## **Technical Bulletin 41137**



## Best Practices When Using Corporate Directory on SoundPoint<sup>®</sup> IP, SoundStation<sup>®</sup> IP, and Polycom VVX<sup>™</sup> 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:

- <u>Corporate Directory Feature Operation</u>
  - o Changes in SIP 3.1.3
  - o Quick Search Mode
  - o Advanced Find Mode
  - Local Sorting
  - o Sticky Attributes
  - VLV Index Configuration
  - o Attribute Searchable
- Supported V3 LDAP Servers
- Recommended Practices When Using Corporate Directory
  - Configuring the Corporate Directory
- Sample LDAP Directory
  - Microsoft Active Directory
  - o Sun Directory Server
  - o Open LDAP Directory Server
  - Microsoft ADAM
- LDAP Logging
- Troubleshooting
- Known Issues

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

http://www.polycom.com/global/documents/support/setup\_maintenance/products/voice/s pip\_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.

- 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.

Search:jon					
 Image: Caspi, Jonathan, 555–111–2222           Image: Distler, Jonathan, 555–111–3333           Image: Gallmeier, Jonathan, 555–111–4444					
Image: Dial     View     Back     AdvFind	1				

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.



## **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 Idapuser that will be used to log the phone into the active directory called polycomqa.local.

Idap user Properties ? 🗙
Member Of         Dial-in         Environment         Sessions           Remote control         Terminal Services Profile         COM+           General         Address         Account         Profile         Telephones         Organization
User logon name: Idapuser
User logon name (pre- <u>W</u> indows 2000): POLYCOMQA\ Idapuser
Log On To
Account is locked out Account options:
✓ User must change password at next logon         ✓ User cannot change password         ✓ Password never expires         ✓ Store password using reversible encryption
Account expires       Image: Contract End of:     Friday     May     22, 2009
OK Cancel Apply

Figure 7

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

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

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

ldap user Properties	? 🗙		
Remote control Member Of Control General Address	Terminal Services Profile COM+ Dial-in Environment Sessions Account Profile Telephones Organization		
Eirst name: Last name: Digplay name: Description: Offi <u>c</u> e:	Idap Initials:	Active Directory Users and Computers [QAVM-WZK3-01, polycc  Active Directory Users and Computers [QAVM-WZK3-01, polycc  Active Directory Users IS objects  Active Directory Users IS objects  Active Directory Users  Active	/ Group .
_elephone number: E- <u>m</u> ail: ∭eb page:	555-555-5555	PoreignSecurityPrincipals	Group .

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 <a href="http://support.microsoft.com/kb/555638">http://support.microsoft.com/kb/555638</a>

#### **EXAMPLE OF MICROSOFT ACTIVE DIRECTORY PHONE CONFIGURATION**

🗅 🦳 ain	
Sip director (	
dir corn address	server polycomga local
dir.com.part	389
e dir com transnort	ten
dir.com baseDN	DC=nolycomga_DC=local
e dir com scone	sub
dir.com filterPrefix	(objectclass=nerson)
dir.com user	Idanuser@nolycomga.local
e dir.com nassword	nassword
dir com pageSize	32
dir.com.cacheSize	128
dir com leg nageSize	8
dir com leg cacheSize	32
dir com autoQuerySubmitTimeout	0
dir com viewPersistence	0
dir com leg viewPersistence	1
lir.com.sortControl	0
e 🔁 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	phoneNumber
🥌 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
E backGroundSync	
dir.corp.backGroundSync	0
dir.corp.backGroundSync.period	86400
dir.corp.viv.allow	U
dir.corp.viv.sortUrder	
feature 18 name	comprete directory
feature 19 anabled	1
	1
i level	
- Change	
Ordinge     Ind level change Idan	4
log.render.level	1
Refer to ad_Idap_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.



#### 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.

1	QAVM-W2K3	3-01.polycomq	a.local - Sun Ja	va(TM) Sy	stem Directory Server - (	QALDAP 💶 🗖 🗙
<u>C</u> e	onsole <u>E</u> dit (	<u>V</u> iew <u>O</u> bject	Help			
	4	1 L H	~ L M			
	Sun Jav	va™ Syste	em Directo	ory Serve	r Versio	n 5.2
1	Tasks	Configuration	Directory	Status		
	QAVM-W2K	3-01.polycomqa	local:999 🗛 Dire	ectory Admi	nistrators	
	🗝 🧰 dc=poh	vcomaa de=loe	al (3 aci 👫 nec	nle	1	
	peo	ple Edit VVi	h Custom Editor	Ctrl+P		
	nsA 🚞 ns	ccou Edit W	th Generic Editor		pledRole	
	🔘 cn=sche	ema i <u>S</u> earch	ı			
	🗝 🧰 cn=mon	itor (View B	ffective Rights		vationTmp	
	🗝 🚞 cn=cont	fig (4 <u>N</u> ew		Þ	User	
		Ne <u>w</u> R	oot Object	Þ	<u>G</u> roup	
		Set Ac	cess Permissions	Ctrl+L	Organizational Unit	
		Set <u>R</u> o	les		Role	
		Set <u>P</u> a	ssword Policy		Class Of Service	
		Create	Browsing Index		Password Policy	
		Delete	Browsing Index		Referral	
		Activat	e		Other	
		Inactiv	ate			
Fig	ure 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.

🕸 QAVM-W2K3-01.polycomqa.local - Sun Java(TM) System Directory Server - QALDAP 💶 💌						
<u>C</u> onsole <u>E</u> dit <u>V</u> iew <u>O</u> bject <u>H</u> elp						
Sun Java™ System Directo	ry Server Version 5.2					
Tasks Configuration Directory	Status					
QAVM-W2K3-01.polycomqa.locat.9999 de=polycomqa.dc=local (3 acis) pople nsAccountinactivationTmp cn=schema (4 acis) cn=monitor (4 acis) cn=config (4 acis)	<ul> <li>FlinstoneFred</li> <li>KosRichard</li> <li>OlsonLouise</li> <li>GarrattJeff</li> <li>GuthroJoe</li> <li>BernolaRobert</li> <li>McCarthyMichele</li> <li>ArmstrongTodd</li> <li>HaleBrad</li> <li>WardJanet</li> <li>KindreeMark</li> <li>WoodsJay</li> <li>DuchesneMaurice</li> <li>AthertonMichele</li> <li>LorimerPaul</li> <li>BuilTed</li> <li>EdwardsJohn</li> <li>GrayGordon</li> <li>FaubelKen</li> <li>RussoLance</li> </ul>					
ou=people,dc=polycomqa,dc=local						
	· · · · · · · · · · · · · · · · · · ·					

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.

🅸 QAYM-W2K3-C	01.polycomqa.local - Sun Java(TM) System Directory Server - QALDAP 💶 🗖
<u>C</u> onsole <u>E</u> dit ⊻ie	ew <u>O</u> bject <u>H</u> elp
Sun Java	a™ System Directory Server Version 5.2
Tasks Co	onfiguration Directory Status
QAVM-VV2K3- dc=polyco	-01.polycomqa.local:99€ ▲ FlinstoneFred ▲ FlinstoneFred ▲ KosRichard ▲ KosRichard ▲ KosRichard ▲ KosRichard ▲ KosRichard ▲ FlinstoneFred ▲ KosRichard ▲ KosRicha
·····    O cn=sche ⊪···    Cn=monil ⊪··    Cn=confi	Search ert View Effective Rights chele
	New Liser New Root Object Group
	Set Access Permissions     Ctrl+L     Organizational Unit       Set Roles     Role
	Set Password Policy         Class Of Service           Create Browsing Index         Password Policy           Delete Browsing Index         Referral
	Activate Other
gure 13	

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

🚸 Create New User		
4		
User Languages NT User	* First Name:	Idap
Posix User Account	* Common Name(s):	ldapuser
	User ID:	luser
	Password:	****
	E-Mail:	*******
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:

cn	Idapuser	_ View	
createtimestamp	20090423163015Z		Show Attribute Names
creatorsname	uid=admin,ou=administrators,ou=to		Show Attribute Description
entrydn	uid=luser,ou=people,dc=polycomqa		Show only Attributes with Values
entryid	299491		Show DN
givenname	Idap		<u>R</u> efresh
hassubordinates	FALSE	Edit	
modifiersname	uid=admin,ou=administrators,ou=to		<u>A</u> dd Value
modifytimestamp	20090423163015Z		Delete Value
nsuniqueid	fb8cf081-302311de-80408441-8ek		Add Attribute
numsubordinates	0		Delete Attribute
	top	l Nar	ning Attribute: uid Change
	person		
objectclass	organizationalPerson		
	inetorgperson		

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#### 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.

🕸 QAVM-	W2K3-01.polycomq	a.local -	Sun Java	(TM) Syst	em Dire	ctory Ser	ver - QALDAP	_ 🗆 🗙
Console	<u>E</u> dit <u>V</u> iew <u>O</u> bject	Help						
Sun Java™ System Directory Server Version 5.2								
Tasks	Configuration	Direct	ory [ :	Status				
(	/M-W2K3-01.polycomo Data	;a.local:9	The sche	ma checking	g is en ab	led	<u>D</u> isa	ible
	····· III Performance ····· III Schema ····· III Backups ····· III Logs III···· III Plugins			Classes Attributes (	Attrik Read-Or	ly):	Matching Rules	
					.1.1.1	Syntax	Multivalued	
				me 2.5.4 ordi 2.5.1	.42 3.9	DirectoryS Boolean	st 🔽	
				ect 1.3.6	1.1 giver	nName: Sta	andard LDAP attr	ibute type
			homeph	one 0.9.2	342.1	Telephone	e 🔽	
			homepo	sta 0.9.2	342.1	DirectoryS	St 🔽	
			host	0.9.2	342.1	DirectoryS	St 🔽	

Figure 16

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

The filter prefix must match the VLV filter. 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: VIvsub=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: <u>http://docs.sun.com/source/819-1701/AppC\_BrowseSearchPerformance.html</u>

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.

cn	Search for sn	View
createtimestamp	20090401153159Z	Show Attribute Names     Show Attribute Description
creatorsname	uid=admin,ou=administrators,ou=tox	- Show Auripute Description
hassubordinates	TRUE	✓ Show only Attributes with Values ✓ Show DN
modifiersname	uid=admin,ou=administrators,ou=tox	Patroch
modifytimestamp	20090401153159Z	
numsubordinates	1	Edit
obiectolece	top	Add Value
UNJECICIASS	vlvsearch	<u>D</u> elete Value
subschemasubentry	cn=schema	Add Attribute
vlvbase	u=people, dc=polycomqa, dc=local	Delete Attribute
vlvfilter	(sn=*)	Naming Attribute: cn Change
vivscope	2	
n=Search for sn,cn=userRoot,cn=ld	bm database,cn=plugins,cn=config	

Figure 17

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

VIvsort: sn givenName telephonenumber

Generic Editor - cn=Index by sn,cn	=Search for sn,cn=userRoot,cn=ldbm datab	base,cn=plugins,cn=config			
cn	Index by sn	View			
createtimestamp	20090401224115Z	Show Attribute Names			
creatorsname	uid=admin,ou=administrators,ou=topologymana	Show Attribute Description			
hassubordinates	FALSE	Show only Attributes with Values			
modifiersname	uid=admin,ou=administrators,ou=topologymana	Potroch			
modifytimestamp	20090401224115Z				
numsubordinates	0	Edit			
objectclass	top	<u>A</u> dd Value			
00/00/0033	vlvindex	Delete Value			
subschemasubentry	cn=schema	Add Attribute			
vivenabled	1	Delete Attribute			
vivsort	sn givenName telephonenumber	Naming Attribute: cn Change			
vlvuses	552				
dn: cn=Index by sn,cn=Search for sn,cn	=userRoot,cn=ldbm database,cn=plugins,cn=config	·			
		<u>OK</u> <u>Cancel</u> <u>H</u> elp			

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\.

🔤 C:\WINDOWS	\system	132\cmd.exe	_ 🗆 🗙
03/31/2009	09:45	PM 255 monitor.bat	<b>_</b>
03/31/2009	09:45	PM 21,232 ns-accountstatus.pl	
03/31/2009	09:45	PM 21,232 ns-activate.pl	
03/31/2009	09:45	PM 21,232 ns-inactivate.pl	
03/31/2009	09:45	PM 47 restart-slapd.bat	
03/31/2009	09:45	PM 674 restoreconfig.bat	
03/31/2009	09:45	PM 420 saveconfig.bat	
03/31/2009	09:45	PM 2,197 schema_push.pl	
03/31/2009	09:45	PM 24 start-slapd.bat	
03/31/2009	09:45	PM 23 stop-slapd.bat	
03/31/2009	09:45	PM 496 suffix2instance.bat	
03/31/2009	09:45	PM <dir> tmp</dir>	
03/31/2009	09:46	PM <dir> upgrade</dir>	
03/31/2009	09:45	PM 117 vlvindex.bat	
	23 I	File(s) 98.295 butes	
	11 I	Dir(s) 14.171.873.280 butes free	
C:\Program ]	Files\S	Sun\MPS\slapd-QALDAP>stop-slapd.bat	
C:\Program	Files	Sun\MPS\sland-OALDAP>net ston sland-OALDAP	
The Sun ONE	Direct	town Server 5.2 (AALDAP) service is stoming	
The Sun ONE	Direct	town Sewier 5.2 (AALDAP) service was stopped successfully	
THE OWN ONL	D11000	tory berver siz (Andbhr) service was scopped successfurry	
C:\Program 1	Files\S	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.

	Vlvind	lex.bat –r	n userRoot	–T "Ind	ex by sn
--	--------	------------	------------	---------	----------

	📾 C:\WINDOWS\system32\cmd.exe	_ 🗆 🗙
	C·\Pwogwam Files\Sum\MPS\alaxd=001D0P\uluinday hat -n usawPost -T "Inday hu	<b>▲</b>
	(1, 1)	511
	[23/40n/2009:09:54:41 - 07001 - userBoot: Indexed 1000 entries (0)	
	[22/0] / 200/ 00 - 54 - 41 - 07001 - userBoot - Indexed 1000 entries (0/)	
	[23/ngn/2009.09.54.41 - 07001 - userBoot: Indexed 2000 entries (1/)	
	[23/np/2009.09.54.41 - 0700] = use Root. Indexed 4000 entries (1/)	
	[23/nm/2009.09.54.41 - 07001 - userBoot. Indexed 5000 entries (1/)	
	[23/nm/2009.09.54.41 - 07001 - userBoot. Indexed 5000 entries (1/).	
	$[23/np/200] \cdot 0 \cdot 5 \cdot 1 - 0 \cdot 0 \cdot 1$ userBoot: Indexed 0000 entries $(2/)$	
	[23/npr/2007.07.54.41 - 0700] = userBoot: Indexed 2000 entries (2/)	
	[23/0n/2009:09:54:41 - 07001 - userBoot: Indexed 9000 entries (2/)	
	[23/0n/2009.09.54.42 - 0700] = use Root: Indexed 1000 entries (3/)	
	$[23, n_{\rm D}, 200, 30, 51, 12, 51, 51, 12, 51, 51, 51, 51, 51, 51, 51, 51, 51, 51$	
	$[237, n_{\rm P}/260, 50, 51, 12, 51, 51, 12, 51, 50]$ user Root: Indexed 12000 entries (3/).	
	[23/npr/2007:07:54:42 - 07001 - userBoot: Indexed 12000 cntrics ( $1/2$ )	
	[23/4nw/2009:09:54:42 - 07001 - userBoot: Indexed 14000 entries (4/)	
	$[23/40] \times 2609 : 99 : 54 : 42 - 67001 - user Root: Indexed 15000 entries (52)$	
	$[23/40] \times 2609 : 09 : 54 : 42 = 07001 = user Root: Indexed 15000 entries (5/)$	
	[23/4nw/2009:09:54:42 - 07001 - userBoot: Indexed 12000 entries (5/)	
	[23/4nw/2009:09:54:42 - 07001 - userBoot: Indexed 18000 entries (6/)	
	[23] App/2009:09:54:42 -07001 - userBoot: Indexed 19000 entries (6/).	
	123/Anr/2009:09:54:42 -07001 - userBoot: Indexed 20000 entries (6/).	
	[23/Anr/2009:09:54:42 - 07001 - userBoot: Indexed 21000 entries (7%).	
	[23/Ann/2009:09:54:42 - 07001 - userBoot: Indexed 22000 entries (7%).	
	[23/Apr/2009:09:54:42 -0700] - userBoot: Indexed 23000 entries (7%).	
	[23/Apr/2009:09:54:42 -0700] - userBoot: Indexed 24000 entries (8%).	
	[23/Apr/2009:09:54:42 -0700] - userBoot: Indexed 25000 entries (8%).	
	[23/Apr/2009:09:54:42 -0700] - userRoot: Indexed 26000 entries (8%).	
	[23/Apr/2009:09:54:42 -0700] - userRoot: Indexed 27000 entries (9%).	-
ļ		

Figure 20

Once the indexing is complete, run start-slapd.bat to restart the server instance (see 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 Idapuser user read permission.

کې (A	Edit ACI for cn Clname: ldap	=config user		
	Users/Groups The following ha	Rights	Targets Hosts Times	
	Name A Idapuser	User ID Iuser	E-Mail	<u>A</u> do <u>R</u> emo

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.

🕸 QAVM-W2K3-01.polycomqa.k	ocal - Sun Java(TM) System I	Directory Server - QALDAP 💶
<u>Console Edit View Object H</u> el	lp	
Sun Java™ System	n Directory Server	Version 5.2
Tasks Configuration	Directory Status	
Section 201 (Comparison of the section of the sect	ocal:9 Caching Client C	ontrol 📈 Miscellaneous 📔
en line in the second s	Size limit: 20	000 entries 🗖 Unlimited
Backups	Look-through limit: 50	100 entries 🗌 Unlimited
B	Time limit: [36	500 seconds I Unlimited
	Idle timeout:	seconds 🔽 Unlimited
Figure 24	Buff	ersize: 8 Kb

#### **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 openIdap: http://www.openIdap.org/

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

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

In Idap.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

Idapadd -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 Idapuser. Idif 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

Idapadd -x -D "cn=Manager,dc=polycomqa,dc=local" -W -f Idapuser.Idif

#### 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**



## **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.

Activ	e Directory Application Mode Setup Wizard
Ports C	s Computers will connect to this instance of ADAM using specific ports on all of the P addresses associated with this computer.
T P If o a	he ports displayed below are the first available for this computer. To change these orts, type the new port numbers in the text boxes below. you plan to install Active Directory on this computer, do not use 389 for the LDAP port r 636 for the SSL port because Active Directory uses these port numbers. Instead, use vailable port numbers from the following range: 1025-65535.
Ē	DAP port number: 389
S E	SL port number: 50001
	< <u>B</u> ack <u>N</u> ext > Cancel Help

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.

Create Object		x
Select a c	lass: container group groupOfNames inetOrgPerson locality msD5-AzAdminManager organizationalPerson organizationalUnit person User	
	UserProxy           < Back         Next >         Cancel	

Figure 28

We will name the user object, Idapuser.

Create Object				X
<u>A</u> ttribute:	: cn			
<u>S</u> yntax:	DirectoryString			
<u>V</u> alue:	Idapuser			
		< <u>B</u> ack	Next >	Cancel

Figure 29

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

🍕 ADAM-adsiedit - [ADAM ADSI Edit\polycomqa.local [localhost:389] \DC=polycomqa,dc=local\OU=people] 💦 📘 🗙						
Eile <u>A</u> ction <u>V</u> iew <u>W</u> indow <u>H</u> elp	🕹 Eile Action View Window Help					
	1. Contraction of the second sec					
ADAM ADSI Edit	Name 🛆	Class	Distinguished Name			
🖶 🕂 Configuration [localhost:389]	🗒 CN=LaxmaiahSara	user	CN=LaxmaiahSarakonda,OU=people,DC=polycomqa,DC=			
🖻 🗍 Schema [localhost:389]	🖺 CN=LazarovichRon	user	CN=LazarovichRon,OU=people,DC=polycomqa,DC=local			
CN=Schema,CN=Configuration	CN=ldapuser	user	CN=ldapuser,OU=people,DC=polycomqa,DC=local			
🖻 📑 polycomqa.local [localhost:389]	🗒 CN=LeCourDaniel	user K	CN=LeCourDaniel,OU=people,DC=polycomqa,DC=local 🔤			
DC=polycomqa,dc=local	CN=LeCouteurSimon	user	CN=LeCouteurSimon,OU=people,DC=polycomqa,DC=loca			
	🗒 CN=LeeBoha	user	CN=LeeBoha,OU=people,DC=polycomqa,DC=local			
	🗒 CN=LeeDerek	user	CN=LeeDerek,OU=people,DC=polycomqa,DC=local			
	🗒 CN=LeeEsther	user	CN=LeeEsther,OU=people,DC=polycomqa,DC=local			
CN=Roles	🗐 CN=LeeHank	user	CN=LeeHank,OU=people,DC=polycomga,DC=local			
	•		▶ International			

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.

🍕 ADAM-adsiedit - [ADAM ADSI Edit\polycomqa.local [localhost:389] \DC=polycomqa,dc=local\CN=Roles] 📃 🗖 🗙					
Sile Action View Window Help	🕹 Eile Action View Window Help				
📣 ADAM ADSI Edit	Name	Class	Distinguished Name		
🗄 🗍 Configuration [localhost:389]	🗒 CN=Administrat	ors group	CN=Administrators,CN=Roles,DC=polycomqa,DC=local		
🗄 📲 Schema [localhost:389]	CN=Readers	aroup	CN=Readers,CN=Roles,DC=polycomqa,DC=local		
□ 📑 polycomga.local [localhost:389]	■ CN=Users	Move	CN=Users,CN=Roles,DC=polycomqa,DC=local		
		<u>D</u> elete			
E CN=NTDS Quotas		Rena <u>m</u> e			
OU=people		P <u>r</u> operties			
		Help			
	•				
Opens the properties dialog box for the current selection.					

Figure 32

Edit the members properties for the CN=readers object.

EN=Readers Properties 🛛 🔋 🗙						
Attribute Editor						
· · · · · · · · · · · · · · · · · · ·			1			
Show mandatory attri	Show <u>m</u> andatory attributes					
Show optional attribut	tes					
Show only attributes t	hat have values					
Attributeer						
Attri <u>b</u> utes.		1				
Attribute	Syntax	Value				
groupType	Integer	-2147483646				
instanceType	Integer	4				
isCriticalSystemObject	Boolean	TRUE				
isDeleted	Boolean	<not set=""></not>				
lastKnownParent	Distinguished	<not set=""></not>				
managedBy	Distinguished	<not set=""></not>				
managedObjects	Distinguished	<not set=""></not>				
masteredBy	Distinguished	<not set=""></not>				
member	Distinguished	<not set=""></not>				
memberOf	Distinguished	<not set=""></not>				
modifyTimeStamp	UTC Coded Ti	3/13/2009 8:09:02 PM				
msDS-Approx-Immed	Integer	0				
msDS-AzApplicationD	Unicode Strina	<not set=""></not>	<u> </u>			
		<u>)</u>				
<u>E</u> dit						
<u>\</u>						
	ΠΚ	Cancel An	nlu I			
			85			

Figure 33

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

Multi-valued Distinguish	ed Name With Security Principal Edi	itor X
<u>A</u> ttribute: membe Val <u>u</u> es:	r	
Name Con	tainer	Distinguished Name
	Add ADAM Account Enter a dinstinguished name (DN) fo cn=ldapuser,ou=people,dc=polyce OK	ior an object. comqa,dc=local
•		
Add Windows Account		<u>R</u> emove
Add ADAM Account		OK Cancel

Figure 34

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

In our example, we will use (objectass=\*) 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 IDAPDisplayName which is used for the phone configuration file. In our example (see Figure 35), we will be using standard attributes, sn givenName, and telephoneNumber.

🝕 ADAM-adsiedit - [ADAM ADSI Edit\Schema [localhost:389] \CN=Schema,CN=Configuration,CN={D29723EF-F677-463E 💶 🗖 🗙				
🕼 Eile Action View Window Help				
ADAM ADSI Edit	Name 🛆	Class	Distinguished Name	
🗄 🕂 🗒 Configuration [localhost:389]	E CN=Superior-DNS	attributeSche	CN=Superior-DNS-Root,CN=Schema,CN=Configuration,C	
🖻 🗐 Schema [localhost:389]	🗒 CN=Supplemental	attributeSche	CN=Supplemental-Credentials,CN=Schema,CN=Configura	
CN=Schema,CN=Configuration	CN=Surname	attributeSche	CN=Surname,CN=Schema,CN=Configuration,CN={D2972	
🖃 🗐 polycomga.local [localhost:389]	🗒 CN=System-Auxilies	attributeSche	CN=System-Auxiliary-Class, CN=Schema, CN=Configuratio	
DC=polycomqa,dc=local     DC=CN=LostAndFound	🗒 CN=System-Flags	attributeSche	CN=System-Flags,CN=Schema,CN=Configuration,CN={D	
	CN=System-May-C	attributeSche	CN=System-May-Contain, CN=Schema, CN=Configuration,	
CN=NIDS Quotas	CN=System-Must	attributeSche	CN=System-Must-Contain, CN=Schema, CN=Configuration	
	CN=System-Only	attributeSche	CN=System-Only,CN=Schema,CN=Configuration,CN={D2	
	CN=System-Poss-S	attributeSche	CN=System-Poss-Superiors, CN=Schema, CN=Configuratic	
	•		Þ	

Figure 35

## EXAMPLE OF MICROSOFT ADAM PHONE CONFIGURATION

🗄 🗁 🔁 directory	
🥌 🕒 dir.corp.address	Idap://1.1.1.100
🦲 🥵 dir.corp.port	389
🥌 🕒 dir.corp.transport	tcp
🥌 🕒 dir.corp.baseDN	OU=people,DC=polycomga,DC=local
🥌 🕒 dir.corp.scope	sub
🧕 dir.corp.filterPrefix	(objectclass=*)
🦲 dir.com user	uid=Idapuser.ou=people.dc=polycomga.dc=local
🥌 🧕 dir. corp. password	password
🦲 dir com pageSize	32
dir.com.cacheSize	128
🦲 dir.com.leg.pageSize	8
🥌 dir com leg cacheSize	32
dir.corp.autoQuervSubmitTimeout	0
dir com viewPersistence	0
dir com led viewPersistence	1
dir com sortControl	0
in the second s	
e dir com attribute 1 name	sn
🥌 dir corp attribute 1 label	Last Name
dir corp attribute 1 type	last name
dir corp attribute 1 filter	haot_hamo
dir corp attribute 1 sticky	0
E attr2	
e dir com attribute 2 name	divenName
🥌 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	
E- attr3	·
🦲 🧉 dir. corp. attribute 3 name	telephone number
🧕 dir. corp. attribute. 3. label	Phone Number
🧕 dir com attribute 3 type	phone number
🧉 dir corp attribute 3 filter	
🥌 dir corp attribute 3 sticky	n
dir corp attribute 3 searchable	0
E- backGroundSvnc	-
dir.corp.backGroundSvnc	0
dir.corp.backGroundSync.period	86400
Gir. 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 Idap 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, Idap 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|Idap |1|01|IdapCfg::createUtfTable:Loading default UTF settings 0429153319|Idap |1|01|IdapCfg::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]IdapData::newFilter:baseRequest=Idap://172.23.69.233:9999/ou=people,dc=polycomqa,dc=local?sn,givenName,tele phoneNumber?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|Idap |1|01|IdapData::queryResults:Sort-Yes Persist-Yes VLV-Yes [Note] The following 8 lines provide Idap 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|Idap |1|01| <attrib=sn,givenName,telephoneNumber><sub></ffs0/ca-bundle.crt> 0429153322|Idap |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 Idap 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.

Search (Filtered):			
 No entries found			
	Back	AdvFind	

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=0xfffffff3 <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.

	Search:joe
	Login Error
s	Submit Back AdvFind

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 |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.

	Search:
	Enter More Chars
S	Submit Back AdvFind

#### [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 |3|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.

	Search: to			
	Searchi	ng		
_				
5	i timdu	Back	AdvFind	

[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|Idap |1|01|IdapData::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|Idap |1|01|IdapData::showVLVCtrl:parseControls 0429173618|ldap |1|01|ldapData::showVLVCtrl: before=<0> after=<31> index=<219289> count=<299482> 0429173618|Idap |1|01|IdapData::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> 0429173618lldap l0l01lldapEntry::show:->new: <to1000> <to1000> <5551112222> 0429173618lldap l0l01lldapEntry::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> 0429173618lldap l0l01lldapEntry::show:->new: <to10028> <to10028> <5551112222> 0429173618lldap |0|01|ldapEntry::show:->new: <to10030> <to10030> <5551112222> 0429173618lldap |0|01|ldapEntry::show:->new: <to10042> <to10042> <5551112222> 0429173618lldap l0l01lldapEntry::show:->new: <to10043> <to10043> <5551112222> 0429173618lldap l0l01lldapEntry::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> 0429173618lldap |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: <to10097> <to10097> <5551112222> 0429173618|ldap |0|01|ldapEntry::show:->new: <to10098> <to10098> <to5551112222> 0429173618|ldap |0|01|ldapEntry::show:->new: <to10098> <to10088> <to10088> <to1088> <to1088> <to

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|Idap |1|01|IdapData::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: <ko10074> <ko10074> <5551112222> 0429175616|ldap |0|01|ldapEntry::show:->new: <ko10075> <ko10075> <5551112222> 0429175616|ldap |0|01|ldapEntry::show:->new: <ko10075> <ko10075> <5551112222> 0429175616|ldap |0|01|ldapEntry::show:->new: <ko10075> <ko10075> <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 reenter 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||dap [0]01]IdapData::newFilter:baseRequest=Idap://172.23.69.233:9999/ou=people,dc=polycomqa,dc=local?sn,givenName,tele phoneNumber?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|Idap |1|01|IdapCfg::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|Idap |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|Idap |1|01|IdapCfg::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 Idap 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.

	Search:s			
Searchino				
	Busy			
S	ubmit 🛛	Back	AdvFind	

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

## **Trademark Information**

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