

Fedora Linux Core 5/6/Mandriva 2007.0/SuSE 10.2/Red Flag 5.0 Desktop ndiswrapper Driver v1.34 For VIA Networking Solomon-A/B/G Wireless LAN Adapter VT6655 Installation Guide

Version 0.8, January 26, 2007

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1. Summary

This installation guide describes the procedures to install open source Wireless LAN driver “ndiswrapper” with VIA Networking Solomon-A/B/G Wireless LAN Card VT6655 and how to enable it on Linux distributions Fedora Linux Core 5/6, Mandriva 2007.0, SuSE 10.2 (x86/x86_64) and Red Flag 5.0 Desktop (x86). Two solutions are provided: (1) installing VIA pre-compiled ndiswrapper driver binary and (2) compiling open source code of source driver “ndiswrapper”. The information in this document is provided “AS IS,” without guarantee of any kind.

2. File description

This package requires 4 file as described below.

01/26/2007 10: 33am 1, 305, 322	vt6655-ndi swrapper_bi n_01242007. run. tgz	Ndi swrapper Driver Binary for VT6655 Wi rel ess LAN Card
01/09/2007 07: 52pm 190, 156	ndi swrapper-1. 34. tar. gz	ndi swrapper dri ver v1. 34 source code
01/24/2007 03: 53pm 1, 700	ndi swrapper-1. 34_rf5. patch	ndi swrapper dri ver v1. 34 patch for Red Flag 5. 0
	Readme	thi s fi le

3. Install VIA pre-compiled VT6655 Wireless LAN ndiswrapper driver binary

To install VIA's pre-compiled VT6655 Wireless LAN driver binary, please refer follow the steps below:

```
#cp vt6655-ndi swrapper_bi n_01242007. run. tgz /  
#cd /  
#tar xvzf vt6655-ndi swrapper_bi n_01242007. run. tgz  
#. /vt6655-ndi swrapper_bi n_01242007. run
```

If users want to activate the VT6655 network adapter at boot up time, add one line,

```
al i as wl an0 ndi swrapper
```

in the file “/etc/modprobe.conf” for 2.6.x kernel.

Note: If users are uncertain the interface number of VT6655 network adapter, users can check the interface number with file “/proc/net/wireless”.

```
#cat /proc/net/wireless
```

```
Inter-| sta-| Quality      | Discarded packets           | Missed | WE
face | tus | link level noise | nwid crypt frag retry misc | beacon | 16
wlan0: 0000 104. 50 0      0 0 0 0 0 0 0
```

4. Starting using Wireless LAN with VT6655

If users use WEP KEY with wireless AP, please add items “ESSID” and “KEY” to config file “ifcfg-wlan0” in path /etc/sysconfig/network-scripts (For OS: FC5/6, ML2007.0 and Red Flag 5.0) or /etc/sysconfig/network (For OS: SuSE 10.2).

For Example: Interface Number of VT6655 is “wlan0”

AP ESSID is “BLW-04GM”

Set WEP Function ON with 40bit

➤ Setting of config file “ifcfg-wlan0” of OS FC5/6, ML2007.0 and Red Flag 5.0

```
#Ndiswrapper Driver For VIA Networking Solomon-A/B/G Wireless LAN Adapter
VT6655
DEVICE=wlan0
ONBOOT=yes
BOOTPROTO=dhcp
ESSID=BLW-04GM ← ESSID of Access Point
KEY=0123456789 ← WEP KEY
MODE=Managed ← Set operating mode
IWCONFIG="key open" ← Only for Red Flag 5
SECURITYMODE=open ← Set Security mode
```

➤ Setting of config file “ifcfg-wlan0” of OS SuSE 10.2

```
#Ndiswrapper Driver For VIA Networking Solomon-A/B/G Wireless LAN Adapter
VT6655 For OpenSuSE OS
WIRELESS_POWER='yes'
BOOTPROTO='dhcp'
WIRELESS_DEFAULT_KEY='0'
WIRELESS_ESSID='BLW-04GM'
WIRELESS_KEY_0='0123456789'
WIRELESS_KEY_LENGTH='128'
WIRELESS_MODE='Managed'
WIRELESS_AUTH_MODE='open'
WIRELESS_BITRATE='auto'
STARTMODE='auto'
```

After revising the wireless setting completely and saving it, users can manually load the VT6655 network adapter module by the following command under terminal to get IP from DHCP.

```
#modprobe ndiswrapper -r
#modprobe ndiswrapper -v
#iwconfig

Wlan0   Auto   ESSID: "BLW-04GM"   Nickname: "Local host. Local domain"
Mode: Managed   Frequency: 2.462 GHz   Access Point: 00:90:CC:84:61:90
Bit Rate=11 Mb/s
RTS thr=2347 B   Fragment thr=2346 B
Encryption key: 0123-4567-89   Security mode: open
Power Management: off
Link Quality: 73/100   Signal level: -49 dBm   Noise level: -96 dBm
Rx invalid nwid: 0   Rx invalid crypt: 0   Rx invalid frag: 0
Tx excessive retries: 0   Invalid misc: 0   Missed beacon: 0
```

Users can use wireless extension tool “**iwconfig**” to check the wireless LAN whether enable successfully. For more details of “**iwconfig**”, please type command “**#man iwconfig**” or refer example in following web site.

http://ndiswrapper.sourceforge.net/mediawiki/index.php/Installation#Configure_interface

To verify the network status, run ‘**ifconfig**’. Messages related to the network interface including the IP address will be displayed. Next, run the ‘**ping <Network host address>**’ command to send ICMP packets over the networks.

If users want to Wi-Fi Protected Access (WPA) with ndiswrapper, please refer steps with ndiswrapper wiki web site.

<http://ndiswrapper.sourceforge.net/mediawiki/index.php/WPA>

5. Verify success of driver installation

Two methods can be used to verify success of driver installation.

(1) Inspect boot up messages

Read the boot up message in the **/var/log/messages** file to verify success of driver installation. The messages should look like below:

```
ndiswrapper version 1.34 loaded (preempt=no, smp=yes)
ndiswrapper: driver vntl (VNT, 03/31/2006, 2.07.00.0222) loaded
ndiswrapper: using IRQ 161
wlan0: ethernet device 00:0c:20:02:28:fb using NDIS driver: vntl, version: 0x20007,
NDIS version: 0x500, vendor: 'VIA Networking Technologies PCI-Cardbus Wireless LAN
Adapter', 1106:3253.5.conf
wlan0: encryption modes supported: WEP; TKIP with WPA, WPA2, WPA2PSK; AES/CCMP with
WPA, WPA2, WPA2PSK
usbcore: registered new driver ndiswrapper
ADDRCONF(NETDEV_UP): wlan0: link is not ready
ADDRCONF(NETDEV_CHANGE): wlan0: link becomes ready
```

(2) Check currently loaded driver module

Run 'lsmod' in the command line to check the currently loaded Wireless LAN driver module: 'ndiswrapper' for VT6655 Wireless LAN.

6. Compiling Source Code of open source driver “ndiswrapper”

Note: There might be the kernel IDE driver issue (low performance or kernel panic) with VIA south bridges VT8237A, VT8237S, VT8251 or CX700(M). Please refer the solution from VIArena download page to solve it:

<http://www.viaarena.com/default.aspx?PageID=22&DSCat=39&DCatType=3>

If the system still can't boot, please add the "pci=conf1" option to the GRUB menu.

Users can download open source “ndiswrapper” driver source code and VIA VT6655 Windows driver from following download links:

- Ndiswrapper Driver:
http://sourceforge.net/project/showfiles.php?group_id=93482&package_id=99148
- VT6655 Windows Driver:
[http://www.viaarena.com/Driver/VT6655%20Software%20package\(v1.3\).zip](http://www.viaarena.com/Driver/VT6655%20Software%20package(v1.3).zip)

Before compiling ndiswrapper driver source code, please check following kernel source or header package whether installed.

OS	Kernel source or header Package Name	CPU Type
Fedora Core Linux 5.0	kernel-devel-2.6.15-1.2054_FC5.i686	x86
	kernel-smp-devel-2.6.15-1.2054_FC5.i686	x86 SMP
	kernel-devel-2.6.15-1.2054_FC5.x86_64	x86_64
Fedora Core Linux 6.0	kernel-devel-2.6.18-1.2798.fc6.i686	x86
	kernel-devel-2.6.18-1.2798.fc6.x86_64	x86_64
Mandriva Linux 2007.0	kernel-source-2.6.17.5mdv-1-1mdv2007.0.i586	x86
	kernel-source-2.6.17.5mdv-1-1mdv2007.0.x86_64	x86_64
Red Flag Linux 5.0	kernel-devel-2.6.9-5.34DT.i686	x86
	kernel-smp-devel-2.6.9-5.34DT.i686	x86 SMP
SuSE Linux 10.2	kernel-source-2.6.18.2-34.i586	x86
	kernel-source-2.6.18.2-34.x86_64	x86_64

When downloading the ndiswrapper and VT6655 Windows drivers completely, users can refer following steps to compile and install it.

```
#mkdir /tmp/vt6655
#cp ndiswrapper-1.34.tar.gz /tmp/vt6655
#tar xvzf ndiswrapper-1.34.tar.gz
```

```
#cd ndi swrapper-1.34
#cp ndi swrapper-1.34_rf5.patch /tmp/vt6655/ndi swrapper-1.34 (Only For Red Flag 5)
#patch -p1 < ndi swrapper-1.34_rf5.patch (Only For Red Flag 5)
#make VT6655=1 install
#cp VT6655\ Software\ package\ (v1.3\).zip /tmp/vt6655
#cd /tmp/vt6655
#unzip VT6655\ Software\ package\ (v1.3\).zip
#ndi swrapper -i VNWL.inf (For x86 CPU)
#ndi swrapper -i VNWL64.inf (For x64_64 CPU)
```

If driver installed successfully, users can find directory “**vnwl**” in path “**/etc/ndiswrapper/vnwl**”. And it contains five files: “**vnwl.inf**”, “**vnwl5b.sys**”, “**1106:3253.5.conf**”, “**1106:3253:6655:1106.5.conf**” and “**1106:3253:6658:1106.5.conf**”.

Note1: (For FC6 x86_64 OS) When compile ndiswrapper driver under FC6 x86_64 OS, users may meet compile error message. Please revise the string “int32_t” to “int” in line 469~471, line 475 and line 479 of file “/usr/include/stdlib.h”.

Note2: (For ML2007.0 & Red Flag 5) Due to there is a default ndiswrapper module in system, so we need to backup it manually to avoid to conflict with default module.

```
#cd /lib/modules/`uname -r`/kernel/3rdparty/ndi swrapper (For ML2007.0)
#cd /lib/modules/`uname -r`/kernel/drivers/net/ndis/ (For Red Flag 5)
#mv ndi swrapper.ko ndi swrapper.ko.bak
#depmod -a
```

After ndiswrapper driver and VT6655 Windows driver installed successfully, users can refer Section 4 to create LAN config file “**ifcfg-wlan0**” and start to use it.

7. Test configuration

The following tables summarize the system configurations used for test.

Motherboard	VT8500B (P4M900+VT8237S)	EPIA-CX (CX700)
CPU	Intel P4 3.0GHz EM64T	VIA C7 1.2GHz
RAM	512MB DDR2	512MB DDR2
Wireless LAN Card	VIA Networking VT6655 Solomon-A/B/G Wireless LAN Adapter	

Motherboard	VT8410D (K8T890+VT8237A)	
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CPU	AMD Athlon 64 3600+	
RAM	256MB DDR400	
Wireless LAN Card	VIA Networking VT6655 Solomon-A/B/G Wireless LAN Adapter	