

# YNQ Server Evaluation Package for Linux

**YNQ 1.5.0**

Document version 0.42

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## **1 Referenced Documents**

- [1] NQ Server Integration and Porting Guide
- [2] NQ User's Guide

## **2 Introduction**

This document describes the Linux version of YNQ Server. It is complimentary to the documents [1] and [2] and describes Linux-specific solutions.

### **3 Requirements**

NQ Server Evaluation Package for Linux requires the following environment:

- PC running Linux
- User should have root privileges to run the daemons

## 4 Package Contents

The NQ package contains the following files:

*nqRoot/*

<b>config/</b>	The config files for NQ Server
cm_cfg.txt	Common configuration file
cs_cfg.txt	CIFS Server configuration file
pwd_list.txt	CIFS Server Password list
<b>NQ Docs/</b>	directory containing the NQ documents
<b>NQ Library Reference/</b>	NQ API files
<b>Password Utility/</b>	directory containing password utility with documentation
<b>src/</b>	
<b>client/</b>	directory contains the NQ Client code (corporate only)
<b>netbios/</b>	directory contains the NQ NetBIOS (name resolution) code
<b>nq/</b>	directory containing NQ API *.h files
<b>server/</b>	directory contains the NQ Server code
<b>service/</b>	directory contains the NQ level II and level III modules
<b>auth/</b>	directory contains the NQ authentication code
<b>common/</b>	directory contains the NQ common operations code
<b>network/</b>	directory contains the NQ network operation code
<b>os/</b>	directory contains the NQ level III modules
<b>linux/</b>	directory that refer the Linux OS
<b>driver/</b>	directory contains the NQ driver code.
<b>sy/</b>	directory contains the NQ system dependent code
<b>ud/</b>	directory contains the NQ user defined code
<b>csctrl/</b>	directory containing server control tool
csctrl.c	server control startup code
Makefile	server control makefile (executed from the main makefile)
Makefile	main makefile
osdef.mk	OS and compiler dependent makefile configurations file
common.mk	common makefile operations file
pathdef.mk	makefile source code paths configurations

## 5 Installation

NQ Evaluation Package installation is as simple as extracting the package archive into any directory on a Linux PC. Please see next section for building instructions.

## 6 Building Binaries

### 6.1 NQ

To build Server binaries run **make nqcs or nqserver** in *nqRoot/src*. To build the NetBIOS daemon run **make nqnd**. To build both Server and NetBIOS daemon in one process run **make nqndcs or nqndserver**. To update the execute permissions for the executables run **make install** in *nqRoot/src*.

**nqnd** – NetBios Deamon.

**nqcs** – SMB/CIFS corporate Server Daemon.

**nqserver** – SMB/CIFS standalone Server Daemon.

**nqndcs** – SMB/CIFS corporate Server and NetBIOS Daemon.

**nqndserver** – SMB/CIFS standalone Server and NetBIOS Daemon.



## 6.2 **KERBEROS support in NQ Client (corporate only)**

By default, KERBEROS support is not included in the binaries. In order to enable it perform the following:

1. Uncomment the line “`#define UD_CC_INCLUDEEXTENDEDSECURITY_KERBEROS`” in the file *nqRoot/src/service/os/linux/ud/udparams.h*
2. Make sure `SYSLIBS` contains `-lsasl2 -lkrb5` in the file: *nqRoot/src/osdef.mk*

Depending on the KERBEROS implementation on your Linux box, you may have to adjust include and library paths as well. To do this modify the variables `INCPATH` and `LIBPATH` in the makefiles mentioned above.

Default implementation supplied uses HEIMDAL, in order to use MIT implementation modify *nqRoot/src/service/os/linux/sysasl.c*, comment “`#define HEIMDAL`”, uncomment “`#define MIT`”. When switching back and force between MIT and HEIMDAL make sure to reissue Kerberos ticket. In some case uninstalling the whole package is required.

**Note:** the sources have to be recompiled after the described modifications.

### **6.3 Server control tool**

To build the server control tool run **make nqctrl**.

## 7 Cleaning the Binaries

To remove the sample application object files and the **nqapp** executable run **make clean** to clean the **dep/ lib/** and **obj/** in *nqRoot/src*.

To remove completely all NQ and sample application objects and binaries run **make cleanall** in *nqRoot/src*. The security descriptors management library binary and its sample application are also cleaned by this process.

## 8 Configuration

NQ Evaluation Package contains default configuration which should allow it running on any standard Linux machine. We advise to observe a configuration file `nqRoot/config/cm_cfg.txt`, usually parameters related to domain name, user credentials and DNS IP are modified to reflect the environment. Defining shared folders is performed by modification of `nqRoot/config/cs_cfg.txt`. Additional information about NQ configuration files can be found in the headers of these files in `nqRoot/config` folder.

## 9 Running NQ

Built executables in previous steps should be run in the following sequence to provide the complete SMB/CIFS Server functionality:

1. SMB/CIFS Server Daemon and NetBIOS Daemon in separate processes:
  1. `nqRoot/nqnd` NetBIOS Daemon
  2. `nqRoot/nqcs` SMB/CIFS corporate Server Daemon
2. SMB/CIFS Server Daemon and NetBIOS Daemon in one process run one of:
  - `nqRoot/nqndcs` SMB/CIFS corporate Server and NetBIOS Daemon
  - `nqRoot/nqndserver` SMB/CIFS standalone Server and NetBIOS Daemon
3. Optional:  
`nqRoot/nqcsetrl` Server control tool

Notes:

- All NQ daemons should be post fixed with **&** to make them run in the background (for example: **prompt> ./nqnd&**).
- All daemons require **root** privileges to be started.
- Linux machine running NQ CIFS Server with properly configured Domain (see Configuration section) should appear under **Entire Network > Microsoft Windows Network > DomainName**. Alternatively, it can be accessed by entering `\\LinuxMachineName` or `\\LinuxMachineIP` in the Windows Explorer's **Address** bar or **Start > Run...box**. Linux Machine name can be displayed by using **hostname** command at the Linux command prompt.
- Server control tool should start after NQ server is ready, it performs one command per execution.

## 10 The Source Code

NQ sources are subdivided to:

- NQ system independent server core: *nqRoot/src/server*
- NQ system independent NetBIOS core: *nqRoot/src/netbios*
- NQ system independent NQ core: *nqRoot/src/nq*
- NQ system abstraction layer for Linux: *nqRoot/src/service/os/linux*

Normally core sources are not supposed to be modified.

## 11 Synchronous spooler

This feature enables sending printed documents directly to a printer without spooling them first. The spooler allows printing one document at a time while allowing additional print jobs to be queued. An application whose print job is being queued will hold until the spooler is able to print it.

In order to enable it the following line should be uncommented in the `nqRoot/src/service/os/linux/ud/udparams.h` file:  
`#define UD_CS_INCLUDERPC_SPOOLSS`

When enabled the NQ server automatically adds printer share when started. There is a unique connection between this share and a physical printer device.

Adding printer share is done via configuration file `nqRoot/config/cs_cfg.txt` by adding a line:

```
PrinterColor;/dev/usb/lp0;Shared printer;printer
```