L4491A-04

Modification Recommended Service Note

Supersedes: NONE

L4491A 4U RF/Microwave Switch Platform

Serial Numbers: MY56460359 - MY56460642

SG56460003 - SG56460004

The Problem – Devices found to have the same MAC address can cause an IP conflict when connected on the same local network.

Parts Required:

P/N Description Qty.

NONE

ADMINISTRATIVE INFORMATION

ACTION CATEGORY:	[]] ON SPECIFIED FAILURE [X] AGREEABLE TIME	STANDARDS LABOR: 0.5 Hours
LOCATION CATEGORY:	[X] CUSTOMER INSTALLABLE [[]] ON-SITE (active On-site contract required) [[]] SERVICE CENTER [[]] CHANNEL PARTNERS	SERVICE: [[]] RETURN USED [[]] RETURN INVENTORY: [[]] SCRAP PARTS: [[]] SCRAP [[]] SEE TEXT [[]] SEE TEXT
AVAILABILITY	: PRODUCT'S SUPPORT LIFE	NO CHARGE AVAILABLE UNTIL: 31 March 2020
	[[]] Calibration Required [X] Calibration NOT Required	PRODUCT LINE: BL AUTHOR: AK

ADDITIONAL INFORMATION:



Situation:

Media Access Control (MAC address) is a hardware address that uniquely identifies each instrument on a network. Each of the L4491A instruments must have a unique MAC address. Due to a software bug, some L4491A's have been shipped with the same MAC address [80-09-02-07-29-FF]. When L4491A's that have the same MAC address are connected to the same local area network, an IP conflict occurs.

Solution/Action:

- 1. Connect the L4491A instrument to a PC controller either using GPIB cable or LAN cable.
- 2. Power on the Instrument. If the LAN cable is used for communication, please ensure the LAN LED on the instrument's front panel turns yellow before proceeding to the next step.



3. Open "Keysight Connection Expert" to ensure a connection with the instrument is established. Take note of the **instrument's model number, serial number** and the **visa address** (GPIB or LAN address) from the "Keysight Connection Expert" tool. These three items will be used in the "L449XALANMAC.exe" application as a user input.

Keysight Connection Expert 201	8 0 ? _ 🗆 >
Instruments PXI/AXIe Chassis	
My Instruments + Add ;	C 📰 🕇 Details for Agilent Technologies L4490A
✓ LAN (TCPIP0)	🕘 🖸 🗹 🗶 🔜
L4490A, Agilent Technolo 169.254.44.88	gies Check Edit Remove Interactive IO Monitor Command Expert
V LAN (TCPIP1)	Manufacturer: Agilent Technologies Model: L4490A
Instruments found on local subnet, click [+Add your list.	1) to add to Serial Number: US55460004
V LAN (TCPIP2)	Firmware Version: 2.51-2.43-0.00-0.00
Instruments found on local subnet, click [+Add your list.	I] to add to
V COM (ASRLO)	Connection Strings
No Instruments Found	
V COM (ASRL7)	VISA Address Aliases
No Instruments Found	TCPIP0::169.254.44.88::inst0::INSTR
V USB (USB0)	

4. Launch Keysight Interactive IO tool within Connection Expert and verify the MAC address of the instrument using SCPI command:

	Interact Help Keysight Interactive IO _ 🗖 🗙								
Stop C	Image: Stop Imag								
Command	SYST:COMM	I:LAN:MAC?			-	Comm	ands	•	
	Send Comr	mand Re	ad Response	Send & Read					
-> <u>SYST:C</u> -> <u>SYST:C</u> <- <mark>"80-09</mark>	COMM:LAN:MA	U::169.254.4 2C?	4.88::INSTU::1	NSTK					
CONNECTER	TO TCPIPO:	:169.254.44.	88::inst0::INS	STR					

(a) "SYST:COMM:LAN:MAC?" : query the instrument's LAN MAC address.

- 5. If the MAC address is [80-09-02-07-29-FF], please proceed to step 6. Else, the instrument is not affected by the MAC address issue and no further action is required.
- 6. Create a new folder directory with the name "ABELANMAC" on the PC controller's C:\ drive.
- 7. Go to URL: ftp://ftp.keysight.com/mpusup/L449XALANMAC
- 8. Place L449XALANMAC.exe, L449XAMAC.csv and Agilent.TMFramework.InstrumentIO.dll files from step 7 inside the "C:\ABELANMAC" folder.



9. Open the "L449XALANMAC" application to launch the test program.



10. The "L449XALANMAC" main window will appear as shown below.

Unit's Serial Number : E.g.: MY12345678 Unit's GPIB or IP Address : E.g.: MY12345678 E.g.: MY12345678 E.g.: 1: 169.254.44.88 E.g.: GPIB0::9:INSTR E.g.: GPIB0::9:INSTR E.g.: TOPIPO::169.254.44.88 E.g.: MY12345678 Clear Outcome Status :	: E.g.: L4491A : E.g.: MY12345678 : E.g.: TOPIPO::169.254.44.88 : Outcome Status : : Outcome Status :	Scan/Enter The DUT Details To Reassign LAN MAC Address Unit's Model Number : E.g.: L4491A Unit's Serial Number : E.g.: MY12345678 Unit's GPIB or IP Address : E.g.: MY12345678 Clear Outcome Status :		Source Files					
Unit's Serial Number : E.g.: MY12345678 Unit's GPIB or IP Address : E.g.: MY12345678 E.g.: MY12345678 E.g.: 1: 169.254.44.88 E.g.: GPIB: 0:: INSTR E.g.: GPIB: 0:: INSTR E.g.: TCPIPO:: 169.254.44.88 E.g.: TCPIPO:: 169.254.44.88 Clear Assign MAC Address	E.g.: L4491A E.g.: MY12345678 E.g.1: 169.254.44.88 E.g.2: GPIB0:9:INSTR E.g.3: TCPIP0::169.254.44.88:inst0:INSTR MAC Address	Scan/Enter The DUT Details To Reassign LAN MAC Address Unit's Model Number : E.g.: L4491A Unit's Serial Number : E.g.: MY12345678 Unit's GPIB or IP Address : E.g.: MY12345678 E.g.: Clear Assign MAC Address							
Unit's Serial Number : E.g.: MY12345678 Unit's GPIB or IP Address : E.g.: 1: 169.254.44.88 E.g.: 2: GPIB0::9:INSTR E.g.: 3: TCPIP0::169.254.44.88:inst0::INSTR	: E.g.: L4491A : E.g.: MY12345678 : E.g.1: 169.254.44.88 E.g.2: GPI80::9:INSTR E.g.3: TCPIP0::169.254.44.88::inst0::INSTR	Scan/Enter The DUT Details To Reassign LAN MAC Address Unit's Model Number : E.g.: L4491A Unit's Serial Number : E.g.: MY12345678 Unit's GPIB or IP Address : E.g.: MY12345678 E.g.: 169.254.44.88 E.g.: I09.254.44.88 E.g.: TCPIP0::169.254.44.88:inst0::INSTR		Clear		Assign MAC Ad	idress	Outcome Status :	
Unit's Serial Number : E.g.: MY12345678	E.g.: L4491A E.g.: MY12345678	Scan/Enter The DUT Details To Reassign LAN MAC Address Revision : 2.0 Unit's Model Number : E.g.: L4491A Unit's Serial Number : E.g.: MY12345678	Uni	t's GPIB or I	P Address :		E.g.1: 1 E.g.2: G E.g.3: Ti	59.254.44.88 PIB0::9::INSTR CPIP0::169.254.44.88::inst0::II	NSTR
	: E.g.: L4491A	Scan/Enter The DUT Details To Reassign LAN MAC Address Revision : 2.0 Unit's Model Number : E.g.: L4491A		Unit's Seri	al Number :	E.ç	.: MY12345678	SO 354 44 99	
Unit's Model Number : E.g.: L4491A		Revision : 2.0 Scan/Enter The DUT Details To Reassign LAN MAC Address		Unit's Mod	el Number :	E.ç	I.: L4491A		

11. The location of the source files is shown at the Source Files tab for user's reference.

O ABE LAN MAC Address	- 0	×
Scan/Enter The DUT Details To Reassign LAN MAC	Revision : 2.0	
Unit's Model Number : E.g.: L4491A		
Unit's Serial Number : E.g.: MY12345678		
Unit's GPIB or IP Address :	E.g.1: 169.254.44.88 E.g.2: GPIB0::9::INSTR E.g.3: TCPIP0::169.254.44.88::inst0::INSTR	
	Outcome Status :	
Clear Assign MAC Address	Outcome Status :	
Clear Assign MAC Address	Outcome Status :	
Clear Assign MAC Address Result Log Source Files	Outcome Status :	
Clear Assign MAC Address Result Log Source Files	Outcome Status : Revision : 2.0 Developer: NAI	
Clear Assign MAC Address Result Log Source Files Available MAC Address File : C:\aBELANMAC\L449XAMAC.csv	Outcome Status : Revision : 2.0 Developer: NAI	

12. Enter the instrument's details, i.e. model number, serial number, and GPIB or IP address, into the text box fields accordingly. *Refer to step 3 on page 2*.

	100 00001	anigty. Refe		011 00	.90 2.			
O ABE LAN MAC Address						-		\times
<u>Scan/Er</u>	iter The DUT	Details To Rea	assign LAN MA	C Addre	Rev SS	ision : 2.	.0	
Unit's Mo	del Number :	L4490A	E.g.: L4491A					
Unit's Ser	ial Number :	US55460004	E.g.: MY12345678					
Unit's GPIB or	IP Address :	169.254.44.88		E.g.1: 16 E.g.2: GF E.g.3: TC	9.254.44.88 PIB0::9::INSTR :PIP0::169.254.44.88::ins	st0::INS	STR	
				-				
					Outcome Status	s :		
Clear		Assign MAC	Address					
Result Log Source File:	3							
Date	Model Number	Serial Number	Old MAC A	ddress	New MAC Address		Status	
<								>

- 13. Click the "Assign MAC Address" button to update the instrument's Keysight LAN MAC address, or the "Clear" button to clear the user input.
- 14. The Outcome Status box will display as "Completed" if the instrument has successfully been assigned with the new Keysight LAN MAC address, passed the self-test check, and passed the query error check. The Result Log displays the details of the outcome.

ABE LAN MAC Address					-	
<u>Scan/En</u>	iter The DUT	Details To Rea	assign LAN M	AC Addre	Revisio SS	n : 2.0
Unit's Moo	del Number :	L4490A	E.g.: L4491A			
Unit's Ser	ial Number :	US55460004	E.g.: MY1234567	8		
Unit's GPIB or	IP Address :	169.254.44.88		E.g.1: 16 E.g.2: GF E.g.3: TC	i9.254.44.88 PIB0::9::INSTR XPIP0::169.254.44.88::inst0	INSTR
New MA	C Address :	"80-09-02-01-C8-2F"				
					Outcome Status :	
Clear		Assign MAC	Address		Completed	1
Result Log Source Files	i					
Date	Model Number	Serial Number	Old MAC	Address	New MAC Address	Status
14/Mar/2019 - 12:35:28:	L4490A	US55460004	"80-09-02	-07-29-FF"	"80-09-02-01-C8-2F"	PASS
<						3
-						

15. If the instrument already has a valid(non-duplicate) Keysight LAN MAC address assigned, the status will display as "**Unchanged**" when the "Assign MAC Address" button is clicked as shown below.

	Coop/End		Dataila Ta Dagaa				Revision :	2.0
	Scan/En	er The DUT	Details To Reass	ign lan mac	; Addre	<u>55</u>		
	Unit's Mod	el Number :	L4490A E	.g.: L4491A				
	Unit's Seri	al Number :	US55460004 E	.g.: MY12345678				
Unit	's GPIB or I	P Address :	169.254.44.88		E.g.1: 16 E.g.2: GF	9.254.44.88 IB0::9::INSTR		
						Outcome Sta	atus :	
	Clear		Assign MAC A	ddress		Outcome Sta Unchan	atus : ged	
	Clear		Assign MAC A	ddress		Outcome Sta Unchan	atus : ged	
Result Log	Clear Source Files		Assign MAC A	ddress		Outcome Sta Unchan	utus : ged	
Result Log Date	Clear Source Files	Model Number	Assign MAC A	ddress Old MAC Ac	ddress	Outcome Sta Unchan	atus : ged	Status
Result Log Date 14/Mar/2019	Clear Source Files	Model Number L4490A	Assign MAC A Serial Number US55460004	Old MAC Ad "80-09-02-07	ddress 7-29-FF*	Outcome Sta Unchan New MAC Addre *80-09-02-01-C8	ess -2F"	Status PASS

- 16. The Test program returns "FAIL" as the outcome status if either the new LAN MAC address update is unsuccessful, instrument failed self-test, or there is an error in the instrument's error queue.
- 17. The auto-generated soft copy of the test log files are saved here:
 - a. C:\ABELANMAC\ folder as "Sernum.txt" for the test summary, and
 - b. C:\ABELANMAC\Log\ folder as "ReAssignMAC *ModelNumber-SerialNumber*.txt" for the test detail output.

Note: *ModelNumber* is the instrument's model number, and *SerialNumber* is the instrument's serial number. Example for this instrument is "ReAssignMAC L4490A-US55460004.txt"

			_	Ede Edit Format View Help: 14/j/219/4409A/US55466004/*80-09-02-07-29-FF*/*80-09-02-01-C8-2F*/PASS/PASS/PASS 14/j/2019/L4490A/US55460004/*80-09-02-01-C8-2F*/*80-09-02-01-C8-2F*/PASS/PASS/UNCHAM	4GED	
📙 🔁 📜 👻 ABELAN	IMAC	- 0	×			Π.
File Home Share	re View		~ 🥑	ReassignMac L4490A-U555460004 - Notepad	\sim	
← → ~ ↑ ↓ > TI	This PC > OSDisk (C:) > ABELANMAC	マ ひ Search ABE	E P	ile Edit Format View Help	-	
Auick access Shis PC Action of the second sec	Name Log Agilent.TMFramework.InstrumentIO.dll L449XAIANMAC L449XAMAC Enum	Type File folder Application extern Application Microsoft Excel C Text Document	Si: 6	old MAC Address: "80-09-02-07-29-FF" New MAC Address: "80-09-02-01-C8-2F" Belffest Check: PASS Proro Check: PASS Veerall Status: PASS		
5 items	¢		, , , , ,	HA/Mar/2019 (Thursday) 12:36:39:DM AIL Old MAC Address: "90-09-02:01-C8-2E" AIL New MAC Address: "90-09-02-01-C8-2E" ielFfest Check : PASS Foror Check : PASS Verall Status: UNCHANGED		

- 18. Close those files and the "L449XALANMAC" application.
- 19. Remove the entire "ABELANMAC" folder from the PC controller's C:\ drive.

Other Outcome Status

This session will describe the other outcome status displayed based on possible occurrence.

A. Test program displays a "Test Timed Out!" prompt and closes the application.

ABE LAN MAC Address					_	\Box \times
Scan/Ent	er The DUT	Details To Rea	ussign LAN MA(C Address	Revision	: 2.0
Unit's Mode	Number :	L4490A	E.g.: L4491A			
Unit's Seria	Number :	US55460004	E.g.: MY12345678			
Unit's GPIB or If	P Address :	169.254.8.4		E.g.1: 169.254.4 E.g.2: GPIB0::9: E.g.3: TCPIP0::1	44.88 :INSTR 169.254.44.88::inst0::	INSTR
Clear Result Log	Test	Timed Out!	ect to instruments, or N	X IAC file issue	come Status :	
Dete	Madal Number	OrigiNisehaa		ddaaa N	MACAL	Ohehur
Date	Model Number	Serial Number	Old MAC A	ddress Ne	ew MAC Address	Status
<						>

<u>Possible Cause 1:</u> The connection between the PC controller and GPIB or LAN cable is not established.

<u>Possible Cause 2:</u> Incorrect instrument's GPIB or IP address entered at the program text box. <u>Possible Cause 3:</u> Instrument is not powered on when the program is running.

<u>Possible Cause 4:</u> When connecting with the LAN cable, the LAN LED on the instrument's front panel is not yellow.

<u>Possible Cause 5:</u> Missing "L449XAMAC.csv" file according to the Source Files location. Default location for the "L449XAMAC.csv" file is C:\ABELANMAC\.

Possible Cause 6: The "L449XAMAC.csv" file is opened.

Solution 1: Ensure GPIB cable or LAN cable is connected between user's PC and instrument. **Solution 2:** Enter the instrument's correct GPIB or LAN IP address, referring to the Keysight Connection Expert or Keysight Interactive IO tools.

Solution 3: Power on the instrument before running the "L449XALANMAC.exe" application. **Solution 4:** Refer to Solution 1 stated above and try to reboot the instrument. Wait for the LAN LED to turn yellow. If the problem persists, contact the Keysight Technical Support team.

Solution 5: Perform step 6 until step 8 in page 3 of this document.

<u>Solution 6:</u> Close the "L449XAMAC.csv" file.

B. Test program displays a warning "Mismatched Input" prompt, and "INVALID" outcome status.

	Mismatched Input X					
	Unit's Model or Serial Number doesn't match with user input!					
		OK				
ABE LAN MAC Address			-			
Scan/Enter Th	ne DUT Details To Reassi	ign LAN MAC Addre	Revision SS	: 2.0		
Unit's Model Nu	mber : L4491A E.	g.: L4491A				
Unit's Serial Nu	mber : US55460004 E.	g.: MY12345678				
Unit's GPIB or IP Add	Iress : 169.254.44.88	E.g.1: 16 E.g.2: GF	9.254.44.88 PIB0::9::INSTR			
		E.g.3: TC	PIP0::169.254.44.88::inst0::	NSTR		
			Outcome Status :			
Clear	Assign MAC A	ddress	INVALID			
Result Log Source Files						
Date Mode	Number Serial Number	Old MAC Address	New MAC Address	Status		

Possible Cause: The user entered the wrong model number or serial number, versus the actual instrument's model number and serial number.

Solution: Enter the correct model number and serial number of the instrument.

C. Test program displays a "Default Fresh Instrument" prompt and "--- FRESH INSTRUMENT ----" at the Result Log.

<u>Possible Cause</u>: Instrument has a default Keysight LAN MAC address assigned. **Solution**: Contact the Keysight Technologies' Customer Contact Center at <u>www.keysight.com/find/contactus</u>.

Revision History:			
Date	Service Note Revision	Author	Reason for Change
21 Mar 2019	01	AK	As Published