ZyPerMX / ZvMXE / ZvMXE+ Configuration FAQ

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Firmware

Question: What is the current firmware release for the ZyPerMX?

Answer: The current firmware release can be found and downloaded from the ZeeVee website:

https://www.zeevee.com/support/firmware-updates/zypermx/

Question: What is the current firmware release for the ZvMXE?
Answer: The current firmware release is version 1.0.0.12

To check if the MXE has the latest version of software, just connect the device to the internet. The MXE will automatically connect to the ZeeVee servers and upgrade to the latest version available.

Note: The ZvMXE will automatically check for firmware updates whenever connected to the Internet.

Question: What is the current firmware release for the ZvMXE+?
Answer: The current firmware release is version 2.1

Network

Question: In a Point to Point environment how should the MX and MXE/MXE+ be configured?

Answer: First, on the networking front be sure that both the MX and MXE/MXE+ are set for static IP with addresses on the same subnet. ZeeVee would recommend RTP for P2P installations. RTP has more timing and synchronization information built into the protocol. In addition, AAC audio is lower bitrate wise than LPCM and that also helps.

Question: In a network environment how best should the MX/MXE/MXE+ be configured?

Answer: In a network environment, the ZyPerMX should be configured for UDP and multicast.

Question: How does channel beaconing work?

Answer: The ZV channel beacon uses the 239.13.1.19 multicast address. The MX uses this address to publish its channels across the network. In a single layer 2 network this should always work. In a routed layer 3 network, this multicast address needs to be added to the router's forwarding table explicitly. By default, routers will not forward this address. The actual command to do this varies by router.

Question: What other Network protocols are required to support the ZyPerMX/MXE/MXE+?

Answer: For an installation of more than a couple of MX sources, the layer 2 Ethernet switch needs to be a smart switch that supports IGMP and multicast traffic management. Again, the actual configuration commands vary by vendor. *(See Appendix 2 for additional switch configuration settings)*

Question: Should every MX in the system be configured with a different multicast address?

Answer: Each MX needs to be configured for a different multicast address for proper stream bandwidth management. Network switches filter based on the IP multicast address only. If multiple MX's are configured with the same multicast address with different ports, all the packets with that multicast address will be forwarded to any MXE's tuned to any one of those channels. This will overwhelm the Ethernet processing on the MXE and cause video artefacts.

Question: What is the range of multicast addresses that can be used by the MX?

Answer: The full range of multicast addresses is from 224.0.0.0 to 239.255.255.255

Question: What is the maximum Router hop limit or TTL of a multicast stream?

Answer: The maximum hop limit is 9. Therefore, the TTL = 10.

Miscellaneous

Question: What is the max length of HDMI cable that can be used on the MX before it starts to not detect the source?

Answer: This will depend on the quality of the HDMI cable. ZeeVee has verified functionality with HDMI cables up to 25 feet in length.

Question: What is the recommended Video Bitrate setting for the ZyPerMX when streaming video to ZvMXE/MXE+ devices?

Answer: The recommended Video Bitrate in this case is 6000 Kbit/sec.   Settings higher than this will cause unacceptable video breakup with the ZvMXE/MXE+.   Note that higher bitrates can be used when streaming to some other video decoders.

Question: Can the ZyPerMX strip out any HDCP encoding?

Answer: Yes, the ZyPerMX "Video Mode" can be set to "Test". This will remove any HDCP encoding found in the source video stream.

Appendix 1: Recommended Switches

The following 1Gbit switches are recommended for use with the ZyPerMX/MXE/MXE+. Please note this is not an all-inclusive list. There are many other switches available that will function with the ZyPerMX/MXE/MXE+.

Manufacturer	Model #	Number of 1Gbit Ports	Notes
Netgear	M4300-28G	24	Includes two 10Gbit RJ45 and two 10Gbit SFP+ Ports
Netgear	M4300-52G	48	Includes two 10Gbit RJ45 and two 10Gbit SFP+ Ports
Netgear	M4300-28G-PoE+	24	Supports PoE
Netgear	M4300-52G-PoE+	48	Supports PoE
Netgear	S3300-28X	24	Includes two 10Gbit RJ45 and two 10Gbit SFP+ Ports
Netgear	S3300-52X	48	Includes two 10Gbit RJ45 and two 10Gbit SFP+ Ports
Netgear	S3300-28X-PoE+	24	Supports PoE
Netgear	S3300-52X-PoE+	48	Supports PoE
Netgear	GS728TP	24	Supports PoE
Arista	7010T-48	52	Includes four 10Gbit SFP+ ports

Appendix 2: Switch Configuration Options

Some Switches will work directly out of the box with zero configuration required. Nearly all switches however will provide the user some ability to customize the configuration. The list below includes various switch configuration options that ZeeVee has encountered. Look for these or similar options when configuring your switch.

1. Enable IGMP Snooping
    a. Must be enabled
2. Enable IGMP Snooping on VLAN used by ZyPerMX
    a. Must be enabled when all ports default to VLAN used by ZyPerMX
3. Filter/Drop unregistered Multicast traffic
    a. If not applied, the behavior of the switch will be to broadcast multicast packets if the switch has no known destination for that packet.
    b. Must be enabled if found
4. Unregistered Multicast Flooding
    a. Must be disabled if found
5. Filter Unregistered Multicast (different wording than number 4 above)
    a. Must be enabled if found
6. Enable IGMP Query (*Single switch environment only*)
7. Enable IGMP Query on VLAN1
8. Set IGMP Version to IGMP V2
    a. Must be set if found
9. Enable FASTLEAVE on port X
    a. Should be enabled, if found
10. Enable FASTLEAVE for VLAN1
    a. Should be enabled if found

Appendix 3: Maximum Transmission Distance

The table below details the maximum transmission distance between either directly connected ZyPerMX/MXE units or between the ZyPerMX/MXE and a Network Switch.

Cable / Transmission Type	Maximum Distance
Category 5	55m (180 ft)
Category 5e	55m (180 ft)
Category 6 UTP	55m (180 ft)
Category 6 STP	100m (330 ft)
Category 6A UTP	100m (330 ft)
Category 7	100m (330 ft)

UTP = Unshielded Twisted Pair
STP = Shielded Twisted Pair