Using Maestro

What is Maestro?

Maestro is a configuration tool that you use optionally to customize your ZeeVee system beyond what is allowed in the front panel. For example, using Maestro you can assign a channel number (virtual channel) independent of the RF number, label the channels and manage all ZeeVee units on your network.

You can use Maestro with ZvPro and HDbridge 2000 series units, though the offerings and functionality may change depending on the model.

Connecting to Maestro

To use Maestro, you first need to connect to it through the computer.

1. Connect your computer directly to the ZeeVee modulator using a standard Ethernet cable (not a cross-over cable) or connect the unit and your computer to any LAN that has a DHCP server.
2. An IP address appears at the top of the front panel display.
3. Using any web browser (Chrome or Firefox preferred), enter the IP address to launch Maestro.
4. You will be directed to a login page. Your user name is always “admin.” The default password is “admin” but you can change the password. Login is case-sensitive.
5. After you log in, the Maestro Status tab appears. Here you can see the general information about the unit.
Managing Units on the Network

Maestro gives the option of viewing and managing one, many, or all units on the network.

**Connected and Not Connected Status** – Shows the total number of units discovered on the network and the number connected for management in Maestro.

The “connected” units are available for management in the current Maestro session (units not connected may contain different passwords or run out-of-date firmware). Only connected units are pulled into Maestro for management.

If you are managing just a single unit, the display will show, for example, “1 connected, 9 not connected,” which means there are a total of 10 units on the network. Hit **Manage All** which connects to multiple units, and it may show “9 connected, 1 not connected.” That one unit not connected has either a password and/or firmware that is different from the others and until changed, cannot be managed in the Manage All set up.

**Manage All** – Click this button to view and configure all units on your network. This function pulls in only systems with matching passwords and similar firmware.

**Refresh All** – Click this button to refresh system data.

**Selected Box** – Tells you how many units selected for configuration for use with the **Set All** function. Selected units are indicated with a checked box.
Naming the Units (Auto-Name)

**Auto-Name** – Enter a starting unit name here and Maestro automatically increments down and names the full rack of units (for example, mod_1 then second in line, mod_2, third is mod_3).

Entering a starting name prompts the user to hit buttons on the ZeeVee unit. Maestro then names each unit in order of the buttons pressed.
**Status Tab**

The Status tab contains general system information, such as warning messages and a showing of all connected units and their associated RF number and channel information. You can also see the firmware version running for each unit.

- **Video** – Identifies video input type and resolution in the first field. The second field shows video output resolution.
- **Audio** – Identifies audio input type in the first field. The second field shows audio output type.
- **Lightbulb** – Click the lightbulb icon to send an identifying flash to the front panel display on the device.
- **Temp** – Monitors internal temperature of the unit.
- **Messages** – Provides information about unit, such as general status or warnings.
Using Set All and the Auto-Increment Function

The Set All feature allows you to apply settings to all managed units. Most configuration options offer the Set All feature so that you can change settings across multiple units.

When you choose Set All for RF#, Channel#, Prog# (Channel Plan tab) and IP address (Network tab), the Auto-Increment function allows you to set information in a few easy steps.

1. Click Set All and select Auto-increment.
2. Enter the first number (RF#, Channel#, Prog# or IP address) you wish to use. Maestro then automatically increments down and assigns all subsequent numbers or addresses.
   For Channel #, enter the starting channel or select option to match the channel to the RF channel.
   When Increment major numbers only is checked, only the number before the “.” will increment (the major number, the number after “.” is the minor number). For example, enter 50.1, and the channels will increment 51.1, 52.1, and so on.
   For more information on RF#/Channel# and Prog# see pages 6 and 8. For details on IP Address, see page 15.
3. Click Set and channels or IP addresses update for your review. They are not saved until you click Apply on the Channel Plan or Network page.

Apply – Click to save changes.
Reset – Click to clear any changes that have not been saved.
Channel Plan Tab — Setting Basic Channel Information

The Channel Plan tab allows you to configure RF numbers and virtual channels.

**RF #** — Allows you to enter the RF frequency for broadcast. RF#s are paired together by frequency. When you update the first RF number, the second updates automatically. Refer to the RF Frequency Map and Important Notes on page 21 for details.

**Channel #** — Allows you to enter a channel number (virtual channel). The channel number is what the TV displays and can be independent of the RF#. You can configure a channel number two ways:

1. As a dotted number — Enter the number with a “,” following it, for example, “5.1”. This is the default display.
2. As a dotless number — Enter the number with a “#” preceding it, for example, “#5”. Note that you can choose a channel number that is different from the RF#. For instance, if your RF# is 3, you can choose a channel number of 10.1 or #10.

Choosing Set All for RF number and Channel Number requires you to set up Auto-Increment. See page 5.

Updated versions of firmware offer this ZvShow “extra” channel. For more information, see page 12.

Help – Click to display tab-specific help text.

Apply – Click to save changes.

Reset – Click to clear any changes that have not been saved.
Channel Plan Tab — Setting More Channel Information

The Channel Plan tab allows you to label channels and their content.

**Name** – Allows you to enter the channel short name (up to 7 characters).

**Long Name** – Allows you to add a longer or more descriptive name to the channel (up to 63 characters). The TV displays the Name and Long Name when the channel is changed or if the info guide information is requested.

Each TV handles the name display differently.

**Rating** – Allows you to assign an audience rating for all entries in the program guide. Choose from the TV parental guidelines provided in the drop down list. The values sent follow MPEG2 and CEA-766 specification, region 1 (USA), dimension 0 (TV-Rating). Note that TV-MA-LSD is the most extreme content, with LSD short for “Language, Sex, Violence.

The rating defined here applies to all content on the channel.

You can use the Rating setting with programs such as VChip.

**Video Source** – Allows you to select the video input that is encoded and broadcast.

**Audio Source** – Allows you to select the audio input that is encoded and broadcast. You can also set this to “None” so that Maestro is not constantly searching for audio.

Auto is the default for most units. The Auto setting automatically detects the type of audio and video.

**Enabled** – Lets you choose to “enable” or “disable” the particular channel. If one of the inputs is not being used, disable the channel so that the TV won’t display it. RF is still occupied with a disabled channel.
Channel Plan Tab — Advanced Controls — Part 1

The advanced controls allow you to further specify channel settings, such as datarate and resolution.

**Prog #** — Allows you to identify each channel within an RF stream and make it unique. If you have multiple channels per RF #, each channel needs a different program number. *Choosing Set All for Prog # number requires Auto-increment set up. See page 5.*

**Datarate** — Allows you to control compression level of MPEG video encoding. The default setting of Normal provides the best video quality. On rare occasions, however, some HDTVs will be unable to keep up with the amount of data being sent, and this may result in video break up. In these instances, using Low datarate may help.

**1080 Res and 720 Res** — Allows you to add slightly smaller resolutions to the list of resolutions (EDID) sent to the source. Selecting these “underscan” resolutions on the source will allow for the image to fit properly on TVs that still have “overscan” (the outside edge of the image is dropped from view).

Many HDTVs have inherited something called overscan compensation that causes the outside of an image to be dropped off the edge of the TV. By changing the information presented to the computer via the EDID on the VGA/HDMI connected, we can give the computer an alternate resolution to use instead of the default – one that’s a little smaller. Use Test Image 1 to select the best underscan resolution to be used. This resolution must be set first here in Maestro, and then selected at the VGA source.

For VGA/HDMI support, please see the VGA/HDMI FAQs located on the Tech Support section of the ZeeVee website.

**Calibrate** — Allows you to help center an image. Performs a calibration on the VGA signal to correct for color or position of the image. For best calibration results, set the VGA source to a static and light colored display, such as a white application window open to full screen.

Click here to show Advanced Controls
Channel Plan Tab — Advanced Controls — Part 2

The following advanced controls allow you to make small adjustments to audio/video latency for lip sync purposes, to match audio to external audio system, and to adjust color for the best video quality.

**Delayed Audio Out** — Allows you to match audio to external audio system (first port only). When using a distributed or whole-house audio system you can use this function to send audio from the first input (requires analog audio input) to your distributed audio system. By default this port will have a 400ms delay, but can be adjusted between 0 and 2000ms to match the specific latency of your modulated channel.

Delayed Audio Out is available only on HDbridge 2312, 2840, 2920 and ZvPro models.

**Color (HDb2312 only)** — The default values are set for the best brightness, contrast, saturation, and hue for most sources. In rare occasions composite sources sources may need adjustment for the best video quality.

Brightness control ranges from dark black level to very bright black level (default setting is 112). Contrast control ranges from minimum white level to maximum white level (default setting is 128). Saturation control ranges from no color to maximum color (default setting is 128). Hue control ranges from 0 to 255 that indicate -180 to +180 degree of color phase (default setting is 128).

**Delays** — Allows you to make small adjustments to audio/video latency for lip sync purposes.

In rare deployments, audio may not arrive to the ZeeVee device perfectly synchronized with the video. When this happens, the picture on the HDTV has a “lip sync” issue.

Additionally, the overall amount of latency in the video and audio stream can affect the picture quality. A higher latency can increase the picture quality and ensures compatibility with some older HDTVs, while a lower latency results in a faster response.

You can modify both audio and video delay to adjust lip sync and latency. Drag the center adjustment bar to adjust overall latency while keeping lip sync the same, and adjust the top and bottom arrows to adjust lip sync. The setting of 6 is approximately 220ms of latency. Each unit (6-12 for video and 6-16 for audio) equals approximately 32ms.
RF Tab

In the RF tab, you can configure RF information for individual units, such as changing the RF power output, stopping broadcast, and defining a cable plan.

**RF Power** – Allows you to change the output RF power of the device. When using ZeeVee hardware to add a channel to an existing lineup, you need to match the power of existing channels (otherwise adjacent lower-powered channels can be difficult to tune with some televisions). RF Power can be set to different levels between pairs of RFs, but they must be within 12dbmV of each other. Units can be set between +25dBmV and +45dBmV in 1db increments.

_HDbridge models have a default option of +45dBmV. ZvPro models have a default option of +25dBmV._

**RF On/Off** – Allows you to disable the RF output (all broadcast). Setting this field to “Off” will make any associated channels disappear from your cable network.

**Cable Plan** – Allows you to define a cable plan other than the default QAM Standard. If combining with an existing cable service, the cable plan must match the cable service.
RF Tab — Advanced Controls

**QAMs** — Allows you to choose between double (default) and single. Single QAM mode allows for multiple programs per RF. For example, RF 2 with programs 2.1 and 2.2; while double mode sends a single program (video/audio source) per RF.

Double mode allows for greater video quality especially with higher resolutions like 1080. When in double mode, the RF frequencies will be paired so only the first RF in the pair is configurable. The second RF will be assigned automatically based on the 6MHz frequency band that is adjacent to the first RF assigned. **RF channels do not always go in numerical order with the frequencies. See the chart on page 21 more information on RF channels and frequency.**

Changing between single and double mode will cause the unit to reset to factory defaults (IP address and password as well as all channel configuration) in some firmware versions.

**RF Modulation** — Allows you define modulation schemes for digital cable (default QAM-256). QAM-256 allows for a higher bitrate than QAM-64, but some installations may prefer QAM-64 to fit into their network better. QAM-64 is only available when the unit is in “Double QAM” mode. Video quality may be degraded when running QAM-64.

**PID** — Allows you to define the program ID for each MPEG2 packet. Each packet has a unique identifier in the header that associates each packet with the proper program. This command sets the starting PID number that will be used for all transmissions. It is called the starting number because four PIDs are allocated. The first is for Video packets, the second is for Audio, the third is for the Program information and the fourth is for control information. Used rarely and only if you have a custom set top box to tune in our signal.

*Any time the PID is changed, the unit must be restarted for the new value to take effect.*
Device Tab — Naming Device and Using Action Buttons (Including ZvShow)

The Device tab allows you to make device-specific configurations, such as changing the device password and updating firmware.

**Device name** — Allows you to name the device for easy recognition when managing multiple units. This is the device’s identifying name within the network, and this name also controls how devices are ordered within Maestro.

When you choose Set All the Auto-Name function allows you to set information in a few easy steps. See page 3.

**Reboot** — Forces a restart of the unit. Clicking this button takes down channels for a few minutes.

**Defaults** — Resets system to factory default settings, including password and IP information. Clicking this button takes down channels for a few minutes.

**Password** — Allows you to change the device password. Clicking this button brings up a wizard that walks you through entering a new password.

**ZvShow** — Allows you to upload a video file that will broadcast on an “extra” channel. This channel is available in addition to the channels already offered on the unit. The content for the video on this channel comes from a stored video resident on the ZeeVee product. The video is played and looped onto the new ZvShow Channel continuously.

The video file must be converted using the ZvConvert tool, which can be found on our website at http://www.zeevee.com/support/tools.

For detailed instructions on using the ZvConvert and ZvShow channel, please see the application note on our website http://zeevee.com/resources/documentation.
**Device Tab — Choosing Firmware and Idle Screen**

**Update** — Allows you to browse the saved firmware file.  
*Find and then download the most updated firmware in the Firmware section of the Support section on our website.*

**Revert** — Allows you to revert back to the previously installed version of firmware. Use this function if a recent firmware update has made a change that is not compatible with your current set up or if you have issues with a firmware update.  
*Both firmware update and firmware revert will automatically reboot the unit.*

**Idle Screen** — Allows you to upload a custom image that displays when no video is detected in the video port. Otherwise, the default image of a ZeeVee logo will display against a black background.

*HD products such as the ZvPro line and HDbridge 2500/2600, 2840 and 2920 models require the image to have a resolution of 1280x720 or smaller. If the image is 1264x704 or smaller the image will move around the screen, otherwise it will remain static and be centered.*

*The HDbridge 2380 and 2312 require an image size of 720x480 or smaller. If the image is 704x464 or smaller the image will move around the screen, otherwise it will remain static in the center of the screen.*

*File formats accepted for all models are gif, jpg, jpeg, png and bmp. The image is not scaled.*
Device Tab — Advanced Controls (Emergency Alert System)

Advanced controls in the Device tab focus on configuring the Emergency Alert System (EAS). ZeeVee devices support EAS by integrating with the Monroe R189 EAS Encoder/Decoder. Using EAS, you can tie systems into national (Federal, FEMA, etc.) or local (city, county, state) alert systems. When an alert is active, all current audio and video will be interrupted and replaced with the alert.

For detailed instructions on generating EAS alerts, please see the application note on our website http://zeevee.com/resources/documentation.

**EAS Mode** — Controls whether EAS is disabled (default) or is enabled and your choice of EAS mode delivery. The EAS mode determines how the alerts are delivered to the ZeeVee units:

- **Disabled** — Alerts can only be generated by Maestro using the Send Emergency Alert button located at the top of Maestro.*
- **EAS Net** — Alerts can be accepted from Monroe R189 units with the EAS-NET option or the equivalent
- **EAS MPEG2** — Alerts can be received from Monroe R189 units using the Stream MPEG 1/2 option and unicast addressing
- **EAS MPEG2 MCAST** — Alerts can be received from Monroe R189 units using the Stream MPEG 1/2 option and multicast addressing

* ZeeVee provides an alternative means to generate simple alerts directly from Maestro.
1. Click the Send Emergency Alert button located at the top of Maestro.
2. Supply the desired text, properly encoded audio file (audio is optional), and duration of the alert. This information will be sent to all currently managed devices.
3. Click Send Alert.

**EAS IP MCAST** — Allows you to enter the multicast address where the ZeeVee device receive EAS MPEG2 multicast streams. Valid multicast IPs are between 224.0.0.0 and 239.255.255.255. For EAS Net or EAS MPEG2 mode the ZeeVee system IP address will be used and this option is not configurable.

**EAS Port** — Allows you to specify the port number on the ZeeVee unit that will listen for the alert. You must define this port on the unit generating the alert (such as the Monroe R189 unit with EAS Net).

**EAS Relay** — Allows you to enable an EAS relay (default is “off”) that forwards the alert sent by the Monroe R189 to all other known ZeeVee devices. The alert is forwarded sequentially so a large installation might see a delay before all modulators begin processing the alert. The ZeeVee EAS Relay feature allows you to configure one ZeeVee unit in the Monroe R189. That one device communicates with the Monroe box and its information cascades down to the other ZeeVee units. (EAS Relay is used with EAS Net function only.)

EAS Relay should only be enabled on a single unit in a headend, otherwise messages may be sent multiple times.

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Click here to show Advanced Controls
Network Tab — Assigning IP Type and Address

**IP Type** — Defines the IP address the device uses, either uses a DHCP (default) to get a dynamic IP address or a static IP address. After saving changed IP type, the system requires a reboot to initiate the new IP address.

**IP Address** — Displays and allows you to configure the current IP address of the unit. If you choose Set All here, Maestro uses its auto-increment function to assign subsequent addresses (see page 5).

**Mask and Def Gateway** — Enter the subnet mask you want to use. The Mask field is required.

When using a static IP address, you must configure the IP Address, Mask, and Default Gateway manually. When using DHCP, these settings are assigned dynamically.
Network Tab — Advanced Controls

Click here to show Advanced Controls

**DNS 1, DNS 2** — (Optional setting) Used only when assigning static IP address.

**NTP 1, NTP2** — Network Time Protocol (NTP) is an optional setting used to assign time on the network or unit. This setting is required when using the Emergency Alert System (EAS) and can be set whether IP address is static or DHCP.

**Mac Address** — This address is for information only and cannot be edited.
STB Tab (Controlling Set Top Boxes)

The STB tab enables ZvSTB control functionality, which allows for simple control of H25 DirecTV receivers (also called set top box) through Maestro.

To use ZvSTB Control, first you configure the set top box and then you configure Maestro to manage the box.

For detailed instructions on using ZvSTB, please see the application note on our website http://zeevee.com/resources/documentation.

CONFIGURING STB DEVICE FIELDS

**IP address** – Enter the IP address of the given set top box. To view and manage individual set top box units, you need to enter the proper IP address for the given box in its associated input field. If an IP address is not present in the STB IP Address field for a given input, the ZeeVee unit does not enable remote management operations.

**Receiver ID** and **Access card ID#** – ID information from the receiver.

The Call Sign Name, Program Name, Receiver ID, and Access Card values are all updated and displayed at regular intervals. These are informational and helpful to determine which STB is connected.
STB Tab — Setting Power, Channel Number, and Channel Names

**STB POWER**
- **Config** – Allows you to power individual unit “on” or “off.”
- **Actual** – Shows whether individual unit is powered on or off.
- **Force** – Allow you to enable (or disable), the associated set top box to “force” the setting you specify. With Force enabled, Maestro will query the box automatically and periodically and set the command to your configuration. For example, if the set top box is turned off, yet it’s configured in Maestro as “on,” an enabled Force sends a command to set the power on to match the Maestro setting.

**STB CHANNEL NUMBER**
- **Config** – Allows you to enter the desired channel number for the STB.
- **Actual** – Indicates the current channel set to the STB for the specified input port (on the ZeeVee unit).
- **Force** – Allow you to enable (or disable), the associated set top box to “force” the setting you specify. With Force enabled, Maestro periodically queries the STB and will automatically change the configuration settings to those set in the STB tab. For example, if “242” appears in the Actual field, yet it’s configured in Maestro as “142,” an enabled Force sends a command to set the channel to 142 to match the Maestro setting.

**STB CHANNEL NAMES**
- **Call Sign** – Displays channel call sign – for example, “CNN.”
- **Program Name** – Displays channel name associated with call sign – for example, “CNN newsroom.”
- **Link** – Allows you to enable or disable the ZeeVee channel so that you can edit the Call Sign and Program Name fields. You cannot edit these fields when this option is enabled.

The entire block of set top box units under management can be controlled simultaneously by clicking Set All option at the top of the column.
Support Tab

The Support tab provides general information on the units and helps you troubleshoot issues.

**Send Troubleshooting Report** –
Gathers all relevant log and configuration information and generates a report to help troubleshoot issues. If the unit is connected to the internet, Maestro sends report directly to a ZeeVee Support server. Otherwise, it will provide a link where you can download the report and email it to ZeeVee.

Click in the box to generate a full report (this will temporarily disable video input to the TVs while it is generating.)
Naming Units in a Headend

You can assign a name to all units in a headend by clicking on the Edit button of Maestro. If you are managing multiple head ends in different locations, you can name them as a whole for easier management.

**Edit Headend** – Headend information allows you to assign a name (as well as notes about the headend), which makes managing multiple headends across multiple locations easier. This naming function is especially helpful for identifying units that you manage remotely.

![Edit Headend Interface](image)
Map for Configuring RF Numbers and Virtual Channels

The Cable TV Channels vs RF Frequency (MHz) Map shows how the RF channels are paired and matched with RF frequency. You will need to refer to this map when configuring RF numbers and virtual channels.

Important Notes

- RF numbers are applied in pairs based on the frequency map. For instance, if you enter RF # “2,” then RF # “3” automatically populates.
- RF numbers “4” and “5” cannot be paired together because of a gap in the frequencies (MHz).
- The RF numbers are not always paired in numerical sequence (as with RF # 6, which pairs with 95, and RF # 99 which pairs with 14 and so on).
- ZV channels can be set directly adjacent to any other well-formed channel and will not cause interference. No channel spacing is required.

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<td>240-246</td>
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HRC Frequencies = Standard Frequencies minus 1.25 MHz

Except for:
Channel 5, Video = 78.0 MHz
Channel 6, Video = 84.0 MHz

IRC Frequencies = Same as Standard Frequencies

Except for:
Channel 5, Video = 78.0 MHz
Channel 6, Video = 85.25 MHz

The highlighted areas in the frequency map show the RF numbers that can be paired together but are not numerically sequential.