White Paper

Avaya Wireless Telephones 3631 3641 3645 Whitepaper about similarities and differences

An
Installation and Configuration Overview

Version 1.1

Summary

This document gives a short summary of the most essential topics, necessary to prepare and configure the WLAN environment and the Avaya wireless telephones (WTS) connected to a Communications Manager (CM). To make the readability easier tables are used to achieve a faster overview of the similarities and the differences between the handset series 3631 and 3641/3645.

Please note, that this document does not make the manuals (covered in the reference section of this document) superfluous.

Contents

History

Date	Version	Author	Status	Changes
02/27/2007	0.1	Dziumbla	Draft	Initial Draft
03/02/2007	1.0	Dziumbla	Version	First reviewed version
03/13/2007	1.1	Dziumbla	Version	Document name has been changed, additional comments included.

Abbreviations

ACM	Avaya Communications Manager
AP	(WLAN) Access Point
AVPP	Avaya Voice Priority Processor (Spectralink SVP)
CM	Communications Manager
DHCP	Dynamic Host Configuration Protocol
DNS	Domain Name System
FTP	File Transfer Protocol
HTTP	HyperText Transfer Protocol
IP	Internet Protocol
NTP	Network Time Protocol
OAI	(Spectralink Open Application Interface)
PTT	Push to Talk
QoS	Quality of Service
SSID	Service Set IDentification
SVP	Spectralink Voice Processor (Avaya AVPP)
TFTP	Trivial File Transfer Protocol
USB	Universal Serial Bus
VIEW	Voice Interoperability for Enterprise Wireless Certified
VLAN	Virtual Local Area Network
WLAN	Wireless Local Area Network
WPA	Wireless fidelity (WI-FI) Protected Access
WPA2	Wireless fidelity (WI-FI) Protected Access version 2
WTS	Wireless Telephone (Avaya 36... series)
WTS	Wireless Telephone System

Overview

1.1 Avaya wireless phone characteristics

The main characteristics of the new Avaya wireless handsets are given in table 1*:*

Avaya 3631	Avaya 3641	Avaya 3645
Standards-based phone: - 802.11 b/g radio - 802.11i security - 802.11e QoS - 802.11d country support	Standards-based phone: - 2.4 & 5 GHz Wi-Fi b/g, a radio - 802.11i security - 802.11e QoS	Standards-based phone: - 2.4 & 5 GHz Wi-Fi b/g, a radio - 802.11i security - 802.11e QoS
H.323 protocol	H.323 protocol	H.323 protocol
Color display	Improved user interface	Improved user interface
9600-style user interface	Lightweight form factor	Lightweight form factor
	Shared accessories [1])	Shared accessories [1])
		Push-to-talk (PTT) – 24 channels + priority channel Larger ear cup, larger fonts Rubberized sized grips

table 1: Avaya wireless telephone characteristics

[1]) For the 3641/3645 series handsets a great variety of accessories are available including installation support as well as additional batteries or other accessories like clips, carrying cases etc.

table 2 gives an example of the different charger options

Single Charger	*Dual Charger*	*Quad Charger*
In-charger dialing	In-charger dialing	LED indicators
	LED indicator (for standalone battery)	Designed for easy Battery Pack removal
	Designed for easy Battery Pack removal	Wall mount with cable routing
	USB port for software updates	

table 2: Avaya 3641/3645 Charger Options

In comparison with this there are two different chargers available for the 3631 phones (table 3).

Single Charger	*Dual Charger*
In-charger dialing	In-charger dialing
	LED indicator (for standalone battery)
	Designed for easy Battery Pack removal

table 3: Avaya 3631 Charger Options

1.2 General WLAN environment

The Avaya wireless telephones need a correctly configured WLAN environment. This means using proper channel allocation – the strongest Access Point (AP) should be on different channel than the next strongest AP – and the use of a pre-installation/post-installation Site Survey to certify installation.

Depending on the planned Avaya phone type there are different requirements which should be met to avoid disturbances in the final system (**table 4**).

	Avaya 3631	Avaya 3641/3645
AP Recommendations	Set phone to same transmit power setting as AP	Set phone to same transmit power setting as AP
	Minimum recommended signal strength -70dBm	Minimum recommended signal strength -70dBm
	-60dBm minimum for high data rate	-60dBm minimum for high data rate
	802.11e support	Must support SVP prioritzation
	-	AP should be Spectralink View certified [1]
AVPP	-	mandatory

table 4: WLAN environment

1.3 Add on WLAN device - Avaya Voice Priority Processor

The Avaya Voice Priority Processor (AVPP) is an Ethernet LAN device that works with the AP to provide QoS on the wireless LAN. Voice packets and call signalling to and from the Avaya WTs are intercepted by the AVPP and encapsulated for prioritization as they are routed to and from an IP telephony server or gateway. The main characteristics are

- an Ethernet LAN appliance that works with the AP to provide QoS on the wireless LAN
- all packets to and from the 3641/3645 Wireless IP Telephones are sent through the Avaya Voice Priority Processor and are encapsulated for prioritization as they are routed to and from the 3641/3645 handsets.
- AVPP also provides bandwidth admission control and aids telephones in power management

The AVPP may also be referred to as SVP (Spectralink Voice Processor). This is the same device (hardware & software) with Spectralink logo and labels – may be found especially in older installations.

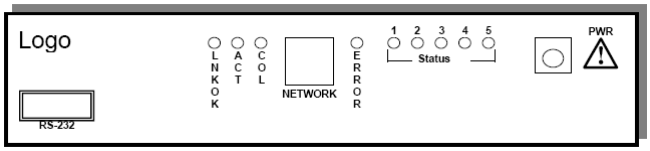


fig. 1: AVPP

Note this device is required for the Avaya 3641/3645 handsets only.

[1] Voice Interoperability for Enterprise Wireless (VIEW) Certification Program

The SpectraLink VIEW Certification Program is a partner program designed to ensure interoperability and maximum performance for enterprise Wi-Fi infrastructure products that support NetLink Wireless Telephones. See also: http://www.spectralink.com/resources/wifi_compatibility.jsp

2 Installation and Configuration

2.1 CM Configuration

Details of the Communication Manager (CM) configuration are given below.

Avaya 3631	Avaya 3641/3645
certified with CM 3.0, 3.1. CM 4.0 actually not supported but planned to do.	certified with CM 3.0, 3.1. CM 4.0 actually not supported but planned to do.
Create CM station record for phone through ‘add station’ command	Create CM station record for phone through ‘add station’ command
Must enter 4620 as station type	Must enter 4612 as station type
May configure as primary extension for user or as bridged extension off of desktop phone	May configure as primary extension for user or as bridged extension off of desktop phone
Media stream may be en-crypted using AES or AEA For bridged extension ● Set “Message Lamp Ext” to the extension of the associated desk station. ● Set “Bridged Call Alerting” to “y.” ● Set “Auto Select Any Idle Appearance” to “y.” ● For Button Assignments, create bridged appearances to the line appearances on the desk station.	Codec set used for phone must allow media streaming without encryption For bridged extension ● Set “Message Lamp Ext” to the extension of the associated desk station. ● Set “Bridged Call Alerting” to “y.” ● Set “Auto Select Any Idle Appearance” to “y.” ● For Button Assignments, create bridged appearances to the line appearances on the desk station.

table 5: CM Configuration

2.2 Network Configuration

The main network configuration requirements are

2.2.1 Avaya 3631

- Call Server HTTP and FTP Server may be on a different subnet
- The wireless LAN should be placed on a separate VLAN or subnet to reduce the effects of broadcast and multicast traffic from devices in other network segments

2.2.2 Avaya 3641/3645

- The Avaya Voice Priority Processor, all access points, and all wireless telephones should be on the same subnet. Timing requirements for traffic between phones and AVPP are more critical than normal VoIP timing requirements.
- Call Server and TFTP Server may be on a different subnet
- IP multicasting must be enabled on the subnet used for the 3645 Telephones (to enable Push-to-Talk) and AVPP Server.
- The wireless LAN should be placed on a separate VLAN or subnet to reduce the effects of broadcast and multicast traffic from devices in other network segments

2.3 DHCP

The 3631, 3641 and 3645 supports DHCP for IP address assignment and configuration of other telephone options as described in detail below.

DHCP Option	Meaning	Avaya 3631	Avaya 3641/3645
1	Subnet Mask	yes	yes
3	Default Gateway	yes	yes
6	DNS Server	yes	yes
7	Syslog Server	no	yes
15	Domain Name	yes	yes
42	Network Time Protocol Server	no	yes (if available)
66	TFTP Server	no	yes
151	Avaya Voice Priority Processor	no	yes
152	NL OAI Gateway	no	yes (if available)
176	Avaya Specific Options (MCIPADD, MCPORT)	yes (optional)	yes
242	Avaya Specific Options (MCIPADD, MCPORT)	yes (default)	no

table 6: DHCP Options supported

3 Phone Configuration

3.1.1 Differences Between 3631 and 3641/3645 handsets

The main differences between the two series of wireless telephones (WTS) are

3631:

- Supports 802.1X (WPA Enterprise/WPA2 Enterprise)
- Has a color display
- Has multiple built-in applications (browser, calendar, call log, alarm clock, calculator)
- Configured as 4620 phone type in CM
- Targeted at general office environment
- No AVPP server requirement

3641/3645:

- Supports 802.11a or 802.11bg operation
- Supports Push-To-Talk (3645 only)
- Open Applications Interface (OAI) for vertical application support
- Requires AVPP/SVP server
- Configured as 4612 phone type in CM
- Targeted at general office and high-density environments

Because of the different configuration philosophies of the handsets

- 3631 is based on a config file (same format as wired Avaya IP phones) and uses a SIM-card
- 3641/3645 uses special configuration hardware and software (no SIM-card)

each of the different configuration procedures is described below in its own chapter.

3.1.2 Avaya 3631 Configuration

3.1.2.1 Minimum Configuration Data

The following data is required for associating with an AP, accessing the DHCP server, and the accessing file server to obtain the 46xxsettings file. This information may be entered directly into the phone through its menu interface, or downloaded to the phone via the 46xxsetttings file. :

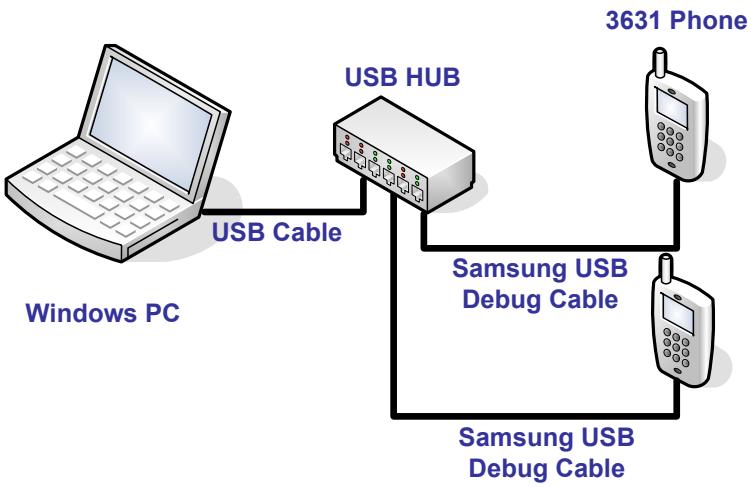
- SSID (WTSSIDP[1-3])
- Security Type (WTSECP[1-3])
- Encryption Type (ENCRYPTP[1-3])
- Encryption Key (WTKEYP[1-3])
- EAP Type (EAPTYPEP[1-3])—only required for Security Types, WPA-802.1X or WPA2-802.1X (actually supported EAP Types: TLS, LEAP, PEAP-GTC, PEAP-MSCHAPV2, TTLS-CHAP, TTLS-MD5, TTLS-MSCHAP, TTLS-MSCHAPV2).
- Country (WTREGDOM)—only required if outside US
- DHCP SSON—only required if using value other than 242

3.1.2.2 Downloading 46xxsettings File via USB

The 3631 telephone supports downloading of the 46xxsetings.txt file from a Windows PC that is connected to the phone via a USB cable. This is in addition to downloading the file over the air from an HTTP server.

A single PC can be connected to one or multiple phones simultaneously. Connecting to multiple phones requires a USB hub and multiple USB cables.

Connect Samsung USB Debug Cable with the Phone for USB Operations



Note: Only a Samsung cable with an 18-pin connector can be used to support USB operations on the 3631 telephone; it should be ordered separately.

For further details refer to [1]

3.1.3 Avaya 3641/3645 Configuration

For the Avaya 3641/3645 handsets a correctly configured AVPP is mandatory. Refer to [2]] for configuration details.

3.1.3.1 Minimum Configuration Data

For WLAN settings the following data should be entered manually via admin menue or through the Handset Administration Tool running on a Windows PC.

- Telephony Protocol (via admin menu only, set to 033)
- ESSID
- Security Type (none/WEP/WPA/WPA2)
- Encryption Key
- Regulatory Domain (via admin menu only[2])
- 802.11 configuration (a/b/g)
- Transmit power (recommended)

For network purposes the data below should be entered manually, through Handset Administration Tool, or passed by DHCP.

- IP Address
- Subnet Mask
- Default Gateway IP address
- TFTP Server IP address
- AVPP Server IP address
- Call Server IP address
- Call Server Port
- OAI Gateway IP address (optional)
- Syslog Server IP address (optional)
- Time Server IP address (optional)

3.1.4 Avaya Voice Priority Processor (AVPP)

To support Avaya 3641/3645 handsets the requirements for the AVPP are

- Must be running firmware version 17x.028 or later.
- the Avaya Voice Priority Processor must be statically configured to have a permanent IP address.
- must be on the same subnet as the Wireless Telephones

For further information on how to configure the AVPP refer to [2].

3.1.5 TFTP Server

It is strongly suggested to use the Microsoft or 3COM TFTP server, which supports a retransmission if any error occurs.

The 3COM TFTP server is available as:

http://support.3com.com/software/utilities_for_windows_32_bit.htm

here use “3CDaemons ver. 2.0 rev.10 (3cdv2r10.zip).

[2] Selects Network Config option, then Reg Domain option. Use **Line button** to set to proper domain (01 for US, 02 for EU).

4 Software Upgrade

4.1 Software Upgrade Options

4.1.1 Avaya 3631 Software Upgrade

The following software upgrade procedure may be used with the Avaya 3631 handset :

- Independent upgrade program, automatically invoked after 46xxsettings file download
- Phone downloads a new image from HTTP server, erases current image from memory, and writes new image
- Program first downloads upgrade configuration file. After receiving upgrade file, phone checks its current version with version info of upgrade file
- If versions are different, phone downloads binary files in order according to upgrade file list. If versions are same, upgrade does not execute.
- If there is a problem during downloading (network issue, disconnection, no server response), phone reboots itself and attempts upgrade again. Process repeats until successful.

4.1.2 Avaya 3641/3645 Software Upgrade

The Avaya 3641/3645 handset may be upgraded using one of the methods mentioned below:

- Manual upgrade from PC
  - Phone placed in Dual Charger
  - Connected to PC via USB cable
  - Files downloaded via Handset Administration Tool
- Automatic, over-the-air upgrade via TFTP server
  - Phones upgraded automatically during startup

5 FAQ

After power on, phones are going into an restart loop.

Answer: Sometimes the AVPP does not work correctly. Reset the AVPP using the reset command via a Telnet session. A reset by powering off and on the AVPP does not solve the problem.

If this does not help, check the network for a firewall between AVPP and CM. Check for any traffic between AVPP and CM blocked by the firewall.

After upgrading a 3641/3645 handset to software version 117.013, the handset does not work

Answer: With this software version it is first-time mandatory to set the “regulatory domain”. The procedure to specify regulatory domain is simple. User logs in as admin on phone. Selects Network Config option, then Reg Domain option. Use Line button to set to proper domain (01 for US, 02 for EU).

There is a new AVPP software on the TFTP server, but the AVPP does not upgrade.

Answer: Check whether the filenames are correct (note: the filenames are case sensitive)

How to change the AVPP Software

Answer: Normally during startup the AVPP reads its software from the TFTP-Server’s working directory if no error occurs. In the case of any issue the AVPP reads his software from the TFTP-Server working directory’s subdirectory “Avaya”. So it is mandatory to copy the new AVPP software to both directories.

6 References

[1] 3631 Wireless Telephone Administrator Guide
[2] Avaya Voice Priority Processor Installation, Setup, and Administration
[3] Avaya 3641/3645 Wireless Ip Telephone and Accessories Guide