



TechNotes

Revision 6/3/2024

e-Node Troubleshooting Guide

Symptom: e-Node 4000/4100 seemingly disconnects from Lutron or Other Platforms or is not responsive

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Background

The e-Node utilizes various communication protocols to establish and maintain connection with 3rd party platforms. These protocols include:

- HTTP (for use with our own Web-based GUI interfaces)
- TLS (for connection to Lutron Leap protocol devices)
- Telnet (for connection to legacy Lutron platforms (RadioRA2, QS, Quantum) as well as nearly all third-party platforms')
- UDP (for legacy to first generation RTI platform which has been replaced with Telnet—so do not use)

Other protocols and services include:

- -SDDP (for connection to Control4 platforms)

Occasionally it has been reported that communication with a third-party platform is interrupted such that the e-Node and its connected loads seem to be either intermittent or in some cases just ceases.

If the above symptom has been observed, simply following the troubleshooting guide below to gather information and hopefully remedy these issues.

Initial Questions

If you believe the e-Node has disconnected and is no longer operating reliably with your system, here are some questions that can help us assist you if you can answer them for us.

1	Can you see the e-Node's built-in webpage or is that unavailable (prior to a reboot)	
2	Tell us now many masters are controlling the e-Node. The e-Node can concurrently communicate with up to four automaton systems using Telnet plus a single Lutron LEAP protocol device (RadioRA3, QSX or Athena) using TLS. Let us know how many platforms are controlling us	

	directly as a master and if all the Telnet platforms are using a unique username and password. Note: If for instance RTI or NICE is controlling Lutron, and only Lutron is controlling us, then that would be considered just one master in this case	
3	When one platform cannot control us, can another platform control us?	
4	When any third-party platforms cannot control us, can our own built-in GUI webpage control us?	

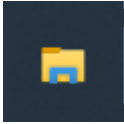
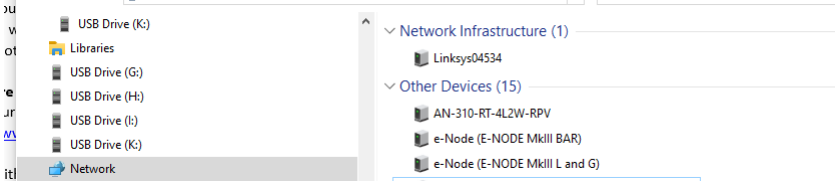

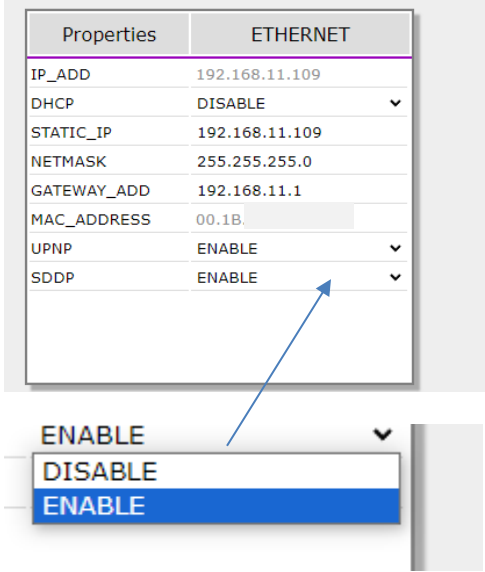
Prior to when Converging Systems receives more information on the observed problem, please follow these steps below to see if you can remedy the issues.

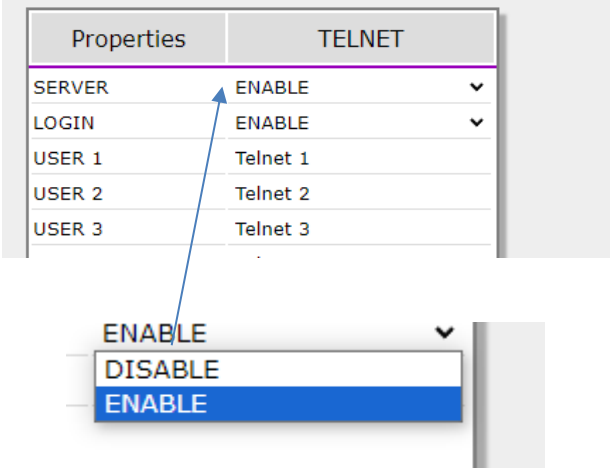
POE versus External Power

1	Check the status of the green or amber on-board LED indicator on the e-Node	The normal status of proper connection to a network work is for the LED indicator to flash 1 time per second. Upon a reboot, the LED indicator will initially turn RED for a few seconds, then start flashing (green or amber) two times per second and then after connectivity with the network switch is successful, it will start flashing 1 x per second (that is good).
2	Are you using the POE built-in option for network communication and power?	<p>The e-Node has been designed with energy conservation in mind (no heat generation). It is classified as a Class 0 POE device but can also be powered by a build in 12~24v dc input port. Some POE switches have difficulty discovering and reliably connecting over a long period of time with Class 0 devices unless (i) they have been designed specifically to communicate with Class 0 devices, or (ii) the dealer/installer has set the POE switch to a supported Class 0 device</p> <p>–Check to see if you can manually select Type 0 within your POE switch</p> <p>–Try another port and another network cable.</p> <p>–Try a shorter wire (with long POE wire runs sometimes there are observed failures with voltage drop and other issues and Class 0 devices)</p> <p>–Try unplugging your e-Node from a powered POE port and instead use a 12~24 DC power supply (min 90ma) and power in the e-Node without POE power.</p> <p>Note: When using external power, you must either the POE functionality on your POE switch or simply plug the e-Node in to a non-powered POE port.</p> <p>CRITICAL.</p>

Network Services and ARP flood

1	There may be situation where network traffic is causing connectivity problem with the e-Node. We need to figure out what are those issue.	<p>–Use network snooping software such as Wireshark</p> <p>https://www.wireshark.org/</p> <p>This is an open-source free download that can be used to determine what kind of traffic may be present on your network that is interfering with normal IP communication. Over the years we have seen networks so</p>
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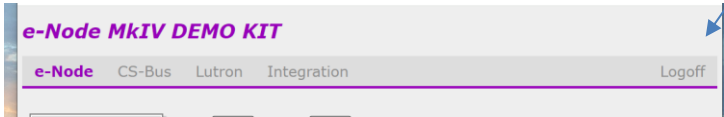
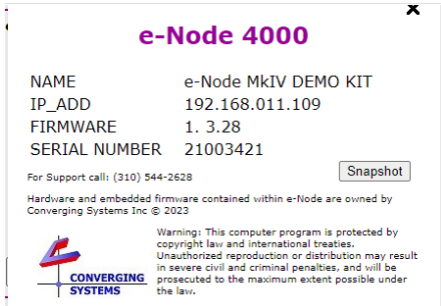
		<p>“poisoned” with ARP floods that connect/disconnect make a network client nearly impossible to use. Check your network first here.</p>
2	<p>If you are unable or unfamiliar with Wireshark, you can manually turn off some network services (within the e-Node) to see if the problem is mitigated.</p>	<p>-Find the IP address for the e-Node. User Windows File Explorer</p>  <p>and select Network/Other devices and click on e-Node). You may have to enable File Sharing within Windows to enable this.</p>  <p>-Select the applicable e-node and double-click on the device to expose its webpage.</p>  <p>-Select the triple (settings icon) and go to the e-Node/Properties/Ethernet tab and set uPNP and SDDP to DISABLE</p>  <p>Note: this is a temporary move to see if network traffic is the cause for poor communication.</p> <p>-Without uPNP, Windows File Explorer will no longer discover the e-Node, but a network sniffer will find the device, or you can simply go to your network switch and re-discover the IP address of the e-Node using the MAC address on the e-Node’s case.</p>

		-Without SDDP, Control4 will no longer auto-discover e-Node, but again a network sniffer or your network router tools can be used to find the IP address in case you forget it.
3	If you are running just a Lutron LEAP controller (i.e., RadioRA3, QSX, or Athena), you can manually turn off Telnet to see if this is the issue.	<p>-Within the e-node Properties/Telnet tab, set Server to DEISAB</p> 

Firmware Update

1	There have been reported cases where ARP floods have made it difficult for the e-Node and Lutron to maintain TLS encrypted communication. We have addressed this issue with a new firmware of firmware (V1.3.28 and later)	<p>-Update your e-Node to the latest version</p> <p>Follow these directions https://www.convergingsystems.com/bin/doc/technotes/updating_firmware_cloud_v3.pdf </p>
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E-Node Under-the-Hood Diagnostics

1	Within the e-Node is a sophisticated set of monitoring functions that allows Converging Systems' engineers to understand more about your network, disconnects, and perhaps any errors in your programming that might be cause of disconnect issues.	<p>--While in the e-Node webpage, go to Logoff and select ABOUT</p>  <p>-Hit snapshot</p>  <p>and email that to us at the following email address support@convergingsystems.com and provide a short note of your setup and the symptoms you are finding. </p>
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