

Configuration Dolby CP950A AES67 and DirectOut RAV.IO

Network Setup

A managed PTP-Aware switch is recommended.

At least DSCP based QoS and IGMP-Snooping is mandatory.

IP-Settings for CP950A and RAV.IO (HW 0.36 / SW 1.25) must be configured.

network **Dolby Atmos Connect** SNMP

Advanced mode ☒

static source IP 192.168.1.151

PTP domain number 109

PTP priority 1 127

PTP priority 2 128

destination multicast IP 239.81.83.67

	1-8	9-16	17-24	25-32	33-40	41-48	49-56	57-64
RTP source UDP ports	6518	6519	6520	6521	6522	6523	6524	6525
RTP destination UDP ports	6526	6527	6528	6529	6530	6531	6532	6533

apply cancel reset

In Network - Dolby Atmos Connect- enable advanced Mode and configure IPv4.

NETWORK SETTINGS

Device name: PRODIGY-RAV-IO

NIC 1

Dynamic IP address (IPv4): ☐

Static IP address (IPv4): ☒

IP address (IPv4): 192.168.1.152

Subnet mask (IPv4): 255.255.255.0

Gateway (IPv4): 0.0.0.0

DNS server (IPv4): 0.0.0.0

NIC 2

Dynamic IP address (IPv4): ☒

Static IP address (IPv4): ☐

IP address (IPv4): 169.254.192.98

Subnet mask (IPv4): 255.255.0.0

Gateway (IPv4): 0.0.0.0

DNS server (IPv4): 0.0.0.0

In Status tab, click on the device name, IPv4 configuration must be configured.

The Dolby AES67 integration uses the following DSCP Tags:

- EF for PTP
- AF41 for RTP

NETWORK ADVANCED SETTINGS

IGMP NIC 1:	auto
IGMP NIC 2:	auto
TCP port HTTP:	80
TCP port RTSP:	554
TTL RTP packets:	128
DSCP RTP packets:	AF41 (0x22)
DSCP PTP packets:	EF (0x2E)
Multi stream rx:	yes
MDNS announcement:	RX/TX
SAP announcement:	RX/TX
Multicast audio loopback:	no
Multicast RTCP:	yes
Disable channel collision detection:	no
Network settings:	Apply

In Advanced Tab, DSCP tagging of PTP and RTP needs adjustment to match with Dolby AES67 implementation.

Multi stream rx must be switched on, to allow subscriptions to the same multicast stream more than one time.

Sync

1. The Dolby default is PTP domain number 109, this can be adjusted. On the RAV.IO the NIC for PTP must be set, PTP domain number must match the CP950A.
2. The Master is defined by the BMCA (Best Master Clock Algorithm), the lowest value for PTP priority 1 will be elevated as master. If more than one device has the same value for priority 1, the BMCA will check priority 2 next, followed by several other steps until a master is elected.

Advanced mode ☒

static source IP

PTP domain number

PTP priority 1

PTP priority 2

destination multicast IP

1-8 9-16 17-24 25-32 33-40 41-48 49-56 57-64

DirectOut TECHNOLOGIES PRODIGY-RAV-IO

STATUS ADVANCED NMOS LOGGING ABOUT STATISTIC SWITCH TOOLS

PTP SETTINGS

PTP Input:

IP mode:

Mode:

Profile:

PTP UNICAST

Auto Detect GMT:

Grant duration (sec):

Grandmaster IP:

PTP CLOCK SETTINGS

No PTP switch 1 Gbit/s:

No PTP switch 100 Mbit/s:

PTP CURRENT SETTINGS

Clock class:

Accuracy:

Clock domain NIC 1:

Clock domain NIC 2:

Priority 1:

Priority 2:

Announce:

Sync:

Min delay request:

Min pdelay request:

Announce receipt timeout:

One step clock:

Slave only:

Delay mechanism:

CURRENT PTP MASTER

Clock class:

Accuracy:

Clock domain:

Priority 1:

Priority 2:

GMID:

Sync:

IPv4:

NETWORK ADVANCED SETTINGS

IGMP NIC 1:

IGMP NIC 2:

TCP port HTTP:

TCP port RTSP:

TTL RTP packets:

DSCP RTP packets:

DSCP PTP packets:

Multi stream rx:

MDNS announcement:

SAP announcement:

Multicast audio loopback:

Multicast RTCP:

Disable channel collision detection:

Network settings:

PTP STATISTIC

PTP state:

PTP jitter:

PTP offset:

PTP master to slave:

PTP slave to master:

Current PTP time (TAI):

Current PTP time (TAI) (RAW):

PTP JITTER

RAV.IO acts as a slave, it can also be set as master by changing Mode to Auto or Preferred Master.

For detailed information about AES67, PTPv2, etc. the [AES67- practicalguide](#) is a good source for knowledge.

There are various ways to setup the synchronisation. CP950A, RAV.IO or another PTP device can act as master.

The adapted PTP-clock algorithm in "PTP Clock Settings" can be set to reduce clock jitter using network switches without PTP support.

Stream Setup

The CP950A AES67 integration has a fixed configuration of 8 streams with 8 channels each. A single multicast address is used for RTP transport. Every stream uses two ports ("tags").

- RTP source UDP port (tag 1) –
Only for proprietary use with Dolby devices.
- RTP destination UDP port (tag 2)
Is used for stream separation and need to be unique and ascending when used with third party AES67 devices like RAV.IO

The screenshot shows the 'Dolby Atmos Connect' configuration window. It has three tabs: 'network', 'Dolby Atmos Connect' (selected), and 'SNMP'. Under 'Advanced mode', there is a checked checkbox. Below this are several input fields: 'static source IP' (192.168.1.151), 'PTP domain number' (109), 'PTP priority 1' (127), and 'PTP priority 2' (128). The 'destination multicast IP' (239.81.83.67) is highlighted with a red box. Below these are two rows of UDP ports. The first row, 'RTP source UDP ports', has ports 6518 through 6525. The second row, 'RTP destination UDP ports', has ports 6526 through 6533 and is also highlighted with a red box. At the bottom are 'apply', 'cancel', and 'reset' buttons.

	1-8	9-16	17-24	25-32	33-40	41-48	49-56	57-64
RTP source UDP ports	6518	6519	6520	6521	6522	6523	6524	6525
RTP destination UDP ports	6526	6527	6528	6529	6530	6531	6532	6533

The streams are switched on permanently.

Receiving the streams in the RAV.IO can be managed in different ways, the fastest and easiest solution is manual stream configuration. SDP import can be used as well.

1. Open an input
2. Select the NIC
3. Set start channel (by default, RAV.IO is preconfigured with ascending 8 channel streams)
4. Set discovery protocol to manual
5. Enter a stream name
6. Set RTP payload ID to 96 (this is a fixed value of Dolby's AES67 integration)
7. Set multicast address for RTP packets
8. Switch on source specific multicast option
9. Set RTP destination port
10. Activate stream

01 - INPUT STREAM SETTINGS

Activate Stream:

Stream Input:

NIC 1

Backup Stream:

disabled

Backup Stream Timeout:

1s

Stream name:

Dolby 1-8

Stream state:

not connected

Stream state messages:

Stream state offset max (samples):

-

Stream state offset min (samples):

-

Stream state ip address src NIC 1 / NIC 2:

- / -

Stream state connection lost (Events) NIC 1 / NIC 2:

0 / 0

Stream state packet lost (Events) NIC 1 / NIC 2:

0 / 0

Stream state wrong timestamp (Events) NIC 1 / NIC 2:

0 / 0

Stream state syntonous sync:

-

Syntonous mode enable:

Offset fine:

Offset in samples:

128 (2.666 ms)

Start channel:

1

Audio channel selection:

select

8 of 8 channels selected

Discovery protocol:

Manual configuration

Import SDP file

Import SDP

Stream name (manual):

Dolby 1-8

Number of channels:

8

RTP payload ID:

96

Audio format:

L24

Media offset:

0

NIC 1

Det IP address:

239.81.83.67

SSM (Source Specific Multicast):

Src IP address:

0.0.0.0

RTP dst port:

6526

RTCP dst port:

5005

NIC 2

Det IP address:

239.2.0.1

SSM (Source Specific Multicast):

Src IP address:

0.0.0.0

RTP dst port:

5004

RTCP dst port:

5005

INPUT STREAMS				
☒	01	Dolby 1-8	8/8 ch	▶
☒	02	Dolby 9-16	8/8 ch	▶
☒	03	Dolby 17-24	8/8 ch	▶
☒	04	Dolby 25-32	8/8 ch	▶
☒	05	Dolby 33-40	8/8 ch	▶
☒	06	Dolby 41-48	8/8 ch	▶
☒	07	Dolby 49-56	8/8 ch	▶
☒	08	Dolby 57-64	8/8 ch	▶

Connected streams are indicated by a green dot.

Further information can be found in the [RAV.IO manual](#).

This document refers to firmware RAV.IO: HW 0.36 / SW 1.25 from 01.09.2025