



**Grandstream Networks, Inc.**

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**LDAP Configuration Guide**



## Table of Contents

<b>INTRODUCTION</b> .....	<b>4</b>
<b>LDAP SERVER CONFIGURATION</b> .....	<b>5</b>
<b>LDAP PHONEBOOK</b> .....	<b>6</b>
Access the Default Phonebook DN .....	6
Add a New Phonebook DN .....	7
Add contacts to Phonebook DN .....	7
Import Phonebook to LDAP Server .....	9
Export Phonebook from LDAP Server.....	10
<b>LDAP CLIENT CONFIGURATION EXAMPLE</b> .....	<b>12</b>



## Table of Figures

Figure 1: LDAP Server Configurations.....	5
Figure 2: Default LDAP Phonebook.....	6
Figure 3: Add new phonebook .....	7
Figure 4: List of Phonebook DN.....	7
Figure 5: LDAP Entries .....	8
Figure 6: Import Phonebook.....	9
Figure 7: Example Phonebook.....	10
Figure 8: LDAP Phonebook Imported .....	10
Figure 9: Phonebook Export .....	11
Figure 10: LDAP Client Configuration .....	12

## Table of Tables

Table 1: LDAP Server Configurations .....	5
Table 2: LDAP attributes description .....	8



## INTRODUCTION

LDAP stands for Lightweight Directory Access Protocol which is a client/server protocol used to access and manage directory information. It reads and edits directories over IP networks and runs directly over TCP/IP using simple string formats for data transfer. Just as a database management system which is used to process queries and updates to a database, the UCM6xxx act as an LDAP server for users to manage corporate phonebook in a centralized manner. 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. 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.

The UCM built-in LDAP server provides corporate directory to IP Phones using one or multiple phonebooks. UCM6xxx offers also "Sync LDAP directory" feature allowing to synchronize LDAP directories between other UCMs for SIP peer trunks to have a centralized phonebook directory between all UCM branches.

In this guide we will introduce the configuration settings needed to set up the UCM6xxx as LDAP server and how to download phonebook entries from other LDAP servers.



## LDAP SERVER CONFIGURATION

The LDAP server configuration settings are available under **Web GUI > Settings > LDAP Server > LDAP Server Configurations**.

The default LDAP server configurations are displayed on the following screenshot:

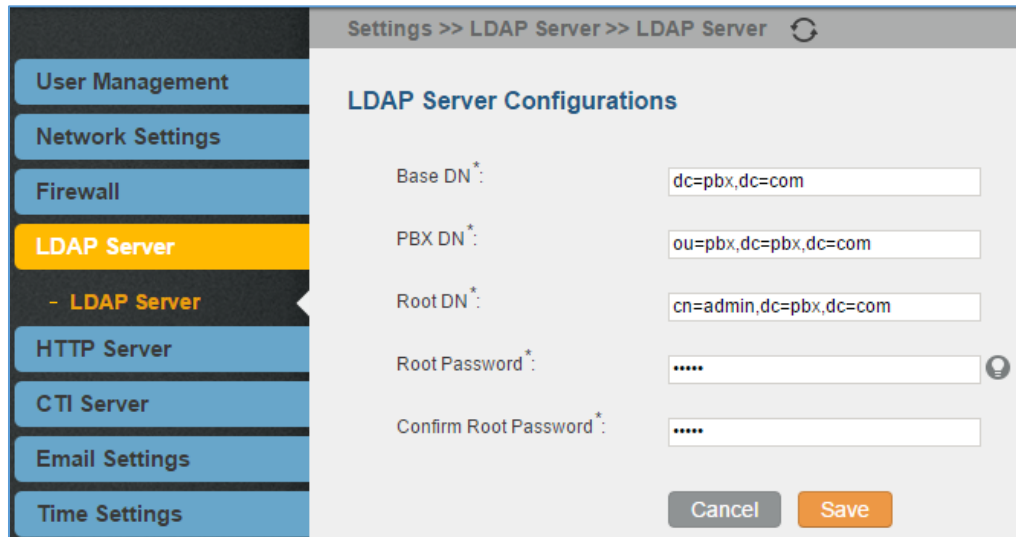


Figure 1: LDAP Server Configurations

### Terminology:

- cn= Common Name
- ou= Organization Unit
- dc= Domain Component

Please refer to following table describing the LDAP server configuration settings:

Table 1: LDAP Server Configurations

<b>Base DN</b>	Specifies the location in the directory where the search is requested to begin. By default it's " <b>dc=pbx,dc=com</b> ".
<b>PBX DN</b>	Specifies the location in the directory where the search for PBX entry is requested to begin. It narrows the search scope and decreases directory lookup time. By default it's " <b>ou=pbx,dc=pbx,dc=com</b> ".
<b>Root DN</b>	Specifies the location in the directory where the search for the admin user entry is requested to begin. It narrows the search scope and decreases directory lookup time. By default it's " <b>cn=admin,dc=pbx,dc=com</b> ".
<b>Root Password</b>	Defines the root password for authentication. By default is " <b>admin</b> ".
<b>Confirm Root Password</b>	Confirms the root password.



**Note:** The UCM6xxx LDAP server supports anonymous access (read-only) by default. Therefore, the LDAP client doesn't have to configure username and password to access the phonebook directory. The "Root DN" and "Root Password" here are for LDAP management and configuration where users will need provide for authentication purpose before modifying the LDAP information.


## LDAP PHONEBOOK

By default, the LDAP server has generated the first phonebook not editable with PBX DN "**ou=pbx,dc=pbx,dc=com**" based on the UCM6xxx user extensions.

Users could add new phonebook with a different phonebook DN for other external contacts, for example, "**ou=grandstream,dc=pbx,dc=com**".

**Note:** All the phonebooks in the UCM6xxx LDAP server have the same Base DN "**dc=pbx,dc=com**".

### Access the Default Phonebook DN

The first phonebook created by default on the UCM6xxx is for local extensions. The default phonebook list in this LDAP server can be accessible by clicking on  but not editable .

The following figure show an example of default phonebook displaying the existing extension.



LDAP Attributes		Contact List	
AccountNumber*	2000	AccountNumber	CallerID Name
CallerID Name	John Snow	2000	John Snow
Email		2001	Bob Mark
FirstName	John	2002	Alice Telson
LastName	Snow	2003	Zack Kh
Department		2004	Ramzy Smoke
MobileNumber		2005	Nataly Spencer
HomeNumber		2006	Jane Doe
Fax		2007	Fernando Josey
		2008	Sam Smith
		2009	Sales
		2010	Support

Figure 2: Default LDAP Phonebook

#### Notes:

- The contacts displayed on the default LDAP phonebook cannot be added or deleted directly. To add or delete the contacts, users need to modify the accounts in "Extensions" page first. To modify the read-only attributes, please edit the corresponding items in "Extensions" page and the phone




book will be automatically updated when the change is saved and applied.

- If users have the Grandstream phones provisioned by the UCM6xxx, the LDAP directory will be configured on the phones and can be used right away for users to access all phonebooks. Additionally, users could manually configure the LDAP client settings to manipulate the built-in LDAP server on the UCM6xxx.

## Add a New Phonebook DN

Users can add other phone books for external accounts. For those phone books, users can edit LDAP attributes, add or delete contacts directly.

Please refer to following steps in order to add a new LDAP phonebook

1. Click on **Add** button  under LDAP phonebook section (LDAP server page).
2. Configure the Phonebook Prefix that will be used for phonebook DN (Distinguished Name)
3. The phonebook DN which is a sibling dn of pbx dn will be generated automatically under Phonebook DN field as displayed on following example.

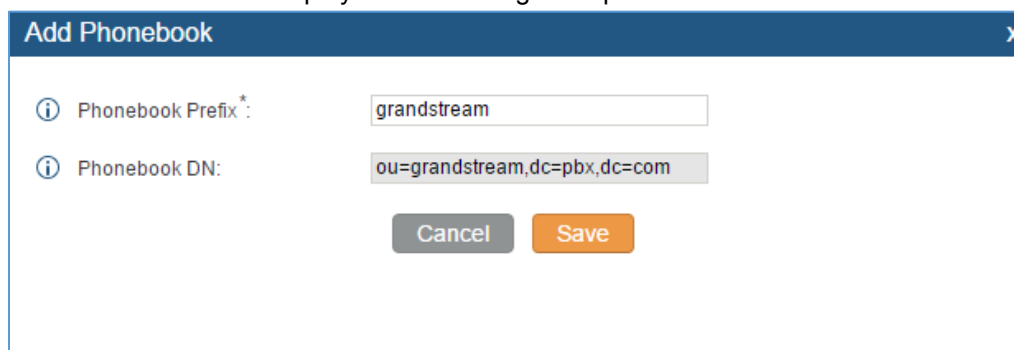


Figure 3: Add new phonebook

4. Click on **Save** button to confirm adding the new phonebook.







	Phonebook DN		Options
<input type="checkbox"/>	ou=pbx,dc=pbx,dc=com	Default Phonebook DN	 
<input checked="" type="checkbox"/>	ou=grandstream,dc=pbx,dc=com	New Phonebook DN created	 

Figure 4: List of Phonebook DN

### Note:




- User can edit or delete the new created phonebooks by clicking on  for editing and adding the new contacts or select  to delete phonebook.
- If the UCM6xxx has multiple LDAP phonebooks created, in the LDAP client configuration, users could use "**dc=pbx,dc=com**" as Base DN to have access to all phonebooks on the UCM6xxx LDAP server, or use a specific phonebook DN, for example "**ou=grandstream,dc=pbx,dc=com**", to only access LDAP entries on Phonebook DN "**ou=grandstream,dc=pbx,dc=com**".

## Add contacts to Phonebook DN


After creating /configuring the new phonebook that will be used for your LDAP configuration, users may add, edit or delete the phonebook entries (LDAP Attributes).

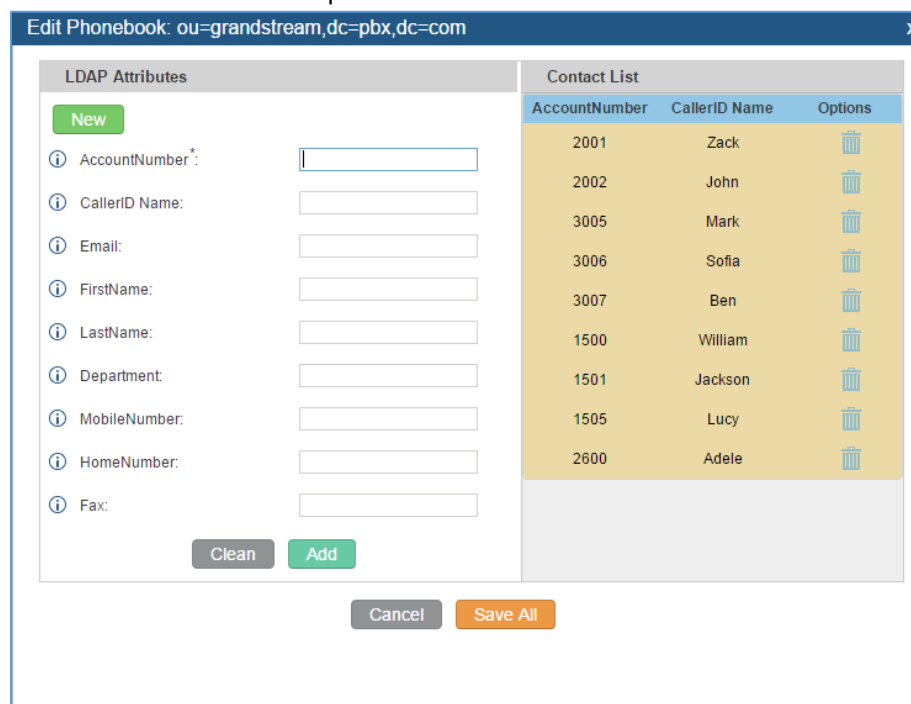


Please refer to following steps describing how we can add, edit or delete the LDAP attributes on your phonebook DN:

1. Access the Web GUI > Settings > LDAP Server > LDAP phonebook
2. Select the phonebook DN on which you want to manage the LDAP entries.
3. Click on **New** button  and fill in the contact's details on the appropriated fields (Account number, caller ID name, Email, first/last name ...).
4. Press **Add** button  to add the new contact to **Contact list**.
5. Press **Save All** button  to save all the new contacts and update the contact list on your phonebook DN.

**Note:**

- For more detailed information and description of the LDAP attributes, please refer to **[Table 2]**.
- To edit or clean a field on a specific contact, users can select it from contact list and do the modifications needed, then press **Add** and **Save All** buttons to update the contact list.
- To delete a specific contact, users need press on delete icon  appropriated to the contact that they want to remove it from their phonebook DN.



**Figure 5: LDAP Entries**

Please refer to following table describing the LDAP attributes:

**Table 2: LDAP attributes description**

<b>Account Number</b>	Defines the account number attribute of a LDAP contact entry.
<b>CallerID Name</b>	Specifies the caller id name attributes of a LDAP contact entry.







<b>Email</b>	Specifies the email address attribute of a LDAP contact entry.
<b>First Name</b>	Defines the first name attributes of a LDAP contact entry.
<b>Last Name</b>	Defines the last name attributes of a LDAP contact entry.
<b>Department</b>	Specifies the department attribute of a LDAP contact entry.
<b>Mobile Number</b>	Specifies the mobile number attributes of a LDAP contact entry.
<b>Home Number</b>	Specifies the home number attributes of a LDAP contact entry.
<b>Fax</b>	Specifies the fax number attributes of a LDAP contact entry.

## Import Phonebook to LDAP Server

UCM6xxx permits to import phonebook and use it on LDAP server.

Please refer to following steps describing how to import the phonebook:

- 1- Access the Web GUI > Settings > LDAP Server > LDAP phonebook
- 2- Click on **Import Phonebook** button 
- 3- Dialog window will prompt as shown in the figure below.
- 4- Select the file type (CSV or VCF) and click on  to browse and select your phonebook from your directory.

**Note:** The file to be imported must be a CSV file with UTF-8 encoding. Users can open the CSV file with Notepad and save it with UTF-8 encoding.

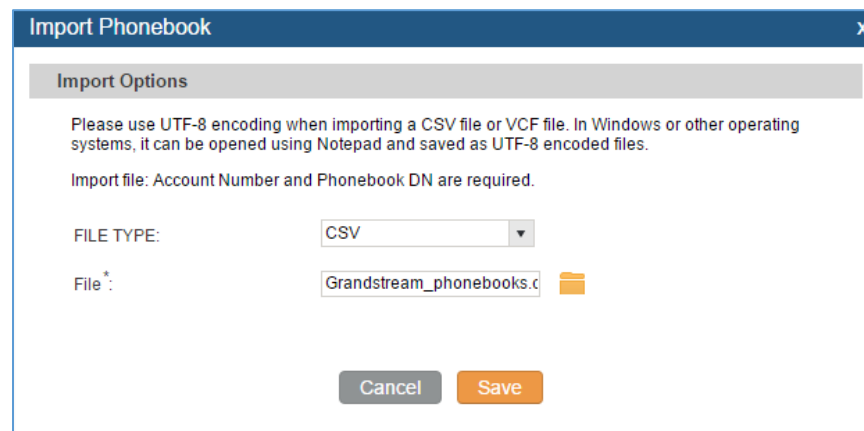


Figure 6: Import Phonebook

The following screenshot illustrate an example of a sample phonebook in CSV format to import. Please note “Account Number” and “Phonebook DN” fields are required. Users could export a phonebook file from the UCM6xxx LDAP phonebook section first and use it as a sample to start with.



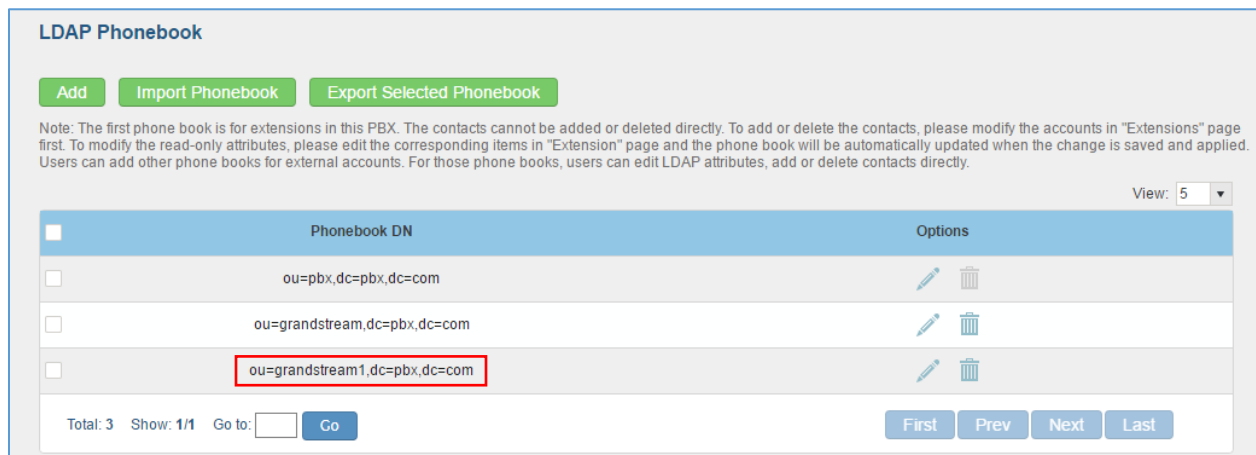
	A	B	C	D	E	F	G	H	I	J
1	First Name	Last Name	Account N	CallerID N; Email		Department	Mobile Number	Home Number	Fax	Phonebook DN
2	William	Samuel	1500	1500		Sales	545151	5151		grandstream1
3	Jackson	samuel	1501	1501		Sales	5165165	514512		grandstream1
4	Lucy	Martineze	1505	1505		Sales	315163	16116		grandstream1
5	Zack	kh	2001	2001		Documentation	1454616	1469262	62030630	grandstream1
6	John	Wick	2002	2002		Documenation	74523036	32303036	62303363	grandstream1
7	Adele	Mars	2600	2600		Sales	516543	162036		grandstream1
8	Mark	Appolo	3005	3005		Support	412223016161	121615496115	6155616	grandstream1
9	Sofia	Said	3006	3006		Support	64515185	51615415	514854842	grandstream1
10	Ben	Zoik	3007	3007		Documentation	1589136216	626266541	63216303	grandstream1

Figure 7: Example Phonebook

**Note:**

- The Phonebook DN field is the same “Phonebook Prefix” entry as when the user clicks on “Add” to create a new phonebook. Therefore, for example if the user enters “grandstream1” in “Phonebook DN” field in the CSV file, the actual phonebook DN “**ou=grandstream1,dc=pbx,dc=com**” will be automatically created by the UCM6xxx once the CSV file is imported.
- In the CSV file, users can specify different phonebook DN fields for different contacts. If the phonebook DN already exists on the UCM6xxx LDAP Phonebook, the contacts in the CSV file will be added into the existing phonebook. If the phonebook DN doesn’t exist on the UCM6xxx LDAP Phonebook, new phonebooks with this phonebook DN will be created.
- As the default LDAP phonebook with phonebook DN “ou=pbx,dc=pbx,dc=com” cannot be edited or deleted in LDAP phonebook section, users cannot import contacts with phonebook DN field “pbx” if existed in the CSV file.

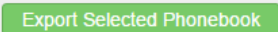
The following figure illustrate the new phonebook created after importing the sample example of figure 7:



The screenshot shows the 'LDAP Phonebook' management interface. At the top, there are buttons for 'Add', 'Import Phonebook', and 'Export Selected Phonebook'. A note explains that the first phonebook is for extensions and cannot be edited directly. Below the note, there is a table with columns for 'Phonebook DN' and 'Options'. Three phonebooks are listed: 'ou=pbx,dc=pbx,dc=com', 'ou=grandstream,dc=pbx,dc=com', and 'ou=grandstream1,dc=pbx,dc=com'. The third entry is highlighted with a red box. At the bottom, there are navigation buttons like 'First', 'Prev', 'Next', and 'Last', along with a 'Go' button and a 'Total: 3' indicator.

Figure 8: LDAP Phonebook Imported

## Export Phonebook from LDAP Server

To export phonebook, select the checkbox for the LDAP phonebook and then click on **Export Selected Phonebook** button  to export the selected phonebook to desired directory.

The exported phonebook can be used as a record or a sample CSV file for the users to add more contacts in it and import to the UCM6xxx again.









### LDAP Phonebook

[Add](#) [Import Phonebook](#) [Export Selected Phonebook](#)

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. To modify the read-only attributes, 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 external accounts. For those phone books, users can edit LDAP attributes, add or delete contacts directly.

View: 5

<input type="checkbox"/>	Phonebook DN	Options
<input type="checkbox"/>	ou=pbx,dc=pbx,dc=com	 
<input type="checkbox"/>	ou=grandstream,dc=pbx,dc=com	 
<input checked="" type="checkbox"/>	ou=grandstream1,dc=pbx,dc=com	 

Total: 3 Show: 1/1 Go to:  [Go](#) [First](#) [Prev](#) [Next](#) [Last](#)

Figure 9: Phonebook Export

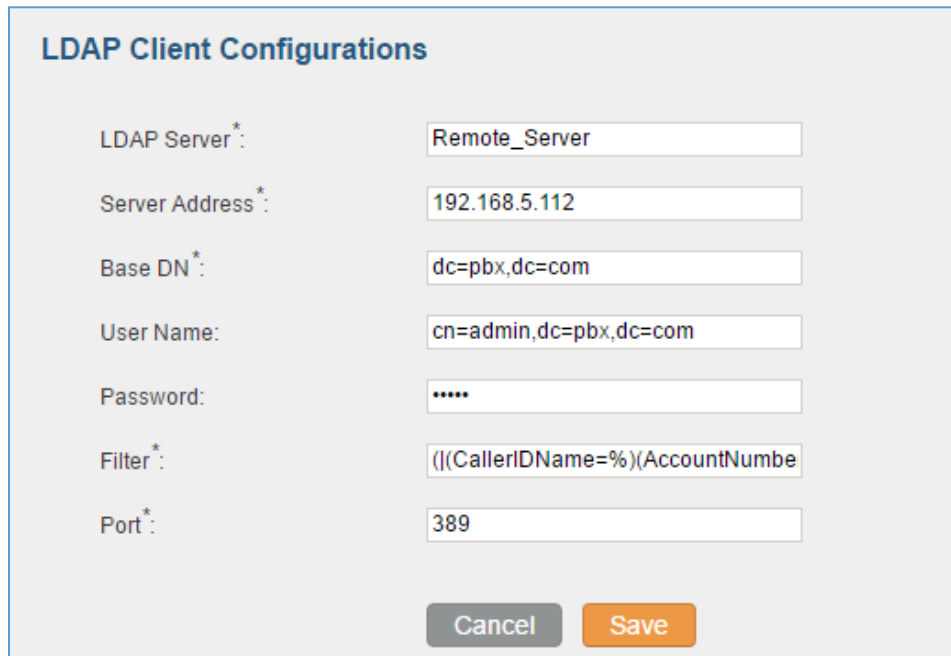


## LDAP CLIENT CONFIGURATION EXAMPLE

The UCM6xxx can also act as a LDAP client to download phonebook entries from other LDAP servers.

LDAP Client Configurations settings are available under **Web GUI > Settings > LDAP Server > LDAP Client Configurations**.

The following figure gives a sample configuration for UCM6xxx acting as a LDAP client.



**LDAP Client Configurations**

LDAP Server\*: Remote\_Server

Server Address\*: 192.168.5.112

Base DN\*: dc=pbx,dc=com

User Name: cn=admin,dc=pbx,dc=com

Password: \*\*\*\*

Filter\*: ((CallerIDName=\*)(AccountNumber=\*))

Port\*: 389

Cancel Save

Figure 10: LDAP Client Configuration

Assuming the server base dn is "**dc=pbx,dc=com**", configure the LDAP clients as following:

- **LDAP Server:** LDAP Server Name
- **Server Address:** LDAP server IP address
- **Base DN:** dc=pbx,dc=com
- **User Name:** cn= "LDAP server login name", dc=pbx, dc=com [matching LDAP server format]
- **Password:** "LDAP server login password"
- **Filter:** ((CallerIDName=\*)(AccountNumber=\*))
- **Port:** 389

