

# Grandstream Networks, Inc.

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## GXV3240 IP Multimedia Phone for Android™

### LDAP User Guide



# GXV3240 LDAP User Guide

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## INTRODUCTION

LDAP (Lightweight Directory Access Protocol) is an industry standard application for accessing and maintaining a distributed directory information via the Internet Protocol network. LDAP is specified in a series of RFCs (Request for Comments) from IETF (Internet Engineering Task Force).

LDAP is a client-server protocol and the GXV3240 can be used as LDAP client to access the directory and search contacts remotely from the LDAP server. This User Guide describes how to use the LDAP directory on the GXV3240 and a sample configuration is provided with the built-in LDAP server on the Grandstream UCM6100 series IPPBX. The audience are administrators or who maintains the GXV3240 configurations. It is expected that the audience are familiar with basic knowledge of LDAP and tasks involved with configuring LDAP client.

To learn more about GXV3240's basic functions and advanced features, please visit link <http://www.grandstream.com/support> to download the latest "GXV3240 User Guide" and "GXV3240 Administration Guide".

## REQUIREMENT

The following equipment and services are required in order to use the GXV3240 LDAP directory:

- A properly installed and configured LDAP server

The LDAP configuration on the GXV3240 relies on the LDAP server setup in order to retrieve the stored contacts information. Therefore, before starting using the LDAP directory on the GXV3240, please make sure the LDAP server is properly installed and configured.

LDAP is an open and vendor-neutral standard. There are different LDAP servers that users can choose to install to host the cooperate directory. For example, OpenLDAP is commonly used on Linux operating system and can be downloaded here: <http://www.openldap.org/software/download/>. OpenLDAP software for Windows operating system can also be found online with easy setup wizard. Besides OpenLDAP, the GXV3240 LDAP client works with Microsoft Active Directory server as well. The system administrators could choose the LDAP server to install based on the business needs and preference.

- GXV3240 with firmware version 1.0.1.11 or higher

Please visit <http://www.grandstream.com/support/firmware> to download the latest GXV3240 firmware and release note.

- Functional network environment where the GXV3240 and the LDAP server are connected.

The LDAP server can be located on the Internet or corporate intranet and the LDAP protocol runs over TCP/IP. Therefore, please keep the network access working between the GXV3240 and the LDAP server for the GXV3240 to retrieve information from the server.

## LDAP CONFIGURATION ON GXV3240

In the LDAP server, the information is stored as "entry" which is a collection of attributes under a globally-unique DN. The LDAP client needs to be properly configured to access the LDAP server, perform search within the DN and retrieve the result. On the GXV3240, LDAP configurations can be done via web UI, LCD or configuration file provisioning. This section describes how to configure LDAP settings on the GXV3240 via these three methods.

### CONFIGURE LDAP VIA WEB UI

1. Log in the GXV3240 web UI from your computer's web browser as administrator or end user.
2. Navigate to **Maintenance->LDAP Book** page.
3. Fill out the LDAP server address, attributes and filter information. See [**Table 1: LDAP Configuration Options**] below for detailed information of each option.
4. Once the configuration is done, click on "Save" on the bottom of the page.

**Table 1: LDAP Configuration Options**

Option	Description	Example
<b>Server Address</b>	Configure the IP address or domain name of the LDAP server.	<ul style="list-style-type: none"> <li>• mycompany.ldap.server.com</li> <li>• 192.168.0.44</li> </ul>
<b>Port</b>	Configure the LDAP server port. The default LDAP server port number is 389.	<ul style="list-style-type: none"> <li>• 389</li> </ul>
<b>Base DN</b>	Base DN refers to the location in the directory where the search is requested to begin. The LDAP search will be performed within this directory.	<ul style="list-style-type: none"> <li>• dc=grandstream,dc=com</li> <li>• ou=Boston,dc=grandstream,dc=com</li> </ul>
<b>User Name</b>	Enter the login "Username" to access and query the LDAP server. Some LDAP servers allow anonymous binds in which case this setting can be left blank.	<ul style="list-style-type: none"> <li>• cn=manager,dc=grandstream,dc=com</li> </ul>
<b>Password</b>	Enter the login "Password" for the username to access and query the LDAP server. Some LDAP servers allow anonymous binds in which case this setting can be left blank.	<ul style="list-style-type: none"> <li>• secret</li> </ul>

<b>LDAP Name Attributes</b>	Specify the "name" attributes of each record which are returned in the LDAP search result. This field allows users to configure multiple name attributes separated by space.	<ul style="list-style-type: none"> <li>• cn sn</li> <li>• CallerIDName FirstName LastName</li> </ul>
<b>LDAP Number Attributes</b>	Specify the "number" attributes of each record which are returned in the LDAP search result. It allows the users to configure multiple number attributes separated by space.	<ul style="list-style-type: none"> <li>• telephoneNumber</li> <li>• telephoneNumber Mobile sipAccount</li> </ul>
<b>LDAP Mail Attributes</b>	Specify the "mail" attributes of each record which are returned in the LDAP search result.	<ul style="list-style-type: none"> <li>• mail</li> </ul>
<b>LDAP Name Filter</b>	<p>This is the filter used for name lookups.</p> <p>Special characters:</p> <ul style="list-style-type: none"> <li>• * - Any characters</li> <li>• % - The entered string is used as prefix</li> </ul>	<ul style="list-style-type: none"> <li>• ((cn=%)(sn=%)) This returns all the records which have the "cn" or "sn" field starting with the entered searching key words.</li> <li>• (&amp;(cn=%) (telephoneNumber=*)) This returns all the records with the "cn" field starting with the entered searching key words and "telephoneNumber" field set.</li> <li>• (!(sn=%)) This returns all the records which do not have the "sn" field starting with the entered searching key words.</li> <li>• (CallerIDName=%) This returns all the records which have the "CallerIDName" field starting with the entered searching key words.</li> </ul>
<b>LDAP Number Filter</b>	<p>This is the filter used for number lookups.</p> <p>Special characters:</p> <ul style="list-style-type: none"> <li>• * - Any characters</li> <li>• % - The entered string is used as prefix</li> </ul>	<ul style="list-style-type: none"> <li>• ((telephoneNumber=%)(Mobile=%)) This returns all the records which have the "telephoneNumber" or "Mobile" field starting with the entered searching number.</li> <li>• (&amp;(telephoneNumber=%) (Mobile=*)) This returns all the records which have the "telephoneNumber" field starting with the entered searching number and "Mobile" field set.</li> <li>• (sipAccount=%) This returns all the records which have the "sipAccount" field starting with the entered searching number.</li> </ul>

<b>LDAP Mail Filter</b>	This is the filter used for mail lookups.	<ul style="list-style-type: none"> <li>• (mail=%) This returns all the records which have the "mail" field starting with the entered searching key words.</li> </ul>
<b>LDAP Display Name Attributes</b>	This is the display name of the entry to be shown on the phone's LCD.	<ul style="list-style-type: none"> <li>• %cn %sn</li> <li>• %CallerIDName</li> </ul>
<b>Max Hits</b>	<p>Specify the maximum number of results to be returned by the LDAP server. The valid range is between 1 and 4000. The default setting is 50.</p> <p>Note: If large amount of searching result is to be returned, the searching time in the LDAP server might take long.</p>	<ul style="list-style-type: none"> <li>• 50</li> </ul>
<b>Search Timeout (ms)</b>	Specify the interval (in ms) for the server to process the request and the client will wait for the server to return the result. The valid range is 1 to 4000.	<ul style="list-style-type: none"> <li>• 1000</li> </ul>
<b>LDAP Lookup For Dial</b>	If enabled, the phone will perform LDAP lookup for the dialed number when dialing out. The default setting is disabled.	<ul style="list-style-type: none"> <li>• Enable</li> <li>• Disable</li> </ul>
<b>LDAP Lookup For Incoming Call</b>	If enabled, the phone will perform LDAP lookup for the incoming call's number when receiving calls. The default setting is disabled.	<ul style="list-style-type: none"> <li>• Enable</li> <li>• Disable</li> </ul>

[**Figure 1: GXV3240 Web UI LDAP Settings**] shows the GXV3240 web UI LDAP settings web page, with all the options set to default value.



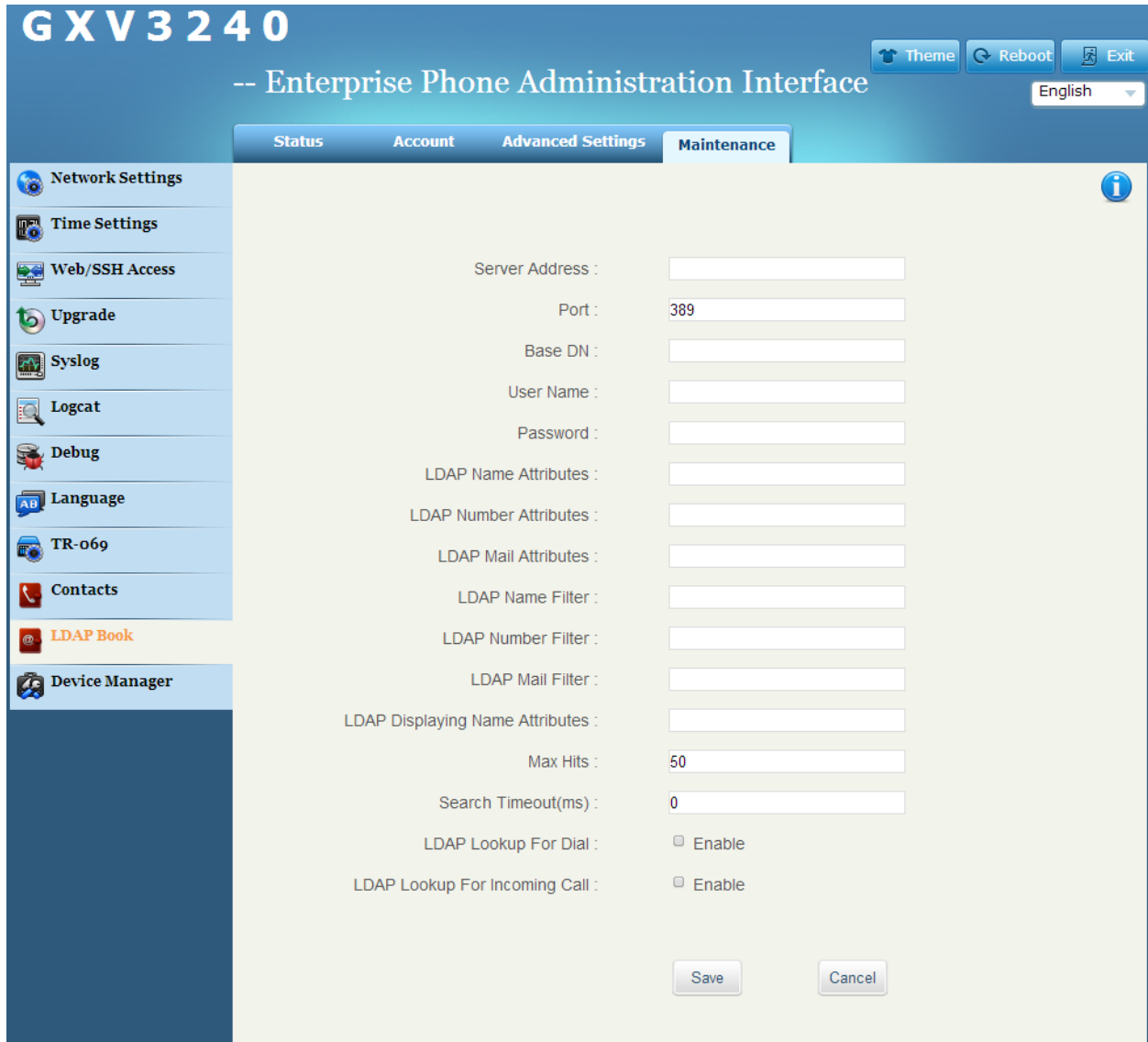


Figure 1: GXV3240 Web UI LDAP Settings

## CONFIGURE LDAP VIA LCD


1. On the GXV3240 idle screen, tap on onscreen menu icon  to access the phone's menu.




Figure 2: GXV3240 Idle Screen

2. In the menu, tap on "LDAP Book" icon  to launch LDAP Book application.



Figure 3: GXV3240 Menu

3. In the LDAP Book application, tap on the setting icon  on the upper right of the screen. LDAP configuration options will display.

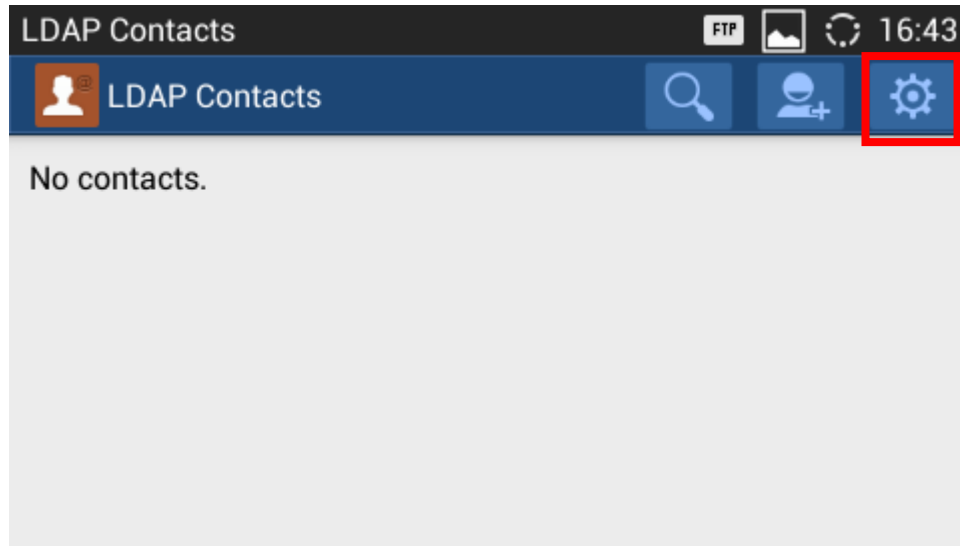


Figure 4: GXV3240 LDAP Book - Settings

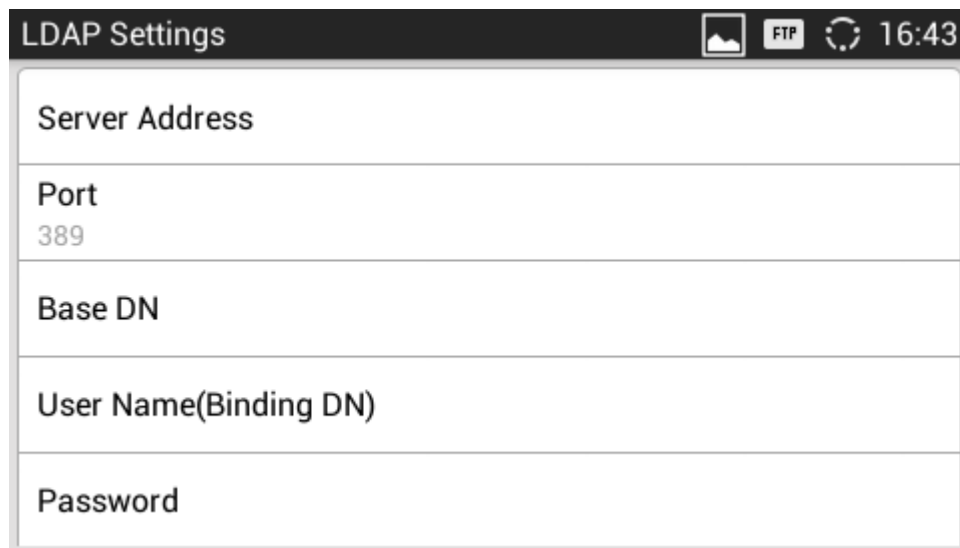


Figure 5: GXV3240 LDAP Settings via LCD

4. Select the option and tap on the input field to configure the LDAP settings using the onscreen keyboard (e.g., input server address 192.168.0.44 in the figure below). Please refer to [**Table 1: LDAP Configuration Options**] for detailed description and example for each option.

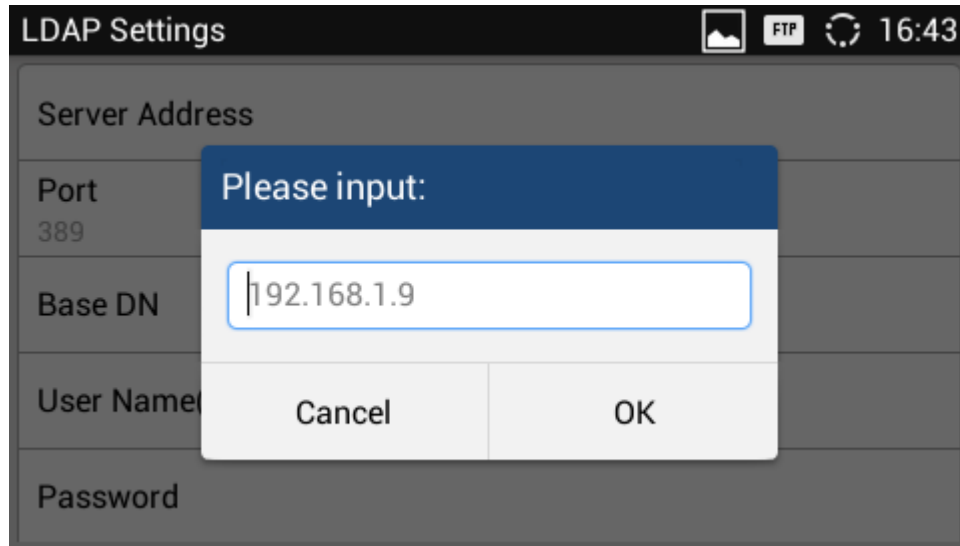


Figure 6: GXV3240 LDAP Settings - Configure Server Address

## CONFIGURE LDAP VIA CONFIGURATION FILE

The following table shows the P parameters for the LDAP configuration options. Assign the proper value for each P parameters in the configure template and provisioning the phone. After successful provisioning, the phone will boot up with LDAP configuration set up and LDAP will be ready to use.

Table 2: LDAP Configuration P Values for Provisioning

Option	P Value	Example
LDAP Server Address	P8020	P8020=company.ldap.com
LDAP Server Port	P8021	P8021=389
Base DN	P8022	P8022=dc=grandstream,dc=com
User Name	P8023	P8023=cn=manager,dc=grandstream,dc=com
Password	P8024	P8024=secret
LDAP Name Attributes	P8028	P8028=CallerIDName FirstName LastName
LDAP Number Attributes	P8029	P8029=telephoneNumber Mobile
LDAP Mail Attributes	P8038	P8038=mail
LDAP Name Filter	P8026	P8026=(CallerIDName=%)
LDAP Number Filter	P8025	P8025=((telephoneNumber=%)(Mobile=%)
LDAP Mail Filter	P8039	P8039=(mail=%)
LDAP Displaying Name Attributes	P8030	P8030=%CallerIDName
Max Hits	P8031	P8031=50
Search Timeout	P8032	P8032=1000

LDAP Lookup For Dial	P8034	P8034=1 - for "Enable" or P8034=0 - for "Disable" (default value)
LDAP Lookup For Incoming Calls	P8035	P8035=1 - for "Enable" or P8035=0 - for "Disable" (default value)


For more details about the GXV3240 configuration template and provisioning, please refer to the configuration tool, templates and documentation in the following link:

<http://www.grandstream.com/support/resources/?title=GXV3240>.

## USE GXV3240 LDAP BOOK

### SEARCH CONTACTS IN LDAP BOOK

Once the LDAP configuration is done, users can start using the LDAP Book application on the GXV3240 to search directory information from the LDAP server.

1. On the GXV3240 idle screen, tap on onscreen menu icon  to access the phone's menu.

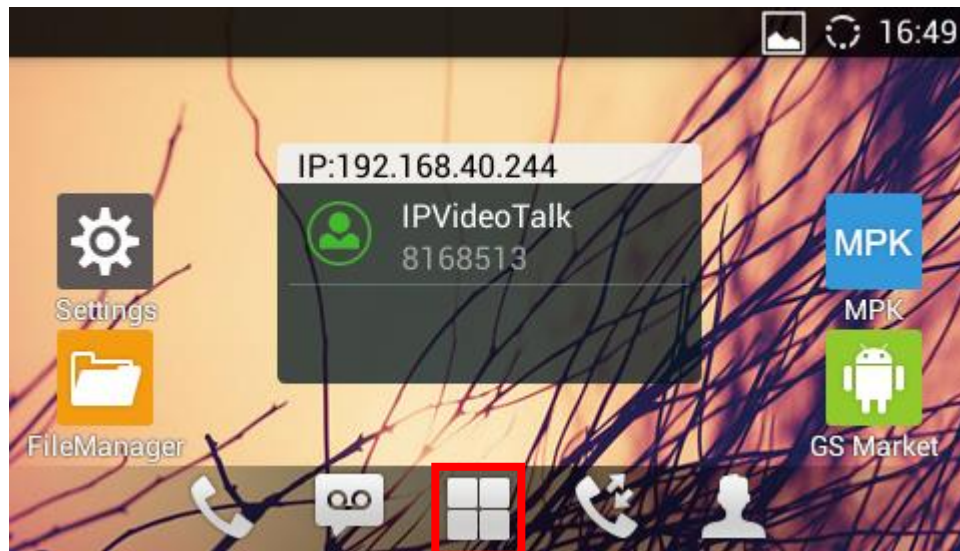


Figure 7: GXV3240 Idle Screen

2. In the menu, tap on "LDAP Book" icon  to launch LDAP book application.



Figure 8: GXV3240 Menu

- Tap on icon  and a search bar will be displayed on the top of the LDAP book application.

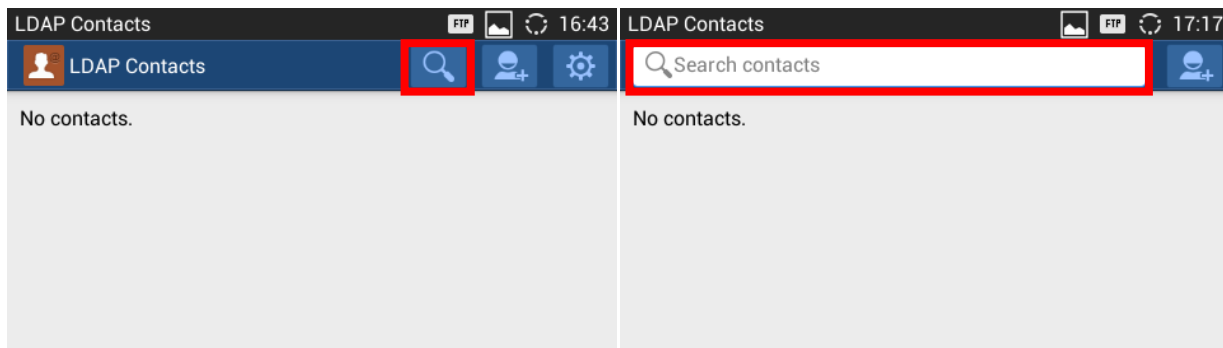


Figure 9: GXV3240 LDAP Book - Search

- Enter number using the keypad, the related contacts information returned from the searching result in the LDAP server will be automatically displayed under the search bar.
- If users would like to enter characters as the search key words, tap on the search field to bring up onscreen keyboard and enter the characters there. Once done, tap on "Search".

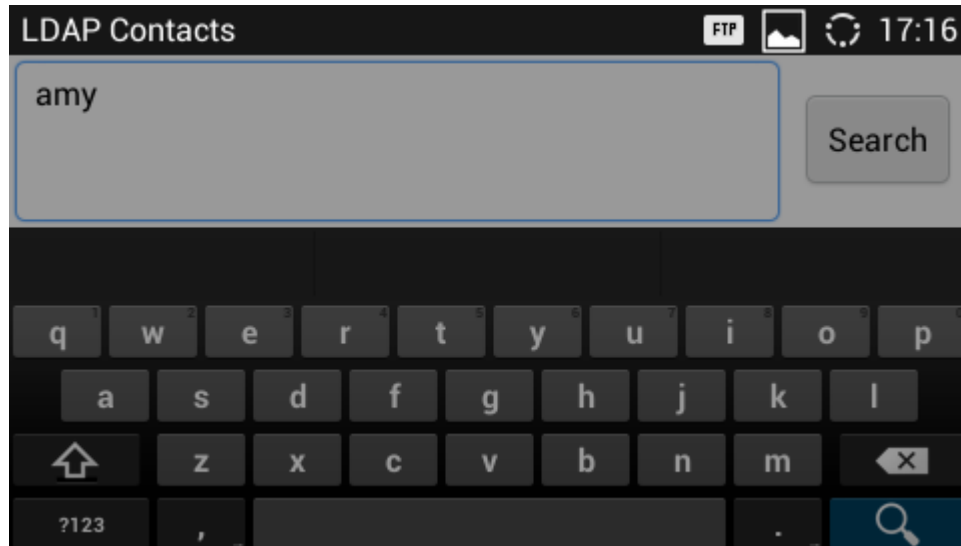



Figure 10: GXV3240 LDAP Book - Search Contacts Using Onscreen Keyboard

Tap on Back button  to return to the previous screen. The result returned from LDAP server will be displayed under the search bar.

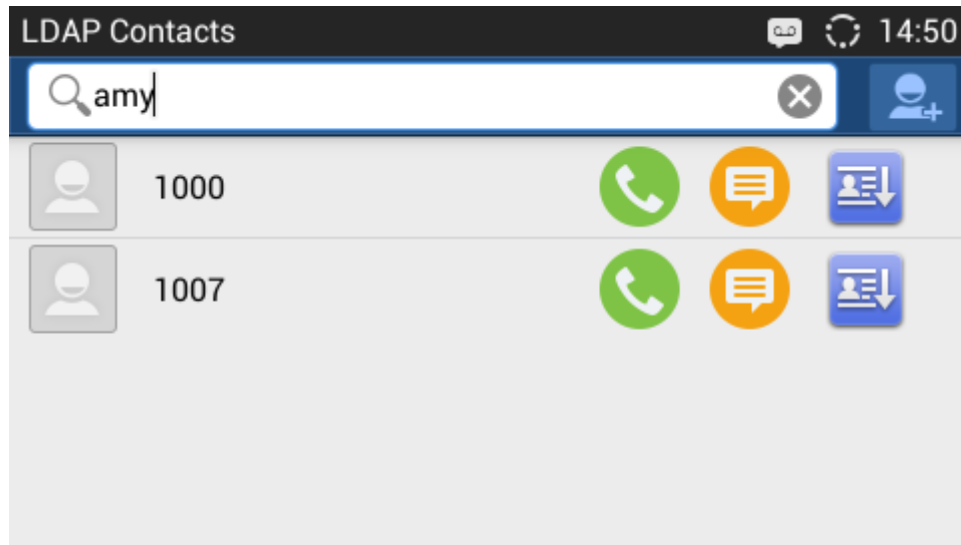





Figure 11: GXV3240 LDAP Book - Search Result

6. Users can perform the following on the returned result:

- Tap on the contact to view details
- Tap on icon  to call the contact



- Tap on icon  to message the contact
- Tap on icon  to add the contact to local phonebook.

## ADD LDAP CONTACTS TO LOCAL PHONEBOOK

After the LDAP searching result is returned to the GXV3240 as shown in **[Figure 11: GXV3240 LDAP Book - Search Result]**, users can use the following two methods to add the contacts to local phonebook.

- To add single contact, tap on icon  to add it to the local phonebook.

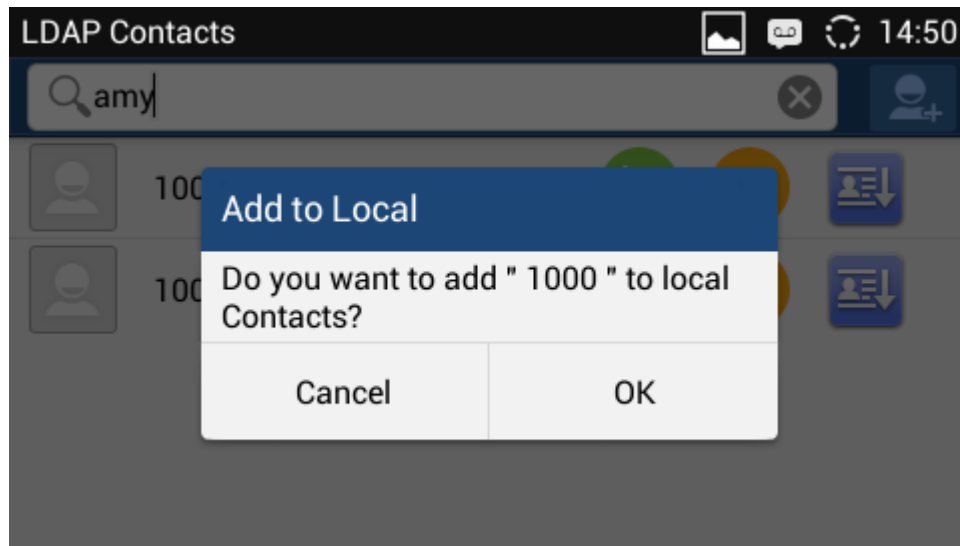



Figure 12: GXV3240 LDAP Book - Add Single LDAP Contact to Local Phonebook

Or

- Tap on icon  on the upper right of the screen, all the searching result will be displayed with a checkbox right next to each result. Tap on the checkbox to select/unselect it. Then tap on "Add" softkey to add the selected contacts to local phonebook.

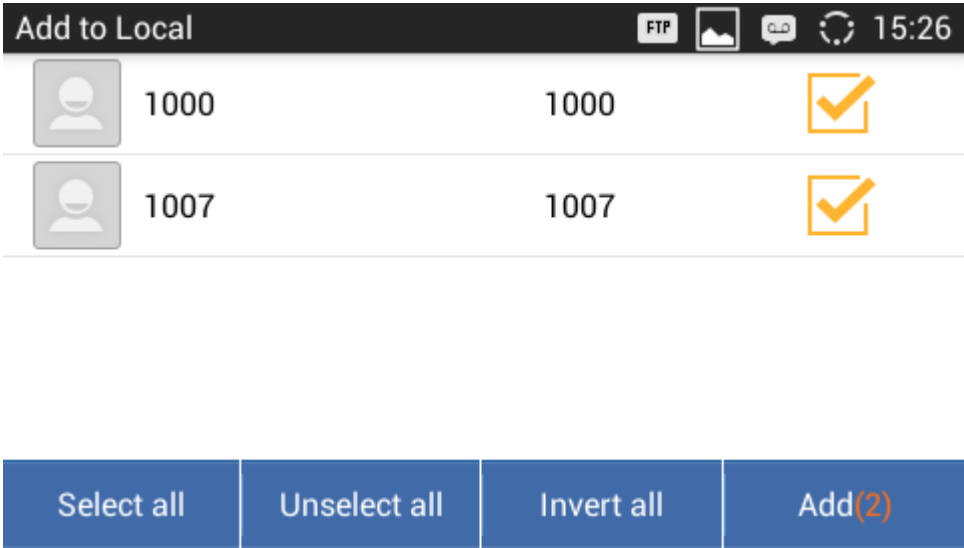


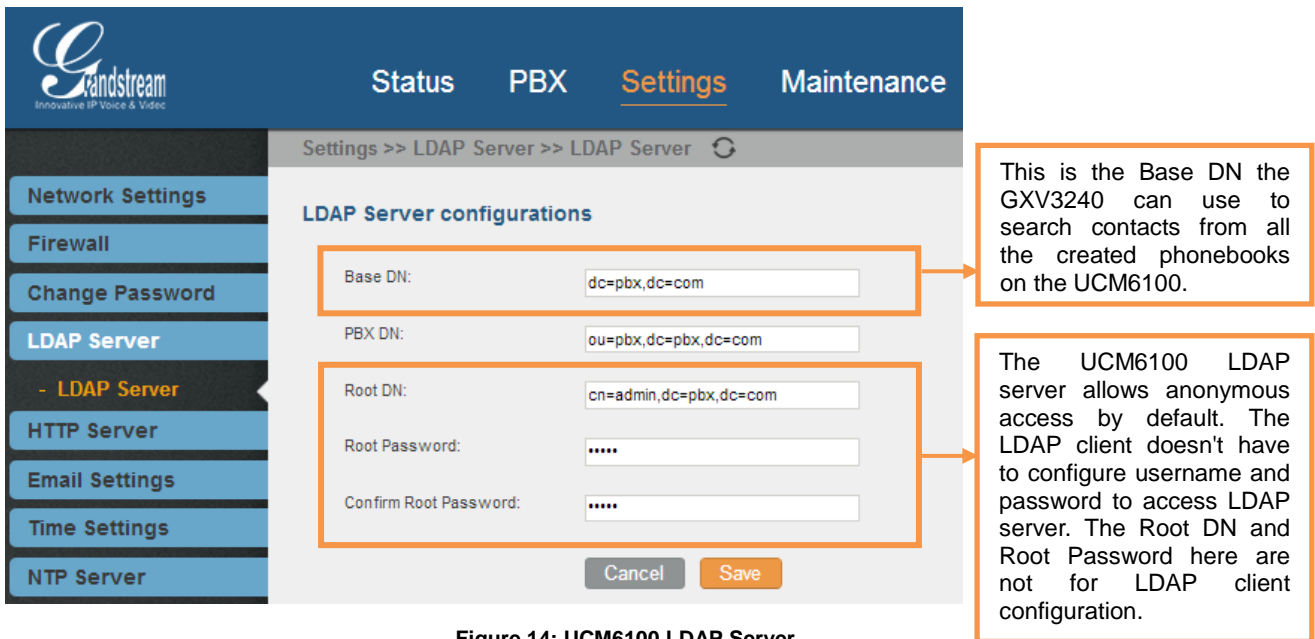
Figure 13: GXV3240 LDAP Book - Add Multiple LDAP Contacts to Local Phonebook

## USE LDAP WITH UCM6100 SERIES IPPBX

### UCM6100 SERIES IPPBX LDAP SERVER

The UCM6100 series IPPBX has a built-in LDAP server for users to manage cooperate phonebook.


1. Log in the UCM6100 series IPPBX web UI.
2. Go to **Settings->LDAP Server**. The LDAP server has the following settings pre-configured already.



This is the Base DN the GXV3240 can use to search contacts from all the created phonebooks on the UCM6100.

The UCM6100 LDAP server allows anonymous access by default. The LDAP client doesn't have to configure username and password to access LDAP server. The Root DN and Root Password here are not for LDAP client configuration.



Figure 14: UCM6100 LDAP Server

3. The UCM6100 has a default LDAP Phonebook with phonebook DN "ou=pbx,dc=pbx,dc=com", which contains all the extensions created on the PBX. Tap on icon  to check the phonebook entries.

**LDAP Phonebook**

**Add**

Note: The first phone book is for extensions in this PBX. The contacts cannot be added or deleted directly. To add or delete the contacts, please modify the accounts in 'Extensions' page first. Please edit the corresponding items in 'Extension' page and the phone book will be automatically updated when the change is saved and applied. Users can add other phone books for extensions. Other users can edit LDAP attributes, add or delete contacts directly.

Phonebook DN	Options
1      ou=pbx,dc=pbx,dc=com	 

Total: 1    Show: 1/1    Go to:     **Go**    **First**

**Figure 15: UCM6100 LDAP Phonebook**

**Edit Phonebook: ou=pbx,dc=pbx,dc=com** X

LDAP Attributes	Contact List																						
<p><b>AccountNumber:</b> <input type="text" value="1000"/></p> <p><b>CallerIDName:</b> <input type="text" value="Amy Cheung"/></p> <p><b>Email:</b> <input type="text"/></p> <p><b>FirstName:</b> <input type="text" value="Amy"/></p> <p><b>LastName:</b> <input type="text" value="Cheung"/></p> <p><b>Department:</b> <input type="text"/></p> <p><b>MobileNumber:</b> <input type="text"/></p> <p><b>HomeNumber:</b> <input type="text"/></p> <p><b>Fax:</b> <input type="text"/></p>	<table border="1"> <thead> <tr> <th>AccountNumber</th> <th>CallerIDName</th> </tr> </thead> <tbody> <tr> <td>1000</td> <td>Amy Cheung</td> </tr> <tr> <td>1001</td> <td>Michael Lin</td> </tr> <tr> <td>1002</td> <td>Sarah Walker</td> </tr> <tr> <td>1003</td> <td>John Doe</td> </tr> <tr> <td>1004</td> <td>Sam Smith</td> </tr> <tr> <td>1005</td> <td>David Yeung</td> </tr> <tr> <td>1006</td> <td>Denny Blank</td> </tr> <tr> <td>1007</td> <td>Amy Fang</td> </tr> <tr> <td>1008</td> <td>Luke Yang</td> </tr> <tr> <td>1009</td> <td>Michael Yang</td> </tr> </tbody> </table>	AccountNumber	CallerIDName	1000	Amy Cheung	1001	Michael Lin	1002	Sarah Walker	1003	John Doe	1004	Sam Smith	1005	David Yeung	1006	Denny Blank	1007	Amy Fang	1008	Luke Yang	1009	Michael Yang
AccountNumber	CallerIDName																						
1000	Amy Cheung																						
1001	Michael Lin																						
1002	Sarah Walker																						
1003	John Doe																						
1004	Sam Smith																						
1005	David Yeung																						
1006	Denny Blank																						
1007	Amy Fang																						
1008	Luke Yang																						
1009	Michael Yang																						

**Cancel**

**Figure 16: UCM6100 LDAP Default Phonebook Entries**

## **GXV3240 LDAP CONFIGURATION FOR UCM6100 DEFAULT LDAP PHONEBOOK**

The GXV3240 can be configured as shown in the figure below in order to use the default LDAP phonebook on the UCM6100 LDAP server described in section [**UCM6100 SERIES IPPBX LDAP SERVER**].

Server Address :	<input type="text" value="192.168.40.201"/>
Port :	<input type="text" value="389"/>
Base DN :	<input type="text" value="dc=pbx,dc=com"/>
User Name :	<input type="text"/>
Password :	<input type="password"/>
LDAP Name Attributes :	<input type="text" value="CallerIDName"/>
LDAP Number Attributes :	<input type="text" value="AccountNumber"/>
LDAP Mail Attributes :	<input type="text"/>
LDAP Name Filter :	<input type="text" value="(CallerIDName=%)"/>
LDAP Number Filter :	<input type="text" value="(AccountNumber=%)"/>
LDAP Mail Filter :	<input type="text"/>
LDAP Displaying Name Attributes :	<input type="text" value="%AccountNumber %CallerIDName"/>
Max Hits :	<input type="text" value="50"/>
Search Timeout(ms) :	<input type="text" value="100"/>
LDAP Lookup For Dial :	<input checked="" type="checkbox"/> Enable
LDAP Lookup For Incoming Call :	<input checked="" type="checkbox"/> Enable

**Figure 17: Configure GXV3240 LDAP with UCM6100 LDAP Default Phonebook**

Users could also change the above filters and attributes as preferred according to the LDAP client sample configuration from the UCM6100 web UI->**Settings**->**LDAP Server**.

## LDAP Client Configurations

### 1. Client Configuration Examples

Assuming the server base dn is 'dc=example', then you can configure your LDAP clients as follows (these configurations are case insensitive.):

<b>Base DN:</b>	dc=example (the same as the server base dn or a subset of the server base dn)
<b>Login DN:</b>	Please leave this field blank!
<b>Password:</b>	Please leave this field blank!
<b>Anonymous:</b>	Please enable this option!
<b>Filter:</b>	((CallerIDName=*)(AccountNumber=*))
<b>Port:</b>	389

### 2. LDAP Configurations examples on Grandstream IP Phones

<b>Server Address:</b>	The IP address or domain name of this IP-PBX device.
<b>Base DN:</b>	dc=example (the same as the server base dn or a subset of the server base dn)
<b>User Name:</b>	Please leave this field blank!
<b>Password:</b>	Please leave this field blank!
<b>LDAP Name Attributes:</b>	CallerIDName Email Department FirstName LastName
<b>LDAP Number Attributes:</b>	AccountNumber MobileNumber HomeNumber Fax
<b>LDAP Number Filter:</b>	(AccountNumber=*)
<b>LDAP Name Filter:</b>	(CallerIDName=*)
<b>LDAP Display Name:</b>	AccountNumber CallerIDName
<b>LDAP Version:</b>	If this option exists, please choose 'version 3'.
<b>Port:</b>	389

**Figure 18: LDAP Client Configuration Sample from UCM6100**