

# Re: NDIS WDM driver installation for multi-port NIC

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*Source:*

<http://www.tech-archive.net/Archive/Development/microsoft.public.development.device.drivers/2006-09/msg01053.1>

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- *From:* DW <DZ@xxxxxxxxxxxxxx>
  - *Date:* Wed, 27 Sep 2006 16:04:01 -0700
- 

I forgot to mention that I did run chkinf and fixed all of the errors, but this didn't change the installation errors.

"Don Burn" wrote:

I would not think the one INF should be a problem. You need to turn on install logging and see what the problem is. Have you run ChkInf on the INF file? If not do so, and be sure to clean up all errors and warnings. Just because it is a warning dit cannot be ignored, a lot of these produce failures on install.

--

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"DW" <DZ@xxxxxxxxxxxxxx> wrote in message  
<news:3B6504A1-DDE7-4CEA-B0C6-6BFC5D67DA6E@xxxxxxxxxxxxxx>

I'm having trouble figuring out how to install the drivers for the new PDOs. I've looked through several samples and inf files, and I'm not getting a clear picture of what is missing.

I've separated the single inf into two infs--one for the bus driver and one for the miniport driver. I've created new PDOs for each port, returned them when the driver gets an IRP\_MN\_QUERY\_DEVICE\_RELATIONS, caused PNP to find new hardware (the ports) and have been able to get PNP to recognize the

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miniport's inf and to install the miniport driver. However, PNP reports that an entry is missing from the inf and a yellow question mark shows up next to the miniport driver (the bus driver starts up fine).

Does it matter whether I have a single inf file to install both drivers or separate inf files to install them? How can I go about debugging this issue?

The original inf that I had installed the miniport and bus driver at the same time and bound them in such a way that only one entry appeared in the device manager. Now, the bus device and the N miniport devices appear.

"Don Burn" wrote:

I assume the single API has some sort of "port number" parameter to identify the particular port you are communicating with. If so create a PDO for each port, and have one IOCTL you can issue that will return the port number for the PDO.

Your model is correct, the board has a PDO from whatever bus you are on, you attach an FDO to that, and then instantiate a PDO for each port as part of the bus driver. The NDIS WDM driver then attaches an FDO to each ports PDO.

I have done this for a pair of devices that was split into 2 SCSI ports, 1 special device, and up to 32 NIC's. This was in a commercial product that has been shipping for over 3 years now.

—  
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"DW" <DZ@xxxxxxxxxxxxxx> wrote in message  
[news:C96FE469-E68C-4AEC-BE2F-2585C5D3F825@xxxxxxxxxxxxxxxxxx](mailto:C96FE469-E68C-4AEC-BE2F-2585C5D3F825@xxxxxxxxxxxxxxxxxx)

That model is certainly quite different from how we've treated resources on the board in the past, where the interfaces are secondary, rather than primary, resources (the ports are currently controlled by an API and are independent of the Windows stack).

Can you elaborate more on structurally, how the device tree would look for this board? I've been trying to describe how I think the picture should look like for the device tree, but I'm having trouble because the "bus driver" is in reality a monolithic bus and function driver. The whole board and each interface are currently controlled via a single API and single FDO. I guess in the end, it shouldn't matter whether multiple drivers are combined into one physical .sys, as long as the functionality is separated out within the driver clearly?

Would you have the board's (bus) PDO at the bottom, followed by the board's (bus) FDO, followed by the port PDOs (possibly with an FDO on top of each PDO)?

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So in other words:

Miniport: Mini0 Mini1  
||  
Bus/Func: PortPDO0 PortPDO1  
\/  
Bus FDO (board)  
|  
Bus PDO (board)

"Don Burn" wrote:

The bus driver should instantiate a PDO for each physical port. If you design the interface correctly, this will allow you to have a seperate NDIS WDM instance, that then talks to its given port.

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"DW"

<DZ@xxxxxxxxxxxxxx>

wrote in message

[news:A7B6D992-A1F9-483D-BCBE-AD4AEF344F4E@xxxxxxxxxxxxxx](mailto:news:A7B6D992-A1F9-483D-BCBE-AD4AEF344F4E@xxxxxxxxxxxxxx)

I know how  
to install an  
NDIS  
WDM  
driver over  
a bus driver  
like the  
pcidrv

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sample.  
However,  
I'm still  
trying to  
understand  
the different  
ways  
to  
programmatically  
install  
multiple  
instances of  
an NDIS  
WDM  
driver  
over  
a  
single  
instance of  
a bus driver.  
The reason  
there is an  
N-1  
correspondence  
of  
miniport  
devices to  
bus/functional  
devices is  
because the  
bus/functional  
device  
accesses a  
single card,  
which has  
multiple  
physical  
ports.  
Would  
it  
make more  
sense to  
create the  
device tree  
differently  
so that there  
is  
a  
1-1  
correspondence  
between

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devices and  
to share the  
state  
information?

Can the  
devcon  
sample be  
used as a  
starting  
point? If I  
understand  
things  
correctly, I  
should be  
able to use  
SetupDiCreateDeviceInfo  
to  
create  
multiple  
NDIS  
WDM  
devices/nodes  
on top of a  
given  
bus/functional  
device.