programming Scripts', please refer to the EQTools 'On-line Help' and also the 'EQTools - Getting Started Guide'.

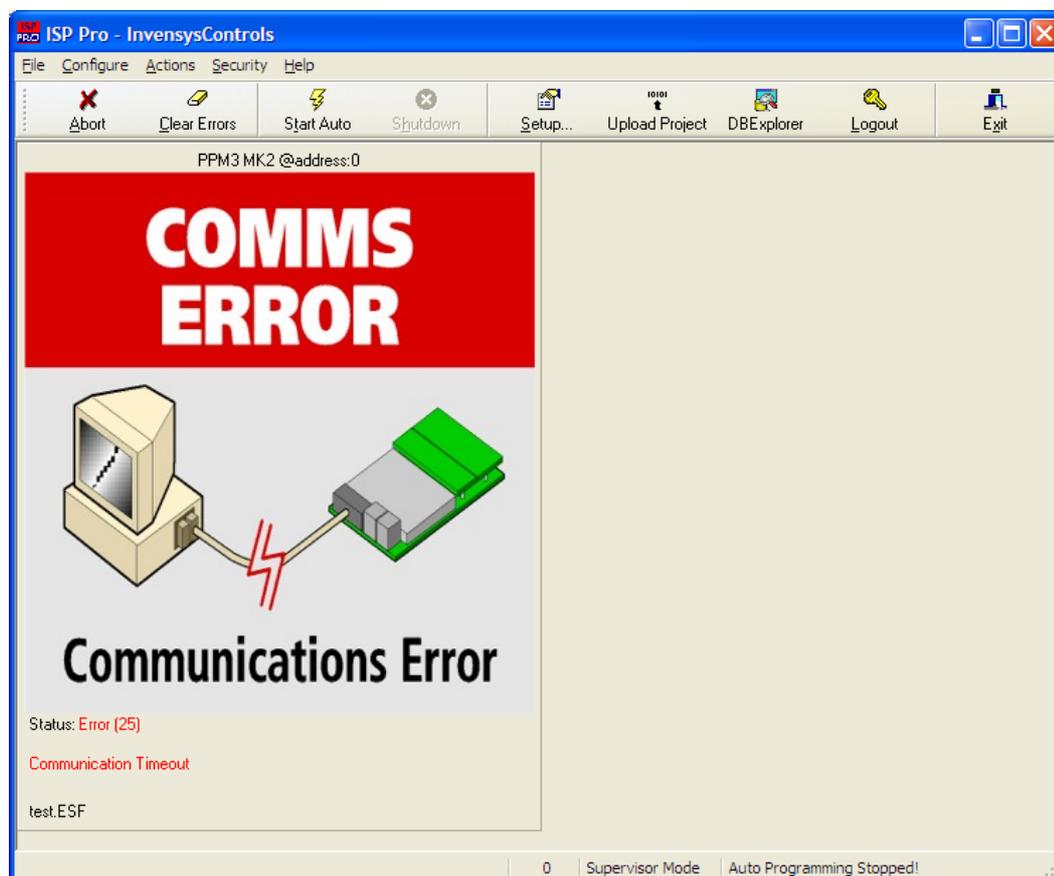
4.3 Launching ISP-PRO

- Connect an Equinox programmer (PPM3-MK2, Epsilon5, FS2000A, FS2003) to a spare PC COM port as detailed in the 'Hardware Installation Instructions' for the programmer.
- If the programmer is a PPM3-MK2, make sure the 'Communications Address' is set to the correct address eg. '0' and that the 'RS232 / RS485' switch is in the correct position.
- Power up the programmer(s)
- Select **<Start><Programs><Equinox><ISP-PRO>**
→ If the attached programmer is connected to COM1 (default), then the ISP-PRO application should launch and display the screen below:



The **<Setup>** icon plus most other ISP-PRO icons will be greyed out at this point in time. It is necessary to login to ISP-PRO to allow selection of the **<Setup>** icon (See section 4.6)

If ISP-PRO cannot find a programmer on the specified COM port, the following 'Communications Error' screen will be displayed:



If you receive a 'Communications Error' (Error 25):

- Check that the programmer is connected to the correct COM port
- Check that the programmer is powered ON
- Check the COM port settings of ISP-PRO are correct – see section 5.4
- If you are using a PPM3-MK2 programmer, check that the 'Communications Address' switches are set to the correct address and also that the 'RS232 / RS485' switch is in the correct position.

Other Possible Error Conditions

The following error conditions may occur at this point:

- Unable to open database connection
- Specified COM port is either not available or already in use
- The programmer is not licensed to run scripts. Please obtain a license from Equinox.

Please refer to section 8 - 'ISP-PRO Troubleshooting Guide' for help with the above error conditions.

4.4 ISP-PRO Icon Descriptions

The table below details the functionality of the icons used within ISP-PRO:

Icon	Icon Name / menu position	Functional description
	Abort <Actions><Abort all PPM Operations>	Abort all PPM Operations Clicking this icon will cause ISP-PRO to attempt to abort any programming operation currently being performed on all programming channels.
	Clear Errors <Actions><Clear all errors>	Clear all errors Clicking this icon will clear any programming errors on the selected programming channels. This should then allow each channel to reset to the start of the specified script file(s).
	Start Auto <Actions><Network Startup>	Network Startup Clicking this icon will initiate all programming channels to run the specified programming script(s). The message 'Now autoprogramming' will be displayed at the bottom of the ISP-PRO screen.
	Shutdown <Actions><Perform Network Shutdown>	Perform Network Shutdown Clicking this icon will initiate a shutdown of all programming channels on all connected programmers. ISP-PRO will always allow any programming operation which is part-way-through to complete before shutting down the network.
	Setup <Configure><Setup>	Setup (Programmer + ISP PRO Settings) Clicking this icon will launch the Setup dialog where all the settings for ISP-PRO can be found.
	Run EQTools <Configure><Run EQTools>	Run EQTools Clicking this icon will cause ISP-PRO to shell to the EQTools application. ISP-PRO closes down the selected COM port and then passes the current programmer status to EQTools. To return to ISP-PRO from EQTools, simply close down EQTools.
	Upload Project <Configure><Upload Project>	Run the Project Upload Wizard utility Clicking this icon will cause ISP-PRO to shell to the Upload Wizard utility. This utility supports uploading of 'Standalone Programming Projects' to any attached programmer(s).

 Logout	<p>Login / Logout</p> <p><Security><Login>/ <Logout></p>	<p>Login and Logout of ISP-PRO</p> <p>Clicking this icon will display the <Login> dialog. You must be logged into ISP-PRO to access the <Setup> icon and menu. Once logged in, the icon will change to <Logout>.</p>
 Exit	<p>Exit</p> <p><File><Exit></p>	<p>Exits the ISP-PRO application</p> <p>Clicking this icon will cause the ISP-PRO application to close down. If any programming operations are underway, they will be allowed to complete before the application closes.</p>

4.5 ISP-PRO Channel Icons

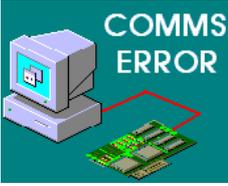
4.5.1 Overview

ISP-PRO displays a different icon for each possible state of the target programmer(s). These icons visually indicate what the programmer is doing at any point in time. The default icons supplied with ISP-PRO are listed in the table below.

4.5.2 Table of ISP-PRO Channel Icons

State	Icon	Description
WAIT		<p>Programmer is in Wait State</p> <ul style="list-style-type: none"> No programming operations are taking place. The Target System will be powered OFF (if it is powered from the programmer).
Waiting for Database		<p>Programmer is Waiting for Database</p> <ul style="list-style-type: none"> The programmer is waiting on an entry to be made into the 'ProgStatus' field of the Interface Database by the Remote Application. The programmer will remain in this state until the required entry is made, the programmer is RESET or the script is aborted.
Connect		<p>Programmer is waiting for the Target System to be connected</p> <ul style="list-style-type: none"> The programmer will remain in this state until a suitable target load is detected. The parameters by which the Target System is detected must have been set up within the Programming Project - Entry/Exit tab and must also be declared within the <Target Connection/Disconnection> tab in Script Builder. If the programmer 'hangs' in this state even when the Target System has been connected, please check the settings for <Target Connect> in the Programming Project.
Scan Barcode		<p>Scanning barcode label</p> <ul style="list-style-type: none"> The barcode scanner on the relevant channel is activated and is attempting to scan the barcode of the Target system on this channel. The scanner will make three attempts to scan the label before reporting an error.

<p>Auto-Program</p>		<p>Auto-Program of Target Device</p> <ul style="list-style-type: none"> The programmer is performing a programming operation on the Target Device. This could be an Auto-program project or a scripted read/write operation to FLASH/EEPROM.
<p>Fail</p>		<p>FAIL – Current Operation has failed</p> <ul style="list-style-type: none"> The programming operation has failed for some reason. The relevant error message should be displayed under the icon and will also be written to the Interface Database 'Diagnostics' table. To view a full report of this programming cycle and why it failed, right-click on the FAIL icon and select <Generate Text File> from the drop-down menu. The icon will FLASH between this icon and the 'FAIL-Disconnect Now' icon.
<p>Fail</p>		<p>FAIL – Current Operation has failed</p> <ul style="list-style-type: none"> See 'FAIL' – icon. Remove the Target system from the programmer to clear the error. If the programmer 'hangs' in this state even when the Target System has been connected, please check the settings for <Target Disconnect> in the Programming Project.
<p>PASS</p>		<p>PASS – Current Operation was completed successfully</p> <ul style="list-style-type: none"> The current programming script completed successfully. The diagnostic data for this programming cycle are written to the Interface Database 'Diagnostics' table. The icon with FLASH between this icon and the 'PASS - Disconnect Now' Icon.
<p>PASS</p>		<p>Pass – Disconnect Now</p> <ul style="list-style-type: none"> See 'Pass' icon. Remove the Target system from the programmer to reset the programmer back to the beginning of the programming script i.e. <Connect> icon. If the programmer 'hangs' in this state even when the Target System has been connected, please check the settings for <Target Disconnect> in the Programming Project.

<p>COMMS ERROR</p>		<p>Communications Error</p> <ul style="list-style-type: none">• ISP-PRO cannot communicate with the selected programmer. <p>If you get this error, please check the following:</p> <ul style="list-style-type: none">• Have you selected the correct PC COM port ?• Is the programmer powered ?• Is the programmer 'Node' address set to the correct address ?• Is the serial cable connected to the programmer ?• If you have multiple programmers on an RS-485 network and they are all displaying <Comms Error>, try unplugging all programmers except the first one in the chain nearest the PC. Once ISP-PRO can communicate with this programmer, then start adding more programmers one at a time making sure that the 'Node Address' is set correctly on each programmer.
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4.5.3 Defining your own custom icons

If you wish to define your own icons, it is possible to do so by inserting your icons into the **..\Program Files\Equinox\ISPPRO_V3\Bitmaps** directory. The icons you are inserting must have the same name and image attributes as the ones you are replacing. Equinox also offer a graphic design service for these icons

4.6 ISP-PRO Security Login

4.6.1 Logging into ISP-PRO

ISP-PRO is configured by default to prompt for a password when launched. This is aimed at minimising the risk of untrained personnel changing project/script settings.

To login to ISP-PRO, click the <Login> icon



→ You will be prompted for your password.

Type in your password (default password is: **equinox**)

→ The <Login> icon will change to the <Logout> icon and the <Setup> icon should be no longer greyed out.

4.6.2 Changing the ISP-PRO login password

To change the default ISP-PRO password:

- Select <Security><Change password>
→ The 'Change Password' dialog box is displayed.



- Enter the current password (equinox)
- Enter your new password and then re-enter it in the 'Confirm password' box
- Click <OK>
→ Your new password is now set and will be required next time you login to ISP-PRO.

5.0 Changing / saving the ISP-PRO default settings

5.1 Overview

The ISP-PRO 'Settings' dialog allows all the settings within ISP-PRO to be changed. These settings include COM port selection, script path and file selection, programmer name selection and administrator settings. It is also possible to save all the ISP-PRO settings to a ISP-PRO Session File *.pmp. This file can then be reloaded to recall all the settings from a previous session of ISP-PRO.

5.2 Launching the ISP-PRO <Setup> menu

The <Setup> menu is not selectable from the default view of ISP-PRO. In order to access the menu, it is necessary to login to ISP-PRO. This is to prevent unauthorised tampering of the Setup options by production personnel.

To launch the <Setup> menu:

- Launch ISP-PRO
- Click the <Login> icon and login to ISP-PRO → the <Setup> icon is now selectable
- Click the <Setup> icon → the <Setup> dialog is now displayed.
- Select the required tab

5.3 Saving / recalling the ISP-PRO session settings to / from a file

All settings for a particular session of ISP-PRO can be saved to an 'ISP-PRO Settings File' which has the extension *.pmp. This file saves the entire setup of ISP-PRO including the Communications Parameters, Programmer names / numbers, programmer script assignments, Administrator options etc. These settings can then be recalled from this file at any time. This feature is very useful when ISP-PRO is to be deployed in a production environment as it allows the same ISP-PRO setup to be easily copied to many PC's.

5.3.1 Saving ISP-PRO session settings to a file

To save the settings of the current ISP-PRO session to a file:

- Launch the <Settings> dialog
- Select <File><Save as> and then give your ISP-PRO session a descriptive name e.g. **ISPPRO_VB_Test_Station_Settings.pmp**
- Click <Save> → all the settings of the current session of ISP-PRO are saved to file



5.3.2 Recalling ISP-PRO session settings from a file

To recall the settings of a pre-saved ISP-PRO session from a file:

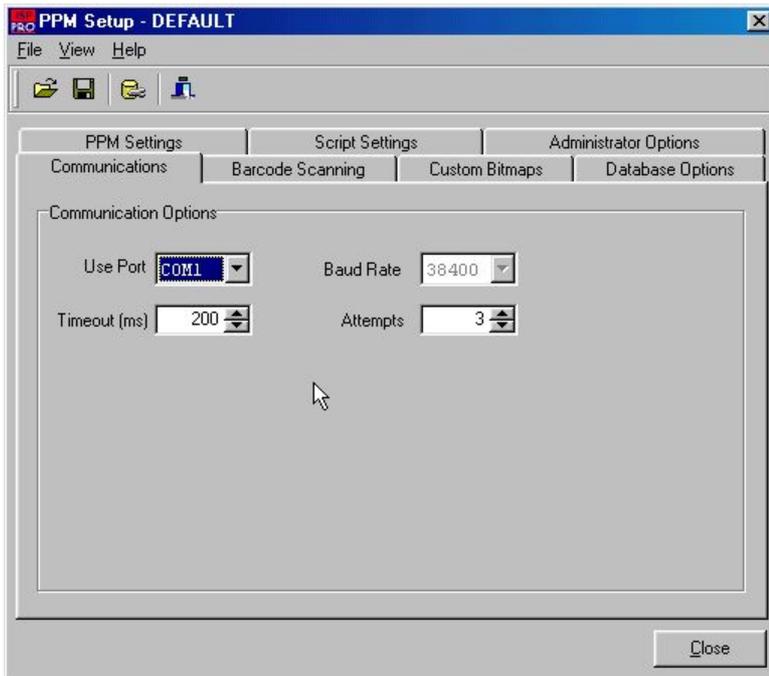
- Launch the <Settings> dialog
- Select <File><Open> and then browse to and select your ISP-PRO settings file (*.pmp) e.g. **ISPPRO_VB_Test_Station_Settings.pmp**
- Click <Save> → all the settings of the current session of ISP-PRO are saved to file

5.4 Setting up the Communications Parameters

The default ISP-PRO installation looks for a programmer to be connected to COM1. If you are using a different COM port and/or are experiencing a 'Communications Error', it may be necessary to set up the communication parameters.

To set up the communication parameters:

1. Click the <Setup> icon and select the <Communications> tab



2. Select the COM port to which the programmer(s) is (are) connected
3. The Baud Rate is fixed at 38,400 and cannot be changed by the user
4. All other settings should not be altered.
5. Click <Close> and your settings will be saved.
6. The relevant programmer icon(s) should go to the <WAIT> condition.



7. Click <Close> or select <File> <Save as> to save your settings.

5.5 Configuring the Script Settings

5.5.1 Overview

ISP-PRO executes '**Programming Scripts**' which have been previously created and debugged using the EQTools application. It is necessary to tell ISP-PRO which directory the scripts are stored in using the **<Script Settings>** dialog. It is also possible to embed all programmer related files (except the Interface Database) in a zip file. This provides a tidy and secure way of distributing programmer files to multiple programmer locations.

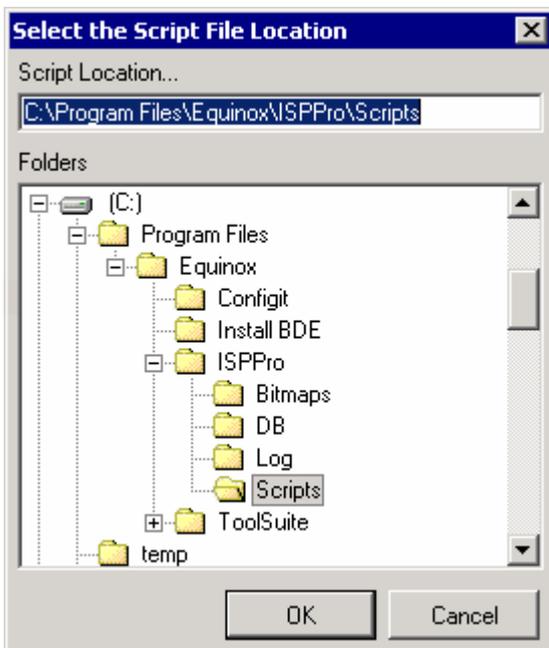
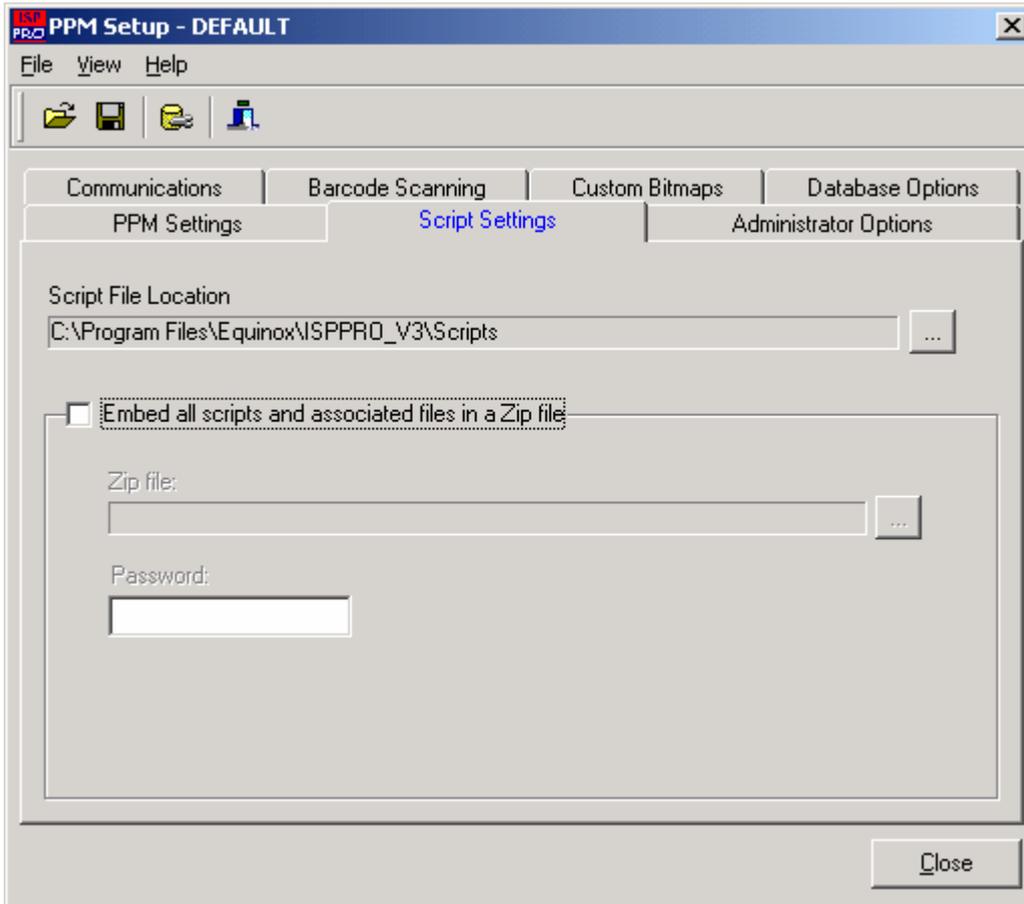
EQTools generates a whole host of different files during the development of a Programming Project, Project Collection and a Programming Script. Many of these files are 'source' files e.g. *.ppm, *.prj, *.esw, *.hex and are only required by the developer to maintain / edit the project. These files are NOT required by the production software ISP-PRO and should therefore NOT be included in any files sent to a 'production facility' unless you wish the 'production operators' to be able to edit / re-compile the project / script files.

5.5.2 Configuring the Script Directory path

ISP-PRO requires that all scripts and related files must be stored in the specified **lscripts** directory. This is where ISP-PRO will look to find any script related files which are referenced by a Script File (*.esf). If ISP-PRO is being controlled from a Remote Application and the name of the script to be executed is passed via the **ProgStatus.Script_Name** field in the database, then the specified script file (*.esf) must be found in the **lscripts** directory or a specified sub-directory of the **lscripts** directory otherwise an error will occur.

In order for ISP-PRO to run your programming scripts, it is necessary to perform the following steps:

1. Place the script files (*.esf) and Project Collection (*.ppc) in the **lscripts** directory or sub-directory of the \scripts directory. The default scripts directory **..\program files\equinox\isppro_V3\lscripts**.
2. Launch ISP-PRO
3. Click the <Setup> icon and select the <Script Settings> tab – see picture on next page
4. Set the Script File Location to point at the directory which contains your scripts and project collection files (default **..\program files\isppro_V3\lscripts**) by clicking the **<File Browse>** icon.
5. Browse to the directory where you wish to store your Script Files and then select this directory. If you have scripts in multiple sub-directories, these sub-directories must all be within the specified **lscripts** directory.



6. To save your script settings, click <Close> or select <File><save as>

5.5.3 Placing scripts in sub-directories of the main \scripts directory

It is possible for Scripts and associated files to be placed in sub-directories of the main **\scripts** directory. The main Script File (*.esf) will then reference these files using a relative path. In order for this to work, the scripts and Project Collection Files must have been compiled in the relevant sub-directories of the **\scripts** directory using EQTools – Script Builder.

Example:

The script 'Main_script.esf.' calls 'script1.esf' which is found in the sub-directory **\scripts\script1**

\scripts – This is the top level scripts directory.

mains_script.esf

\scripts\script1 – This is a sub-directory of the top level \scripts directory.

script1.esf

project_collection1.ppc

\scripts\script2 – This is a sub-directory of the top level \scripts directory.

Script2.esf

project_collection2.ppc

5.5.4 EQTools – Source files & output files overview

The table below lists all the possible files which EQTools either requires as input files or generates as output files. These files should all be stored in your working project directory except for Interface Database which can be found in the **program files\equinox\db directory** by default.

File	Description
*.esw	<p>Equinox Script File (source file)</p> <ul style="list-style-type: none"> This is the source file which is used by the EQTools – Script Builder utility. When the *.esw file is compiled it produces a *.esf file which is what the programmer actually executes.
.esf	<p>Equinox Script File (object file)</p> <ul style="list-style-type: none"> This is the actual programming script file which is executed by each programming channel within ISP-PRO. The file is generated by compiling an Equinox Script Wizard File (.esw) using EQTools.
.ppm	<p>Programmer - Project Source File</p> <ul style="list-style-type: none"> This file contains all the setup information for a Programming Project generated by EQTools. This file may be edited by the developer, but must then be re-compiled to produce a suitable project file (.prj) and then added to a Project Collection (*.ppc) to allow it to be uploaded to a programmer. ISP-PRO requires the *.ppm file for the Base Project only.
*.prj	<p>Programmer – Project Object File</p> <ul style="list-style-type: none"> This is a single file containing all the information needed to program a target device. It is generated by compiling a *.ppm file using EQTools. This file must be added to a Project Collection (*.ppc) before being uploaded to an Equinox programmer.
.ppc	<p>Programmer – Project Collection</p> <ul style="list-style-type: none"> This is a single file containing a collection of up to 64 independent programming projects (.prj). This file must be uploaded to the programmer FLASH Memory Store before running the programming script.
*.mdb	<p>Interface Database</p> <p>This is the Interface Database used by EQTools and ISP-PRO when running programming scripts. The default location for this database is the program files\isp\ipro_V3\db directory.</p>
*.HEX	<p>Intel HEX File</p> <ul style="list-style-type: none"> This file contains the data which is to be programmed into either the FLASH

	or the EEPROM area of the target device.
*.a90	<p>IAR AVR Compiler Output File</p> <ul style="list-style-type: none"> • This file contains the data which is to be programmed into either the FLASH or the EEPROM area of the target device. • The IAR compiler can be set up to output in many different formats including Intel Hex and binary.
*.bin	<p>Binary File</p> <ul style="list-style-type: none"> • This file contains the data which is to be programmed into either the FLASH or the EEPROM area of the target device. • The data is stored in 'Binary' format i.e. the raw data with no address information or error checking.
*.map	<p>Map File</p> <ul style="list-style-type: none"> • This file contains the declarations for all FLASH or EEPROM constants used within the Script Wizard. • These declarations are used in the 'Script Tasks' dialog for read/writing unique information from/to the target device.

5.5.5 Files required by ISP-PRO to execute a programming script

The table below details the actual files which are required by ISP-PRO in order to execute a programming script. These files, with the exception of the Interface Database, should all be copied into the specified **lscripts** directory.

File	Description
*.esf	<p>Equinox Script File</p> <ul style="list-style-type: none"> If you are using more than one script file, then you need to copy all these *.esf files to the same lscripts directory or the relevant sub-directories of the lscripts directory.
.ppc	<p>Programmer – Project Collection</p> <ul style="list-style-type: none"> This is a single file containing a collection of up to 64 independent programming projects (.prj). This file must be uploaded to the programmer FLASH Memory Store before running the programming script.
.mdb	<p>Interface Database</p> <ul style="list-style-type: none"> This is the Interface Database used by EQTools and ISP-PRO when running programming scripts. The default location for this database is lprogram files\ispproldb directory and the default alias to this database is ac_isppro. You should not need to change this file unless you have added custom fields to the database. In this case the new custom database would have to be installed on any PC which is to run the script. You should not need to send the Interface Database (.mdb) file to the Production Facility as they should have exactly the same database if they have installed the same version of ISP-PRO. It is possible for a Script to validate that the correct database is being used. This feature can be enabled in the <Validate Database> section of the EQTools – Script Wizard <Database> tab.

5.5.6 Default Script Directory

The ISP-PRO installation creates a default 'Script' directory as detailed below:

Directory	Description
program files\isppro_V3\scripts	<p>Scripts Directory</p> <ul style="list-style-type: none"> This is the directory where all scripts and project files are stored by default. ISP-PRO looks in this directory for all script files plus all other related files which are required to execute the script. The following file types should be placed in this directory: *.esf, *.ppc It is possible to change the script directory to a user-defined directory – see section 4.8.4

The following Script Files are automatically installed into the **scripts** directory during the ISP-PRO installation:

Script name	Description
AutoProgram.esf	<p>Default auto-program Script File</p> <p>This is the default auto-program script file. It is selected by default when ISP-PRO is first installed.</p>
WaitForScript.esf	<p>Wait for Script – Script File</p> <ul style="list-style-type: none"> This script file should be used when ISP-PRO is being controlled by a Remote Application such as a Visual Basic or Labview application. If this Script File is selected, it is possible for the Remote Application to pass the Script Name to be executed within ISP-PRO via the ProgStatus.Script_Name field in the Interface Database. This script file can be modified to allow custom Insert Script behaviour.

5.5.7 Distributing scripts and associated files in a ZIP file

It is possible to embed all programmer related files into a single self-contained ZIP file. This approach makes distribution of programming files to multiple programming locations straightforward as only one file is required. This file can be version controlled and can even be password protected to prevent unauthorised viewing of the files contained within it.

5.5.7.1 Creating a ZIP file for distribution to a Production Facility

To create a ZIP file containing the Script / Project files which are to be sent to a Production Facility who are running ISP-PRO, please follow the instructions detailed below:

1. Using EQTools, create your Project Files (*.prj), Project Collection File (*.ppc) and Script Files (*.esf).
2. Zip all programmer related files required for ISP-PRO (*.esf, *.ppc) into a single ZIP file using the Winzip application (not supplied). Remember, you should only include the files actually required by ISP-PRO – see section 4.8.3.

The only files required for ISP-PRO are:

- Script Files (*.esf)
- Project Collection File(s) (*.ppc)

Please note:

Do NOT send the script/project source files to your Production Facility unless you want them to be able to make alterations to the files.

3. Send this *.zip file to your 'Production Facility' via e-mail or disk

Please note:

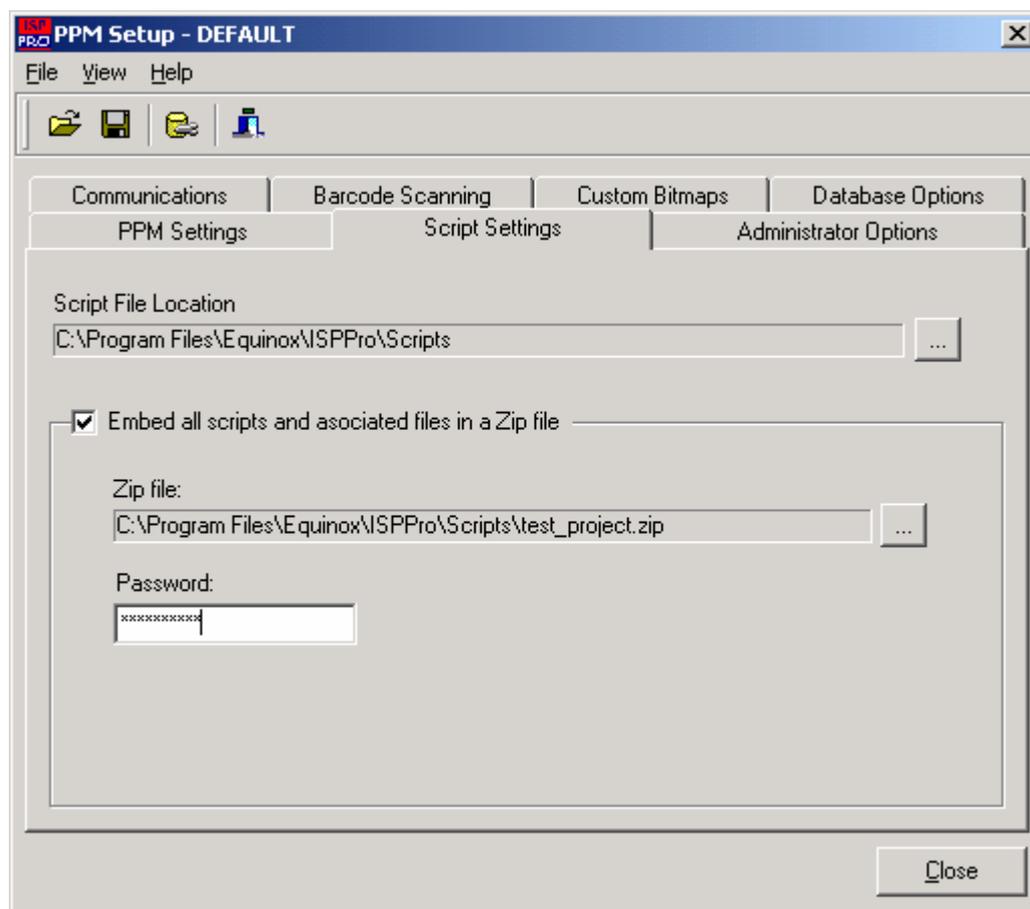
The Interface Database (*.mdb) should NOT be included in this zip file.

5.5.8 Setting up ISP-PRO to execute scripts from a ZIP file

It is possible for ISP-PRO to execute scripts/projects contained within a *.ZIP file. This is useful if the developer of the scripts is in a remote location to the 'Production Facility' who are actually running the scripts. It is also a good way to handle version control and security of scripts/projects as all files are held in a single *.zip file.

To set up ISP-PRO to run scripts from a ZIP file:

1. Launch ISP-PRO, select the <Setup> icon and then select the <Script Settings> tab.



2. Set up the 'Script File Location' to be where you wish to store all your programming related files.
3. Check the '**Embed all scripts and associated files in a ZIP file**' check box.
4. Click the <...> file browser icon and select your project ZIP file (*.zip).
5. If you have password protected your ZIP file, type in the password in the 'Password' box.
6. Click <Close> to exit this dialog.
7. Exit ISP-PRO completely.
8. Re-launch ISP-PRO
→ ISP-PRO will unzip your project ZIP file into the selected script directory

9. Click the  icon and then select the <PPM Settings> tab
10. Select the required Script File (*.esf) from the script directory.
If you are using more than one programming channel, you will need to select the required script file for each channel.
11. Click the  icon and wait for EQTools to launch.
12. Select the <Project Manager> and open the Project Collection file (*.ppc) referenced by your <Script File>
13. Launch the <Upload Wizard> and use this to upload the required Project Collection file (*.ppc) to each programmer.
14. Exit EQTools by closing the EQTools main window.
→ EQTools will close and ISP-PRO will re-open.
15. Click the  icon.

→ All enabled programming channels should now go to <Connect> or <Waiting for Database> states.
16. You are now ready to start programming!

Please note:

1. Every time the ISP-PRO is re-launched, it will automatically unzip the contents of your selected project *.zip file into the specified **lscripts** directory. This will overwrite any existing files of the same name, even files which are more recent than the ones in the zip file.
2. The *.zip file could be placed on a network drive instead of the local hard disc of the PC running ISP-PRO. For added protection against file corruption and accidental alteration of the files, the *.ZIP file could be placed in 'Read only directory' and could then be backed up by a network 'Backup Utility'.
Every time ISP-PRO is launched, it would then re-install the latest scripts/projects into the specified **lscripts** directory on the PC running ISP-PRO. The **lscripts** directory must have read/write access.
3. If the scripts/projects are to be updated, the production supervisor should copy a NEW *.zip file to the network file share. Next time any programmer operator launches ISP-PRO on any programming station, the NEW script/project files will be copied to the local **lscripts** directory. This can be used to update/manage script/project distribution to multiple programming stations on the same PC Local Area Network (LAN).

5.6 Configuring Programming Channels to run a selected Script File

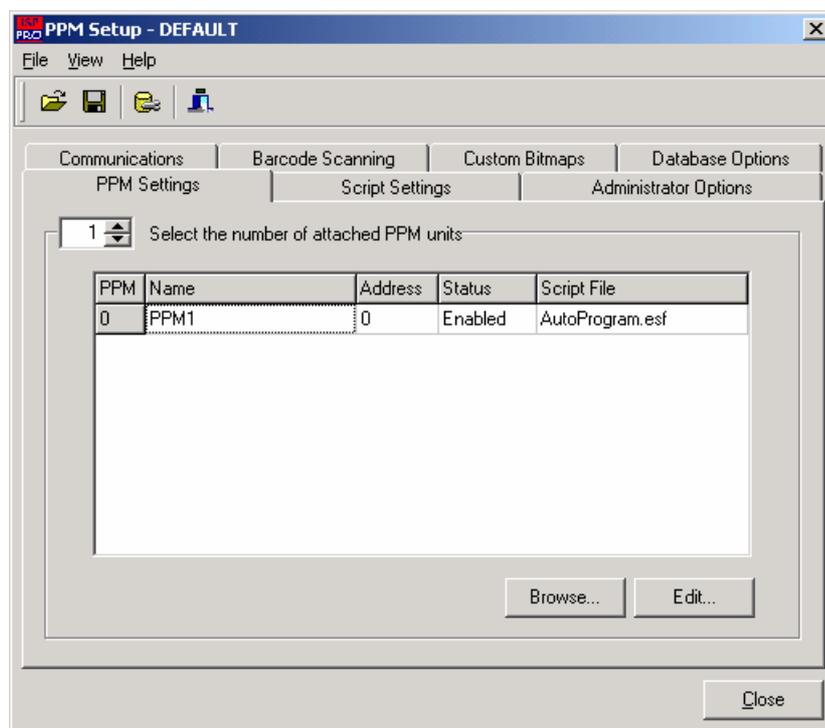
5.6.1 Overview

ISP-PRO is capable of running a different Script File for each enabled programming channel. Each Script File is simply a list of instructions which ISP-PRO executes in order to control the programmer. The script file which is selected by default for each enabled programming channel is **AutoProgram.esf**. It is also possible for a Remote Application to pass the name of the Script File to execute via the **ProgStatus.ScriptName** field in the Interface database.

The next section details how to set up each programming channel to execute your specified Script File(s).

5.6.2 Configuring the Script Selection for each programming channel

1. Launch ISP-PRO
2. Click the <Setup> icon
3. Select the <PPM Settings> tab from the <Setup> menu



4. Set the number of attached PPM programmers by increasing / decreasing the value using the arrows
→ The required number of programming channels will be automatically added to the table.
5. Choose a suitable name for each programming channel e.g. PPM1, PPM2 etc.
6. Set the required 'RS-485 Node Address' for each programmer (factory default is '0')
7. Enable or Disable the required programming channels.

8. To select the Script File (*.esf) to be executed by each programmer, click on a programming channel and then either click the <Browse> button or double-click anywhere in the Script File box.
→ A file browser is displayed allowing you to browse to and select the required Script File (*.esf).
9. Click the <Close> button to save your changes

Please note:

- Each channel may execute a different Script File
- All script files must be placed in the same specified 'Scripts Directory' or a sub-directory of the **lscripts** directory.
- The Scripts Directory can be changed to a user-specified directory if required (see section 4.8.4)
- ISP-PRO / EQTools must have 'read/write' access to the Scripts Directory.
- If a programming channel is going to be controlled from a Remote Application (RA) and the Script Name is going to be passed from this RA then the **WaitForScript.esf** should be selected.

5.6.3 Passing the Script Name via the Interface Database

It is also possible for a Remote Application to pass the name of the script to be executed via the **ProgStatus.ScriptName** field in the Interface database. In order for this mechanism to work, the **WaitForScript.esf** script must be selected. This script simply waits for the Remote Application to insert a Script Name and then executes it. The **WaitForScript.esf** script can be found in the default **lscripts** directory.

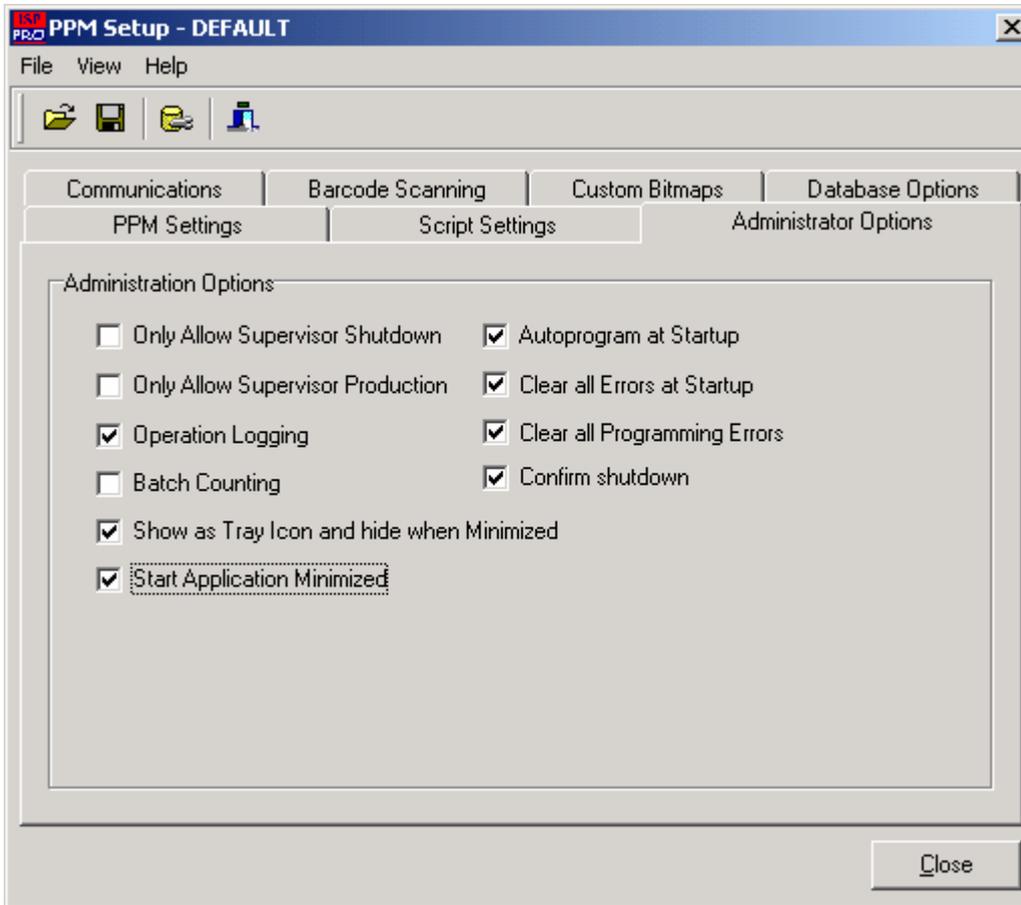
5.6.4 PPM Settings descriptions

The settings for the 'PPM Settings' dialog are outlined in the table below.

Header	Description
PPM	<p>PPM Programmer Channel Number</p> <ul style="list-style-type: none"> This is the programming channel number of the selected programmer.
Name	<p>PPM Programmer Name</p> <ul style="list-style-type: none"> This is a user-definable name/label for each programming channel. The default name is PPMx where x is a value from 1 –16. This name will be recorded into the ProgStatus.ppm field in the Interface Database.
Address	<p>PPM RS-485 Node Address</p> <ul style="list-style-type: none"> This is the physical node address of the selected programmer. The factory default address of any PPM programmer is ZERO. This can be changed using the 'Communications Address' DIP Switch on each PPM programmer. The FS2000A and EPSILON5 programmers are always address ZERO. This cannot be changed.
Status	<p>Enable / Disable a Programming Channel</p> <ul style="list-style-type: none"> This option allows each programming channel to be individually enabled or disabled. This can be useful if a particular programming channel has a fault and needs to be temporarily disabled from the network.
Script File	<p>Select Script File</p> <ul style="list-style-type: none"> This column shows the currently selected Script File for each programming channel. To change the selected Script File, click the <Browse> button and then browse to and select the required Script file (*.esf). Remember – the selected Script File must be in the specified lscripts directory.

5.7 Administrator Settings

The <Administrator Settings> tab allows a number of administrator options to be set up for the ISP-PRO application.



To enable an Administrator Option, simply check the box next to the required option.

The administrator options are as follows:

5.7.1 Only Allow Supervisor Shutdown

When this option is enabled, it is only possible to stop ISP-PRO from running scripts by a Supervisor logging into ISP-PRO and selecting <Shutdown>. This can be useful in preventing production staff from accidentally stopping production by clicking the <Shutdown> button.

5.7.2 Only Allow Supervisor Production

When this option is enabled, it is only possible to start ISP-PRO into 'Production Mode' by first logging in as a Supervisor.

5.7.3 Operation Logging

When this option is enabled, a log file of all script operations will be created.

5.7.4 Batch Counting

It is possible to set up a batch count for each programmer. The programmer will stop the autoprogramming operation as soon as the specified number of Target Systems have been programmed.

5.7.5 Show as Tray Icon and hide when Minimized

When this option is enabled, ISP-PRO will not appear in the Windows Taskbar. It will instead be shown as a 'Tray Icon'.



5.7.6 Start Application Minimized

When this option is enabled, ISP-PRO will not show its main Window on start-up. Instead, ISP-PRO will automatically minimize itself. This is especially useful when used in combination with 'Autoprogram at Startup' and 'Show as Tray Icon and hide when Minimized'.

5.7.7 Autoprogram at Startup

When this option is enabled, ISP-PRO will start 'Production Mode' as soon as it is launched. If you place ISP-PRO into the Microsoft Windows Startup folder, 'Production Mode' will automatically start after a reboot.

5.7.8 Clear all Errors at Startup

When this option is enabled, ISP-PRO will clear any existing on-screen errors for all attached programmers.

5.7.9 Clear all Programming Errors

When this option is enabled, ISP-PRO will clear any old programming errors.

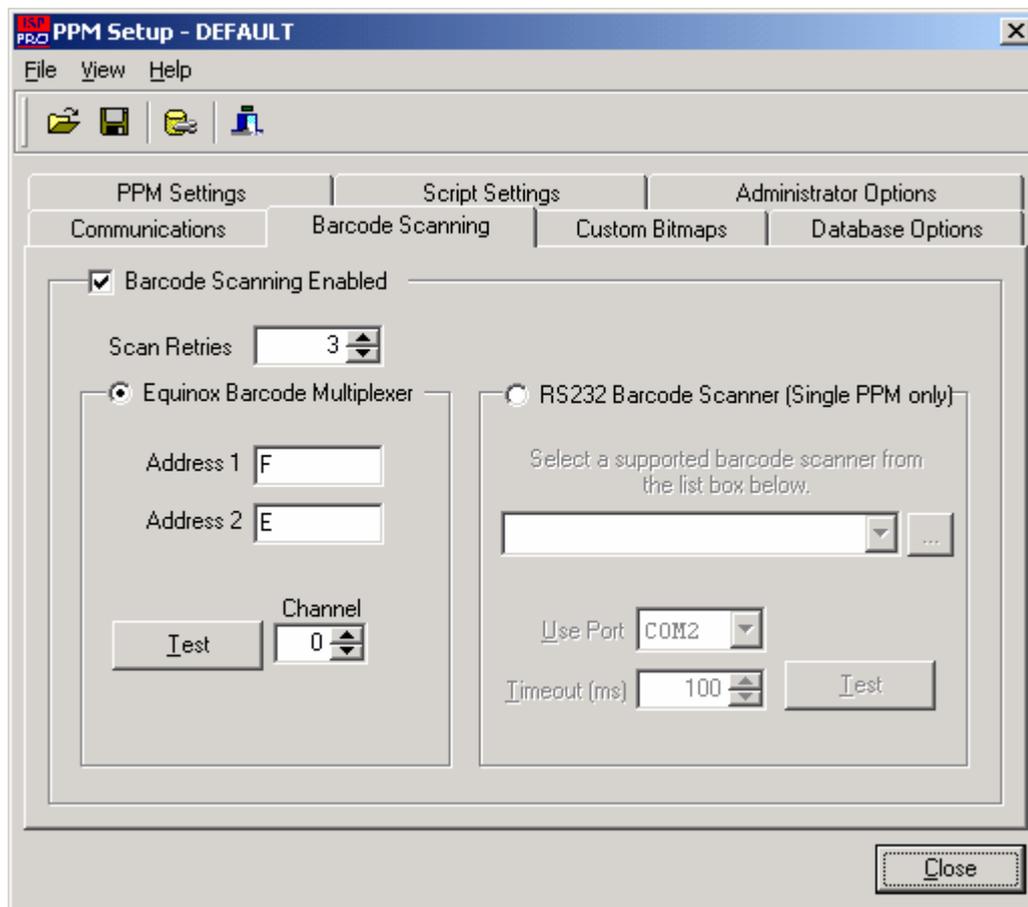
5.8 Barcode Scanning settings

5.8.1 Overview

The ISP-PRO application has been designed to integrate with any commercially available Barcode Scanner. Using this functionality, it is possible to scan the barcode from a Target System at the beginning of a Programming Script and then record and / or make a decision based on the value of the Barcode Label which has been scanned.

ISP-PRO supports the following Barcode scanning scenarios:

- 4 x Barcode Scanner using Equinox '4 Channel Barcode Scanner Multiplexing System'
- OR
- 1 x Barcode Scanner on a spare PC COM port



5.8.2 Equinox '4 Channel Barcode Scanner Multiplexing System'

The '4 Channel Barcode Scanner Multiplexing System' multiplexes up to 4 individual Barcode Scanners onto the Equinox RS485 Network. Each Barcode Scanner can then be assigned to an individual programming channel. It is possible to have up to 2 x '4 Channel Barcode Scanner Multiplexing System' on the same RS485 network thereby supporting 8 programming channels each with their own individual scanner.

To configure / test the 1st Barcode Scanner Multiplexer System:

- Select the 'Equinox Barcode Multiplexer' radio button
- In the 'Address 1' field, type in the 'Start Address' of the 1st Barcode Multiplexer System in the range '0 – F'.
- In the 'Address 2' field, type in the 'Start Address' of the 2nd Barcode Multiplexer System in the range '0 – F'.

To perform a test barcode scan on a particular channel:

- Select the required Barcode Scanner channel
- Click the <Test> button

5.8.3 Single Barcode Scanner via a spare PC COM Port

If you only require one barcode scanner, it is possible to connect this scanner to a spare PC COM port. Every commercial Barcode Scanner uses a slightly different protocol so it is impossible for Equinox to support all scanners as default. However, if you wish for us to support a particular scanner, please e-mail support@equinox-tech.com with your requirements and we will endeavour to add support for your scanner if it is feasible.

To perform a test barcode scan:

- Make sure you have selected the correct COM port and Barcode Scanner
- Click the <Test> button

6.0 Running a Programming Script

6.1 Overview

ISP-PRO executes Programming Scripts in order to control a target Equinox Programmer. These Scripts are created using the EQTools – Script Builder utility and can be tested / debugged using the EQTools – Script Debugger utility. Once your scripts have been fully tested using EQTools, they are then ready for executing within the ISP-PRO application.

This section details how to take the files from EQTools and install / execute them within ISP-PRO.

6.2 Setting up ISP-PRO to run your Programming Script(s)

In order to execute your programming scripts, it is necessary to install them into the \scripts directory and also to set up ISP-PRO so that it knows which script(s) to execute.

Please follow the steps below before attempting to execute a Programming Script:

1. Install your Scripts and Project Collection:

- Set up the Script File directory.
- Copy all Script files (*.esf) into your nominated Script File directory (and sub-directories if required)
- Copy your Project Collection (*.ppc) file into your into your nominated Script File directory

2. Set up the required programmer(s) to run the required Script File:

- Click the <Setup> icon
- Select the <PPM Settings> tab
- Assign a programmer name and then select the required Script to execute from your installed scripts.
- If you are planning to use a Remote Application which will pass the Script Name to execute via the database, select the **'WaitForScript.esf'** for each enabled Programmer Channel.

3. Upload your Project Collection (*.ppc) to the attached programmer(s):

- Follow the instructions detailed in Appendix 3.

6.3 Running your Programming Script(s)

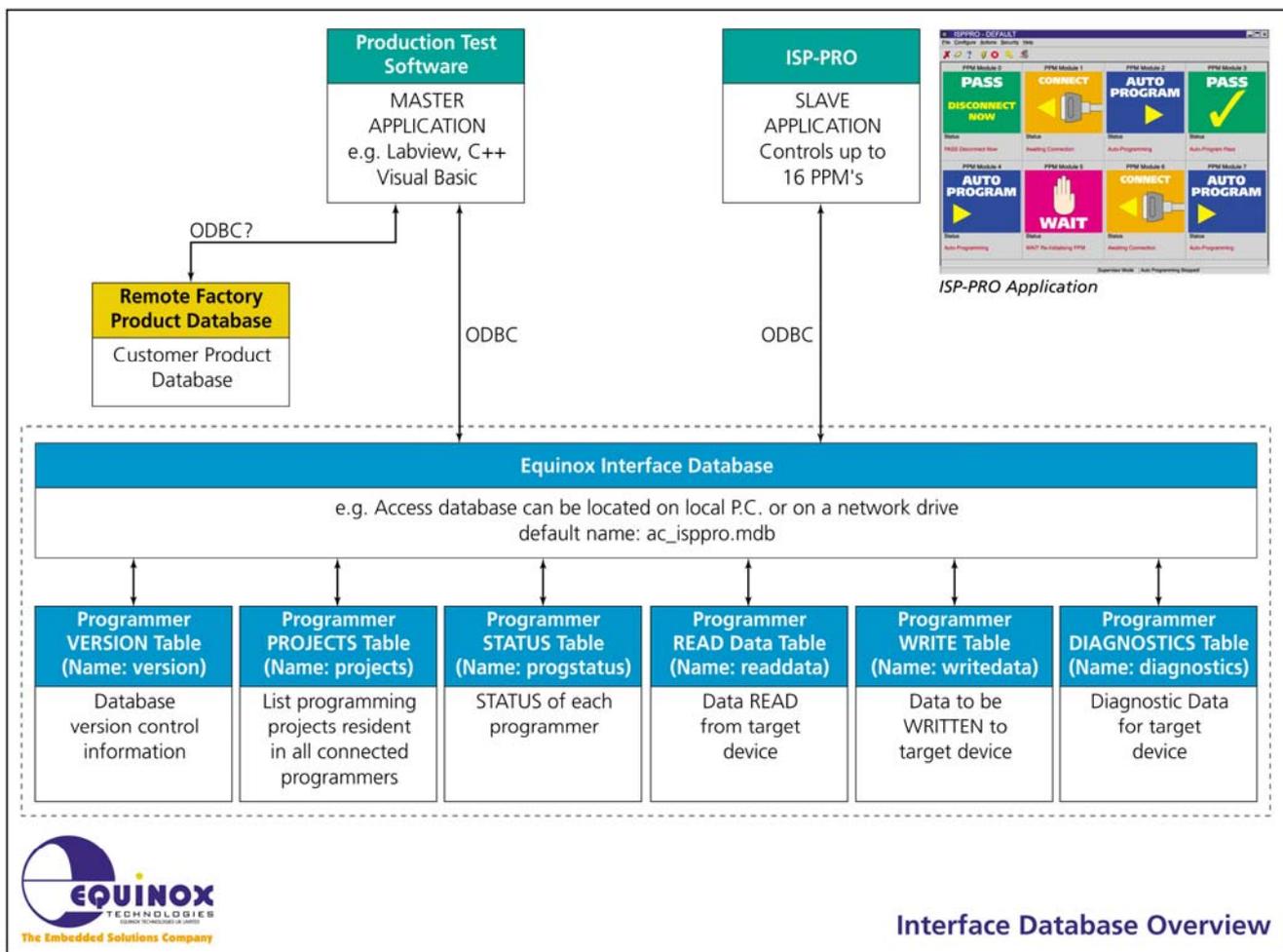
To execute your selected Programming Scripts(s), please follow the steps details below:

1. Click the <START> icon on the ISP-PRO Icon Bar
 - All enabled programming channels should now go to the <Connect> or <Waiting for Database> state. The message 'Now Autoprogramming' should be displayed at the bottom of the screen.
2. Connect a Target System to the relevant programming channel
 - i. If the programmer is set up to automatically detect the Target System presence, then an auto-program operation should be initiated.
 - ii. If the programmer is set up so for a 'Manual' connection, then click the <Connect> button which should have appeared underneath the relevant programmer channel icon
3. If the programming operation is successful, simply remove the Target System from the programmer (or click the <Disconnect Icon>) and the programming channel will automatically reset ready for the next Target System.
4. The diagnostics for each programming cycle are automatically logged to the Interface Database. This information includes time and date, programmer current / timings, whether the operation passed/failed and any relevant error message. To view this information, you can use any database viewer e.g. **ADOExplorer** which is supplied with ISP-PRO. A unique Database ID is generated for each programming cycle (ie. iteration of the selected script file). This ID is used to reference a particular programming cycle in the database ProgStatus, ProgInfo, WriteData and ReadData tables.
5. To end an 'Autoprogramming' session, simply click the <Shutdown> icon
 - ISP-Pro will wait until all programming channels have completed their current operation and will then set all programmers to the <Wait> state.
 - The message 'Autoprogramming Stopped' will be displayed at the bottom the screen.

7.0 Remote Application Control (RAC) of ISP-PRO

7.1 Overview

It is possible for a Remote Application to control the operation of any supported Equinox programmer via the ISP-PRO application. The control is implemented using a so-called 'Interface Database' where the Remote Application must communicate to the ISP-PRO application via fields in this database.



7.2 Remote Application Control – Frequently Asked Questions (FAQ)

Q1. What is the Remote Application ?

The Remote Application is any custom application which is to be used to control the action of the Equinox programmer(s) connected to the client PC. This application is often a suite of Test Software which is used for functionally testing a product in a production environment. As part of its overall function, this software may perform many action on the connected Target System including programming Test Firmware, running functional test programs, programming serial numbers etc. This application is completely independent of the Equinox EQTools / ISP-PRO software.

Q2. What is the Remote Control Interface ?

The control interface between the Equinox ISP-PRO software and the Remote Application is a so-called 'Interface Database'. To initiate a programming sequence, the Remote Application simply writes a record into the database stating which Programming Script(s) and Programming Projects to execute. The ISP-PRO software then reads this data and executes the relevant programming script(s).

Q3. What programming languages can the Remote Application be written in ?

The Remote Application can be written in any programming language which supports reading / writing to a database. Most popular programming environments support either 'ADO' or 'ODBC' interfaces to communicate with databases and so no further drivers are required.

Popular Remote Application languages include:

- Microsoft Visual Basic (VB) - see Equinox VB Demo
- Microsoft C++
- Borland C Builder
- Labview 6 - see separate Labview upgrade and Demo

Q4. What software is required when using the Remote Application Control upgrade ?

The following software / utilities must be installed on the client PC in order to use the Remote Application Control upgrade:

- EQTools - for uploading Programming Projects to the programmer
- ISP-PRO - runs Script Interpreter (can be run minimised / as Tray Icon)
- ADO or ODBC Drivers to communicate with Interface Database

Q5. Why do I need the ISP-PRO application ?

It is not possible for the Remote Application to control the Equinox Programmer Network directly as the protocol is too complicated and an in-depth knowledge would be required about how to program each type of target chip. ISP-PRO performs all the housekeeping tasks for up to 16 programmers connected to a PC leaving the Remote Application to deal only with the control of the overall Test System.

ISP-PRO performs the following tasks:

- Interfaces to up to 16 Programming Modules connected to the client PC.
- Runs a Script Interpreter allowing Programming Scripts to be executed under control of a Remote Application.
- Supervises all the low-level programming actions for each programmer connected to the client PC.
- Provides a visual indication of the current status of each programming channel (can be minimised if required).

Q6. Can the ISP-PRO application be hidden from the operator ?

Yes. In many applications it would confuse the operator if the ISP-PRO application was visible. It is therefore possible to 'hide' ISP-PRO as a minimised / tray application. Please see section 7.3 for further details.

Q7. Can I save all the ISP-PRO settings to a file and recall them ?

Yes. If you set up ISP-PRO on a development PC and then you wish to deploy your scripts and ISP-PRO settings to a PC in production, you can simply save all the ISP-PRO settings to a file and then recall them from this file on the production PC. See section 5.3 for further details.

Q8. How can I check my programmer is enabled for Remote Application Control ?

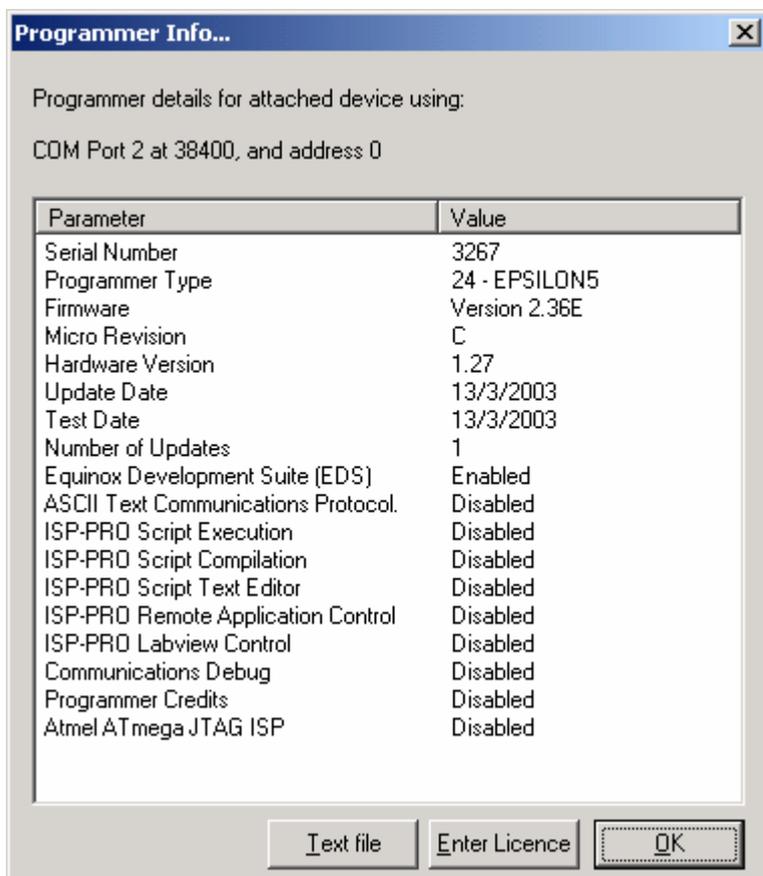
To check whether a programmer is enabled for Remote Application control:

- Select the EQTools icon or launch EQTools independently of ISP-PRO
- Select <Programmer><Programmer Info>
- Check that the '**Remote Application Control**' option is ENABLED.
- If your Remote Application is National Instrument's 'Labview', check that the '**ISP-PRO Labview Control**' option is ENABLED.

Q9. How do I upgrade a programmer to be controlled from a Remote Application ?

To upgrade a programmer to support Remote Application Control:

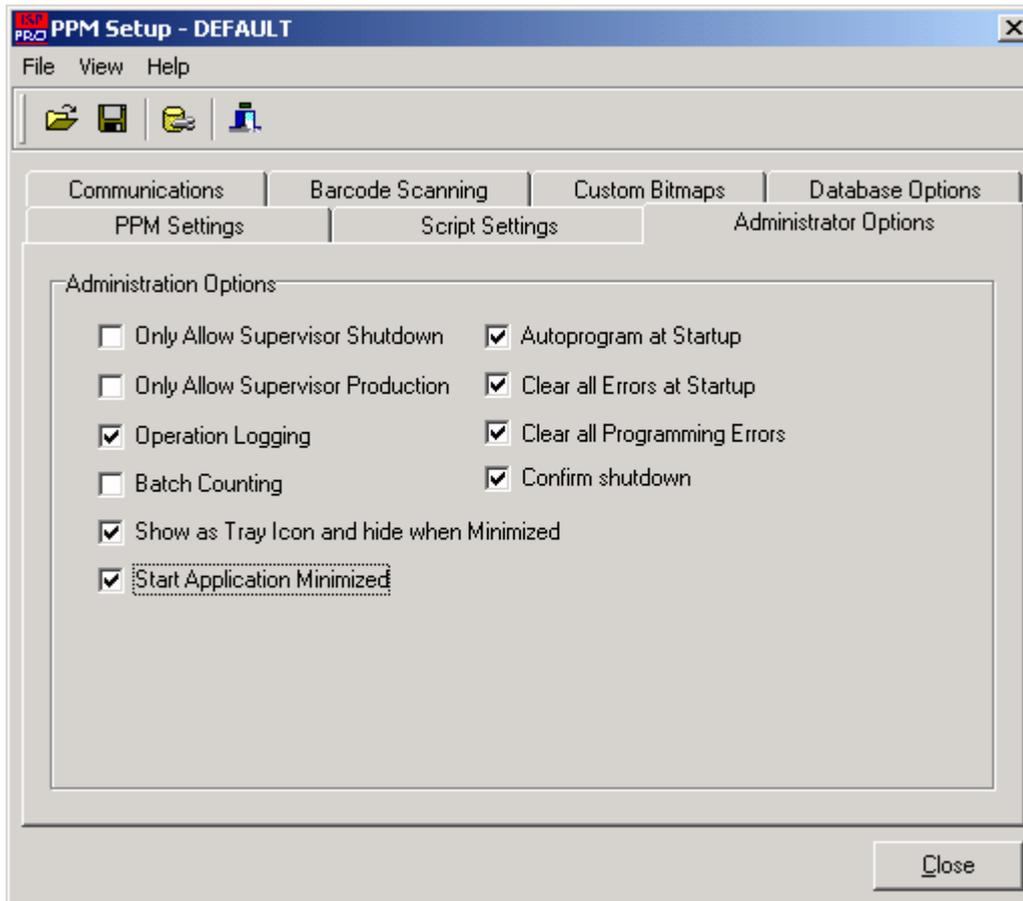
- Purchase the relevant upgrade from Equinox → Equinox will send you an 'Upgrade License String' for the programmer serial number which you specified on your order.
- Launch EQTools
- Select <Programmer><Programmer Info>
- Select <Enter License>
- Enter the License String from Equinox and press <OK>
- Verify that the relevant options have now been ENABLED.



7.3 Automatically Minimising the ISP-PRO application

To automatically minimise the ISP-PRO application:

- Launch ISP-PRO
- Login
- Select <Setup>
- Select the <Administrator Options> tab



- Check the '**Start Application Minimized**' option
- Check the '**Show as Tray Icon and hide when Minimized**' option
- Check the 'Autoprogram at Startup' option – this will force ISP-PRO to automatically start to execute scripts when it is launched.
- Click the <Close> button or select <File Save as> to save your settings
- Close down ISP-PRO

If you now re-launch ISP-PRO, the application will minimize itself automatically and you will see the ISP-PRO logo in the 'Icon Tray' on your desktop toolbar.

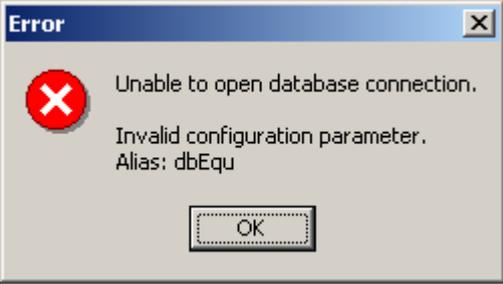


If you wish to maximise the ISP-PRO software at any time, simply double click the ISP-PRO tray icon.

8.0 Installation Troubleshooting Guide

The table below details some of the most common errors which may be encountered during the installation of the ISP-PRO software. If you encounter any other errors which are not listed, please e-mail a full error description to support@equinox-tech.com.

Error No	Problem	Overview / Solution
N/A	ISP-PRO installation program fails when initially launched.	<p>Overview</p> <p>This error should only happen when installing under Windows 2000 or Windows NT. It is probable that you do not have the required user privileges to install software into the \program files directory on your PC.</p> <p>Solution</p> <p>Log in to your computer as the 'System Administrator' or as a domain user with administrator privileges. See section 2.5 for further details.</p>
N/A	<p>ISP-PRO application launches and then hangs with the following error:</p>  <p>If you then click <OK>, ISP-PRO runs and reports the error: Failed to open DB connection</p>	<p>Overview</p> <p>This error message means that ISP-PRO cannot 'connect' with the specified Interface Database. The error occurs in the following circumstances:</p> <ul style="list-style-type: none"> • If the default Interface Database has either not been installed or has been installed in a different path from the default \program files\equinox\db path. • If a non-default database connection has been selected, but the alias or path to this database cannot be found. <p>Possible solutions</p> <ul style="list-style-type: none"> • Make sure you have the correct administrative privileges to install this software on your PC and then try re-installing the software. • Launch ISP-PRO

		<ul style="list-style-type: none"> Click the <Setup> icon in ISP-PRO and select the <Database Options> tab. For further information see Appendix 2 – Setting up a Database alias.
N/A	 <p>When selecting the required database alias in the ISP-PRO <Database Options> tab, you get the above error.</p>	<p>Overview See Error - Failed to open DB connection</p> <p>Solution See Error - Failed to open DB connection</p>
N/A	<p>The programmer is not licensed to run scripts. Please obtain a license from Equinox.</p>	<p>Overview In order to run Scripts within ISP-PRO, the attached programmer must be ENABLED for ISP-PRO execution. This is a chargeable upgrade for most Equinox programmers.</p> <p>Solution Order the relevant ISP-PRO Upgrade License for the attached programmer.</p>
N/A	<p>ISP-PRO Toolbar is not displayed correctly.</p>	<p>Overview ISP-PRO requires the latest 'Toolbar dll' from Microsoft which is a file called 'COMCT132.dll'. This file is also required and automatically installed by many other applications including 'Microsoft Internet Explorer 5 (IE5)'. Equinox do not include the COMCT132.dll in the EQTools installation because it is a large file and would add considerably to the download time of the application from our Web Site.</p>

		<p>Solution</p> <p>Install the 'COMCT132.dll' using one of the following methods:</p> <p>Run the 'Microsoft Common Controls Update Program' which can be found on the CD-ROM supplied with the programmer or can be downloaded from the Equinox Web Site. The filename of the update program is '40comupd.exe'.</p> <p>OR</p> <p>Install 'Microsoft Internet Explorer 4' or any later version. Installing this application will automatically install the latest version of the COMCT132.dll.</p>
N/A	Some ISP-PRO dialog screens are not properly displayed or are cropped so all the information cannot be read.	<p>Overview</p> <p>Many of the ISP-PRO dialogs display a considerable amount of data on the screen. It is necessary to select 'Small Fonts' mode to properly display these dialogs, otherwise some data may appear off the visible area of the screen.</p> <p>Solution</p> <p>To set your PC to display 'Small Fonts':</p> <ul style="list-style-type: none"> • Select <Start><Settings><Control Panel><Display> • Select the <Settings> tab • Click the <Advanced> button • From the 'Display menu', select the 'Font size' as 'Small fonts'. • Click OK • You will then be asked whether you wish to restart Windows • Click <YES> and wait for Windows to reboot • Your PC is now set up to display in 'Small font' mode.

N/A = Not applicable (i.e. no error code available)

Appendix 1 - Setting up a Database Alias

1.1 Overview

The so-called 'Interface Database' is simply a collection of tables in a database which are used for controlling the programmers connected to your PC and also to log diagnostic information for every programming cycle. The Interface Database can also be shared between the Equinox ISP-PRO software and a so-called 'Remote Application' allowing the programmer(s) to be controlled remotely (see fig. 5.1 below). The 'Interface Database' can be stored either on the local drive of the PC running ISP-PRO or on another PC on the network.

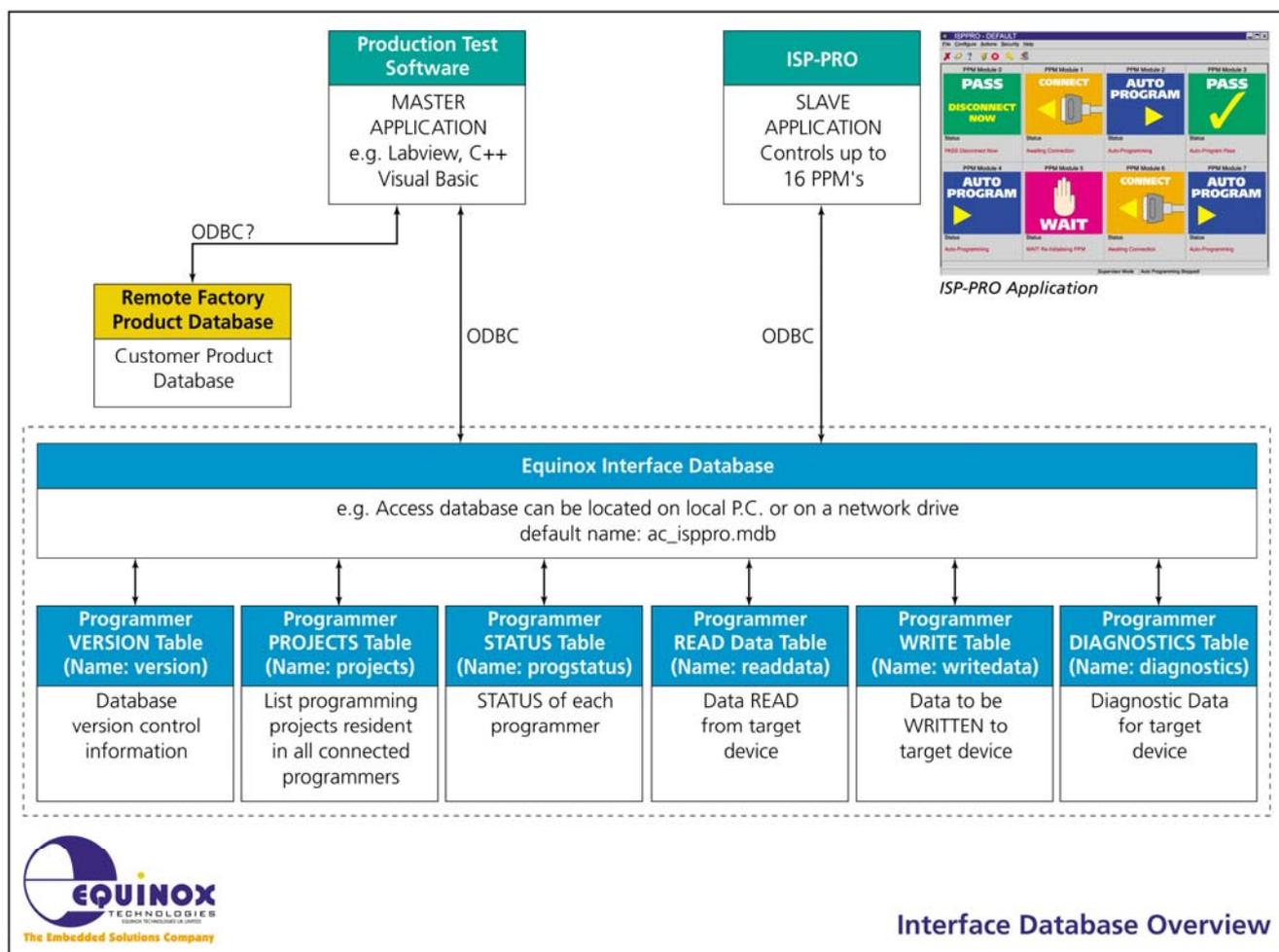


Fig. 1.1 – Interface Database Architecture

1.2 ODBC Data Source Definition

In order for ISP-PRO and any Remote Application to read/write to the tables contained within this database, it is necessary to set up an 'ODBC Data source' on your client PC which points to your desired Interface Database. This is simply a way of establishing a link from any application on your PC (or another PC on the same network) to the Interface Database of your choice. This allows any ODBC compliant application such as ISP-PRO and EQTools to read / write from/to this database.

1.3 Default Interface Databases installed with ISP-PRO

The following database files are installed into the *?:\Program Files\equinox\db* directory during the ISP-PRO 'Typical' installation:

Database	Description
Microsoft Access Filename: <i>ac_isppro.mdb</i>	This database is installed into the <i>equinox\db</i> directory as standard, and is used by ISP-PRO by default. The database comprises of a single *.mdb file in Access 2000 format. If you have Microsoft Office 2000 on your machine, you are likely to also have Access 2000. This may therefore be the best choice of database for your requirements. The default database alias used for this database is <i>ac_isppro</i> . Please note – you must manually set up this database alias.

1.4 Swapping to a different Interface Database

If you wish to use a different Interface Database from either the Access or Paradox one installed by default, it is necessary to perform the following actions.

1. Locate the database file to which you want to create a database connection (alias)
2. You can place this database in the ***vispproldb*** directory with the default databases or you could store it anywhere on your PC or another PC on the same network.
3. Create an ODBC 'database alias' (Data Source) which points to your database (if the alias does not already exist). The procedure to achieve this is described in the next section.
4. Within ISP-PRO, select the required 'database alias' which you wish to connect to. This menu can be found by launching ISP-PRO and selecting <Configure><Setup> and then selecting the <Database> tab.

1.5 Creating an ODBC Data source

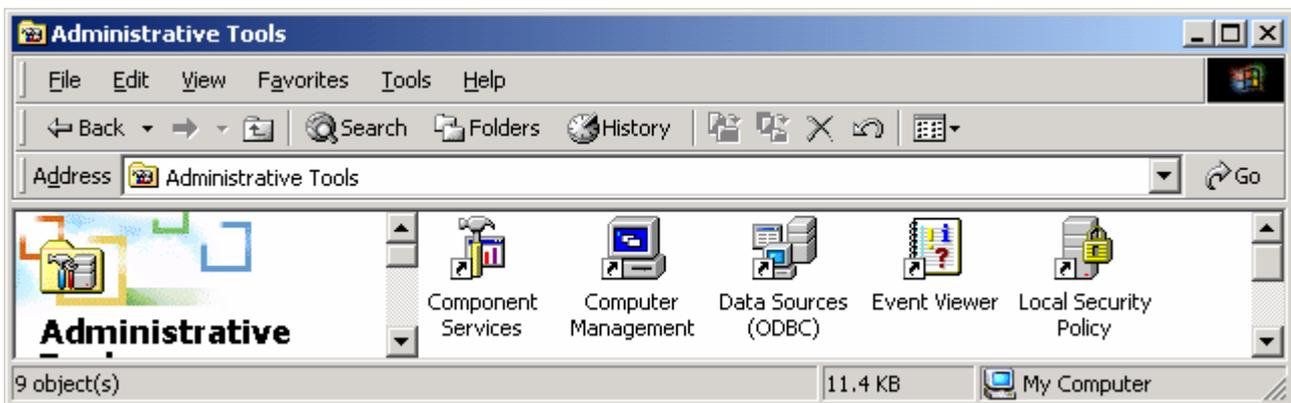
1.5.1 Overview

ISP-PRO version 2.xx automatically set up and maintained a database alias called ***ac_isppro*** for the default Access database ***ac_isppro.mdb***. This database can be found in the ***vispproldb*** directory. ISP-PRO version 3.xx uses an '**ADO Database connection**' and so does NOT set up an ODBC alias to the Interface Database. If you are using a Remote

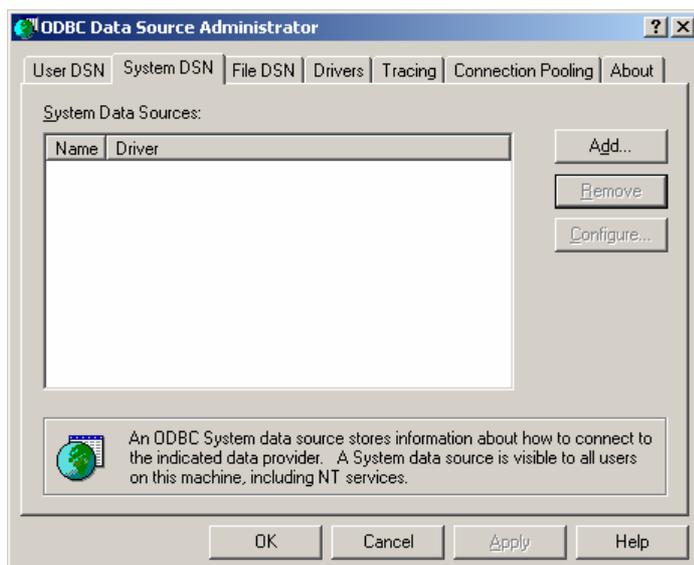
Application which does not support 'ADO' then you will need to manually set up this ODBC alias to the Interface Database. Please follow the instructions in this section to achieve this.

1.5.2 Procedure to set up a new ODBC Data source

1. Browse to the PC 'Control Panel'
2. Make sure you have the Borland Database Engine (BDE) installed by finding the icon in the Control Panel
3. Find and launch the ODBC Data Source Administrator
4. For Windows 95/98 – this can be found in Control Panel and is called 'ODBC Data Sources (32-bit)'
5. For Windows 2000 - this is hidden under 'Administrative Tools' in Control Panel and is called 'Data Sources (ODBC)'



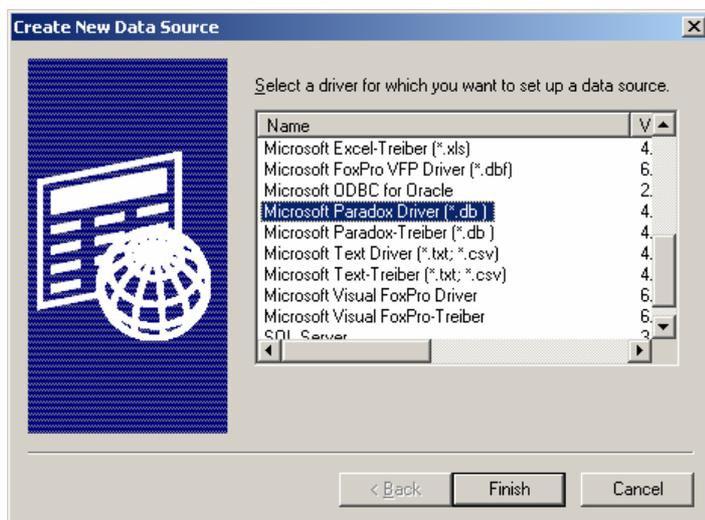
6. Click the 'System DSN' tab
→ The 'System DSN' dialog box should be displayed.
This dialog shows which databases are currently set up on your PC, the database name or 'alias' and the database type e.g. Microsoft Access. These database aliases are declared for all users of the PC and will be available for all login profiles. If you have already installed the ISP-PRO application, you should find an entry for the default Access database **ac_isppro** already in the table.



1.5.3 Creating an alias to the default Paradox Database

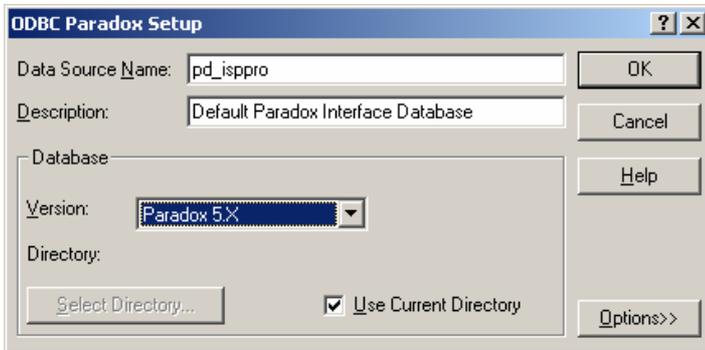
To set up an alias to the default Paradox database, please follow the instructions detailed below.

1. Click the <Add> button
→ The 'Create New Data Source' dialog box below should now be displayed.

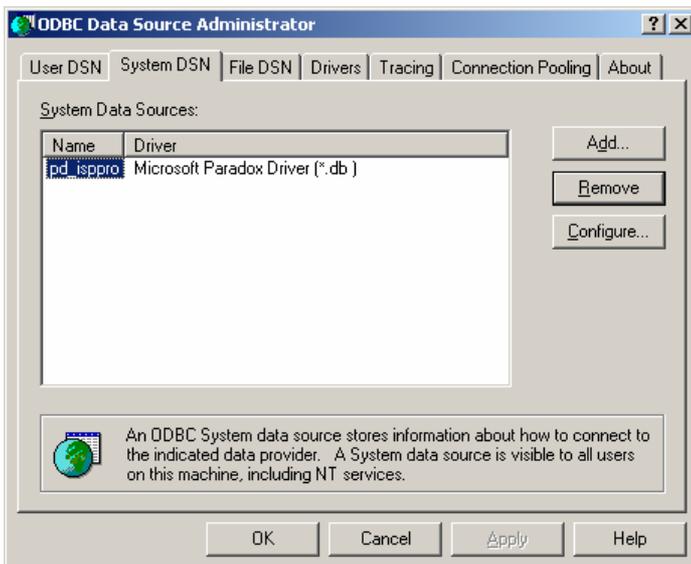


2. Select the Microsoft Paradox Driver (*.db)
This can be achieved by scrolling down the list using the scroll bar and then double-clicking on the relevant driver.
3. Fill in the details for the database as detailed in the screenshot below.
4. Click <Select> and browse to the required database on your hard disk

- Click <OK> to select this database
→ The dialog box should look like the one below:



- Click <OK>
→ The <System DSN> tab should now be displayed and the new alias **pd_isppro** should now be displayed as detailed below. Any data sources declared in the <System DSN> tab will be visible to all log-in user of this PC (system).

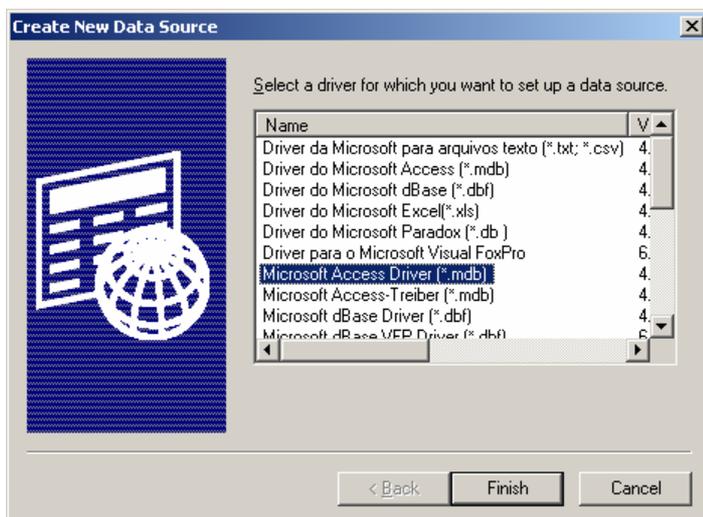


- Click <OK> to quit out of the ODBC Data Source Administrator.
- The database alias which you have set up will now be visible for all user login profiles on your PC.
- When ISP-PRO is launched for the first time, it will use the **ac_isppro** database alias by default. However, if you have logged in under your under another user name from which you installed the software, it is necessary to re-select the database alias by selecting <Setup><Options><Database Options> and then selecting the BDE alias **pd_isppro**.

1.5.4 Creating an alias to a Microsoft Access Database

If you wish to use a Microsoft Access Interface Database other than the default *ac_isppro* database, please follow the instructions detailed below:

1. Click the <Add> button
→ The 'Create New Data Source' dialog box below should now be displayed.



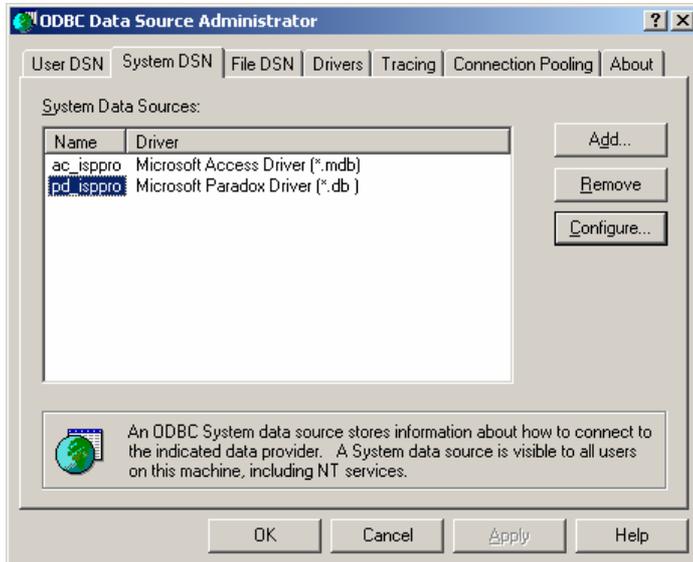
2. Select the Microsoft Access Driver (*.mdb)
This can be achieved by scrolling down the list using the scroll bar and then double-clicking on the relevant driver.
→ The ODBC Access Setup dialog is displayed.



3. Fill in the details for the database as detailed in the screenshot above.
4. Click <Select> and browse to the required database on your hard disk.
The default Access Interface Database can be selected by browsing to the following path: *isppro\db\ac_isppro.mdb*.
5. Click <OK> to select this database

6. Click <OK>

→ The <System DSN> tab should now be displayed and the new alias **ac_isppro** should now be displayed as detailed below. If the Paradox database was previously installed, there will also be a database alias called **pd_isppro** in the list.



7. Click <OK> to quit out of the ODBC Data Source Administrator.

8. The database alias which you have set up will now be visible for all user login profiles on your PC.

9. It is now necessary to set up ISP-PRO to use this database. This procedure to achieve this section 5.6.

10. It is also necessary to set up EQTools to use this database. This procedure is detailed in the EQTools 'Getting Started Guide'.

1.6 Selecting an Interface Database within ISP-PRO

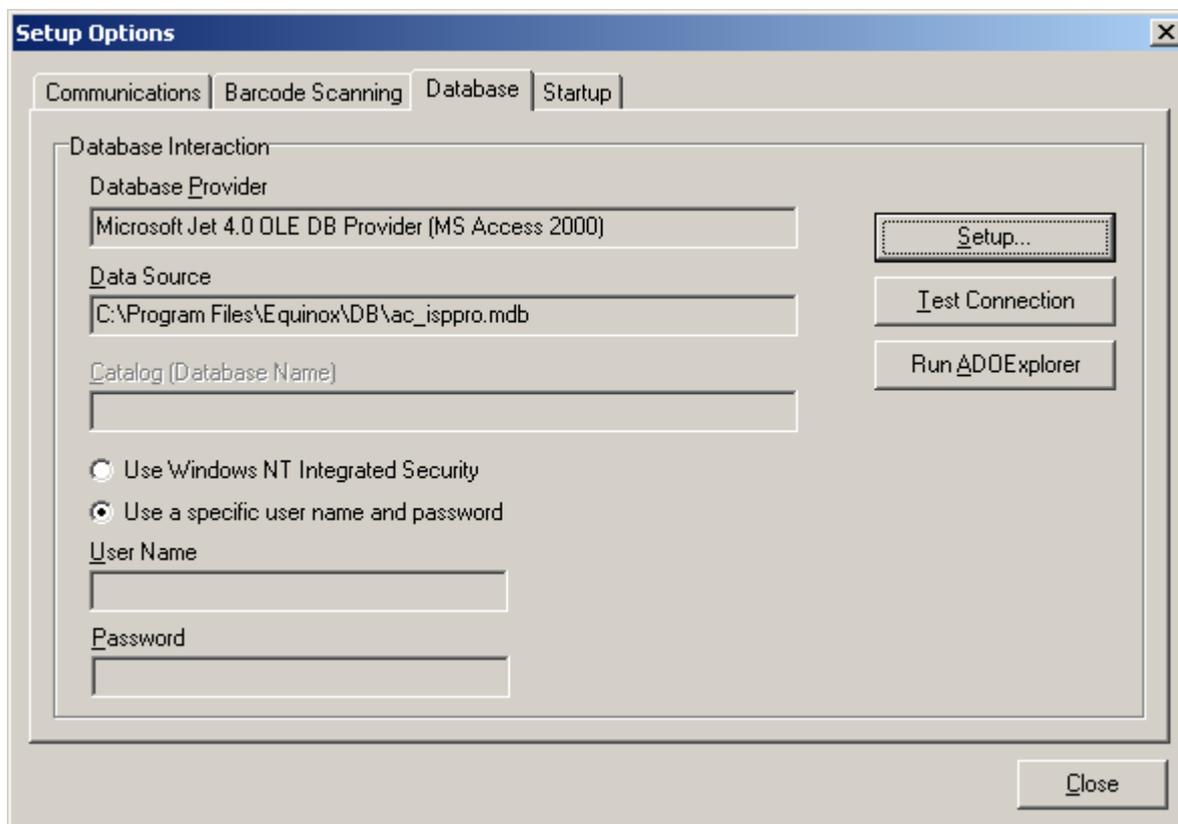
1.6.1 Overview

It is a run-time requirement of ISP-PRO that the application is connected to a suitable Interface Database. This database can be the default **Microsoft Access** database or can be any other user-defined database which has the required fields and tables. In order for ISP-PRO to connect to this database, a suitable database connection must be established. The standard ISP-PRO installation creates an 'ADO' connection to the default Interface Database which is installed in the **program files\equinox\ldb** directory. If you wish to use eg. an ODBC connection then you can manually configure this connection by following the instructions detailed in the next section.

1.6.2 Testing the default 'ADO' database connection

To check the Database Connection or to change the connection from the default 'ADO' to eg. 'ODBC' connection, please follow the instructions below:

1. Launch the ISP-PRO application
2. Click the <Login> icon and type in your password (default: equinox)
3. Click the <Select> icon
4. Select the <Database options> tab

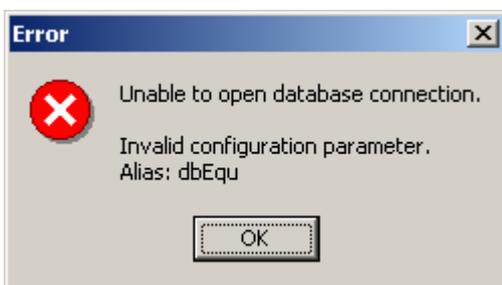


5. The default ADO Database Connection details are as follows:
Default provider: **Microsoft JET 4.0 DB Provider (MS Access 2000)**
Data source: **c:\program files\equinox\dlac_isppro.mdb**
6. If you are prompted for a database password for the default databases, simply select <OK> leaving the username and password fields blank.
7. Click <Test Connection> to test whether ISP-PRO is configured so it can connect to the specified Interface Database.
If successful, you should see the following confirmation message:



Go to step 10.

8. If ISP-PRO cannot connect to the specified database you should see the following error message:

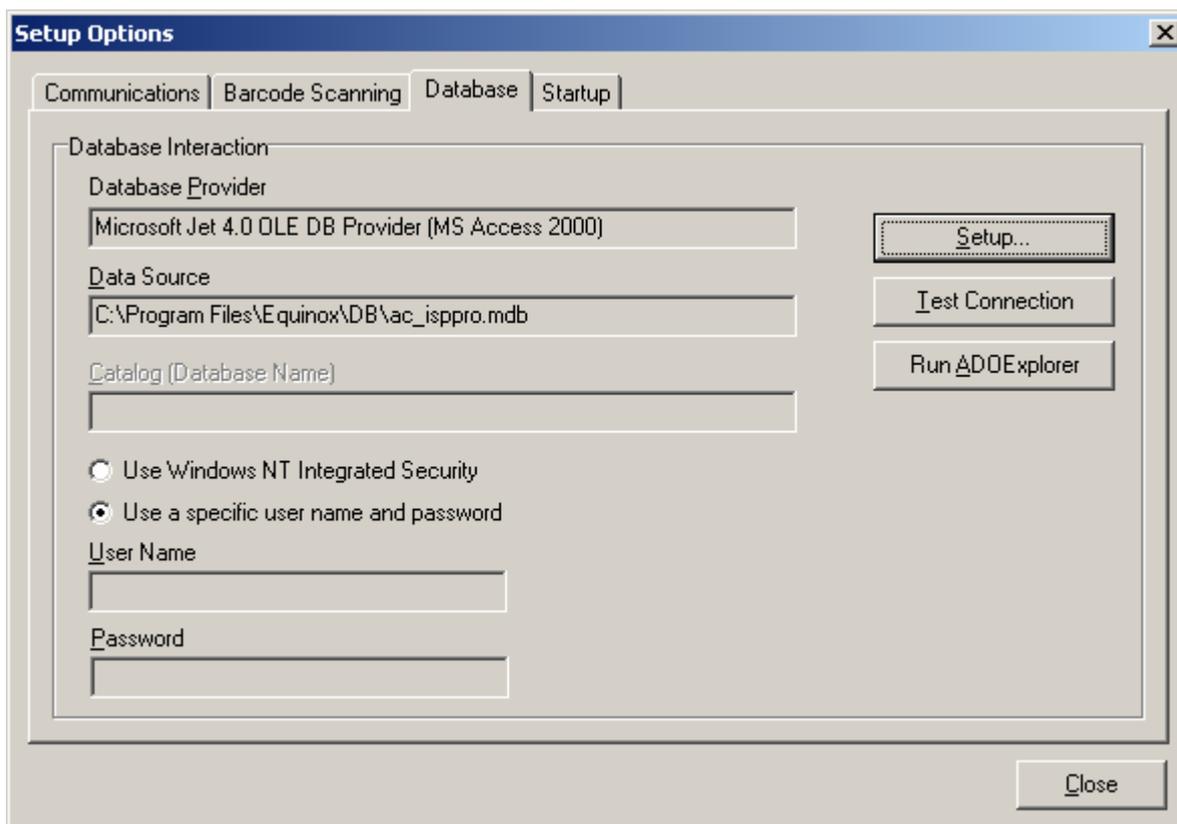


9. See section 7 – ISP-PRO Installation Troubleshooting Guide for further help.
10. Click <Close> to save these database settings
→ ISP-PRO is now configured to use your specified Interface Database
11. If you wish to view the tables within your database, you can use the ADOExplorer utility which can be launched by pressing the <ADOExplorer> button in the <Database Options> tab.

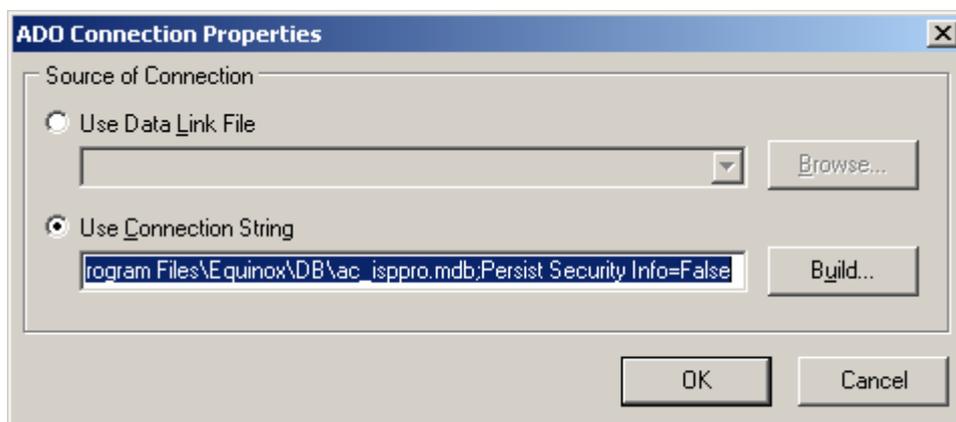
1.6.3 Establishing an 'ADO' database connection to a different database

To change the connection from the default Access2000 Interface Database supplied by Equinox to a custom database, please follow the instructions below:

1. Launch the ISP-PRO application
2. Click the <Login> icon and type in your password (default: equinox)
3. Click the <Select> icon
4. Select the <Database options> tab



5. Click the <Setup> button



6. Enter the connection string to your database. You can also use a 'Data Link File' to define the connection parameters.

7. Click the <Build> button and then <OK> to quit the 'Properties' screen

8. To test your new database connection, click <Test>

Appendix 2 - Borland Database Engine (BDE) Installation

1.1 Overview

The ISP-PRO V3.xx application communicates with the Interface Database via an 'ADO' database connection. In the rare even that you wish to change the ISP-PRO database connectivity from 'ADO' to 'ODBC', you will need to install the Borland Database Engine (BDE) on your computer.

Please note:

It is not necessary to install the BDE unless you wish to change the ISP-PRO database connection method from 'ADO' to e.g. 'ODBC'. Even if your Remote Application does not support ADO eg. Labview, you can still leave ISP-PRO to use the default ADO connection.

1.2 Installation instructions

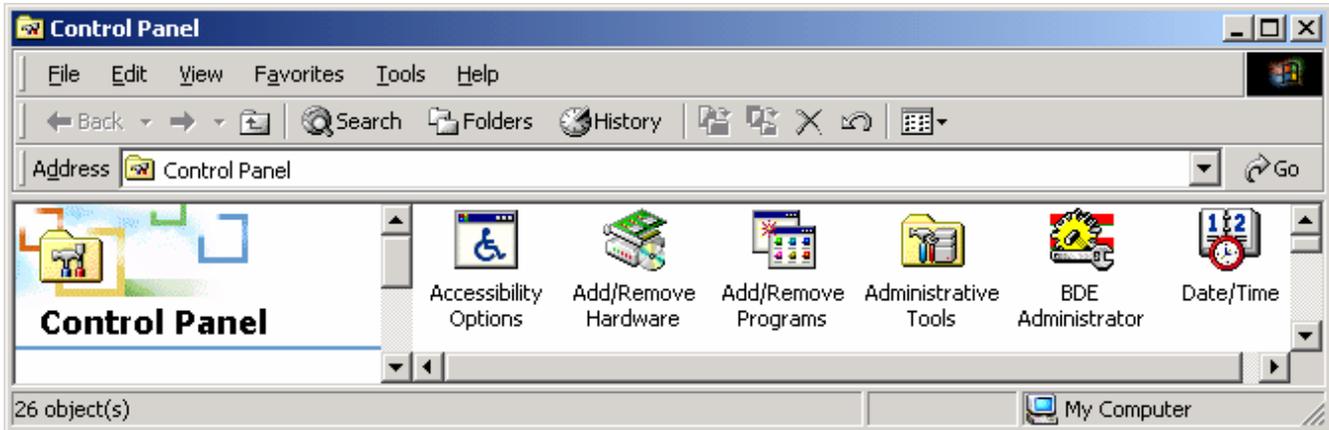
1. Launch the BDE install file '**InstallBDE.exe**'
(Upon completion of the ISP-PRO installation, if the BDE Install file '**InstallBDE.exe**' is found in the same directory it is automatically executed and the BDE installation will launch)
2. It is only necessary to install the BDE once, so if you are upgrading ISP-PRO, choose 'No' when asked if you wish to install.
3. Follow the on-screen instructions presented to install this vital component.

Please note: This installation does NOT copy any databases to your PC and does NOT set up any database aliases. (This is performed by ISP-PRO.)

1.3 Verifying that the BDE has been installed

To check that the BDE has been installed on your PC, please perform the following steps:

- Open the Control Panel by selecting <Start><Settings><Control Panel>



- Locate the icon called 'BDE Administrator' as shown in screenshot above
- Double-click the 'BDE Administrator' icon → The BDE application should launch.
- Close the BDE Application
- The installation of the BDE is now complete.