Grandstream Networks, Inc.

GRP26XX Carrier-Grade IP Phones

LDAP Configuration Guide

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INTRODUCTION

LDAP (Lightweight Directory Access Protocol) is a client/server protocol used to access and manage directory information over Internet Protocol, the core LDAP specifications are defined in RFC4511.

Just as a Database Management System is used to process queries and updates to a database, an LDAP server behave the same way. In other words, an LDAP information directory is a type of database, unlike databases that are designed for processing hundreds or thousands of changes per minute, LDAP directories are heavily optimized for read performance.

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.

In LDAP directory, entries are arranged in a hierarchical tree-like structure. Traditionally, this structure reflects geographic and/or organizational boundaries. Entries representing countries appear at the top of the tree, followed by entries representing states and national organizations, then entries representing organizational units, people, printers, documents…

Figure below shows an example of LDAP directory tree.

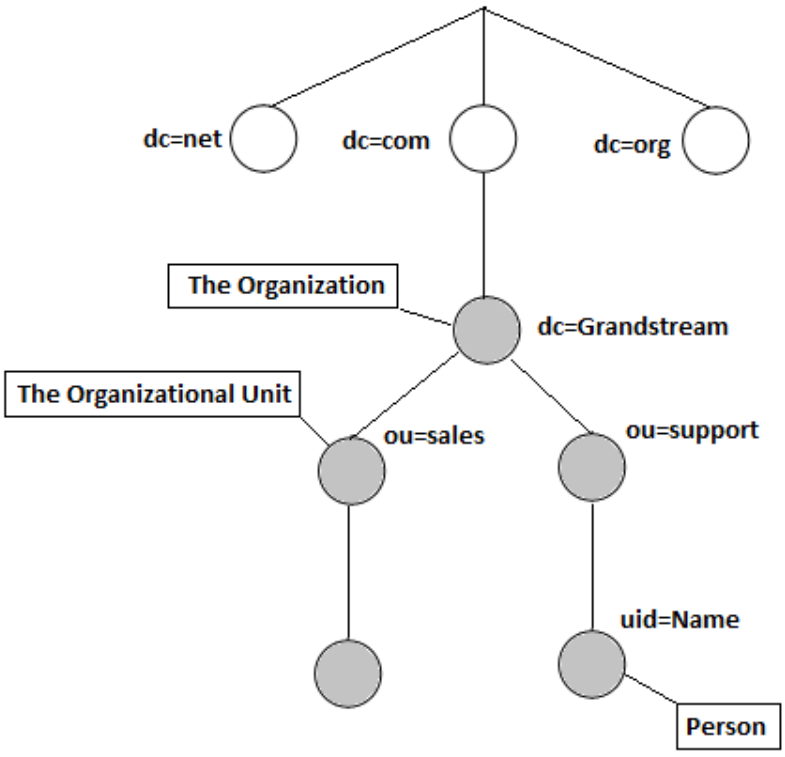

Figure 1: LDAP Tree

INSTALLING AND CONFIGURING LDAP SERVER

In this tutorial, we will use “ApacheDirectoryStudio” which is a free LDAP server.

Installing ApacheDS LDAP Server

Prerequisites

JDK needs to be installed on PC to run ApacheDS, it can be downloaded from the link: Download JDK

Download and Install ApacheDS

The ApacheDS server software can be downloaded for free from below link:
http://directory.apache.org/studio/download/download-windows.html

1. Download the Software from above link.
2. Follow the default steps for installation.
3. Launch the application.

Below is the user interface :

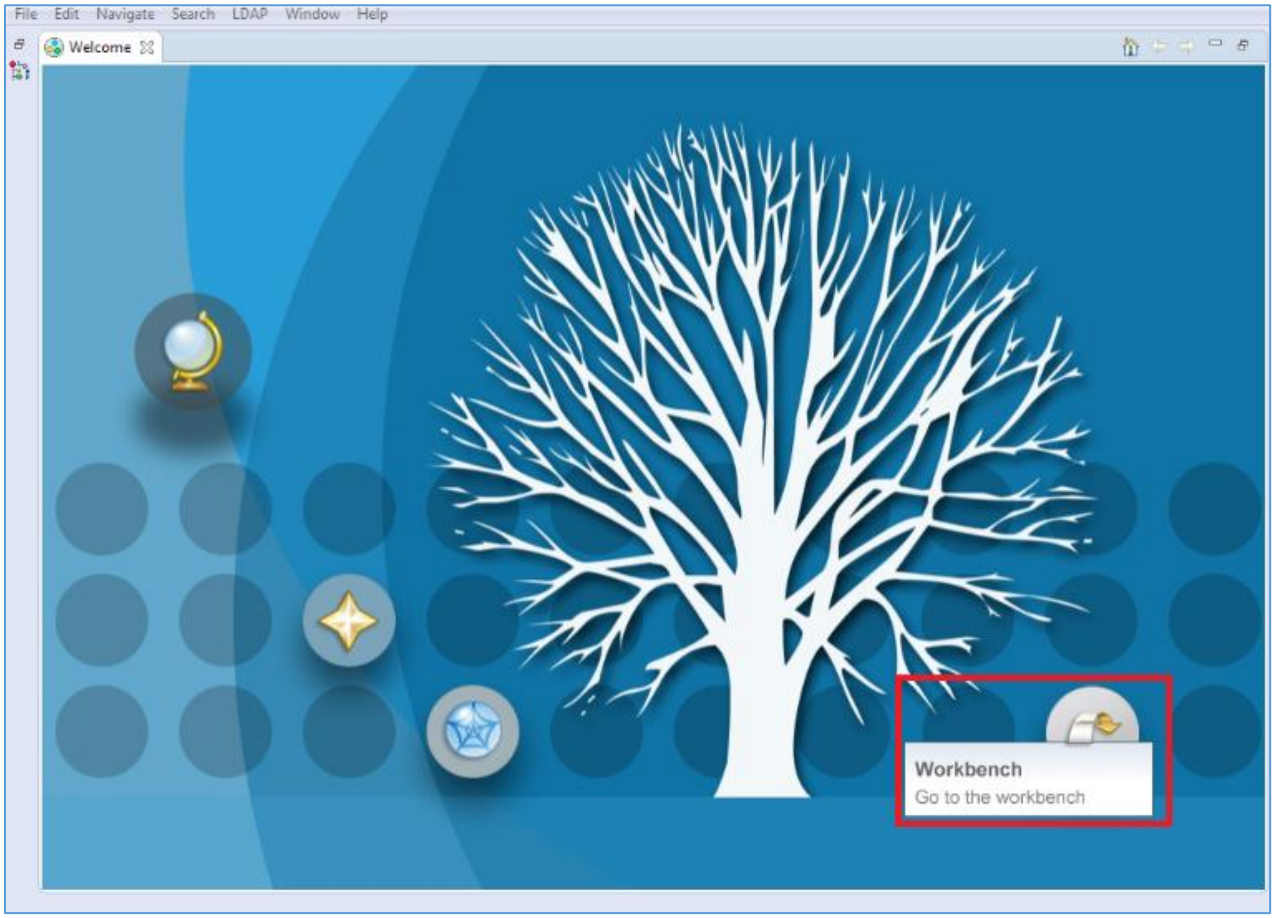

Figure 2: ApacheDS First Start

Configuring ApacheDS

Create New LDAP Connection

1. In **Workbench,** go to the **LDAP Servers** tab and click on **New Server** (If no server is created) then select a Server from the list and click **Finish**.

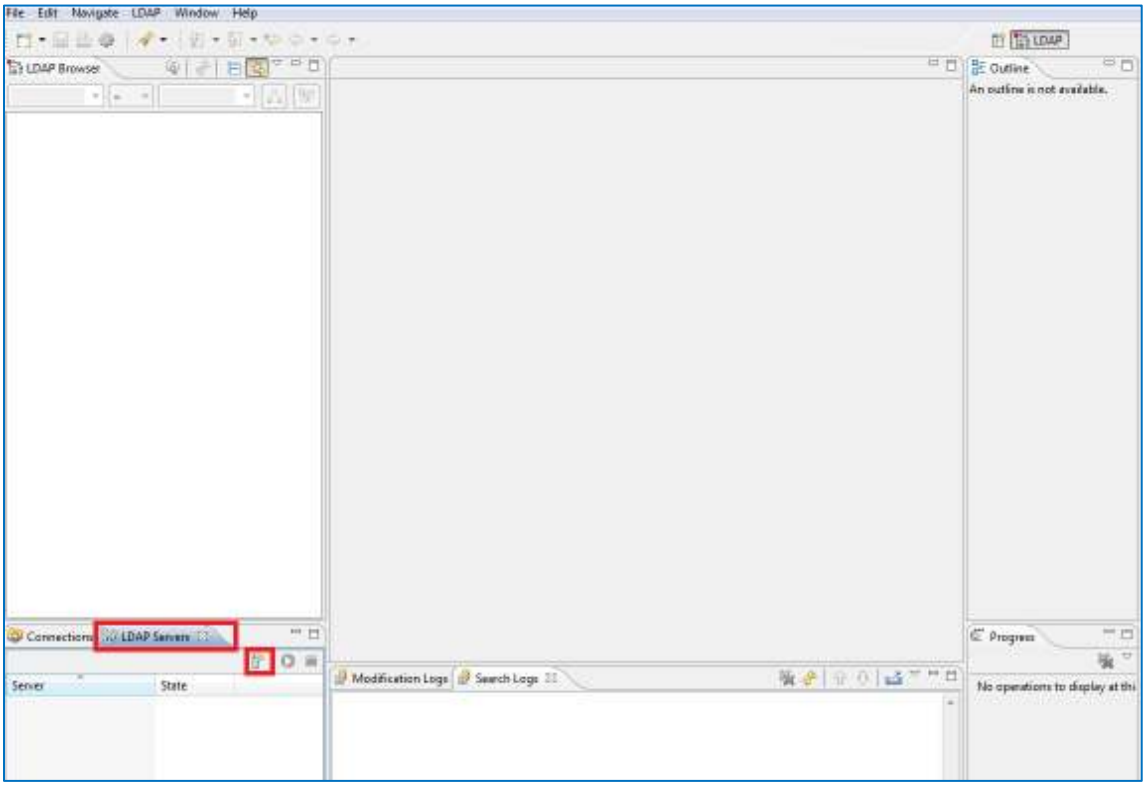

Figure 3: LDAP Servers Tab

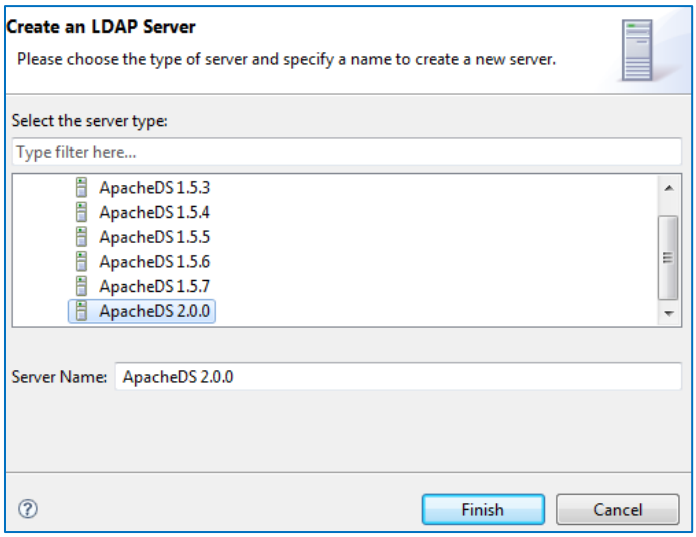

Figure 4: Create LDAP Server

2. Once the Server is created, click on Start Button (bottom left) to launch it.

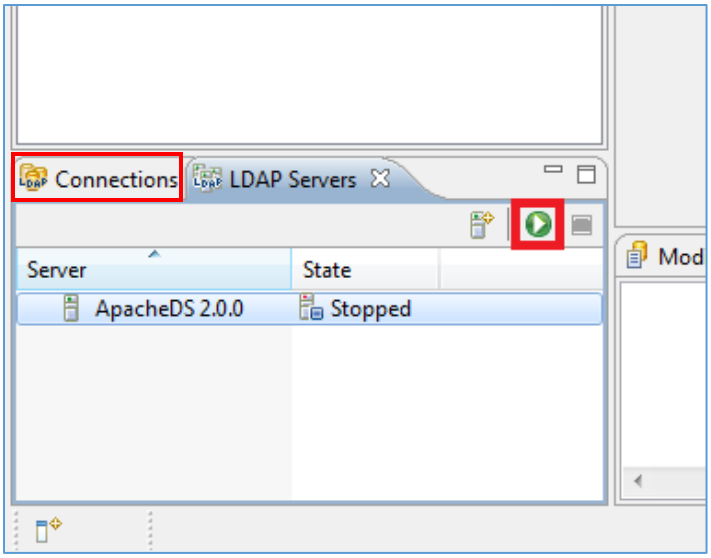

Figure 5: Start The LDAP Server

3. In **Workbench**, go to **Connections** tab and press "**Create New Connection**" to bring up the "**Network Parameter**" window.

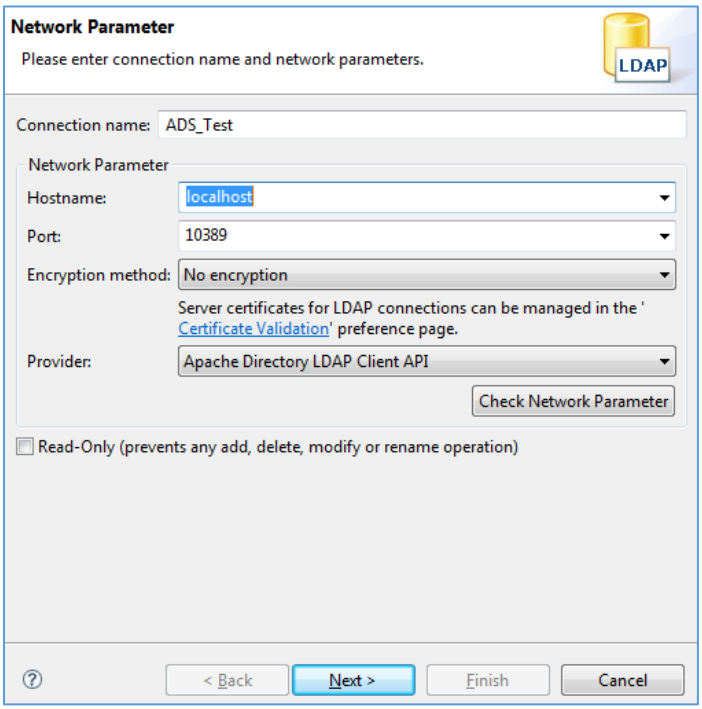

Figure 6: New LDAP Connection - Network Parameters

a) Enter **Hostname** value with **IP address** or **FQDN** of the machine where ApacheDS is installed.

b) The default connection **port** for LDAP on ApacheDS is **10389**.

c) Set **Encryption method** to **"No encryption"**.

d) Keep **Provider** field with default value “Apache Directory LDAP Client API”.

Note: If LDAPS is requested for secure connection, set **Port** to “*10636*” (default LDAPS port on ApacheDS) and **Encryption method** to “*Use SSL encryption(ldaps://)*”.

4. After filling the fields, click Next, to bring up the “Authentication” window as shown below:

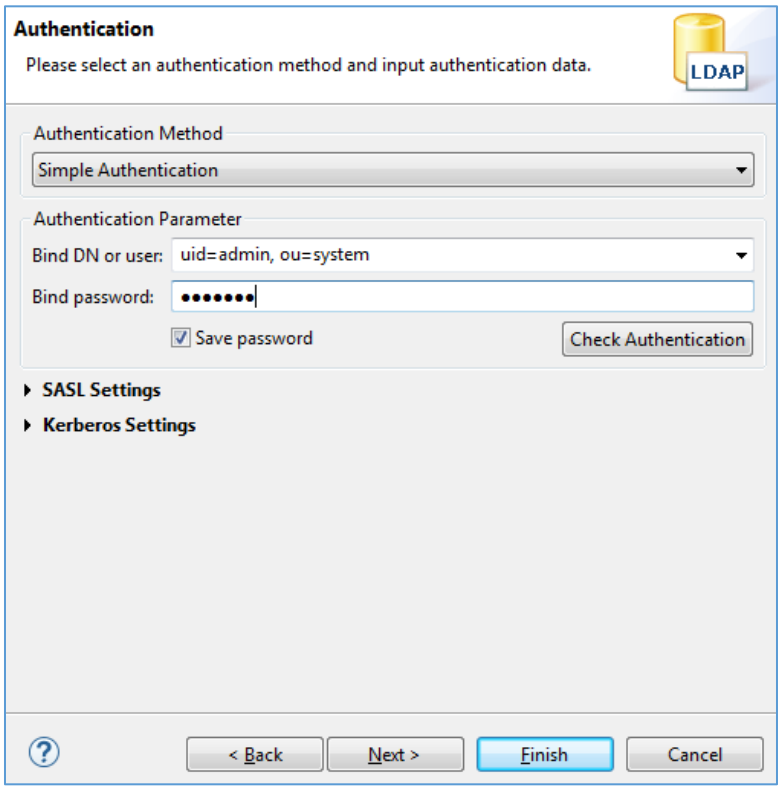

Figure 7: New LDAP Connection - Authentication

a) Choose the **Authentication Method** desired. In this example, “*Simple Authentication*”.
b) Enter the **Bind DN or user**. By default, “*uid=admin, ou=system*”.
c) Set **Bind password.** Default password is “*secret*”

5. Click **Finish** after completing the connection information page.

Add New Entry

At this level our connection with the LDAP server is created successfully, we can now add users to “dc=example,dc=com” which by default has no entries. Administrator can create another domain instead of using *dc=example,dc=com*.

1. Under **dc=example,dc=com**, right click and select **New → New Entry**

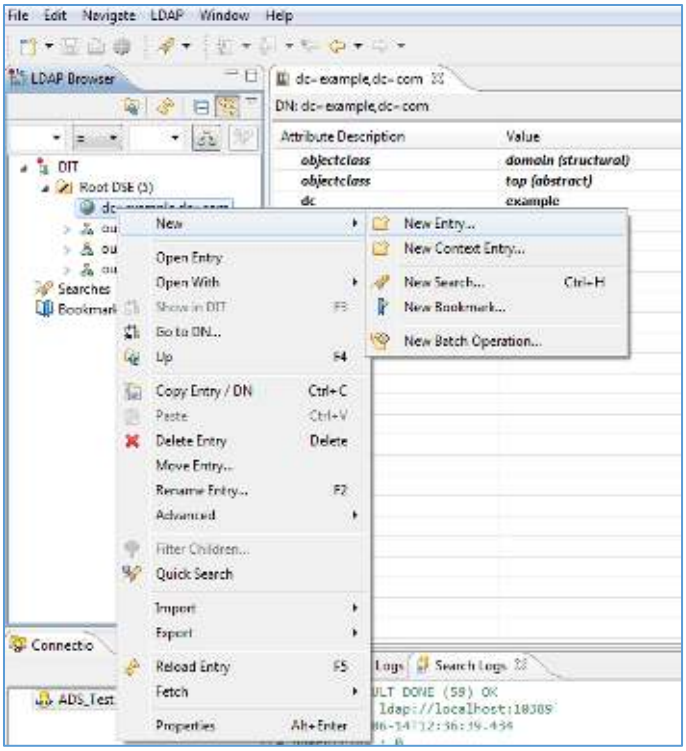

Figure 8: Create New Entry

2. Select "**Create entry from scratch"** and click Next.
3. Select **inetOrgPerson** from available object classes, then press **Add** followed by **Next** button.

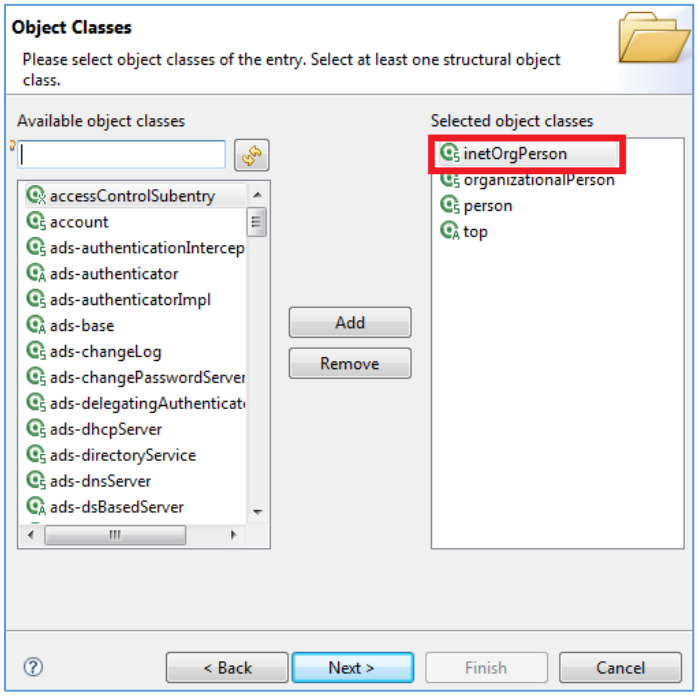

Figure 9: New Entry - Object Classes

4. In the Distinguished Name window, enter a name for UserID. In this example, *Grandstream2* is

used. Keep **Parent** and **RDN** (Relative DN) with default values; in this example, *dc=example,dc=com* and *uid* respectively, then click **Next** button. (Refer to next figure).

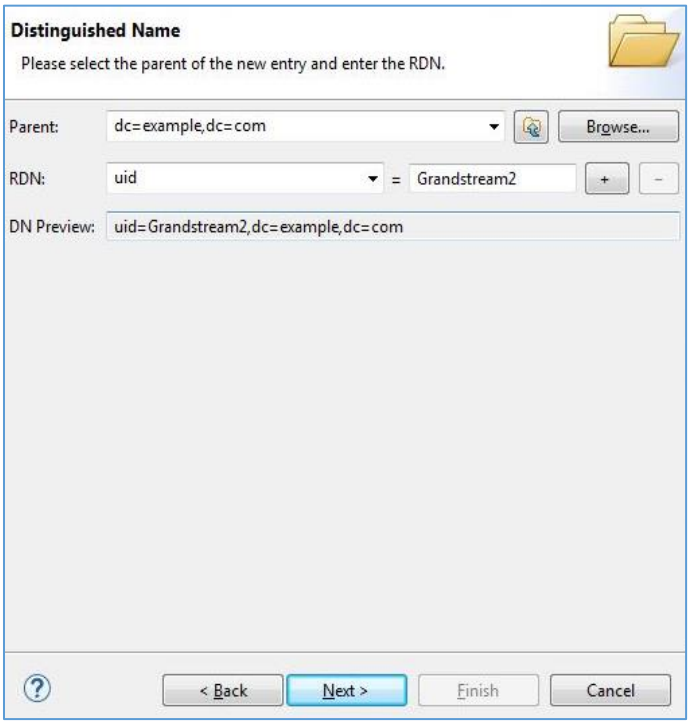

Figure 10: New Entry - Distinguished Name

5. In Attributes window, create contacts and enter their details: First Name (cn) and Last Name (sn).

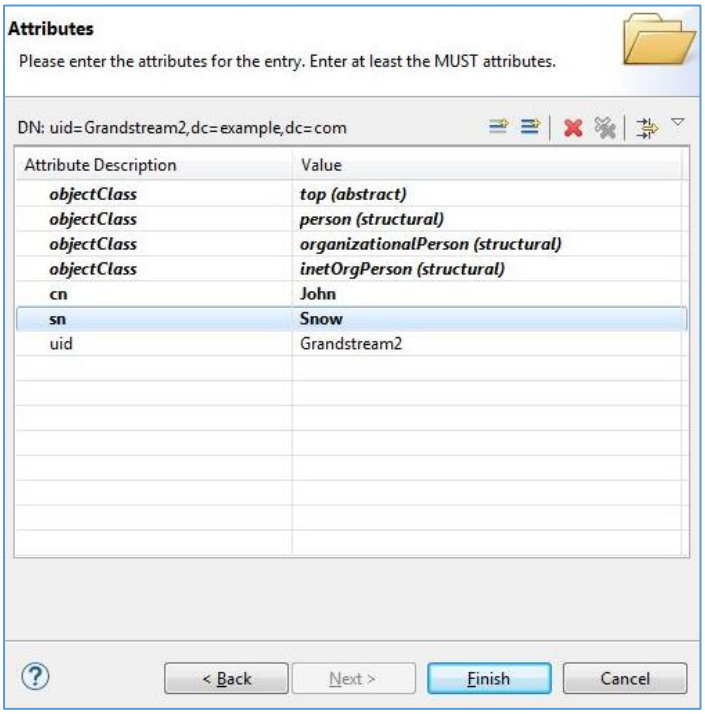

Figure 11: New Entry Attributes

Table 1: Common attributes

Attribute	Description
cn	Full name of the entry
sn	First Name
gn	Last Name or family name
telephoneNumber	Office phone number
homePhone	Home phone number
mobile	Mobile phone number
Company	Company name
o	Organization name
ou	Organization Unit. Usual department or any sub entity of larger entity

6. To add new fields for contacts such as Mobile, Email… Press *Add New Field* button as shown in previous figure and specify the new **Attribute type**. Press **Next** to add another attribute or **Finish** if no more attribute will be added.

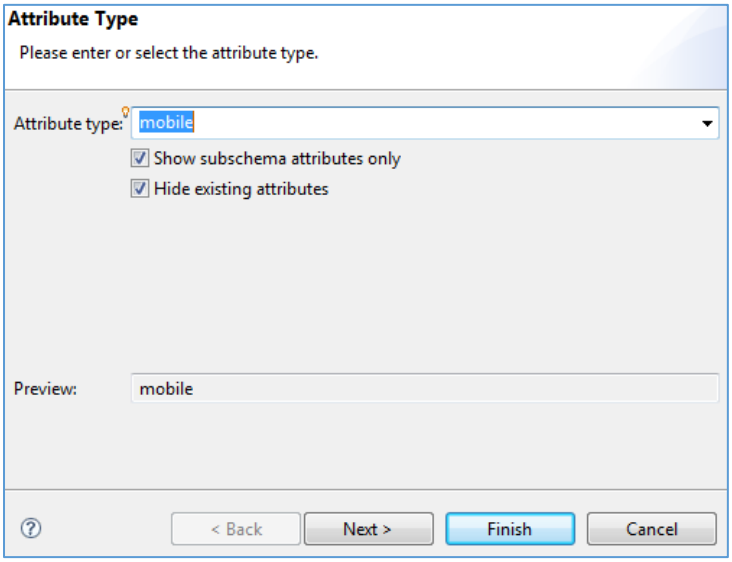

Figure 12: New Attribute - Attribute Type

A summary of contact details will be displayed showing all contact details as illustrated in below figure.

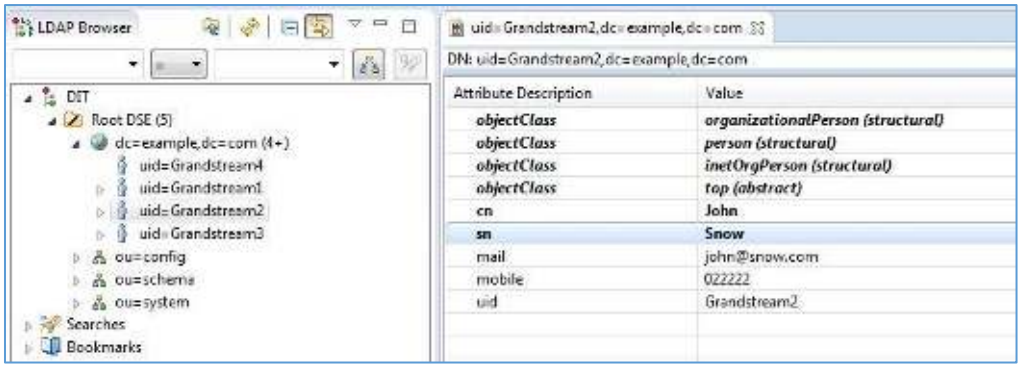

Figure 13: Contact List

LDAP CLIENT CONFIGURATION

This section shows client configuration associated with previously configured LDAP server.

GRP26XX Series

LDAP client configuration can be found on the Web GUI under **Directory → LDAP.** Configure LDAP client settings as show in below figure:

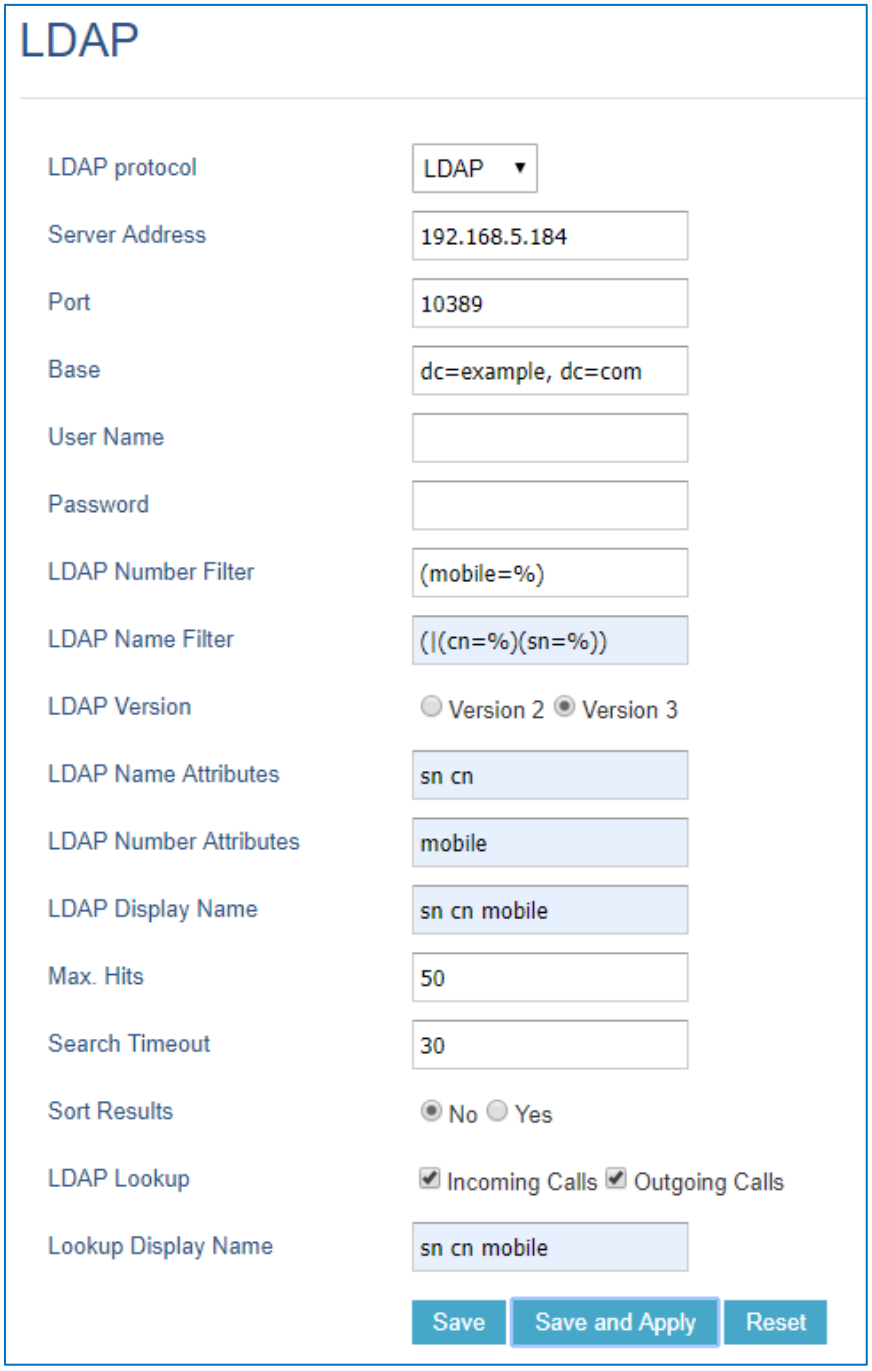

Figure 14: LDAP Settings on GRP26XX Series

LDAP Client Parameters

Following table shows LDAP Client parameters on Grandstream products:

Table 2: LDAP Client parameters

Fields	Description
LDAP Protocol	Option to choose secured or non-secured LDAP connection. LDAPS (LDAP Secured) uses SSL/TLS to encrypt LDAP traffic. *In this guide:* • **LDAP**
Server Address	IP address or FQDN of the LDAP server. *In this guide:* • **192.168.5.184**
Port	Listening port for LDAP connections on the server side. *In this guide:* • **10389**
Base DN	Location in the directory where the search is requested to begin. It narrows the search scope and decreases directory lookup time. *In this guide:* • **dc=example, dc=com**
User Name	"Username" to bind for querying LDAP servers. Most LDAP servers allow anonymous binds, in this case, this field can be left blank. *In this guide:* • **Blank** (no value to enter)
Password	"Password" to bind for querying LDAP servers. Most LDAP servers allow anonymous binds, in this case, this field can be left blank. *In this guide:* • **Blank** (no value to enter)
LDAP Name Attributes	Name attributes of each record to be returned in the LDAP search result. This field allows users to configure multiple space separated name attributes. *In this guide:* • **cn sn**
LDAP Version	Selects LDAP protocol version to send bind requests. Default is Version **3**.
LDAP Name Filter	Search filter for name lookup. Its format is compliant with RFC4514. *In this guide:* • **(|(cn=%)(sn=%))**
LDAP Number Filter	Search filter for number lookup. Its format is compliant with RFC4514. *In this guide:* • **(mobile=%)**

LDAP Display Name	Entry information to be shown on phone's LCD. Up to 3 fields can be displayed. *In this guide:* • **sn cn mobile**
Max. Hits	Maximum number of results to be returned by the LDAP server. If set to 0, server will return all search results. The default setting is **50**.
Search Timeout	Interval (in seconds) for the server to process the request and return search results to the client. The default setting is **30** seconds.
LDAP Lookup	Contact LDAP server to look up number when dialing and receiving calls. The default setting is Blank (no selection)
Lookup Display Name	Entry information when LDAP looks up the name for incoming call or outgoing call. This field must be a subset of the LDAP Name Attributes. *In this guide:* • **cn sn**

LDAP OPERATIONS

After configuring the LDAP server and the device(s), users can search LDAP contacts, dial using LDAP contacts and display matching name of caller/callee while receiving/making calls.

Following LDAP operations screenshots are using GRP26xx series, same operations are available in all models.

LDAP Search

Access LDAP contacts from **Phone LCD Menu → Contacts → LDAP Directory**. Or for GRP2614 press the "**Phonebook**" Button , and type the name or number you're searching for as shown below:

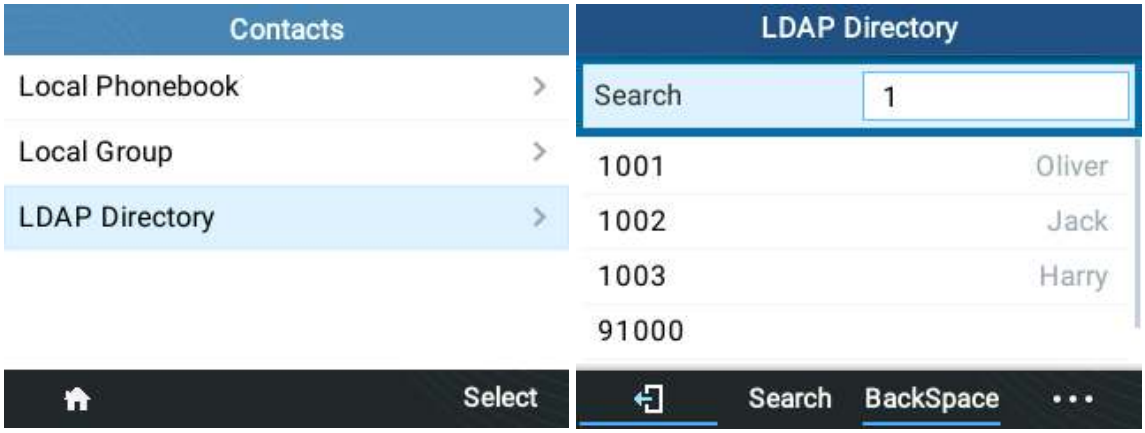

Figure 15: LDAP Search

Match Incoming Call

When receiving a call from a number that exist on our LDAP server the phone will automatically display the number and name of the callee on the LCD screen like bellow.

Note: The option "**LDAP Lookup"** needs to be enabled for **"Incoming Call**" under the **Web GUI → Directory → LDAP.**

Figure 16: LDAP Matching Contacts

Making Calls using LDAP Contacts

Users can dial out the LDAP search result contacts by simply selecting the desired number then pressing "**Dial**" Softkey.

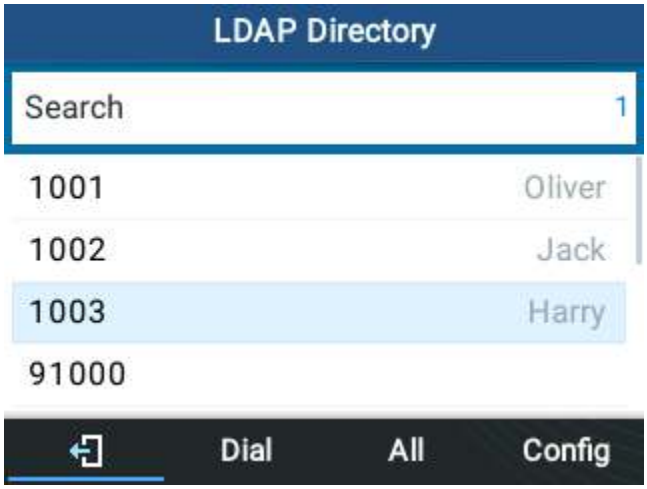

Figure 17: LDAP Calls