

USB Device Port

This document describes how to setup the usb device capability using the „**g_serial**” driver included your linux-kernel. It's recommended to use a recent kernel (2.6.18 and above) due to stability reasons.

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1 Preparations

You have to build the kernel with usb gadget support. Include the following devices:

- Support for USB Gadgets
- Serial Gadget (with CDC ACM support)
- Native: „AT91 USB Device Port”

1.1 Create / Copy your own gadget driver

If you plan to support an own product you may want to choose an own **vendor-** and **product-id**. It's recommend to copy the existing gadget driver „serial.c” to an own file (f.i. galep5d.c). To get your new driver compiled and linked you have to modify the Makefile located in the directory:

```
g_galep5d-objs := galep5d.o usbstring.o config.o epautoconf.o  
bj-$(CONFIG_USB_G_SERIAL) += g_galep5d.o
```

We assume you have a driver module named „**g_galep5d.ko**”.

1.2 Choose Vendor and Product - ID

The file **drivers/usb/gadgets/serial.c** contains a configuration section including:

- GS_VENDOR_ID
for instance: **0xaaaa**
- GS_PRODUCT_ID
for instance: **0x1**

You may change these to own values. Another interesting thing is „GS_LONG_NAME”.

2 Setting up the target system

Copy the modules „**at91_udc.ko**” and „**g_serial.ko**” to a location accessible for the target system (nfs-share point) then load „**at91_udc.ko**”.

2.1 Create device nodes

```
mknod devttyUSBG c 127 0
```

The device node is device similar to a generic rs232 device. Your application must open - read - write - close it to perform data transfers.

2.2 Enable the emulation of a „serial port“

You have to load the g_serial device like:

```
insmod g_galep5d.ko use_acm1
```

3 Using the target system on the host side

To support the gadget-device you have to load a usb driver on the host side. These drivers are shipped with the most operating systems like „linux“, various „M\$WinXX“.

This section describes the usage of a serial gadget on various operating systems.

3.1 Linux

You have to type:

```
modprobe usbserial vendor=0xaaaa product=0x1
```

Test the configuration

On the host side type:

```
cat /dev/ttyUSB0
```

On the device side type:

```
echo hello > /dev/ttyUSBG
```

3.2 Win98**3.3 Win2000****3.4 WinXP****3.5 WinVista**