



# Test a WR44v2 Router

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**How to test a WR44v2 router step by step.**

Technical Support  
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# 1 INTRODUCTION

## 1.1 Outline

This guide will enable a competent technician to test the hardware of a WR44V2 router.

If the tests in sections 4 – 11 all complete without a problem then the router can be returned to service. If not please follow the advice in the documentation below for the error message you receive.

The guide makes no assumption about the state of the flash; it will work even if the system flash is completely blank.

## 1.2 Assumptions

This guide has been written for use by technically competent personnel with a good understanding of the product.

This guide assumes that there are no daughter cards fitted to the WR44. (E.g. GPS, serial, PSTN, ISDN, Telemetry etc). If a daughter card is fitted please request additional testing steps from [tech.support@digicom](mailto:tech.support@digicom).

**This note applies only to a WR44V2**

## 1.3 Corrections

Requests for corrections or amendments to this documentation are welcome and should be addressed to: [tech.support@digicom](mailto:tech.support@digicom)

Requests for new quick notes can be sent to the same address.

## 1.4 Version

Version Number	Status
0.6	Draft
1.0	Completed 26/03/2015
1.1	Rebranding + screenshot update
1.2	Module list update

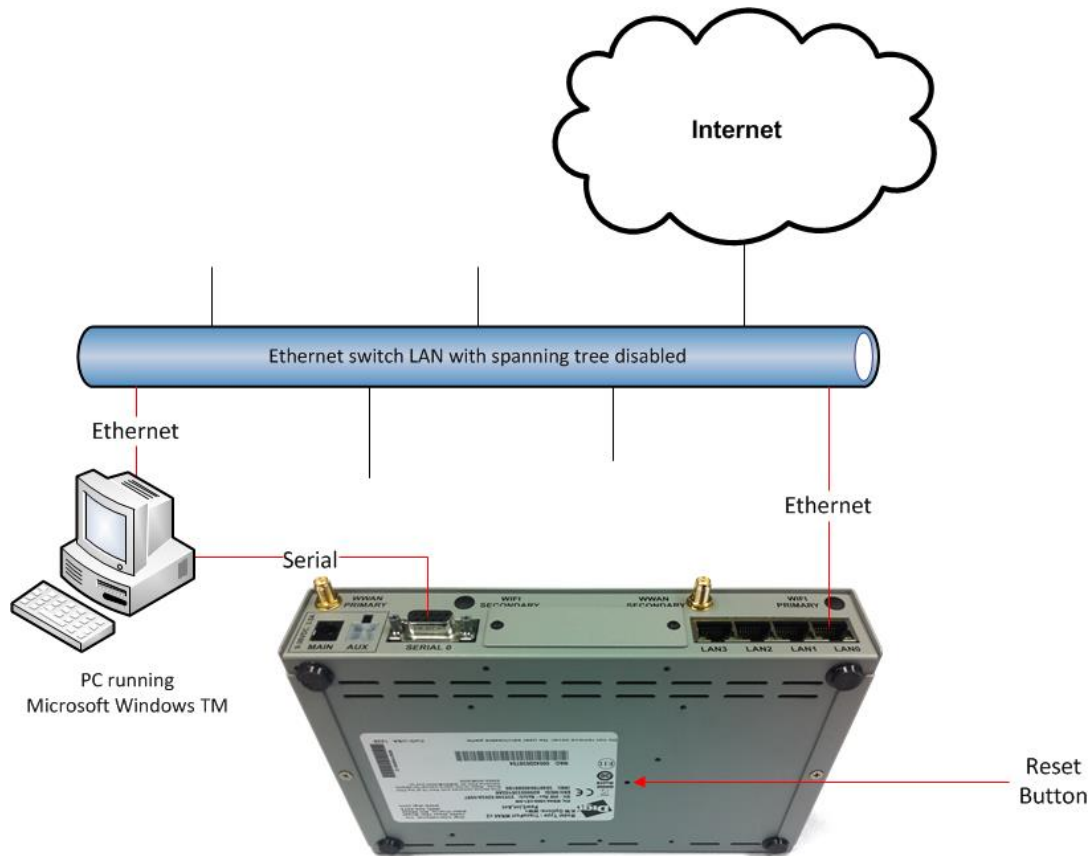
## 2 EQUIPMENT REQUIRED

1. A PC connected to the Internet running a Microsoft Windows TM operating system with a built in serial comm. port. (USB to serial adaptors do **not** work well.)
2. A 9-way to 9-way “straight through” serial cable to connect the PC directly to the WR44v2.
3. An Ethernet switch/hub to connect the PC to the WR44v2 (usually your normal office Ethernet switch/hub will be fine if there is a spare port and it is NOT running spanning tree.)
4. CAT 5 cables to connect the WR44v2 and PC to the Ethernet switch.
5. A pen or paper clip which can easily de-press the WR44v2’s reset button

### 3 SET UP THE TEST EQUIPMENT

Set up the test equipment as described below.

- Connect LAN 0 of the WR44V2 to the switch/hub.
- Connect “ASY 0” the WR44V2 to the PC’s serial port 0 ideally “COM 1”.
- The Internet connection is optional and will be useful if help is required during this process from Digi Technical Support.
- Please note that the Ethernet switch/hub must not have the spanning tree protocol enabled. It is possible to use another appropriately configured WR44V2 as a switch/hub.
- It is essential that the PC’s Ethernet communication interface is configured correctly and has an IP address. The best strategy is normally to connect both your PC and the WR44V2 to your normal office LAN.
- Locate a suitable implement to depress the reset button when required.



- Next download the following file:  
<http://ftp1.digi.com/support/firmware/transport/utills/mvtest.zip>
- Extract the contents of the zip file to a folder in the root directory of the test PC.

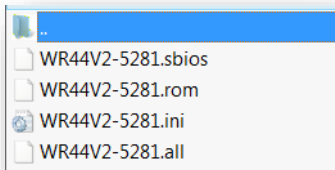
## How to test an WR44V2 step by step.

- Download the latest WR44V2 Flashwriter zip file and extract the contents to a single folder on your PC:

<http://ftp1.digi.com/support/firmware/transport/flashwriter/XXXX/WR44v2/WR44V2-XXXX-flashwriter.zip>

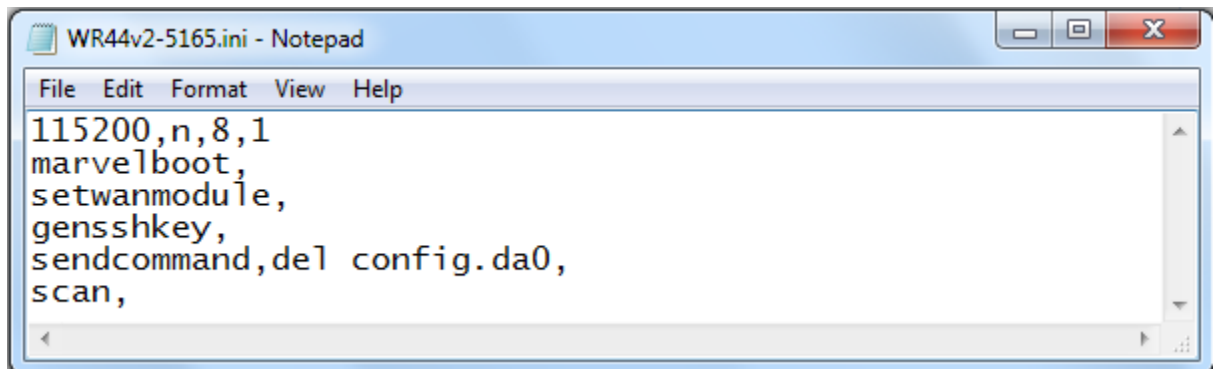
Where **XXXX** is the current firmware version, for example: 5281.

Extract the content of the downloaded zip file to a directory on your computer, for example c:\wr44v2\ :



Open the .ini file extracted and add the following text to the second line (be sure to include the comma):

**marvelboot,**



- Save the changes to the ini file.
- Finally download and install the latest version of Flashwriter <http://ftp1.digi.com/support/firmware/FlashWriter.msi>

## 4 PERFORM LOW LEVEL TESTS

Connect the serial port of the PC to the WR44V2 using the serial cable.

From the Windows command line run the mvtest program including as an argument the PC com port number:

```
mvtest -p 1
```

(E.g. for COM port 1)

```
mvtest -p 2
```

(E.g. for COM port 2)

Then power up the WR44V2. This may take a little practise. (Note that with the WR44V2 there is no need to hold in the reset button for this step.)

Check the output of the mvtest program. If the test passes then the following output will be seen:

A screenshot of a Windows command prompt window titled "Administrator: cmd.exe - Shortcut". The window shows the following text:

```
C:\>mvtest>mvtest p 1
Testing SDRAM... passed
Testing FLASH... passed

C:\>mvtest>
```

If all test show “**passed**” the router can now be safely power cycled.

If the SDRAM or FLASH test shows “**failed**” then the product should be returned via RMA. When requesting the RMA please include the appropriate fail reason:

mvtest fail: SDRAM

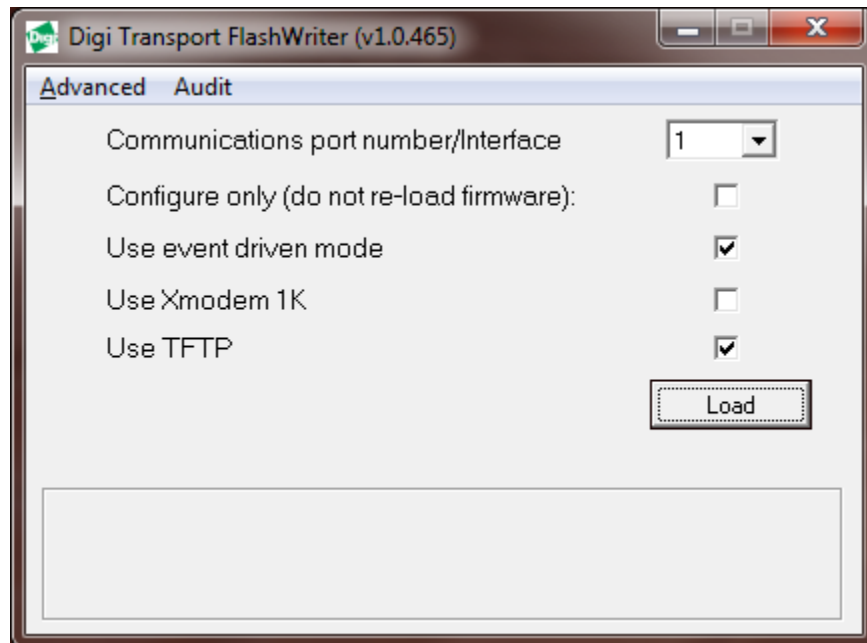
mvtest fail: FLASH

## 5 PROGRAM THE FLASH

Please note that the most likely reason for this step to fail is due to an issue or configuration problem with the test equipment. For this reason please verify that the steps below can be performed on a known working WR44V2 without issue.

### 5.1 Using Flashwriter

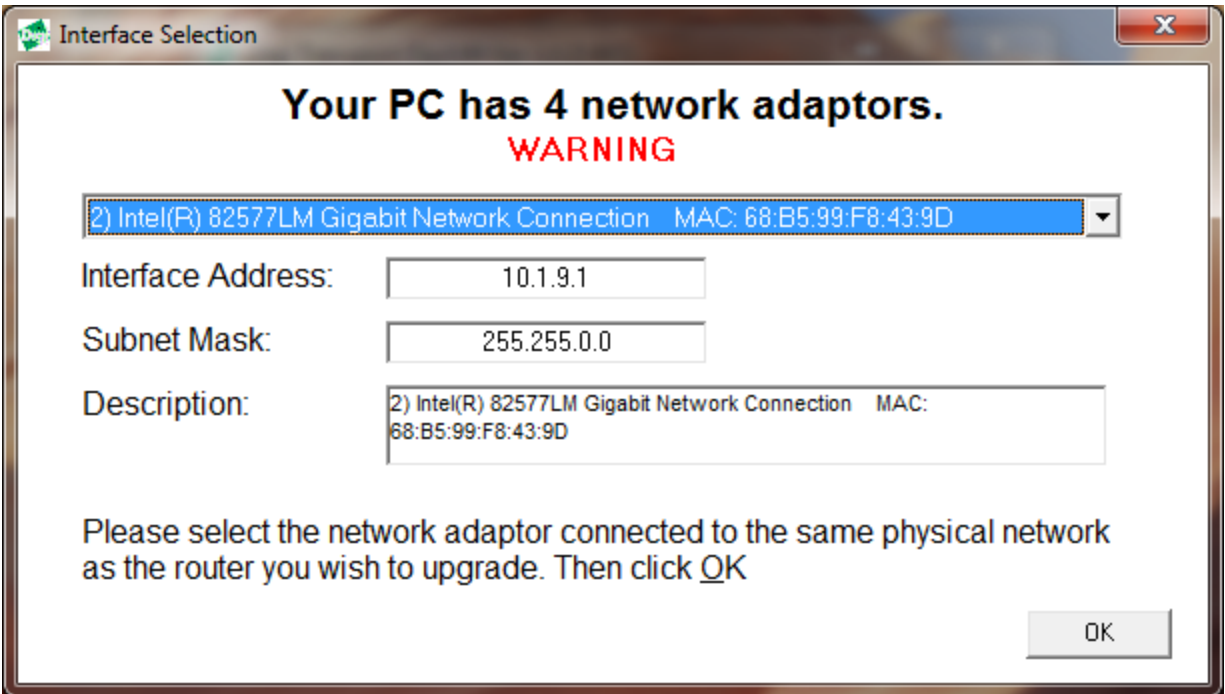
Launch Flashwriter from the start menu. Select the communications port number (PC comm. port number) to which the WR44v2 is connected. (On most PC's with a built in serial port, this will be "1" OR "2". Leave the other settings are their default values (TFTP and Event driven mode ONLY ticked):



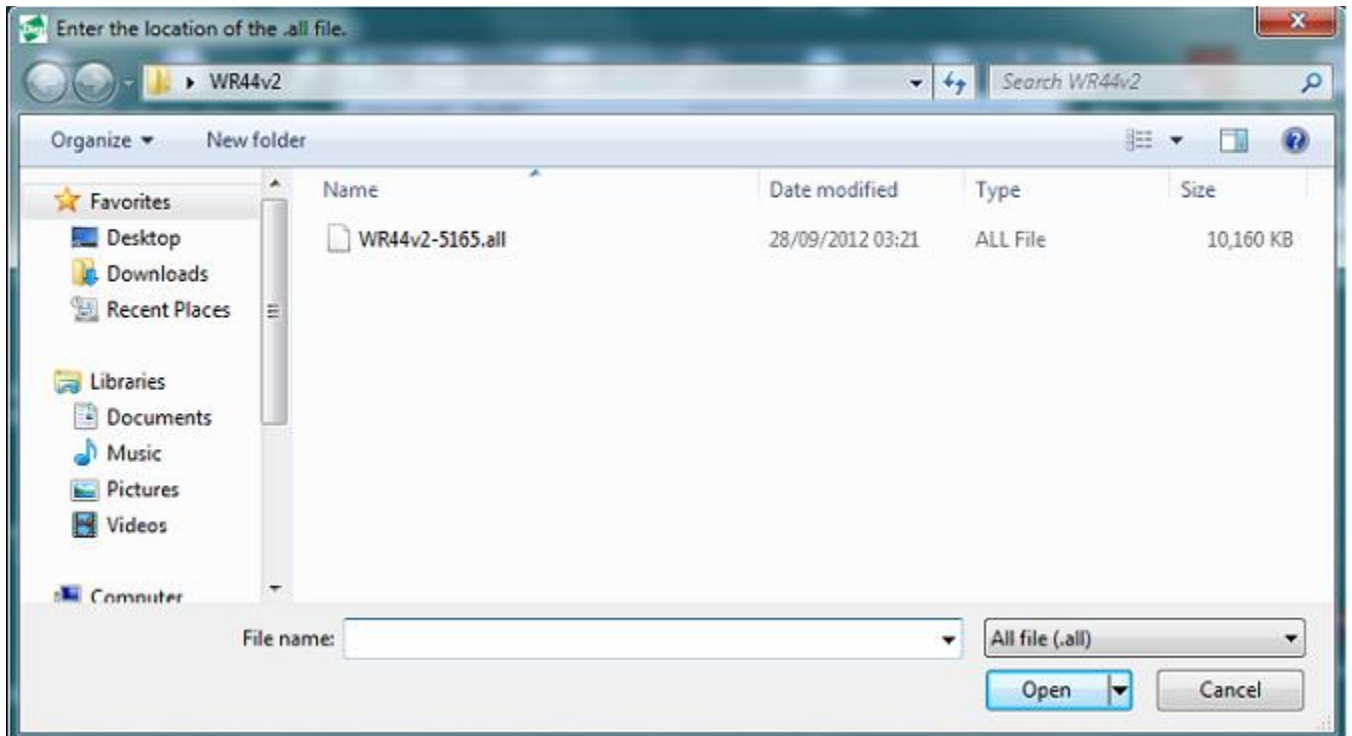
If your PC has more than one network adapter, be sure to select the one that represents the connection to LAN illustrated in section 0. If your PC only has a single network adapter this screen will not appear:



How to test an WR44V2 step by step.



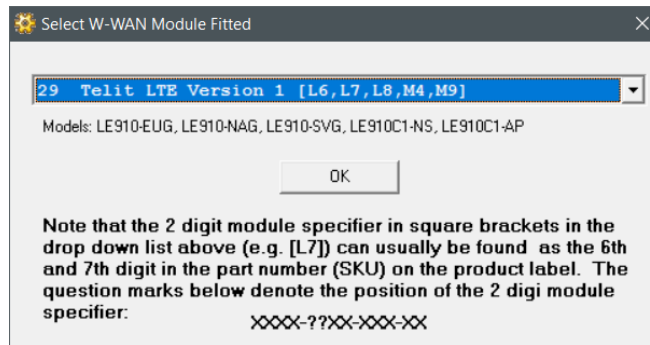
In the file dialogue, select the “ALL” file you extracted from the ZIP earlier:



And click “Open”.

## How to test an WR44V2 step by step.

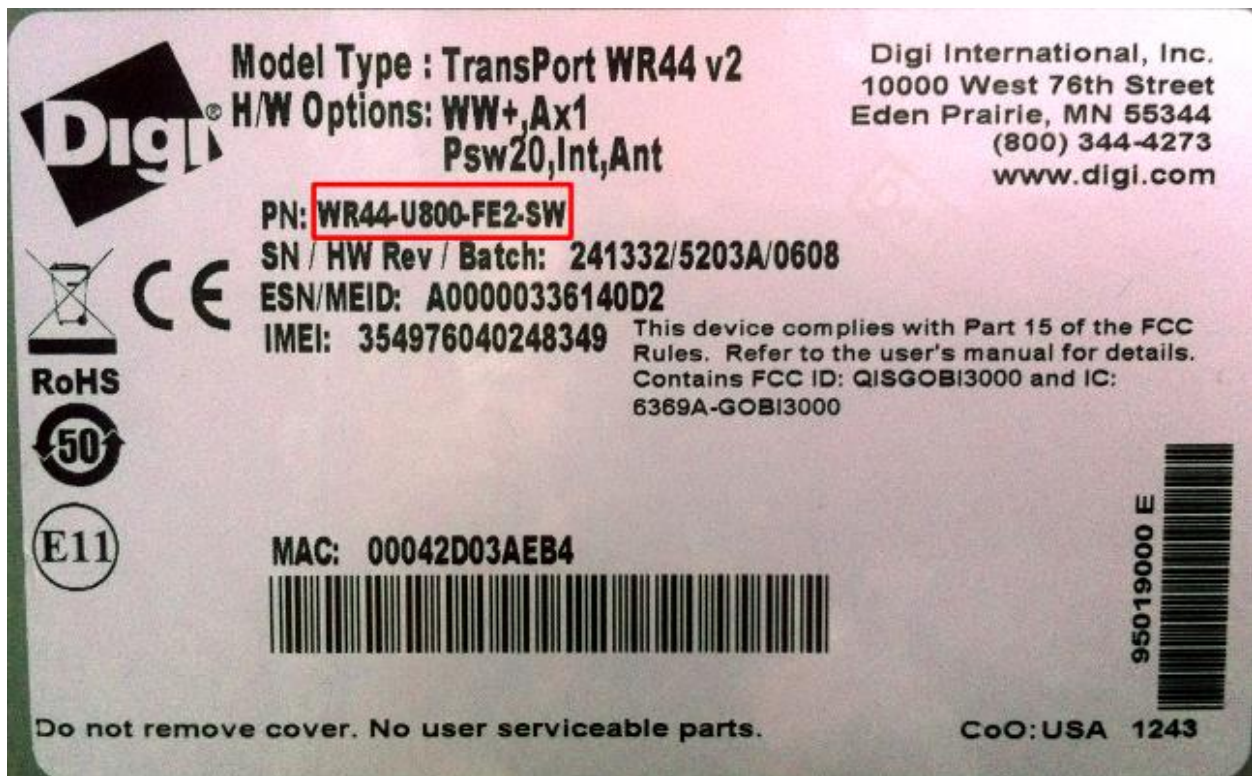
The following message will appear:



It is critical that the correct selection is made at this point.

Note 1: Since FlashWriter version 1.0.525 characters 6 and 7 are included in the W-WAN module name, see above.

Note 2: characters 6 and 7 of the part number (SKU) on the approval label. In the example below these are "U8":



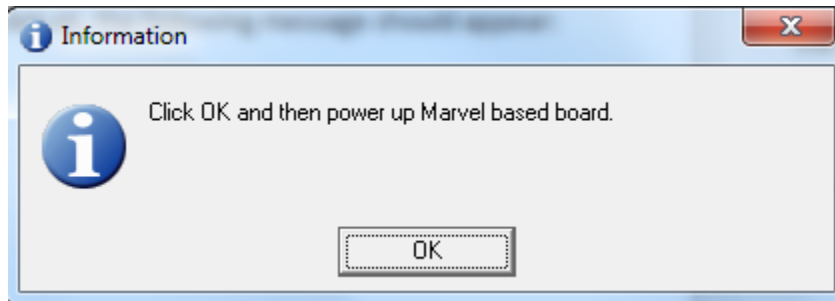
## How to test an WR44V2 step by step.

Refer to the following table to determine which selection to make:

Characters 6 & 7	Flashwriter Selection
00	100 No module
G1	5 Cinterion/Siemens MC75i/TC63i/MC75/Triorail
E1	5 Cinterion/Siemens MC75i/TC63i/MC75/Triorail
H0	9 Option HSDPA/HSUPA modules
H1	9 Option HSDPA/HSUPA modules
H2	9 Option HSDPA/HSUPA modules
C0	10 CMotech CDMA module
C1	11 Sierra Wireless CDMA module
C2	11 Sierra Wireless CDMA module
C3	10 CMotech CDMA module
C4	10 CMotech CDMA module
C6	10 CMotech CDMA module
C7	10 CMotech CDMA module
U0	9 Option HSDPA/HSUPA modules
U1	9 Option HSDPA/HSUPA modules
U2	13 Ericsson F3507g/F3607gw/F3307/F5521gw HSDPA module
U3	7 Sierra Wireless 3G module
U4	13 Ericsson F3507g/F3607gw/F3307/F5521gw HSDPA module
U5	17 Gobi UMTS or 18 Gobi CDMA
U6	13 Ericsson F3507g/F3607gw/F3307/F5521gw HSDPA module
U7	13 Ericsson F3507g/F3607gw/F3307/F5521gw HSDPA module
U8	17 Gobi UMTS
U9	24 Telit 3G
L1	28 Huawei LTE
L2	23 Novatel LTE
L3	23 Novatel LTE
L4	26 Sierra Wireless 4G/LTE module
L5	26 Sierra Wireless 4G/LTE module
L6	29 Telit LTE Version 1
L7	29 Telit LTE Version 1
L8	29 Telit LTE Version 1
L9	26 Sierra Wireless 4G/LTE module
M2	31 Cellient LTE
M3	32 Telit LTE Version 2
M4	29 Telit LTE Version 1
M5	32 Telit LTE Version 2
M6	32 Telit LTE Version 2
M7	32 Telit LTE Version 2
M8	26 Sierra Wireless 4G/LTE module
M9	29 Telit LTE Version 1

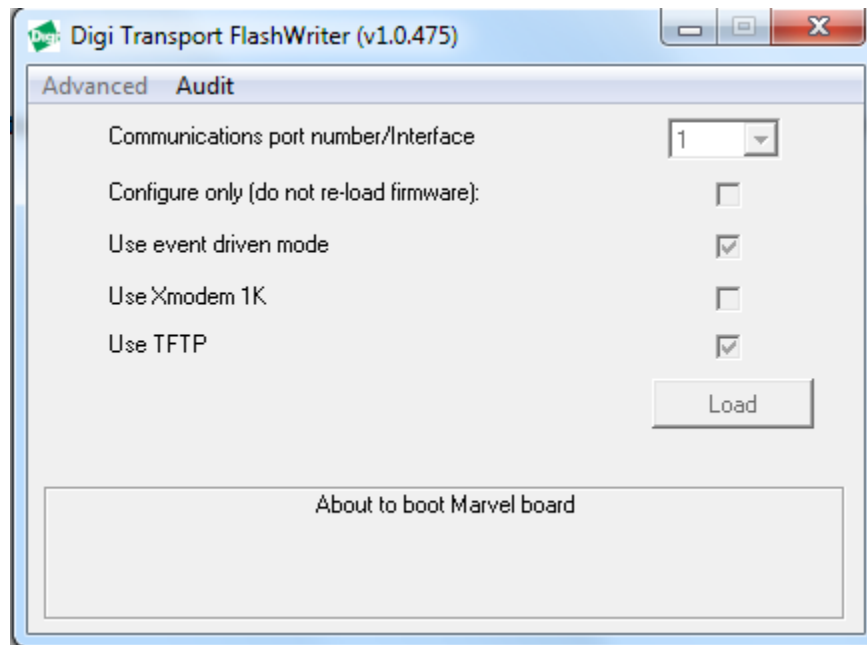
How to test an WR44V2 step by step.

Once you click ok, the following message should appear:



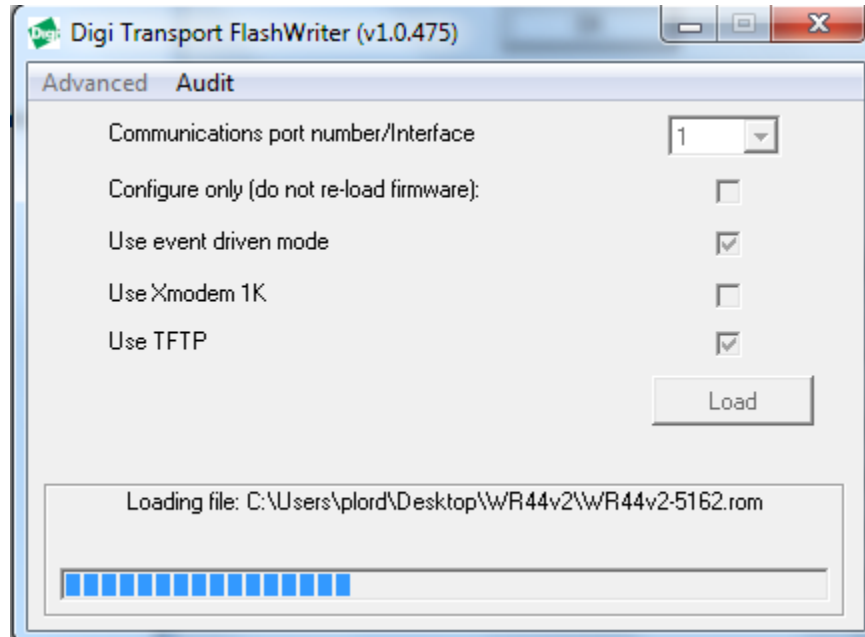
Click "OK", then plug in the power.

If you are successful then the following message will appear:

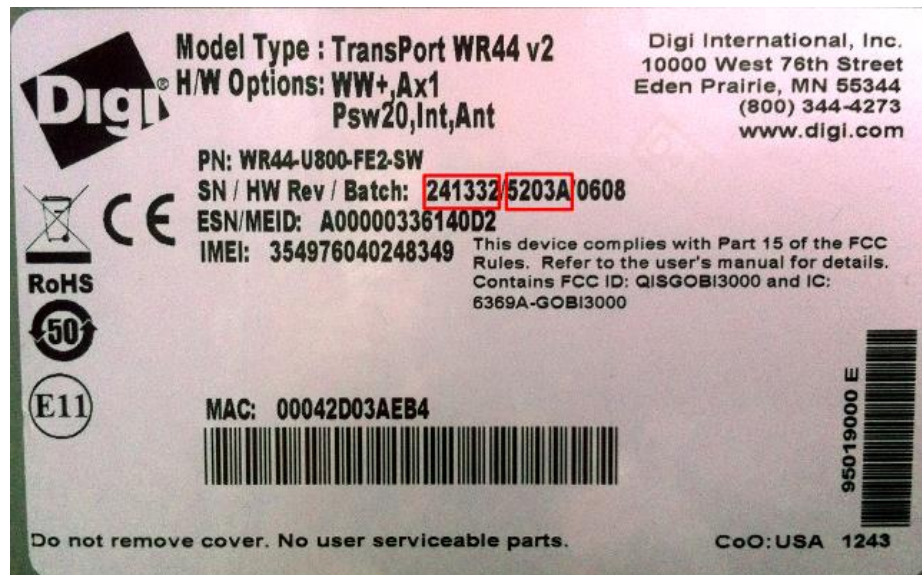


## How to test an WR44V2 step by step.

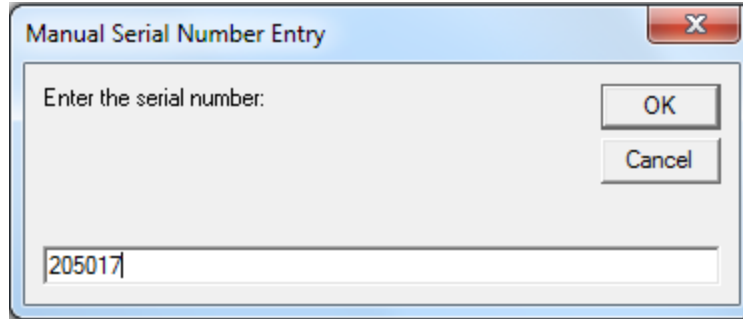
This step will take some time – please be patient. Once complete the boot image will be loaded into the flash:



Eventually you should be prompted to enter the 6 digit serial number. (Refer to the label under the WR44V2 to find the correct serial number.)

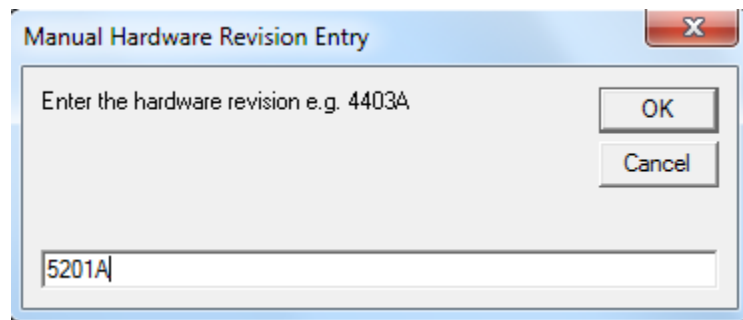


How to test an WR44V2 step by step.



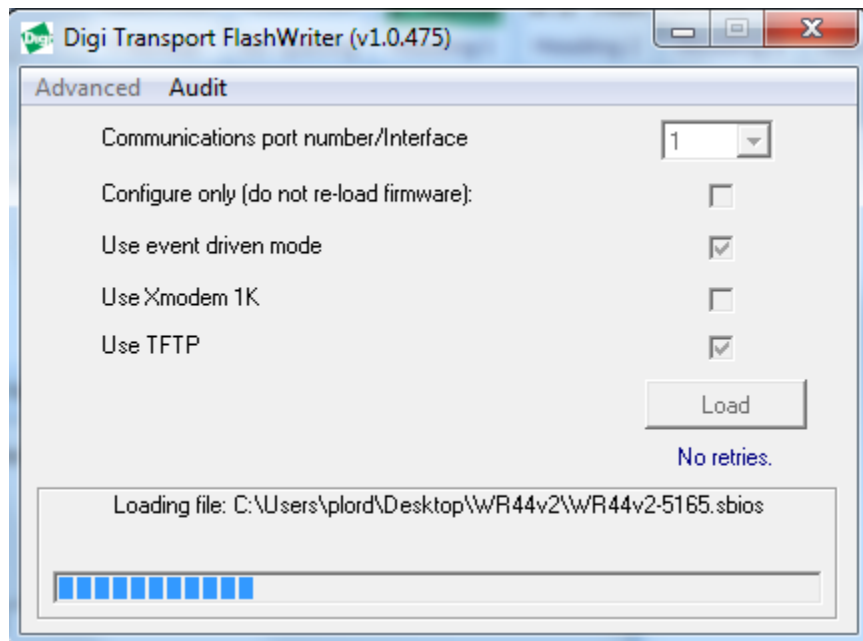
Click OK

Next enter the hardware revision:



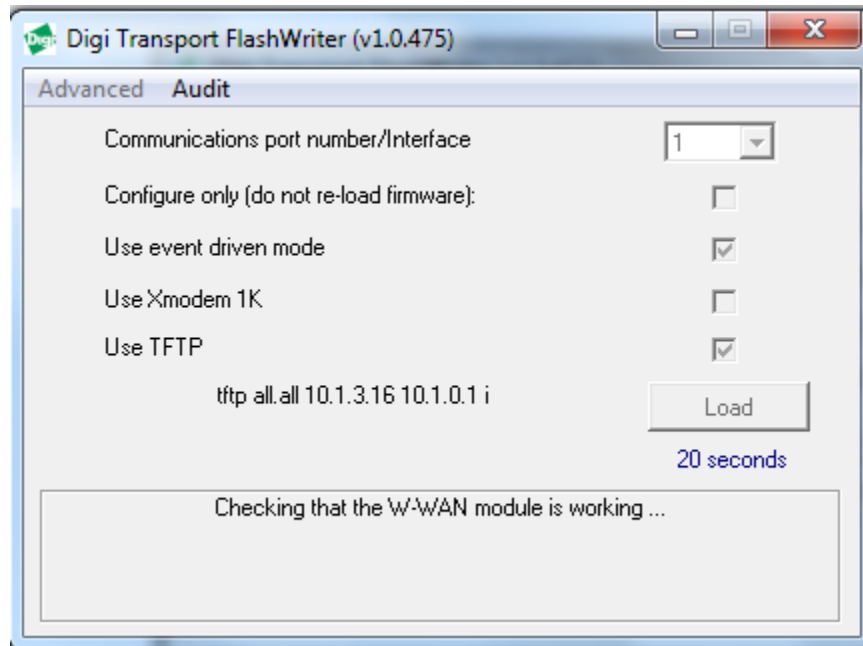
Click OK

The .ALL file should start to load:

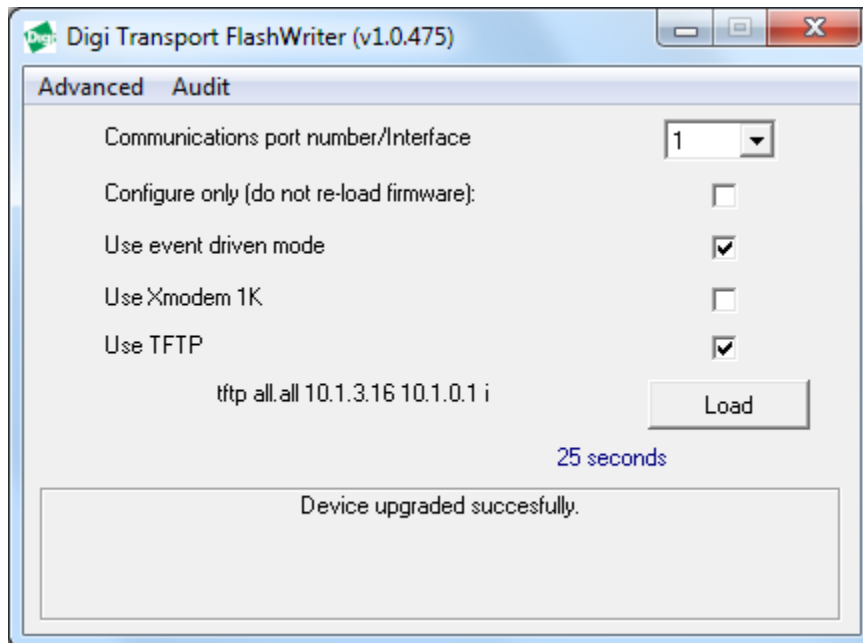


How to test an WR44V2 step by step.

After reboot, it should check the interface to the W-WAN module (if one is fitted):



After this and other tests, it should report “Device upgraded successfully”:



This means the WR44V2 has been successfully flashed and correct communication with the internal radio module (if fitted) verified.

## How to test an WR44V2 step by step.

At this stage the following hardware components (and more) have been successfully tested :

- FLASH
- SDRAM
- SRAM
- ETHERNET 0
- Serial port 0
- Interface to radio module (if fitted)



## 5.2 Reviewing Flashwriter error messages

If during the previous session an error occurred, please check the table below for the recommended course of action:

Error Message	Recommendation
Unable to establish contact with Marvel CPU, please try again.	This should not occur if the mvtest program was successful so suggests user error or bad PC serial port, please try this step again.
XModem TX failure on loading Marvel UART boot file.	This could be an issue with the PC serial port, check again that this works on a known good router, if it does and it still fails with this error on a bad router then request an RMA with reason: <b>XModem TX failure on loading Marvel UART boot file</b>
Unable to start TFTP	Check that the Ethernet cable is connected correctly and the LAN LED is on. This error can often be “user error” or “network issues”. However if this error is repeatable on the suspected bad router but does not occur on a known good router then request an RMA with reason. <b>“Flashwriter TFTP failed to start”</b>
Blue progress bar moves, but slowly and with lots of re-tries and eventually fails.	This suggests a hardware problem or a network issue on your LAN. Check again that this works on a known good router, if it does and it still fails with this error on the suspected bad router then request an RMA with reason. <b>“Flashwriter TFTP failed to complete”</b>
Unable to communicate with device after reboot	Check to see if the router is continuously rebooting. Please contact Digi technical support for help.
W-WAN module failed check - please check you selected the correct module!	Be very careful to check that you are selecting the correct radio module when you launch FlashWriter. This is the number one cause of this error! If you are unsure of the type of radio module fitted open the case.  If you are sure you are selecting the correct radio module and if this error is repeatable on the suspected bad router yet works fine on a known good router, please request an RMA with reason: <b>“Flashwriter radio check failed.”</b>

## 6 CHECK LEDS

Connect all four Ethernet ports to a switch.

Access the CLI (Command Line Interface) – this can be achieved:

- Through the serial port @115200 bps
- Via a telnet or SSH connection
- Via the “execute a command” page of the web user interface.

Issue the “flashleds” command and check that all LEDs are illuminated. If there is an LED fault please request an RMA with code:

“x LED failure” where x is:

- ON LED
- LAN 0
- LAN 1
- LAN2
- LAN3
- WLAN
- DSL
- LINK
- SIM
- ACT
- Signal I
- Signal II
- Signal III

## 7 CHECK W-WAN CONNECTIVITY

### 7.1 Test SIM detection switch

With the router powered off, insert a SIM card into BOTH SIM slots of the WR44V2 and open the CLI interface.

Access to the CLI (Command Line Interface) – this can be achieved:

- Through the serial port @115200 bps
- Via a telnet or SSH connection
- Via the “execute a command” page of the web user interface.

Issue the following command:

```
simconn ?
```

This command tells you which SIM slots are populated and also the SIM that is currently in use. The value before the comma is SIM 1 and the value after the comma is SIM 2. 1000 means that the SIM is present. 1001 means that the SIM is present and the active SIM. Here is a summary:

1 = SIM not present

1000 = SIM present

1001 = SIM present and connected

The output should be as follows:

```
simconn ?  
simconn: 1001,1000  
OK
```

Showing that SIM 1 is present and active and SIM 2 is present.

If the SIM cards are physically inserted but do not show as present please request an RMA with reason “SIM DETECTION FAIL”

How to test an WR44V2 step by step.

## 7.2 Test SIM 1

Ensure that an antenna is connected and the router is located in an area with good signal strength.

Navigate to:

**Configuration - Network > Interfaces > Advanced > PPP 1 > Mobile**

Change **W-WAN SIM:** from “*Any*” to “***SIM 1***”

Use SIM  Any  SIM 1  SIM 2

Click **Apply**.

How to test an WR44V2 step by step.

Next navigate to

**Configuration - Network > Interfaces > Mobile**

And select SIM **1**

▼ **Mobile**

Select a SIM to configure from the list below

Settings on this page apply to the selected SIM

SIM: 1 (PPP 1) ▼

And under “**Mobile Settings**”

*Enter the correct APN for the SIM card installed in slot 1*

▼ **Mobile Settings**

Select the service plan and connection settings used in connecting to the mobile network.

**Mobile Service Provider Settings**

Service Plan / APN: You.APN.goes.here

Click **Apply**.

How to test an WR44V2 step by step.

Now Navigate to:

**Management - Connections > PPP Connections > PPP 1**

*Wait for up to 5 minutes and check for a valid IP address*

You may need to refresh the page for the new address to appear (click on >PPP 1)

▼ **PPP 1 - W-WAN (HSPA 3G)**

**Uptime:** 0 Hrs 5 Mins 55 Seconds

<b>Option</b>	<b>Local</b>	<b>Remote</b>
MRU:	1500	1500
ACCM:	0x0	0x0
VJ Compression:	OFF	OFF

Link Active With Entity: ASY 2

**IP Address: 10.22.3.153**

DNS Server IP Address: 192.168.10.110

Secondary DNS Server IP Address: 194.51.3.56

Outgoing Call To: \*98\*1#

If a valid IP address is **NOT** found, please download the **debug.txt** and email this to Digi Technical Support ([tech.support@digi.com](mailto:tech.support@digi.com)) or open a case at <http://www.digi.com/support/eservice/> for assistance.

How to test an WR44V2 step by step.

### 7.3 Test SIM 2

Navigate to:

**Configuration - Network > Interfaces > Advanced > PPP 1 > Mobile**

Change “W-WAN SIM: from “SIM 1” to “SIM 2”

Use SIM  Any  SIM 1  SIM 2

Click **Apply**.

Next navigate to

**Configuration - Network > Interfaces > Mobile**

And select SIM 2

▼ **Mobile**

Select a SIM to configure from the list below

Settings on this page apply to the selected SIM

SIM: 2 (PPP 1) ▼

And under “**Mobile Settings**”

Enter the correct APN for the SIM card installed in slot 2

▼ **Mobile Settings**

Select the service plan and connection settings used in connecting to the mobile network.

**Mobile Service Provider Settings**

Service Plan / APN: You.APN.goes.here

Click **Apply**

## How to test an WR44V2 step by step.

Now Navigate to:

**Management - Connections > PPP Connections > PPP 1**

Click “**Drop Link**” and refresh the page by clicking >PPP 1

You may need to wait up to 5 minutes

▼ **PPP 1 - W-WAN (HSPA 3G)**

**Uptime:** 0 Hrs 5 Mins 55 Seconds

<b>Option</b>	<b>Local</b>	<b>Remote</b>
MRU:	1500	1500
ACCM:	0x0	0x0
VJ Compression:	OFF	OFF

Link Active With Entity: ASY 2

**IP Address: 10.22.3.153**

DNS Server IP Address: 192.168.10.110

Secondary DNS Server IP Address: 194.51.3.56

Outgoing Call To: \*98\*1#

A valid IP address for SIM 2 should be seen – Notice it is different to the one assigned for SIM 1

If a valid IP address is **NOT** found, please download the **debug.txt** and email this to Digi Technical Support ([tech.support@digi.com](mailto:tech.support@digi.com)) or open a case at <http://www.digi.com/support/eservice/> for assistance.



## 8 CHECK W-WAN SIGNAL STRENGTH

Whilst the internet link is still connected from step 7, access the CLI (Command Line Interface)

Access to the CLI (Command Line Interface) – this can be achieved:

- Through the serial port @115200 bps
- Via a telnet or SSH connection
- Via the “execute a command” page of the web user interface.

And issue the following command:

```
modemstat ?
```



```
CA: Telnet 10.1.208.1
SN:205017
Welcome. Your access level is SUPER
ss205017>modemstat ?
      Outcome: Got modem status OK:
      Time: 28 Sep 2012 12:51:35
      SIM status: Ready (PIN checking disabled)
      Signal strength: -66 dBm
      Radio technology: UMTS
      Signal quality (UMTS): RSSI -66 dBm, Ec/Io -6.0 dB
      Radio band: WCDMA 2100
      Channel: 10712
      Manufacturer: HUAWEI Incorporated
      Model: Huawei EM680 w/Gobi Technology
      IMEI: 354976040054861
      ESN: 800A7F1C
      MEID: A000003360F53E
      IMSI: 234159087893245
      MDN: Not provisioned
      ICCID: 89441000300678785654
      Firmware: D3200-ST5UGN-1575 1 [Nov 22 2010 09:00:00]
      Bootcode: D3200-ST5UXN-1577
      Hardware version: 30500000
      GPRS Attachment Status: Attached
      GPRS Registration: Registered, home network lac:00DF ci:01B0BD51
      Network: voda UK, 23415
      Preferred system: Auto
OK
```

Check that the signal strength is roughly what you normally get (+/- 10dB) with the same antenna in the test location.

If the signal strength is much worse than normal, make a note of the cell ID (lac:00DF ci:01B0BD51 in above example) and repeat the test on a known working WR44v2 that contains the same type of radio module in the same location. Ensure the known working WR44v2 is connected using the same antenna and connects to the same cell ID (lac:00DF ci:01B0BD51 in above example). If it does and the signal strength is much better (+ 10dB) than the suspected bad router, request an RMA from Digi technical support with code: “Cellular signal strength low”

## 9 CHECK USB PORTS

Insert a valid USB device into the USB slots on the front of the WR44v2. A valid USB device is a device that you know works in a WR44v2 because you have tried it previously. Examples to try:

- USB Flash drive
- USB Serial adapter
- USB Mouse

Access to the CLI (Command Line Interface) – this can be achieved:

- Through the serial port @115200 bps
- Via a telnet or SSH connection
- Via the “execute a command” page of the web user interface.

And issue the following command:

```
bush show
```



```
Telnet 10.1.208.1
ss205017>bush show
BUSBcmd
BUS 1
dev:1 depth:0 Marvell EHCI root hub (HUB driver)(ports:1)
  dev:2 depth:1 vendor 0x0424 product 0x2514 (HUB driver)(ports:4)
    dev:3 depth:2 HUAWEI Incorporated Huawei EM680 w/Gobi Technology (UMSM driv
r)
      dev:
      dev:
      dev:4 depth:2 General USB Flash Disk (MSD driver)
OK
ss205017>
```

2 devices should normally be present:

- dev:3 depth:2 The internal radio cellular module
- dev:4 depth:2 your test device.

If the device in dev4, depth 2 device is not present and this same device shows up fine in a known working WR44v2, please request an RMA with code: “External USB port test failed”

## 10 CHECK ETH PORTS 1 TO 3

Note that it is not necessary to test Eth port 0. This was testing during the flashing process.

Access to the CLI (Command Line Interface) – this can be achieved:

- Through the serial port @115200 bps
- Via a telnet or SSH connection
- Via the “execute a command” page of the web user interface.

And issue the following command:

**ID**

And check that the router is in “port isolate mode”:

```
Digi TransPort WR44v2-U800-DE2-XX Ser#:205017 HW Revision: 5201a
Software Build Ver5164+05d6a82. Sep 28 2012 02:32:19 LW
ARM Bios Ver 6.80 v45 800MHz B995-M1003-F80-00,0 MAC:00042d0320d9
Power Up Profile: 0
Async Driver Revision: 1.19 Int clk
Wi-Fi Revision: 2.0
Ethernet Port Isolate Driver Revision: 1.11
Firewall Revision: 1.0
EventEdit Revision: 1.0
Timer Module Revision: 1.1
```

If the router is not in Port Isolate Mode, then issue the following commands:

```
ethvlan
reboot
```

Configure ETH ports 1 to 3 with a valid and free IP address on the same subnet as your test PC, e.g.

```
eth 1 ipaddr 10.1.208.51
eth 2 ipaddr 10.1.208.52
eth 3 ipaddr 10.1.208.53
```

From your PC, first clear the ARP table, from the windows command prompt and issue this command:

```
arp -d *
```

Then check that you can ping all three address.

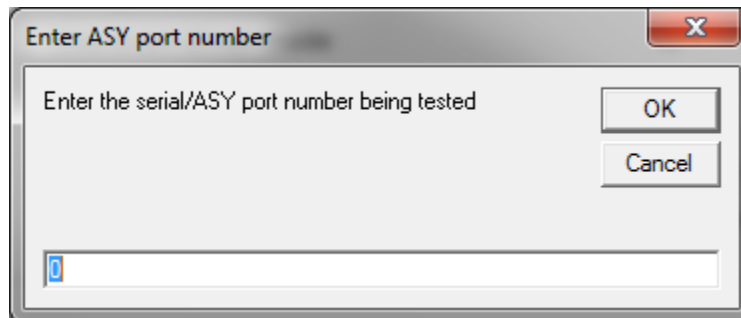
If it is not possible to ping all three addresses and if you repeat this test on a known good WR44v2 and all three addresses respond to pings, please request an RMA with code “**ETH X test failed**” where X is the Eth port number that failed to respond.

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## 11 CHECK SERIAL PORTS

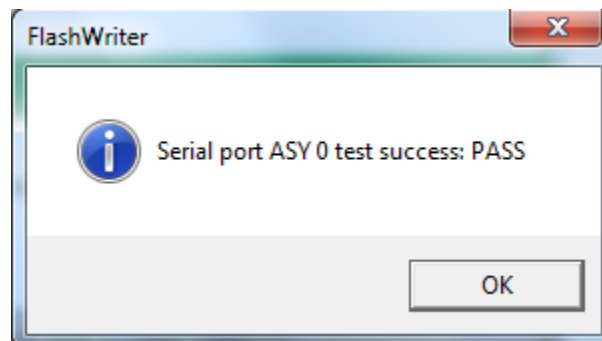
With the PC serial port still connected to “Serial 0” of the WR44v2, launch Flashwriter again, ensure that the correct PC comm. port number is selected and click on “Check Serial” from the Advanced menu of FlashWriter.

When the following prompt is received:



As you are testing “Serial 0” just click OK.

You should see this.



## How to test an WR44V2 step by step.

If any error messages occur, please refer to the following table to identify the best course of action:

Error Message	Recommendation
Problem sending AT\LS	Flashwriter is unable to establish contact with the router under test. Please check the cabling and try again. If the problem persists then repeat the process with a known working router. If the test is successful on a known working router and the problem is repeatable on the router under test, please request an RMA with reason: "Flashwriter serial I/O test fail."
Problem with DCD on (DCD was OFF when supposed to be ON)	First carefully check you are entering the correct serial/asy port number. If you get this wrong you will get a false fail! Next to verify cabling, please repeat this procedure on a known working router. If the test is successful on a known working router but repeatedly fails on the router under test then please request an RMA with reason: "Flashwriter DCD test fail."
Problem with DCD on (DCD was ON when supposed to be OFF)	First carefully check you are entering the correct serial/asy port number. If you get this wrong you will get a false fail! Next to verify cabling, please repeat this procedure on a known working router. If the test is successful on a known working router but repeatedly fails on the router under test then please request an RMA with reason: "Flashwriter DCD test fail."
Problem with DTR (DTR is off and should be ON)	To verify cabling, please repeat this procedure on a known working router. If the test is successful on a known working router but repeatedly fails on the router under test then please request an RMA with reason: "Flashwriter DTR test fail."
Problem with DTR (DTR is ON and should be OFF) on	To verify cabling, please repeat this procedure on a known working router. If the test is successful on a known working router but repeatedly fails on the router under test then please request an RMA with reason: "Flashwriter DTR test fail."
Problem with CTS (CTS is ON and should be OFF) on	To verify cabling, please repeat this procedure on a known working router. If the test is successful on a known working router but repeatedly fails on the router under test then please request an RMA with reason: "Flashwriter CTS test fail."
Problem with CTS (CTS is OFF and should be ON) on	To verify cabling, please repeat this procedure on a known working router. If the test is successful on a known working router but repeatedly fails on the router under test then please request an RMA with reason: "Flashwriter CTS test fail."

## 12 TESTING THE XDSL

Some WR44v2 models are fitted with DSL modules.



The part number of the approval label will reveal if DSL is fitted.

WR44	U800	L	E2	SW
------	------	---	----	----

If character 9 is F, G, L or M a DSL module is installed:

D	V1 No Wi-Fi
W	V1 + W-Fi
C	V2 No Wi-Fi
N	V2 + Wi-Fi
F	V2 DSL Annex A No Wi-Fi
G	V2 DSL Annex B No Wi-Fi
L	V2 DSL Annex A +Wi-Fi
M	V2 DSL Annex B +Wi-Fi

Please note that due to the nature of DSL it is not possible to establish a clear cut PASS/FAIL test. The performance of the line will vary according to other users and the time of day. Cable routing and dirty connectors can also significantly affect the performance. Without specialist equipment a DSL test is always going to be somewhat subjective.

It is first necessary to establish a baseline for your DSL test. You need to test with a known “good” router on a DSL line that you will always use for testing going forwards. You should keep this “known good” router put to one side and label it “Golden DSL testing unit”. You will always need to keep this “Golden DSL testing unit” to confirm that the base line has not changed.

## How to test an WR44V2 step by step.

Connect the ADSL cable to the “Golden DSL testing unit”. Wait for it to “train” and then issue the `adslst` command:

```
Modem Status: Showtime
  Link Uptime: 0 Hrs 0 Mins 35 Secs
Firmware Version: SW 1.11
Operational Mode: ADSL2+ Annex A
Remote Vendor ID: IFTN
Est'd Loop Length (ft): 9995

                Downstream      Upstream
                -----      -----
Speed (kbps): 5668              839
Attainable Rate (kbps): 6048    840
Relative Capacity (%): 93       99
Attenuation (dB): 49.7          32.8
Noise Margin (dB): 1.4          5.8
Output Power (dBm): 12.4        11.9
Cells: 0                        N/A
FEC: 1726                       0
CRC: 5                           0
HEC: 226                         0

OK
```

Ensure the status is “**Show Time**” (to confirm it has trained up) and then make a note of the

- Operational Mode
- Downstream speed
- Upstream Speed
- Attenuation
- Noise Margin
- Firmware Version

Ensure the operational mode is correct for the line (e.g. if the fastest mode the line supports is ADSL2+ then this should be the mode that is negotiated.)

It would be wise to issue the following command:

```
adslldrop
```

This will cause the router to re-train.

Then re-check the output of the following command after it re-trains:

```
adslst
```

Perhaps take an average of 5 readings (dropping the link each time) to get a feel for the range of train up speeds on this line.

## How to test an WR44V2 step by step.

Next connect the unit that is to be tested to the line. Collect all the same parameters as above. Please note that every modem has slightly different characteristics and the speed and noise margin can vary between individual units.

Deciding a “good modem” from a “bad modem” is somewhat down to judgment as a rule of thumb

- 1) If the modem does not train up at all

OR

- 2) If the downstream or upstream speed is half that of the “Golden DSL testing unit” (and this is repeatable)

AND

- 3) If the golden unit is reconnected and it trains up at the usual speed and noise margin for the golden unit

Then there is cause for concern.

Please check the ADSL chipset firmware version of the golden router and the suspected golden router are the same. (Firmware Version: SW 1.11 in above example). If not take steps to ensure they are the same and re-test.

If there is still a problem, please include the output of the ADSLST command from the suspected broken router and the output of the ADSLST command from the golden test router in the RMA request. (You must test the golden router at around the same time as the suspected broken router to ensure that the characteristics of the ADSL line have not recently changed.)