

ADJ 4 Stream Bridge Setup Instructions

ADJ 4 Stream Bridge Setup is a Windows application to configure the 4 Stream DMX Bridge. In order to get the most from this application you should have a basic understanding of how to set up a network.

This application communicates with the bridge over USB. When you connect the bridge to a Windows PC for the first time, it will ask for a driver. Use the USBUART_cdc.inf driver included in the folder that contains this application. You must also make sure that the USB mode on the bridge is set to “COM Port” and not “MIDI”. This can be done using the menu buttons on the bridge.

You can run the “ADJ4StreamBridgeSetup” application directly from its folder. It will appear similar to the screenshot below with “Not Connected” shown in the upper left. Since it is not yet connected to a bridge, the fields will be blank as in this example.

ADJ 4 Stream Bridge Setup 1.0

Select COM Port Not Connected

Network Type

- ☐ AP Mode (Create a Network)
- ☐ Station Mode (Join a Network)

Network Settings

Network Name

Password

☐ DHCP enable ☐ Hide AP network

Static IP Address

Router Gateway

Subnet Mask

Wi-Fi Channel (AP Mode)

DMX Snapshots

Save Default Recall

Wifi

☐ Wifi Enable

Wifi Channel

sACN

☐ sACN enable

Base Universe (1-63999)

Art-Net

☐ Art-Net enable

Net (0-127)

Sub-Net (0-15)

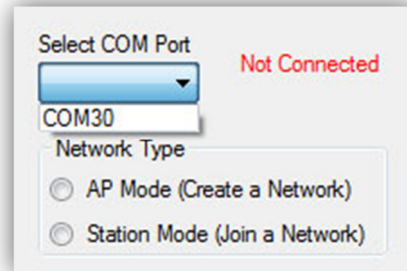
Node Name

reset to defaults

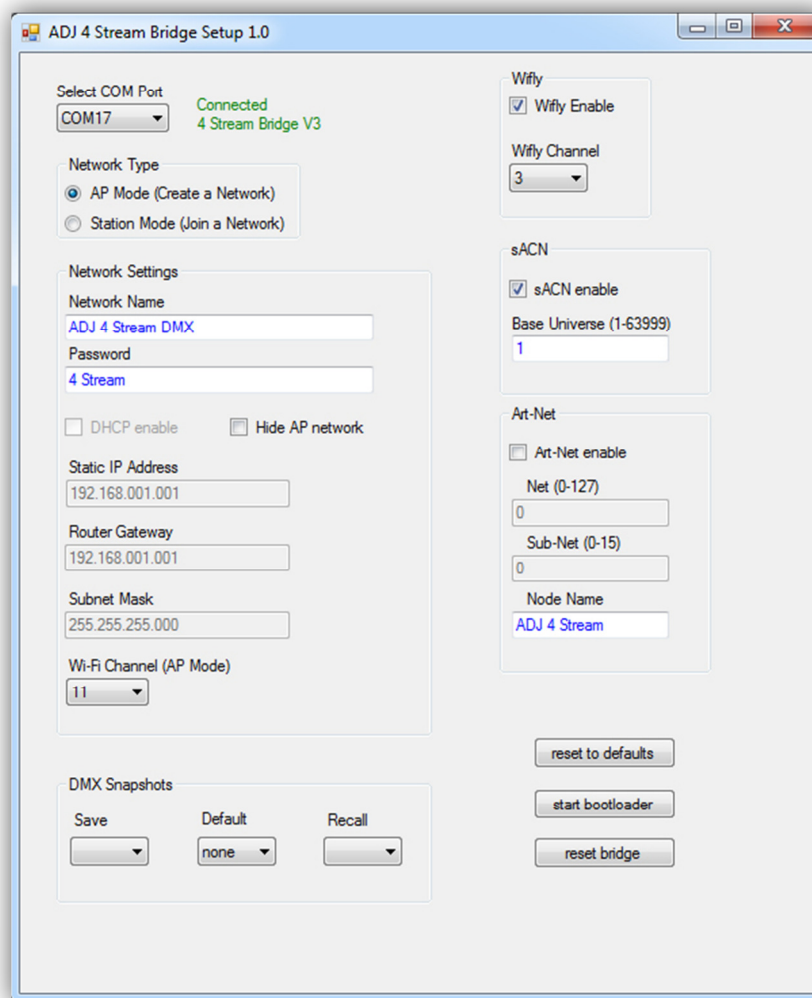
start bootloader

reset bridge

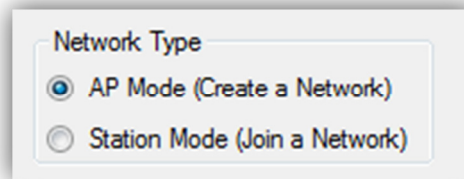
With the driver installed and the bridge connected to your Windows PC you should be able to select the com port assigned to the bridge connection. In this example COM30 is the only port being used so is most likely the one assigned to the bridge.



After you select the correct port the status should show “Connected” as in the example below. As you can see below the fields are now filled in with the current settings for the connected bridge.

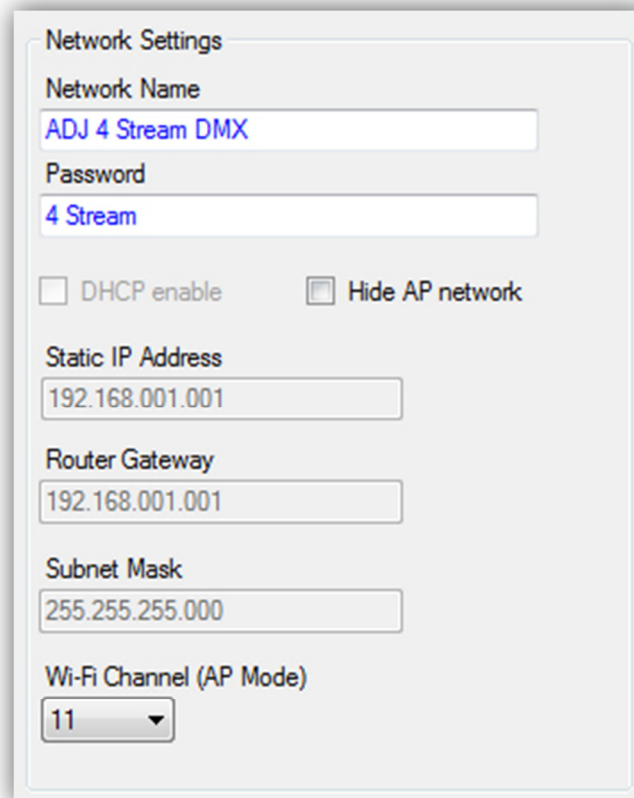


The network type that you select will determine the settings that are available when configuring the bridge. Selecting AP or “access point” mode will allow the bridge to make its own network and act as the router. Selecting station mode will allow the bridge to join an external network and connect to a router.



A dialog box titled "Network Type" with two radio button options. The first option, "AP Mode (Create a Network)", is selected with a blue dot. The second option, "Station Mode (Join a Network)", is unselected with a grey dot.

In AP mode you must choose a name and password for your network. The default name and password is shown in the example below. Up to 32 characters, numbers and spaces are allowed for the name and up to 16 for the password. The password must contain at least 8 characters. The quote (") and comma (,) characters are reserved and can't be used.



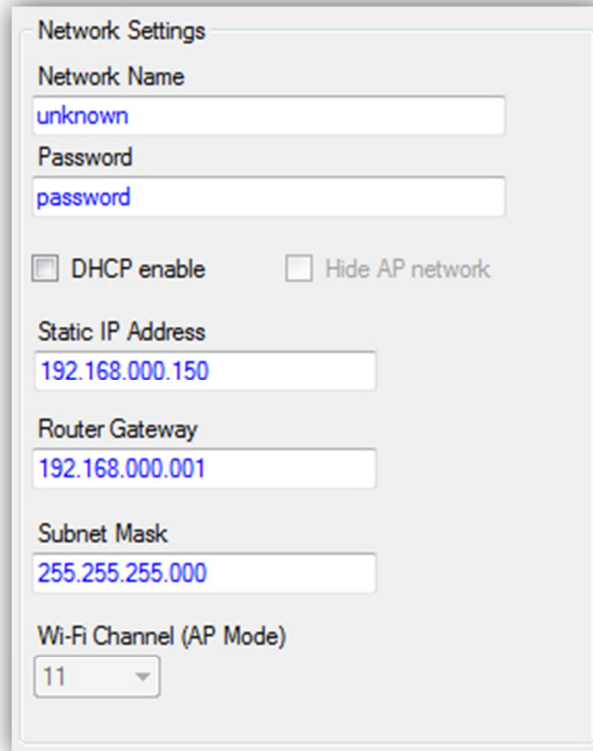
A configuration window titled "Network Settings". It contains several fields and checkboxes. The "Network Name" field is filled with "ADJ 4 Stream DMX" in blue text. The "Password" field is filled with "4 Stream" in blue text. There are two checkboxes: "DHCP enable" (unchecked) and "Hide AP network" (unchecked). Below these are three text fields for "Static IP Address" (192.168.001.001), "Router Gateway" (192.168.001.001), and "Subnet Mask" (255.255.255.000). At the bottom, there is a dropdown menu for "Wi-Fi Channel (AP Mode)" with "11" selected.

Additional settings that you can modify while in AP mode are “Hide AP Network” and “Wi-Fi Channel”. The other settings either don’t apply or can’t be changed.

If you check the “Hide AP network” box, the bridge will not send out an advertising beacon so that it won’t appear in a network list on a device that is in range. This is useful if you don’t want others to be aware of your lighting network.

You can change the Wi-Fi channel to the least used channel in your area. Choose from channels 1-11.

If station mode has been selected, you must enter the name and password of the network that you want to join. Up to 32 letters, numbers, spaces and special characters are allowed. The quote (") and comma (,) characters are reserved and can't be used.



Network Settings

Network Name
unknown

Password
password

☐ DHCP enable ☐ Hide AP network

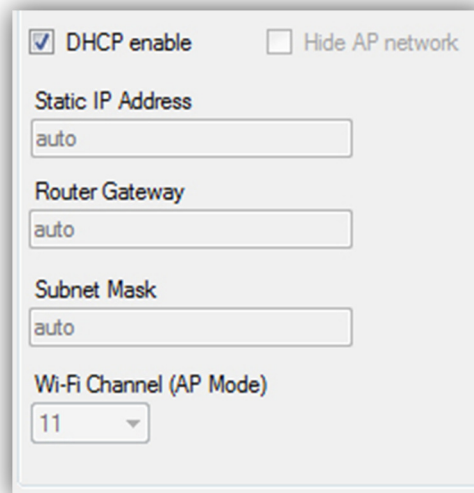
Static IP Address
192.168.000.150

Router Gateway
192.168.000.001

Subnet Mask
255.255.255.000

Wi-Fi Channel (AP Mode)
11

You can manually enter the IP address or use DHCP where a network router will assign an address for you. It's easier to let the router do this to avoid address conflicts on the network you are joining but in some cases you may want to control the address assigned to the bridge. If you manually assign the address, be sure to choose an address that is not already in use on the network. The Gateway and Subnet mask must also match the settings for that network. The Wi-Fi Channel will be set by the router.



☒ DHCP enable ☐ Hide AP network

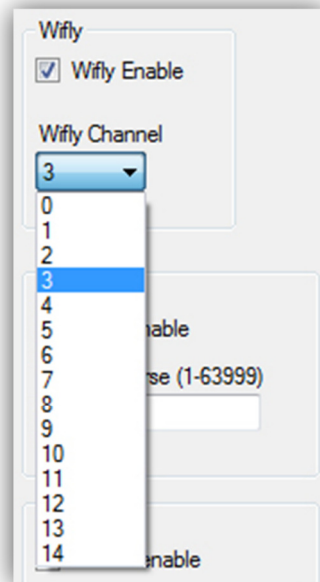
Static IP Address
auto

Router Gateway
auto

Subnet Mask
auto

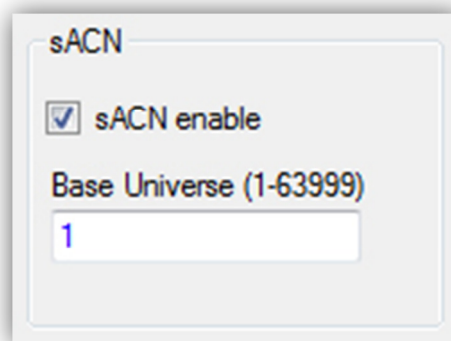
Wi-Fi Channel (AP Mode)
11

If you are using Wifly enabled fixtures, you can enable Wifly here and set the channel. The channel number must match your Wifly fixtures. Try to use a channel that is at least several steps away from the Wi-Fi channel if the bridge is in AP mode. If you are only using the wired DMX512 output, turn Wifly off. Note that the Wifly is assigned to DMX universe 4 on the 4 Stream Bridge and does not have a matching wired out.



The image shows a configuration panel titled "Wifly". It contains a checkbox labeled "Wifly Enable" which is checked. Below this is a dropdown menu labeled "Wifly Channel". The dropdown is open, showing a list of numbers from 0 to 14. The number 3 is selected and highlighted in blue. To the right of the dropdown, there are some partially visible labels: "able" and "se (1-63999)".

If you are using the streaming ACN protocol with your lighting software, enable it here by checking the box and selecting the base universe number. This will be the universe number for DMX out 1. Outs 2-4 will be assigned the next consecutive sACN universe numbers. The bridge can only respond to one protocol at a time, either sACN or Art-Net. You can use sACN in AP mode or station mode. If running in AP mode, your wireless platform (tablet, phone, laptop) must join the bridge AP network.



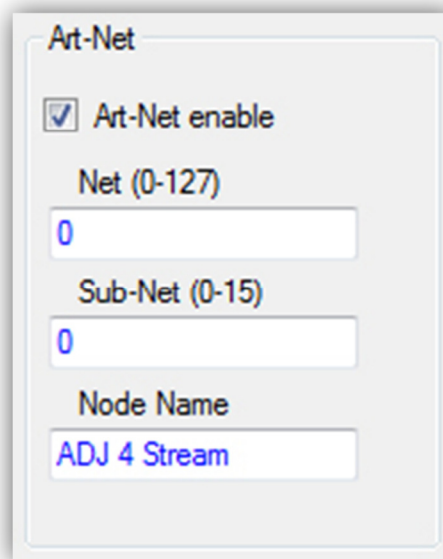
The image shows a configuration panel titled "sACN". It contains a checkbox labeled "sACN enable" which is checked. Below this is a text input field labeled "Base Universe (1-63999)". The number "1" is entered into this field.

To enable Art-Net on the bridge check the Art-Net enable box and select a Net address and a Sub-Net address. These are addresses that are used by the Art-Net protocol to identify nodes on the network. An Art-Net node can support up to four DMX 512 outputs at each Art-Net address. For small lighting control apps that only support one or a few universes, set the Net and Sub-Net both to 0. Art-Net also uses a universe address between 0 and 15 to identify each DMX 512 output. The bridge always assigns Art-Net universes 0-3 to DMX outs 1-4.

You can enter a custom node name for the bridge that will be used for Art-Net polling. If you are using more than one bridge on a network, this will help to identify each bridge. The name can be up to 16 characters long.

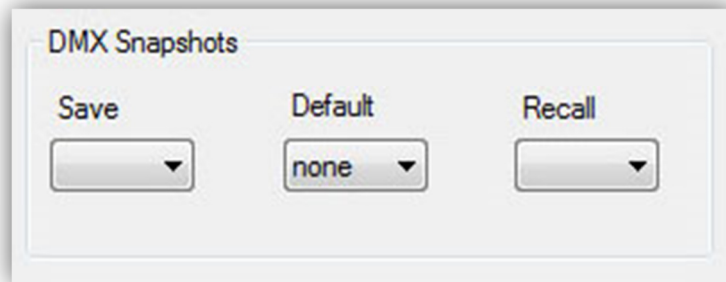
At the time of this writing, Art-Net 4 is the latest version of the protocol and is the version that is supported on the bridge. Art-Net 4 allows unicast messaging from the lighting controller to the bridge. For unicast, the lighting controller will need to know the IP address of the bridge in order to send data packets. Most controllers have the ability to discover Art-Net devices on the network and get their IP addresses during the discovery process.

A lighting controller using Art-Net will be able to discover a bridge on its network using ArtPoll. These are messages that are sent from a lighting controller in order to maintain a list of all of the Art-Net nodes on the network. The bridge will respond to ArtPoll requests to let the controller know its status. The bridge currently supports ArtDMX, ArtPoll and ArtRdm messages. The LED indicator on the bridge will flash for each Art-Net packet received. This will let you know that it is receiving messages from the controller. Note: The bridge does not support merging of DMX512 packets from multiple controllers to a single universe.



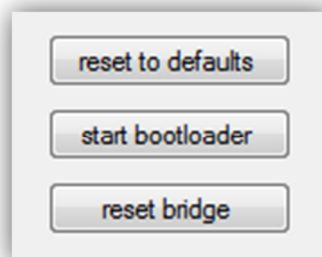
The image shows a software window titled "Art-Net". Inside the window, there is a checked checkbox labeled "Art-Net enable". Below this, there are two text input fields. The first is labeled "Net (0-127)" and contains the value "0". The second is labeled "Sub-Net (0-15)" and also contains the value "0". At the bottom, there is a text input field labeled "Node Name" which contains the text "ADJ 4 Stream".

The DMX Snapshots section lets you save or select from the 4 scene snapshots that can be saved in the bridge memory. Use the save button to select from location 1-4 to save to. When you select the number, the current DMX frame from all four universes will be saved as a snapshot. The default button lets you select one of the stored snapshots to be the default one that appears when the bridge is turned on. Note that snapshots only work when the bridge is not receiving DMX 512 frames from a controller as these will override the output. Use the recall button to view a snapshot.



The image shows a control panel titled "DMX Snapshots". It contains three sections: "Save", "Default", and "Recall". Each section has a dropdown menu. The "Default" dropdown menu currently shows "none".

There are three buttons in the lower right. The top button will reset the bridge to its default settings, erasing the memory. The second button will put the bridge into bootloader mode so that you can update the firmware and the bottom button simply resets the bridge, the same as cycling the power. Starting the bootloader or doing a reset will disconnect the bridge from this program.



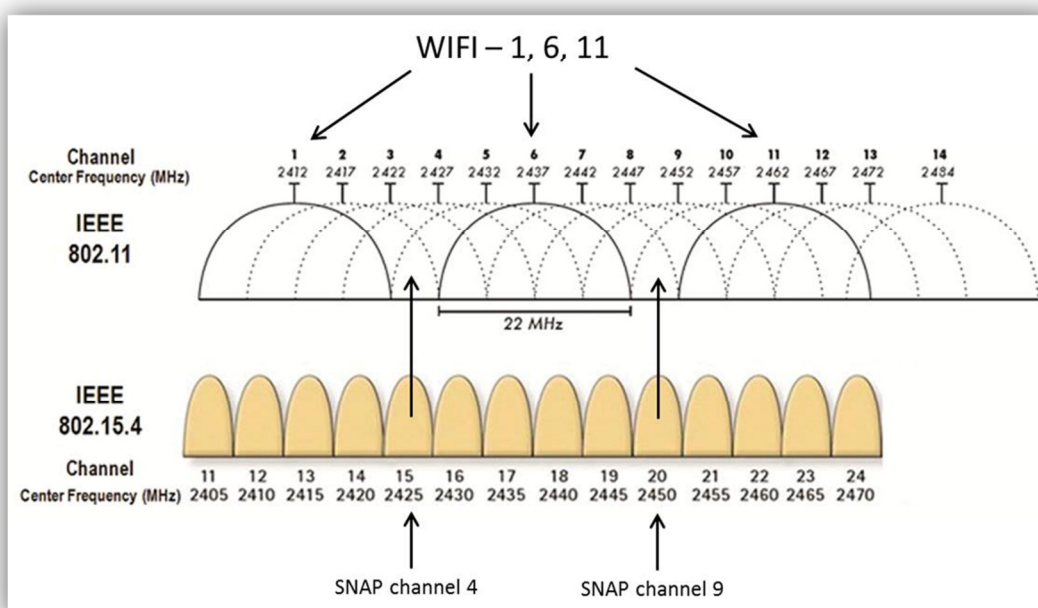
The image shows a vertical stack of three buttons: "reset to defaults", "start bootloader", and "reset bridge".

Interference and Channel Selection:

Both the Wi-Fi and Wifly radios operate in the 2.4GHz band. Many other devices including Wi-Fi routers, Bluetooth devices and wireless audio also use this band so the bridge will most likely always be competing for air space no matter where you are. The 2.4GHz Wi-Fi band is divided into 14 channels. Wi-Fi in the U.S. and Canada uses channels 1-11 and in Europe channels 12 and 13 are also available. For the best connection between your Wi-Fi tablet, phone or laptop and the bridge when it's in AP mode, it's important to select the best available Wi-Fi channel. (Note that when using an external network when the bridge is configured in station mode, it will join on the channel that's already established by that network.) There are apps available that can use the radio on your wireless device to scan for the least used channel in your location. It is highly recommended that you do this at each location and then set the bridge to that channel. Remember that most bridge settings don't take effect until after you reset.

Try to keep the bridge within 50 feet of your tablet or laptop and in direct line of sight when in AP mode. When using an external network, distance and signal strength will depend on the location of the network's router. The human body will block the signal so the higher you can locate the bridge the better. If you are within a few feet of the bridge, turn Bluetooth off on any nearby device such as your phone or smart watch. The range of the Wifly radio is much greater so Wifly equipped lights can be much farther away. If not using Wifly turn it off from the bridge settings. If in use, set the channel at least several steps away from the bridge Wi-Fi channel. The best channels to use for Wifly are channels 4 and 9. These two channels fall into a gap between Wi-Fi channels 1, 6 and 11. Wifly counts channels from 0-14 as can be seen in the picture.

The illustration below shows the center frequencies for Wi-Fi (top) and Wifly (bottom, also referred to as Snap). If you use Wi-Fi channels 1, 6 or 11, Wifly channels 4 and 9 should not interfere.



Protocols Art-Net and sACN:

The ADJ 4 Stream Bridge supports the two primary lighting protocols for sending DMX 512 data over a network; Art-Net and sACN. Streaming ACN or sACN can only be used to send DMX512 frames where Art-Net can do that and much more. Both protocols have their advantages. SACN is simple to configure and doesn't require setting IP addresses, only selection of a universe number for each DMX 512 port is needed. Art-Net may require more setup but offers support for discovery of nodes and RDM support. The 4 Stream Bridge can be set to use either protocol but not both at the same time. The 4 Stream Bridge supports node discovery as well as RDM over Art-Net. Choice of protocol will depend on your lighting control application.

Important Notes:

Information and specifications in this document are subject to change without notice. ADJ Products and KMX Inc. assume no responsibility or liability for any errors or inaccuracies that may appear in this manual.

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