



## Gateway Merging

The Artistic Licence range of gateways can merge multiple data streams. Those with selectable DMX input mode (artLynx quad, artLynx RJ45, netLynx quad, dayALynx II) can also merge DMX.

This application note discusses how to configure the gateways for the merge modes summarised in the table below:

	Source A	Source B	Condition	Output
1	Art-Net	Art-Net	From different IP addresses.	Merge of A + B (HTP or LTP as per user selection)
2	sACN	sACN	With identical priorities	Merge of A + B (HTP or LTP as per user selection)
3	sACN	sACN	With different priorities	Source with highest priority
4	DMX input converting to Art-Net	DMX input converting to Art-Net		Merge of A + B (HTP or LTP as per user selection)
5	DMX input converting to sACN	DMX input converting to sACN	With identical priorities	Merge of A + B (HTP or LTP as per user selection)
6	DMX input converting to sACN	DMX input converting to sACN	With different priorities	Source with highest priority
7	DMX input converting to Art-Net	Art-Net		Merge of A + B (HTP or LTP as per user selection)
8	DMX input converting to sACN	sACN	With identical priorities	Merge of A + B (HTP or LTP as per user selection)
9	DMX input converting to sACN	sACN	With different priorities	Source with highest priority

# Application Notes



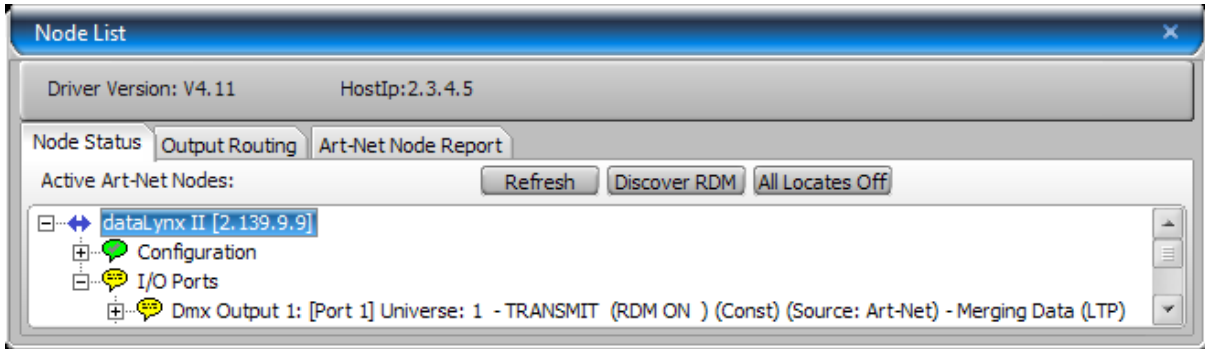
## 1 Merging 2 x Art-Net streams.

Source A is an Art-Net stream on Universe 1.

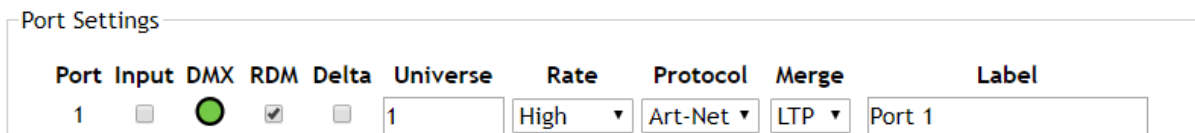
Source B is an Art-Net stream on Universe 1.

Port 1 of the gateway is set to Art-Net, Universe 1. Thus Port 1 outputs the merged data in the programmed mode (LTP in this example)

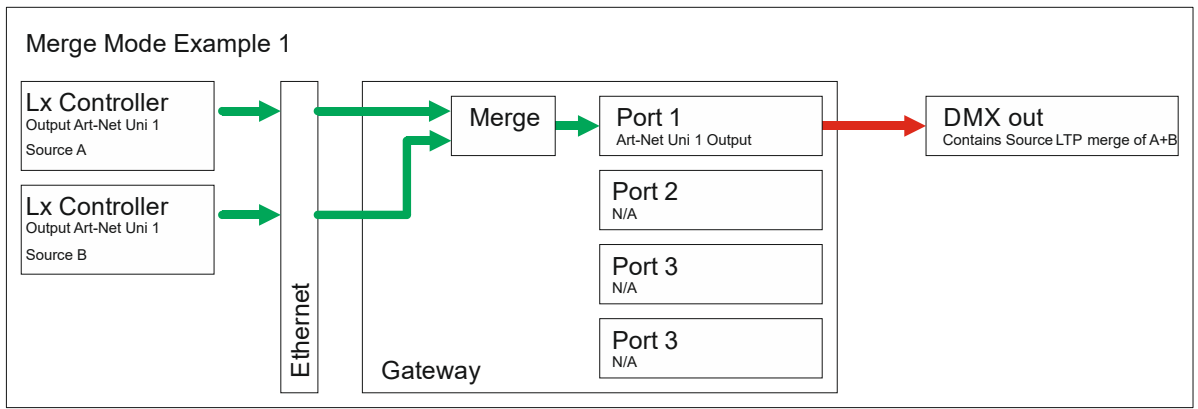
DMX-Workshop



Browser



Logic Diagram



# Application Notes



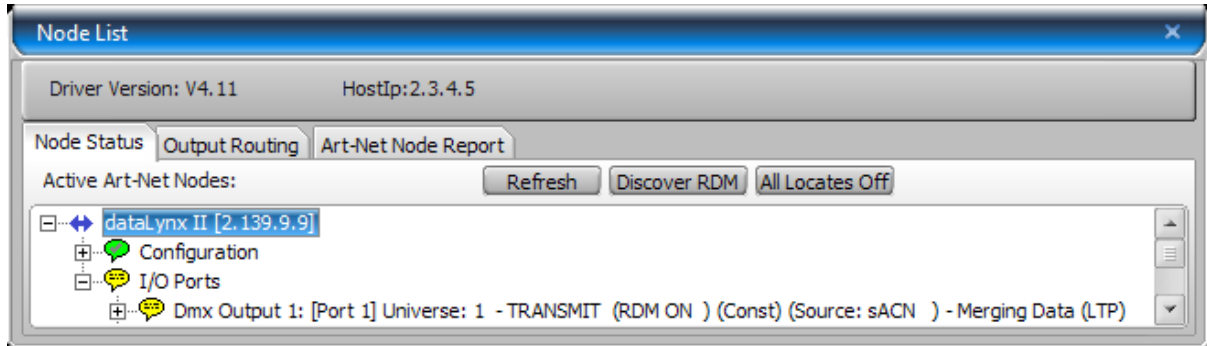
## 2 Merging 2 x sACN streams (Equal Priority).

Source A is an sACN stream on Universe 1 with Priority 190.

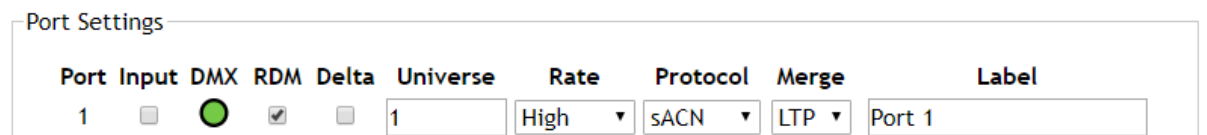
Source B is an sACN stream on Universe 1 with Priority 190.

Port 1 of the gateway is set to sACN, Universe 1. Thus Port 1 outputs the merged data. Sources A & B have equal priority, so the streams are merged with the programmed mode (LTP in this example)

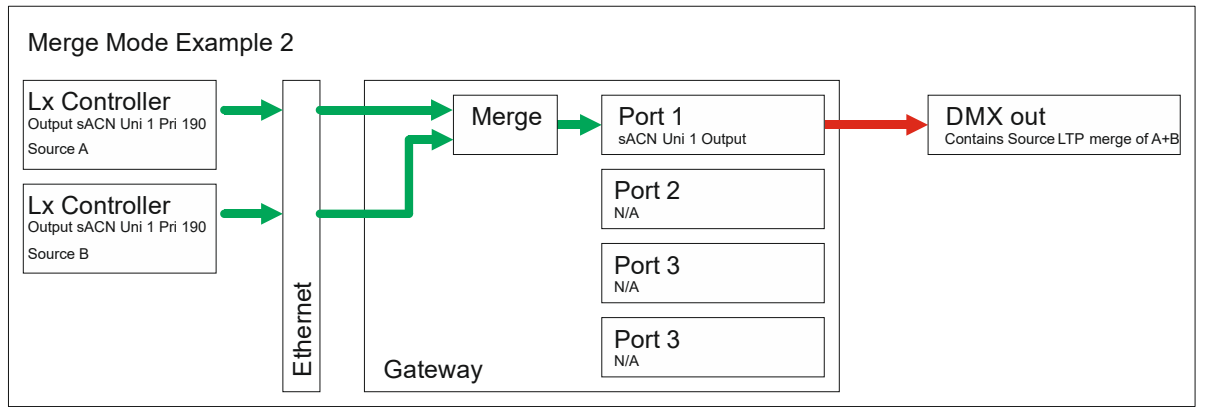
DMX-Workshop



Browser



Logic Diagram



# Application Notes



## 3 Merging 2 x sACN streams (Different Priority).

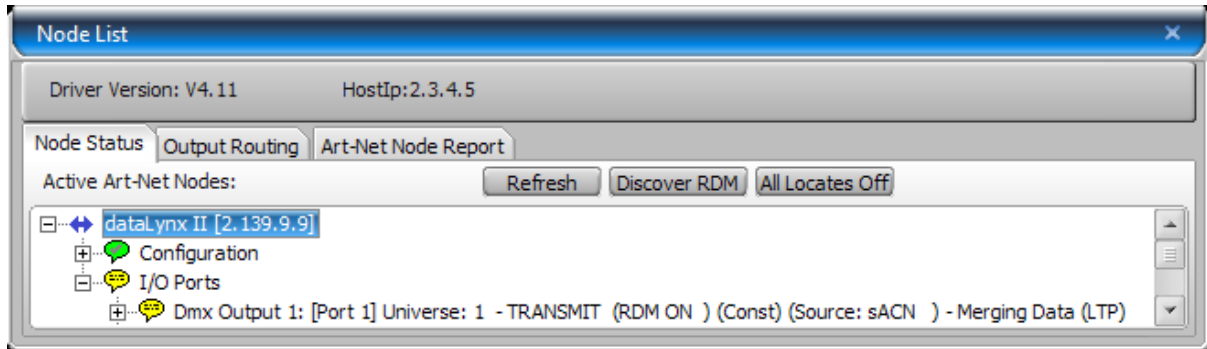
Source A is an sACN stream on Universe 1 with Priority 100.

Source B is an sACN stream on Universe 1 with Priority 200.

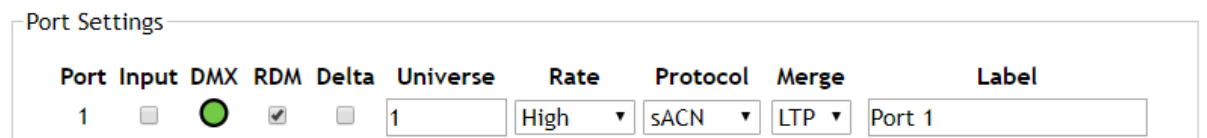
Port 1 of the gateway is set to sACN, Universe 1. Thus Port 1 outputs the merged data. Sources A & B have different priority, so the stream with highest priority (Stream B in this example) is output.

Note that the programmed LTP mode is ignored because the stream priority takes precedence.

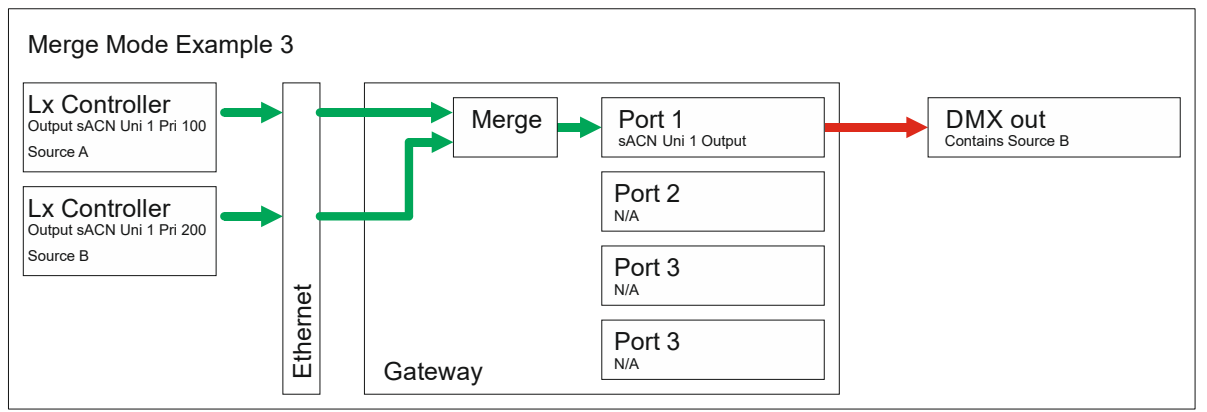
DMX-Workshop



Browser



Logic Diagram



# Application Notes



## 4 Merging 2 x DMX Input which are converted to Art-Net.

Source A is the DMX512 input connected to Port 2. It is being converted to sACN on Universe 1 with Priority 200.

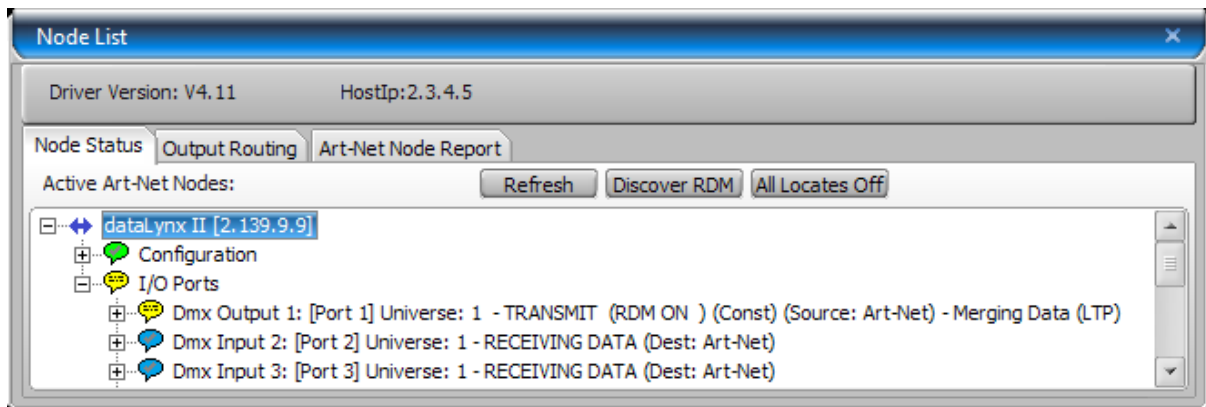
Source B is the DMX512 input connected to Port 3. It is being converted to sACN on Universe 1 with Priority 200.

The gateway treats this scenario as a merge between two sACN sources. The fact that they are generated internally from the DMX inputs does not have any impact on the merge algorithm.

Port 1 of the gateway is set to sACN, Universe 1. Thus Port 1 outputs the merged data. Sources A & B have identical priority, so the merge style is defined by the merge setting for Port 1. In this instance LTP.

Ports 2 & 3 will also be output to the network as Art-Net. The streams generated will have identical IP address, identical universe number, but a different Physical which allows other network devices to differentiate between the streams.

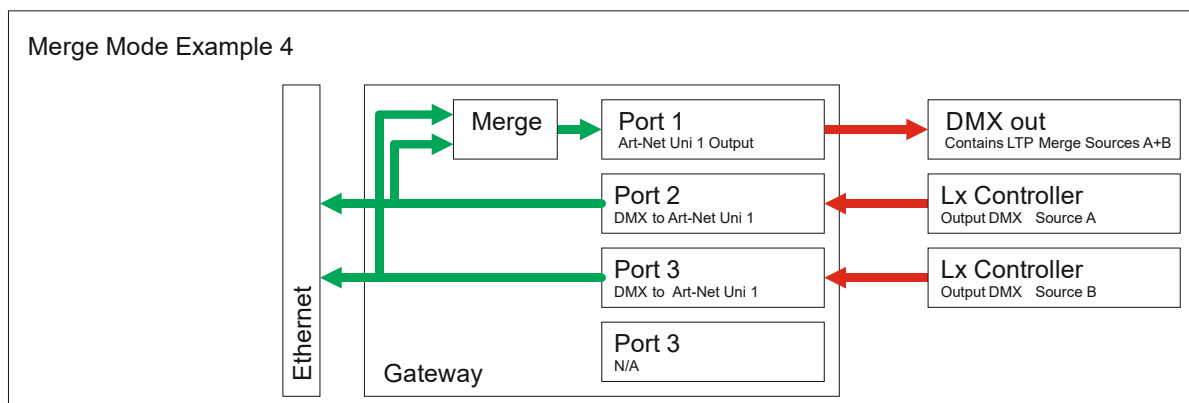
DMX-Workshop



Browser

Port	Input	DMX	RDM	Delta	Universe	Rate	Protocol	Merge	Label
1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	High	Art-Net	LTP	Port 1
2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1		Art-Net		Port 2
3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1		Art-Net		Port 3

Logic Diagram



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Gateway Merging



# Application Notes



## 5 Merging 2 x DMX Input which are converted to sACN. (Equal Priority)

Source A is the DMX512 input connected to Port 2. It is being converted to sACN on Universe 1 with Priority 200.

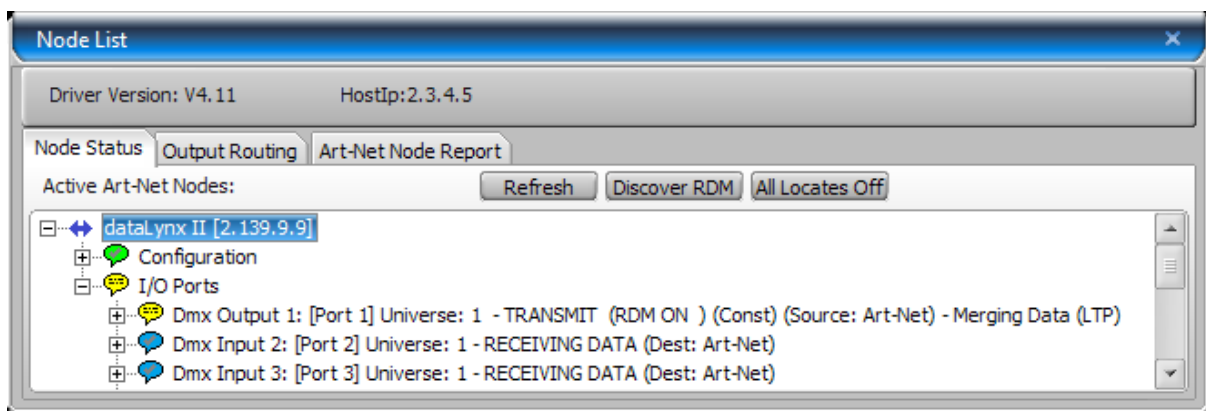
Source B is the DMX512 input connected to Port 3. It is being converted to sACN on Universe 1 with Priority 200.

The gateway treats this scenario as a merge between two sACN sources. The fact that they are generated internally from the DMX inputs does not have any impact on the merge algorithm.

Port 1 of the gateway is set to sACN, Universe 1. Thus Port 1 outputs the merged data. Sources A & B have identical priority, so the merge style is defined by the merge setting for Port 1. In this instance LTP.

Ports 2 & 3 will also be output to the network (with different CIDs) as sACN.

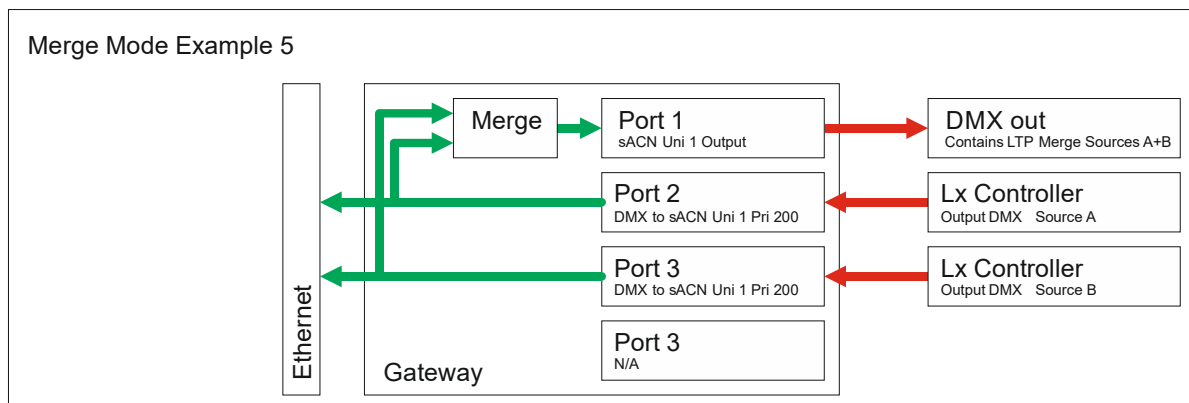
DMX-Workshop



Browser

Port	Input	DMX	RDM	Delta	Universe	Rate	Protocol	Merge	Label
1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	High	Art-Net	LTP	Port 1
2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1		Art-Net		Port 2
3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1		Art-Net		Port 3

Logic Diagram



# Application Notes



## 6 Merging 2 x DMX Input which are converted to sACN. (Different Priority)

Source A is the DMX512 input connected to Port 2. It is being converted to sACN on Universe 1 with Priority 100.

Source B is the DMX512 input connected to Port 3. It is being converted to sACN on Universe 1 with Priority 200.

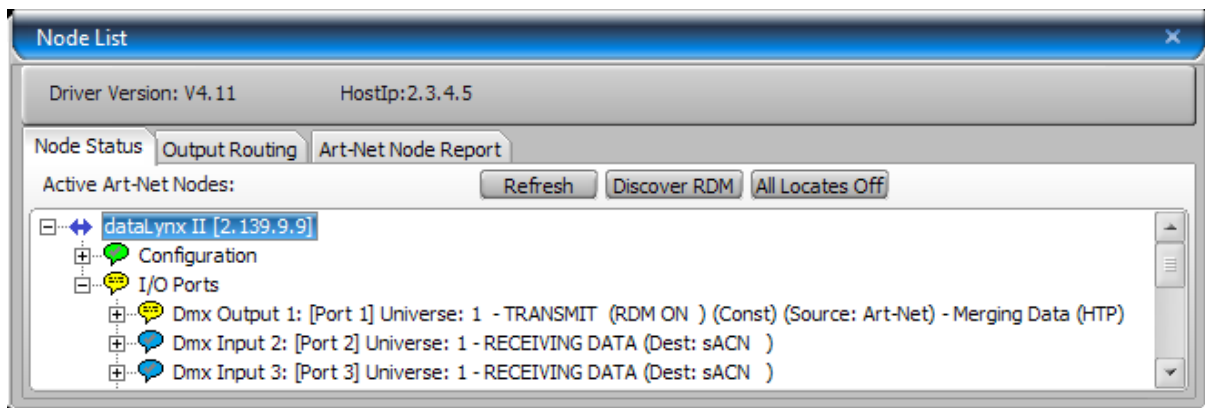
The gateway treats this scenario as a merge between two sACN sources. The fact that they are generated internally from the DMX inputs does not have any impact on the merge algorithm.

Port 1 of the gateway is set to sACN, Universe 1. Thus Port 1 outputs the merged data. Source B has the highest priority and so it is output to Port 1.

Ports 2 & 3 will also be output to the network (with different CIDs) as sACN.

This example shows how to implement a 'fail-over to DMX'. The merge output will normally be outputting Source B. However, should Source B fail, Source A will take over.

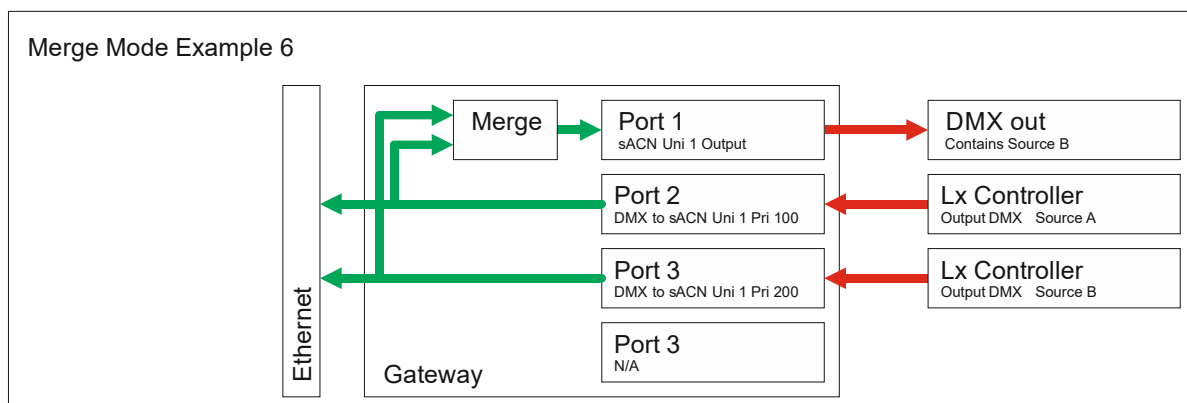
DMX-Workshop



Browser

Port	Input	DMX	RDM	Delta	Universe	Rate	Protocol	Merge	Priority	Label
1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	High	Art-Net	HTP		Port 1
2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1		sACN		100	Port 2
3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1		sACN		200	Port 3

Logic Diagram



# Application Notes



## 7 Merging DMX Input which is converted to Art-Net with Art-Net.

Source A is the DMX512 input connected to Port 2. It is being converted to Art-Net on Universe 1.

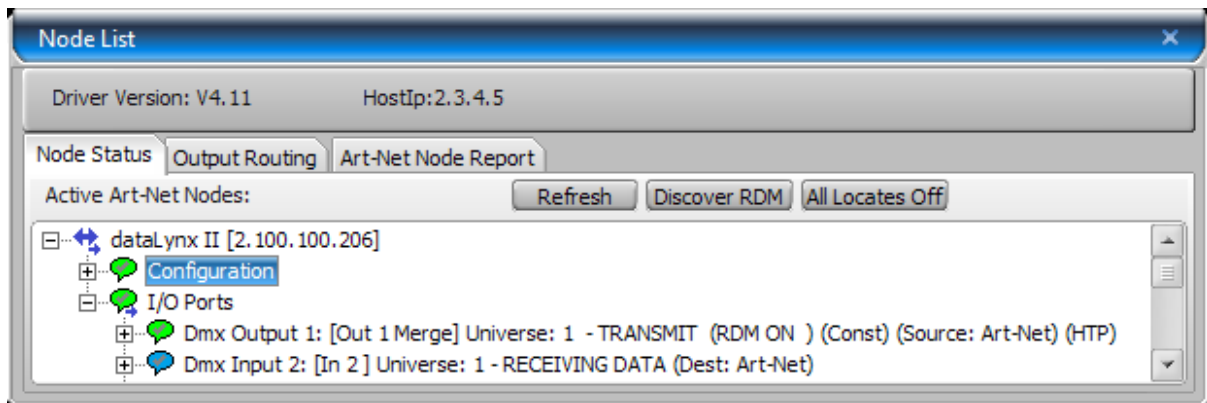
Source B is Art-Net Universe 1 being received from an external source.

The gateway treats this scenario as a merge between two Art-Net sources. The fact that one is generated internally from the DMX input does not have any impact on the merge algorithm.

Port 1 of the gateway is set to Art-Net, Universe 1. Thus Port 1 outputs the merged data. The merge style is defined by the merge setting for Port 1. In this instance HTP.

Port 2 will also be output as Art-Net, which means that other gateways will also be able to access the merged data.

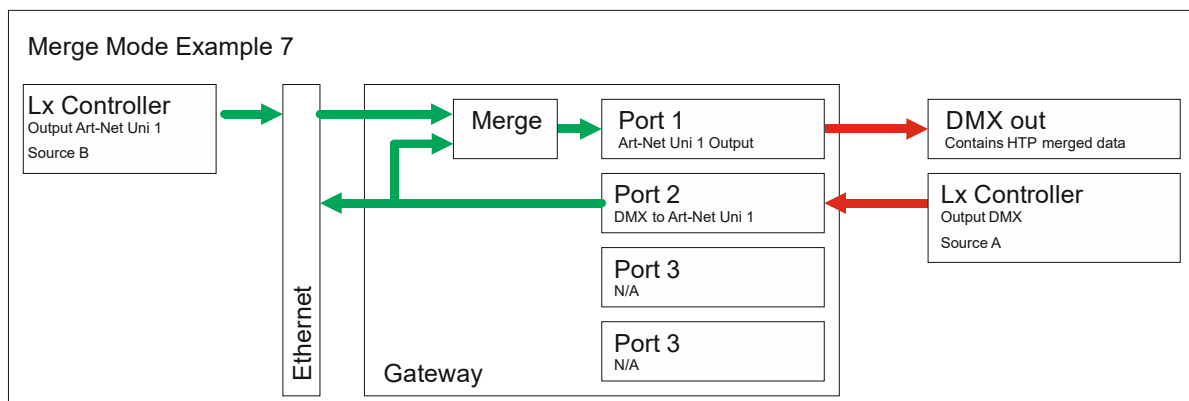
DMX-Workshop



Browser

Port	Input	DMX	RDM	Delta	Universe	Rate	Protocol	Merge	Label
1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	High	Art-Net	HTP	Out 1 Merge
2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1		Art-Net		In 2

Logic Diagram





# Application Notes



## 8 Merging DMX Input which is converted to sACN with sACN. (Equal Priority)

Source A is the DMX512 input connected to Port 2. It is being converted to sACN on Universe 1 with Priority 200.

Source B is sACN Universe 1 being received from an external source that is also set to Priority 200.

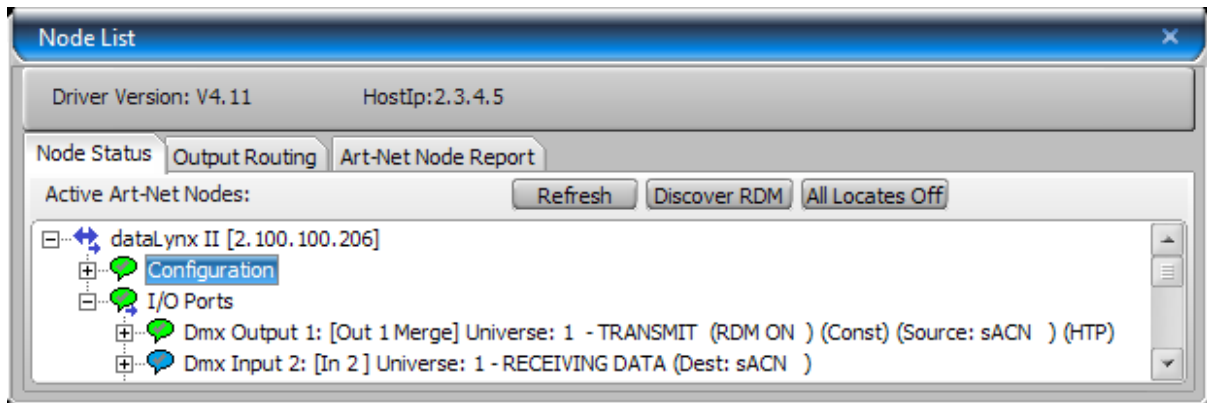
The gateway treats this scenario as a merge between two sACN sources. The fact that one is generated internally from the DMX input does not have any impact on the merge algorithm.

Port 1 of the gateway is set to sACN, Universe 1. Thus Port 1 outputs the merged data.

Both sources have identical priority, so the merge style is defined by the merge setting for Port 1. In this instance HTP.

Port 2 will also be output as sACN, which means that other gateways will also be able to access the merged data.

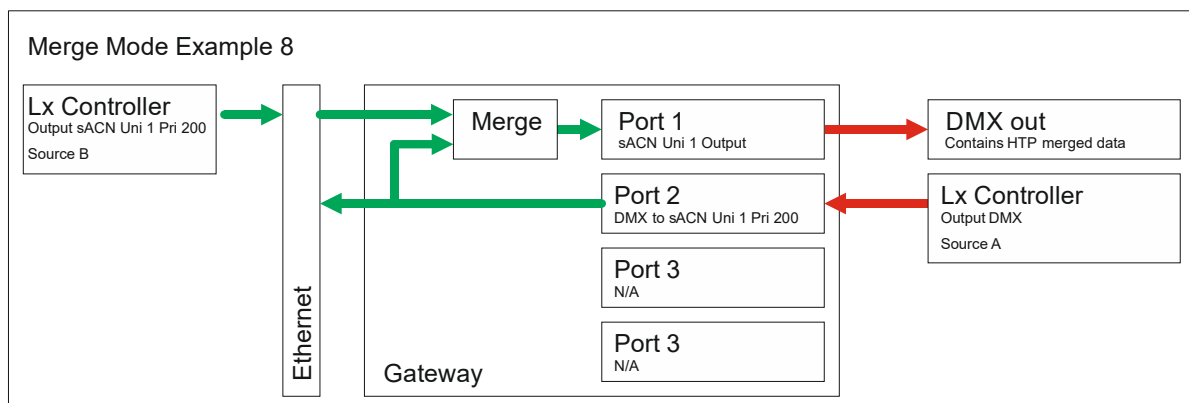
DMX-Workshop



Browser

Port	Input	DMX	RDM	Delta	Universe	Rate	Protocol	Merge	Priority	Label
1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	High	sACN	HTP		Out 1 Merge
2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1		sACN		200	In 2

Logic Diagram



# Application Notes



## 9 Merging DMX Input which is converted to sACN with sACN. (Different Priority)

Source A is the DMX512 input connected to Port 2. It is being converted to sACN on Universe 1 with Priority 100.

Source B is sACN Universe 1 being received from an external source that is also set to Priority 200.

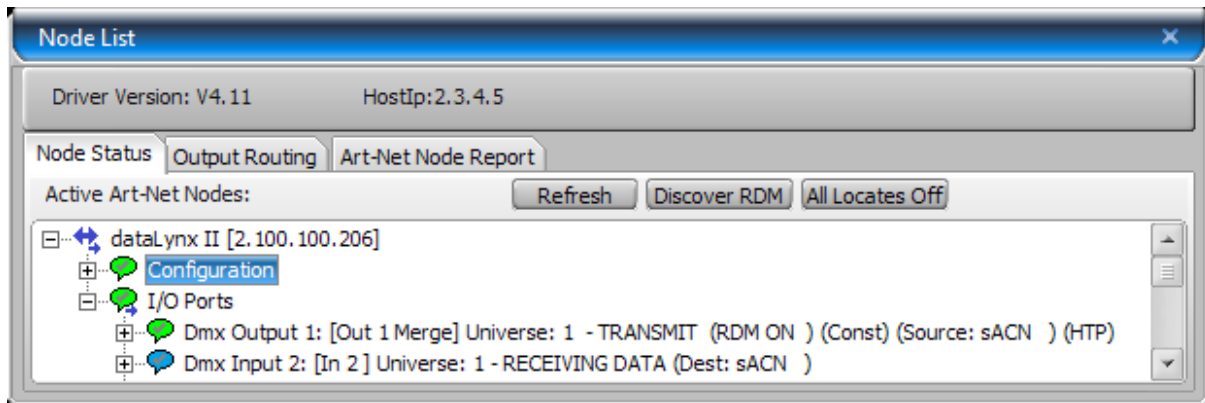
The gateway treats this scenario as a merge between two sACN sources. The fact that one is generated internally from the DMX input does not have any impact on the merge algorithm.

Port 1 of the gateway is set to sACN, Universe 1. Thus Port 1 outputs the merged data. Source B has the highest priority and so it is output to Port 1.

Port 2 will also be output as sACN.

This example shows how to implement a 'fail-over to DMX'. The merge output will normally be outputting Source B. However, should Source B fail, Source A will take over.

DMX-Workshop

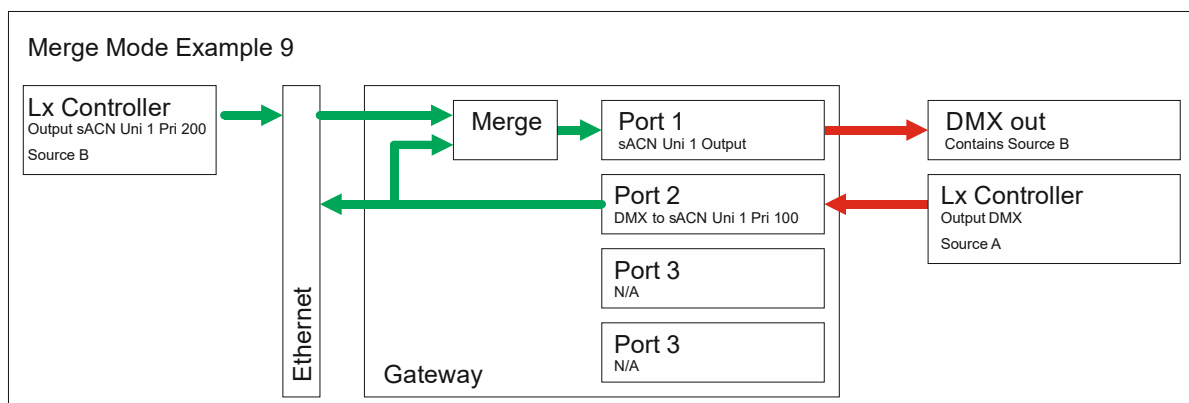


Browser

Port Settings

Port	Input	DMX	RDM	Delta	Universe	Rate	Protocol	Merge	Priority	Label
1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	High	sACN	HTP		Out 1 Merge
2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			1		sACN		100	In 2

Logic Diagram



# Application Notes



## 10 Merging 4 x DMX Input

It is possible to merge more than two DMX512 sources by looping the merged outputs back into the gateway.

In the example below, Ports 1 – 4 are used to Input Sources A – D.

Port 5 is the merged output of Sources A & B. Port 6 is the merged output of Sources C & D.

Ports 5 & 6 are then connected to Ports 7 & 8 which then merge to Port 9.

Port 9 is the HTP merge of Sources A – D.

The process of looping an output back to an input does introduce a slight delay, approximately two frames.

Browser Config

Port Settings

Port	Input	DMX	RDM	Delta	Universe	Rate	Protocol	Merge	Label
1	<input checked="" type="checkbox"/>	<input type="radio"/>	<input type="radio"/>		1		Art-Net		Source A
2	<input checked="" type="checkbox"/>	<input type="radio"/>	<input type="radio"/>		1		Art-Net		Source B
3	<input checked="" type="checkbox"/>	<input type="radio"/>	<input type="radio"/>		2		Art-Net		Source C
4	<input checked="" type="checkbox"/>	<input type="radio"/>	<input type="radio"/>		2		Art-Net		Source D
5	<input type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	High	Art-Net	HTP	Port 5 to Port 7
6	<input type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2	High	Art-Net	HTP	Port 6 to Port 8
7	<input checked="" type="checkbox"/>	<input type="radio"/>	<input type="radio"/>		3		Art-Net		Port 7
8	<input checked="" type="checkbox"/>	<input type="radio"/>	<input type="radio"/>		3		Art-Net		Port 8
9	<input type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3	High	Art-Net	HTP	Merge output

Logic Diagram

