

Some SNMP MIB relevant OIDs for undergoing projects

1. General information about the device (the .system branch)

Most object on the .system branch are standard and present on every SNMP device, most relevant are:

- 1.3.6.1.2.1.1.1 - sysDescr
- 1.3.6.1.2.1.1.2 - sysObjectID
- 1.3.6.1.2.1.1.3 - sysUpTime
- 1.3.6.1.2.1.1.4 - sysContact
- 1.3.6.1.2.1.1.5 - sysName
- 1.3.6.1.2.1.1.6 - sysLocation
- 1.3.6.1.2.1.1.7 - sysServices

iso(1) org(3) dod(6) internet(1) mgmt(2) mib-2(1) system(1)

(1.3.6.1.2.1.1)

Example for the .system branch data retrieval in a Linux host:

```
snmpwalk -v 1 -c public DEVICE-IP-ADDRESS 1.3.6.1.2.1.1
```

2. Device interfaces and local MAC addresses

The **interfaces** table is also present on every SNMP device, it holds not only physical interfaces but also logical interfaces.

The interfaces table's OID is:

iso(1) org (3) dod(6) internet(1) mgmt(2) mib-2(1) interfaces(2)

(1.3.6.1.2.1.2)

On this branch we can find two objects:

1.3.6.1.2.1.2.1 – ifNumber	- The total number of network interfaces.
1.3.6.1.2.1.2.2 – ifTable	- The table itself.

The table has one **ifEntry** branch (1.3.6.1.2.1.2.2.1). For each table column, there is new branch within **ifEntry**.

Some branches (columns) present in **ifEntry** are:

- 1.3.6.1.2.1.2.2.1.1 – ifIndex
- 1.3.6.1.2.1.2.2.1.2 – ifDescr
- 1.3.6.1.2.1.2.2.1.3 – ifType
- 1.3.6.1.2.1.2.2.1.6 – ifPhysAddress
- 1.3.6.1.2.1.2.2.1.8 – ifOperStatus

Every branch representing a column contains several objects (one for each line). Each row is identified a value for ifIndex. Table positions are represented by suffixing the column OID with the ifIndex value for the row. Notice ifIndex values cannot be repeated but are otherwise arbitrarily define by agents.

For instance 1.3.6.1.2.1.2.2.1.2.9721 (can also be represented as ifDescr.9721), represents the description of the network interface present in the table row with ifIndex equal to 9721.

Of course ifIndex.9721 contains value 9721.

The GetNext SNMP request (snmpwalk command) is especially suited for tables reading without earlier knowing ifIndex values. It can be used to retrieve an entire branch subtree.

For retrieving the whole table content, the table entry (1.3.6.1.2.1.2.2.1) can be requested:

```
snmpwalk -v 1 -c public DEVICE-IP-ADDRESS 1.3.6.1.2.1.2.2.1
```

It can also be used to retrieve one specific table's column, this is achieved by starting on the column's object OID. For instance to get all interfaces MAC addresses:

```
snmpwalk -v 1 -c public DEVICE-IP-ADDRESS 1.3.6.1.2.1.2.2.1.6
```

3. Device's MAC table (layer two switching)

Unlike with the .system branch and the interfaces table, in respect to MAC tables, things are not so straightforward. To start with, not all devices have a MAC table. Generally speaking, MAC tables are only useful for devices meant to forward layer two frames. So we are talking about switches, bridges and access points, usually end-nodes and routers don't have MAC tables.

One other issue is the MAC table OID is not the same on every device MIB. Some devices may have more than one copy of the MAC tables in more than one OID, others may have a single copy present on only one OID.

One possible OID for the device MAC table is:

```
iso(1) org(3) dod(6) internet(1) mgmt(2) mib-2(1) bridge(17) dot1dTp(4) dot1dTpFdbTable(3)  
(1.3.6.1.2.1.17.4.3)
```

This is a table, so inside it there is an entry branch, in this case dot1dTpFdbEntry:
(1.3.6.1.2.1.17.4.3.1)

As usual with tables, the **dot1dTpFdbEntry** contains one branch for each table column, in this case those are:

1.3.6.1.2.1.17.4.3.1.1 – dot1dTpFdbAddress	- MAC address
1.3.6.1.2.1.17.4.3.1.2 – dot1dTpFdbPort	- Switch port (ifIndex from ifTable)
1.3.6.1.2.1.17.4.3.1.3 – dot1dTpFdbStatus	- Status

As with the ifIndex in ifEntry, the first branch (dot1dTpFdbAddress) is used to identify rows. Because it's a MAC address (6 bytes), when prefixed to the column ODI it appears as a sequence of six bytes expressed in decimal.

This means that by retrieving dot1dTpFdbPort we get the full MAC table:

```
snmpwalk -v 1 -c public DEVICE-IP-ADDRESS 1.3.6.1.2.1.17.4.3.1.2
```

The six last elements of the OID represent the MAC address in decimal and the content value represents the port number (ifIndex value).

One alternative place for **dot1dTpFdbTable** is:

```
iso(1) org(3) dod(6) internet(1) mgmt(2) mib-2(1) bridge(17) qBridgeMIB(7) qBridgeMIBObjects(1) dot1qTp(2) dot1qTpFdbTable(2)  
(1.3.6.1.2.1.17.7.1.2.2)
```

Notice that unlike the previous table, in this one the MAC address (dot1dTpFdbAddress) is inaccessible, so the only way to get them is from OID's themselves.

So in this case the command to retrieve the full MAC table is now:

```
snmpwalk -v 1 -c public DEVICE-IP-ADDRESS 1.3.6.1.2.1.17.7.1.2.2.1.2
```

Already mentioned and other possible locations for **dot1dTpFdbTable** are:

1.3.6.1.2.1.17.4.3	iso(1) identified-organization(3) dod(6) internet(1) mgmt(2) mib-2(1) bridge(17) dot1dTp(4) dot1dTpFdbTable(3)
1.3.6.1.2.1.17.7.1.2.2	iso(1) identified-organization(3) dod(6) internet(1) mgmt(2) mib-2(1) bridge(17) qBridgeMIB(7) qBridgeMIBObjects(1) dot1qTp(2) dot1qTpFdbTable(2)
1.3.6.1.3.14.4.3	iso(1) org(3) dod(6) internet(1) experimental(3) dot1dBridge(14) dot1dTp(4) dot1qTpFdbTable(3)

4. Device's ARP table (layer three IPv4 nodes)

ARP tables establish relations between layer three IPv4 addresses and layer two MAC addresses. The SNMP MIB scenario around ARP tables is somewhat identical to MAC tables.

One possible location for the ARP table is:

```
iso(1) org (3) dod(6) internet(1) mgmt(2) mib-2(1) ip(4) ipNetToMediaTable(22)
(1.3.6.1.2.1.4.22)
```

This table entry object is ipNetToMediaEntry(1.3.6.1.2.1.4.22.1) it contains:

```
1.3.6.1.2.1.4.22.1.1 (ipNetToMediaIfIndex)
1.3.6.1.2.1.4.22.1.2 (ipNetToMediaPhysAddress)
1.3.6.1.2.1.4.22.1.3 (ipNetToMediaNetAddress)
1.3.6.1.2.1.4.22.1.4 (ipNetToMediaType)
```

MAC addresses are stored on ipNetToMediaPhysAddress object, row prefix identification (OID) ends with the IPv4 address. Again this means the whole ARP table can be retrieved by using:

```
snmpwalk -v 1 -c public DEVICE-IP-ADDRESS 1.3.6.1.2.1.4.22.1.2
```

The four last elements of the OID represent the IPv4 address in decimal and the value represents the MAC address.

One other possible location for the ARP table is:

```
iso(1) org (3) dod(6) internet(1) mgmt(2) mib-2(1) ip(4) ipNetToPhysicalTable(35)
(1.3.6.1.2.1.4.35)
```

Same information as above can be retrieved by listing entries for:

```
iso(1) org (3) dod(6) internet(1) mgmt(2) mib-2(1) ip(4) ipNetToPhysicalTable(35) ipNetToPhysicalEntry(1) ipNetToPhysicalPhysAddress(4)
(1.3.6.1.2.1.4.35.1.4)
```

```
snmpwalk -v 1 -c public DEVICE-IP-ADDRESS 1.3.6.1.2.1.4.35.1.4
```

5. Usage examples

5.1. The .system branch

snmpwalk -v 1 -c public DEVICE-IP-ADDRESS 1.3.6.1.2.1.1
iso.3.6.1.2.1.1.1.0 = STRING: "HP V1910-48G Switch" iso.3.6.1.2.1.1.2.0 = OID: iso.3.6.1.4.1.25506.11.1.85 iso.3.6.1.2.1.1.3.0 = Timeticks: (1950084388) 225 days, 16:54:03.88 iso.3.6.1.2.1.1.4.0 = STRING: "tecnicos@dei.isep.ipp.pt" iso.3.6.1.2.1.1.5.0 = STRING: "swdcenter" iso.3.6.1.2.1.1.6.0 = STRING: "Data Center DSI" iso.3.6.1.2.1.1.7.0 = INTEGER: 78

Remember OIDs refer to classes, class objects are identified by the class OID suffixed with a unique additional qualifier, in this case .0 because for these classes there is a single object instance. Also, because there is a single instance of the class, the class's OID itself can be used, for example:

snmpwalk -v 1 -c public DEVICE-IP-ADDRESS 1.3.6.1.2.1.1.5
iso.3.6.1.2.1.1.5.0 = STRING: "swdcenter"

Is the same as requesting OID "1.3.6.1.2.1.1.5.0":

snmpwalk -v 1 -c public DEVICE-IP-ADDRESS 1.3.6.1.2.1.1.5.0
iso.3.6.1.2.1.1.5.0 = STRING: "swdcenter"

5.2. Local interfaces and corresponding device local MAC addresses

snmpwalk -v 1 -c public DEVICE-IP-ADDRESS 1.3.6.1.2.1.2.2.1.6
iso.3.6.1.2.1.2.2.1.6.1 = Hex-STRING: 48 0F CF 92 79 7F iso.3.6.1.2.1.2.2.1.6.2 = Hex-STRING: 48 0F CF 92 79 7E iso.3.6.1.2.1.2.2.1.6.3 = Hex-STRING: 48 0F CF 92 79 7D iso.3.6.1.2.1.2.2.1.6.4 = Hex-STRING: 48 0F CF 92 79 7C iso.3.6.1.2.1.2.2.1.6.5 = Hex-STRING: 48 0F CF 92 79 7B iso.3.6.1.2.1.2.2.1.6.6 = Hex-STRING: 48 0F CF 92 79 7A iso.3.6.1.2.1.2.2.1.6.7 = Hex-STRING: 48 0F CF 92 79 79 iso.3.6.1.2.1.2.2.1.6.8 = Hex-STRING: 48 0F CF 92 79 78 iso.3.6.1.2.1.2.2.1.6.9 = Hex-STRING: 48 0F CF 92 79 77 iso.3.6.1.2.1.2.2.1.6.10 = Hex-STRING: 48 0F CF 92 79 76 iso.3.6.1.2.1.2.2.1.6.11 = Hex-STRING: 48 0F CF 92 79 75 iso.3.6.1.2.1.2.2.1.6.12 = Hex-STRING: 48 0F CF 92 79 74 iso.3.6.1.2.1.2.2.1.6.13 = Hex-STRING: 48 0F CF 92 79 73 iso.3.6.1.2.1.2.2.1.6.14 = Hex-STRING: 48 0F CF 92 79 72 iso.3.6.1.2.1.2.2.1.6.15 = Hex-STRING: 48 0F CF 92 79 71 iso.3.6.1.2.1.2.2.1.6.16 = Hex-STRING: 48 0F CF 92 79 70 iso.3.6.1.2.1.2.2.1.6.17 = Hex-STRING: 48 0F CF 92 79 6F iso.3.6.1.2.1.2.2.1.6.18 = Hex-STRING: 48 0F CF 92 79 6E iso.3.6.1.2.1.2.2.1.6.19 = Hex-STRING: 48 0F CF 92 79 6D iso.3.6.1.2.1.2.2.1.6.20 = Hex-STRING: 48 0F CF 92 79 6C iso.3.6.1.2.1.2.2.1.6.21 = Hex-STRING: 48 0F CF 92 79 6B iso.3.6.1.2.1.2.2.1.6.22 = Hex-STRING: 48 0F CF 92 79 6A iso.3.6.1.2.1.2.2.1.6.23 = Hex-STRING: 48 0F CF 92 79 69 iso.3.6.1.2.1.2.2.1.6.24 = Hex-STRING: 48 0F CF 92 79 68 iso.3.6.1.2.1.2.2.1.6.102 = Hex-STRING: 48 0F CF 92 79 60 iso.3.6.1.2.1.2.2.1.6.151 = Hex-STRING: 48 0F CF 92 79 60 iso.3.6.1.2.1.2.2.1.6.157 = Hex-STRING: 48 0F CF 92 79 60 iso.3.6.1.2.1.2.2.1.6.4324 = "" iso.3.6.1.2.1.2.2.1.6.4325 = "" iso.3.6.1.2.1.2.2.1.6.4326 = ""

We can see the class OID (1.3.6.1.2.1.2.2.1.6) is suffixed with the port identifier, also notice some interfaces may not have a MAC address, for instance logical interfaces (VLAN). Also some MAC addresses may be shared between several ports.

5.3. MAC tables

snmpwalk -v 1 -c public DEVICE-IP-ADDRESS 1.3.6.1.2.1.17.4.3.1.2	
iso.3.6.1.2.1.17.4.3.1.2.0.0.133.87.157.194 = INTEGER: 20	
iso.3.6.1.2.1.17.4.3.1.2.0.0.133.112.152.89 = INTEGER: 18	
iso.3.6.1.2.1.17.4.3.1.2.0.4.0.214.248.169 = INTEGER: 1	
iso.3.6.1.2.1.17.4.3.1.2.0.12.41.95.161.244 = INTEGER: 1	
iso.3.6.1.2.1.17.4.3.1.2.0.12.41.174.94.168 = INTEGER: 1	
iso.3.6.1.2.1.17.4.3.1.2.0.17.50.37.196.245 = INTEGER: 1	
iso.3.6.1.2.1.17.4.3.1.2.0.22.182.176.238.188 = INTEGER: 1	
iso.3.6.1.2.1.17.4.3.1.2.0.22.185.163.20.65 = INTEGER: 1	
iso.3.6.1.2.1.17.4.3.1.2.0.24.243.139.64.80 = INTEGER: 1	
iso.3.6.1.2.1.17.4.3.1.2.0.24.254.83.0.1 = INTEGER: 1	
iso.3.6.1.2.1.17.4.3.1.2.0.24.254.83.0.55 = INTEGER: 1	
iso.3.6.1.2.1.17.4.3.1.2.0.25.185.8.133.163 = INTEGER: 1	
iso.3.6.1.2.1.17.4.3.1.2.0.25.185.8.213.243 = INTEGER: 1	
iso.3.6.1.2.1.17.4.3.1.2.0.26.75.25.193.80 = INTEGER: 1	
iso.3.6.1.2.1.17.4.3.1.2.0.26.75.45.119.47 = INTEGER: 23	
iso.3.6.1.2.1.17.4.3.1.2.0.27.120.28.64.46 = INTEGER: 21	
iso.3.6.1.2.1.17.4.3.1.2.0.34.25.132.17.191 = INTEGER: 1	
iso.3.6.1.2.1.17.4.3.1.2.0.34.25.132.236.157 = INTEGER: 1	
iso.3.6.1.2.1.17.4.3.1.2.0.37.97.5.235.0 = INTEGER: 1	
iso.3.6.1.2.1.17.4.3.1.2.0.37.97.5.235.2 = INTEGER: 1	
iso.3.6.1.2.1.17.4.3.1.2.0.37.97.6.164.32 = INTEGER: 1	
iso.3.6.1.2.1.17.4.3.1.2.0.37.97.6.164.34 = INTEGER: 1	
iso.3.6.1.2.1.17.4.3.1.2.0.48.110.112.231.128 = INTEGER: 0	
iso.3.6.1.2.1.17.4.3.1.2.0.64.140.142.244.146 = INTEGER: 6	
iso.3.6.1.2.1.17.4.3.1.2.0.163.245.199.51.141 = INTEGER: 1	
iso.3.6.1.2.1.17.4.3.1.2.0.174.176.173.20.136 = INTEGER: 1	
iso.3.6.1.2.1.17.4.3.1.2.8.46.95.18.224.59 = INTEGER: 1	
iso.3.6.1.2.1.17.4.3.1.2.16.243.17.228.144.146 = INTEGER: 1	
iso.3.6.1.2.1.17.4.3.1.2.28.117.8.136.233.207 = INTEGER: 9	
iso.3.6.1.2.1.17.4.3.1.2.28.117.8.141.62.85 = INTEGER: 1	
iso.3.6.1.2.1.17.4.3.1.2.44.89.229.18.207.226 = INTEGER: 1	
iso.3.6.1.2.1.17.4.3.1.2.56.234.167.138.201.181 = INTEGER: 1	
iso.3.6.1.2.1.17.4.3.1.2.64.73.15.109.61.181 = INTEGER: 1	
iso.3.6.1.2.1.17.4.3.1.2.72.215.5.236.209.96 = INTEGER: 1	
iso.3.6.1.2.1.17.4.3.1.2.80.101.243.60.35.252 = INTEGER: 1	
iso.3.6.1.2.1.17.4.3.1.2.108.194.23.203.17.32 = INTEGER: 1	
iso.3.6.1.2.1.17.4.3.1.2.108.194.23.203.134.96 = INTEGER: 1	
iso.3.6.1.2.1.17.4.3.1.2.132.52.151.58.238.128 = INTEGER: 1	
iso.3.6.1.2.1.17.4.3.1.2.132.52.151.59.16.160 = INTEGER: 1	
iso.3.6.1.2.1.17.4.3.1.2.132.52.151.59.70.128 = INTEGER: 1	
iso.3.6.1.2.1.17.4.3.1.2.132.52.151.59.86.160 = INTEGER: 1	

The class OID (1.3.6.1.2.1.17.4.3.1.2) is suffixed with the MAC address (green highlighted for the last lines), the content value represents the port identifier.

For some devices this class objects may be absent, on those cases the MAC table should be searched in the class OID “1.3.6.1.2.1.17.7.1.2.2.1.2”:

snmpwalk -v 1 -c public DEVICE-IP-ADDRESS 1.3.6.1.2.1.17.7.1.2.2.1.2	
iso.3.6.1.2.1.17.7.1.2.2.1.2.1.0.0.133.87.157.194 = INTEGER: 20	
iso.3.6.1.2.1.17.7.1.2.2.1.2.1.0.0.133.112.152.89 = INTEGER: 18	
iso.3.6.1.2.1.17.7.1.2.2.1.2.1.0.4.0.214.248.169 = INTEGER: 1	
iso.3.6.1.2.1.17.7.1.2.2.1.2.1.0.12.41.95.161.244 = INTEGER: 1	
iso.3.6.1.2.1.17.7.1.2.2.1.2.1.0.48.110.112.231.128 = INTEGER: 0	
iso.3.6.1.2.1.17.7.1.2.2.1.2.1.0.64.140.142.244.146 = INTEGER: 6	
iso.3.6.1.2.1.17.7.1.2.2.1.2.1.0.163.245.199.51.141 = INTEGER: 1	
iso.3.6.1.2.1.17.7.1.2.2.1.2.1.0.174.176.173.20.136 = INTEGER: 1	
iso.3.6.1.2.1.17.7.1.2.2.1.2.1.8.46.95.18.224.59 = INTEGER: 1	
iso.3.6.1.2.1.17.7.1.2.2.1.2.1.164.238.87.234.250.219 = INTEGER: 1	
iso.3.6.1.2.1.17.7.1.2.2.1.2.1.188.238.123.70.248.193 = INTEGER: 1	
iso.3.6.1.2.1.17.7.1.2.2.1.2.1.200.42.20.80.251.89 = INTEGER: 1	
iso.3.6.1.2.1.17.7.1.2.2.1.2.1.240.125.104.215.158.229 = INTEGER: 1	
iso.3.6.1.2.1.17.7.1.2.2.1.2.1.240.191.151.17.180.117 = INTEGER: 1	
iso.3.6.1.2.1.17.7.1.2.2.1.2.2.0.0.133.87.157.194 = INTEGER: 20	
iso.3.6.1.2.1.17.7.1.2.2.1.2.2.0.0.133.112.152.89 = INTEGER: 18	
iso.3.6.1.2.1.17.7.1.2.2.1.2.2.0.4.0.214.248.169 = INTEGER: 1	
iso.3.6.1.2.1.17.7.1.2.2.1.2.2.0.12.41.95.161.244 = INTEGER: 1	
iso.3.6.1.2.1.17.7.1.2.2.1.2.2.0.12.41.174.94.168 = INTEGER: 1	
iso.3.6.1.2.1.17.7.1.2.2.1.2.2.0.17.50.37.196.245 = INTEGER: 1	
iso.3.6.1.2.1.17.7.1.2.2.1.2.2.0.22.182.176.238.188 = INTEGER: 1	
iso.3.6.1.2.1.17.7.1.2.2.1.2.2.0.22.185.163.20.65 = INTEGER: 1	

```

iso.3.6.1.2.1.17.7.1.2.2.1.2.2.0.24.243.139.64.80 = INTEGER: 1
iso.3.6.1.2.1.17.7.1.2.2.1.2.2.0.24.254.83.0.1 = INTEGER: 1
iso.3.6.1.2.1.17.7.1.2.2.1.2.2.0.24.254.83.0.55 = INTEGER: 1
iso.3.6.1.2.1.17.7.1.2.2.1.2.2.0.25.185.8.133.163 = INTEGER: 1
iso.3.6.1.2.1.17.7.1.2.2.1.2.2.0.25.185.8.213.243 = INTEGER: 1
iso.3.6.1.2.1.17.7.1.2.2.1.2.2.0.26.75.25.193.80 = INTEGER: 1
iso.3.6.1.2.1.17.7.1.2.2.1.2.2.0.26.75.45.119.47 = INTEGER: 23
iso.3.6.1.2.1.17.7.1.2.2.1.2.2.0.27.120.28.64.46 = INTEGER: 21
iso.3.6.1.2.1.17.7.1.2.2.1.2.2.0.34.25.132.17.191 = INTEGER: 1
iso.3.6.1.2.1.17.7.1.2.2.1.2.2.0.34.25.132.236.157 = INTEGER: 1
iso.3.6.1.2.1.17.7.1.2.2.1.2.2.0.37.97.5.235.0 = INTEGER: 1
iso.3.6.1.2.1.17.7.1.2.2.1.2.2.0.37.97.5.235.2 = INTEGER: 1
iso.3.6.1.2.1.17.7.1.2.2.1.2.2.0.37.97.6.164.32 = INTEGER: 1
iso.3.6.1.2.1.17.7.1.2.2.1.2.2.0.37.97.6.164.34 = INTEGER: 1
iso.3.6.1.2.1.17.7.1.2.2.1.2.2.0.48.110.112.231.129 = INTEGER: 0
iso.3.6.1.2.1.17.7.1.2.2.1.2.2.0.64.140.142.244.146 = INTEGER: 6
iso.3.6.1.2.1.17.7.1.2.2.1.2.2.0.163.245.199.51.141 = INTEGER: 1
iso.3.6.1.2.1.17.7.1.2.2.1.2.2.0.174.176.173.20.136 = INTEGER: 1
iso.3.6.1.2.1.17.7.1.2.2.1.2.2.8.46.95.18.224.59 = INTEGER: 1
iso.3.6.1.2.1.17.7.1.2.2.1.2.2.16.243.17.228.144.146 = INTEGER: 1
iso.3.6.1.2.1.17.7.1.2.2.1.2.2.28.117.8.136.233.207 = INTEGER: 9
iso.3.6.1.2.1.17.7.1.2.2.1.2.2.28.117.8.141.62.85 = INTEGER: 1
iso.3.6.1.2.1.17.7.1.2.2.1.2.2.44.89.229.18.207.226 = INTEGER: 1
iso.3.6.1.2.1.17.7.1.2.2.1.2.2.56.234.167.138.201.181 = INTEGER: 1
iso.3.6.1.2.1.17.7.1.2.2.1.2.2.64.73.15.109.61.181 = INTEGER: 1
iso.3.6.1.2.1.17.7.1.2.2.1.2.2.72.215.5.236.209.96 = INTEGER: 1
iso.3.6.1.2.1.17.7.1.2.2.1.2.2.80.101.243.60.35.252 = INTEGER: 1
iso.3.6.1.2.1.17.7.1.2.2.1.2.3.0.22.185.163.20.65 = INTEGER: 1
iso.3.6.1.2.1.17.7.1.2.2.1.2.3.0.24.243.139.64.80 = INTEGER: 1
iso.3.6.1.2.1.17.7.1.2.2.1.2.3.8.46.95.18.224.59 = INTEGER: 1
iso.3.6.1.2.1.17.7.1.2.2.1.2.3.16.243.17.228.144.146 = INTEGER: 1
iso.3.6.1.2.1.17.7.1.2.2.1.2.3.28.117.8.136.233.207 = INTEGER: 9
iso.3.6.1.2.1.17.7.1.2.2.1.2.3.28.117.8.141.62.85 = INTEGER: 1
iso.3.6.1.2.1.17.7.1.2.2.1.2.3.44.89.229.18.207.226 = INTEGER: 1
iso.3.6.1.2.1.17.7.1.2.2.1.2.3.56.234.167.138.201.181 = INTEGER: 1
iso.3.6.1.2.1.17.7.1.2.2.1.2.3.64.73.15.109.61.181 = INTEGER: 1
iso.3.6.1.2.1.17.7.1.2.2.1.2.3.72.215.5.236.209.96 = INTEGER: 1
iso.3.6.1.2.1.17.7.1.2.2.1.2.4.8.46.95.18.224.59 = INTEGER: 1
iso.3.6.1.2.1.17.7.1.2.2.1.2.4.16.243.17.228.144.146 = INTEGER: 1
iso.3.6.1.2.1.17.7.1.2.2.1.2.4.28.117.8.136.233.207 = INTEGER: 9
iso.3.6.1.2.1.17.7.1.2.2.1.2.4.28.117.8.141.62.85 = INTEGER: 1
iso.3.6.1.2.1.17.7.1.2.2.1.2.4.44.89.229.18.207.226 = INTEGER: 1
iso.3.6.1.2.1.17.7.1.2.2.1.2.4.56.234.167.138.201.181 = INTEGER: 1
iso.3.6.1.2.1.17.7.1.2.2.1.2.4.132.52.151.59.16.160 = INTEGER: 1
iso.3.6.1.2.1.17.7.1.2.2.1.2.4.132.52.151.59.70.128 = INTEGER: 1
iso.3.6.1.2.1.17.7.1.2.2.1.2.4.132.52.151.59.86.160 = INTEGER: 1
iso.3.6.1.2.1.17.7.1.2.2.1.2.4.164.238.87.234.250.219 = INTEGER: 1
iso.3.6.1.2.1.17.7.1.2.2.1.2.4.240.77.162.218.4.19 = INTEGER: 1
iso.3.6.1.2.1.17.7.1.2.2.1.2.4.240.125.104.215.158.229 = INTEGER: 1
iso.3.6.1.2.1.17.7.1.2.2.1.2.4.240.191.151.17.180.117 = INTEGER: 1

```

It's similar, however the suffix now includes a VLAN id. Some devices may include both class' objects, others only one. **But again the last six bytes of the object id are the MAC address (green highlighted for the last lines) and the value the port identifier.**

5.4. ARP tables

```

snmpwalk -v 1 -c public DEVICE-IP-ADDRESS 1.3.6.1.2.1.4.22.1.2
iso.3.6.1.2.1.4.22.1.2.55.10.5.0.1 = Hex-STRING: 10 F3 11 E4 90 92
iso.3.6.1.2.1.4.22.1.2.55.10.5.0.9 = Hex-STRING: F0 4D A2 D9 F3 B2
iso.3.6.1.2.1.4.22.1.2.55.10.5.0.10 = Hex-STRING: F0 4D A2 D9 F3 19
iso.3.6.1.2.1.4.22.1.2.55.10.5.0.11 = Hex-STRING: F0 4D A2 D9 F2 B4
iso.3.6.1.2.1.4.22.1.2.55.10.5.0.12 = Hex-STRING: F0 4D A2 DA 04 13
iso.3.6.1.2.1.4.22.1.2.55.10.5.0.13 = Hex-STRING: 00 22 19 84 11 BF
iso.3.6.1.2.1.4.22.1.2.55.10.5.0.14 = Hex-STRING: 00 22 19 84 EC 9D
iso.3.6.1.2.1.4.22.1.2.55.10.5.0.25 = Hex-STRING: 00 18 F3 8B 40 50
iso.3.6.1.2.1.4.22.1.2.55.10.5.4.7 = Hex-STRING: 48 0F CF 91 92 60

```

Now objects are identified by the class OID (1.3.6.1.2.1.4.22.1.2) suffixed with the VLAN identifier followed by the IPv4 address (green highlighted), values represent associated MAC addresses.

As before, some devices may lack this class objects, then class 1.3.6.1.2.1.4.35.1.4 should be searched instead:

snmpwalk -v 1 -c public DEVICE-IP-ADDRESS 1.3.6.1.2.1.4.35.1.4	
iso.3.6.1.2.1.4.35.1.4.379.1.4.10.5.0.1	= Hex-STRING: 10 F3 11 E4 90 92
iso.3.6.1.2.1.4.35.1.4.385.1.4.10.8.0.2	= Hex-STRING: 00 0C 29 AE 5E BC
iso.3.6.1.2.1.4.35.1.4.385.1.4.10.8.0.80	= Hex-STRING: 00 0C 29 50 7C 8A

Again the last four bytes of the suffix are the IPv4 address and the value is the associated MAC address. Once again, some devices may include both class' objects, others only one.