

CN=Monitor 1.3

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Installation

Prerequisites

In order to use CN=Monitor the following applications and libraries needs to be installed. Installation notes below will include how to install these prerequisites.

- Linux as operating system
- Apache HTTPd server (including php and mod_ssl extension)
- OpenSSL
- PHP v5 with LDAP, GD and CLI support
- Database (Optional). PostgreSQL or MySQL

Avoid Certificate Verification

Set the following setting in /etc/openldap/ldap.conf to avoid Common Name verification of certificates. Especially important when you have a clustered environment.

```
# vi /etc/openldap/ldap.conf  
  
TLS_REQCERT      never
```

RPM Installation

Install Dependencies

```
# yum install openldap-clients  
# yum install httpd mod_ssl openssl  
# yum install php php-cli php-ldap php-gd
```

Install CN=Monitor

```
# rpm -ivh cnmonitor-1.3-3.noarch.rpm
```

Installed files

/etc/cnmonitor	Configuration Files
/usr/share/cnmonitor/www	Web Application
/usr/share/cnmonitor/bin	Scripts to collect historical events
/usr/share/cnmonitor/sql	SQL Files to setup database
/usr/share/cnmonitor/doc	This document
/usr/share/man/man1	Manual (man) files for CN=Monitor

Don't forget to restart httpd

```
# service httpd restart
```

Collect historical monitor events (optional but recommended).
Supported databases are MySQL and PostgreSQL.

MySQL

```
# yum install mysql-server php-mysql
```

```
# service mysqld start
```

Install schema

```
# mysql -u root -p < /usr/share/cnmonitor/sql/mysql.sql
```

In this example we are using root as user for mysql

Don't forget to restart httpd

```
# service httpd restart
```

PostgreSQL

```
# yum install postgresql-server php-pgsql
# service postgresql initdb
# service postgresql start
```

Install schema

```
# psql -U postgres -f /usr/share/cnmonitor/sql/postgresql.sql
```

In this example we are using postgres as user for PostgreSQL

Don't forget to restart httpd

```
# service httpd restart
```

Continue to chapter "Setup Monitoring".

Manual *nix Installation

For other Unix/Linux distributions that meet CN=Monitor stated requirements.

Install CN=Monitor

Untar and unzip tgz file in /usr/share

```
# cd /usr/share
# tar -zxvf cnmonitor-1.3-3.tgz
```

You should now end up with:

/usr/share/cnmonitor/config	Configuration Files
/usr/share/cnmonitor/www	Web Application
/usr/share/cnmonitor/bin	Scripts to collect historical events
/usr/share/cnmonitor/sql	SQL Files to setup database
/usr/share/cnmonitor/doc	This document
/usr/share/cnmonitor/conf	Apache Configuration files
/usr/share/cnmonitor/man1	Manual (man) file
	If you need the man file. Install it in:
	/usr/share/man/man1

Move config directory to /etc, create symbolic link and set file permissions:

```
# mv /usr/share/cnmonitor/config /etc/cnmonitor
# ln -s /etc/cnmonitor /usr/share/cnmonitor/config
# chown -R root:apache /etc/cnmonitor
# chmod -R 650 /etc/cnmonitor
# chmod -R +x /usr/share/cnmonitor/bin
```

Copy apache configuration file to your conf.d directory for apache or manually add the configuration in httpd.conf.

```
# cp /usr/share/cnmonitor/conf/httpd/cnmonitor.conf
/etc/httpd/conf.d/
```

Don't forget to restart httpd

```
# service httpd restart
```

Collection of historical events

Consult your vendor documentation how to setup your database connection and further configuration.

Database configuration files are available in the cnmonitor/sql directory.
This documentation is available in the cnmonitor/doc directory.

Continue to chapter "Setup Monitoring".

Setup monitoring

You can set the configuration option "nocollect" with value 1 to exclude environments and servers to be included.

Setup collect monitoring information (run it around every 30 minutes):

```
# crontab -e
# */30 * * * * cd /usr/share/cnmonitor/bin;php collectdb.php
```

Setup collect server messages and retrieve email alerts (run it around every 10 minutes):

```
# crontab -e
# */10 * * * * cd /usr/share/cnmonitor/bin;php collectservermessage.php
```

Setup create collection summary (should be run once a day):

```
# crontab -e
# 0 4 * * * cd /usr/share/cnmonitor/bin;php collectsummary.php
```

In some distributions its preferred to use /etc/cron.daily/<custom shell script>

Setup sending status mail every week:

```
# crontab -e
# 0 4 * * * cd /usr/share/cnmonitor/bin;php collectmailreport.php
```

In some distributions its preferred to use /etc/cron.weekly/<custom shell script>

Note that you need to configure CN=Monitor to use this functionality.

You also need to configure and start sendmail before this functionality can be used.
See configuration chapter for more info.

I highly recommend running the commands from the command line to verify the functionality before scheduling the jobs.

Consult your crontab documentation and set preferred monitoring interval. In

the example above we are collecting every five minutes.

Upgrade

It's recommended to back up your configuration files before upgrading CN=Monitor. It's also recommended to upgrade from the previous released version (**1.2**).

RPM Upgrade

```
# cp -rd /etc/config /tmp
# rpm -Uvh cnmonitor-1.3-3.noarch.rpm
```

Set the following file permissions if you need to restore configuration files.

```
# cp -vf /tmp/config/* /etc/cnmonitor/
# chown -R root:apache /etc/cnmonitor
# chmod -R 650 /etc/cnmonitor
```

Configuration File Update

A new recommended configuration option is available for query called *Protected Attributes*. Overwrite your old query configuration with the new configuration file:

```
# cp /etc/cnmonitor/query.php.rpmsave /etc/cnmonitor/query.php
```

The new option protects attributes to be displayed such as userPassword.

Database Update

If upgrading from a version older than version (**1.2**), download previous released installation notes and read the upgrade sections.

Upgrade completed!

Uninstall

RPM Uninstallation

Uninstall RPM Package:

```
# rpm -e cnmonitor
```

Remove configuration files located at: /etc/cnmonitor.

Manual *nix Uninstallation

```
# cd /usr/share  
# rm -rf cnmonitor  
# cd /etc  
# rm -rf cnmonitor
```

Configuration

Configuration file located at /etc/cnmonitor/config.php.
Configuration files for special pages can also be found in the config directory.

As the configuration is as PHP arrays. Don't forget to include " characters and the semicolon end character.

```
$CONFIG["env"][0][1]["name"] = "server name";
```

Always increment the number for each environment and added servers.
The servername is always represented as the first 0 element in your list.

```
$CONFIG["env"][0][0]["name"] = "environment name";
```

for first environment

```
$CONFIG["env"][1][0]["name"] = "environment name";
```

for secondary environment

```
$CONFIG["env"][0][1]["name"] = "server name";
```

for first server in first environment

```
$CONFIG["env"][0][2]["name"] = "server name";
```

for secondary server in first environment

Understanding configuration levels

There are three levels where you can set configurable options

Not inherited options

Configurable options that can't be inherited for environment and server configurations

```
$CONFIG["general"]["language"] = "en";
```

Preferred Language option

```
$CONFIG["general"]["db"]["type"] = "pgsql";
```

Database for storing historical monitoring events

General Environment Level

All configurable options will be applied on all servers within all environments.

```
$CONFIG["general"]["env"]["base"] = "dc=test,dc=com";
```

Environment Level

All configurable options will be applied on all servers within the first environment.

```
$CONFIG["env"][0][0]["url"] = "http://www.openldap.org";
```

Server Level

All configurable options will be applied on selected server within first environment.

```
$CONFIG["env"][0][1]["url"] = "http://www.openldap.org";
```

Configuration Examples

Simple configuration to get started

Example with one environment and two servers configured.

```
$CONFIG["env"][0][0]["name"] = "ldap.itd.umich.edu";
$CONFIG["env"][0][1]["name"] = "carlitosway.dir.itd.umich.edu";
$CONFIG["env"][0][2]["name"] = "serpico.dir.itd.umich.edu";
```

Simple configuration with database support for one environment

This example configures a postgres database, configures mail reporting and creates one environment with two servers.

By using a similar configuration you will use as much as possible of CN=Monitor.

```
// Database
$CONFIG["general"]["db"]["username"] = "postgres";
$CONFIG["general"]["db"]["password"] = "secret";
$CONFIG["general"]["db"]["host"] = "localhost";
$CONFIG["general"]["db"]["database"] = "cnmonitor";
$CONFIG["general"]["db"]["type"] = "pgsql";
// Mail
$CONFIG["general"]["env"]["wwwaddress"] = "http://localhost/cnmonitor";
$CONFIG["general"]["env"]["mailfrom"] = "serveradmin@localhost.com";
$CONFIG["general"]["env"]["mailto"] = "somebody@somewhere.com,john@doe.com";

// Environment One
$CONFIG["env"][0][0]["name"] = "ldap.itd.umich.edu";
$CONFIG["env"][0][0]["description"] = "Using Cluster ldap.itd.umich.edu";
$CONFIG["env"][0][0]["url"] = "http://www.openldap.org";
// Server One
$CONFIG["env"][0][1]["name"] = "carlitosway.dir.itd.umich.edu";
$CONFIG["env"][0][1]["description"] = "Description on server level";
// Server Two
$CONFIG["env"][0][2]["name"] = "serpico.dir.itd.umich.edu";
$CONFIG["env"][0][2]["description"] = "Description on server level";

// Environment Two
$CONFIG["env"][1][0]["name"] = "anotherenvironment.test.com";
// disable database collect for this server
$CONFIG["env"][1][0]["nocollect"] = 1;
// Server One
$CONFIG["env"][1][1]["name"] = "serverone.test.com";
// Server Two
$CONFIG["env"][1][2]["name"] = "servertwo.test.com";
```

Two environments

Simple example without database collection and reporting.

```
$CONFIG["env"][0][0]["name"] = "First Environment";
$CONFIG["env"][0][1]["name"] = "first server";
$CONFIG["env"][0][2]["name"] = "secondary server";

$CONFIG["env"][1][0]["name"] = "Secondary Environment";
$CONFIG["env"][1][1]["name"] = "first server";
$CONFIG["env"][1][2]["name"] = "secondary server";
```

```
$CONFIG["env"][1][3]["name"] = "third server";
$CONFIG["env"][1][4]["name"] = "forth server";
```

Configuration using common security options

One environment with two configured servers. One server using TLS and one server using LDAPS.

```
$CONFIG["env"][0][0]["name"] = "Environment Name";
$CONFIG["env"][0][1]["name"] = "server with tls authentication";
$CONFIG["env"][0][1]["dn"] = "cn=Directory Manager";
$CONFIG["env"][0][1]["password"] = "secret";
$CONFIG["env"][0][1]["tls"] = "on";

$CONFIG["env"][0][2]["name"] = "server with ldaps authentication";
$CONFIG["env"][0][2]["dn"] = "cn=Directory Manager";
$CONFIG["env"][0][2]["password"] = "secret";
$CONFIG["env"][0][2]["scheme"] = "ldaps";
```

All Configurable Options

Lists of all configurable options.

General

Option	Required	Default value	Description
language	no	en	Preferred language. Available values: en, sv
stylesheet	no	./style/default.css	If you want to use a different stylesheet

All general options are set using:

```
$CONFIG["general"]["<key>"] = "<value>";
```

Database

Option	Required	Default value	Description
type	no		Database driver. Set this value if you want to collect historical monitoring events. Possible values: pqsql, mysql (native support) odbc, mssql, fbsql, sybase_ct, oci8, sqlite (dbx extension)
username	(if db type is set)		Username. Can be set as empty value.
password	(if db type is set)		Password. Can be set as empty value.
database	(if db type is set)		Database where the tables for cnmonitor is located. Usually cnmonitor.
host	(if db type is set)		Hostname where the database is located.
port	no		You don't need to set this option if using mysql or postgres default ports.

All database options are set using:

```
$CONFIG["general"]["db"]["<database key>"] = "<value>";
```

Mail Reporting

Option	Required	Default value	Description
wwwaddress	(if sending mail)		Full www address where CN=Monitor is deployed. Example: http://localhost/cnmonitor
mailfrom	(if sending mail)		Mail address from server
mailto	(if sending mail)		Comma separated list of mail addresses to send mail to.

All database options are set using:

```
$CONFIG["general"]["env"]["<mail reporting key>"] = "<value>";
```

Environment and Server Options

Option	Required	Default value	Description
Name and Description Options			
name	Yes		Environment or Server name. Environment names should <i>not</i> be the same name as a server name
alias	no		Server alias. Will never be used for contacting your LDAP host. Instead it is used for host matching if server returns another hostname i.e. DNS CNAME instead of A-Record.
description	no		Short description of your server. Should not include special characters such as \$, ", <, >.
url	no		URL for more information about the environment or server. Should not include special characters such as \$, ", <, >.
loadbalancer	no		Set cluster address as value. By default the environment name is used as cluster name.
Connection Options			
dn	no		Default authentication user Distinguished Name.

password	no		Default authentication user Password
port	no		Set this value if your server isn't running standard LDAP port 389
secureport			Set this value if your server isn't running standard LDAPS port 636
tls	no	off	Set this value to " on " if you add "dn" and "password" and want to run your connection secure over standard LDAP port using TLS
scheme	no	ldap	Set this value to " ldaps " if you add "dn" and "password" and want to run your connection over LDAPS
dnbyfilter	no	((uid=?)(cn=?))	Get DN by filter for authentication. Use this property if you want to authenticate against your LDAP server by entering an ID instead of complete distinguished name. Example authenticating using employeeNumber: (employeeNumber=?) Default if not entering DN is finding DN by uid <i>or</i> cn.
Monitor History Options			
nocollect	no	0	Disable collecting monitoring information about servers. Set value 1 .
Query Options			
quersuffix	no		Set this value if you prefer to query a base suffix.
queryreturn	no		Set this value if you prefer to have a default query return attribute list
queryfilter	no		Set this value if you prefer to have a default query filter
Replication Options			
replication:ignoreconsumer	no		Improves performance but skips consumer replication status. Replication page works even if replicas are unresponsive. Set value " 1 " on suppliers/masters to

			enable this option.
replication:<suffix DN>	no	24	Set acceptable replication time in hours. A warning will be displayed if replication hasn't been done after configured value.
Cache Options			
nocache:connection	no	0	Turn off caching of port connect verification. Adding this option will make CN=Monitor slower but it will also ensure that you don't run into hanging connections if server becomes unavailable
nocache:port<configured port>	no	0	Turn off caching of ldap connect verification (LDAP or LDAPS). Adding this option will make CN=Monitor slower but it will also ensure that you don't run into hanging connections if server becomes unavailable
nocache:vendor	no	0	Turn off caching of vendor verification. Adding this option will make CN=Monitor slower but it can show invalid vendor information if the server is changed during the session. Not recommended to disable this cache.
nocache:replicatype	no	0	Turn off caching of replica type (master, hub or consumer) for iplanet-based servers. Adding this option will make CN=Monitor slower but it will notice if you change the replica type.

All environment and server options are set using:

General environment level

```
$CONFIG["general"]["env"]["<key>"] = "<value>";
```

Environment level

```
$CONFIG["env"][<env nr>][0]["<key>"] = "<value>";
```

Server level

```
$CONFIG["env"][0][<server nr>]["<key>"] = "<value>";
```

Features

See document CN=Monitor Guide for a complete list of features.

F.A.Q

n/a

Limitations

RedHat and 389/Fedora DS

No known limitations at this moment.

Sun DS

Most of the functionality working for RedHat and Fedora DS should work.
Most are unconfirmed. Feedback is highly appreciated!

Open LDAP

Most of the functionality works with some exceptions:

- Cache monitoring not available.
- Replication monitoring not available
- Load Balancing verification:
 - Only available for DNS lookup

Novell

Most of the functionality works with some exceptions:

- Cache monitoring not available.
- Replication monitoring not available
- Load Balancing verification:
 - Only available for DNS lookup

Monitoring

Table showing what we can monitor.

Microsoft Active Directory, Netscape and Oracle Internet Directory not included as we have very limited possibly to fetch monitoring information from those directories.

Information	RedHat/389	Open DAP	Sun	Novell
Connection Peak			x	
Threads	x (current)	x (max)	x	
Current Connections	x	x	x	
Total Connections	x	x	x	
Entries Sent	x	x	x	
Bytes Sent	x	x	x	x
Start Time	x	X	x	
Current Time	x	x	x	

Anonymous Binds	x	(included in Simple Binds)	x	(included in UnAuthenticated Binds)
UnAuthenticated Binds	x	(Included in Simple Binds)	x	x
Simple Binds	x	x	x	x
Strong Binds	x	(included in Simple Binds)	x	x
Bind Security Errors	x		x	x
Whole Search tree op.	x	x	x	x
Search op.	x	x	x	x
Compare op.	x		x	x
Add op.	x	x	x	x
Modify op.	x	x	x	x
ModifyRDN op.	x	x	x	x
Remove op.	x	x	x	x
In op.	x	x	x	x
Errors	x		x	x
Security Errors	x		x	x

Known Problems

If you notice any problems please send a mail to monitorldap@gmail.com if you have any questions or want to report a bug.

Releases

1.3 New Functionality Release

This release contains mobile support, improved replication verification, attribute protection for query, layout changes and code refactoring.

1.2 New Functionality Release

This release contains improved replication view, the possibility to compare entries between servers, server alias support, unauthenticated binds support, live view for pie charts... and some bugfixes.

1.1.1 Bugfix Release

Bugfixes for 1.1. Improved authentication dialog, smaller GUI changes and support for IE 8.

1.1 New Functionality Release

This release contains a new environmental view, a new historical summary, a new authentication dialog, new dynamic query configuration, temporarily adding servers, and supported schema attribute querying.

1.0.1 Bugfix and FHS file layout

This release contains minor bugfixes and improved documentation. The RPM-based installation is now following FHS (the Filesystem Hierarchy Standard). Read the PDF file before upgrading.

1.0 Initial Release

This release has the ability to view environment and server availability, perform live monitoring, collect and view performance load and trends, verify replication

status, cache sizes, schema, and load balancing, and retrieve a weekly mail report. It has an advanced query editor and advanced LDAP querying.

Contact Information

Download Updates

Updates are available at CN=Monitor project page:

<http://cnmonitor.sourceforge.net/>

Donate using PayPal

If you appreciate CN=Monitor. Feel free to donate any amount to support future development of this software and show your appreciation.

Contact Developer(s)

You can contact the developer of this software by sending an email to:

Andreas Andersson monitorldap@gmail.com

Or stay in touch using the forum on the project site:

<http://cnmonitor.sourceforge.net/>