

VOIP (FreePBX)

If you're interested in having your own mesh phone extension on our local PBX, please reach out to our [Groups.io](https://groups.io).



- Here is our [local phone directory and voicemail](#).
- We have a bi-weekly AREDN net every other Sunday at 7pm on our conference line, and zoom meetings on the other Sundays.
- More information from arednmesh.org
- More information from this [Groups.io thread](#).
- N2MH has a lot of information on his [AREDN page](#), and maintains global [white pages](#).



The following instructions are to connect to our local PBX. However, it's also possible to make direct phone-to-phone connections without a PBX. [Instructions are here](#).

Cisco SPA525G2 Setup

Most of our users have Cisco SPA303 or SPA5xx series devices, however any IP Phone with SIP firmware will function.

IP Address

After connecting the phone into the hAP:

- Navigate to the Port Forwarding, DHCP, and Services page and note the IP address of your phone.
- The Hostname will be different and will be setup later in the phone settings.
- At the end of the setup, we'll come back to this page to add the DHCP reservation (but not yet).

[Node Status](#) [Basic Setup](#) **Port Forwarding, DHCP, and Services**

[Help](#) [Save Changes](#)

DHCP Address Reservations

Hostname	IP Address	MAC Address	Do Not Propagate	
<input type="text" value="VA7FI-PHONE"/>	<input type="text" value="10.153.73.107"/>	<input type="text" value="30 - 2e"/>	<input type="checkbox"/>	Del
<input type="text"/>	<input type="text" value="- IP Address -"/>	<input type="text"/>	<input type="checkbox"/>	Add

Current DHCP Leases


<input type="text" value="VA7FI-PHONE"/>	<input type="text" value="10.153.73.107"/>	<input type="text" value="30 - 2e"/>	Add
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- Now use your IP address and navigate to <http://10.xxx.xxx.xxx/admin/advanced>

System

Click on System tab.

1. Enter an (optional) Admin Password and/or User Web Password. But note that:
 - the Admin password will be required to navigate to <http://10.xxx.xxx.xxx/admin> with the username admin.
 - And the User Web password will be required to navigate to the other pages with the username user.
2. Enter your HostName
3. Enter the following Primary NTP Server: ca.pool.ntp.org
4. **Don't click** [Submit All Changes](#) **yet.**



IP Phone SPA525G2

Cisco Systems, Inc.

Voice | **Wi-Fi** | Bluetooth | Personal Address Book | Call History | Speed Dials | Firmware Upgrade

Info | **System** | SIP | Provisioning | Regional | Phone | Ext 1 | Ext 2 | Ext 3 | Ext 4 | Ext 5 | User | Att Console | TR-069

[Attendant Console Status](#) | [User Login](#) | [basic](#) | [advanced](#)

System Configuration

Restricted Access Domains:			
Enable Web Server:	yes ▾	Web Server Port:	80
Enable Web Admin Access:	yes ▾	Admin Password:	*****
User Password:		User Web Password:	*****
SPA525-protocol:	SIP ▾	SPA525-auto-detect-sccp:	yes ▾
SPA525-readonly:	no ▾	Phone-UI-user-mode:	no ▾
WiFi User Access Mode:	yes ▾		

Power Settings

PoE Power Required: Normal ▾

Internet Connection Type

Connection Type: DHCP ▾

Static IP Settings

Static IP:		NetMask:	
Gateway:		Lan MTU:	1500
Duplex Mode:	Auto ▾		

PPPoE Settings

PPPoE Login Name:

PPPoE Login Password:

PPPoE Service Name:

Optional Network Configuration

HostName:	VA7FI-PHONE	Domain:	
Primary DNS:		Secondary DNS:	
DNS Server Order:	Manual,DHCP ▾	Syslog Server:	
Debug Server:		Debug Level:	3 ▾
Layer 2 Logging:	no ▾	NTP Enable:	yes ▾
Primary NTP Server:	ca.pool.ntp.org	Secondary NTP Server:	
Enable Bonjour:	no ▾	SSL Key Negotiation:	RSA ▾
Enable SSLv3:	no ▾		

<input type="text" value="10.153.73.107"/>	<input type="text" value="10.153.73.107/admin"/>
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10.153.73.107

This site is asking you to sign in.

Username:

Password:

10.153.73.107

This site is asking you to sign in.

Username:

Password:

Regional

Click on the Regional tab.

1. Scroll to the very bottom of the page and ensure the Time settings are correct:

The screenshot shows the configuration page for a Cisco IP Phone SPA525G2. The 'Regional' tab is selected and highlighted with a red circle. Below the navigation tabs, the 'Time' section is also highlighted with a red box. The settings in this section are: Time Zone: GMT-08:00 (dropdown), Ignore DHCP Time Offset: yes (dropdown), Daylight Saving Time Rule: start=3/-1/7/2;end=10/-1/7/2;save=1, and Daylight Saving Time Enable: yes (dropdown). Other sections visible include Language (Language Selection: English-US, Locale: en-US) and Miscellaneous (DTMF Playback Level: -16, DTMF Playback Length: .1, Inband DTMF Boost: 12dB, Show DTMF Digits When Connected: No).

Phone

Click on the Phone tab.

1. Enter the Station Name, Voice Mail Number: *97, and Station Display Name
2. Enter Line Key 1 information with your callsign and extension number
3. Line Key 2 to Line Key 5 are quick dial buttons. The Extended Function text is of the form `fnc=blf+sd+cp;sub=2400@$PROXY` where the number (here 2400) is the extension number.



IP Phone SPA525G2

Cisco Systems, Inc.

Voice	Wi-Fi	Bluetooth	Personal Address Book	Call History	Speed Dials	Firmware Upgrade
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Info	System	SIP	Provisioning	Regional	Phone	Ext 1	Ext 2	Ext 3	Ext 4	Ext 5	User	Att Console	TR-069
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[Attendant Console Status](#)
[User Login](#)
[basic](#) | [advanced](#)

General

Station Name: VA7FI Station Display Name: VA7FI

Voice Mail Number: *97

BluePhone

Bluetooth Mode: Phone Line: 5

Short Name: User Friendly ID:

PIN Code: *****

Line Key 1

Extension: 1 Short Name: VA7FI 2225

Share Call Appearance: private

Extended Function:

Line Key 2

Extension: Disabled Short Name: CONF 2400

Share Call Appearance: private

Extended Function: fnc=blf+sd+cp;sub=2400@\$PROXY

Ext 1

Click on the Ext 1 tab.

- Under the Proxy and Registration section, enter the following IP address: 10.160.14.252
- Under the Subscriber Information section, enter
 - Your Display Name
 - The Password that was assigned to you by Kyle, VE7ODG
 - Your extension as the User ID



The IP address of the new PBX was changed from 10.246.225.227 to 10.160.14.252 on April 2025. The screenshot below shows the old address.

The screenshot shows the configuration page for a Cisco IP Phone SPA525G2. The top navigation bar includes tabs for Voice, Wi-Fi, Bluetooth, Personal Address Book, Call History, Speed Dials, and Firmware Upgrade. Below this is a sub-navigation bar with tabs for Info, System, SIP, Provisioning, Regional, Phone, Ext 1, Ext 2, Ext 3, Ext 4, Ext 5, User, Att Console, and TR-069. The 'Ext 1' tab is highlighted with a red circle. The main content area is divided into two sections: 'Proxy and Registration' and 'Subscriber Information'. In the 'Proxy and Registration' section, the 'Proxy' field is set to '10.246.225.227' and is circled in red. In the 'Subscriber Information' section, the 'Display Name' is 'VA7FI' and the 'User ID' is '2225', both of which are circled in red.

Att Console

Click on the Att Console tab

- Change the Server Type to Asterisk

The screenshot shows the configuration page for a Cisco IP Phone SPA525G2, specifically the 'Att Console' tab. The top navigation bar is the same as in the previous screenshot. The sub-navigation bar now has the 'Att Console' tab highlighted. The main content area is titled 'General' and contains various configuration options. The 'Server Type' dropdown menu is set to 'Asterisk' and is circled in red. Other visible options include 'Subscribe Expires' (1800), 'Unit 1 Enable' (yes), 'Unit 2 Enable' (yes), 'Test Mode Enable' (no), 'Attendant Console Call Park Code' (*68), 'BLF List URI', 'Use Line Keys For BLF List' (no), 'Attendant Console Font Size' (10), 'BXfer To Starcode Enable' (no), 'BLF Label Display Mode' (Name), 'Subscribe Retry Interval' (30), 'Subscribe Delay' (1), 'Attendant Console Call Pickup Code' (*98), 'Attendant Console Call unPark Code' (*88), 'Call Pickup Audio Notification' (no), and 'Attendant Console LCD Contrast' (12).

- If you have an Attendance Console (sidecar) and would like to program the speed dial buttons, follow the example here. Make sure you change the extension number and the name for the

contact you want to add. Here's a [printout for the SPA500S Sidecar](#).

Unit 1	
Unit 1 Key 1:	fnc=sd+cp+blf;sub=2222@\$PROXY;nme=VE7GEC-GAB-ECC-2222
Unit 1 Key 2:	fnc=sd+cp+blf;sub=2228@\$PROXY;nme=VE7UY-2228
Unit 1 Key 3:	fnc=sd+cp+blf;sub=2204@\$PROXY;nme=VE7TOP-2204
Unit 1 Key 4:	fnc=sd+cp+blf;sub=2205@\$PROXY;nme=VE7FAA-2205
Unit 1 Key 5:	fnc=sd+cp+blf;sub=2215@\$PROXY;nme=VE7GDE-2215
Unit 1 Key 6:	fnc=sd+cp+blf;sub=2207@\$PROXY;nme=VA7WPM-2207
Unit 1 Key 7:	fnc=sd+cp+blf;sub=2220@\$PROXY;nme=VE7KGV-2220
Unit 1 Key 8:	fnc=sd+cp+blf;sub=2218@\$PROXY;nme=VE7PMD-2218
Unit 1 Key 9:	fnc=sd+cp+blf;sub=2225@\$PROXY;nme=VA7FI-2225
Unit 1 Key 10:	fnc=sd+cp+blf;sub=2236@\$PROXY;nme=VE7KOD-2236
Unit 1 Key 11:	fnc=sd+cp+blf;sub=2235@\$PROXY;nme=VA7ILO-2235
Unit 1 Key 12:	fnc=sd+cp+blf;sub=2219@\$PROXY;nme=VA7MLZ-2219
Unit 1 Key 13:	fnc=sd+cp+blf;sub=2206@\$PROXY;nme=VA7MPG-2206
Unit 1 Key 14:	fnc=sd+cp+blf;sub=2211@\$PROXY;nme=VE7BEF-2211

- Here is a copy and paste example of the code:
fnc=sd+cp+blf;sub=2202@\$PROXY;nme=VE7LSE-2202

Saving Changes

- It's almost time to save the changes, but first, make sure you remember your admin and user passwords on the [System](#) tab. You'll need them to come back to the settings after your phone reboots.
- Click on [Submit All Changes](#) when ready and what for your phone to reboot.

DHCP Reservation

Now that the phone is all setup, go back to your hAP settings and

- Add its address to the DHCP reservation.

The screenshot shows the DHCP Address Reservations configuration page. At the top, there are tabs for 'Node Status', 'Basic Setup', and 'Port Forwarding, DHCP, and Services'. Below the tabs, there are 'Help' and 'Save Changes' buttons. The main section is titled 'DHCP Address Reservations' and contains a table with the following columns: Hostname, IP Address, MAC Address, and Do Not Propagate. The table has one row with the following values: Hostname: VA7FI-PHONE, IP Address: 10.153.73.107, MAC Address: 30-2e, Do Not Propagate: . Below the table, there is an 'Add' button. At the bottom, there is a section titled 'Current DHCP Leases' which shows the same reservation with a red circle around the 'Add' button.

This step ensures that if the hAP reboots and starts giving out IP addresses to your connected devices, it'll keep the same one for your phone. This is important because if your phone gets a different IP address

from the hAP, the phone settings won't match anymore.

From:

<https://wcairedn.ca/> - **West Coast
AREDN**

Permanent link:

<https://wcairedn.ca/services/voip/home>

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