Installation and Configuration v3.2.1

1. Introduction

This document contains installation and configuration instructions for CN=Monitor, Directory Server and LDAP Monitoring application. Monitoring small to large scaled deployed directory server environments.

Spread the word!
Blog, Twitter and talk to your colleagues about this application! Knowing that you are a user of this application drives development forward.

2. Installation

2.1. 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.
- Operating system
  - Linux / Unix
  - Windows
  - Mac OS X
- Web Server
  - Apache HTTPd server 2.x
    Include PHP support
  - PHP 5.X
    Include LDAP, and CLI modules
  - OpenSSL
- SQL Database (Optional)
  - PostgreSQL
  - MySQL

Supported Web browsers
  - Mozilla Firefox
  - Google Chrome
  - Apple Safari
  - Microsoft Internet Explorer 7, 8, 9

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

```
# vi /etc/openldap/ldap.conf

TLS_REQCERT      never
```

Time zone configuration
All components in CN=Monitor will use time zone UTC (Universal Time, Coordinated).

2.2. Linux RPM Installation

A quick installation guide for RHEL / CentOS / Fedora is also available here:
http://directory.fedoraproject.org/wiki/Howto:CN%3DMonitor_LDAP_Monitoring

> **Debian / Ubuntu notes**
> For debian-based systems such as Ubuntu you can convert the rpm
> package using the *alien* command without the --scripts parameter.
> Convert: `alien cnmonitor-3.2.1-1.noarch.rpm`
> Install: `dpkg –i cnmonitor_<version>_all.deb`

Install Dependencies

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

Install CN=Monitor

```
# rpm -ivh cnmonitor-3.2.1-1.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
```

On later version "postgresql initdb" has been replaced with *postgresql –setup initdb*.

Install schema

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

In this example we are using *postgres* as user for PostreSQL.
On later versions you may need to allow the user to authenticate without password by setting the value to *trust* in: */var/lib/pgsql/data/pg_hba.conf*.
Reload PostgreSQL after changing this value.

Don't forget to restart httpd

```
# service httpd restart
```


Continue to chapter **Setup Monitoring**.

2.3. 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
# unzip cnmonitor-3.2.1-1.zip
```


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 configurations 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 Apache Web Server

```
# /etc/init.d/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.

Continue to chapter **Setup Monitoring**.

2.4.   Manual Windows Installation

Installation instructions written for WAMP. *Windows*, *Apache*, *MySQL* and *PHP*.
There are several distributions available.

One of those is WampServer:
http://www.wampserver.com/en/.

1) Download and install the WAMP server
2) Edit php.ini and enable the php_ldap.dll extension.
   c:\wamp\bin\apache\Apache<version>\bin\php.ini

```
extension=php_ldap.dll
```


Install CN=Monitor

Unzip zip file in your www folder i.e.: c:\wamp\www

You should now end up with:

C:\wamp\www\cnmonitor\config	Configuration Files
C:\wamp\www\cnmonitor\www	Web Application
C:\wamp\www\cnmonitor\bin	Scripts to collect historical events
C:\wamp\www\cnmonitor\sql	SQL Files to setup database
C:\wamp\www\cnmonitor\doc	This document
C:\wamp\www\cnmonitor\conf	Apache Configuration files

Don't forget to restart Apache Web server.

Collection of historical events

Collect historical monitor events (optional but recommended).
Supported databases are MySQL and PostgreSQL.
Database configuration files are available in the cnmonitor/sql directory.

Install MySQL schema

```
C:\wamp\bin\mysql\mysql5.5.8\bin>mysql -u root -p < c:\wamp\www\cnmonitor\sql\my
sql.sql
Enter password:
```

In this example we are using *root* as user for MySQL.

Continue to chapter *Setup Monitoring*.

2.5. Setup monitoring

For windows users you can use the built in scheduler.

Setup collect monitoring information (run it around every 10 - 30 minutes):

```
# crontab –e

*/30 * * * * php /usr/share/cnmonitor/bin/collectdb.php
```

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

```
# crontab -e

*/10 * * * * php /usr/share/cnmonitor/bin/collectservermessage.php
```

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

```
# crontab -e

0 4 * * * php /usr/share/cnmonitor/bin/collectsummary.php
```

In some distributions its preferred to use /etc/cron.daily/<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.

3. Upgrade

You should back up your configuration files before upgrading CN=Monitor.
It's also recommended to upgrade from the previous released version (**3.2**).

Note: The script collectmailreport.php has been removed in version 3.0. A script with this name exists for backward compatibility but do not expect any weekly reports sent out by mail. Send an email if you are interested in this type of functionality. Might be something for version 3.1.

3.1. RPM Upgrade

```
# rpm -Uvh cnmonitor-3.2.1-1.noarch.rpm
```

New configuration template files will be saved as <filename>.rpmnew

Optionally verify the file permissions for your configuration files:

```
# chown -R root:apache /etc/cnmonitor
# chmod -R 650 /etc/cnmonitor
```

Finally restart Apache Web server.

```
# service httpd restart
```

Database Update
If upgrading from a version older then version (**3.2**), download previous released installation notes and read the upgrade sections, as there might exist database updates.

Upgrade should now be completed!

3.2. Manual *nix Upgrade

1) Backup your configuration files.
2) Follow the installation instructions.
3) Replace the new configuration files with your backed up files.

3.3. Manual Windows Upgrade

1) Backup your configuration files.
2) Follow the installation instructions.
3) Replace the new configuration files with your backed up files.

4. Uninstall

4.1. RPM Uninstallation

Uninstall RPM Package:

```
# rpm -e cnmonitor
```

Remove configuration files located at: /etc/cnmonitor.
Finally remove scheduled crontab scripts.

4.2. Manual *nix Uninstallation

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

Remove configuration files located at: /etc/cnmonitor.
Finally remove any scheduled crontab scripts.

4.3. Manual Windows Uninstallation

Remove the CN=Monitor folder.

```
C:\wamp\www\cnmonitor
```

Finally remove any scheduled scripts.

5. Configuration

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

5.1.   Understanding configuration levels

There are four levels where you can set configurable options

5.1.1. 1. Not inherited options

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

```
<?xml version="1.0" encoding="UTF-8"?>
<cnmonitor>
  <general>
    <language>en</language>
    <database>
      <username>root</username>
      <password></password>
      <host>localhost</host>
      <database>cnmonitor</database>
      <type>mysql</type>
    </database>
  </general>
…
</cnmonitor>
```

Language
Default language to use for CN=Monitor.

Name	Default Value	Available Values
<language>	en	en
		sv

Database
Optional but recommended database configuration for CN=Monitor to collect historical events.
The following options should be enclosed within a <database> section.

Name	Default Value	Available Values
<username>		(username to be used to access your SQL database)
<password>		(password to be used to access your SQL database)
<host>		(database hostname)
<database>		Database name. Use **cnmonitor** as default value.
<type>		**mysql** = MySQL **mysqli** = MySQL Improved **pqsql** = PostgreSQL
<port>	3306 (MySQL) 5432 (PostgreSQL)	Optional. The database port.

Other databases may be supported if you have PHP dbx support:
http://se2.php.net/manual/en/book.dbx.php

Security
Optional and only recommended if you want to limit CN=Monitor functionality to users of the application.
The following options should be enclosed within a <security> section.

Name	Default Value	Available Values
<disable>		index,authenticate,preferences,addserver,query, replication,loadbalancer,schema,index,cache, certificate, configuration

The list of features to disable should be a comma-separated list.

5.1.2. 2. General Environment Level

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

```
<?xml version="1.0" encoding="UTF-8"?>
<cnmonitor>
  <general>
…
    <environment>
      <wwwaddress>http://localhost/cnmonitor</wwwaddress>
      <mailfrom>serveradmin@localhost.com</mailfrom>
      <mailto>monitorldap@gmail.com</mailto>
    </environment>
  </general>
…
</cnmonitor>
```

Everything you add to this section will be inherited for your environments and servers.
I.e. setting <dn> and <password> within the general environment section will be used for all servers within all environments (if you don't configure these options on environment or server level).

There are still some options that are recommended to configure on this level.

Web Address
Optional WWW address to reach your CN=Monitor deployment. Used for links in weekly mail reports.

Name	Default Value	Available Values
<wwwaddress>		(URL to your CN=Monitor web address)

Mail From
Optional mail from address when sending mails from CN=Monitor

Name	Default Value	Available Values
<mailfrom>		(Mail from address when/if sending mail)

Mail To
Optional mail to addresses when sending mails from CN=Monitor

Name	Default Value	Available Values
<mailto>		(Comma separated list of mail addresses to send mail to)

Timezone and timeshift

Optional time zone and shift settings. Add these options if you want to view graphs in a specific timezone. Default is UTC.

Name	Default Value	Available Values
<timezone>	UTC	http://php.net/manual/en/timezones.php
<timeshift>	0	Hours to shift the hours. You can set positive or negative values in hours e.g. -2 represents -7200 seconds.

5.1.3. 3. Environment Level

Environment sections. You can configure as many environment sections as you need on this level. Name is required for each environment.

All configurable options will be applied on all <server>s within the environment.

```xml
<?xml version="1.0" encoding="UTF-8"?>
<cnmonitor>
  <general>
…
  </general>
  <environment>
    <name>OpenLDAP</name>
    <loadbalancer>ldap.itd.umich.edu</loadbalancer>
    <description>Using Cluster ldap.itd.umich.edu</description>
    <url>http://www.openldap.org</url>
    <server>
      <name>donniebrasco.dir.itd.umich.edu</name>
      <description>Description server 1</description>
    </server>
    <server>
      <name>heat.dir.itd.umich.edu</name>
      <description>Description server 2</description>
    </server>
  </environment>
</cnmonitor>
```

Environment Name

Required option on this level. Your environment must have a name.

Name	Default Value	Available Values
<name>		(Name of environment)

5.1.4. 4. Server Level

Configuration options for each server. Name is required for each server.

```xml
<?xml version="1.0" encoding="UTF-8"?>
<cnmonitor>
```

```
  <general>
…
  </general>
  <environment>
    <name>OpenLDAP</name>
    <loadbalancer>ldap.itd.umich.edu</loadbalancer>
    <description>Using Cluster ldap.itd.umich.edu</description>
    <url>http://www.openldap.org</url>
    <server>
      <name>donniebrasco.dir.itd.umich.edu</name>
      <description>Description server 1</description>
    </server>
    <server>
      <name>heat.dir.itd.umich.edu</name>
      <description>Description server 2</description>
    </server>
  </environment>
…
</cnmonitor>
```

Servername

Server name (hostname) for each <server>.

This is the only required option needed to configure servers. Additional options such as <dn>, <password> and <scheme> are recommended to secure your connection and to be able to read monitor suffixes.

Name	Default Value	Available Values
<name>		(Name of server)

5.2. Configuration Examples

5.2.1. Simple configuration to get started

Example with one environment and two servers configured.

Environment name is: OpenLDAP

Cluster Address is: ldap.itd.umich.edu

Two servers with anonymous read access has been configured:

- donniebrasco.dir.itd.umich.edu
- heat.dir.itd.umich.edu

```
<?xml version="1.0" encoding="UTF-8"?>
<cnmonitor>
  <general>
    <language>en</language>
    <environment>
    </environment>
  </general>
  <environment>
    <name>OpenLDAP</name>
    <loadbalancer>ldap.itd.umich.edu</loadbalancer>
    <server>
      <name>donniebrasco.dir.itd.umich.edu</name>
    </server>
    <server>
      <name>heat.dir.itd.umich.edu</name>
    </server>
  </environment>
</cnmonitor>
```

5.2.2. Database support and one environment

This example configures a PostgreSQL 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.

```xml
<?xml version="1.0" encoding="UTF-8"?>
<cnmonitor>
  <general>
    <language>en</language>
    <database>
      <username>postgres</username>
      <password>secret</password>
      <host>localhost</host>
      <database>cnmonitor</database>
      <type>pqsql</type>
    </database>
    <environment>
      <wwwaddress>http://myhost.mydomain.com/cnmonitor</wwwaddress>
      <mailfrom>serveradmin@localhost.com</mailfrom>
      <mailto>myemail.mydomain.com</mailto>
    </environment>
  </general>
  <environment>
    <name>OpenLDAP</name>
    <loadbalancer>ldap.itd.umich.edu</loadbalancer>
    <server>
      <name>donniebrasco.dir.itd.umich.edu</name>
    </server>
    <server>
      <name>heat.dir.itd.umich.edu</name>
    </server>
  </environment>
</cnmonitor>
```

5.2.3. Two environments

In the next example we are authenticating using a monitoring user over LDAPS.
The configuration options have been added to the environment section as the
username and password is equal on both servers.

```xml
<?xml version="1.0" encoding="UTF-8"?>
<cnmonitor>
  <general>
    <language>en</language>
    <database>
      <username>postgres</username>
      <password>secret</password>
      <host>localhost</host>
      <database>cnmonitor</database>
      <type>pqsql</type>
    </database>
    <environment>
      <wwwaddress>http://myhost.mydomain.com/cnmonitor</wwwaddress>
      <mailfrom>serveradmin@localhost.com</mailfrom>
      <mailto>myemail.mydomain.com</mailto>
    </environment>
  </general>
  <environment>
    <name>ldap.itd.umich.edu</name>
    <server>
      <name>donniebrasco.dir.itd.umich.edu</name>
    </server>
    <server>
      <name>heat.dir.itd.umich.edu</name>
    </server>
  </environment>
```

```
  <environment>
    <name>Test Servers</name>
    <dn>uid=monitor.cnmonitor,ou=People,dc=localdomain</dn>
    <password>secret</password>
    <scheme>ldaps</scheme>
    <server>
      <name>10.0.1.14</name>
    </server>
    <server>
      <name>10.0.1.15</name>
    </server>
  </environment>
</cnmonitor>
```

5.3.   All Configurable Options

5.3.1. General

Configuration options for <general> section.

Language
Default language to use for CN=Monitor.

Name	Default Value	Available Values
<language>	en	en
		sv

More language files are appreciated. Files are located in the www/language directory.

Stylesheet
Default style to use for CN=Monitor.

Name	Default Value	Available Values
<stylesheet>	./style/default.css	(If you want to use a different stylesheet)

Encryption
If you want to encrypt passwords for CN=Monitor configuration file. Requires PHP version 5.3.
You can check if encryption is available in your environment by running the encrypt password file available in the bin directory:
$ php encryptpassword.php

Name	Default Value	Available Values
<encryption>	AES-128-CBC	(Running the script bin/encryptpassword.php will display all possible values for your server)

Database
Optional but recommended database configuration for CN=Monitor to collect historical events.
The following options should be enclosed within a <database> section.

Name	Default Value	Available Values
<username>		(username to be used to access your SQL database)
<password>		(password to be used to access your SQL database)
<host>		(datbase hostname)
<database>		Database name. Use cnmonitor as default value.
<type>		Database driver. Use **mysql** or **mysqli** for MySQL or **pqsql** for PostgreSQL
<port>	3306 (MySQL) 5432 (PostgreSQL)	Optional. The database port.

It is possible to use encrypted password for database connection by configuring the option <encpassword>encrypted password</encpassword>. For more information see the <encpassword> option.

5.3.2. Mail / Error Reporting

Configuration options for <general> / <environment> section.

Web Address
Optional WWW address to reach your CN=Monitor deployment.

Name	Default Value	Available Values
<wwwaddress>		(URL to your CN=Monitor web address)

Mail From
Optional mail from address when sending mails from CN=Monitor

Name	Default Value	Available Values
<mailfrom>		(Mail from address when/if sending mail)

Mail To
Optional mail to addresses when sending mails from CN=Monitor

Name	Default Value	Available Values
<mailto>		(Comma separated list of mail addresses to send mail to)

Run Script
Run script option will trigger a script with the following values:
`/path/to/script.sh "error_key" "servername" "'optional message'"`
This option can be set on all levels (i.e. set on server level if you want to trigger a different script for a specific server). This option does not require mail functionality to be enabled.

Name	Default Value	Available Values
<collectscript>		/path/to/script.sh

5.3.3. Environment and Server, Name Options

Configuration options for <environment> and <server> sections.

Environment or Server name

Environment or server name.

Environment names should *not* be the same name as a server name

Name	Default Value	Available Values
<name>		(Environment or servername)

Server Alias

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.

Name	Default Value	Available Values
<alias>		(alternative hostname)

Description

Short description of your server.

Should not include special characters such as $, ", <, >.

Name	Default Value	Available Values
<description>		(description)

URL

URL information about environment or server. Should not include special characters such as $, ", <, >.

Name	Default Value	Available Values
<url>		(http://myserver.mydomain.com)

Load Balancer

For load balancing / cluster functionality.

Name	Default Value	Available Values
<loadbalancer>		(clusteraddress.mydomain.com)
<loadbalancerlimit>	50	Max number of queries allowed to be sent
<loadbalancervendor>	Value that CN=Monitor can read from the load balancer	Set this value manually only if CN=Monitor can't fetch the vendor type correct.

Vendor and Vendor name

If CN=Monitor can't recognize the vendor type for your LDAP server. It's important that the vendor option matches possible values.

Name	Default Value	Available Values
vendor	*unknown*	unknown fedora redhat netscape sun openldap

		novell
		ibm
		microsoft
		oid
		dirx
		opends
		apacheds
vendorname	*Unknown*	Value to represent your directory

Note: sun includes support for Oracle ODSEE, opends includes support for OpenDj and Oracle Unified Directory.

5.3.4. Environment and Server, Connection Options

Authentication Distinguished Name
Default authentication user Distinguished Name.

Name	Default Value	Available Values
<dn>		(I.e. uid=monitoring.user,ou=People, dc=mydomain,dc=com)

Password
Default authentication user Password

Name	Default Value	Available Values
<password>		(password for <dn>)

Encrypted Password
Encrypted authentication user password using the script encryptpassword.php.
Encrypting passwords for CN=Monitor requires PHP version 5.3

Name	Default Value	Available Values
<encpassword>		(encrypted password for <dn> or SQL database connection)

Also see the <encryption> option.

Port
Set this value if your server isn't running standard LDAP port 389

Name	Default Value	Available Values
<port>	389	

Secure / Secondary Port
Set this value if your server isn't running standard LDAPS port 636

Name	Default Value	Available Values
<secureport>	636	

TLS
Set this value to **"on"** if you add "dn" and "password" and want to run your connection secure over standard LDAP port using TLS

Name	Default Value	Available Values
<tls>	off	

LDAP Scheme

Set this value to **"ldaps"** if you add "dn" and "password" and want to run your connection over LDAPS

Name	Default Value	Available Values
<scheme>	ldap	ldap ldaps

DN By Filter

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 *or* cn.

Name	Default Value	Available Values
<dnbyfilter>	**(|(uid=?)(cn=?))**	

5.3.5. Environment and Server, Graph and Chart Options

Default graph reload time

Default number of seconds between reloading live graphs.

Name	Default Value	Available Values
graphtime	10	

Default graph change type view

Default view of graphs. Changes per second or the actual number of changes.

Name	Default Value	Available Values
graphchangetype	seconds	seconds changes

Default graph view

Defaul time when viewing historical events.

Name	Default Value	Available Values
graphdefaultview	today	today week month

Monitoring Graph Limit

Maximum number of collected dots to show in a graph.
This limitation prevents the web server to run out of memory or affect your database.

Name	Default Value	Available Values
monitoringlimit	20000	

5.3.6. Environment and Server, Query Options

Query Default base suffix

Set this value if you prefer to set a default base suffix.

Name	Default Value	Available Values
<querysuffix>		

Query Return Attributes

Set this value if you prefer to have a default query return attribute list

Name	Default Value	Available Values
<queryreturn>		

Query Filter

Set this value if you prefer to have a default query filter

Name	Default Value	Available Values
<queryfilter>		

5.3.7. Environment and Server, Replication Options

Replication Ignore Consumer Lookup (CSN)

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.

Name	Default Value	Available Values
<replication_ignoreconsumer>		0 1

Replica type

CN=Monitor can't determine replica type for servers such as OpenLDAP.
By setting it manually the server icon will display the replica type.
For OpenLDAP setting the value to "master" or "hub" will trigger replication verification on start and environment page.

Name	Default Value	Available Values
<replicatype>	unknown	master hub consumer

You do not need to set this value for iPlanet based servers (389 DS, Sun DS, RHDS etc).

5.3.8. Environment and Server, Cache and Log Options

Disable connection cache

Enable connection cache.
Adding this option will make CN=Monitor faster but won't ensure that your LDAP servers become unavailable.

Name	Default Value	Available Values
<cache_connection>	0	0 1

Connection Options

Increase or decrease LDAP search and network timeout values.
Also see chapter 7.1 in this document.

Name	Default Value	Available Values
<ldap_opt_network_timeout>	20	1 - 100
<ldap_opt_timelimit>	20	1 - 100

Auto Reload
By setting the auto reload option the start, environment and server pages will automatic reload the content every 60 second. Recommended if you run CN=Monitor on a monitoring screen, restarting the application on client startup.

Name	Default Value	Available Values
<autoreload>	0	1

Log LDAP
Enable logging of LDAP calls. Recommended only for debugging your LDAP connections and CN=Monitor.
Set log file path as value i.e. /tmp/cnmonitor/ldaplog.log

Name	Default Value	Available Values
<logldap>		(Logfile location)

Log CN=Monitor
Logs selected parts of CN=Monitor. Should by default be turned off but if you experience any problems we might ask you to enable it for debugging purposes.
Setting the loglevel to 10 will include client sided debug/errors such as fetching server information.
Log file available for each session:
<temp directory>/cnmonitor/<your session id>_log.tmp

Name	Default Value	Available Values
<loglevel>	0	0 = No Logs activated 1 - 10 = Log enabled in debug mode

5.3.9. Collect script options

Check Configuration and collect / send notifications.
The default value is 6 which would mean every hour based on the recommended collectservermessage script schedule value. Verifying configuration will create multiple ldap connections and queries that you may not want to run each collectmessage verification.

Name	Default Value	Available Values
<collectconfig>	**6**	1-*

Disable collect of monitoring history
Disable collecting monitoring information about servers. Set value **1**.

Name	Default Value	Available Values
<nocollect>	**0**	0 1

Clean database messages and collected data
This value controls number of days you store collected messages and operational data in the SQL database. The default value is 730 days (two years).
This will not affect monthly and yearly statistics.

Name	Default Value	Available Values
<cleandb>	**730**	

Retry server status
To avoid false alerts/notifications this option won't send an alert until the next collectservermessage reports an alert. The downside of setting this option is that there will be a delay sending events. Only set this option if you experience false alerts that is related to short try / timeout values related to open ldap libraries.
Also see the "Network – LDAP Connect issues" section in this document.

Name	Default Value	Available Values
<collectretry>	**0**	0
		1

6. Log files and cache directory

From version 2.1 CN=Monitor uses the default *temp* directory for log files and caches.
The *temp* directory may be different for each OS and web server.
Some examples:

Linux and *nix
Webpage logs and caches:
/tmp/cnmonitor

Collect scripts:
/tmp/cnmonitorclie

Windows XP, WampServer
Webpage logs and caches:
C:\WINDOWS\Temp\cnmonitor

Collect scripts:
C:\WINDOWS\Temp\cnmonitorcli

Max OS X
Webpage logs and caches:
/private/var/tmp/cnmonitor

Collect scripts:
/private/var/tmp/cnmonitorcli

7. Security

CN=Monitor do focus on website security in terms of limitations to access server information data, prevent running unlimited number of load balancer tests etc.

As a read only application for quick access it does not include any built in user access control.

Passwords entered in your config.xml will not be available on any webpages or sent unencrypted (as long as you have configured using SSL or TLS in your server configuration).
If your CN=Monitor deployment is running unsecure over HTTP, authentications done in user sessions will be sent over clear text. Consult your web server documentation for more information on how to secure and configure your web server to use HTTPS.

You can limit functionality in CN=Monitor to make it more secure. See the <secure> options in the configuration section for more information.

8. Troubleshooting

Send a mail to monitorldap@gmail.com if you have any questions or want to report a bug.

8.1. Verify Configuration

Run the script located in the bin directory called *verifyconfiguration.php*.
This script will verify that you have required and optional libraries installed. It will also verify your SQL database connection.

```
# cd bin
# php verifyconfiguration.php
```

To include a dump of your CN=Monitor configuration:

```
# cd bin
# php verifyconfiguration.php dump
```

Look for errors.

8.2. Known issues

Release 3.1, Mobile page
Error message:
Fatal error: Class 'RootDN' not found in…
Solution:
Edit file: <cnmonitor location>/www/pages/mobileenvironment.php
Add rootdnobject.php file between monitorobject and snmpobject, line 3.

```
require "./objects/monitorobject.php";
require "./objects/rootdnobject.php";
require "./objects/snmpobject.php";
```

Network – LDAP Connection issues
If CN=Monitor hangs related to LDAP search timeout reasons.

Try to set the following settings in /etc/openldap/ldap.conf
TIMEOUT   5
NETWORK_TIMEOUT   5

There are configurable options for these settings:
<ldap_opt_timelimit> and *<ldap_opt_network_timeout>* but they may not work depending on your PHP version.

9. Releases

3.2 New Functionality Release
This release adds time zone support functionality, options to disable features, and bugfixes.

3.1 New Functionality Release
This release contains compare server configuration functionality, improved cache and replication verification.
Added support for OpenDJ, OpenDS and Oracle Unified Directory servers.
This release also contains improved SQL and LDAP plugin support and bug fixes.

3.0 New Major Release
This release contains a total replacement of supporting client and server sided graphic libraries resulting in a more dynamic, Ajax supported application. Major feature changes improve monitoring, server availability and load balancer verification.
This release also include security improvements and bug fixes.

2.1.1 Bugfix Release
Bugfixes for 2.1. Includes fixes for collected monitoring graphs, server message alerts and hdb database recognition for OpenLDAP.

2.1 New Functionality Release
This release contains index and certificate verification. Improved monitoring, server support, documentation, server failure notification and layout changes.

2.0 New Major Release
This release contains Open LDAP replication verification, IBM Tivoli monitoring support, an XML-based configuration file, additional flash graph support, and layout changes.

Old releases.
1.3 New Functionality Release
1.2 New Functionality Release
1.1.1 Bugfix Release
1.1 New Functionality Release
1.0.1 Bugfix and FHS file layout
1.0 Initial Release

10. Contact Information

10.1. Download Updates

Updates are available at CN=Monitor project page:
http://cnmonitor.sourceforge.net/

10.2. Contact Developer(s)

You can contact the developer of this software by sending an email to:
Andreas Andersson monitorldap@gmail.com
Please give feedback, suggestions and other type of comments. Knowing that you
are a user of this application drives development forward.

10.3. 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.

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JavaScript Libraries
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jsTimezoneDetect – MIT
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