

EA EAW[®]

EASTERN ACOUSTIC WORKS



nTX series

Quickstart Guide

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Section 1 – Introduction

Congratulations on the purchase of an EAW NTX Series loudspeakers. With proper operation and care this EAW product will provide many years of service and reliability.

This guide is intended to get you up and running with your NTX Series system as quickly as possible. It will detail the process from start to finish, from receiving your NTX or SBX loudspeakers to the first downbeat of the gig.

Suggested Hardware for Network Control & Dante

Network Switch

Many applications benefit from the use of a network switch. Most managed Ethernet switches are compatible with Dante and should not present any issues. We recommend that users verify their switch specifications with Audinate documentation to ensure compatibility (Audinate’s list of ‘blacklisted’ switches can be viewed [here](#), and a FAQ of using switches with Dante can be found [here](#)).

- We recommend only using Gigabit switches with your NTX Series system.
- Energy Efficient Ethernet (EEE) should always be disabled, and it’s important to note that most unmanaged switches now include this feature without the option to disable it. If using a managed switch that offers this feature be sure to confirm it is disabled. EEE can interfere with Dante traffic and manifest itself through audio glitches, muting, and artifacts.

Cabling

Each NTX Series module requires power provided via the included PowerCON TRUE1 Top cable. Analog signal is delivered with standard cabling and XLR connections. Dante signal and network control requires CAT5e or CAT6 cabling with RJ45 or Ethercon connections at the loudspeakers.

Computer and Dante Controller

A computer running the Audinate software Dante Controller (download for free [here](#)) is recommended to assist in distributing Dante audio to your system. It’s also helpful for monitoring and configuring your network, as well as troubleshooting if any problems occur.

Workflow

Below is a chart outlining the recommended workflow when using your NTX Series system. Some of these steps should be performed in the shop before the gig, others onsite.

Step	Action – In the Shop
1	Power up modules, run Output Check
2	Confirm firmware is up to date using EAW Resolution 2
3	Give each module a ‘friendly’ DANTE name, assign Dante I/O at source, and make Dante subscriptions.*
4	Model the venue in Resolution and determine the optimal array configuration for the application.

**only required if driving system with Dante, can also be done onsite if necessary*

Step	Action – Onsite
1	Physically configure arrays as recommended by Resolution 2
2	Cable all modules in the system and setup network hardware*
3	If not already completed, configure Dante I/O at source, and make Dante subscriptions*
4	Use Resolution 2 to go online with your system and assign components to groups.*
5	Run Optilogic, select voicing, and any other system adjustments

**not required if network control and/or Dante audio aren't used.*

Section 2 – Unboxing Your NTX Series System

Inventory

When you receive your NTX Series loudspeakers please make sure that each of the following items is included. Each NTX Series loudspeaker should ship with:

- NTX or SBX loudspeaker
- Powercon True1 Top to Edison power cord
- Powercon True1 jumper cable
- Ethercon jumper cable

Output Check

Also, upon initial receipt of your loudspeakers we suggest a quick test to confirm they are functioning as expected. Connect each loudspeaker to a power source, then use the navigation screen to access the 'Output Check' feature. On the rear panel of your NTX Series unit:

- Press or rotate navigation wheel to open the rear panel main menu.



Figure 1 - Rear Panel Home Screen

- Scroll down to 'Output Check' and press the navigation wheel.
- Select 'Auto', and press the navigation wheel again to select 'start'.

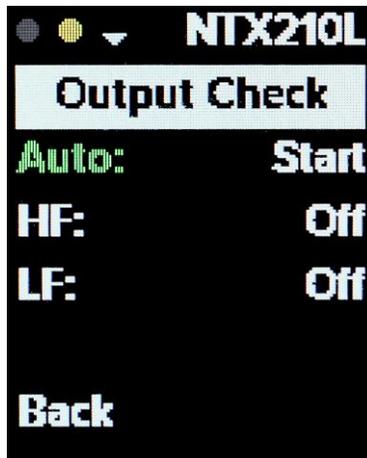


Figure 2 - Rear Panel Output Check Menu

You should hear pink noise generated from each pass-band of the loudspeaker and confirm that the loudspeaker is functioning properly.

Operation Modes

NTX Series loudspeakers offer many advanced features that are designed to make it as simple as possible to deliver excellent audio performance. Dante compatibility, wireless network control, and redundant analog backups are just a few of the features that work towards that goal. While we encourage users to take advantage of these, it isn't required. There are four general operation 'modes' available to the user:

1. Analog input, no network (use rear panel for setup)
 - In this configuration an NTX Series system can be operated as a typical 'dumb' loudspeaker system. No network cabling is required, analog audio is delivered via XLR connections, and any changes to DSP settings, Optilogic, or voicings is accomplished via the rear panels of the loudspeakers.
2. Analog input, network for control
 - This configuration still uses an analog audio signal for input, but the system is now setup on a network. Network cabling is used to connect the loudspeakers to a network switch. This mode allows the user to configure and monitor the system using Resolution 2 software.
3. Analog backup, network for control and Dante audio
 - This is the same configuration as above, but now a Dante source is transmitting Dante audio to the system. NTX Series loudspeakers will default to a Dante input if detected, and automatically revert to its analog input if a Dante signal is no longer detected.
4. No analog backup, Dante for control and audio
 - In this configuration no analog signal is used, and network cabling provides both control and Dante audio.

Section 3 – Setting up your NTX Series network

While a network is not required to operate a NTX Series system, it is required for network control and/or Dante audio. Some general network suggestions are outlined below, as well as diagrams of sample networks for Dante and control, and control only. CAT5e or CAT6 cabling is used to transmit Dante audio, control signals, and connect NTX Series loudspeakers to the network. Daisy chain, star, or a mixture of these two topologies are valid (the two networks illustrated below use a mixture).

Dante and Control Network

We'll first look at a network that supports both control and Dante, as illustrated in Figure 3.

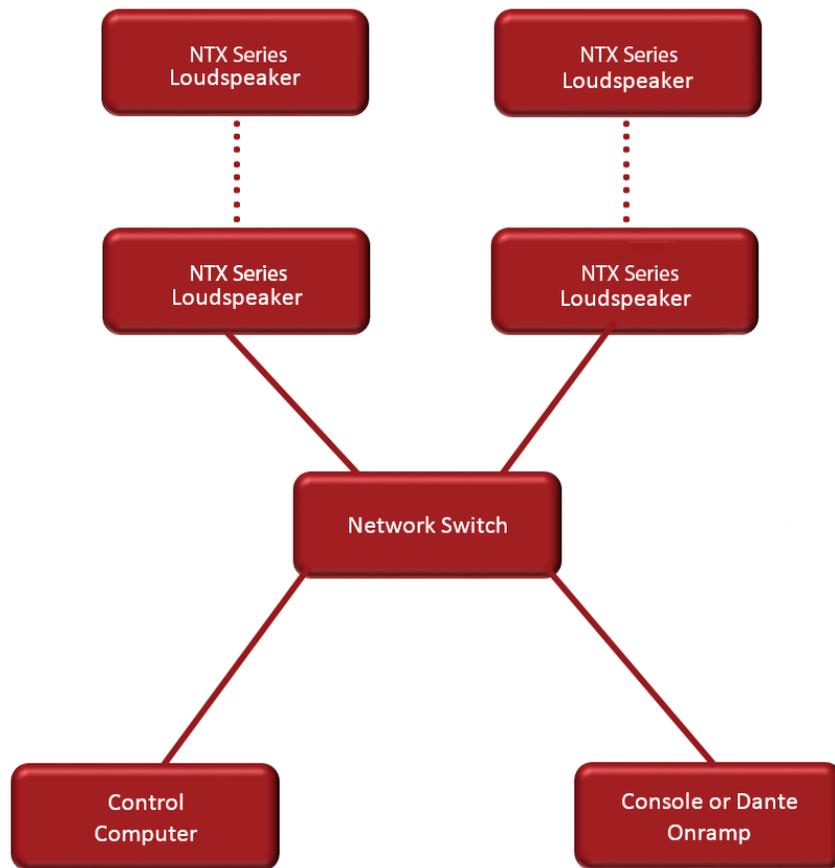


Figure 3 - Diagram of a sample Dante network

Figure 3 illustrates an example of a typical Dante network with NTX Series loudspeakers, though other configurations are also viable. Individual NTX Series modules, or groups of modules daisy-chained together via network cable, have 'home runs' back to a network switch. Additional network switches could be included for convenience (for example, a switch at FOH and another near the stage).

Control Network Only

Figure 4 illustrates a sample network for control only, without Dante audio. Like the example of the Dante network above, individual NTX Series modules, or groups of modules daisy-chained together, have 'home runs' to a network switch. Care must be taken to not form a network loop, where any loudspeaker, or group of daisy chained loudspeakers, is connected twice to a switch or router. More detail on this is below in 'Network Guidelines for NTX Series'.

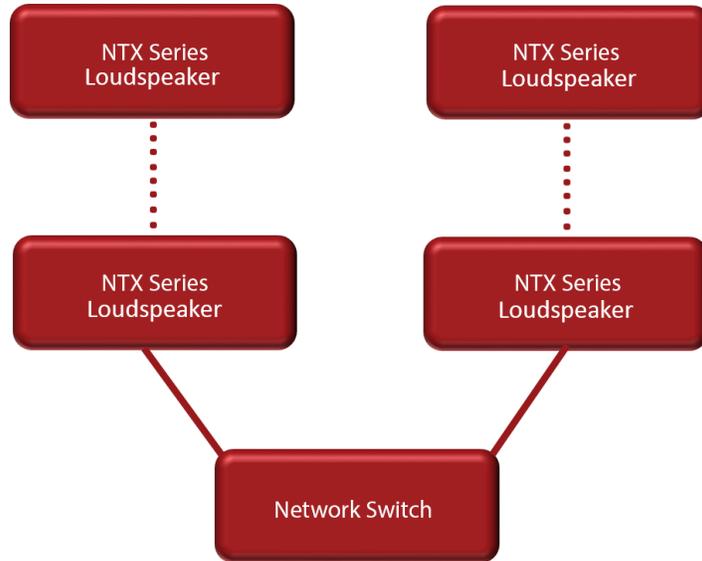


Figure 4 - Diagram of a sample control network

Network Guidelines for NTX Series

Below are a few general comments regarding networks and NTX Series systems:

- Up to 8 loudspeakers can be 'daisy-chained' together using a network cable to connect to a Dante port on each loudspeaker. This group of loudspeakers will be connected to the network via a single loudspeaker in the chain that is connected to the network switch or Wi-Fi router.
- Network loops are caused when more than one loudspeaker in a chain is connected to the network switch or router. This will cause a series of network issues that can negatively affect communication and audio quality and should always be avoided. Figure 5 illustrates a network loop.

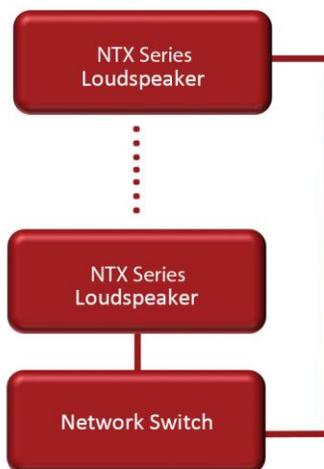


Figure 5 - Diagram of a network loop. **Don't do this.**

- The Dante ports on NTX Series loudspeakers are bidirectional, either can be used to connect with other devices.
- Port C on the rear of NTX Series loudspeakers is identical to the Dante ports, but multicast Dante traffic is filtered out. The computer running Resolution 2 can be directly connected to this port.
- Most Wi-Fi routers include a DHCP server which will automatically assign IP addresses to all the devices on the network (this feature can be disabled on most routers if desired). In the absence of a DHCP server each NTX Series loudspeaker will 'self-assign' itself a unique IP address. **Either way, the loudspeakers will automatically assign an appropriate IP address and the end result for the user will be the same; the important part is that all network nodes are on the same subnet.** If a DHCP server is introduced to the network after a loudspeaker has assigned itself an IP address it will assign new IP addresses to the loudspeakers. In the event of an IP address conflict, or if network issues arise after introducing the DHCP server to a system that has already self-assigned IP addresses, simply power cycle the loudspeakers and they will accept new IP address from the DHCP server.

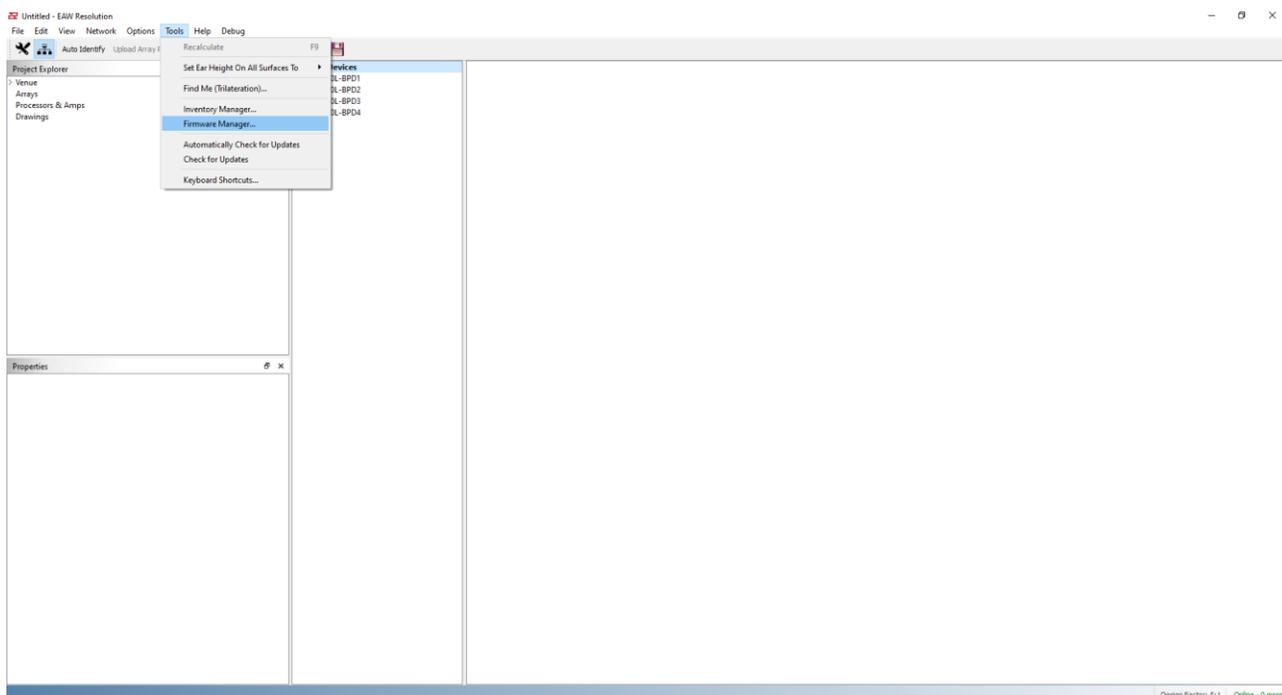
Section 4 – Updating Firmware on NTX or SBX Modules

NOTE: Before starting Firmware update, please turn the Windows Firewall off.

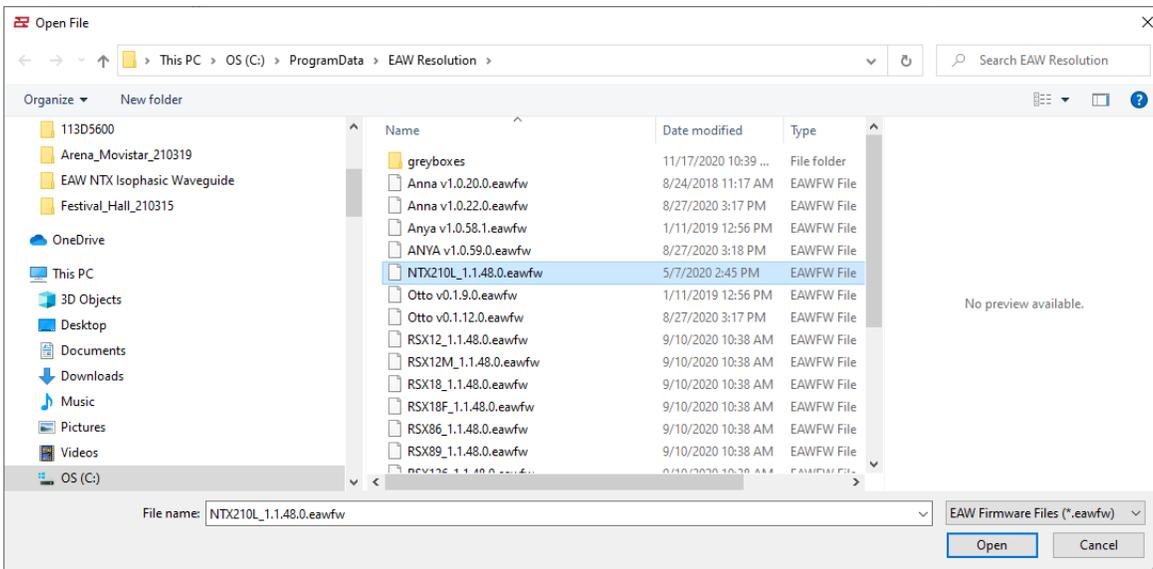
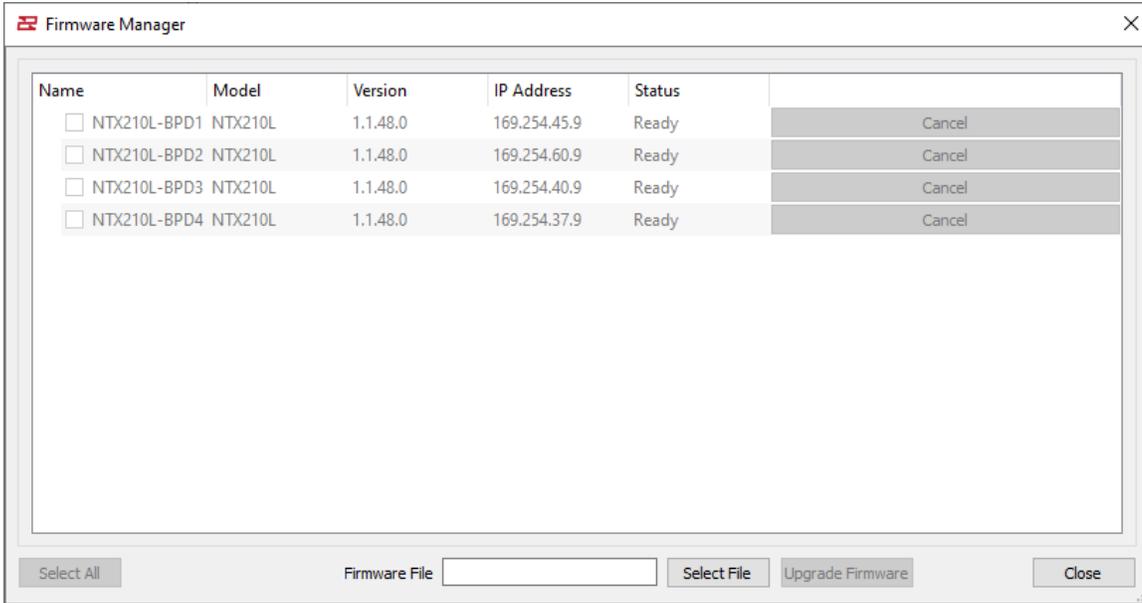
NOTE: It is highly recommended you run the firmware update with a DHCP server connected to the network. If not, each NTX series module will need to be placed in Firmware update mode (power each unit on while holding down the scroll wheel). After about a minute in being placed in this mode, each module will have an IP address assigned. This will need to be noted then manually entered under the IP Address column as it corresponds to the physical hardware unit. This will need to be done before clicking Upgrade Firmware.

[CLICK HERE to watch a tutorial video on upgrading firmware in Resolution 2](#)

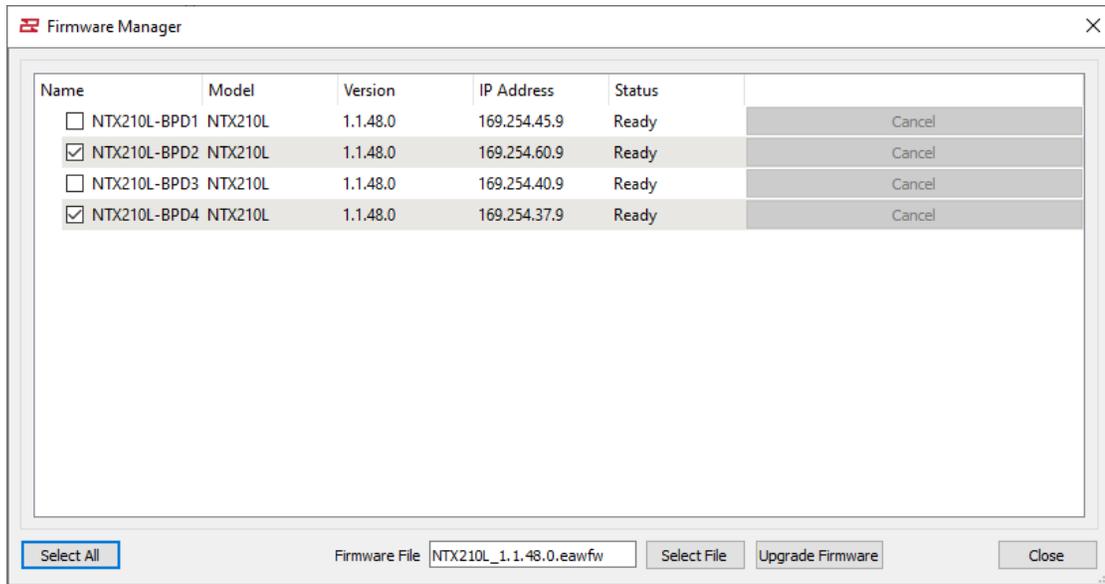
Select **Tools>Firmware Manager**:



Select the firmware file (.eawfw) in C:\ProgramData\EAW Resolution:



Select the NTX Series modules you wish to upgrade (or select all):

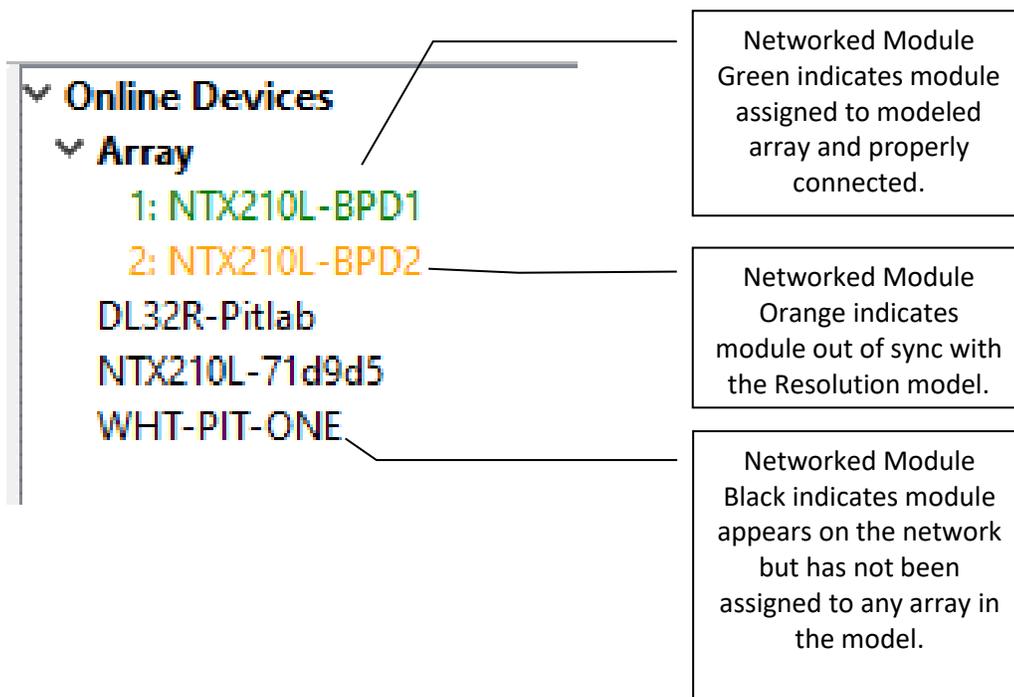


Select **Upgrade Firmware**.

The upgrade is complete when the status indicates 'Finished'. The status will return to 'Ready' about 30 seconds after it has finished.

Section 5 – Going Online

Before going online, be sure your computer is connected to the same Ethernet network as the networked loudspeaker system. Communications is established by clicking **Network** on the Menu bar and selecting **Connect**. Resolution 2 will then search for any NTX Series devices on the network and displays them in the **Online Devices** list. This list will include your computer running Resolution 2.



NTX Series devices are grouped according to how they are physically arrayed, so if you have assembled an array of two modules in a single vertical column for example, those will be listed as:

```
Array #
Column 1
EAW-Module-#####
EAW- Module -#####
.....
Column 2
EAW- Module -#####
EAW- Module -#####
.....
```

If an array does not automatically group; right click **Online Devices** select **Refresh Neighbor List**

The names of the individual modules in that Column will be listed in the order they are physically arranged. Stand-alone modules will be listed individually.

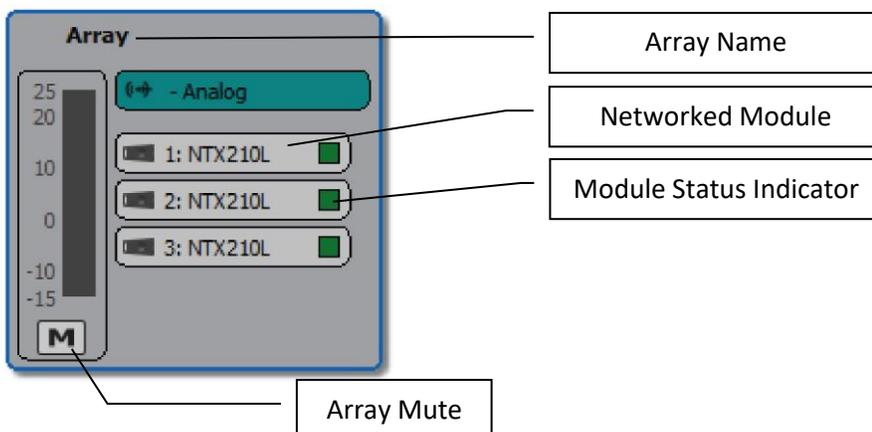
Section 6 – Assigning Physical Arrays/Modules to Modeled Arrays/Modules in Resolution

***EAW's recommended best practice for NTX Series systems is to create your venue in the **Design View** and determine the optimum arrays needed to provide the coverage you will need prior to assembling, flying, energizing and connecting to the system. This will ensure you know how the Arrays will need to be configured.*

However, this is not required, and you can simply fly the arrays and connect Resolution 2 to your system with a blank Venue loaded if needed.

It is best to at least enter a simple representation of the area you intend the System to cover. Adding arrays in the appropriate positions prior to going online will speed connection time allowing you to upload settings as soon as you associate a modeled Array with its physical Array.

If you have not defined any Arrays in your Venue, then you can simply click on each Array in the **Online Devices** list and drag them over to the **Network Configuration** desktop. This will open the **Array Assistant** dialog. Once you enter the settings and click finish, Resolution 2 will create an icon with the name of the Array, the list of arrayed modules in each Column in the Array, an Array Mute button, Input Level and Gain Reduction meters.



You can edit the X,Y,Z physical location, Min Trim, Max Hang and Aim Angle in the **Properties** pane while that Array is selected.

If you have created a venue and arrays in Resolution, then “virtual” Arrays and Modules in your model will be displayed in the **Network Configuration View** as grey boxes. Each module in the array will have a small indicator square that reports each module’s status.

- A question mark indicates that no physical module has been associated with the module in the model.
- A Yellow box indicates a module that has gone offline.
- A Red box indicates a module previously assigned that was not found upon reconnecting to the Network.
- A box that occasionally flashes Green indicates the module is successfully communicating with Resolution.

Unassigned modeled Arrays will have the list of modules or loudspeakers included in the Array while non-arrayed loudspeakers will be shown as individual boxes with only one device listed. Arrays will be shown with the modules in Columns and the meters.

A *physical* NTX Series Array in the **Online Devices** list can be assigned or associated with a *modeled* Array in the model by simply clicking on the Array in the list and dragging it on to the appropriate modeled Array.

Note: the physical Array and modeled Array must include the same quantity and arrangement of modules).

For example, assume your model includes two NTX210L Arrays and you’ve named them as “Left Array” and “Right Array”. You have assembled two, two-module arrays on-site and physically mounted them in the corresponding positions in your model. Click on an Array in the **Online Devices** list, observe which physical array has LED lights turned on (be sure **Auto Identify** is enabled) and drag the Array over and on top of the corresponding Array in the model, i.e., the left physical Array on the “Left Array” in the model.

Proceed with assigning any remaining physical Arrays to modeled Arrays until all Arrays have been assigned.

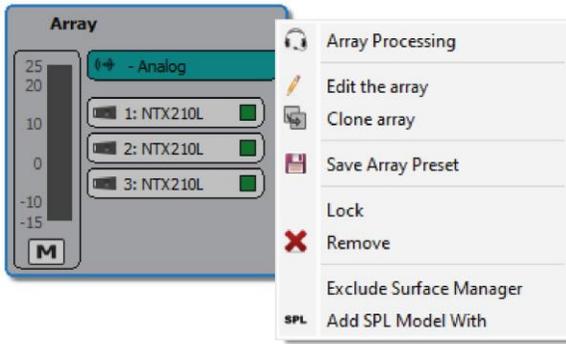
Section 7 – Managing NTX Arrays in Resolution

Once a physical Array has been associated with a modeled Array, the individual modules listed in the Array will be graphically arranged in Columns and a small square “indicator light” for each module. These indicators will periodically flash green to confirm that Resolution 2 has established active communications with each Anya module.

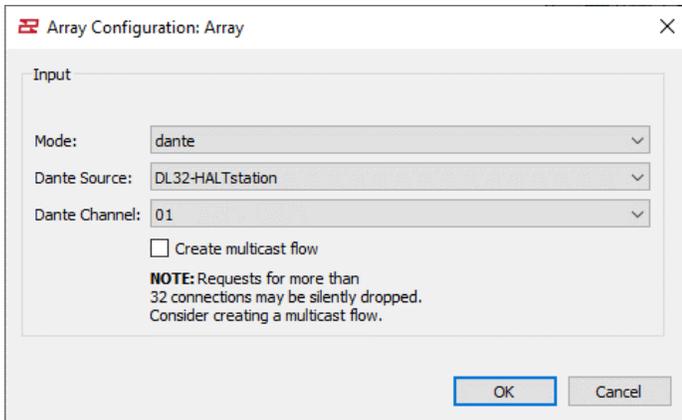
Clicking an Array in the **Network Configuration Desktop** will display its properties in the **Properties View** window (if you have the **Properties View** window opened) and can be edited as explained in the **Properties View** chapter.

Array Processing can be displayed and edited in real-time by double-clicking the EQ graph at the top of the **Properties View** window.

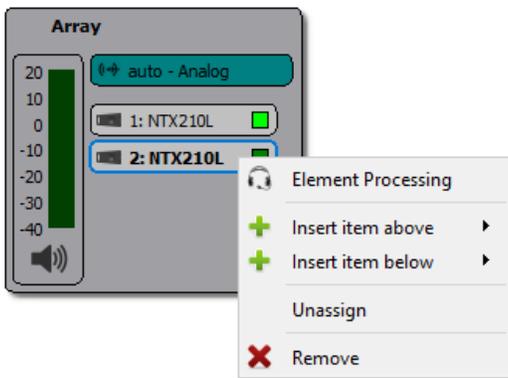
Right clicking an Array will open a menu with options to open Array Processing, Unassign All, Edit the array (which will launch the Array Assistant), Clone the array, save Array Preset, lock array movement, or Remove array. These mirror functions available in the Project Explorer and Properties panes.



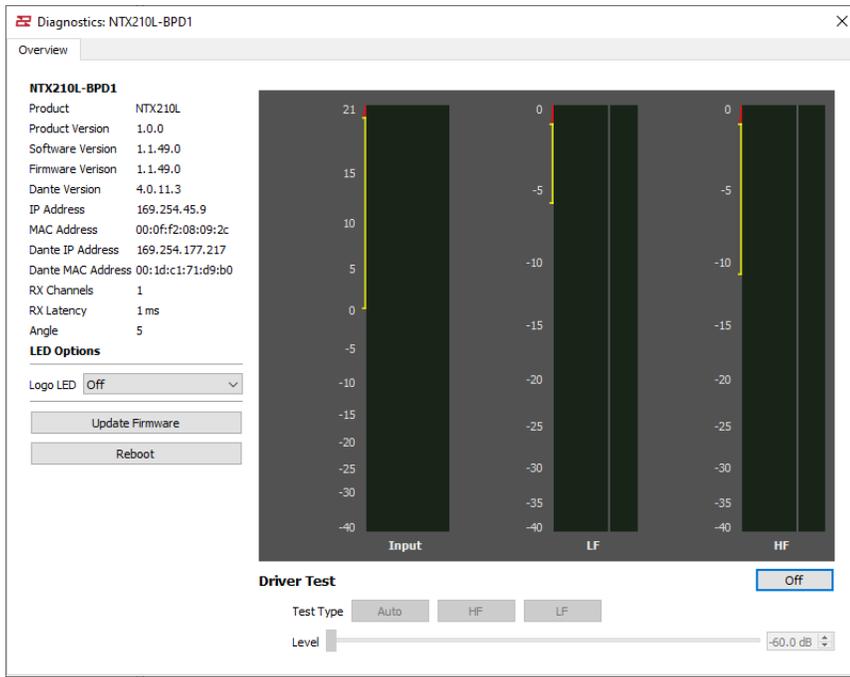
Double clicking the name of an Array will open the **Array Configuration** dialog.



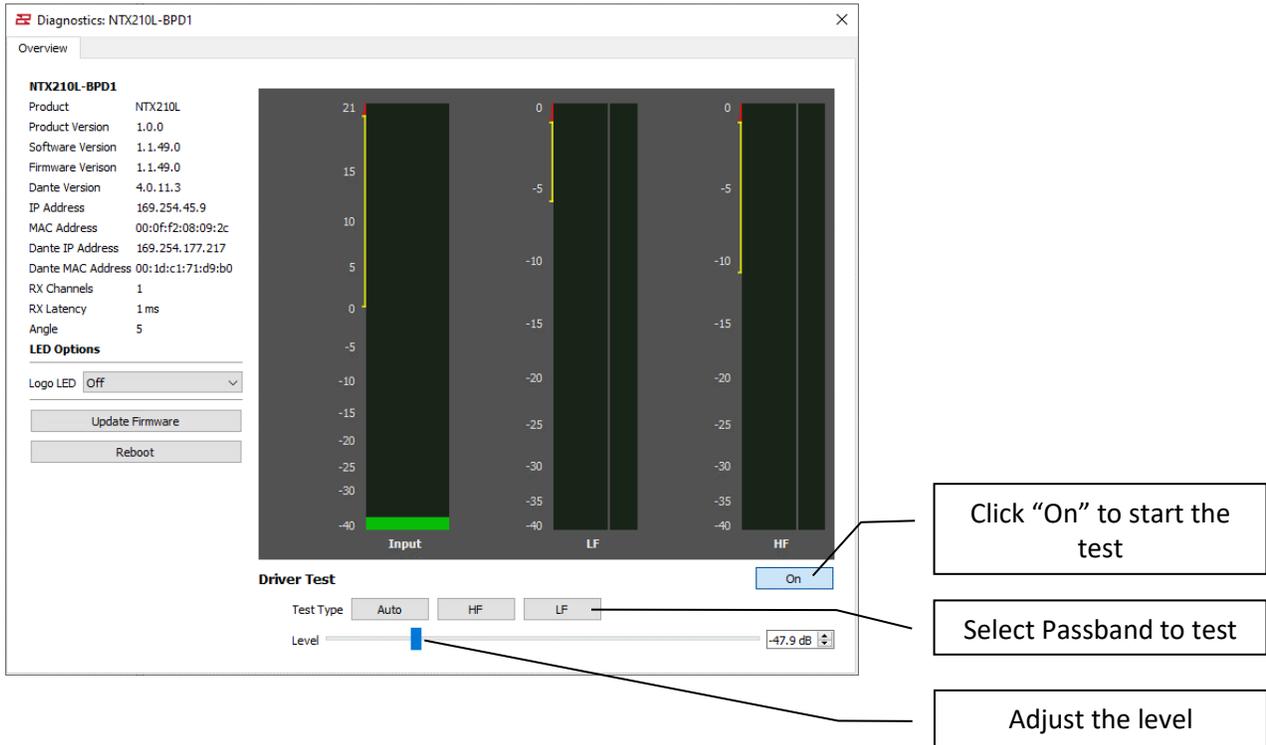
Right clicking a module in an Array will open a menu with options to Insert Item Above, Insert Item Below, Unassign, or Remove Array Item.



Double clicking a module will open the **Diagnostics** Window for that module.



For online networked NTX Series Modules, it is possible to run a driver test on individual drivers, a group of drivers, or an auto sequence of each driver ending with a full range test.



Section 8 – Assigning Inputs in Resolution

Inputs may be assigned by double-clicking the name of an Array. This opens the **Input Configuration** dialog box where you can select how you will feed audio to the System. Following are the available options based on the Mode you select:

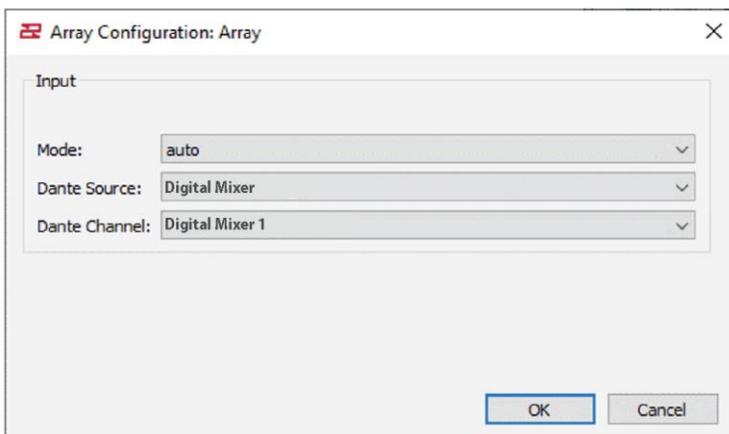
None	N/A	N/A	N/A
Auto	N/A	Select which device, typically the house console or Dante on-ramp device. Analog back up is enabled.	Select either the Main or Aux Channel
Analog	Select which physical Module is receiving the analog audio signal	N/A	N/A
Dante	N/A	Select which device, typically the house console or Dante on-ramp device	Select either the Main or Aux Channel

Note: You may receive a yellow banner with a warning that "Network settings out of sync: one or more input modes out of sync." with **Dismiss and **Select Inputs** button or **Dismiss** and **Sync Now** buttons (depending on which parameters are out of sync). Clicking **Select Inputs** opens the **Input Configuration** dialog box, allowing this parameter to be confirmed for all modules. Clicking **Sync Now** synchronizes the EQ and processing parameters for all modules with the Resolution model.*

WARNING: IT IS CRITICAL THAT ALL PARAMETERS ARE SYNCHRONIZED FOR NTX SERIES MODULES TO FUNCTION PROPERLY. LISTENING TO NTX ARRAYS WITHOUT FULLY SYNCHRONIZED PARAMETERS OR WITH NETWORK ERRORS MAY PRODUCE UNEXPECTED ACOUSTICAL RESULTS AND IS NOT RECOMMENDED.

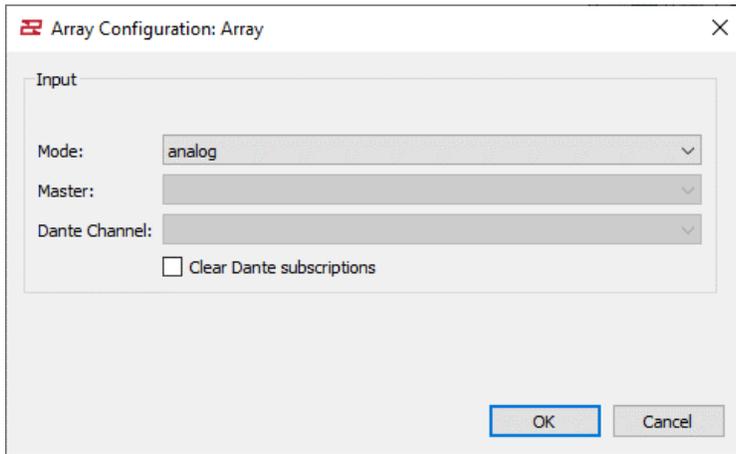
Selecting Auto

Selecting Auto will tell each module to search for a Dante source. Choose which Dante channel you want the Array to receive signal. This may be a Dante module transmitting an Analog or AES input or other Dante on-ramp source such as your Dante equipped digital mixing console. All other NTX Series modules in that Array will automatically be configured to receive the Dante audio signal from that source. Analog back up is enabled in this mode.



Selecting Analog

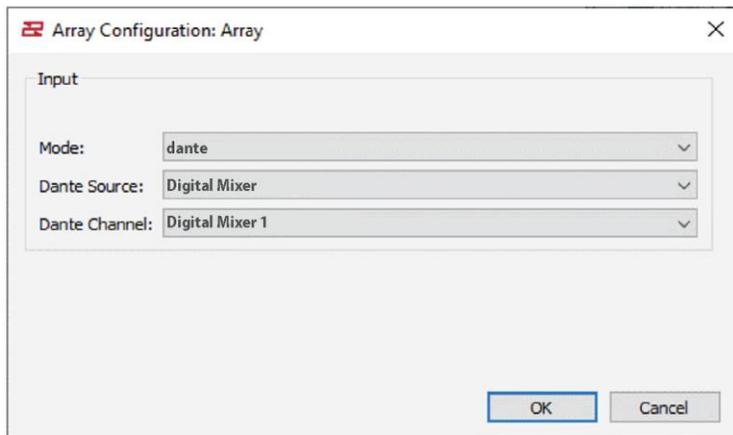
The only option for an analog configuration for a NTX Series system is to select analog from the Mode pull down. This changes each input assignment to the XLR Input/Thru connections per module.



The screenshot shows a dialog box titled "Array Configuration: Array" with a close button (X) in the top right corner. The dialog is divided into an "Input" section and a bottom section with "OK" and "Cancel" buttons. The "Input" section contains three dropdown menus: "Mode" is set to "analog", "Master" is empty, and "Dante Channel" is empty. Below these is a checkbox labeled "Clear Dante subscriptions" which is currently unchecked.

Selecting Dante

Select which Dante source you want to use then choose which Dante channel you want the Array to receive signal. This may be a Dante module transmitting an Analog or AES input or other Dante on-ramp source such as your Dante equipped digital mixing console. All other NTX Series modules in that Array will automatically be configured to receive the Dante audio signal from that source.

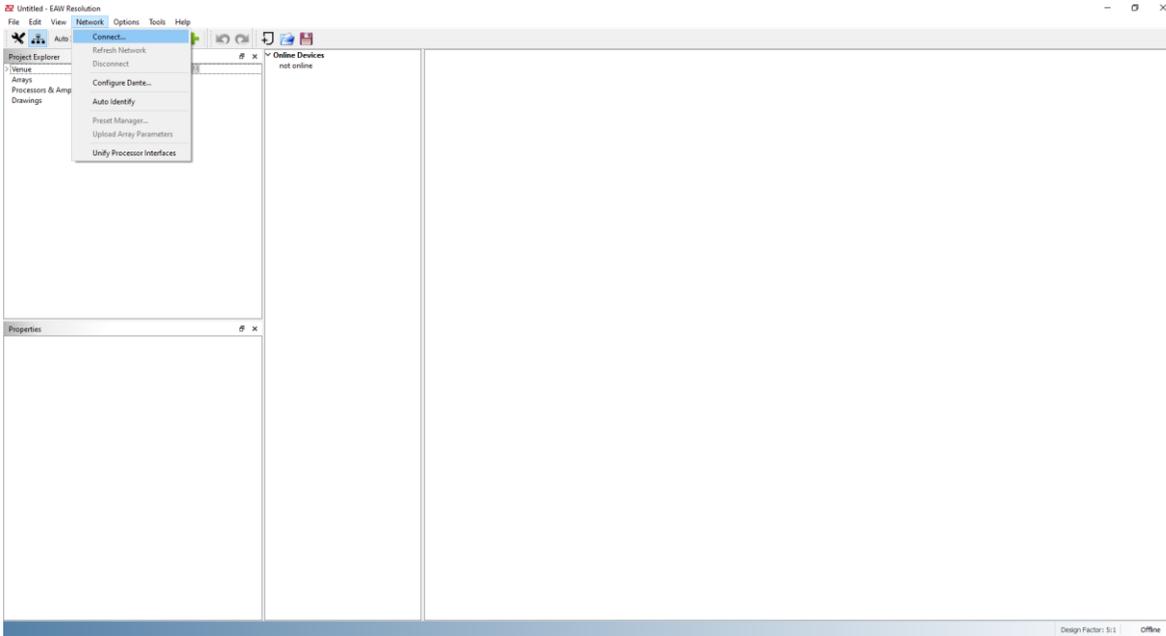


The screenshot shows the same "Array Configuration: Array" dialog box. In this configuration, the "Mode" dropdown is set to "dante". The "Dante Source" dropdown is set to "Digital Mixer" and the "Dante Channel" dropdown is set to "Digital Mixer 1". The "Clear Dante subscriptions" checkbox remains unchecked. The "OK" and "Cancel" buttons are at the bottom.

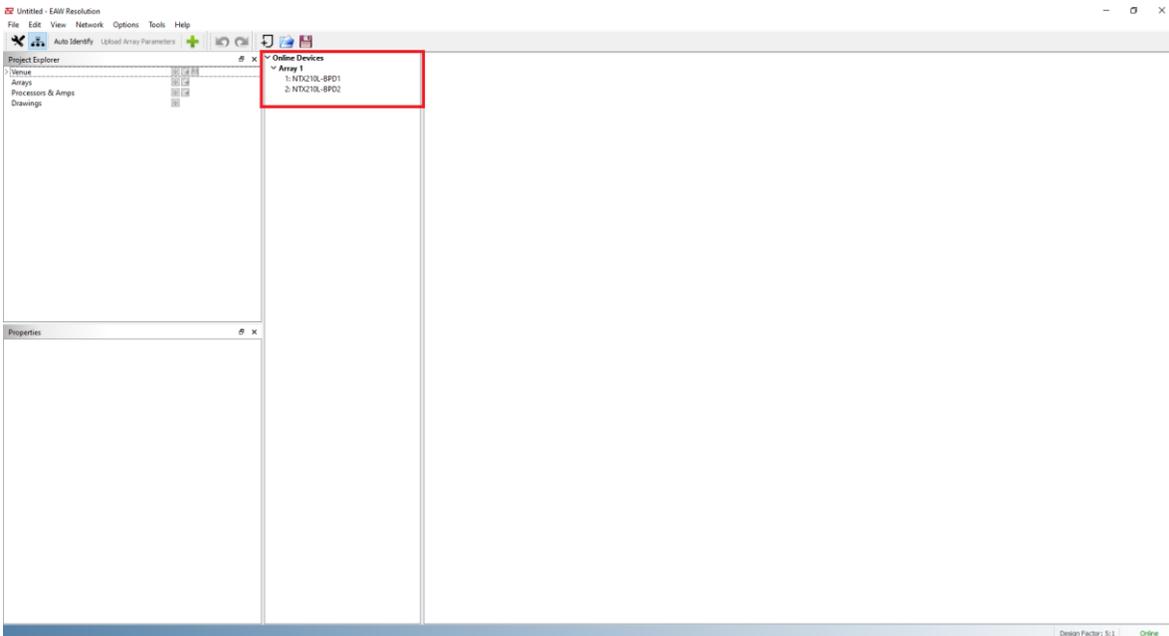
Section 9 – Optimizing NTX Line Arrays in Resolution

Go online with the system

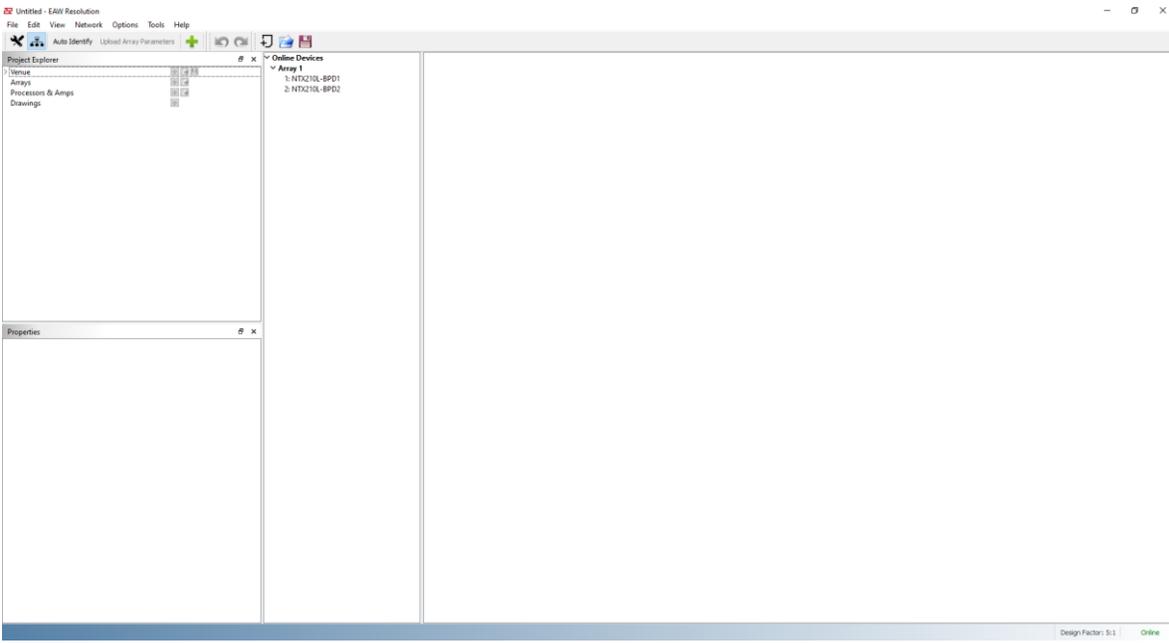
- Click on Network > Connect.



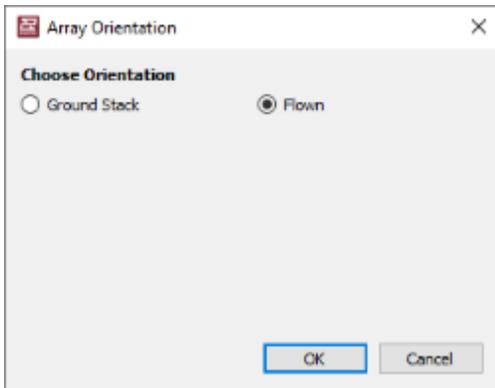
All devices will appear under **Online Devices**



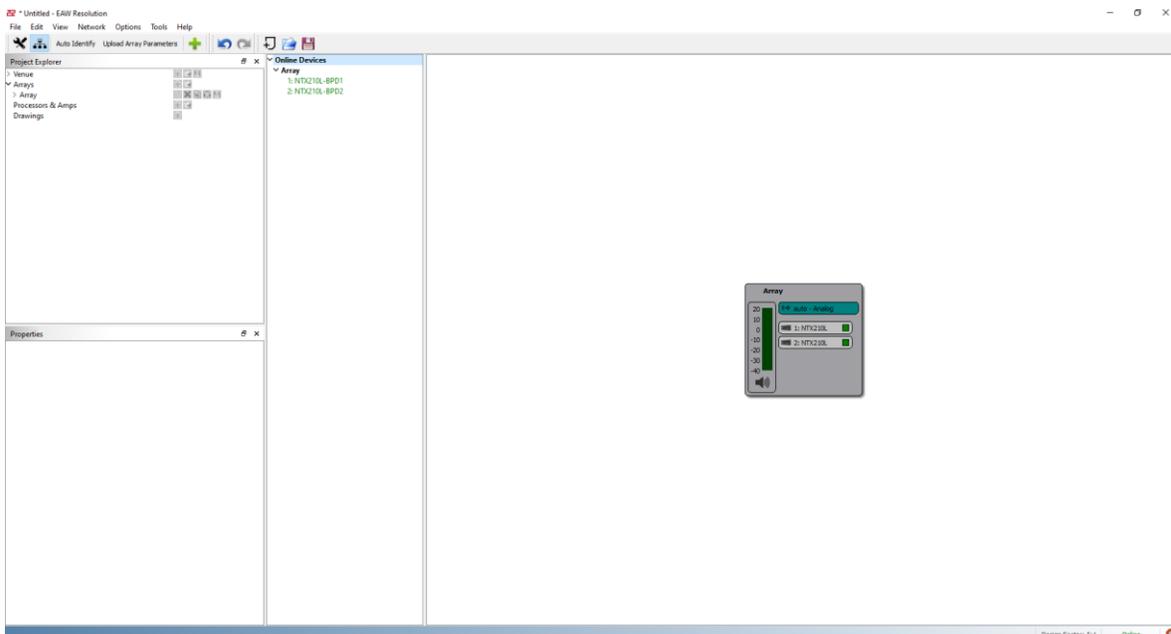
Click and drag on arrays or devices to create an array



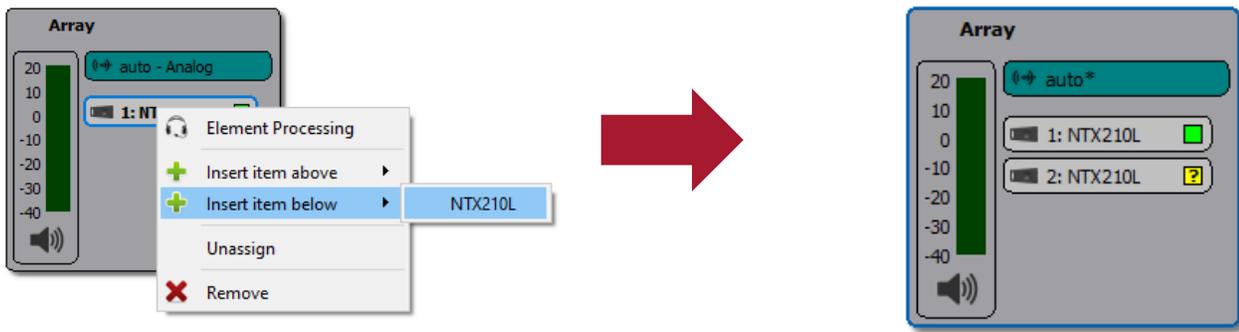
Choose Ground stacked or Flown



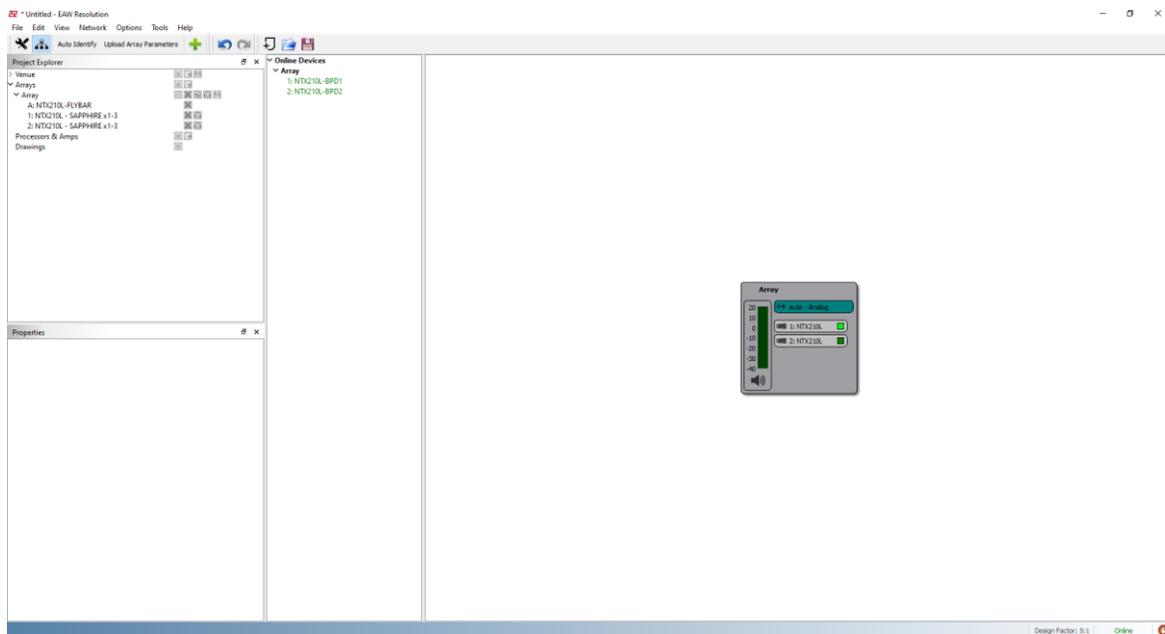
An array will automatically create and appear in the right window pane



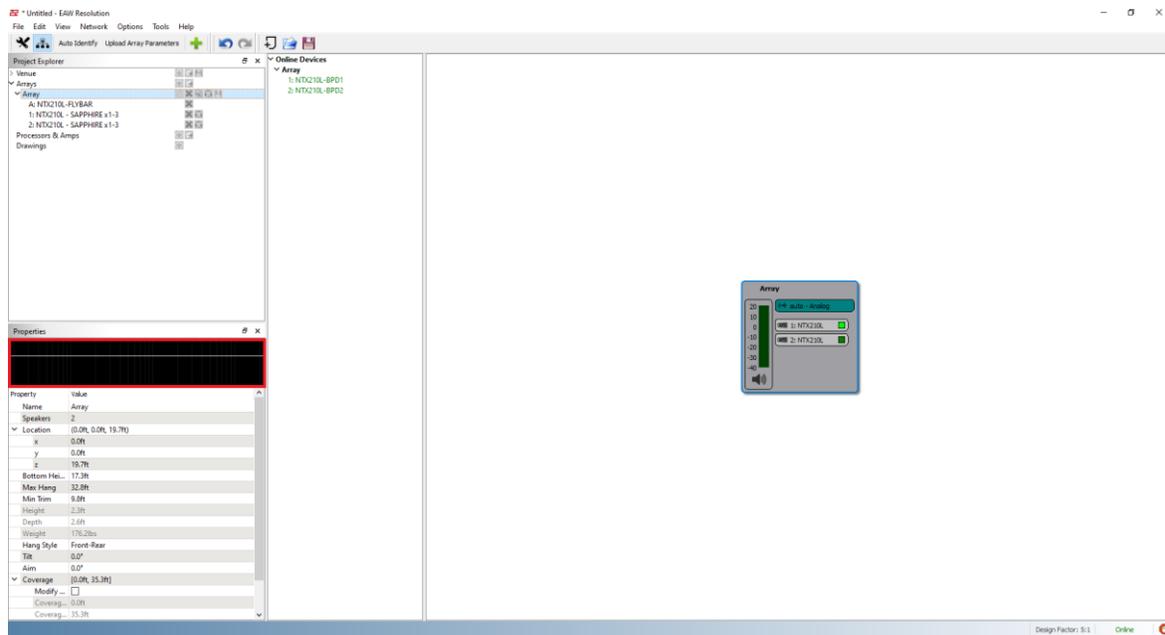
If an IR sensor is not working, it's possible to manually add an array item, then click and drag the "fragmented" online device to assign.



The green indicators verify that the array is now operating as expected and ready to use.

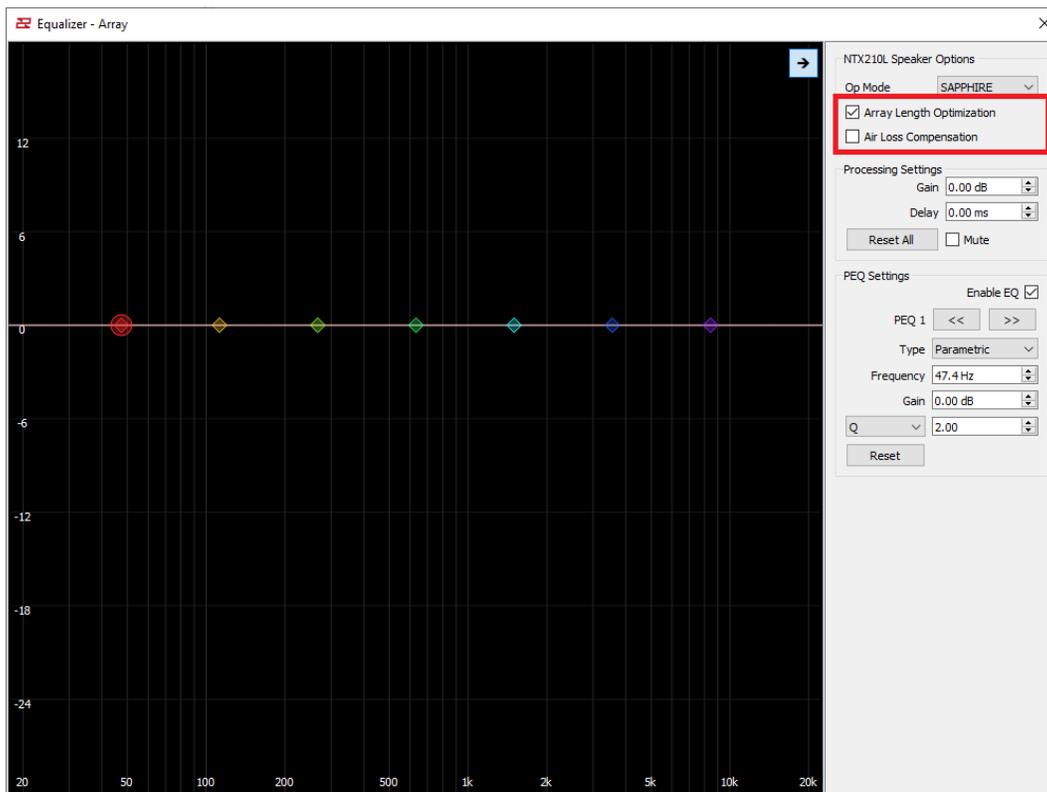


Select the array then double click on the EQ/DSP under **Properties**

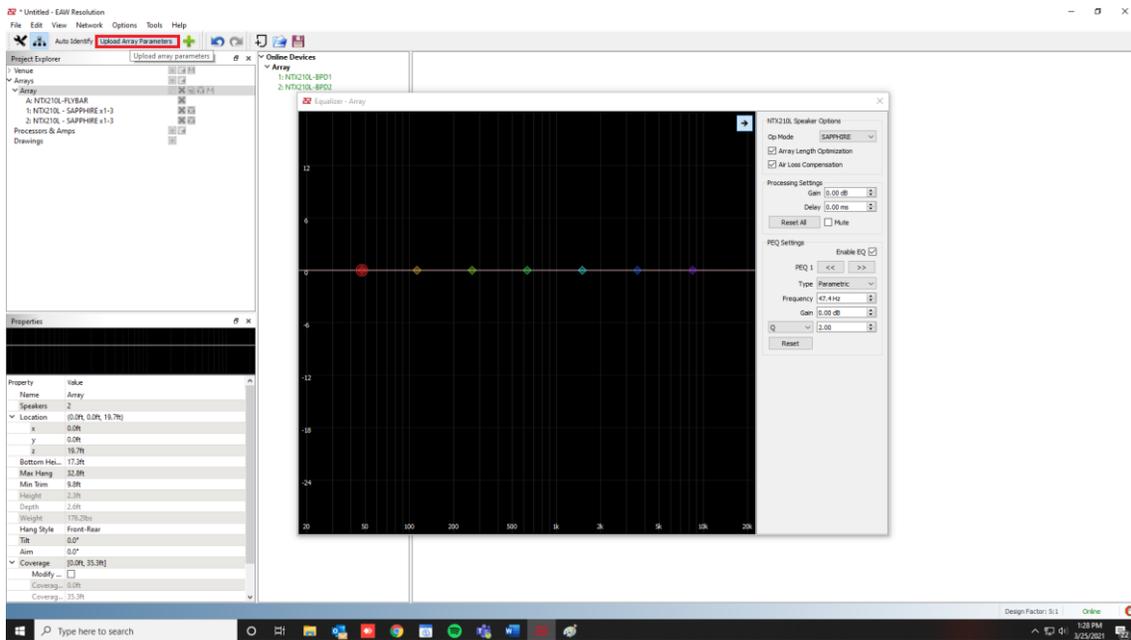


Check Optimize Options

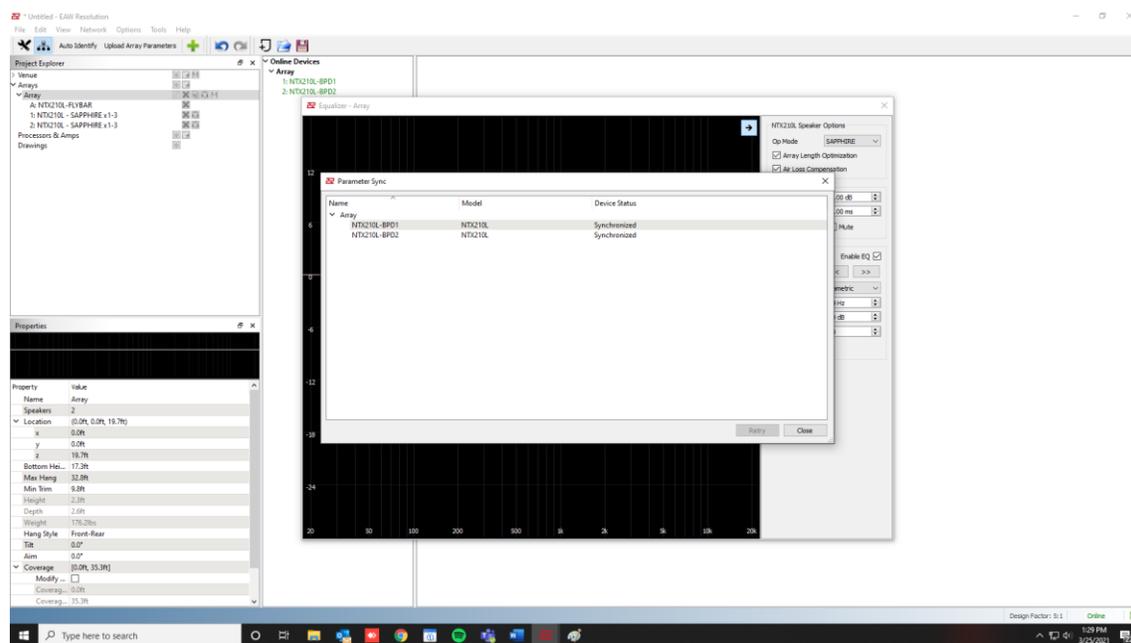
- Array Length Compensation: LF Coupling
- Air Loss Compensation: HF Shading



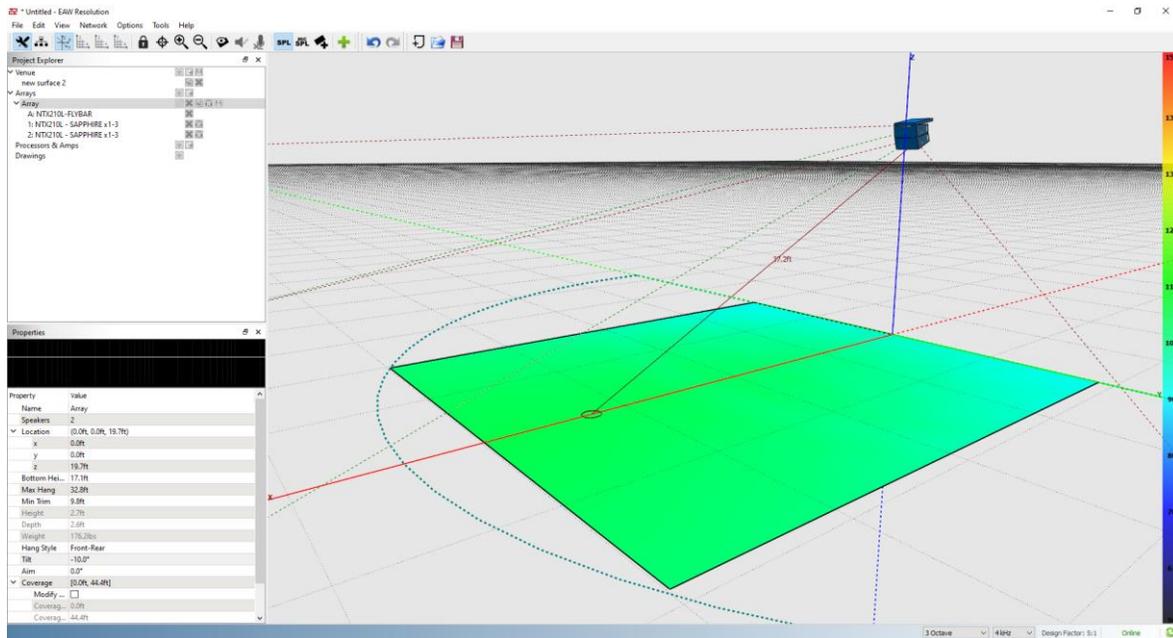
Then click Upload Array Parameters



When each module status is synchronized, the system is now optimized and ready to use



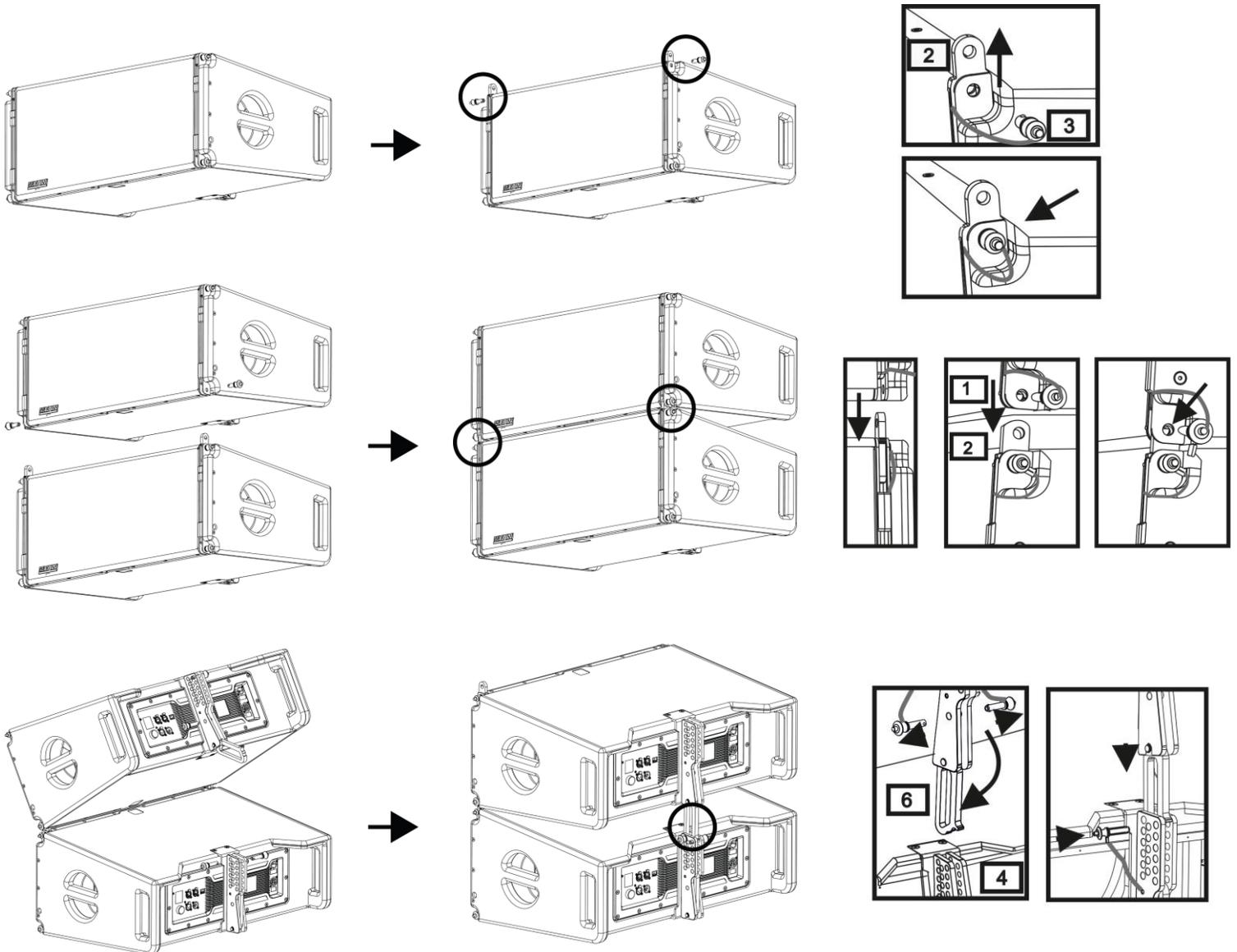
Resolution uses the venue model and array configuration (array size, height, and position) to determine optimization.



Section 10 - Rigging

The assembly of two NTX modules can be done following the steps below:

- On the first module, remove the pins [3], raise the retractable brackets [2] and fasten them to the new position using the pins [3].
- Remove the pins [1] from the second module, place it on top of the first module, inserting the brackets [2] as shown. Then fasten the front side of the two modules using the pins [1] of the second module.
- On the back, remove the pins [5] from the rear brackets [4]. Then insert the movable arm [6] of the second module into the bracket [4] of the first module. The next page shows in detail the fastening of the angle on the rear between the two modules.



The below example explains two cases in which you want to set a specified angle between two modules using the rear rigging. Before carrying out any other operation, make sure that once the movable arm is inserted [6], the hole of the chosen angle is contained inside the loop as shown.

- **FLOWN CASE:** insert only one pin in the hole on the chosen angle. The second pin can be housed in the "PIN HOLDER" hole. Note that this type of configuration during the assembly allows changing the chosen angle simply by moving the respective pin (with the movable arm inserted).
- **STACKED CASE:** once the pin [5] is inserted into the hole of the chosen angle, lift module B as far as the movable arm [6] allows. At this point, insert the second pin into the "ANGLE LOCK" position and release module B. This way, module B is completely blocked by the two pins on the rear.

After assembly is completed, always make sure that all the pins have been completely inserted and are locked.

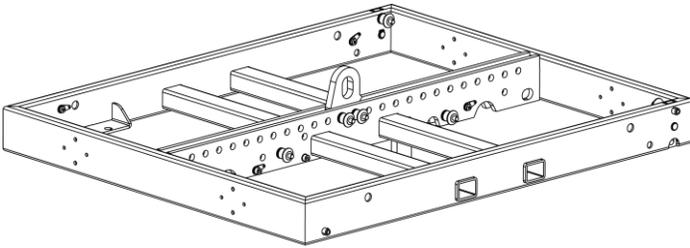


Rear Rigging Assembly Plates

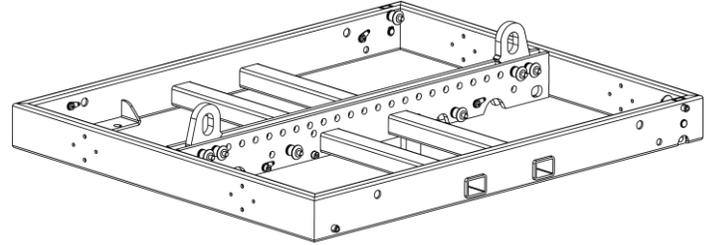
For quick installation, the following optional accessories can be purchased:

- Fly-bar for the flown and stacked use for line arrays of NTX210L modules.
- A cart to transport up to 4 NTX210L modules.

NTX210L Flybar



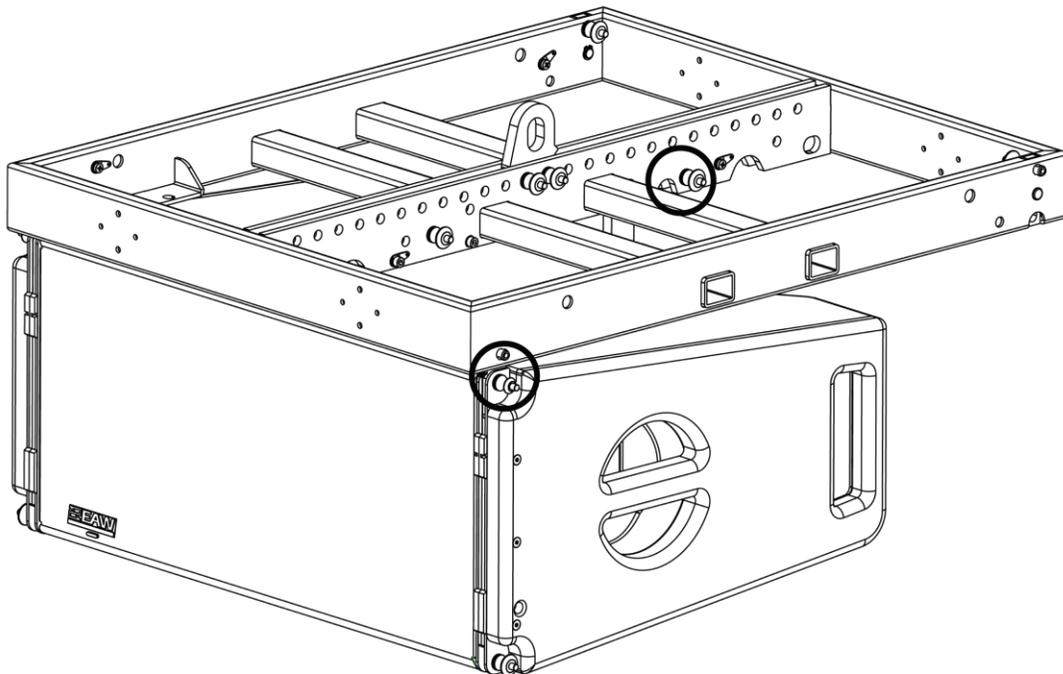
NTX Flybar using one shackle/pick



NTX Flybar using two shackles/pick

The assembly of an NTX210L module to an NTX Flybar can be done following the steps below:

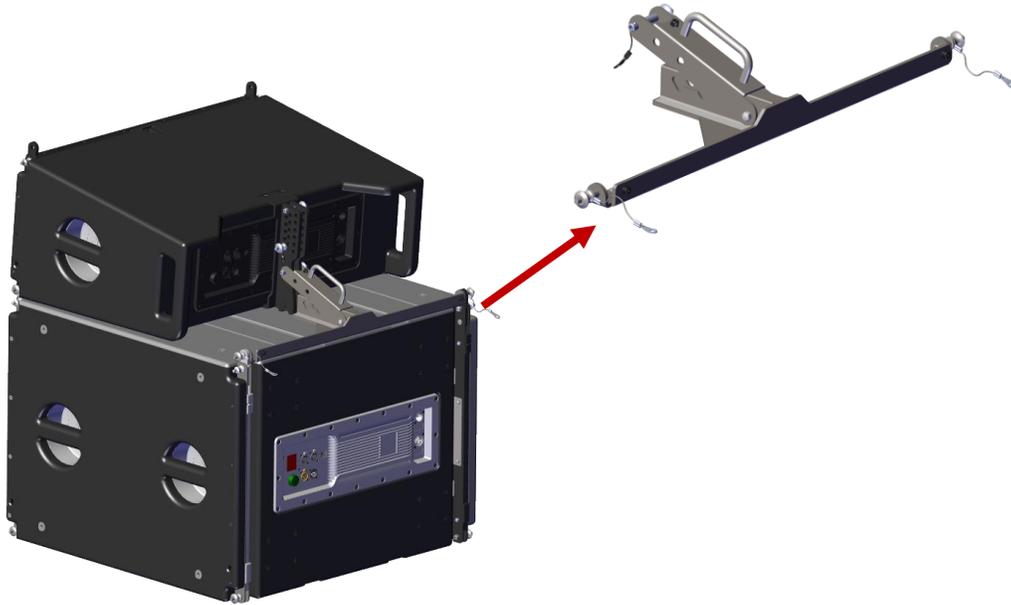
- Connect to single or dual shackles and raise shackle enough to fit NTX module underneath comfortably.
- Raise rigging ears on NTX and align to flybar holes.
- Insert front rigging pins on both sides.
- Align and lock into place rigging plates on flybar to rear rigging assembly on NTX module.



NTX Series Ground Stack Adapter

Ground stacking of an NTX210L cabinet with an SBX118F subwoofer is possible using the groundstack adapter by following the steps below:

- Place SBX118F subwoofer right side up on stable surface.
- Line up groundstack adapter with the rear rigging positions of the SBX118F and pin in place using pins from the groundstack adapter.
- Line up NTX210L with the front rigging positions of SBX118F and pin it into place using rigging pins from the NTX cabinet.
- Using the three-point rigging, set splay angle and pin on the groundstack adapter.
- Pin NTX210L using pin on the groundstack adapter to secure cabinet to rigging.



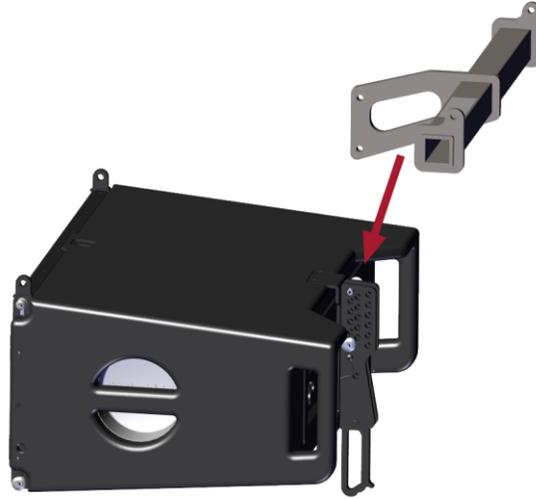
NTX Series Array Transition Bar

To array an SBX118F subwoofer with NTX210L line array loudspeakers, the NTX Series transition bar is needed. Follow the steps outlined below to build the array.

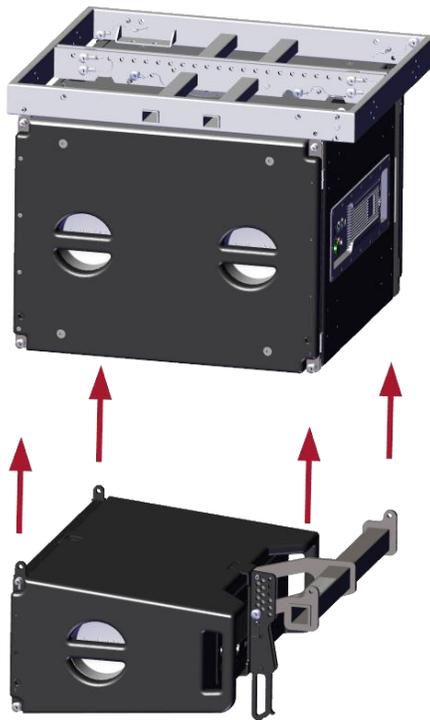
- Connect the NTX Series flybar to the first SBX118F in the array using the 4 rigging points.



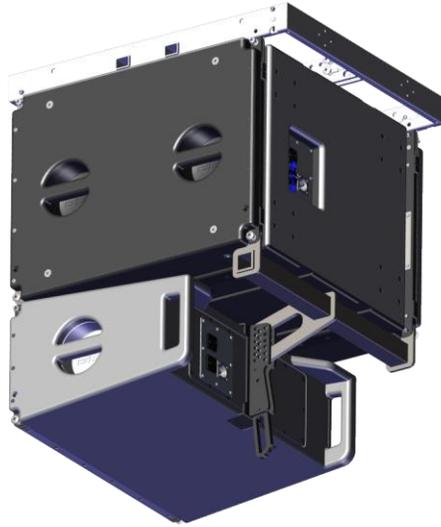
- Connect any additional SBX118F using the same four rigging points as used previously by the flybar.
- To rig NTX210L to array, start by pinning transition bar to the first NTX210L and set splay angle using angle and locking pin.



- Connect NTX210L to front points on the bottom of SBX118F, and the two transition bar rigging points to rear points.



- Below is an image with a configuration utilizing both the SBX118F flown by the flybar, as well as an NTX210L with the transition bar. Additional NTX line array cabinets may be added by following the steps outlined at the top of Section 10 on page 22.

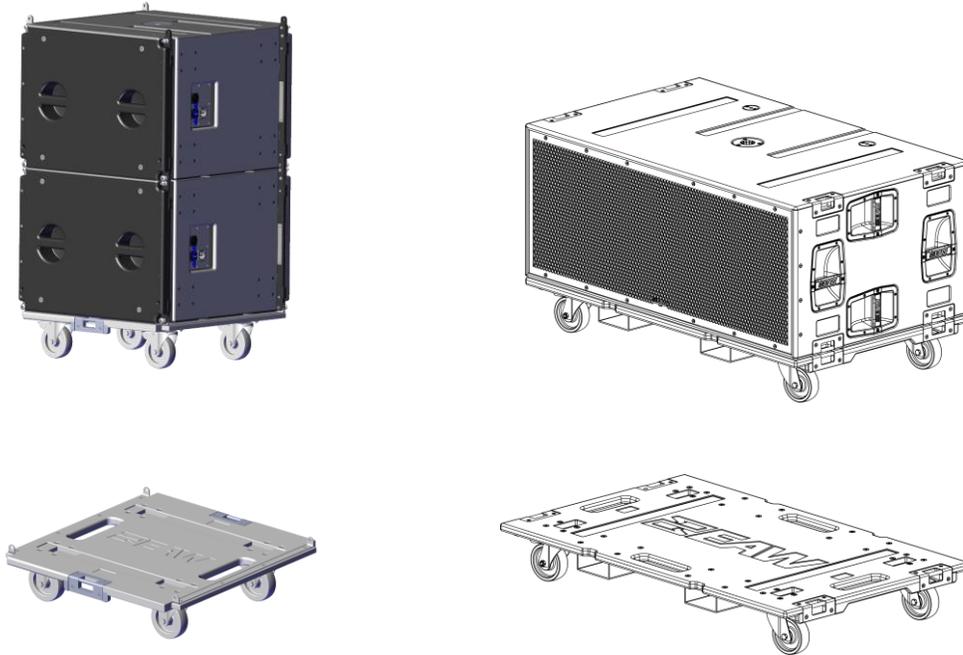


Carts, casters and caster pallets available for NTX Series Products

- The NTX Cart can transport up to 4x NTX line array items.



- SBX218 & SBX118F castor pallets may transport up to 2 subwoofers. Castor kits are available and may be utilized directly on SBX subwoofers.



Service, Inspection & Maintenance

General Service

All components in the NTX Series systems are designed to withstand the most rigorous and demanding environments. Through regular operation it may still be necessary to replace acoustical, electronic and mechanical components.

Contacting EAW

We have attempted to make this manual and the as thorough as possible. However, feel free to contact us with any further questions or comments for topics not covered.

Operating Questions

EAW Support

Tel 508-266-6334

Tel 800-992-5013 (USA only)

E-mail support@eaw.com

Service Information

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