

How to move from Aeotec Gen2 Stick to Gen5 without rebuilding your network.

Disclaimer:

I did this in my network and it worked well, but I take no responsibility for anything that might go wrong and you mess up your network while following this how-to. It took me about 3 days to figure things out and I took several detours. I compiled this howto from memory afterwards. Hopefully I didn't leave something out. If you need help, please contact me at info@wilhelmspeck.de. I hope you will all succeed!
Cheers

Wilhelm

A backup tool of the Aeotec stick Gen2 is not available. So we cannot directly move the network to the new controller by simply unload and reload. The only way to move the network to the new Gen5 (or UZB) stick is to use the old Zensys Tool named ZwaveController.

What you will need:

- A Windows PC or a Parallels Installation with at least Windows 7
- **Two** Gen5 Sticks, or alternatively **two** UZB1 from which we will have a spare controller at the end.
- ZenSys Tool ZWaveController
- Aeotec Backup Tool
- your favourite Hex Editor

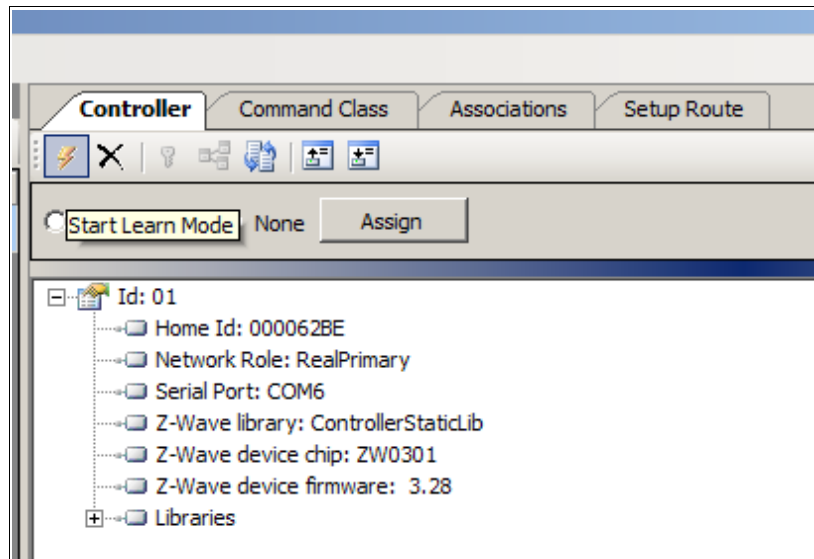
This all looks rather complicated – and that's what it is. But at any time during the process we will have a backup, so we can repeat a step if it should fail.

Let's begin:

Both stick - **Gen5 und Gen2** – have to be connected to one instance of the z-wave controller program. Both instances can run on the same PC.

Important! Please see to it that you are sure, which controller program connects to which z-wave stick!

The Gen2 Stick should be RealPrimary. If that is so, the following buttons are active:



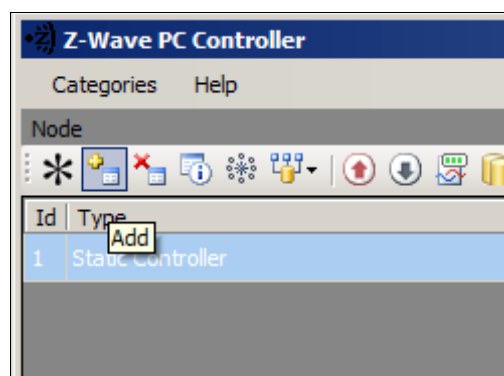
this is a screenshot of my original Aeotec Gen2 Stick

The problem with the Zwave Controller Software is, that sometimes several buttons are greyed out und you don't know why exactly. If SUC or SIS is set on the Primary for example, the controller shift would be greyed out and we need that for transferring the network to another stick..

The buttons on the Controller tab have the following meaning (see the tooltips for reference):
Learn Mode, Reset, CreateNewPrimary, Request Update (on Secondary Controllers), Shift (Controller Shift)

First we have to join the new Gen5 stick to the network. Here this is the Aeotec **Gen5**.

On the Controller instance connected to the **Gen5** stick press the Button **Learn Mode** (the yellow Thunderbolt in the above screenshot)).



On the Controller instance connected to the **Gen2** Stick press the button **Add Node** (with the yellow plus sign).

Now wait a moment for the controllers to exchange data. When this is finished, the complete node list gets updated on both sides. Both instances should now show the same nodelist. The Gen5 is now Secondary Controller and got the HomeID from the Primary Controller. We now have two controllers in the same network and both can access the same devices.

Sadly, all Associations of the sensors and actors still point to the Gen2 stick (Node 1). If there are any changes - for example a window is opened - the window sensor will send it's status to Node 1, but we wanted to retire that, right?

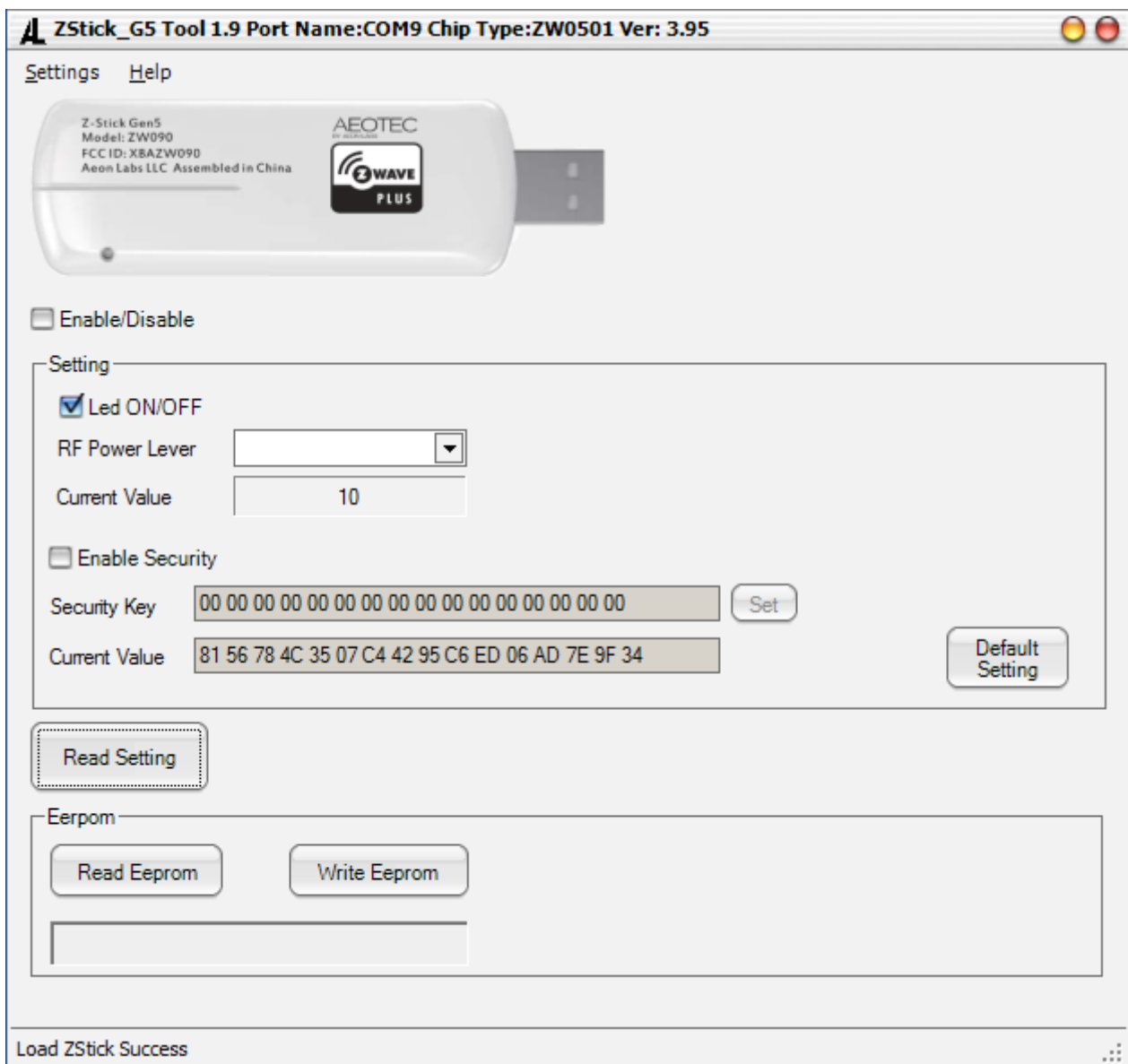
Safety precaution:

Now for the first time we have the complete network on the Gen5 Stick. So we take the opportunity and make our first backup – that's what didn't work with the Gen2.

The tool for that is the **Z-Stick Gen5 Backup Tool** and can be downloaded from the Aeotec Site.

[Backup Software Download](#)

Before you start the backup tool make sure to close both instances of the ZWaveController and remove the Gen2 stick.



The backup is started with the Read Eeprom button and we name it **Gen5_secondary.bin**

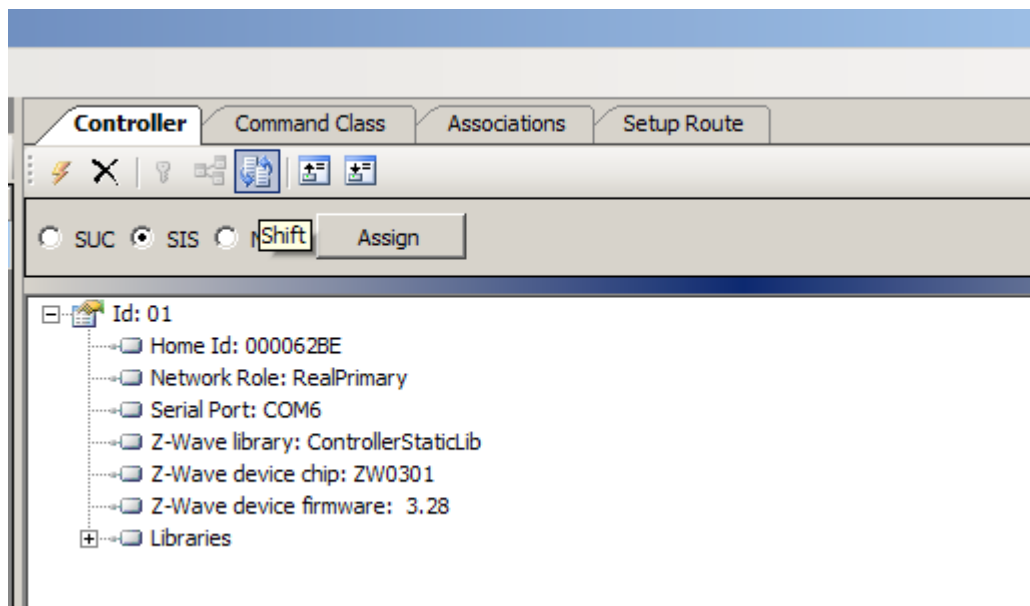
The Backup will take quite some time. If you experience read errors just try again until you succeed. The backup software seems to be quite flaky and the read errors happen quite often at least if you are using Parallels with Windows 7 as I did.

So please be patient.

The next step:

Now we go back to the first setup with both sticks and two Controller instances.

The actual state now should be Gen2 ist Primary und Gen5 ist Secondary Controller. To change that and make the Gen5 Primary, we have to start the controller shift operation.



For that we click the Shift Button on the Controller connected to the Gen2. If all goes well both sticks will exchange their roles. This will take a bit and then **Gen2** should be **Secondary** und **Gen5 Primary**.

Make sure, the Gen5 Primary is SUC which should be seen in the Network Role. Otherwise make it SUC by assigning the funktion to it.

Attention, important!

We will not need the Gen2 Stick in the rest of the process and you can store it away.
So please disconnect it now.

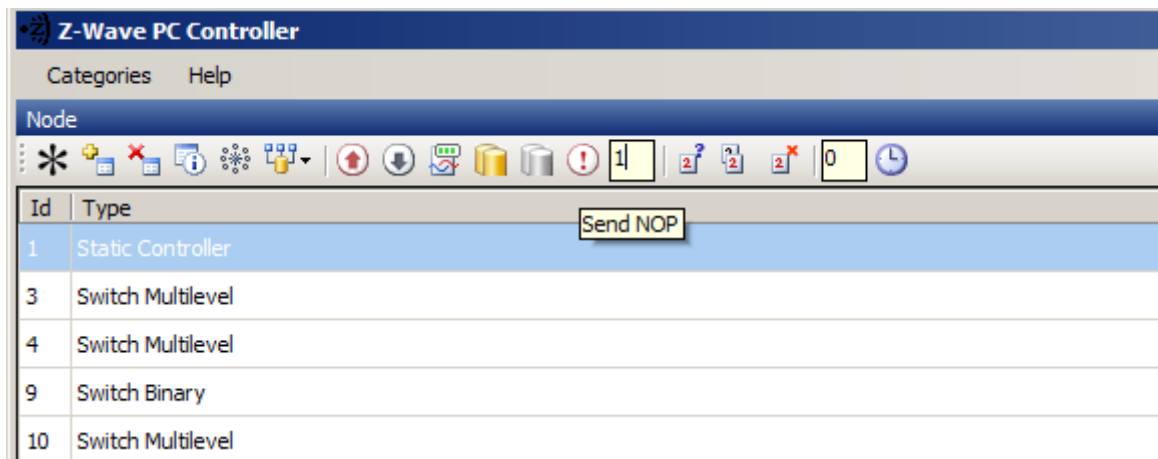
Another Safety precaution:

Backup the Gen5 Stick again. Close all Controller programs. We ill call that backup **Gen5_primary.bin**

and on it goes...:

Now we only have the Gen5 active, so we can start the ZWaveController again. Gen5 must now be Primary. Node 1 is still the old Gen2, which we don't need any more. What we need to do now, is delete Node 1 so we are able to assign a new one.

For that we have to mark node 1 as failed und delete the failed node afterwards.



You have to do the following procedure:

1. select Node 1 by clicking on it
2. Enter a 1 into the field next to the Send NOP button. (The button with the exclamation mark)
3. Click the button Send NOP. After a while there should be a send failed in the log window.
4. Click the button ISFailed beside the field where you entered the 1
5. The log should show "Node is Failed" now.
6. Now click the button Remove failed.
7. After a short while Node 1 should be deleted. If not, try again from step 3

and again for your own safety:

Backup the Gen5 Stick. Close all Controllers. We name the backup **Gen5_primary2.bin**

And now it gets a bit complicated

Because the Primary stick must become Node 1, we have to fiddle around with the backup file.

Open the backup **Gen5_primary2.bin** with your favourite Hexeditor.

Please change the byte at address **0x1fc8 to 0xE8 (232)**. This is the byte where the stick stores the number of Node Id last connected. If we change this cell to 232 or 0xE8 (the maximum node number), the stick will roll over and give the number 1 to the next node you will connect.

Now all we have to do is to delete everything beyond the first 64KB in that backup file. The backup contains 8 identical blocks that we don't need. So delete everything beyond address 0x10000.

Save the result as **Gen5_Primary3.bin**.

Now import/restore the file **Gen5_Primary3.bin to the** Gen5 stick.

Now we need the second Gen5 stick and connect it to the second instance of the ZWaveController.

I will call this stick Gen5_2 from now.

almost ready

Now we transfer the network again. Please activate the Learnmode on the Gen5_2 (yellow Thunderbolt) and click the Add button on the Gen5. Now the Gen5_2 should get Node 1 in the system and the network will be copied to it.

When that is done. You would do a last shift using the Gen5 to transfer the Primary role to the Gen5_2.

Thats it!

Additional findings:

- Aeotec Gen5 and ZME_UZB1 are Backup compatible and use the same chip
- The Aeotec Backup Software write 8 times the amount of actual memory to the bin file so cutting it to 64KB is ok

Findings about the bytes inside a backup-file

Adresse	Inhalt
0x0000-0x0005	'ZeNsYs' initialisation
0x0006-0x0007	2 0-Bytes
0x0008-0x000B	4 Bytes = homeld
0x0010-0x0013	4 byte Home ID of OtherNetwork. So this is the HomelD of the Primary Network
0x00F8 - 0x057F	5 Bytes / Node
0x0580 - 0x1FC7	29 Bytes / Node = neighbourList
0x268C	1 Byte = highest included NodeId
0x1FC8	1 Byte = last included NodeId
0x1FC9	1 Byte = SUCNodeid
-0xFFFF	Last byte of the internal memory of the stick

Version History:

- 1.0 Initial version
- 1.1 Info about SUC on Primary added
- 1.2 corrected a few typos