Digium IP Phone User Guide

Digium Phone firmware version 2.x

Contents

Getting Started

Digium IP phones are designed for the greatest interoperability with either Asterisk or Switchvox. This guide provides information about the setup and use of Digium Phones when a Digium Configuration Server is not being used.

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

1. **Getting 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. **Configuring the Phone (two choices)**

   Web UI tool. Enter all of the configuration information as described in Web User Interface Settings on page 12.

   XML configuration file. Create and make it available to the phone as described on Getting the Phone Configuration on page 9.

3. **Getting Acquainted with Phone Apps & Calling Features**

   Phone Apps, page 18.
   - **Call Log** displays your call activity for received, dialed, and missed calls.
   - **Forward Calls** forwards all of your incoming calls to another number.
   - **BT Headset/Wireless Headset**.

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

- **Parked Calls**.

- **Call Queues**.

- **Status** indicates Do Not Disturb (DND) or Available.

- **Voicemail** calls the voicemail system as indicated in your phone configuration.

Calling Features, page 19.

- **Dialing**

- **Receiving**

- **Redialing**

- **Holding**

- **Transferring**

- **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 Configuration Options, and select the **Network Settings** option. Or press the **Retry** 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, Ethernet Port Modes, or Select Network.

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

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 redisplays 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

Discovery Mode 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.)

PC Port VLAN ID. Select this option if you wish to enter the VLAN information manually. Enter the **PC Port VLAN ID** (1-4095).

Voice 802.1p Priority. Set a value for **PC Port 802.1p Priority.** If LLDP returns specific values to the phone, the values entered here are ignored.

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

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

Ethernet Port Modes

LAN Port Mode. By default, this is set to Automatic. Press Next to change to 10Mb/s Half Duplex 10Mb/s Full Duplex, 100Mb/s Half Duplex , 100Mb/s Full Duplex, or 1000Mb/s Full Duplex.

PC Port Mode. By default, this is set to Automatic. Press Next to change to 10Mb/s Half Duplex 10Mb/s Full Duplex, 100Mb/s Half Duplex , 100Mb/s Full Duplex, 1000Mb/s Full Duplex, or Disable.

NOTE: The **Prev** softkey returns the previous choice. The **Back** softkey redisplays the Network Settings Options.

Select Network

Displays a list of available networks. This option is set to Auto Detect as a default. Press the **Select** softkey to select a network.

Getting the Phone Configuration

The phone can be configured by using either an XML-formatted configuration file, or by defining configuration information using the phone's Web User Interface Tool.

> **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 User Interface 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

Select **Reset to Factory Defaults**, which is listed under the **Advanced** option from the phone's Main Menu, to clear all configuration information in the phone and start over.

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

Reconfigure

Select **Reconfigure**, which is listed under the **Advanced** option from the phone's Main Menu. 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 from the phone's Main Menu to restart the phone using the current configuration. The phone issues a prompt that asks you if you are sure you want to restart your phone. Click the **Yes** softkey to restart; or click **No** to cancel the operation and redisplay the phone's Main Menu.

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 User Interface page for the Digium Phone Settings includes tabs that display pages for these items: Lines, General, Preferences, Contacts, Network, Logging, and Ringtones.

> **IMPORTANT**: Anytime you click **Submit Phone Settings**, it saves all changes you may have entered under any tab.

Lines Tab

To define the Digium Phone's Line keys (the SIP accounts), click the **Lines** tab. This displays the Line page with tabs for Lines 1-6. For each line, select its tab, then enter or select information as indicated:

Line Status   If a line is not enabled, that line is not available for use on your phone.

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**.

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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: 2_1_0_3c9ad697
- 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

Call Answering
- **Headset Answer**—select **NO** or **YES**. If **YES**, when you press the **Answer** soft-key during an incoming call, the call is answered on the headset, not the speaker.
- **Ring Headset**—select **NO** or **YES**
- **Electronic Hook Switch Type**—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 **YES**, enter the **Seconds until Backlight Dim**
  - If **YES**, 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**
- Set **Call Waiting Tone**—select **NO** or **YES**

Contacts Tab

Set the Rapid Dial Keys for the Phone. 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.**

IP Address of Hostname

Enter the IP address of the host.

Port

Enter the Port number.

Ringtones Tab

Select this tab to display the Upload Ringtone 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** icon.
- 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**	- **Jingle**	- **Techno**
- **Beep**	- **Office 2**	- **Theme**
- **Chimes**	- **Office**	- **Tweedle**
- **Digium**	- **Rotary Phone**	- **Twinkle**
- **Guitar Strum**	- **Steel Drum**	- **Vibe**

3 *Phone Apps & Calling*

Phone Apps

Call Log

Press the **Call Log** app to display your call activity for received, dialed, and missed calls. You can dial from the Call Log, see the details of the call, and save the caller as a Contact

Forward Calls

Use the **Forward Calls** app to forward all of your incoming calls to another number. 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.

BT /Wireless Headset

BT/Wireless Headset app allows you to turn on and off the option to use BT/wireless headsets. First search for available devices, then pair or unpair the device. When a BT/Wireless device is paired, the headset audio path causes audio to go to the BT/Wireless device, instead of to the normal wired headset.

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.

Press-hold a contact on a rapid dial key to open the contact-details page in the main screen (as if you had used the "Info" button on a D50 or D70).

The Contacts app works a bit differently. The actions that used to be on softkeys (Transfer, Intercom, Monitor) are now available as a selector list in the main details screen.

Parked Calls

Press **Parked Calls** to access a call that has been placed on hold in a "parking lot."

Call Queues

Press **Call Queues** to access the queue management established for your phone.

Status

Press the **Status** softkey to change your status. You can toggle between Do Not Disturb (DND) and Available. DND sends a SIP response 486, which indicates you are busy.

Voicemail

Press the **Voicemail** button to open the voicemail system as indicated in your phone configuration.

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 the **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.