

# APPLICATION ENGINEERING NOTE

## Installing Novell NetWare server under Virtual PC.

### Project Description

This document provides a details on how to install a Novell NetWare server under Virtual PC.

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## Overview

Connectix Virtual PC provides an excellent platform for testing and training on Novell NetWare server operating systems. This document outlines how to install and configure Novell NetWare 5.1 and 6.0 under Virtual PC.

Installing Novell NetWare is very similar to the process required for installing Novell NetWare on any physical machine. However there are a few extra steps required to achieve optimal performance.

## DC21X4 Network Drivers

Novell NetWare 5.1 and 6.0 both provide network drivers for the DC21X4 network card emulated by Virtual PC. Normally these drivers are only functional for servers that solely use IPX for network communication. TCP/IP connectivity can be easily obtained by correctly configuring these drivers - as detailed in the following steps:

- 1) Format a floppy disk - which will be used as the network driver disk.
- 2) Copy 'DC21X4.LAN' and 'DC21X4.LDI' to this floppy.

- On Novell NetWare 5.1 install CDs these files are located in \DRIVERS\LAN\
- On Novell NetWare 6.0 install CDs these files are located in \DRIVERS\UNSUPDRV\
- These files can also be downloaded from <http://developer.intel.com/design/network/drivers/#21143>

- 3) Open the file 'DC21X4.LDI' with a standard text editor.
- 4) In this file change the following section from:

```
LI Line_Speed OPT
{
DES:  $DC21X4_29
HELP:  $DC21X4_30

CD:  $DC21X4_31
CH:  $DC21X4_32
CD:  $DC21X4_33
CH:  $DC21X4_34
OUT:  'LINE_SPEED=%s'

DEF:  2\
}
}
```

to:

```
LI Line_Speed OPT
{
DES:  $DC21X4_29
HELP:  $DC21X4_30
```

```

CD: $DC21X4_31
CH: $DC21X4_32
CD: $DC21X4_33
CH: $DC21X4_34
OUT: 'LINE_SPEED=%s'

DEF: 2\
}

LI TX_THRESHOLD REQUIRED
{
DES: "TX_Threshold"
HELP: "This value must be set to 3 for DC21X4 cards"

CD: "3"
CH: "3"
DEF: 1
OUT: 'TX_THRESHOLD=%s'
}
}

```

5) This floppy disk can now be used during installation / network configuration.

If other drivers are automatically selected during the normal installation of Novell NetWare - they should be removed and these modified drivers should be loaded by selecting to 'Add an unlisted driver'. If Novell NetWare has already been installed, without using these modified drivers, they can be easily loaded by using NWCONFIG or INETCFG.

## Novell NetWare Time Synchronization

When Novell NetWare is running inside of Virtual PC the time reported by the virtual environment can easily get out of synchronization with the time reported by the host computer. In order to alleviate this issue - Novell has provided a time synchronization module specifically for use with Virtual PC. Details on this module can be obtained from:

<http://support.novell.com/servlet/tidfinder/2964094>

## Novell NetWare Processor Idle Module

Novell NetWare does not implement a processor idle loop by default. While this is not detrimental on native hardware, as Novell NetWare is fully in control of the processor, in Virtual PC this causes the virtual environment to use all available processing power. This excessive processor usage can be avoided by loading an idle module such as 'NW5-IDLE.NLM', which can be downloaded from:

<http://www.npi.novellacademy.net/Nw5-idle.nlm>

Please note that while this module is called 'NW5-IDLE.NLM' it works perfectly on Novel NetWare 6.0 as well.

## References

<http://support.novell.com/servlet/tidfinder/2964094>  
<http://www.npi.novellacademy.net/Nw5-idle.nlm>