VIRTUOSO

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LOUDSPEAKER LAYOUTS

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This document presents the loudspeaker layout and channel order used for each Input Config. Some of the currently available loudspeaker formats proposed by different companies or organisations are inconsistent in terms of their channel labelling convention, e.g. different formats often use different labels for the same loudspeaker positions, which often causes confusion. Moreover, some DAWs use different channel orders for the same reproduction formats, which is why we included specific input configs for some DAWs. In the tables presented from the following pages, you can check the labels and order of the input channels and the azimuth and elevation angles (degrees) of each loudspeaker used.

Note: The angular orientation used for the loudspeaker layout is **anticlock wise**, e.g. 30° for front left -30° for front right.

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MONO, STEREO AND ITU-R SURROUND

Mono

Label	Azimuth	Elevation
C	0	0

Stereo

Label	Azimuth	Elevation
L	30	0
R	-30	0

Stereo Narrow

Label	Azimuth	Elevation
L	15	0
R	-15	0

Stereo Wide

Label	Azimuth	Elevation
L	45	0
R	-45	0

ITU-R 5.1 SMPTE

Label	Azimuth	Elevation
L	30.0	0.0
R	-30.0	0.0
C	0.0	0.0
LFE	-45	-30
Ls	110.0	0.0
Rs	-110.0	0.0

ITU-R 5.1 Film

Label	Azimuth	Elevation
L	30.0	0.0
C	0.0	0.0
R	-30.0	0.0
Ls	110.0	0.0
Rs	-110.0	0.0
LFE	-45	-30

ITU-R 7.1 A SMPTE

Label	Azimuth	Elevation
L	30.0	0.0
R	-30.0	0.0
C	0.0	0.0
LFE	-45	-30
Lss	110.0	0.0
Rss	-110.0	0.0
Lrs	150.0	0.0
Rrs	-150.0	0.0

ITU-R 7.1 A Film

Label	Azimuth	Elevation
L	30.0	0.0
C	0.0	0.0
R	-30.0	0.0
Lss	110.0	0.0
Rss	-110.0	0.0
Lrs	150.0	0.0
Rrs	-150.0	0.0

ITU-R 7.1 B SMPTE

Label	Azimuth	Elevation
L	30.0	0.0
R	-30.0	0.0
C	0.0	0.0
LFE	-45	-30
Lss	90.0	0.0
Rss	-90.0	0.0
Lrs	135.0	0.0
Rrs	-135.0	0.0

ITU-R 7.1 B Film

Label	Azimuth	Elevation
L	30.0	0.0
C	0.0	0.0
R	-30.0	0.0
Lss	90.0	0.0
Rss	-90.0	0.0
Lrs	135.0	0.0
Rrs	-135.0	0.0
LFE	-45	-30

ISO IEC MPEG-H

ISO IEC MPEG-H 5.1+2H

Label	Azimuth	Elevation
L030	30.0	0.0
R030	-30.0	0.0
C000	0.0	0.0
LFE	-45	-30
L110	110.0	0.0
R110	-110.0	0.0
UL030	30.0	37.0
UR030	-30.0	37.0

ISO IEC MPEG-H 5.1+4H

Label	Azimuth	Elevation
L030	30.0	0.0
R030	-30.0	0.0
C000	0.0	0.0
LFE	-45	-30
L110	110.0	0.0
R110	-110.0	0.0
UL030	30.0	37.0
UR030	-30.0	37.0
UL110	110.0	37.0
UR110	-110.0	37.0

ISO IEC MPEG-H 5.1+6H

Label	Azimuth	Elevation
L030	30.0	0.0
R030	-30.0	0.0
C000	0.0	0.0
LFE	-45	-30
L110	110.0	0.0
R110	-110.0	0.0
UL030	30.0	37.0
UR030	-30.0	37.0
UC000	0.0	37.0
UL110	110.0	37.0
UR110	-110.0	37.0
TC000	0.0	90.0

ISO IEC MPEG-H 7.1+2H

Label	Azimuth	Elevation
L030	30.0	0.0
R030	-30.0	0.0
C000	0.0	0.0
LFE	-45	-30
L135	135.0	0.0
R135	-135.0	0.0
L090	90.0	0.0
R090	-90.0	0.0
UL090	90.0	37.0
UR090	-90.0	37.0

ISO IEC MPEG-H 7.1+4H

Label	Azimuth	Elevation
L030	30.0	0.0
R030	-30.0	0.0
C000	0.0	0.0
LFE	-45	-30
L135	135.0	0.0
R135	-135.0	0.0
L090	90.0	0.0
R090	-90.0	0.0
UL030	30.0	37.0
UR030	-30.0	37.0
UL135	135.0	37.0
UR135	-135.0	37.0

DOLBY ATMOS

Dolby Atmos 5.1.2

Label	Azimuth	Elevation
L	30.0	0.0
R	-30.0	0.0
C	0.0	0.0
LFE	-45	-30
Ls	110.0	0.0
Rs	-110.0	0.0
Ltf	90.0	45.0
Rtf	-90.0	45.0

Dolby Atmos 5.1.4

Label	Azimuth	Elevation
L	30.0	0.0
R	-30.0	0.0
C	0.0	0.0
LFE	-45	-30
Ls	110.0	0.0
Rs	-110.0	0.0
Ltf	45.0	45.0
Rtf	-45.0	45.0
Ltr	135.0	45.0
Rtr	-135.0	45.0

Dolby Atmos 5.1.4 Logic Pro

Label	Azimuth	Elevation
L	30.0	0.0
R	-30.0	0.0
C	0.0	0.0
LFE	-45	-30
Ltf	45.0	45.0
Rtf	-45.0	45.0
Ltr	135.0	45.0
Rtr	-135.0	45.0
Ls	110.0	0.0
Rs	-110.0	0.0

Dolby Atmos 5.1.4 Pyramix

Label	Azimuth	Elevation
L	30.0	0.0
R	-30.0	0.0
C	0.0	0.0
LFE	-45	-30
Ls	110.0	0.0
Rs	-110.0	0.0
Tl	45.0	45.0
Tr	-45.0	45.0
Trl	135.0	45.0
Trr	-135.0	45.0

Dolby Atmos 7.1.2 A

Label	Azimuth	Elevation
L	30.0	0.0
R	-30.0	0.0
C	0.0	0.0
LFE	-45	-30
Lss	90.0	0.0
Rss	-90.0	0.0
Lrs	135.0	0.0
Rrs	-135.0	0.0
Ltm	90.0	45.0
Rtm	-90.0	45.0

Dolby Atmos 7.1.2 B

Label	Azimuth	Elevation
L	30.0	0.0
R	-30.0	0.0
C	0.0	0.0
LFE	-45	-30
Lss	110.0	0.0
Rss	-110.0	0.0
Lrs	150.0	0.0
Rrs	-150.0	0.0
Ltm	90.0	45.0
Rtm	-90.0	45.0

Dolby Atmos 7.1.4 A

Label	Azimuth	Elevation
L	30.0	0.0
R	-30.0	0.0
C	0.0	0.0
LFE	-45	-30
Lss	90.0	0.0
Rss	-90.0	0.0
Lrs	135.0	0.0
Rrs	-135.0	0.0
Ltf	45.0	45.0
Rtf	-45.0	45.0
Ltr	135.0	45.0
Rtr	-135.0	45.0

Dolby Atmos 7.1.4 A Pyramix

Label	Azimuth	Elevation
L	30.0	0.0
R	-30.0	0.0
C	0.0	0.0
LFE	-45	-30
Sl	90.0	0.0
Sr	-90.0	0.0
Ls	135.0	0.0
Rs	-135.0	0.0
Tl	45.0	45.0
Tr	-45.0	45.0
Trl	135.0	45.0
Trr	-135.0	45.0

Dolby Atmos 7.1.4 A Logic Pro

Label	Azimuth	Elevation
L	30.0	0.0
R	-30.0	0.0
C	0.0	0.0
LFE	-45	-30
Lss	90.0	0.0
Rss	-90.0	0.0
Ltf	45.0	45.0
Rtf	-45.0	45.0
Ltr	135.0	45.0
Rtr	-135.0	45.0
Lrs	135.0	0.0
Rrs	-135.0	0.0

Dolby Atmos 7.1.4 B

Label	Azimuth	Elevation
L	30.0	0.0
R	-30.0	0.0
C	0.0	0.0
LFE	-45	-30
Lss	110.0	0.0
Rss	-110.0	0.0
Lrs	150.0	0.0
Rrs	-150.0	0.0
Ltf	45.0	45.0
Rtf	-45.0	45.0
Ltr	135.0	45.0
Rtr	-135.0	45.0

Dolby Atmos 7.1.4 A Nuendo

Label	Azimuth	Elevation
L	30.0	0.0
R	-30.0	0.0
C	0.0	0.0
LFE	-45	-30
Lrs	135.0	0.0
Rrs	-135.0	0.0
Lss	90.0	0.0
Rss	-90.0	0.0
Ltf	45.0	45.0
Rtf	-45.0	45.0
Ltr	135.0	45.0
Rtr	-135.0	45.0

Dolby Atmos 9.1.6 A

Label	Azimuth	Elevation
L	30.0	0.0
R	-30.0	0.0
C	0.0	0.0
LFE	-45	-30
Lws	60.0	0.0
Rws	-60.0	0.0
Lss	90.0	0.0
Rss	-90.0	0.0
Lrs	135.0	0.0
Rrs	-135.0	0.0
Ltf	45.0	45.0
Rtf	-45.0	45.0
Ltm	90.0	45.0
Rtm	-90.0	45.0
Ltr	135.0	45.0
Rtr	-135.0	45.0

Dolby Atmos 9.1.6 A Pyramix

Label	Azimuth	Elevation
L	30.0	0.0
R	-30.0	0.0
C	0.0	0.0
LFE	-45	-30
Wl	60.0	0.0
Wr	-60.0	0.0
Sl	90.0	0.0
Sr	-90.0	0.0
Ls	135.0	0.0
Rs	-135.0	0.0
Tl	45.0	45.0
Tr	-45.0	45.0
Tsl	90.0	45.0
Tsr	-90.0	45.0
Trl	135.0	45.0
Trr	-135.0	45.0

Dolby Atmos 9.1.6 B

Label	Azimuth	Elevation
L	30.0	0.0
R	-30.0	0.0
C	0.0	0.0
LFE	-45	-30
Lws	60.0	0.0
Rws	-60.0	0.0
Lss	110.0	0.0
Rss	-110.0	0.0
Lrs	150.0	0.0
Rrs	-150.0	0.0
Ltf	45.0	45.0
Rtf	-45.0	45.0
Ltm	90.0	45.0
Rtm	-90.0	45.0
Ltr	135.0	45.0
Rtr	-135.0	45.0

Auro-3D

Auro-3D 9.1

Label	Azimuth	Elevation
L	30.0	0.0
R	-30.0	0.0
C	0.0	0.0
LFE	-45	-30
Ls	110.0	0.0
Rs	-110.0	0.0
HL	30.0	30.0
HR	-30.0	30.0
HLs	110.0	30.0
HRs	-110.0	30.0

Auro-3D 9.1 Pyramix

Label	Azimuth	Elevation
L	30.0	0.0
R	-30.0	0.0
C	0.0	0.0
LFE	-45	-30
Ls	110.0	0.0
Rs	-110.0	0.0
Tl	30.0	30.0
Tr	-30.0	30.0
Trl	110.0	30.0
Trr	-110.0	30.0

Auro-3D 11.1

Label	Azimuth	Elevation
L	30.0	0.0
R	-30.0	0.0
C	0.0	0.0
LFE	-45	-30
Ls	110.0	0.0
Rs	-110.0	0.0
HL	30.0	30.0
HR	-30.0	30.0
HC	0.0	30.0
T	0.0	90.0
HLs	110.0	30.0
HRs	-110.0	30.0

Auro-3D 11.1 Pyramix

Label	Azimuth	Elevation
L	30.0	0.0
R	-30.0	0.0
C	0.0	0.0
LFE	-45	-30
Ls	110.0	0.0
Rs	-110.0	0.0
Tl	30.0	30.0
Tc	0.0	30.0
Tr	-30.0	30.0
Trl	110.0	30.0
Trr	-110.0	30.0
VoG	0.0	90.0
LFE		

Auro-3D 13.1

Label	Azimuth	Elevation
L	30.0	0.0
R	-30.0	0.0
C	0.0	0.0
LFE	-45	-30
Ls	90.0	0.0
Rs	-90.0	0.0
Lb	135.0	0.0
Rb	-135.0	0.0
HL	30.0	30.0
HR	-30.0	30.0
HC	0.0	30.0
T	0.0	90.0
HLs	110.0	30.0
HRs	-110.0	30.0

Auro-3D 13.1 Pyramix

Label	Azimuth	Elevation
L	30.0	0.0
R	-30.0	0.0
C	0.0	0.0
LFE	-45	-30
Sl	90.0	0.0
Sr	-90.0	0.0
Ls	135.0	0.0
Rs	-135.0	0.0
Tl	30.0	30.0
Tc	0.0	30.0
Tr	-30.0	30.0
Tsl	110.0	30.0
Tsr	-110.0	30.0
VoG	0.0	90.0

NHK 22.2

NHK 22.2 A

Label	Azimuth	Elevation
FL	60.0	0.0
FR	-60.0	0.0
FC	0.0	0.0
LFE1	45	-30
BL	135.0	0.0
BR	-135.0	0.0
FLc	30.0	0.0
FRc	-30.0	0.0
BC	180.0	0.0
LFE2	-45	-30
SiL	90.0	0.0
SiR	-90.0	0.0
TpFL	45.0	45.0
TpFR	-45.0	45.0
TpFC	0.0	45.0
TpC	0.0	90.0
TpBL	135.0	45.0
TpBR	-135.0	45.0
TpSiL	90.0	45.0
TpSiR	-90.0	45.0
TpBC	180.0	45.0
BtFC	0.0	-30.0
BtFL	45.0	-30.0
BtFR	-45.0	-30.0

NHK 22.2 A Pyramix

Label	Azimuth	Elevation
L	60.0	0.0
R	-60.0	0.0
C	0.0	0.0
LFE	45	-30
Ls	135.0	0.0
Rs	-135.0	0.0
Lc	30.0	0.0
Rc	-30.0	0.0
Cs	180.0	0.0
LFE2	-45	-30
Sl	90.0	0.0
Sr	-90.0	0.0
Tl	45.0	45.0
Tr	-45.0	45.0
Tc	0.0	45.0
VoG	0.0	90.0
Trl	135.0	45.0
Trr	-135.0	45.0
Tsl	90.0	45.0
Tsr	-90.0	45.0
Trc	180.0	45.0
Bc	0.0	-30.0
Bl	45.0	-30.0
Br	-45.0	-30.0

NHK 22.2 B

Label	Azimuth	Elevation
FL	60.0	0.0
FR	-60.0	0.0
FC	0.0	0.0
LFE1	45	-30
BL	135.0	0.0
BR	-135.0	0.0
FLc	30.0	0.0
FRc	-30.0	0.0
BC	180.0	0.0
LFE2	-45	-30
SiL	90.0	0.0
SiR	-90.0	0.0
TpFL	45.0	30.0
TpFR	-45.0	30.0
TpFC	0.0	30.0
TpC	0.0	90.0
TpBL	135.0	30.0
TpBR	-135.0	30.0
TpSiL	90.0	30.0
TpSiR	-90.0	30.0
TpBC	180.0	30.0
BtFC	0.0	-30.0
BtFL	45.0	-30.0
BtFR	-45.0	-30.0

REGULAR ARRAYS

Regular array Quad

Label	Azimuth	Elevation
1	45	0
2	135	0
3	-135	0
4	-45	0

Regular array Cross

Label	Azimuth	Elevation
1	0	0
2	90	0
3	180	0
4	-90	0

Regular array Hexagonal A

Label	Azimuth	Elevation
1	30	0
2	90	0
3	150	0
4	-150	0
5	-90	0
6	-30	0

Regular array Hexagonal B

Label	Azimuth	Elevation
1	0	0
2	60	0
3	120	0
4	180	0
5	-120	0
6	-60	0

Regular array Octagonal A

Label	Azimuth	Elevation
1	22.5	0
2	67.5	0
3	112.5	0
4	157.5	0
5	-157.5	0
6	-112.5	0
7	-67.5	0
8	-22.5	0

Regular array Octagonal B

Label	Azimuth	Elevation
1	0	0
2	45	0
3	90	0
4	135	0
5	180	0
6	-135	0
7	-90	0
8	-45	0

Regular array Tetrahedron

Label	Azimuth	Elevation
1	0	35.3
2	90	-35.3
3	180	35.3
4	270	-35.3

Regular array Cube

Label	Azimuth	Elevation
1	45	35.3
2	45	-35.3
3	135	35.3
4	135	-35.3
5	-135	35.3
6	-135	-35.3
7	-45	35.3
8	-45	-35.3

Regular array Icosehedron

Label	Azimuth	Elevation
1	36	-25
2	108	-25
3	180	-25
4	-108	-25
5	-36	-25
6	72	25
7	144	25
8	-144	25
9	-72	25
10	0	25
11	0	90
12	0	-90

Regular array 26p Lebedev

Label	Azimuth	Elevation
1	0	0
2	180	0
3	90	0
4	-90	0
5	0	90
6	0	-90
7	90	45
8	90	-45
9	-90	45
10	-90	-45
11	0	45
12	0	-45
13	180	45
14	180	-45
15	45	0
16	-45	0
17	135	0
18	-135	0
19	45	35.3
20	45	-35.3
21	-45	35.3
22	-45	-35.3
23	135	35.3
24	135	-35.3
25	-135	35.3
26	-135	-35.3

Regular array 2p T-design

Label	Azimuth	Elevation
1	0	0
2	180	0

Regular array 4p T-design

Label	Azimuth	Elevation
1	45	35.3
2	-45	-35.3
3	135	-35.3
4	-135	35.3

Regular array 6p T-design

Label	Azimuth	Elevation
1	0	0
2	180	0
3	90	0
4	-90	0
5	0	90
6	0	-90

Regular array 12p T-design

Label	Azimuth	Elevation
1	0	-31.7
2	-58.3	0
3	-90	58.3
4	0	31.7
5	-121.7	0
6	90	-58.3
7	180	-31.7
8	121.7	0
9	90	58.3
10	180	31.7
11	58.3	0
12	-90	-58.3

Regular array 24p T-design

Label	Azimuth	Elevation
1	26	15.5
2	-26	-15.5
3	17.1	-25
4	-17.1	25
5	154	-15.5
6	-154	15.5
7	162.9	25
8	-162.9	-25
9	72.9	25
10	107.1	-25
11	116	15.5
12	64	-15.5
13	-107.1	25
14	-72.9	-25
15	-64	15.5
16	-116	-15.5
17	32.3	60
18	-147.8	60
19	-57.8	60
20	122.3	60
21	-32.3	-60
22	147.8	-60
23	57.8	-60
24	-122.3	-60

CONTACT

If you have any questions regarding Virtuoso, please send us a message to support@apl-hud.com

To report bugs, please use this form.

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