Configuring Perdition Proxy Software to Use An Existing LDAP Server

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Introduction

The Perdition proxy server software was designed by Simon Horman as part of a high availability email system. Perdition allows an ISP to distribute end user mail boxes over several servers seamlessly. All the end users connect through the proxy server(s) to retrieve their email via POP, and/or IMAP. User redirection information can be stored using a variety of methods including: gdbm, NIS, regular expressions, relational data bases (MySQL, PostgreSQL), and LDAP.

The main perdition web site is `http://www.vergenet.net/linux/perdition/`

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Perdition also requires that the VAnessa (VA Network Enhanced Scalable Server Architecture) libraries be installed. The VAnessa web site is at: `http://www.vergenet.net/linux/vanessa/`. Both sets of tools were downloaded from: ftp.vergenet.net, and installed on my Linux workstation using the Redhat Package Manager (RPM). In a production environment, Perdition and VAnessa should be installed on a set of dedicated servers.

Perdition comes with a tool to populate an empty OpenLDAP server with its default schema, perditiondb_ldap_makedb. However, as we already have several existing, populated, iPlanet LDAP servers along with an infrastucture to maintain the information in them, I decided to adapt Perdition to use our existing servers' schemas.

LDAP URLs

Perdition extracts information from LDAP via specially configured URLs.

LDAP URLs are documented in RFC 2255 `http://www.cis.ohio-state.edu/cgi-bin/rfc/rfc2255.html`, and the iPlanet Directory Server Administrator's Guide (Appendix C) `http://docs.iplanet.com/docs/manuals/directory/51/html/ag/url.htm#1915312`.

LDAP URLs have the following format:

ldap[s]://hostname[:port]/search_base?attributes?scope?filter[?extension[,extension]]

Cleartext connections are made using the ldap:// protocol, and encrypted (SSL) conections are made using the ldaps:// protocol.

LDAP URL Components:

Component	Definition
hostname	Server name, or numerical ip address. Example, ldap.mydomain.edu, or 10.10.220.90
port	The LDAP service's port number. Example, 389, or 636 if using the secure (ldaps) protocol. A blank here defaults to 389 for ldap, and 636 for ldaps.
search_base	Consists of an entry's distinguished name (DN). The search_base tells Perdition where to start its search.
attributes	Names of the LDAP fields to be returned. A blank here returns all visible attributes. The port attribute is optional if standard POP3, and IMAP4 ports are being used.
scope	Scope consists of one of the following: base, one, or sub. For all the schemas tested, Perdition seems to work with either one, or sub, but not with base.
filter	Criteria to be used within the scope of the search. Example, (uid=%25s). The %25s gets replaced with the userid supplied by the user's email client.
extension	LDAP extension, currently we only support BINDNAME and X-BINDPW extensions (for binding with a name and password before requesting LDAP data). Multiple extensions may be separated by commas, and an extension that is required with have a *!* as a prefix. To bind as *cn=Manager* with password *secret* use *!BINDNAME=cn=Manager,!X-BINDPW=secret*.

Configuration

Recommended configuration approach: via changes to /etc/perdition/perdition.conf file. To configure Perdition to use LDAP, add the following lines:

M /usr/lib/libperditiondb_ldap.so

m ldap://hostname.mydomain.com:port/ou=mailbox,dc=mydomain.com,dc=com?username,mailhost,port?one?(uid=%25s)

Substitute your server's name, ldap port, search_base, etc.

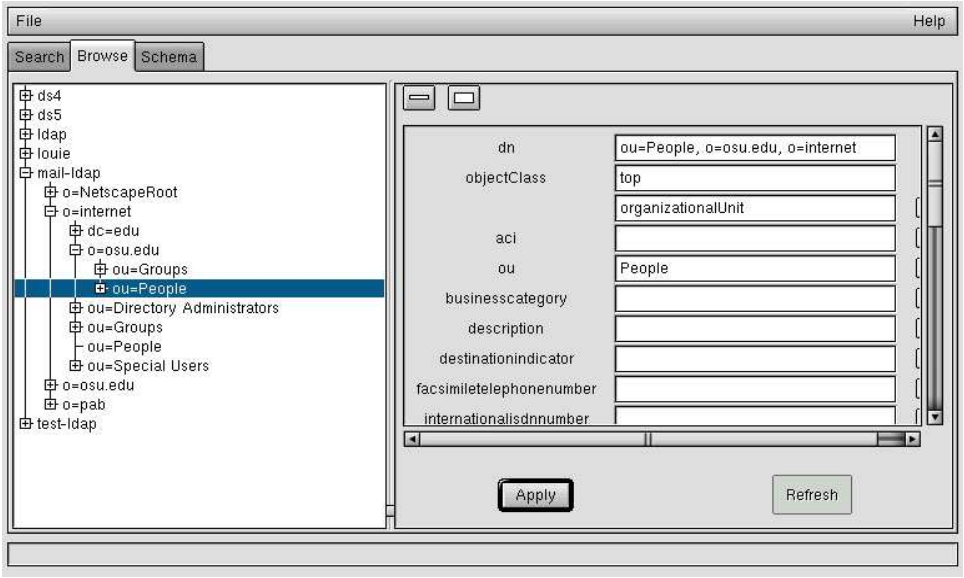
Another approach is to modify perditions startup script by appending the -M and -m values from above to the proxies command line.

Rapid Testing

A web browser, such as Netscape, Konqueror, Mozilla, etc. can be used in conjunction with a GUI LDAP tool, like GQ, to derive and test LDAP queries.

The ficticious iplanet-ldap server uses iPlanet's messaging server schema.

The following is a screen shot of iplanet-ldap's tree structure.



dn: ou=People, o=osu.edu, o=internet

objectClass: top

organizationalUnit

aci:

ou: People

businesscategory:

description:

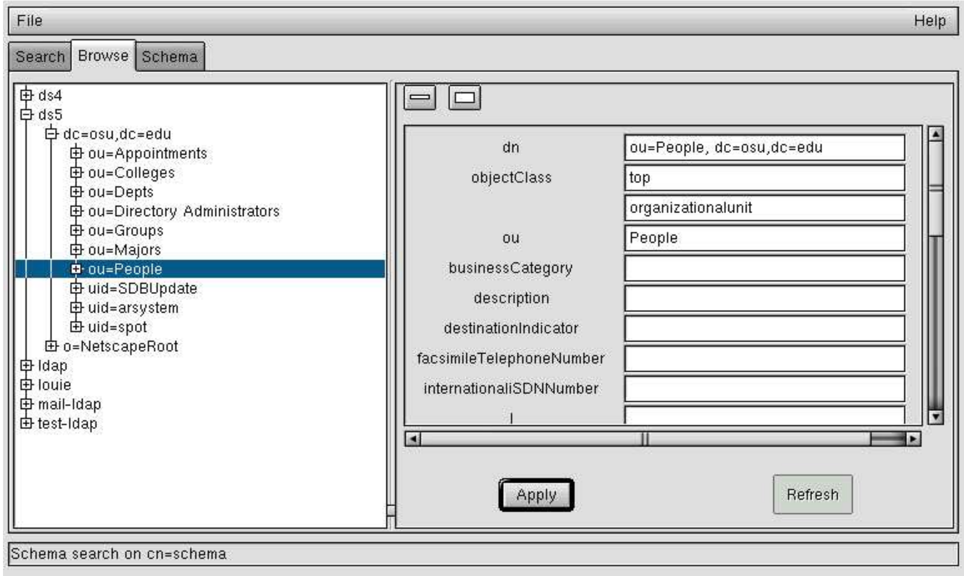
destinationindicator:

facsimiletelephonenumber:

internationalisdnnumber:

However, directoryserver4, and directoryserver5 use a modified eduPerson schema. As a result, the search bases differ.

Here's a screen shot of directoryserver5's tree structure.



```
⊞ ds4
⊟ ds5
   ⊟ dc=osu,dc=edu
      ⊞ ou=Appointments
      ⊞ ou=Colleges
      ⊞ ou=Depts
      ⊞ ou=Directory Administrators
      ⊞ ou=Groups
      ⊞ ou=Majors
      ⊞ ou=People
      ⊞ uid=SDBUpdate
      ⊞ uid=arsystem
      ⊞ uid=spot
   ⊞ o=NetscapeRoot
⊞ ldap
⊞ louie
⊞ mail-ldap
⊞ test-ldap
```

dn	ou=People, dc=osu,dc=edu
objectClass	top
	organizationalunit
ou	People
businessCategory	
description	
destinationIndicator	
facsimileTelephoneNumber	
internationaliSDNNumber	

Schema search on cn=schema

The access controlls for directoryserver5 had to be modified to make the mailhost attribute visible from anonymous binds.

Some example LDAP queries along with their results are as follows:

ldap://iplanet-ldap.mydomain.edu:389/ou=people,o=mydomain.edu,o=internet?uid,mailhost?one?(uid=smith.13)

```
dn: uid=smith.13,ou=People, o=mydomain.edu, o=internet
uid: smith.13
mailhost: mail2.service.mydomain.edu
```

ldap://directoryserver5.service.mydomain.edu:20389/ou=people,dc=osu,dc=edu?uid,mailhost,port?one?(uid=jones.

```
dn: mydomainEduID=397427, ou=People, dc=mydomain, dc=edu
uid: jones.6
mailhost: mail1.service.mydomain.edu
```

Notice how the order of the search base dn starts with the bottom of the tree, and works its way back up the tree. Also note that in this example, directoryserver5 uses non-standard port, 20389 for LDAP.

Extensions

The basic LDAP URL can be extended in two ways.

If the LDAP servers are using standard ports, then multiple servers can be used in the LDAP URL. For example:

```
ldap://ldap1 ldap2 ldap3/ou=people,o=mydomain.edu,o=internet?uid,mailhost,port?one?(uid=smith.13)
```

So far, all the examples have used anonymous binds to connect to the LDAP servers. The LDAP URL may be extended using the bindname, and x-bindpw attributes as follows:

```
ldap://ldap1:389/ou=people,o=mydomain.edu,o=internet?uid,mailhost,port?one?(uid=smith.13)?!
bindname=cn=admin,x-bindpw=secret
```

or

```
ldaps://secure-ldap:636/ou=people,o=mydomain.edu,o=internet?uid,mailhost?one?(uid=smith.13)?!
bindname=cn=super%20admin,x-bindpw=bigsecret
```

Testing

I conducted several tests using telnet, and a reconfigured email client. I was able to retrieve mail from any of our existing mail servers by pointing my email client at the Perdition proxy running on localhost. Changing the value of my mailhost attribute in LDAP caused the proxy to redirect my retrieval requests to the appropriate mail server.