



Digium Phone User Guide

Digium Phone firmware version 1.4

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613-00019-E

FCC Part 15 Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

* RF warning for Portable device:

The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.

* 15.21 Information to user:

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Label of FCC Statement

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

IC Statement

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence.

L'exploitation est autorisée aux deux conditions suivantes:

- (1) l'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radio électrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Bluetooth

-BT interface

--UART(up to 4 Mbps)

--PCM

-Bluetooth V4.0(HS) with integrated Class 1.5 PA and Low Energy (BLE) support

-Frequency Band :2402MHz ~ 2480MHz(79 channels)

-Modulation:FHSS, GFSK, DPSK, DQPSK

-Bluetooth Standard:Bluetooth V4.0 of 1, 2 and 3 Mbps.

-Antenna Reference:Small antennas with 0~2 dBi peak gain

Contents

Overview	5
1 Network & System Tools	7
Setting the Network Information	7
IP Configuration	7
Quality of Service Settings	8
VLAN Settings	8
Getting the Phone Configuration	8
Option 66	9
Fetch Configuration File From URL	9
Web User Interface Tool	10
Resetting, Reconfiguring, or Restarting	10
Reset to Factory Defaults	10
Reconfigure	10
Restart	10
Enable App Development	11
Tech Support	11
2 Web User Interface Settings	12
Lines Tab	12
Alternate Host	13
SIP Outbound Proxy	13
General Tab	14
Preferences Tab	14
Contacts Tab	15
Network Tab	16
Virtual LAN	16
Quality of Service	16

- Ethernet Port Modes 16
- Advanced Network Settings 16
- Logging Tab 17
- Ringtones Tab 17
- 3 Phone Apps & Calling 18**
 - Phone Apps 18
 - Contacts 18
 - Status 18
 - Voicemail 18
 - Call Log 18
 - Forward Calls 18
 - Calling 19
 - Dialing Calls 19
 - Receiving Calls 19
 - Redial 19
 - Hold 19
 - Transfer 19
 - Conference (3-way Calls) 20

Overview

This guide provides information about the setup and use of Digium Phones when a Digium Configuration Server is not being used. Below is an overview of this process.

See the Digium website for information about using Digium Phones with [Switchvox](#) or the [Digium Phone Module for Asterisk \(DPMA\)](#).

1. Get On the Network

Automatic. Phone uses DHCP and LLDP-MED to get IP address and VLAN membership information. If successful, it attempts to find a configuration file.

Manual. If not successful, enter the information as described in [Setting the Network Information on page 7](#) or as described in [Web User Interface Settings on page 12](#).

2. Configure the Phone (two choices)

Web UI tool to enter all of the configuration information as described in [Web User Interface Settings on page 12](#).

Create XML configuration file and make it available to the phone as described on [Getting the Phone Configuration on page 8](#).

3. Get Acquainted with Phone Apps & Calling Features

Phone Apps, [page 18](#).

- **Contacts** are used for rapid dialing, and for finding detailed information about someone in your list of contacts.
- **Status** indicates Do Not Disturb (DND) or Available.
- **Msg** button calls the voicemail system as indicated in your phone configuration.

- **Call Log** displays your call activity for received, dialed, and missed calls.
- **Forward Calls** forwards all of your incoming calls to another number.

Calling Features, [page 19](#).

- **Dialing Calls**
- **Receiving Calls**
- **Redial**
- **Hold**
- **Transfer**
- **Conference (3-way Calls)**

1

Network & System Tools

As soon as your Digium Phone powers up, its main display shows the Digium logo and indicates that it is initializing, loading necessary information, and starting the phone. By default, the phone uses the dynamic protocols DHCP and LLDP-MED to attempt to get its IP address and VLAN membership information. If successful, the phone then attempts to find a configuration file.

The following sections describe what to do if your phone cannot get on the network and get configuration information.

Setting the Network Information

Press the **Settings** softkey to display the Network Settings screen. Or press the **Restart** softkey to try again to get the phone's information automatically.

Under **Network Settings** you can select IP Configuration, Quality of Service Settings, VLAN Settings, or Select Network.

You can also configure the phone's network using the Network Tab from the Web User Interface.

IP Configuration

DHCP is selected (highlighted) by default. To enter the IP information manually, press the **Next** softkey. This changes the protocol from DHCP to **Static** and displays text boxes in which you specify four-part network addresses for the following:

- Static IP
- Gateway
- Netmask
- Primary DNS
- Secondary DNS (optional)

NOTE: The **Delete** softkey lets you delete a character, and the **Back** softkey redisplay the Network Settings Options.

When ready, press **Submit**, which displays the following message:

Your settings have been saved. In order to take effect, your phone must be restarted. Do you want to **restart** your phone, **edit** the network settings, or change other **settings**.

Press **settings** to redisplay the Network Settings screen from which you can select any of the other network options.

Quality of Service Settings

You can set priority values for **Voice DSCP** and **SIP DSCP**. However, if LLDP returns specific values to the phone, the values entered here are ignored.

VLAN Settings

LLDP. The Discovery Mode **LLDP** is selected (highlighted) by default. If the phone does not get a response from LLDP for LLDP-MED voice endpoint, it will assume there is no VLAN. (VLAN information cannot be obtained via DHCP.)

Manual. If you wish to enter the VLAN information manually, press the **Next** softkey, which changes the **Discovery Mode** to **Manual**.

- Then enter a four-digit **VLAN ID**.
- Set values for **Voice 802.1p Priority** and **SIP 802.1p Priority**. However, if LLDP returns specific values to the phone, the values entered here are ignored.
- Enter the **PC Port VLAN ID** (1-4095).
- Set a value for **PC Port 802.1p Priority**.

None. If you do not want the phone to attempt to use LLDP and you do not want the phone to use a specific VLAN ID, press **Next** to change the Discovery Mode to **None**.

When finished, press the **Submit** softkey.

NOTE: The **Back** softkey redisplay the Network Settings Options.

Getting the Phone Configuration

The phone can be configured using either an XML-formatted configuration file, or by defining configuration information using the phone's Web UI Tool. The following sections describe each option.

NOTE: If you do not want to manage your full phone configuration, you can manually enter the basic information for your SIP accounts using the **SIP Accounts** option.

If you are going to create your own XML configuration file, see <https://wiki.asterisk.org/wiki/display/DIGIUM/XML+Configuration> for a description of the content and XML format.

The following are the possible results of your phone's attempt to find a configuration source:

- It finds more than one source for a configuration file and displays them in a list. It prompts you to select the source you want.
- It finds only one source for a configuration file. It tries to obtain that configuration after 5 seconds.
- It finds no source for a configuration file and indicates that in a message.

NOTE: The option **Digium Configuration Server** option applies only to using Digium Switchvox or DPMA.

Option 66

If you are creating your own configuration file and DHCP returns option 66 with a URL, the file location is found in this order:

```
<URL>lowercase_mac.cfg
<URL>UPPERCASE_mac.cfg
<URL>000000000000.cfg
<URL>
```

The following is an example for the URL 10.10.8.237 and the phone MAC 00-19-15-9C-06-46:

```
http://10.10.8.237/0019159c0646.cfg
http://10.10.8.237/0019159C0646.cfg
http://10.10.8.237/000000000000.cfg
http://10.10.8.237
```

The phone uses Wget to make the request to the URL indicated by option 66, so the URL can contain username, password, and a port number if necessary.

If a configuration file can be fetched, the phone saves the file location. If the phone later restarts and does not get a response from option 66, it will use the previously saved file location to try and obtain a configuration file.

Fetch Configuration File From URL

If you are creating your own configuration file, but not using option 66, you may enter a location for the configuration file by selecting **Fetch Configuration File from URL**.

Fill in the following fields for this option:

- Select the **Protocol** you wish to use to fetch the file.
Choices are **http**, **https**, **ftp**, **ftps**.
- Enter the four-part **Server** address.
- Enter the **Port** number (optional).
- Enter the **Path**.

- Enter the **Username** (optional).
- Enter the **Password** (optional).

Click **Go**, or click **Cancel** to quit and return to the Phone Setup/Configuration Options.

If a configuration file can be fetched, the phone saves the file location.

Web User Interface Tool

If you are not creating your own configuration file, you can use the Web UI tool to enter all of the configuration information. This is described in [Web User Interface Settings on page 12](#).

Resetting, Reconfiguring, or Restarting

Reset to Factory Defaults

To clear all configuration information in the phone and start over, select **Reset to Factory Defaults** (option 8) from the Phone Settings/Configuration Options.

CAUTION: This removes all existing accounts and contacts as well as configuration information.

Reconfigure

Click **Advanced** (option 5 of the Main Menu), then click **Reconfigure** (option 1 of Advanced). The phone asks you to confirm the reconfigure request. Click **Yes** to begin the operation. Reconfigure does not remove the current configuration until the new configuration is obtained.

You can also reconfigure the phone from the Asterisk command line interface as follows:

```
sip notify digium-check-cfg <my sip peer>
```

This Asterisk command notifies the Digium Phone to get its configuration again.

Restart

Click the **Restart** (option 6 of the Main Menu) to restart the phone using the current configuration. The phone asks you to confirm the restart.

NOTE: You can also restart your phone by holding down the 7, 5, and 3 keys.

Enable App Development

To use your Digium Phone for phone application development, you must toggle the Phone's App Development tool through the **Main Menu>Admin Settings**. For more on developing phone APIs, see <http://phones.digium.com>.

Tech Support

The first three options under the **Tech Support** setting (option 7 from the Phone Settings/Configuration Options page) are used only under Digium Technical Support direction.

IMPORTANT: Do not use them unless it is at the request of Digium Technical Support.

However, the **Network Utilities** option is available to give you quick access to the following common network diagnosis tools:

Ping. Tests the reachability of a host on the Internet.

Traceroute. Displays the route (path) and measures transit delays of packets across the network.

NSlookup. Queries the domain name system to obtain the domain name or IP address mapping or for any other specific DNS record.

List mDNS Services. Lists the services being advertised via mDNS that the phone can see on the network.

2

Web User Interface Settings

The Digium Phone web user interface gives you a means of setting your phone configuration options from a web browser. To get to the Phone's web UI, go to:

`http://phone-ip`
Username: admin
Password: 789

NOTE: To find your phone's IP address, press the **More...** softkey, then the **Menu** softkey, selecting **About**. This displays the phone's model number, firmware version, MAC address, and IP address. To find the IP address when the phone has no configuration, press the **Settings** softkey and select **Network Settings**.

The web UI main page includes tabs that display pages for these items: Lines, General, Preferences, Contacts, Network, Logging, and Ringtones.

IMPORTANT: When entering information or making changes under any tab, anytime you click **Submit Phone Settings** it saves all changes across all tabs.

Lines Tab

To define the Digium Phone's Line keys (the SIP accounts), click the **Lines** tab. This displays the Lines page with tabs for Lines 1-6, depending on the model of your Digium Phone.

All lines have the following options. For each line, enter or select information as indicated:

Line Status

If a line is not enabled, it is not available to be used on your phone. In other words, you will not receive calls.

Enable this Line—YES or NO. If enabled, this line will be displayed on your phone's line keys, otherwise its settings will be preserved and it will not appear on your phone.

NOTE: Line 1 is permanently enabled. This is the main extension for your phone, and you cannot disable it.

General

- **User ID / Extension**
- **Authorization Name**—By default this is the same as your User ID / Extension. Leave this blank unless instructed by your provider.
- **Line Label on Phone**
- **Caller ID Name**
- **Digitmap**— digitmap defines phone dialing behavior.¹
- **Register**—NO or YES
- **Password**
- **Voicemail Extension or SIP URI.** Numeric Extension or URI formatted sip:user@host

Primary Host

- **IP Address or Hostname**
- **Port**
- **Transport**—UDP or TCP
- **Seconds until Re-Registration**
- **Seconds until Retry on Failure**

Alternate Host

If the phone cannot register to the Primary Host, it registers to the Alternate Host. Setting fields are the same as the Primary Host (above).

SIP Outbound Proxy

- **IP Address or Hostname.**
- **Port.**

1. Digitmap is the setting that describes different patterns of numbers. When a number matches a pattern, the number is sent to Asterisk to place the call. The pattern may include a timer at the end. If no numbers are entered before the time expires, the number matching the pattern will be sent. If additional numbers are entered before the time elapses, the pattern no longer matches.

General Tab

Enter the following general setting information as indicated, and click **Submit Phone Settings** when finished.

Settings Password Protection

- Enter the **Admin Password**. The program informs you of the quality of the password—too short, weak, strong, etc.
- Enter the password again for confirmation.

Time

- Select **Timezone / Location** from dropdown.
- Enter **NTP Server**
- Enter **Seconds until NTP Resync**

SIP

- Select either **Accept all calls from any host** or **SIP Account Hosts**. If you choose SIP account hosts, the phone will only accept calls from servers on which the phone has registered accounts.
- Enter **Local SIP Port**

Firmware

- Displays the Current Firmware Version: in the following format: 1_0_0_44308
- Click **Apply Firmware** to apply a different version to your phone.

Advanced: Audio Codecs

Click arrow to display list.

- Use the arrow icon to reorder the list up or down.
- Use the disable icon to remove a codec.
- Click the rotary icon for a codec to view/edit it.

Preferences Tab

The following preferences can be set. Click **Submit Phone Settings** when finished.

Localization

Language/Locale. From the pull-out menu, select the language locale you wish the phone to use. This affects the date and time display format and these tones: busy, dial tone, call-waiting beep, congestion (fast busy), and ringback. English/United States is the default.

Time Format. From the pull-out menu, select the time format you wish the phone to use: 2:30 pm (12 hour); 15:30 (24 hour); or, 15.30 (24 hour).

Idle Screen Image

- **Idle Screen Image**—the current image is displayed, and you have the option of uploading a different image.
- **Display Missed Calls Notification**—select **NO** or **YES**

Call Answering

- **Headset Answer**—select **NO** or **YES**. If this is **YES**, when you press the **Answer** softkey during an incoming call, the call is answered on the headset, not the speaker.
- **Electronic Hook Switch**. Options are **Automatic**, **Plantronics**, and **Jabra IQ**. If you select **Jabra IQ**, the Jabra headset must be set to IQ mode. If the Jabra headset does not support Jabra IQ, you may need to update the firmware on the headset. See the manufacturer's documentation for more information.

Display

- **Brightness**. Adjust by moving the marker on the sliding scale.
- **Contrast**. Adjust by moving the marker on the sliding scale.
- **Backlight Dimming**—select **NO** or **YES**
- If dimming, enter the **Seconds until Backlight Dim**
- If dimming, adjust the **Backlight Dim Level**. It cannot be greater than brightness
- **Display Missed Calls Notification**—select **YES** or **NO**

Sounds

- Select the **Default Ringtone** from the dropdown.
- Adjust the following volumes by moving the marker on the sliding scale.
 - **Ringer Volume**
 - **Speaker Volume**
 - **Handset Volume**
 - **Headset Volume**
- Set **Reset Volume Every Call**—select **NO** or **YES**

Contacts Tab

Set the Rapid Dial Keys for the Phone. If the Phone model is D50, you may click the **Print DESI Strip**. When finished, click **Submit Phone Settings**.

- **Enable Contacts on Main Line Keys**—select **NO** or **YES**. If **YES**, your unregistered line keys will be used as Rapid Dial Keys for contacts.
- **Number of Rapid Dial Subscriptions** (i.e., the number Rapid Dial contacts to subscribe to presence updates from). Use the sliding bar to select Up to 105. The default is 15.

Network Tab

Network Tab settings may be set from either the Phone or the Phone Web Interface. Setting from the Phone is described in “[Network & System Tools](#)” (page 7).

When finished setting values, Click **Submit Phone Settings**.

IPv4 Address

- **Automatic DHCP**—select **YES** or **NO**. If **YES**, the following cannot be set.
- **Static IP Address.**
- **Subnet Mask.**
- **Default Gateway.**
- **Primary DNS Server.**
- **Secondary DNS Server.**

Virtual LAN

- **Discovery Mode.** LLDP, Manual, or None
- **ID** (1-4095)
- **Voice 802.1p Priority**
- **SIP 802.1p Priority**
- **PC Port VLAN ID** (1-4095)
- **PC Port 802.1p Priority**

Quality of Service

- **Voice DSCP.** Select a value using the sliding scale, 0-63
- **SIP DSCP.** Select a value using the sliding scale, 0-63

Ethernet Port Modes

- **LAN Port Mode.** Select value from dropdown menu (Manual, 10Mb/s Half Duplex or Full Duplex, or 100Mb/s Half Duplex or Full Duplex)
- **PC Port Mode.** Select value from dropdown menu (Manual, 10Mb/s Half Duplex or Full Duplex, or 100Mb/s Half Duplex or Full Duplex, or Disable)

Advanced Network Settings

Click the Arrow icon to display **Miscellaneous Settings**

- **Enable UDP Persist-Connection**—select **NO** or **YES**. If **YES**, the next option is available.
- **UDP Persist-Connection Interval**—Select a priority 5-300 using the sliding scale. This option attempts to keep the NAT tunnel active by pinging the server on a regular interval.

Logging Tab

Logging Tab is a Technical Support tool; do not change the default settings unless support requires you to.

Log Level

- **Log Level.** To change, select level from the dropdown menu: **Error, Warning, Information, Debug.**

Enable Network Logging (syslog)

- Select **NO** or **YES**. If YES (enabled), the following options can be set.
 - Enter **IP Address or Hostname.**
 - Enter number for **Port.**

Ringtones Tab

Select this tab to display the Ringtones page. This page lists the already-uploaded ringtones, including the pre-loaded tones, and it displays how much space you have available for adding more ringtones.

To add a new ringtone, do the following:

- Click the **Upload Ringtone** button.
- Enter the **Ringtone File** name. It must be a WAV file.
- Enter the **Name** you are calling the ringtone on your phone.
- Click the **Upload Ringtone** button.

Ringtone List

The list of ringtones includes each ringtone's Name, File Size, Type, and Action options: Play, Edit, and Delete. The following tones are pre-loaded; they cannot be edited or deleted:

- **Alarm**
- **Chimes**
- **Digium**
- **Guitar Strum**
- **Jingle**
- **Office 2**
- **Office**
- **Rotary Phone**
- **Steel Drum**
- **Techno**
- **Theme**
- **Tweedle**
- **Twinkle**
- **Vibe**

3

Phone Apps & Calling

Phone Apps

Your Digium Phone has several built-in applications. The following sections describe them.

Contacts

Contacts are used for rapid dialing, and for finding detailed information about someone in your list of contacts.

Press the **Contacts** softkey to view your contacts list.

To see the Detail page for a contact, press the **Show** softkey in a list of contacts. Details include the person's Status.

Your contacts can also define your unused Line Keys and Rapid Dial Keys.

Status

You can toggle between Do Not Disturb (DND) and Available. DND sends a SIP response 486, which indicates you are busy.

Press the **Status** softkey to change your status.

Voicemail

The **Msg** button calls the voicemail system as indicated in your phone configuration.

Call Log

This log displays your call activity for received, dialed, and missed calls.

Press the **Call Log** softkey to display your log. You can dial from the Call Log, see the details of the call, and save the caller as a Contact.

Forward Calls

To forward all of your incoming calls to another number, use the Forward Calls app.

From the idle screen: press the **More...** softkey, then press **Menu**. Select **Applications**, then **Forward Calls**.

The main display window now displays a text box for you to enter a forwarding number. Enter the number, or press the **Contact** softkey to select one of your contacts. Then press the **Set** soft key.

To turn off forwarding, return to Forward Calls and press the **Off** softkey.

Calling

The following are the basic calling features of the Digium Phone:

Dialing Calls

Pick up the handset, or press a line key and dial a number. Or, dial a number and press the **Dial** softkey.

You can also use Contacts or Call Log to find the number you want, then press the **Dial** softkey.

To dial a URL, press any line key not assigned to a contact. This displays the **[1]/URL** softkey. Press the **[1]/URL** softkey to switch to URL. Press the keypad buttons as many times as it takes to get the desired letters or characters. The * and # keys contain all the special characters. Press the **Dial** softkey when ready to dial.

Receiving Calls

Pick up the handset, or press a softkey. **Ignore** makes the call stop ringing but uses your Call Rules. **Transfer** begins the Transfer process (see below).

During a call, you can answer another incoming call. Press the blinking line key to answer and put the active call on hold. Or, continue with your active call, press the down direction key to highlight the new call, and press a softkey

Redial

Press the **Redial** button to redial the last call you made. (If you have multiple lines, Redial automatically uses the correct line.)

Hold

During a call, press **Hold**. The line key flashes red. To resume that call, press either the flashing line key or the **Resume** softkey. If you have multiple calls on hold, and you want to resume one of the calls, highlight that call in your call list and press its **Resume** softkey.

Transfer

ASSISTED—During a call, press the **Transfer** button. Enter a number or press the **Contacts** softkey to find a number. Press the **Dial** softkey. When someone answers, inform them of the call to be transferred. Press the **Transfer** softkey, and the transfer is completed. •

UNASSISTED (blind)—During a call, press the **Transfer** button. Enter a number or press the **Contacts** softkey to find a number. Press the **Transfer** softkey, and the transfer is completed.

*Conference (3-way
Calls)*

During a call, press either the **Conf** button or **Conference** softkey. Make a call, or **Resume** an existing call. Press **Conference** again to connect all participants. To end the Conference and put both calls on Hold, press the **Split** softkey on either call.