



iMAC[®]

iTools
User Manual

Version: 1 - November 2020

Designed and Manufactured in Australia by Ampcontrol Pty Ltd



WARNING!



The **warning** symbol highlights a potential risk of **injury or death**.
Please share these warnings with other operators.

CAUTION!



The **caution** symbol highlights a potential risk of **damage to equipment**.
Please share these cautions with other operators.

NOTE



The **note** symbol highlights **key information**.
Please share these notes with other operators.

ENVIRO



The **enviro** (environmental) symbol highlights areas which may have an impact on the surrounding **fauna and/or flora**.

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Before You Begin

Thank you for purchasing the Ampcontrol iMAC System.

WARNING!



In the interests of **safety and correct equipment operation**, please take the time to read and understand the content in this manual.

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TABLE OF CONTENTS

1 iMAC iTOOLS OVERVIEW	5
1.1 Prerequisites	5
1.2 Serial Communications Port	5
1.2.1 Serial Port Programming Mode	6
1.3 iMAC Programming Cable	6
2 DOWNLOADING AND INSTALLING iTOOLS	7
2.1 Downloading iTools	7
2.2 Installing iTools	9
3 INSTALLING OPERATING SYSTEM FIRMWARE	11
4 DOWNLOADING SLP CODE	14

TABLE OF FIGURES

Figure 1 : Location of the Serial Communications Port Terminals.....	5
Figure 2: Comms LED Functionality	6
Figure 3 : iMAC Programming Cable (PN: 180109).....	6
Figure 4: Ampcontrol Website	7
Figure 5: Ampcontrol Website: Search	7
Figure 6: Ampcontrol Website: Search “iTools”	8
Figure 7: Ampcontrol Website: Download iTools	8
Figure 8: iTools Zip Folder.....	9
Figure 9: Warning Message	9
Figure 10: Warning Message: Run Anyway.....	9
Figure 11: iTools Setup Wizard	10
Figure 12: iTools Installation Complete.....	10
Figure 13: iTools Start Menu Icon.....	10
Figure 14: iTools	11
Figure 15: iTools: Operating System Code.....	12
Figure 16: iTools: Select Operating System Code	12
Figure 17: iTools Write Operating System Code.....	13
Figure 18: Operating System Firmware Version	13
Figure 19: iTools	14
Figure 20: iTools: SLP Code	15
Figure 21: SLP Code Write Warning	15
Figure 22: SLP Code Write Window	16
Figure 23: iTools: Select SLP Code.....	17
Figure 24: iTools: Write SLP Code	17
Figure 25: SLP Code Version.....	18

1 iMAC iTOOLS OVERVIEW

This document is intended to provide a detailed explanation of how to install iMAC application (SLP) code and iMAC Operating System Firmware.

This document is not intended to provide information on the operation of the overall iMAC System, individual modules or instruction on programming the iMAC Controller or modules. Please refer to the relevant documentation for more information.

1.1 Prerequisites

- System requirements: Windows 7/8/10 bases PC/Laptop (32 and 64 bit supported)
- iTools software installed on your PC/Laptop. Refer to Section 2 for details.
- The desired iMAC SLP application code.
- The iMAC Controller with access to the RS232 (green Phoenix) connector at the back of the controller, refer to Section 1.2
- Access to the iMAC power source, allowing a Controller power cycle.
- A programming cable. Refer to Section 1.3.

1.2 Serial Communications Port

The iMAC Controller is equipped with a serial communication port. The communication port has shared use; it can be used as the Controller programming port (for loading of application (SLP) code) or as a serial communications port (for exchanging data with compatible serial devices).

Serial Communications Port Terminals



Terminal	Description
COMMON	Common (RS232, RS422 & RS485)
Rx/T-	Receive (RS232) or Transmit(-) (RS422 & RS485)
Tx/T+	Transmit (RS232) or Transmit(+) (RS422 & RS485)
CTS/R-	Clear to Send (RS232) or Receive(-) (RS422 & RS485)
RTS/R+	Ready to Send (RS232) or Receive(+) (RS422 & RS485)



Rear of iMAC Controller

Figure 1 : Location of the Serial Communications Port Terminals

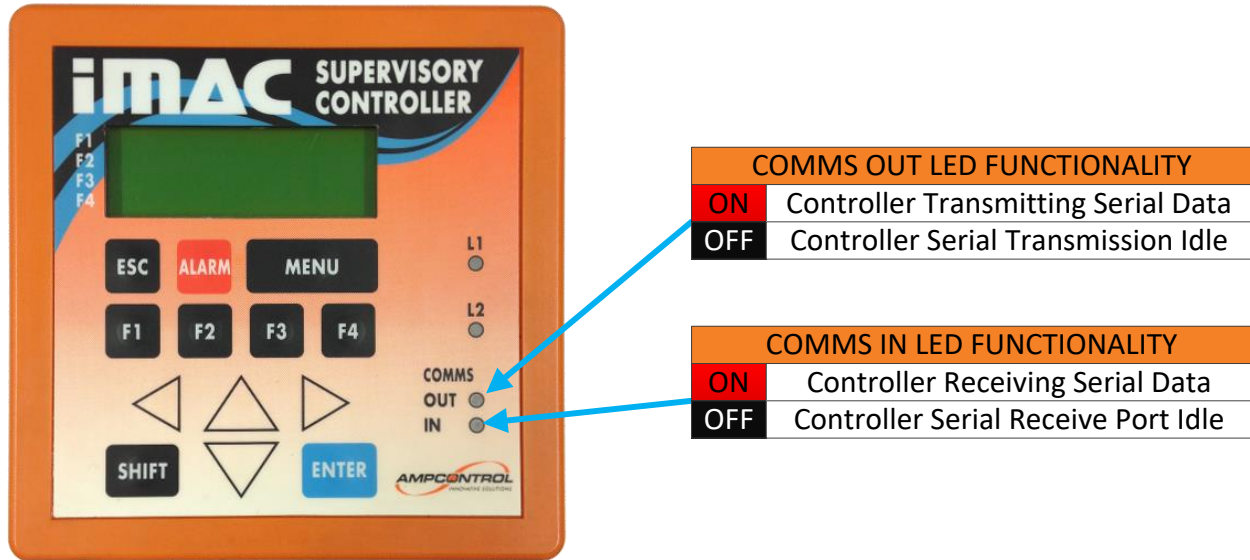


Figure 2: Comms LED Functionality

1.2.1 Serial Port Programming Mode

The iMAC Controller must enter programming mode before it can connect to Ampcontrol's iTools software. Programming mode is entered by pressing and holding down the iMAC Controller keypad [SHIFT+ENTER] keys during power-up. iTools can then be used to download compiled application (SLP) code HEX files and Operating System Firmware. Unless programming mode is entered during power up, the controller's serial port defaults to communications mode (refer to the iMAC Communications User Manual for more information).

1.3 iMAC Programming Cable

Ampcontrol recommends using the iMAC USB to RS232 programming lead (PN: 180109) for loading iMAC application SLP code and updating the Operating System Firmware. The cable comes complete with a USB Type-B on one end and an iMAC terminal plug on the other end. This enables the lead to plug directly into the iMAC controller comms port without the need to strip and terminate a cable.



Figure 3 : iMAC Programming Cable (PN: 180109)

2 DOWNLOADING AND INSTALLING iTOOLS

2.1 Downloading iTools

The procedure for downloading and installing iTools is as follows:

1. Navigate to the Ampcontrol website: <https://www.ampcontrolgroup.com/>

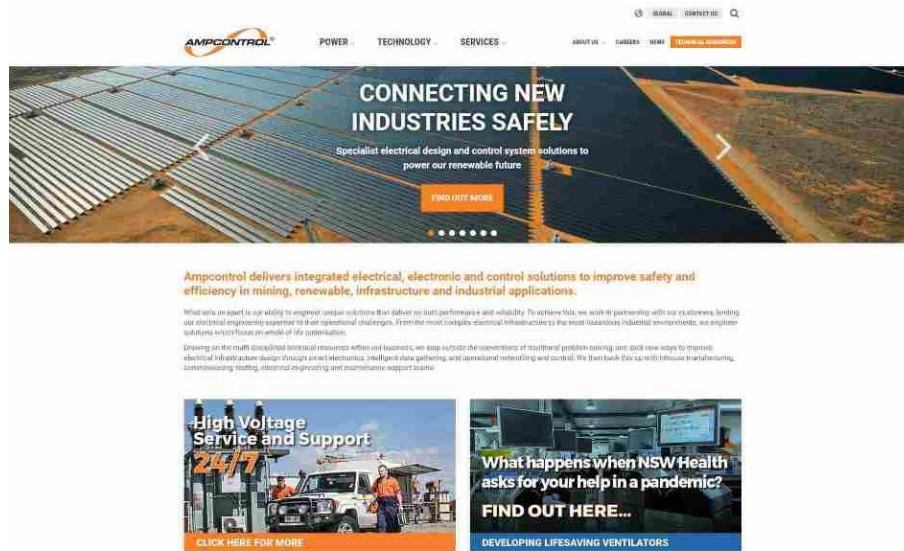


Figure 4: Ampcontrol Website

2. Select the search icon at the top right of the Ampcontrol home page.

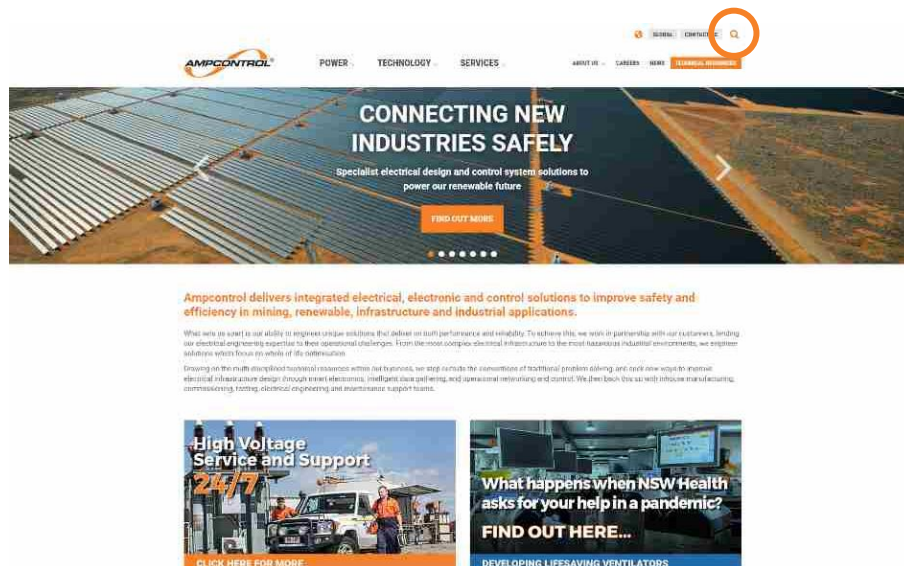


Figure 5: Ampcontrol Website: Search

3. Search by typing “iTools” in the search box that appears. Alternatively, navigate to the following link:
<https://www.ampcontrolgroup.com/?s=iTools>



Figure 6: Ampcontrol Website: Search “iTools”

4. Click on the “Download” button for the iTools software.

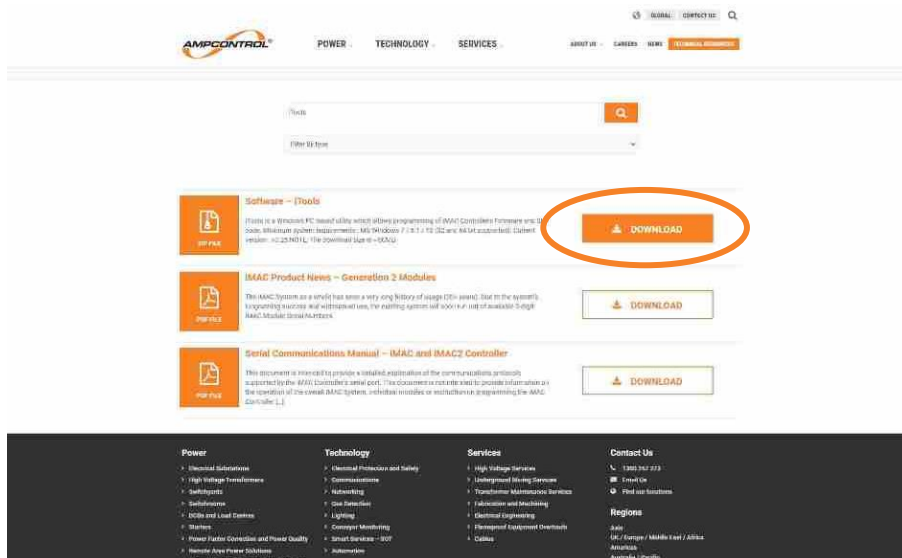


Figure 7: Ampcontrol Website: Download iTools

5. iTools should now download to the PC/Laptop.

2.2 Installing iTools

Once the download has successfully completed iTools can be installed as follows:

1. Navigate to the download folder and extract the iTools zip file to a temporary location. The zip file will be named “iTools-X.XX-X.zip” Where “X.XX-X” represents the version of iTools. The folder should contain the following files:

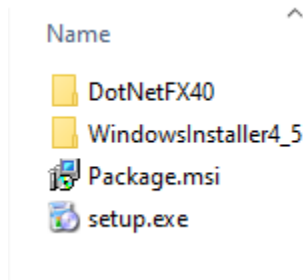


Figure 8: iTools Zip Folder

2. Double click “setup.exe” to begin install.
3. Windows may present the following message.

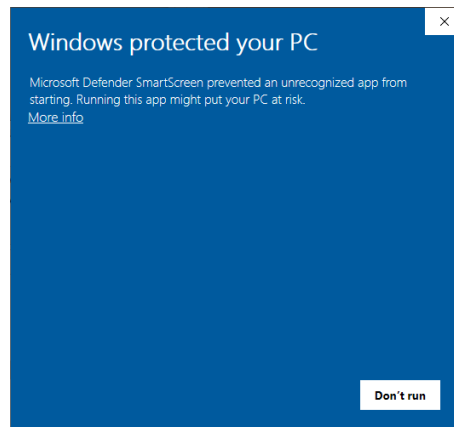


Figure 9: Warning Message

4. To run, select “More info” and then “Run anyway”.

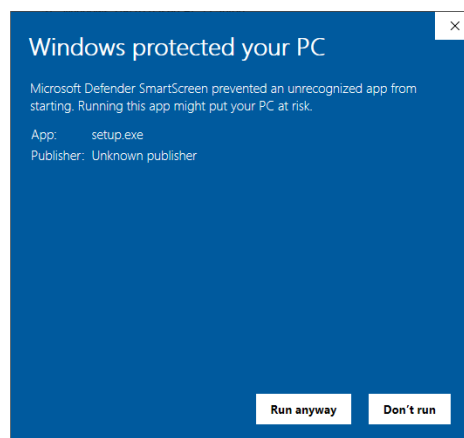


Figure 10: Warning Message: Run Anyway

5. The Windows installer will start.

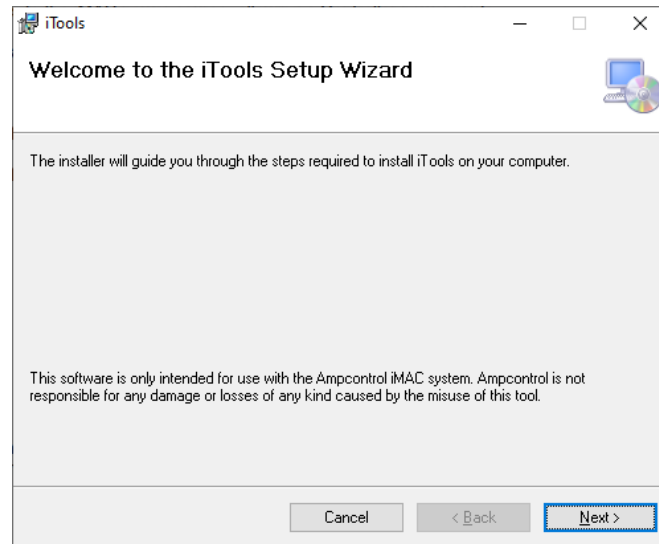


Figure 11: iTTools Setup Wizard

6. Click "Next>" to navigate through the Setup Wizard.
7. Once installation is complete the following will be displayed.

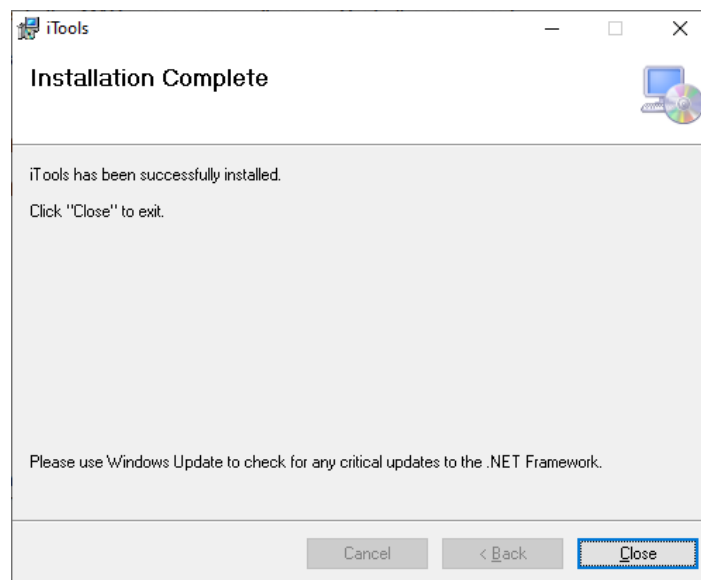


Figure 12: iTTools Installation Complete

8. Select "Close" to exit the Setup Wizard. iTTools should now be installed and can be accessed via the Windows start menu.

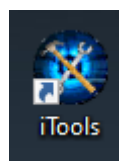


Figure 13: iTTools Start Menu Icon

3 INSTALLING OPERATING SYSTEM FIRMWARE

The following steps outline the process of writing Operating System Firmware into the iMAC Controller via the serial communications port. Refer to Section 1.2 for an overview of the serial communications port.

1. Ensure that iMAC Controller is not powered.
2. Connect the iMAC serial port interface to any com port on your PC. Ampcontrol recommends using the iMAC Programming Cable; refer to Section 1.3.
3. Hold down [SHIFT+ENTER] on the iMAC Controller keypad and apply power to the iMAC Controller at the same time.
4. If the iMAC Controller LCD screen remains blank (with two faint horizontal bars) you are now in programming mode.
5. Start iTools.

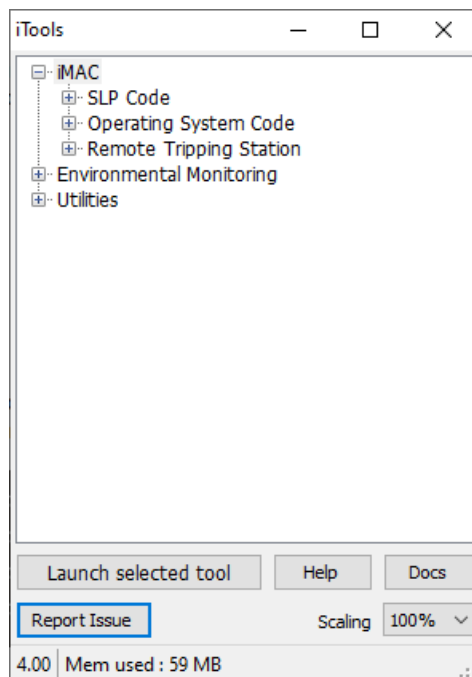


Figure 14: iTools

6. Select the operating system write option: iMAC > Operating System Code > Write (Hex file -> to iMAC). This can be selected by either double clicking the option or by selecting the option and clicking "Launch selected tool".

NOTE



If iTools was unable to open the previously used serial com port of your PC, it will automatically launch the com port manager so that you can select another port.

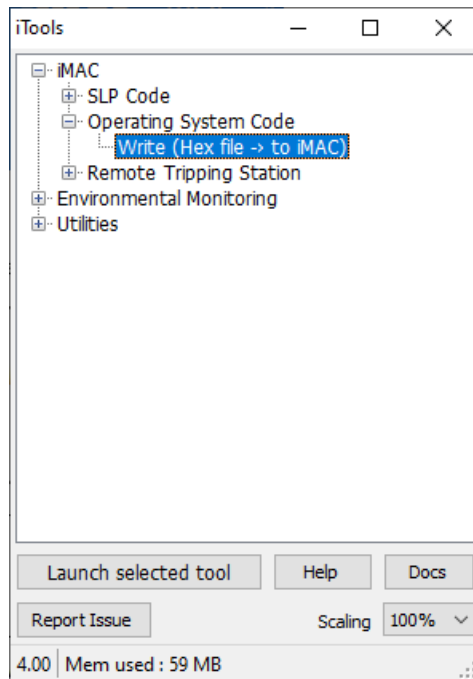


Figure 15: iTools: Operating System Code

7. The following screen will be presented.

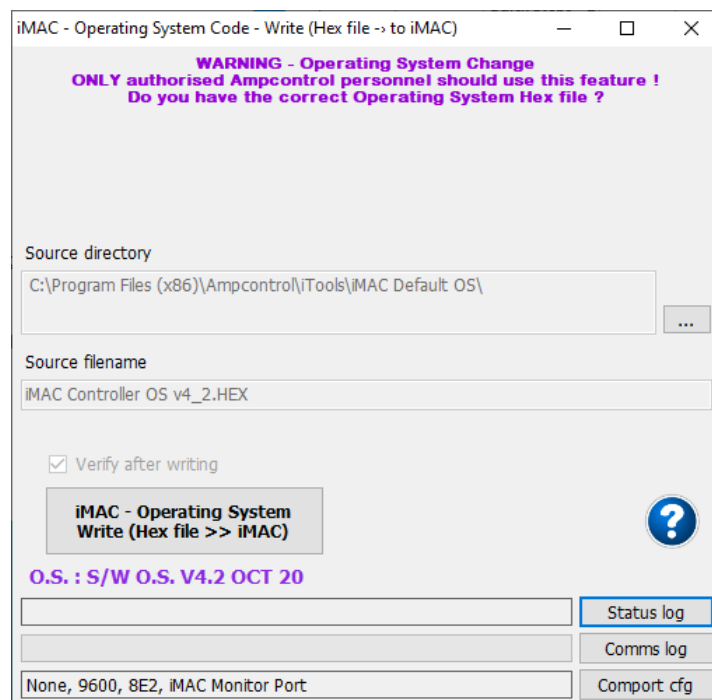


Figure 16: iTools: Select Operating System Code

8. In the iMAC Operating System Write window, the latest iMAC Operating System Firmware source file will be pre-selected.

9. Confirm that the selected file is correct for the Controller you wish to program.
10. Programming is ready to commence, select the program button to continue.

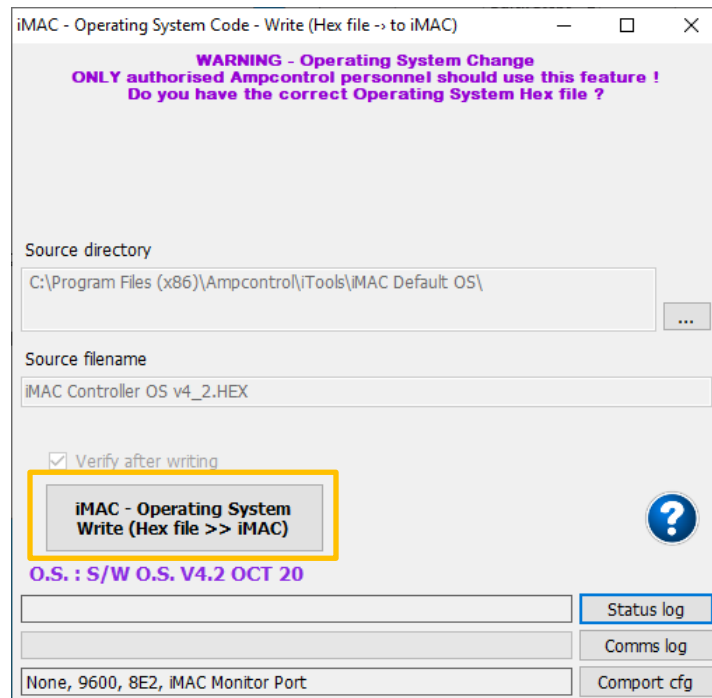


Figure 17: iTools Write Operating System Code

11. The Operating System Code will now be written to the iMAC Controller and verified afterwards.
12. Once the process is complete, apply a power cycle to the controller, the controller will boot using the newly installed firmware.
13. Verify the correct Operating System Firmware was installed by viewing the VERSION PAGE on the Controller. The highlighted text shows the Operating System version string.

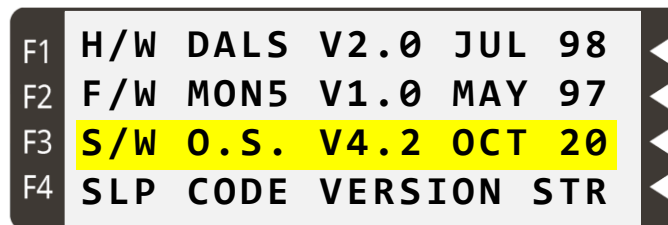


Figure 18: Operating System Firmware Version

NOTE



The version page can typically be viewed by:

1. Pressing the MENU keypad button on the controller
2. Then pressing the DOWN ARROW button until the Version Page option is shown
3. Then press the function key: F2, F3, or F4 corresponding to the Version Page option

4 DOWNLOADING SLP CODE

The following steps outline the process of writing the application SLP code into the iMAC Controller via the serial communications port. Refer to Section 1.2 for an overview of the serial communications port.

1. Ensure that iMAC Controller is not powered.
2. Connect the iMAC serial port interface to any com port on your PC. Ampcontrol recommends using the iMAC Programming Cable; refer to Section 1.3.
3. Hold down [SHIFT+ENTER] on the iMAC Controller keypad and apply power to the iMAC Controller at the same time.
4. If the iMAC Controller LCD screen remains blank (with two faint horizontal bars) you are now in programming mode.
5. Start iTools.

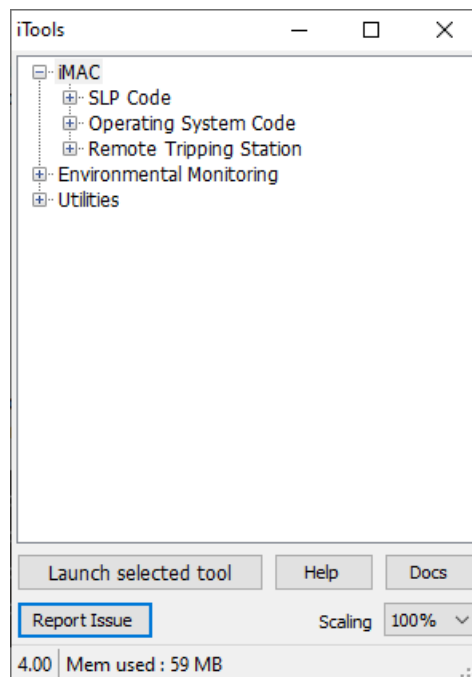


Figure 19: iTools

6. Select the SLP code write option: iMAC > SLP Code > Write (Hex file -> to iMAC). This can be selected by either double clicking the option or by selecting the option and clicking "Launch selected tool".

NOTE



If iTools was unable to open the previously used serial com port of your PC, it will automatically launch the com port manager so that you can select another port.

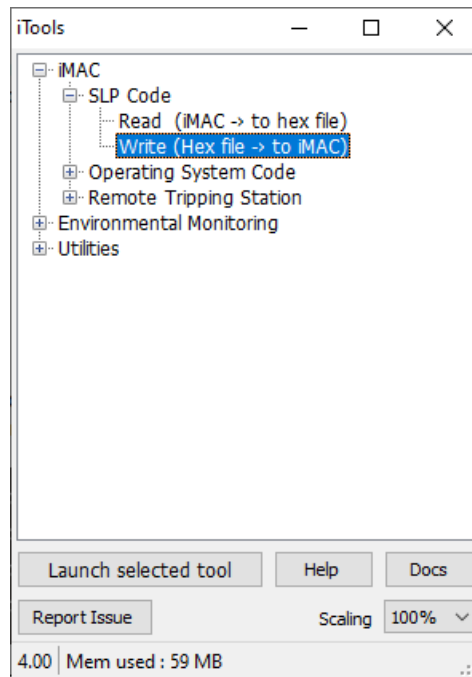


Figure 20: iTools: SLP Code

7. The following warning will be presented. To continue, select “I Agree” or close the window.

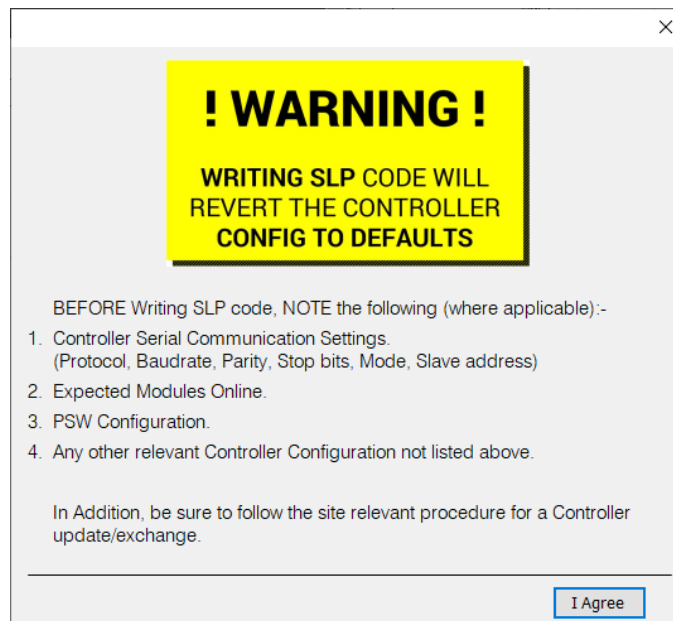


Figure 21: SLP Code Write Warning

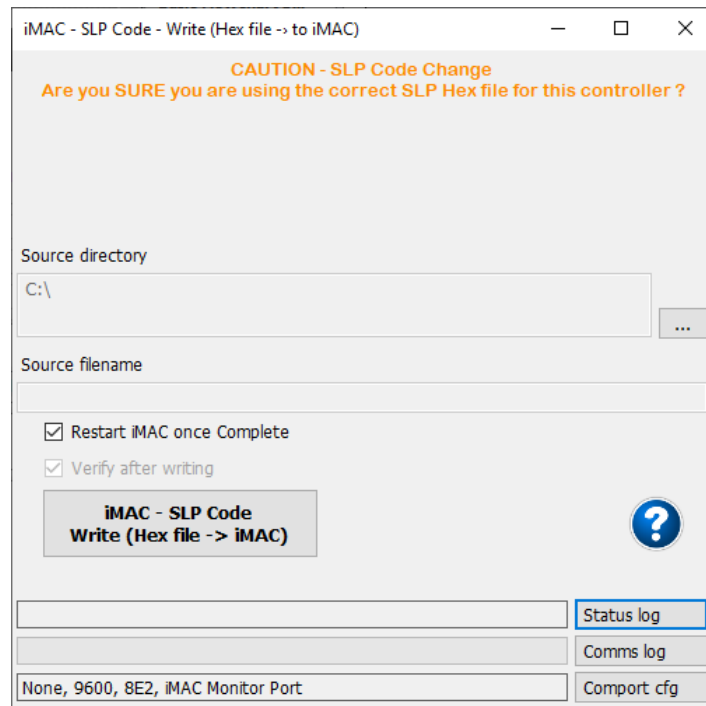
CAUTION!



Writing SLP code to the iMAC Controller will cause all non-volatile memory settings (such as serial port settings, slave Modbus address, linespeed, and any SLP code specific configurations e.g. NERZ/ERZ boundary configurations, conveyor/longwall expected number of modules online configurations etc.) to revert to default values.

Please ensure you review and revert all non-volatile settings/configurations to the desired values following any SLP code writes.

8. The following screen will be presented.



iMAC - SLP Code - Write (Hex file -> to iMAC)

CAUTION - SLP Code Change
Are you SURE you are using the correct SLP Hex file for this controller ?

Source directory
C:\

Source filename

☒ Restart iMAC once Complete
☒ Verify after writing

iMAC - SLP Code
Write (Hex file -> iMAC)

Status log
Comms log
Comport cfg

None, 9600, 8E2, iMAC Monitor Port

Figure 22: SLP Code Write Window

9. In the iMAC SLP Write window, browse to the source directory and select the desired application SLP *.HEX code.

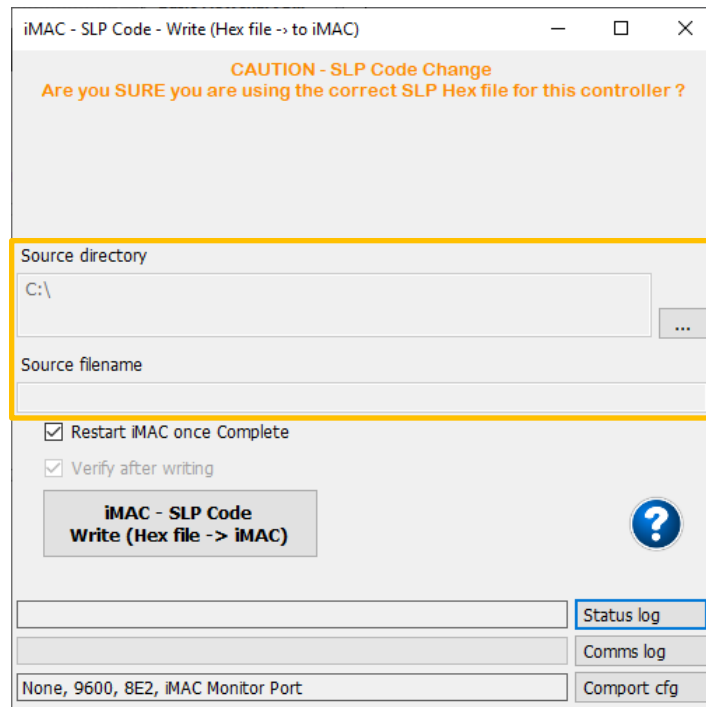


Figure 23: iTools: Select SLP Code

10. Confirm that the selected file is correct for the Controller you wish to program.
11. Programming is ready to commence, select the program button to continue.

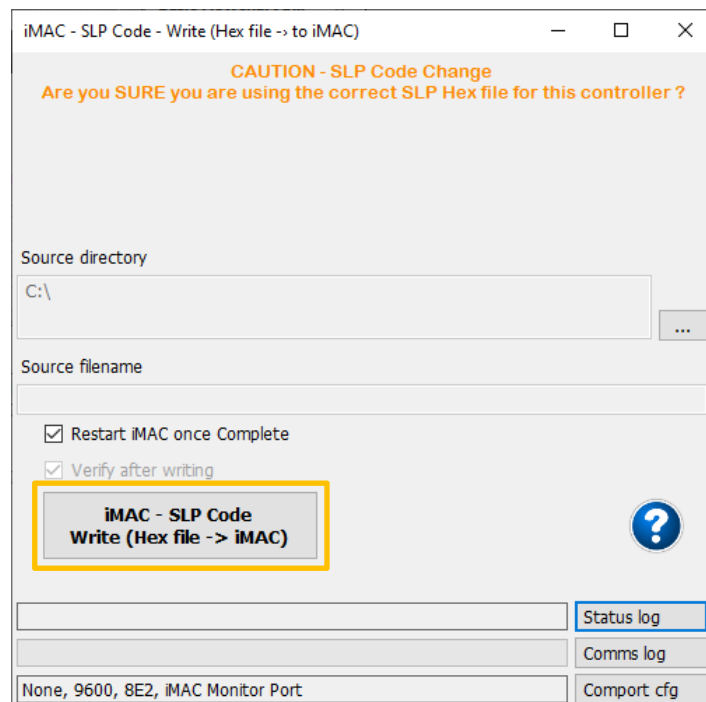


Figure 24: iTools: Write SLP Code

12. The SLP Code will now be written to the iMAC Controller and verified afterwards.
13. If the “Restart iMAC once complete” feature was ticked, the iMAC Controller will automatically re-boot with the newly installed SLP code once the code has successfully been installed.
14. If the “Restart iMAC once complete” feature was un-ticked, a power cycle will need to be applied to the controller, the controller will boot using the newly installed SLP code.
15. Verify the correct SLP was installed by viewing the VERSION PAGE on the Controller. The highlighted text shows the SLP CODE version string.

F1	H/W	DALS	V2.0	JUL	98	◀
F2	F/W	MON5	V1.0	MAY	97	◀
F3	S/W	O.S.	V4.2	OCT	20	◀
F4	SLP	CODE	VERSION	STR		◀

Figure 25: SLP Code Version

NOTE



The version page can typically be viewed by:

1. Pressing the MENU keypad button on the controller
2. Then pressing the DOWN ARROW button until the Version Page option is shown
3. Then press the function key: F2, F3, or F4 corresponding to the Version Page option