



# LDAP Server & Clients

XBLUE QB Servers & IP9g

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866-925-8312



support@xblue.com



<https://xblue.com>

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## Scope

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LDAP stands for Lightweight Directory Access Protocol which is a client-server protocol for accessing a directory service.

In this guide, we introduce the configuration settings needed to set up XBLUE QB IP Telephone Server as LDAP server and provide configuration examples of IP Phones IP7g and IP9g as well as some other common devices; Zoiper Softphone, Yealink, Fanvil, Snom, Htek, Cisco, and Grandstream.

This guide is intended for the administrator responsible for setting up the LDAP server. A basic knowledge of LDAP is expected in this guide.

# LDAP Overview

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The XBLUE QB IP Telephone Server - LDAP Server App provides a centralized phonebook and its associated management. The LDAP application allows users to easily access the phonebook stored centrally making shared calling easy.

## What kind of information can be stored in the LDAP directory?

The LDAP information model is based on *entries*.

An entry is a collection of attributes that has a globally-unique Distinguished Name (DN).

The DN is used to refer to the entry clearly. Each of the entry's attributes has a *type* and one or more *values*. The types are typically mnemonic strings, like "cn" for common name, or "mail" for email address.

The syntax of values depends on the attribute type. For example, a **cn** attribute might contain the value "Babs Jensen". A **mail** attribute might contain the value "babs@example.com".

**Table 1: Common LDAP Attributes**

XBLUE LDAP Server Option	Attribute	Alias
Nickname	cn	commonName
First Name	gn	givenName
Last Name	sn	surname
Email	mail	rfc822Mailbox
Mobile Number	mobile	mobileTelephoneNumber
Office Number	telephoneNumber	telephoneNumber
Home Number	homePhone	homeTelephoneNumber
Department	departmentNumber	departmentNumber

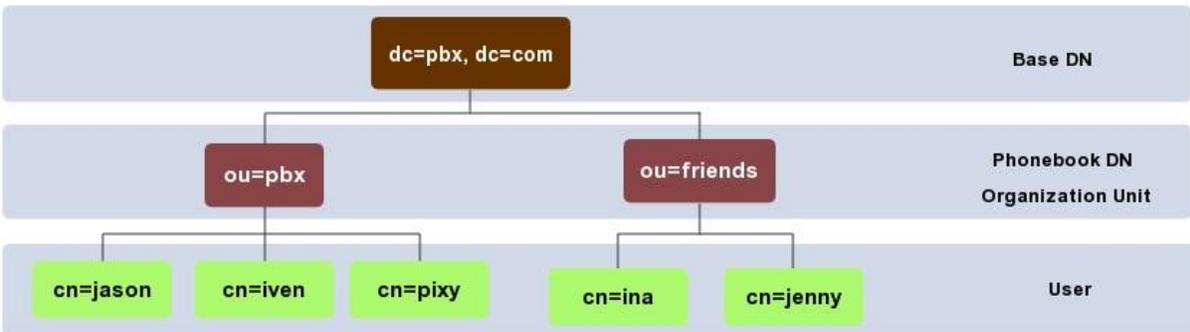
## How is the information arranged?

In LDAP, directory entries are arranged in a hierarchical tree-like structure. The following figure shows an example of XBLUE QB IP Telephone Server LDAP directory tree.

## Terminology

- dc: Domain Component.
- ou: Organization Unit, usually refers to a name of an organization.

- **cn**: Common Name, usually refers to a contact name.



## LDAP Server Configurations

### Configure LDAP Server

Before you get started, you need to set up LDAP server on XBLUE QB IP Telephone Server.

1. Log in the PBX web interface, go to **LDAP Server**.
2. Select the checkbox of **Enable LDAP Server**.
3. Retain the default LDAP server settings or change the settings according to your needs.

**LDAP Server**

Enable LDAP Server LDAP server is running

Base DN:	<code>dc=pbx,dc=com</code>	PBX DN:	<code>ou=pbx,dc=pbx,dc=com</code>
Username:	<code>cn=admin,dc=pbx,dc=com</code>	Password:	password

- **Base DN:** Base DN is an entry in the LDAP directory where the search is requested to begin by LDAP clients. The Base DN is often referred to as the search base. The default value is `dc=pbx,dc=com`.
- **PBX DN:** PBX DN is the default entry in the LDAP directory that contains attributes based on the PBX extension users. The default value is `ou=pbx,dc=pbx,dc=com`.
- **Username:** Specify the username to log in the LDAP server.
  - 📄 **Note:** Change `cn` value, `dc` value must be the same as **Base DN**.
- **Password:** Specify the password to log in the LDAP server.

4. Click **Save**.

# LDAP Phonebook

## Default LDAP Phonebook

There is a default phonebook that is provided in the QB Telephone Server – LDAP App that lists all of the extensions in your QB server. This default list cannot be edited but updates automatically with changes in the server administration.

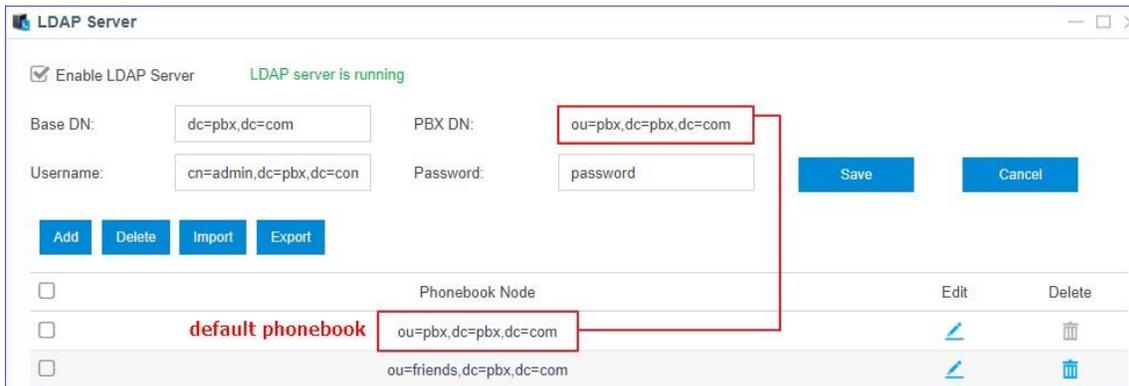
The default LDAP server **PBX DN** “ou=pbx,dc=pbx,dc=com”.

You can click  to view the default phonebook “pbx”.

### Note:

You cannot add or delete the contacts in the default phonebook directly. Go to

**Settings**→**PBX**→**Extensions** to configure extensions, the phonebook will be automatically updated.



LDAP Server

Enable LDAP Server LDAP server is running

Base DN:  PBX DN:

Username:  Password:

<input type="checkbox"/>	Phonebook Node	Edit	Delete
<input type="checkbox"/>	<b>default phonebook</b> <input type="text" value="ou=pbx,dc=pbx,dc=com"/>		
<input type="checkbox"/>	ou=friends,dc=pbx,dc=com		

## Adding a LDAP Phonebook

You can add other phonebooks for external contacts.

1. Go to LDAP Server page, and click **Add**.
2. Enter the phonebook name.  
The Phonebook Node that contains the phonebook name and the Base DN will be generated automatically.



**Add Phonebook** ✕

Phonebook Node:

Phonebook Name:

3. Click **Save**.

## Managing a LDAP Phonebook

After you add an LDAP phonebook, you can edit or delete the phonebook.

### Edit a Phonebook

You can add, edit, and delete contacts in the phonebook you've added.

Go to LDAP Server page, click  beside the desired phonebook.

**Edit Phonebook** ✕

Add
Delete

<input type="checkbox"/>	Nickname	Edit	Delete
<input checked="" type="checkbox"/>	Ann		
<input type="checkbox"/>	Jason		
<input type="checkbox"/>	Lancy		
<input type="checkbox"/>	Maria		
<input type="checkbox"/>	Mike		

Nickname:

First Name:

Last Name:

Email:

Mobile Number:

Office Number:

Home Number:

Department:

Save

Cancel

- **Add contacts to a phonebook**

1. Click **Add**.
2. In the right column, edit the contact attributes.
3. Click **Save** to add contacts.



**Note:** Nickname, and at least one contact method is required.

- **Delete contacts from a phonebook**

1. Select the checkbox of the desired contact.
2. Click **Delete** or  to delete contacts.

- **Edit contacts in a phonebook**

1. Select the checkbox of the desired contact.
2. In the right column, edit the contact attributes.
3. Click **Save**.

## Delete Phonebooks

1. Go to LDAP Server page, and select the checkbox of the desired phonebooks.
2. Click **Delete** or  to delete the phonebooks.

 **Note:** It is not possible to delete the ou=pbx phonebook

## Export/Import a LDAP Phonebook

You can export existing phonebooks from the LDAP server. This allows you to reload LDAP entries and import the phonebooks to this or other LDAP servers should that be required.

### Export a Phonebook from LDAP Server

You can export a phonebook from the LDAP Server. The exported phonebook can be used as a template (sample) to understand the format required to match the requirements of the LDAP server using a database – spreadsheet. The result is a CSV file which allows you to import the template/sample into MS-Excel or Google Sheets. Once there you can edit the contents or cut and paste from other files in the correct cells that match the format needed by the LDAP server.

Go to LDAP Server page, and select the desired phonebook.

1. Click **Export**.

<input type="button" value="Add"/> <input type="button" value="Delete"/> <input type="button" value="Import"/> <input type="button" value="Export"/>			
<input type="checkbox"/>	Phonebook Node	Edit	Delete
<input type="checkbox"/>	ou=pbx,dc=pbx,dc=com		
<input checked="" type="checkbox"/>	ou=colleagues,dc=pbx,dc=com		

2. The CSV file will download to your PC where you can use your PC applications (MS-Excel, Google Sheets, etc.) to modify, build, etc. the file that will be loaded (Imported) to the LDAP Server.

### Import a Phonebook to LDAP Server

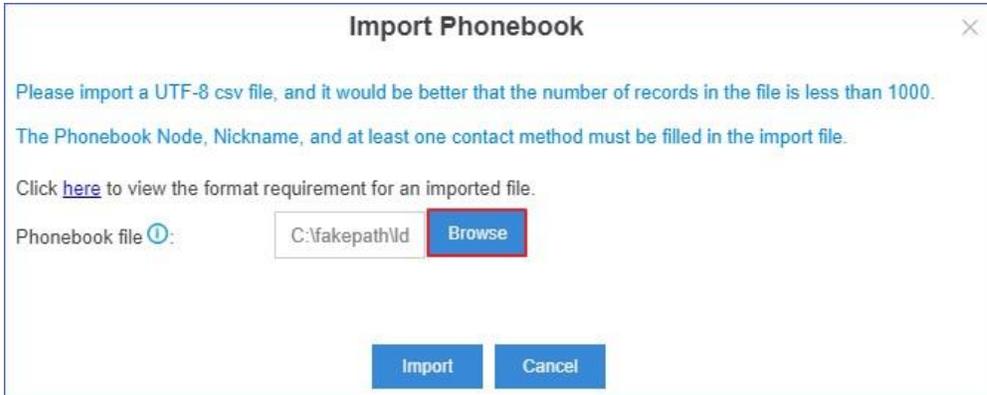
Before you start to import a phonebook, prepare a phonebook file, the phonebook should meet the following requirements:

- **File format:** CSV file with UTF-8 encoding (plain text).

 **Tip:** You can open the CSV file with **Notepad** and save it with UTF-8 encoding.

- **Import parameters:** The parameters in the CSV file should meet the requirements demonstrated in Import Parameters - LDAP Phonebook.

1. Go to LDAP Server page, and click **Import**.
2. In the **Import Phonebook** dialog box, click **Browse**.



3. Click **Import**.

**Example LDAP Phonebook**

With the phonebook file, you can do the following

operations: • **Centrally manage multiple phonebooks**

Add multiple phonebook nodes in the phonebook file, and import the file to LDAP server.

 **Note:** For phonebook node, only alphanumeric entries are valid.

	A	B	C	D	E	F	G	H	I	J
1	Phonebook Node	Extension	Nickname	First Name	Last Name	Email	Mobile Number	Office Number	Home Number	Department
2	pbx	1000	Mike					1000		
3	pbx	1001	Ann					1001		
4	friends	1002	Henry					1002		
5	colleagues	1003	Cindy					1003		
6	clients	1004	Tom					1004		

	Phonebook Node	Edit	Delete
<input type="checkbox"/>	ou=pbx,dc=pbx,dc=com		
<input type="checkbox"/>	ou=clients,dc=pbx,dc=com		
<input type="checkbox"/>	ou=colleagues,dc=pbx,dc=com		
<input type="checkbox"/>	ou=friends,dc=pbx,dc=com		

• **Add a new contact to an existing phonebook**

Add a new contact "Angela" to an existing phonebook "colleagues", and import the file to LDAP server.

	A	B	C	D	E	F	G	H	I	J
1	Phonebook	Extension	Nickname	First Name	Last Name	Email	Mobile Number	Office Number	Home Number	Department
2	colleagues		Cindy					2000		
3	colleagues		Lily					2002		
4	colleagues		Tom					2003		
5	colleagues		Henry					2001		
6	colleagues		Angela					2004		

<input type="checkbox"/>	Nickname	Edit	Delete
<input type="checkbox"/>	Angela		
<input type="checkbox"/>	Cindy		
<input type="checkbox"/>	Henry		
<input type="checkbox"/>	Lily		
<input type="checkbox"/>	Tom		

• **Add a new phonebook with a new contact**

Add a new phonebook "VIP" with a new contact "Jay".

	A	B	C	D	E	F	G	H	I	J
	Phonebook Node	Extension	Nickname	First Name	Last Name	Email	Mobile Number	Office Number	Home Number	Department
1	friends		Rose					2008		
3	pbx	1000	Mike					1000		
4	pbx	1001	Ann					1001		
5	VIP		Jay					2009		

Phonebook Node	Edit	Delete
ou=pbx,dc=pbx,dc=com		
ou=VIP,dc=pbx,dc=com		
ou=friends,dc=pbx,dc=com		

• **Update information of existing contacts**

Update the information of existing contact "Angela", and import the file to LDAP server. The following dialog will appear. Click **Yes** to check the replaced fields.



	A	B	C	D	E	F	G	H	I	J
1	Phonebook Node	Extension	Nickname	First Name	Last Name	Email	Mobile Number	Office Number	Home Number	Department
2	colleagues		Cindy					2000		
3	colleagues		Lily					2002		
4	colleagues		Tom					2003		
5	colleagues		Henry					2001		
6	colleagues		Angela			Angela@gmail.com		2004		Sales

Nickname:	<input type="text" value="Angela"/>
First Name:	<input type="text"/>
Last Name:	<input type="text"/>
Email:	<input type="text" value="Angela@gmail.com"/>
Mobile Number:	<input type="text"/>
Office Number:	<input type="text" value="2004"/>
Home Number:	<input type="text"/>
Department:	<input type="text" value="Sales"/>

# LDAP Client Configuration Examples

## LDAP Configurations on IP9g

This is an example of the configuration of a LDAP phonebook client setup on a XBLUE IP9g (version 2.10.2.6910).

### Configuration Example

The example configuration is set according to default settings of the XBLUE QB IP Telephone Server – LDAP server. You can use the following settings as a starting point and adjust the filter and display attributes according to your needs.

### IP9g LDAP Phonebook configuration

Log in the Fanvil phone web interface, go to **Phonebook**→**Cloud phonebook**→**LDAP Settings** to configure LDAP client.

The screenshot shows the Xblue IP9g web interface. The left sidebar contains navigation options: System, Network, Line, Phone settings, **Phonebook**, Call logs, Function Key, Application, Security, and Device Log. The main content area is titled 'Cloud phonebook' and includes tabs for XML, XML1, XML2, XML3, XML4, and BACK. Below these are buttons for 'Add to phonebook', 'Add to Blacklist', and 'Add to Whitelist', along with 'Previous', 'Page: [dropdown]', and 'Next' buttons. A table with columns 'Index', 'Name', 'Phone', 'Phone1', and 'Phone2' is visible. Below this is a table for 'Manage Cloud Phonebooks' with columns: Index, Cloud phonebook name, Cloud phonebook URL, Calling Line, Search Line, Authentication Name, and Authentication Password. The bottom section is 'LDAP Settings' with the following fields:

- LDAP: LDAP 1 (dropdown)
- Display Title: LDAP
- Server Address: YOUR SERVER IP ADDRESS
- LDAP TLS Mode: LDAP (dropdown)
- Authentication: Simple (dropdown)
- Username: cn=admin,dc=pbx,dc=com
- Search Base: dc=pbx,dc=com
- Telephone: telephoneNumber
- Other: other
- Sort Attr: cn
- Name Filter: ((cn=%)(sn=%))
- Enable In Call Search:
- Version: Version3 (dropdown)
- Server Port: 389
- Calling Line: AUTO (dropdown)
- Search Line: AUTO (dropdown)
- Password: \*\*\*\*\*
- Max Hits: 50
- Mobile: mobile
- Name Attr: cn sn ou
- Display name: cn
- Number Filter: ((telephoneNumber=%)(mo
- Enable Out Call Search:

An 'Apply' button is located at the bottom right of the LDAP Settings section.



Setting	Description	Example
LDAP	Choose one of the following phonebooks. <ul style="list-style-type: none"> <li>• LDAP 1</li> <li>• LDAP 2</li> <li>• LDAP 3</li> <li>• LDAP 4</li> </ul>	LDAP 1
Display Title	Specify the name of phonebook.	LDAP
Version	XBLUE QB IP Telephone Server LDAP server uses Version 3.	Version3
Server Address	Enter the IP address of PBX.	192.168.6.36
Server Port	Enter the LDAP server port.	389
LDAP TLS Mode	Specify the connection mode between the LDAP server and the IP phone. <ul style="list-style-type: none"> <li>• LDAP</li> <li>• LDAP TLS Start</li> <li>• LDAPS</li> </ul> <p> <b>Note:</b> XBLUE QB IP Telephone Server supports LDAP.</p>	LDAP
Calling Line	Select a dialing line that LDAP uses. When a call is initiated from the specified line, contacts information is searched in the LDAP phonebook of the corresponding line. If no contacts information is found, contacts information is searched in LDAP phonebooks configured as <b>AUTO</b> .	AUTO

Setting	Description	Example
Authentication	Select authentication type to access to LDAP server. <ul style="list-style-type: none"> <li>• None</li> <li>• DIGEST-MD5</li> <li>• CRAM-MD5</li> <li>• Simple (Default Configuration)</li> </ul>	Simple
Search Line	Select an answering line that LDAP uses. When a call is received from the specified line, contacts information is searched in the LDAP phonebook of the corresponding line. If no contacts information is found, contacts information is searched in LDAP phonebooks configured as <b>AUTO</b> .	AUTO
Username	Enter the user name to log in the LDAP server.	cn=admin,dc=pbx,dc=com
Password	Enter the password to log in the LDAP server.	Password (get this from the QB LDAP Server App)
Search Base	Specify a starting point in the directory tree from which to search. <ul style="list-style-type: none"> <li>• To search all contacts, enter the Base DN of LDAP server.</li> <li>• To search part of contacts, enter the desired phonebook node.</li> </ul>	dc=pbx,dc=com
Max Hits	Specify the maximum number of search results to be returned by the LDAP server.	50
Telephone	Specify the telephoneNumber attributes of each record to be returned by the LDAP server.	telephoneNumber
Mobile	Specify the mobileNumber attributes of each record to be returned by the LDAP server.	mobile
Other	Specify the other attributes of each record to be returned by the LDAP server.	other
Name Attr	Specify the name attributes of each record to be returned by the LDAP server. You can configure multiple name attributes separated by space.	cn sn ou
Sort Attr	Specify the mode of sorting the query results.	cn

Display name	Specify the display name of the contact record displayed on the LCD screen.	cn
Setting	Description	Example
Name Filter	Specify the name attributes for LDAP searching. <ul style="list-style-type: none"> <li>The * symbol in the filter stands for any character.</li> <li>The % symbol in the filter stands for the entering string used as the prefix of the filter condition.</li> </ul>	((cn=%)(sn=%))
Number Filter	Specify the number attributes for LDAP searching. <ul style="list-style-type: none"> <li>The * symbol in the filter stands for any character.</li> <li>The % symbol in the filter stands for the entering string used as the prefix of the filter condition.</li> </ul>	((telephoneNumber=%)(mobile=%)(other=%))
Enable in Call Search	Enable or disable IP phone to perform LDAP search when receiving an incoming call.	Enabled
Enable Out Call Search	Enable or disable IP phone to perform LDAP search when placing an outgoing call.	Enabled

## IP9g LDAP Phonebook Access Setup

### Set an LDAP Key

Set a LDAP key on the IP9g telephone to quickly access the LDAP phonebook. In this example we've used the SoftKeys in the display. Since the LDAP is used while the phone is idle we've set the SoftKey that will be used while in the Desktop mode. We also moved the DND key... moving it to the second Desktop SoftKey menu (after "More" is pressed).

Default Desktop SoftKeys – phone idle	Modified Desktop SoftKeys – phone idle
---------------------------------------	--



**Steps:**

1. Log in the IP9g phone web interface, go to **Function Key>SoftKey**.
2. First program a DSS key
  - a Select key type **Key Event**
  - b Label the Key
  - c Select Subtype **LDAP**
  - d Select Auto for the Line setting
  - e Click Apply at the bottom

NOTE: There are two Apply buttons and they are independent of one another.  
You must save changes for each before setting options in the other.

**SoftKey Settings**

Softkey Mode: More  
 Softkey Exit Style: Softkey Exit On Left  
 Screen: Desktop

**Unselected Softkeys**

- None
- Pre Account
- Next Account
- Blacklist(Black)
- Call Back(CBack)
- Lock
- Missed
- Voice Mail
- Dialed
- Redial
- Remote XML(R-XML)
- SMS

**Selected Softkeys**

- history
- Local Contacts
- Dsskey1(LDAP)
- DND
- Menu
- Memo
- Reboot
- In
- Call Forward

**Soft DSS Key Settings**

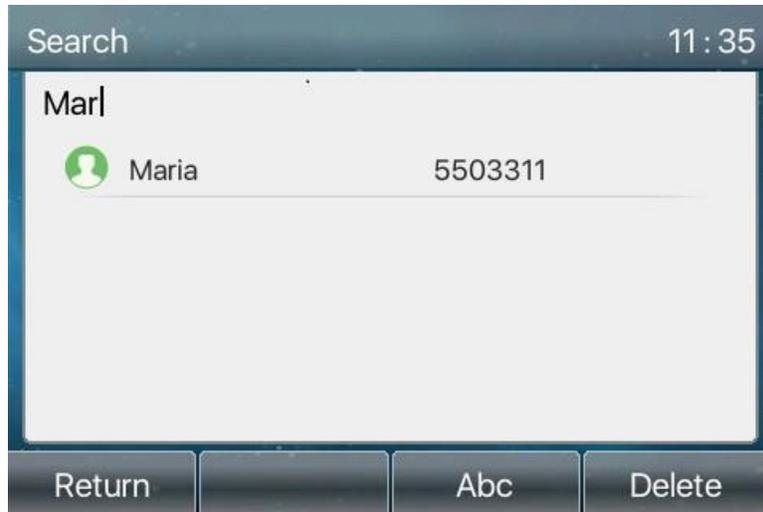
Key	Type	Name	Value	Subtype	Line	PickUp Number
DSS Key 1	Key Event	LDAP		LDAP	Auto	
DSS Key 2	Line			None	SIP2	
DSS Key 3	Line			None	SIP3	
DSS Key 4	Line			None	SIP4	
DSS Key 5	Key Event			Voice Mail	AUTO	
DSS Key 6	Key Event			Headset	AUTO	
DSS Key 7	None			None	AUTO	
DSS Key 8	None			None	AUTO	
DSS Key 9	None			None	AUTO	
DSS Key 10	None			None	AUTO	

- After saving the key settings, use the scroll bar in the Unselected Softkeys column and find Dsskey 1(LDAP) and select it.
- Click on the RIGHT arrow between the columns to move it to the Selected Softkeys column. It will appear at the bottom.
- To move it into position on the first “page” select it in the Selected Softkeys column and use the UP arrow at the right to move it upward until it is above DND.
- Click **Apply** (in the upper section).

### Search LDAP Contacts

You can press the LDAP key to access the LDAP phonebook. Enter the search criteria to search a contact from the LDAP phonebook and call the contact.

- Press the LDAP key to access the LDAP phonebook.
- Press **Search** to search the contact name or number using the keypad. The contacts whose name or phone number match the characters entered will appear on the LCD screen.



3. Press the navigation key to select the desired contact.
4. Press **Dial** to call the contact.

## 3<sup>rd</sup>-Party IP Phone LDAP configurations

Please note, although we have made an effort to attempt to provide the correct information that we have found can work on these phones and models we accept no responsibility for the functionality of these telephones since changes and function frequently change.

We have support options available for purchase if you require our assistance in technical support of 3<sup>rd</sup>-Party phones.

### LDAP Configurations on Yealink Phone

In this example we demonstrate how to configure and use LDAP phonebook using a Yealink T41 (version 36.80.0.95).

#### Configuration Example

The example configurations are set according to default settings of XBLUE QB IP Telephone Server LDAP server. You can use the following settings as a starting point and adjust the filter and display attributes according to your needs.

Log in the Yealink phone web interface, go to **Directory**→**LDAP** to configure LDAP.

The screenshot shows the Yealink T41P web interface with the 'Directory' tab selected. The 'LDAP' configuration page is displayed, showing various settings for enabling and configuring LDAP. The 'Enable LDAP' dropdown is set to 'Enabled' and is highlighted with a red box. A 'NOTE' panel on the right provides additional information about LDAP and a link to more guides.

Setting	Value
Enable LDAP	Enabled
LDAP Name Filter	((cn=%)(sn=%))
LDAP Number Filter	((telephoneNumber=%)(homePho
LDAP TLS Mode	LDAP
Server Address	192.168.6.216
Port	389
Base	dc=pbx,dc=com
Username	cn=admin,dc=pbx,dc=com
Password	*****
Max Hits (1~32000)	50
LDAP Name Attributes	cn sn displayName
LDAP Number Attributes	telephoneNumber homePho
LDAP Display Name	%cn
Protocol	Version 3
LDAP Lookup For Incoming Call	Enabled
LDAP Lookup For Callout	Enabled
LDAP Sorting Results	Enabled

**NOTE**  
**LDAP**  
 LDAP (Lightweight Directory Access Protocol) is an application protocol for accessing and maintaining information services for the distributed directory over an IP network.  
 Yealink IP phone can interface with a corporate directory server that supports LDAP version 2 or 3, such as OpenLDAP, Microsoft Active Directory, Microsoft Active Directory Application Mode (ADAM) or Sun One Directory Server.  
 You can click here to get more guides.

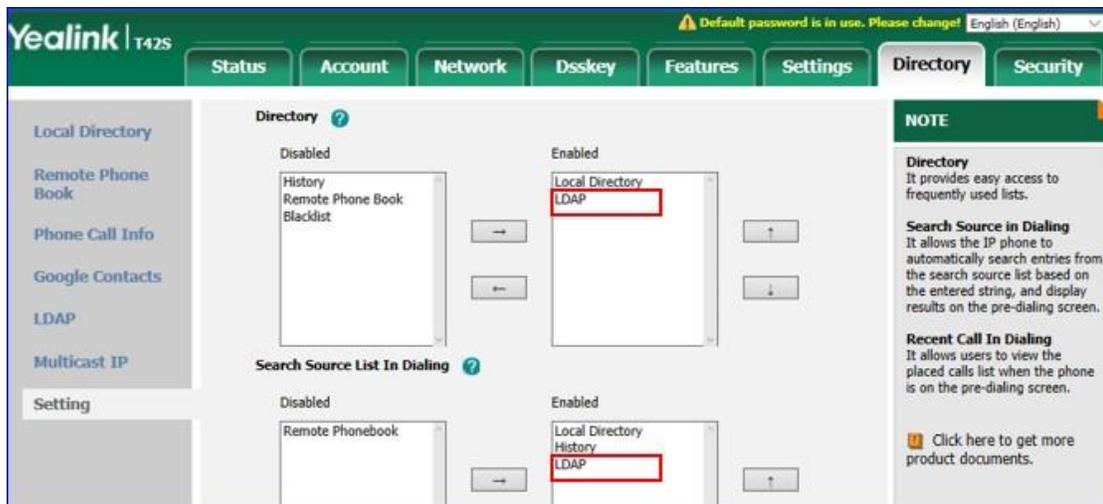
Setting	Description	Example
Enable LDAP	Enable or disable LDAP on IP phone.	Enabled
LDAP Label	Specify the name of phonebook.	Telephone Directory
LDAP Name Filter	Specify the name attributes for LDAP searching. <ul style="list-style-type: none"> <li>The * symbol in the filter stands for any character.</li> <li>The % symbol in the filter stands for the entering string used as the prefix of the filter condition.</li> </ul>	((cn=%)(sn=%))
LDAP Number Filter	Specify the number attributes for LDAP searching. <ul style="list-style-type: none"> <li>The * symbol in the filter stands for any character.</li> <li>The % symbol in the filter stands for the entering string used as the prefix of the filter condition.</li> </ul>	((telephoneNumber=%) (homePhone=%) (mobile=%))
LDAP TLS Mode	Specify the connection mode between the LDAP server and the IP phone. <ul style="list-style-type: none"> <li>LDAP</li> <li>LDAP TLS Start</li> <li>LDAPS</li> </ul> <p> <b>Note:</b> XBLUE QB IP Telephone Server supports LDAP.</p>	LDAP
Server Address	Enter the IP address of PBX.	192.168.6.216
Port	Enter the LDAP server port.	389
Base	Specify a starting point in the directory tree from which to search. <ul style="list-style-type: none"> <li>To search all contacts, enter the Base DN of LDAP server.</li> <li>To search part of contacts, enter the desired phonebook node.</li> </ul>	dc=pbx,dc=com

Setting	Description	Example
Username	Enter the user name to log in the LDAP server.	cn=admin,dc=pbx,dc=com
Password	Enter the password to log in the LDAP server.	password
Max Hits (1~1000)	Specify the maximum number of search results to be returned by the LDAP server.	50
LDAP Name Attributes	Specify the name attributes of each record to be returned by the LDAP server. The user can configure multiple name attributes separated by space.	cn sn displayName
LDAP Number Attributes	Specify the number attributes of each record to be returned by the LDAP server. The user can configure multiple number attributes separated by space.	telephoneNumber homePhone mobile mail departmentNumber
LDAP Display Name	Specify the display name of the contact record displayed on the LCD screen. This parameter value must start with % symbol.	%cn
Protocol	XBLUE QB IP Telephone Server LDAP server uses Version 3.	3
LDAP Lookup for Incoming Call	Enable or disable IP phone to perform an LDAP search when receiving an incoming call.	Enabled
LDAP Lookup for Callout	Enable or disable IP phone to perform an LDAP search for on-going calls.	Enabled
LDAP Sorting Results	Enable or disable IP phone to sort out search results in alphabetical and numerical order.	Enabled

## Search Contacts via Directory

- **Enable LDAP on Yealink Phone**

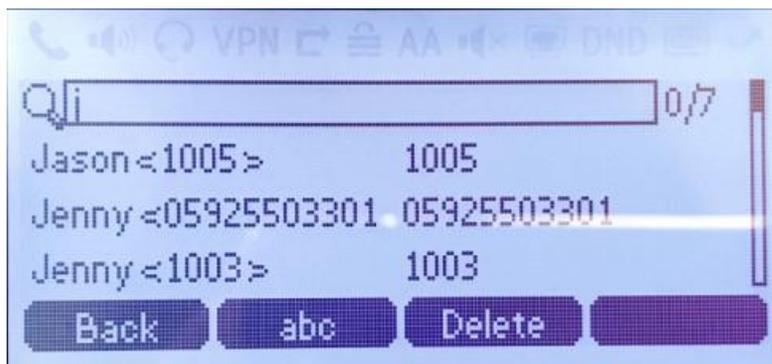
1. Log in the Yealink phone web interface, go to **Directory**→**Setting** to enable LDAP.



2. Click **Confirm**.

- **Search LDAP Contacts**

1. Press **Directory** to access LDAP phonebook.
2. Search the contact name or number using the keypad. The contacts whose name or phone number match the characters entered will appear on the LCD screen.



3. Press the navigation key to select the desired contact.
4. Press **Send** to call the contact.

## Search Contacts via LDAP Key

- **Set an LDAP Key on Yealink Phone**

Set an LDAP key on the phone to quickly access the LDAP phonebook.

1. Log in the Yealink phone web interface, go to **DSSKey**→**LineKey**.

- Choose a DSS key, and select key type to **LDAP**.

The screenshot shows the Yealink T41P web interface with the 'DSSKey' tab selected. A table lists five line keys. The 'Type' dropdown for 'Line Key1' is highlighted with a red box and set to 'LDAP'. Other line keys are set to 'Line' type. A 'NOTE' box on the right explains that line keys allow quick access to features like recall and voice mail.

Key	Type	Value	Label	Line	Extension
Line Key1	LDAP			N/A	
Line Key2	Line	Default		Line 2	
Line Key3	Line	Default		Line 3	
Line Key4	Line	Default		Line 4	
Line Key5	Line	Default		Line 5	

- Click **Confirm**.

- Search LDAP Contacts**

- Press the LDAP key to access the LDAP phonebook.



- Search the contact name or number using the keypad. The contacts whose name or phone number match the characters entered will appear on the LCD screen.
- Press the navigation key to select the desired contact.
- Press **Send** to call the contact.

## LDAP Configurations on Snom Phone

In this example, we demonstrate how to configure and use LDAP phonebook using a Snom D745 (version 66.84.0.10).

### Configuration Example

The example configurations are set according to default settings of XBLUE QB IP Telephone Server LDAP server. You can use the following settings as a starting point and adjust the filter and display attributes according to your needs.

Log in the Snom phone web interface, go to **Setup**→**Advanced**→**Network**→**LDAP** to configure LDAP client.

 © <a href="#">Snom Technology GmbH</a>	<b>LDAP</b>	
	LDAP Name Filter	<input type="text" value="( (cn=%)(sn=%))"/>
	LDAP Number Filter	<input type="text" value="( (telephoneNumber=%)(hor"/>
	LDAP Name Filter During Call	<input type="text" value="( (cn=%)(sn=%))"/>
	LDAP Number Filter During Call	<input type="text" value="( (telephoneNumber=%)(hor"/>
	Server Address	<input type="text" value="192.168.6.216"/>
	Port	<input type="text" value="389"/>
	Base	<input type="text" value="dc=pbx,dc=com"/>
	Username	<input type="text" value="cn=admin,dc=pbx,dc=com"/>
	Password	<input type="password" value="*****"/>
	LDAP Name Attributes	<input type="text" value="cn sn displayName"/>
	LDAP Number Attributes	<input type="text" value="telephoneNumber homePhon"/>
	LDAP Display Name	<input type="text" value="LDAP"/>
	Country Code	<input type="text" value="+49"/>
	Area code	<input type="text" value="030"/>
LDAP over TLS	<input checked="" type="radio"/> on <input type="radio"/> off	
Sort Results	<input checked="" type="radio"/> on <input type="radio"/> off	
Initial Query	<input checked="" type="radio"/> on <input type="radio"/> off	

Setting	Description	Example
LDAP Name Filter	Specify the name attributes for LDAP searching. <ul style="list-style-type: none"> <li>The * symbol in the filter stands for any character.</li> <li>The % symbol in the filter stands for the entering string used as the prefix of the filter condition.</li> </ul>	((cn=%)(sn=%))
LDAP Number Filter	Specify the number attributes for LDAP searching. <ul style="list-style-type: none"> <li>The * symbol in the filter stands for any character.</li> <li>The % symbol in the filter stands for the entering string used as the prefix of the filter condition.</li> </ul>	((telephoneNumber=%)(homePhone=%)(mobile=%))
LDAP Name Filter During Call	Specify the name attributes for LDAP searching when dialing or for looking up an incoming call. <ul style="list-style-type: none"> <li>The * symbol in the filter stands for any character.</li> <li>The % symbol in the filter stands for the entering string used as the prefix of the filter condition.</li> </ul>	((cn=%)(sn=%))
LDAP Number Filter During Call	Specify the number attributes for LDAP searching when dialing or for looking up an incoming call. <ul style="list-style-type: none"> <li>The * symbol in the filter stands for any character.</li> <li>The % symbol in the filter stands for the entering string used as the prefix of the filter condition.</li> </ul>	((telephoneNumber=%)(homePhone=%)(mobile=%))
Server Address	Enter the IP address of PBX.	192.168.6.216
Port	Enter the LDAP server port.	389

Setting	Description	Example
Base	Specify a starting point in the directory tree from which to search. <ul style="list-style-type: none"> <li>To search all contacts, enter the Base DN of LDAP server.</li> <li>To search part of contacts, enter the desired phonebook node.</li> </ul>	dc=pbx,dc=com
Username	Enter the user name to log in the LDAP server.	cn=admin,dc=pbx,dc=com
Password	Enter the password to log in the LDAP server.	password
LDAP Name Attributes	Specify the name attributes of each record to be returned by the LDAP server. You can configure multiple name attributes separated by space.	cn sn displayName
LDAP Number Attributes	Specify the number attributes of each record to be returned by the LDAP server. You can configure multiple number attributes separated by space.	telephoneNumber homePhone mobile
LDAP Display Name	Specify the name of phonebook.	LDAP
Country Code	Specify standard country code which will be substituted in LDAP search requests.	+49
Area Code	Specify standard area code which will be substituted in LDAP search requests.	030
LDAP over TLS	Specify whether to use TCP or TLS as LDAP transport protocol.	On
Sort Results	Specify the mode of sorting the query results.	On
Initial Query	You can decide whether to query the server for an initial list of entries when entering the LDAP directory. <p> <b>Note:</b> All placeholders (%) are replaced with *, and subsequent stars are formatted to a single one.</p> <p>For example, cn=*456% would lead to cn=*456*, or cn=456%* would lead to cn=456*.</p>	On

## Set an LDAP Key

Set an LDAP key on the phone to quickly access the LDAP phonebook.

1. Log in the Snom phone web interface, go to **Setup**→**Function Keys**→**Line Keys**.
2. Choose a key, select key type to **Key Event**, select number to **LDAP Directory**, and set label name.

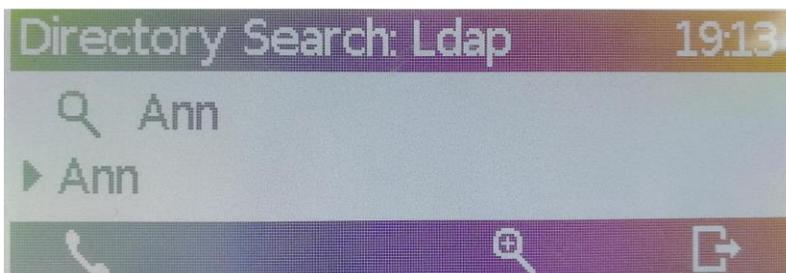
Context	Type	Number	Label	XML Label
Active	Key Event	LDAP Directory	LDAP	P1
Active	None			P2
Active	Key Event	Conference		P3
Active	Smart Transfer			P4
Active	Line			P5
Active	None			P6
Active	Key Event	Ringer Silent		P7
Active	Key Event	Redial		P8

3. Click **Apply**.

## Search LDAP Contacts

You can press the LDAP key to access the LDAP phonebook. Enter the search criteria to search a contact from LDAP phonebook and call the contact.

1. Press the LDAP key to access the LDAP phonebook.
2. Search the contact name or number using the keypad. The contacts whose name or phone number match the characters entered will appear on the LCD screen.



3. Press the navigation key to select the desired contact.
4. Press  to call the contact.

## LDAP Configurations on Htek Phone

In this example, we demonstrate how to configure and use LDAP phonebook using a Htek UC912 (version 2.0.4.4).

### Configuration Example

The example configurations are set according to default settings of XBLUE QB IP Telephone Server LDAP server. You can use the following settings as a starting point and adjust the filter and display attributes according to your needs.

Log in the Htek phone web interface, go to **Directory**→**LDAP** to configure LDAP client.

Directory	LDAP Name Filter	<input type="text" value="((cn=%)(sn=%))"/>	<a href="#">?</a>
Remote Phone Book	LDAP Number Filter	<input type="text" value=":Phone=%)(mobile=%)"/>	<a href="#">?</a>
Call History	Server Address	<input type="text" value="192.168.6.216"/>	<a href="#">?</a>
LDAP	Port	<input type="text" value="389"/>	<a href="#">?</a>
Network Directory	Base	<input type="text" value="dc=pbx,dc=com"/>	<a href="#">?</a>
MultiCast Paging	User Name	<input type="text" value=":admin,dc=pbx,dc=com"/>	<a href="#">?</a>
	Password	<input type="password" value="....."/>	<a href="#">?</a>
	Max.Hits(1~32000)	<input type="text" value="50"/>	<a href="#">?</a>
	LDAP Name Attributes	<input type="text" value="cn sn displayName"/>	<a href="#">?</a>
	LDAP Number Attributes	<input type="text" value="telephoneNumber home"/>	<a href="#">?</a>
	LDAP Display Name	<input type="text" value="%cn"/>	<a href="#">?</a>
	Search Delay(0~2000ms)	<input type="text"/>	<a href="#">?</a>
	Protocol	<input type="radio"/> Version2 <input checked="" type="radio"/> Version3	<a href="#">?</a>
	LDAP Lookup For Call	<input checked="" type="radio"/> On <input type="radio"/> Off	<a href="#">?</a>
	LDAP Sorting Results	<input checked="" type="radio"/> On <input type="radio"/> Off	<a href="#">?</a>
	LDAP Synchronize Time(0~9999mins)	<input type="text"/>	<a href="#">?</a>

Setting	Description	Example
LDAP Name Filter	Specify the name attributes for LDAP searching. <ul style="list-style-type: none"> <li>The * symbol in the filter stands for any character.</li> <li>The % symbol in the filter stands for the entering string used as the prefix of the filter condition.</li> </ul>	((cn=%)(sn=%))
LDAP Number Filter	Specify the number attributes for LDAP searching. <ul style="list-style-type: none"> <li>The * symbol in the filter stands for any character.</li> <li>The % symbol in the filter stands for the entering string used as the prefix of the filter condition.</li> </ul>	((telephoneNumber=%)(homePhone=%)(mobile=%))
Server Address	Enter the IP address of PBX.	192.168.6.216
Port	Enter the LDAP server port.	389
Base	Specify a starting point in the directory tree from which to search. <ul style="list-style-type: none"> <li>To search all contacts, enter the Base DN of LDAP server.</li> <li>To search part of contacts, enter the desired phonebook node.</li> </ul>	dc=pbx,dc=com
Username	Enter the user name to log in the LDAP server.	cn=admin,dc=pbx,dc=com
Password	Enter the password to log in the LDAP server.	password
Max.Hits(1~32000)	Specify the maximum number of search results to be returned by the LDAP server.	50
LDAP Name Attributes	Specify the name attributes of each record to be returned by the LDAP server. You can configure multiple name attributes separated by space.	cn sn displayName
LDAP Number Attributes	Specify the number attributes of each record to be returned by the LDAP server. You can configure multiple number attributes separated by space.	telephoneNumber homePhone mobile mail departmentNumber

Setting	Description	Example
LDAP Display Name	Specify the display name of the contact record displayed on the LCD screen. This parameter value must start with % symbol.	%cn
Search Delay(0~2000ms)	The time to display the search results after entering search information.	Leave it blank.
Protocol	XBLUE QB IP Telephone Server LDAP server uses Version 3.	Version 3
LDAP Lookup For Call	Enable or disable IP phone to perform an LDAP search when receiving an incoming call.	On
LDAP Sorting Results	Enable or disable IP phone to sort out search results in alphabetical and numerical order.	On
LDAP Synchronize Time(0~9999mins)	The default value is 0, which means never synchronize.	Leave it blank.

## Set an LDAP Key

Set an LDAP key on Htek phone to quickly access the LDAP phonebook.

1. Log in the Htek phone web interface, go to **Function Keys**→**LineKey**.
2. Choose a DSS key, and select key type to **LDAP**.

The screenshot shows the Htek web interface for configuring a Line Key. The navigation menu includes Home, Profile, Account, Network, Function Keys, Setting, Directory, and Management. The 'Function Keys' section is active, showing a 'Line Key Programmable Key' configuration page. The 'Type' dropdown is set to 'LDAP'. Below the configuration options is a table with columns: Line, Type, Mode, Value, Label, Account, and Extension. The first row shows 'Key1' with 'LDAP' selected in the Type column, 'Default' in the Mode column, and 'Account 1' in the Account column.

Line	Type	Mode	Value	Label	Account	Extension
Key1	LDAP	Default			Account 1	

3. Click **SaveSet**.

## Search LDAP Contacts

You can press the LDAP key to access the LDAP phonebook. Enter the search criteria to search a contact from LDAP phonebook and call the contact.

1. Press the LDAP key to access the LDAP phonebook.
2. Search the contact name or number using the keypad. The contacts whose name or phone number match the characters entered will appear on the LCD screen.

The screenshot shows the LDAP phonebook search interface on a phone's LCD screen. The search results show 'Andy' and 'Ann'. The filter prefix is 'A'. The interface includes a 'Filter Prefix: A' field and buttons for 'Cancel', '2aB', 'Delete', and 'Option'.

3. Press the navigation key to select the desired contact.
4. Press **Dial** to call the contact.

## LDAP Configurations on Cisco SPA Phone

In this example, we demonstrate how to configure and use LDAP phonebook using a Cisco SPA-942 (version 6.1.5(a)).

### Configuration Example

The example configurations are set according to default settings of XBLUE QB IP Telephone Server LDAP server. You can use the following settings as a starting point and adjust the filter and display attributes according to your needs.

1. Log in the Cisco SPA phone web interface, click **Admin Login** and **advanced** to log in as an administrator.
2. Go to **Phone**→**LDAP Corporate Directory Search** to configure LDAP client.

LDAP Corporate Directory Search			
LDAP Dir Enable:	yes ▾	LDAP Corp Dir Name:	yeastar
LDAP Server:	192.168.6.216	LDAP Auth Method:	Simple ▾
LDAP Client DN:	cn=admin,dc=pbx,dc=com		
LDAP Username:	cn=admin,dc=pbx,dc=i	LDAP Password:	*****
LDAP Search Base:	dc=pbx,dc=com		
LDAP Last Name Filter:	sn:(sn=*\$VALUE*)	LDAP First Name Filter:	cn:(cn=*\$VALUE*)
LDAP Search Item 3:		LDAP Item 3 Filter:	
LDAP Search Item 4:		LDAP item 4 Filter:	
LDAP Display Attrs:	a=sn;a=cn;a=telephoneNumber,n=Phone,t=p;		
LDAP Number Mapping:			

**Table 2:**

Setting	Description	Example
LDAP Dir Enable	Whether to enable LDAP directory or not.	yes
LDAP Corp Dir Name	Specify the name of phonebook.	XBLUE
LDAP Server	Enter the IP address of PBX.	192.168.6.216

Setting	Description	Example
LDAP Auth Method	<p>Select the authentication method that the LDAP server requires.</p> <ul style="list-style-type: none"> <li>• None: No authentication is used between the client and the server.</li> <li>• Simple: The client sends its fully-qualified domain name and password to the LDAP server. But this may cause security issues.</li> </ul> <p> <b>Note:</b> If the version of your LDAP server is 1.4.12 or later, you should select <b>Simple</b>.</p> <ul style="list-style-type: none"> <li>• Digest-MD5: The LDAP server sends authentication options and a token to the client. The client returns an encrypted response that is decrypted and verified by the server.</li> </ul>	Simple
LDAP Client DN	Enter the Username of LDAP server.	cn=admin,dc=pbx,dc=com
LDAP Username	Enter the user name to log in the LDAP server.	cn=admin,dc=pbx,dc=com
LDAP Password	Enter the password to log in the LDAP server.	password
LDAP Search Base	<p>Specify a starting point in the directory tree from which to search.</p> <ul style="list-style-type: none"> <li>• To search all contacts, enter the Base DN of LDAP server.</li> <li>• To search part of contacts, enter the desired phonebook node.</li> </ul>	dc=pbx,dc=com
LDAP Last Name Filter	This defines the search for surnames [sn], known as last name.	sn:(sn=*\$VALUE*)
LDAP First Name Filter	This defines the search for the common name [cn].	cn:(cn=*\$VALUE*)
LDAP Search Item3	Additional customized search item. Can be blank if not needed.	Leave it blank.
LDAP Item 3 Filter	Customized filter for the searched item. Can be blank if not needed.	Leave it blank.

Setting	Description	Example
LDAP Search Item 4	Additional customized search item. Can be blank if not needed.	Leave it blank.
LDAP Item 4 Filter	Customized filter for the searched item. Can be blank if not needed.	Leave it blank.
LDAP Display Attr	Format of LDAP results displayed on phone.	a=sn;a=cn;a=telephoneNumber, n=Phone,t=p;
LDAP Number Mapping	Can be blank if not needed.	Leave it blank.

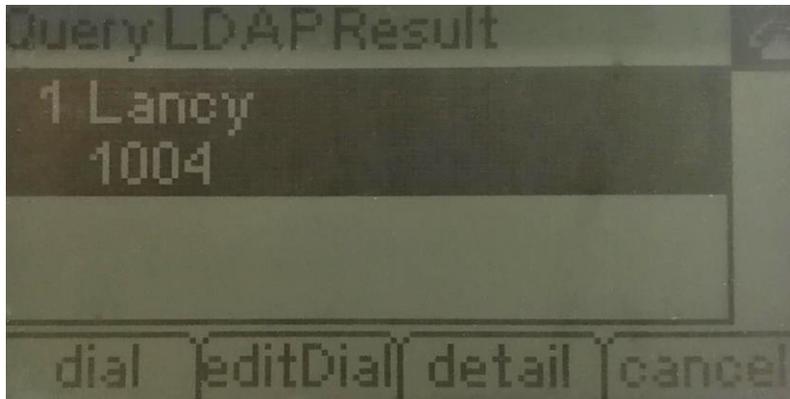
### Cisco LDAP Display Attributes

Attribute	Value	Description
a	Attribute name	N/A
cn	Common name	N/A
sn	Surname (last name)	N/A
telephoneNumber	phone number	N/A
n	Display name	Example: n=Phone will cause "Phone:" to be displayed in front of the phone number of an LDAP query result when the detail soft button is pressed.
t	type	When t=p, that is, t is of type phone number, then the retrieved number can be dialable. Only one number can be made dialable. If two numbers are defined as dialable, only the first number is used. Example: a=ipPhone, t=p; a=mobile, t=p; Only the IP Phone number is dialable and the mobile number will be ignored.
p	phone number	When p is assigned to a type attribute, example t=p, then the retrieved number will be dialable by the phone.

### Search LDAP Contacts

Enter the search criteria to search a contact from LDAP phonebook and call the contact.

1. Press the **Dir** soft key on the SPA phone.
2. Select the LDAP Corporate Directory from the list.
3. Enter the search parameters for Last Name and First Name, and press **submit**.



4. Press **Dial**, **EditDial**, **Detail**, or **Cancel** to use the LDAP results.

## LDAP Configurations on Grandstream Phone

In this example, we demonstrate how to configure and use LDAP phonebook using Grandstream GXP1628 (version 1.0.4.100).

### Configuration Example

The example configurations are set according to default settings of XBLUE QB IP Telephone Server LDAP server. You can use the following settings as a starting point and adjust the filter and display attributes according to your needs.

Log in the Grandstream web interface, go to **Contacts**→**LDAP** to configure LDAP client.

Management	Server Address	192.168.6.36
LDAP	Port	389
	Base	dc=pbx,dc=com
	User Name	cn=admin,dc=pbx,dc=com
	Password	
	LDAP Number Filter	( (telephoneNumber=%))
	LDAP Name Filter	( (cn=%)(sn=%))
	LDAP Version	<input type="radio"/> Version 2 <input checked="" type="radio"/> Version 3
	LDAP Name Attributes	cn sn displayName
	LDAP Number Attributes	telephoneNumber homeP
	LDAP Display Name	%cn
	Max. Hits	50
	Search Timeout	30
	Sort Results	<input type="radio"/> No <input checked="" type="radio"/> Yes
	LDAP Lookup	<input checked="" type="checkbox"/> Incoming Calls <input checked="" type="checkbox"/> Outgoing Calls
	Lookup Display Name	%cn

**Table 3:**

Setting	Description	Example
LDAP protocol	<p>Specify the connection mode between the LDAP server and the IP phone.</p> <ul style="list-style-type: none"> <li>LDAP</li> <li>LDAPS</li> </ul> <p> <b>Note:</b> XBLUE QB IP Telephone Server supports LDAP.</p>	LDAP

Server Address	Enter the IP address of PBX.	192.168.6.36
----------------	------------------------------	--------------

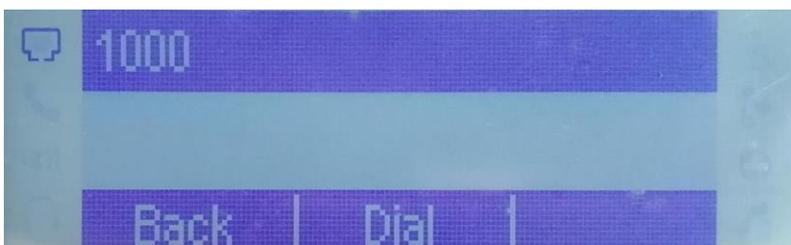
Setting	Description	Example
Port	Enter the LDAP server port.	389
Base	Specify a starting point in the directory tree from which to search. <ul style="list-style-type: none"> <li>To search all contacts, enter the Base DN of LDAP server.</li> <li>To search part of contacts, enter the desired phonebook node.</li> </ul>	dc=pbx,dc=com
User Name	Enter the user name to log in the LDAP server.	cn=admin,dc=pbx,dc=com
Password	Enter the password to log in the LDAP server.	password
LDAP Number Filter	Specify the number attributes for LDAP searching. <ul style="list-style-type: none"> <li>The * symbol in the filter stands for any character.</li> <li>The % symbol in the filter stands for the entering string used as the prefix of the filter condition.</li> </ul>	((telephoneNumber=%) (homePhone=%)(mobile=%))
LDAP Name Filter	Specify the name attributes for LDAP searching. <ul style="list-style-type: none"> <li>The * symbol in the filter stands for any character.</li> <li>The % symbol in the filter stands for the entering string used as the prefix of the filter condition.</li> </ul>	((cn=%)(sn=%))
LDAP Version	XBLUE QB IP Telephone Server LDAP server uses Version 3.	Version 3
LDAP Name Attributes	Specify the name attributes of each record to be returned by the LDAP server. You can configure multiple name attributes separated by space.	cn sn displayName

LDAP Number Attributes	Specify the number attributes of each record to be returned by the LDAP server. You can configure multiple number attributes separated by space.	telephoneNumber homePhone mobile mail departmentNumber
LDAP Display Name	Specify the display name of the contact record displayed on the LCD screen. This parameter value must start with % symbol.	%cn
Max. Hits	Specify the maximum number of search results to be returned by the LDAP server.	50
Setting	Description	Example
Search Timeout	Specify the interval for the LDAP server to process the request and the client waits for server to return. The valid range is 0 to 180.	30
Sort Results	Enable or disable IP phone to sort out search results .	Yes
LDAP Lookup	Enable or disable IP phone to perform an LDAP search when receiving an incoming call or placing an outgoing call.	Incoming Calls Outgoing Calls
Lookup Display Name	Specify the display name when the LDAP looks up the name for incoming call or outgoing call.	%cn

### Search LDAP Contacts

Enter the search criteria to search a contact from LDAP phonebook and call the contact.

1. Press the **LDAP Search** soft key on the phone.
2. Search the contact name or number using the keypad and press **OK**. The contacts whose name or phone number match the characters entered will appear on the LCD screen.



3. Press the navigation key to select the desired contact.
4. Press **Dial** to call the contact.

## LDAP Configurations on Zoiper Softphone

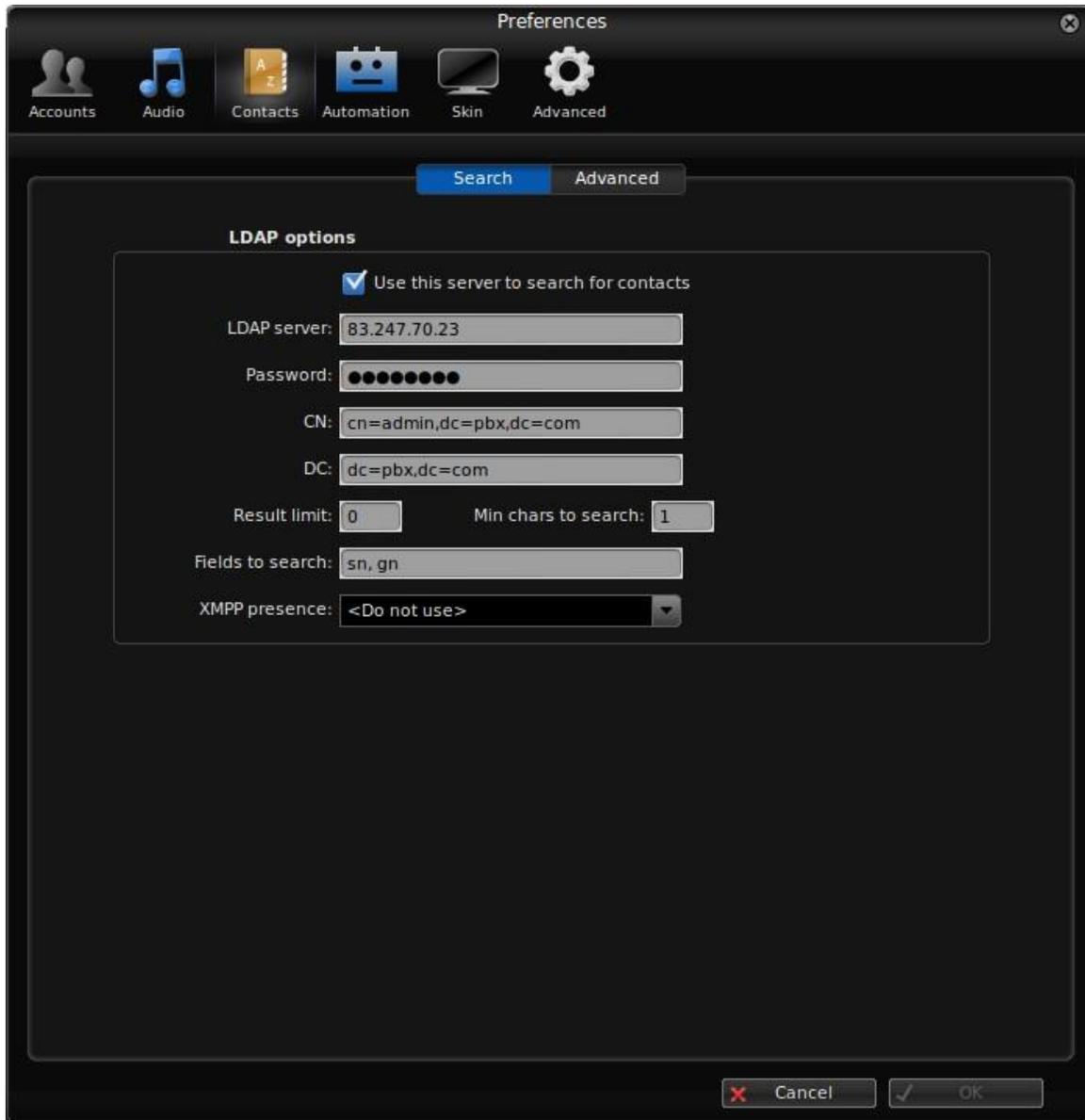
In this example, we demonstrate how to configure and use LDAP phonebook using Zoiper Softphone. **Configuration Example**

The example configurations are set according to default settings of XBLUE QB IP Telephone Server LDAP server. You can use the following settings as a starting point and adjust the filter and display attributes according to your needs.



**Note:** LDAP feature is only available for Zoiper Biz version.

1. Launch Zoiper Biz Softphone.
2. Go to **Settings**→ **Preferences**→ **Accounts**→**LDAP options**.
3. Check **Use this server to search for contacts** and configure the LDAP client.

**Table 4:**

Setting	Description	Example
LDAP server	Enter the IP address of PBX.	83.247.7.70.23
Password	Enter the password to log in the LDAP server.	password
CN	Enter the user name to log in the LDAP server.	cn=admin,dc=pbx,dc=com

DN	Specify a starting point in the directory tree from which to search. Enter the Base DN of LDAP Server.	dc=pbx,dc=com
Setting	Description	Example
Result limit	Specify the maximum number of search results to be returned by the LDAP server.	0
Min chars to search	Specify the minimum number of characters to be entered before starting LDAP search.	1
Fields to search	Specify the name attributes for LDAP searching. The default value is "sn, givenname".	gn
XMPP presence	The name of the field in the LDAP points to the XMPP presence URI for the contact.	Do not use

### Search LDAP Contacts

Enter the search criteria to search a contact from LDAP phonebook and call the contact.

1. Search the contact name or number. The contacts whose name or phone number match the characters entered will appear on the LCD screen.



2. Click **Dial** to call the contact.