



How to Flash an Isaac Leak Tester

Abstract

This document is to be used by controls engineers and other technical personal responsible for maintaining the firmware on the Isaac Leak Tester produced by Zaxis Inc. The document assumes the reader is well acquainted with the Isaac Leak Tester and Ethernet protocols, cables and proper safety procedures.

Table of Contents

How to Flash an Isaac Leak Tester	0
Introduction	1
Cautions	1
Unzip the provide files	1
Writing a new Binary Image.....	2

Introduction

Zaxis's Isaac multi-tester is a high-performance air leak tester with unparalleled test stability and repeatability. The Leak Tester contains a microprocessor to control the internal hardware and communications to other devices. The microprocessor has an imbedded flash drive which contains an image of the firmware used by the microprocessor to run the tester as well as the different setup and program parameters.

This document explains how the flash drive can be updated, allowing a new version of the firmware to be install on site using a windows personal computer. It is assumed the reader is familiar TCP/IP and other Local Area Network (LAN) protocol's and the necessary precautions working with these protocols.

Cautions

Please read the *Isaac User Manual* for proper handling and safety instruction before proceeding.

An updated binary image, often referred to as a "bin image" can be written to the tesor using the flash utility provided by Zaxis Inc. Both the bin image and flash utility should be provided by a Zaxis technical support individual. The bin image is a binary image of the program that is executed by the microprocessor contained within the tester. If this image becomes corrupted or is modified in anyway the flashing process with fail.

Once the writing process or flashing of the bin image has started do not turn off the power, disconnect the network cable or abort or close the windows program. Doing so may render the microprocessor unusable.

Unzip the provide files

After the zip file provided by Zaxis Support personal, has been unzipped, there should be a folder that contains the binary (BIN) files and folder (Downloader) that contains the downloader utility (UPDownload.exe). The UPDownload.exe file uses the UDP/IP protocol to download a flash utility (PDL- Generic.bin) which is automatically started after downloading and reads the Zaxis provided Bin file.

Writing a new Binary Image

Please use the following steps to write (or flash) a new binary image to the microprocessor.

1. Determine the current I/P address of the leak tester. This can be done using the TSi, or by resetting the leak testers to use the default I/P address of 192.168.2.130.
2. With the power disconnected remove the network or LAN cable from the rear of the leak tester.
3. Connect a Network or LAN cable between the leak tester and a personal computer running Windows. Typically, this does not need to be a crossover cable because most modern personal computers are able to detect the transmit and receive lines of the network cable automatically.
4. Set the I/P address of the personal computer to a value that is on the same I/P network class as the leak tester. For example, if the leak tester has an I/P address of 192.168.2.130 set the I/P address of the personal computer to 192.168.2.1. As shown in Figure 1 below.
5. Ensure that the wireless interface on the computer is disabled using the Control Panel > Network and Internet > Network Connections > Wi-Fi.

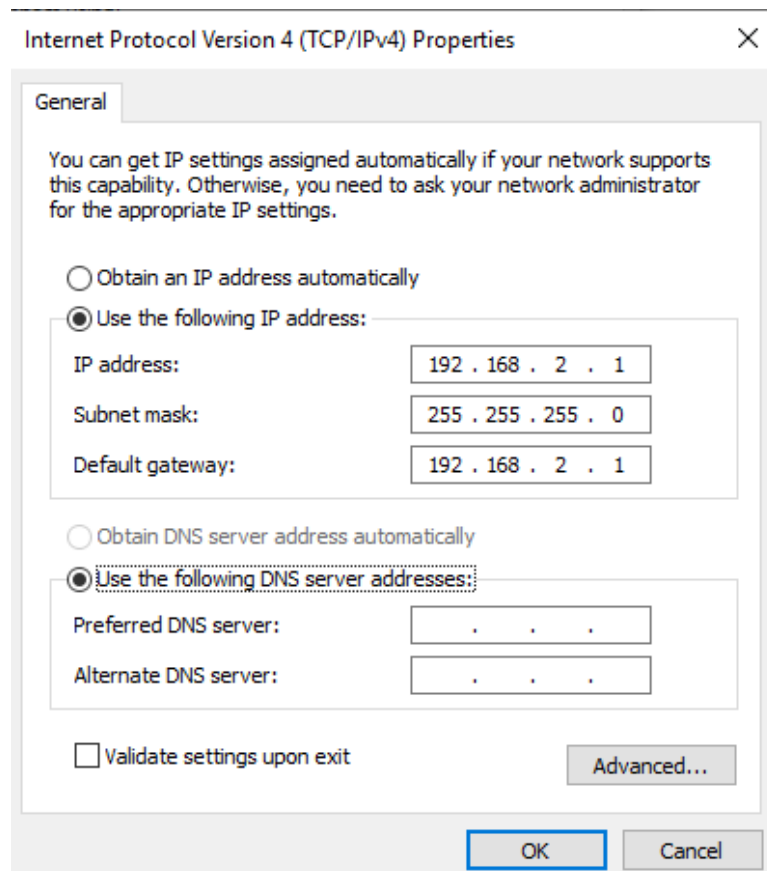


Figure 1 - Static Windows I/P Address

6. Reestablish the power to the tester.

7. Using a command or DOS window on the personal computer, use the *ping* utility to ensure successful network communications between the leak tester and the computer as shown in Figure 2 below.

```
C:\WINDOWS\system32\cmd.exe

C:\>ping 192.168.2.130

Pinging 192.168.2.130 with 32 bytes of data:
Reply from 192.168.2.130: bytes=32 time=3ms TTL=64
Reply from 192.168.2.130: bytes=32 time=2ms TTL=64
Reply from 192.168.2.130: bytes=32 time=2ms TTL=64
Reply from 192.168.2.130: bytes=32 time=3ms TTL=64

Ping statistics for 192.168.2.130:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 2ms, Maximum = 3ms, Average = 2ms

C:\>
```

Figure 2 - Pinging the Leak Tester

8. After a successful ping has been received start the firmware down load utility (UDPDownloader.exe) and preform the following steps:
 - a. Click on the Ping/Config menu item and select the *Ping Specific IP* item.
 - b. Set the I/P address to the address of the leak tester as shown below in

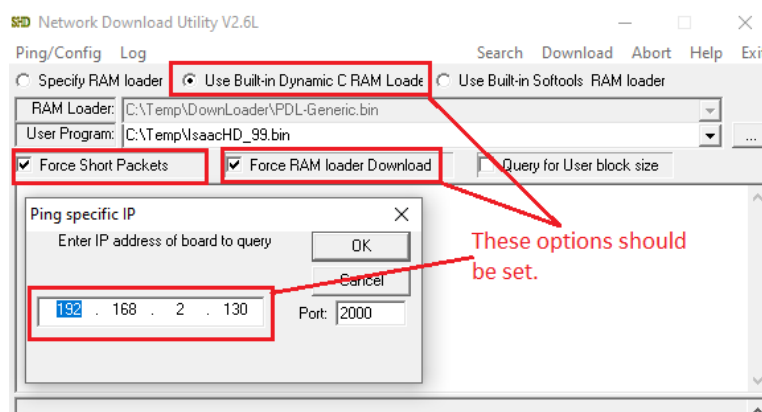


Figure 3 - Set Downloader options

- c. Ensure the *Force Short Packets* and the *Force RAM loader Download* and *Use Built-in Dynamic C RAM Loader* options are checked.
- d. Click on the Ping/Config menu item and select Message retries and change the value to 15.

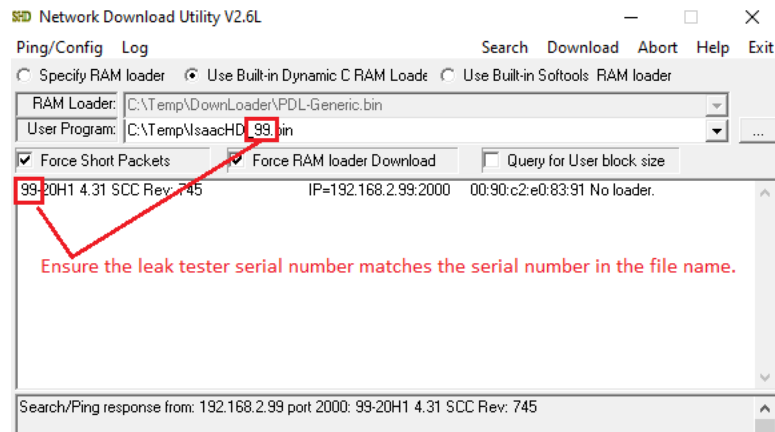


Figure 4 – Running the download utility

9. Ensure the serial number in the file name and the serial number found by the download utility match the serial number of the leak tester.
10. Double clicking the leak tester entry (which will become blue) will start the download.

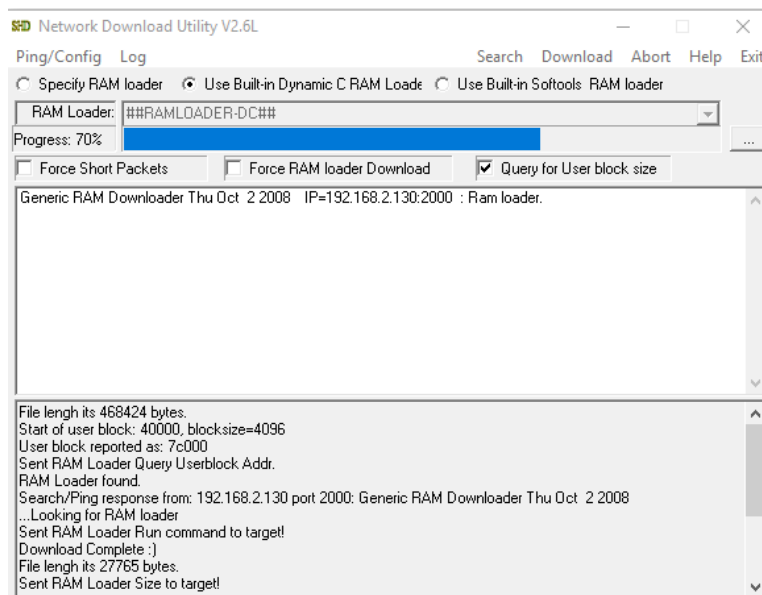


Figure 5 - Download process running

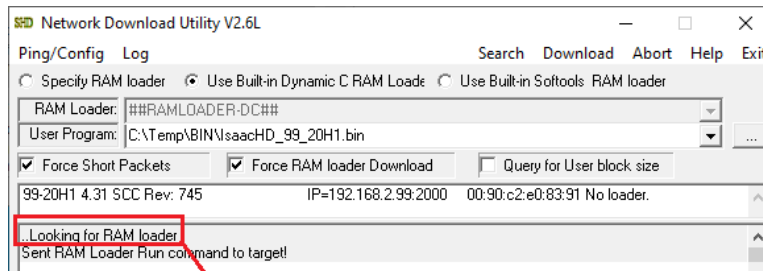
11. After the download has completed, wait 5 seconds to turn the leak tester off, disconnect the network cable and reconnect the original network cable.
12. Verify a successful update by doing the following:
 - a. Verify the serial number using the TSi About screen.
 - b. Verify the correct I/P address is set under the TSi Options -> Ethernet Settings screen.
 - c. Review the current program settings etc. using the TSi.
 - d. Perform a couple of tests to ensure all is working.

Guide for flashing an Isaac Leak Tester



If the downloader fails to complete successfully the following may be tried.

1. Power down the tester, power on the tester and immediately double click the leak tester entry to start the down load.
2. Power cycle the tester just after the RAM loader has been downloaded. See below.



After this message appears quickly power cycle the Isaac tester.

Figure 6 - Cycle power after RAMLOADER

3. Try using the default I/P address of 192.168.2.130 for the tester and 192.168.2.1 for the computer, with a network mask of 255.255.255.0.

If any problems are encountered please contact a technical support individual at Zaxis, Inc by emailing: dharding@zaxisinc.com or by calling 801.264.1000 ext 106.

