

HDbridge3000

CONFIGURATION GUIDE



Intelligent AV Distribution



INSTRUCTIONS PERTAINING TO A RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS

Important Safety Instructions. Save These Instructions.

WARNING: When using electronic products, basic precautions should always be followed, including:

1. Keep these instructions.
2. Heed all warnings.
3. Follow all instructions.
4. Do not use this apparatus near water.
5. Clean only with dry cloth.
6. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
7. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
8. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
9. Power cord must be accessible to allow for the removal of power from the unit.
10. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Unplug the apparatus during lightning storms or when unused for long periods of time.
12. Only use attachments/accessories specified by the manufacturer.
13. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
14. **WARNING:** To reduce the risk of fire or electric shock do not place this apparatus in a position where it is exposed to dripping or splashing liquids, rain, moisture, or excessively high humidity. Objects containing liquid shall not be placed in proximity to the unit such that they present a risk of spillage onto the apparatus.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

FCC Statement

FCC Compliance and Advisory Statement: This hardware device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: 1) this device may not cause harmful interference, and 2) this device must accept any interference received including interference that may cause undesired operation. This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed or used in accordance with the instructions, may cause harmful interference to radio communications. However there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: 1) reorient or relocate the receiving antenna; 2) increase the separation between the equipment and the receiver; 3) connect the equipment to an outlet on a circuit different from that to which the receiver is connected; 4) consult the dealer or an experienced radio/TV technician for help. Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. Where shielded interface cables have been provided with the product or specified additional components or accessories elsewhere defined to be used with the installation of the product, they must be used in order to ensure compliance with FCC regulations.

Welcome to ZeeVee.

ZeeVee products convert your video and audio source to a digital cable channel and broadcast it over RF and IP networks* to all your HDTVs. This guide walks you through basic and more enhanced setup for ZeeVee's HDbridge3000 modulator.

If you run into problems during setup, feel free to contact Technical Support at +1(877) 4-ZEEVEE (1.877.493.3833).

*Not all cards support RF and IP.

What's in the Box

Here's what you can expect to find when you open the package:



1 x ZeeVee HDbridge3000 Chassis with Control Module and 2x hot-swappable power supplies. Media Modules are sold separately.



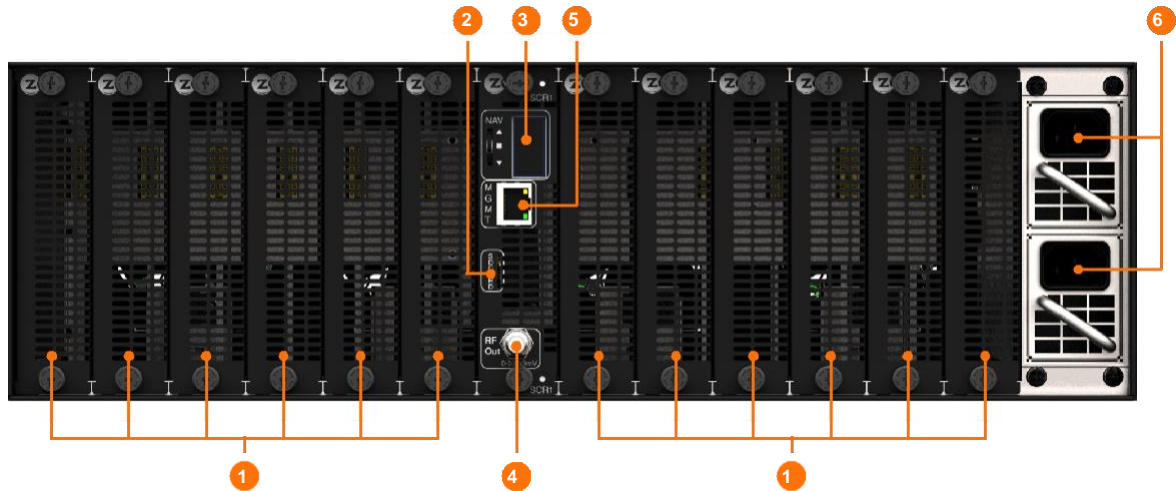
2 x Power Cords

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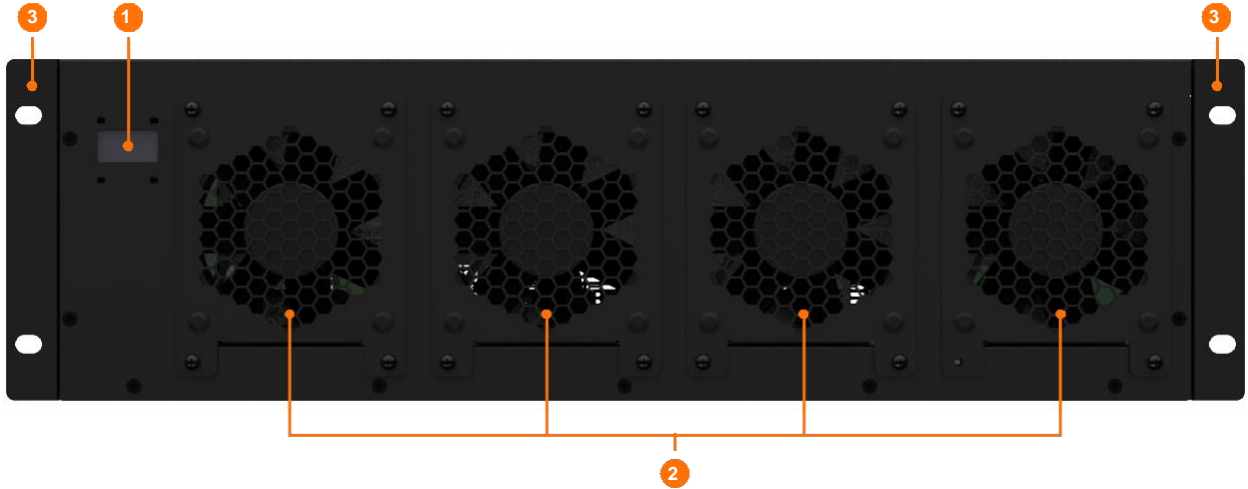


Panel Layout



1	Card Slots	Slots are identified as 1 through 12, from left to right. Any combination of cards can be installed using the HDbridge3000.
2	SD Card	This slot is reserved for future use.
3	Status Display	Displays configuration and system status. This display can also be found on the opposite panel. See page 7 for details.
4	RF Out	Depending upon which cards are installed, the HDbridge3000 can transmit up to 24 channels of HD content or 72 channels of SD content. Output power can be set between +34 and +13 dBmV using the Maestro web interface. The default output power setting is +34 dBmV.
5	MGMT and IP Out	Ethernet port provides access to the Maestro web interface and distribution of video over IP networks.*
6	Power Supplies	100 - 240 V AC / 50 - 60 Hz, hot-swappable, dual-redundant power supplies. Both AC power cords (included) must be connected to the HDbridge3000 for proper operation.

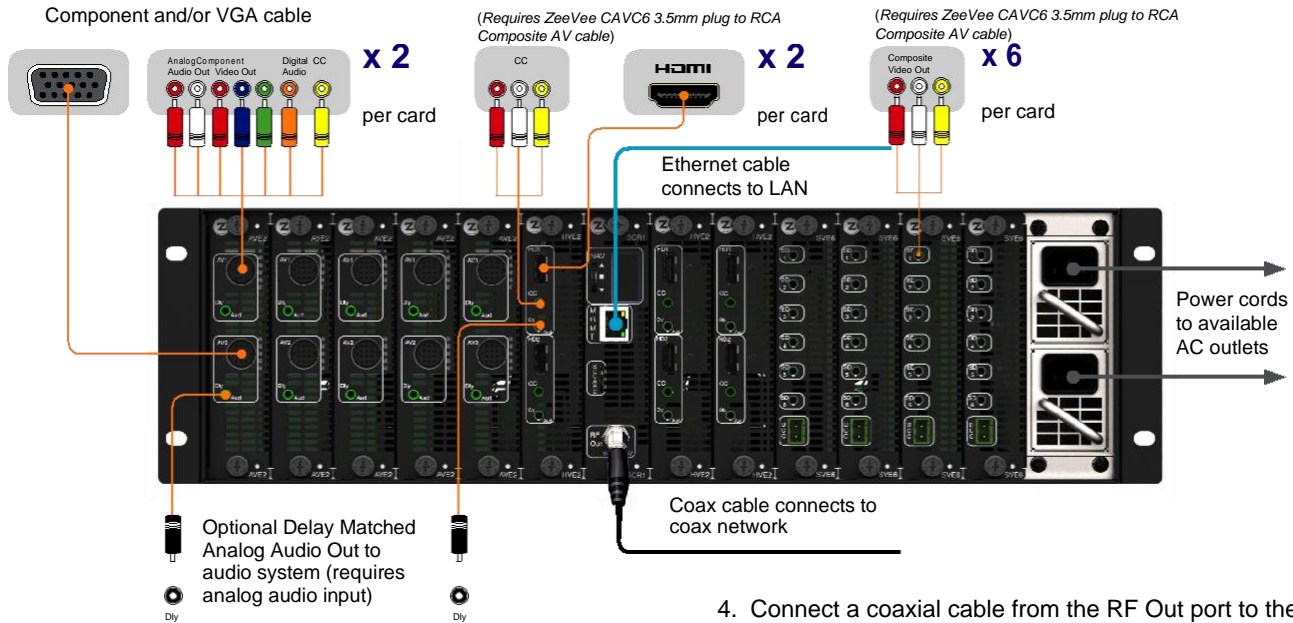
* Not all cards support IP out.



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- | | | |
|----------|---------------------|---|
| 1 | Display | Displays configuration and system status. This display can also be found on the opposite panel. |
| <hr/> | | |
| 2 | Cooling Fans | Hot-swappable, high-capacity cooling fans. Air is pulled in from these fans and expelled through the front panel. When installing the HDbridge3000, make sure that these fans are not blocked and clear from other heat-generating sources. |
| <hr/> | | |
| 3 | Rack Ears | Front or rear-mountable rack ears allow for flexible mounting options. |
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Basic Installation

NOTE: Illustration shows HDbridge3000 with HDMI, Component/VGA, and Composite cards, which are sold separately.



Before operating the HDbridge3000, it is recommended to update to the latest version of firmware, which can be found on the Support section of the ZeeVee website.

Beginning Setup

1. Install the desired module in each slot. Screws should be hand-tightened. Do not use pliers or other high-torque devices.
2. Connect each source device to each card using the required cables. See the illustration, above, for information.
3. Connect an Ethernet cable from the MGMT port to the IP network or directly to the PC.

4. Connect a coaxial cable from the RF Out port to the RF network.
5. Connect the included AC power cords from both power supplies to available AC outlets.

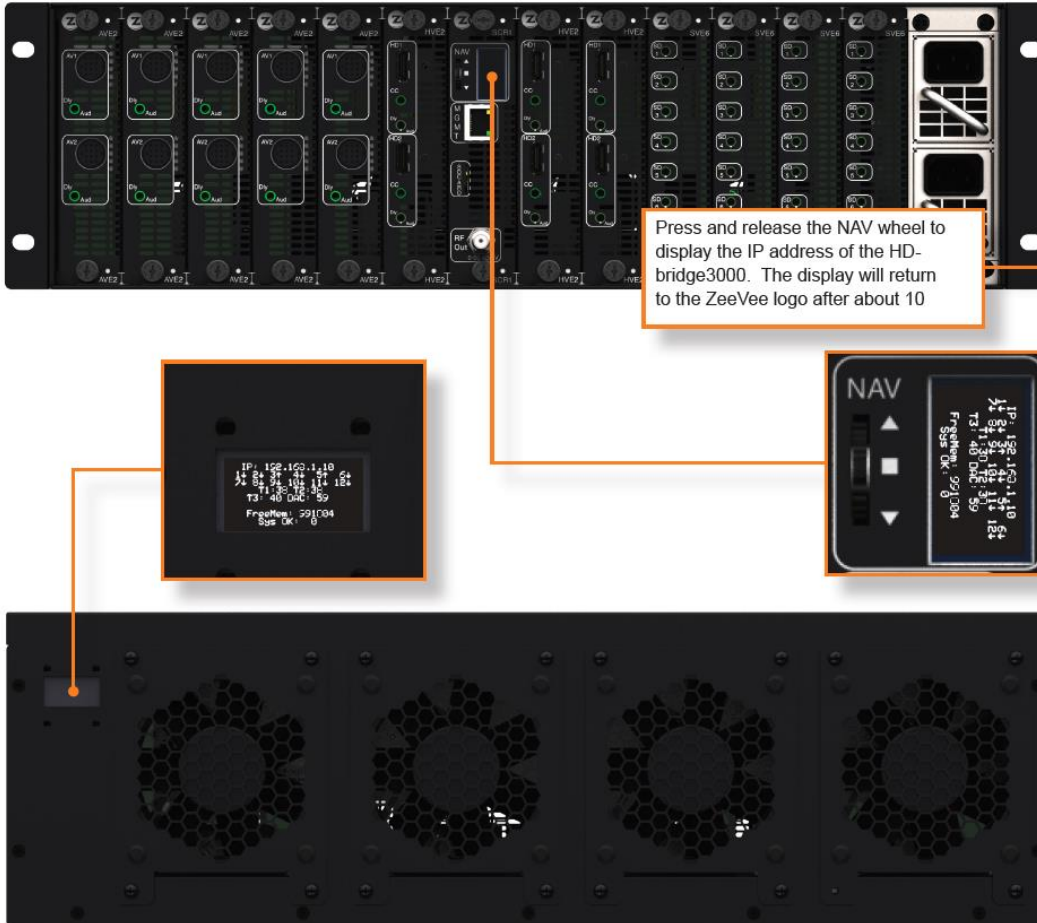
Tuning your channel at the HDTV (Auto Scan)

1. Select the Cable setting (not Air or Antenna) in your TV menu.
2. Enter the RF number to tune directly to the channel.
If you cannot tune directly to the channel at this point, it is because most TVs will require you to run a full Auto Scan.

NOTE: Defaults are RF # 2 through 25 with matching channel numbers (e.g. 2/2/1, 3/3.1, etc). Composite cards use three sub-channels per RF # (e.g. 2 / 2.1, 2.2, 2.3).

Status Display

The HDbridge3000 has a small display, located on both the front and back panel of the unit. When the display is in "standby", the ZeeVee logo is displayed. Press the NAV wheel to display the IP address / port status of the HDbridge3000. To change the IP address of the HDbridge3000, use the Network tab in the Maestro web interface.



If the ZeeVee logo is displayed, press the control wheel to display the IP address of the unit:



Maestro Configuration

Maestro is a configuration tool that is used to control all features on the HDbridge3000.

Connecting with Maestro

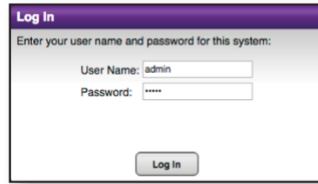
1. Connect the HDbridge3000 to a LAN with a DHCP server or directly to a PC using a standard Ethernet cable. *Do not* use a crossover cable.
2. After a few moments, an IP address will appear at the top of the display

IP address

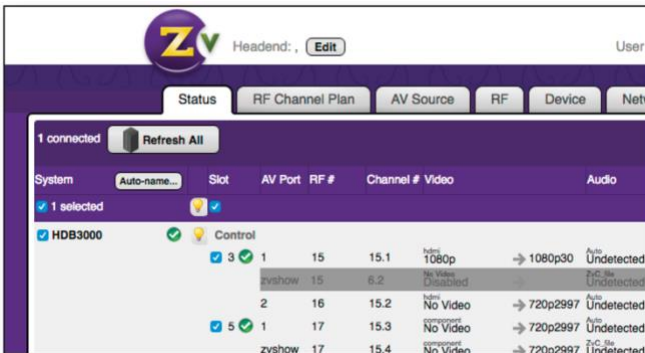


3. Using any web browser (Chrome or Firefox preferred), enter the IP address to launch Maestro. Internet Explorer is not supported but Microsoft Edge is.

4. The Log In dialog will be displayed. The default password is admin. Login is case-sensitive. To change the password, use the Device tab.

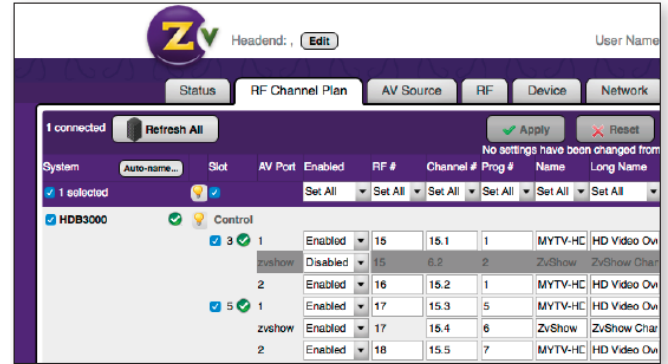


5. After the password is accepted, the Status tab is displayed.



Configuring RF and channel numbers

1. Click on the RF Channel Plan tab.



2. Configure the RF # and Channel # fields.
3. Click in the RF # field and enter the RF number. RF channels must be within 400 MHz of one another. Refer to the map, on the next page, for more information.
4. Click in the Channel # field and enter a channel number (virtual channel). The channel number is what the TV displays. You can configure a channel number two ways:
 - As a dotted number — Enter the number with a “.” following it, for example, “5.1”. This is the default display.
 - 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.
5. Click Apply to save changes. Your unit stores configurations so they are not lost on power-down.
6. Run Auto Scan at TV (see Tuning your channel at the HDTV, page 5) when you have saved configuration changes.

Map for configuring RF channels and virtual channels

The table, to the right, shows how logical RF channels are matched with RF frequencies. Refer to this map when configuring RF channels.

The highlighted areas, in the map, indicate RF channels which are not sequential.

NOTE: When entering RF channels, they must be within 400 MHz of each other.

To illustrate, *Example 1* shows two RF channels which are sequential and are within 400 MHz of one another.

In *Example 2*, although the RF channels are sequential, the difference between the two RF frequencies exceeds 400 MHz. When a channel is beyond this range, no output will be displayed. In this example, channel 100 will be "muted".

Example 1

RF Ch	Band (Mhz)	Difference
22	168 - 174	
23	216 - 222	~48 MHz

Example 2

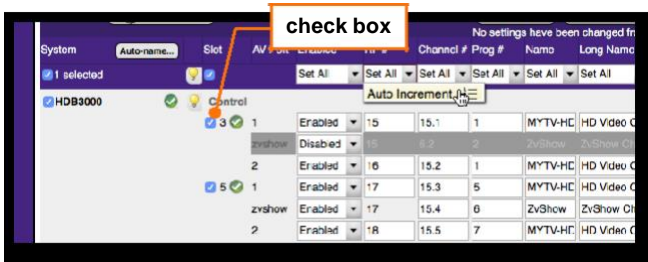
RF Ch	Band	Difference
99	114 - 120	
100	648 - 654	~534 MHz

Cable TV Channels vs RF Frequency (MHz) Map									
RF Ch.	Band (MHz)	RF Ch.	Band (MHz)	RF Ch.	Band (MHz)	RF Ch.	Band (MHz)	RF Ch.	Band (MHz)
2	54-60	27	240-246	57	420-426	87	600-606	122	780-786
3	60-66	28	256-252	58	426-432	88	606-612	123	786-792
4	66-72	29	252-258	59	432-438	89	612-618	124	792-798
5	76-82	30	258-264	60	438-444	90	618-624	125	798-804
6	82-88	31	264-270	61	444-450	91	624-630	126	804-810
95	90-96	32	270-276	62	450-456	92	630-636	127	810-816
96	96-102	33	276-282	63	456-462	93	636-642	128	816-822
97	102-108	34	282-288	64	462-468	94	642-648	129	822-828
98	108-114	35	288-294	65	468-474	100	648-654	130	828-834
99	114-120	36	294-300	66	474-480	101	654-660	131	834-840
14	120-126	37	300-306	67	480-486	102	660-666	132	840-846
15	126-132	38	306-312	68	486-492	103	666-672	133	846-852
16	132-138	39	312-318	69	492-498	104	672-678	134	852-858
17	138-144	40	318-324	70	498-504	105	678-684	135	858-864
18	144-150	41	324-330	71	504-510	106	684-690	HRC Frequencies = Standard Frequencies minus 1.25 MHz Except for: Channel 5, Video = 78.0 MHz Channel 6, Video = 84.0 MHz IRC Frequencies = Standard Frequencies Except for: Channel 5, Video = 79.25 MHz Channel 6, Video = 85.25 MHz	
19	150-156	42	330-336	72	510-516	107	690-696		
20	156-162	43	336-342	73	516-522	108	696-702		
21	162-168	44	342-348	74	522-528	109	702-708		
22	168-174	45	348-354	75	528-534	110	708-714		
7	174-180	46	354-360	76	534-540	111	714-720		
8	180-186	47	360-366	77	540-546	112	720-726		
9	186-192	48	366-372	78	546-552	113	726-732		
10	192-198	49	372-378	79	552-558	114	732-738		
11	198-204	50	378-384	80	558-564	115	738-744		
12	204-210	51	384-390	81	564-570	116	744-750		
13	210-216	52	390-396	82	570-576	117	750-756		
23	216-222	53	396-402	83	576-582	118	756-762		
24	222-228	54	402-408	84	582-588	119	762-768		
25	228-234	55	408-414	85	588-594	120	768-774		
26	234-240	56	414-420	86	594-600	121	774-780		

Using Auto Increment

When several cards are installed, manually entering the RF # and Channel # can become a lengthy process. To aid in this process, use the Auto Increment feature to automatically populate the desired fields.

1. Make sure all cards, that will be affected by the Auto Increment feature, are selected. Select a card by checking the box next to the card, under the Slot column. If the card is "grayed-out" then the Auto Increment feature will not affect that card.

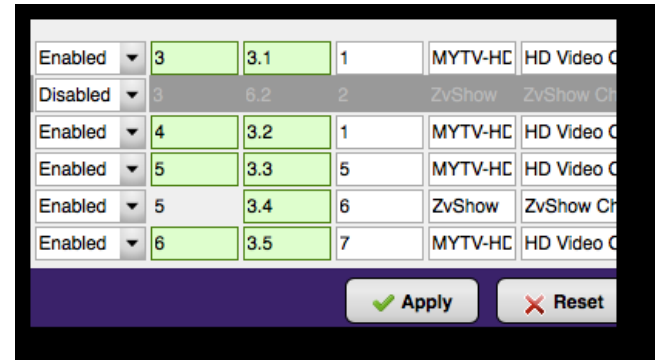


2. Click the RF # drop-down list and select Auto Increment.
3. In the Auto-Increment dialog, enter the desired RF channel in the First channel field.

4. Click the Channel check box and enter the desired channel in the First channel field.

In this example, values 3 and 3.1 have been entered. The value 3.1 may also be entered as #3.

5. Click the Set button to save the changes.
6. The Auto Increment dialog will indicate that the values have been set.
7. Click the Close button.
8. The RF # and Channel # columns are now automatically incremented, as shown.



9. Click the Apply button.
10. Maestro will apply the changes to each device. Once all changes have been successfully applied, the Save Configuration dialog will be displayed.
11. Click the Close button to dismiss the dialog.

NOTE: All saved settings are retained, even if the HDbridge3000 is powered-off. Card settings are automatically migrated when swapping cards of the same type.

Using other Maestro tabs

Click on any other Maestro tab to configure your unit as needed. We provide brief information below. Please click on the Help button on each tab or refer to the Support section of our website for further detail on configuration options.

Group Action bar allows you to set configuration for all selected units actively managed on your network.

System	Slot	AV Port	RF #	Channel #	Video Source	Audio Source	Delays
HDB3000	3	1	15	15.1	HDMI	Auto	4 12 12
HDB3000	5	1	17	15.3	Auto	Auto	4 12 12

AV Source tab

Allows for specifying audio and video inputs and adjusting settings such as Delayed Audio Out (for matching audio to external audio systems).

System	Slot	RF #	Channel	RF Power	RF On/Off	QAMS	Cable Plan	PID
HDB3000	15	15.1, 6.2		14dBmV	On	double	US-QAM-Standard	256
HDB3000	16	15.2		14dBmV	On	double	US-QAM-Standard	256
HDB3000	17	15.3, 15.4		14dBmV	On	double	US-QAM-Standard	256
HDB3000	18	15.5		14dBmV	On	double	US-QAM-Standard	256

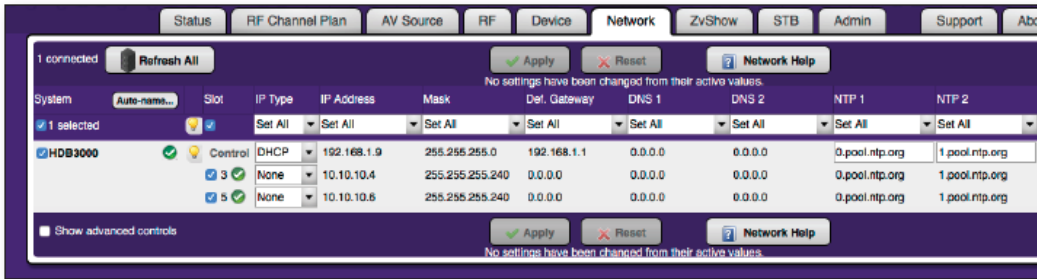
RF tab

Allows you to change the RF power output. You can also change from QAM256 to QAM64 and from QAM Standard to HRC or IRC.

System	Slot	Device Name	Actions	Firmware	Idle Screen
HDB3000	3	HDB3000	Reboot Defaults Password Update Revert	2.2.0.30563	Default
HDB3000	5	HDB3000	Reboot Defaults Password Update Revert	2.2.0.30563	Default
HDB3000	5	HDB3000	Reboot Defaults Password Update Revert	2.2.0.30563	Default

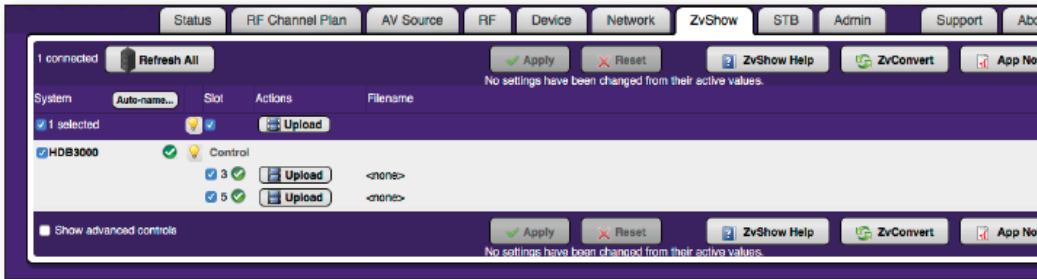
Device tab

Allows you to change the device password and update firmware as well as configure Emergency Alerts System (EAS). For more information, refer to the EAS application note in the Support section on our website.



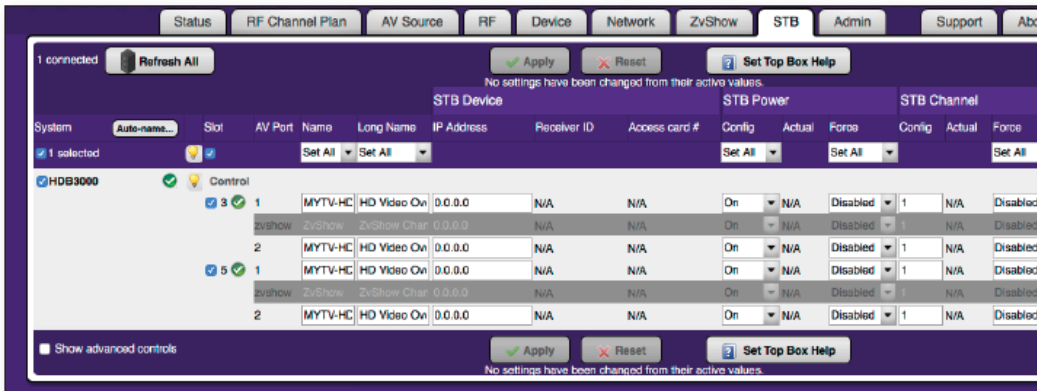
Network tab

Allows you to configure IP settings. By default the HDbridge3000 uses DHCP to obtain an IP address for the control module. To use an STB or EAS, an IP address must be assigned to each media module (card) using the **Static** or **DHCP** setting.



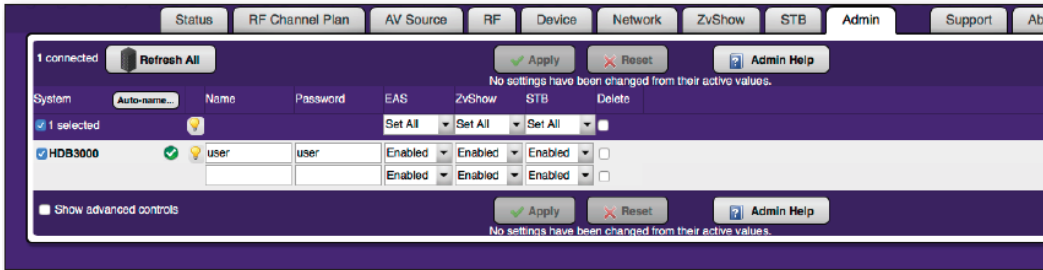
ZvShow tab

ZvShow allows for adding an extra channel, using a video file, to your broadcast line up. This channel is disabled by default, but can be enabled at any time under the RF Channel Plan tab. Visit zeevee.com/zvshow for details.



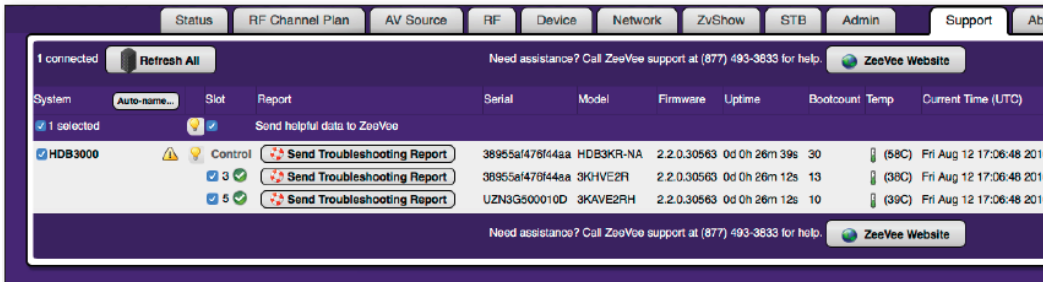
STB tab

Provides management of DirecTV H25 receivers. For more information, refer to the ZvSTB application note in the Support section on our website.



Admin tab

Use this Admin tab to create user accounts and grant access to specific functions within the Maestro web interface. Maestro allows for a total of 10 custom user accounts, not including the "admin" account.



Support tab

Provides technical support contact information and allows you to send logs for troubleshooting.

Troubleshooting

Unable to Connect to Maestro

If unable to connect, try one of the following:

If you are getting a page not found error when directly connected to a PC, try disabling WiFi. If that does not correct it, make sure your PC is not using a static IP address. The PC and the HDbridge3000 unit must be on the same IP subnet for them to communicate. For details on how to check for a static IP address, please see the FAQ section of our website.

If the page loads, but all you see is a purple background and the ZeeVee logo (and are not prompted to log in) please try a different web browser. Please use a supported browser such as Mozilla Firefox, Google Chrome, or Microsoft Edge. Microsoft Internet Explorer is not supported.

No picture or channel found at TV

Verify the HDTV has a QAM (digital cable) tuner. Verify that you have performed a full channel scan on the HDTV with "cable mode" selected. Lower the power on the unit, then verify that the modulator is not conflicting with any other channel by connecting the unit directly to the HDTV.

Idle Screen (bouncing logo)

One reason this may happen is when the unit does not detect video input. Verify the source is on and producing a video signal, then verify the source is outputting a supported resolution.

Image Breakup

Image or video break up is often caused by an issue in the RF/coax network. You may have chosen a channel number that is not completely vacant.

If you are combining with other modulators, be sure the RF# selected on the unit does not conflict with any other channels, keep in mind that some analog modulators may spill over to adjacent channels and cause unexpected interference.

If you are combining with a cable service, keep in mind that they sometimes have extra signals that a TV will not display and can cause interference.

There may also be an RF power balance issue. Verify that the RF power of the unit is balanced with signals from other modulators and from the cable company. As a test, try removing all other signals (cable, other modulators, etc) and see if you still see similar issues.

Some TVs will also show video issues if the signal strength is too high. Try lowering the RF power on the unit to ensure you are not overdriving the HDTV tuner.

Audio and video are not synchronized

If both the audio and video are being sent through the unit to the TV, be sure your firmware is fully updated, later versions of firmware may have lip sync corrections.

If you are feeding the audio directly from the source into a distributed (whole house) audio system and not through the ZeeVee unit, it will arrive to the speakers before the video arrives to the HDTV. This happens because the video is being encoded into a digital signal, modulated by the unit and then demodulated at the HDTV. Each of these steps adds latency that will not be reflected in the audio because it is traveling a shorter path.

To work around the issue, you can try one of the following:

Use an audio delay device that allows you to add a delay to the audio stream before it reaches the sound system.

Use the Dly Aud port on the card, if available, and adjust the delay amount using Maestro.

Feed the audio to the ZeeVee unit and send it to the HDTV with the video. Then take the audio out from an HDTV or external QAM tuner (such as the ZvSync) and connect it to your audio system. The audio should have a similar amount of delay since it has gone through the encoding and decoding process just as the video did.

WARRANTY

HDbridge3000
and ZvPro Product Lines
ZeeVee, Inc. January 1, 2014



LIMITED FIVE YEAR WARRANTY

ZeeVee warrants your ZeeVee Equipment (defined to include only HDbridge Series and ZvPro Series of equipment) against defects in materials and workmanship for a period of five years from the date of purchase. ZeeVee's limited warranty extends only to the original end user purchaser or any person receiving the ZeeVee Equipment as a gift from the original end user purchaser and to no other purchaser or transferee. All warranties implied by law, including any implied warranties of merchantability and fitness for a particular purpose, are expressly limited to the duration of this express limited warranty. Some countries or states of the U.S. do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

EXCLUSIVE REMEDY FOR ZEEVEE EQUIPMENT At the option of ZeeVee, the ZeeVee Equipment will be repaired or replaced with a new, repaired or refurbished product (whichever ZeeVee deems as necessary) if it becomes defective or inoperative. If ZeeVee cannot reasonably repair or replace the ZeeVee Equipment then ZeeVee may, at its sole discretion, refund the original purchase price or the current retail price of the ZeeVee Equipment. If ZeeVee chooses to repair or replace the ZeeVee Equipment, or to refund the purchase price, this will be the exclusive remedy. With the exception of any warranties implied by the law of any country or state of the U.S., this express limited warranty is exclusive and in lieu of all other warranties, guarantees, agreements and similar obligations of ZeeVee.

THE ABOVE WARRANTIES ARE SUBJECT TO THE FOLLOWING CONDITIONS

- You must have proof of purchase from an authorized ZeeVee dealer to receive warranty service. A sales receipt or other document showing that you purchased the ZeeVee Equipment is considered proof of purchase.
- Warranty coverage begins the day the original end user purchaser or any person receiving the ZeeVee Equipment as a gift from the original end user purchaser purchased the ZeeVee Equipment.

- All ZeeVee Equipment, including replacement products, are covered only for the original warranty period. When the warranty on the original product expires, the warranty on the replacement product also expires.
- If we determine that the problem is not covered under the limited warranty, we will notify you and inform you of service or replacement alternatives that are available to you on a fee basis.
- In the case of a paid repair: at the option of ZeeVee, the ZeeVee Equipment will be repaired or replaced with a new, repaired, refurbished, or comparable product (whichever ZeeVee deems as necessary).
- ZeeVee Equipment must be purchased through an authorized ZeeVee distribution partner and dealer/ reseller. Check zeevee.com for a list of authorized distributors and a list of any expressly excluded dealer/resellers. ZeeVee does not warrant equipment purchased through grey market resellers or certain internet resellers.

WHAT THESE WARRANTIES EXCLUDE

Your warranties do NOT cover:

- Labor charges for installation or set-up of the ZeeVee Equipment.
- Repairs or replacement due to misuse, accident, lightning damage, unauthorized repair, power surges, or other causes not within the control of ZeeVee.
- Any modifications or other changes to the ZeeVee Equipment, including but not limited to software or hardware modification in any way other than as expressly authorized by ZeeVee, will void these limited warranties. Except in the case of hardware or software provided by ZeeVee, installing modifications, "hacks," or utilizing service access or "back doors" will void these limited warranties.
- Reception or transmission problems caused by signal conditions, Internet connection problems, or any other communication systems outside the unit.
- Expendable accessories included in ZeeVee Equipment such as batteries.
- Any ZeeVee Equipment that has been modified or adapted to enable it to operate in any country other than the country for which it was designed, manufactured, approved, and/or authorized.
- Any ZeeVee Equipment that has altered or missing serial numbers.

- Any ZeeVee Equipment that has been opened or otherwise tampered with.
- Problems that are directly caused as a result of using any third party accessories, parts or components.
- Shipping, tax or duty charges for return or replacement of unit.

MATERIALS REQUIRED FOR WARRANTY

Please keep your sales receipt and any other documentation showing proof of purchase. Also, keep the original box and packaging material in case you need to return your ZeeVee Equipment.

TO GET WARRANTY SERVICE

Warranty service will be provided by ZeeVee. If you believe you need service for your ZeeVee Equipment, please contact ZeeVee by calling our customer care center at (877)-4ZeeVee; (877)-493-3833. If it is determined that the product needs to be returned for service or exchange, you will receive a Return Material Authorization (RMA) number. Our agents will help you through the process through which you can return the product. ZeeVee is not responsible for customer products received without an RMA number and may reject such products.

TO GET OUT-OF-WARRANTY SERVICE

To obtain out-of-warranty service for your ZeeVee Equipment, please contact ZeeVee by calling our customer care center at (877)-4ZeeVee; (877)-493-3833 for information on the possibility of and any costs for repair or replacement of out-of-warranty products. No agent, company, dealer, distributor, or person is authorized to change, modify, or extend the terms of these warranties in any manner.

LIMITATION OF LIABILITY

In no event will ZeeVee be liable for any amount greater than the retail price of the ZeeVee Equipment. ZeeVee shall not be liable for any incidental or consequential damages (including lost profits) for breach of any express or implied warranty on the ZeeVee Equipment. Some countries and states of the U.S. do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights, which vary from country to country and state to state.



Contact ZeeVee

Support

For additional questions call
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Representatives are available from 9:00 AM to 6:00 PM, Monday through Friday (Eastern Time).

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