Technical Bulletin 41137

Best Practices When Using Corporate Directory on SoundPoint® IP, SoundStation® IP, and Polycom VVX™ Phones

This technical bulletin provides recommended configuration settings for the SIP application when using the corporate directory feature on SoundPoint IP, SoundStation IP, and Polycom VVX 1500 phones.

This information applies to SoundPoint IP, SoundStation IP, and Polycom VVX 1500 phones running SIP application version 3.1.3 or later. This technical bulletin has been significantly enhanced and updated to reflect the capabilities and user interface implemented using SIP application version 3.1.3 .

> ***Note**: Polycom recommends that you use Acrobat Reader 8 or 9 to view this technical bulletin and the attachments. Click on the paperclip icon on the left-hand side to view attachments.*

INTRODUCTION

As of SIP 3.0, the SoundPoint IP and SoundStation IP phones can be configured to interface with a corporate directory server that supports the Lightweight Directory Access Protocol (LDAP) version 3. As of SIP 3.1.2RevB, the Polycom VVX 1500 phone can be configured to interface with a corporate directory server that supports the Lightweight Directory Access Protocol (LDAP) version 3.

> ***Note**: The corporate directory feature requires a license key for activation. Using this feature may require purchase of a license key or activation by Polycom channels. For more information, contact your Certified Polycom Reseller. The Polycom VVX 1500 does not require a license key.*

Both corporate directories that support server-side sorting and those that do not are supported. Polycom recommends using corporate directories that have server-side sorting as these generally yield better performance than requiring the phone to sort the directory records..

The entry attributes in the corporate directory are mapped through the **sip.cfg** configuration file attributes, so the SIP application knows how to use them for searching, dialing, or saving to the local contact directory. Multiple attributes of the same type are allowed. The following LDAP attribute types are supported: *first_name*, *last_name*, *phone_number*, *SIP_address*, *URL*, and *other*.

The configuration order dictates how the attributes are displayed and sorted. The first attribute is the primary sort index and the second attribute is the secondary sort index. The other attributes are ignored when sorting.

This technical bulletin contains information on:

For more information, refer to the latest *SIP Administrator's Guide* at

http://www.polycom.com/global/documents/support/setup_maintenance/products/voice/spip_ssip_Admin_Guide_SIP_3_1.pdf.

CORPORATE DIRECTORY FEATURE OPERATION

Changes in SIP 3.1.3

The Corporate Directory feature has changed considerably in SIP 3.1.3 . Changes have been made to the user interface and the **sip.cfg** configuration file and the details are shown in the following sections.

Quick Search Mode

Figure 1 shows an example quick search result on the SoundPoint IP 550, 560, 650, and 670.

Figure 1

Figure 2 shows an example quick search result on the SoundPoint IP 320/330.

Figure 2

The Quick Search mode works as follows:

1. A ‘Search’ entry field is presented to the user when they enter the Corporate Directory. When using software releases prior to SIP 3.1.3, the user could enter text to search, but there was no visual cue that this was possible.
2. The method for submitting a search request is configurable. The `dir.corp.autoSubmitTimeout` parameter defines how many seconds the phone will wait before automatically implementing a search based on the entered search string. A setting of 0 will not apply auto submit behavior. The user can force a search by pressing the **Submit** soft key.
3. The phones allow more than one character to be entered in the Quick Search mode. In software releases prior to SIP 3.1.3, the SoundPoint IP 320/330 restricted user input to a single character in the Quick Search mode.
4. The directory fields other than the primary attribute may be configured for ‘searching’. If more than one attribute is selected as searchable (for example, first name and last name), the phone will perform string matching on all attributes and display complete results to the user. These results are displayed alphabetically according to the primary search attribute. (The primary attribute is always searchable.) An attribute is configured as searchable by setting `dir.corp.attribute.n.searchable to 1`.
5. On all phones except the SoundPoint IP 301 and IP 320/330, the search matches will be highlighted on the display.

Advanced Find Mode

Figure 3 shows an example advanced find query on the SoundPoint IP 550, 560, 650, and 670.

Figure 3

Figure 4 shows an example advanced find query on the SoundPoint IP 320/330.

Figure 4

This mode allows a user to apply more complex search criteria than the Quick Search mode. This mode is invoked by selecting the **AdvFind** soft key from the Quick Search screen. On the SoundPoint IP320/330, it is necessary to press the **Select** soft key to cause the soft keys to display, and then press the **AdvFind** soft key.

In this mode of operation, the user may enter search criteria for all the configured attributes. These are then applied in combination to directory searches. This mode of operation is useful when the user wants to search on an attribute other than the primary attribute (for example, First Name) or where multiple search attributes are desired (for example, if the database contains many entries with a common last name, the first initial may be entered to narrow down the results).

The Advanced Find mode works as follows:

1. Display and entry/modification of search criteria is improved on the SoundPoint IP 320/330 products.

   ***Note**: It takes many key strokes to enter advanced find criteria on a SoundPoint IP 320/330 phone. It is likely that users with these phones will only use the Quick Search mode.*

2. Attributes configured as 'Sticky; will be applied as a 'Filter' to all subsequent Quick Search operations.
3. The entries in the Advanced Find screen will persist across directory queries (to facilitate narrowing down a search easily). A **Clear** soft key is presented to the user to allow a user to easily clear data entered against any/all non-sticky attributes.

Local Sorting

The sort control parameter, `dir.corp.sortControl,` controls whether the phone should ‘trust’ the sorted results obtained from the server. If the parameter is set**,** the application on the phone sorts the entries from the server. The sort control parameter should be set if either the server does not provide sorted data or the server sorted list is not correct—as has been experienced with the Microsoft ADAM LDAP server. It is strongly recommended that a sorting server (that works correctly) is used as the following limitations apply to when `dir.sortControl=1`.

1. The phone will only sort characters ASCII characters (UTF character code <128). Therefore, the primary attribute field must be restricted (for example, do not use characters such as è or ë).
2. The LDAP signaling required for this sorting is on average three times what is needed if the server itself does the sorting.
3. In the Quick Search mode, the phone will only display entries that match the search criteria. It is not possible to scroll up or down to previous or subsequent entries in the alphabet, and the phone will display “No entries found” if there are no matches. By contrast, a Quick Search carried out when a ‘Sorting Server’ is being used will position the display to the ‘closest match’ in the database and allow scrolling of the full database arranged alphabetically (as presented by the server).
4. Multiple field Quick Search is not supported.

Sticky Attributes (Applicable to Quick Search and Advanced Find Modes)

Each attribute defined in the corporate directory configuration may be configured as ‘Sticky’ (using `dir.corp.attribute.n.sticky`). A sticky attribute will have any text entered in the Advanced Find search applied to all Quick Search operations. This can be considered as a ‘Filter’ for directory searches.

This feature is particularly useful where a field may be used to narrow down the directory search results based on site specific information (for example, area code for dialing or department name).

The initial entry for such attributes may be ‘pre-populated’ based on administrator configuration using the `dir.corp.attribute.n.filter` parameters.

VLV Index Configuration

You can enable VLV support by setting `dir.corp.allowVLV=1`. However, you must ensure you have a VLV index created on your server prior to enabling VLV support or you will experience delays when searching for entries. Please review your directory server’s documentation on how to setup a VLV index. Note that only the first attribute is searchable.

Attribute Searchable

Setting `dir.corp.attribute.x.searchable` will allow you to make any attribute other than the primary attribute searchable. Attribute 1 is automatically the primary attribute and searchable by default. For example in Figure 5, if sn (surname) is your primary attribute and givenName (first name) is your second attribute, you can search on “jon” and the phone will search for objects with sn or givenName starting with “jon” and sort by the primary field (sn in our example). This feature is not supported when VLV is enabled.

Figure 5

SUPPORTED V3 LDAP SERVERS

The following LDAP Servers have been tested with Polycom's Corporate Directory feature:

- Microsoft Active Directory 2003
- SUN ONE Directory Server 5.2 p6
- OPEN LDAP 2.4.12
- Microsoft ADAM (Active Directory Application Mode) 1.0 SP1

RECOMMENDED PRACTICES WHEN USING CORPORATE DIRECTORY

When the corporate directory features is enabled, the following practices are recommended:

1. You may experience high server CPU utilization on your LDAP server if you sustain 20+ LDAP queries per second. For large deployments, we recommend to load balance phone LDAP queries over multiple LDAP servers.
2. Anonymous bindings are not supported. The phone must be configured with an active userId/password in order to bind.
3. Ensure that the `dir.corp.scope` attribute is set to **sub**. This allows for a recursive LDAP directory search.
4. Referrals are not supported.
5. When users save entries from the corporate directory into their local contact directory, the first phone_number field in the LDAP configuration will be the saved one. It is important that this field is populated. If this field is blank, the save request will fail.

CONFIGURING THE CORPORATE DIRECTORY

Example LDAP Structure

Figure 6 shows an example of a simple directory structure that we will use for our setup. Every object in a directory has a distinguished named (dn). The distinguished name is important as it provides the exact location for an object within a directory. When you go deeper into a directory, you'll notice that an object inherits part of its dn of its parent object. In our example setup, we will be creating a phone user account that is used for the phone to browse the directory. We will also specify the baseDN, which is a pointer to which part of the directory in which searching

should start from. Pointing the baseDN to the root (in our example: dc=Polycomqa, dc=local) and setting directory scope to **sub** so it searches through sub directories is fine for small directories. However, for larger directories, you want to minimize the scope in which searches have to browse in order increase search performance so point the baseDN to the part of the directory in which its searches are relevant.

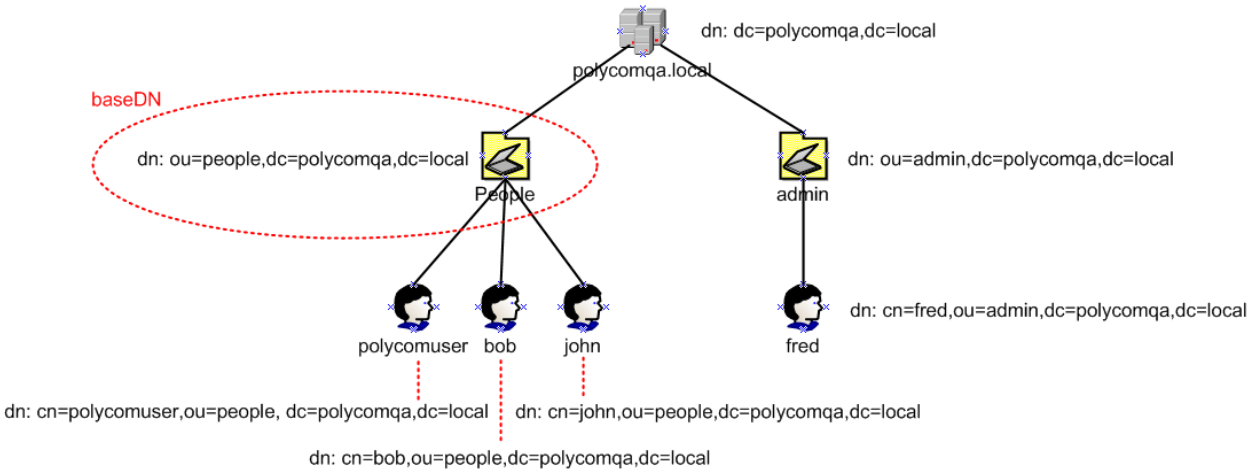


Figure 6

Microsoft Active Directory

By default, the Microsoft Active Directory supports the LDAP server service. Use the Active Directory Users and Computers utility to populate your directory.

SERVER CONFIGURATION

Step 1: Create a user account for the phone to use

Using Active Directory Users and Computers, you can create an account for the phone to use to access the corporate directory. In the following example, we create a user account ldapuser that will be used to log the phone into the active directory called polycomqa.local .

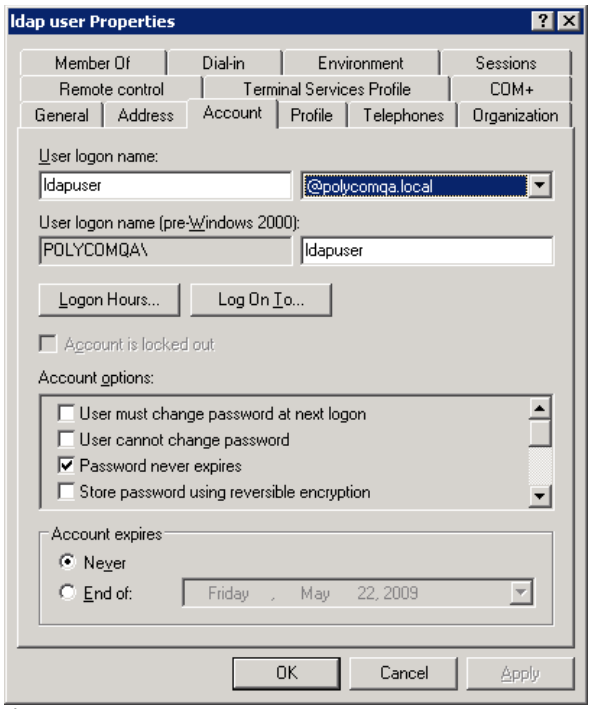


Figure 7

The polycom **dir.corp.user** supports two user login formats. You can use the user logon name as shown on Figure 7 (ldapuser@polycomqa.local) or you can use the full ldap distinguished name as shown in Figure 8.

Display Name: ldapuser
Active Directory Folder: polycomqa.local/Users

The LDAP distinguished name would be:
cn=ldap user, ou=users, dc=polycomqa, dc=local

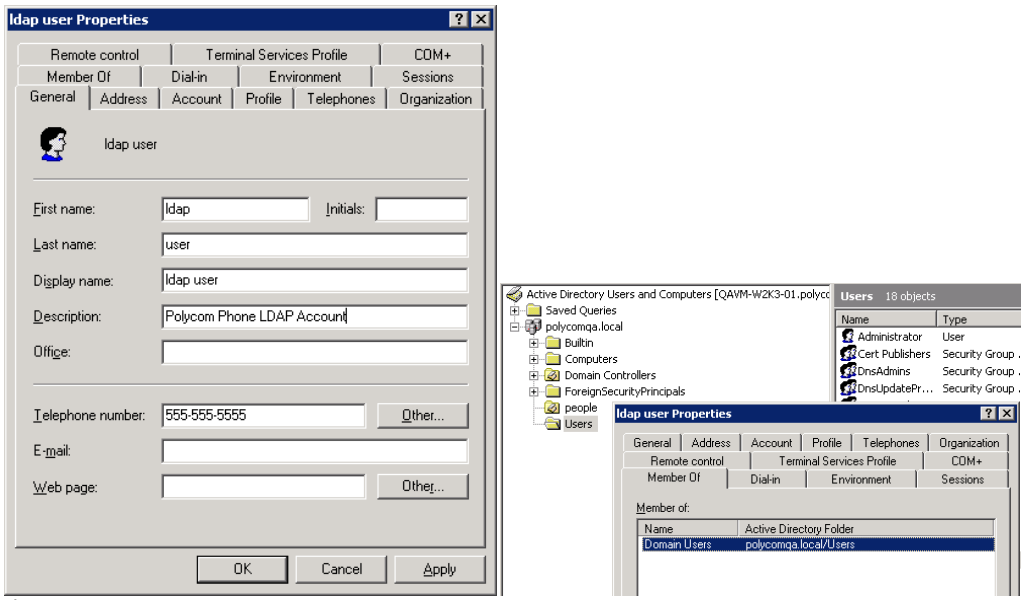


Figure 8

Step 2: Note the IP or Hostname and TCP port of your Microsoft Active Directory.

By default, Microsoft Active Directory uses TCP port 389 for LDAP communication. Refer to your Microsoft documentation if you want to change the default port.

Step 3: Determine the base search you want to use for your searches.

In the example in Figure 9 below, we will search from the root of the directory polycomqa.local. In the example in Figure 8, the baseDN would be DC=polycomqa, DC=local

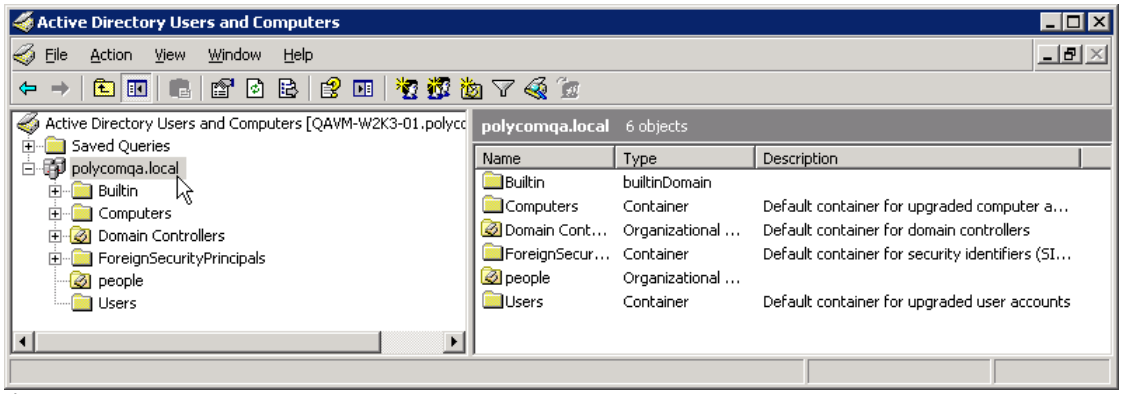


Figure 9

Step 4: Determine the filter prefix you would like to use.

By default, (objectclass=*) will show all objects in the search base.

Examples of other type of filters:

- (sn=*) Only display records with a surname attribute
- (objectclass=person) Only display records that has an object class person which exclude network devices/computers.

Using the field “objectcategory” in the filter prefix (`dir.corp.filterPrefix`) can be more efficient for the server than using “objectclass” (the default value), since the former is indexed on the Active Directory server by default, whereas the latter is not indexed by default.

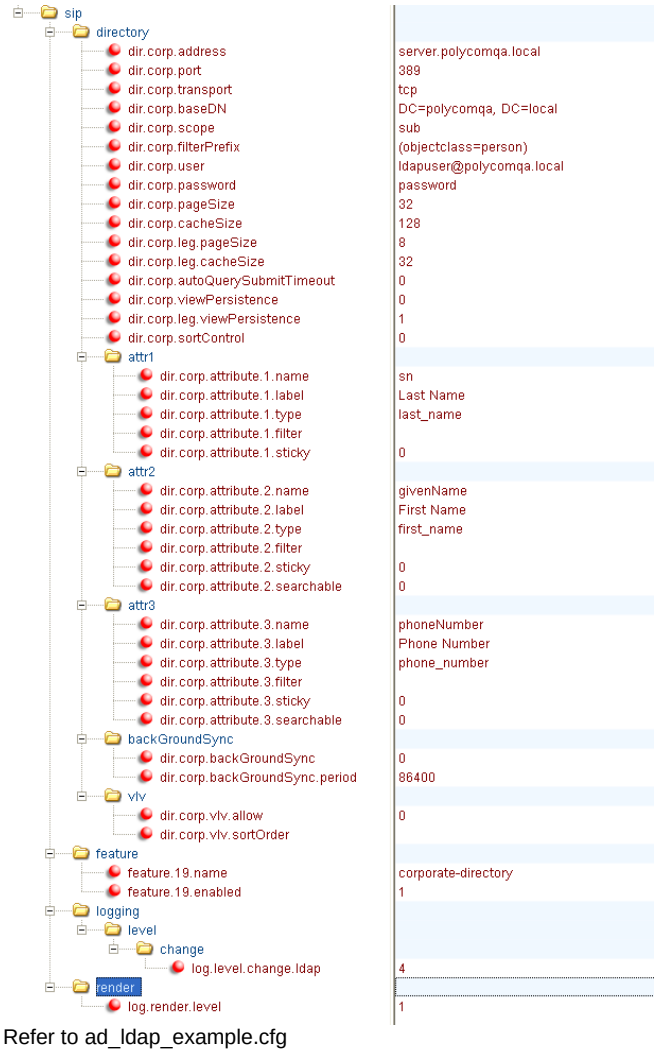
Step 5: Determine if you will require recursive searching

The default is to perform a recursive search in the baseDN: `dir.corp.scope=`**sub**. Since we are pointing to the root folder, we would like the phone to look at sub folders within the root of the active directory. To do a flat search, set `dir.corp.scope=`**one**.

Step 6: Determine which attributes you would

sn, givenName and telephonenumber are common attributes to set up. However, you can include many attributes from your directory. These attributes are useful when you are trying to filter your search in advance find. For example, there is an attribute called department that you can use to filter a list of users by department. You can define a maximum of eight attributes. Attributes are case sensitive, so ensure that they match your schema. For more information on attributes, refer to http://support.microsoft.com/kb/555638

EXAMPLE OF MICROSOFT ACTIVE DIRECTORY PHONE CONFIGURATION



Refer to ad_ldap_example.cfg

Sun Directory Server

SERVER CONFIGURATION

Step 1: Setup Sun Directory Server

Download and install Sun Directory:
http://www.sun.com/software/products/directory_srvr_ee/get.jsp

For installation instructions, please refer to Sun Directory documentation:
http://docs.sun.com/app/docs/coll/1316.1

Step 2: Note the IP or Hostname and TCP port of your Sun Directory

In this example, port 9999 will be used as shown in Figure 10.

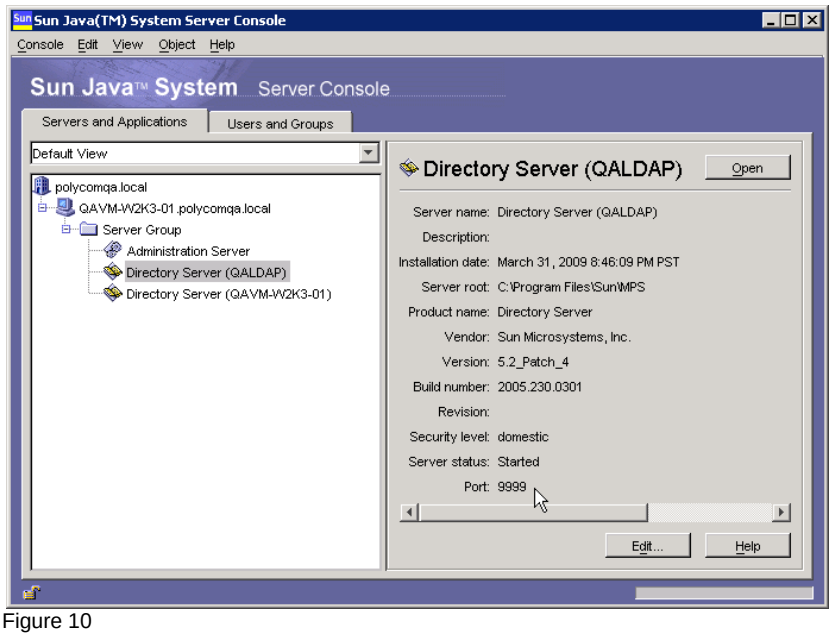


Figure 10

STEP 3: Determine the base search you want to use for your searches.

In our example, we will create a new organizational unit called ‘people’ off the root directory dc=polycomqa,dc=local as shown.

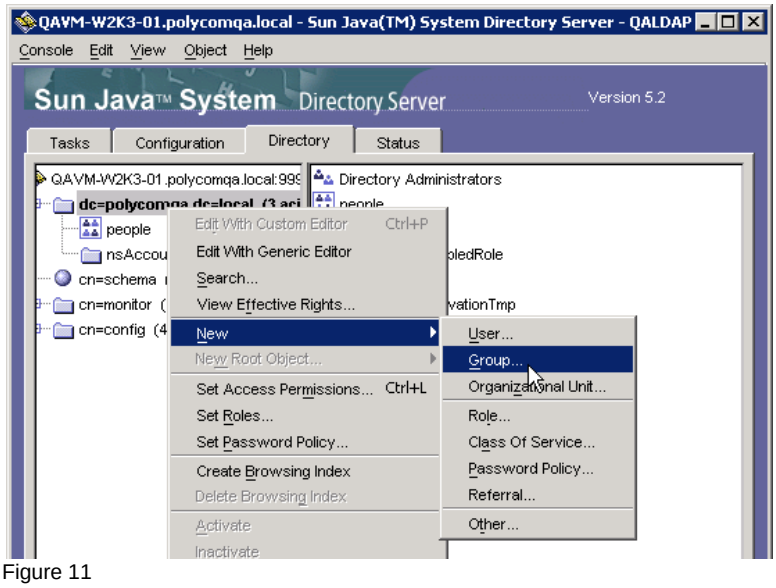


Figure 11

You can highlight the ‘people’ directory and at the status bar, the distinguished name (dn) is displayed. ou=people, dc=polycomqa, dc=local will become our baseDN for searches to be done.

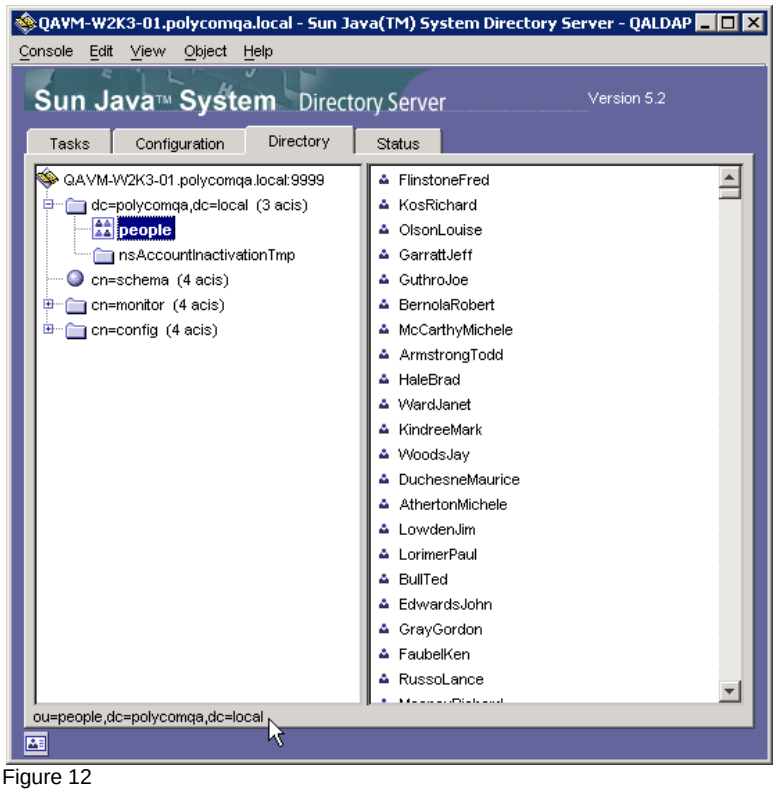


Figure 12

Step 3: Create a user account for the phone to use

For this example, we will create an account for the Polycom phone to log into the directory when searching. In this example, we will create a new user in the ‘people’ organization unit.

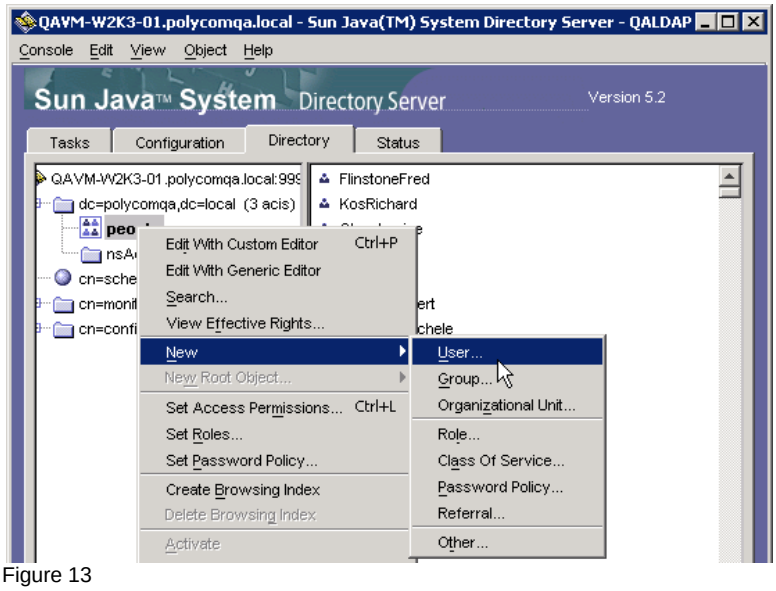


Figure 13

We create a user called luser that will be used for the phones to log in (see Figure 14).

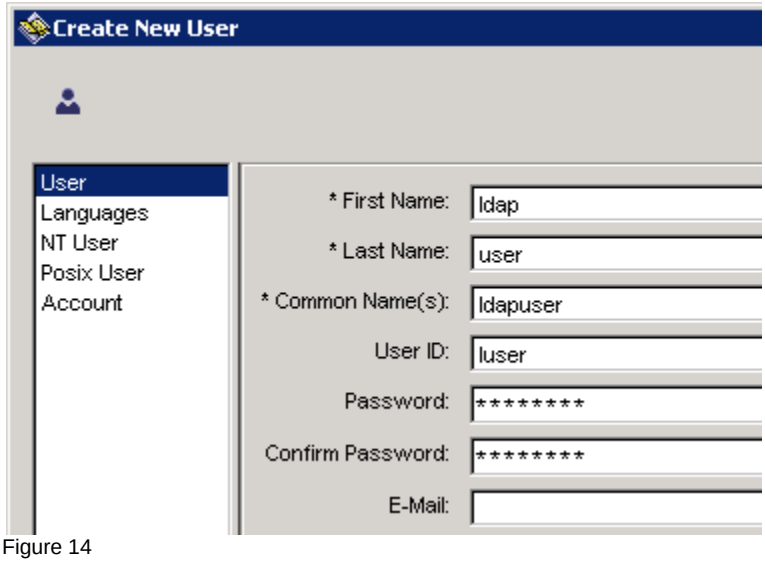


Figure 14

When the new user is added, you can right click on the user and use the generic editor to view its properties. You can obtain the luser distinguished name:

uid=luser, ou=people,dc=polycomqa,dc=local

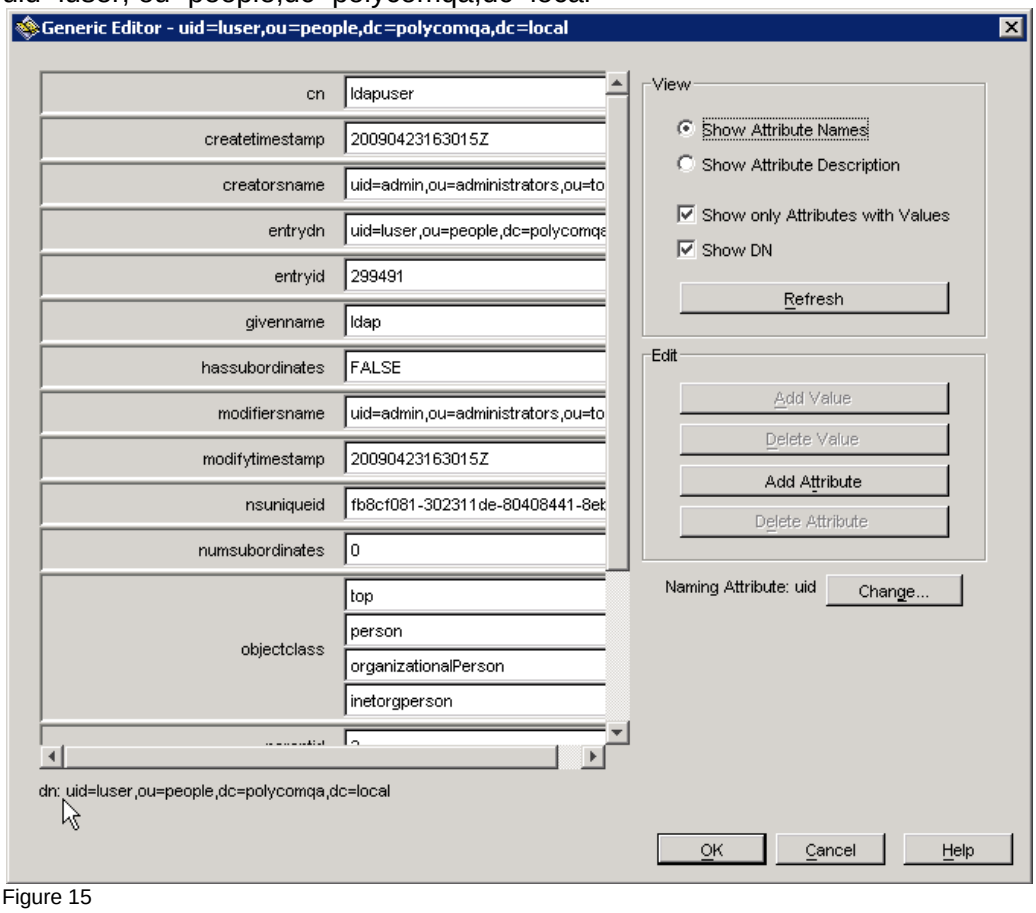


Figure 15

Step 4: Determine which attributes you would

You can define up to eight different attributes for use on the phone. For our example, we will use the three basic attributes: sn, givenname, and telephonenumber.

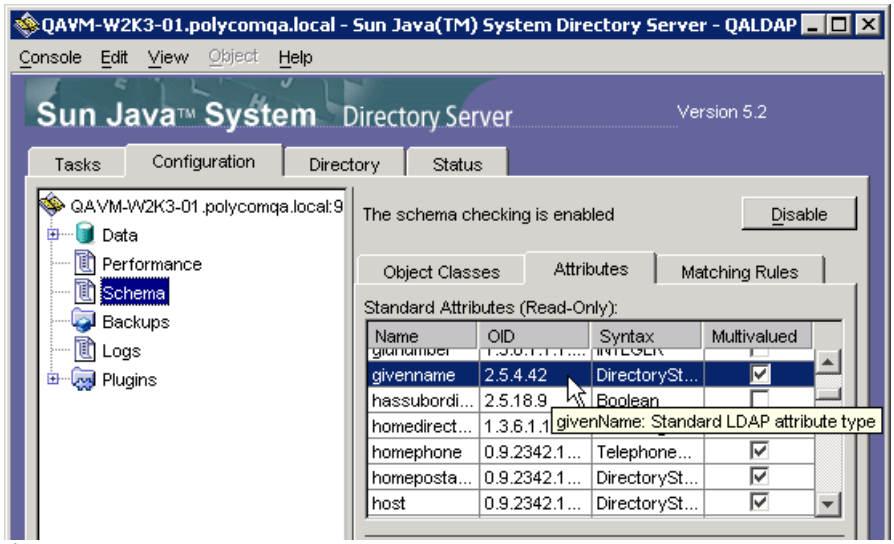


Figure 16

Step 5: Determine the filter prefix you would like to use.

The filter prefix must match the VLVfilter. In our example, we have set the filter prefix to be (sn=*) which will search for all objects with a surname attribute.

Step 6: Determine if you will require recursive searching

In our example, we have chosen to use a recursive search: Vlvsub=2 or `dir.corp.scope=sub`

Step 7: Create VLV Index

VLV (variable list view) is used with Sun Directory to speed up search requests. It is commonly used for databases with over 50,000 objects. Use the following instructions to create your VLV index: http://docs.sun.com/source/819-1701/AppC_BrowseSearchPerformance.html

In our example (see Figure 17), we are creating a VLV Search with the following Information:

Vlvbase: ou=people, dc=polycomqa, dc=local
Vlvfilter: (sn=*)
Vlvscope: 2

***Note**: These settings must match what you will configure the phone or the VLV index will not be triggered and you will experience slow search performance.*

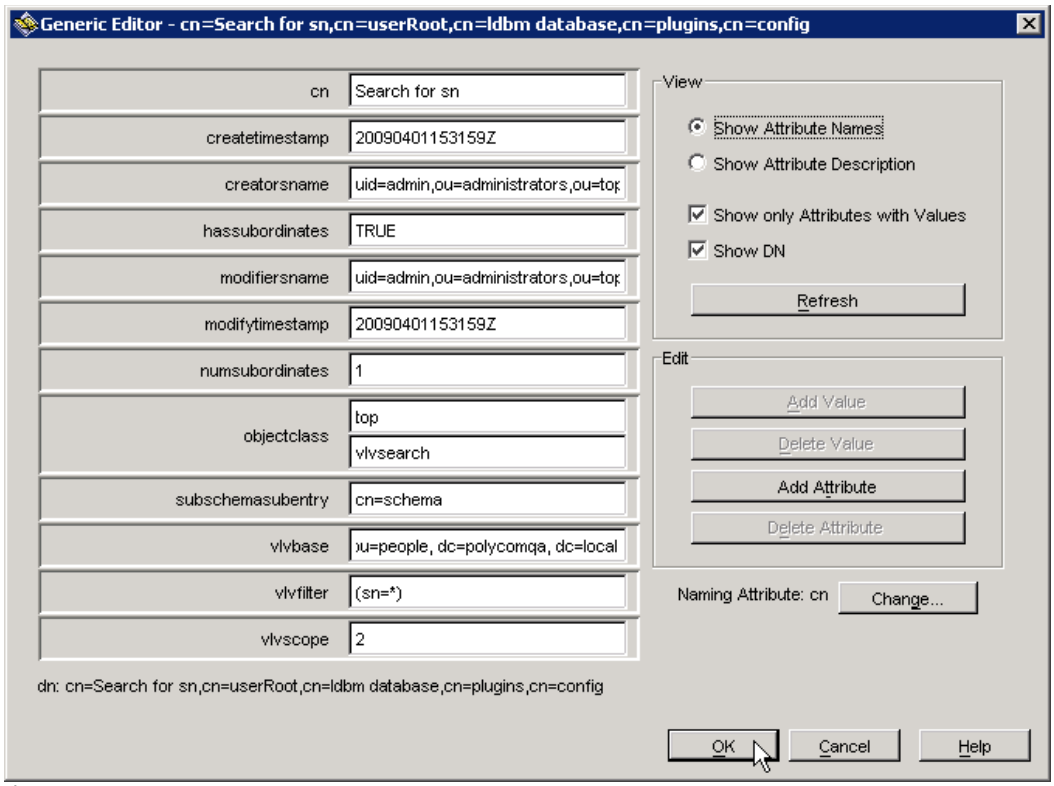


Figure 17

After the VLV search is created, you will create a VLV index with the following setting:

Vlvsort: sn givenName telephonenumber

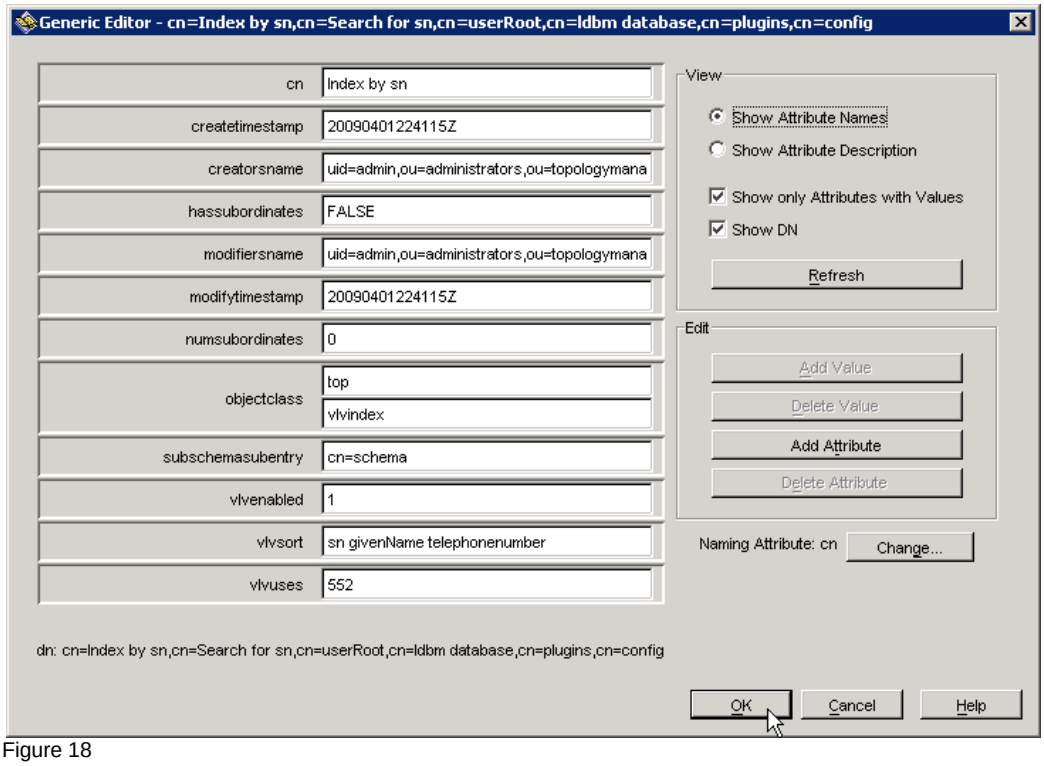


Figure 18

Once the vlv search and vlv index objects are added, you must create the index by using the command prompt and changing directories to your server instance. In our example, we changed directories to c:\program files\sun\MPS\slapd-QALDAP\ .

Stop the server by running stop-slapd.bat (see Figure 19).

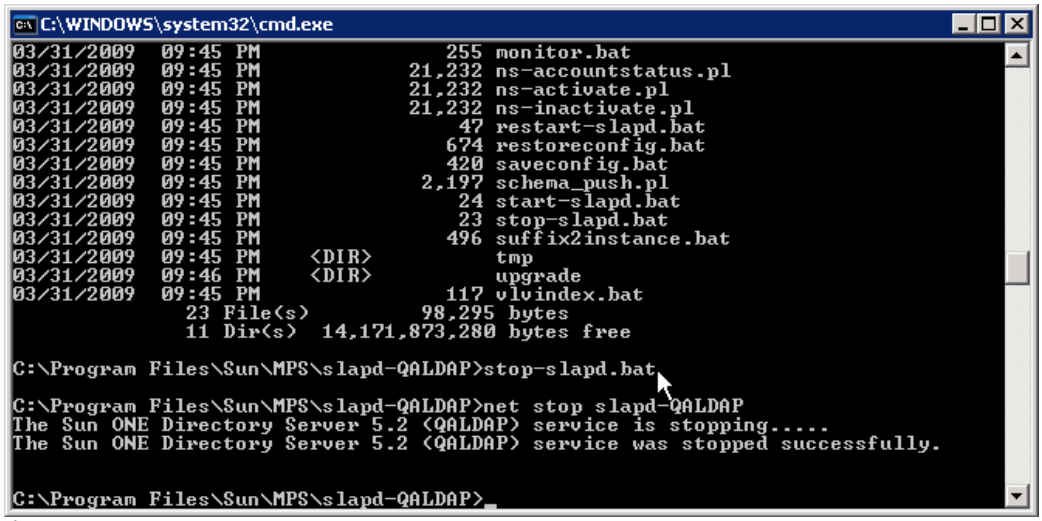


Figure 19

Once the server instance has been stopped, run the following command for the index we named “Index by sn”. By default, the database is named userRoot unless you have renamed it.

Vlvindex.bat –n userRoot –T “Index by sn”

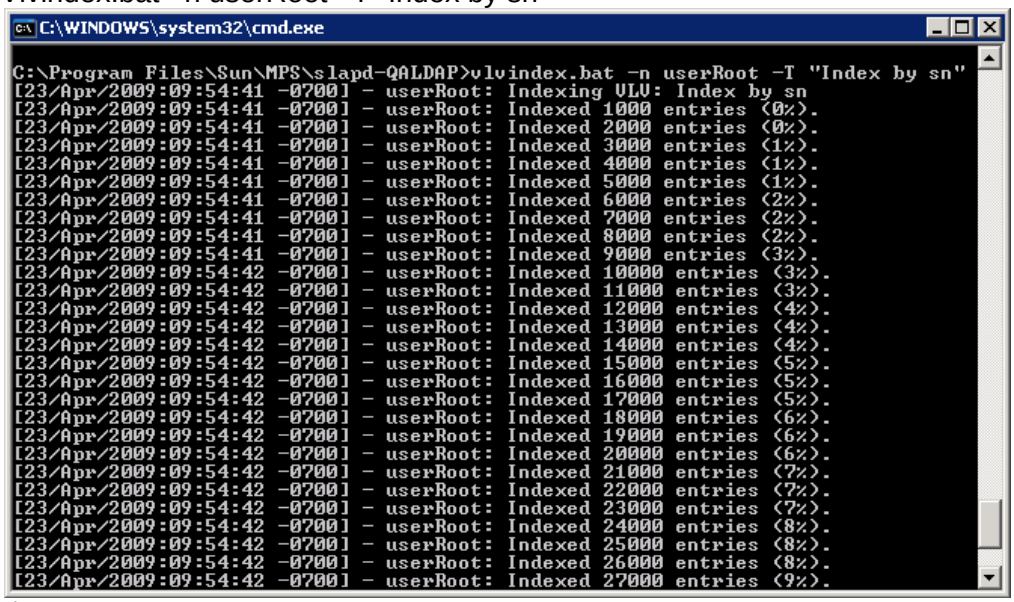


Figure 20

Once the indexing is complete, run start-slapd.bat to restart the server instance (see Figure 21).

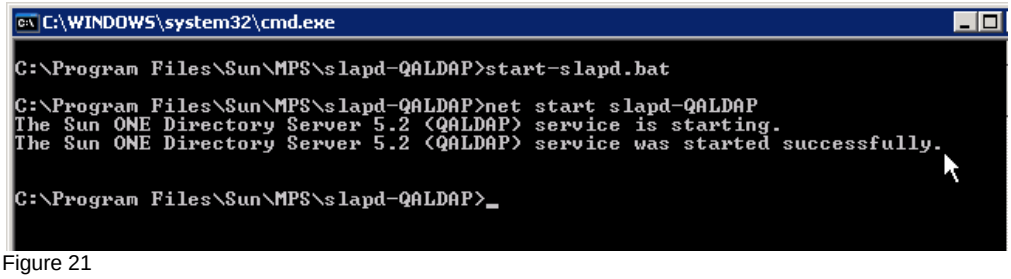


Figure 21

Step 8: Give phone account permission to VLV

You will need to give permission to the user account for the phone to access the VLV index. Right click on the cn=config and set set access permissions.

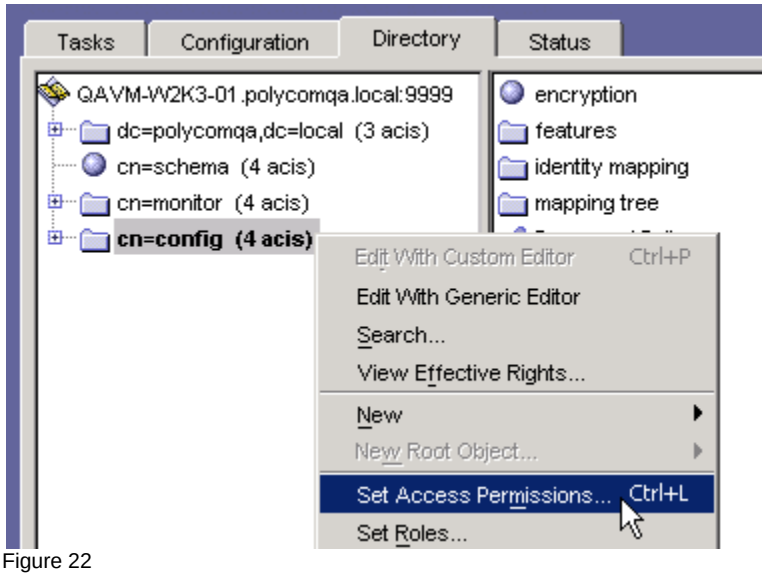


Figure 22

In our example (see Figure 23), we are giving ldapuser user read permission.

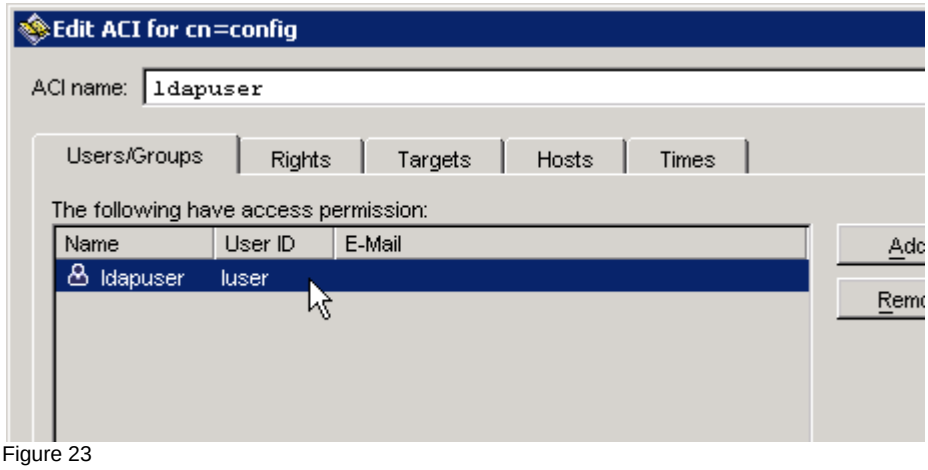


Figure 23

Step 9: Review client control limits

There are client control limits on the server that limit the number of records a client query can retrieve or look through. The defaults are 2000 for size and 5000 for look through. If a query you perform finds a data set larger than the look through limit, you will see admin limit reached error coming from the server. The phone will see this error and will simply ask the user to “Enter More Characters…” to get the user to reduce the data set so it is within the server’s client control limits.

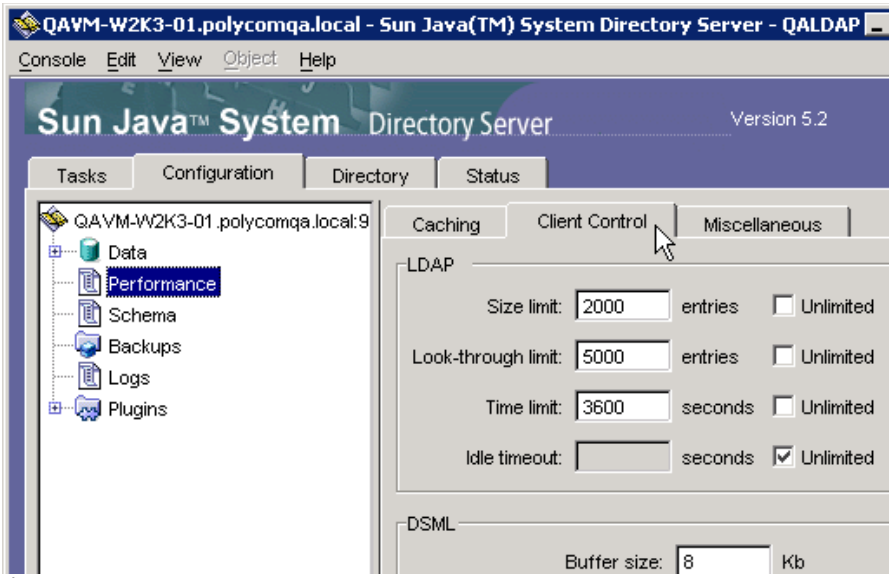
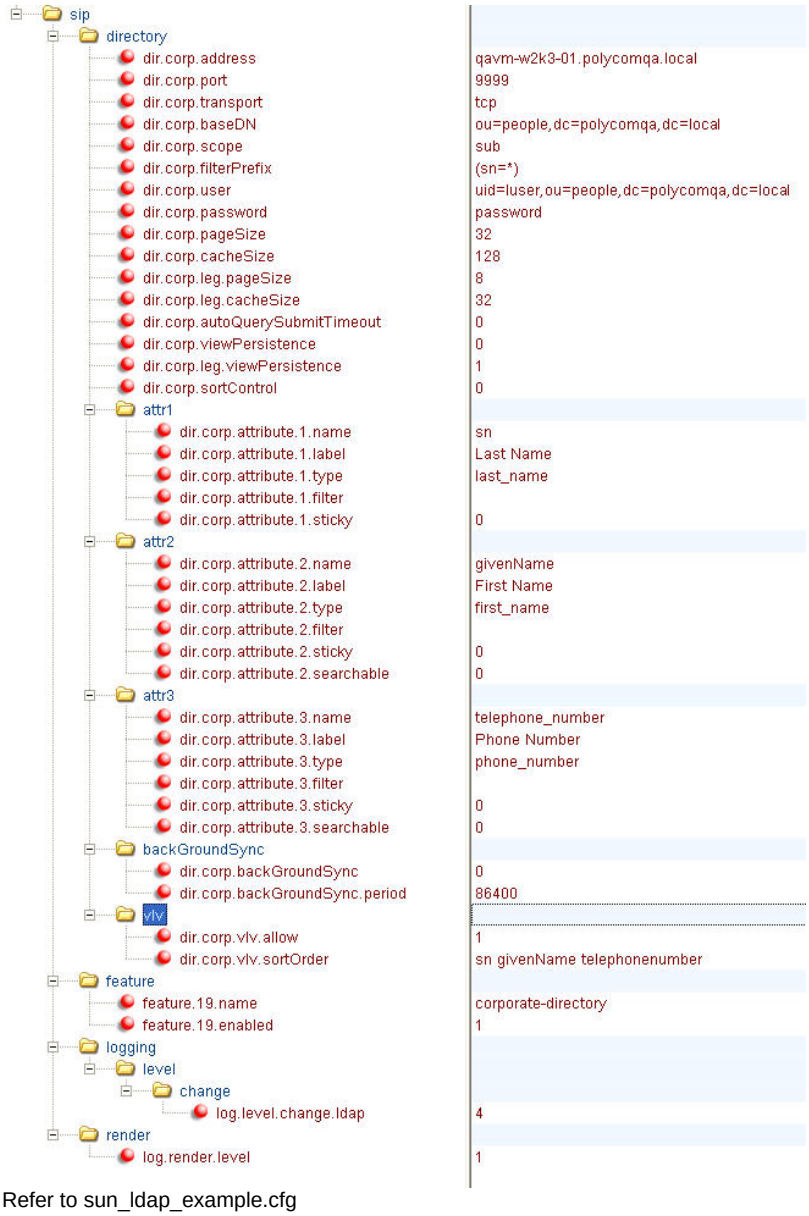


Figure 24

EXAMPLE OF SUN DIRECTORY PHONE CONFIGURATION

The following is an example of the configuration file that would be used based on the server configuration. It is very important that the configuration on the server match what is configured on the phone. In this configuration, we also enable VLV searching by setting `dir.corp.vlv.allow` to 1.



Refer to sun_ldap_example.cfg

Open LDAP SERVER

Open LDAP is a non-sorting server so when the connection to the LDAP server is initialized, the phone will recognize that the server does not sort and all search results it receives is sorted on the phone client. The limitation to client-side sorting is that it only supports the first 256 characters - 2 pages of the Unicode character set.

SERVER CONFIGURATION

Step 1: Setup OPENLDAP server

Download and install openldap: http://www.openldap.org/

For Installation instructions, please refer to the openldap quick start: http://www.openldap.org/doc/admin24/quickstart.html

Step 2: Note the IP or Hostname and TCP port of your openLDAP Server

In ldap.conf, you can configure the port to 389 which is the default

Step 3: Determine the base search you want to use for your searches.

In our example, we will create an organization unit people, where we will use to create our directory of users.

Create a file people.ldif with your favourite editor and insert the following:

```
-----
dn: dc=polycomqa,dc=local
dc: polycomqa
description: Root LDAP entry for polycomqa.local
objectClass: dcObject
objectClass: organizationalUnit
ou: rootobject

dn: ou=people, dc=polycomqa,dc=local
ou: people
description: all people in organisation
objectClass: organizationalUnit
-----
```

In the shell, we run the following command to add the people organizational unit off the root base dc=polycomqa,dc=local

```
ldapadd -x -D "cn=Manager,dc=polycomqa,dc=local" -W -f  people.ldif
```

We created the ou=people directory, however, we will set the baseDN searching to the root and set scope to sub so it searches all sub directories. he baseDN will be dc=polycomqa,dc=local

Step 4: Create a user account for the phone to use

We have to create a user account for the phone to use when it searches the directory. In our example, we create ldapuser.ldif file with the following:

```
-----
dn: uid=ldapuser,ou=people,dc=polycomqa,dc=local
changetype: add
displayName: ldapuser
cn: ldapuser
givenname: ldapuser
objectclass: top
objectclass: person
objectclass: organizationalPerson
objectclass: inetorgperson
uid: ldapuser
sn: ldapuser
-----
```

We run the following command to add the user

```
ldapadd -x -D "cn=Manager,dc=polycomqa,dc=local" -W -f  ldapuser.ldif
```

Step 5: Modify the ORDERING in the schema

By default, the Open LDAP server is not configured to support the phone LDAP client's search operation (<= for less than or equal to, >= for greater than or equal to). The Open LDAP server's core.schema file has to be modified to add ORDERING caseIgnoreOrderingMatch in both the object class surname and givenname. Once changes are made, the LDAP service must be restarted for changes to take effect.

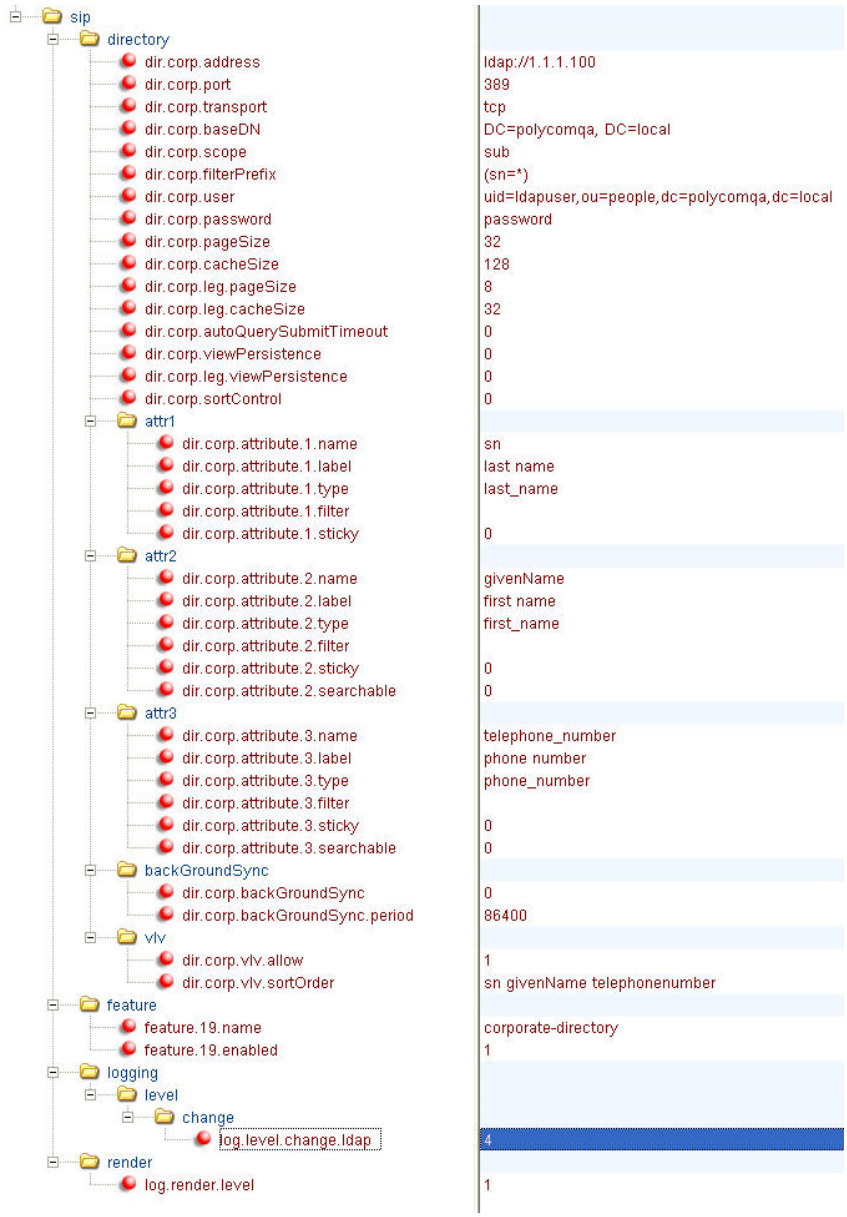
For example of core.schema:

```
attributetype ( 2.5.4.4 NAME ( 'sn' 'surname' )
DESC 'RFC2256: last (family) name(s) for which the entity is
known by'
SUP name
ORDERING caseIgnoreOrderingMatch)

attributetype ( 2.5.4.42 NAME ( 'givenName' 'gn' )
DESC 'RFC2256: first name(s) for which the entity is known by'
SUP name
ORDERING caseIgnoreOrderingMatch)
```

The `dir.corp.filterPrefix` attribute must be set to Null.

EXAMPLE OF OPEN LDAP PHONE CONFIGURATION



Refer to openldap_example.cfg

Microsoft ADAM (Active Directory Application Mode)

SERVER CONFIGURATION

Step 1: Setup ADAM Directory

Review the installation documentation that is included in the download.

http://www.microsoft.com/downloads/details.aspx?FamilyId=9688F8B9-1034-4EF6-A3E5-2A2A57B5C8E4&displaylang=en

Step 2: Note the IP or Hostname and TCP port of your ADAM LDAP Server

When using the 'Create an Adam' instance wizard, note the TCP port you are configuring for your LDAP server instance.

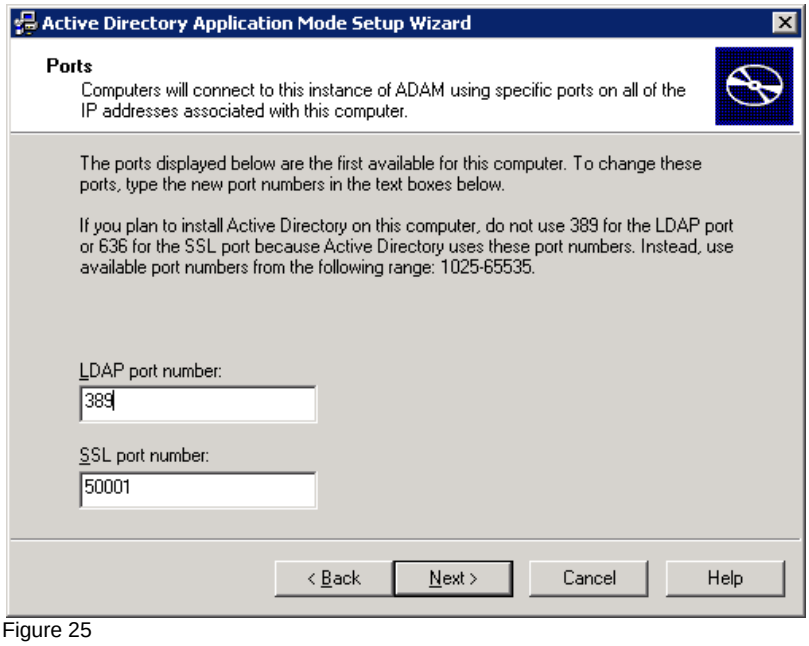


Figure 25

Step 3: Determine the base search you want to use for your searches.

In our example (see Figure 26), we will use ou=people, dc=polycomqa, dc=local

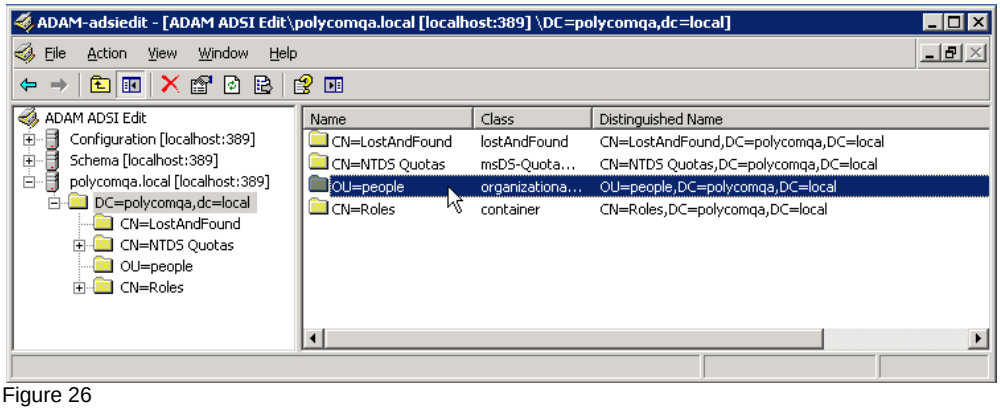


Figure 26

Step 4: Create a user account for the phone to use

Create a new user for the phone to use when access the directory. In our example (see Figure 27), we will create a new object by right clicking on the ou=people directory.

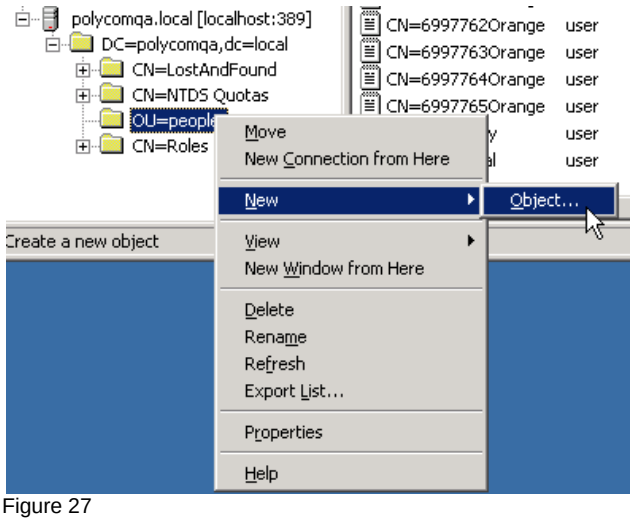


Figure 27

Create a user object.

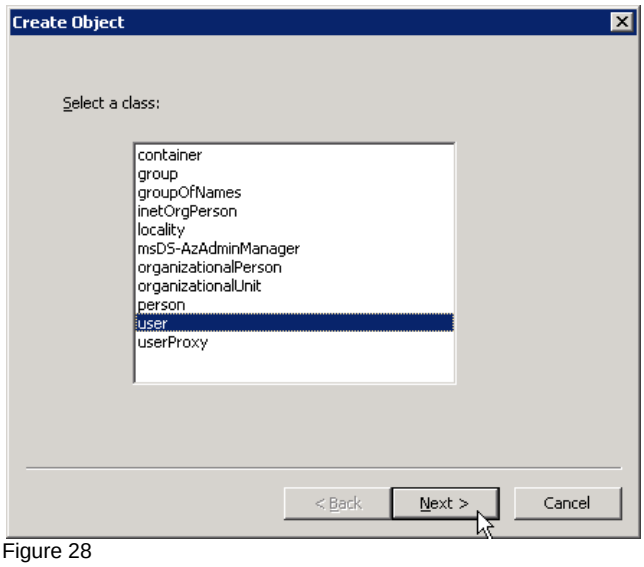


Figure 28

We will name the user object, ldapuser.

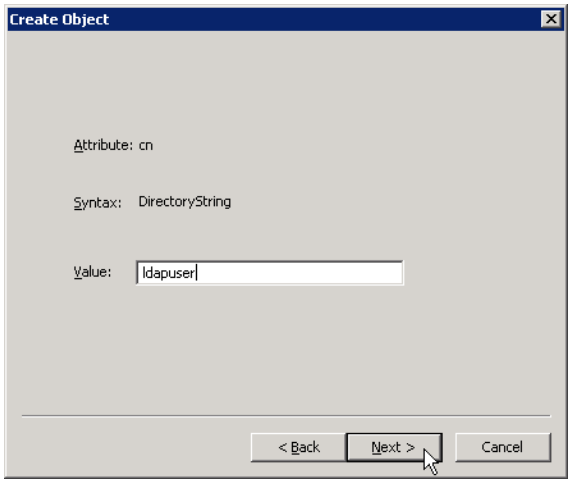


Figure 29

The user created has a distinguished name (DN):
dn=ldapuser,ou=people,dc=polycomqa,dc=local

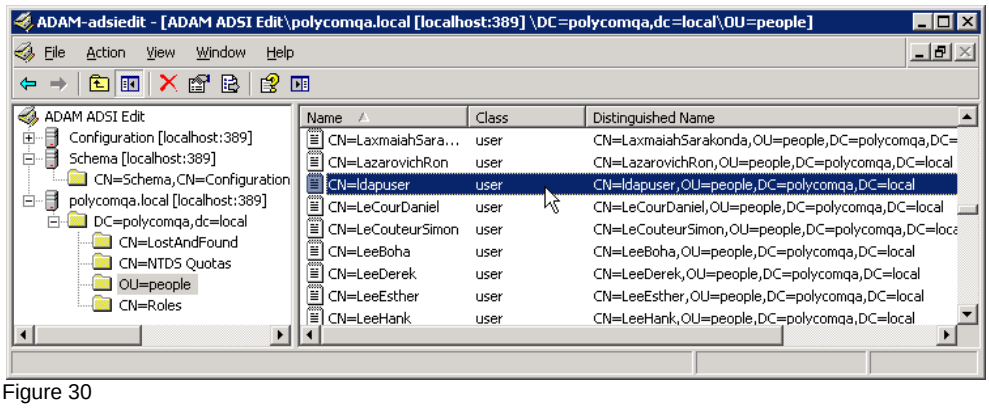


Figure 30

Set the password for the phone user account.

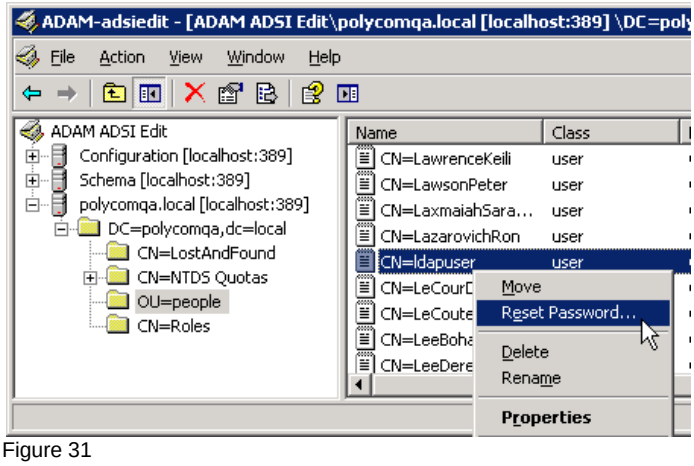


Figure 31

Step 5: Give the phone user account permission to read the directory

You need to provide permission to the phone user account to the rest of the directory.

Select roles and edit the CN=Readers properties.

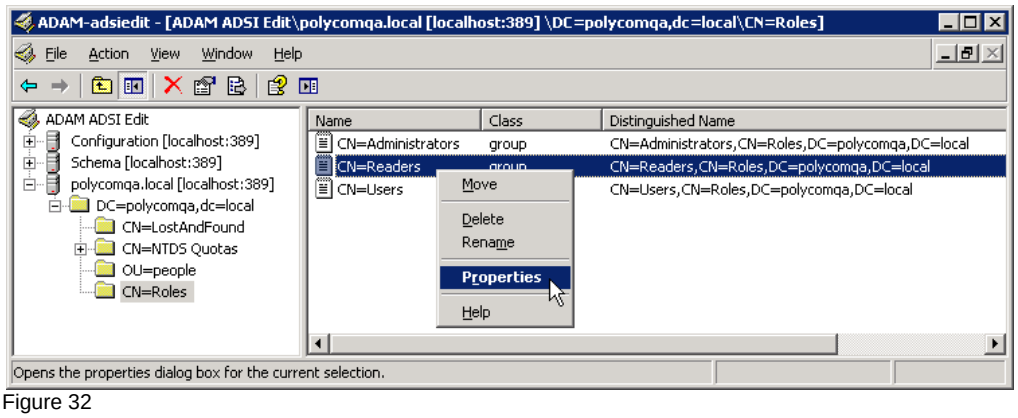


Figure 32

Edit the members properties for the CN=readers object.

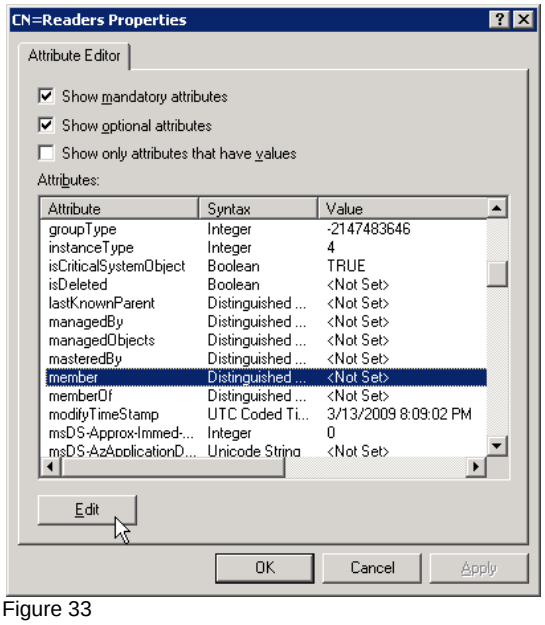


Figure 33

Add the phone user account ldapuser. Enter the distinguished named (DN) for the ldapuser object. For example: cn=ldapuser,ou=people,dc=polycomqa,dc=local

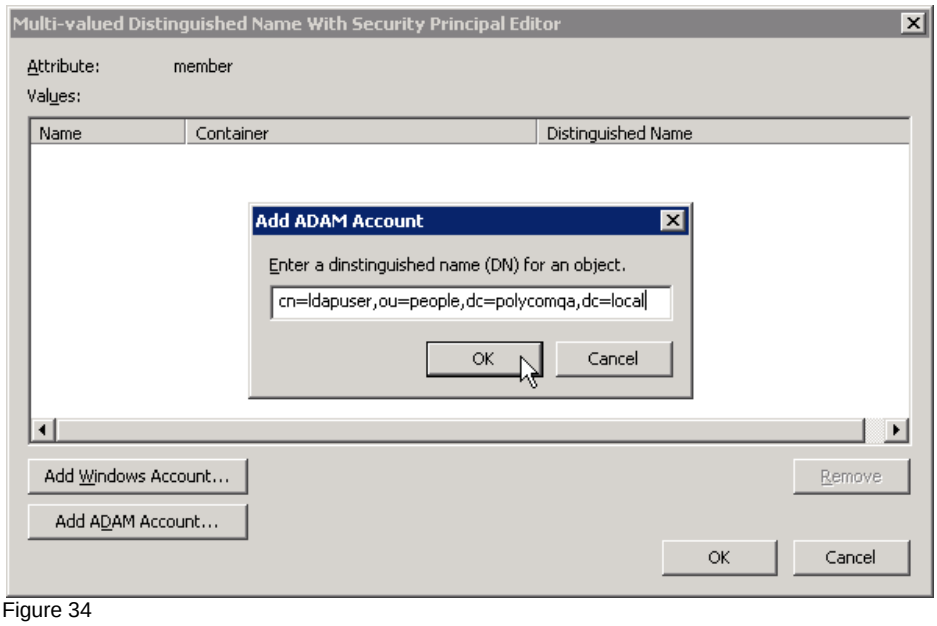


Figure 34

Step 6: Determine the filter prefix you would like to use.

In our example, we will use (objeclass=*) which tells the server to look for every object in the baseDN.

Step 7: Determine if you will require recursive searching

Although there are no subfolders (OUs) under the baseDN ou=people,dc=polycomqa,dc=local, we will set the `dir.corp.scope=sub` to support recursive searching.

Step 8: Determine which attributes you would

Adam supports all the standard attributes. You can view all the attributes by looking at the CN=schema,CN=Configuration object. Double click on an attribute to view its lDAPDisplayName which is used for the phone configuration file. In our example (see Figure 35), we will be using standard attributes, sn givenName, and telephoneNumber.

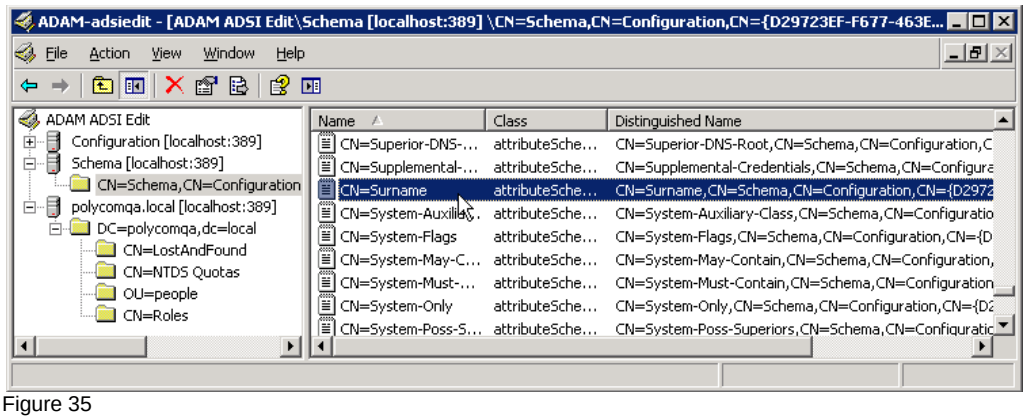


Figure 35

EXAMPLE OF MICROSOFT ADAM PHONE CONFIGURATION

sip	
directory	
dir.corp.address	ldap://1.1.1.100
dir.corp.port	389
dir.corp.transport	tcp
dir.corp.baseDN	OU=people,DC=polycomqa,DC=local
dir.corp.scope	sub
dir.corp.filterPrefix	(objectclass=*)
dir.corp.user	uid=ldapuser,ou=people,dc=polycomqa,dc=local
dir.corp.password	password
dir.corp.pageSize	32
dir.corp.cacheSize	128
dir.corp.leg.pageSize	8
dir.corp.leg.cacheSize	32
dir.corp.autoQuerySubmitTimeout	0
dir.corp.viewPersistence	0
dir.corp.leg.viewPersistence	1
dir.corp.sortControl	0
attr1	
dir.corp.attribute.1.name	sn
dir.corp.attribute.1.label	Last Name
dir.corp.attribute.1.type	last_name
dir.corp.attribute.1.filter	
dir.corp.attribute.1.sticky	0
attr2	
dir.corp.attribute.2.name	givenName
dir.corp.attribute.2.label	First Name
dir.corp.attribute.2.type	first_name
dir.corp.attribute.2.filter	
dir.corp.attribute.2.sticky	0
dir.corp.attribute.2.searchable	0
attr3	
dir.corp.attribute.3.name	telephone_number
dir.corp.attribute.3.label	Phone Number
dir.corp.attribute.3.type	phone_number
dir.corp.attribute.3.filter	
dir.corp.attribute.3.sticky	0
dir.corp.attribute.3.searchable	0
backGroundSync	
dir.corp.backGroundSync	0
dir.corp.backGroundSync.period	86400
vlv	
dir.corp.vlv.allow	0
dir.corp.vlv.sortOrder	
feature	
feature.19.name	corporate-directory
feature.19.enabled	1
logging	
level	
change	
log.level.change.ldap	4
render	
log.render.level	1

Refer to adam_ldap_example.cfg

LDAP Logging

If you are having problems accessing your directory, we recommend using the following ldap log configuration file settings along with a packet capture in order to properly troubleshoot the problem.

Troubleshooting

The following error messages appear on the screen while using the Corporate Directory feature:

- Phone LDAP Initialization

  When a phone with corporate directory enabled first boots up, ldap log level 0 will be as follows:

0429153319|ldap |1|01|ldapCfg::lookupHost:No srvLookup host=<172.23.69.233> port=<9999>
0429153319|ldap |3|01|ldapCfg::getConnParams:m_pHost=<ldap://172.23.69.233> m_pDomain=<ldap://172.23.69.233> m_priSrv=<<NULL>> port=<9999> trans=<0>
0429153319|ldap |1|01|ldapCfg::setBufsSize:m_xferSize=<32> m_cacheSize=<128>
0429153319|ldap |1|01|ldapCfg::createUtfTable:Loading default UTF settings
0429153319|ldap |1|01|ldapCfg::showUtfTable:createUtfTable
0429153319|ldap |1|01|ldapCfg::showUtfTable:utfsubset[0]=<0> ,<zz>
0429153319|ldap |1|01|cDynamicData::cDynamicData:m_circSize=<128> m_lowMark=<32>
[Note] A test query is sent to the phone to determine what type of server it is
0429153319|ldap
|0|01|ldapData::newFilter:baseRequest=ldap://172.23.69.233:9999/ou=people,dc=polycomqa,dc=local?sn,givenName,telephoneNumber?sub
0429153319|efk |*|01|Initial log entry. Current logging level 4
0429153319|so |*|01|[SoNcasC]: App-Ctx (JS5) [0-3339989195]
0429153319|app1 |*|01|[InitializeBacklightIntensity] m_nDefaultMin = 0, m_nDefaultLow = 65, m_nDefaultMed = 142, m_nDefaultMax = 219.
[Note] The following line indicates that the test query found a server that sorts and supports VLV
0429153322|ldap |1|01|ldapData::queryResults:Sort-Yes Persist-Yes VLV-Yes
[Note] The following 8 lines provide ldap settings phone has read in from the configuration file
0429153322|ldap |1|01|ldapCfg::show:<LDAP configuration:> status=<1>
0429153322|ldap |1|01| <server version=3> <sort:ctrl=0x4-cfg=0x0> <vlv=Yes>
0429153322|ldap |1|01| <host=ldap://172.23.69.233> <pfix=ldap://> <port=9999> <trans=tcp>
0429153322|ldap |1|01| <baseDN=ou=people,dc=polycomqa,dc=local> <filterPrefix=(sn=*)> <sortOrder=sn givenName telephonenumber> <invSortOrder=NULL>
0429153322|ldap |1|01| <attrib=sn,givenName,telephoneNumber><sub></ffs0/ca-bundle.crt>
0429153322|ldap |1|01| <persistView=No> <persistSearch=Yes>
0429153322|ldap |1|01| <backgroundSyncPeriod=0> <autoQuerySubmitTimeout=-1>
0429153322|ldap |1|01| <user=uid=polycomuser,ou=people,dc=polycomqa,dc=local> <pass=***>
0429153322|ldap |1|01|ldapCfg::showAttr: Attributes:
0429153322|ldap |1|01|ldapCfg::showAttr: [0] <name=sn><label=last name><type=last_name><filter=><sticky=0><srch=1>

0429153322|ldap |1|01|ldapCfg::showAttr: [1] <name=givenName><label=first name><type=first_name><filter=><sticky=0><srch=0>
0429153322|ldap |1|01|ldapCfg::showAttr: [2] <name=telephoneNumber><label=phone number><type=phone_number><filter=><sticky=0><srch=0>
[Note] The following indicates that the phone connected to the ldap server and ready for searches
0429153322|ldap |1|01|cDynamicData::finalizeInit:finalizeInit state=<4>

- No Entries Found

  When you enter a name that doesn't exist in the directory, you will receive a message with No entries found.

0429160645|ldap |1|01|cDynamicData::getData:get enabled - filter OK <(&(sn=*)(sn%3C=GWGWGJWJ)(sn=GWGWGJWJ*))>
[Note] This is a test search of a name that doesn't exist surname GWGWGJWJ
0429160645|ldap |1|01|ldapData::runSearch:dir=<UP> reverse=<Yes> index=<OFF> filter=<(&(sn=*)(sn<=GWGWGJWJ)(sn=GWGWGJWJ*))>
0429160645|ldap |1|01|ldapData::showVLVCtrl:out of bounds
0429160645|ldap |1|01|ldapData::showVLVCtrl: before=<31> after=<0> index=<1> count=<299482>
0429160645|ldap |1|01|ldapData::showVLVCtrl: attr=<NULL> ctxt=<0x0>
[Note] The phone indicating that the directory could not find any matching data
0429160645|ldap |1|01|ldapData::parseControls:ldap_parse_sort_control: no matching data - rc=0xffffffff3 <Control not found>
0429160645|ldap |0|01|ldapQueryVLV::show:updateQuery top.offset=<1> bott.offset=<1>
0429160645|ldap |1|01|cDynamicData::dataReady:total=0-process

- Login Error

  When you provide the wrong password for `dir.corp.password`, you will get a message indicating login error after you do a search. If this occurs, ensure your password is correct.

0429161426|ldap |1|01|cDynamicData::getData:get enabled - filter OK <(sn=*)>
0429161432|ldap |4|01|ldapData::ldapConnBind:ldap_simple_bind_s - rc=0x31 <Invalid credentials>
0429161432|ldap |1|01|ldapData::reconnect:retry 1/1
0429161432|ldap |3|01|cDynamicData::processError:login error
[Note] The phone indicating the password is incorrect
0429161432|ldap |4|01|ldapData::ldapConnBind:ldap_simple_bind_s - rc=0x31 <Invalid credentials>
0429161432|ldap |1|01|ldapData::reconnect:conn failed req=<ldap://172.23.69.233:9999/ou=people,dc=polycomqa,dc=local?sn,givenName,telephoneNumber?sub?(sn=*)>
0429161432|ldap |3|01|cDynamicData::processError:login error

- Enter more characters

  With large directories, you may encounter the message “Enter More Characters”. In this case, the phone does a query which exceeds the client control limits for browsing the directory.Some server limit the size of a data set a client can work with. The phone will recognize these limits and if a query exceeds the client control limits, the phone will prompt the user to enter more characters to minimize the data set until it’s within the limits.

[Note] phone makes a query to the server
0429164504|ldap |1|01|cDynamicData::getData:get enabled - filter OK <(sn=*)>
0429164509|ldap |1|01|ldapData::runSearch:dir=<DOWN> reverse=<No> index=<ON> filter=<(sn=*)>
0429164509|ldap |1|01|ldapData::showVLVCtrl:setVLVCtrl
0429164509|ldap |1|01|ldapData::showVLVCtrl: before=<0> after=<31> index=<1> count=<0>
0429164509|ldap |1|01|ldapData::showVLVCtrl: attr=<j> ctxt=<0x0>
0429164509|ldap |1|01|ldapData::procData:error m_err=<0x20>
[Note] phone gets error from the server that indicates too many entries found
0429164509|ldap |4|01|cDynamicData::processError:admin limit reached

- Configuring an invalid baseDN or invalid `dir.corp.user`

  If you provide an invalid baseDN or `dir.corp.user`, you will receive No entries found when doing a search. To correct this problem, ensure you are providing a valid `dir.corp.user` and baseDN.

[Note] phone makes a search query
0429174742|ldap |1|01|cDynamicData::getData:get enabled - filter OK <(sn=*)>
0429174742|ldap |1|01|ldapData::runSearch:dir=<DOWN> reverse=<No> index=<ON> filter=<(sn=*)>
0429174742|ldap |1|01|ldapData::showVLVCtrl:setVLVCtrl
0429174742|ldap |1|01|ldapData::showVLVCtrl: before=<0> after=<31> index=<1> count=<0>
[Note] last name “jg” searched
0429174742|ldap |1|01|ldapData::showVLVCtrl: attr=<jg> ctxt=<0x0>
[Note] Phone indicates that the server can not find a object
0429174742|ldap |3|01|ldapData::runSearch:query error - rc=0x20 <No such object>
0429174742|ldap |1|01|ldapData::procData:error m_err=<0x2>
[Note] phone indicates server refuses to do the query
0429174742|ldap |3|01|cDynamicData::processError:query error

- Searching

  You will receive the message “Searching…” when a query is being performed. Most often, searches happen instantly so you will not see this message. However if your server is performing slowly, this message will appear. There is a 45 second timeout for any search to complete. After 45 seconds, the phone will return to the idle screen.

[Note] phone initiates search query
0429173612|ldap |1|01|cDynamicData::getData:get enabled - filter OK <(sn=*)>
[Note] the searching prompt would occur here
0429173618|ldap |1|01|ldapData::runSearch:dir=<DOWN> reverse=<No> index=<ON> filter=<(sn=*)>
0429173618|ldap |1|01|ldapData::showVLVCtrl:setVLVCtrl
0429173618|ldap |1|01|ldapData::showVLVCtrl: before=<0> after=<31> index=<1> count=<0>
[Note] phone searches for surname starting with “to”
0429173618|ldap |1|01|ldapData::showVLVCtrl: attr=<to> ctxt=<0x0>
0429173618|ldap |1|01|ldapData::showVLVCtrl:parseControls
0429173618|ldap |1|01|ldapData::showVLVCtrl: before=<0> after=<31> index=<219289> count=<299482>
0429173618|ldap |1|01|ldapData::showVLVCtrl: attr=<NULL> ctxt=<0x0>
[Note] phone indicates matched entries being returned from the server
0429173618|ldap |0|01|ldapEntry::show:->new: <to100> <to100> <5551112222>
0429173618|ldap |0|01|ldapEntry::show:->new: <to1000> <to1000> <5551112222>
0429173618|ldap |0|01|ldapEntry::show:->new: <to10004> <to10004> <5551112222>
0429173618|ldap |0|01|ldapEntry::show:->new: <to10009> <to10009> <5551112222>
0429173618|ldap |0|01|ldapEntry::show:->new: <to10013> <to10013> <5551112222>
0429173618|ldap |0|01|ldapEntry::show:->new: <to10015> <to10015> <5551112222>
0429173618|ldap |0|01|ldapEntry::show:->new: <to10018> <to10018> <5551112222>
0429173618|ldap |0|01|ldapEntry::show:->new: <to10020> <to10020> <5551112222>
0429173618|ldap |0|01|ldapEntry::show:->new: <to10023> <to10023> <5551112222>
0429173618|ldap |0|01|ldapEntry::show:->new: <to10024> <to10024> <5551112222>
0429173618|ldap |0|01|ldapEntry::show:->new: <to10027> <to10027> <5551112222>
0429173618|ldap |0|01|ldapEntry::show:->new: <to10028> <to10028> <5551112222>
0429173618|ldap |0|01|ldapEntry::show:->new: <to10030> <to10030> <5551112222>
0429173618|ldap |0|01|ldapEntry::show:->new: <to10042> <to10042> <5551112222>
0429173618|ldap |0|01|ldapEntry::show:->new: <to10043> <to10043> <5551112222>
0429173618|ldap |0|01|ldapEntry::show:->new: <to10049> <to10049> <5551112222>
0429173618|ldap |0|01|ldapEntry::show:->new: <to1005> <to1005> <5551112222>
0429173618|ldap |0|01|ldapEntry::show:->new: <to10055> <to10055> <5551112222>
0429173618|ldap |0|01|ldapEntry::show:->new: <to10058> <to10058> <5551112222>
0429173618|ldap |0|01|ldapEntry::show:->new: <to10062> <to10062> <5551112222>
0429173618|ldap |0|01|ldapEntry::show:->new: <to10064> <to10064> <5551112222>
0429173618|ldap |0|01|ldapEntry::show:->new: <to10067> <to10067> <5551112222>
0429173618|ldap |0|01|ldapEntry::show:->new: <to10068> <to10068> <5551112222>
0429173618|ldap |0|01|ldapEntry::show:->new: <to10070> <to10070> <5551112222>
0429173618|ldap |0|01|ldapEntry::show:->new: <to10078> <to10078> <5551112222>
0429173618|ldap |0|01|ldapEntry::show:->new: <to10083> <to10083> <5551112222>
0429173618|ldap |0|01|ldapEntry::show:->new: <to10085> <to10085> <5551112222>

0429173618|ldap |0|01|ldapEntry::show:->new: <to10091> <to10091> <5551112222>
0429173618|ldap |0|01|ldapEntry::show:->new: <to10092> <to10092> <5551112222>
0429173618|ldap |0|01|ldapEntry::show:->new: <to10093> <to10093> <5551112222>
0429173618|ldap |0|01|ldapEntry::show:->new: <to10097> <to10097> <5551112222>
0429173618|ldap |0|01|ldapEntry::show:->new: <to10098> <to10098> <5551112222>

- VLV Index Working Correctly

  A VLV index is working correctly when the server returns an index and count after a query is performed in the quick search. Advance Find uses a VLV search, but does not use an index because a VLV indexed search only supports one attribute where as Advance Find may require a multi-attribute search.

[Note] The phone initiates the search request
0429175616|ldap |1|01|cDynamicData::getData:get enabled - filter OK <(sn=*)>
0429175616|ldap |1|01|ldapData::runSearch:dir=<DOWN> reverse=<No> index=<ON> filter=<(sn=*)>
[Note] The VLV control is set
0429175616|ldap |1|01|ldapData::showVLVCtrl:setVLVCtrl
0429175616|ldap |1|01|ldapData::showVLVCtrl: before=<0> after=<31> index=<1> count=<0>
[Note] The user entered "ko" for the search
0429175616|ldap |1|01|ldapData::showVLVCtrl: attr=<ko> ctxt=<0x0>
0429175616|ldap |1|01|ldapData::showVLVCtrl:parseControls
[Note] The server returns 0 record before, 32 records with index position in the vlv index and data count
0429175616|ldap |1|01|ldapData::showVLVCtrl: before=<0> after=<31> index=<115346> count=<299482>
0429175616|ldap |1|01|ldapData::showVLVCtrl: attr=<NULL> ctxt=<0x0>
[Note] Matched data returned from the server
0429175616|ldap |0|01|ldapEntry::show:->new: <ko10> <ko10> <5551112222>
0429175616|ldap |0|01|ldapEntry::show:->new: <ko1000> <ko1000> <5551112222>
0429175616|ldap |0|01|ldapEntry::show:->new: <ko10004> <ko10004> <5551112222>
0429175616|ldap |0|01|ldapEntry::show:->new: <ko10005> <ko10005> <5551112222>
0429175616|ldap |0|01|ldapEntry::show:->new: <ko10013> <ko10013> <5551112222>
0429175616|ldap |0|01|ldapEntry::show:->new: <ko10016> <ko10016> <5551112222>
0429175616|ldap |0|01|ldapEntry::show:->new: <ko10019> <ko10019> <5551112222>
0429175616|ldap |0|01|ldapEntry::show:->new: <ko10026> <ko10026> <5551112222>
0429175616|ldap |0|01|ldapEntry::show:->new: <ko10029> <ko10029> <5551112222>
0429175616|ldap |0|01|ldapEntry::show:->new: <ko10036> <ko10036> <5551112222>
0429175616|ldap |0|01|ldapEntry::show:->new: <ko10037> <ko10037> <5551112222>
0429175616|ldap |0|01|ldapEntry::show:->new: <ko10038> <ko10038> <5551112222>
0429175616|ldap |0|01|ldapEntry::show:->new: <ko10039> <ko10039> <5551112222>
0429175616|ldap |0|01|ldapEntry::show:->new: <ko10041> <ko10041> <5551112222>
0429175616|ldap |0|01|ldapEntry::show:->new: <ko10048> <ko10048> <5551112222>
0429175616|ldap |0|01|ldapEntry::show:->new: <ko10051> <ko10051> <5551112222>
0429175616|ldap |0|01|ldapEntry::show:->new: <ko10052> <ko10052> <5551112222>
0429175616|ldap |0|01|ldapEntry::show:->new: <ko10054> <ko10054> <5551112222>
0429175616|ldap |0|01|ldapEntry::show:->new: <ko10057> <ko10057> <5551112222>
0429175616|ldap |0|01|ldapEntry::show:->new: <ko10058> <ko10058> <5551112222>
0429175616|ldap |0|01|ldapEntry::show:->new: <ko10059> <ko10059> <5551112222>
0429175616|ldap |0|01|ldapEntry::show:->new: <ko1006> <ko1006> <5551112222>
0429175616|ldap |0|01|ldapEntry::show:->new: <ko10060> <ko10060> <5551112222>
0429175616|ldap |0|01|ldapEntry::show:->new: <ko10061> <ko10061> <5551112222>

0429175616|ldap |0|01|ldapEntry::show:->new: <ko10063> <ko10063> <5551112222>
0429175616|ldap |0|01|ldapEntry::show:->new: <ko10065> <ko10065> <5551112222>
0429175616|ldap |0|01|ldapEntry::show:->new: <ko10068> <ko10068> <5551112222>
0429175616|ldap |0|01|ldapEntry::show:->new: <ko1007> <ko1007> <5551112222>
0429175616|ldap |0|01|ldapEntry::show:->new: <ko10072> <ko10072> <5551112222>
0429175616|ldap |0|01|ldapEntry::show:->new: <ko10074> <ko10074> <5551112222>
0429175616|ldap |0|01|ldapEntry::show:->new: <ko10075> <ko10075> <5551112222>
0429175616|ldap |0|01|ldapEntry::show:->new: <ko10078> <ko10078> <5551112222>

- Server Unavailable when phone boots up

  When a phone boots up where the directory is unavailable, you will receive a message "Please try again." when you enter the corporate directory feature. Every time you re-enter the corporate directory feature, the phone will retry to connect to the LDAP server.

[Note] Phone recognizes that the server connection could not be established
0429171250|ldap |1|01|ldapCfg::lookupHost:No srvLookup host=<172.23.69.233> port=<9999>
0429171250|ldap |3|01|ldapCfg::getConnParams:m_pHost=<ldap://172.23.69.233> m_pDomain=<ldap://172.23.69.233> m_priSrv=<<NULL>> port=<9999> trans=<0>
0429171250|ldap |1|01|ldapCfg::setBufsSize:m_xferSize=<32> m_cacheSize=<128>
0429171250|ldap |1|01|ldapCfg::createUtfTable:Loading default UTF settings
0429171250|ldap |1|01|ldapCfg::showUtfTable:createUtfTable
0429171250|ldap |1|01|ldapCfg::showUtfTable:utfsubset[0]=<0> ,<zz>
0429171250|ldap |1|01|cDynamicData::cDynamicData:m_circSize=<128> m_lowMark=<32>
0429171250|ldap
|0|01|ldapData::newFilter:baseRequest=ldap://172.23.69.233:9999/ou=people,dc=polycomqa,dc=local?sn,givenName,telephoneNumber?sub
0429171250|efk |*|01|Initial log entry. Current logging level 4
0429171250|so |*|01|[SoNcasC]: App-Ctx (JS5) [0-3339989195]
0429171250|app1 |*|01|[InitializeBacklightIntensity] m_nDefaultMin = 0, m_nDefaultLow = 65, m_nDefaultMed = 142, m_nDefaultMax = 219.
0429171252|ldap |1|01|ldapData::reconnect:retry 1/1
[Note] Phone can not do test query to server to determine type of LDAP server
0429171252|ldap |4|01|ldapData::runQuery:Server does not support LDAP v3 - rc=0xffffffff <Can't contact LDAP server>
0429171252|ldap |1|01|ldapCfg::show:<LDAP configuration:> status=<1>
0429171252|ldap |1|01| <server version=-1> <sort:ctrl=0x1-cfg=0x0> <vlv=No>
0429171252|ldap |1|01| <host=ldap://172.23.69.233> <pfix=ldap://> <port=9999> <trans=tcp>
0429171252|ldap |1|01| <baseDN=ou=people,dc=polycomqa,dc=local> <filterPrefix=(sn=*)> <sortOrder=sn givenName telephonenumber> <invSortOrder=NULL>
0429171252|ldap |1|01| <attrib=sn,givenName,telephoneNumber><sub></ffs0/ca-bundle.crt>
0429171252|ldap |1|01| <persistView=No> <persistSearch=No>
0429171252|ldap |1|01| <backgroundSyncPeriod=0> <autoQuerySubmitTimeout=-1>
0429171252|ldap |1|01| <user=uid=polycomuser,ou=people,dc=polycomqa,dc=local> <pass=***>
0429171252|ldap |1|01|ldapCfg::showAttr: Attributes:
0429171252|ldap |1|01|ldapCfg::showAttr: [0] <name=sn><label=last name><type=last_name><filter=><sticky=0><srch=1>

0429171252|ldap |1|01|ldapCfg::showAttr: [1] <name=givenName><label=first name><type=first_name><filter=><sticky=0><srch=0>
0429171252|ldap |1|01|ldapCfg::showAttr: [2] <name=telephoneNumber><label=phone number><type=phone_number><filter=><sticky=0><srch=0>
[Note] Phone fails to initilize the connection to the ldap server
0429171252|ldap |4|01|cDynamicData::finalizeInit:finalizeInit Failed state=<2>

- Phone Busy when doing a search

  In a rare occasion where a user performs an entry and then quickly submits another query before the first one completes, the user will see a “Busy” message. Once the first query completes, the subsequent query is executed and the busy messages disappears.

- Connection Error

  If an LDAP server suddenly is unavailable after the directory has been in use, the user will receive a message “No records found” when doing a search. However in the logs, you will clearly see that there is a connection error.

[*Note] Phone sends a search request while the ldap server is unavailable.
0429165245|ldap |1|01|cDynamicData::getData:get enabled - filter OK <(sn=*)>
0429165245|ldap |1|01|ldapData::runSearch:dir=<DOWN> reverse=<No> index=<ON> filter=<(sn=*)>
0429165245|ldap |1|01|ldapData::showVLVCtrl:setVLVCtrl
0429165245|ldap |1|01|ldapData::showVLVCtrl: before=<0> after=<31> index=<1> count=<0>
[Note] user entered search “J” for surname
0429165245|ldap |1|01|ldapData::showVLVCtrl: attr=<j> ctxt=<0x0>
[Note] phone indicating it can not contact the ldap server
0429165245|ldap |3|01|ldapData::runSearch:conn error - rc=0xffffffff <Can't contact LDAP server>
[Note] phone retries to connect
0429165245|ldap |1|01|ldapData::reconnect:retry 1/1
0429165245|ldap |4|01|ldapData::ldapConnBind:ldap_simple_bind_s - rc=0xffffffff <Can't contact LDAP server>
[Note] phone indicates it failed again
0429165245|ldap |1|01|ldapData::reconnect:conn failed req=<ldap://172.23.69.233:9999/ou=people,dc=polycomqa,dc=local?sn,givenName,telephoneNumber?sub?(sn=*)>
0429165245|ldap |3|01|cDynamicData::processError:conn error
[Note] phone stops trying
0429165245|ldap |3|01|cDynamicData::forceResync:resync timer

Known Issues

The following deficiencies are known to exist with the SIP 3.1.3RevB release and are planned to be addressed in a future release:

- **VOIP-49834**: Advanced Find operation when `dir.corp.allowVLV=1` and no attributes are configured as ‘sticky’ does not display all the results. Only displays twice the ‘cache size’ of entries.
  Workaround: Configure the primary field as ‘sticky’ even if it has an empty field or set the cache size high enough that users will not be inclined to scroll to the end of the first two queries. We recommend using `dir.corp.pageSize=` 32 and `dir.corp.cacheSize=`128. With these settings, you will encounter the problem only if you scroll past 128 entries.
- **VOIP-50012**: When VLV enabled, `dir.corp.`attribute.x.searchable is ignored and not supported.

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