



Application Note

Title: Auto VLAN assignment for Avaya IP Phones with firmware 1.51 & 1.6

Issue: 1.1

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Network Consulting Services

1.0 Overview

This application note will instruct you on how to configure a DHCP server to do auto VLAN assignment for Avaya IP Phones and verify via captures that it works correctly. You must have some knowledge of DHCP, and the Avaya IP Phones.

On boot, the Avaya IP Phones will broadcast DHCPDiscover messages on the default VLAN. If the SSON in the DHCP scope for the default VLAN has the Layer 2 configuration settings. The IP Phone will read this into flash memory and reboot. Before the IP Phone reboots, it will send a DHCPRelease for the IP Address it was assigned on the default VLAN as it will no longer be valid for the VLAN assigned in the SSON. After the reboot, it will start the DHCP lease process over on the newly assigned VLAN during the first boot up from the SSON in the DHCP scope and boot up normally.



2.0 Requirements

- Windows 2000 SP2 DHCP server
- Latest version of IP Phone firmware <http://sj.usae.avaya.com/~bear/ip/#soft>
*1.51 & 1.6 was used during the testing
- R10 MultiVantage PBX

3.0 Procedure

1. In the Default VLAN DHCP scope configure a scope option of 176. The option could contain the following: MCIPADD=172.16.1.2,MCPORT=1719,L2Q=1, L2QVLAN=2,TFTP SRVR=172.16.2.2,TFTPDIR=""
2. In the DHCP scope for the Voice VLAN, add in the **exact** string as in step 1. The only differences in the DHCP scopes are the router entries that are not part of the 176 string.
3. Plug the Ethernet cable and power into an Avaya IP Phone. The Avaya IP Phone will boot up and start broadcasting DHCP Discover messages on the default VLAN. If you have configured the scope option correctly, you will notice that the screen will go blank after a few seconds and then start the DHCP Discover message broadcasting again. If there is not a new firmware load for the Avaya IP Phone on the TFTP server, you will be prompted for an extension and then a password on the display.
4. Enter a valid Avaya IP Phone extension and password. You should now be able to make and receive calls.
5. To verify that your Avaya IP Phone has an IP address from the Voice VLAN scope, press Hold->2->3->3->7-># to scroll through the address information in the IP phone flash memory.

4.0 Testing observations

1. DHCP IP address release -

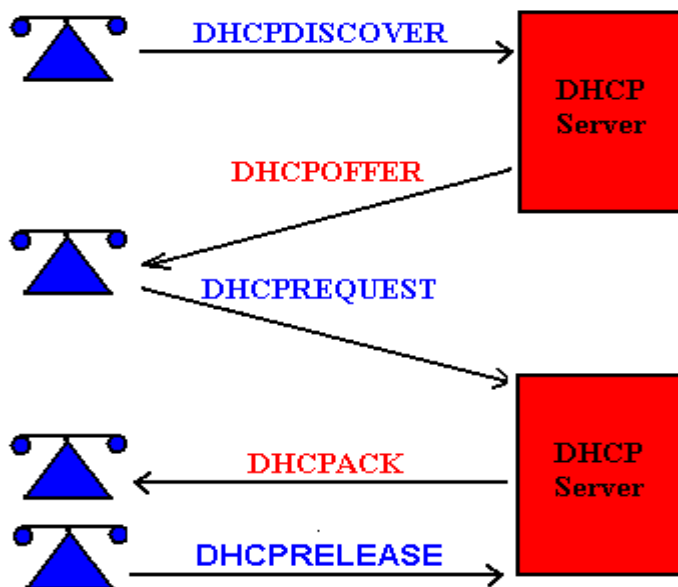
During testing it was found that the IP phone does not exhaust IP addresses in the default VLAN scope. This was tested by limiting the available IP addresses in the scope to one. Once the IP phone booted successfully, a PC was plugged into the network and was able to successfully lease the only IP address available in the default scope. This verifies that the IP Phone does properly release the IP addresses from the default scope.

5.0 Captures

Following are Prism Lite sniffer captures of the Avaya IP Phone boot and the appropriate DHCP packets. The captures have been edited for ease of reading. The following chart details the types of DHCP messages. These will allow you to interpret the decodes:

Table 1:

DHCP msg type	Description
DHCP Discover	Initiates a client request to all servers
DHCP Offer	Offer from server following client request
DHCP Request	Request a particular server for services
DHCP Ack	Notify client that requested parameters could be met
DHCP Nak	Notify client that requested parameters can't be met
DHCP Decline	Notify server that offer is unsatisfactory and not accepted
DHCP Release	Notify server that IP address is no longer needed



DHCP Process, process repeats with VLAN headers



1. Initial boot DHCPDiscover and DHCP Offer on default VLAN

DHCP DISCOVER FRAME

Frame: 120 Captured at: +00:00.000

Length: 594 From: Port 1 Status: Ok

Ethernet: Destination Address Broadcast <FFFFFFFFFFFF>

Ethernet: Group Address

Ethernet: Local Address

Ethernet: Source Address ipphone <00601D246269> **IP Phone MAC**

Ethernet: Universally Address

Ethernet: Ethernet V.2, Type IP <0800> **No VLAN Header**

{edited....}

DHCP(BOOTP): Op: Boot request <01>

DHCP(BOOTP): Hardware Address Type: Ethernet (10Mb) <01>

DHCP(BOOTP): Hardware Address Length: 6 <06>

DHCP(BOOTP): Header Options:0 <00>

DHCP(BOOTP): Transaction Id:2444754944 <91B80000>

DHCP(BOOTP): Elapsed time (Hr): 0:0:0 <0000>

DHCP(BOOTP): BROADCAST flag: 0 <0000>

DHCP(BOOTP): MBZ reserved

DHCP(BOOTP): Client Ip address :0.0.0.0 <00000000>

DHCP(BOOTP): Your IP Address:0.0.0.0 <00000000>

DHCP(BOOTP): Server Ip Address :0.0.0.0 <00000000>

DHCP(BOOTP): Gateway Ip Address :0.0.0.0 <00000000>

DHCP(BOOTP): Client hardware address: 00601D246269 <00601D246269>

{edited....}

DHCP(BOOTP): Magic: 99.130.83.99 <63825363>

DHCP(BOOTP): Option Type:53 MsgType <35>

DHCP(BOOTP): Message Type: DISCOVER <0101> **DHCP Discover message**

DHCP(BOOTP): Option Type:60 Class Id <3C>

DHCP(BOOTP): Message Length: 13 <0D>

Vendor Specific Information:

011F: 63 63 70 2E 61 76 61 79 61 2E 63 6F 6D ccp.avaya.com

DHCP(BOOTP): Option Type:57 DHCP Max Msg Size <39>

DHCP(BOOTP): Message Length: 2 <02>

DHCP(BOOTP): Max DHCP msg size: 576 <0240>

DHCP(BOOTP): Option Type:55 Parameter List <37>

DHCP(BOOTP): Message Length: 4 <04>

DHCP(BOOTP): Option Codes: 4

DHCP(BOOTP): Codes: 1 <01>

DHCP(BOOTP): Codes: 3 <03>

DHCP(BOOTP): Codes: 43 <2B>

DHCP(BOOTP): Codes: 176 <B0>

DHCP(BOOTP): Option Type:255 End <FF>

{edited....}

AVAYA

****DHCP OFFER FRAME****

Frame: 121 Captured at: +00:00.015

Length: 432 From: Port 2 Status: Ok

Ethernet: Destination Address ipphone <00601D246269>****IP Phone MAC****

Ethernet: Individual Address

Ethernet: Universally Address

Ethernet: Source Address 0007852615E1 <0007852615E1>

Ethernet: Universally Address

Ethernet: Ethernet V.2, Type IP <0800>****No VLAN Header****

{edited....}

DHCP(BOOTP): Op: Bootreply <02>

DHCP(BOOTP): Hardware Address Type: Ethernet (10Mb) <01>

DHCP(BOOTP): Hardware Address Length: 6 <06>

DHCP(BOOTP): Header Options:0 <00>

DHCP(BOOTP): Transaction Id:2444754944 <91B80000>

DHCP(BOOTP): Elapsed time (Hr): 0:0:0 <0000>

DHCP(BOOTP): BROADCAST flag: 0 <0000>

DHCP(BOOTP): MBZ reserved

DHCP(BOOTP): Client Ip address :0.0.0.0 <00000000>

DHCP(BOOTP): Your IP Address:155.184.195.14 <9BB8C30E>

DHCP(BOOTP): Server Ip Address :155.184.195.52 <9BB8C334>

DHCP(BOOTP): Gateway Ip Address :155.184.195.1 <9BB8C301>

DHCP(BOOTP): Client hardware address: 00601D246269 <00601D246269>

{edited....}

DHCP(BOOTP): Magic: 99.130.83.99 <63825363>

DHCP(BOOTP): Option Type:53 MsgType <35>

DHCP(BOOTP): Message Type: OFFER <0102>****DHCP Offer****

DHCP(BOOTP): Option Type:1 Subnet Mask <01>

DHCP(BOOTP): Message Length: 4 <04>

DHCP(BOOTP): Subnet Mask: 0xFFFFFFFF0 <FFFFFFFF0>

DHCP(BOOTP): Option Type:58 Renewal Time <3A>

DHCP(BOOTP): Message Length: 4 <04>

DHCP(BOOTP): T1 Interval: 345600 <00054600>

DHCP(BOOTP): Option Type:59 Rebinding Time <3B>

DHCP(BOOTP): Message Length: 4 <04>

DHCP(BOOTP): T2 Interval: 604800 <00093A80>

DHCP(BOOTP): Option Type:51 Address Time <33>

DHCP(BOOTP): Message Length: 4 <04>

DHCP(BOOTP): Lease Time: 691200 <000A8C00>

DHCP(BOOTP): Option Type:54 DHCP Server Id <36>

DHCP(BOOTP): Message Length: 4 <04>

DHCP(BOOTP): Address: 155.184.195.52 <9BB8C334>

DHCP(BOOTP): Option Type:3 Gateways <03>

DHCP(BOOTP): Message Length: 4 <04>

DHCP(BOOTP): Address: 155.184.195.1 <9BB8C301>

DHCP(BOOTP): Address: 176.104.77.67 <B0684D43>
 DHCP(BOOTP): Address: 73.80.65.68 <49504144>
 DHCP(BOOTP): Address: 68.61.49.53 <443D3135>
 DHCP(BOOTP): Option Type:53 MsgType <35>

AVAYA

User Data

OFFSET DATA

ASCII

0150: 38 34 2E 31 39 35 2E 32 2C 4D 43 50 4F 52 54 3D 84.195.2,MCPORT=
 0160: 31 37 31 39 2C 4C 32 51 3D 31 2C 20 4C 32 51 56 1719,L2Q=1, L2QV
 0170: 4C 41 4E 3D 32 2C 4C 32 51 41 55 44 3D 36 2C 4C LAN=2,L2QAUD=6,L
 0180: 32 51 53 49 47 3D 36 2C 54 46 54 50 53 52 56 52 2QSIG=6,TFTPSRVR
 0190: 3D 31 35 35 2E 31 38 34 2E 31 39 35 2E 35 32 2C =155.184.195.52,
 01A0: 54 46 54 50 44 49 52 3D 22 22 00 FF TFTPDIR=""..

****DHCP REQUEST FRAME****

Frame: 138 Captured at: +00:05.513

Length: 594 From: Port 1 Status: Ok

Ethernet: Destination Address Broadcast <FFFFFFFFFFFF>

Ethernet: Group Address

Ethernet: Local Address

Ethernet: Source Address ipphone <00601D246269>****IP Phone MAC****

Ethernet: Universally Address

Ethernet: Ethernet V.2, Type IP <0800>****No VLAN Header****

{edited....}

DHCP(BOOTP): Op: Boot request <01>

DHCP(BOOTP): Hardware Address Type: Ethernet (10Mb) <01>

DHCP(BOOTP): Hardware Address Length: 6 <06>

DHCP(BOOTP): Header Options:0 <00>

DHCP(BOOTP): Transaction Id:2193096704 <82B80000>

DHCP(BOOTP): Elapsed time (Hr): 0:0:0 <0000>

DHCP(BOOTP): BROADCAST flag: 0 <0000>

DHCP(BOOTP): MBZ reserved

DHCP(BOOTP): Client Ip address :0.0.0.0 <00000000>

DHCP(BOOTP): Your IP Address:0.0.0.0 <00000000>

DHCP(BOOTP): Server Ip Address :0.0.0.0 <00000000>

DHCP(BOOTP): Gateway Ip Address :0.0.0.0 <00000000>

DHCP(BOOTP): Client hardware address: 00601D246269 <00601D246269>

{edited....}

DHCP(BOOTP): Magic: 99.130.83.99 <63825363>

DHCP(BOOTP): Option Type:53 MsgType <35>

DHCP(BOOTP): Message Type: REQUEST <0103>**DHCP Request******

DHCP(BOOTP): Option Type:60 Class Id <3C>

DHCP(BOOTP): Message Length: 13 <0D>

Vendor Specific Information:

011F: 63 63 70 2E 61 76 61 79 61 2E 63 6F 6D ccp.avaya.com

DHCP(BOOTP): Option Type:50 Address Request <32>

DHCP(BOOTP): Message Length: 4 <04>

DHCP(BOOTP): Address: 155.184.195.14 <9BB8C30E>
DHCP(BOOTP): Option Type:54 DHCP Server Id <36>
DHCP(BOOTP): Message Length: 4 <04>
DHCP(BOOTP): Address: 155.184.195.52 <9BB8C334>
DHCP(BOOTP): Option Type:57 DHCP Max Msg Size <39>
DHCP(BOOTP): Message Length: 2 <02>
DHCP(BOOTP): Max DHCP msg size: 576 <0240>
DHCP(BOOTP): Option Type:55 Parameter List <37>
DHCP(BOOTP): Message Length: 4 <04>
DHCP(BOOTP): Option Codes: 4
DHCP(BOOTP): Codes: 1 <01>
DHCP(BOOTP): Codes: 3 <03>
DHCP(BOOTP): Codes: 43 <2B>
DHCP(BOOTP): Codes: 176 <B0>
DHCP(BOOTP): Option Type:255 End <FF>

AVAYA****DHCP ACK FRAME FROM SERVER****

Frame: 139 Captured at: +00:05.528

Length: 432 From: Port 2 Status: Ok

Ethernet: Destination Address ipphone <00601D246269>****IP Phone MAC****

Ethernet: Individual Address

Ethernet: Universally Address

Ethernet: Source Address 0007852615E1 <0007852615E1>

Ethernet: Universally Address

Ethernet: Ethernet V.2, Type IP <0800>****No VLAN Header****

{edited....}

DHCP(BOOTP): Op: Bootreply <02>

DHCP(BOOTP): Hardware Address Type: Ethernet (10Mb) <01>

DHCP(BOOTP): Hardware Address Length: 6 <06>

DHCP(BOOTP): Header Options:0 <00>

DHCP(BOOTP): Transaction Id:2193096704 <82B80000>

DHCP(BOOTP): Elapsed time (Hr): 0:0:0 <0000>

DHCP(BOOTP): BROADCAST flag: 0 <0000>

DHCP(BOOTP): MBZ reserved

DHCP(BOOTP): Client Ip address :0.0.0.0 <00000000>

DHCP(BOOTP): Your IP Address:155.184.195.14 <9BB8C30E>

DHCP(BOOTP): Server Ip Address :0.0.0.0 <00000000>

DHCP(BOOTP): Gateway Ip Address :155.184.195.1 <9BB8C301>

DHCP(BOOTP): Client hardware address: 00601D246269 <00601D246269>

DHCP(BOOTP): Magic: 99.130.83.99 <63825363>

DHCP(BOOTP): Option Type:53 MsgType <35>
DHCP(BOOTP): Message Type: ACK <0105>DHCP ACK from server****
 DHCP(BOOTP): Option Type:58 Renewal Time <3A>
 DHCP(BOOTP): Message Length: 4 <04>
 DHCP(BOOTP): T1 Interval: 345600 <00054600>
 DHCP(BOOTP): Option Type:59 Rebinding Time <3B>
 DHCP(BOOTP): Message Length: 4 <04>
 DHCP(BOOTP): T2 Interval: 604800 <00093A80>
 DHCP(BOOTP): Option Type:51 Address Time <33>
 DHCP(BOOTP): Message Length: 4 <04>
 DHCP(BOOTP): Lease Time: 691200 <000A8C00>
 DHCP(BOOTP): Option Type:54 DHCP Server Id <36>
 DHCP(BOOTP): Message Length: 4 <04>
 DHCP(BOOTP): Address: 155.184.195.52 <9BB8C334>
 DHCP(BOOTP): Option Type:1 Subnet Mask <01>
 DHCP(BOOTP): Message Length: 4 <04>
 DHCP(BOOTP): Subnet Mask: 0xFFFFFFFF <FFFFFFFF0>
 DHCP(BOOTP): Option Type:3 Gateways <03>
 DHCP(BOOTP): Message Length: 4 <04>
 DHCP(BOOTP): Address: 155.184.195.1 <9BB8C301>
 DHCP(BOOTP): Address: 176.104.77.67 <B0684D43>
 DHCP(BOOTP): Address: 73.80.65.68 <49504144>
 DHCP(BOOTP): Address: 68.61.49.53 <443D3135>
 DHCP(BOOTP): Option Type:53 MsgType <35>

AVAYA

User Data**OFFSET DATA****ASCII**

0150: 38 34 2E 31 39 35 2E 32 2C 4D 43 50 4F 52 54 3D 84.195.2,MCPORT=
 0160: 31 37 31 39 2C 4C 32 51 3D 31 2C 20 4C 32 51 56 1719,L2Q=1, L2QV
 0170: 4C 41 4E 3D 32 2C 4C 32 51 41 55 44 3D 36 2C 4C LAN=2,L2QAUD=6,L
 0180: 32 51 53 49 47 3D 36 2C 54 46 54 50 53 52 56 52 2QSIG=6,TFTPSRVR
 0190: 3D 31 35 35 2E 31 38 34 2E 31 39 35 2E 35 32 2C =155.184.195.52,
 01A0: 54 46 54 50 44 49 52 3D 22 22 00 FF TFTPDIR=""..

Frame Tail**OFFSET DATA****ASCII**

01AC: 06 3D 6B 99 .=k.

****DHCP RELEASE FRAME****

Frame: 147 Captured at: +00:06.068
 Length: 594 From: Port 1 Status: Ok
 Ethernet: Destination Address 0007852615E1 <0007852615E1>
 Ethernet: Individual Address
 Ethernet: Universally Address
Ethernet: Source Address ipphone <00601D246269>IP Phone MAC****
 Ethernet: Universally Address
Ethernet: Ethernet V.2, Type IP <0800>No VLAN header****
 {edited....}

AVAYA

DHCP(BOOTP): Op: Boot request <01>
 DHCP(BOOTP): Hardware Address Type: Ethernet (10Mb) <01>
 DHCP(BOOTP): Hardware Address Length: 6 <06>
 DHCP(BOOTP): Header Options:0 <00>
 DHCP(BOOTP): Transaction Id:2176319488 <81B80000>
 DHCP(BOOTP): Elapsed time (Hr): 0:0:0 <0000>
 DHCP(BOOTP): BROADCAST flag: 0 <0000>
 DHCP(BOOTP): MBZ reserved
 DHCP(BOOTP): Client Ip address :155.184.195.14 <9BB8C30E>
 DHCP(BOOTP): Your IP Address:0.0.0.0 <00000000>
 DHCP(BOOTP): Server Ip Address :0.0.0.0 <00000000>
 DHCP(BOOTP): Gateway Ip Address :155.184.195.1 <9BB8C301>
 DHCP(BOOTP): Client hardware address: 00601D246269 <00601D246269>

{edited....}

DHCP(BOOTP): Magic: 99.130.83.99 <63825363>
 DHCP(BOOTP): Option Type:53 MsgType <35>
DHCP(BOOTP): Message Type: RELEASE <0107>DHCP Release****
 DHCP(BOOTP): Option Type:54 DHCP Server Id <36>
 DHCP(BOOTP): Message Length: 4 <04>
 DHCP(BOOTP): Address: 155.184.195.52 <9BB8C334>
 DHCP(BOOTP): Option Type:56 DHCP Message <38>
 DHCP(BOOTP): Message Length: 50 <32>

Text:

0125: 52 65 6C 65 61 73 69 6E 67 20 74 68 65 20 63 75 Releasing the cu
 0135: 72 72 65 6E 74 20 49 50 20 61 64 64 72 65 73 73 rrent IP address
 0145: 20 28 31 35 35 2E 31 38 34 2E 31 39 35 2E 31 34 (155.184.195.14
 0155: 29 2E).

DHCP(BOOTP): Option Type:255 End <FF>

{edited....}

2. Second boot DHCPDiscover on Voice VLAN

DHCP DISCOVER FRAME

Frame: 179 Captured at: +00:18.337
 Length: 598 From: Port 1 Status: Ok
 Ethernet: Destination Address Broadcast <FFFFFFFFFFFF>
 Ethernet: Group Address
 Ethernet: Local Address
Ethernet: Source Address ipphone <00601D246269>IP Phone MAC****
 Ethernet: Universally Address
 Ethernet: TPID: 802.1Q Tag Protocol Type 0x8100 <8100>
 IEEE8021q: Tag Control Information: 0x0002 <0002>
 IEEE8021q: 000.....: User Priority
 IEEE8021q: ...0.....: Canonical Format Indicator
IEEE8021q:000000000010: VLAN Identifier: **VLAN 2 Header now on frames**
 IEEE8021q: Ethernet V.2, Type IP <0800>

{edited....}

UDP: Source Port = DHCP-BOOTP client <0044>
UDP: Destination Port = DHCP-BOOTP server <0043>
UDP: Length = 556 <022C>
UDP: CheckSum = 0x2583 <2583>
DHCP(BOOTP): Op: Boot request <01>
DHCP(BOOTP): Hardware Address Type: Ethernet (10Mb) <01>
DHCP(BOOTP): Hardware Address Length: 6 <06>
DHCP(BOOTP): Header Options:0 <00>
DHCP(BOOTP): Transaction Id:2528641024 <96B80000>
DHCP(BOOTP): Elapsed time (Hr): 0:0:0 <0000>
DHCP(BOOTP): BROADCAST flag: 0 <0000>
DHCP(BOOTP): MBZ reserved
DHCP(BOOTP): Client Ip address :0.0.0.0 <00000000>
DHCP(BOOTP): Your IP Address:0.0.0.0 <00000000>
DHCP(BOOTP): Server Ip Address :0.0.0.0 <00000000>
DHCP(BOOTP): Gateway Ip Address :0.0.0.0 <00000000>
DHCP(BOOTP): Client hardware address: 00601D246269 <00601D246269>

{edited....}

DHCP(BOOTP): Magic: 99.130.83.99 <63825363>
DHCP(BOOTP): Option Type:53 MsgType <35>
DHCP(BOOTP): Message Type: DISCOVER <0101>DHCP Discover****
DHCP(BOOTP): Option Type:60 Class Id <3C>
DHCP(BOOTP): Message Length: 13 <0D>
Vendor Specific Information:
0123: 63 63 70 2E 61 76 61 79 61 2E 63 6F 6D ccp.avaya.com
DHCP(BOOTP): Option Type:57 DHCP Max Msg Size <39>
DHCP(BOOTP): Message Length: 2 <02>
DHCP(BOOTP): Max DHCP msg size: 576 <0240>
DHCP(BOOTP): Option Type:55 Parameter List <37>
DHCP(BOOTP): Message Length: 4 <04>
DHCP(BOOTP): Option Codes: 4
DHCP(BOOTP): Codes: 1 <01>
DHCP(BOOTP): Codes: 3 <03>
DHCP(BOOTP): Codes: 43 <2B>
DHCP(BOOTP): Codes: 176 <B0>
DHCP(BOOTP): Option Type:255 End <FF>

****DHCP OFFER FRAME****

Frame: 180 Captured at: +00:18.353
Length: 436 From: Port 2 Status: Ok
Ethernet: Destination Address iphone <00601D246269>IP Phone MAC****
Ethernet: Individual Address
Ethernet: Universally Address
Ethernet: Source Address 0007852615E1 <0007852615E1>
Ethernet: Universally Address

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Ethernet: TPID: 802.1Q Tag Protocol Type 0x8100 <8100>
IEEE8021q: Tag Control Information: 0x0002 <0002>
IEEE8021q: 000.....: User Priority
IEEE8021q: ...0.....: Canonical Format Indicator
IEEE8021q:00000000010: VLAN Identifier: **VLAN 2 header now in frames**
IEEE8021q: Ethernet V.2, Type IP <0800>
{edited....}
DHCP(BOOTP): Op: Bootreply <02>
DHCP(BOOTP): Hardware Address Type: Ethernet (10Mb) <01>
DHCP(BOOTP): Hardware Address Length: 6 <06>
DHCP(BOOTP): Header Options:0 <00>
DHCP(BOOTP): Transaction Id:2528641024 <96B80000>
DHCP(BOOTP): Elapsed time (Hr): 0:0:0 <0000>
DHCP(BOOTP): BROADCAST flag: 0 <0000>
DHCP(BOOTP): MBZ reserved
DHCP(BOOTP): Client Ip address :0.0.0.0 <00000000>
DHCP(BOOTP): Your IP Address:155.184.195.18 <9BB8C312>
DHCP(BOOTP): Server Ip Address :155.184.195.52 <9BB8C334>
DHCP(BOOTP): Gateway Ip Address :155.184.195.17 <9BB8C311>
DHCP(BOOTP): Client hardware address: 00601D246269 <00601D246269>
{edited....}
DHCP(BOOTP): Magic: 99.130.83.99 <63825363>
DHCP(BOOTP): Option Type:53 MsgType <35>
DHCP(BOOTP): Message Type: OFFER <0102>DHCP Offer****
DHCP(BOOTP): Option Type:1 Subnet Mask <01>
DHCP(BOOTP): Message Length: 4 <04>
DHCP(BOOTP): Subnet Mask: 0xFFFFFFFF <FFFFFFFF0>
DHCP(BOOTP): Option Type:58 Renewal Time <3A>
DHCP(BOOTP): Message Length: 4 <04>
DHCP(BOOTP): T1 Interval: 345600 <00054600>
DHCP(BOOTP): Option Type:59 Rebinding Time <3B>
DHCP(BOOTP): Message Length: 4 <04>
DHCP(BOOTP): T2 Interval: 604800 <00093A80>
DHCP(BOOTP): Option Type:51 Address Time <33>
DHCP(BOOTP): Message Length: 4 <04>
DHCP(BOOTP): Lease Time: 691200 <000A8C00>
DHCP(BOOTP): Option Type:54 DHCP Server Id <36>
DHCP(BOOTP): Message Length: 4 <04>
DHCP(BOOTP): Address: 155.184.195.52 <9BB8C334>
DHCP(BOOTP): Option Type:3 Gateways <03>
DHCP(BOOTP): Message Length: 4 <04>
DHCP(BOOTP): Address: 155.184.195.17 <9BB8C311>
DHCP(BOOTP): Address: 176.104.77.67 <B0684D43>
DHCP(BOOTP): Address: 73.80.65.68 <49504144>
DHCP(BOOTP): Address: 68.61.49.53 <443D3135>
DHCP(BOOTP): Option Type:53 MsgType <35>

User Data

AVAYA

OFFSET DATA

ASCII

```
0154: 38 34 2E 31 39 35 2E 32 2C 4D 43 50 4F 52 54 3D 84.195.2,MCPORT=
0164: 31 37 31 39 2C 4C 32 51 3D 31 2C 20 4C 32 51 56 1719,L2Q=1, L2QV
0174: 4C 41 4E 3D 32 2C 4C 32 51 41 55 44 3D 36 2C 4C LAN=2,L2QAUD=6,L
0184: 32 51 53 49 47 3D 36 2C 54 46 54 50 53 52 56 52 2QSIG=6,TFTPSRVR
0194: 3D 31 35 35 2E 31 38 34 2E 31 39 35 2E 35 32 2C =155.184.195.52,
01A4: 54 46 54 50 44 49 52 3D 22 22 00 FF TFTPDIR=""..
```

Frame Tail

OFFSET DATA

ASCII

01B0: B8 E7 73 68

..sh

****DHCP REQUEST FRAME****

Frame: 196 Captured at: +00:23.854

Length: 598 From: Port 1 Status: Ok

Ethernet: Destination Address Broadcast <FFFFFFFFFFFF>

Ethernet: Group Address

Ethernet: Local Address

Ethernet: Source Address ipphone <00601D246269>****IP Phone MAC****

Ethernet: Universally Address

Ethernet: TPID: 802.1Q Tag Protocol Type 0x8100 <8100>

IEEE8021q: Tag Control Information: 0x0002 <0002>

IEEE8021q: 000.....: User Priority

IEEE8021q: ...0.....: Canonical Format Indicator

IEEE8021q:00000000010: VLAN Identifier: ****VLAN 2 header now in frames****

IEEE8021q: Ethernet V.2, Type IP <0800>

{edited....}

DHCP(BOOTP): Op: Boot request <01>

DHCP(BOOTP): Hardware Address Type: Ethernet (10Mb) <01>

DHCP(BOOTP): Hardware Address Length: 6 <06>

DHCP(BOOTP): Header Options:0 <00>

DHCP(BOOTP): Transaction Id:2360868864 <8CB80000>

DHCP(BOOTP): Elapsed time (Hr): 0:0:0 <0000>

DHCP(BOOTP): BROADCAST flag: 0 <0000>

DHCP(BOOTP): MBZ reserved

DHCP(BOOTP): Client Ip address :0.0.0.0 <00000000>

DHCP(BOOTP): Your IP Address:0.0.0.0 <00000000>

DHCP(BOOTP): Server Ip Address :0.0.0.0 <00000000>

DHCP(BOOTP): Gateway Ip Address :0.0.0.0 <00000000>

DHCP(BOOTP): Client hardware address: 00601D246269 <00601D246269>

{edited....}

DHCP(BOOTP): Magic: 99.130.83.99 <63825363>

DHCP(BOOTP): Option Type:53 MsgType <35>

DHCP(BOOTP): Message Type: REQUEST <0103>****DHCP Request****

DHCP(BOOTP): Option Type:60 Class Id <3C>

DHCP(BOOTP): Message Length: 13 <0D>

Vendor Specific Information:

AVAYA

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0123: 63 63 70 2E 61 76 61 79 61 2E 63 6F 6D      ccp.avaya.com
DHCP(BOOTP): Option Type:50 Address Request <32>
DHCP(BOOTP): Message Length: 4 <04>
DHCP(BOOTP): Address: 155.184.195.18 <9BB8C312>
DHCP(BOOTP): Option Type:54 DHCP Server Id <36>
DHCP(BOOTP): Message Length: 4 <04>
DHCP(BOOTP): Address: 155.184.195.52 <9BB8C334>
DHCP(BOOTP): Option Type:57 DHCP Max Msg Size <39>
DHCP(BOOTP): Message Length: 2 <02>
DHCP(BOOTP): Max DHCP msg size: 576 <0240>
DHCP(BOOTP): Option Type:55 Parameter List <37>
DHCP(BOOTP): Message Length: 4 <04>
DHCP(BOOTP): Option Codes: 4
DHCP(BOOTP): Codes: 1 <01>
DHCP(BOOTP): Codes: 3 <03>
DHCP(BOOTP): Codes: 43 <2B>
DHCP(BOOTP): Codes: 176 <B0>
DHCP(BOOTP): Option Type:255 End <FF>
{edited....}

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****DHCP ACK FRAME FROM SERVER****

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Frame: 197 Captured at: +00:23.869
Length: 437 From: Port 2 Status: Ok
Ethernet: Destination Address iphone <00601D246269> **IP Phone MAC**
Ethernet: Individual Address
Ethernet: Universally Address
Ethernet: Source Address 0007852615E1 <0007852615E1>
Ethernet: Universally Address
Ethernet: TPID: 802.1Q Tag Protocol Type 0x8100 <8100>
IEEE8021q: Tag Control Information: 0x0002 <0002>
IEEE8021q: 000.....: User Priority
IEEE8021q: ...0.....: Canonical Format Indicator
IEEE8021q: ....00000000010: VLAN Identifier: **VLAN 2 header**
IEEE8021q: Ethernet V.2, Type IP <0800>
{edited....}
DHCP(BOOTP): Op: Bootreply <02>
DHCP(BOOTP): Hardware Address Type: Ethernet (10Mb) <01>
DHCP(BOOTP): Hardware Address Length: 6 <06>
DHCP(BOOTP): Header Options:0 <00>
DHCP(BOOTP): Transaction Id:2360868864 <8CB80000>
DHCP(BOOTP): Elapsed time (Hr): 0:0:0 <0000>
DHCP(BOOTP): BROADCAST flag: 0 <0000>

```

