Titan Tricks

sACN Unicast

The idea for this is from a post in the Facebook group:

Has anyone successfully controlled the Mission Ballroom disco ball with an Avo? Need to unicast sACN to the nodes but can’t find a way to do that.

sACN - or Streaming ACN - is usually used as multicast protocol: the console sends it to a network switch with a special header so that the switch can define groups, one per universe. Nodes and fixtures in turn announce to the switch which universe(s) they need – they **subscribe** to the respective group. The switch then makes sure that each node/fixture receives the data they want, and are not receiving data they do not want. This reduces network traffic and computing load. This mechanism is called **Multicast**.

There is a fallback mechanism in place if some details are missing. In that case the switch defaults to forwarding all sACN data to all nodes/fixtures which requires much more bandwith and strains the network interfaces but makes sure that all participants have a chance to get their data. This is called **Broadcast**.

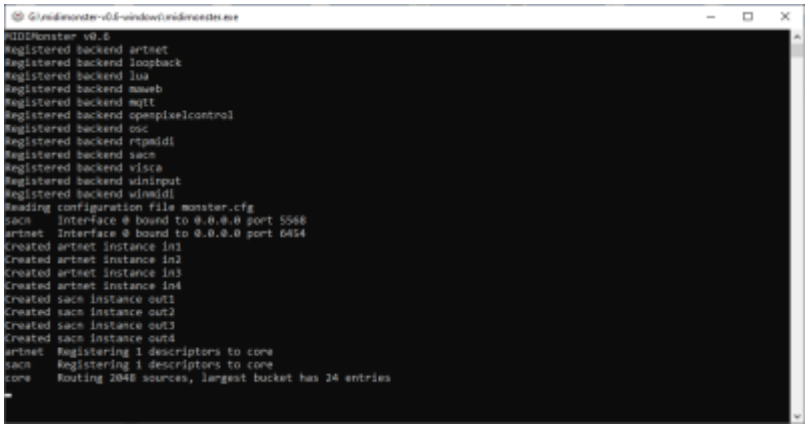
However it looks like there are fixtures in the market which do not support this mechanism but require **Unicast**: they only work with data explicitely sent to them.

(Please excuse this very simplistic explanation. I greatly encourage you to read more on this, and there are plenty of websites dedicated to introducing you to network computing. But for the purpose of this article this might suffice.)

Avolites Titan at the moment (Titan v15, 2022) sends sACN only as Multicast (automatically falling back to Broadcast if bo IGMP capable switch is present). While it has been requested to implement sACN unicast into Titan a solution is required to circumvent this for the time being.

MIDIMonster

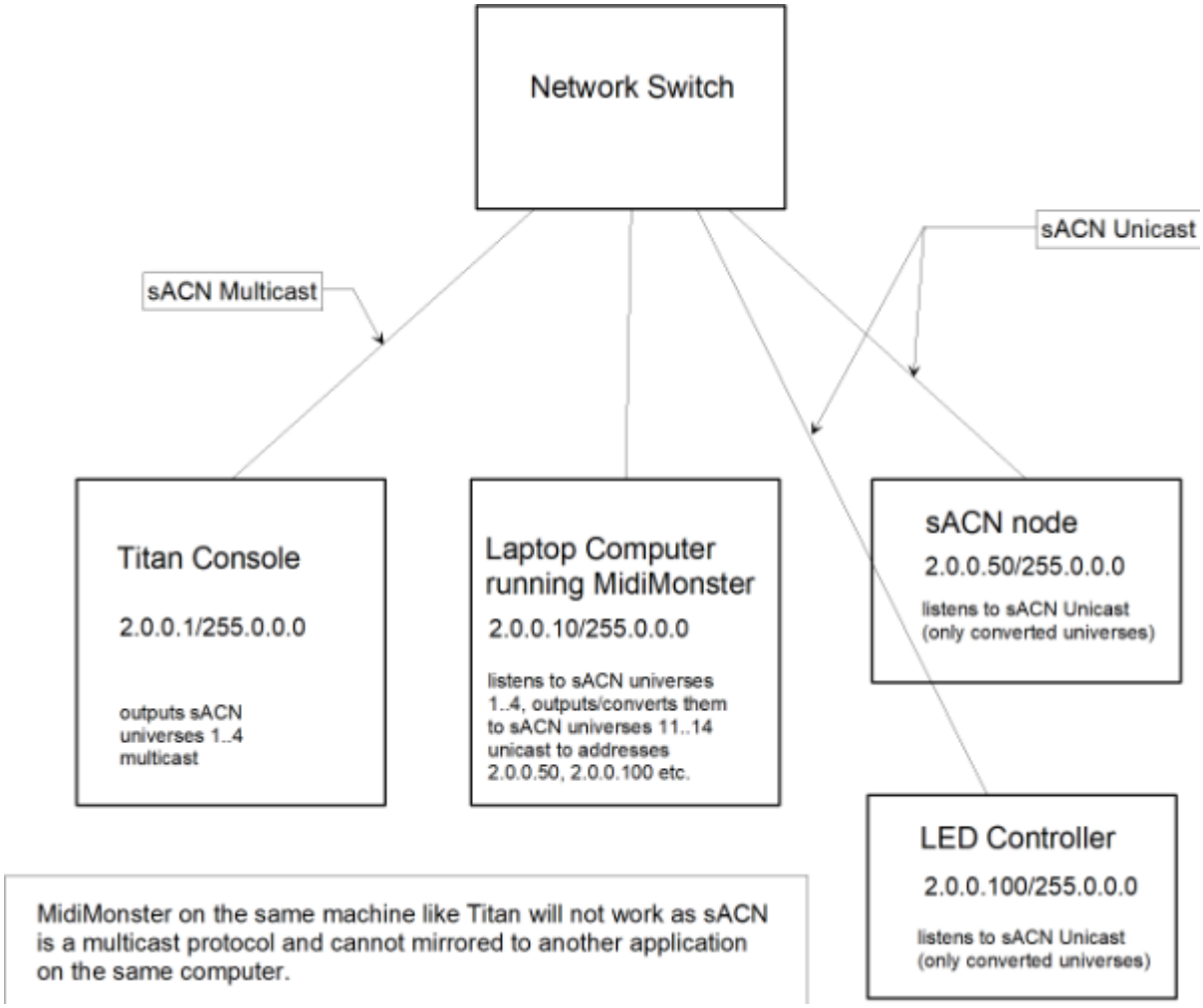
… and along comes MIDIMonster. Available at https://midimonster.net this is something like the Swiss Army Knife for lighting protocols. It is a lightweight console application, available for Windows, Linux and OSX, where you simply write a configuration as a text file and then start the program. This comes at the extra benefit that you don't need drivers, nothing being installed, and this can even be run from a USB thumbdrive.



Depending on the situation I successfully tested two scenarios: converting multicast sACN to unicast sACN (sending the data out on different universes) which requires a separate computer, and converting broadcast Art-Net to unicast sACN which may as well run directly on a console. I tried both scenarios with a bunch of computers, checking sACN with sACNView and - to be sure - verifying the sent data with Wireshark.

sACN to sACN, multicast to unicast

Network sctructure:



This was the original intention as everything was already prepared on sACN. All it needs is another

computer hooked up to the same network, MIDIMonster, and a suitable configuration like this:

```
; This configuration maps some sACN universes...

[backend sacn]
bind = 0.0.0.0 5568
detect = verbose

[sacn in1]
universe = 1

[sacn out1]
universe = 11
priority = 100
destination = 2.0.0.100
unicast = 1

[map]

in1.{1..512} > out1.{1..512}
```

All you need to do is adjust this to your needs (in and out universes, target network addresses, ggf. more mappings etc.), save this as monster.cfg (or drop this on midimonster.exe, or call it like this: `midimonster <path/to/configfile.cfg>` (personally I prefer saving this as monster.cfg as I can simply doubleclick midimonster.exe).

Hints:

- midimonster takes very low processing power (at least in my tests with 4 universes converted)
- at least in my tests it was not possible to make this work with MIDIMonster directly on the console: it does run but doesn't output as required - the nodes see the universes but there is no data. I believe it is not possible to have two applications on the same machine which both attempt to send to the same port, and one also listens to the other.
- make sure that all network addresses are correct, and that firewalls are off or have the required rules set.

To be continued.