



ACK Whitepapers

Implementation of a NIC driver

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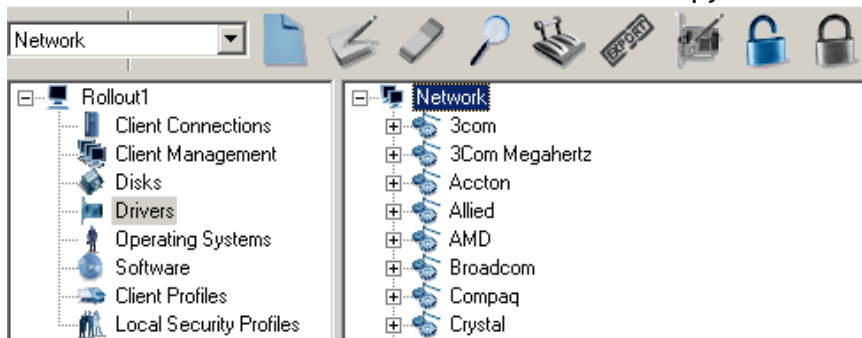
Implementation of a NIC driver

1. Network interface card

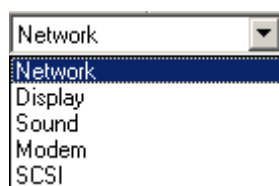
The network interface card is required to net several computers. Each NIC has a unique MAC address. The MAC address of each LAN controller is used for the unique identification of a knot in the network.

2. NIC drivers in ACK

The NIC is the interface between the rollout server and the computer to roll out. This way the rollout server can establish a connection and copy the OS files.

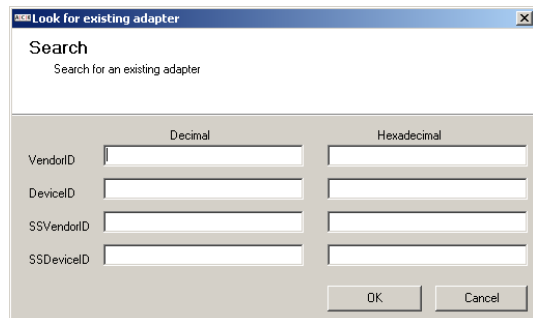


First check, if your NIC driver is listed up in the ACK database. Open the ACK console and select the submenu *network* in the *drivers* menu. In the submenu *network* you will find all available vendors and their drivers.



If you are looking for a certain drivename, you have the possibility to search specified keywords via the right mouse button and *find*, respectively *Ctrl+T*.

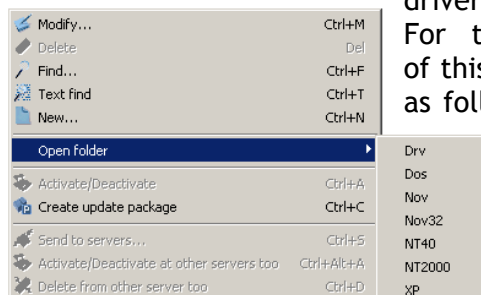
Via right click and *Find...* you can also search for decimal- or hexadecimal numbers of the *VendorID*, *DeviceID*, *SSVendorID* or the *SSDeviceID*.



3. Integrating NIC drivers

In case your driver is not existent in the driver database, you have the possibility to add a new vendor and the corresponding driver.

Make sure that the proper NIC driver with the accordant *.sys and *.ini files is available, by frisking the driver cd or floppy.






For the implementation of this driver you proceed as follows: Click with the right mouse button in the context menu, move to *Open folder*, select either *Drv* (Driver) to access the operating system overview, or directly decide for the pertaining OS. An explorer window opens in which you can create the folder for your driver in order to copy sys-

and ini-files into.

Now select the submenu *Network* from the menu *Drivers* in the menu of the ACK Console. All available manufacturers with their drivers appear. Subsequently open the *Replications Package* with the blue padlock in the tool bar and release the drivers for treatment.




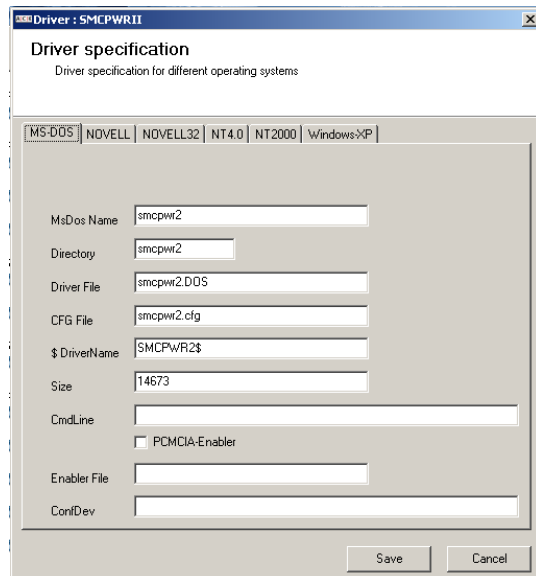
3.1 Inserting a new driver manufacturer

If your driver manufacturer  is not listed in the menu *Drivers*, right click on  *network* and click on *New...* Enter the name of the manufacturer of your driver in the following dialogue box. This way you create a further subdirectory in your driver tree  *manufacturer's name*.

3.2 Inserting a device driver

If the driver manufacturer  should already exist, continue here.

In order to adjust the particular device driver, right-click on the driver manufacturer , afterwards on *New...* and define the drivers specifications for the respective operating system.



The screenshot shows a dialog box titled "Driver: SMCPWR2" with the subtitle "Driver specification for different operating systems". It has tabs for "MS-DOS", "NOVELL", "NOVELL32", "NT4.0", "NT2000", and "WindowsXP". The "MS-DOS" tab is selected. The fields are filled with the following values:

Field	Value
MsDos Name	smcpwr2
Directory	smcpwr2
Driver File	smcpwr2.DOS
CFG File	smcpwr2.cfg
\$ DriverName	SMCPWR2\$
Size	14673
CmdLine	
PCMCIA-Enabler	<input type="checkbox"/>
Enabler File	
ConfDev	

Buttons for "Save" and "Cancel" are at the bottom right.

3.2.1 MS DOS

To the specifications of a DOS driver belong the MSDOS name, the directoy name, the driver description *.*dos*, the GFG name *.*cfg*, the \$-driver name *\$, as well as the driver size in bytes. You can register the driver's size after conclusion of the driver mechanism. How to determine the driver size, you will find under point 5; for this the driver must be already completely implemented into the ACK console.

Some PCMCIA cards must be activated either over an enabler or over a command line instruction. You can register the command line instruc-

tion into the *CmdLine*. If there should be no *cfg* file, the *protocol.ini* must be renamed to *[DOS-Name].cfg*.


Make sure that you enter the path *s:\NET* in the *CmdLine* and don't forget to indicate possibly necessary further parameters.

If you should implement a PCMCIA card, activate the *PCMCIA Enabler*. Afterwards register the file names in the *Enabler file* and the command line instruction in *ConfDev*, if necessary. Make sure that you indicate the path *a:\dos* in *ConfDev* and do not forget to indicate possibly necessary further parameters. The *CmdLine* remains then empty otherwise.


3.2.2 Novell

Novell and Novell32 require the driver specifications, the appropriate Novell name, the directoy name, the driver file *.*com* and/or *.*lan*, the GFG name and the driver size. With Novell the driver size is of special importance due to its extent. How to determine the driver size, you will find under point 5; for this the driver must be already completely implemented into the ACK console.

3.2.3 Windows

The Windows operating systems need only need the *.sys* file and the superior directoy. With Windows 2000 and XP you can register also to the operating system names. According to the complete drivers specification the directoy  *Driver name* will be generated.

3.3 Adapterspecifikations

Now right click on the driver name and click *New...* to add the  *Adapter Specification*.

3.3.1 General

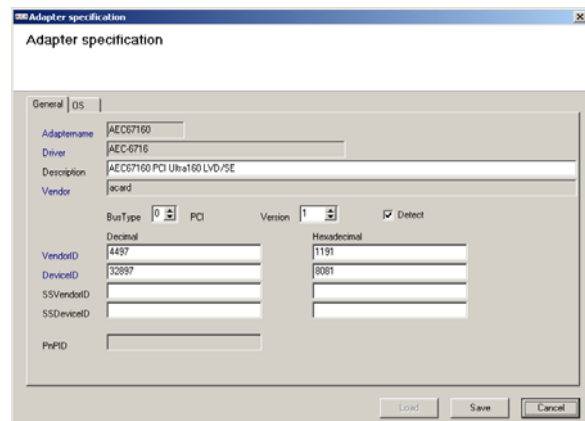
The blue colored informations in the *General* tab sheet are to be mandatorily entered.

To these *General* informations belong the adapter name, as it is shown to the ACK user, the driver specification of the .sys file, the adapter description and the vendor.

Select between the numbers 0 to 3 under *BusType*, wether you use a *PCI*, *ISApnp*, *ISA* or a *PCMCIA* adapter. *Version* indicates which driver is pertinent, this number can be adjusted manually. *Detect* should be activated, if the adapter can be recognized automatically by the system. Further the *Vendor ID* and the *Device ID* have to be keyed in. This data you will most probably find as hexadecimal numbers, if you open the driver (preferably Windows 9x driver) in the editor.

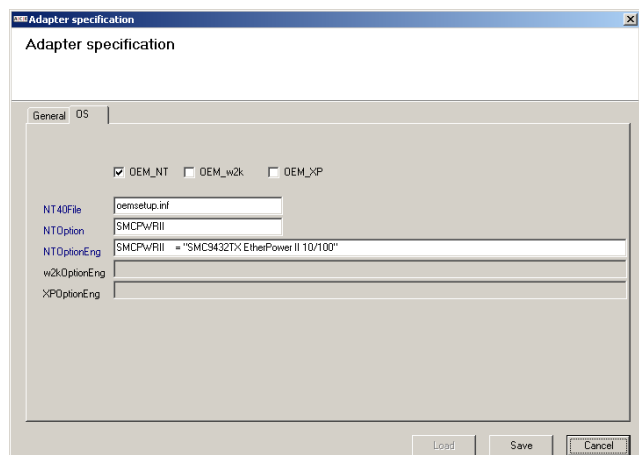
In an INF File such an entry can look as follows:

```
\VEN_1039&DEV_0900&SUBSYS_09001039
           [VendorID]       [DeviceID]       [SSDeviceID][SSVendorID]
```



3.3.2 OS

More complicated it is, to get the description *NTOptionEng* for the *OS* tab. With network interface cards, which are to be installed under NT4, this input is an absolute must! For W2k and WinXP this entry is not necessary. This information you will either find in the respective OEMSETUP.INF or in the TXTSETUP.OEM, however the description is left to the manufacturer, so that there is no ready-made solution for the *NTOptionEng* entry.

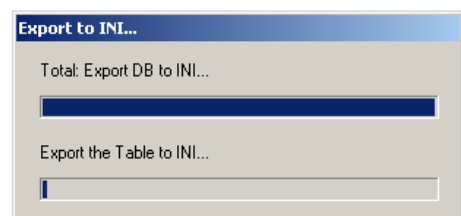


4. Conclusion of the drivers installation



After you have successfully implemented the driver, the driver resp. its changes in the data base must be written into an ini file. Click for this in the menu bar on *Export to Ini files* - the files become automatically transferred. Finally

store the data concerning *Writes detect information* so that ACK can recognize the new applied driver. Finish the driver's installation by clicking the closed padlock.



5. Determination of the driver size

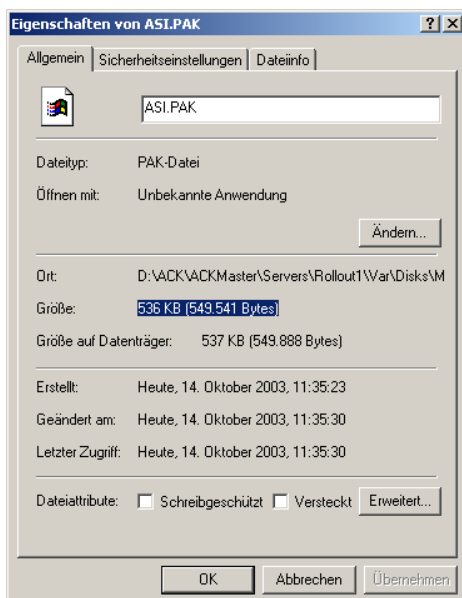
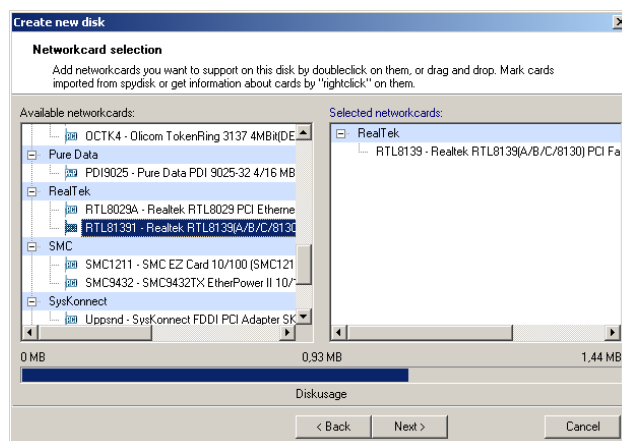
5.1 MS DOS

In order to determine the driver size of a Microsoft Client (for example of a 3Com EtherLink 10/100 PCI NIC (3C905-TX)), start the ACK console, connect with the desired rollout server, change to the program *Disks* and build a new disk e.g. with *Ctrl+N*. Confirm the first screen with *Next*, enter a name into *Basic description* e.g. "MSDOS", and, if you want, as *Description* "Size für MSDOS". Move to the screen *Profile and network selection* with *Next*, and leave the section *Configuration* by as it is.

Because you intend to determine the size of the Microsoft Client, you must now in *Client* activate the *Microsoft Client*. Select the TCP/IP protocol and leave *Net settings* on *Use DHCP*.

Proceed to the *Networkcard selection* by clicking *Next*, and then select an arbitrary, already existing network interface card, e.g. the RTL8139 from Realtek.

Now click on *Next* until you reach the screen *Special Settings* and complete your inputs with *Finish*. Now select the disk *MSDOS* with your mouse, right click, and select *Rebuild* or press *CTRL+R*, in order to create the disk. As soon as the disk is created, open ...\[Masterserver]\Servers\[Rollout]\Var\Disks\MSDOS\PAK in the explorer. Right click on the file *asi.pak* and select *Properties*. Note the filesize displayed in bytes! In this case these are 549,541 bytes.



Now return to the ACK Console and the *Disks* program. Select the disk *MSDOS* with your mouse, right click on it and select *Modify* or *CTRL+M*, in order edit the disk. Click *Next* until you reach the screen *Networkcard selection*. Add the *3Com EtherLink 10/100 PCI NIC (3C905-TX)* to the already existing RTL8139 by double clicking on it and click *Next* until you have reached the screen *Special Settings*. Complete your inputs by clicking *Finish*.

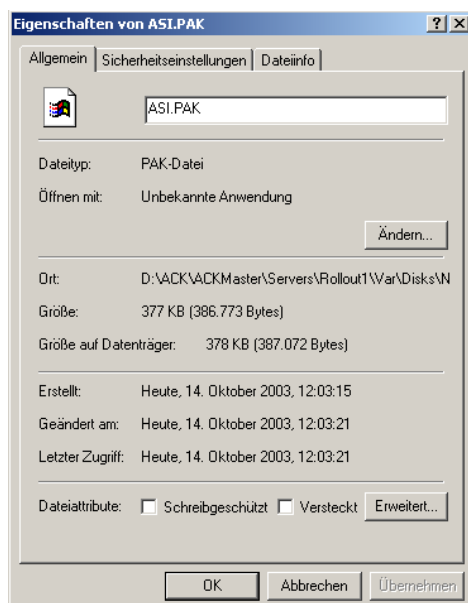
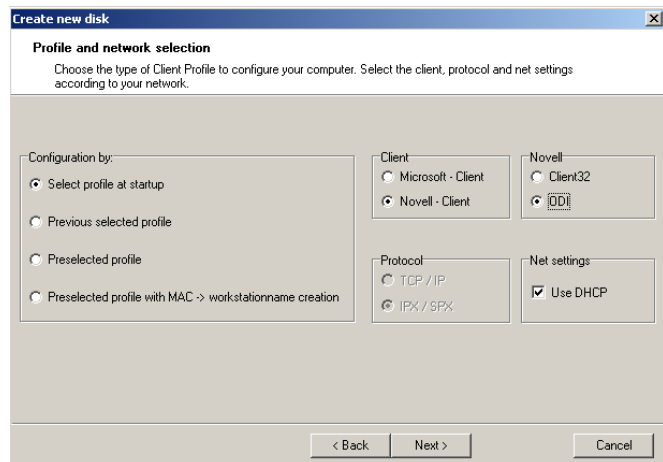
Now select the disk *MSDOS* with your mouse, right click and select *Rebuild* or press *CTRL+R*, in order to create the disk. As soon as the disk is created, open in the explorer again the directory ...\[Masterserver]\Servers\[Rollout]\Var\Disks\MSDOS\PAK and look for the properties of the file *asi.pak*. The size is now 562,088 bytes.

The difference between 562,088 and 549,541 amounts to 12547 bytes. Now enter this value into the *Size* field of the *Driver specifications* in the *Drivers* menu.

5.2 Novell

Start the ACK Console, connect to the desired rollout server, enter the program *Disks*, and create a new disk, e.g. with *Ctrl+N*. Confirm the first screen with *Next*, type a name into the *Basic description* field, e.g. "NOVDOS", and, if you wish, as *Description* "Size for NOVELLDOS". Move to the screen *Profile and network selection* by clicking *Next*, and leave the section *Configuration* as it is. Because you intend to determine the size for the Novell Client, you must activate the *Novell Client* under *Client* and under *Novell ODI*. If you want to determine the size for the Novell Client32, you here have of course to select *Novell32*. Leave the *Net settings* on *DHCP*.

Click *Next* to move to the *Network card selection* screen and select an arbitrary, already existing network interface card, e.g. the RTL8139 from Real-Tek. Now click *Next* until you have reached the *Special Settings* screen and complete your inputs with *Finish*. Now select the disk *NOVDOS* with your mouse, right click and select *Rebuild* or press *Ctrl+R*, in order to create the disk.



As soon as the disk is created, open the explorer and there the directory ...\[Masterserver]\Servers\[Rollout]\Var\Disks\NOVDOS\PAK. Right click the *asi.pak* file and select *Properties*. Note the size that is 386,773 bytes.

Now return to the ACK Console and the *Disks* program. Select the disk *NOVDOS*, right click and select *Modify* or press *Ctrl+M*, in order to edit the disk. Click *Next* until you have reached the screen *Networkcard selection*. Double click on 3Com EtherLink 10/100 PCI NIC (3C905-TX) to add it to the already existing RTL8139 and click *Next* until you are in the *Special Settings* screen. Complete

your inputs by clicking *Finish*.

Now select the disk *NOVDOS*, right click and select *Rebuild* or press *Ctrl+R*, in order to create the disk. As soon as the disk is created, open the explorer again and open the directory ...\[Masterserver]\Servers\[Rollout]\Var\Disks\NOVDOS\PAK and display the properties of the *asi.pak* file. Note the size of the *asi.pak*. It now amounts to 429,359 bytes.

The difference amounts to 42,586 bytes. Enter this value into the *Size* field of the *Driver specifications* in the *Drivers* menu.

