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HS3 Linux with Remote Z-Wave Interface Setup Guide

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Pete

BigBossSeer


 Posts: 17716
Time

HS3 Linux with Remote Z-Wave Interface Setup Guide

January 5, 2019, 11:54 AM

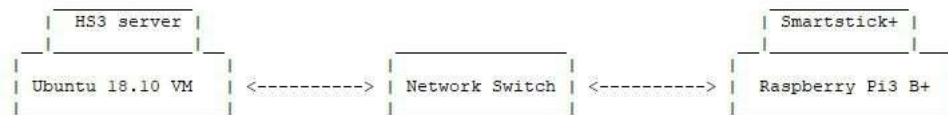
#1

NOTE: This is a copy and paste from a forum post over here ==> [HS3 Linux with Remote Z-Wave Interface Setup Guide](#)
Written by Homeseer User Blackbear - Ryan Aldridge

I've made the conversion from Vera to HS3 over the past month or so. In that time, I have gleamed quite a bit across a number of sources that I wanted to share with the community in a single guide as it may help a lot of other people new to Homeseer if they want to do a similar setup

My Setup:

This setup has been rock solid with zero issues. This diagram is the setup I'm running (HS3 running on Ubuntu VM and a Remote Z-Wave interface (HS SmartStick+ connected to a Raspberry Pi 3 (RPI3) B+ using SER2NET to expose the USB interface to the network). This allows me to host my HS3 server within my network equipment closet and have the RPi Z-Wave device anywhere in the house (since I have the whole house wired for ethernet). For those that don't have wired ethernet, this setup should still work for WiFi networks (just imagine the dotted lines connecting the objects below being wireless connections).



Step 1: Install HS3

1. I used this [fantastic guide](#) by [@Simplex Technology](#) to get my HS3 running on Ubuntu 18.10.
2. Reboot the Ubuntu server (missing from the linked guide).
3. Load the initial webpage: <http://find.homeseer.com/findhomeseer/>
4. Install the HS3 license
5. Modify any additional configuration settings you want

My server specs (probably overkill for now, but I have big plans for this setup):

- 4 vCPU
- 8 GB Memory
- 20 GB HDD

Average CPU usage is <5% and Memory usage is around 2-3 GB at any given time (I have 10 plugins running currently with about 20 devices).

Step 2: Install Raspberry Pi 3 OS (Raspbian Lite)

Hardware: I chose a 16GB MicroSD card. **IMPORTANT:** Raspberry Pi 3 B+ needs a Class 10 or higher grade card.

1. Install [NOOBS](#) on the MicroSD card using [this Raspberry Pi tutorial](#)
2. Insert the MicroSD card and connect the Smartstick+ USB, Ethernet cable (if you have one), HDMI monitor, keyboard, and mouse to the RPi3 and power it on.
3. Once the RPi boots to the install menu, select **Raspbian Lite** from the list of OS choices (it may take a minute or so to display the full list). Follow the prompts to install the OS (I chose all defaults except I set my local timezone).
4. Once the RPi has finished installing the OS, reboot it.
5. Login (default username/password = pi / raspberrypi)
6. If you don't have the RPi connected via an ethernet cable and instead need to use WiFi, now is the time to connect it.

1. Open the Config Menu:

Code:

```
sudo raspi-config
```

2. Select **2 Network**
3. Select **N2 Wi-fi**
4. Choose your country
5. Enter the WiFi network's SSID
6. Enter the WiFi network's passphrase
7. If it works, you should get a success (and no error message). If it didn't work, check the SSID and passphrase.
8. Exit the config menu

- Enable SSH

1. Open the Config Menu:

Code:

```
sudo raspi-config
```

2. Select **5 Interfacing Options**
3. Select **P2 SSH**
4. Select **Yes**
5. Exit the config menu

- Change the default password: Code:

Code:

```
passwd
```

Step 3: Setup Static IP for the RPi3 You want to make sure the RPi always has a static IP address so the HS3 server can find it on the network. If DHCP is used, the address will periodically change and the HS3 server will lose connection to the RPi3. You can either set a static IP in the DHCP server like I did or you can configure the RPi to have a static IP. After you configure the static IP, reboot the RPi:

- Code:

```
sudo reboot now
```

Step 4: Install ser2net on the RPi3

ser2net allows COMM ports (such as serial and USB) to be exposed to the network through a TCP port. This makes it really easy for the HS3 Z-Wave plugin to connect to the RPi3 and use the Smartstick+ Z-Wave interface remotely (anywhere in the world if you want).

1. Log back into the RPi's SSH interface (remember to use the new static IP address you set).
2. Run the following command to install *ser2net*:

Code:

```
sudo apt-get install ser2net
```

3. Now we need to determine the "device address" of the USB port where the Smartstick+ is located. *ser2net* uses this to map to a network port.

1. Run the following command:

Code:

```
dmesg | grep tty | grep USB
```

2. The "device address" will start with *tty* (default should be **ttyACM0**).

4. Edit the *ser2net.conf* file and map the USB device address to a network port. I used port 4000 (doesn't really matter as long as it is above 1024).

1. Open the */etc/ser2net.conf* file: [CODE]sudo nano /etc/ser2net.conf [/CODE]
2. Move the cursor all the way to the bottom of the file
3. Add the following line of code beneath everything else:

Code:

```
4000:raw:0:/dev/ttyACM0:115200
```

- NOTE: The format is <TCP port>:<state>:<timeout>:<device>:<options>
- You can understand the fields more in the [ser2net man page](#)

4. Save and Exit (**Control + X**, then **Y**)
5. Restart the *ser2net* service:

Code:

```
sudo systemctl restart ser2net
```

Step 5: Install and Configure the HS3 Z-Wave Plugin

1. From the HS3 webpage, go to **Plugins >> Manage**.
2. Expand **Additional Interfaces >> Lighting & Primary Technology**.
3. Select the **HomeSeer Z-Wave** plugin and click **Download and Install** (just below **Additional Interfaces**).
4. Once it's installed, enable the plugin.
5. Once the plugin has enabled, go to **Plugins >> Z-Wave >> Controller Management**
6. Click **Add Interface**
 - Name: (whatever you want to name it)
 - Interface Model: Ethernet Interface
 - IP Address: <static ip address of the RPi3>
 - Port Number: <ser2net port> (Mine was port 4000)
7. Click **Add**
8. Click the Enable box (it should successfully connect to the RPi3!)
9. Expand **Z-Wave Networks and Options**
10. Rename the network to whatever you want

This is what my setup

Z-Wave Controller Configu...1/5/2019 12:35:35 AMSunrise: 7:20 AMSunset: 4:48 PMUser:HomeSeer

HOMEVIEWTOOLSPUG-INS

Z-Wave Networks and Options

Network Friendly Name	HomeID	Number of Nodes	Interface Name	Interface Model	Node ID	Network Option(s)
Homestead	E9	16	RPI USB ZWave	Ethernet Interface	1	<div><div><input type="checkbox"/> No HomeSeer Associations</div><div><input type="checkbox"/> Log Poll and Wake-Up Messages</div><div><input type="checkbox"/> Allow Non-Scene Nodes in Controllers</div><div><div>2</div> Poll Failure Limit</div></div>

Z-Wave Interfaces

Name: RPI USB ZWave

This is the MAIN interface for this Home ID of E9

Name: RPI USB ZWave

Interface Model: Ethernet Interface

IP Address: 10

Port Number: 4000

Actions:

ID: 3A3B72189A2E

+ Controller Node Information:

Add Interface

Step 6: Add Z-Wave Devices

1. From the HS2 webpage, go to **Plugins >> Z-Wave >> Controller Management**

2. Expand **Z-Wave Interfaces**

3. From the **Actions** dropdown, select **Add/Include a Node**

4. Click the **Start** button and then press the Programming button on the Z-Wave device itself. You should see activity in the dialog box. If you do, congrats! It works!

Hopefully this guide will help some newer folks out there if they want to do this sort of similar setup. If you have any questions, feel free to reply or reach out to me.

One side note about the security of this approach - since the USB of the RPi is exposed to the local network without authentication, I have it in a separate subnet/VLAN along with some other home automation/security related devices. Very few devices on my network can access this "security" network.

Thanks,
Ryan

- Pete

Auto mator

Homeseer 3 Pro - 3.0.0.548 (Linux) - Ubuntu 18.04/W7e 64 bit Intel Haswell CPU 16Gb- Mono 6.8X

Homeseer Zee2 (Lite) - 3.0.0.548 (Linux) - Ubuntu 18.04/W7e - CherryTrail x5-Z8350 BeeLink 4Gb BT3 Pro - Mono 6.8X

HS4 Pro - V4.1.3.0 - Ubuntu 18.04/VB W7e 64 bit Intel Kaby Lake CPU - 32Gb - Mono 6.10.0.104

HS4 Lite -

X10, UPB, Zigbee, ZWave and Wifi MQTT automation. OmniPro 2, Russound zoned audio, Smarthings hub, Hubitat Hub, and Home Assistant

Tags: None

1 like

Richel
KiloSeer

Posts: 1115
Jacksonville,
Florida, USA

December 21, 2019, 02:57 PM

#2

I have 2 Z-Nets (one connected by cable and the other WiFi). I followed these instructions and have added the RPi-SmartStick+ as a Z-Wave controller. However, I need some help, because it adds as a Main interface for its ID and I want to make it secondary to the main Z-Net. When I try to make it a secondary, inclusion controller on the main network, it will not receive the replicate data ("Replicate send started..." ..."Replication fails."). Further, the HS3 log shows: "RPI_Z-Wave: Z-Wave PC Controller Library Version: Z-Wave 6.02 (Unknown)" Thanks. Elliott

EDIT: I resolved this issue. I tried the SmartStick+ on a Win 10 computer running HS3 STD. It worked fine (a device added properly). I plugged it back into the RPi, added it again as a controller in HS3 Pro, erased everything on the SmartStick+, and then I was able to make it a secondary controller.

Last edited by Richel; December 22, 2019, 12:56 PM. Reason: I resolved this issue.

December 28, 2019, 02:15 PM

#3

@Pete Thank you very much for your very detailed explanation. I just finished setting up a Raspberry Pi 3 B+ , and it worked perfectly , no issues whatsoever!

https://forums.homeseer.com/forum/homeseer-products-services/general-discussion-area/how-to-s/1272738-hs3-linux-with-remote-z-wave-interface-s...

3/7



Corv11
HectoSeer

Posts: 269
Austria

Many many thanks!.

2 Questions if you don't minu.

-I need to setup a second Raspberry pi probably end of next year for a "remote" garage. Will this tutorial from you , most likely also work with another (newer) Raspberry Pi, Or should I preferably use this Raspberyy Pi 3 B+ ? Should I worry about an updated/ newer version of **Raspbian Lite/ser2net** ?

-When I setup another Raspberry , which port should I use? like in your example I used now 4000. Can I use any number (above 1024) , like 4001 ? or is there a number which makes more sense?

Best regards,
Cor



Richel
KiloSeer



Posts: 1115
Jacksonville,
Florida, USA

January 4, 2020, 04:53 PM

#4

Quick question: Should my RPi with the HomeSeer SmartStick+ show up in <http://find.homeseer.com/findhomeseer/>, because it does not? It seems to be working quite well, though.



cc4005
KiloSeer



Posts: 1567
TX, US

January 4, 2020, 10:49 PM

#5

*Originally posted by **Richel***

Quick question: Should my RPi with the HomeSeer SmartStick+ show up in <http://find.homeseer.com/findhomeseer/>, because it does not? It seems to be working quite well, though.

No. This is (to best of my knowledge) the only functional difference between a z-net and the diy setup.

-Wade



Richel
KiloSeer



Posts: 1115
Jacksonville,
Florida, USA

January 5, 2020, 06:36 AM

#6

*Originally posted by **cc4005***

No. This is (to best of my knowledge) the only functional difference between a z-net and the diy setup.

Thanks.



Pete
BigBossSeer



Posts: 17716
Time

January 5, 2020, 07:26 AM

#7

Raspberry Pi, Or should I preferably use this Raspberyy Pi 3 B+

Here still using the RPi V2 for many years and it is doing fine.

Should I worry about an updated/ newer version of Raspbian Lite/ser2net ?

no

When I setup another Raspberry , which port should I use?

I have only used the default in the above example. As it is a combo IP / Port it really doesn't matter if you use the same port.

like in your example I used now 4000. Can I use any number (above 1024) , like 4001 ? or is there a number which makes more sense?

No. But give it a try anyway;

- Pete

Auto mator

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X10, UPB, Zigbee, ZWave and Wifi MQTT automation, OmniPro 2, Russound zoned audio, Smarthings hub, Hubitat Hub, and Home Assistant



Corv11
HectoSeer

Posts: 269
Austria

January 5, 2020, 09:07 AM

#8

@Pete : many thanks.



Richel
KiloSeer



Posts: 1115
Jacksonville,
Florida, USA

January 5, 2020, 09:08 AM

#9

Port number: I had some issues with my installation and re-installed as port 5000. Works fine.



Pete
BigBossSeer



Posts: 17716
Time

January 5, 2020, 09:32 AM

#10

Yeah here just logged in to the ZNet like device and looking at the /etc/ser2net.conf file and see:

```
# 2000:telnet:600:/dev/ttyS0:9600 8DATABITS NONE 1STOPBIT banner
# 2001:telnet:600:/dev/ttyS1:9600 8DATABITS NONE 1STOPBIT banner
# 3000:telnet:600:/dev/ttyS0:19200 8DATABITS NONE 1STOPBIT banner
# 3001:telnet:600:/dev/ttyS1:19200 8DATABITS NONE 1STOPBIT banner
2001:raw:60:/dev/ttyAMA0:115200
```

```
root@ICS-ZNet:/etc# uname -a
Linux ICS-ZNet 4.19.66-v7+ #1253 SMP Thu Aug 15 11:49:46 BST 2019 armv7l GNU/Linux
```

While there did an update / upgrade.

It has been problem free and I do not pay attention anymore. The RPi2 is POE connected and sits in the attic of the two story home on one beam.

There is also a W800 & Antenna there and one of two RFID devices. Years now.

- Pete

Auto mator

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Homeseer Zee2 (Lite) - 3.0.0.548 (Linux) - Ubuntu 18.04/W7e - CherryTrail x5-Z8350 BeeLink 4Gb BT3 Pro - Mono 6.8X
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X10, UPB, Zigbee, ZWave and Wifi MQTT automation, OmniPro 2, Russound zoned audio, Smarthings hub, Hubitat Hub, and Home Assistant



January 19, 2020, 08:16 AM

#11

I set this up with a spare RPi 3B+ and HomeSeer Z-Wave SmartStick+ to go along with my two Z-Nets. The Z-Nets are very stable. However, about once per week, the RPi Z-Wave loses connection to my HS3Pro. This requires a reboot of the RPi to get it connected again.

Richel
KiloSeer



Posts: 1115
Jacksonville,
Florida, USA

What is strange is that I can
it reconnects, 10 seconds o



Pete
BigBossSeer



Posts: 17716
Time

January 19, 2020, 12:41 PM

#12

Here have not really noticed that with the RPi / POE ZWave device in the attic. That said just saw that sort of happening with a Kodi box I configured to be a mini NAS for a peer.

The box went to a pending software update and it was waiting for an acknowledgement of said update. It shouldn't be doing this so I have disabled any auto checking of updates as I manually just update the Kodi box.

This is just a guess. Is the RPi connected via DHCP? Are you using a static DHCP address or static IP address? Is it connected via the wire or is it connected wirelessly?

- Pete

Auto mator

Homeseer 3 Pro - 3.0.0.548 (Linux) - Ubuntu 18.04/W7e 64 bit Intel Haswell CPU 16Gb- Mono 6.8X
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Richel
KiloSeer



Posts: 1115
Jacksonville,
Florida, USA

January 19, 2020, 02:54 PM

#13

*Originally posted by **Pete***

Here have not really noticed that with the RPi / POE ZWave device in the attic. That said just saw that sort of happening with a Kodi box I configured to be a mini NAS for a peer.

The box went to a pending software update and it was waiting for an acknowledgement of said update. It shouldn't be doing this so I have disabled any auto checking of updates as I manually just update the Kodi box.

This is just a guess. Is the RPi connected via DHCP? Are you using a static DHCP address or static IP address? Is it connected via the wire or is it connected wirelessly?

Pete: Thanks. It has a static IP address and it is connected via WiFi. I'll take a look regarding automatic updates. By the way, I was looking to repurpose a Beelink GT1, which runs Kodi, among other things. What OS did you install? Elliott



zwolfpack
KiloSeer



Posts: 2381
Orange County,
California, USA

January 19, 2020, 04:24 PM

#14

Do you have a port timeout set in /etc/ser2net.conf ? It's in the 3rd field of the port specification. I suggest a value of 120 (seconds)

Code:

```
2001:raw:120:/dev/ttyACM0:115200
```



zwolfpack
KiloSeer



January 19, 2020, 04:45 PM

#15

Another idea - if you have at least version 3 of ser2net, add this line to your /etc/ser2net.conf, before the port specifier.

Code:

```
DEFAULT:kickolduser:true
```

Check your ser2net version via

Posts: 2381
Orange County,
California, USA

Code:

```
ser2net -v
```

With this setting, when a new connection request comes in (from the Z-Wave plugin), it immediately drops any existing connection and accepts the new one. Without this, in case of a network disruption, sometimes the rpi doesn't realize the connection is broken and thus won't accept a new connect attempt. With kickolduser true, an old connection is dropped immediately.

1 like