

SECTION 3

NV200 MANUAL SET

ITL SOFTWARE SUPPORT GUIDE

INTELLIGENCE IN VALIDATION

Innovative Technology assume no responsibility for errors, omissions, or damages resulting from the use of information contained within this manual.

NV200 MANUAL SET – SECTION 3

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3. ITL SOFTWARE SUPPORT GUIDE

3.1 Validator Manager Software

Validator Manager (also called Bank Note Validator Currency Manager) is a software package developed by Innovative Technology Ltd to allow customers to carry out programming, setup and operational tasks on the NV200 bank note validator.

3.1.1 Preparing for Installation

If you do not have the Validator Manager software on CD, you can easily download it from the Innovative Technology website. Visit www.innovative-technology.co.uk, and select 'Software Download' from the 'Support' tab:



Clicking this link will take you to the software download page. To download any files you must log in as a registered user – if you have not already registered this is a very quick process; just click the 'create an account' link and follow the on-screen instructions.

To download a software file you must first login.
NB: All users must re-register with the new site.

Enter your login details here, or create a new account

Always ensure you are using the most up-to-date software before altering any firmware or currency dataset files.

Username
Password
Remember Me ☐
Login

- Forgot your password?
- Forgot your username?
- Create an account

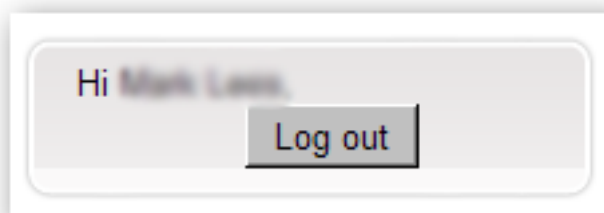
Latest Datasets

UGX02602 (NV200)
UGX01603 (NV200)
CRC01602 (NV200)
ISK0110100 (NV10)
MYR01203 (BV20)
IDR02602 (NV200)
IDR01603 (NV200)
THB01602 (NV200)
KZT01602 (NV200)
LVL01603 (NV200)

Title	Version	File	Info	Download
Bank Note Validator Currency Manager	3.3.13			
VPS (Validator Programming System)	1.0.16			
SMART PIPS (Pay In Pay Out System)	1.4.5			
Bank Note Validator Diagnostics Tools	1.0.4			
DA2 Drivers - 32 bit				
DA2 Drivers - 64 bit	1			
BV Interface Driver Install - 32 bit	2			
BV Interface Driver Install - 64bit	1			
NV4 Currency Manager	2.5.3			

After logging in, the download screen will change slightly:

Your user name will be displayed in the top right hand corner of the screen




The padlock icon for each file will change from locked to unlocked. To download a file, just click on the padlock icon opposite the file name.











If you want to find more information about the file before you download it, you can click on the blue information icon.

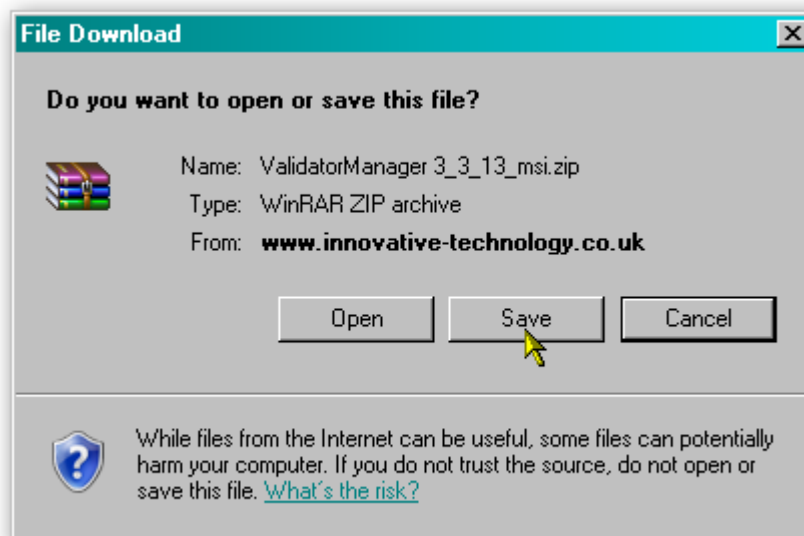


In this case, we want to download the Validator Manager software, so we click on the padlock icon opposite the 'Bank Note Validator Currency Manager' filename:

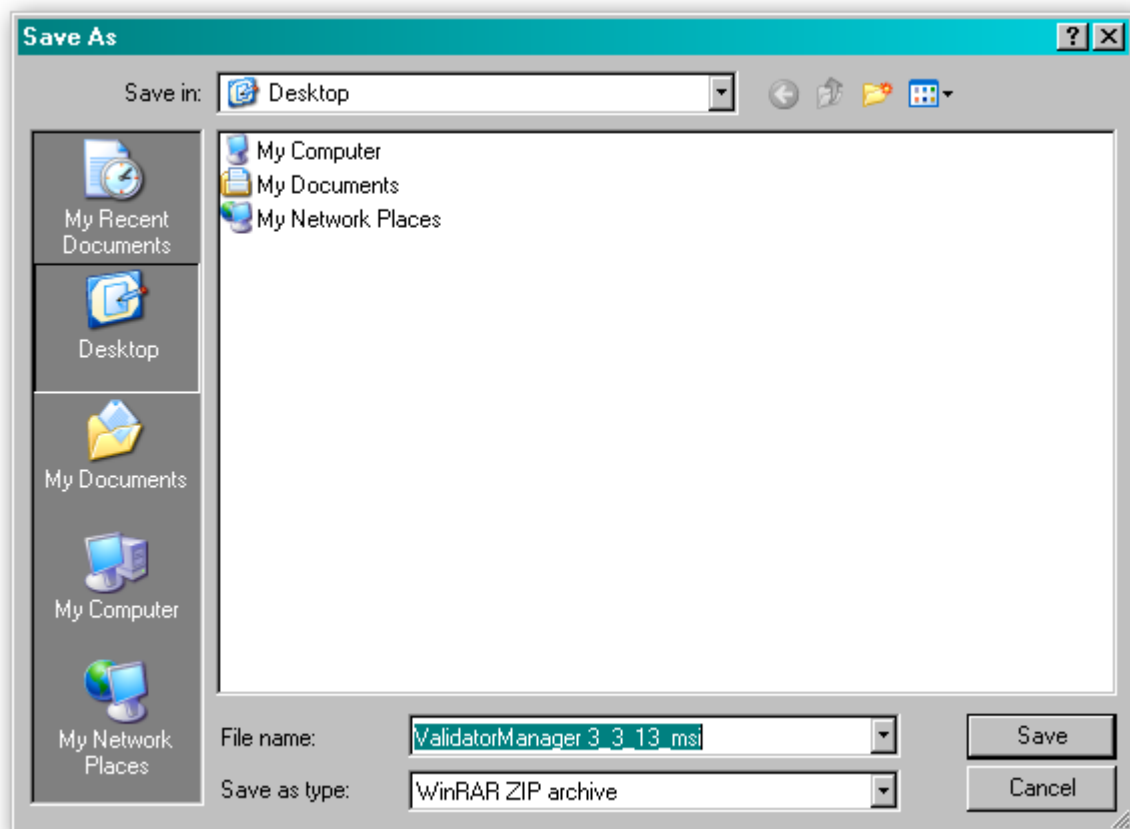


Title	Version	File		
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SMART PIPS (Pay In Pay Out System)	1.4.5			
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DA2 Drivers - 32 bit				
DA2 Drivers - 64 bit	1			
BV Interface Driver Install - 32 bit	2			
BV Interface Driver Install - 64bit	1			
NV4 Currency Manager	2.5.3			

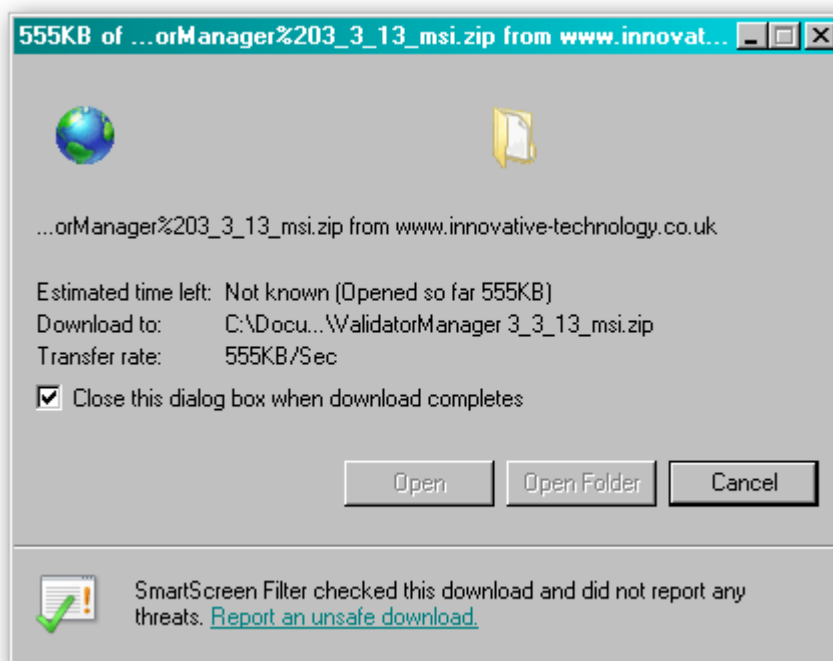
After clicking the link, a file download dialog box will appear – choose the option to **save** the file:



You can save the file anywhere that is convenient, as long as you can remember where it is when you want to install the software.

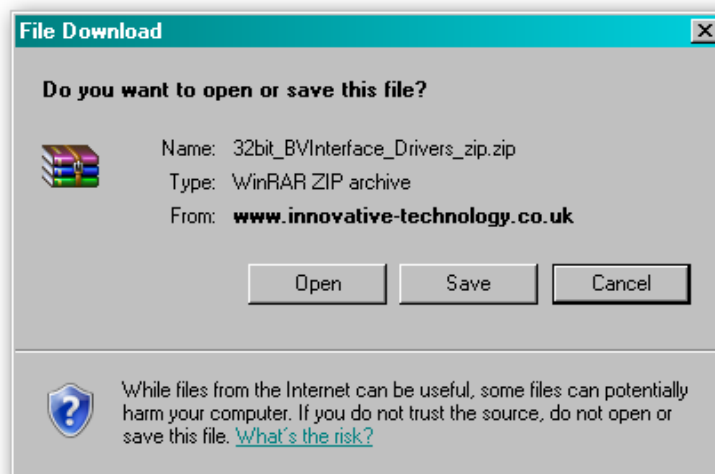


After choosing where to save the file, a file transfer dialog box will appear showing the progress of the file download:

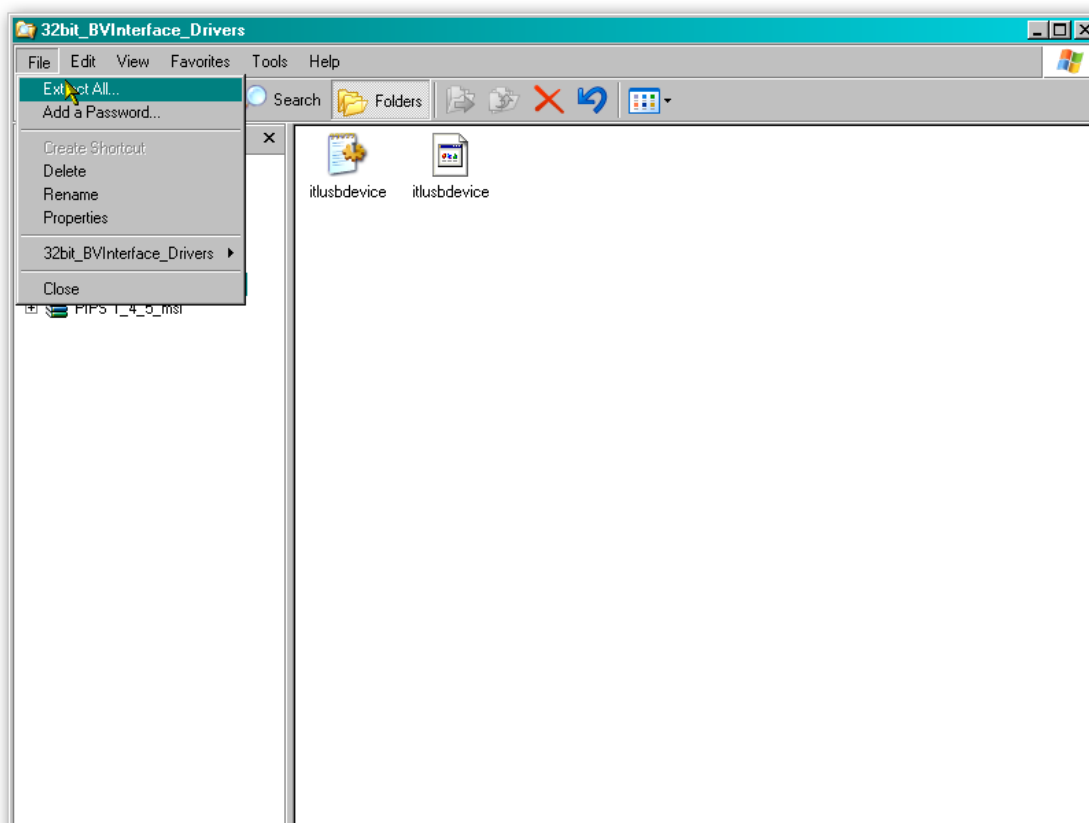


3.1.2 BV Interface Drivers

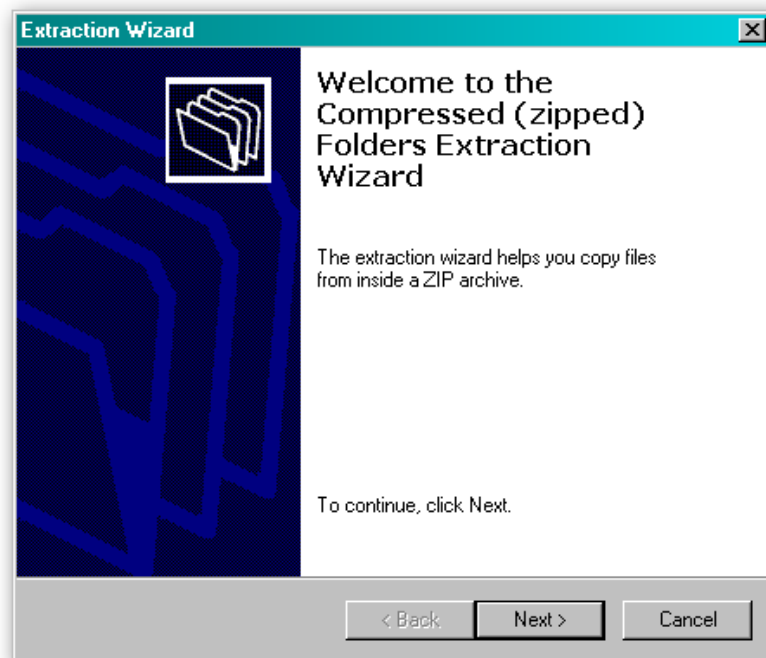
After downloading the Validator Manager software, you will also need to download the Banknote Validator (BV) Interface drivers – two versions are available (32 bit and 64 bit) so choose the correct type for your operating system. Again, remember where you saved the file.



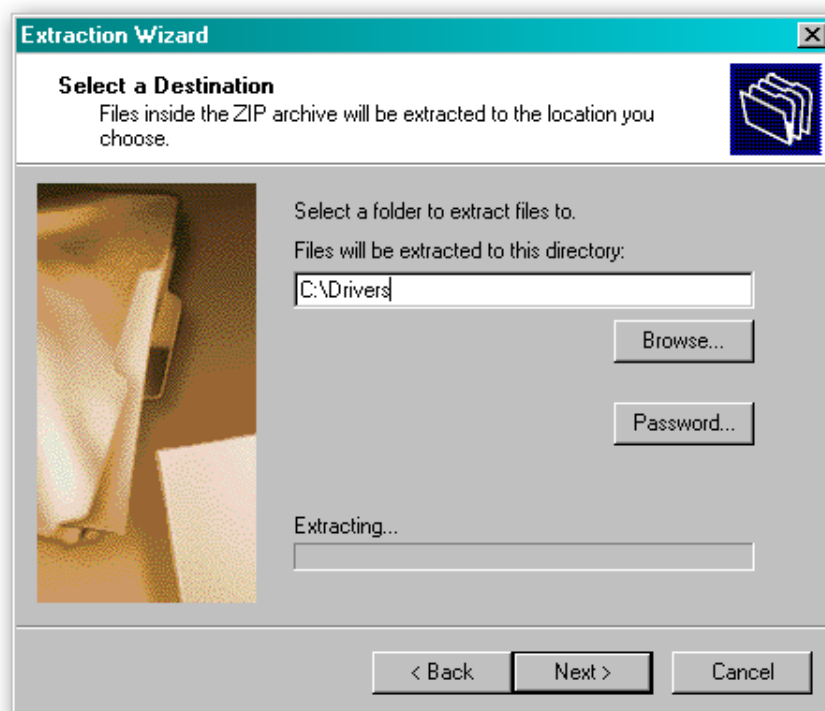
Both files are provided in a 'zipped' (compressed) form – you will need to extract the files from the zipped file before you can install the software or driver. Any version of Windows from Windows 98 onwards can open zipped files; or you may want to use a third party software tool such as Winzip or WinRAR.

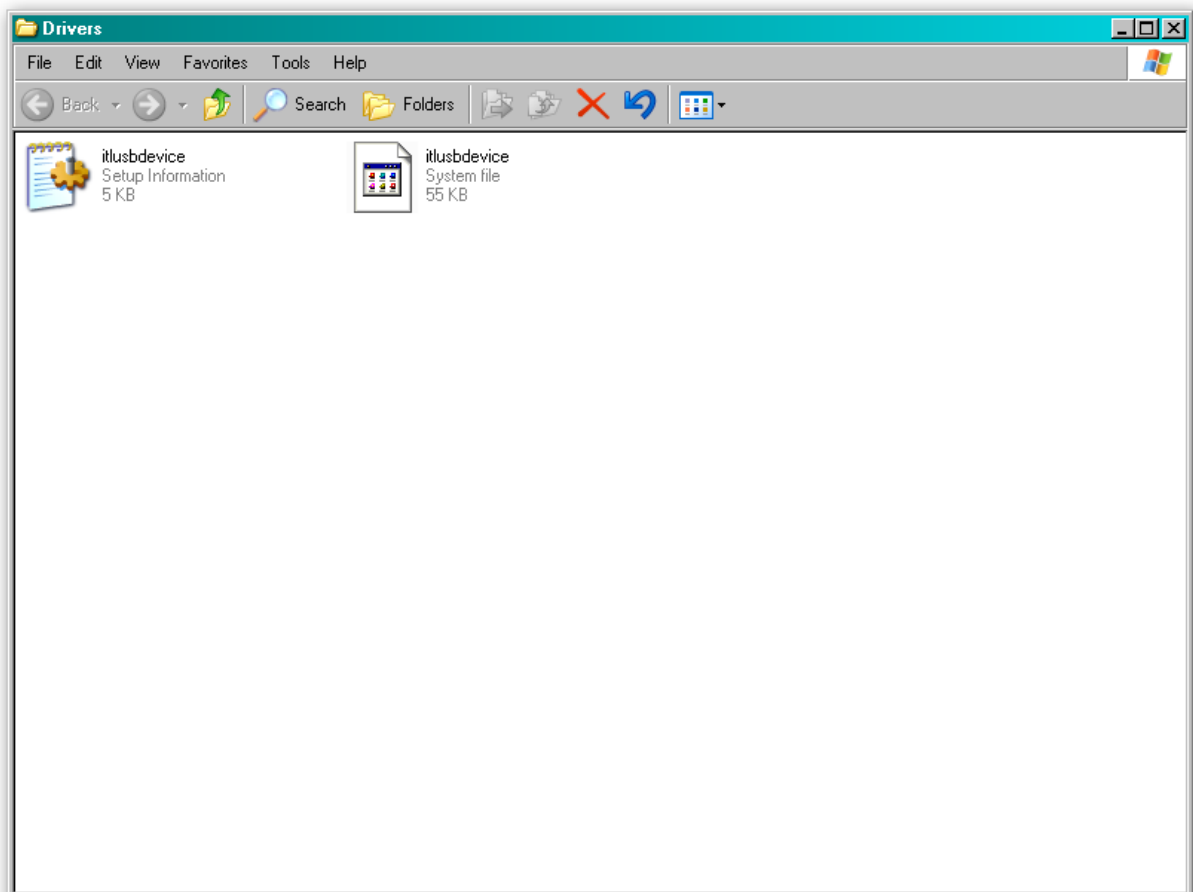
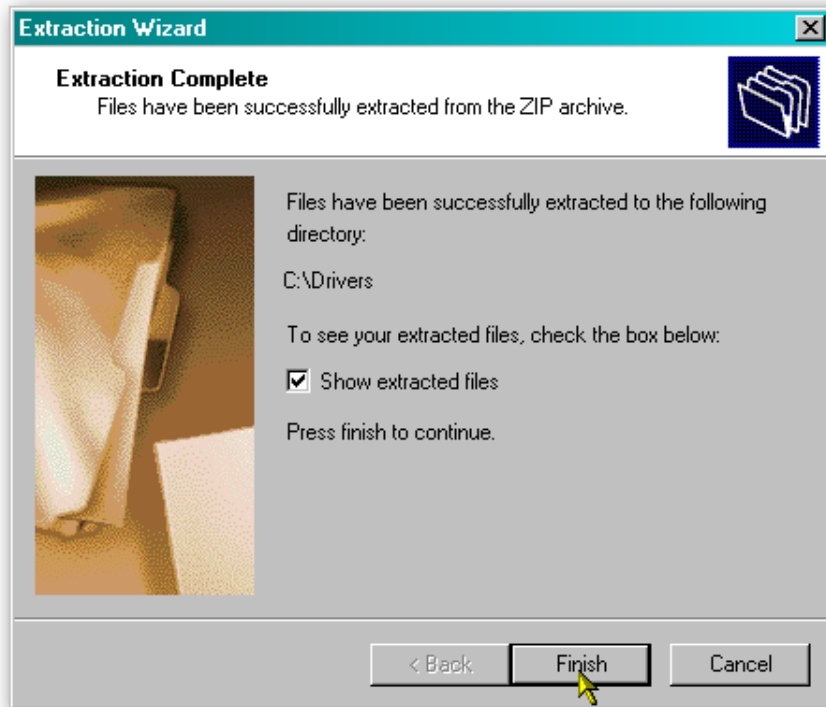


Extract the files to a convenient location – this might be an existing folder, or you may want to save them into a new folder.



In this example, the BV Interface driver files are being saved into a folder called 'Drivers' on the computers C: drive.

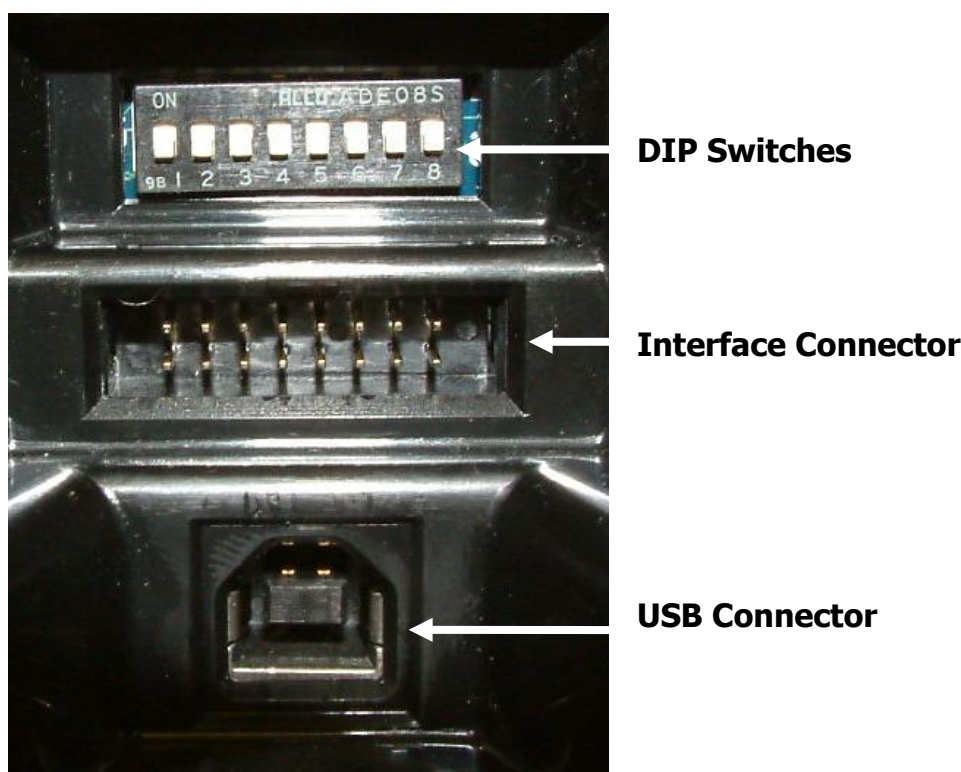




3.1.3 Installing the Drivers

There are several ways to communicate with the NV200 validator, which include using a direct connection from computer to validator with a USB cable, or by using a special interface unit called a DA2. Use of the DA2 is not covered here – please refer to ITL Document number GA338-2 for more information. In this manual we will be using the direct USB connection method.

To install the drivers, you need to connect a standard USB 2.0 compliant Type A to Type B cable from your computer to the USB interface socket on the rear of the NV200 validator:



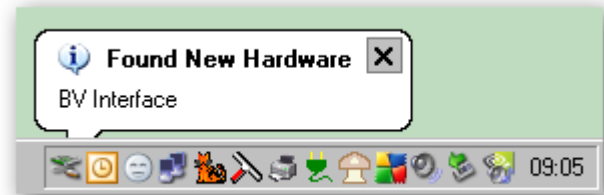
The NV200 validator must be powered up for the interface to be recognised by Windows. If the NV200 validator is not in the host machine, you will need to provide power to the 16 way interface connector first. The connection information and pin numbering is as follows:



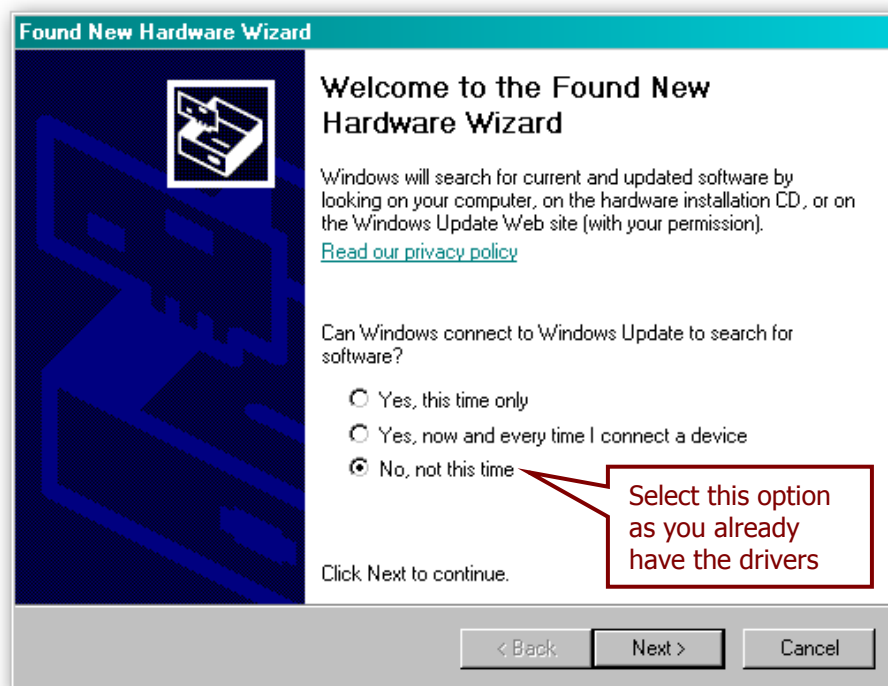
Pin	Description
15	+ V
16	0V / Ground Connection

Before connecting the USB cable, make sure that the unit is powered up. Once you have carried out these steps, plug the USB cable into the NV200 validator.

After connecting the USB cable, Windows should then detect the NV200 validator interface – a 'Found New Hardware' bubble or dialog box should appear.



A 'Found New Hardware' wizard should then start to guide you through the installation process (this first screen is not always shown on some computers):

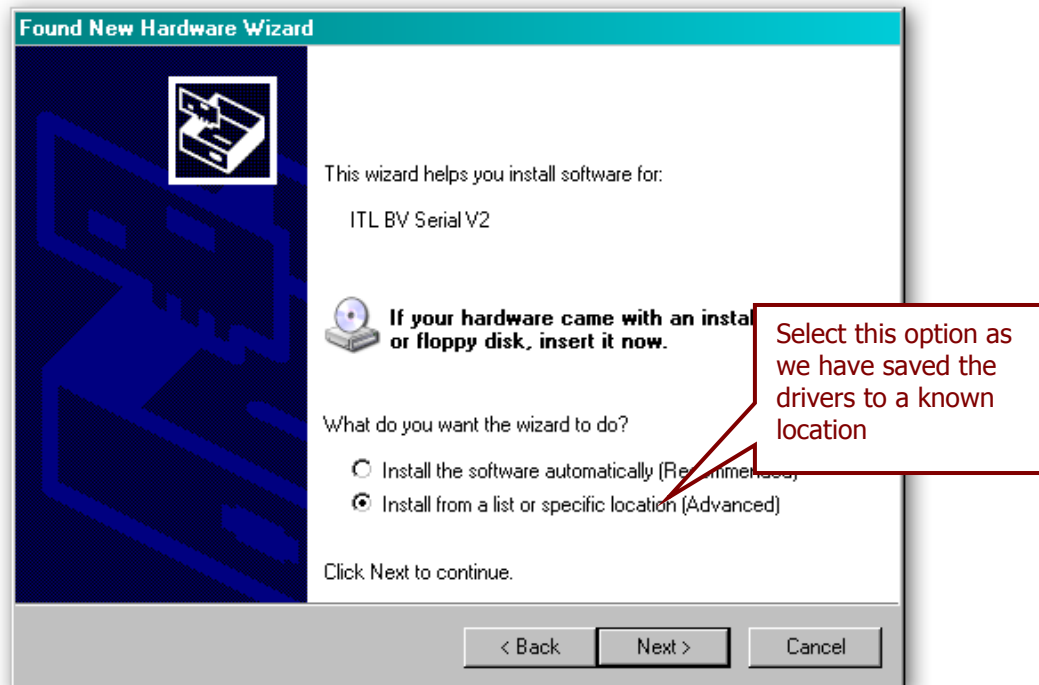


Information

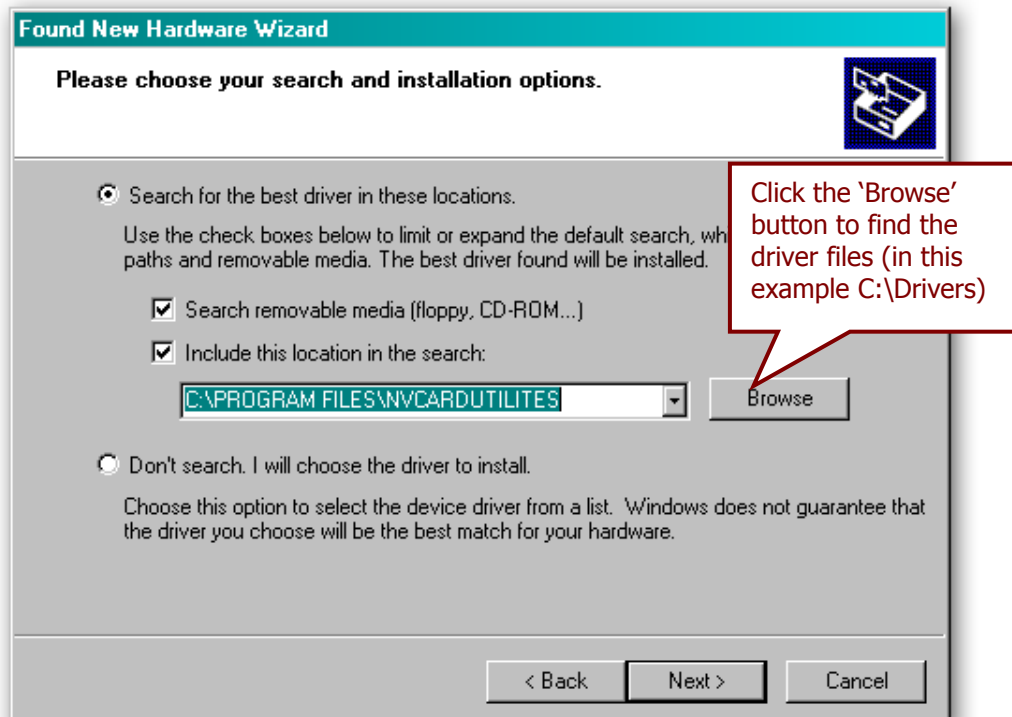
Only use V2 drivers

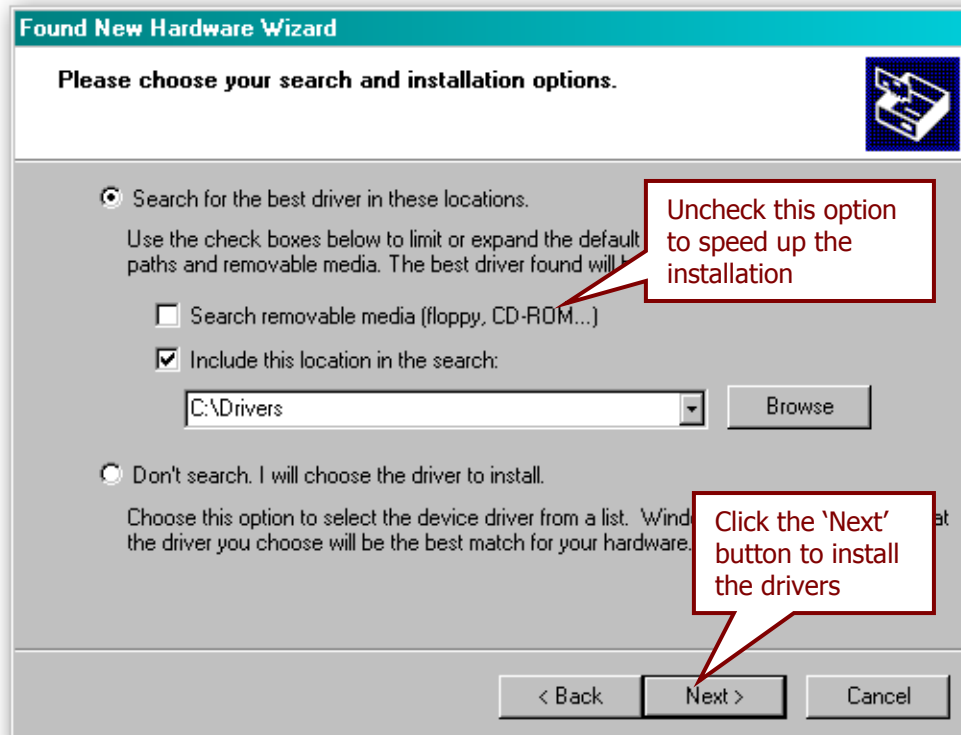
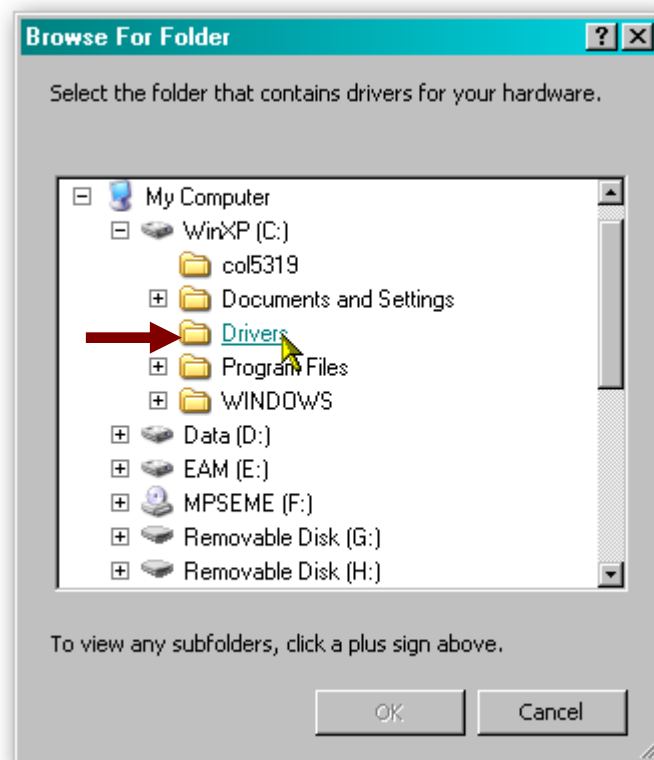
Please make sure that you are using the V2 drivers for the installation.



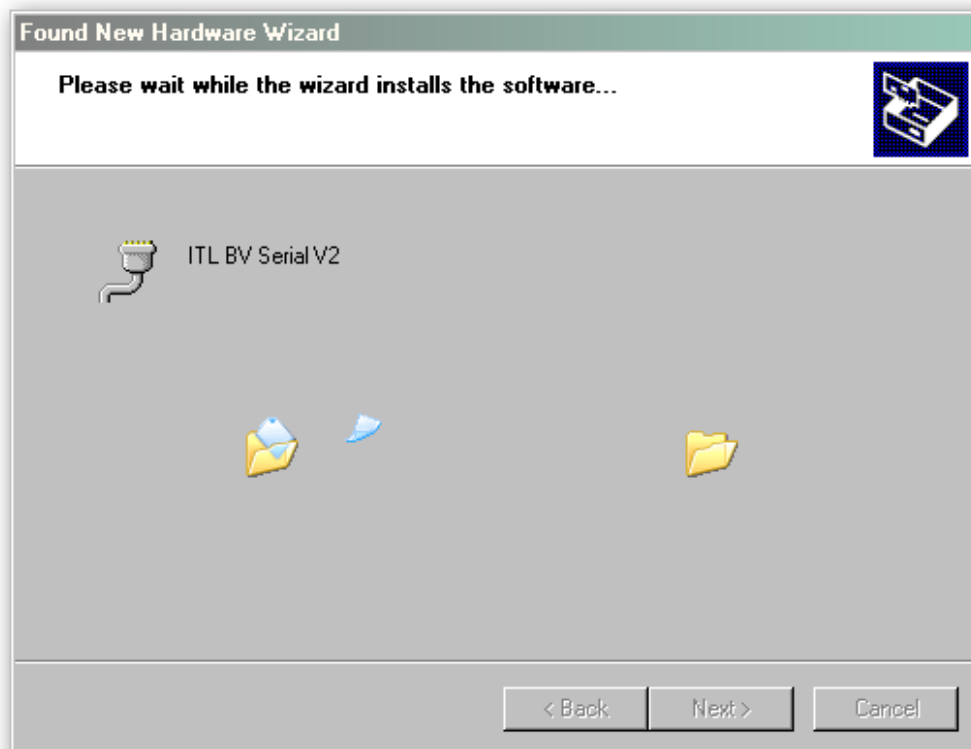
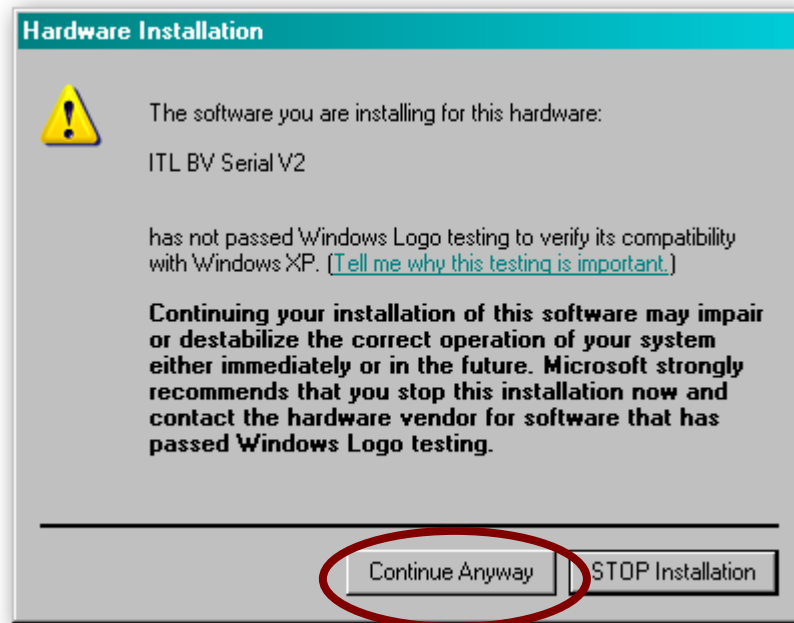


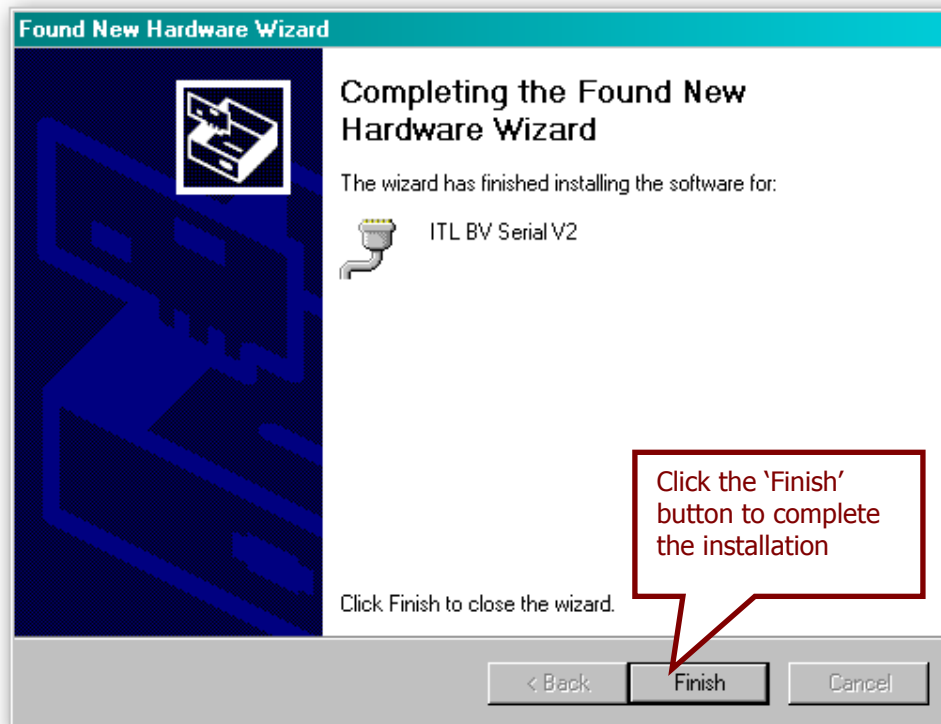
The next dialog box will ask you where to search for the drivers:





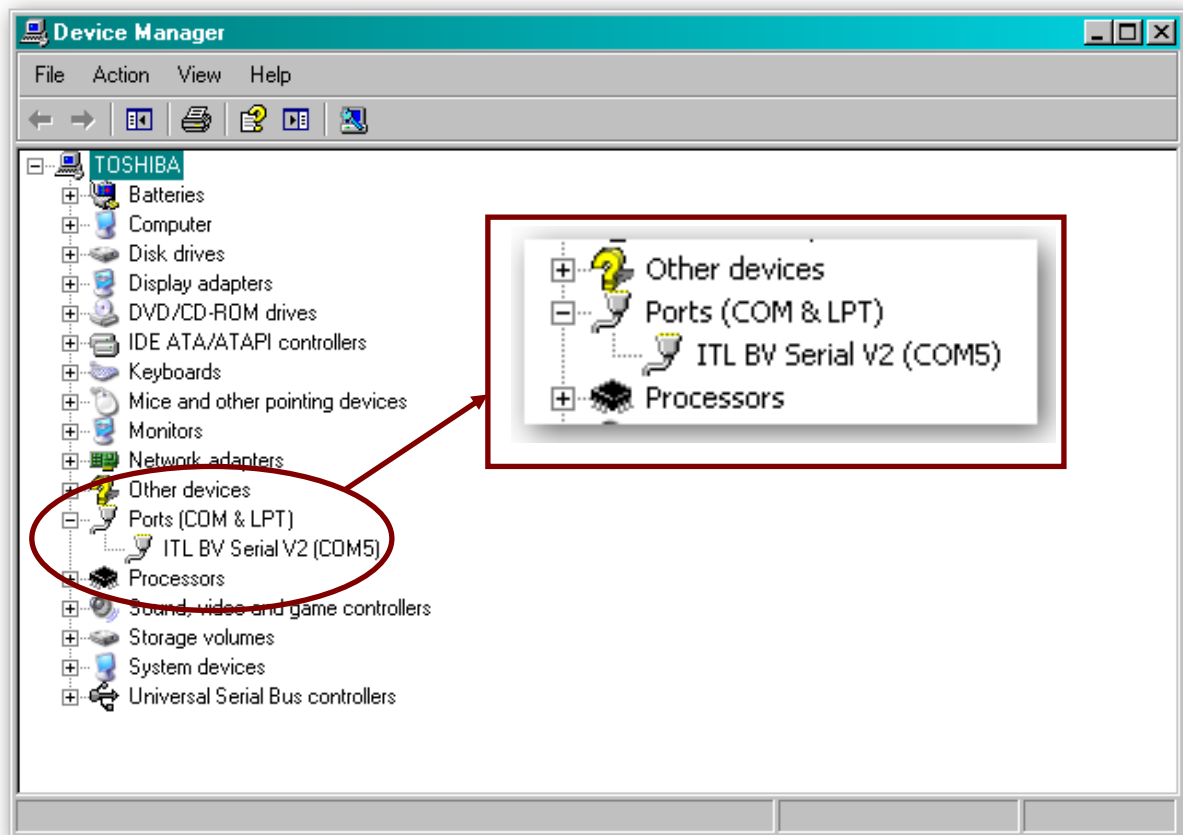
You may see a warning dialog saying that the drivers have not passed Windows logo testing – you can ignore this warning. Just click the 'Continue Anyway' button.





After completing the driver installation you can check that the communications port has been installed correctly.

Open Windows Device Manager, and click on the Plus symbol (+) next to the 'Ports' entry. This will expand the list of installed communications ports. You should see an entry for an '**ITL BV Serial V2**' port as shown here:

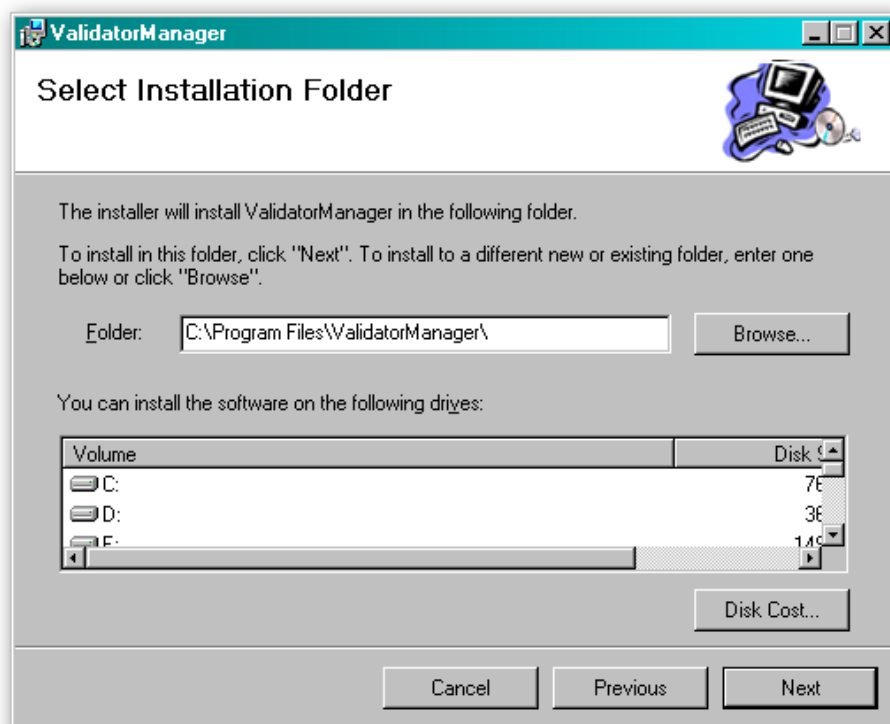


The actual communications port number (in our example COM5) may vary depending on your particular computer configuration.

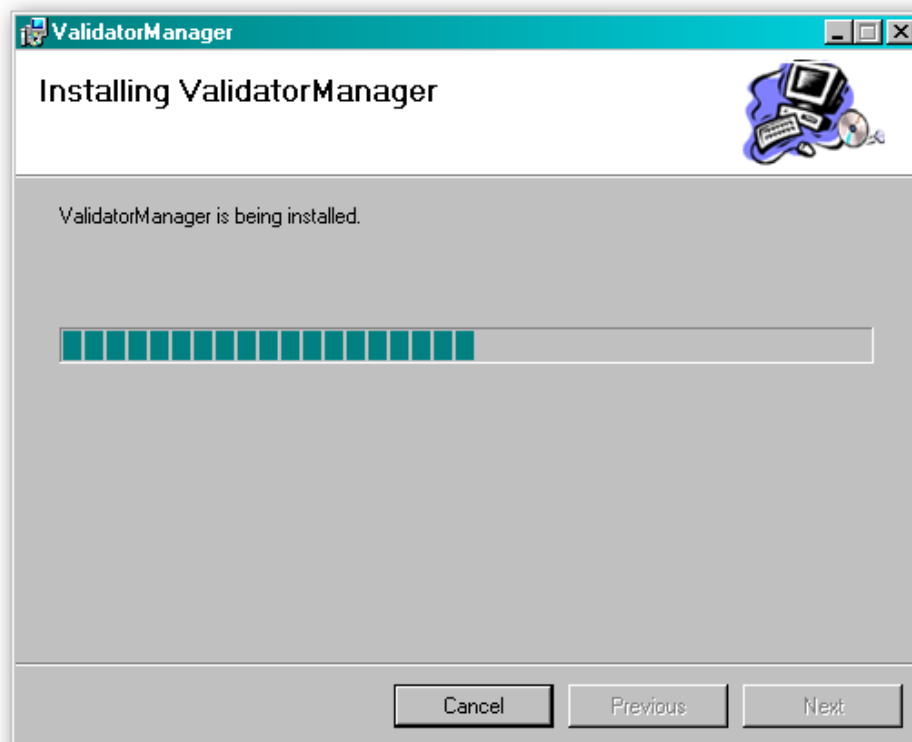
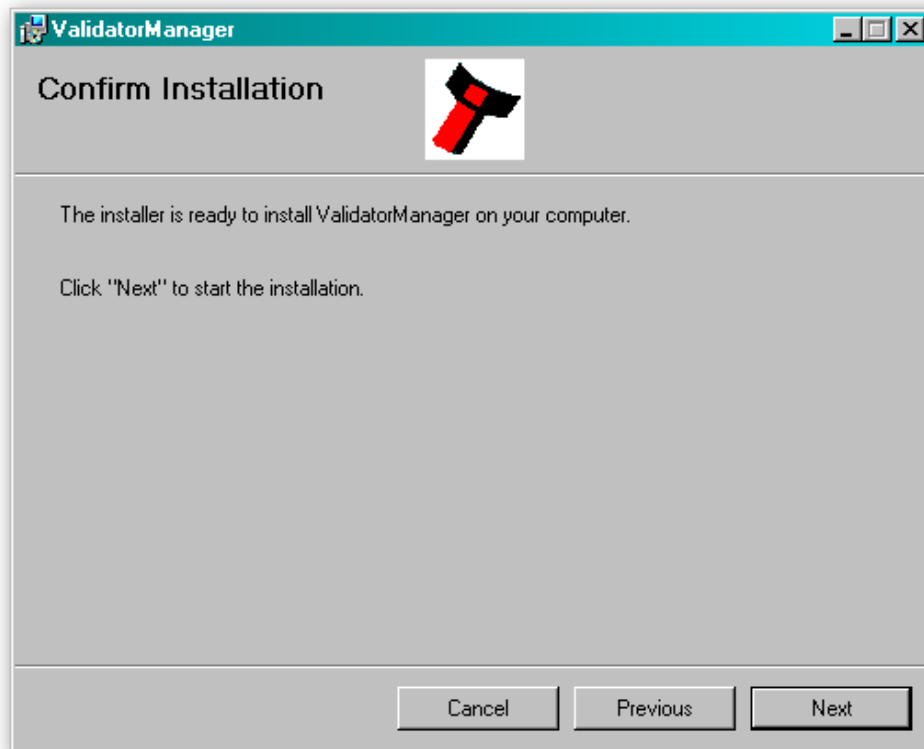
Now the drivers have been correctly installed you can install the Validator Manager software – this is covered next.

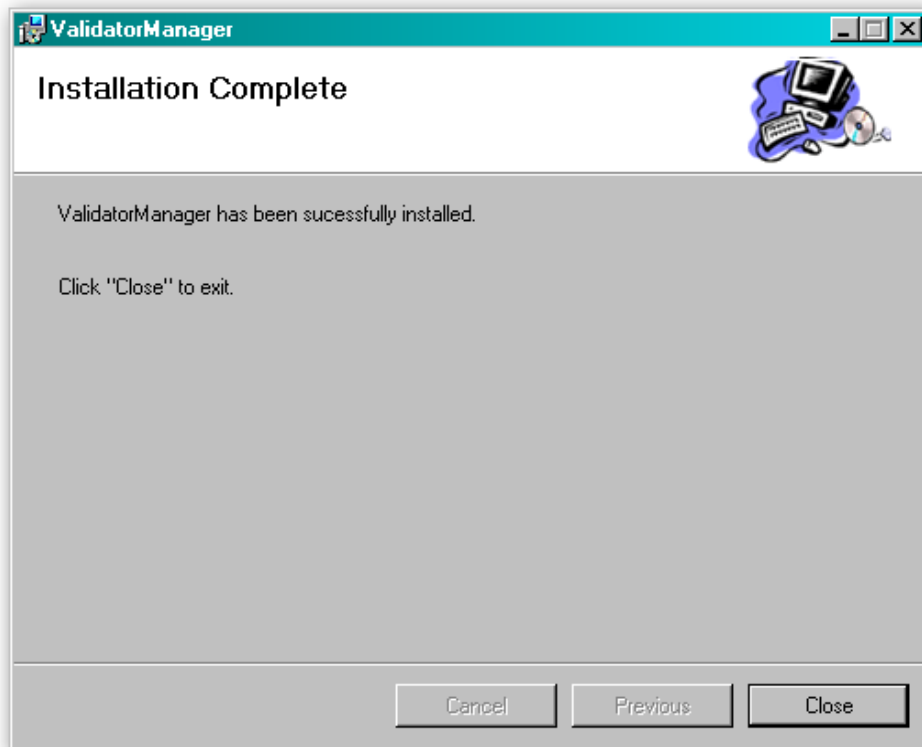
3.1.4 Installing the Validator Manager Software

Installing the Validator Manager software is very straightforward. Find the Validator Manager zipped file you downloaded earlier, extract the installation file from the zipped file and double click the extracted file (it has an .msi extension) – this will start the installation process:

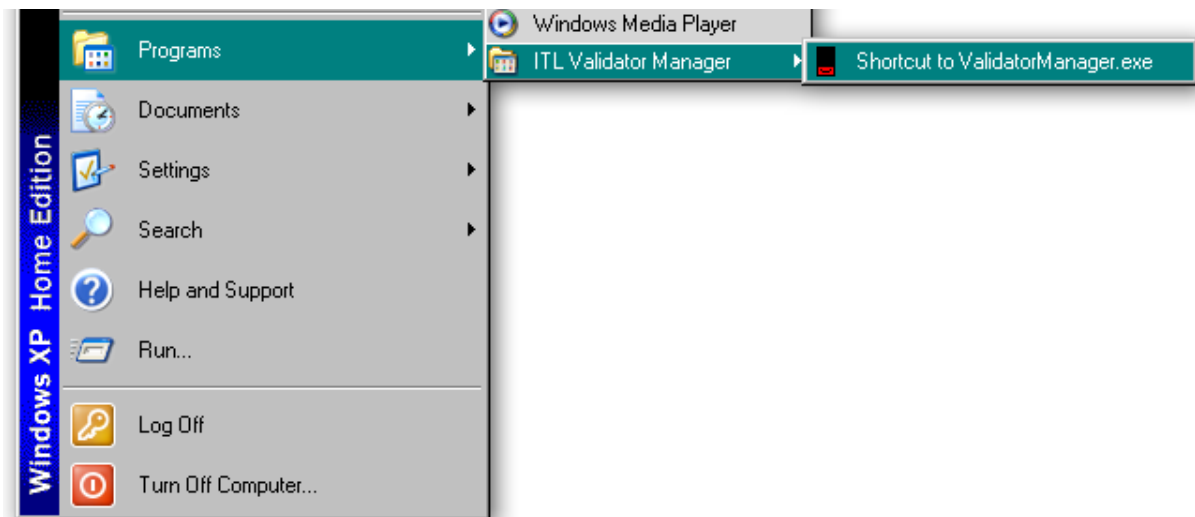


You can choose where you would like to install the software, or just accept the default location (as shown above). Clicking on the 'Next' button will then ask you to confirm the installation:





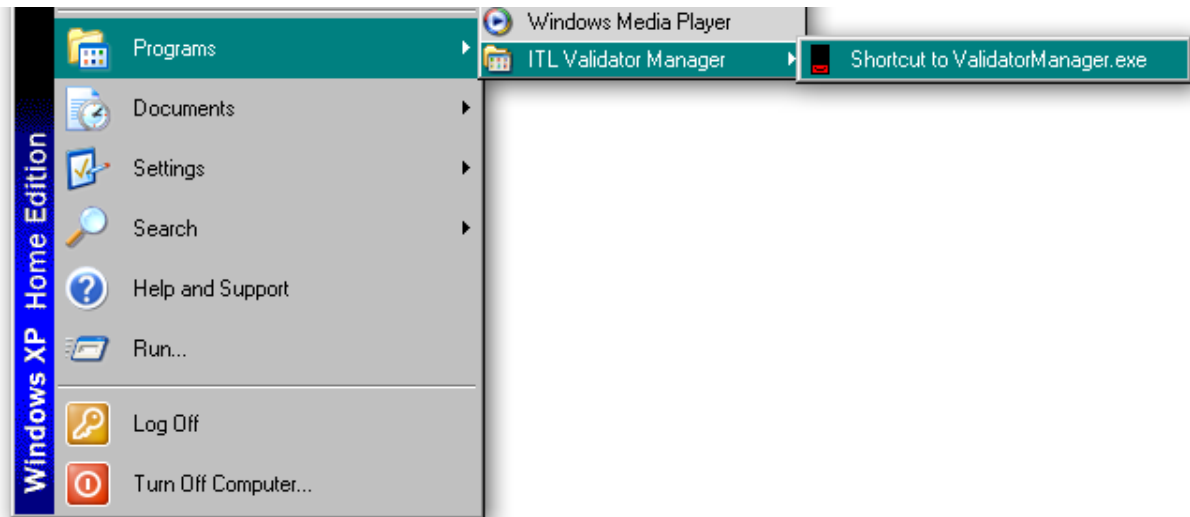
Once the installation is complete, you will have a new program group called 'ITL Validator Manager' in the Windows Start Menu, similar to the one shown here:



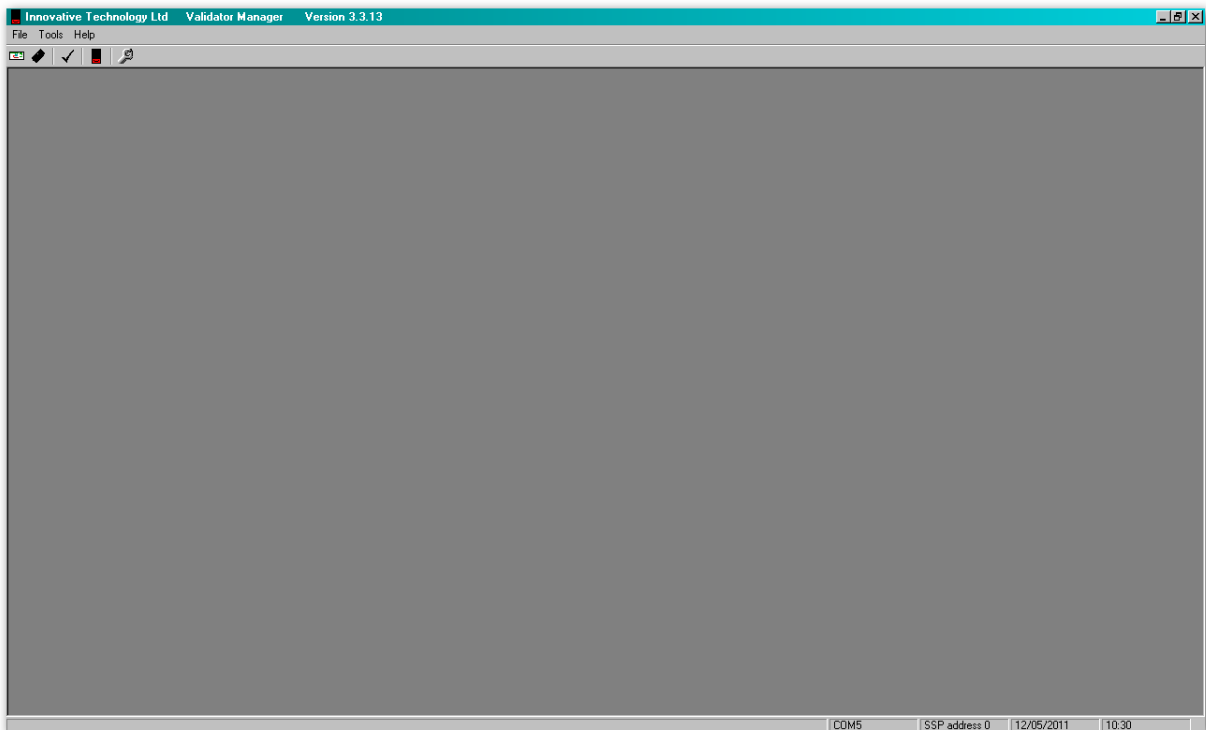
You can run the Validator Manager software by clicking the 'Shortcut to ValidatorManager.exe' menu entry; however, before you can use the Validator Manager software with an NV200 validator you will need to make sure that you have installed the BV interface drivers (as described earlier).

3.1.5 Starting the Validator Manager Software

The Validator Manager software is launched by clicking the 'Shortcut to ValidatorManager.exe' entry in the 'ITL Validator Manager' menu group.

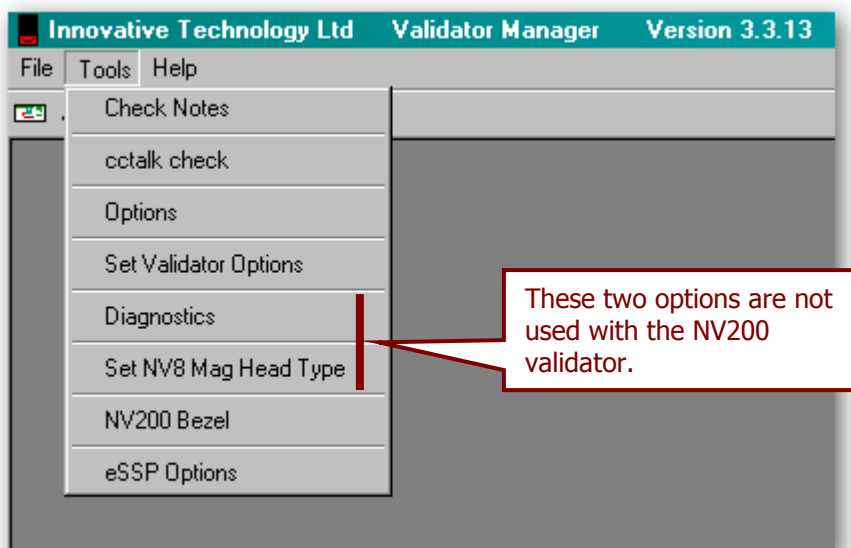


The initial program screen looks like this:



Make sure that the NV200 Validator is powered up and the USB cable is connected before going any further. All of the program options can be accessed from the menu bar at the top of the screen – some specific functions can also be accessed by clicking the relevant icon underneath the menu bar, and the function of each icon is indicated by a 'tooltip' indicator

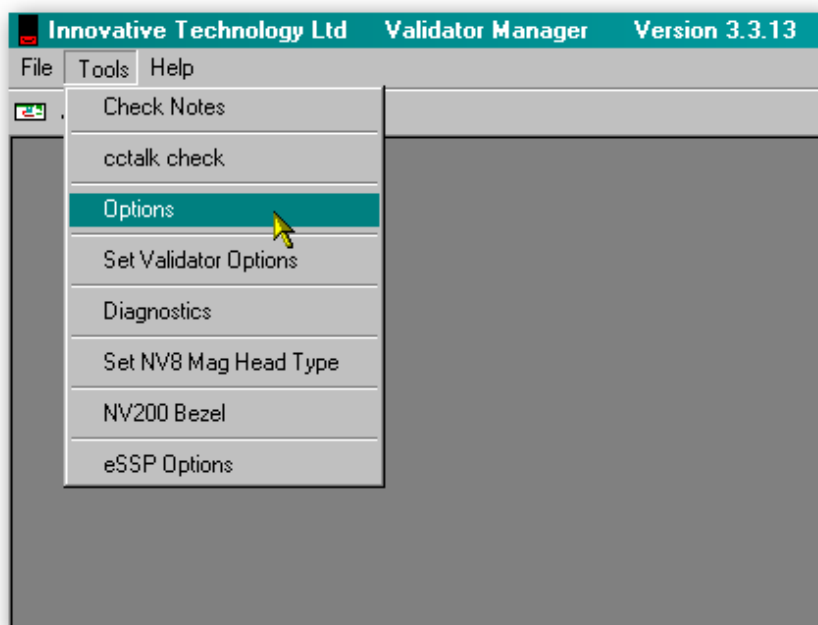
Please be aware that not all the program options are applicable to the NV200, as the Validator Manager software is designed to work with a range of ITL Technology validators.



Full details of all the Validator Manager software functions are detailed in the program help file (accessible from the 'Help' menu).

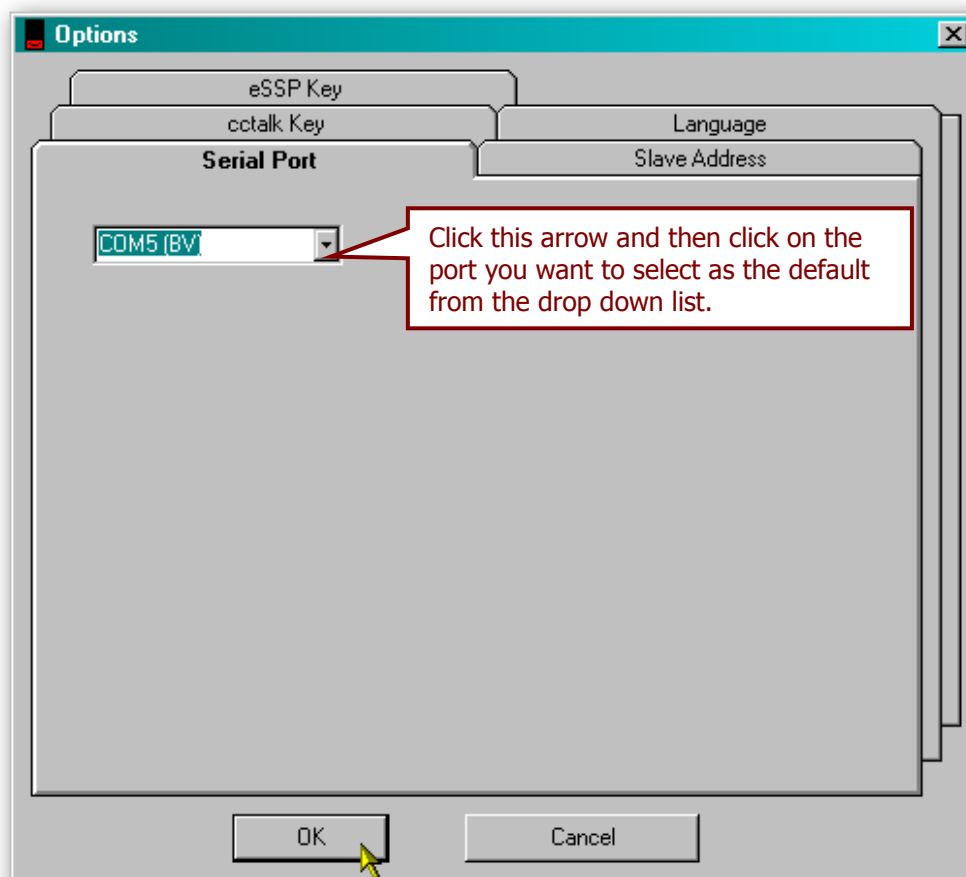
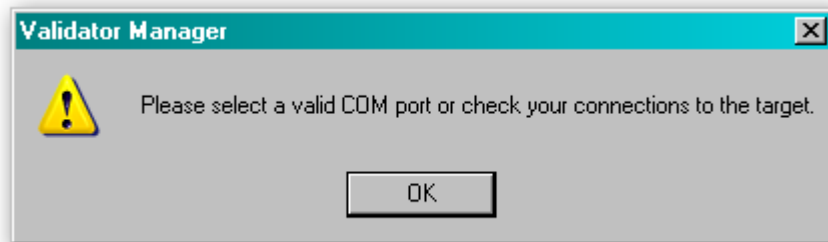
Options:

The general preferences for the Validator Manager software are accessible from the 'Tools' menu (as shown). Click the 'Options' entry to open a new dialog box:

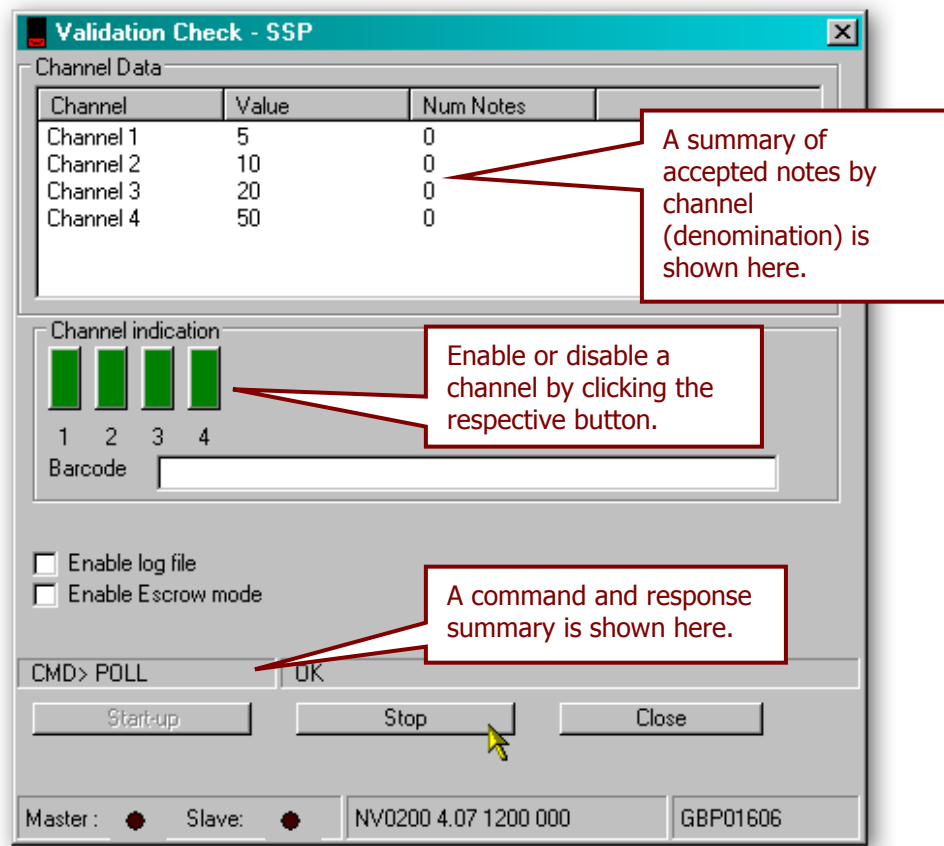


Selecting the 'Serial Port' tab from the 'Options' dialog and defining which serial port to use to connect to the NV200 validator should be one of the first things you do after installing the software.

The Validator Manager will not work if the serial port is not set or is set incorrectly (if the serial port has not been set a dialog box will appear when you run the program prompting you to enter or correct the port setting):



Select the correct serial port from the list and click the 'OK' button to confirm the setting.

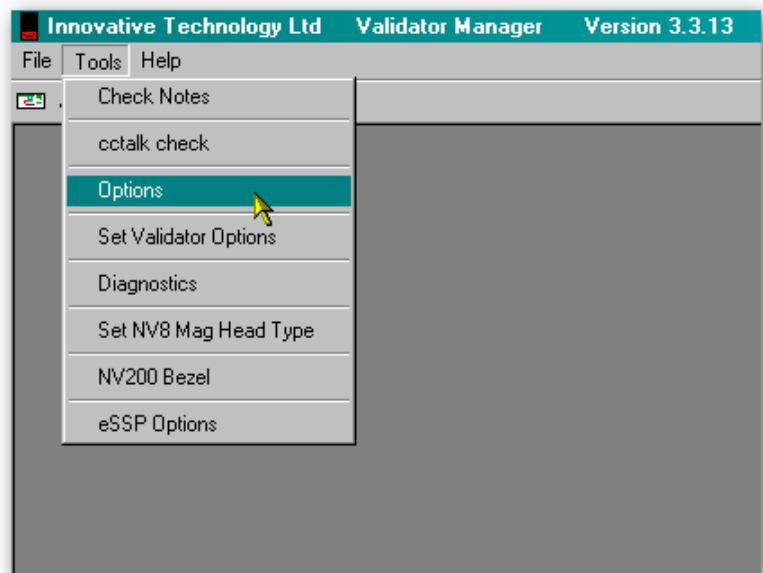
Check Notes:

The 'Check Notes' menu item provides a way to check the validator will correctly accept bank notes. Clicking the 'Start-up' button will initialise the NV200 validator and allow acceptance of bank notes. The validator is reset after clicking the 'Stop' button.

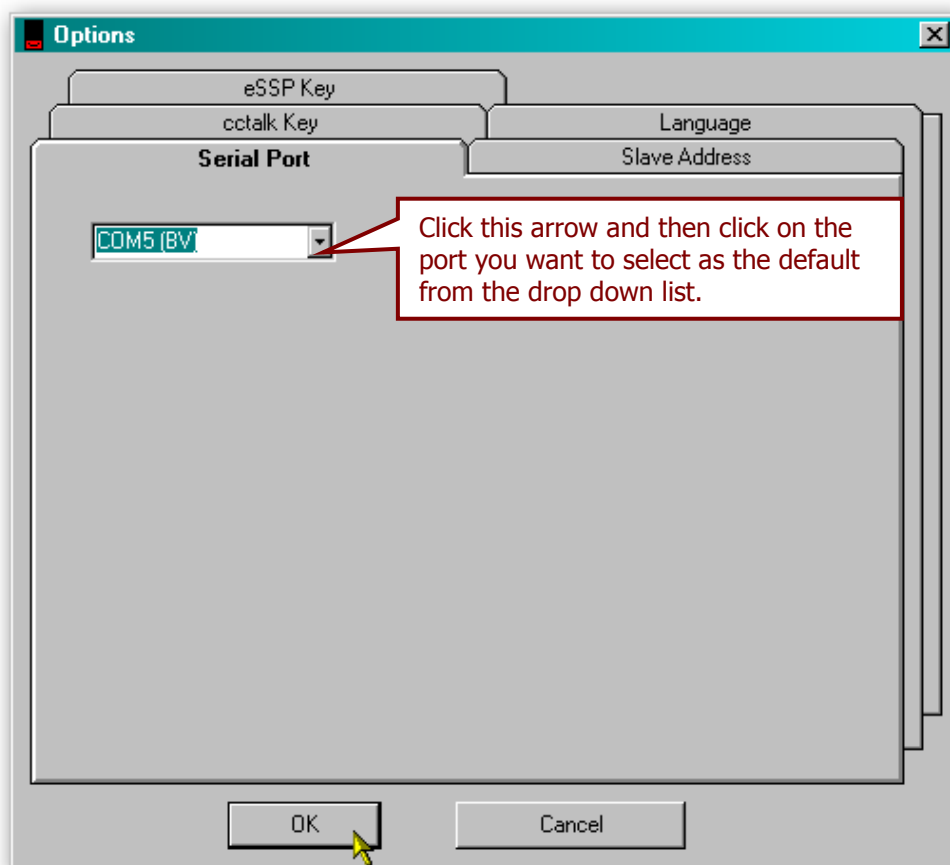
3.1.6 Preferences, Settings and Options

Options:

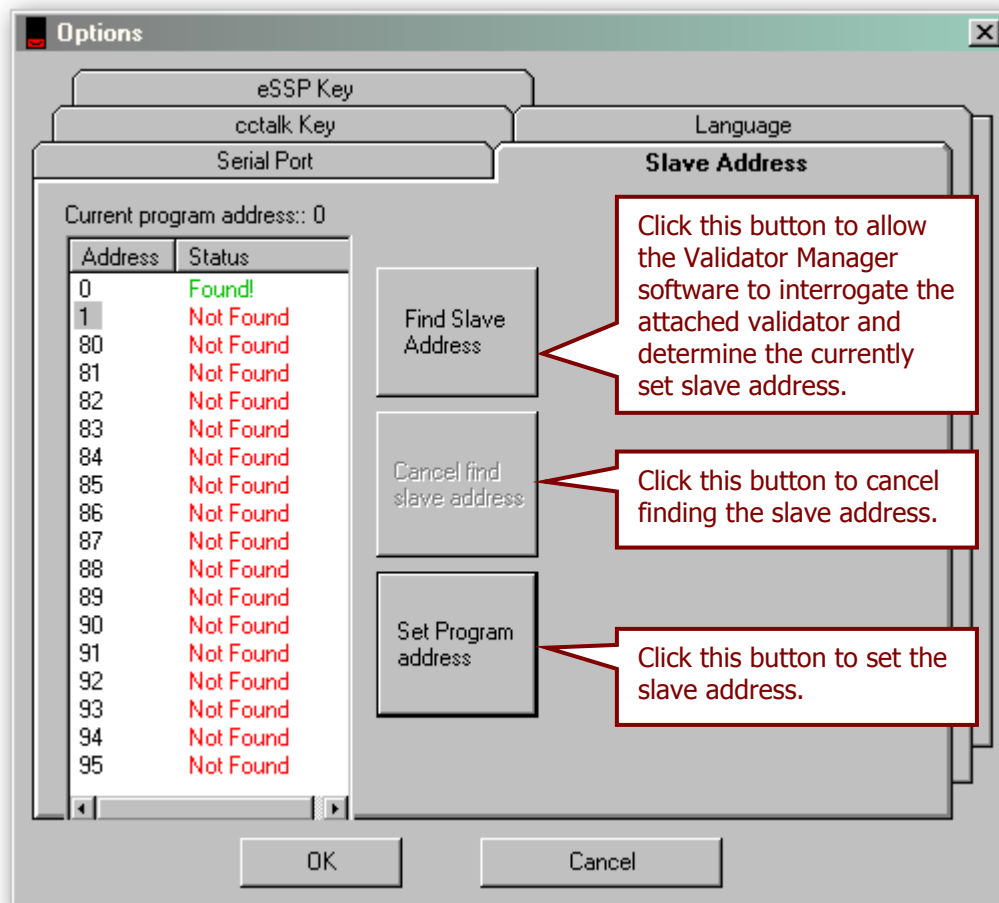
The general preferences for the Validator Manager software are accessible from the 'Tools' menu (as shown). Click the 'Options' entry to open a new dialog box:



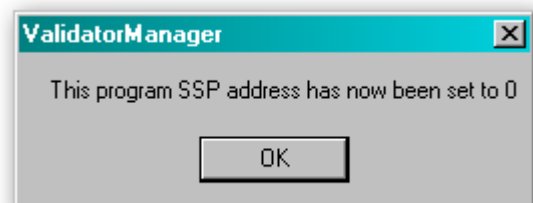
By selecting the 'Serial Port' tab from the 'Options' dialog you can define which serial port is being used to connect to the NV200 validator – click the 'OK' button to confirm the setting:



The Validator Manager software can detect the address used by the validator from the 'Slave Address' tab:



After clicking the 'Set Program Address' button, a dialog box will appear confirming the new setting - click the 'OK' button to confirm the change.



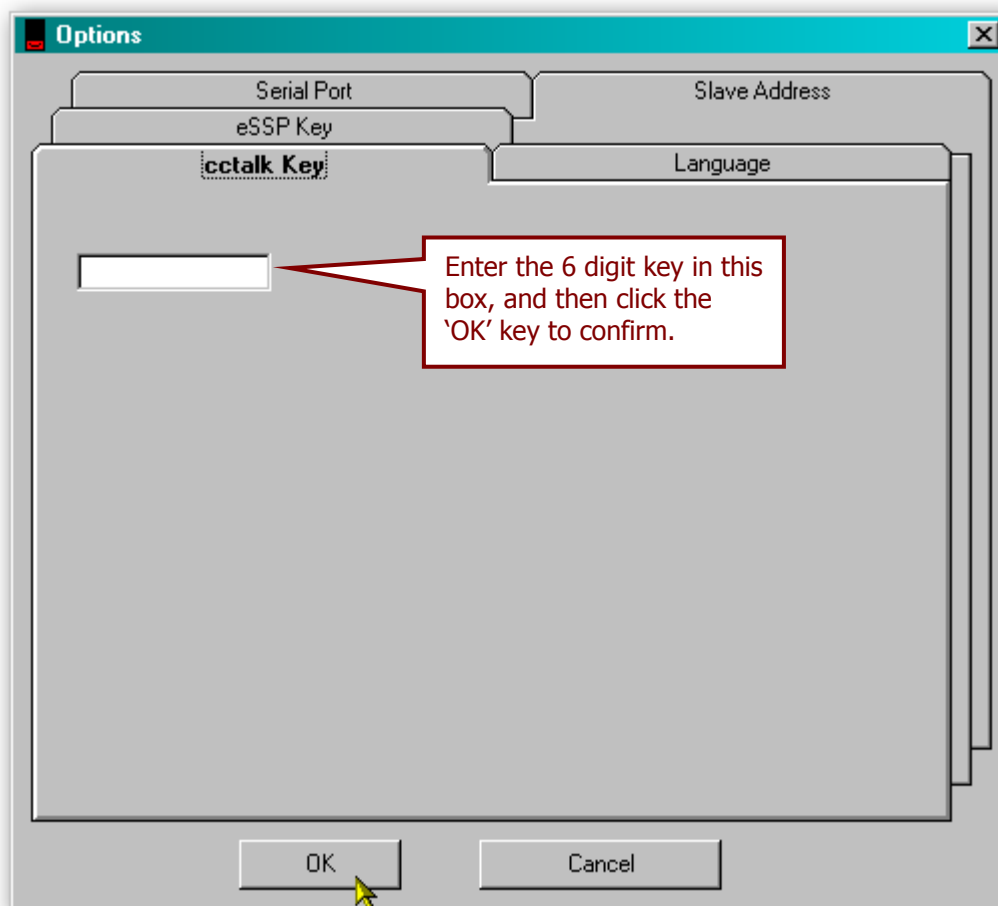
CAUTION!

Limited slave address ranges

The Validator Manager software will only communicate with the validator if the slave address is set to 0, 1 or in the range 80-99.

The 'ccTalk Key' tab allows the user to enter a six digit security key for use when the validator is set for ccTalk operation.





The ccTalk key is the **HOST** key, and is used for the ccTalk check – the validator must be configured to use the same key.

**CAUTION!**

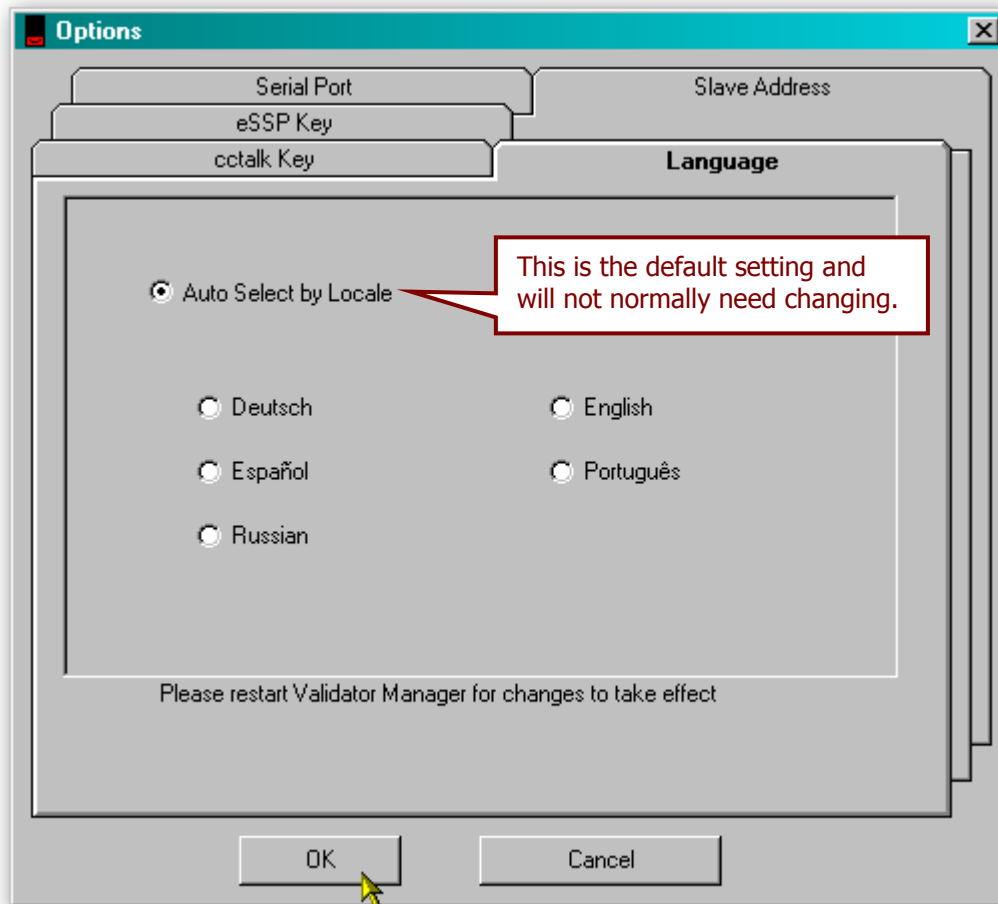
Take care when changing
ccTalk key

The user should make a note of the new key and after any change. The default setting for the ccTalk security key is 123456.

Select the 'Language' tab to change the preferred language for the software. You shouldn't normally need to change the language setting, as this is determined automatically based on the Windows locale settings. You can if you wish select one of five specific languages (German, English, Spanish, Portuguese or Russian) if needed, as shown below.

Click the 'OK' button to confirm the change – you will have to close and reopen the software to allow the language change to take effect.





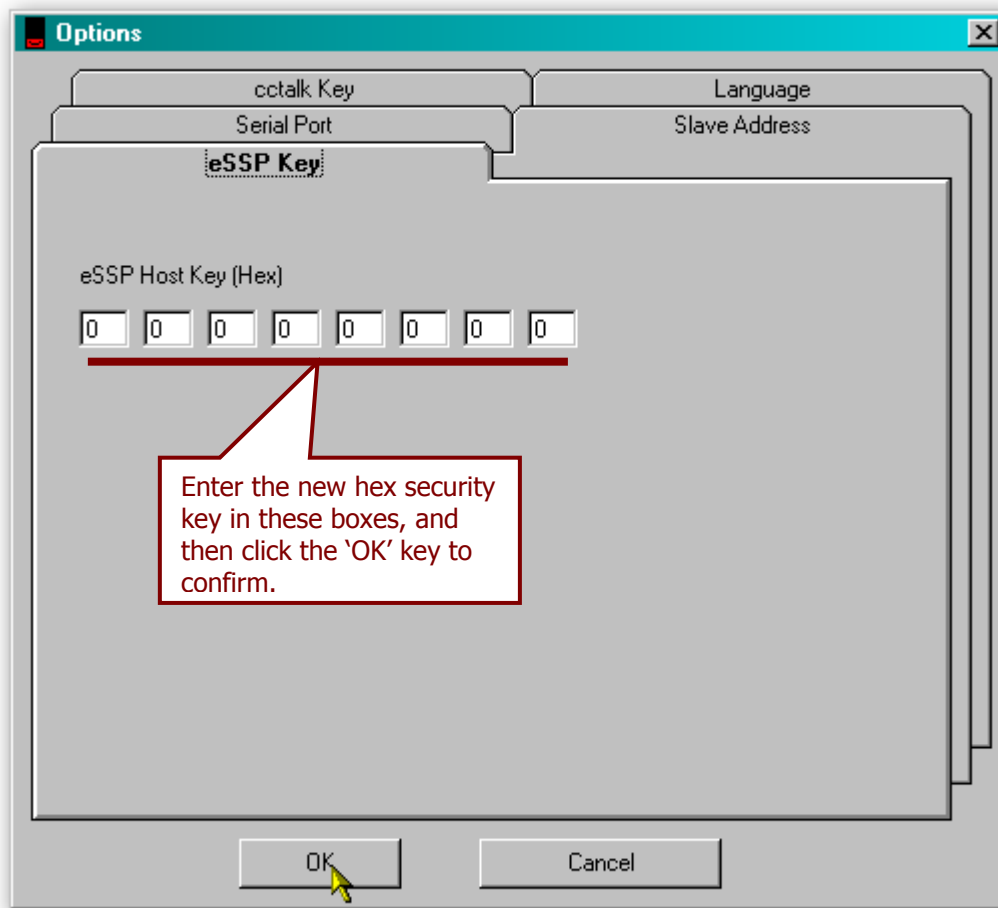
The final tab on the 'Options' dialog is the 'eSSP Key' tab. By selecting this tab you can set a new security key to use when the validator is operating in SSP mode.

**CAUTION!**

Take care when changing eSSP key

Exercise care when changing the device eSSP key. The user must make a note of the new key and change the host key to match. If the key is not known then device must be returned to ITL for key reset.

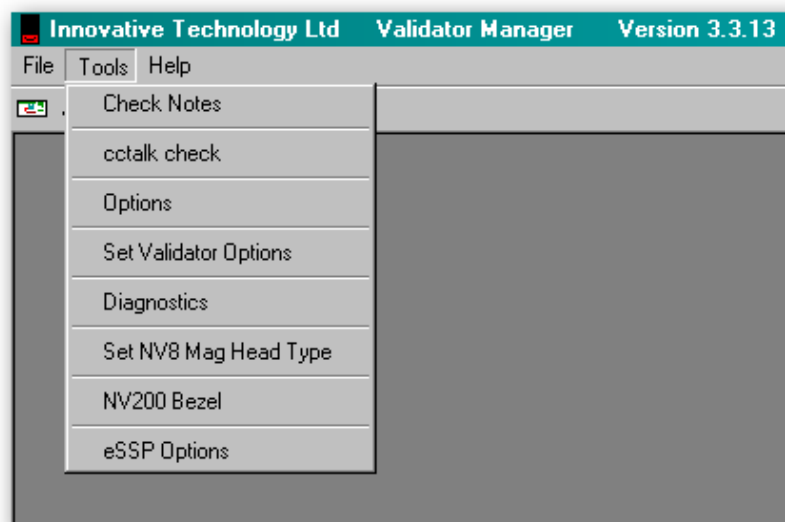




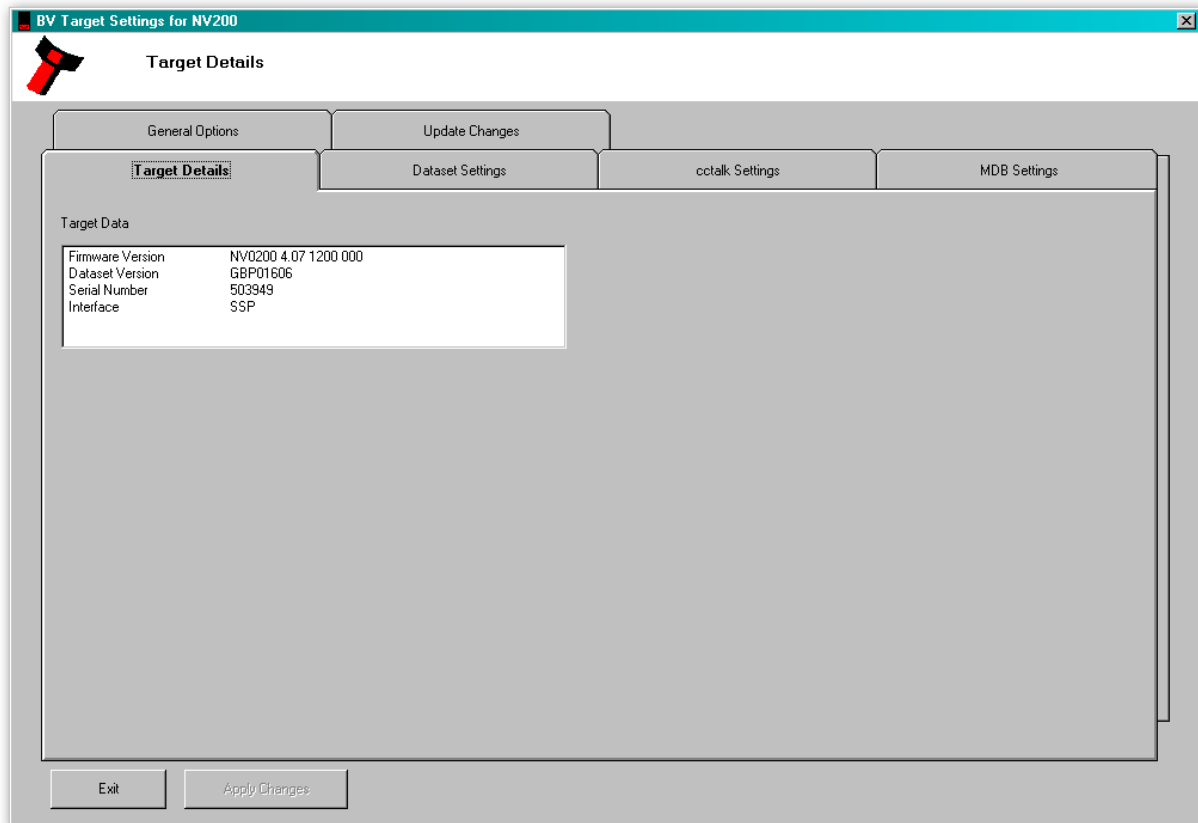
After entering a new key, press the 'OK' button to confirm the change.

Validator Options:

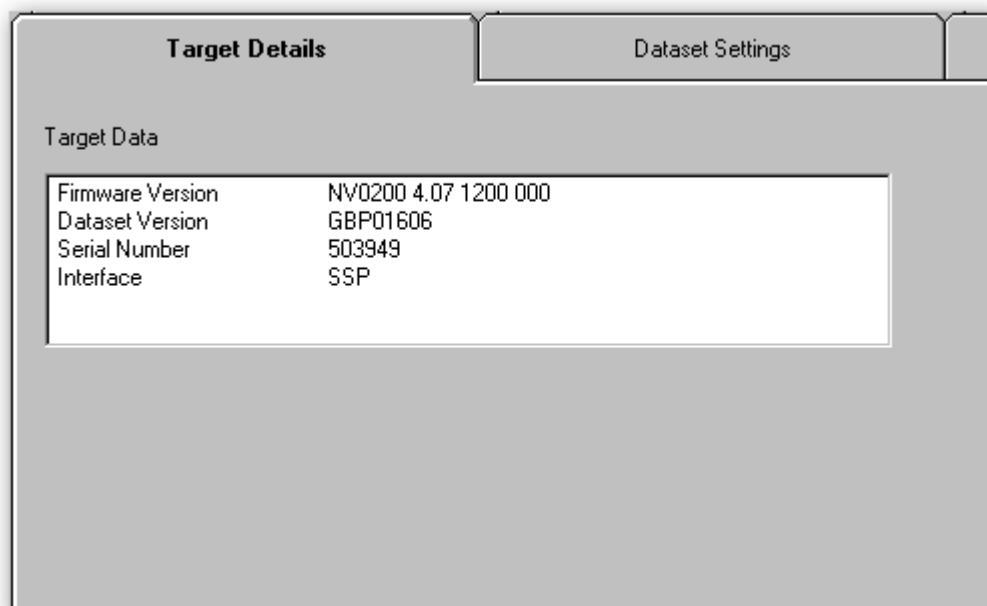
NV200 validator specific options are accessed from the 'Set Validator Options' item on the 'Tools' menu:



As with the 'Options' dialog, the 'Set Validator Options' dialog also has several tabs:

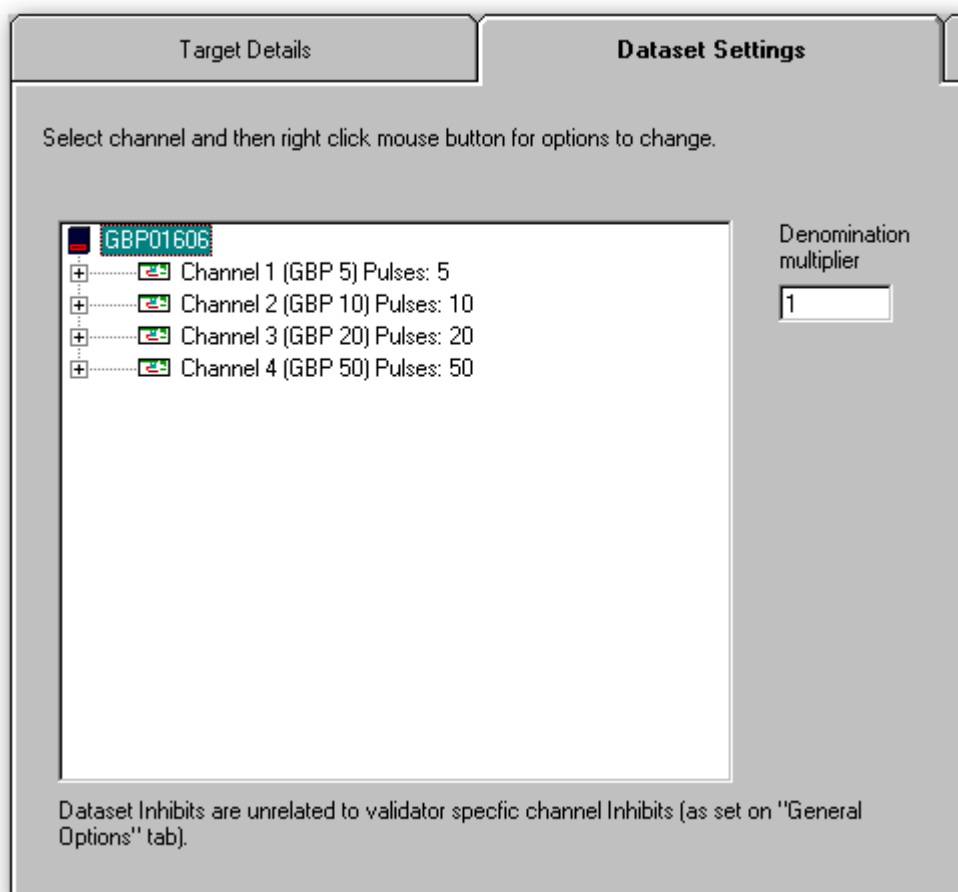


The first tab 'Target Details' allow you to see specific details about the validator, and provides a simple way of checking what version of firmware or dataset are currently installed:

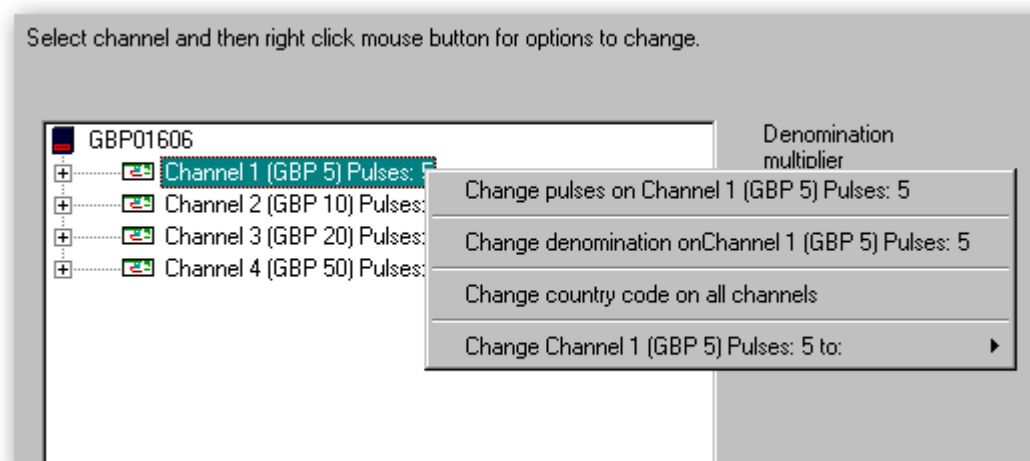


There are no user-changeable settings on this tab.

The second tab 'Dataset Settings' allows you to review and modify the settings of each installed channel:



Right clicking on a channel will open a further dialog allowing you to make specific changes:



Consult the Validator Manager software help file for more information on how to change channel settings.

The third tab 'ccTalk Settings' allows you to review and modify the ccTalk settings and also change the security key settings:

Channel	ID	Real Value
1	GB0005A	05.00
2	GB0010A	10.00
3	GB0020A	20.00
4	GB0050A	50.00

Country	Multiplier	Dec
GB	100	2

Click on multiplier or decimal point value to change.

cctalk Address (dec)

☐ Use user key

cctalk default key

cctalk user key

Check this box to allow setting of a new user key.

Enter the new 6 digit user key in this box.



CAUTION!

Take care when changing ccTalk key

The user should make a note of the new key and after any change. The default setting for the ccTalk security key is 123456.

The fourth tab 'MDB Settings' allows you to review and modify specific settings if the validator is being used with the MDB protocol:

Parameter	Value
Country Code	1826
Value Multiplier	100
Dec Place	2

Click on parameter value to change.



The fifth tab 'General Options' allows you to review and modify a variety of validator specific settings, including interface mode:

General Options

☒ Strim Function Enabled

Click this box to enable or disable the Strim Function.

Pulse high (ms): 200
Pulse low (ms): 100
Pulse multiplier: 1
Pulse low (ms) (Parallel): 0

These pulse timing settings are only used if the validator is set to operate in Pulse mode.

Interface:
☒ SSP (Smiley Serial Protocol)
☐ CCT (ccTalk)
☐ SIO (Simple Serial)
☐ MDB (Multi-Drop Bus)

Check the box next to the interface mode you want the validator to operate in.

SSP Address: 0

Specify the SSP address used by the validator in this box.

Validator Specific Channel Inhibits:
 1 8
☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
 9 16
☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Specific channels (denominations) can be disabled by checking the appropriate box or boxes.

These inhibits are validator specific and are unrelated to the settings in the 'Dataset' tab. They will be preserved if a new BV file is downloaded to the validator.

☒ Card PIN Lock Set PIN Note Read Retries: 0

Click this box to enable or disable the PIN lock function for the memory card.

☐ Disable PSU Monitor

The options shown in this area will vary depending on the interface type selected.



WARNING!

Security risk

Disabling the Strim Function is not recommended because of the potential security risks.



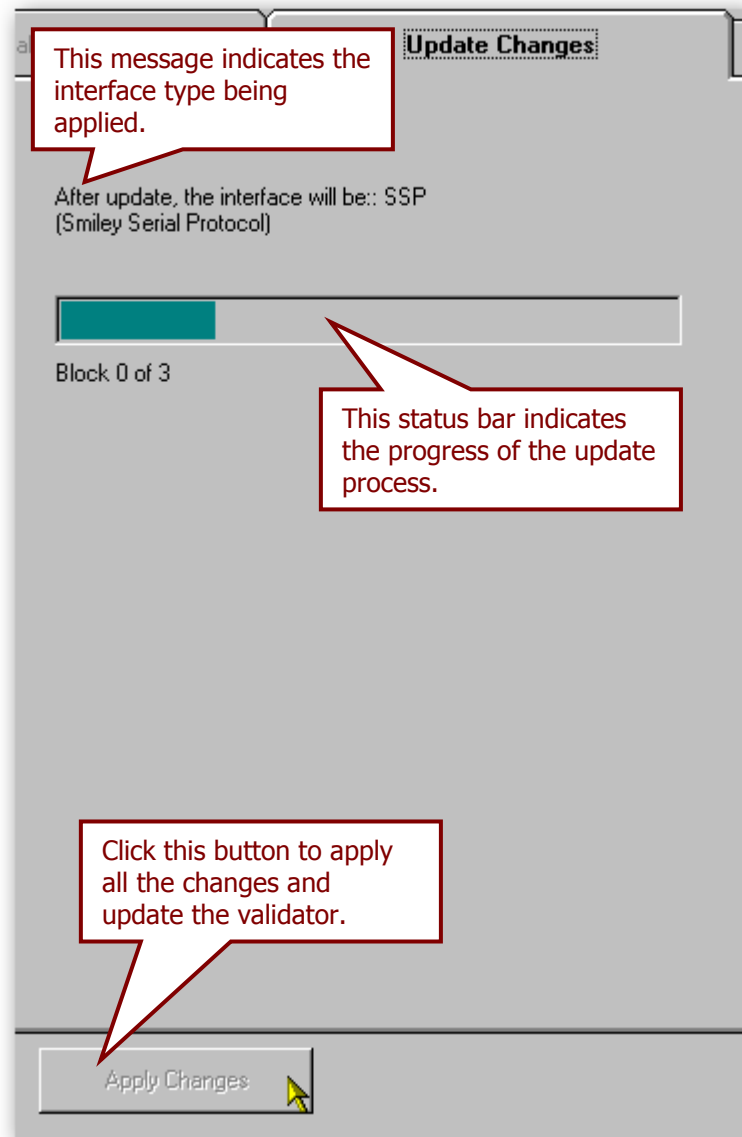
Information

Limited SSP address ranges

The Validator Manager software will only communicate with the validator if the SSP address is set to 0, 1 or in the range 80-99.



The final tab, 'Update Changes' commits all the changes to the validator configuration and updates the validator accordingly:

**Information**

Always apply changes

Please make sure that you click the 'Apply Changes' button, otherwise none of your configuration changes will be applied or saved.

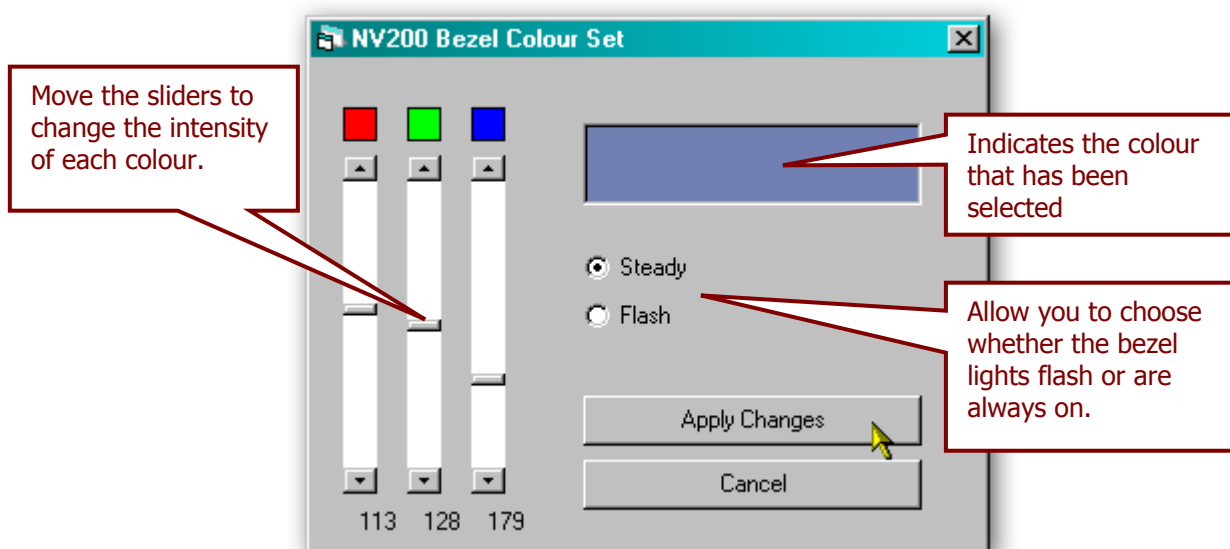


After applying the changes successfully, a dialog box will appear confirming the operation - click the 'OK' button to confirm this and close the dialog box. The validator will then be reset.

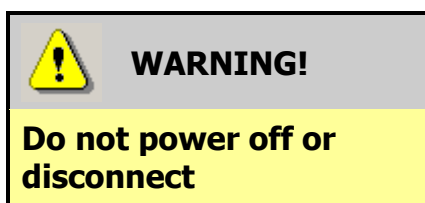


NV200 Bezel:

The 'NV200 Bezel' menu item allows you to change the bezel illumination to suit your specific requirements:



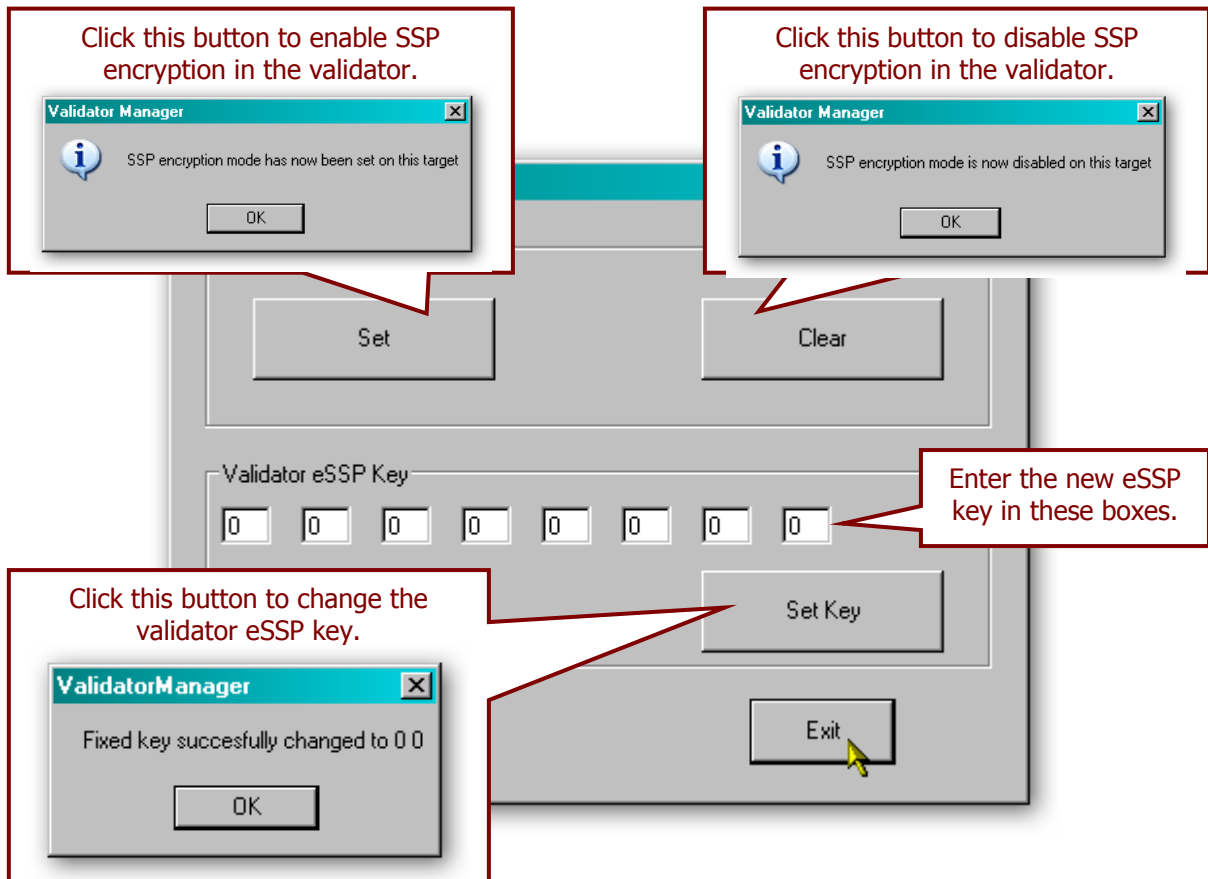
Click the 'Apply Changes' button to update the validator settings, or click the 'Cancel' button to exit without making changes.



Powering off the NV200 or disconnecting the USB cable when updating settings can cause the validator to stop working.

eSSP Options:

The 'eSSP Options' menu item allows the user to change the fixed part of the SSP key and other functions. Selecting this menu option will open a dialog box like this:



After carrying out any of the operations on this dialog, the validator will be reset. Click the 'Exit' button to close the dialog.

3.2 Updating Firmware and Datasets



CAUTION!

Do not power off

Powering off the NV200 when updating the firmware or dataset can cause the validator to stop working.

The NV200 validator firmware and dataset can be updated very easily using the Validator Manager software. The dataset files can be downloaded from the Innovative Technology Ltd website:

Select Validator: Select Currency:

Display #

Name	Code	Issue	Validator		
UK (5-10-20-50)	GBP01606	6	NV200		
UK- Gibraltar (5-10-20)	GBP05603	3	NV200		
UK- Guernsey (1-5-10-20)	GBP04603	3	NV200		
UK- Isle of Man (1-5-10-2)	GBP02604	4	NV200		
UK- Jersey (1-5-10-20)	GBP03604	4	NV200		
UK- Northern Ireland (5-1)	GBP09605	5	NV200		
UK- Scotland (5-10-20)	GBP06604	4	NV200		
UK- Scotland (B-B-5-10-20)	GBP10604	4	NV200		
UK-Jersey(1-5-10-20-50)	GBP13601	1	NV200		
UK-Northern Ireland(5-10-	GBP23601	1	NV200		
UK-Scotland(5-10-20-50)	GBP11603	3	NV200		



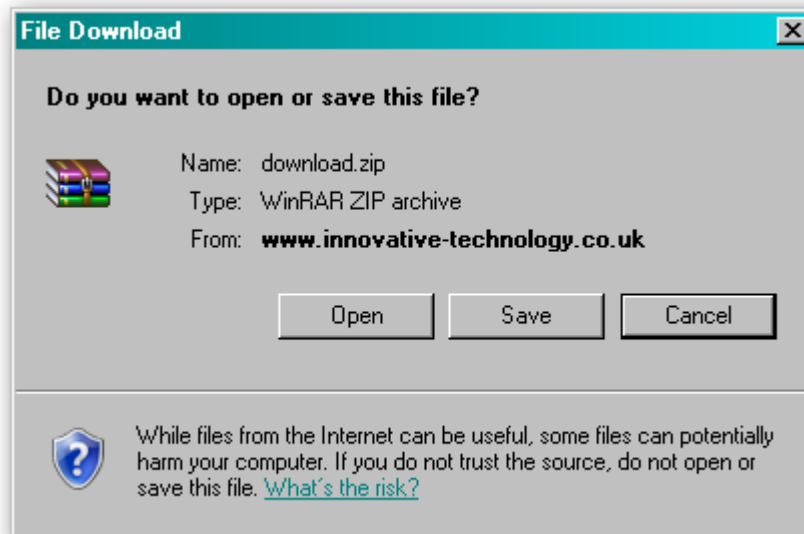
Information

Combined data files

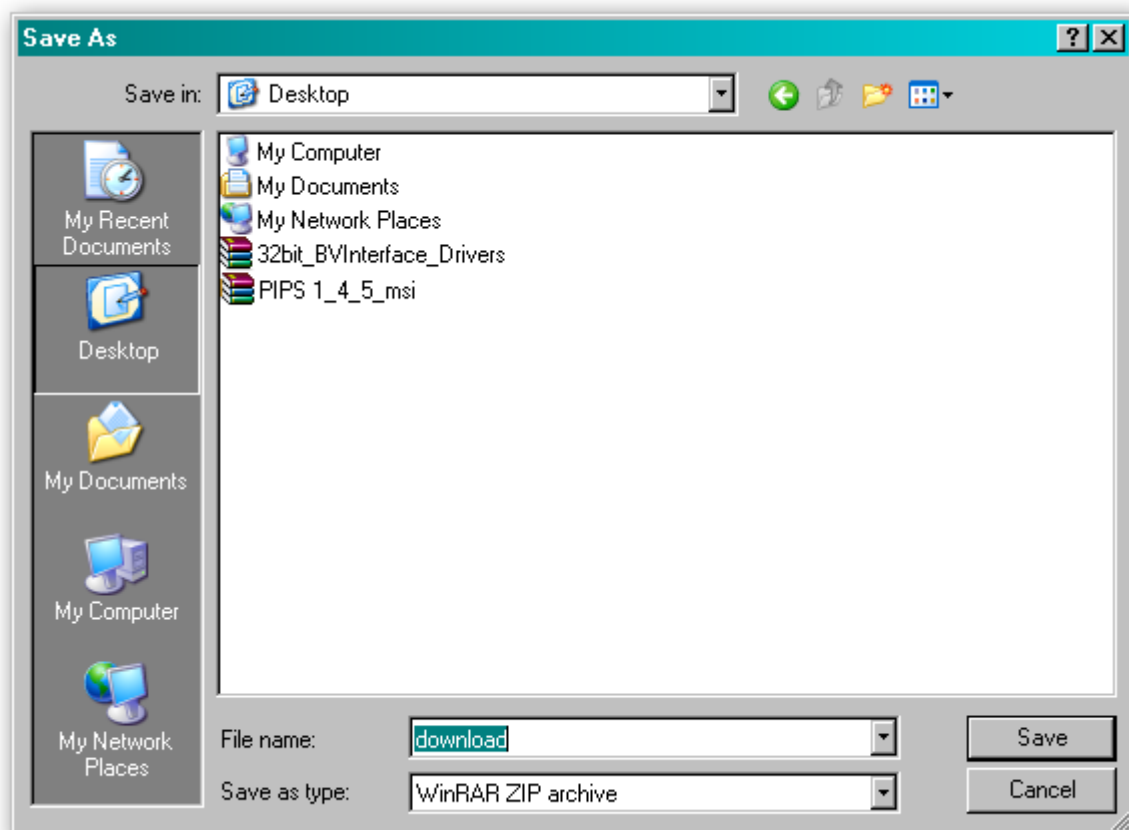
The firmware and dataset files for the NV200 validator are combined into a single file, so both will be updated when you carry out the update.



After selecting the dataset, a dialog will prompt you to save or open the file: select the **Save** option

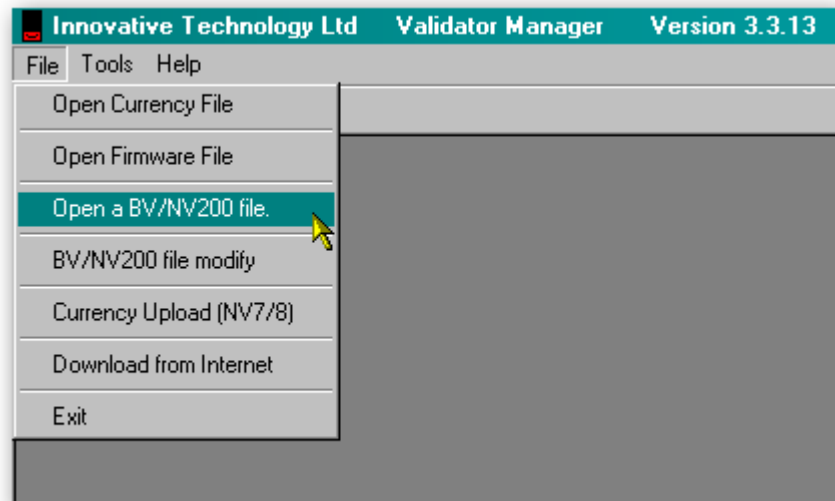


You can then choose where to save the file – choose a location that is convenient for you:

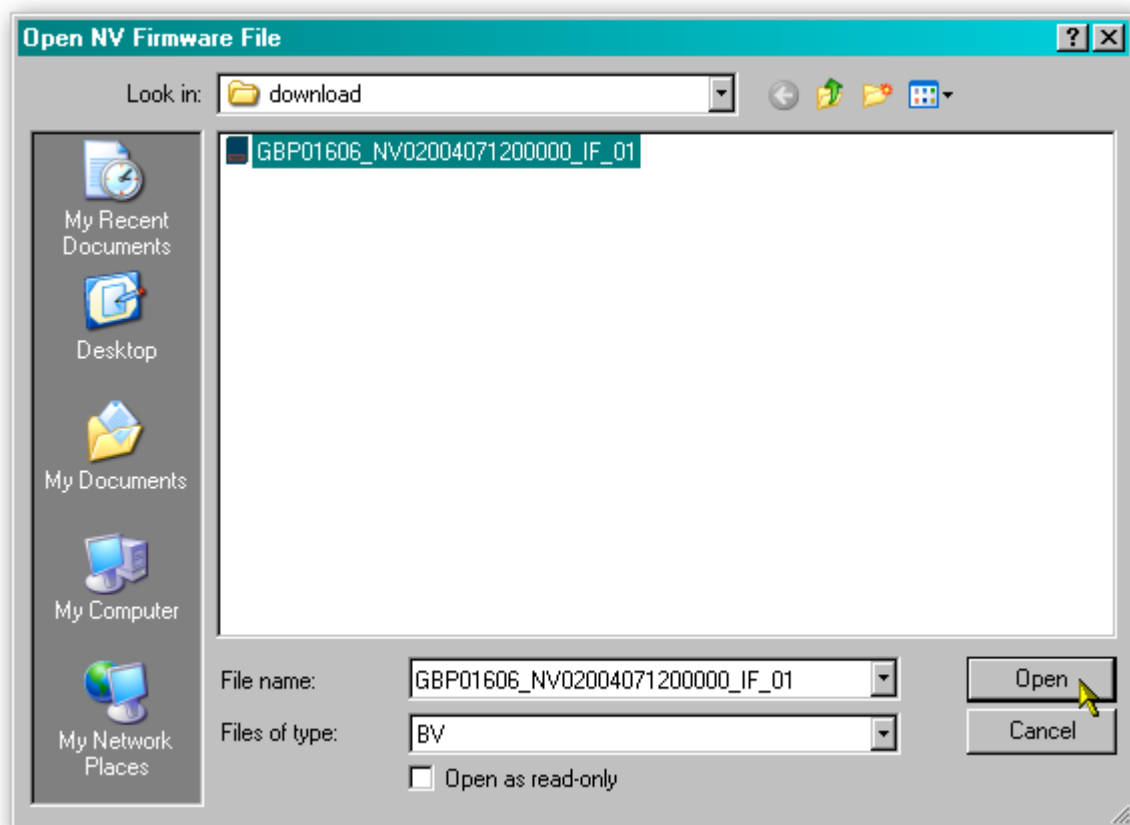


Once the dataset file is saved, unzip the file and you can then start the process to update the NV200 validator by connecting the USB cable and starting the Validator Manager software as described previously.

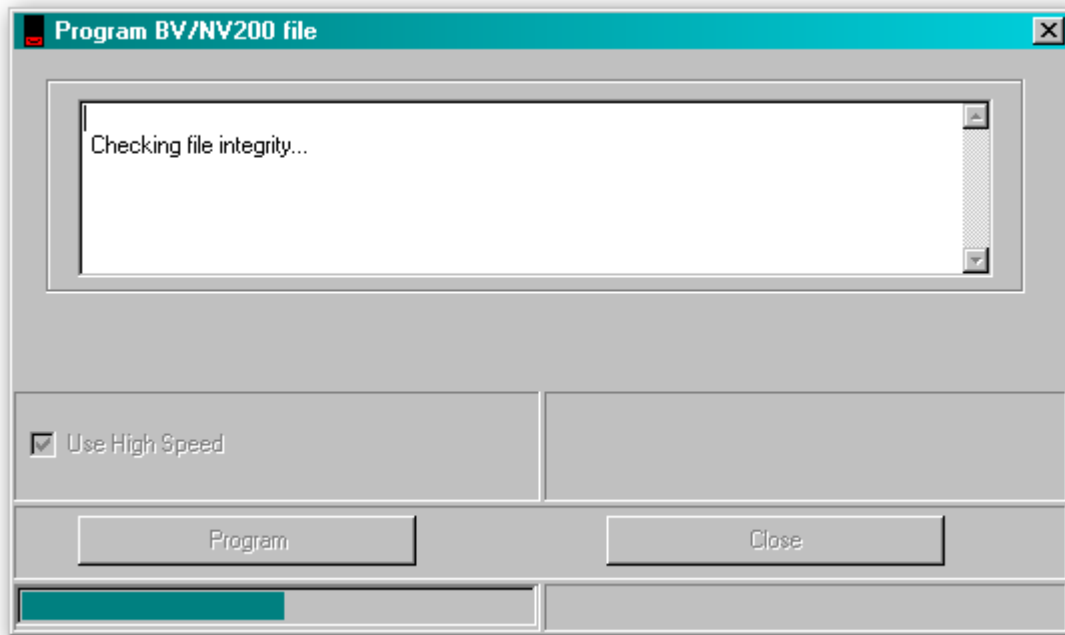
From the Validator Manager main screen, select the 'Open a BV/NV200 file' entry from the 'File' menu as shown here:



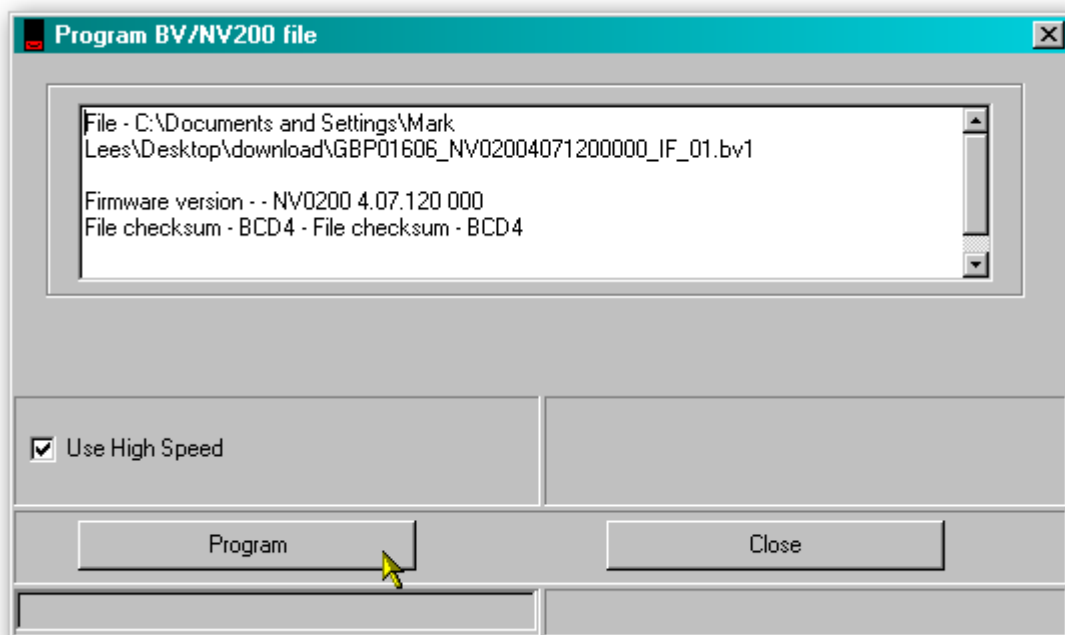
You will then be prompted to select the dataset file you downloaded and unzipped earlier – select the file and click the 'Open' button:



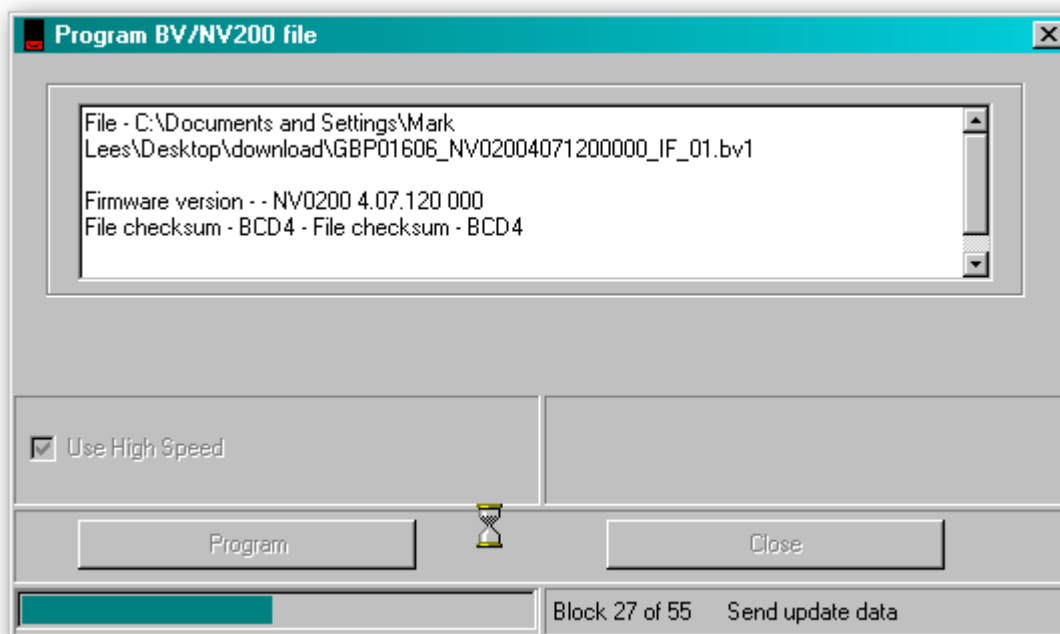
After clicking the 'Open' button, a new dialog box will appear. The status bar in the bottom left hand corner of the dialog box will show the progress in loading the dataset:



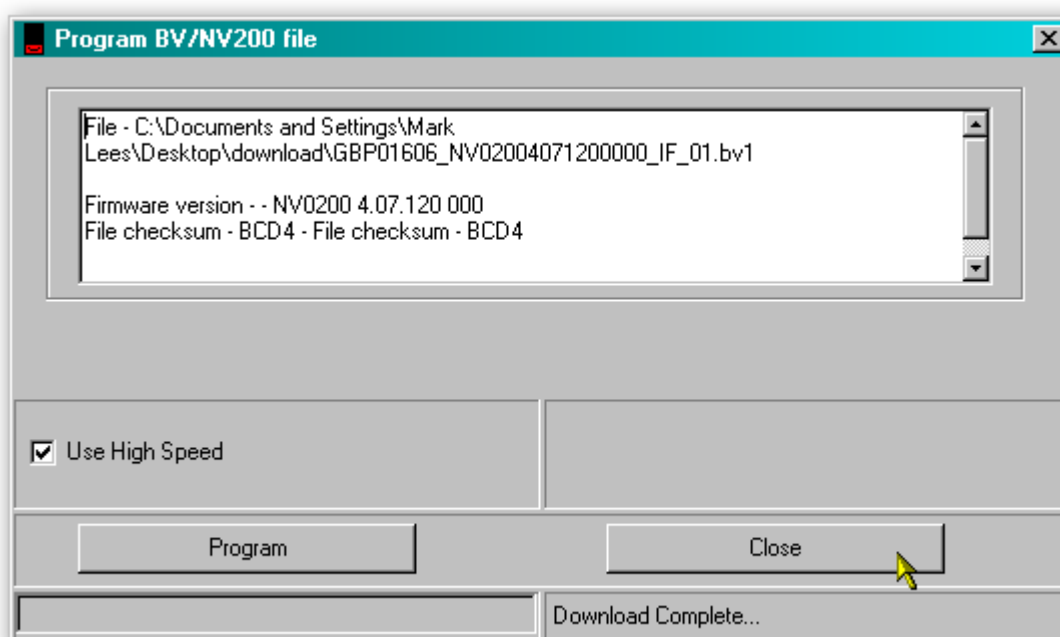
Once the dataset has been loaded, the file details will be shown in the status window, and the two buttons at the bottom of the dialog box will be active - **make sure that you do not disconnect the power to the NV200 or the USB cable until the programming operation has been completed**. Click the 'Program' button to start the update process:



During the update process, the progress of the update will be shown in the status bar at the bottom left of the dialog box, and the mouse cursor will change to an hourglass:

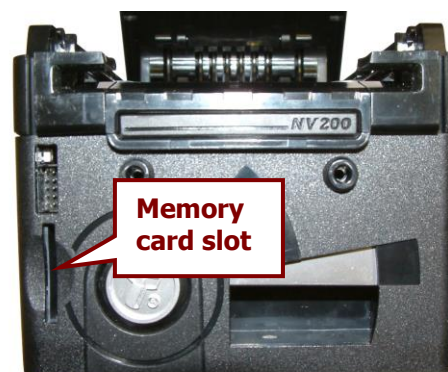


While the update process is being carried out, the NV200 bezel will turn blue and flash on and off until the update is completed. After the update, the NV200 will be reset, and the dialog box will then look like this:



After the reset is complete, the NV200 validator will then be ready for use with the new currency.

It is also possible to update the NV200 validator by using the memory card slot on the front of the validator (shown in the picture on the right):

**Information**

Only use 8mb Atmel Data Cards

Only Atmel 8MB DataFlash[®] cards can be used (ITL part number IC00237). **Standard SD memory cards will not function.**

The memory card will need preparing using a DA3 Programming Unit and the NV Memory Card Utilities software - this procedure is documented in ITL Document number GA00796 – NV Card Utilities.

**CAUTION!**

Check DA3 firmware version.

If using a DA3 and memory card to update the NV200 validator, the DA3 firmware should be up-to-date (check the ITL website for the latest version). Using older versions of the DA3 firmware can corrupt the validator.

Once the memory card has been programmed with the required information, the validator is re-programmed by simply inserting the card into the NV200's memory card slot – make sure that the NV200 validator is powered up before inserting the card.

**CAUTION!**

Do not disconnect power.

Do not disconnect the power or data connection from the NV200 at this point. Doing so could cause the unit to become un-usable.

Once the NV200 is successfully updated the validator will be reset and will then be ready for use with the new currency – at this point you can remove the memory card from the slot.

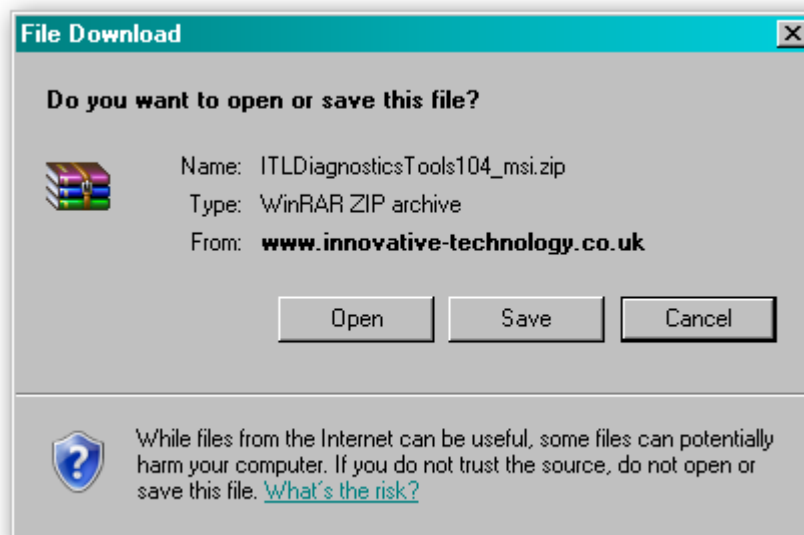
3.3 Tools

3.3.1 Diagnostics

There is a dedicated software diagnostics tool for use with the NV200 validator called 'Bank Note Validator Diagnostics Tools', and this software can be downloaded from the Innovative Technology Ltd website:

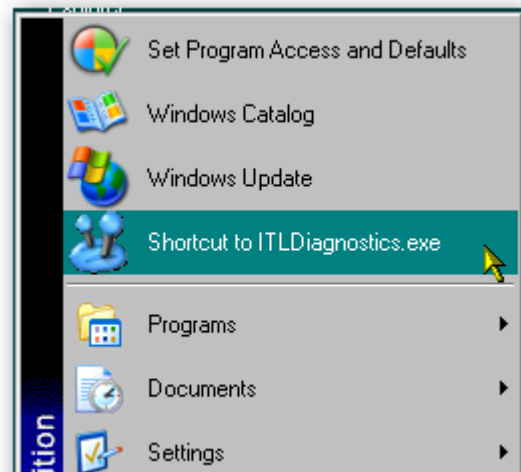
Title	Version	File		
Bank Note Validator Currency Manager	3.3.13			
VPS (Validator Programming System)	1.0.16			
SMART PIPS (Pay In Pay Out System)	1.4.5			
Bank Note Validator Diagnostics Tools	1.0.4			
DA2 Drivers - 32 bit				
DA2 Drivers - 64 bit	1			
BV Interface Driver Install - 32 bit	2			
BV Interface Driver Install - 64bit	1			
NV4 Currency Manager	2.5.3			

When the file download dialog box appears, click the 'Save' button and select a suitable location to save the file in:

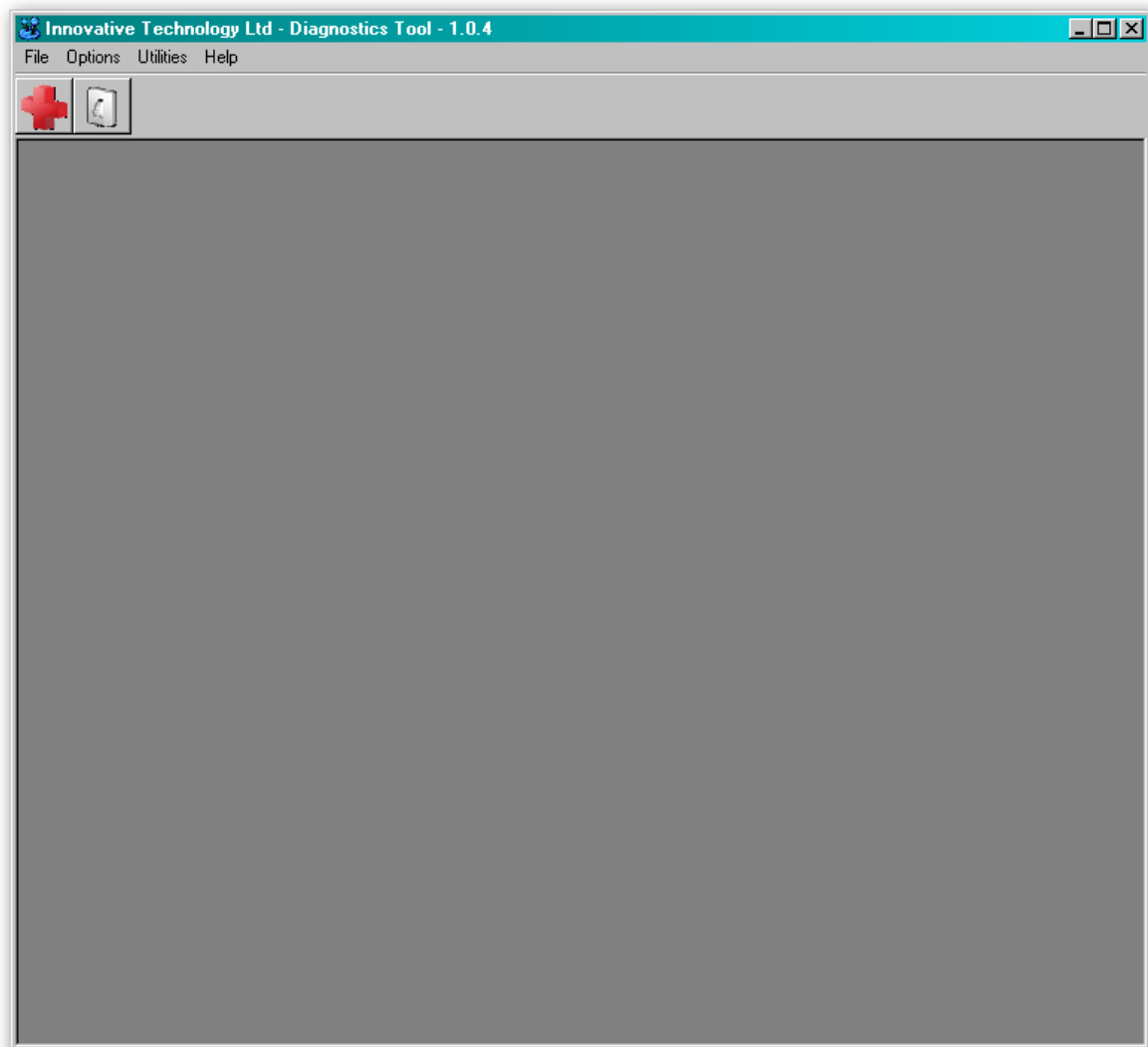


Installing the Diagnostics tools software is done in the same way as the Validator Manager software - Find the ITLDiagnosticsTools zipped file you just downloaded, extract the installation file from the zipped file and double click the extracted file (it has an .msi extension) – this will start the installation process.

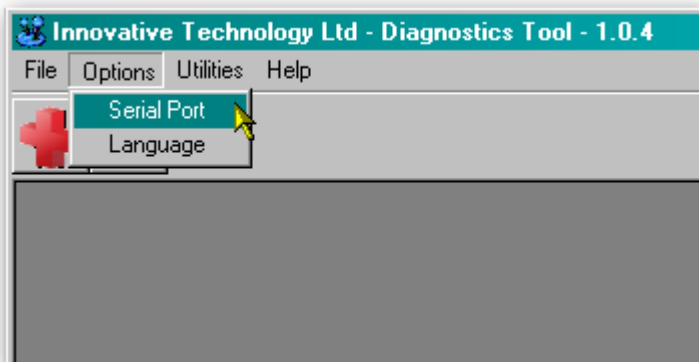
After installing the software, you can run the diagnostics software by selecting the 'Shortcut to ITL Diagnostics.exe' item near the top of the Windows Start menu. Make sure that the NV200 Validator is powered up and the USB cable is connected before starting the program.



The main screen of the diagnostics tools software looks like this:

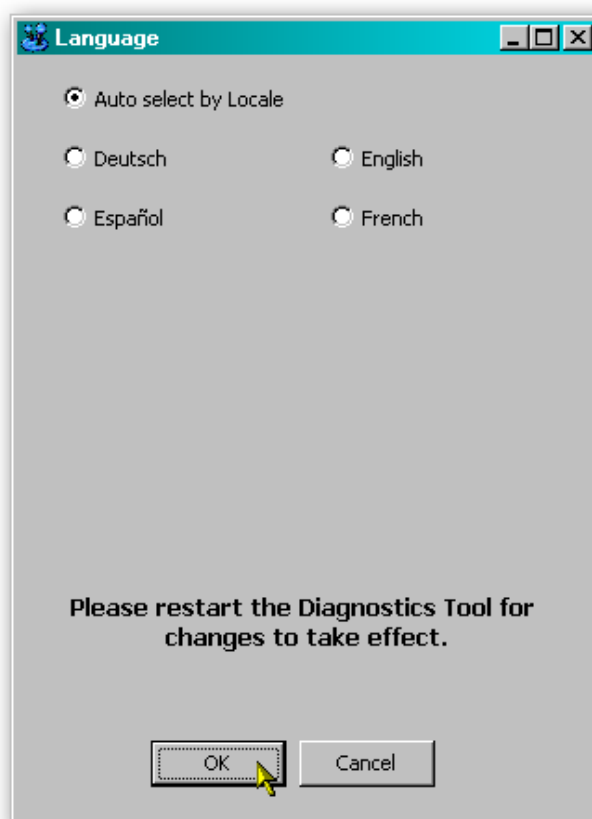


When running the software for the first time, you need to set a few options. These are accessed from the 'Options' menu:



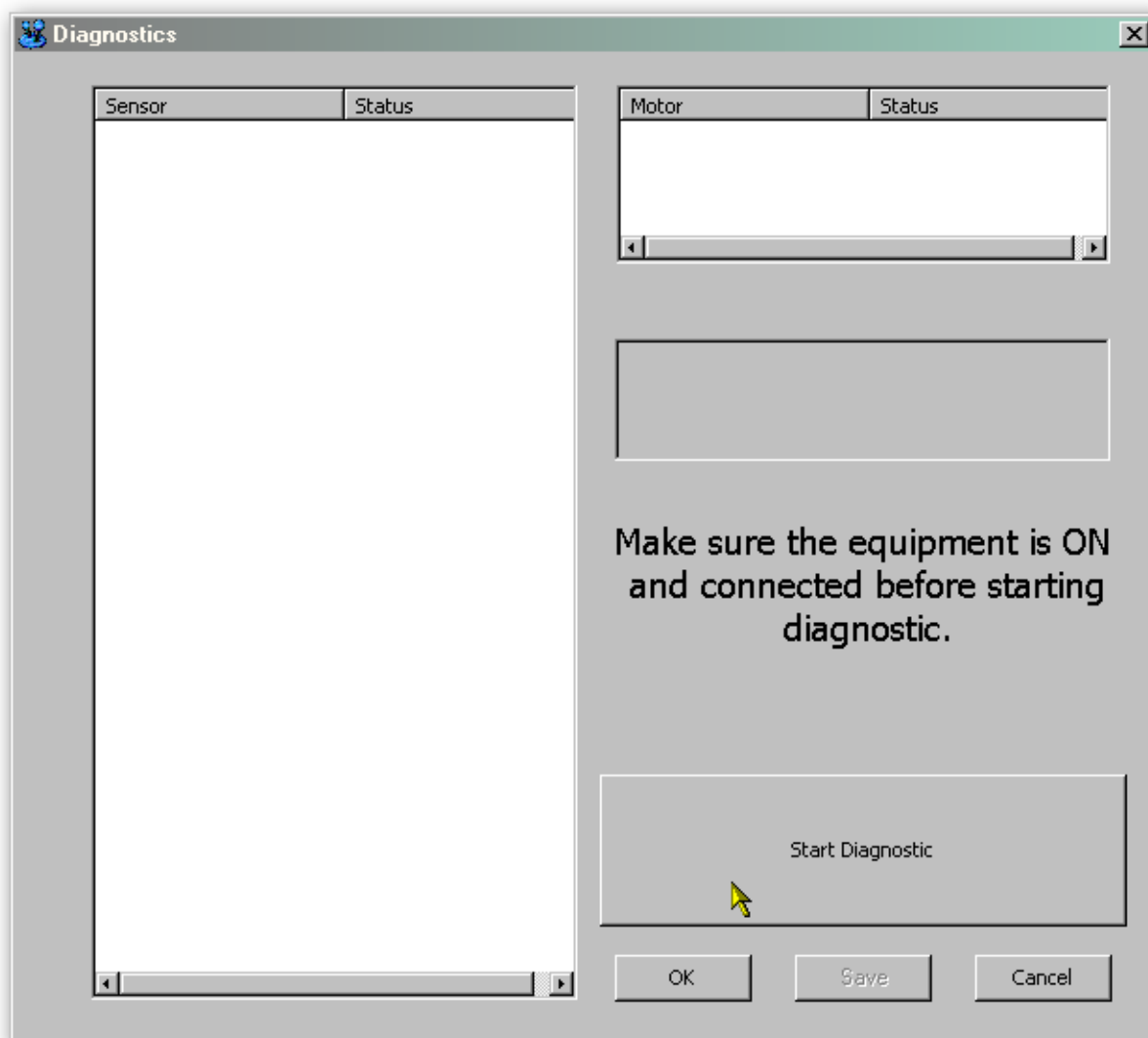
By selecting the 'Serial Port' item from the 'Options' menu you can define which serial port is being used to connect to the NV200 validator. After selecting this option, a new dialog box will open allowing you to choose the correct serial port.

Select the required port from the dropdown list, and then click the 'OK' button to confirm your selection. This will close the dialog box and allow you to select another option from the menu. You shouldn't normally need to change the language setting, as this is determined by the Windows locale settings. You can if you wish select one of four specific languages if needed, as shown below:



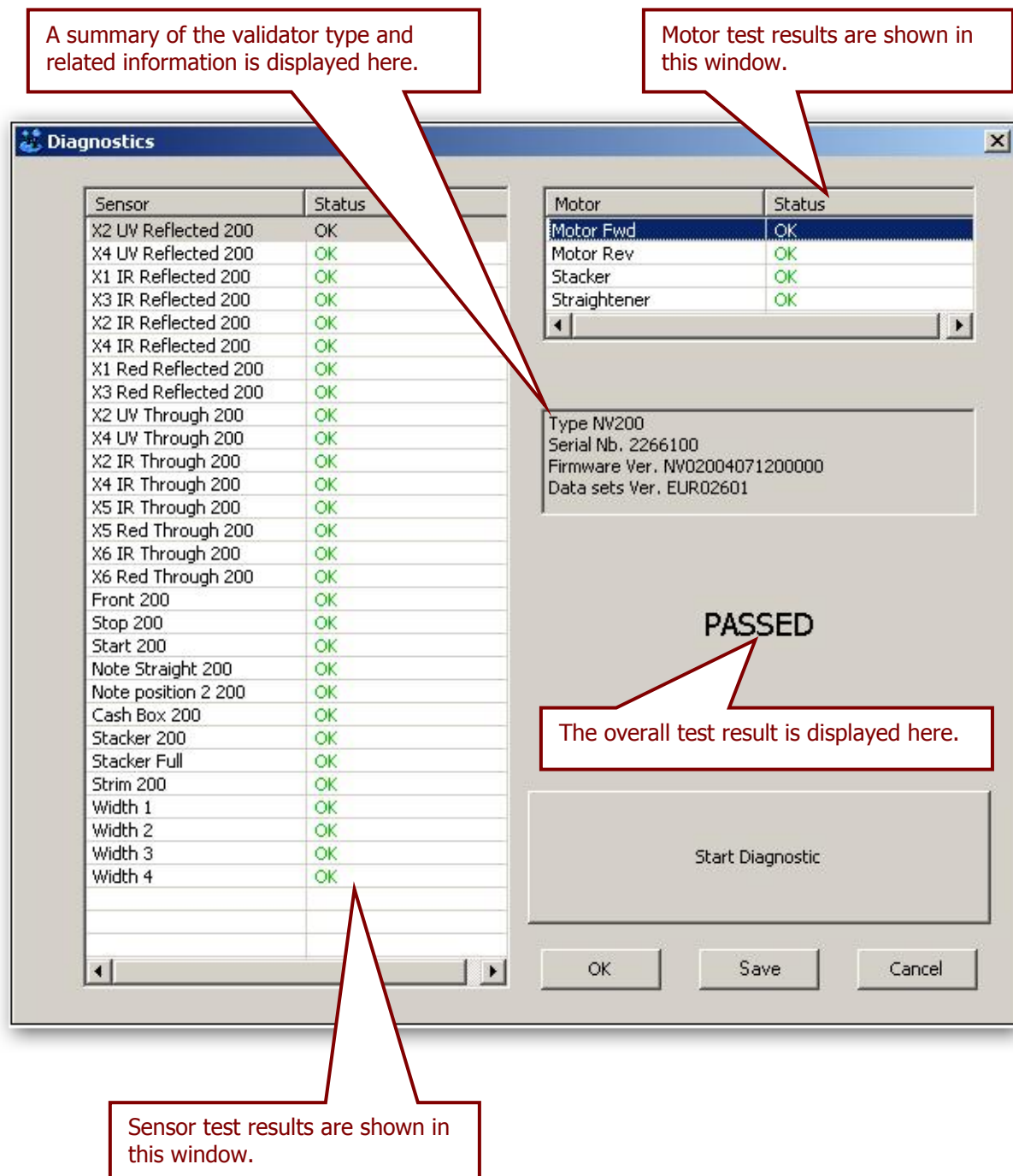


Select the 'Diagnostics' item from the 'Utilities' menu to start the diagnostics process (you can also start the diagnostics by clicking on the left hand icon below the menu bar) - this will open the Diagnostics screen:



Click the 'Start Diagnostic' button to start the diagnostic process. The software will then prompt you to insert a special piece of green diagnostics paper (ITL part number LB149). Insert the paper in the same way you would with a bank note – at the end of the diagnostics test the paper will be ejected.

Diagnostics Pass:



Diagnostics Fail:

A summary of the validator type and related information is displayed here.

Motor test results are shown in this window – in this example all the motors have passed testing.

FAILED

The overall test result is displayed here.

Sensor test results are shown in this window – in this example, all sensors have passed the testing except for the 'Note Straight 200' sensor which has failed.

Sensor	Status
X2 UV Reflected 200	OK
X4 UV Reflected 200	OK
X1 IR Reflected 200	OK
X3 IR Reflected 200	OK
X2 IR Reflected 200	OK
X4 IR Reflected 200	OK
X1 Red Reflected 200	OK
X3 Red Reflected 200	OK
X2 UV Through 200	OK
X4 UV Through 200	OK
X2 IR Through 200	OK
X4 IR Through 200	OK
X5 IR Through 200	OK
X5 Red Through 200	OK
X6 IR Through 200	OK
X6 Red Through 200	OK
Front 200	OK
Stop 200	OK
Start 200	OK
Note Straight 200	FAIL
Note position 2 200	OK
Cash Box 200	OK
Stacker 200	OK
Stacker Full	OK
Strim 200	OK
Width 1	OK
Width 2	OK
Width 3	OK
Width 4	OK

Motor	Status
Motor Fwd	OK
Motor Rev	OK
Stacker	OK
Straightener	OK

Type NV200
Serial Nb. 2718708
Firmware Ver. NV02004071200000
Data sets Ver. GBP01606

Start Diagnostic

OK Save Cancel

Further details on how to use the diagnostics tools and interpret the results can be found in the program help file.

3.3.2 Connections

The NV200 validator has two connectors that are used to allow interfacing and programming; these connectors are easily accessible on the back of the validator.



Information

Power always required regardless of connection type.

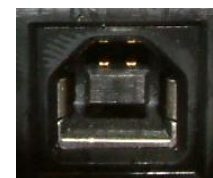
Power is always required on pins 15 and 16 of the 16 way connector.

The first connector is a 16 pin socket used to interface the NV200 to the machine it is being installed in. The pin numbering of the socket is shown here, as well as an overview of the socket connections:



Pin	Description
6	Serial Data Out (Tx)
7	Serial Data In (Rx)
15	+ V
16	0V / Ground Connection

The USB connector is a standard Type 'B' USB socket, and can be used for interfacing to the host machine; in this case, power must be provided from the 16 way connector. This socket can also be used for programming and serial communications – a USB 2.0 compliant Type 'A' to 'B' lead can be used to do this. USB cables should be electrically shielded and less than 5 metres long.



The function of pins 1 - 9 can change depending on which machine interface is being used with the NV200. Typically, the validator will be using SSP, ccTalk or SIO interfaces. MDB, Parallel, Binary and Pulse interfaces are only supported with the use of an external interface, so there are no connection tables shown here – please contact ITL Sales or Support for further details.

The socket connections for the SSP and ccTalk interfaces are shown in the tables below, as is a summary of the interface units needed for other types of operation:

NV 200 SSP Interface:

Pin	Name	Type	Description
1	TxD	Output	TTL TxD
2	TxD Opto Emitter	Output	Opto isolated TxD Emitter
3	RxD Opto +	Input	Opto RxD +
4	RxD Opto -	Input	Opto RxD -
5	RxD	Input	TTL RxD
6	TxD RS232	Output	RS232 TxD
7	RxD RS232	Input	RS232 RxD
8	Factory use only		Do not connect
9	TxD Opto Collector	Output	Opto Isolated TxD Collector
10	Factory use only		Do not connect
11			
12			
13			
14			
15	V In	Input	+V
16	GND	Input	GND

NV200 ccTalk Interface:

Pin	Name	Type	Description
1	TxD	Output	TTL TxD – connect to pin 5
2	Factory use only		Do not connect
3			
4			
5	RxD	Input	TTL RxD – connect to pin 1
6	Factory use only		Do not connect
7			
8			
9			
10			
11			
12			
13			
14			
15	V In	Input	+V
16	GND	Input	GND

**WARNING!****Risk of unit damage**

Do not make any connections to the interface socket pins marked '**Do not connect**' – making connections to these pins could cause severe damage to the unit.



Multi Drop Bus (MDB) Interface:

MDB is a serial bus interface commonly used in electrically controlled vending machines. This is a 9600 Baud Master – Slave system where the NV200 validator is a slave to master controller.

To use the NV200 with MDB protocol, an **IF5** external interface is required. The IF5 regulates the power supply and opto-isolates the communication lines. The NV200 validator supports the MDB Protocol Version 1, Level 1.

Parallel Interface:

To use the NV200 in Parallel mode, an **IF10** external interface is required. When operating in Parallel mode the NV200 will issue a 100ms active LOW pulse on the relevant vend line, and a maximum of 4 channels can be used.

Binary Interface:

To use the NV200 in Binary mode, an **IF9** external interface is required. When operating in Binary mode the NV200 will issue a binary pattern on vend lines 1 to 4, and a maximum of 15 channels can be used.

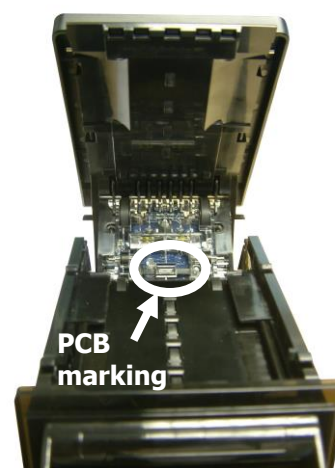
Pulse Interface:

To use the NV200 in Pulse mode, an **IF15** external interface is required. When operating in Pulse mode the NV200 outputs a number of pulses on Vend 1. The number of pulses for each channel is different and set to default values within the dataset. The number of pulses and the pulse duration can be modified using the Bank Note Validator Currency Manager Software, and a maximum of 16 channels can be used.

Opto-isolation and RS232 communications is only available on validators with an issue number of 4 or greater. You can check the issue number on the validator as shown here:

Open the NV200 validator lid and check the marking on the PCB where shown in this picture – the marking needs to read **PB00266_4**

If the issue number is less than 4 or not visible, contact ITL Support for connection options and information.



3.4 Frequently Asked Questions

a. What settings should I use on the DIP switches on the rear of the unit?

- Look at the DIP switch tables in Section 1 of this manual set (subsection 1.3)

b. Are 64 bit drivers available?

- Both 32 and 64 bit drivers can be downloaded from the 'Support' section of the ITL website – please make sure that you are using the correct type of driver for your Operating System.

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