

SECTION 3

NV9 USB MANUAL SET

ITL SOFTWARE SUPPORT GUIDE

INTELLIGENCE IN VALIDATION

NV9 USB 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 NV9 USB 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](#)

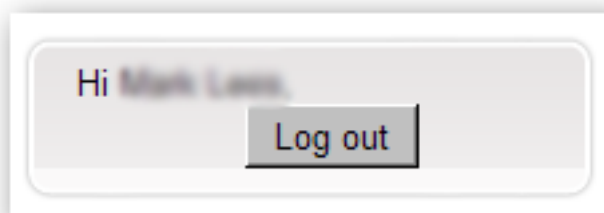
Latest Datasets

- 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.

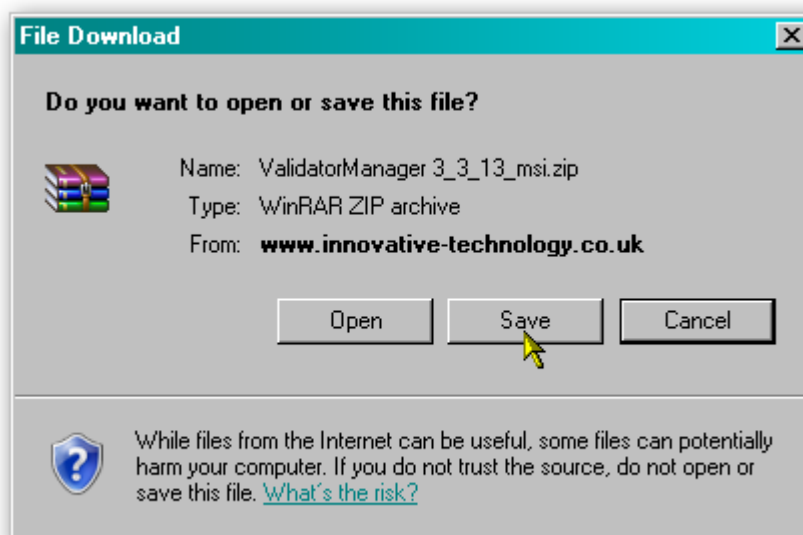


In this case, we want to download the Validator Manager software, so we click on the padlock icon opposite the 'Bank Note Validator Currency Manager' filename:

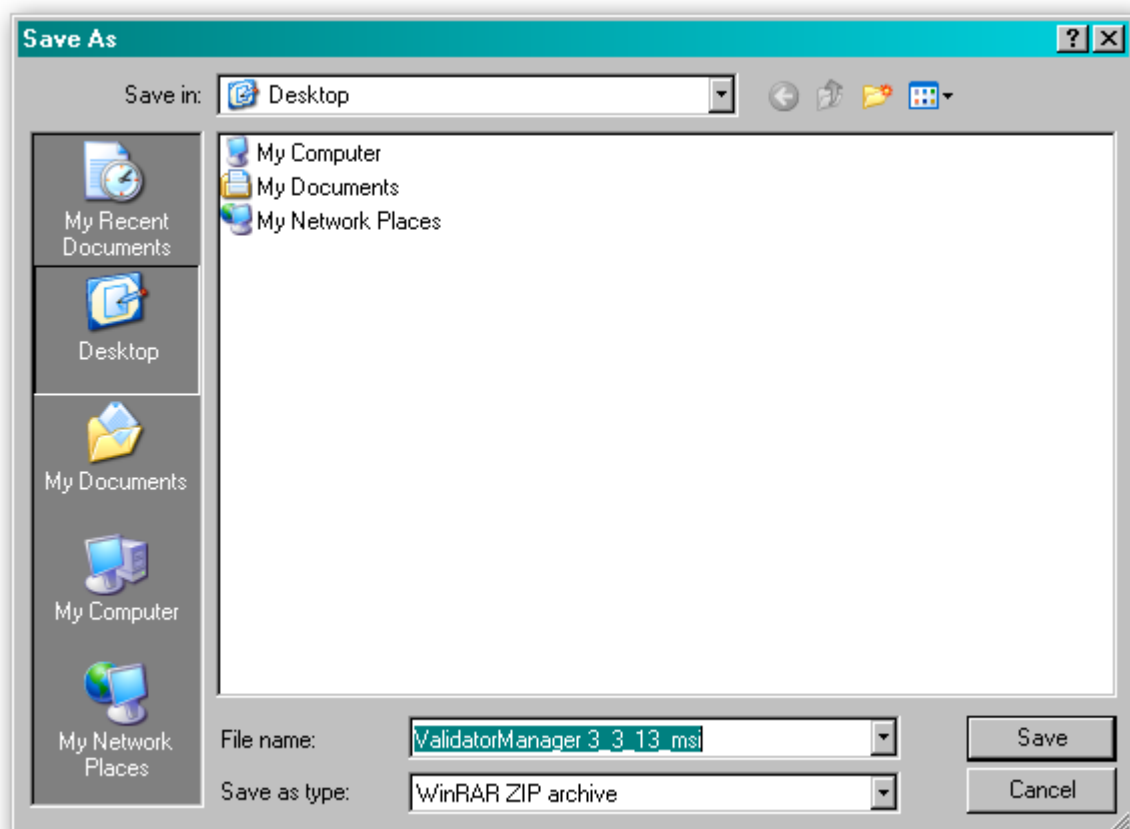


Title	Version	File		
Bank Note Validator Currency Manager	3.3.13			
VPS (Validator Programming System)	1.0.16			
SMART PIPS (Pay In Pay Out System)	1.4.5			
Bank Note Validator Diagnostics Tools	1.0.4			
DA2 Drivers - 32 bit				
DA2 Drivers - 64 bit	1			
BV Interface Driver Install - 32 bit	2			
BV Interface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

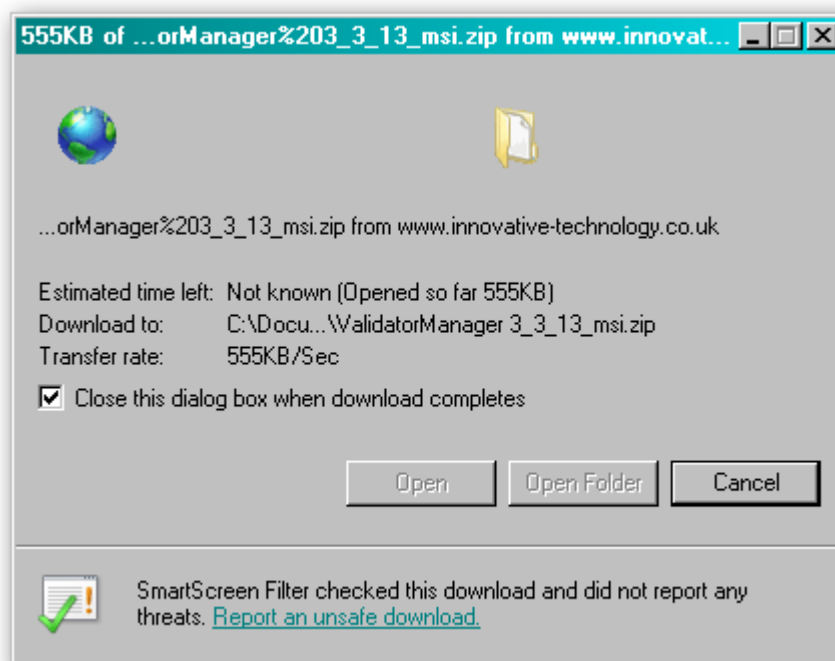
After clicking the link, a file download dialog box will appear – choose the option to **save** the file:



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.

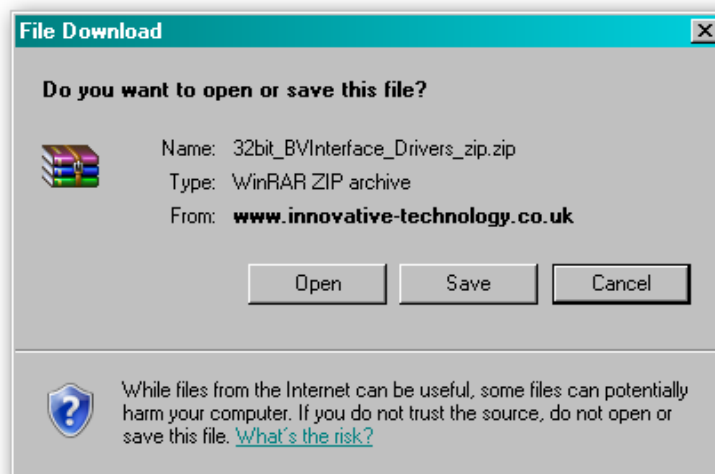


After choosing where to save the file, a file transfer dialog box will appear showing the progress of the file download:

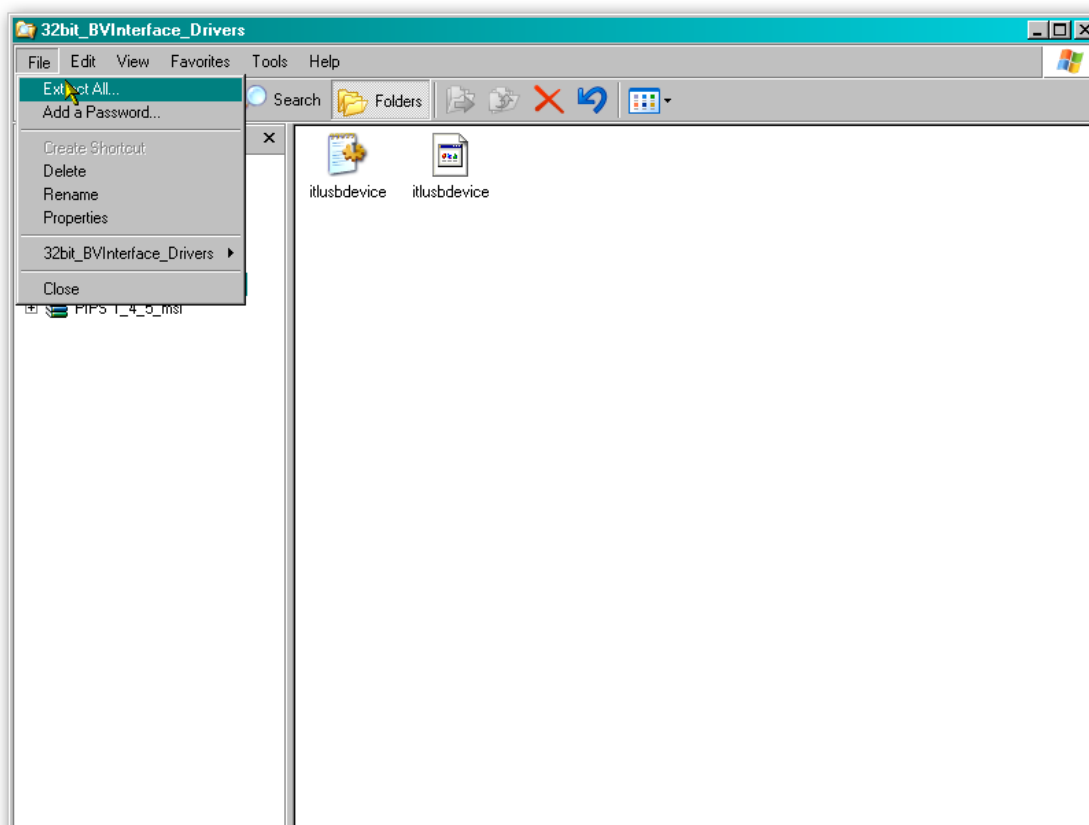


3.1.2 BV Interface Drivers

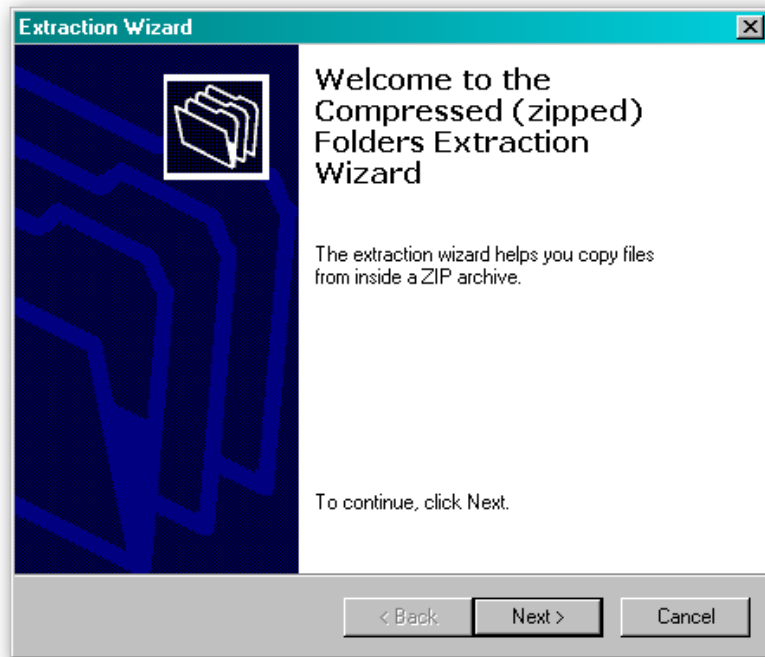
After downloading the Validator Manager software, you will also need to download the Banknote Validator (BV) Interface drivers – two versions are available (32 bit and 64 bit) so choose the correct type for your operating system. Again, remember where you saved the file.



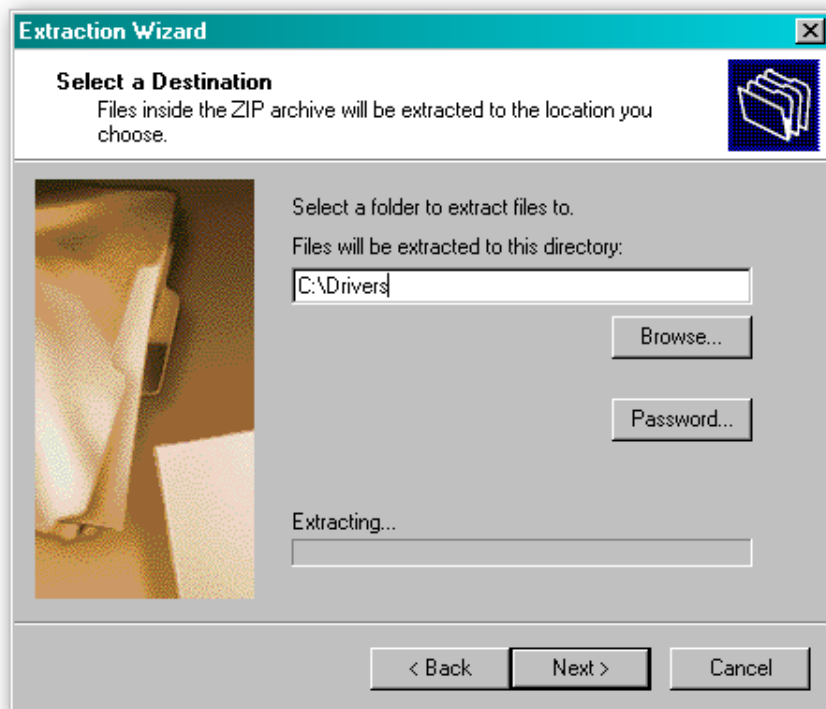
Both files are provided in a 'zipped' (compressed) form – you will need to extract the files from the zipped file before you can install the software or driver. Any version of Windows from Windows 98 onwards can open zipped files; or you may want to use a third party software tool such as Winzip or WinRAR.

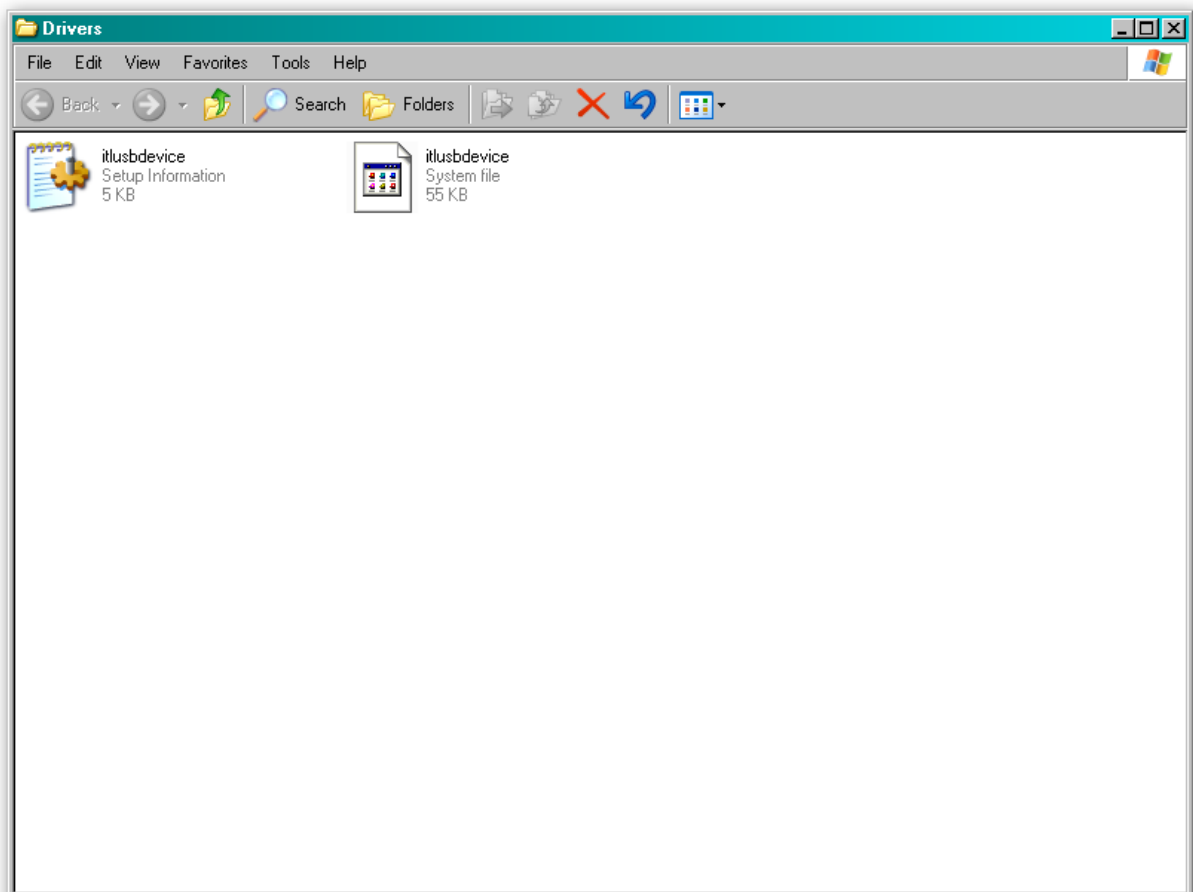
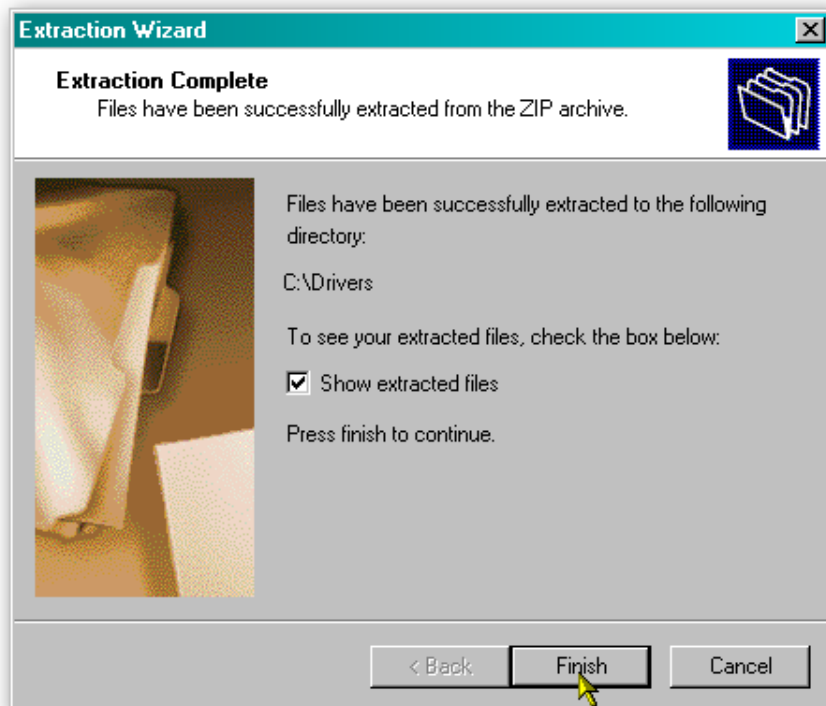


Extract the files to a convenient location – this might be an existing folder, or you may want to save them into a new folder.



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



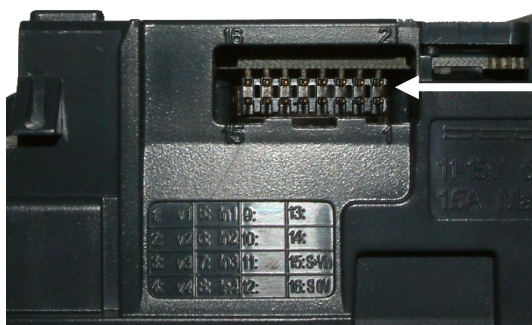


3.1.3 Installing the Drivers

There are several ways to communicate with the NV9 USB validator, which include using a direct connection from computer to validator with a CN00392 validator to 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 GA00338-2 for more information. In this manual we will be using the USB connection method.

To use a USB connection with the NV9 USB, a USB cable with a 16 way connector on one end (ITL Part Number CN00392) should be used. The CN00392 cable fits into the 16 way connector and allows high speed programming and serial communications when used in SSP, ccTalk and SIO modes. When using the USB connection, power must be supplied to the NV9 USB using the red and black power leads on the CN00392 cable.

The connector needed to set up and interface with the NV9 USB Validator is easily accessible on the side of the unit:



Interface Connector

The NV9 USB validator must be powered up for the interface to be recognised by Windows. If the 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:



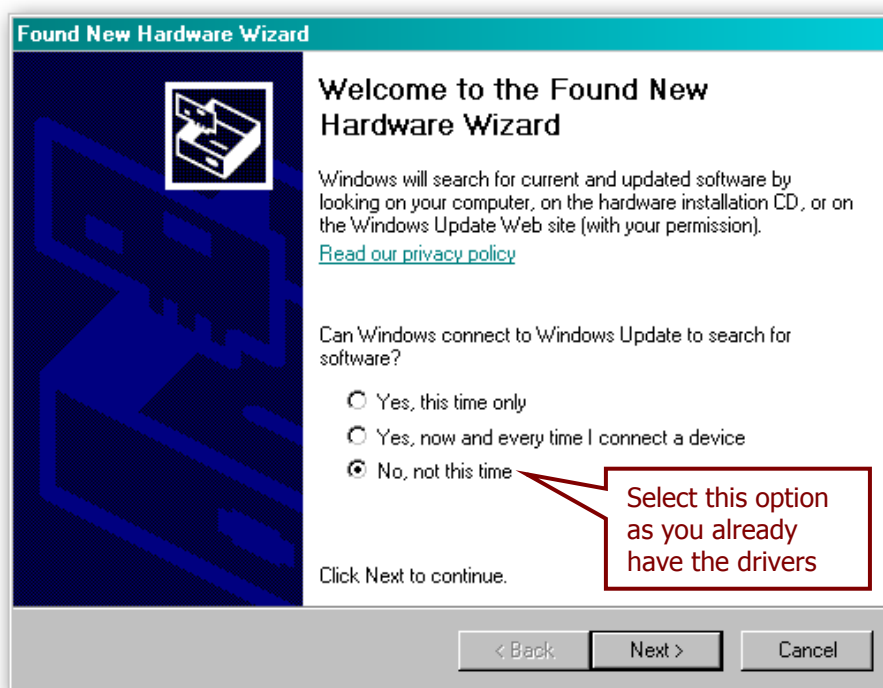
Pin	Description
1	Serial Data Out (Tx)
5	Serial Data In (Rx)
11	USB Data +
12	USB Data -
13	USB Power (+5V)
15	+ V
16	0V / Ground Connection

Before connecting the USB cable to the computer, make sure that the CN00392 cable is connected to the validator and that the unit is powered up. Once you have carried out these steps, plug the USB cable into the computer.

After connecting the USB cable, Windows should then detect the NV9 USB 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):

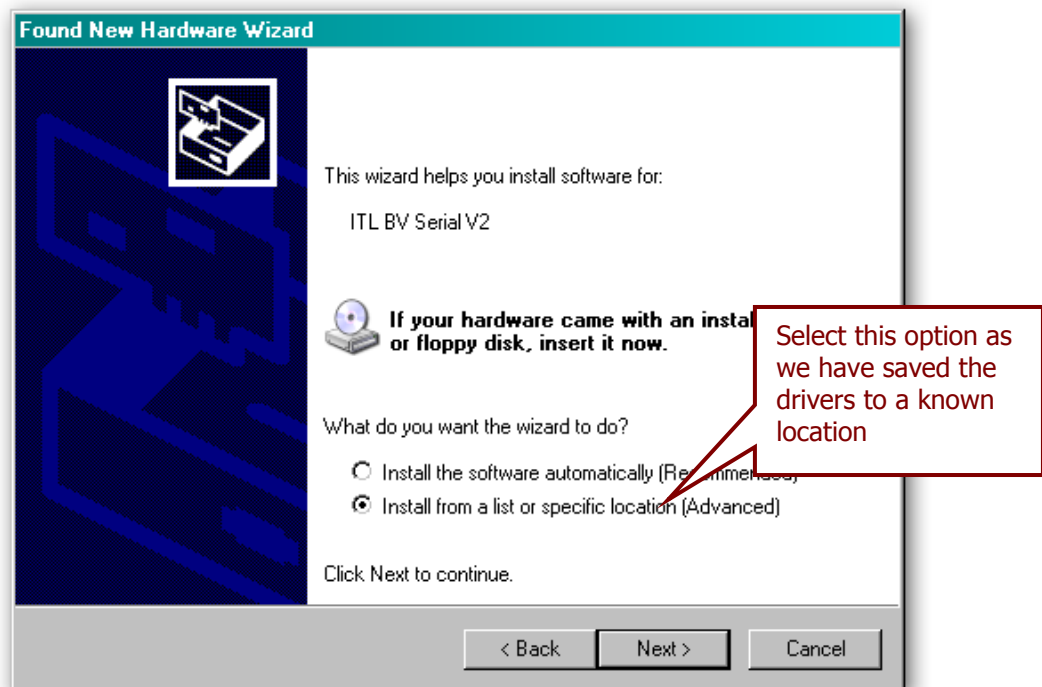


Information

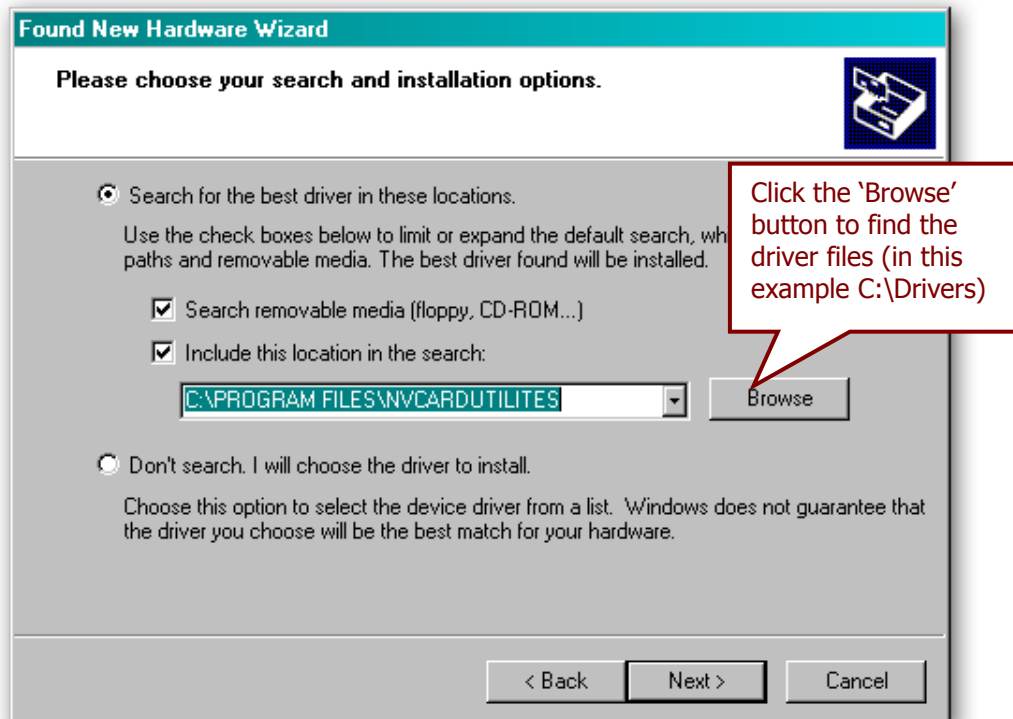
Only use V2 drivers

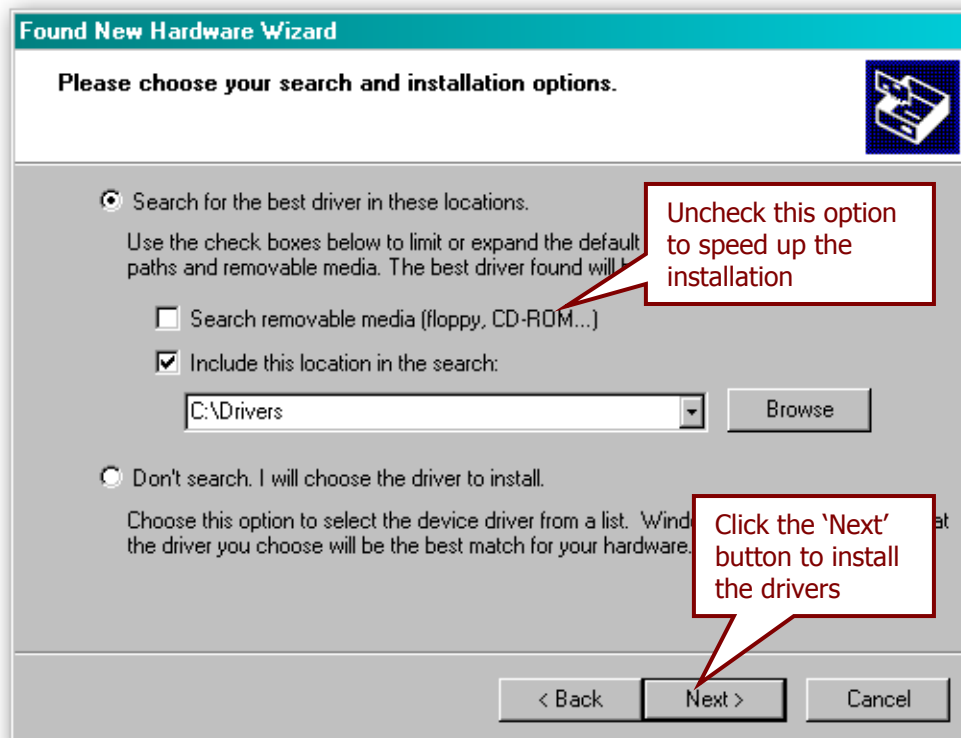
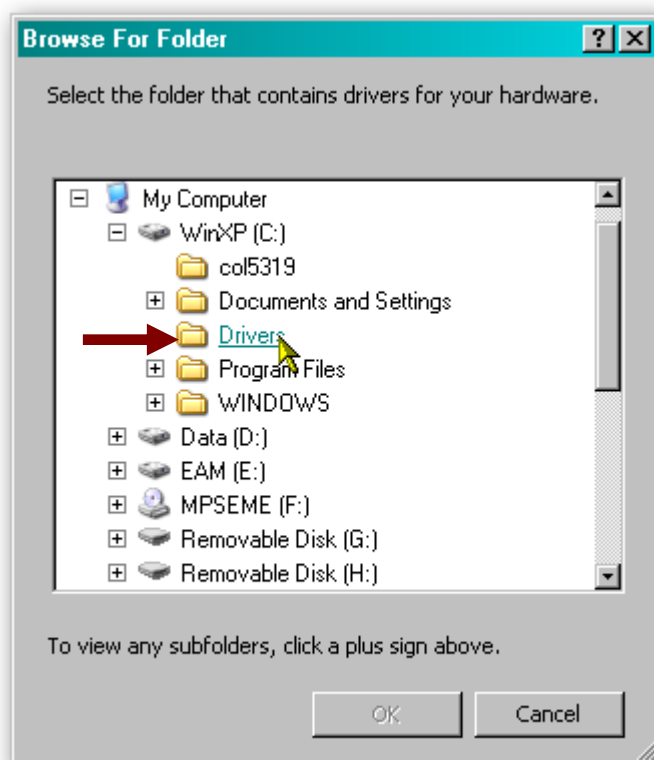
Please make sure that you are using the V2 drivers for the installation.



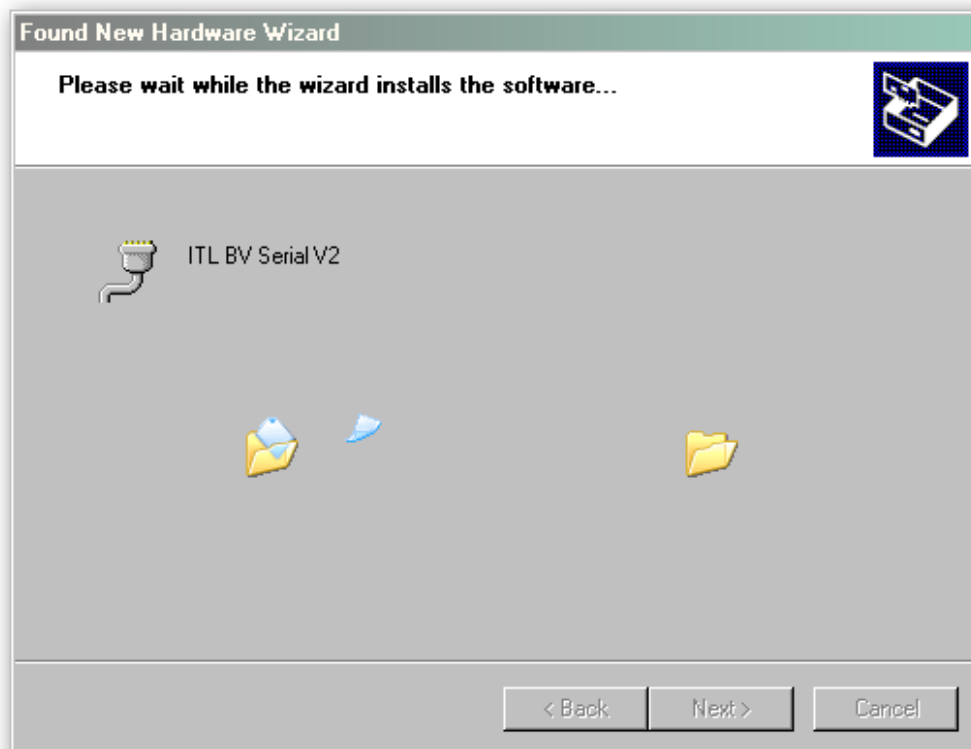
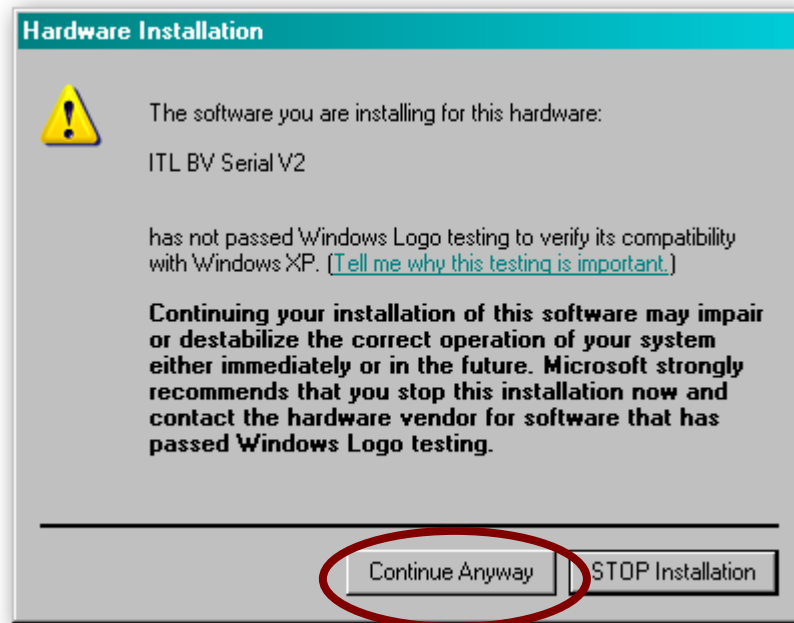


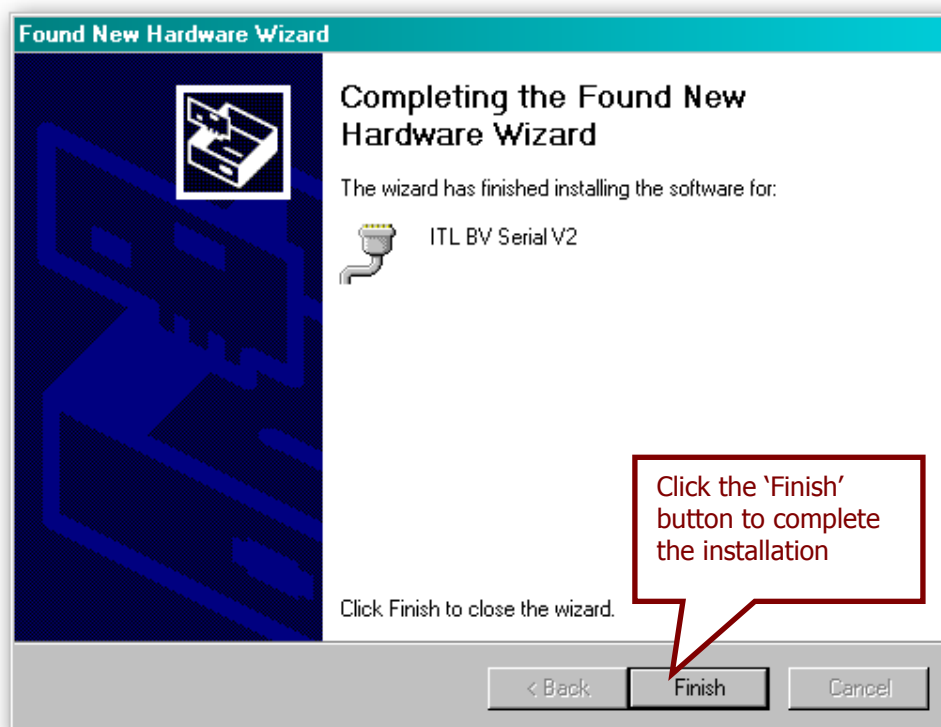
The next dialog box will ask you where to search for the drivers:





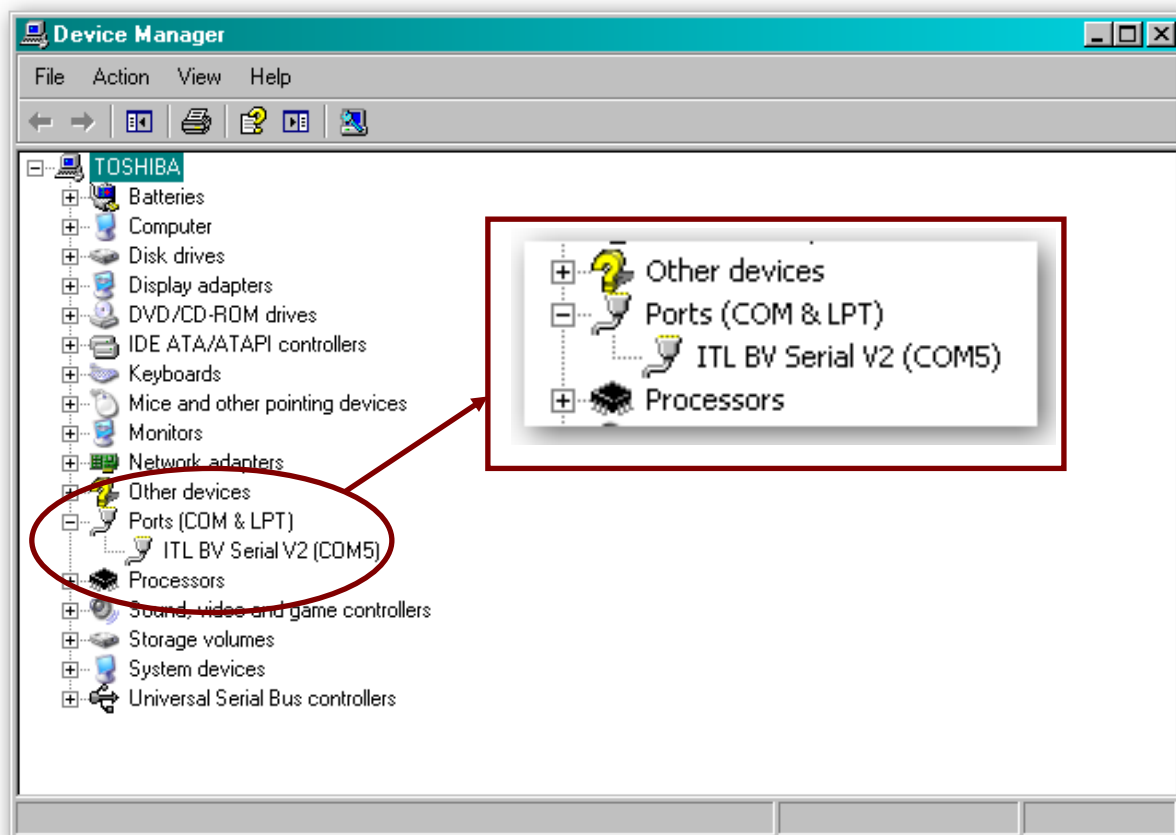
You may see a warning dialog saying that the drivers have not passed Windows logo testing – you can ignore this warning. Just click the 'Continue Anyway' button.





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:

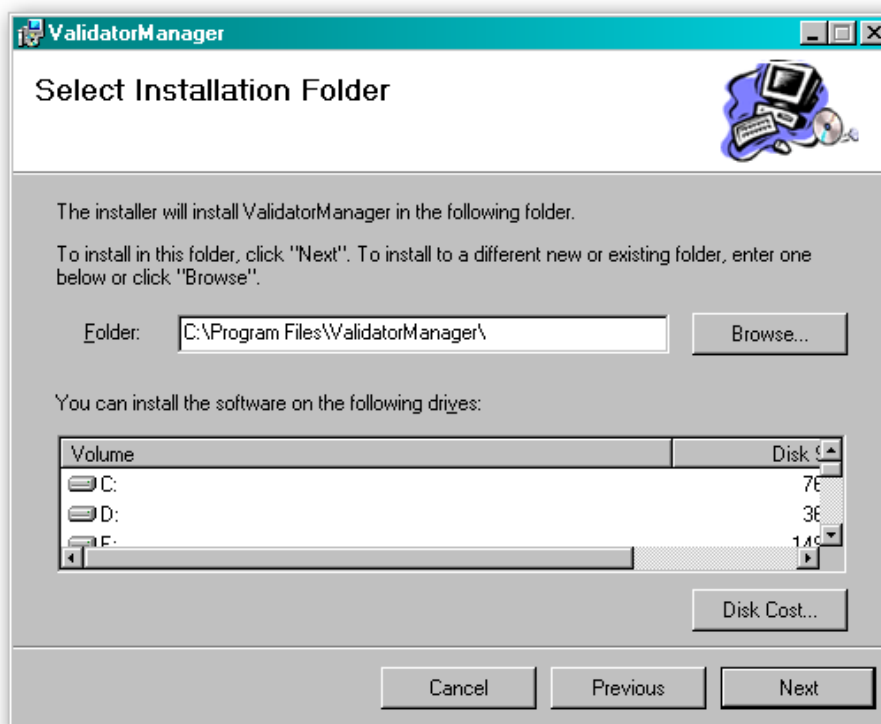
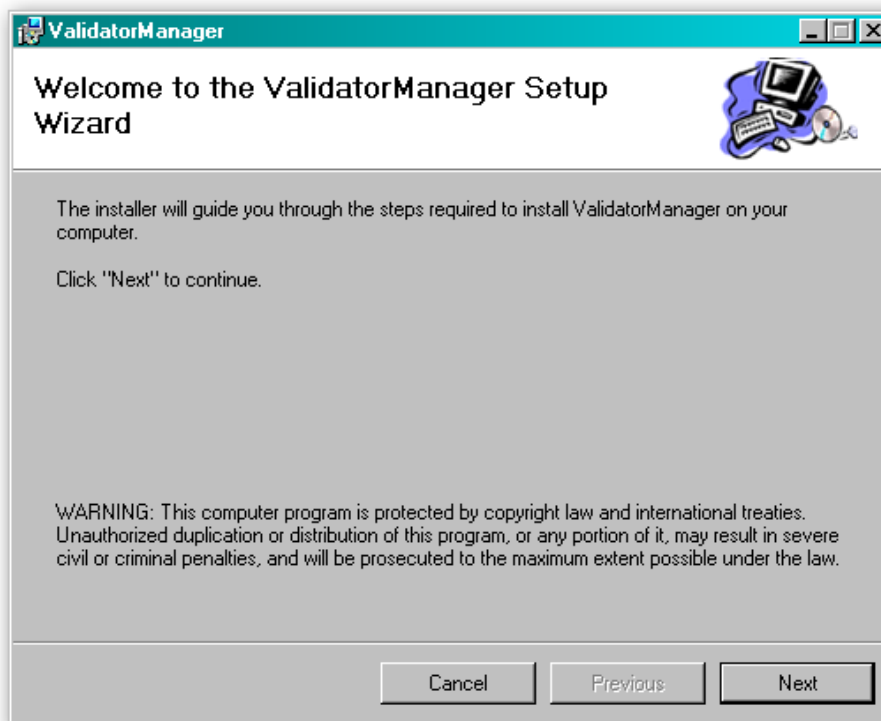


The actual communications port number (in our example COM5) may vary depending on your particular computer configuration.

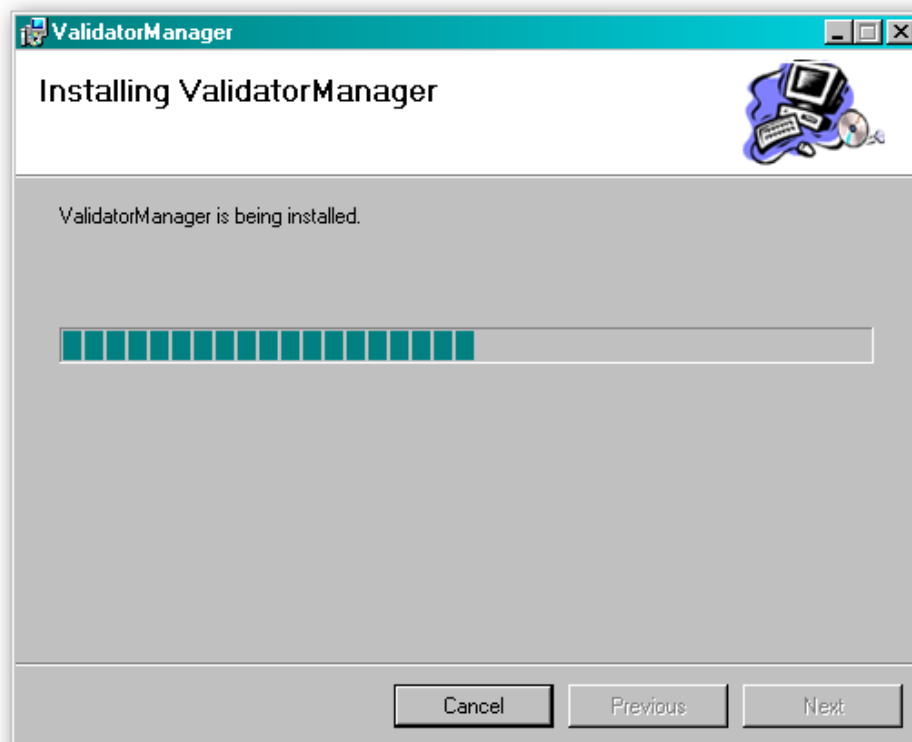
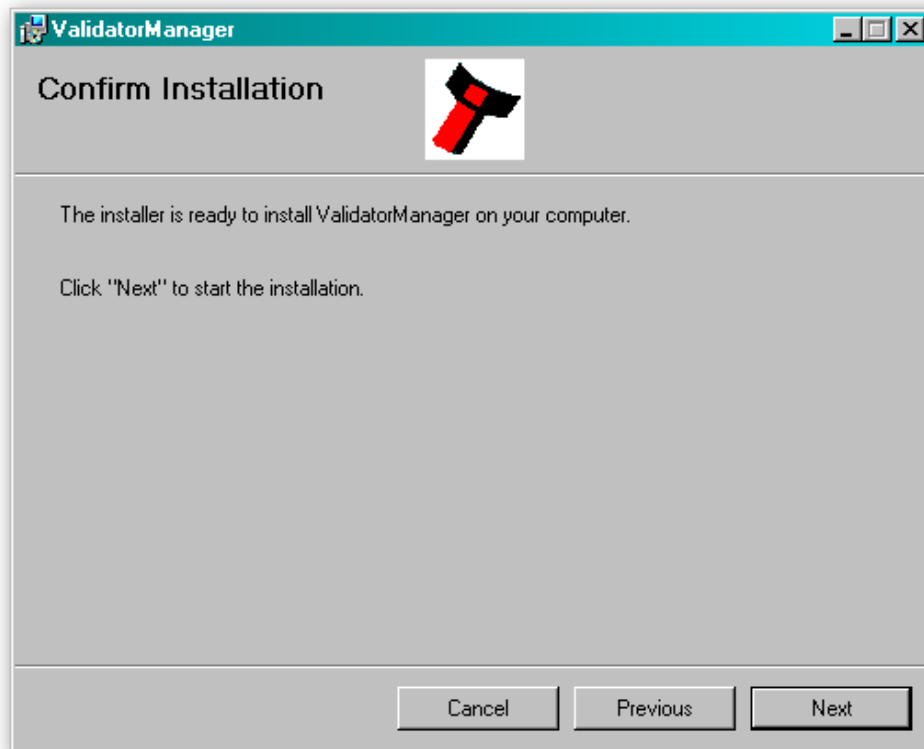
Now the drivers have been correctly installed you can install the Validator Manager software – this is covered next.

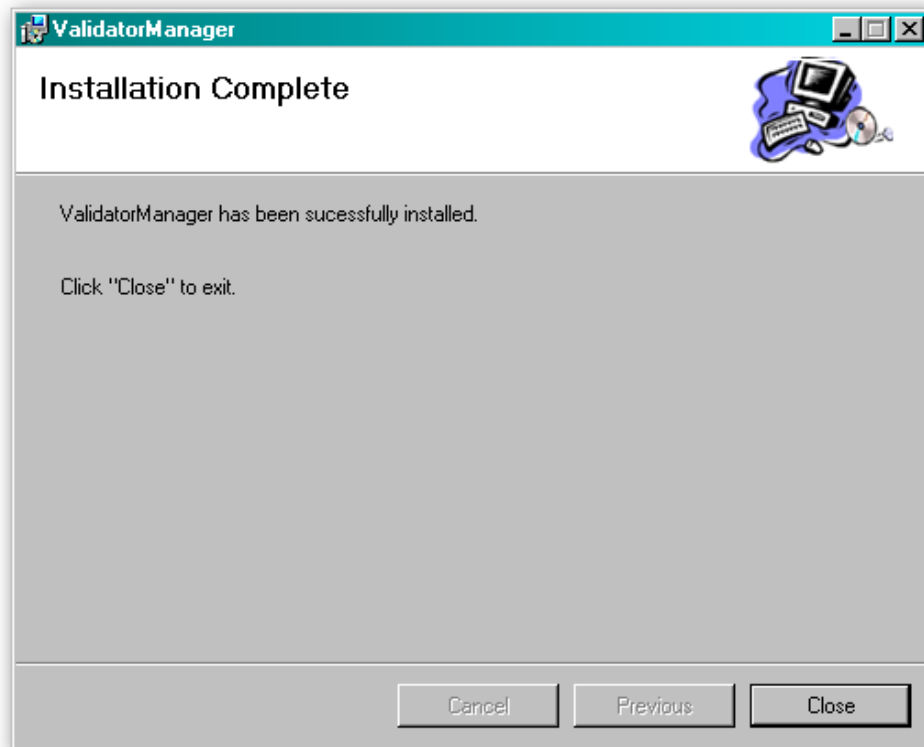
3.1.4 Installing the Validator Manager Software

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:

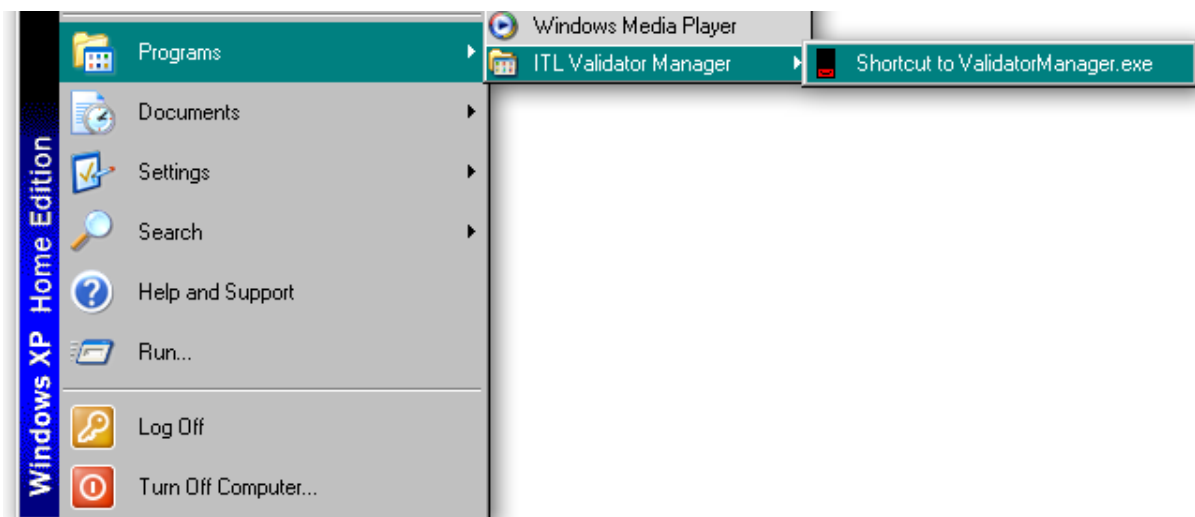


You can choose where you would like to install the software, or just accept the default location (as shown above). Clicking on the 'Next' button will then ask you to confirm the installation:





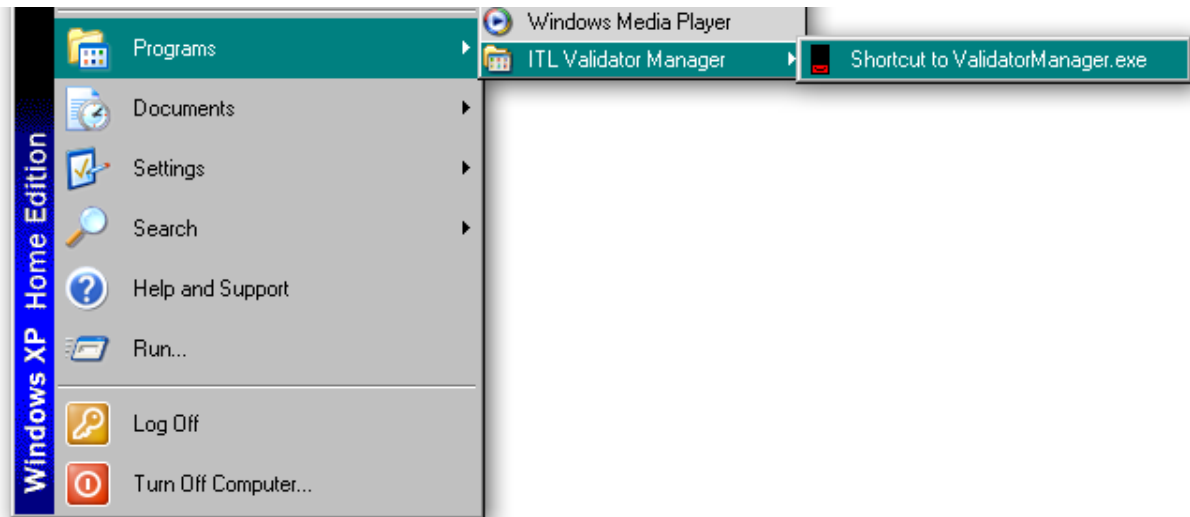
Once the installation is complete, you will have a new program group called 'ITL Validator Manager' in the Windows Start Menu, similar to the one shown here:



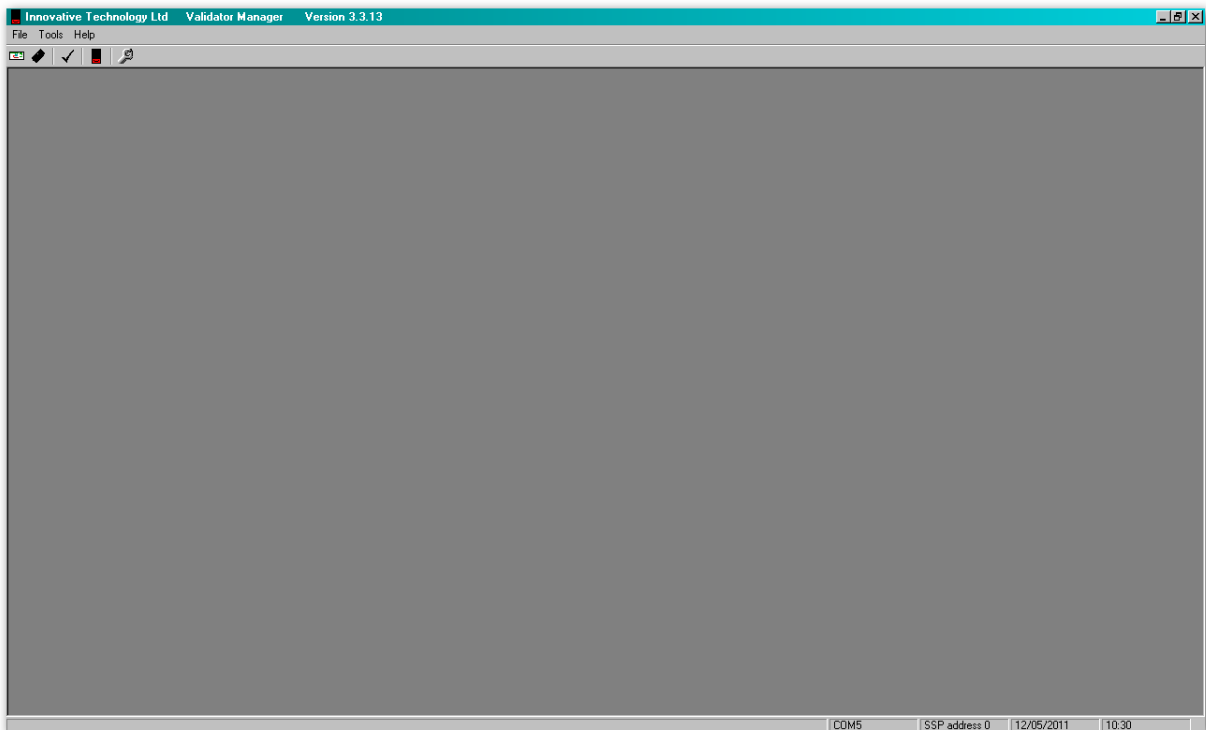
You can run the Validator Manager software by clicking the 'Shortcut to ValidatorManager.exe' menu entry; however, before you can use the Validator Manager software with an NV9 USB validator you will need to make sure that you have installed the BV interface drivers (as described earlier).

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.

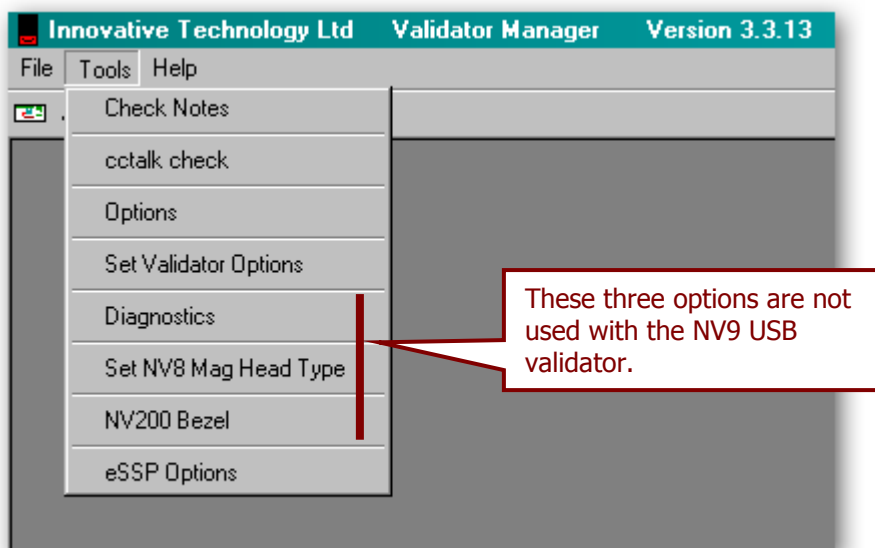


The initial program screen looks like this:



Make sure that the NV9 USB 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

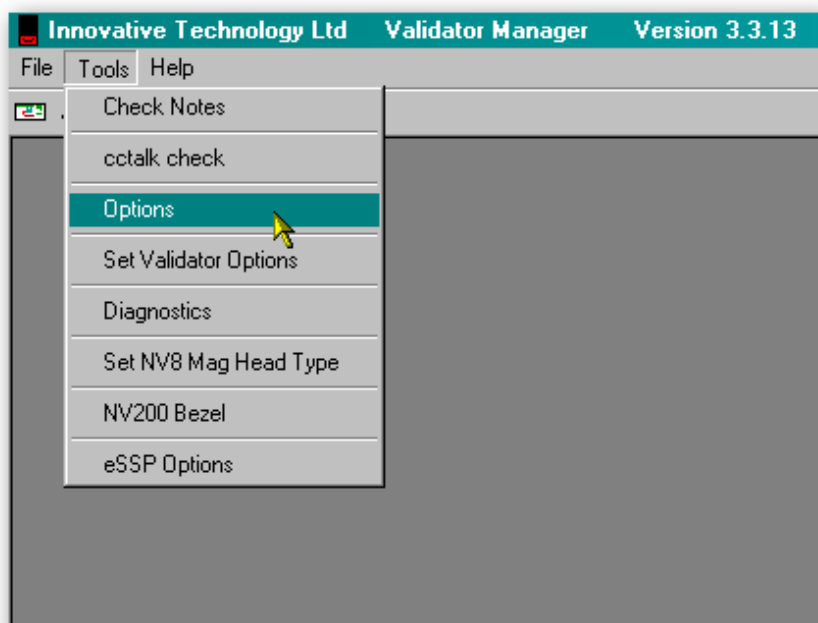
Please be aware that not all the program options are applicable to the NV9 USB, as the Validator Manager software is designed to work with a range of ITL Technology validators.



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

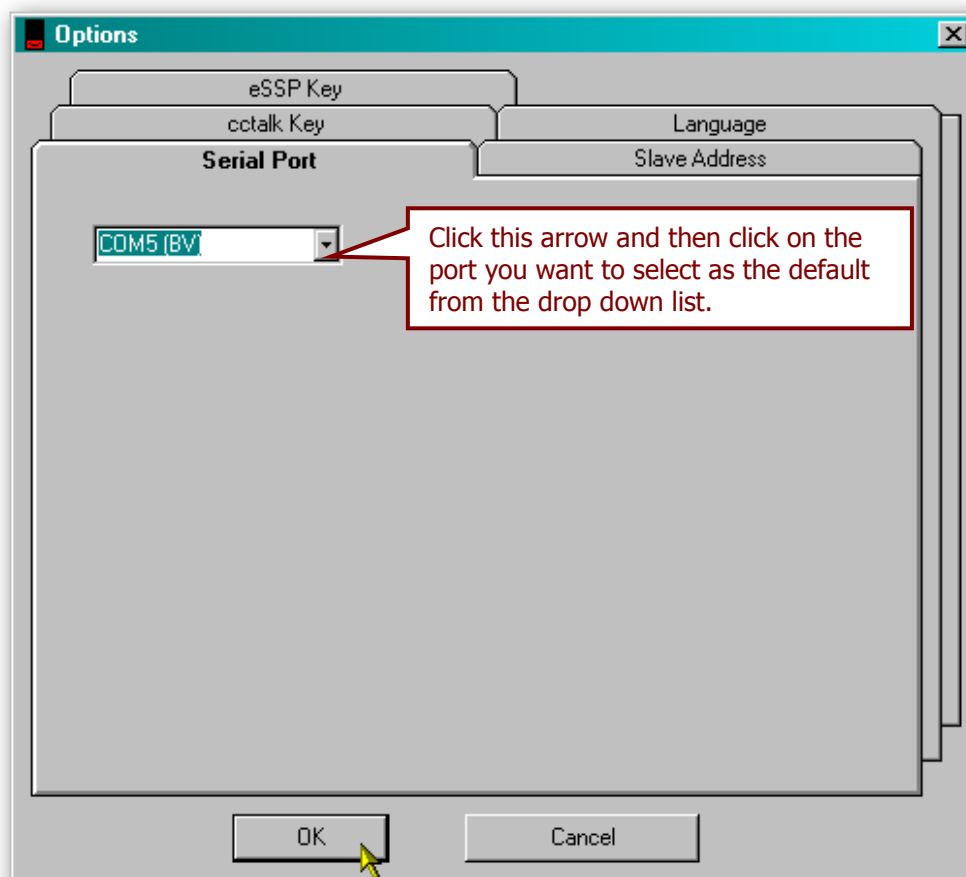
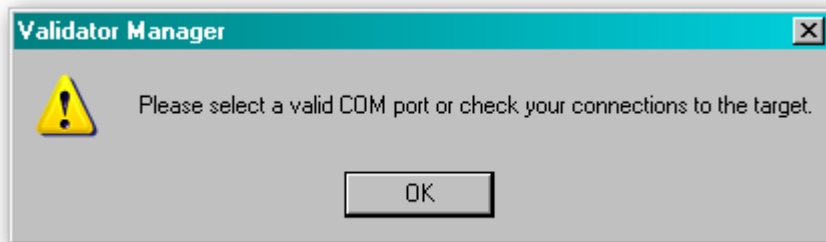
Options:

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:

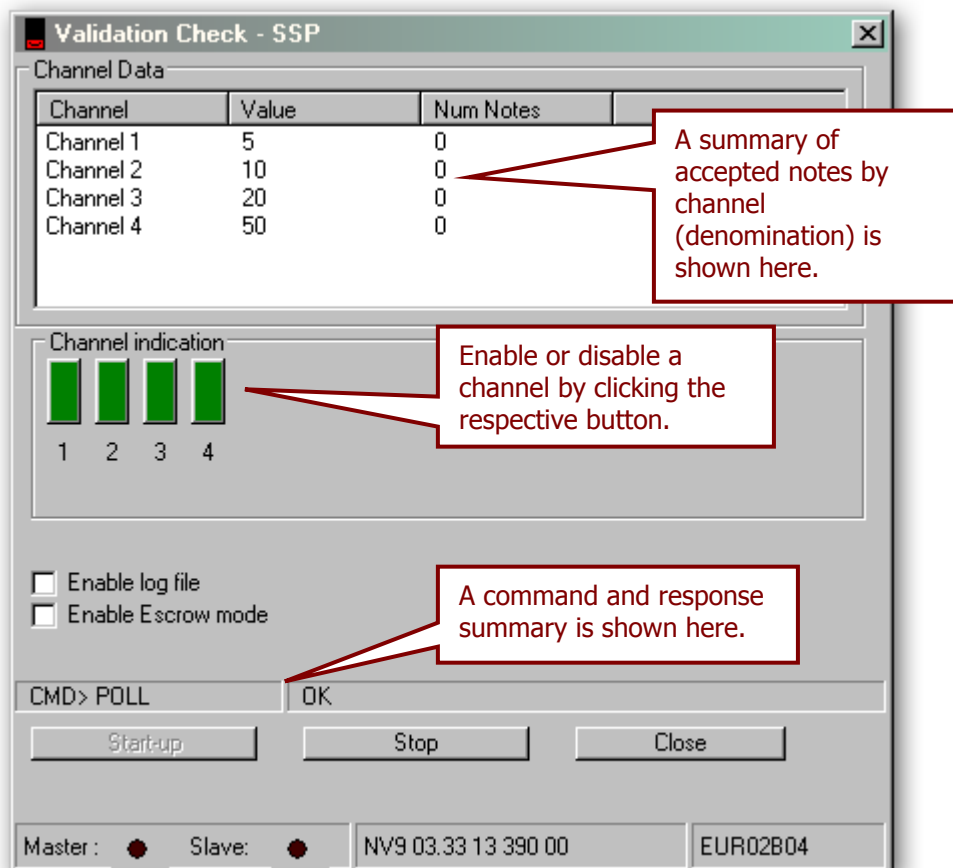


Selecting the 'Serial Port' tab from the 'Options' dialog and defining which serial port to use to connect to the NV9 USB validator should be one of the first things you do after installing the software.

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.

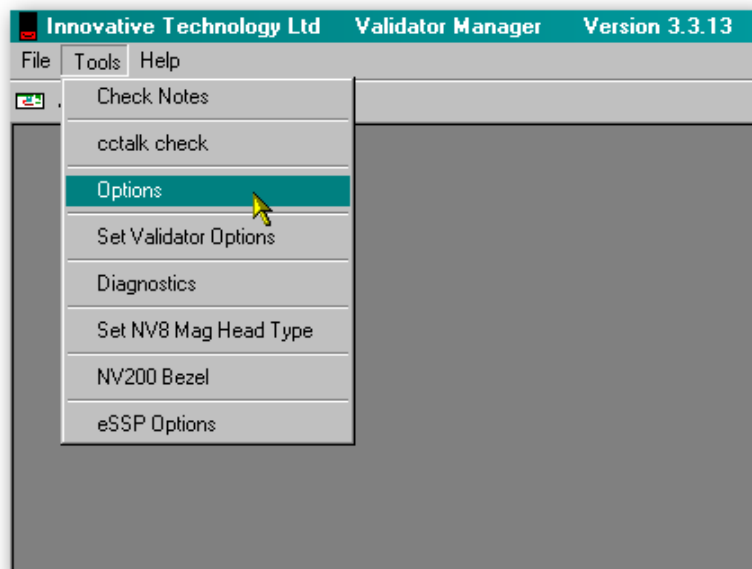
Check Notes:

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 NV9 USB validator and allow acceptance of bank notes.

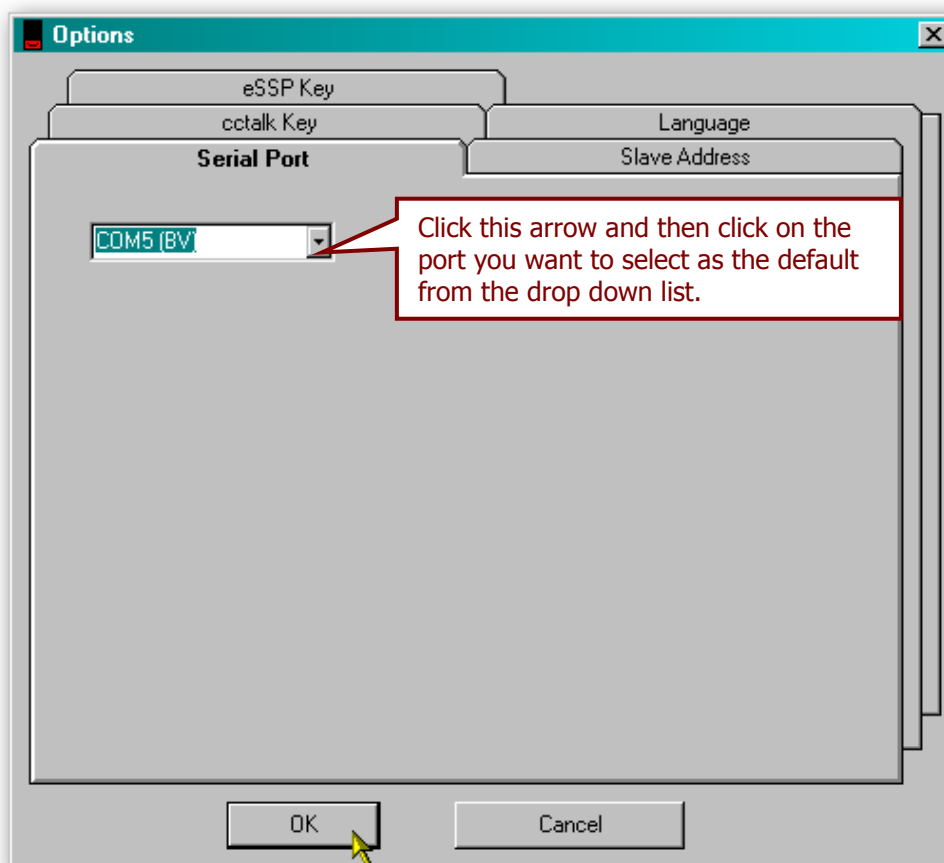
3.1.6 Preferences, Settings and Options

Options:

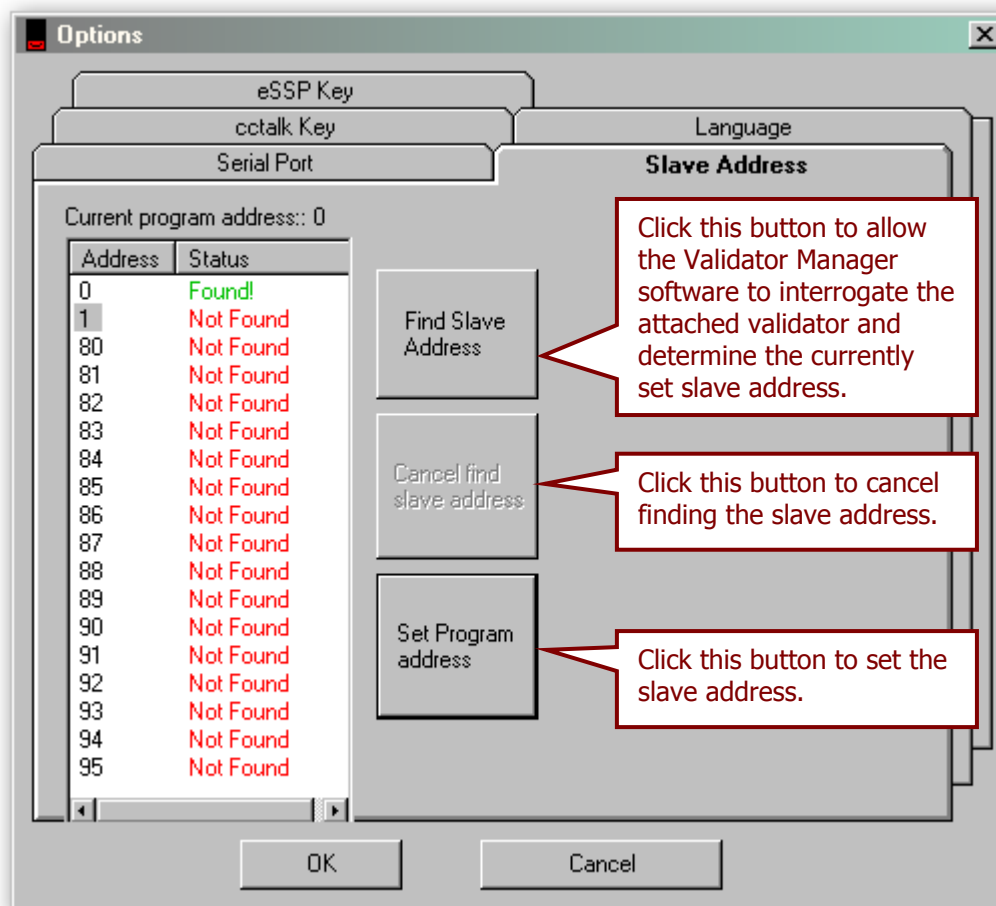
The general preferences for the Validator Manager software are accessible from the 'Tools' menu (as shown). Click the 'Options' entry to open a new dialog box:



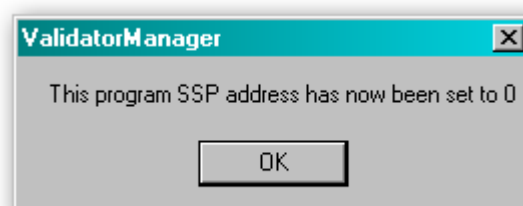
By selecting the 'Serial Port' tab from the 'Options' dialog you can define which serial port is being used to connect to the NV9 USB validator – click the 'OK' button to confirm the setting:



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.



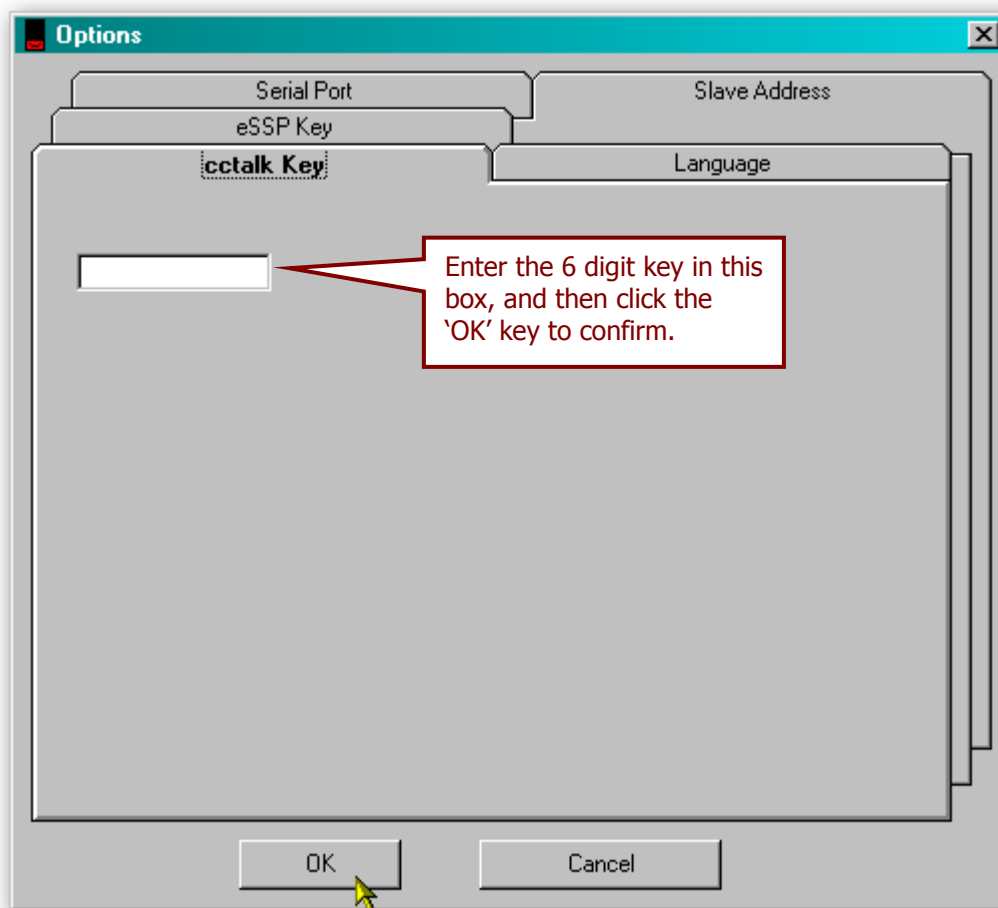
CAUTION!

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!**

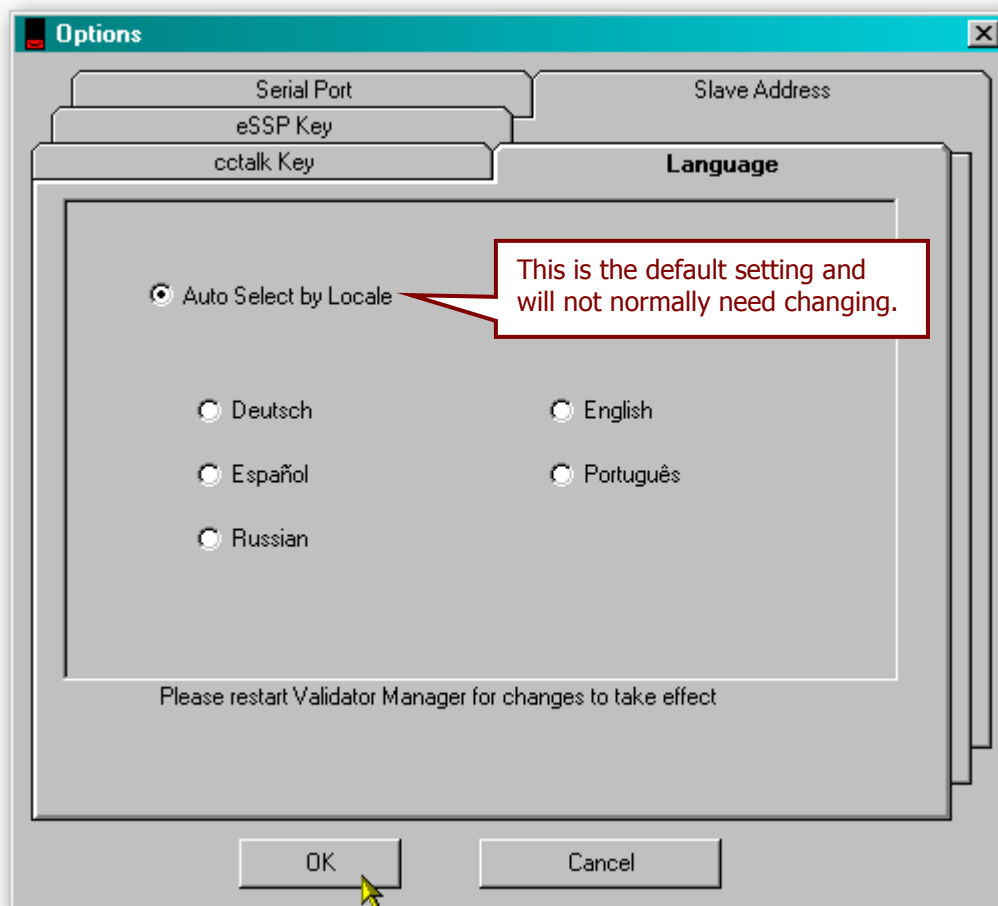
Take care when changing
ccTalk key

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.

The eSSP key is made up a string of hexadecimal characters - each part of the key comprises two characters, giving a key with 16 characters in total.

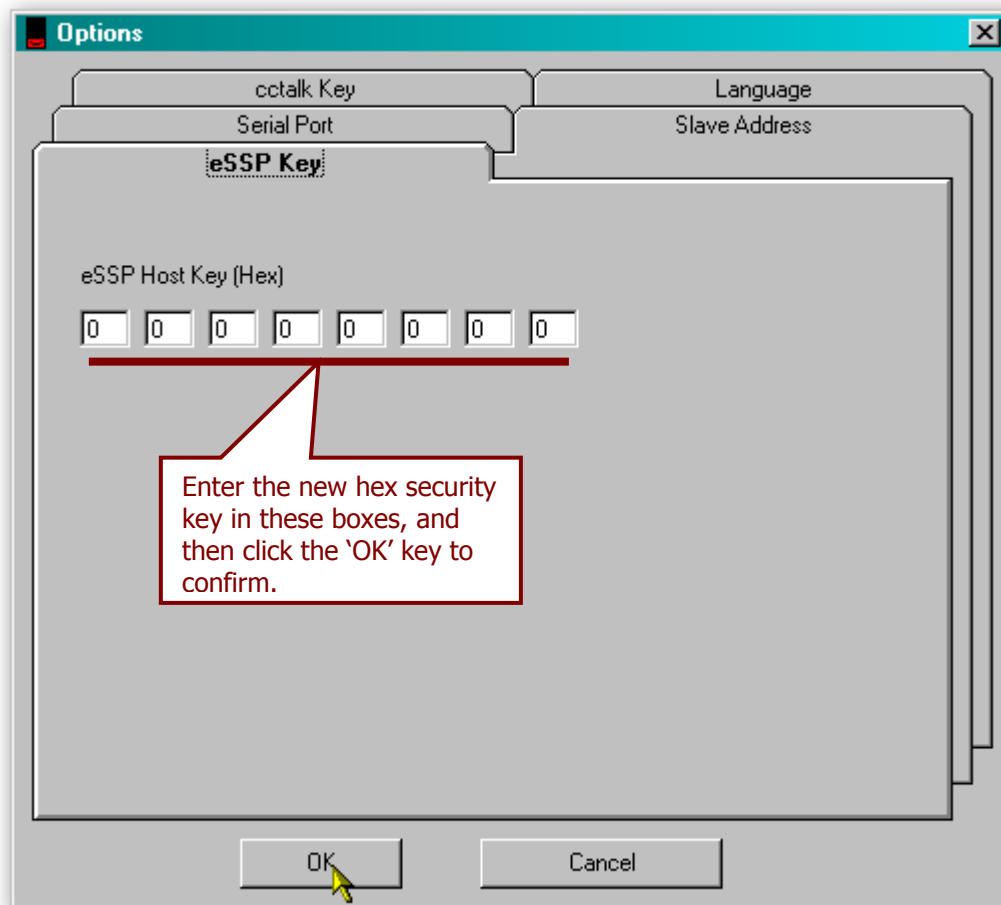
As an example, your key may look like this:

65616d636f6e7375



This key would be entered eight groups of two characters per group, like this:

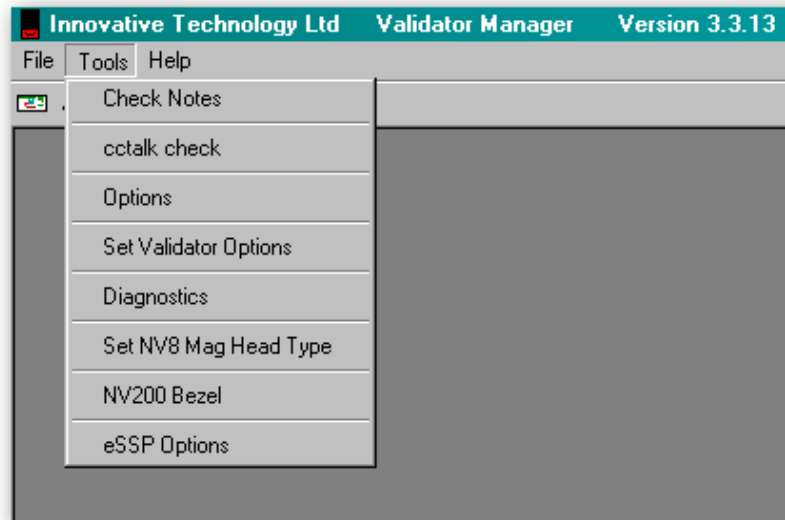
65 61 6d 63 6f 6e 73 75



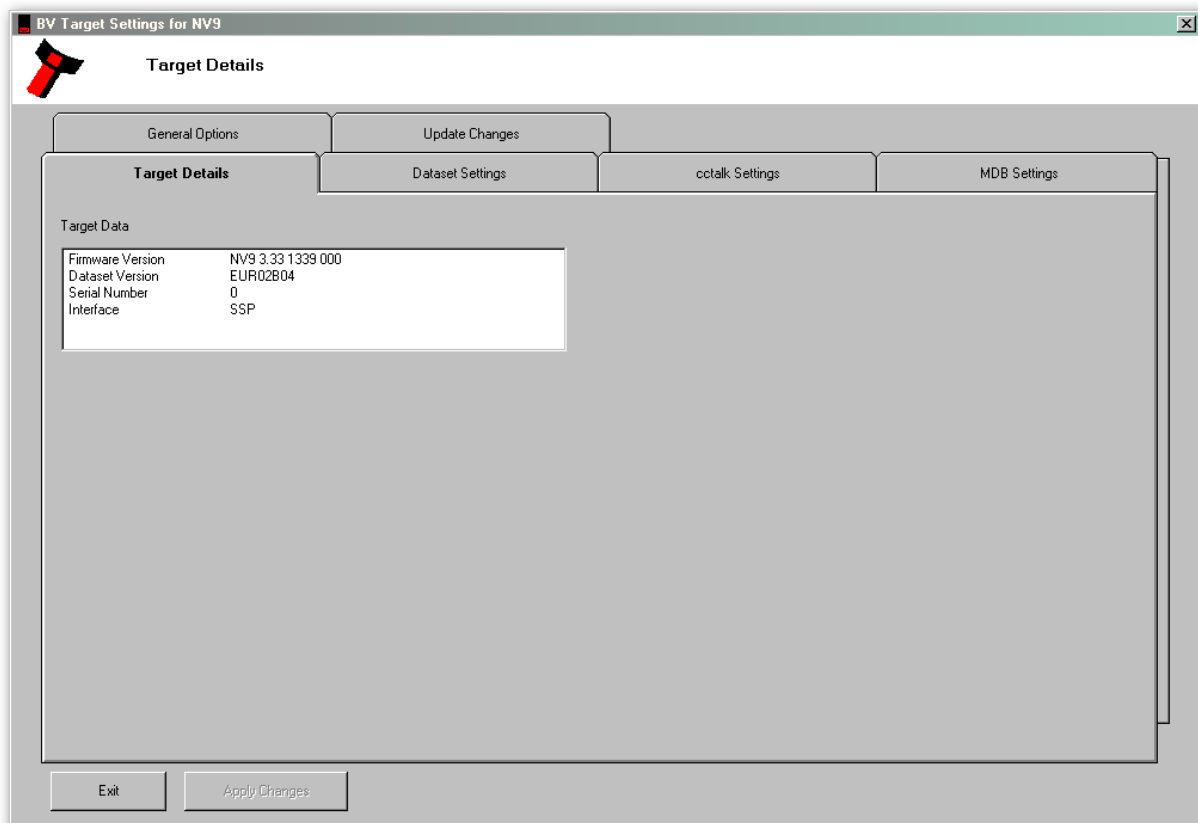
After entering the new key, press the 'OK' button to confirm the change.

Validator Options:

NV9 USB 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:

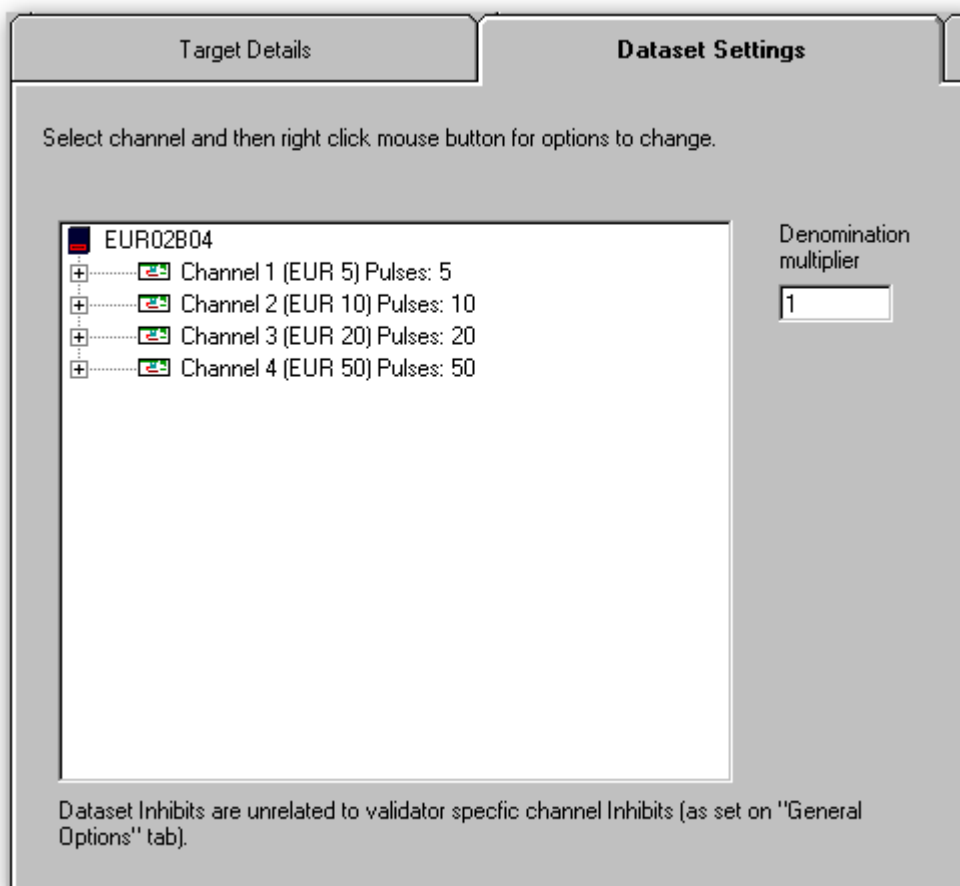


The screenshot shows a software window with two tabs: 'Target Details' (selected) and 'Dataset Settings'. Under the 'Target Details' tab, there is a section labeled 'Target Data' containing a table with the following information:

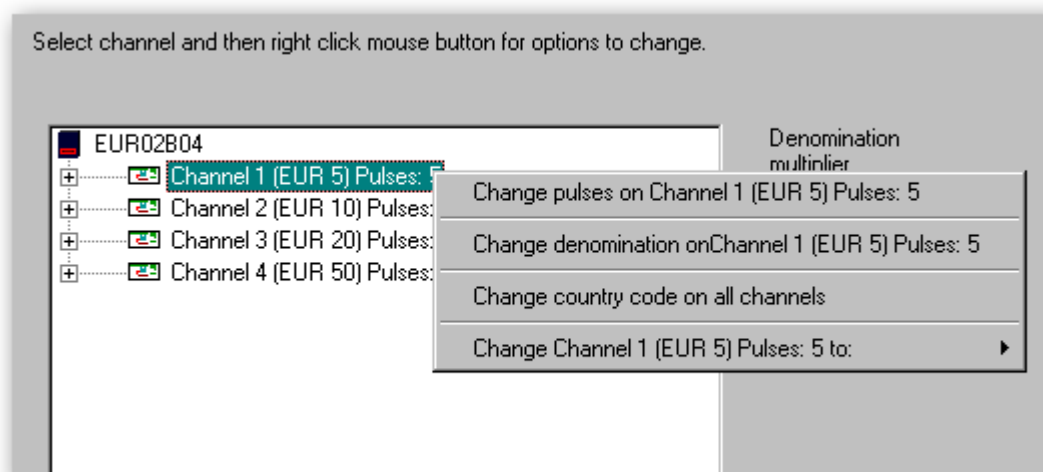
Firmware Version	NV9 3.33 1339 000
Dataset Version	EUR02B04
Serial Number	0
Interface	SSP

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	EU0005A	05.00
2	EU0010A	10.00
3	EU0020A	20.00
4	EU0050A	50.00

Country	Multiplier	Dec
EU	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	1978
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:

Click these boxes to enable or disable the Strim and Program Card Functions, and whether the validator will issue credit after a jam.

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

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

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

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

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.



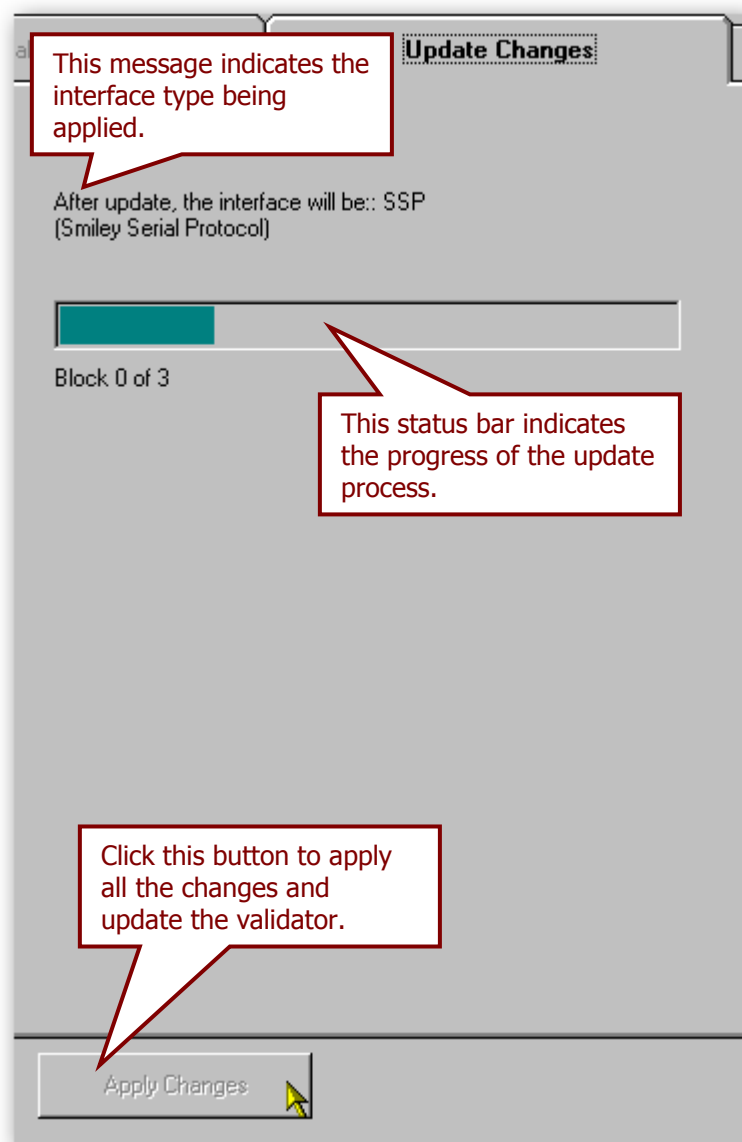
Information

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:

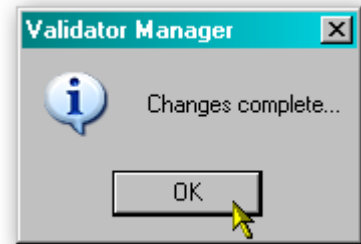
**Information**

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.



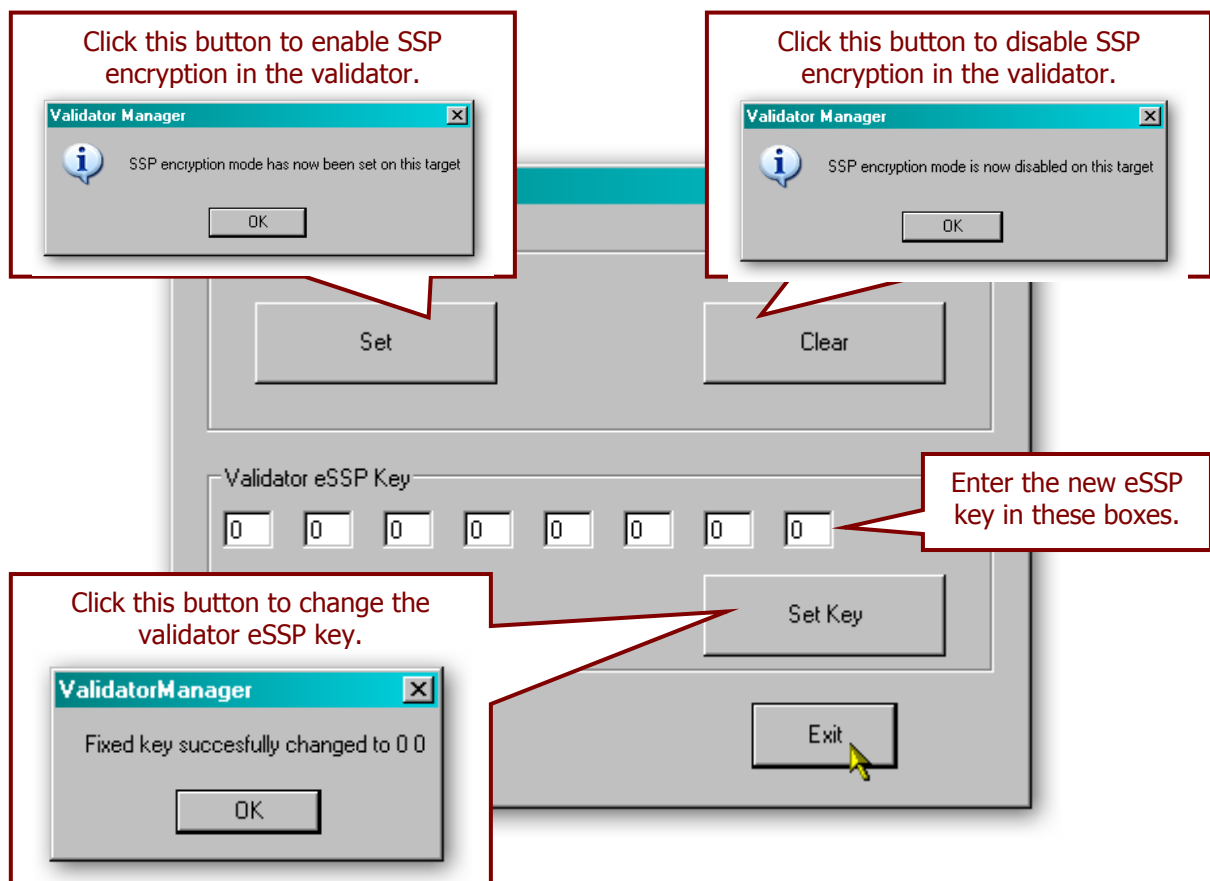
WARNING!

Do not power off or disconnect

Powering off the NV9 USB 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 NV9 USB when updating the firmware or dataset can cause the validator to stop working.

The NV9 USB 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 #

<< Start < Prev 1 **2** Next > End >>

Page 1 of 2

Name	Code	Issue	Validator		
Euro (20-50)	EUR71B02	2	NV9USB		
Euro (5-10-20) MDB Multip	EUR52B02	2	NV9USB		
Euro (5-10-20-50)	EUR02B04	4	NV9USB		
Euro (5-10-20-50)	EUR56B03	3	NV9USB		
Euro (5-10-20-50)	EUR58B03	3	NV9USB		
Euro (5-10-20-50-100-200-	EUR45B15	15	NV9USB		
Euro (5-10-20-50-B-100)	EUR69B03	3	NV9USB		
Euro (B-B-5-10-20-50)	EUR60B03	3	NV9USB		
Euro(10-20-50)	EUR67B03	3	NV9USB		
Euro(5(i)-10(i)-20-50)	EUR74B02	2	NV9USB		
Euro(5(i)-10-20-50)	EUR72B02	2	NV9USB		
Euro(5-10)	EUR04B04	4	NV9USB		
Euro(5-10-20)	EUR70B02	2	NV9USB		
Euro(5-10-20)	EUR10B04	4	NV9USB		
Euro(5-10-20-50)	EUR73B02	2	NV9USB		
Euro(5-10-20-50)	EUR59B03	3	NV9USB		
Euro(5-10-20-50-100)	EUR63B03	3	NV9USB		
Euro(5-10-20-50-100)	EUR61B03	3	NV9USB		
Euro(5-10-20-50-100)	EUR03B03	3	NV9USB		
Euro(5-10-20-50-100-200)	EUR54B03	3	NV9USB		



Information

Combined data files

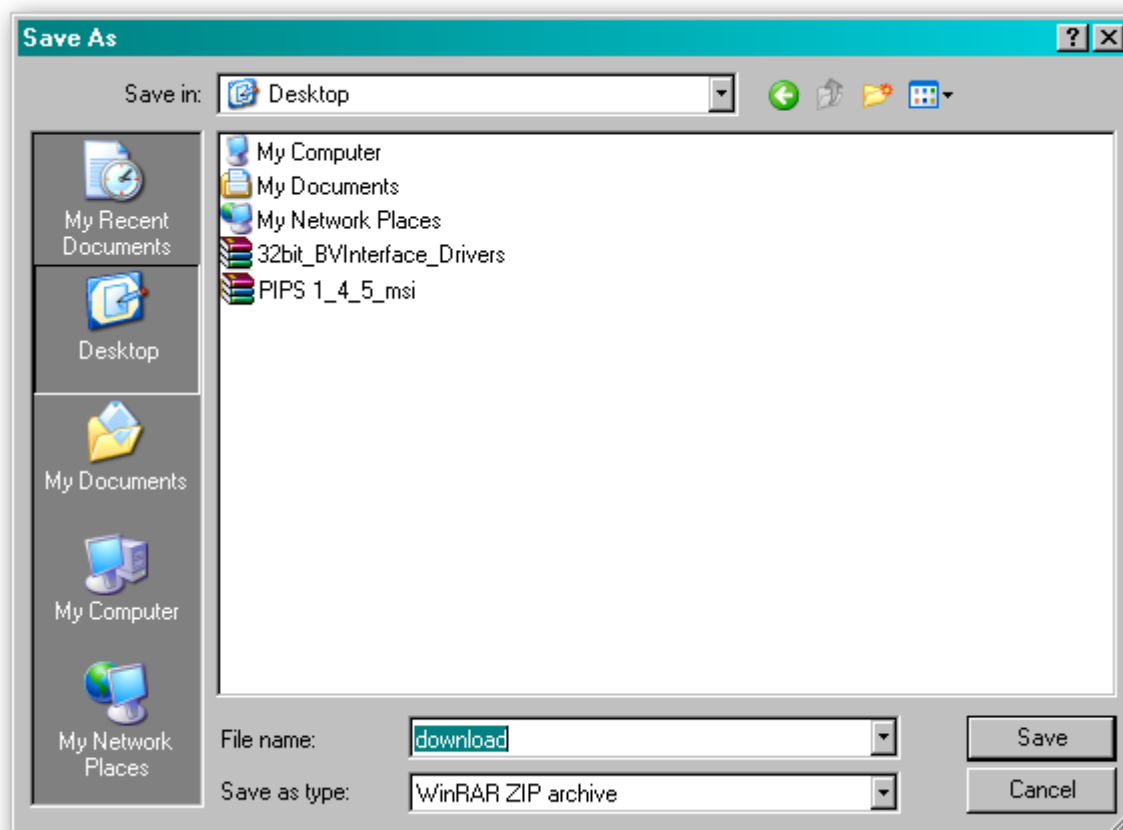
The firmware and dataset files for the NV9 USB validator are combined into a single file, so both will be updated when you carry out the update.



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

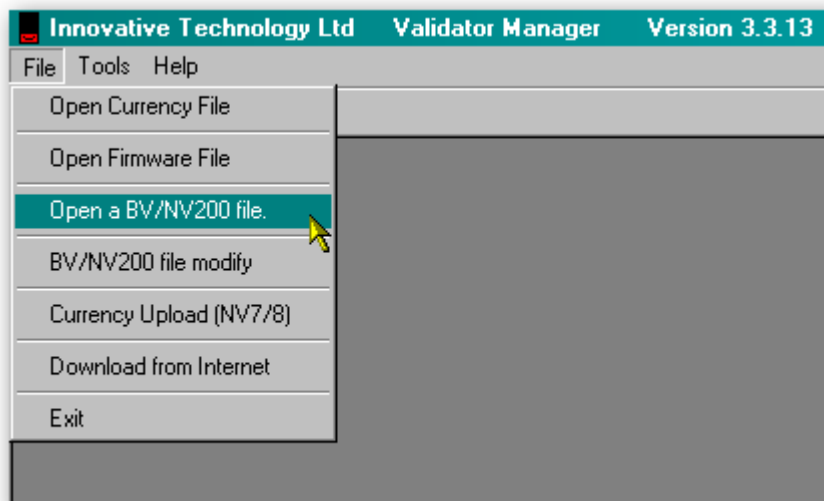


You can then choose where to save the file – choose a location that is convenient for you:

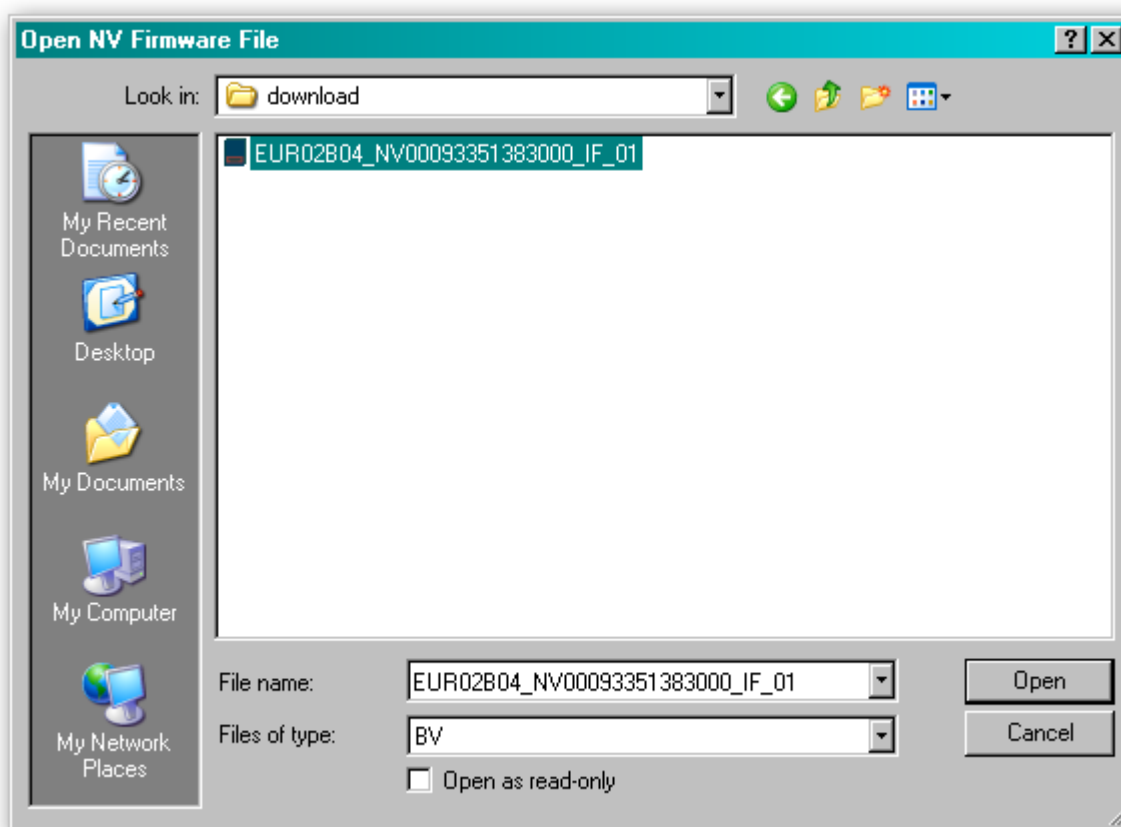


Once the dataset file is saved, unzip the file and you can then start the process to update the NV9 USB validator by connecting the USB cable and starting the Validator Manager software as described previously.

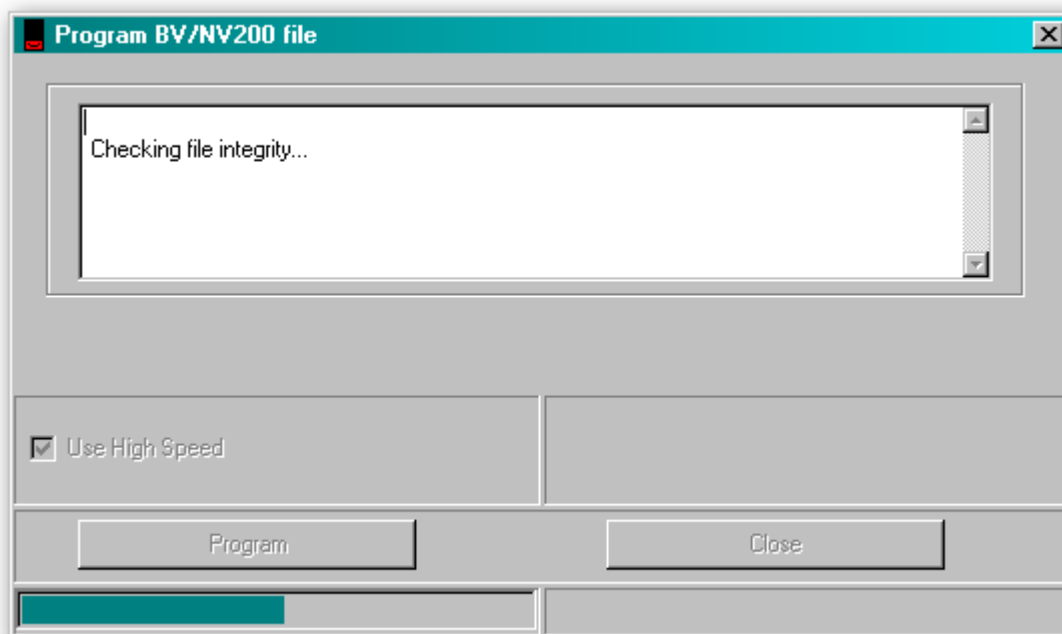
From the Validator Manager main screen, select the 'Open a BV/NV200 file' entry from the 'File' menu as shown here:



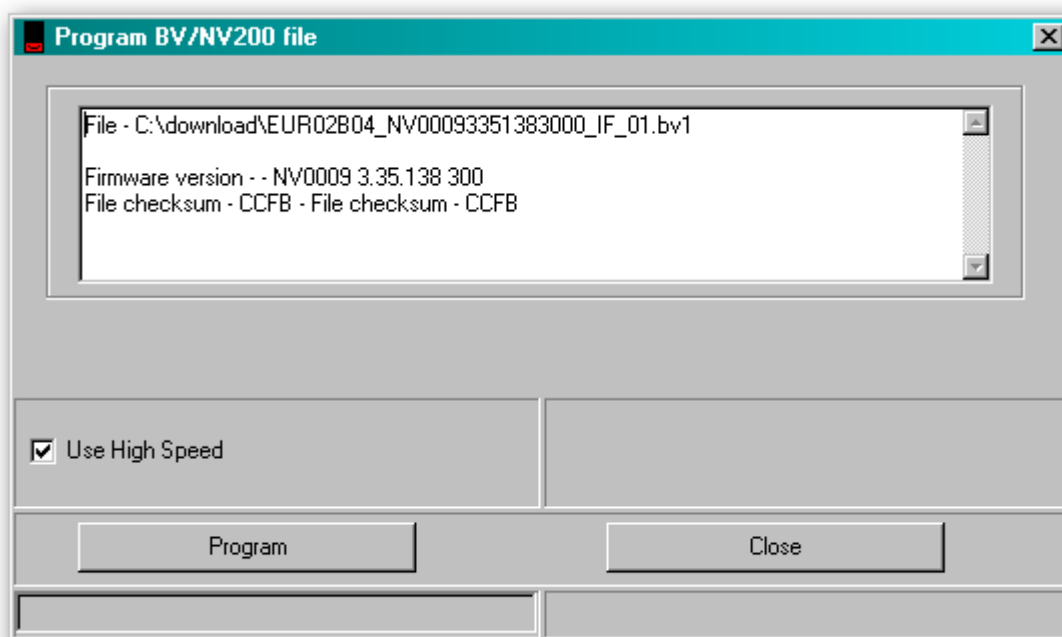
You will then be prompted to select the dataset file you downloaded and unzipped earlier – select the file and click the 'Open' button:



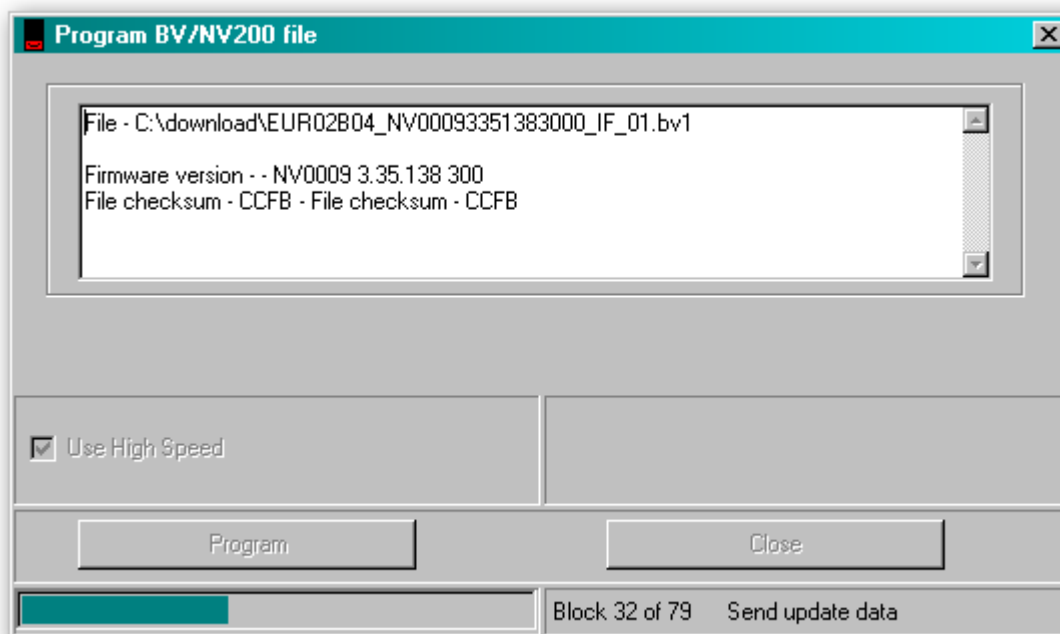
After clicking the 'Open' button, a new dialog box will appear. The status bar in the bottom left hand corner of the dialog box will show the progress in loading the dataset:



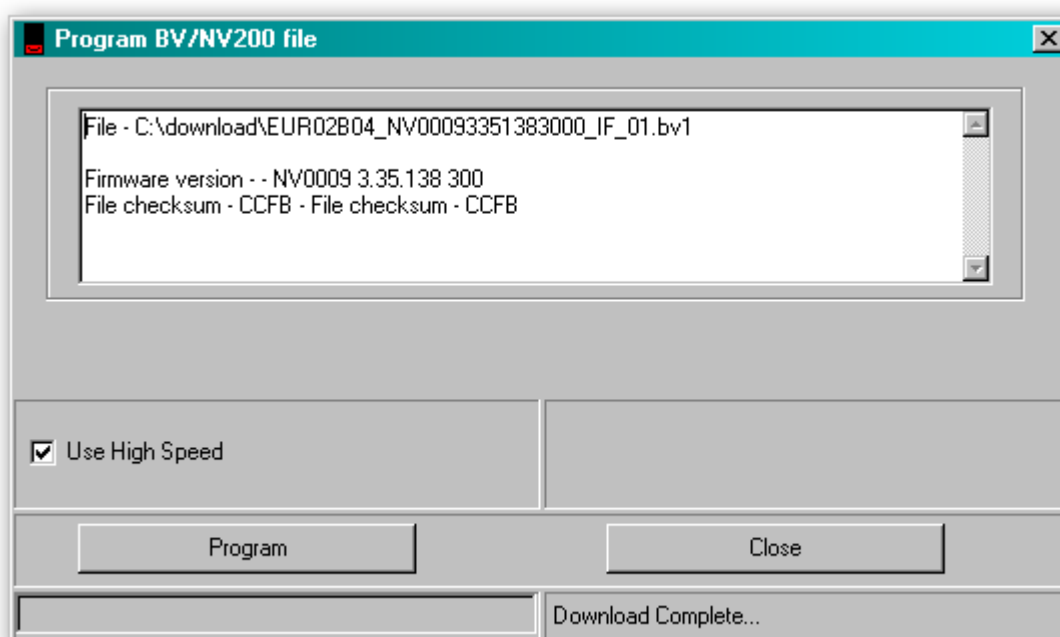
Once the dataset has been loaded, the file details will be shown in the status window, and the two buttons at the bottom of the dialog box will be active - **make sure that you do not disconnect the power to the NV9 USB or remove the USB cable until the programming operation has been completed.** Click 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 NV9 USB bezel will flash when the update is completed. After the update, the NV9 USB will be reset, and the dialog box will then look like this:



After the reset is complete, the NV9 USB validator will then be ready for use with the new currency.

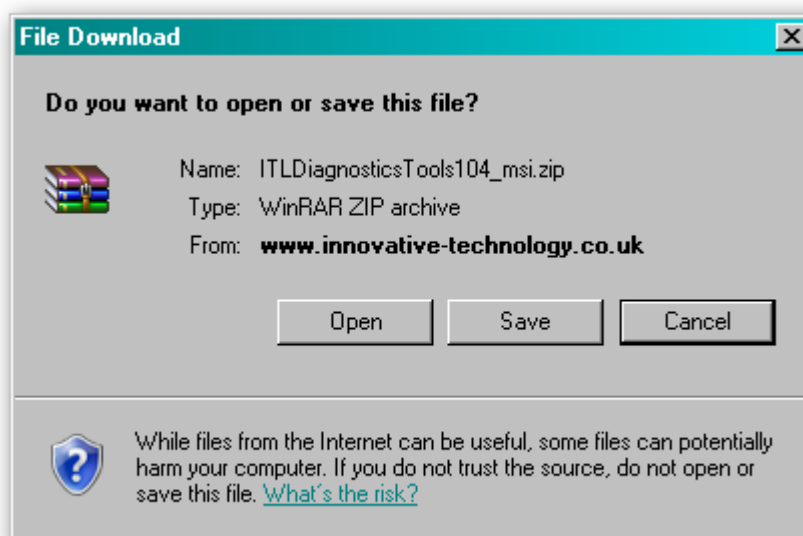
3.3 Tools

3.3.1 Diagnostics

There is a dedicated software diagnostics tool for use with the NV9 USB validator called 'Bank Note Validator Diagnostics Tools', and this software can be downloaded from the Innovative Technology Ltd website:

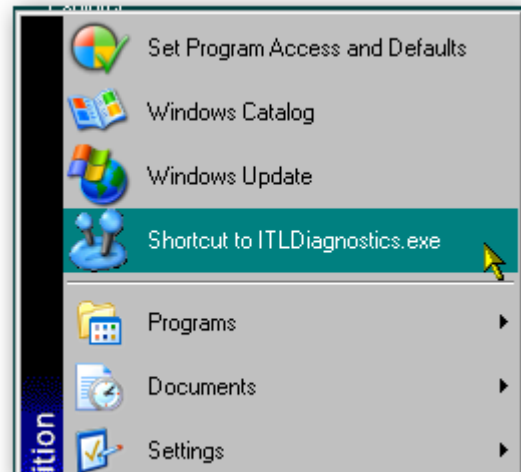
Title	Version	File		
Bank Note Validator Currency Manager	3.3.13			
VPS (Validator Programming System)	1.0.16			
SMART PIPS (Pay In Pay Out System)	1.4.5			
Bank Note Validator Diagnostics Tools	1.0.4			
DA2 Drivers - 32 bit				
DA2 Drivers - 64 bit	1			
BV Interface Driver Install - 32 bit	2			
BV Interface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

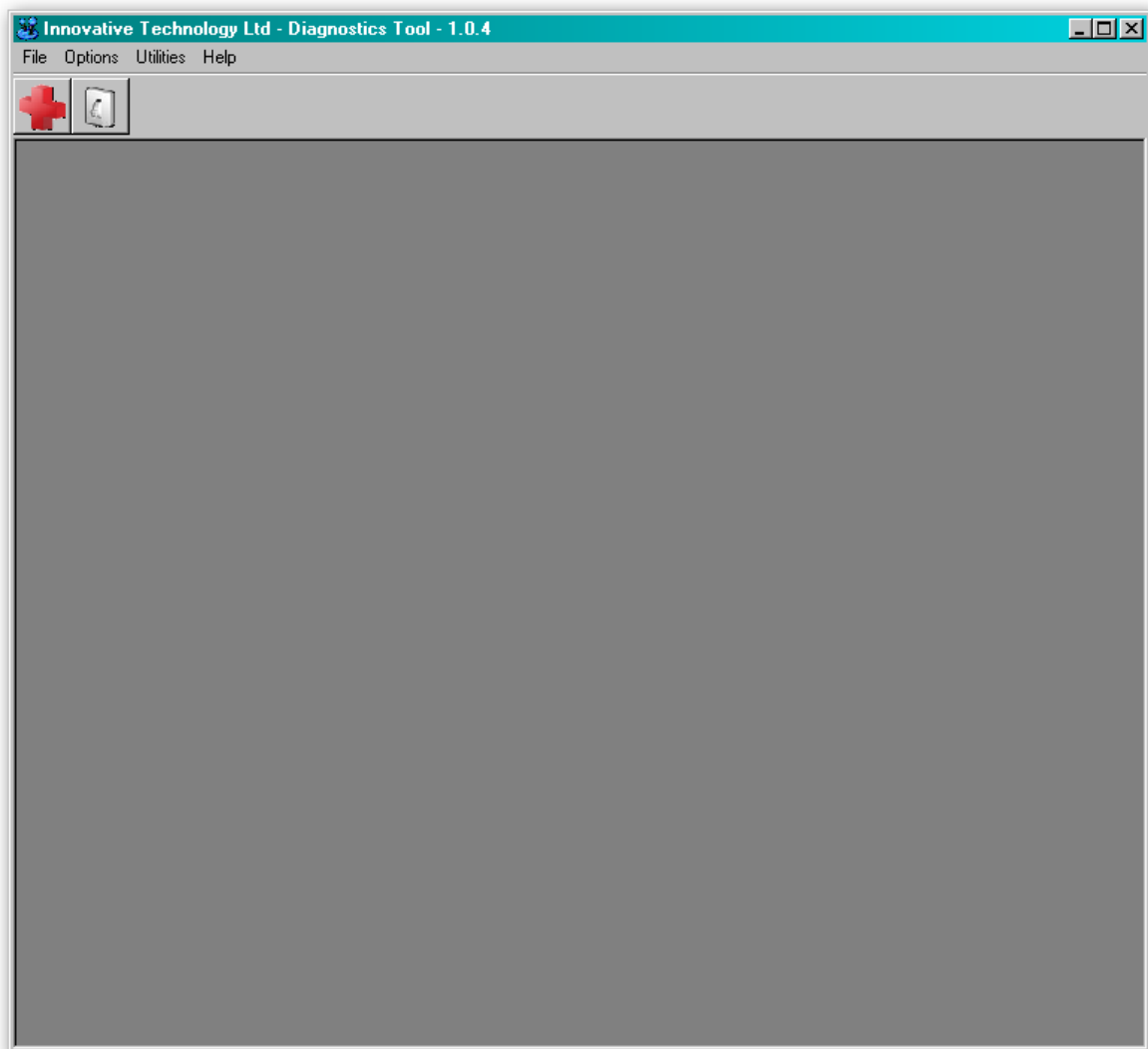


Installing the Diagnostics tools software is done in the same way as the Validator Manager software - Find the ITLDiagnosticsTools zipped file you just downloaded, extract the installation file from the zipped file and double click the extracted file (it has an .msi extension) – this will start the installation 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 NV9 USB Validator is powered up and the USB cable is connected before starting the program.

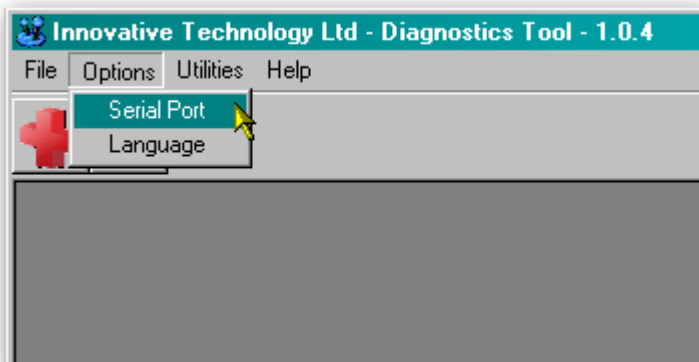


The main screen of the diagnostics tools software looks like this:



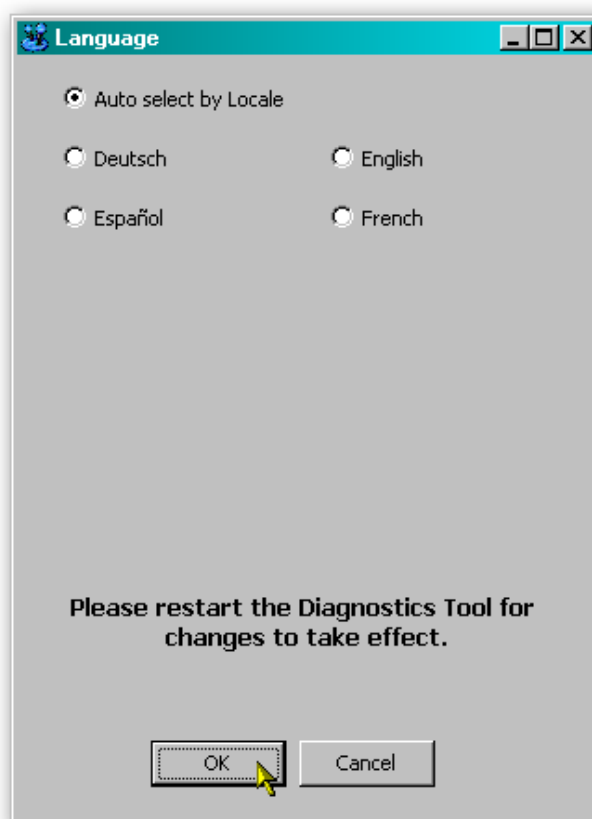
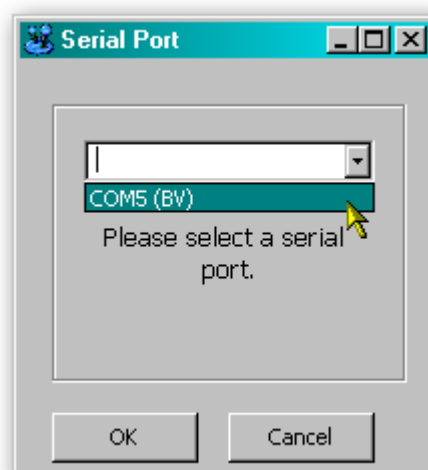
When running the software for the first time, you need to set a few options. These are accessed from the 'Options' menu:





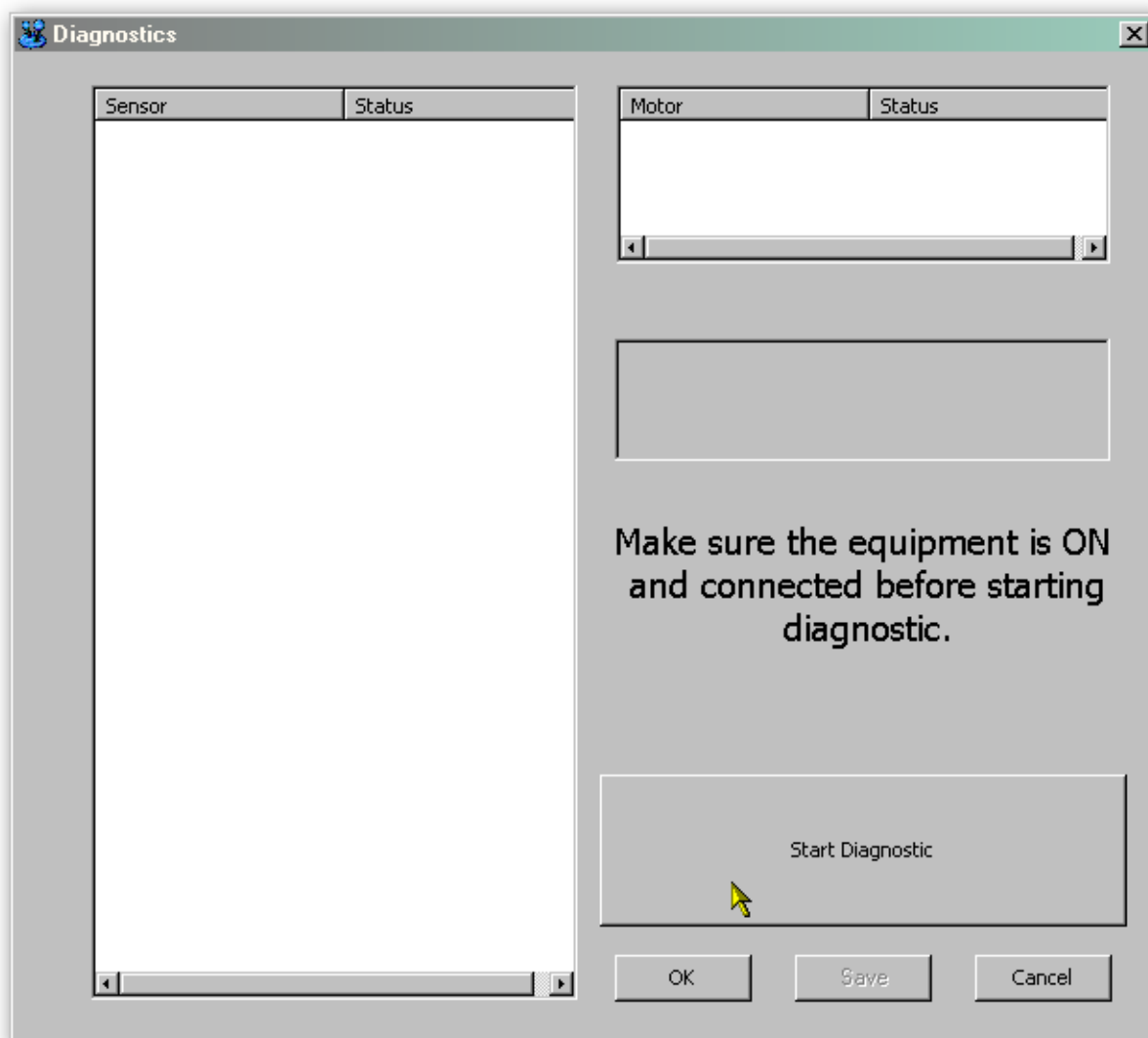
By selecting the 'Serial Port' item from the 'Options' menu you can define which serial port is being used to connect to the NV9 USB validator. After selecting this option, a new dialog box will open allowing you to choose the correct serial port.

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:

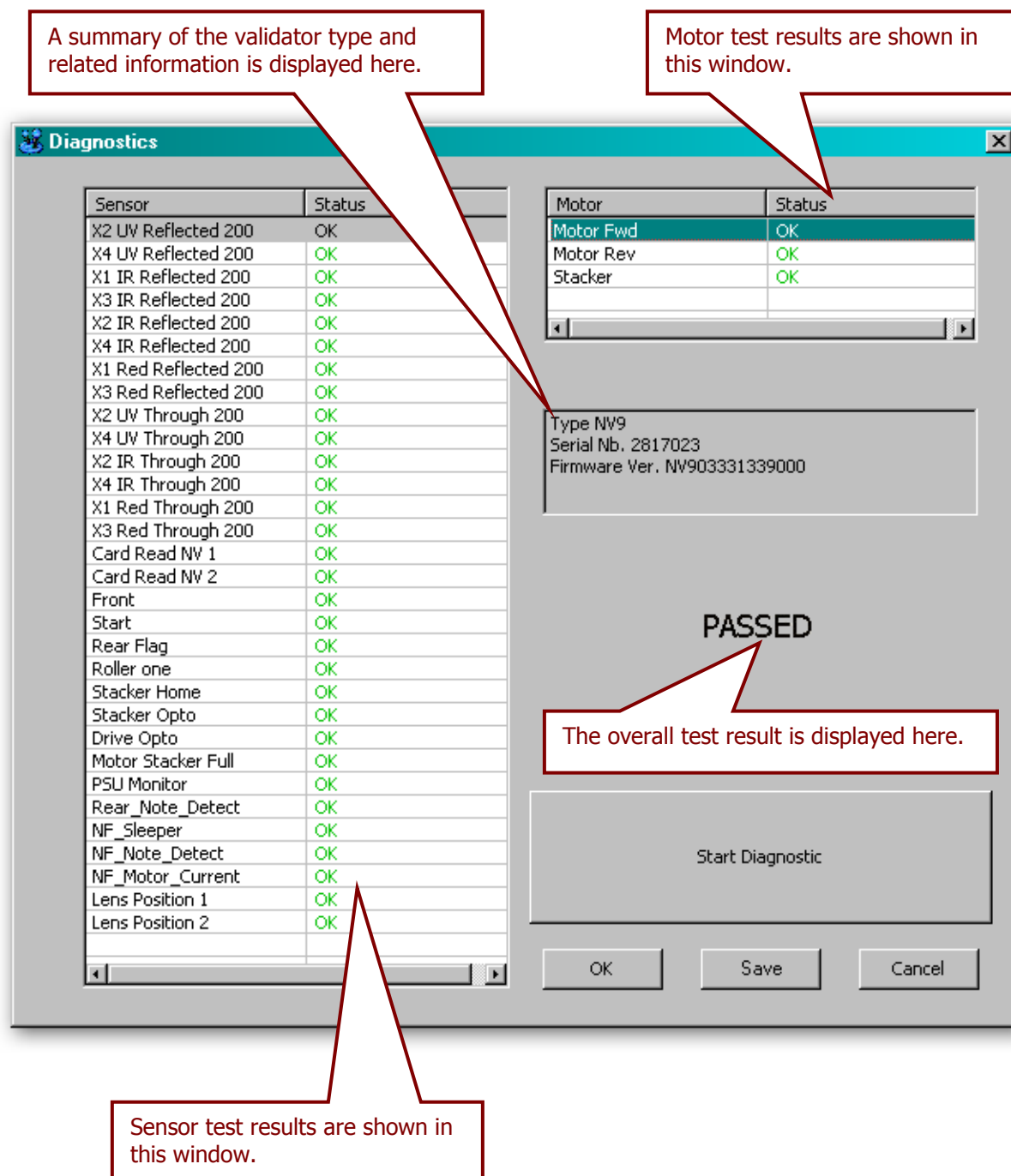




Select the 'Diagnostics' item from the 'Utilities' menu to start the diagnostics process (you can also start the diagnostics by clicking on the left hand icon below the menu bar) - this will open the Diagnostics screen:



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 LB00149). 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, several sensors have failed during the diagnostics test.

Diagnostics

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
X1 Red Through 200	OK
X3 Red Through 200	OK
Card Read NV 1	OK
Card Read NV 2	OK
Front	OK
Start	FAIL
Rear Flag	FAIL
Roller one	OK
Stacker Home	OK
Stacker Opto	OK
Drive Opto	OK
Motor Stacker Full	OK
PSU Monitor	OK
Rear_Note_Detect	FAIL
NF_Sleeper	FAIL
NF_Note_Detect	FAIL
NF_Motor_Current	FAIL
Lens Position 1	FAIL
Lens Position 2	FAIL

Motor	Status
Motor Fwd	OK
Motor Rev	OK
Stacker	OK

Type NV9
Serial Nb. 2817023
Firmware Ver. NV903331339000

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 NV9 USB Validator has a single connector that is used to allow interfacing and programming.

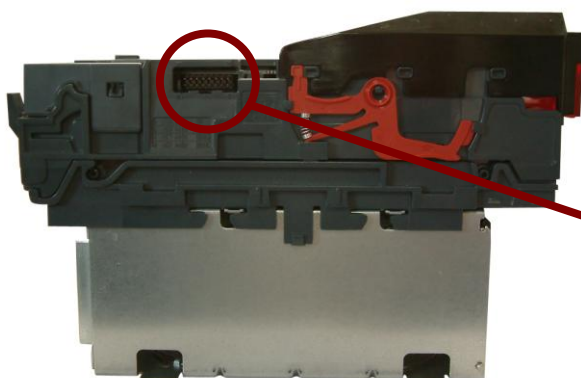


Information

Power always required regardless of connection type.

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

The connector is a 16 pin socket located on the side of the validator head. This connector is used to interface the NV9 USB to the host machine. The pin numbering of the socket is shown below, as well as an overview of the socket connections:



Interface Socket



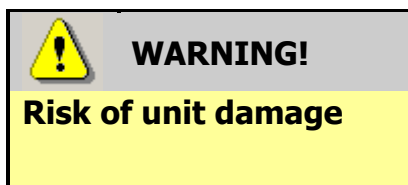
Pin	Description
1	Serial Data Out (Tx)
5	Serial Data In (Rx)
11	USB Data +
12	USB Data -
13	USB Power (+5V)
15	+ V
16	0V / Ground Connection

To use a USB connection with the NV9 USB, a USB cable with a 16 way connector on one end (ITL Part Number CN00392) should be used. The CN00392 cable fits into the 16 way connector and allows high speed programming and serial communications when used in SSP, ccTalk and SIO modes.



When using the USB connection, power must be supplied to the NV9 USB using the CN00392 cable.

The socket connections for the natively supported protocols are shown in the tables below, as is a summary of the interface units needed for other types of operation:



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.

NV9 USB SSP Interface:

Pin	Name	Type	Description
1	Vend 1	Output	Serial data out (Tx)
2	Factory use only		Do not connect
3			
4			
5	Inhibit 1	Input	Serial data in (Rx)
6	Factory use only		Do not connect
7			
8			
9			
10			
11	USB D+	Data	USB Data +
12	USB D-	Data	USB Data -
13	USB Vcc	Power	USB +V (+5V)
14	Factory use only		Do not connect
15	V In	Power	+V
16	GND	Ground	GND



NV9 USB ccTalk Interface:

Pin	Name	Type	Description
1	Vend 1	Output	Serial data – must also be connected to pin 5
2	Factory use only		Do not connect
3			
4			
5	Inhibit 1	Input	Serial data – must also be connected to pin 1
6	Factory use only		Do not connect
7			
8			
9			
10			
11	USB D+	Data	USB Data +
12	USB D-	Data	USB Data -
13	USB Vcc	Power	USB +V (+5V)
14	Factory use only		Do not connect
15	V In	Power	+V
16	GND	Ground	GND

NV9 USB SIO Interface:

Pin	Name	Type	Description
1	Vend 1	Output	Serial data
2	Factory use only		Do not connect
3			
4			
5	Inhibit 1	Input	Serial data
6	Factory use only		Do not connect
7			
8			
9			
10			
11	USB D+	Data	USB Data +
12	USB D-	Data	USB Data -
13	USB Vcc	Power	USB +V (+5V)
14	Factory use only		Do not connect
15	V In	Power	+V
16	GND	Ground	GND



NV9 USB Pulse Interface:

Pin	Name	Type	Description
1	Vend 1	Output	Credit pulse stream output
2	Factory use only		Do not connect
3			
4			
5	Inhibit 1	Input	Inhibit Channel 1 by holding this pin HIGH
6	Inhibit 2	Input	Inhibit Channel 2 by holding this pin HIGH
7	Inhibit 3	Input	Inhibit Channel 3 by holding this pin HIGH
8	Inhibit 4	Input	Inhibit Channel 4 by holding this pin HIGH
9	Busy	Output	Busy signal – output is pulled low when the validator is busy
10	Escrow	Input	Enable Escrow function by holding this pin LOW
11	Factory use only		Do not connect
12			
13			
14			
15	V In	Power	+V
16	GND	Ground	GND

When operating in Pulse mode the NV9 USB 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.

NV9 USB 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 NV9 USB validator is a slave to master controller.

To use the NV9 USB with MDB protocol, an **IF5** external interface is required. The IF5 regulates the power supply and opto-isolates the communication lines. The NV9 USB validator supports the MDB Protocol Version 1, Level 1.



NV9 USB Parallel Interface:

Pin	Name	Type	Description
1	Vend 1	Output	Channel 1 credit, 100ms active low pulse
2	Vend 2	Output	Channel 2 credit, 100ms active low pulse
3	Vend 3	Output	Channel 3 credit, 100ms active low pulse
4	Vend 4	Output	Channel 4 credit, 100ms active low pulse
5	Inhibit 1	Input	Inhibit Channel 1 by holding this pin HIGH
6	Inhibit 2	Input	Inhibit Channel 2 by holding this pin HIGH
7	Inhibit 3	Input	Inhibit Channel 3 by holding this pin HIGH
8	Inhibit 4	Input	Inhibit Channel 4 by holding this pin HIGH
9	Busy	Output	Busy signal – output is pulled low when the validator is busy
10	Escrow	Input	Enable Escrow function by holding this pin LOW
11	Factory use only		Do not connect
12			
13			
14			
15	V In	Power	+V
16	GND	Ground	GND

When operating in Parallel mode the NV9 USB will issue a 100ms active LOW pulse on the relevant vend line, and a maximum of 4 channels can be used. There is also the option to use a binary output where the NV9 USB will output a binary pattern on vend lines 1 – 4. Binary mode can be set as an option using a configuration card or with the Bank Note Validator Currency Manager Software.

3.4 Frequently Asked Questions

a. Why are there no DIP switches on the unit?

- The NV9 USB has no dipswitches. Configuring the unit is carried out using a configuration button mounted on top of the unit – see Section 1, subsection 1.3 of this manual set for more information.

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.

c. Some or all notes are not accepted

- Check that no inhibits are set in the Validator Manager software (see subsection 3.1 of this manual). If the problem persists, contact ITL Support for further assistance.

MAIN HEADQUARTERS

Innovative Technology Ltd
Derker Street – Oldham – England - OL1 4EQ
Tel: +44 161 626 9999 Fax: +44 161 620 2090
E-mail: support@innovative-technology.co.uk
Web site: www.innovative-technology.co.uk



BRAZIL

suporte@bellis-technology.com.br

CHINA

support@innovative-technology.co.uk

GERMANY

supportDE@innovative-technology.eu

SPAIN

supportES@innovative-technology.eu

UNITED KINGDOM

support@innovative-technology.co.uk

UNITED STATES OF AMERICA

supportusa@bellis-technology.com

REST OF THE WORLD

support@innovative-technology.co.uk

