

Understanding COM1000 IP Distribution

When using an IP distribution network with the COM1000 there are a few things that you need to know and understand to help you achieve the goals of your COM1000 installation. The COM1000 can send the single program transport streams generated by the COM24 and COM24-FLX cards as either unicast traffic, addressed to the QAM6 or some other destination device, or as multicast traffic in the standard address range of 224.0.0.0 – 239.255.255.255.

The backplane in the COM200 chassis has an unmanaged Ethernet switch that has two gigabit ports and twelve 100 megabit ports (slots 2 -12 and the management ports). One of the gigabit ports is accessible through the RJ45 connector on the back of the COM200 chassis. This gigabit port is the port used by the QAM6 if a QAM is installed; the other gigabit port is the slot 1 connector on the backplane. Technicolor manufactures a GbE1 card which can be put into slot 1 to bring that gigabit port out to an RJ45 connector. If you use the GbE1 to access the gigabit port you will lose the use of slot 1 for any other purpose. Multicast traffic going through the backplane switch will not show up on any port other than the gigabit connector on the back of the COM1000 chassis or at the QAM if one is installed. Unicast traffic has no similar restrictions and will be routed by the switch to the port that will get it to the destination desired. Technicolor can and will put a special firmware version on the COM200 backplane switch that enables multicast traffic to route out of the gigabit port behind slot 1 if desired. You would have to send the chassis in to Technicolor in Indianapolis, Indiana to have this done. One configuration that would make this necessary would be if you wanted to do both QAM and IP distribution from the same chassis. As mentioned, the COM200 backplane has an unmanaged Ethernet switch on board and as such it cannot be used as an IGMP querier, you cannot mirror ports, setup vlans and has no other special features or protocols that can be invoked.

A special consideration when building an IP based distribution network for the COM1000 is the interaction of some switch protocols and the COM1000 transport streams themselves. The COM24 and COM24-FLX cards only have one MAC address. This means all A/V traffic and management traffic for any given card will come from the same MAC address. This can cause issues when using the Spanning Tree protocol and routing the management and data traffic through different ports on the same switch. The protocol will detect the same MAC on two different ports and shut them off as parallel paths.

You will want to use IGMP snooping to control the bandwidth being used by your multicast streams as they make their way through the network. As mentioned before, the Ethernet switch on the COM200 backplane has no facility for this so you will need to set this up on a separate switch that is part of the network.

By default the COM24 and COM24-FLX cards do not force a UDP packet to contain exactly seven MPEG2 transport packets. This has not caused many issues in the field as our QAM and most other IP devices and televisions suffer no obvious effects from this. There are however some IP televisions and IP set back boxes that are sensitive to this difference. To correct for these you can go into the advanced edit page for each tuner and enter a StreamID value of 50004 which will force every UDP packet to contain seven MPEG2 transport packets.

Many features are not available in older code releases and many of the newer code releases contain fixes for numerous cases of unexpected behavior seen in different configurations and on various televisions. When seeing something you don't understand or that is undesirable behavior for a given configuration always verify you are running the latest code version in all Technicolor hardware and if not, update to the latest version(s) and re-evaluate.

For more information about the COM1000 system please check our website. www.technicolor.com/mcs