

## **FBF Packet-radio BBS mini-HOWTO**

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# FBB Packet-radio BBS mini-HOWTO

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*This mini-HOWTO covers the installation and use of the most popular amateur packet-radio BBS server software "FBB". That software works under Linux, DOS and Windows operating systems. It serves as a bulletin board system (BBS), a mailbox for personal messages, a database for various texts, documents and binary files, a server for small useful calculations etc. Packet radio is a way of connecting computers via amateur radio stations.*

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### 1. [Introduction](#)

I have been using FBB amateur radio software since early nineties. It was the time of DOS operating system, so most of us, system administrators (or, so called system operators – sysop's), used various packet radio *server* software for DOS. Versions of FBB packet radio BBS *server* software for DOS, today are known as "DosFBB".

I still administer one DosFBB database in the SRV (Amateur Radio Union of Vojvodina, a part of SRJ). It is DosFBB v7.00g23 that runs on a 486DX computer with 16 MB of RAM and Hercules b/w graphics. Since December 1999, it runs without any re-boot (excepting some power failures). Before that, it was a bit tricky to set up all memory management properly, in order to avoid "frozen" system. Although this server runs under DOS, its "radio clients" don't depend on that. In fact, users of that DosFBB might run their client software under DOS, Windows, Linux or any other operating system that offer amateur packet radio abilities.

I have also used DosFBB v5.15c on a 286/12 box at home. Five years ago, when I got better box, Pentium I at 166 MHz with 32 MB of RAM and VGA color graphics, I switched to a Windows version of FBB ("WinFBB"). Author of the software, a radio amateur from France, Jean-Paul F6FBB, has made many versions of WinFBB, including 16 bit variant for Windows 3.x and Windows 9x as well as 32 bit variant for Windows NT. I have run both variants until now (at the moment it is 16 bit WinFBB v7.00g25 that runs great under Windows NT 4.0).

New: Since Spring 2001, I run WinFBB v7.00i (17 March 2001) under Windows 2000 Professional.

The main difference between DosFBB and WinFBB is that the second one offers you to do other jobs with your computer, while FBB is running as just any other application. Beside that, it is always nice to copy a text from another application (for example, from an Internet email) and to paste it into a packet radio message, or vice versa.

In the mean time, I upgraded my system to the Celeron 400 MHz with 96 MB of RAM and a big hard disk that has enough room to install Linux and try LinFBB ...

New: In July 2001, I added more 128 MB of RAM so my home system is very comfortable now.

Finally, you should be aware what I want to have here:

1. WinFBB when I run Windows.
2. LinFBB when I run Linux. It should be an Xwindows application that may be started/stopped similarly to WinFBB. That's why X11 LinFBB package is used.

3. LinFBB when I run Linux, but as a daemon that runs in the background. In addition, an interface for a local user (myself) is needed, as well as an interface to monitor the radio channel.
4. All three versions must be capable to share the same configuration files, i.e. to be able, for example, to begin a new session from the exact position where the other version has finished its own last session.
5. I am not an expert in Linux, so I am only able to install "factory-made" packages for Linux (just like to install self executing software packages under Windows). I mean of RPM packages. So, there are no source (re)compilations here at the moment, but in the future we will see :-)

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## 2. How to install X11 (Xwindows) version of LinFBB

- First of all, you should have running Linux with a GUI installed. I am fully satisfied with Gnome GUI but I suppose that KDE will be OK too (or any other GUI available).
- Download or copy LinFBB (the main ftp site is [ftp.f6fbb.org](http://ftp.f6fbb.org) but there are many mirror sites too). For example, if you get a file like

x700e\_full.tgz

it means that it is X11 version 7.00e and it contains all you need in tgz archive to install the BBS. On the other hand, a name like

xd700g\_full.tgz

means that it is not X11 but daemon version 7.00g and it is also complete to unpack. Further,

x700f01.tgz

and

x700g.tgz

are "upgrades" to any previous "full" package. For example, after I have upgraded to x700g.tgz I started to run X11 LinFBB 7.00g (04 August 1998). Btw, X11 versions are not maintained anymore, but I still run it here. It has some bugs but I like it.

- Copy the archive file in **/tmp** directory.
- You have to make a "base" directory where your FBB will be installed. For example you may type: **mkdir /usr/local/fbb** if you want FBB to be there. You have to be logged as 'root' or 'superuser' to install FBB.
- Then, you should locate yourself in that directory: **cd /usr/local/fbb**.
- Now, you should unpack the archive: **tar xvzf /tmp/x700b25.tgz** (<--- use the right name of the archive here).

- When you finished unpacking the archive, you may continue installing the software: `./install.sh` is the command for that. The setup will ask you for the 'base' directory where FBB will be installed. If you chose `/usr/local/fbb` again, you will be told that such directory already exists and all files will be overwritten. It is OK, so you should answer yes. If everything is fine, you should see on the screen that fbb system directories are created. At the beginning of that procedure, program will ask you for BBS's callsign, name of the city, QTH locator, your name etc. That details will become a part of `/usr/local/fbb/init.srv` file.
- After that, you **MUST** check this file **again** manually in order to fix some other details needed (because installation script does not fix all parts within that file).
- Well, so far – so good. After you have checked all configuration files, you may start the software: `./xfbb.sh` (<— type this within an xterm or something similar). When you start your BBS for the first time, it will ask you to create some files it needs, so you should answer "yes" to the questions.

### 3. How to install LinFBB in addition to existing WinFBB

*Notice: Folks, you see, at my place, I have a dual–boot system, consisting of Windows NT and Linux (each of them having their own partition(s) and file system). I wanted to have 'independent' operating systems that won't see each other. So I made two NT's partitions as NTFS partitions and rest of the space used Linux as ext2 & swap partitions. Well, at first I have installed WinFBB under NT and X11 LinFBB under Linux. Both of them worked, but there was a big "problem": I could not share their system files. You might say: So, what a big deal. But, my FBB's should serve as packet–radio forwarding stations (regardless of which one I boot at the moment), so it was really needed for new LinFBB to "know", for example, the position where WinFBB has stopped the mail exchange last time (and vice– versa, of course).*

- Well, in order to allow both WinFBB under Windows NT and LinFBB under Linux to use the same system files, it is needed to put these files in a place that both operating systems are able to "see". So I do that by re–installing WinFBB onto a FAT (FAT16) partition that is recognized by NT and Linux too. The best way to do that is to install a "fresh" copy of WinFBB on a FAT partition and to copy complete "old" WinFBB from NTFS partition over the fresh installation (whenever you are asked to rewrite existing files, you should answer "yes").
- When that is finished, you should have a "clone" of the existing old WinFBB, but this time on the FAT partition that is visible from under Linux. Anyway, you should check if the "new" one installation is able to run properly as the "old" one.
- I could also recommend you to check the file tree of WinFBB in order to become more familiar with it. The file tree of LinFBB is a bit different so it is advisable to note various details here and there.
- Some files can't be used as they are under *both* operating systems (without some necessary changes). That's why some file names should be renamed (or, at least, you should make appropriate copies of some files):

```
init.srv      ->  init_w.srv
forward.sys   ->  forw_w.sys
port.sys      ->  port_w.sys
protect.sys   ->  prot_w.sys
```

FBB is able to recognize and accept those renamed files.

- Make a backup of the actual WinFBB (I do that by copying the whole WinFBB file structure into the other Windows partition that *won't* be shared with Linux, like NTFS one). You'll never know when a catastrophe may happen, so as a result, you won't be able to start neither of the "old" WinFBB or the "new" LinFBB. As a precaution, the backup might be the easiest way to recover at least the old WinFBB for a while (until you configure your new LinFBB, ok?).

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- Now, you should restart your machine and boot into Linux. Log on as 'root' or make 'su' from a user's account.
- Mount a shared FAT directory (where FBB files are): **mount -t vfat /dev/hda2 /mnt/win** (for example). If that works, later you may adopt that change within your **/etc/fstab** configuration.
- Copy LinFBB archive to **/tmp** directory.
- Position yourself to the 'base' directory: **cd /usr/local/fbb** (for example).
- Unpack the archive: **tar xvzf /tmp/filename**.
- Start the installation script **./install.sh** and, after asked for the 'base' installation directory, chose **/usr/local/fbb**. It doesn't matter if the program warns you that such directory already exists so existing files will be overwritten (by the way, if you choose a mounted directory shared with NT, many original WinFBB files, located there, would be over-written by LinFBB files, so after returning to Windows, WinFBB might not be as functional as before this installation).
- Copy **/usr/local/fbb** to **/mnt/win/fbb** but do *\*not\** rewrite existing files with the new files having the same names.
- Copy **/mnt/win/fbb/init\_w.srv** to **/mnt/win/fbb/init\_l.srv** file.
- Edit **/mnt/win/fbb/init\_l.srv** to what is needed for Linux. You may use the existing file **/mnt/win/fbb/init.srv** as an example.
- Copy newly edited **/mnt/win/fbb/init\_l.srv** over the **/mnt/win/fbb/init.srv** (if you do not do that, maybe you wouldn't be able to start LinFBB using **./xfbb.sh**, like me at the first time).
- Copy **/mnt/win/fbb/system/port\_w.sys** to **/mnt/win/fbb/system/port\_l.sys** file.
- Edit **/mnt/win/fbb/system/port\_l.sys** to what is needed for Linux and LinFBB. You may use the existing file **/mnt/win/fbb/system/port.sys** as an example.
- Edit **/mnt/win/fbb/xfbb.sh** in order to fix the right path.
- Ensure that you are in FBB's main directory: **cd /mnt/win/fbb** (for example).
- Start the script **./xfbb.sh** to run LinFBB. If everything is OK, your LinFBB under Linux should run with the *same* configuration as your "old" WinFBB under Windows. From this point, both FBB's should behave very similar (actually, I must admit that WinFBB has much better visual quality than X11 LinFBB, but probably the reasons for that you may find in Windows-vs.-Linux-GUI quality "battle field"). FYI, my actual WinFBB is v7.00g25 (05 January 2000) and X11 LinFBB is v7.00g (04 August 1998).
- Although this combination WinFBB/X11 LinFBB works fine, I have noticed some problems. For example, LinFBB was not able to use **amsat forward\_to\_file** routine (located in **/mnt/win/fbb/system/fwd** directory), because that file was composed like this (for example):

```
A AMSAT
*
P @
*
C D:\FBB\SYSTEM\SAT\AMSAT.TXT      <-- looks familiar to DOS/Windows only
*
G AMSAT
*
-----
```

On the other side, LinFBB's **amsat . sys** (located in **/etc/ax25/fbb/fwd** directory) has suggested something like this:

```
A AMSAT
*
P @
*
C /var/ax25/fbb/sat/amsat.txt      <-- looks familiar to Linux only
```

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```
*
G AMSAT
*
-----
```

Well, then I copied LinFBB's `amsat.sys` into `/mnt/win/fbb/system/fwd` directory so it could become functional. As a result, I got *two* `amsat.txt` files, one of them for each of WinFBB/LinFBB, and of course, both files appeared on different locations: the first one was `/mnt/win/fbb/system/sat/amsat.txt` and it was filled by WinFBB; the other one was in `/var/ax25/fbb/sat/amsat.txt` and was filled by LinFBB. I didn't like it that way.

In order to have only *one* result, regardless of FBB version, the newly copied `amsat.sys` had to be slightly changed:

```
A AMSAT
*
P @
*
*C /var/ax25/fbb/sat/amsat.txt
C /mnt/win/fbb/system/sat/amsat.txt
*
G AMSAT
*
-----
```

As you can see now, when LinFBB is active, its `amsat.sys` will not forward into its "native" location of `amsat.txt`. Instead of that, it will go to the location of the WinFBB's `amsat.txt` and just add some new materials into it, ok?

Well now it's up to you to decide what to do with your growing `amsat.txt`. An old DosFBB manual says that the 'batch' file (I suppose, the old good `APPEL.BAT`) should be adopted in order for **SATUPDAT.EXE** can update *sat* tracking data and, after that, to erase `AMSAT.TXT` because it is not needed anymore. Well, I haven't found a way to manage that in both WinFBB and LinFBB. Actually, whenever I perform housekeeping from either of them, it seems that `AMSAT.TXT` remains intact. Happily, it doesn't grow too much, so it's not a big problem. Any suggestion here?

---

## 4. How to install Protus password utility

*Notice: Well, I have been using Protus **connection filters** for a long time now. At first, it was the version 3.1/1.2 for DosFBB515c and, later, version 3.3 for Dos/WinFBB700. I have found Protus as very useful utility because of its implementation of automated BBS-to-BBS forwarding protection, using MD2 algorithm. One of the reasons to cover Protus in this document is the fact that its author haven't made a manual in English yet. I keep trying to translate original manuals from Spanish into English, but it is a hard work. Any good 'spanish-to-english' translator is welcomed to contact me: [m.skoric@eunet.yu](mailto:m.skoric@eunet.yu).*

Protus offers several interesting features:

- It can send a presentation message to all users, informing about possibility to make users' access more safe,



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- It can send messages to users who have usual, non-restricted access, informing about utility's existence,
- It can send messages to users who have no valid access (before disconnecting them),
- It can send messages to new users who have connected the BBS for the first time, informing them about the password utility.
- It can send messages to users who have entered wrong password (before disconnecting them),
- It can inform sysop about almost everything related to users' connections (new user on the system, unsuccessful connections etc),
- Messages mentioned above could be translated into various languages and used similarly as various language files that FBB system use,
- Messages mentioned above could be different for different BBS ports,
- Protus could be activated/deactivated at various intervals of time using CRON.SYS system file,
- Passwords could be managed remotely, using an external server, developed by Jose EB5IVB,
- ...

Well, let's see what should be done in order to implement secure access to the FBB packet radio BBS, using Protus type of, so called, *c\_filter*:

- Users of Dos/WinFBB versions of Protus already know that it is needed to create a new directory **\FBB\PROTUS** where several \*.PRT files should be placed. In addition, the main C\_FILT\*.DLL files should be copied into **\FBB\BIN** directory, as well as a couple of "system", (i.e. config) \*.PRT files that are going to be within **\FBB\SYSTEM** directory.
- After the sysop has copied all files into their proper locations, it is needed to make some configuration. The most important files are two "system" ones: CONFIG.PRT and USERS.PRT that should be carefully adopted to any particular situation. Other \*.PRT files will work as they are in original, but they may be translated because they are originated in Spanish (those files are just the parts of information that are sent to users who connect to the BBS). For your information, I usually don't care much about, because my BBS's are so called "open systems". It means they work quite normal for *all* users in the same way as they worked *before* implementing Protus. Only a couple of callsigns have password installed and, when connecting, they know what they are doing, so, they don't need any additional info. Your mileage may vary.
- So far – so good. After everything mentioned has been done, you have to restart your FBB in order for Protus utility to be activated. In all connections to your BBS (including console), you should see a line like this: **{PROTUS-4.0}** just after the well known line **[FBB-7.00-AB1FHMRX\$]**. It only gives an information that Protus is active on the system. Users of your BBS who don't have their passwords, connect just normally as before. Users who's callsigns have password implemented, are prompted for password just after their connections.
- The author of Protus, Jesus EB5AGF, has made several working "modes" of its utility. It is possible for users to have various kinds of passwords: a fixed phrase (similar as those you are used to when connect to the Internet via telephone line, but this way the phrase can be masqueraded within the longer answer); a changeable answer to the 5 random numbers (just like usual FBB sysop's password); a mode that uses automatic answer from user's client packet programs; implementation of MD2 and MD5 algorithms; FBB-to-FBB automatic protection etc. FYI, my WinFBB is equipped with 16-bit Protus 4.0 (13 August 1999). There is also a 32-bit module of the same date that would be called from within 32-bit WinFBB (I haven't tested those 32-bit applications).
- Well, the situation regarding working location of Protus files under LinFBB is somewhat different. I have become familiar to the directory structure that DosFBB and WinFBB versions of Protus have been using, so I considered that it was enough to implement the same directory structure when I started the installation of Protus under LinFBB. It was wrong. After having pulled out the remaining

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hair, the things started to work, so, now I am going to tell you what to do.

- I have already told you that I have been running here both WinFBB under Windows NT and LinFBB under Linux (see also `Linux+WinNT mini–HOWTO` and `Lilo mini–HOWTO`). That means all Protus stuff has already been installed in a way WinFBB has required, except *Linux* executable of *c\_filter* file. I put that one file into `/fbb/bin` directory and, after the next restart of LinFBB, I got the info mentioned above: {PROTUS–4.0}. But the password protection was not likely to work. I was told by the author to make a new directory `/var/ax25/fbb/protus` and put \*.PRT files there. I *didn't move* files from `\FBB\PROTUS` but rather *copied* them into the new location, because I wanted Protus to continue working under WinFBB as before. The utility still didn't want to run, unless I *also* copied additional two \*.PRT files from `\FBB\SYSTEM` to the same new location (`/var/ax25/fbb/protus`). After I did that, Protus became functional.
- Well, I suppose, the above info would be useful for those of you who intend to run *\*both\** Windows and Linux FBB's on the same machine. For the majority of LinFBB–only users, it is just important to make `/var/ax25/fbb/protus` where *all* \*.prt files should be placed. *Only* *c\_filter* executable should go to `/fbb/bin` and that's it.
- About FBB–to–FBB protection: *\*both\** partners have to install Protus. Password for the forwarding partner's callsign must be the same at *\*both\** sides of the link. The versions of Protus don't need to be the same (neither the versions of FBB, neither the operating systems, HI!). Anyway, MD5 algorithm will only work if both parties have Protus 4.x and above (I still don't use that, but it is not a problem, because my two boxes, DosFBB–Protus3.3 and WinFBB/LinFBB–Protus4.0, make all things OK with MD2).
- One of the interesting features of Protus is to log unsuccessful connections. Due to the *different* locations of \*.prt files here, I have separate logs for WinFBB and LinFBB "c\_filtering". Those of you who are going to run only one operating system and appropriate version of FBB, will have *one* complete log of connection errors, users make when try to connect your BBS.
- As it was told earlier, if you implemented password protection for only *some* of your users (but not for all of them who connect normally) – your system is considered as the "open" one. It means that will be logged only unsuccessful tries to enter the system by "protected" callsigns. But, if you decided that your BBS can be accessed by *only* those callsigns who have Protus password, that means your system is the "closed" one. Then, there is no way a user could enter your FBB unless its callsign has given a password within your Protus. Any unauthorized try to connect your BBS is also logged.
- In addition, you may decide to have a "guest" access or a "read–only" as *default* for some BBS's access ports and/or for users who enter the wrong password. Many combinations are possible. You could even password protect your own FBB console!
- To finish with this topic for now, just to inform you that my X11 LinFBB is equipped with Protus v4.1b7 (15 February 2000). It has some minor bugs, for example, it logs incoming connections with a SSID of –48 if a user doesn't have a SSID at all (of course, in such case a SSID of –0 would be expected).

---

## 5. How to install "xfbbd", a daemon version of LinFBB

*Notice: You see, folks, that I keep trying to get as many as possible versions of this great software (Jean–Paul, F6FBB, must be very proud after reading these words now). What I think when mention "as*

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*many as possible versions" means that we have learned how to get both WinFBB and X11 LinFBB on the same computer. But, that's not all. There is a variety of daemon versions of LinFBB. In this section we are going to discuss how to \*add\* a daemon LinFBB to the existing two: X11 LinFBB and WinFBB!*

- Well, many amateurs have suggested me to install a couple of packages that weren't look to me as really requested for LinFBB daemon to work. Anyway, I installed those packages *before* the installation of LinFBB itself:

```
libax25.rpm  
ax25apps.rpm  
ax25tool.rpm
```

- Now it is the right time to install `fbbsrv.rpm` package. The archive was composed to make its own directories, as "base" directories. The last new version to start with, that I have managed to find as a `.rpm` package, was 7.01f Release 4 (09 December 1999).
- A file called **fbf.conf**, serving as the replacement for **init.srv**, is placed in the location: **/etc/ax25/fbf.conf**
- Unless you are going to install daemon-only system, you should make a backup of the following existing files:

```
dirmes.sys  
etat.sys  
heard.bin  
inf.sys  
statis.dat  
tpstat.sys
```

- Now you have to edit **/etc/ax25/fbf.conf** and change some paths in case you already have X11 LinFBB installed on a *different* path. Here you have some examples that cover my particular situation...
- Directory of data files, instead of `/var/ax25/fbf`, should be **/mnt/win/fbf/system**
- Directory of config files, instead of `/etc/ax25/fbf`, should be **/mnt/win/fbf/system**
- Directory of message files, instead of `/var/ax25/fbf/mail`, should be **/mnt/win/fbf/mail**
- Directory of compressed files, instead of `/var/ax25/fbf/binmail`, should be **/mnt/win/fbf/binmail**
- Directory of users, instead of `.../home/fbbdos/...`, should be **.../mnt/win/fbf/users...** (case you don't mind that both your WinFBB and LinFBB users handle the same location for users' files)
- Directory of YAPP files, instead of `/home/fbbdos/yapp`, should be **/mnt/win/fbf/users/yapp** (the same reason as above)
- Directory of documentation files, instead of `/var/ax25/fbf/docs`, should be **/mnt/win/fbf/docs**
- Directory of pg programs, instead of `/usr/local/pg`, should be **/mnt/win/fbf/pg**
- Path and filename for import file, instead of `C:\FBB\MAIL.IN` should be **/mnt/win/fbf/mail.in**
- Now you have to edit **/usr/sbin/xfbf.sh** and change some paths in case you already have running X11 version of LinFBB on a *different* path. Here you have an example that cover my particular situation...
- Base directory of XFBB software, instead of `/var/ax25/fbf`, should be **/mnt/win/fbf**
- So far – so good. Now it is the time to start LinFBB daemon. The command for that is in the location: **/usr/sbin/xfbf.sh** and it may be executed within an *xterm*. If everything is OK, you should get several system messages on your screen, ending with something like:

```
xfbbC/X server running ...  
xfbbd ready and running ...
```

- Well, daemon itself can't be used to access the BBS so it is needed to activate a *client* that is **/usr/sbin/xfbbC**. It has a couple of parameters (a callsign/password pairs that are stored in **/fbf/passwd.sys**). Note that `xfbbC` can also be activated within another *xterm*.
- If you are like me, you would like to activate one more *xterm* with `xfbbC` in a way to monitor your radio frequency. If you have enough room on your screen, you may place all three *xterm* windows

side by side.

- When you finish your xfbbc console session, it is suitable to use the same *xterm* to eventually stop the daemon. First of all, with the command **ps ax** you should locate PIDs of xfb.sh shell and daemon itself, that you may **kill** after that.

## 6. How to install an upgrade to daemon version of LinFBB

### 6.1 LinFBB v7.02g

*Notice: Well, the main trouble I have discovered with 7.01f daemon was the absence of Protus c\_filter protection. As I told you before, Protus is a "third-party" product, so it might have some problems with the compatibility to LinFBB itself. Anyway, it is also possible that a daemon version of LinFBB has some special requirements over some "third-party" software.*

- I also noticed that my version of Protus was *newer* than the version of daemon LinFBB I had at first. Besides that, some hams, including F6FBB himself, have suggested me to upgrade LinFBB. I have also found a "problem" that I am still new in compiling Linux software, so, I'd rather look for pre-compiled packages for easy installation.
- Jose, HI8GN, has offered daemon LinFBB v7.02g as a .rpm package (18 September 2000). I got it from his site: <http://hi8gn.dynip.com/indice.html>. But, when I tried to install it *over* the previous version 7.01f, it complained about some existing LinFBB files.
- Then I had to uninstall the old package, after what some config files remained in their locations, but with new .rpmsave extensions. It was nice, so I could use them later to update my new-installed config files.
- Btw, the installation of Jose's package was performed without problems, but the new daemon was not likely to run as I expected, although I tried to configure it as best as I could. Not quite sure, but it looked to me that F6FBB is likely to implement some changes not only to the main executables but to shell files too. So, I have decided to save copies of these new xfbbd and xfbbc executables from 7.02g package (I have made it with adding extensions like .702 to the files). After that, I *\*uninstalled\** the rest of that 7.02 .rpm, in order to install the previous version of LinFBB once again – the version that I was satisfied with.
- So far – so good. The "old" 7.01f version was installed again and tested one more time to be sure it was OK. Then, I just copied the previously saved executables from the new package, over the "old" executables. In a couple of minutes, the new daemon LinFBB v7.02g has come in place and function. Comments...?
- Well, the new daemon is likely to check for some more directories than the older version (mostly related to 7plus operations). Next, its xfbbc console client looks better than the previous version. But, I still miss graphical xfbbx client, that I have found not able to become activated. I hope it will be fixed soon. Finally, Protus c\_filter utility is active too.
- An interesting question might be: is that now a really upgraded LinFBB daemon or not? Actually, I haven't changed the "old" script xfbbd.sh with the new one, because during the first tests with the new 7.02 I was getting lots of error messages. Looks that the directory structure was a bit complicated for me to set properly within the new version of xfbbd.sh. After I returned to xfbbd.sh from 7.01 package, the BBS finally started to be run, though without some functions like over-night maintaining (that one problem I solve in a way to boot the BBS as WinFBB under Windows NT where that task is OK). In addition, there are still some mysterious messages telling that m\_filter has not been found or something like that. The next tasks are to solve these issues.

## 6.2 LinFBB v7.03

*Notice: As I have said in the previous section, I haven't found an easy way to upgrade FBB's (its main executables), without temporary uninstalling an older version, then to install the new version – in order to get new executables. After that is done, a reverse procedure must be put in place.*

- Well, it was needed to get 7.03 package (09 December 2000) as an `.rpm` package from [www.f6fbb.org/versions.html](http://www.f6fbb.org/versions.html), that was suggested by Jean–Paul, F6FBB. Anyway, soon after there appeared several mirror sites, offering 7.03 too.
- If you use *GnomeRPM*, it is easy to uninstall your actual LinFBB (If you just try to install new `.rpm` over the existing LinFBB you will get some error messages complaining that you already have FBB installed on the computer). Anyway, after the uninstallation, there you will find some config files as `.rpmsave` files, so you could use them later again.
- Installation of 7.03 package will give you new executables in `/usr/sbin` directory. Those new executables should be temporary given extensions like `.703` (for example).
- So far – so good. Now you should *\*uninstall\** the 7.03 package (of course, `.703` files won't be uninstalled automatically). Uninstall? Why? You will find out soon, read on ...
- Once again, you should *\*install\** the *last* one version of LinFBB daemon, that works OK with its own `xfbb.sh` (in my case, that is 7.01f).
- For sure, many of you might find it odd, but now it is the right time for the executables from `/usr/sbin` (I mean of all fbb executables, except those who were renamed to `.703`) to get their new extensions (in my case, that is `.701`).
- Well, after that is performed, `.703` files should *\*lose\** their previously attached extensions, in order to become usable.
- Folks, on that point I usually hold my breath, **cd** to `/usr/sbin` and type: **xfbb.sh** following with an Enter. If everything is fine, several lines should scroll on the screen, ending with something like:

```
xfbbC/X server running ...
xfbbd ready and running ...
```

- If you don't get something similar on your *xterm* 'window' (or on other appropriate terminal utility), you're out of luck, so you might go thru the procedure once again in order to be sure you did all what was needed to be done :->
- `/usr/sbin/xfbbC` is the easiest way to check if your new 7.03 is in the game or not. When I mention `xfbbC` it is good to let you know, that I kept living in a belief that `xfbbC` is also useful for regular telnet users (who are also supposed to 'connect' to the BBS via the same computer's console, where LinFBB is running from). But, I have discovered that my users, who were *not* declared as sysops, are allowed to read all messages (including all private messages), as well as to have some other sysop's abilities. I did think it was a matter of probably wrong declared security flags. But, it was not.
- Recently, I was informed that **xfbbC** is suitable mostly for sysops, so the other users (who might also have access to the local keyboard) should rather try something less dangerous, like this:

```
telnet localhost 6300
```

- ... where 'localhost' and '6300' may vary from BBS to BBS. I was pleasantly surprised when discovered that **telnet** is much more suitable for ordinary BBS users than *sysops'* client **xfbbC**.
- Folks, I also think of writing a chapter about FBB's system configuration. Until something like that appears in this howto, you should know that all of those callsigns who are going to use **xfbbC** have to be added into your `passwd.sys` file. In addition, all of these folks who are going to **telnet** the BBS, have to be declared as users with the 'M' flag (modem users). It is up to your security precautions, if either of them would eventually have '*root*' capabilities to that one Linux machine itself.
- My next task is to use an old i286/12 MHz box, having only 1 MB of RAM, running DOS 5.0, as a 'telnet client' computer. That box has a network card so I would like to 'connect' to the BBS from that

one 'telnet client' box. If that succeeds, it would be a good preparation for installing another LinFBB (in the local school club), where several old 286 computers will also be available. It would be nice to offer more than one student-amateur the opportunity to 'connect' the BBS simultaneously, using a bunch of vintage 'telnet client' computers.

## 6.3 LinFBB v7.04

*Notice: Maybe I have already explained that I use Red Hat 6.2 at home. That's why I usually look for .rpm packages that have been made for that particular Linux distribution, but not only that. I have also tried to use Red Hat 7.1 but it seemed not to support an older Xwindows application, LinFBB 7.00g (04 August 1998). When I noticed that issue, I returned back to Red Hat 6.2.*

- Well, I started by downloading the package `xfgbb-7.04-2.i386.rpm` (07 August 2001) from [www.f6fbb.org/versions.html](http://www.f6fbb.org/versions.html)
- Folks, this time I finally decided to install version 7.04 as a completely "fresh" installation, i.e. without some parts of any previously used "daemon" on the disk. It means that I have uninstalled the last daemon version I was using before, and, in addition, I also removed the old executables. Of course, before the uninstalation, I made the backup of some config files that are not version depending (like `/etc/fbb.conf`), in order to avoid editing the same "defaults" once again and again :—)
- The setup procedure has reported some dependency issues. I didn't want to get bored with them so I repeated the installation once again with "`—force`" and "`—nodeps`" options.
- So far – so good. Then, I replaced a couple of "default" files with the *saved* ones. After that being accomplished, I mounted a FAT partition with WinFBB's system files, made a pray and started LinFBB's daemon. It was also an interesting new experience to try HI8GN's script `/usr/sbin/fbb start` (activated in an *xterm*) to start the server. Although there were no usual lines:

```
xfgbbC/X server running ...
xfgbbd ready and running ...
```

on my screen, TNC's *PTT* lamp confirmed that a *beacon* was really transmitted.

- Then I wanted to try HI8GN's script `/usr/sbin/monitor` to see what's going on the frequency. Although I got something like:

```
Connecting localhost ... Ok
Authentication in progress ... Ok
Monitoring channel 0 ...
```

there appeared no traffic on the screen. In order to really monitor the channel, I had to start another *xterm* and type:

```
telnet localhost 6300
```

Bingo! From the usual FBB's prompt I entered the gateway and typed the familiar "M" ("Monitor") command. Interestingly, as soon as I "telnet-ed" to the BBS, `/usr/sbin/monitor` window, mentioned above, started to copy whatever was going on the telnet *xterm* as long as that telnet session was closed. I was in doubt if that was OK or not, because there I expected to see the traffic from the radio channel – regardless being connected to the system or not. Any suggestion here?

- Well, then I wanted to use `/usr/sbin/bbs`, in order to connect to the client's (or better to say: sysop's) console (*xfgbbC*). Looks that there was a line in HI8GN's script:

```
xfgbbC -c -f -h localhost -i [callsign] -w [password]
```

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with missing `./` (dot slash) before `xfbC`, so the script was not likely to be executed. Instead of that it reported that command couldn't be found. Anyway, *xfbbC v3.01* itself appeared to work nice. It is still possible to monitor the working channel too (using the "M" command from within the gateway), but this is not a valuable solution because while "Monitor ON", it is not comfortable to do anything else within the gateway. Once again, solutions are welcomed!

- Although the active *xfbbC* session can be easily terminated using "B" ("Bye") command, a fooled **/usr/sbin/monitor** can not. The user has to find its *process number*, (PID), using **ps ax** command and then kill that process.
- At the end of the game, daemon itself should be stopped. HI8GN's script **/usr/sbin/fbb stop** returns:

```
Shutting down xfbdd:          [OK]
```

but **/usr/sbin/fbb status** reports:

```
Checking, the FBB daemon
xfbdd (pid) is running...
```

Looks that **/usr/sbin/fbb stop** does not terminate daemon *\*every\** time the command is executed, but re-start it (the only difference is the new PID of the process and **ps ax** can show that new PID). So, there is a question why it returns that [OK] when it is obvious that daemon is not stopped, but rather re-started.

- Well, if you are like me, you may also want to experiment with some special sysop's commands, from within an *xfbbC* session. For example, "/R" command ("Re-boot PC") shuts down *xfbbC* and **/usr/sbin/fbb status** reports:

```
Checking, the FBB daemon
xfbdd dead but subsys locked
```

while "/A" command ("Stop BBS") returns:

```
Stop-request accepted, no connection.
```

before shutting down *xfbbC* client itself.

Further attempts to re-start either *xfbbC* client or *xfbdd* server (using **/usr/sbin/fbb start**) are not successful, unless an additional **/usr/sbin/fbb stop** is executed. The result is:

```
Shutting down xfbdd:          [FAILED]
```

Now another **/usr/sbin/fbb status** reports:

```
Checking, the FBB daemon
xfbdd is stopped
```

so finally, daemon might be re-started again. Here it is also a mystery why it returns that [FAILED] when it is obvious that daemon is really stopped (maybe it is a "failure" when we try to stop the same thing *twice*).

There are some other commands: "/K" (Re-boot BBS with housekeeping), "/M" (Re-boot BBS immediatelly) and "/L" (Re-boot BBS, waiting users to disconnect) – all of them with slight different behavior. Anyway, those three commands have something in common: they all re-start the daemon (with different PIDs, of course).



- Finally, what I would like to have is to manage housekeeping and other maintaining tasks. Until now, that is not accomplished. I suppose that I should make some more fine customization in system paths. Any suggestion about is welcomed.

## 7. How to use LinFBB's "xfbbX", a GUI client for Linux

2002-10-20

Well, soon after the installation of LinFBB v7.04 .rpm package, I noticed a new "kid on the block", i.e. a new item within the Start menu (under Gnome environment). That was a "HamRadio" group, having several "Xfbb version 7.04" sub-items and one of them was "xfbbd X Client".

It seemed that a mouse *click* on that "xfbbd X Client" icon was not likely to return any response, although *xfbbd* daemon has been successfully running *before* invoking the client. That's why I have been asking for help (related to that issue) from other LinFBB users, but it seemed there was no one capable to solve that problem. Anyway, it looks to me that there is a "dead" link from this "xfbbd X Client" icon to an existing executable.

Trying to find a solution, the other day I was browsing the `/usr/sbin` directory. I have noticed something that I have already seen for several times. That was **xfbbX** file. Well, I am sure that I tried to use this *executable* earlier, but without much success. This time, I have entered the full path, like this:

```
/usr/sbin/xfbbX
```

and, finally, the GUI client appeared on the screen.

So far – so good. Soon after, I realized that 'Monitoring' window was capable to monitor the actual traffic on the radio frequency, but not only that. Headers of all packets appear in green and the actual information is in blue, so it is easy to distinguish what is the header and what is the text info (comparing to my old X11 LinFBB application where everything came in black). What I could describe as a disadvantage of the 'Monitoring' window, is that the scroll bar does not give you much of the previous, already *scrolled* traffic.

The 'All channels' screen was even better, so the system user correspondents' traffic appeared in green, the local user's traffic was in black and the port information was in yellow. Unfortunately, there's no easy way (if any) to change colors (and that's the standard feature in WinFBB) for both 'Monitoring' and 'All channels' windows. Maybe I haven't managed yet to find a switch for that, so any useful info about is appreciated.

What I have also found a bit annoying, was that both windows mentioned above, appear not arranged side-by-side, a form that would be more suitable. Besides that, the third window, 'Console', has to be activated with another mouse click (instead of being activated automatically with the other two windows). Actually, the whole thing of *xfbbX* client seems to be primarily useful for sysops looking only for BBS's command line, in order to execute some server's commands etc. That's why I have found a bit strange why the console window must be activated separately (OK, I know that's the same with WinFBB's windows, but why not to add some additional feature?)

Anyway, the 'Console' connection window has almost the same functionality as WinFBB's 'Console' window. Here I think of the commands given at the BBS's command prompt, because they are invoked from the usual language \*.TXT files.

But, the big disadvantage of today's version of *xfbbX* client, I've found here, is the absence of several useful



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icons, that I was very fond of within the WinFBB's user interface. For example, there are no icons for pending mail, users information, disconnect a user, edit a message text or a header etc. It looks to me that *xfbbX* developers are not likely to offer the full comfort that we have within WinFBB's GUI. It makes me wonder why? There are lots of commands that can not be easily activated without the proper icons. It drives me crazy whenever I have to re-boot to Windows to start WinFBB, in order to perform some simple tasks mentioned, using the mouse.

Besides that, there is no way to activate that nice message editor screen, very useful in WinFBB (also existed in an old Xwindows LinFBB application v7.00g from 1998!) The same goes for replying a message, where a sender does not get the text of a message to be replied to, within the new message body. In short, I don't like absence of all those earlier implemented, but now abandoned features.

Well, I can't imagine what Jean-Paul, F6FBB, and other developers would do in the future, but I am not satisfied with the idea to only keep further development of LinFBB server side, but, in the same time, to abandon the development of LinFBB's graphical client side. And not only that: It looks that MS Windows client for LinFBB server, *xfbbW* has been reported to be much more functional than described *xfbbX*, while, in the same time, WinFBB server development has been also stopped. A bit confusing situation, isn't it?

Some amateurs think that it is just a result of "global" IT situation: Linux (as well as other Unix-type platforms) is better suited for servers, but Windows is better for clients. If so, it looks that LinFBB packet-radio system operators, "sysop's", seem to be forced to run at least two computers, in order to get the same functionality they always had with WinFBB. I'd rather suggest to Jean-Paul, F6FBB, and other developers to transfer all known WinFBB's GUI features to *xfbbX* GUI environment, in order to avoid using two computers.

2002-10-30

A couple of paragraphs ago, I said that "xfbbd X Client" icon didn't work under Gnome environment. It did make me wonder if it would work under KDE graphical user interface. So, this time I started KDE (and I did it as "root" so, in addition, I also got a mailbox icon on the desktop, named "fbb X11". When I located the mouse pointer over that icon, there appeared some more description: "F6FBB bbs Server for Packet Radio").

Well, when I tried to *click* on that icon, I got a KFM Warning message box explaining that program **/root/.xfbbX** could not be executed. Fortunately, a "right click" on the icon allowed to enter file's Properties. The Execute card gave me a possibility to change the path for a program to be used. So, I did some browsing and located the new path: **/usr/sbin/xfbbX**. After that, another *click* resulted in running the GUI client.

Interestingly, there is some slight difference between *xfbbX* appearance under KDE and Gnome. Actually, each KDE's *xfbbX* window has "FBB" logo in the upper left corner (Gnome's windows haven't that). That may indicate that *xfbbX* client was produced primarily for KDE environment. Besides that, it seems that other features are almost the same, regardless being within KDE or Gnome environment.

On the other side, the already mentioned "xfbbd X Client" item (within the Start menu, under the "HamRadio" group), still does not work. I suppose that there should also be some modifications, related to program executable paths, but I do not know how to manage that. Anyway, it does not matter because *xfbbX* is running here this or that way.

---

## 8. How to use LinFBB's "xfbbW", a GUI client for Windows

2002-11-17

*Notice: Well, folks, I couldn't try to install and use LinFBB client for Windows, because I have not had a second computer for that purpose. The only way to check how this client works, was to borrow a laptop machine and give it a try.*

The first task was to link that Windows laptop to a Linux desktop. I had some difficulties with the network card on the desktop box, because it seemed not to be likely to start the appropriate **eth0** interface. I'll give you some more details about the equipment here: Linux is Red Hat 6.2 and my ISA network card has UMC UM9008 chip. Long ago, I used some utilities that should "recognize" ISA cards (if I remember their names, that were isapnptools, pnpdump etc).

What I do know, is that such tools should have add some new lines into the existing files, like **/etc/conf.modules** or, to create some new files, like **/etc/isapnp\***. Well, I have forgotten what exactly should be done, so I went to look for the right tools. The one that was looking suitable was **/sbin/isapnp**. Although I got its response on the screen, telling that the UM9008 chip was recognized, there was nothing added to the system files, nor new files seemed to be created.

What I also tried to use, was the old good *Linuxconf* tool, that was already installed per default within RH 6.2 Linux. I found the right place to add the information related to NIC's IRQ and I/O address. There I seemed to make a little mistake, so I put the value of 220 (for the I/O address), instead of 0x220 that would better fit. The result was as one may expect: the interface **eth0** continued to report that a *ne* module had not found a card at that one address. Then I checked the actual I/O address the card uses under Windows OS (was the same) and tried to fix the parameters (Thanks goes to a UK ham who advised me to have to let Linux know the proper IRQ and I/O addresses).

Interestingly, *Linuxconf* added a couple of new lines into **/etc/conf.modules** too. In short, the next time during the system boot, the interface **eth0** reported a green **[OK]**, so I could establish the link. So far – so good.

The next task was to download the client package from the FBB's main site. I did it from the "Newest version" web page and the number of the version was 1.12 (it seems that was not a pretty much new version, or maybe the content on that "newest" page has not been updated recently – another task for Jean-Paul?). Anyway, I installed it without any problem, configured its part related to the LinFBB server it was about to access, changed the console font to my favorite one (Tahoma) and started the utility.

At the first sight, the client looked great, because Linux clients still prefer so small letters, that are hard to read (compared to characters on a Windows screen). Now I tried the most used commands like List, Read, Send Reply etc. All of them worked great. What I have found a bit strange, was that the *message justification* did not work in its message editor window. You see, I like my messages to be justified on both sides. I hope a solution for that problem will be found soon.

Another issue with *xfbbW* client is that seems not to allow a multiple click onto more than one BBS callsign within *pending forward* list, comparing to WinFBB's behavior. You know, I am not very fond of opening the same *pending forward* window repeatedly again and again, in order to start (or to stop) more than one forwarding action.

In general, I like *xfbbW* client. I hope to install some newer version(s) soon, and I hope some of its features will be upgraded and some new ones will be added in the future. What I would also like to have, is to activate

the maintenance of the BBS (a "housekeeping" task) from that client's menu. Another thing I miss at the moment, is the absence of the *xfbbW*'s help system. I mean of a *real* Windows help, because there's not much use of a *Help* menu, having only *Copyright* and *About* information :~))

## 9. How to compile LinFBB's executable files

2003-01-01

*Notice: Until recently, I preferred to download "factory-made" executables in RPM format (something like ZIP in MS Windows world). After getting a RPM package, a click on it activates the program that unpack and install its content. Well, it is great whenever your RPM has been "manufactured" for the very similar distribution of Linux you have. If not ...*

- Well, I have already had the package `xfbb-7.04-2.i386.rpm` (07 August 2001), that was running OK under RH 6.2 distro. And not only that. Its "packager", Jose HI8GN, has explained that this package was actually compiled and linked with utilities that came with RH 6.2 – so under that distribution should be no problems at all.
- The other day, I finally decided to abandon that 4-5 year old version of X11 LinFBB *application* that I knew it would not run under something newer than RH 6.2 distro. In short, I decided to stay with daemon LinFBB's only, so it was the right time to upgrade the Linux system itself. Another handy installation that I had, was RH 7.1 and I used it. After finishing that task, I rushed to re-install the RPM package above, but it just didn't want to run.
- I had no choice but to browse fbb web sites in order to find a RPM package that would fit RH 7.1 distribution. Unfortunately, it looked that there were no LinFBB precompiled RPMs for 7.1 version of RedHat. The only solution was to try with *tarballs*. So, what I have downloaded from [www.f6fbb.org/versions.html](http://www.f6fbb.org/versions.html), was `xd704h-src.tgz` archive.
- So far – so good. Well, folks, I am not very good in "deepest" secrets of Linux, so I was not sure where might be the best location to unpack the archive. According a *readme* file, it should be "fbbsrc" directory, so I considered that `/usr/src` would be the best place to copy archive's **fbbsrc.704h** directory.
- **fbbsrc.704h** directory has been made of 12 files and 7 subdirectories, one of which is **src** subdirectory. As I said, the *readme* suggests a user to "goto fbbsrc/src" directory, and I concluded that `/usr/src/fbbsrc.704h/src` was the right place.
- The *readme* also suggests to "update the variables" at the beginning of *Makefile* files, but I did not do that because I was not sure what should be replaced there. I have just left the file(s) intact.
- The next task was to run *make* command from the shell and it took half a minute to be finished. The result were few new *xfbb* executable files that I quickly moved to `/usr/sbin` directory. BTW, some people rather suggest to run *make install*, in order to avoid multiple copying of compiled executables, but I found that way as not functional.
- Soon after, I tried to activate LinFBB's *daemon* and it seemed to work without visible difficulties (using a temporary home LAN with a laptop, I also started **fbbw**, a LinFBB Windows client. It recognized the *daemon* in a second and I've only noticed that there was no Protus password utility running).
- According the *readme*, the next task should be to "compile the xfbbc client". That operation is to be performed from a place called "fbbsrc/client" but the only directory available under `/usr/src/fbbsrc.704h/src` was **X11** subdir.
- After clicking on its icon, I recognized the second one file with a name *Makefile* (they have mentioned "updating" of *both* *Makefile* files, so I hoped to reach the proper place once again, regardless of two unknown paths). Besides that, they have suggested to use "at least the version 2.1.37b of ax25-utils" and I found *not* to have something like that installed (case they mean of a *suit*

of libax25, ax25apps and ax25tool – than it is OK). Anyway, one more time I activated *make* command from the shell and the result was in getting *xfbC* executable.

- As usual, **xfbbC** client is invoked from within an *xterm* (or similar) window and it seemed that it was also fully functional. So far – so good.
- The next issue is to "compile the xfbX client", but this time a user is requested to have a version of Motif installed. Well, what I knew was that I had no Motif in the box, but a couple of Lesstif RPM packages were somewhere around. Anyway, I installed them with *--force* and *--nodeps* options to avoid several *dependency* obstacles. In sum, Lesstif has come to its place on the disk.
- This time, I did make some "updates" related to *Makefile* paths and tried to run *make* command from the shell (for the 3rd time now). Seems that I got no answer, because there appeared neither **xfbbX** nor **xfbbX\_cl** new executable files. In order to "solve" that issue, I just applied the executables from the earlier version I have backup–ed on the system.
- Finally, I managed to activate **xfbbX** client without problems, although I knew it was not an updated version (compared to the daemon itself). Regardless of that fact, a GUI client works properly.
- As I just mentioned, I noticed that the first console connections were without familiar **{PROTUS–4.1b7}** designation. So, I had to check and double–check all the paths and system directories, described in the Protus section of this mini–HOWTO. At the first sight, it looked to me that everything was fine, but the utility was not likely to start. Finally, I copied its main executable into the yet another system location: */usr/lib/fbb/filter*, re–started the system and Protus returned back to its function.
- What I have to do in the future, is to check if the procedure described in this section was the right one, although most of the BBS's main features seem to be active – like they were with RH 6.2 distribution and mentioned LinFBB packages in RPM format.

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## 10. How to make better ham radio rules?

2002–10–27

*Notice: Folks, here I am going to discuss some rule'n'regulation issues that we, radio amateurs, face to every day. These problems are big obstacles for this nice way of communication to be more developed and widely used.*

First of all, anybody who might be interested in running Linux amateur radio software, as a way of using radio amateur stations on the international HF waves, in a *digital* manner, has to learn **manual analog** Morse telegraphy and pass **manual** Morse skill test. For a long time now, I have been trying to explain myself, why manual Morse telegraphy is still being kept as the requirement without an amateur is not allowed to use HF frequencies under 30 MHz, in order to contact other Linux and other radio amateurs world–wide. I still have no answer, except that all of those who have wasted lots of time learning Morse, now don't want to allow newcomers to use the same capabilities – without the same (useless) tests!

You all know, there are so many Linux enthusiasts world–wide (including myself) who have been fighting against all types of **monopols** (like a company from Redmond). The Morse obligatory test is the same: just another type of a **monopoly**!

That's why I have been trying to persuade all relevant factors to **remove** such outdated regulatory principles, that make more and more obstacles for not only Linux users, but for other kinds of computer users – when it comes to use modern ICT technologies. I hope, all of you, readers of this mini–HOWTO, can now understand what does it mean to endlessly use outdated rules and regulations. For example, I often contact people from the academic world, students and scientists, in order to motivate them to join amateur radio wireless activities. They mostly refuse to start with amateur (also called "ham") radio, as soon as they hear they have to pass the

Morse test, as the legal requirement *before* they become allowed to connect to remote packet radio users world–wide, using the HF radio bands and devices. I am sure, the absence of those high educated people in the ham radio is one of the most negative consequences we face to in ICT areas.

I have been thinking what to do, since early nineties when I was the secretary of YU7 (Vojvodina province in Serbia) amateur radio union. It seemed to me that it was a hard job to persuade people who govern the amateur radio, just to remove that outdated rule. So, I have decided to suggest the implementation of another regulatory principle: To adopt a new type of amateur radio licenses, a **Ham Digital Licence** (the **HDL** in short). HDL holders would be allowed to use ALL amateur radio frequencies, including ALL international HF bands under 30 MHz. But, they would be allowed to use ONLY digital types of amateur activities, including the use of computers with LinFBB packet radio software. HDL holders might use some dedicated radio transmitters, without the ability for voice microphone and Morse key connections, in order to avoid possible misuse of unwanted amateur activities (like voice operations).

All HDL candidates would have to learn topics like hardware and software in general, connecting amateur radio stations to computers, building antennas, English language in written exam etc. The Morse requirement would not be used anymore, as well as some other obsolete tests, like complicated radio circuits, building home–brew radios from the scratch (instead of buying modern factory manufactured devices) etc.

Folks, I believe that amateur radio *digital* activities have their future, only if we all do our best to improve the regulatory principles that govern this fine hobby. Besides the telegraphy requirement, here in Serbia we also have to be members of the national amateur radio union, as the legal requirement, **before** we become allowed to use *any* type of amateur radio activity. Such a stupid rule does not exist elsewhere! Should you want to help us to adopt internationally known principles, that do not require to join *any* type of organizational system, i.e. amateur radio society that only wants to get your membership money, you are asked to lobby for that. Our outdated amateur society leadership has an email address: yu0srj@eunet.yu (I suppose they may have more than one email address, but you may try to use this one and/or to search for more info related to "Savez radio amatera Jugoslavije", "Savez radio amatera Srbije", etc). Your valuable help would be appreciated. Case you need more info regarding these legal issues, do not hesitate to contact me.

If you find yourself interested enough in making amateur radio rules and regulations better and updated (say to widen the idea of liberalize the ICT areas and free them of any kind of monopolies), I would suggest you to look for your national radio amateur society and/or national telecommunication regulatory agency. Lobby to them in order to remove the obsolete manual Morse proficiency test.

Case we all do our best to remove all those obstacles for new people who may wish to enjoy amateur radio digital and Linux–related operations, the technology would become the part of more homes. I hope you, the readers, may help. So I look forward to hear from you soon!

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## 11. [Bibliography](#)

2002–11–30

*Notice: Folks, I often visit some (inter)national ICT conferences all around the country, submitting papers and having presentations. What I want to do is to spread – as wide as possible – the basic idea and the useful mission of the amateur radio hobby and, you bet, whenever possible to make it with Linux. Besides that, I have been writing various articles for a variety of scientific and other magazines. Here you have a list of the articles that I have written, and the papers submitted to the conferences.*

– "U prilog I.A.C.", MI (the youth scientists' organization newspaper), No. 69, 1990.

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- "U prilog I.A.C. (2)", MI (the youth scientists' organization newspaper), No. 70, 1990.
- "Vise od radio-amaterskog hobija", Vojska, No. 163, 1995.
- "Korak ka zvezdama", Vojska, No. 200, 1996.
- "Die Gefahr von Innen - Internet gegen Amateurfunk", AMSAT-DL Journal, No. 4, Dez./Feb. 96/97.
- "Kakva nam organizacija (ne) treba?", Radioamater, Feb. 1997.
- "Kakva nam organizacija (ne) treba? (2)", Radioamater, Apr./May. 1997.
- "Sateliti umiru padajuci", Vojska, No. 235, 1997.
- "The Internet is not the Enemy", QST, Aug. 1998.
- "Novi radio-amateri za novi vek", Antena, June 2000.
- "Racunarske komunikacije putem radio-veza i zastita pristupa", Bezbednost, No. 3, 2000.
- "Paket-radio - Racunarske komunikacije putem radio-veza", proceedings, "Info-Teh", Vrnjacka Banja, Serbia, 2001.
- "Racunarske komunikacije putem radio-amaterskih veza", proceedings, "YU-Info", Kopaonik, Serbia, 2002.
- "Computer Communications over radio", presentation, "Linux FEST", Belgrade, Serbia, 2002.
- "Paket-radio - Radio-amaterske digitalne veze", proceedings, "Kongres JISA", Herceg Novi, Montenegro, 2002.
- "Paket-radio (2) - Modemi za radio-veze", proceedings, "Info-Teh", Vrnjacka Banja, Serbia, 2002.
- "Alternativne racunarske mreze", festival catalog, "INFOFEST", Budva, Montenegro, 2002.
- "Alternative computer networks", proceedings, "TELFOR", Belgrade, Serbia, 2002.
- "With rule and regulation improvements to the progress" proceedings, Belgrade, Serbia, 2002.

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## 12. [Further information](#)

### 12.1 Copyright

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## 12.2 Disclaimer

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You are strongly recommended to take a backup of your system before major installation and backups at regular intervals.

## 12.3 News

This is not the first release of this mini-HOWTO. I hope to improve it whenever possible. Beside that, there are other documents that may help you to use amateur radio stuff on your computer. You may also look for AX.25 (mini-)HOWTO at the same location where you get FBB mini-HOWTO.

*This mini-HOWTO would be improved from time to time. If you think that the HOWTO on your Linux installation CD is some out-of-date, you may check for newest release on the Internet. It could be found within the main [Linux Documentation Project](#) homepage.*

## 12.4 Credits

*This version of mini-HOWTO can thanks to:*

Jean-Paul Roubelat, F6FBB, the author of FBB,  
Per Olsen, LA6CU, the author of FBB documentation,  
Jesus R., EB5AGF, the author of Protus,  
Jose Marte, HI8GN, the packager of 7.02g package,  
and a variety of helpful radio amateurs world-wide.

Any comments or suggestions can be mailed to my email address: [m.skoric@eunet.yu](mailto:m.skoric@eunet.yu).

## 12.5 HOWTO

These are intended as the primary starting points to get the background information as well as show you how to solve a specific problem. Some relevant HOWTOs are Bootdisk, Installation, SCSI and UMSDOS. The main site for these is the [LDP archive](#) at Metalab (formerly known as Sunsite).

## 12.6 Mini-HOWTO

These are the smaller free text relatives to the HOWTOs. Some relevant mini-HOWTOs are Backup-With-MSDOS, Diskless, LILO, Large Disk, Linux+DOS+Win95+OS2, Linux+OS2+DOS, Linux+Win95, Linux+WindowsNT, Linux+NT-Loader, NFS-Root,

Win95+Win+Linux, ZIP Drive, FBB packet-radio BBS etc. You can find these at the same place as the HOWTOs, usually in a sub directory called mini. Note that these are scheduled to be converted into SGML and become proper HOWTOs in the near future.

## 12.7 Local Resources

In most distributions of Linux there is a document directory installed, have a look in the [/usr/doc](#) directory. where most packages store their main documentation and README files etc. Also you will here find the HOWTO archive ([/usr/doc/HOWTO](#)) of ready formatted HOWTOs and also the mini-HOWTO archive ([/usr/doc/HOWTO/mini](#)) of plain text documents.

Many of the configuration files mentioned earlier can be found in the [/etc](#) directory. In particular you will want to work with the [/etc/fstab](#) file that sets up the mounting of partitions and possibly also [/etc/mdtab](#) file that is used for the md system to set up RAID.

The kernel source in [/usr/src/linux](#) is, of course, the ultimate documentation. In other words, *use the source, Luke*. It should also be pointed out that the kernel comes not only with source code which is even commented (well, partially at least) but also an informative [documentation directory](#). If you are about to ask any questions about the kernel you should read this first, it will save you and many others a lot of time and possibly embarrassment.

Also have a look in your system log file ([/var/log/messages](#)) to see what is going on and in particular how the booting went if too much scrolled off your screen. Using `tail -f /var/log/messages` in a separate window or screen will give you a continuous update of what is going on in your system.

You can also take advantage of the [/proc](#) file system that is a window into the inner workings of your system. Use `cat` rather than `more` to view the files as they are reported as being zero length. Reports are that `less` works well here.

## 12.8 Web Pages

There is a huge number of informative web pages out there and by their very nature they change quickly so don't be too surprised if these links become quickly outdated.

A good starting point is of course the [Linux Documentation Project](#) home page, an information central for documentation, project pages and much, much more.

Please let me know if you have any other leads that can be of interest.

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## 13. [Getting help](#)

In the end you might find yourself unable to solve your problems and need help from someone else. The most efficient way is either to ask someone local or in your nearest Linux user group, search the web for the nearest one.

Another possibility is to ask on Usenet News in one of the many, many newsgroups available. The problem is that these have such a high volume and noise (called low signal-to-noise ratio) that your question can easily fall through unanswered.



## FBB Packet-radio BBS mini-HOWTO

No matter where you ask it is important to ask well or you will not be taken seriously. Saying just *my disk does not work* is not going to help you and instead the noise level is increased even further and if you are lucky someone will ask you to clarify.

Instead describe your problems in some detail that will enable people to help you. The problem could lie somewhere you did not expect. Therefore you are advised to list up the following information on your system:

### ***Hardware***

- ◊ Processor
- ◊ DMA
- ◊ IRQ
- ◊ Chip set (LX, BX etc)
- ◊ Bus (ISA, VESA, PCI etc)
- ◊ Expansion cards used (Disk controllers, video, IO etc)

### ***Software***

- BIOS (On motherboard and possibly SCSI host adapters)
- LILO, if used
- Linux kernel version as well as possible modifications and patches
- Kernel parameters, if any
- Software that shows the error (with version number or date)

### ***Peripherals***

- Type of disk drives with manufacturer name, version and type
- Other relevant peripherals connected to the same busses

Remember that booting text is logged to `/var/log/messages` which can answer most of the questions above. Obviously if the drives fail you might not be able to get the log saved to disk but you can at least scroll back up the screen using the `SHIFT` and `PAGE UP` keys. It may also be useful to include part of this in your request for help but do not go overboard, keep it *brief* as a complete log file dumped to Usenet News is more than a little annoying.

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