Redundancy Streaming

Data transmissions via an IP network could suffer from packet loss and or packet corruption.
If these transmissions carry time critical content like in a live transmission for audio a mechanism to retransmit a lost or damaged packet(like TCP) is unsuitable because the additional arrival delay makes the packet to become outdated.
To reduce the risk of packet loss and to increase the reliability of a connection some models of the MAYAH product range are capable of doubling the IP stream to send it via a secondary network interface to physically separated networks.
With this redundancy the systems total error rate can be reduced distrinctly.
If you have to deal with two networks both of them showing a packet loss rate of 10% (network1(P) = 10% packet loss rate, network2(R) = 10% packet loss rate) you get a total loss rate of $P \cdot R = 0,1 \cdot 0,1 = 0,01$ which means that the packet loss rate drops from 10% to 1%.

In a MAYAH device equipped with two network interfaces, the network interface which took the control task only so far(like Telnet, SNMP, FTP) now also takes the task to handle the redundancy stream. The jack for this network interface is typically labeled LAN whereas the interface responsible for the primary stream is labeled LAN1.

The applicable device duplicates the data stream at the RTP(RFC3550) layer before it passes them to both of the network interfaces. The sequence numbers of the RTP packets are being synchronized so that identical packet content is stamped with identical packet numbers.
The source identifiers (SSRC) of both data streams are different from each other to make it possible to identify and handle both streams completely separate.
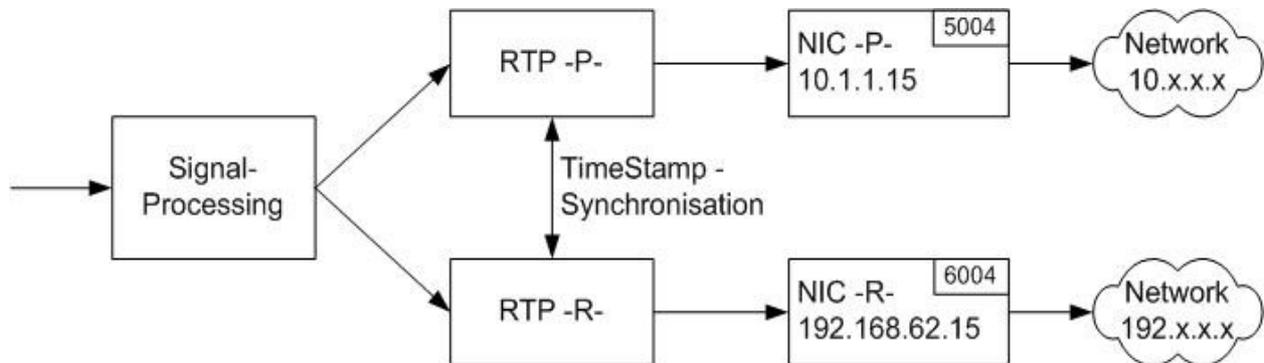
The IP port for the redundany connection is equivalent to the primary RTP port plus 1000.
In case of the first redundancy port you get 6004 (see picture above)

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To activate the redundancy feature on a C1191 please set
CODEC → SETUP → APPS → MODE to „Redundancy".
After doing so the menu
CODEC → CONNECT → DIRECT
will show a „primary destination" and a „redundancy destination" field.
These fields have to be filled in with the primary and the redundancy destination address.
Attention should be paid to the correct network configuration(address, netmask, gateway (if necessary)) for both interfaces.

To use the redundancy feature by direct command you have to
- configure the connection with the remote command com_route
- start the whole connection configuration with com_connect CONCONF[n] whereas [n] is a variable for 1,2,...n which represents an index for different connection configurations.
The syntax for com_route is:
[**Index**]com_route [**Subindex**] [**Interface**] [**Direction**] [**Address**].
-        **Index** references the different connection configurations.
-        **Subindex** references different connections within a connection configuration.
-        **Interface** determines the local interface to be used for the conenction.
         Possible values are „IP1" or „IP2"
-        **Direction** defines the direction for the data transmission.
         Possible values are „1"=send, „2"=receive, „3"=send&receive
-        **Address** is the address to send to resp. to receive from.

An example:
Your MAYAH device is equipped with two network interfaces LAN and LAN1.
LAN has the ip address 10.1.1.15, LAN1 has 192.168.62.15.
You want to setup a redundancy streaming with two streams.
One should be send to 10.1.1.16 the other to 192.168.62.16.
The approriate routing commands are:
1$com_route 1 IP2 1 192.168.62.16
1$com_route 2 IP1 1 10.1.1.16
These commands configure the primary stream(LAN1) which resides on Interface 2 (IP2) to send its data to destination 192.168.62.16. Additionally the secondary(the redundant) stream (LAN) is configured to be send to 10.1.1.16 via Interface 1 (IP1). The configuration is saved in the first connection configuration slot.
The connection configuration can be activated by sending the command com_connect CONCONF1.