



**Avaya one-X™ Deskphone Edition
for 9600 Series IP Telephones
Installation and Maintenance Guide
Release 1.5**

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Interference

Using a cell, mobile, or GSM telephone, or a two-way radio in close proximity to an Avaya IP Telephone might cause interference.

Contents

Chapter 1: Introduction	7
About This Guide	7
Intended Audience.	7
Document Organization	8
Change History	8
What's New in This Release.	9
Online Documentation.	9
Customer Support	10
Chapter 2: 9600 Series IP Telephone Installation	11
Introduction	11
IP Telephone Models	11
Software	12
Pre-Installation Checklist	12
Assembling the 9600 Series IP Telephone	14
Powering the 9600 Series IP Telephone	14
Dynamic Addressing Process	20
Unnamed Registration.	24
Chapter 3: Local Administrative Options	27
Introduction	27
Accessing Local (Craft) Procedures	28
Entering Data for Administrative Options	30
About Local Administrative Procedures	31
Set the 802.1X Operational Mode	33
Pre-Installation Checklist for Static Addressing.	33
Static Addressing Installation.	34
Disable/Enable Automatic Gain Control	35
Manually Setting the DHCP Client Hardware Address	36
Clear Procedure	37
Disable/Enable Debug Mode	38
Group Identifier	38
Interface Control	39
Disable/Enable Event Logging	40
Logoff.	40
View Multi-Language Strings	41
Reset System Values	41

Contents

Restart the Telephone	42
Signaling Protocol Identifier	43
Site-Specific Option Number Setting	43
Self-Test Procedure	44
Chapter 4: Maintaining 9600 Series IP Telephones	45
Introduction	45
Downloading Software Upgrades.	45
Download File Content	45
Download Procedure	46
Contents of the Settings File	48
Downloading Language Files	48
The GROUP System Value	49
Chapter 5: Troubleshooting Guidelines	51
Introduction	51
Error Conditions	51
DTMF Tones	52
Power Interruption.	52
The View Administrative Option	52
Installation Error and Status Messages	55
Operational Errors and Status Messages	59
LLDP Troubleshooting	64
LLDP Setup/Troubleshooting Steps	65
Appendix A: Restart Scenarios.	67
Scenarios for the Restart Process	67
Restart the Telephone	67
Boot File Needs to be Upgraded	68
Latest Boot File Loaded/No Application File or Application File Needs to be Upgraded.	72
Latest Boot File and System-Specific Application File Already Loaded	74
Appendix B: Glossary of Terms	77
Terms Used in This Guide.	77

Appendix C: Related Documentation	79
IETF Documents	79
ITU Documents.	79
ISO/IEC, ANSI/IEEE Documents	79
Index	81

Contents

Chapter 1: Introduction

About This Guide

This guide describes how to install and maintain the 9600 Series IP Telephone product line and troubleshoot telephone problems.

All 9600 Series IP Telephones support the H.323 signaling protocol and work only with Avaya Communication Manager Release 3.0 and greater call servers.

The 9620 and 9630 IP Telephones can alternately be configured to use Session Initiation Protocol (SIP) and require Avaya Communication Manager Release 4.0. For more information about SIP configuration, installation, and maintenance for 9600 Series IP Telephones, see the *Avaya one-X™ Deskphone Edition for 9600 Series SIP IP Telephones Installation and Maintenance Guide*.

Note:

Unless otherwise indicated, generic references in this document to a call server can apply to DEFINITY® servers, MultiVantage servers or Avaya Communication Manager media servers.

Note:

Unless otherwise specified, any reference to HTTP in this guide applies equally to HTTPS.

Intended Audience

This document is intended for personnel who install and administer the 9600 Series IP Telephones.

 **CAUTION:**

Avaya does not support many of the products mentioned in this document. Take care to ensure that there is adequate technical support available for the servers involved, including, but not necessarily limited to, HTTP, HTTPS, and DHCP servers. If the servers are not functioning correctly, the IP telephones might not be able to operate correctly.

Document Organization

The guide contains the following sections:

Chapter 1: Introduction	Provides an overview of this guide.
Chapter 2: 9600 Series IP Telephone Installation	Describes the equipment and resources required to properly install and operate the 9600 Series IP Telephones. Provides instructions on installing the telephones out of the box.
Chapter 3: Local Administrative Options	Describes how to set local administrative options, if requested by the system or LAN administrator.
Chapter 4: Maintaining 9600 Series IP Telephones	Describes maintenance actions like downloading telephone software from the Avaya support Web site and customizing system values.
Chapter 5: Troubleshooting Guidelines	Describes error conditions and messages that might occur during the installation of the 9600 Series IP Telephones.
Appendix A: Restart Scenarios	Explains the different scenarios possible for the sequence of the restart process.
Appendix B: Glossary of Terms	Provides a glossary of terms used in this document or which are generally applicable to 9600 Series IP Telephones.
Appendix C: Related Documentation	Provides references to external documents that relate to telephony in general, and can provide additional information about specific aspects of the telephones.

Change History

Issue 1	This document was issued for the first time in July 2006.
Issue 2	This version of the document, revised and issued in September 2006, supports software Release 1.1.
Issue 3	This version was revised and issued in January, 2007 to support software Release 1.2.
Issue 4	This version was revised and issued in May, 2007 to support software Release 1.5.

What's New in This Release

Most of the Release 1.5 updates do not impact installation. New material to support Release 1.5 software includes:

- New system parameter PHNEMERGNUM, which allows administration of an emergency telephone number. For more information, see the *Avaya one-X™ Deskphone Edition for 9600 Series IP Telephones Administrator Guide*.
- Changes to invoking local (Craft) procedures during telephone initialization. See [Accessing Local \(Craft\) Procedures](#) for more information.
- Release 1.5 adds two telephones, the 9630G and 9640G, to the 9600 Series. Both models have a Gigabyte Ethernet (GigE) interface to speed data transmission, but are otherwise identical to their 9630 and 9640 counterparts.
- A new language, Arabic, was added to 96xx software distribution packages.
- Enhanced security to defend against sequence number attacks, as per RFC 1948.
- Certain 9600 Series IP Telephones now support a Bluetooth™ adapter and any device compatible with the Headset profile. However, this release supports only a wireless headset. Safety and installation instructions are provided with the adapter and headset and are also available on the Avaya support Web site.

Release 1.5 supports functionality introduced on Avaya Communication Manager Release 4.0. Call server administration of four key parameters is directly downloaded to the telephone during registration, instead of or in addition to, from the settings file or locally on the telephone. The four parameters are: SNMP community string, SNMP Source IP Addresses, Craft Access Code (PROCPSWD), and Group ID. The first three parameters are system parameters, while the fourth parameter is administered on a station-by-station basis.

Online Documentation

See the Avaya support site at <http://www.avaya.com/support> for 9600 Series IP Telephone technical and end user documentation.

See [Appendix C: Related Documentation](#) for information about accessing non-Avaya documents, such as those published by the Internet Engineering Task Force (IETF) and the International Telecommunication Union (ITU).

Customer Support

For 9600 Series IP Telephone support, call the Avaya support number provided to you by your Avaya representative or Avaya reseller.

Information about Avaya products can be obtained at the following URL:

<http://www.avaya.com/support>

Chapter 2: 9600 Series IP Telephone Installation

Introduction

The 9600 Series IP Telephone product line uses Internet Protocol (IP) technology with Ethernet interfaces. The IP telephones supplement the existing Avaya IP Solutions platform.

The 9600 Series IP Telephones support DHCP and HTTP/HTTPS over IPv4/UDP which enhance the administration and servicing of the telephones. These telephones use DHCP to obtain dynamic IP Addresses and HTTP or HTTPS to download new software versions or customized settings for the telephones.

All 9600 Series IP Telephones except the 9610 provide the ability to have one IP connection on the desktop for both a telephone set and a PC using an Ethernet switch.

In compliance with Australian law, the following information is provided:

This equipment shall be installed and maintained by trained service personnel. All the input/output ports are classified as Safety Extra Low Voltage (SELV, in the meaning of IEC 60950). To maintain safety compliance when connecting the equipment electrically to other equipment, the interconnecting circuits shall be selected to provide continued conformance of clause 2.3 for SELV circuits (generally, double/reinforced insulation to 240Vac rms to any primary/mains circuitry and 120Vac rms to any telecommunications network circuitry). To ensure that these conditions are adhered to, interconnect the equipment only with the already approved/certified equipment.

IP Telephone Models

There are seven telephone set models currently defined in the 9600 Series IP Telephone family:

- 9610
- 9620
- 9630
- 9630G
- 9640
- 9640G
- 9650

Except for the 9610, the telephones have an internal Ethernet switch that allows the telephone and a PC to share the same LAN connection, if appropriate. Thus, 9600 models do not need, or work with, the 30A switched hub interface. Telephone models appended with "G" have a gigabit Ethernet (GigE) interface, which speeds data transmission.

This document describes the installation of these telephones and post-installation maintenance issues. For details about using the features provided by the telephones, see the user documentation for each telephone. For information about desk or wall mounting any of the 9600 Series IP Telephones, see the instructions boxed with the telephone. Wall or desk mount instructions are also available on the Avaya support Web site <http://www.avaya.com/support>.

Software

As shipped from the factory, the 9600 Series IP Telephone may not contain the most up-to-date software for registration and operation. When the telephone is first plugged in, a software download from an HTTP server might be initiated. The software download gives the telephone upgraded functionality.

For subsequent downloads of software upgrades, the Avaya Media Server provides the capability for a remote restart of the IP telephone. As a consequence of restarting, the telephone automatically restarts reboot procedures which result in a download if new software is available. [Chapter 4: Maintaining 9600 Series IP Telephones](#) covers downloading new software releases.

Pre-Installation Checklist

Before plugging in the 9600 Series IP Telephone, verify that all the following requirements are met. Failure to do so prevents the telephone from working properly and can have a negative impact on the network. Print copies of this checklist for each server and IP telephone.

Verify These Network Requirements

-
- 1. Ensure that the LAN uses Ethernet Category 5e cabling running the IPv4 version of Internet Protocol.
 - 2. Avaya Communication Manager (CM) Release 3.0 software supports 9600 Series IP Telephones aliased as 4600 Series IP Telephones. Specifically, the 9610 and 9620 should be aliased as a 4610SW and the 9630/9630G, 9640/9640G, and 9650 should be aliased as a 4620SW. Avaya Communication Manager Release 4.0 software provides native support for all 9600 Series IP Telephones, eliminating the requirement to alias 9600 IP Telephones.
 - 3. The following circuit packs are installed on the switch:
 - TN2602 IP Media Processor circuit pack. Sites with a TN2302 IP Media Processor circuit pack are strongly encouraged to install a TN2602 circuit pack.
 - TN799B, C, or D Control-LAN (C-LAN) circuit pack.



Important:

IP telephone firmware Release 1.0 or greater requires TN799C V3 or greater C-LAN circuit pack(s). For more information, see the *Communication Manager Software and Firmware Compatibility Matrix* on the Avaya support Web site <http://www.avaya.com/support>.

- 4. The Avaya Media Server is configured correctly, as described in the *Avaya one-X™ Deskphone Edition for 9600 Series IP Telephones Administrator Guide* and Avaya Communication Manager documentation. Both documents are available at: <http://www.avaya.com/support>.
- 5. The DHCP server and application are administered as described in the *Avaya one-X™ Deskphone Edition for 9600 Series IP Telephones Administrator Guide*.

Verify These Network Requirements (continued)

-
- 6. The HTTP server and application are administered as described in the *Avaya one-X™ Deskphone Edition for 9600 Series IP Telephones Administrator Guide*.
 - 7. The upgrade script and application files from the Avaya Support Web site, <http://www.avaya.com/support>, are loaded correctly on the HTTP/HTTPS server.
 - 8. If applicable, the DNS server is administered as described in the *Avaya one-X™ Deskphone Edition for 9600 Series IP Telephones Administrator Guide*.
 - 9. If applicable, the WML server is administered as described in the *Avaya one-X™ Deskphone Edition for 9600 Series IP Telephones Administrator Guide*.

Notes:

- Any or all of the server applications mentioned in items 5.-9. can be co-resident on the same hardware, subject to the specific restrictions of each individual application.
- See the *Avaya one-X™ Deskphone Edition for 9600 Series IP Telephones Administrator Guide* for more information about:
 - administering other network equipment,
 - administering applications like firewalls, and
 - information about topics like port utilization.

Requirements to Verify for Each IP Telephone

-
- 10. You have an extension number and an Avaya Communication Manager security code (password) for each applicable IP telephone. If your call server supports unnamed registration, and the telephone settings file allows unnamed registration, you do not need to provide an extension or password for the telephone. However, if you do not provide an extension or password, the telephone will have very limited telephone functionality. (For information, see [Unnamed Registration](#) on page 24.)
 - 11. A Category 5e LAN jack is available at each telephone site.
 - 12. Electrical power may be provided to each telephone by a Telephone Power Module (which must be ordered separately). If the LAN will supply IEEE-standard power (Power over Ethernet) to the telephone, no power module is required.
 - 13. 1 Category 5e modular line cord is available for the connection between the IP telephone and the PC, if applicable.
 - 14. Verify that the 9600 Series IP Telephone package includes the following components:
 - 1 telephone set with pre-attached stand.
 - 1 handset capable of transmitting and receiving 7KHz audio.
 - 1 H4DU 9-foot long (when extended) 4-conductor coiled handset cord, plugged into the telephone and the handset.
 - 1 Category 5 modular line cord for the connection from the IP telephone to the Ethernet wall jack.
 - 9630G/9640G Models (only) also include 1 DC power cord with a barrel connector for use with the 1151 auxiliary power supply.
 - *Avaya one-X™ Deskphone Edition for 9600 Series IP Telephones Safety Instructions*.
 - *Avaya one-X™ Deskphone Edition for 9600 Series IP Telephones Stand Instructions*.
 - *Avaya one-X™ Deskphone Edition for 9600 Series IP Telephones Wall Mount Instructions*.

Note:

For sites using headsets, the 9600 Series IP Telephones support only the HIS headset cords. See your Avaya representative for information.

Assembling the 9600 Series IP Telephone

CAUTION:

Be careful to use the correct jack when plugging in the telephone. The jacks are located on the back of the telephone housing and are flanked by icons to represent their correct use.

Powering the 9600 Series IP Telephone

All 9600 Series IP Telephones can be locally powered with a Telephone Power Module (DC power jack), available separately. In addition, the telephones support IEEE 802.3af-standard LAN-based power. Before installing a 9600 Series IP Telephone, verify with the LAN administrator whether the LAN supports IEEE 802.3af, and if so, whether the telephone should be powered locally or by means of the LAN.

When you add devices like multiple button modules or a Bluetooth™ adapter to applicable 9600 Series IP Telephones, the power class may change. [Table 1](#) shows the effect of such additions on the power class. For Power Class 2, set the switch labeled IEEE to **L**. For Power Class 3, set the switch labeled IEEE to **H**.

Table 1: Impact of Additional Devices on Telephone PoE* Power Class

Telephone Model	(A) Combinations Resulting in Power Class 2	(B) Combinations Resulting in Power Class 3
9610	<ul style="list-style-type: none"> ● Telephone only 	-
9620 9630G	<ul style="list-style-type: none"> ● Telephone only ● Telephone + Bluetooth Adapter 	Any combination of telephone and attachments not covered in column (A).
9630 9640 9640G 9650	<ul style="list-style-type: none"> ● Telephone only ● Telephone + one SBM24 ● Telephone + Bluetooth Adapter 	Any combination of telephone and attachments not covered in column (A).

Note:

*PoE - Power over Ethernet.

Note:

Use of the USB interface for additional features is planned for a future release. Until then, it is possible to use the USB interface as a power source for recharging certain devices. This use requires that auxiliary power is provided to the telephone.

⚠ Important:

The last step in assembling the 9600 Series IP Telephone **must** be applying power. Apply power either by plugging the power cord into the power source (local powering) or plugging the modular line cord into the Ethernet wall jack (IEEE powering).

⚠ CAUTION:

Failure to connect the proper cables with the proper jacks might result in an outage in part of your network.

Figures 1 through 4 provide illustrations to connect cords to jacks on 9600 IP Series Telephones. Use the illustrations and associated procedures as appropriate for telephone assembly.

Telephone Model:	See:
9610	Figure 1
9620	Figure 2
9630, 9640, 9650	Figure 3
9630G, 9640G	Figure 4

Note:

Some 9600 Series IP Telephone models, for example the 9640, accommodate an external GigE (Gigabit Ethernet) adapter and/or a Bluetooth adapter. Installation options for those devices are not shown in the illustrations that follow, but are boxed with the device and are also available on the Avaya support Web site.

Figure 1: Connection Jacks on a 9610 IP Telephone

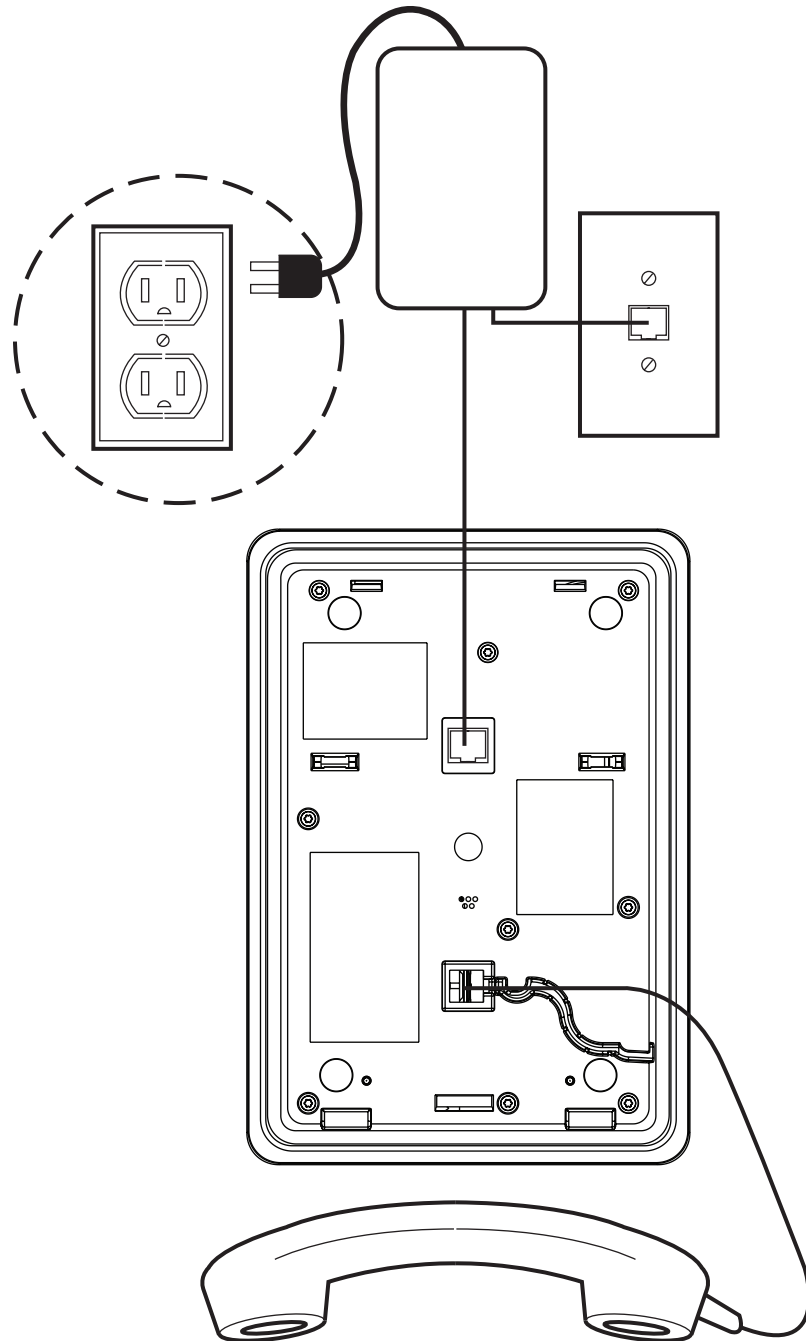


Figure 2: Connection Jacks on a 9620 IP Telephone

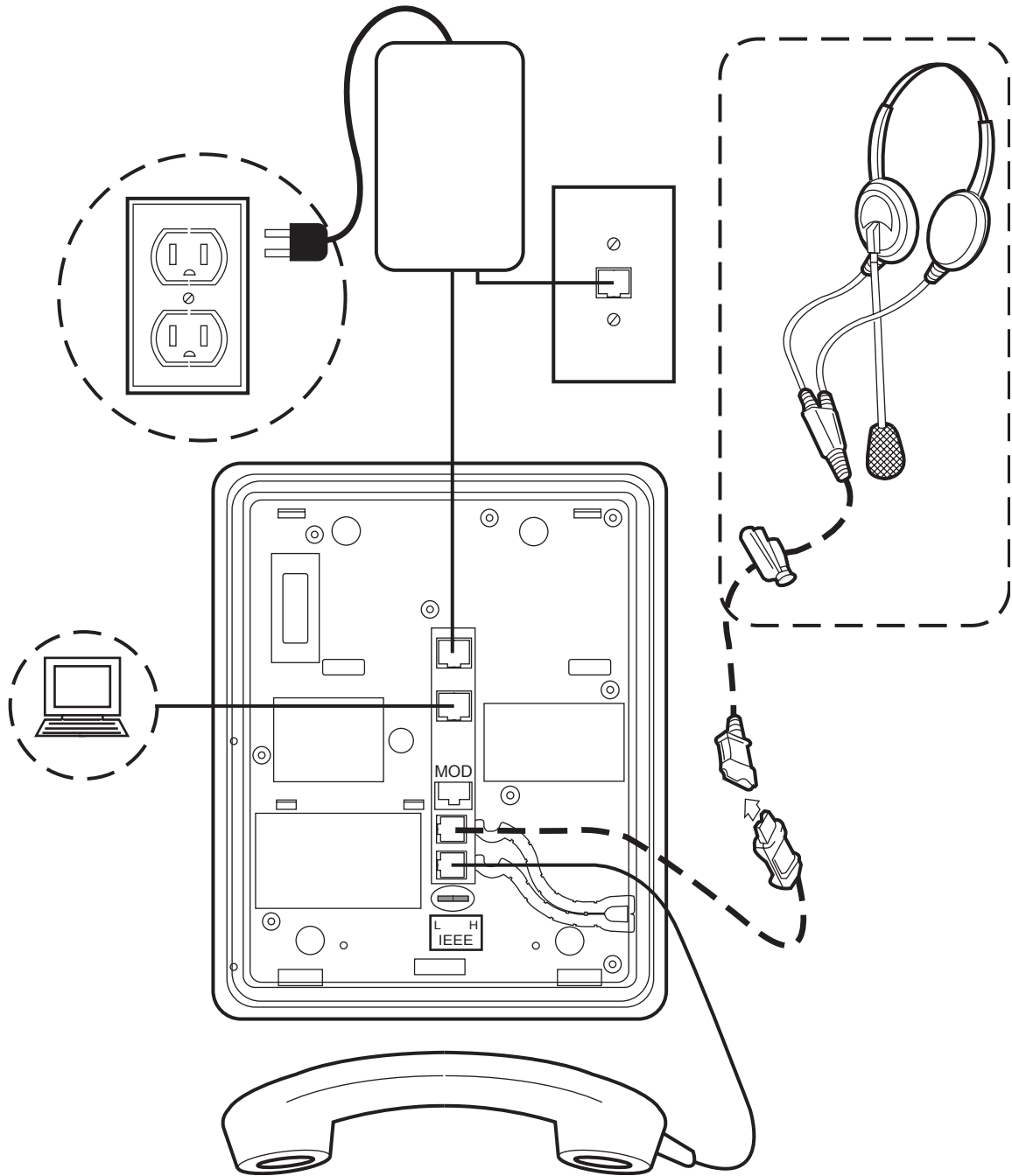
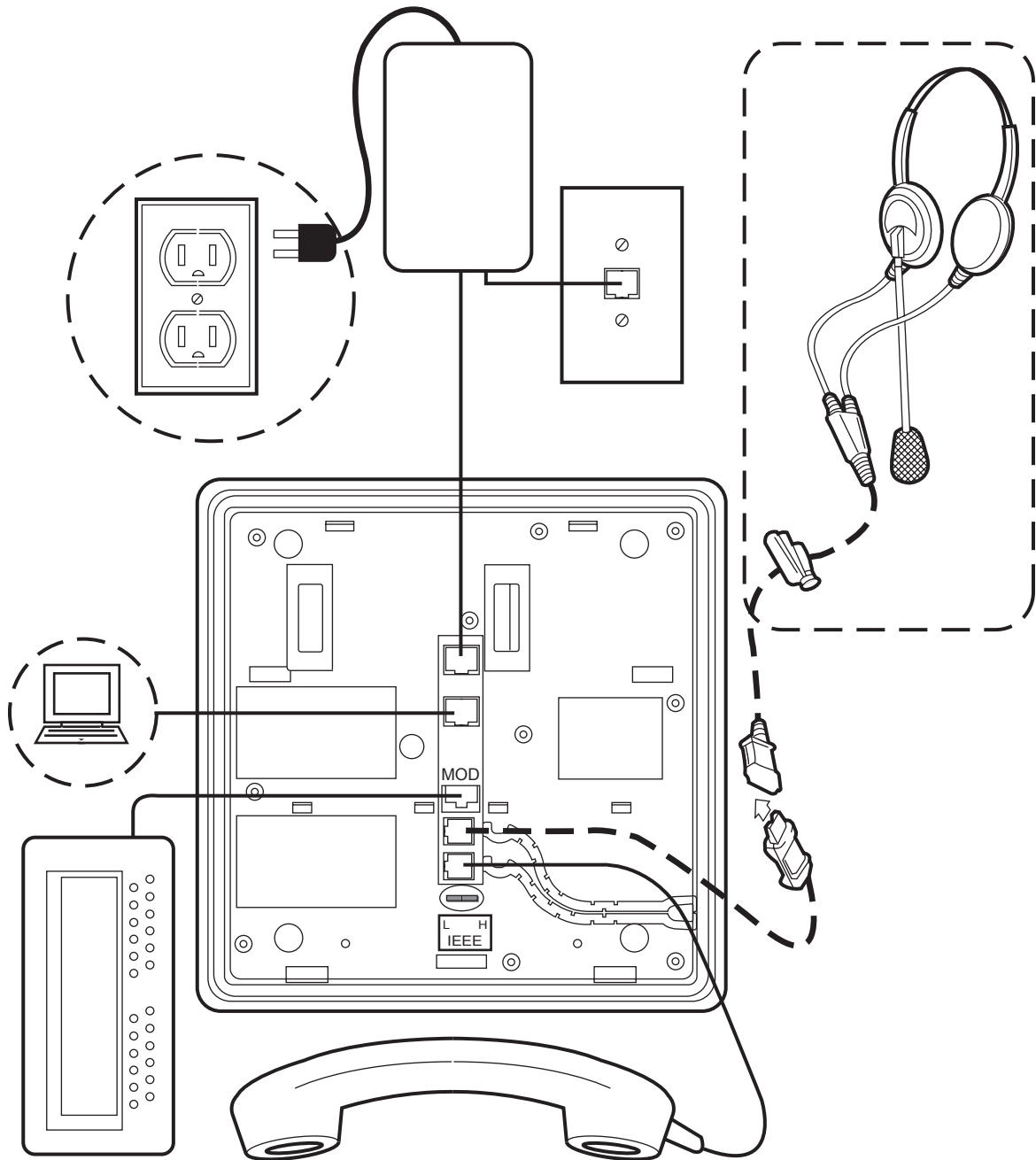
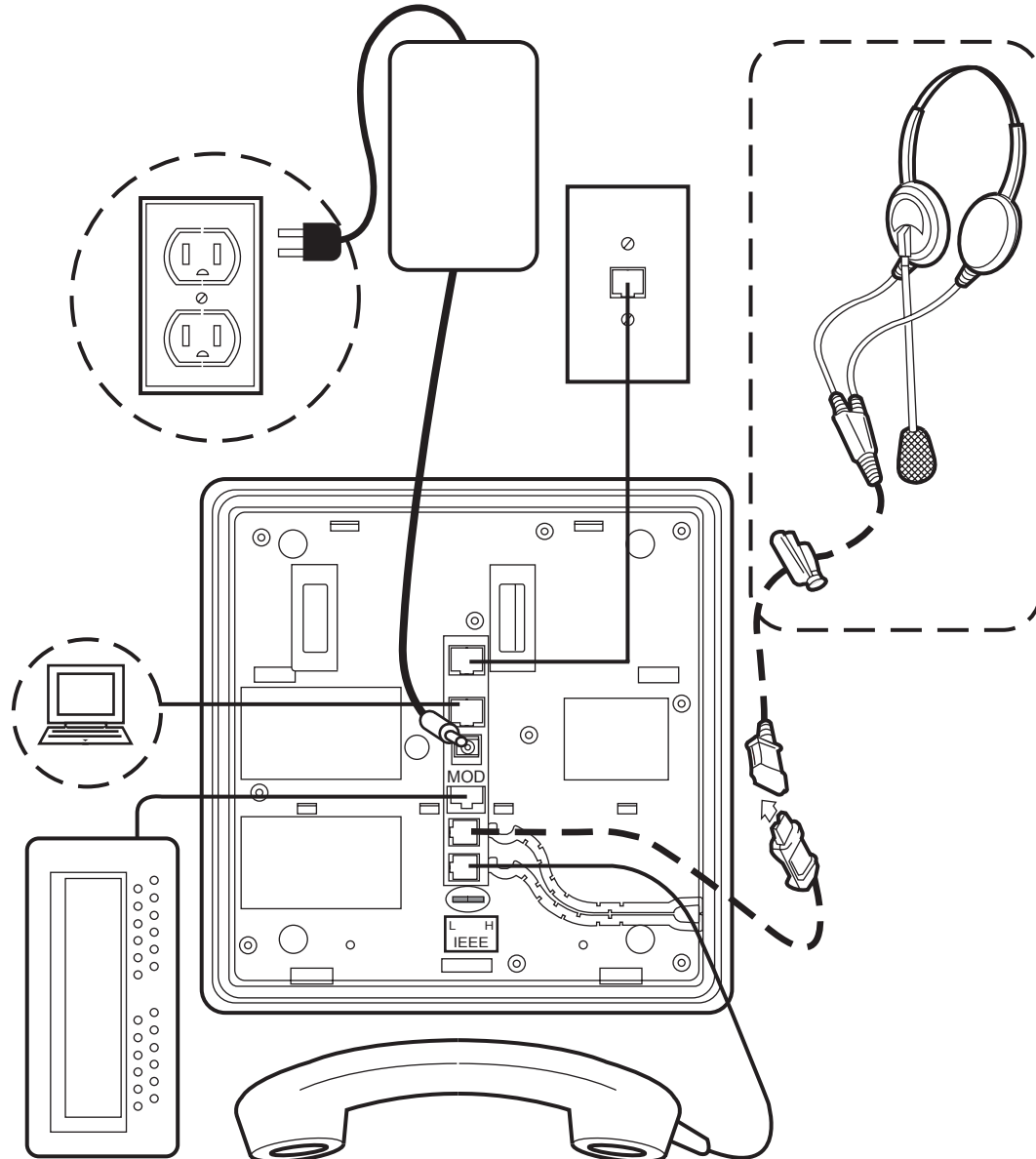


Figure 3: Connection Jacks on a 9630, 9640, or 9650 IP Telephone



Note:

The SBM24 Button Module shown in the lower left corner can also be attached to the telephone with the connector packaged with the module.

Figure 4: Connection Jacks on a 9630G or 9640G IP Telephone
**Note:**

The SBM24 Button Module shown in the lower left corner can also be attached to the telephone with the connector packaged with the module.

! **CAUTION:**

When providing auxiliary power for the 9630G and 9640G, do not plug the aux power supply directly into the line interface jack. Instead, use the power connecting cord with a barrel connector that came with your 9630G or 9640G IP Telephone.

1. Plug one end of the H4DU 4-conductor coiled handset cord into the telephone and the other end into the handset.
2. Plug one end of the first Category 5 modular line cord into the Ethernet jack of the PC and the other end into the secondary Ethernet jack on the 9600 Series IP Telephone, if appropriate.
3. **If the telephone is to be IEEE-powered**, plug one end of the second Category 5 modular line cord into the Ethernet jack on the 9600 Series IP Telephone. Plug the other end of this cord into the Ethernet wall jack. You are now finished. Do not proceed to Steps 4 or 5.
4. **If the telephone is not a Gigabit Ethernet (GigE) telephone (for example, not a 9630G or 9640G) and is to be powered locally**, connect one end of the second Category 5 modular line cord into the Ethernet jack on the 9600 Series IP Telephone. Plug the other end of this cord into the 1151 power brick jack labeled **Phone**. Plug another Category 5 cable into the 1151 power brick jack labeled **Line**. Plug the other end of this cable into the Ethernet wall jack. Finally, connect the 1151 to an AC power source. You are now finished. Do not proceed to Step 5.
5. **If the telephone is a GigE telephone (for example, a 9630G or a 9640G) and is to be powered locally**, connect one end of the second Category 5 modular line cord into the Ethernet jack on the 9600 Series IP Telephone. Plug the other end of this cord into the Ethernet wall jack. Plug the DC power cord provided with the Gigabit Ethernet telephone into the 1151 power brick jack labeled **Phone**. Plug the other end of this cord into the barrel-shaped jack on the telephone. Finally, connect the 1151 to an AC power source. Note that with this powering arrangement, there is no connection to the 1151 power brick jack that is labeled **Line**.

Dynamic Addressing Process

Note:

Before starting this process you must have an extension number for the IP telephone and the Avaya Communication Manager security code (password) for that extension, unless the telephone will use unnamed registration. For more information, see [Unnamed Registration](#) on page 24.

Any reference to the HTTP server applies equally to an HTTPS server.

Due to a smaller display area messages the 9610 IP Telephone displays may be truncated or slightly different than those shown here.

The following description of the process of installing the IP telephones assumes that the process is executed successfully. Only an initial out of the box installation is described. For errors that might be encountered during the process and the messages displayed, see [Chapter 5: Troubleshooting Guidelines](#).

When you plug the IP telephone set into the Ethernet wall jack and apply power, if applicable, the following process takes place.

Note:

If the application has already been downloaded, the whole process takes approximately 1 to 2 minutes after the telephone is plugged in. For software upgrades, including the boot file and application file download, the process might take 5 - 10 minutes. The duration is based on LAN loading, how many telephones are being installed at once, and similar factors.

Do not unplug the power cord during the download process.

1. During hardware initialization, the system initialization values NVCONTRAST and NVBRIGHTNESS are checked for non-null values, and set accordingly. The Avaya one-X™ name and logo display on sets with bit-mapped displays.
2. The system initialization value for NVLANGFILE is checked for a non-null value, in which case the text strings in the language file named by that value are used for text display. Otherwise, English text strings are displayed.
3. The boot code checks for a primary software code image, loads it into volatile memory, displays the name, and transfers control to it. If a primary software code image is not found, the boot code loads, displays the name of, and transfers control to the backup software code image.
4. The telephone activates the Ethernet line interface, the PC Ethernet jack, and dial pad input to allow the invocation of procedures. The activation occurs as soon as possible after power-up or a reset.

The telephone displays the speed of the Ethernet interface in Mbps, that is, 10, 100, or 1000. The message `No Ethernet * to program` displays until the software determines whether the interface is 10 Mbps, 100 Mbps, or 1000Mbps.

Note:

The Ethernet speed indicated is the LAN interface speed for both the telephone and any attached PC, assuming the administrator has not disabled the latter interface by a PHY2STAT setting.



Important:

As of Software Release 1.5, pressing * (asterisk) whenever a `* to program` message displays or whenever the initialization process can support an interrupt invokes the Craft Access entry procedure to allow manual settings, but only if the PROCSTAT (local dialpad procedure status) system value is "0." The zero PROCSTAT value provides full access to local procedures. If PROCSTAT is "1" the Craft Access entry procedure can be invoked only when a `* to program` message displays and then only the VIEW procedure is available. For information, see [Chapter 3: Local Administrative Options](#).

5. The IP telephone sends a request to the DHCP server and invokes the DHCP process.

One of the following messages display:

DHCP: <i>s</i> secs * to program	DHCP: <i>s</i> secs VLAN ID = <i>n</i>	DHCP: <i>s</i> secs
-------------------------------------	---	---------------------

where *s* is the number of seconds that have elapsed since DHCP was invoked. The message on the left appears if 802.1Q tagging is off and access to local programming procedures is not disabled or restricted. (See [Chapter 3: Local Administrative Options](#) for specifics.) The middle message appears if 802.1Q tagging is on and access to local programming procedures is disabled or restricted. If the left and middle messages alternate every two seconds, 802.1Q tagging is on. When both messages alternate, access to local programming procedures is not disabled or restricted. Finally, the message on the right appears if 802.1Q tagging is off and access to local programming procedures is disabled or restricted.

6. The DHCP server provides IP Addresses for the following hardware:

- The IP telephone
- The HTTP/HTTPS server
- The TN799C or D Control-LAN (C-LAN) circuit pack on the media server

7. Using the list of gateway IP Addresses provided by the DHCP server, the telephone performs a router check. The telephone cycles through the gateway IP Addresses with ARPs or pings until it receives a response. When the router is located, received LLDP TLVs are processed. Then the HTTP process starts.

8. While the IP telephone connects to the HTTP server, the telephone displays one of the following messages:

HTTP: <i>n ipadd</i>	HTTP: <i>n ipadd</i> * to program
----------------------	--------------------------------------

where *n* is the number of the IP Address obtained from the HTTP server and *ipadd* is the IP Address.

 **Important:**

Pressing * at this time invokes the Craft Access entry procedure to allow manual settings. For information, see [Chapter 3: Local Administrative Options](#).

9. When connected, the telephone looks for an upgrade script file.

10. The HTTP server sends and identifies an upgrade script.

The GET message might have to be sent several times. Each time the GET message is sent, all IP telephones display the following message:

```
HTTP: n uri
```

For HTTP, *n* is the number of HTTP requests made by the telephone and *uri* is the URI for the current HTTP request.

11. While the upgrade script file is being downloaded, all IP telephones display the following message:

```
HTTP:n sc etag
```

where *n* is the number of the IP Address obtained from the HTTP server, *sc* is the status code of the HTTP response and *etag* is the value of the ETag header.

12. When the telephone determines that the application file received is valid, the following message displays:

```
File Obtained;please wait...
s secs
```

where *s* is the number of seconds that elapse while non-volatile memory is erased.

13. While the application file is saved in flash memory, all IP telephones display the following message:

```
Saving to flash
1% 1 secs
```

with the percentage of the file and the number of elapsed seconds incremented as the application file is stored in flash memory.

14. The telephone contacts the Avaya Media Server and attempts to log in.

All IP telephones display a version of the following prompts for an extension:

Login
Enter Extension
Enter Extension and press Enter or OK

15. Enter a new extension and press **OK**. To register the telephone without the extension or password (unnamed), press only **OK** or make no entry and wait 60 seconds.

Note:

Unnamed registration is the capability to register a telephone with the call server without entry of an extension or password. The UNNAMEDSTAT parameter must be set to enable unnamed registration. Telephones registered unnamed have limited functionality. For more information, see [Unnamed Registration](#).

All IP telephones display a version of the following prompts for a password:

Login
Enter Password
Enter Password and press Enter or OK

16. Enter the password and press **OK**. To register the telephone without the extension or password (unnamed), press **OK** or make no entry and wait 60 seconds.
17. The extension is visible as you enter it but the password displays as asterisks. The system determines whether the extension is in use.
18. Successful completion of this process produces a dial tone when the **Speaker** button is pressed or the handset is lifted.

The IP telephone was installed successfully.

Unnamed Registration

Unnamed registration is a capability an IP telephone can have to register with a call server, and receive limited service, without requiring an extension and password entry. Typical environments where this functionality is useful include:

- “Hot-desking” environments where there is a period of time between one user logging out and another user logging in on the same telephone.
- Using the Avaya Softphone application in “road warrior” mode, which allows a traveller to invoke the telephony features and functionality by taking over the office telephone extension. This takeover unregisters the office telephone.

In both examples, the user unregisters the telephone by logging off or by taking the office telephone extension over to another telephone. Without unnamed registration, the telephone in the first example will just wait for an extension and password entry and the telephone in the second example will continue attempting to register at regular intervals. The downside of a telephone being unregistered is that no one can use the telephone, for example, to report a building emergency like a fire.

Unnamed registration allows the telephone to register without an extension and password. Because there is no extension, telephony functionality is limited, specifically:

- The user has only one call appearance, and hence, cannot transfer or conference calls.
- The user has no administered feature buttons, and cannot invoke on-hook dialing.
- Extension-based information, like a given user's Contacts data or Option settings are not available.
- The user is limited to the calling capability administered for PSA (Personal Station Access) on the call server, for example, access to an emergency number.

Unless otherwise disabled, the telephone automatically attempts to register unnamed if no action is taken on the telephone Extension entry screen within 60 seconds. Initiating any ID or password entry disables and prevents unnamed registration from occurring. Unnamed registration is ignored after any dialpad entry.

Administrators can disable unnamed registration by appropriately administering the system parameter UNNAMEDSTAT, as indicated in Chapter 7 of the *Avaya one-X™ Deskphone Edition for 9600 Series IP Telephones Administrator Guide*. Unnamed registration appears to the end user like Avaya Communication Manager TTI Mode, and is similar from an administration perspective. For more information about TTI, see your Avaya Communication Manager documentation.

Chapter 3: Local Administrative Options

Introduction

During installation or after you have successfully installed an IP telephone, you might be instructed to administer one of the manual procedures described in this chapter. These local administrative procedures are also referred to as Craft Procedures.

Note:

You can modify the settings file to set parameters for IP telephones that download their upgrade script and application files from the same HTTP server. See [Chapter 4: Maintaining 9600 Series IP Telephones](#) and “9600 Series IP Telephone Scripts and Application Files” in Chapter 4 of the *Avaya one-X™ Deskphone Edition for 9600 Series IP Telephones Administrator Guide*.

 **CAUTION:**

Only trained installers or technicians should perform local (craft) procedures. Perform these procedures **only** if instructed to do so by the system or LAN administrator.

Static administration of these options causes upgrades to work differently than if they are administered dynamically. Values assigned to options in static administration are not changed by upgrade scripts. These values remain stored in the telephone until either:

- a new boot file is downloaded, or
- the IP telephone is reset, as indicated in [Reset System Values](#) on page 41.

Use these option-setting procedures **only** with static addressing and, as always, only if instructed by the system or LAN administrator. Do **not** use these option-setting procedures if you are using DHCP. DHCP is the Dynamic Addressing Process, as indicated in [Dynamic Addressing Process](#) on page 20.

Accessing Local (Craft) Procedures

As of Release 1.5, when PROCSTAT is "0" (full access to local Craft procedures) you can invoke local craft procedures during initialization whenever this message displays:

*** to program**

or at any other time the initialization process can support a processing interrupt. If PROCSTAT is set to "1" (access allowed only to the VIEW craft procedure for debugging purposes), you can invoke local Craft procedures only when the "*** to program**" message displays during initialization.

Note:

The "*** to program**" message is supported even if the value of PROCSTAT is "1" when the messages "Address conflict," "Subnet conflict," "Bad router?" and "Bad FileSv address" display. Allowing Craft procedure access in response to these messages prevents situations in which input is required but not allowed.

For earlier software releases, PROCSTAT must be zero to invoke craft access (Release 1.2). For Releases 1.0 and 1.1, PROCSTAT must be equal to "0" plus PROCPSWD must be null.

Note:

The factory-set default Craft Access Code (PROCPSWD) is **27238**.

During Telephone Startup:

1. During startup, invoke local procedures by pressing * to display the Craft Access Code Entry screen:

Enter code: __
#=OK

2. Enter the local dialpad procedure password (0 to 7 numeric digits), as specified by the system administrator in the system value PROCPSWD. For security purposes, the telephone displays an asterisk for each numeric dialpad press.
3. Press # when password entry is complete.

The entry is compared to the PROCPSWD value. If they match, the telephone displays the Craft Local Procedure screen, "Select procedure and press Start."

4. Use the navigation arrows to scroll to and highlight the local procedure you want, then press **Start** or **OK**. Or scroll to the procedure you want and press the corresponding line button.

During Normal Telephone Operation (all 9600 IP Telephones except the 9610):

1. Invoke all local procedures by pressing the **Mute** button, entering the local (dialpad) procedure password (0 to 7 numeric digits), then pressing the **#** button.

A 6-second timeout is in effect between button presses after pressing the **Mute** button. If you do not press a valid button within 6 seconds of pressing the previous button, the collected digits are discarded. In this case, no administrative option is invoked.

The entry is compared to the PROCPSWD value. If they match, the telephone displays the Craft Local Procedure screen, and prompts "Select procedure and press Start."

2. Use the navigation arrows to scroll to and highlight the local procedure you want, then press **Start** or **OK**. Or scroll to the procedure you want and press the corresponding line button.

During Normal Telephone Operation (9610 IP Telephone only):

1. Invoke all local procedures by displaying the Contacts application and pressing the **Contacts** button.

Note:

If the Contacts application is not displayed, press the **Contacts** button twice and proceed to the next step.

2. Enter the local (dialpad) procedure password (0 to 7 numeric digits), then press the **#** button.

Note:

A 6-second timeout is in effect between button presses after pressing the **Mute** button. If you do not press a valid button within 6 seconds of pressing the previous button, the collected digits are discarded. In this case, no administrative option is invoked.

The entry is compared to the PROCPSWD value. If they match, the telephone displays the Craft Local Procedure screen and prompts "Select procedure and press Start."

3. Use the navigation arrows to scroll to and highlight the local procedure you want, then press **Start** or **OK**. Or scroll to the procedure you want and press the corresponding line button.

Entering Data for Administrative Options

This section applies to all 9600 Series IP Telephones and describes how to enter data for administrative options.

1. The first application line on any screen is automatically highlighted (selected) when the telephone displays the screen. To select the item on that line, press the appropriate softkey at the bottom of the screen, for example, **Change** or **Save**, or the **OK** button. To select a different line, use the down or up navigation arrows to change the line focus. When the desired line is highlighted, then press a softkey or **OK** to select that line.
2. Attempts to enter invalid data are rejected and the telephone emits an error beep.
3. If you enter a numeric digit that causes the IP Address or subnet mask value to exceed 255, or any value to exceed its maximum field value, an error beep tone sounds, the digit is ignored, and the cursor does not move forward.
4. If you enter a numeric digit for a value or for an IP Address or subnet mask field after entering only a zero, the new digit replaces the zero.
5. Press the **#** button to go to the next step.
6. To backspace, press the leftmost softkey. When you press the applicable button or key to backspace, the most recently entered digit or period is erased from the display. The cursor remains in the erased character's former position.
7. Pressing **Exit** exits the local procedures. If any changes were made using the ADDR procedure or if the Crafts Entry screen was invoked during startup, the telephone immediately resets. If no ADDR changes were made or if the local procedures were invoked post-startup, the telephone redisplay the screen (or other display) that was effective when the craft options was invoked.

Note:

If **PROCSTAT** has been administered to **1**, you will not be able to invoke any administrative options other than **V I E W**.

About Local Administrative Procedures

Craft procedures allow you to customize the 9600 Series IP Telephone installation for your specific operating environment. This section provides a description of each local administrative option covered in this guide, with references to the pages on which the option appears.

Note:

Due to its smaller display size, the 9610 IP Telephone does not present the procedures exactly as shown in this chapter. The 9610 does display essential information like the other 9600 Series IP Telephones, but that information may be formatted differently.

Unless otherwise prohibited using administration, a user can view but not change most of the parameters associated with Craft procedures. For more information, see the applicable users guide(s).

Shown As (this value always displays in English)	Craft Procedure Purpose	See
8021X	Set 802.1X operational mode	Set the 802.1X Operational Mode on page 33.
ADDR	Address information programming	Static Addressing Installation on page 34.
AGC	Enable/disable Automatic Gain Control	Disable/Enable Automatic Gain Control on page 35.
CHADDR	Set the DHCP chaddr field value	Manually Setting the DHCP Client Hardware Address on page 36.
CLEAR	Clear all values to factory defaults	Clear Procedure on page 37.
DEBUG	Enable/disable Debug Mode	Disable/Enable Debug Mode on page 38.
GROUP	Set the Group Identifier	Group Identifier on page 38.
INT	Interface Control	Interface Control on page 39.
LOG	Enable/disable Event Logging	Disable/Enable Event Logging on page 40.

1 of 2

Local Administrative Options

Shown As (this value always displays in English)	Craft Procedure Purpose	See
LOGOUT	Log off the telephone	Logoff on page 40.
MLS	View Multi-Language text Strings	View Multi-Language Strings on page 41.
RESET VALUES	Reset system initialization values to defaults	Reset System Values on page 41.
RESTART PHONE	Restart the telephone	Restart the Telephone on page 42.
SIG	Set the signaling protocol download flag	Signaling Protocol Identifier on page 43.
SSON	Set the Site-Specific Option Number	Site-Specific Option Number Setting on page 43.
TEST	Initiate a self-test	Self-Test Procedure on page 44.
VIEW	View current parameter values and file names	The View Administrative Option on page 52.

2 of 2

Set the 802.1X Operational Mode

Use the following procedure to set or change the operational mode.

1. When you select 802.1X from the Craft Local Procedure Screen, the following text displays:

Current setting:
New Setting:

where the **setting** is the text string associated with the current system value of DOT1X (802.1X Supplicant Mode), defined as:

- "Pass-thru mode" if DOT1X = 0
- "P-t w/Logoff" if DOT1X = 1
- "Supplicant mode" if DOT1X = 2

2. To change the setting, press the Right (or Left) navigation arrow to cycle through the settings.

Depending on the current value, the next sequential text string is selected and displayed as the New setting. For example, if the current value is Pass-thru mode, pressing the Choice Selector displays P-t w/Logoff. If the current setting is Supplicant mode, pressing the Choice Indicator changes the new setting to Pass-thru mode.

3. Press **Save** to store the new setting and redisplay the Craft Local Procedure screen.

Pre-Installation Checklist for Static Addressing

Before performing static programming of address information, verify that all the requirements listed in the [Verify These Network Requirements](#) section of the [Pre-Installation Checklist](#) are met. You do not have to consider item [4.](#) on page 12, as it refers to the DHCP server. In addition, you must have the values for the following parameters. Failure to do so can cause data entry errors that prevent the telephone from working. Such errors can also have a negative impact on your network. Print copies of this checklist for each subnet.

- 1. The IP Address of the media server.
- 2. The transport layer port number of the address of the Management Complex (media server/gatekeeper). Although this can be a value between 0 and 65535, the default value is 1719. **Do not** change this value unless it conflicts with an existing port assignment.
- 3. The IP Address of the gateway/router.
- 4. The IP netmask.
- 5. The IP Address of the HTTP server.

Static Addressing Installation

The usual way to assign IP Addresses to IP telephones is the automatic method described in [Dynamic Addressing Process](#) on page 20. There might be times, however, when manual assignment of IP Addresses is desired.



CAUTION:

Static addressing is necessary when a DHCP server is unavailable.

Because of the increased opportunities for text entry errors associated with static addressing, Avaya strongly recommends that a DHCP server be installed and static addressing avoided.

Use the following procedure to invoke manual address information programming.

1. When you select ADDR from the Craft Local Procedure Screen, the Static Addressing Local Procedure screen displays as follows with the prompt "Select address to change.":

Static Addressing screen		Line Description and (System Value)
Phone	<i>nnn.nnn.nnn.nnn</i>	Telephone IP Address (IPADD)
Call Server	<i>nnn.nnn.nnn.nnn</i>	Call Server in use; media server IP Address
Router	<i>nnn.nnn.nnn.nnn</i>	router in use; gateway/router IP Address
Mask	<i>nnn.nnn.nnn.nnn</i>	IP network mask (NETMASK)
File Server	<i>nnn.nnn.nnn.nnn</i>	IP Address of HTTP/S File Server in use
802.1Q	<i>NVL2Q text string</i>	NVL2Q setting text description
VLAN ID	<i>dddd</i>	NVL2QVLAN
VLAN Test	<i>ddd</i>	NVVLANTEST

where:

- ***nnn.nnn.nnn.nnn*** is the current IP Address associated with the specific address information to its left, which could be either a value previously set by a technician, or the original value of NVIPADD if no previous change was made,
 - ***NVL2Q text string*** is the text string associated with the current system value of NVL2Q where "Auto" = an NVL2Q value of "0", "On" = an NVL2Q value of "1", and "Off" = an NVL2Q value of "2", and
 - ***dddd*** is the current value of NVL2QVLAN and ***ddd*** is the current value of NVVLANTEST, respectively.
2. Use the navigation arrows to scroll to and highlight the address you want to change, then press **Change** to display the change screen for that specific address value.

3. Depending on the item you selected, choose one of the following:

If you want to	Then
Change any of the IP Address values (Phone, Call Server, Router, Mask, &/or File Server)	<p>Use the dialpad to enter the new IP Address. IP Addresses have three sets of three digits followed by a period. Pressing * following entry of three digits causes a period to be placed in the next position, and the cursor to advance one position to the right.</p> <p>For example, to enter the IP Address 111.222.333.444, press the 1 on the dialpad three times then press *, press the 2 on the dialpad three times then press *, press the 3 on the dialpad three times then press *, then press the 4 on the dialpad three times. Proceed to the next step.</p>
Change the 802.1Q value	<p>Use the Right navigation arrow to cycle through the text strings corresponding to the NVL2Q values defined as "Auto" if NVL2Q=0, "On" if NVL2Q=1, and "Off" if NVL2Q= 2 until the text string of the value you want to change to displays. Proceed to the next step.</p>
Change the VLAN ID value	<p>Use the dialpad to enter the new static VLAN ID of from 0 to 4094, inclusive. Proceed to the next step.</p>
Change the VLANTEST value	<p>Use the dialpad to enter the new value of the DHCPOFFER wait period of from 0 to 999, inclusive. Proceed to the next step.</p>

4. Press **Save** to store the new setting and redisplay the Craft Local Procedure screen or **Cancel** to return to the Craft Local Procedure screen without saving the value entered.

Once the new values are stored, the telephone is reset.

If a new boot program is downloaded from the HTTP server after you enter static addressing information, you must reenter your static addressing information.

Disable/Enable Automatic Gain Control

Use the following procedure to turn automatic gain control for the handset, headset, and/or the Speaker on or off.

Note:

The user can potentially override the AGC local procedure settings, as described in the telephone user guide. If overridden, the backup file stores the AGC value(s) set by the user and ignores any setting established using this local procedure.

Local Administrative Options

1. When you select AGC from the Craft Local Procedure Screen, the following text displays:

Handset Auto Gain Control	On
Headset Auto Gain Control	On
Speaker Auto Gain Control	On

where, except for the 9610 which displays the actual value, the **setting** is the text string associated with the current system value of NVAGCHAND, NVAGCHEAD, or NVAGCSPKR, defined as:

- "On" if the respective NVAGCXXXX system value is "1".
 - Off if the respective NVAGCXXXX system value is "0".
2. To change the setting, select (highlight) the appropriate line and press **Change** to toggle the selected setting from On to Off or vice versa.
 3. Press **Save** to store the new setting, update the associated system value, and redisplay the Craft Local Procedure screen.

Manually Setting the DHCP Client Hardware Address

Use this procedure to manually set or change the DHCP Client Hardware Address, if you use static addressing rather than DHCP.

1. When you select CHADDR from the Craft Local Procedure Screen, the following text displays:

Current setting:
New Setting:

where, except for the 9610 which displays the actual value, the setting is the current system value of NVCHADDR.

2. To change the setting, enter a valid client hardware address. This value is usually the MAC address, which DHCP then converts to an integer preceded by zeroes.
3. Press **Save** to store the new setting and redisplay the Craft Local Procedure screen.

Clear Procedure

Sometimes, you might want to remove *all* administered values, user-specified data, and option settings. Essentially, you want to return a telephone to its initial “clean slate” or out of the box condition. This is usually done when passing a telephone to a new, dedicated user when the **LOGOFF** option is not sufficient. For example, a new user is assigned the same extension, but requires different permissions than the previous user.

The **CLEAR** option erases all administered data—static programming, file server and call server programming, and user settings including Contact button labels and locally programmed Feature button labels, and restores all such data to default values. The **CLEAR** option does not affect the software load itself. If you have upgraded the telephone, the telephone retains the latest software. Once you have cleared a telephone, you can administer it normally.

**CAUTION:**

This procedure erases all administered data, without any possibility of recovering the data.

Use the following procedure to clear the telephone of its administrative, user-assigned and options values.

1. When you select CLEAR from the Craft Local Procedure Screen, the telephone displays the prompt "Press Clear again to confirm."
2. If you do not want to clear all values, press **Cancel** to terminate the procedure and retain the current values. Press **Clear** to clear all values to their initial default values.

The telephone displays the following text:

Clearing values...

The telephone is cleared to its “out of the box” state, resetting the following values to their factory defaults:

- All system values and system initialization values.
- 802.1X identity and password.
- User options, parameter settings, identifiers and password.
- Any user data like Contact Lists or Call Logs are deleted.

After clearing the values, the telephone resets.

Disable/Enable Debug Mode

Use the following procedure to turn the debug mode for the button module serial port on or off.

 **CAUTION:**

A DEBUG setting of "On" disables any SBM24 Button Module connected to the module interface or any adapter plugged into Slot 2.

1. When you select DEBUG from the Craft Local Procedure Screen, the following text displays:

Debug Mode	On
------------	----

where, except for the 9610 which displays the actual value, the **setting** is the text string associated with the current system value of NVDEBUG, defined as:

- "On" if the NVDEBUG system value is "1".
 - "Off" if the NVDEBUG system value is "0".
2. Press **Change** to toggle the selected setting from On to Off or vice versa.
 3. Press **Save** to store the new setting.

If the value changed from "On" to "Off", the telephone initiates a reset. If the value changed from "Off" to "On" the Craft Local Procedure screen redisplay.

The telephone saves the new value.

Group Identifier

Use the following procedure to set or change the Group Identifier.

Note:

Perform this procedure only if the LAN Administrator instructs you to do so.
For more information about groups, see [The GROUP System Value](#) on page 49.

1. When you select GROUP from the Craft Local Procedure Screen, the following text displays:

Current setting: New Setting:

where the **setting** is the current system value of NVGROUP.

2. Enter a valid **Group** value (0-999).
3. Press **Save** to store the new setting and redisplay the Craft Local Procedure screen.

Interface Control

Use the following procedure to set or change the interface control value.

1. When you select INT from the Craft Local Procedure Screen, the following text displays with a prompt to use the Right and Left navigation arrows to select a setting:

Ethernet:	Choice Selector
PC Ethernet:	Choice Selector

Except for the 9610 which displays the actual value, the values shown are the text strings associated with the current PHY1STAT on the Ethernet line and the current PHY2STAT system value on the PC Ethernet line.

The PHY1STAT text strings are:

- "Auto" when PHY1STAT = 1
- "10Mbps half" when PHY1STAT = 2
- "10Mbps full" when PHY1STAT = 3
- "100Mbps half" when PHY1STAT = 4
- "100Mbps full" when PHY1STAT = 5
- "1000 Mbps full" when PHY1STAT = 6

The PHY2STAT text strings are:

- "Disabled" when PHY2STAT = 0
- "Auto" when PHY2STAT = 1
- "10Mbps half" when PHY2STAT = 2
- "10Mbps full" when PHY2STAT = 3
- "100Mbps half" when PHY2STAT = 4
- "100Mbps full" when PHY2STAT = 5
- "1000 Mbps full" when PHY2STAT = 6

2. To change the Ethernet setting, press the Right navigation arrow to cycle through the possible settings.

Depending on the current value, the next sequential text string is selected and displayed as the setting. For example, if the current value is 10Mbps half (2), pressing the Right navigation arrow changes the value to 10Mbps full (3). If the current value is 1000Mbps full (6), pressing the Right navigation arrow changes the value to Auto (1).

3. To change the PC Ethernet setting, select that line and press the Right navigation arrow to cycle through the possible settings.
4. Press **Save** to store the new setting(s) and redisplay the Craft Local Procedure screen.

Disable/Enable Event Logging

Use the following procedure to enable or disable logging of system events.

1. When you select LOG from the Craft Local Procedure Screen, the telephone prompts you to use the Right and Left navigation arrows to select a setting and displays the following text:

Log: <i>text string</i>	Choice Selector
-------------------------	-----------------

where, except for the 9610 which displays the actual value, the ***text string*** is the wording associated with the current system value of NVLOGSTAT, defined as:

- "Disabled" when NVLOGSTAT = 0
 - "Emergencies" when NVLOGSTAT = 1
 - "Alerts" when NVLOGSTAT = 2
 - "Critical" when NVLOGSTAT = 3
 - "Errors" when NVLOGSTAT = 4
 - "Warnings" when NVLOGSTAT = 5
 - "Notices" when NVLOGSTAT = 6
 - "Information" when NVLOGSTAT = 7
 - "Debug" when NVLOGSTAT = 8
2. To change the setting, press the Right (or Left) navigation arrow to cycle through the settings.

Depending on the current value, the next sequential text string is selected and displayed as the setting. For example, if the current value is Alerts (2), pressing the Right navigation arrow changes the value to Critical (3). If the current value is Debug (8), pressing the Right navigation arrow changes the value to Disabled (0).
 3. Press **Save** to store the new setting and redisplay the Craft Local Procedure screen.

Logoff

Use the following procedure to log off a telephone.



CAUTION:

Once a telephone is logged off, a password and extension might be needed to log back on.

1. When you select LOGOUT from the Craft Local Procedure Screen, the telephone displays the following text:

Press Log Out again to confirm

2. Press **Cancel** to return to the Craft Local Procedure screen without logging off the telephone. Press **Log Out** to unregister the telephone from the call server.

View Multi-Language Strings

Use this procedure to look at the language strings available on the telephone. A language string is any set of words or phrases on the IP Telephone user interface.

1. When you select MLS from the Craft Local Procedure Screen, the following text displays:

Tag # <i>N</i> Text string for tag #<i>N</i> <i>text string</i>
--

where ***N*** is the label associated with a specific language in the downloaded language file and ***text string*** is the wording associated with that Tag number.

Note:

If no language file is being used or if a translation is not provided in the current language, English displays instead.

2. Use the Up and Down navigation arrows to scroll through the list of text strings. Use the Right and Left navigation arrows to scroll right or left one character at a time to view the entire text string, if it exceeds the available display line space.
3. Press **Back** to return to the Craft Local Procedure screen.

Reset System Values

Use the following procedure to reset all system initialization values to the application software default values.



CAUTION:

This procedure erases all static information, without any possibility of recovering the data.

Local Administrative Options

1. When you select RESET VALUES from the Craft Local Procedure Screen, the telephone displays the following text:

Press Reset to confirm.

2. Press **Cancel** to return to the Craft Local Procedure screen without resetting the telephone. Press **Reset** to start the telephone reset.

The telephone resets from the beginning of registration, which might take a few minutes. A reset:

- Resets all system values and system initialization values except AUTH and NVAUTH to default values.
- Resets the 802.1X ID and Password to their default values.
- Resets call server values to their defaults.
- Deletes any entries in the Redial buffer.
- Does not affect user-specified data and settings like Contacts data or the telephone login and password. To remove this type of data, see the [Clear Procedure](#) on page 37.

Restart the Telephone

Use the following procedure to restart the telephone.

1. When you select RESTART PHONE from the Craft Local Procedure Screen, the telephone displays the following text:

Press Restart to confirm.

2. Press **Cancel** to return to the Craft Local Procedure screen without restarting the telephone. Press **Restart** to proceed with the registration steps covered in the [Dynamic Addressing Process](#) on page 20.

A restart does not affect user-specified data and settings like Contacts data or the telephone login and password.

The remainder of the restart procedure depends on the status of the boot and application files. For information, see [Appendix A: Restart Scenarios](#).

Signaling Protocol Identifier

Use the following procedure to set or change the Signaling Protocol Identifier. A valid SIG Protocol Identifier is either **0** (default), **1** (H.323), or **2** (SIP).

Note:

Perform this procedure only if the LAN Administrator instructs you to do so.

1. When you select SIG from the Craft Local Procedure Screen, the telephone prompts you to use the Right and Left navigation arrows to select a setting and displays the following text:

Sig: <i>text string</i>	Choice Selector
-------------------------	-----------------

where, except for the 9610 which displays the actual value, the ***text string*** is the wording associated with the current system value of NVSIG, defined as:

- "Default" when NVSIG = 0
 - "H.323" when NVSIG = 1
 - "SIP" when NVSIG = 2
2. To change the setting, press the Right (or Left) navigation arrow to cycle through the settings.

Depending on the current value, the next sequential text string is selected and displayed as the setting. For example, if the current value is SIP (2), pressing the Right arrow changes the value to 0 (default). If the current value is H.323 (1), pressing Right arrow changes the value to 2 (SIP).

3. Press **Save** to store the new setting and redisplay the Craft Local Procedure screen.

The remainder of this procedure depends on the status of the boot and application files. For information, see [Appendix A: Restart Scenarios](#).

Site-Specific Option Number Setting

 **CAUTION:**

Do **not** perform this procedure if you are using static addressing. Perform this procedure **only** if you are using DHCP **and** the LAN administrator instructs you to do this.

Local Administrative Options

Use the following procedure to set the Site-Specific Option Number (SSON).

1. When you select SSON from the Craft Local Procedure Screen, the following text displays:

Current setting:
New Setting:

where the **setting** is the current system value of NVSSON.

2. To change the setting, use the dialpad to enter a valid SSON value between 128 and 255.
3. Press **Save** to store the new setting and redisplay the Craft Local Procedure screen.

Self-Test Procedure

Note:

9600 Series IP Telephones store two software code images in reprogrammable non-volatile memory. The primary image, called the “big app” must be running to perform a self-test. The backup image, called the “little app” does not support the self-test.

For self-testing, use the following procedure:

1. When you select TEST from the Craft Local Procedure Screen, the telephone displays the following text:

Press Test to confirm.

2. Press **Cancel** to return to the Craft Local Procedure screen without testing the telephone. Press **Test** to start telephone testing.

The test performs the following actions:

- All softkeys are unlabeled.
- Groups of no more than 13 LEDs at a time on the telephone and any attached button modules illuminate sequentially for about a half second. Illumination starts with the upper half of the telephone and continues through the lower half of any attached button module in a repeating cycle.
- Pixels on the display are shown at their highest intensity.

After approximately 5 seconds, the top Application line displays either "Self-test passed" or "Self-test failed."

3. Press **Back** to return to the Craft Local Procedure screen.

Chapter 4: Maintaining 9600 Series IP Telephones

Introduction

This chapter covers the maintaining the 9600 Series IP Telephones, for example, downloading a new telephone software version from the Avaya support Web site. Note that the recommended configuration is the latest call server software and the latest IP telephone firmware.

Downloading Software Upgrades

The software releases containing the files needed to operate the 9600 Series IP Telephones are bundled together in a self-extracting executable file you download to your file server from the Avaya support Web site at: <http://www.avaya.com/support>. The self-extracting executable file comes in both zipped and unzipped format.

Currently, you have one “bundle” to download. That bundle contains:

- An upgrade script file and a settings file, which allow you to upgrade to new software releases and new functionality without having to replace IP telephones.
- Application files for all current 9600 Series IP Telephones.
- Other useful information such as a ReadMe file and a settings file template to customize parameters and settings.

Download File Content

Two configuration files on the file server are important to understand. Other files are needed when the Avaya IP Telephones need an upgrade. The important files are:

- An upgrade script file, which tells the IP telephone whether the telephone needs to upgrade software. The Avaya IP Telephones attempt to read this file whenever they reset. The upgrade script file is also used to point to the settings file.
- The settings file contains the option settings that enable, disable, or otherwise customize the settings you might need to tailor the Avaya IP Telephones for your enterprise.

Note:

You can use one settings file for all your Avaya IP Telephones including the 9600 Series IP Telephones covered in this document, and 4600 Series IP Telephones, as covered in the *4600 Series IP Telephone LAN Administrator Guide* (Document 555-233-507).

In addition to the upgrade script and settings files, you need the latest binary code used in the Avaya IP Telephones.

Download Procedure

The Avaya-provided upgrade script files and the binaries included in the zip files upgrade the Avaya IP Telephones. You should not need to modify them. It is essential that all the binary files be together on the file server. When downloading a new release onto a file server with an existing release already on it, we recommend that you:

- Stop the file server.
- Back up all the current file server directories as applicable.
- Copy your **46xxsettings.txt** file to a backup location.
- Remove all the files in the download directory. This ensures that you do not have an inappropriate binary or configuration file on the server. The only system values that can be used in the Conditional statement are: BOOTNAME, GROUP, and SIG.
- Download the self-extracting executable file, or the corresponding zip file.
- Extract all the files.
- Copy your **46xxsettings.txt** file back into the download directory.
- Check the Readme files for release-specific information.
- Modify the **46xxsettings.txt** file as desired.
- Restart the HTTP/HTTPS server.
- Reset your Avaya IP Telephones.

You can download a default upgrade script file, sometimes called merely the “script file,” from <http://www.avaya.com/support>. This file allows the telephone to use default settings for customer-definable options. Of course, these settings can also be changed with DHCP or in some cases, from the telephone’s dialpad itself. However, you might want to open the default file and administer the options to add useful functionality to your Avaya IP Telephones. This file must reside in the same directory as the upgrade script file, and must be called **46xxsettings.scr** or **46xxsettings.txt**. The Avaya IP Telephones can operate without this file.

Note:

Most Windows systems interpret the file extension ***.scr** as a screen saver. The 4600 IP Telephones originally used ***.scr** to indicate a script file. We highly recommend that the settings file have the extension ***.txt**.

The settings file can include any of the five types of statements, one per line:

- Comments, which are statements with a “#” character in the first column.
- Tags, which are comments that have exactly one space character after the initial #, followed by a text string with no spaces.
- **GOTO** commands, of the form **GOTO tag**. **GOTO** commands cause the telephone to continue interpreting the settings file at the next line after a **# tag** statement. If no such statement exists, the rest of the settings file is ignored.
- Conditionals, of the form **IF \$name SEQ string GOTO tag**. Conditionals cause the **GOTO** command to be processed if the value of **name** is a case-insensitive equivalent to **string**. If no such **name** exists, the entire conditional is ignored.
- **SET** commands, of the form **SET parameter_name value**. Invalid values cause the specified value to be ignored for the associated **parameter_name** so the default or previously administered value is retained. All values must be text strings, even if the value itself is numeric, a dotted decimal IP Address, etc.

Note:

Enclose all data in quotation marks for proper interpretation.

The Avaya-provided upgrade script file includes lines that tell the telephone to **GET 46xxsettings.scr** and **46xxsettings.txt**. These lines cause the telephone to use HTTP/HTTPS to attempt to download the file specified in the **GET** command. If the file is obtained, its contents are interpreted as an additional script file. That is how your settings are changed from the default settings. If the file cannot be obtained, the telephone continues processing the upgrade script file. The upgrade script file is processed so that if there is no 46xxsettings.scr file, the telephone looks for a 46xxsettings.txt file. If the settings file is successfully obtained but does not include any setting changes the telephone stops using HTTP. This happens when you initially download the script file template from the Avaya support Web site, before you make any changes. When the settings file contains no setting changes, the telephone does not go back to the upgrade script file.

You can change the settings file name, if desired, as long as you also edit the corresponding **GET** command in the upgrade script file. However, we encourage you **not** to alter the Avaya-provided upgrade script file. If Avaya changes the upgrade script file in the future, any changes you have made will be lost. We strongly encourage you to use the **46xxsettings** file to customize your settings instead.

For more details on customizing your settings file, see [Contents of the Settings File](#) on page 48.

Contents of the Settings File

After checking the application software, the 9600 Series IP Telephone looks for a 46xxsettings file. This optional file is under your control and is where you can identify non-default option settings, application-specific parameters, etc. You can download a template for this file from the Avaya support Web site. An example of what the file could look like follows.

Note:

The following is intended only as a simple example. Your settings will vary from the settings shown. This sample assumes specification of a DNS Server, turning off enhanced local dialing, and a Web Browser.

```
SET DNSSRVR dnsexample.yourco.com
SET ENDIALSTAT 0
SET WMLHOME http://yourco.com/home.wml
SET WMLPROXY 11.11.11.11
```

See Chapter 7 in the *Avaya one-X™ Deskphone Edition for 9600 Series IP Telephones Administrator Guide* for details about specific values. You need only specify settings that vary from defaults, although specifying defaults is harmless.

Downloading Language Files

Language files must be stored in the same location as the 46xxsettings file or under the HTTP Server directory, defined using the **SET HTTPDIR_HTTP server directory path** command.

You can download a new language file version only if the filename differs from the language file previously downloaded. Alternately, you can remove the old language file using an empty **SET LANGxFILE** command in the 46xxsettings file before downloading a language file with the same filename.

The GROUP System Value

You might have different communities of end users, all of which have the same model telephone, but which require different administered settings. For example, you might want to restrict Call Center agents from being able to Logoff, which might be an essential capability for “hot-desking” associates. We provide examples of the group settings for each of these situations later in this section.

The simplest way to separate groups of users is to associate each of them with a number. Use the GROUP system value for this purpose. The GROUP system value **cannot** be set in the 46xxsettings file. The GROUP system value can only be set on a telephone-by-telephone basis. To do so, first identify which telephones are associated with which group, and designate a number for each group. The number can be any integer from 0 to 999, with 0 as the default, meaning your largest group would be assigned as Group 0.

Then, at each non-default telephone, instruct the installer or end-user to invoke the GROUP Local (dialpad) Administrative procedure as specified in [Chapter 3: Local Administrative Options](#) and specify which GROUP number to use. Once the GROUP assignments are in place, edit the configuration file to allow each telephone of the appropriate group to download its proper settings.

Here is an illustration of a possible settings file for the example of a Call Center with hot-desking associates at the same location:

```
IF $GROUP SEQ 1 goto CALLCENTER
IF $GROUP SEQ 2 goto HOTDESK
{specify settings unique to Group 0}
goto END

# CALLCENTER
{specify settings unique to Group 1}
goto END

# HOTDESK
{specify settings unique to Group 2}

# END
{specify settings common to all Groups}
```


Chapter 5: Troubleshooting Guidelines

Introduction

This chapter describes problems that might occur during both installation and normal operation of the 9600 Series IP Telephones and possible ways of resolving these problems.

This chapter contains the following sections:

- Descriptions of error conditions and methods for resolving them.
- The use of the **VIEW** option to view system values.
- Error and status messages, and methods for resolving them.
- LLDP troubleshooting.

Error Conditions

There are three areas where installers can troubleshoot problems before seeking assistance from the system or LAN administrator:

1. Check both the power and Ethernet wiring for the following conditions:
 - Whether all components are plugged in correctly.
 - Check LAN connectivity in both directions to all servers - DHCP, HTTP, HTTPS, DEFINITY[®]/MultiVantage[™].
 - If the telephone is supposed to be powered from the LAN, ensure that the LAN is properly administered and is compliant with IEEE 802.3af.
2. If you are using static addressing:
 - Use the **VIEW** option to find the names of the files being used and verify that these filenames match those on the HTTP/HTTPS server. See [The View Administrative Option](#) on page 52 for more information. Check the Avaya Web site to verify whether the correct files are being used.
 - Use the **ADDR** option to verify IP Addresses. See [Static Addressing Installation](#) on page 34 for information.
3. If the 9600 Series IP Telephone is not communicating with the system (DHCP, HTTP, or Avaya Media Server), make a note of the last message displayed, as described in [Table 3](#) and/or [Table 4](#). Consult the system administrator.
4. If you expect the telephone to be IEEE-powered, verify with the LAN administrator that IEEE power is indeed supported on the LAN.

DTMF Tones

H.323 telephones do not send DTMF tones to non-H.323 telephones. The failure to hear DTMF tones sent by a far-end 9600 Series IP Telephone does not require any action on the user's part. The TN2302AP board does not pass in-band DTMF tones.

Power Interruption

If power to a 9600 Series IP Telephone is interrupted while the telephone is saving the application file, the HTTP/HTTPS application can stop responding. If this occurs, restart the HTTP/HTTPS server.

The View Administrative Option

If you are using static addressing and encounter problems, use the following procedure to verify the current values of system parameters and file versions.

Note:

Unless otherwise prevented using administration, the user can view but not change most of the parameters associated with Craft Local Procedures. For more information about this option, see the applicable user guide(s).

Note:

If the View Network Information option is not available due to being disabled by administration, use the **ADDR** option to view IP Addresses. See [Static Addressing Installation](#) in [Chapter 3: Local Administrative Options](#). The IP Addresses might have been entered incorrectly. Verify whether you were provided with correct IP Addresses.

1. When you select VIEW from the Craft Local Procedure Screen, the following text displays:

Static Addressing screen	Line Description and (System Value)
Phone	<i>nnn . nnn . nnn . nnn</i> Telephone IP Address (IPADD)
Call Server	<i>nnn . nnn . nnn . nnn</i> Call Server in use; media server IP Address
Router	<i>nnn . nnn . nnn . nnn</i> Router in use; gateway/router Ip Address
Mask	<i>nnn . nnn . nnn . nnn</i> IP network mask (NETMASK)
File Server	<i>nnn . nnn . nnn . nnn</i> IP Address of HTTP/S File Server in use
802.1Q	<i>NVL2Q text string</i> NVL2Q setting text description
VLAN ID	<i>dddd</i> NVL2QVLAN
VLAN Test	<i>ddd</i> NVVLANTEST

2. Use the Right and Left navigation arrows to scroll through the viewable information, shown in [Table 2](#).

Table 2: Parameter Values

Name	System Value	Format
Phone	<i>nnn.nnn.nnn.nnn</i>	Telephone IP Address; IPADD value.
Call server	<i>nnn.nnn.nnn.nnn</i>	IP Address of the call server currently in use, otherwise "0.0.0.0."
802.1X	<i>If DOT1X = 0 If DOT1X = 1 If DOT1X = 2</i>	Pass-thru mode. Pass-thru with Logoff. Supplicant mode.
Router	<i>nnn.nnn.nnn.nnn</i>	Up to 15 ASCII characters: the IP Address of the router in use.
Mask	<i>nnn.nnn.nnn.nnn</i>	Up to 15 ASCII characters: NETMASK value.
File server	<i>nnn.nnn.nnn.nnn</i>	IP Address of last file server used successfully during initialization or "0.0.0.0" if no file server was used successfully.
802.1Q	<i>cccc</i>	Text string corresponding to the NVL2Q value.
VLAN ID	<i>cccc</i>	Up to 4 ASCII characters. Value is L2QVLAN text "Auto" if 802.1Q tagging is 0 or "On" if 802.1Q tagging is 1. If 802.1Q tagging is off (2), this line is not displayed.
VLAN Test	<i>ccc</i>	Up to 3 ASCII characters. Value is VLANTEST value if 802.1Q tagging is 0 or 1. If 802.1Q tagging is off (2), this line is not displayed.
Ethernet		Text string corresponding to PHY1STAT value, for example, "auto," "100Mbps HDX," "1000Mbps FDX."
PC Ethernet		Text string corresponding to PHY2STAT value, for example, "disabled," "100Mbps HDX," "1000Mbps FDX."
Model	<i>96ccDccc</i>	Up to 8 ASCII characters: MODEL serial number.
Phone SN	<i>cccccccccccccccccccc</i>	Telephone Serial Number, up to 18 ASCII characters.

Table 2: Parameter Values (continued)

Name	System Value	Format
PWB SN	cccccccccccccccc	Printed Wiring Board (circuit board) Serial Number, up to 18 ASCII characters. Applies only to 96xx IP Telephones that have a software-readable PWB serial number and comcode.
PWB comcode	nnnnnnnnn	9 ASCII numeric characters. Applies only to 96xx IP Telephones that have a software-readable PWB serial number and comcode.
MAC address	hh:hh:hh:hh:hh:hh	Each octet of the MAC address displays as a pair of hexadecimal numbers.
Group	nnn	Up to 3 ASCII numeric characters: GROUP value.
Protocol:	ccccccc	Up to 8 ASCII characters, currently only "H.323."
Application File "big app"	filename.ext	4 to 32 ASCII characters (primary application).
Ethernet	ccccccc Ethernet	2 to 8 ASCII characters, either "1000Mbps", "100Mbps", "10Mbps", or "No."
Boot file "little app"	bootcodename	1 to 32 ASCII characters (backup image name).
GigE Adapter	cccccccccccccc	14 ASCII characters. Version identifier of the GigE Adapter software, if applicable.
Button Module 1	cccccccccccccc	14 ASCII characters. Version identifier of the software in the first attached Button Module, if applicable.
Button Module 2	cccccccccccccc	14 ASCII characters. Version identifier of the software in the second attached Button Module, if applicable.
Button Module 3	cccccccccccccc	14 ASCII characters. Version identifier of the software in the third attached Button Module, if applicable.

3. Press **Back** at any time to return to the Craft Local Procedure screen.

Installation Error and Status Messages

The 9600 Series IP Telephones issue messages in English only. The IP telephones also display messages from the switch, which can issue messages in the local language outside the United States. The 9600 Series IP Telephones issue messages in the currently selected language, or if the telephone is logged off, in the language specified by the LANGSYS parameter value. If English is not the selected language, the telephone displays messages in English only when they are associated with local procedures, for example, MUTE V I E W.

Most of the messages in [Table 3](#) display only for about 30 seconds, and then the telephone resets. The most common exception is `Extension in Use`, which requires manual intervention.

Table 3: Possible Error and Status Messages During Installation of 9600 Series IP Telephones

Message	Cause/Resolution
802.1X Failure	CAUSE: Incorrect credentials provided for authentication or not provided at all. RESOLUTION: Follow the display prompts and reenter the 802.1X ID and password.
Address Conflict	CAUSE: The telephone has detected an IP Address conflict. RESOLUTION: Verify administration to identify duplicate IP Address(es).
Authentication Error	CAUSE: The call server does not recognize the extension entered. RESOLUTION: Confirm the extension is correct and is correctly administered on the switch. Then try registration again, taking particular care to enter the extension accurately.
Bad FileSv Address	CAUSE: The HTTP/HTTPS server IP Address in the IP telephone's memory is all zeroes. RESOLUTION: Depending on the specific requirements of your network, this may not be an error. If appropriate, either administer the DHCP server with the proper address of the HTTP/HTTPS server, or administer the telephone locally using the ADDR option. The ADDR option is explained in Chapter 3: Local Administrative Options .
Bad Router?	CAUSE: The telephone cannot find a router based on the information in the DHCP file for GIPADD. RESOLUTION: Use static addressing to specify a router address, or change administration on DHCP, as indicated in the <i>Avaya one-X™ Deskphone Edition for 9600 Series IP Telephones Administrator Guide</i> .

1 of 5

Table 3: Possible Error and Status Messages During Installation of 9600 Series IP Telephones (continued)

Message	Cause/Resolution
Call Error	<p>CAUSE: The user was on a call when the connection to the gatekeeper went down, perhaps due to a network outage or a gatekeeper problem. The telephone attempted to automatically register with the same, or another, gatekeeper, but the responding gatekeeper had no record of the call.</p> <p>RESOLUTION: Wait for the call to end, and if the telephone does not automatically register, restart the telephone.</p>
Connecting...	<p>CAUSE: The telephone is attempting to establish a TCP connection with the call server. A resource needed to establish the connection might not be available or the 10 second buffer on switch-related actions might have expired.</p> <p>RESOLUTION: Allow the telephone to continue TCP connect attempts.</p>
Contacting call server...	<p>CAUSE: The telephone has rebooted successfully and is moving on to attempt to register with the call server.</p> <p>RESOLUTION: Allow the telephone to continue.</p>
DHCP: CONFLICT * to program	<p>CAUSE: At least one of the IP Address offered by the DHCP server conflicts with another address.</p> <p>RESOLUTION: Review DHCP server administration to identify duplicate IP Address(es).</p>
Discover aaa.bbb.ccc.ddd	<p>CAUSE: The telephone is attempting to find a DHCP server, and the user is allowed to view IP Addresses.</p> <p>RESOLUTION: If this message appears for more than a few seconds, verify with the LAN Administrator that a DHCP server is appropriately administered on the network. If there is not supposed to be a DHCP server, you must “break into” the Discovering process and use static addressing. See Static Addressing Installation on page 34. To break into the Discovering process, press the # button, and when you see the “100Mbps” or “10Mbps” message, quickly press the * (asterisk) button.</p>
Discovering...	<p>CAUSE: The 96xx telephone is attempting to find a DHCP server and the user is <i>not</i> allowed to view IP Addresses.</p> <p>RESOLUTION: If this message appears for more than a few seconds, verify with the LAN Administrator that a DHCP server is appropriately administered on the network. If there is not supposed to be a DHCP server, you must “break into” the Discovering process and use static addressing. See Static Addressing Installation on page 34. To break into the Discovering process, press the # button, and when you see the “100Mbps”, “10Mbps” or “10Mbps” message, quickly press the * (asterisk) button.</p>
EEPROM error, repair required	<p>CAUSE: Downloaded application file was not downloaded or saved correctly.</p> <p>RESOLUTION: The telephone automatically resets and attempts to re-initialize.</p>
Emergency Option	<p>CAUSE: Incompatible emergency option.</p> <p>RESOLUTION: This should never happen. Contact Avaya.</p>

Table 3: Possible Error and Status Messages During Installation of 9600 Series IP Telephones (continued)

Message	Cause/Resolution
Extension in Use Extension in use: <NNNN> Press continue to take over this extension Login Continue	CAUSE: The call server detects an extension conflict with an existing set or Softphone. RESOLUTION: You can force the current telephone to register and thereby disconnect the other user by pressing Continue . When Login is selected instead, the 9600 Series IP Telephone re-prompts for entry of (a different) extension and password.
Finding router...	CAUSE: The telephone is proceeding through boot-up. RESOLUTION: Allow the telephone to continue.
Gatekeeper Error	CAUSE: The gatekeeper rejects the registration attempt for an unspecified reason. RESOLUTION: Review gatekeeper/call server administrations, including IP network parameters.
Gateway Error	CAUSE: DEFINITY Release 8.4 does not have an H.323 station extension for this telephone. RESOLUTION: On the station administration screen, ensure the DCP set being aliased for this IP telephone has an H.323 station extension administered, in accordance with switch administration instructions. Since the 9600 Series IP Telephones are not supported on DEFINITY Release 8.4, you must upgrade to a release that does support these telephones.
Incompatible	CAUSE: This release of the call server does not support the current version of the IP telephone. RESOLUTION: Upgrade to the current version of Avaya Communication Manager (3.0 or greater) software.
Invalid file	CAUSE: The telephone does not have sufficient room to store the downloaded file. RESOLUTION: Verify the proper filename is administered in the script file, and that the proper application file is located in the appropriate location on the HTTP/HTTPS server.
IP Address Error	CAUSE: The gatekeeper reports an invalid IP Address. RESOLUTION: This should never happen. Contact Avaya.
License Error	CAUSE: The call server does not support IP telephony. RESOLUTION: Contact Avaya to upgrade your license.
Limit Error	CAUSE: The call server has reached its limit of IP stations. RESOLUTION: Unregister telephones not in use, or contact Avaya to upgrade your license.
NAPT Error	CAUSE: A device between the telephone and the call server is invoking Network Address Port Translation, which the 9600 Series IP Telephones do not support. RESOLUTION: Contact the System Administrator to remove or re-administer the device.

Table 3: Possible Error and Status Messages During Installation of 9600 Series IP Telephones (continued)

Message	Cause/Resolution
No Ethernet	CAUSE: When first plugged in, the IP telephone is unable to communicate with the Ethernet. RESOLUTION: Verify the connection to the Ethernet jack, verify the jack is Category 5, verify power is applied on the LAN to that jack, etc.
Packet Error	CAUSE: Protocol timeout error. RESOLUTION: Reenter the correct extension and password. If the condition persists, contact the System Administrator.
Password Error	CAUSE: The call server does not recognize the password entered and displays the Login Error screen. RESOLUTION: Confirm the password is correct, then try registration again, taking particular care to enter the password accurately.
Request Error	CAUSE: The gatekeeper believes the telephone's registration request is improperly formatted. RESOLUTION: The telephone will automatically attempt to register with the next gatekeeper on its list. If the problem persists, reboot the telephone.
Restarting...	CAUSE: The telephone is in the initial stage of rebooting. RESOLUTION: Allow the telephone to continue.
Subnet conflict * to program	CAUSE: The telephone is not on the same VLAN subnet as the router. RESOLUTION: Press * to administer an IP Address on the telephone using Static Addressing Installation , or administer network equipment to administer the telephone appropriately.
System busy	CAUSE: Most likely, the number of IP endpoints on the call server is already at maximum, Less likely, network resource is unavailable. RESOLUTION: The telephone was attempting to access a network resource (DHCP server, HTTP server, or the call server) and was not successful. Check the resource being called upon for its availability. If the resource appears operational and properly linked to the network, verify that addressing is accurate and that a communication path exists in both directions between the telephone and the resource.
System Error	CAUSE: The call server has an unspecified problem. RESOLUTION: Consult your Avaya Media Server administration and troubleshooting documentation.
Undefined Error	CAUSE: The call server has rejected registration for an unspecified reason. RESOLUTION: Consult your Avaya Media Server administration and troubleshooting documentation.
Updating: DO NOT UNPLUG THE TELEPHONE	CAUSE: The telephone is updating its software image. RESOLUTION: Allow the telephone to continue.

Table 3: Possible Error and Status Messages During Installation of 9600 Series IP Telephones (continued)

Message	Cause/Resolution
Waiting for LLDP	<p>CAUSE: No File Server and/or Call Server has been administered, so the telephone is expecting to get the missing data via LLDP.</p> <p>RESOLUTION: Administer the missing data by one of the following methods: statically, dynamically in DHCP, in the 46xxsettings file (for Call Server addresses), or by LLDP. For more information, see LLDP Troubleshooting.</p>
Wrong Set Type	<p>CAUSE: The call server does not recognize the set type.</p> <p>RESOLUTION: Ensure the call server is properly administered to expect the appropriate telephone for the IP Address and extension.</p>

5 of 5

Operational Errors and Status Messages

[Table 4](#) identifies some of the possible operational problems that might be encountered after successful 9600 Series IP Telephone installation. The user guide for a specific telephone model also contains troubleshooting for users having problems with specific IP telephone applications. Most of the problems reported by 9600 Series IP Telephone users are not likely to be problems with the telephone itself. Problems are more likely LAN-based, where Quality of Service, server administration, and other issues can impact end-user perception of IP telephone performance.

Table 4: Operational Error Conditions for 9600 Series IP Telephones

Condition	Cause/Resolution
The telephone continually reboots, or reboots continuously about every 15 minutes.	<p>CAUSE: The telephone cannot find the call server.</p> <p>RESOLUTION: Ensure that MCIPADD is administered either manually or through DHCP or HTTP, as appropriate.</p> <p>CAUSE: This might be a firmware fault because the MAC address in memory is corrupted.</p> <p>RESOLUTION: Return the telephone to Avaya for repair.</p>
The message light on the telephone turns on and off intermittently, but the telephone never registers.	<p>CAUSE: This is a hardware fault.</p> <p>RESOLUTION: The telephone must be returned to Avaya for repair.</p>

1 of 6

Table 4: Operational Error Conditions for 9600 Series IP Telephones (continued)

Condition	Cause/Resolution	
<p>The telephone stops working in the middle of a call,</p>	<p>AND no lights are lit on the telephone and the display is not lit.</p> <p>AND power to the telephone is fine (and the telephone might have gone through the restarting sequence).</p>	<p>CAUSE: Loss of power. RESOLUTION: Check the connections between the telephone, the power supply, and the power jack. For example, verify that either static addressing was not used or that any changes to static addresses were entered correctly.</p> <p>CAUSE: Loss of path to Avaya Media Server, DHCP Lease expired, or DHCP server not available when telephone attempts to renegotiate DHCP lease. RESOLUTION: As above.</p>
<p>The telephone was working, but does not work now,</p>	<p>AND no lights are lit on the telephone and the display is not lit.</p> <p>AND power to the telephone is fine, but there is no dial tone. The display might show “System Busy.”</p> <p>AND the telephone was recently moved.</p> <p>AND the network was recently changed to upgrade or replace servers, re-administer the Avaya Media Server, add or change NAT, etc.</p>	<p>CAUSE: Loss of power. RESOLUTION: Check the connections between the telephone, the power supply, and the power jack.</p> <p>CAUSE: Loss of communication with the call server. RESOLUTION: Check LAN continuity from the call server to the telephone using ARP or trace-route and from the telephone to the call server by invoking a Feature button. Verify that LAN administration has not changed for the Gatekeeper, TN 2302AP boards, or the LAN equipment (routers, servers, etc.) between the switch and the telephone. Verify no one changed the telephone settings locally using the VIEW and ADDR codes, as described earlier in this guide. Verify the telephone volume is set high enough. Finally, conduct a self-test.</p> <p>CAUSE: Loss of communication with the call server. RESOLUTION: As above, but pay particular attention to the possibility that the telephone is being routed to a different DHCP server, or even a different call server switch. If so, the new server or switch might need to be administered to support the telephone.</p> <p>CAUSE: Loss of communication with the call server. RESOLUTION: As above.</p>

Table 4: Operational Error Conditions for 9600 Series IP Telephones (continued)

Condition	Cause/Resolution
<p>The telephone works, but the audio quality is poor, specifically:</p> <p>the user hears echo when speaking on a handset.</p> <p>the user hears echo on a headset, but not on a handset.</p> <p>the user is on Speaker and hears no echo, but the far-end hears echo.</p> <p>the user experiences sudden silences such as gaps in speech, or static, clipped or garbled speech, etc.</p> <p>the user hears fluctuations in the volume level which are worse when the Speaker is on, or at the beginning of a call, or when a call goes from no one talking abruptly to a loud voice.</p>	<p>CAUSE: Echo from digital-to-analog conversion on your Avaya Media Server trunk.</p> <p>RESOLUTION: Verify which trunk is causing the echo, and swap the trunk's Trunk Termination parameter on the call server.</p> <p>CAUSE: Improper headset cord.</p> <p>RESOLUTION: Ensure that an HIS cord is being used.</p> <p>CAUSE: Room acoustics.</p> <p>RESOLUTION: Ensure that there are six inches or so of blank space to the right of the telephone. If that is insufficient, use the handset.</p> <p>CAUSE: Jitter, delay, dropped packets, etc.</p> <p>RESOLUTION: You can have the user provide diagnostic data by invoking the Network Information feature under the A (Avaya) button on the telephone. One or more Quality of Service (QoS) features should be implemented in the network as covered in Chapter 3: Local Administrative Options.</p> <p>CAUSE: Improper non-Category 5 wiring.</p> <p>RESOLUTION: Replace non-Category 5 wiring with Category 5 wiring.</p> <p>CAUSE: The user has changed the Automatic Gain Control (AGC) or environmental acoustics are not consistent with the current audio settings.</p> <p>RESOLUTION: Try different on/off settings for the AGCHAND, AGCHEAD, and AGCSPKR parameters.</p>
<p>The telephone works properly except for the Speaker.</p>	<p>CAUSE: The Speaker was turned off at the call server.</p> <p>RESOLUTION: Administer the call server to allow that station's Speaker to operate. If that does not work, do a self-test on the telephone, as explained in the Self-Test Procedure on page 44.</p>
<p>The telephone works properly, except incoming DTMF tones are not received.</p>	<p>CAUSE: The TN2302AP board does not pass in-band DTMF tones.</p> <p>RESOLUTION: None; the board is operating as designed.</p>

Table 4: Operational Error Conditions for 9600 Series IP Telephones (continued)

Condition	Cause/Resolution
The telephone works properly, except sidetone DTMF is not heard.	<p>CAUSE: Call server suppresses sidetone DTMF.</p> <p>RESOLUTION: On call server administration, on the Change-System-Parameters screen, enable On-Hook Dialing. If the user has Hands-Free Answer (HFA), answers a call using the Speaker and switches to the handset, pressing dialpad buttons does not send DTMF tones. This is a known bug, and the only current resolution is to disable HFA.</p>
Hands-Free Answer (HFA) is administered but the telephone did not automatically answer a call.	<p>CAUSE: HFA only works if the telephone is idle. A second call is ignored if it comes in while a call is in progress, including ringing before the first call is answered.</p> <p>RESOLUTION: None.</p>
The HTTP/HTTPS script file and settings file are ignored (not being used by the telephone).	<p>CAUSE: The system value AUTH is set to 1 (HTTPS required) but no valid address is specified in TLSSRV.</p> <p>RESOLUTION: Change AUTH to 0 (zero), or enter a valid address for TLSSRV.</p>
<p>The HTTP/HTTPS script file is ignored or not used by the telephone,</p> <p>AND the HTTP/HTTPS server is a LINUX or UNIX system.</p> <p>AND telephone administration recently changed.</p>	<p>CAUSE: The telephone expects lines of the script file to terminate with a <Carriage Return> <Line Feed>. Some UNIX applications only terminate lines with <Line Feed>. Editing the script file with a UNIX-based editor can strip <Carriage Return>s from the file. Doing so causes the entire file to be treated as a comment, and thus be ignored.</p> <p>RESOLUTION: Edit the script file with a Windows®-based editor, or another editor that does not strip out the <Carriage Return>.</p> <p>CAUSE: UNIX and LINUX systems use case-sensitive addressing and file labels.</p> <p>RESOLUTION: Verify the file names and path in the script file are accurately specified.</p> <p>CAUSE: The 96xxupgrade.txt file was edited incorrectly, renamed, etc.</p> <p>RESOLUTION: Download a clean copy of the 96xxupgrade.txt file from the Avaya support Web site at http://www.avaya.com/support, and do not edit or rename it. Customize or change <i>only</i> the 46xxsettings file, as discussed in Chapter 4: Maintaining 9600 Series IP Telephones.</p>
Some settings in the settings file are being ignored while other settings are being used properly.	<p>CAUSE: Improper settings file administration.</p> <p>RESOLUTION: Verify that customized settings are correctly spelled and formatted.</p>

Table 4: Operational Error Conditions for 9600 Series IP Telephones (continued)

Condition		Cause/Resolution
Some settings in the settings file are being ignored while other settings are being used properly,	AND the setting being ignored is one or more of the AGC settings.	<p>CAUSE: The user changed the AGC setting(s), which were placed in the backup/restore file of the user.</p> <p>RESOLUTION: The user can reset the AGC value(s) back to the desired setting(s), or the backup file can be edited to delete the custom AGC settings.</p>
Telephone power is interrupted while the telephone is saving the application file and the HTTP/HTTPS application stops responding.		<p>CAUSE: The HTTP/HTTPS server stops responding if power is interrupted while a telephone is saving the application file.</p> <p>RESOLUTION: Restart the HTTP/HTTPS server, as applicable.</p>
The user indicates an application or option is not available.		<p>CAUSE: The 46xxsettings script file is not pointed to accurately, or is not properly administered to allow the application.</p> <p>RESOLUTION: Assuming the user is meant to have that application, verify the 46xxsettings script file is properly specified for your system, including case if your file server is UNIX or LINUX, and extension. Then, verify all the relevant parameters indicated in Table 7 of the <i>Avaya one-X™ Deskphone Edition for 9600 Series IP Telephones Administrator Guide</i>, are accurately specified in the 46xxsettings file.</p>
User data disappeared when the user logged off one telephone and logged into another telephone.		<p>CAUSE: The second telephone is unable to access the backup file.</p> <p>RESOLUTION: Verify that the first telephone created a backup file by checking that the appropriate administration was done in accordance with Chapter 7 of the <i>Avaya one-X™ Deskphone Edition for 9600 Series IP Telephones Administrator Guide</i>. Then verify that the second telephone is administered to retrieve data from the same location as the first telephone. Again, check that the appropriate administration was done in accordance with Chapter 7 of the <i>Avaya one-X™ Deskphone Edition for 9600 Series IP Telephones Administrator Guide</i>. Finally, verify that the HTTP/HTTPS server on which the backup file is located is operational and accessible from the second telephone.</p>

5 of 6

Table 4: Operational Error Conditions for 9600 Series IP Telephones (continued)

Condition		Cause/Resolution
The user reports SBM24 buttons are not labeled when they should be.		<p>CAUSE: Improper administration on the call server.</p> <p>RESOLUTION: Verify correct administration.</p>
The user reports personalized labels cannot be placed on the SBM24 buttons,	<p>AND the user has tried using the Program AD button feature.</p>	<p>CAUSE: Improper administration on the call server.</p> <p>RESOLUTION: Verify correct administration.</p>
	<p>AND the user has tried using the Personalize Labels option on the telephone.</p>	<p>CAUSE: The user has been pressing the SBM24 button to indicate which button to relabel.</p> <p>RESOLUTION: The user should use the list displayed on the telephone, scroll to highlight the desired button label, and press either OK or the corresponding 9630/9630G line button.</p>

6 of 6

LLDP Troubleshooting

If the “Waiting for LLDP” message appears for more than a few seconds, it generally indicates a problem with getting a value for the Call Server IP Address. This can occur due to incorrect settings in script files or in the way the network has been configured.

When the telephone boots, it expects to find a valid IP Address for the Call Server. This value, known as MCIPADD, can come from several sources:

- A static or manually programmed address on the phone.
- The 46xxsettings.txt file MCIPADD setting.
- A DHCP offer using option 242 that includes the MCIPADD setting.
- Link Layer Discovery Protocol or “LLDP.”

If the telephone cannot find MCIPADD through any of these means, it will fail to register with the Call Server and will display the “Waiting for LLDP” message several times before rebooting. For example, if the MCIPADD value was specified in the 46xxsetting file and the network file server fails, the telephone will not be able to read the MCIPADD value or any of the 46xxsettings file parameters. Therefore, this method of providing MCIPADD is not recommended.

A more robust way to provide this value is to use DHCP. The DHCP server can be administered to provide MCIPADD using DHCP Option 242. (Note that TLSSRVR, HTTPSRVR and L2QVLAN can also be administered using this option). Telephones using non-static addressing automatically do a DHCP request (Option 242 is the 96xx default DHCP offer) and may get MCIPADD (and other addresses) this way.

Another reason for receiving the “Waiting for LLDP” message is that the File Server IP Address is not administered. To administer the File Server, use the Craft ADDR procedure and enter the correct HTTP/S File Server IP Address in the File Server field.

An alternative protocol known as LLDP can also supply call server and file server IP Addresses. This IETF standard protocol requires the network to be equipped and configured to support LLDP. With LLDP in the network, File Server and Call Server IP Addresses can be provided using proprietary TLVs (Transport Layer Values) to pass information to the telephones. See the *Avaya one-X™ Deskphone Edition for 9600 Series IP Telephones Administrator Guide* for detailed information about LLDP processing.

LLDP Setup/Troubleshooting Steps

For manually (statically) programmed telephones use the Craft ADDR procedure to set the Call Server to a valid IP Address. [Static Addressing Installation](#) covers the ADDR procedure in detail.

Note:

If system value “STATIC” is set to “0” (the default), static addresses may be overwritten by DHCP or the 46xxsettings file.

Note:

See the *Avaya one-X™ Deskphone Edition for 9600 Series IP Telephones Administrator Guide* for details on how to set “STATIC” to use manually programmed IP Addresses.

For DHCP configured telephones:

1. Using the local (Craft) ADDR procedure, set “Phone” to **0.0.0.0**.
2. Verify or set SSON to 242 (this is the default).
3. Administer the DHCP server option 242 to contain “**MCIPADD=xxx.xxx.xxx.xxx**”, where **xxx.xxx.xxx** is the Call Server IP Address.
4. Verify that the DHCP server and the telephone are on the same VLAN.
5. Verify the “DHCP server” port (67) or/and “DHCP client” port (68) are NOT blocked on the switch.

Troubleshooting Guidelines

6. Verify the configuration of the DHCP Relay Agent (on the switch or on a separate PC, e.g. MS Windows Server 2000/2003) if the telephones and DHCP Server are placed on different networks (subnets). DHCP broadcast messages do not, by default, cross the router interface. See <http://technet2.microsoft.com/WindowsServer/en/library/929704d8-0e1c-4b8d-b424-16c312ad1edf1033.mspx> for more details about configuration of a DHCP Relay Agent on Windows Server 2003.

Note:

Do not embed spaces in DHCP Option 242 strings. For more information, see “DHCP Server Administration” in Chapter 5 of the *Avaya one-X™ Deskphone Edition for 9600 Series IP Telephones Administrator Guide*.

For Script Configured telephones:

1. Edit the 46xxsettings.txt file to contain a valid Call Server IP Address with the line “**SET MCIPADD xxx.xxx.xxx.xxx**” where **xxx.xxx.xxx** is the Call Server IP Address.
2. Verify that the 96xxupgrade.txt file contains the line “GET 46xxsettings.txt” as the last command line of the upgrade file.
3. Verify that the HTTP server is activated and reachable by the telephone.
4. Verify the 96xxupgrade.txt and 46xxsettings.txt files are placed in the proper directory of the HTTP server to access these files. For more information, see “HTTP Generic Setup” in Chapter 5 of the *Avaya one-X™ Deskphone Edition for 9600 Series IP Telephones Administrator Guide*.

For LLDP Configured telephones:

Activate the switch the telephone is connected to for LLDP. This is currently only possible with Extreme switches. Activating the switch for LLDP enables the switch to send appropriate IP Addresses using Avaya/Extreme Proprietary File Server and/or Call Server TLVs.

Note:

The telephone gets File Server and Call Server IP Addresses from LLDP only if they were not configured via other means (DHCP Server, Script File, statically).

Set the switch LLDP repeat timer to less than 30 seconds.

For more information, see “Link Layer Discovery Protocol (LLDP)” in Chapter 7 of the *Avaya one-X™ Deskphone Edition for 9600 Series IP Telephones Administrator Guide*.

Appendix A: Restart Scenarios

Scenarios for the Restart Process

The sequence of the restart process depends on the status of the boot and application files. This appendix explains the different scenarios possible.

Note:

The file names used in this appendix are examples only. Your particular file names are likely to be different.

The procedures described in this appendix assume restarts occur during normal telephone operation rather than during telephone startup.

Restart the Telephone

Use the following procedure to restart the telephone.

1. For all telephones except the 9610, invoke RESTART by pressing the **Mute** button. For 9610 IP Telephones, invoke RESTART by displaying the Contacts application and pressing the **Contacts** button.

Note:

If the Contacts application is not displayed when restarting a 9610, press the **Contacts** button twice and proceed to the next step.

2. Enter the local (Craft) dialpad procedure password (0 to 7 numeric digits), then press the **#** button.

Note:

A 6-second timeout is in effect between button presses. If you do not press a valid button within 6 seconds of pressing the previous button, the collected digits are discarded. In this case, no administrative option is invoked.

The entry is compared to the PROCPSWD value. If they match, the telephone displays the Craft Local Procedure screen and prompts "Select procedure and press Start."

3. Use the navigation arrows to scroll to and highlight RESTART PHONE, then press **Start** or **OK**. Or scroll to RESTART PHONE and press the corresponding line button.

Restart Scenarios

- When you select RESTART PHONE from the Craft Local Procedure Screen, the telephone displays the following text:

Press Restart to confirm.

- Press **Cancel** to return to the Craft Local Procedure screen without restarting the telephone. Press **Restart** to proceed with the registration steps covered in the [Dynamic Addressing Process](#) on page 20.

A restart does not affect user-specified data and settings like Contacts data or the telephone login and password.

The remainder of the restart procedure depends on the status of the boot and application files:

If this condition applies:	See:
Boot File Needs to be Upgraded	Boot File Needs to be Upgraded on page 68.
Latest Boot File Loaded/No Application File or Application File Needs to be Upgraded	Latest Boot File Loaded/No Application File or Application File Needs to be Upgraded on page 72.
Latest Boot File and System-Specific Application File Already Loaded	Latest Boot File and System-Specific Application File Already Loaded on page 74.

Boot File Needs to be Upgraded

The telephone automatically downloads an upgraded boot file if applicable.

- During hardware initialization, the system initialization values NVCONTRAST and NVBRIGHTNESS are checked for non-null values, and set accordingly. The Avaya one-X™ name and logo display on sets with bit-mapped displays.
- The system initialization value for NVLANGFILE is checked for a non-null value, in which case the text strings in the language file named by that value are used for text display. Otherwise, English text strings are displayed.
- The boot code checks for a primary software code image, loads it into volatile memory, displays its name, and transfers control to it. If a primary software code image is not found, the boot code loads, displays the name of, and transfers control to the backup software code image.

- The telephone activates the Ethernet line interface, the PC Ethernet jack, and dial pad input to allow the invocation of procedures. The activation occurs as soon as possible after power-up or a reset.

This message counts the seconds as the application file (replboot_v3.app in this example) is being written into RAM.

- When control is passed to the software that was just loaded, the following messages display:

```
Starting...
```

```
Updating boot code...
DO NOT UNPLUG THE PHONE!
```

This message continues while the new boot code is being written into RAM.

- The telephone displays the speed of the Ethernet interface in Mbps, that is, 10, 100, or 1000. The message `No Ethernet * to program` displays until the software determines whether the interface is 10 Mbps, 100 Mbps, or 1000Mbps.

Note:

The Ethernet speed indicated is the LAN interface speed for both the telephone and any attached PC, assuming the administrator has not disabled the latter interface through the PHY2STAT setting.

⚠ Important:

As of Software Release 1.5, pressing * (asterisk) whenever a "`* to program`" message displays or whenever the initialization process can support an interrupt invokes the Craft Access entry procedure to allow manual settings, but only if the PROCSTAT (local dialpad procedure status) system value is "0." The zero PROCSTAT value provides full access to local procedures. If PROCSTAT is "1" the Craft Access entry procedure can be invoked only when a "`* to program`" message displays and then only the VIEW procedure is available. For information, see [Chapter 3: Local Administrative Options](#).

The software determines whether sufficient IP Address information was downloaded. In this scenario, it is discovered that sufficient information has **not** been downloaded. One of the following messages display:

```
DHCP: s secs
* to program
```

```
DHCP: s secs
VLAN ID = n
```

```
DHCP: s secs
```

where **s** is the number of seconds that have elapsed since DHCP was invoked. The message on the left appears if 802.1Q tagging is off and access to local programming procedures is not disabled or restricted. (See [Chapter 3: Local Administrative Options](#) for specifics.) The middle message appears if 802.1Q tagging is on and access to local

Restart Scenarios

programming procedures is disabled or restricted. If the left and middle messages alternate every two seconds, 802.1Q tagging is on. When both messages alternate, access to local programming procedures is not disabled or restricted. Finally, the message on the right appears if 802.1Q tagging is off and access to local programming procedures is disabled or restricted.

The number of elapsed seconds is incremented once per second, until DHCP successfully completes.

7. The DHCP server provides IP Addresses for the following hardware:
 - The IP telephone
 - The HTTP/HTTPS server
 - The TN799C or D Control-LAN (C-LAN) circuit pack on the media server
8. Using the list of gateway IP Addresses provided by the DHCP server, the telephone performs a router check. The telephone cycles through the gateway IP Addresses with ARPs or pings until it receives a response. When the router is located, received LLDP TLVs are processed. Then the HTTP process starts.
9. While the IP telephone connects to the HTTP server, the telephone displays one of the following messages:

<code>HTTP:n ipadd</code>		<code>HTTP:n ipadd * to program</code>
---------------------------	--	--

where *n* is the number of the IP Address obtained from the HTTP server and *ipadd* is the IP Address.

Important:

As of Software Release 1.5, pressing * (asterisk) whenever a "* to program" message displays or whenever the initialization process can support an interrupt invokes the Craft Access entry procedure to allow manual settings, but only if the PROCSTAT (local dialpad procedure status) system value is "0." The zero PROCSTAT value provides full access to local procedures. If PROCSTAT is "1" the Craft Access entry procedure can be invoked only when a "* to program" message displays and only the VIEW procedure is available. For information, see [Chapter 3: Local Administrative Options](#).

10. When connected, the telephone looks for an upgrade script file.

11. The HTTP server sends and identifies an upgrade script.

The GET message might have to be sent several times. Each time the GET message is sent, all IP telephones display the following message:

```
HTTP: n uri
```

For HTTP, *n* is the number of HTTP requests made by the telephone and *uri* is the URI for the current HTTP request.

12. While the upgrade script file is being downloaded, all IP telephones display the following message:

```
HTTP:n sc etag
```

where *n* is the number of the IP Address obtained from the HTTP server, *sc* is the status code of the HTTP response and *etag* is the value of the ETag header.

13. When the telephone determines that the application file received is valid, the following message displays:

```
File Obtained;please wait...
s secs
```

where *s* is the number of seconds that elapse while non-volatile memory is erased.

14. The following message displays while the application file is stored in flash memory:

```
Saving to flash
n% x secs
```

where *n* is the percentage of the file stored, and *x* is the number of elapsed seconds. This usually takes longer than the file download.

15. The telephone contacts the Avaya Media Server and attempts to log in.

All IP telephones display the following prompts for an extension:

```
Login
Enter Extension
Enter Extension and press Enter or OK
```

16. Enter a new extension and press **OK**. To register the telephone without the extension or password (unnamed), press only **OK** or make no entry and wait 60 seconds.

Restart Scenarios

17. Enter a new extension and press **OK**. To register the telephone without the extension or password (unnamed), press only **OK** or make no entry and wait 60 seconds.

Note:

Unnamed registration is the capability to register a telephone with the call server without entry of an extension or password. The UNNAMEDSTAT parameter must be set to enable unnamed registration. Telephones registered unnamed have limited functionality. For more information, see [Unnamed Registration](#).

All IP telephones display the following prompt for a password:

Login
Enter Password
Enter Password and press Enter or OK

18. Enter the password and press **OK**. To register the telephone without the extension or password (unnamed), press **OK** or make no entry and wait 60 seconds.
19. The extension is visible as you enter it but the password displays as asterisks. The system determines whether the extension is in use.
20. Successful completion of this process produces a dial tone when the **Speaker** button is pressed or the handset is lifted.
21. Continue with the next procedure.

Latest Boot File Loaded/No Application File or Application File Needs to be Upgraded

This procedure occurs with normal application file upgrades.

1. The telephone displays:

Restarting...

2. The telephone detects and displays the speed of the Ethernet interface in Mbps, that is, 10, 100, or 1000. The message `No Ethernet` displays until the software determines whether the interface is 10 Mbps, 100 Mbps, or 1000 Mbps.

Note:

The Ethernet speed indicated is the LAN interface speed for both the telephone and any attached PC.

- The software determines whether sufficient IP Address information was downloaded. In this scenario, it is discovered that sufficient information has **not** been downloaded. The following message displays while the DHCP process is invoked:

```
DHCP: 0 secs
* to program
```

The number of elapsed seconds is incremented once per second, until DHCP successfully completes.

- While the IP telephone establishes a TCP connection to the HTTP server, the telephone displays the following message:

```
HTTP:n ipadd
```

where *n* is the number of the IP Address obtained from the HTTP server and *ipadd* is the IP Address.

- The following message displays while the HTTP process is invoked:

```
HTTP: n uri
```

The number increments once per second, until the HTTP server responds.

- While the upgrade script file is being downloaded from the HTTP server, all IP telephones display the following message:

```
HTTP:n sc etag
```

where *n* is the number of the IP Address obtained from the HTTP server, *sc* is the status code of the HTTP response and *etag* is the value of the ETag header.

- The script file is processed. The software determines that the name of the boot code file in the telephone (BOOTNAME) is not the latest version. APPNAME is set to the name of an application file to replace the boot code. The following message displays while the application file is downloaded into RAM:

```
app_filename
n KB received
```

where *n* is the number of KBs downloaded.

Restart Scenarios

- When the telephone determines that the application file received is valid, the following message displays:

```
File Obtained;please wait...
s secs
```

where **s** is the number of seconds that elapse while non-volatile memory is erased.

- The following message displays while the application file is stored in flash memory:

```
Saving to flash
n%, x secs
```

where **n** is the percentage of the file that was stored, and **x** is the number of elapsed seconds. This usually takes longer than the file's download.

- The telephone is reset so the new system-specific application file can be executed.
- Continue with the next procedure.

Latest Boot File and System-Specific Application File Already Loaded

This happens with normal resets.

- The telephone displays:

```
Restarting...
```

- The telephone detects and displays the speed of the Ethernet interface in Mbps, that is, 0, 10, 100, 1000. The message `No Ethernet` displays until the software determines whether the interface is 10 Mbps, 100 Mbps, or 1000 Mbps.

Note:

The Ethernet speed indicated is the LAN interface speed for both the telephone and any attached PC.

- The software determines whether sufficient IP Address information was downloaded. In this scenario, it is discovered that sufficient information has **not** been downloaded. The following message displays while the DHCP process is invoked:

```
DHCP: 0 secs
* to program
```

The number of elapsed seconds is incremented once per second, until DHCP successfully completes.

4. While the IP telephone establishes a TCP connection to the HTTP server, the telephone displays the following message:

```
HTTP:n ipadd
```

where *n* is the number of the IP Address obtained from the HTTP server and *ipadd* is the IP Address.

5. The following message displays while the HTTP process is invoked:

```
HTTP: n uri
```

The number increments once per second, until the HTTP server responds.

6. While the upgrade script file is being downloaded from the HTTP server, all IP telephones display the following message:

```
HTTP:n sc etag
```

where *n* is the number of the IP Address obtained from the HTTP server, *sc* is the status code of the HTTP response and *etag* is the value of the ETag header.

7. The script file is processed. The software determines that the name of the boot code file in the telephone (BOOTNAME) is the latest version, and the name of the application file in the telephone is the same as APPNAME.
8. System-specific registration with the Avaya media server is invoked.
9. When registration finishes, a dial tone is available on the telephone.

Restart Scenarios

Appendix B: Glossary of Terms

Terms Used in This Guide

802.1D 802.1Q	802.1Q defines a layer 2 frame structure that supports VLAN identification and a QoS mechanism usually referred to as 802.1D.
802.1X	Authentication method for a protocol requiring a network device to authenticate with a back-end Authentication Server before gaining network access. Applicable 9600 Series IP telephones support IEEE 802.1X for pass-through and for Supplicant operation with the EAP-MD5 authentication method.
Application - specific	Specific to a particular “application” running inside the telephone. For example, configuration file downloading, backup and restore of user data, HTTP push, and the Web browser are all internal applications that use the HTTP protocol. Similarly, the RTCP and CNA clients are internal applications that can invoke traceroute. This term does not include Web-page-based “applications” rendered in the Web browser.
ARP	Address Resolution Protocol, used, for example, to verify that the IP Address provided by the DHCP server is not in use by another IP telephone.
CLAN	Control LAN, type of Gatekeeper circuit pack.
CNA	Converged Network Analyzer.
DHCP	Dynamic Host Configuration Protocol, an IETF protocol used to automate IP Address allocation and management.
DiffServ	Differentiated Services, an IP-based QoS mechanism.
DNS	Domain Name System, an IETF standard for ASCII strings to represent IP Addresses. The Domain Name System (DNS) is a distributed Internet directory service. DNS is used mostly to translate between domain names and IP Addresses. Avaya 9600 Series IP Telephones can use DNS to resolve names into IP Addresses. In DHCP, TFTP, and HTTP files, DNS names can be used wherever IP Addresses were available as long as a valid DNS server is identified first.
Gatekeeper	H.323 application that performs essential control, administrative, and managerial functions in the media server. Sometimes called CLAN in Avaya documents.
H.323	A TCP/IP-based protocol for VoIP signaling.
HTTP	Hypertext Transfer Protocol, used to request and transmit pages on the World Wide Web.

Glossary of Terms

HTTPS	A secure version of HTTP.
IETF	Internet Engineering Task Force, the organization that produces standards for communications on the internet.
LAN	Local Area Network.
MAC	Media Access Control, ID of an endpoint.
QoS	Quality of Service, used to refer to several mechanisms intended to improve audio quality over packet-based networks.
RTCP	Real-time Transport Control Protocol.
RTP	Real-time Transport Protocol.
SRTCP	Secure Real-time Transport Control Protocol.
SRTP	Secure Real-time Transport Protocol.
System - specific	Specific to a particular type of call server, for example, Avaya Communication Manager (CM). "System-specific signaling" refers to messages specific to the signaling protocol used by the system, for example, H.323 and/or CCMS messages used by CM and IP Office. "System-specific procedures" refers to telephone software procedures that are specific to the call server with which the software is intended to be used.
TCP	Transmission Control Protocol, a connection-oriented transport-layer protocol.
TLS	Transport Layer Security, an enhancement of Secure Sockets Layer (SSL). TLS is compatible with SSL 3.0 and allows for privacy and data integrity between two communicating applications.
UDP	User Datagram Protocol, a connectionless transport-layer protocol.
Unnamed Registration	Registration with Avaya Communication Manager by an IP telephone with no extension. Allows limited outgoing calling.
URI & URL	Uniform Resource Identifier and Uniform Resource Locator. Names for the strings used to reference resources on the Internet (for example, HTTP://....). URI is the newer term.
VLAN	Virtual LAN.
VoIP	Voice over IP, a class of technology for sending audio data and signaling over LANs.

Appendix C: Related Documentation

IETF Documents

IETF documents provide standards relevant to IP Telephony and are available for free from the IETF Web site: <http://www.ietf.org/rfc.html>.

ITU Documents

Access the ITU Web site for more information about ITU guidelines and documents, available for a fee from the ITU Web site: <http://www.itu.int>.

ISO/IEC, ANSI/IEEE Documents

Access the ISO/IEC standards Web site for more information about IP Telephony standards, guidelines, and published documents: <http://www.iec.ch>.

Related Documentation

Index

Numerical

802.1X Operational Mode, Setting the	33
9600 Series IP Telephone	
Assembling the	14
Installation	11
Models	11
Powering the	14
Requirements	13
Restart	42
9600 Series IP Telephones	
Maintenance	45

A

About This Guide	7
ADDR Option	34
Administrative Options	
Entering Data for	30
Local	27
AGC	35
ANSI/IEEE Documents	79
Assembling the 9600 Series IP Telephone.	14
Automatic Gain Control, Disable/Enable	35

B

Boot File, upgrading the	68
------------------------------------	--------------------

C

Change History	8
Clear Procedure	37
Client Hardware Address	36
Connection Jacks for 9620 Series IP Telephones	17
Connection Jacks for 9630 Series IP Telephones	18 , 19
Contents of the Settings File	48
Craft Procedures, Accessing	28
Customer Support	10

D

Debug Procedure	38
DHCP Client Hardware Address	36
Disable Automatic Gain Control (AGC)	35
Disable Event Logging	40
Document Organization	8
Download File Content	45

Download Procedure	46
Downloading Language Files	48
Downloading Software Upgrades	45
DTMF Tones	52
Dynamic Addressing Process	20

E

Enable Automatic Gain Control (AGC)	35
Enable Event Logging	40
Entering Data for Administrative Options	30
Error and Status Messages, Installation	55
Error Conditions	51
Event Logging	40

G

Glossary	77
Group Identifier	38
GROUP System Value	49

I

IEC/ISO Documents	79
IEEE/ANSI Documents	79
IETF Documents	79
Installation	11
Intended Audience, for this document	7
Interface Control	39
IP Telephone Models	11
ISO/IEC, ANSI/IEEE Documents	79
ITU Documents.	79

L

Language Files, Downloading	48
LLDP Troubleshooting	64
Local (Craft) Procedures, Accessing	28
Local Administrative Options	27
Local Administrative Procedures, About	31
LOG Procedure	40
Logoff Procedure	40

M

Maintaining 9600 Series IP Telephones	45
---	--------------------

Index

O

Online Documentation	9
Operational Errors and Status Messages	59

P

Parameter Values	53
Power Interruption	52
Powering the 9600 Series IP Telephone	14
Pre-Installation Checklist	12
Pre-Installation Checklist for Static Addressing	33

R

Related Documentation	79
Requirements, for each IP Telephone	13
Reset	
Boot File and System-Specific Application File Already Loaded	74
Boot File Loaded/No Application File or Application File Needs to be Upgraded	72
Boot File Needs to be Upgraded	68
Reset System Values	41
Restart Process, Scenarios for the	67
Restart Scenarios	67
Restart the Telephone	67

S

Scenarios for the Restart Process.	67
Self-Test	44
Settings File, Contents	48
SIG Procedure.	43
Signaling Protocol Identifier.	43
Site-Specific Option Number Setting	43
Software	12
Software Upgrades, Downloading	45
SSON Procedure	43
Static Addressing	
Installation	34
Pre-Installation Checklist	33
System Parameter Values, troubleshooting	53
System Values, Reset	41

T

Technical Support	10
Terms, Glossary of	77
TEST Procedure	44
Troubleshooting	
DTMF Tones	52
Error Conditions.	51
Guidelines for	51
Installation Error and Status Messages	55
Operational Errors and Status Messages	59
Parameter Values	53
Power Interruption.	52
VIEW Administrative Option	52
Troubleshooting LLDP	64

U

Unnamed Registration	24
Upgrade	
Application File	72
Boot File	68

V

VIEW Administrative Option	52
--------------------------------------	--------------------

W

What's New	9
----------------------	-------------------