**A single IGMP packet:**

*Cap = pyshark.LiveCapture(interface=”Audio”, display\_filter=”igmp”)*

*Cap.sniff(packet\_count=1)*

*Igmp\_pkt = cap[0]*

POIs:

“.igmp.type” – “Membership Query” = 0x11

“Membership report”:

v1 = 0x12

v2 = 0x16

v3 = 0x22

“leave” = 0x17

pprint.pprint(igmp\_pkt.\_\_dict\_\_)

{

'captured\_length': '78',

'frame\_info': <FRAME Layer>,

'interface\_captured': None,

'layers': [<ETH Layer>, <IP Layer>, <IGMP Layer>],

'length': '78',

'number': '6279',

'sniff\_timestamp': '1526463754.401730000'

}

pprint.pprint(igmp\_pkt.eth.\_\_dict\_\_)

{'\_all\_fields': {

'eth.addr': '01:00:5e:00:00:16',

'eth.addr\_resolved': '01:00:5e:00:00:16',

'eth.dst': '01:00:5e:00:00:16',

'eth.dst\_resolved': '01:00:5e:00:00:16',

'eth.ig': '1',

'eth.lg': '0',

'eth.src': '70:b3:d5:04:20:1f',

'eth.src\_resolved': '70:b3:d5:04:20:1f',

'eth.type': '0x00000800'

},

'\_layer\_name': 'eth',

'raw\_mode': False}

pprint.pprint(igmp\_pkt.ip.\_\_dict\_\_)

{'\_all\_fields': {

'': 'Source GeoIP: Unknown',

'ip.addr': '192.168.0.3',

'ip.checksum': '0x00004336',

'ip.checksum.status': '2',

'ip.dsfield': '0x000000c0',

'ip.dsfield.dscp': '48',

'ip.dsfield.ecn': '0',

'ip.dst': '224.0.0.22',

'ip.dst\_host': '224.0.0.22',

'ip.flags': '0x00000002',

'ip.flags.df': '1',

'ip.flags.mf': '0',

'ip.flags.rb': '0',

'ip.frag\_offset': '0',

'ip.hdr\_len': '24',

'ip.host': '192.168.0.3',

'ip.id': '0x00000000',

'ip.len': '64',

'ip.opt.len': '4',

'ip.opt.ra': '0',

'ip.opt.type': '148',

'ip.opt.type.class': '0',

'ip.opt.type.copy': '1',

'ip.opt.type.number': '20',

'ip.options.routeralert': '94:04:00:00',

'ip.proto': '2',

'ip.src': '192.168.0.3',

'ip.src\_host': '192.168.0.3',

'ip.ttl': '1',

'ip.version': '4'

},

'\_layer\_name': 'ip',

'raw\_mode': False

}

pprint.pprint(igmp\_pkt.igmp.\_\_dict\_\_)

{'\_all\_fields': {

'': 'Group Record : 239.123.93.202 Mode Is Exclude',

'igmp.aux\_data\_len': '0',

'igmp.checksum': '0x0000e5cb',

'igmp.checksum.status': '1',

'igmp.maddr': '239.123.93.202',

'igmp.num\_grp\_recs': '4',

'igmp.num\_src': '0',

'igmp.record\_type': '2',

'igmp.reserved': '00',

'igmp.type': '0x00000022',

'igmp.version': '3'

},

'\_layer\_name': 'igmp',

'raw\_mode': False

}

**A single PTP packet:**

*Cap = pyshark.LiveCapture(interface=”Audio”, display\_filter=”ptp”)*

*Cap.sniff(packet\_count=1)*

*ptp\_pkt = cap[0]*

POIs:

“.ptp.control” – “Sync” = 0

“Delay Request” = 1

“Follow Up” = 2

“Delay Response” = 3

“Announce” = 5

pprint.pprint(ptp\_pkt.\_\_dict\_\_)

{

'captured\_length': '86',

'frame\_info': <FRAME Layer>,

'interface\_captured': None,

'layers': [<ETH Layer>, <IP Layer>, <UDP Layer>, <PTP Layer>],

'length': '86',

'number': '259',

'sniff\_timestamp': '1526465121.969159000'

}

pprint.pprint(ptp\_pkt.eth\_\_dict\_\_)

{'\_all\_fields': {

'eth.addr': '01:00:5e:00:01:81',

'eth.addr\_resolved': '01:00:5e:00:01:81',

'eth.dst': '01:00:5e:00:01:81',

'eth.dst\_resolved': '01:00:5e:00:01:81',

'eth.ig': '1',

'eth.lg': '0',

'eth.src': '70:b3:d5:04:20:1f',

'eth.src\_resolved': '70:b3:d5:04:20:1f',

'eth.type': '0x00000800'

},

'\_layer\_name': 'eth',

'raw\_mode': False

}

pprint.pprint(ptp\_pkt.ip\_\_dict\_\_)

{'\_all\_fields': {

'': 'Source GeoIP: Unknown',

'ip.addr': '192.168.0.3',

'ip.checksum': '0x00003159',

'ip.checksum.status': '2',

'ip.dsfield': '0x000000b8',

'ip.dsfield.dscp': '46',

'ip.dsfield.ecn': '0',

'ip.dst': '224.0.1.129',

'ip.dst\_host': '224.0.1.129',

'ip.flags': '0x00000002',

'ip.flags.df': '1',

'ip.flags.mf': '0',

'ip.flags.rb': '0',

'ip.frag\_offset': '0',

'ip.hdr\_len': '20',

'ip.host': '192.168.0.3',

'ip.id': '0x0000a567',

'ip.len': '72',

'ip.proto': '17',

'ip.src': '192.168.0.3',

'ip.src\_host': '192.168.0.3',

'ip.ttl': '1',

'ip.version': '4'

},

'\_layer\_name': 'ip',

'raw\_mode': False

}

pprint.pprint(ptp\_pkt.udp\_\_dict\_\_)

{'\_all\_fields': {

'udp.checksum': '0x00000000',

'udp.checksum.status': '3',

'udp.dstport': '319',

'udp.length': '52',

'udp.port': '319',

'udp.srcport': '319',

'udp.stream': '1'

},

'\_layer\_name': 'udp',

'raw\_mode': False

}

pprint.pprint(ptp\_pkt.ptp\_\_dict\_\_)

{'\_all\_fields': {

'': 'correction: 1764.000000 nanoseconds',

'ptp.v2.clockidentity': '0x70b3d5fffe04201f',

'ptp.v2.control': '0',

'ptp.v2.correction.ns': '1764',

'ptp.v2.correction.subns': '0',

'ptp.v2.flags': '0x00000200',

'ptp.v2.flags.alternatemaster': '0',

'ptp.v2.flags.frequencytraceable': '0',

'ptp.v2.flags.li59': '0',

'ptp.v2.flags.li61': '0',

'ptp.v2.flags.security': '0',

'ptp.v2.flags.specific1': '0',

'ptp.v2.flags.specific2': '0',

'ptp.v2.flags.timescale': '0',

'ptp.v2.flags.timetraceable': '0',

'ptp.v2.flags.twostep': '1',

'ptp.v2.flags.unicast': '0',

'ptp.v2.flags.utcreasonable': '0',

'ptp.v2.logmessageperiod': '0',

'ptp.v2.messageid': '0',

'ptp.v2.messagelength': '44',

'ptp.v2.sdr.origintimestamp.nanoseconds': '0',

'ptp.v2.sdr.origintimestamp.seconds': '0',

'ptp.v2.sequenceid': '28090',

'ptp.v2.sourceportid': '1',

'ptp.v2.subdomainnumber': '0',

'ptp.v2.transportspecific': '0x00000000',

'ptp.v2.transportspecific.v1compatibility': '0',

'ptp.v2.versionptp': '2'

},

'\_layer\_name': 'ptp',

'raw\_mode': False

}

**A single UDP packet:**

*Cap = pyshark.LiveCapture(interface=”Audio”, display\_filter=”udp”)*

*Cap.sniff(packet\_count=1)*

*udp\_pkt = cap[0]*

pprint.pprint(udp\_pkt.\_\_dict\_\_)

{'captured\_length': '1206',

'frame\_info': <FRAME Layer>,

'interface\_captured': None,

'layers': [<ETH Layer>, <IP Layer>, <UDP Layer>, <DATA Layer>],

'length': '1206',

'number': '1',

'sniff\_timestamp': '1526468169.491552000'

}

pprint.pprint(udp\_pkt.eth.\_\_dict\_\_)

{'\_all\_fields': {

'eth.addr': '01:00:5e:7b:5d:ca',

'eth.addr\_resolved': '01:00:5e:7b:5d:ca',

'eth.dst': '01:00:5e:7b:5d:ca',

'eth.dst\_resolved': '01:00:5e:7b:5d:ca',

'eth.ig': '1',

'eth.lg': '0',

'eth.src': '70:b3:d5:04:20:2e',

'eth.src\_resolved': '70:b3:d5:04:20:2e',

'eth.type': '0x00000800'

},

'\_layer\_name': 'eth',

'raw\_mode': False

}

pprint.pprint(udp\_pkt.ip.\_\_dict\_\_)

{'\_all\_fields': {

'': 'Source GeoIP: Unknown',

'ip.addr': '192.168.0.1',

'ip.checksum': '0x000062ce',

'ip.checksum.status': '2',

'ip.dsfield': '0x00000088',

'ip.dsfield.dscp': '34',

'ip.dsfield.ecn': '0',

'ip.dst': '239.123.93.202',

'ip.dst\_host': '239.123.93.202',

'ip.flags': '0x00000002',

'ip.flags.df': '1',

'ip.flags.mf': '0',

'ip.flags.rb': '0',

'ip.frag\_offset': '0',

'ip.hdr\_len': '20',

'ip.host': '192.168.0.1',

'ip.id': '0x00000000',

'ip.len': '1192',

'ip.proto': '17',

'ip.src': '192.168.0.1',

'ip.src\_host': '192.168.0.1',

'ip.ttl': '5',

'ip.version': '4'

},

'\_layer\_name': 'ip',

'raw\_mode': False

}

pprint.pprint(udp\_pkt.udp.\_\_dict\_\_)

{'\_all\_fields': {

'udp.checksum': '0x00000000',

'udp.checksum.status': '3',

'udp.dstport': '5004',

'udp.length': '1172',

'udp.port': '5004',

'udp.srcport': '5004',

'udp.stream': '0'

},

'\_layer\_name': 'udp',

'raw\_mode': False

}

pprint.pprint(udp\_pkt.data.\_\_dict\_\_)

{'\_all\_fields': {

'data': '8062947314aa15af285c0abc0…………,

'data.data': '80:62:94:73:14:aa:15:af:28:5c:0a:bc:………………',

'data.len': '1164'

},

'\_layer\_name': 'fake-field-wrapper',

'raw\_mode': False

}