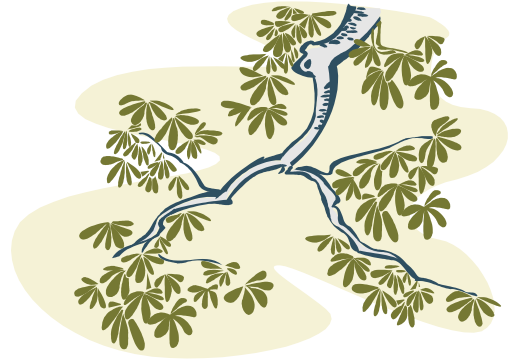


# ***EmerLDAP***

LDAP Synchronization Service  
Version 2.0



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## 1. Introduction

The Emerald LDAP Synchronization service (Emerdap) is an interface to the Emerald database that allows synchronization of user information between a LDAP server and the Emerald database. This decreases the challenge of vendors trying to keep up with the database structure or program an ODBC interface into their products that may not be available on some platforms. Tight synchronization alleviates users from having to manage multiple user databases and offers greater scalability and control for all products.

Emerdap will create and remove entries from an LDAP server as they are added and removed from Emerald. It can be configured to keep the two databases exactly the same or make exceptions based on predefined filters.

**Note:** Some knowledge of LDAP and an LDAP Server is required. We cannot support LDAP server specific problems.

## 2. Getting Started

### **Configuring Emerald**

Before installing Emerdap you'll need to configure an Emerald External system and associate the Service Types you want synchronized with this system. The Emerald External System Name must match the name of the Emerdap sync server you will be creating later.

### **LDAP Server**

A free LDAP implementation is available from <http://www.openldap.org>.

After installing your LDAP server create a DN (Distinguished Name) to place your Emerald users under. For example ou=users,o=nasa. You can use the ldapadd utility included with some directory servers to add the DN if it does not already exist.

```
ldapadd -h localhost -D 'cn=Directory Manager' -w password
Ou=users,o=nasa
Ou=users
ObjectClass=OrganizationalUnit
$
```

A Java based LDAP client is also available from <http://www.iit.edu/~gawojar/ldap/>. This Base DN will be used later when configuring your sync server (See [Installing Emerdap](#))

Next create an administrative user that has full access to your Base DN (or use the LDAP root /directory manager account) This user must not have any limitations set on the number of entries a search can retrieve or the amount of time a search operation can take. If Emerdap encounters these search limits database synchronization will fail. While you're here you may want to turn up the debug level on your LDAP Server to help debug any problems.

### **External System**

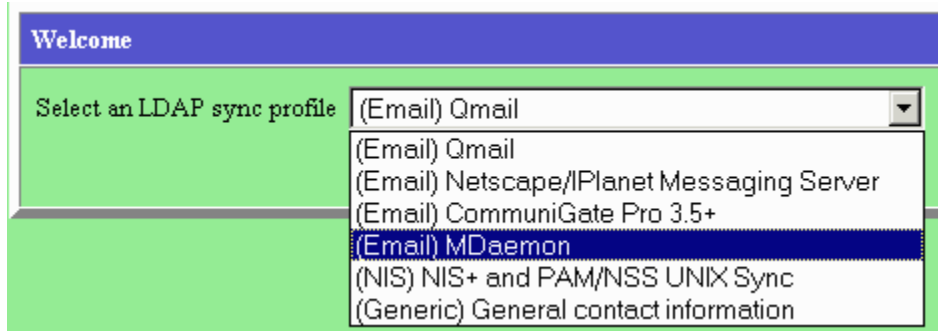
Test the system your integrating Emerald and LDAP with to make sure it can connect to your directory server and it's able to read entries within the Base DN you added above.

## 3. Installing an Emerdap Server

Start the Emerdap server in debug mode.

On Windows platforms select Emerdap (Debug) from the Emerald program group. On UNIX platforms type './emerdap -debug' from your main Emerald directory (/usr/local/emerald)

```
D:\vss\emerdap\debug\emerdap.exe
Debugging Emerald LDAP Sync 2.0.12
Required setting 'Mapped columns' not set
Required setting 'Mapped columns' not set
Starting configuration Web server on TCP port 8012.
```



Your display will have different Sync profiles from what's shown in the picture above. *(If there are no Sync profiles showing check the directory EmerDap is installed to. It should contain an Emerdap sub directory with a file named 'emerdap.ini'. Enter the directory containing this file in the Directory field, then click 'Go'.)*

Now lets get started creating your sync server. Select the proper profile from the Sync profile screen.

### **General**

Installs or removes this sync server from the Windows service manager. The 'Service Title' field represents the name of the service listed in service manager. 'Debug' runs the sync server in debug mode within a command window. All messages in this mode are shown in the command window and not logged to disk. Make sure this server is not already running as a service before using the debug option.

| Option                    | Description  |
|---------------------------|--|
| Show advanced             | Show <a href="#">advanced sync options</a>   |
| Server name               | Emerald external system name of this sync server   |
| Description               | Text field describing what this server does  |
| Configuration server      | Weather to enable or disable the Emerdap configuration server. Run emerdap from the command line with <code>-config</code> to re-enable. |
| Configuration server port | TCP Port configuration web server should listen on. The default is 8012  |
| Service name              | Service label to show in Windows service manager. (Windows ONLY)   |
| Service control           | Installs or Removes Emerdap as a Windows service. (Windows ONLY)   |

If the 'Help' button is available in the Sync Configuration section it will share some configuration pointers specific to the sync profile you selected.

### **ODBC Data sources**

Enter the name of the ODBC Data source of your Emerald database. The database server menu use a shared configuration /w other Emerald applications such as Emerald, syslog server, scheduler, Radius... If you have already installed one of these applications database access is already configured and you may skip this step.

**Database server** TO add LDAP support to Qmail see <http://www.nrg4u.com/>

ODBC datasource

Username

Password

Persistent connection

If Emerald is already installed on the same computer the Emerald data source is already configured and there is no need to change ODBC or License settings.

### Directory Server Configuration

Enter your LDAP connect information and Base DN - See [Getting Started](#).

**LDAP server** TO add LDAP support to Qmail see <http://www.nrg4u.com/>

Server URL(s) (e.g. ldap://host or ldaps://host)

Server certificate validation

---

Bind DN

Bind password

Base DN

| Option                        | Description   |
|-------------------------------|---|
| Server URLs                   | URL of LDAP server ldap://servername for LDAP/TCP or ldaps://servername for LDAP/TLS  |
| Server certificate validation | When enabled SSL certificate validation of the LDAP server is performed. When disabled server certificates are not validated. |
| Bind DN                       | LDAP bind DN. (An administrative account on the directory server)   |
| Bind Password                 | LDAP bind password  |
| Base DN                       | Base DN being synchronized  |



## Directory Update Options

These options control what and how often to make changes in LDAP based on what has been changed in Emerald.

**Sync options** TO add LDAP support to Qmail see <http://www.nrg4u.com/>

Enable Add

Enable Update

Enable Delete

Exclude search filter

---

Password type

Password attribute

---

Partial sync (secs)

Full sync (secs)

---

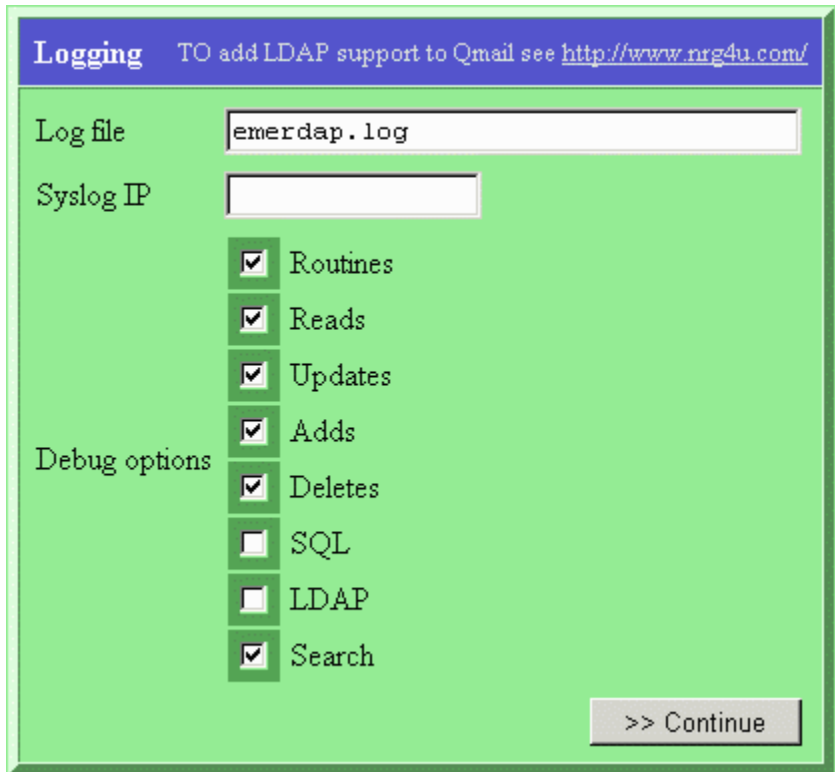
Partial neg sync (secs)

Full neg sync (secs)

| Option                | Description  |
|-----------------------|--|
| Enable Insert         | Allow new entry's to be added to the directory.  |
| Enable Update         | Allow existing entries to be updated.  |
| Enable Delete         | Allow deleted entries and their attributes to be deleted from the directory.   |
| Exclude search filter | An LDAP search filter where a match is used to exclude entries from being updated or deleted. Don't set to disable the exclude filter. |
| Password type         | Password format options such as plain text or unix crypt.  |
| Name of the           | The name of the password attribute. Generally 'userPassword'   |
| Partial sync          | Seconds between running partial sync (Differential Add/Update)   |
| Full sync             | Seconds between running full sync (Complete Add/Update/Delete)   |
| Partial neg sync      | Seconds between running partial negative sync (Differential Delete)  |
| Full neg sync         | Seconds between running full negative sync (Complete Delete)   |

## Logging

All Errors are logged unconditionally. When first starting the sync server it's a good idea to check all of these and review the output by using the debug option in the [Service Control](#) section. When your confident things are working turn off debugging. Some of these options - especially Search and Update can generate large amounts of debug data.



| Option   | Description                           |
|----------|---------------------------------------|
| Routines | Entering and leaving update functions |
| Reads    | Summary of data read from all sources |
| Updates  | Entries and attributes modified       |
| Adds     | New entries and attributes            |
| Deletes  | Deleted entries                       |
| SQL      | SQL specific operations               |
| LDAP     | LDAP specific operations              |
| Search   | LDAP search operations                |

### **Directory Sync Configuration**

This section is for advanced users. It allows you to modify defaults for the current sync profile. Please don't make changes to these fields unless you understand their implications. To enable advanced options select 'Show advanced options' from the general section.

Three new sections appear 'LDAP Column mappings', 'Multi-valued attributes' and 'Queries'.

#### **LDAP Column mappings**

Column mappings detail how information from the SQL database should be mapped to LDAP attributes.

**LDAP column mappings**

**Mapped columns**

- uid
- userPassword
- mailHost
- mailAddress
- x500uniqueIdentifier

Delete

Add

**Primary key**

x500uniqueIdentifier

---

**Object classes**

- organization
- posixAccount
- organizationalPerson

Delete

Add

>> Continue

| Option         | Description  |
|----------------|--|
| Mapped columns | These SQL column names will be mapped to LDAP attributes of the same name. |
| Primary Key    | This Column Name (attribute) becomes the DN of each entry.                 |
| Object Class   | Object class(es) included in the entry.                                    |

### **Multi-valued attributes**

Multi-valued attributes allow mapping multiple values of a field to LDAP. In a relational database of tables containing rows and columns each column can only store a single record per row -- However most directory systems allow an unlimited number of similar attributes per entry. Multi-valued attributes allows you to specify a query to retrieve multiple values from another source. This is only triggered when there is a multi-valued attribute query specified for the column in question and the value of that column in the RDBMS is null. This allows the RDBMS to Detect in advance whether more than one attribute is present and skip having to run this sub-query for entries with 0 or 1 values.

**Multi-valued attributes** TO add LDAP support to Qmail see <http://www.nrg4u.com/>

Queries: x500uniqueIdentifier

Queries: cn

Queries: uid

{CALL LDAPmailForwardingAddress(#account

**Queries**

**Queries** TO add LDAP support to Qmail see <http://www.nrg4u.com/>

---

Partial sync query (*Retreives list of changes since last good call*)

```
{CALL QMailGetPartial('$name')}
```

---

Full sync query (*Sets partial sync to retrieve all data*)

```
{CALL LDAPSetLastModifyDate('reset','$na
```

| Option        | Description  |
|---------------|--|
| Partial sync  | Retrieves a list of changed records to compare with the directory servers data.  |
| Full sync     | Sets SQLPartialProc to retrieve all records regardless of it's last process date.<br>Don't set to disable Full sync.                         |
| Partial time  | Sets last call time for Partial sync after a successful run.   |
| Verify delete | Check PrimaryKey does not exist in the database server by returning 'ACK' then delete entry from LDAP.<br>Don't set to disable this feature. |
| Partial neg   | A list of PrimaryKeys to delete. Don't set to disable this feature.  |
| Full neg      | A list of PrimaryKeys to not delete. Don't set to disable this feature   |