

# Linux Installation for TA

## Introduction

To setup a dial-up connection for TA in Linux, you need:

1. TA with RS232 or USB data port
2. Linux running X Windows (X is not necessary, but we may need X in the following example)
3. Linux PPP Dialer Software, for example:  
Text-Mode Dialer as WvDial or  
Graphic-Mode Dialer as RedHat Dialer, kppp for KDE, Gtksdial for GNOME, or X-ISP...

They have the similar functionality and setting, here we will take *WvDial* and *kppp* for illustration.

4. Your ISP account and related DNS information.
5. Other Accessories, as RS232 or USB Cable, ISDN line...

## Device name in Linux

Here shows the serial and USB (if your kernel support it) devices.

### Devices in MS-DOS v.s. Devices in Linux

COM1	/dev/ttyS0
COM2	/dev/ttyS1
COM3	/dev/ttyS2
USB port 1	/dev/ttyACM0 (Device only for USB Modems)

We may establish a symbolic link between the device connected to your TA and a virtual device called "modem" (*/dev/modem*). For example, login as root user and type "*ln -sf /dev/ttyS0 /dev/modem*" command for RS232 data port (or "*ln -sf /dev/ttyACM0 /dev/modem*" for USB data port), then apply device "*/dev/modem*" in your dial-up configuration.

## Installation note for USB port

For the proper installation of USB modem/TA in a Linux environment, make sure that your kernel version is 2.2.19 or higher (that supports **ACM** drivers). TA's USB data port is conformed to the **A**bstract **C**ontrol **M**odel (**ACM**) sub-class in the **U**SB Communication Device Class (**CDC**) specification: [usbcdc11.pdf](#).

You may need to reconfigure and rebuild your kernel to enable the **USB Modem (CDC ACM) support** kernel option. If you build as modules, you need to install the **acm.o** option. To check if your Linux support **ACM**, power on TA and connect it to your linux host with the USB cable, type the following command "*cat /proc/bus/usb/devices*" at command prompt, you should see the following text on your screen (assume your *usbdevfs* is mounted),

```
wien@localhost: /proc/bus/usb
File Edit Settings Help
S: Product=ISDN TA (USB)
C:* #Ifs= 2 Cfg#= 1 Atr=a0 MxPwr= 20mA
I: If#= 0 Alt= 0 #EPs= 1 Cls=02(comm.) Sub=02 Prot=01 Driver=acm
E: Ad=81(I) Atr=03(Int.) MxPS= 16 Iv1=255ms
I: If#= 1 Alt= 0 #EPs= 2 Cls=0a(data) Sub=00 Prot=00 Driver=acm
E: Ad=82(I) Atr=02(Bulk) MxPS= 64 Iv1=255ms
E: Ad=02(O) Atr=02(Bulk) MxPS= 64 Iv1=255ms
T: Bus=01 Lev=01 Prnt=01 Port=01 Cnt=02 Dev#= 2 Spd=1.5 MxCh= 0
D: Ver= 2.00 Cls=00(>ifc) Sub=00 Prot=00 MxPS= 8 #Cfgs= 1
P: Vendor=046d ProdID=c00e Rev=11.10
S: Manufacturer=Logitech
S: Product=USB-PS/2 Optical Mouse
C:* #Ifs= 1 Cfg#= 1 Atr=a0 MxPwr= 98mA
I: If#= 0 Alt= 0 #EPs= 1 Cls=03(HID) Sub=01 Prot=02 Driver=hid
E: Ad=81(I) Atr=03(Int.) MxPS= 4 Iv1= 10ms
[wien@localhost usb]$ cat /proc/bus/usb/devices[]
```

You also need to set up the device node entries for the various USB modems. You can use up to 32 USB modems with this driver. Use the following commands to set up the first four:

```
mknod /dev/ttyACM0 c 166 0
mknod /dev/ttyACM1 c 166 1
mknod /dev/ttyACM2 c 166 2
mknod /dev/ttyACM3 c 166 3
```

You should now be able to use a terminal emulator program to connect this device (USB TA). For example, open *minicom* running on */dev/ttyACM0* port, type “AT” to check if your TA response “OK” to verify your USB port is working.

### Use WvDial

As the following example, setup your Linux files */etc/wvdial.conf*, */etc/ppp/pap-secrets* or */etc/ppp/chap-secrets* correctly for **WvDial** to connect your Linux to the Internet. In the example, we will do a **PPP64K** connection first and then a **FixedMP128K** connection.

```
[root@rh1 root]#
[root@rh1 root]# cat /etc/wvdial.conf
```

```
[Dialer Defaults]
#RS232 port
#Modem = /dev/ttyS0

#USB port
Modem = /dev/ttyACM0

Baud = 115200
Stupid Mode = 1
```

```

#PPP 64Kbps
Init = ATC0=8C1=0

#MLP Dynamic 128Kbps
#Init = ATC0=8C1=1

#MLP fixed 128Kbps
#Init = ATC0=8C1=1%M3=0%M4=0%M5=1

Phone = 4125678

Username = your_username

Password = your_password

[root@rh1 root]#
[root@rh1 root]# cat /etc/ppp/pap-secrets
# Secrets for authentication using PAP
# client      server  secret          * IP addresses
your_username *      your_password  *

[root@rh1 root]#
[root@rh1 root]# wvdial
--> WvDial: Internet dialer version 1.53
--> Initializing modem.
--> Sending: ATC0=8C1=0
ATC0=8C1=0
OK
--> Modem initialized.
--> Sending: ATDT4125678
--> Waiting for carrier.
ATDT4125678
CONNECT 64K
--> Carrier detected. Starting PPP immediately.
--> Starting pppd at Feb 23 17:30:16
--> pid of pppd: 8982

Caught signal #2! Attempting to exit gracefully...
--> Disconnecting at Feb 23 17:36:42
[root@rh1 root]#

```

You may check the routing table before the connection,

```

[root@rh1 root]# route
Kernel IP routing table
Destination Gateway Genmask Flags Metric Ref Use Iface
192.168.0.0 * 255.255.255.0 U 0 0 0 eth0
169.254.0.0 * 255.255.0.0 U 0 0 0 eth0
127.0.0.0 * 255.0.0.0 U 0 0 0 lo

```

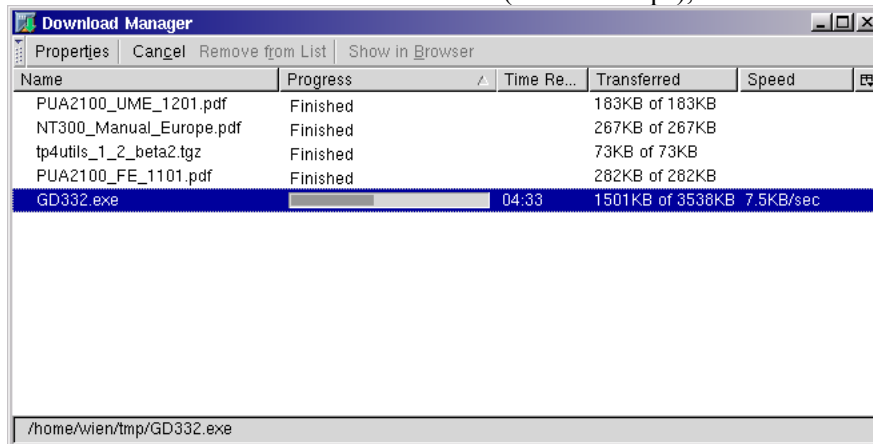
and the routing table after connection is established. Note the added “default route”,

```

[root@rh1 root]# route
Kernel IP routing table
Destination Gateway Genmask Flags Metric Ref Use Iface
h195.s67.ts.hin * 255.255.255.255 UH 0 0 0 ppp0
192.168.0.0 * 255.255.255.0 U 0 0 0 eth0
169.254.0.0 * 255.255.0.0 U 0 0 0 eth0
127.0.0.0 * 255.0.0.0 U 0 0 0 lo
default h195.s67.ts.hin 0.0.0.0 UG 0 0 0 ppp0

```

Download file in the *PPP64K* connection (about 60Kbps),



The following shows a *FixedMP128K* connection,

```

[root@rh1 etc]#
[root@rh1 etc]# wvdial
--> WvDial: Internet dialer version 1.53
--> Initializing modem.
--> Sending: ATC0=8C1=1%M3=0%M4=0%M5=1
ATC0=8C1=1%M3=0%M4=0%M5=1
OK
--> Modem initialized.
--> Sending: ATDT4125678
--> Waiting for carrier.
ATDT4125678
CONNECT 128K
--> Carrier detected. Starting PPP immediately.
--> Starting pppd at Feb 23 17:48:58
--> pid of pppd: 9060

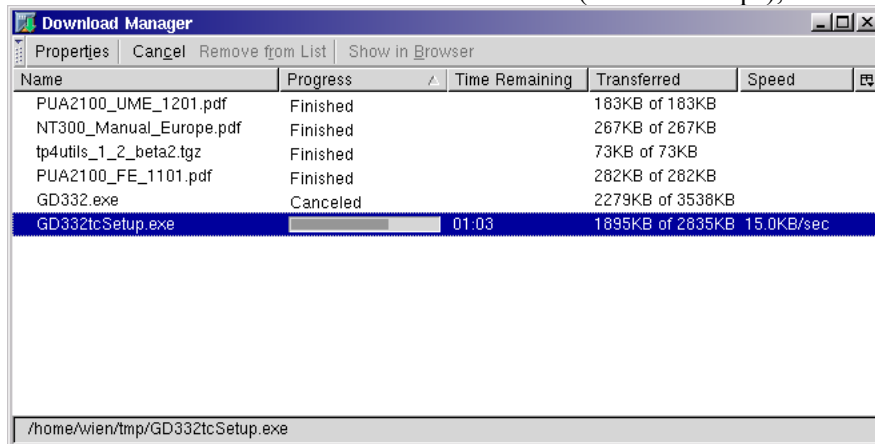
```

```

Caught signal #2! Attempting to exit gracefully...
--> Disconnecting at Feb 23 17:51:56
[root@rh1 etc]#

```

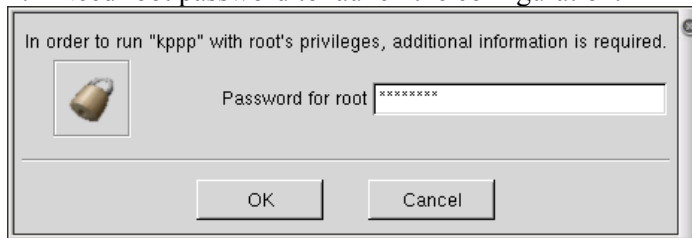
Download file in the *FixedMPI28K* connection (about 120Kbps),



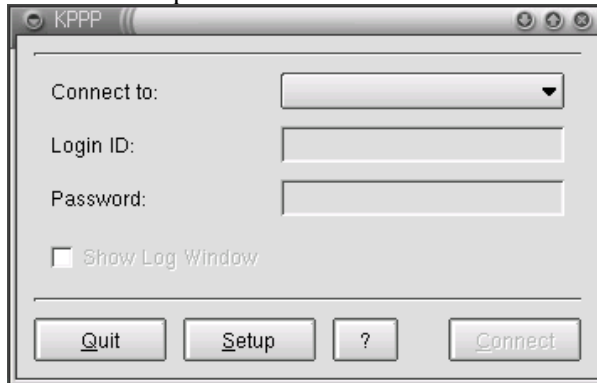
### kppp Configuration procedure in Linux

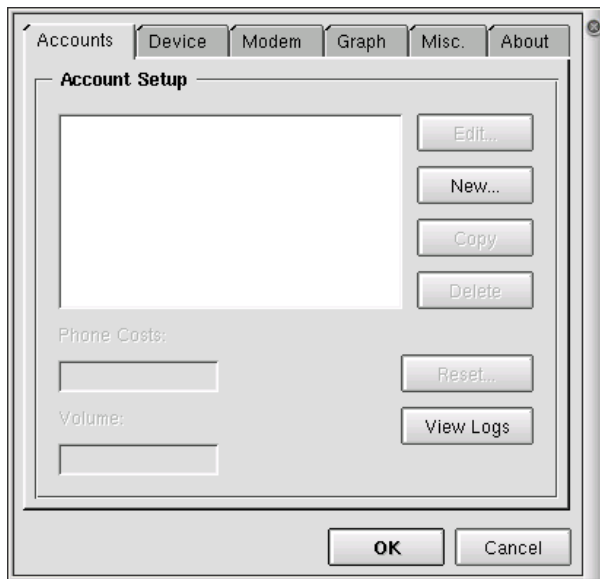
The following shows how to setup the **kppp** dial-up software in X window system for TA.

1. Need root password to launch the configuration.

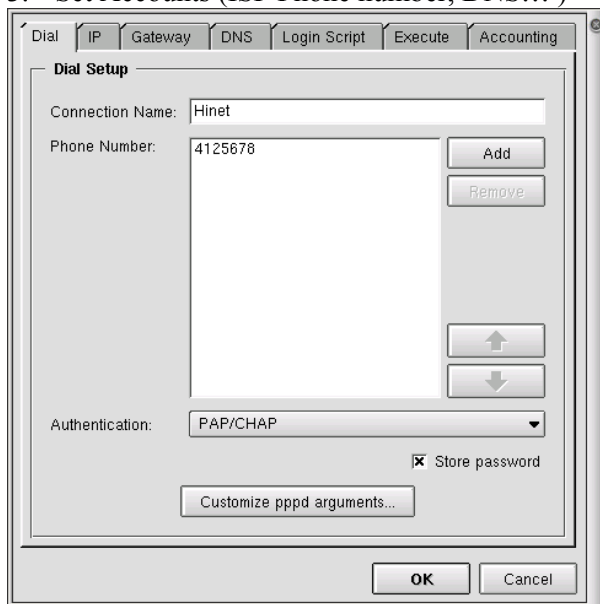


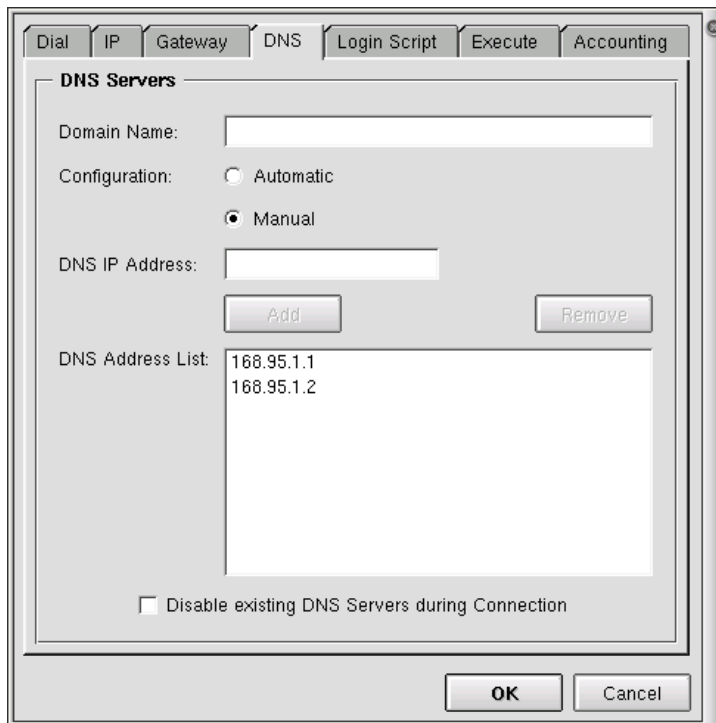
2. Click setup



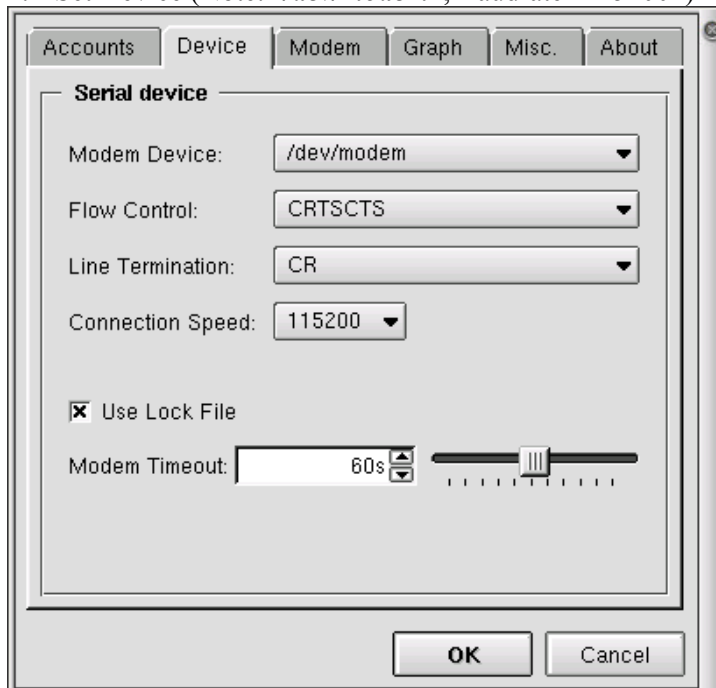


### 3. Set Accounts (ISP Phone number, DNS...)

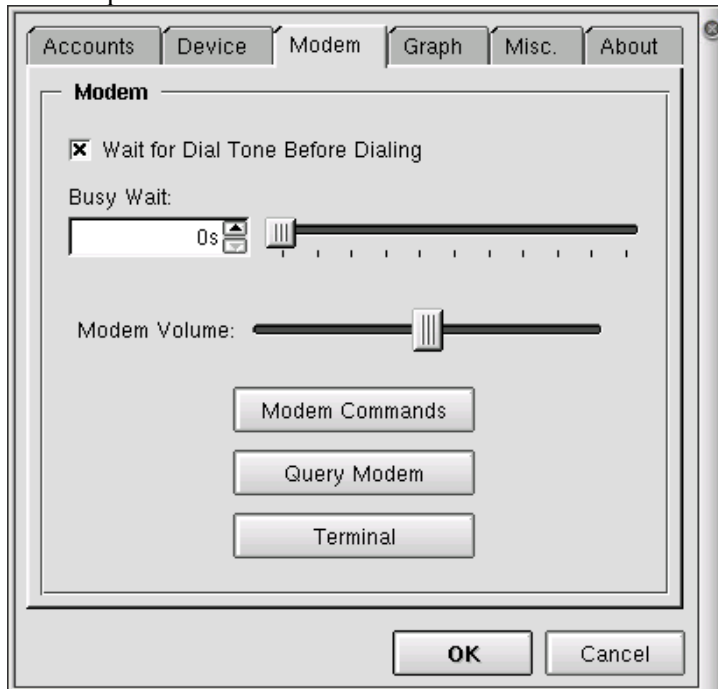




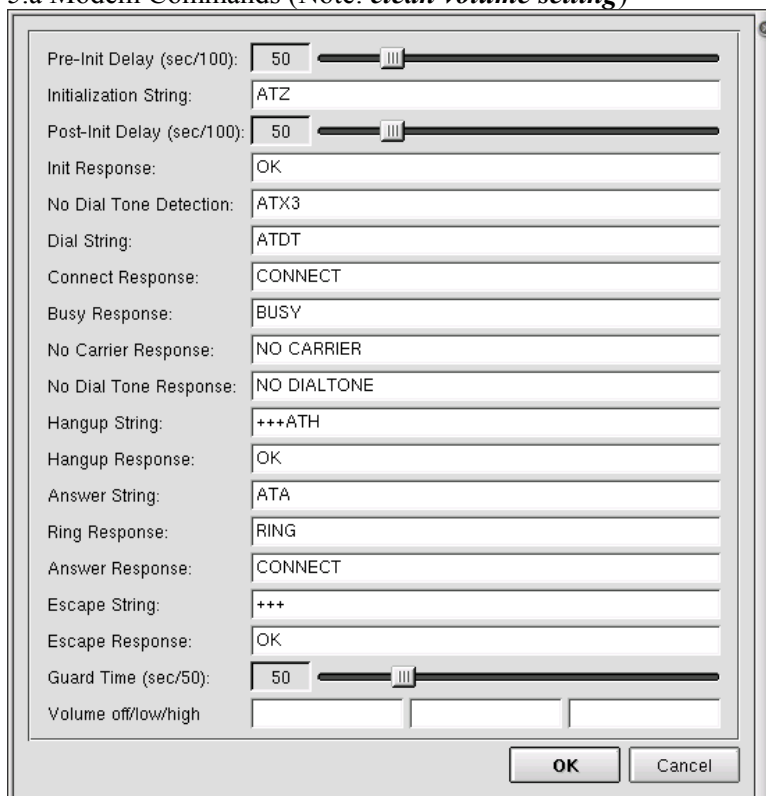
4. Set Device (Note: *"/dev/modem"*, Baudrate *"115200"*)



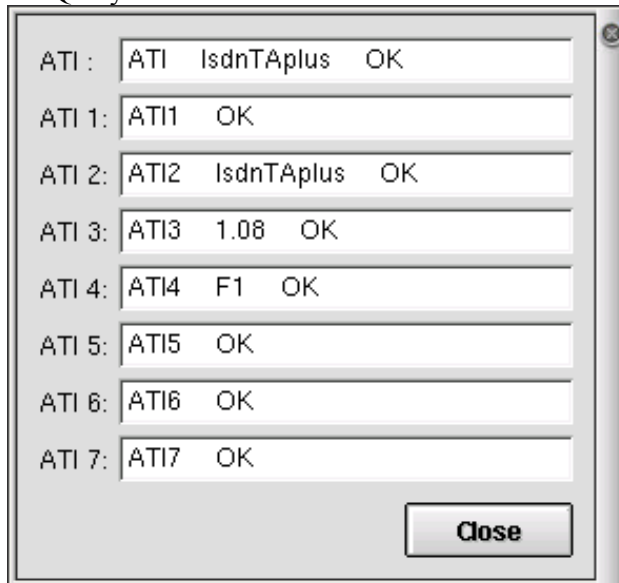
## 5. Setup Modem



### 5.a Modem Commands (Note: *clean volume setting*)



### 5.b Query Modem



5.c Open Terminal to setup connection type:

**PPP64K:** ATC0=8C1=0

**DynamicMP128K:** ATC0=8C1=1

**FixedMP128K:** ATC0=8C1=1%M3=0%M4=0%M5=1

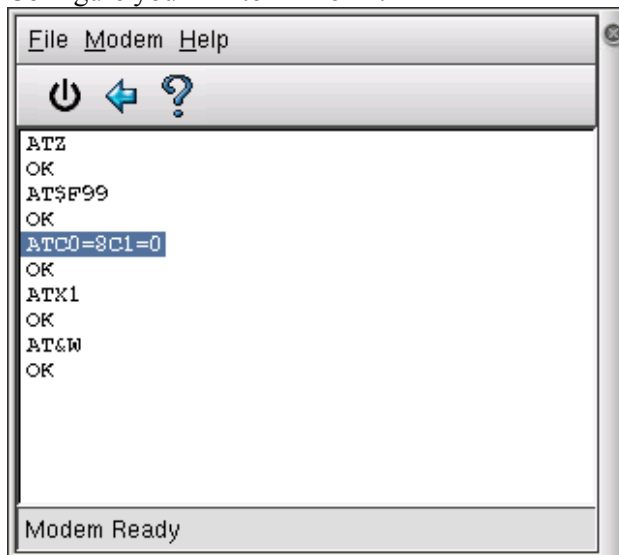
**V120 64K:** ATC0=4

**Factory Default Setting:** AT\$F99

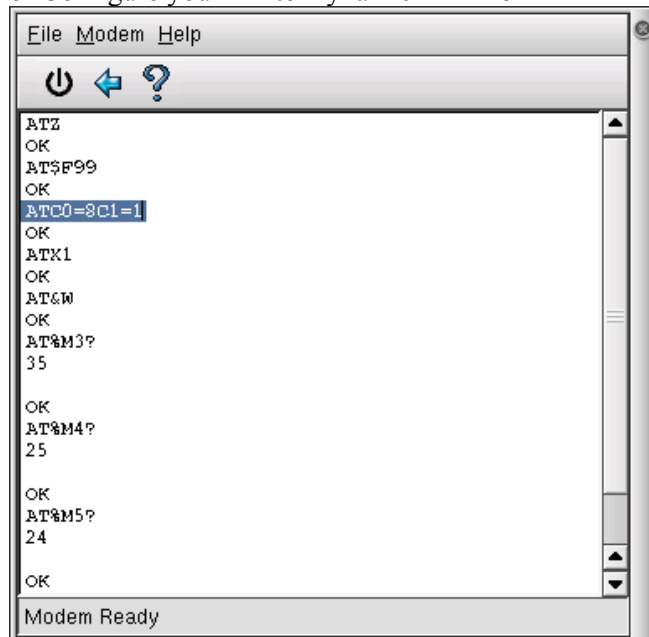
**Indicate Connection Speed:** ATX1

**Write and Save Current Setting:** AT&W

Configure your TA to PPP 64K:



or Configure your TA to Dynamic MP 128K

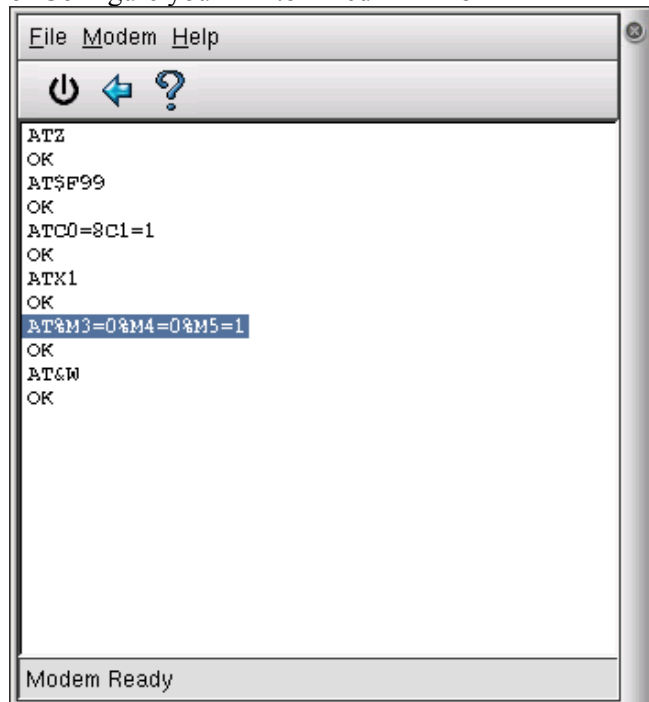


The screenshot shows a window titled "File Modem Help" with a toolbar containing a power button, a left arrow, and a question mark. The main text area contains the following AT commands and responses:

```
ATZ
OK
AT$F99
OK
ATC0=8C1=1
OK
ATX1
OK
AT&W
OK
AT&M3?
35
OK
AT&M4?
25
OK
AT&M5?
24
OK
```

The status bar at the bottom of the window displays "Modem Ready".

or Configure your TA to Fixed MP 128K



The screenshot shows a window titled "File Modem Help" with a toolbar containing a power button, a left arrow, and a question mark. The main text area contains the following AT commands and responses:

```
ATZ
OK
AT$F99
OK
ATC0=8C1=1
OK
ATX1
OK
AT&M3=0&M4=0&M5=1
OK
AT&W
OK
```

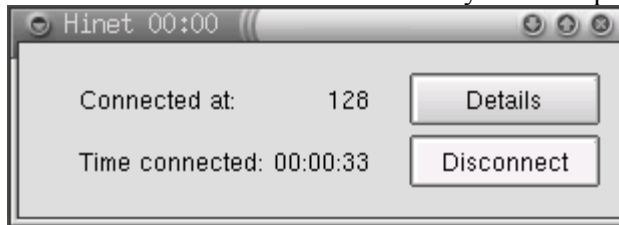
The status bar at the bottom of the window displays "Modem Ready".

**You only need to configure your TA once, and it will stay on that saved connection type.**

6. Connect to ISP, check the option “Show Log Window” for more information.



7. Connection established successfully via USB port



8. Detail information on this connection (via USB port, a Dynamic MP connection example)

