Package VBOX
Version 3.10.5

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1. Documentation For Package VBOX

1.1. OPT_VBOX - The ISDN-Answering Machine For fli4l

1.1.1. Introduction

This package integrates the answering machine software VBOX by Michael 'Ghandi' Herold into the fli4l system.

By using this software the fli4l can take the part of an answering machine with a functionality exceeding the possibilities of a normal box by far. You may create several voice boxes taking messages for different phone numbers (MSNs) and restrict access to defined users. Each user can set the following items depending on daytime, weekday and caller ID:

- if a call should be answered at all

- after how many ringtones will the call be answered

- if and what announce will be used

- if and what signaling tone will be used

- if a voice message will be recorded or not

- how long the recorded message is allowed to be

- if and what timeout announce will be used

1.1.2. Some Basics About Function And Resources

The VBOX system is divided into a server taking the messages and a client to replay and manage the messages. In OPT_VBOX messages can be accessed via a web interface. A working httpd Package is necessary for this.

General Requirements For Installation

An ISDN card is mandatory, because vbox will not work with modems (and not via a DSL line anyway, if someone should come to this thought ...). Of course the ISDN package is required for the installation of the appropriate driver but no circuit has to be defined if the card is used solely for vbox.

It is highly recommended to use the httpd package, since it is quite convenient to manage stored messages.

Important: *Teles 16.3c will not work for vbox because the Linux driver is not voice-capable.*

Conditions For Storing Messages In A RAM Disk Installation

If the incoming messages should be be stored in a ramdisk the router requires at least 16MiB of RAM, otherwise no appreciable recording time will be accessible (see: `VBOX_COMPRESSION`). It should be clear that messages saved in a ramdisk are lost during a power failure. If you want to be able to rely on vbox for a 100% you should store messages only on a hard drive. The advantage of the RAM disk storage is that the disk can remain idle.

Preconditions For Saving Messages In A HD/CF Installation

When storing messages on a hard disk you obviously need the package HD with `OPT_MOUNT`='yes'. The messages will remain stored during router reboot then. Settings for users will eventually be reloaded during reboot with the possibility of users automatically being deleted (optional) that are not existing in the reloaded configuration. A harddisk is also of advantage when using a lot of different messages or with additional OPT packages due to space limitations on the boot medium.

1.1.3. Configuration

Common Settings

OPT_VBOX Default Setting: `OPT_VBOX`='no'

> Specifying 'yes' here activates the voicebox.

VBOX_SPOOLPATH The parameter `VBOX_SPOOLPATH` determines if the recorded messages should be stored on a Ramdisk or on a harddisk.

> Storing to a Ramdisk: `VBOX_SPOOLPATH`=" No path is allowed here in this case!

> Storing to a harddisk:

> `VBOX_SPOOLPATH`='/data/vbox' (i.e.)
> Precondition is an installed HD Package with `OPT_MOUNT`='yes'.

> The path specified here has to point to a writable harddisk partition in ext format mounted to the file system, but not mounted to '/opt' (HD-Install Type B). If one of the preconditions is not met the installation of the vbox package will be stopped with an error message. If all preconditions are met, a directory `vbox_spooldir` will be created in the path specified here to store the vbox data.

> This may be set to 'auto' to use the path defined by `FLI4L_UUID`.

VBOX_SPOOLDIR_SPACE Specifies how much space in KiB should be estimated for all mailboxes. While creating the spool directory it is checked whether this place is available.

VBOX_DELETE_OLD_SPOOLDIRS Default Setting: `VBOX_DELETE_OLD_SPOOLDIRS`='yes'

> This parameter is only relevant if the incoming messages are stored on a harddisk. Since the spool directories of the individual users are not deleted during system reboot it may happen due to changing configurations with different users that old spool directories from now inactive users take up space unnecessarily. To prevent this, you can set this parameter to 'yes' to automatically clear them at every reboot.

Important: *Even if the name of a once configured user only changes slightly in the configuration file, the automatic deletion at the next reboot will remove all spooled messages of this user because the user with the original name is no longer considered active. You have to be very careful here in order to avoid deleting messages inadvertently with this automatic.*

VBOX_COMPRESSION Default Setting: `VBOX_COMPRESSION=`'ulaw'

This specifies the compression with which the messages are to be recorded. The higher the compression, the lower the memory consumption and the worse the quality. On a hard disk the messages can probably safely use the 'ulaw' mode where no compression will be used. The messages are stored then with the full ISDN bandwidth of 8kHz 8bit * = 64kbit/s. In a pure ramdisk installation without hard disk on a PC with 16MiB memory and about 6MiB available for recording the recording time will only be a little more than ten minutes .

Those who need to save space should use the format 'adpcm-4' for a compressed recording (4 bits * = 8kHz 32kbit/s -> half the memory requirement compared to 'ulaw') or 'adpcm-3' or 'adpcm-2' with a correspondingly higher compression and poorer quality.

An overview:

Mode	Resolution	Compression to	approx. storage needed for 10 mins.
ulaw	8Bit	100%	4800 kB
adpcm-4	4Bit	50%	2400 kB
adpcm-3	3Bit	37%	1800 kB
adpcm-2	2Bit	25%	1200 kB

Table 1.1.: Comparison of the different compressions

VBOX_FREESPACE Default Setting: `VBOX_FREESPACE=`'8192'

If less than `VBOX_FREESPACE` Bytes is available for storing new messages new calls will not be picked up anymore. A value of '0' disables this check.

VBOX_LOGPATH Default Setting: `VBOX_LOGPATH=`'/var/log/vbox'

Specifies the directory where log files should be placed.

This may be set to 'auto' to use the path defined by `FLI4L_UUID`.

VBOX_USE_VBOXD Default Setting: `VBOX_USE_VBOXD=`'no'

Messages can be replayed with other vbox clients. If this is needed specify 'yes' in this variable and don't forget to set a password in `VBOX_USER_x_VBOXD_PASSWORD`.

Important: *vboxd is is a service on the router. You should prefer the WebGUI instead.*

VBOX_VBOXD_ALLOW Default Setting: `VBOX_VBOXD_ALLOW=`'*.lan.fli4l'

By the parameter `VBOX_VBOXD_ALLOW` it may be defined which computers are allowed to replay or manage messages with a vbox client. The default setting '*.lan.fli4l' stands

for all computers in this DNS domain. Restrictions can be made by specifying single IP-addresses, host names or domain names (like *.home.lan). In case of more entries they have to be divided by spaces.

Important: *When using host names of the own domain do not use use fully qualified DNS names!*

Important: *To minimize the risk of a potential attack on the server vboxd keep this setting as restrictive as possible. If for example only VBOX_BEEP is needed, VBOX_VBOXD_ALLOW should stay empty restricting access to vbox to the router itself.*

VBOX_BEEP_HOURS Default Setting: `VBOX_BEEP_HOURS`='*'

Here you may specify the times in hours where an acoustic signaling should take place. Also ranges can be defined i.e. 8-24, with more ranges separated by spaces. A '*' is defined as 'always'. A detailed description of time formats can be found in the appendix of this documentation.

Important: *To make VBOX_BEEP work, VBOX_USE_VBOXD='yes' has to be set.*

VBOX_BEEP_PAUSE Default Setting: `VBOX_BEEP_PAUSE`='60'

The length of the break between signals in seconds.

VBOX_DEBUGLEVEL Default Setting: `VBOX_DEBUGLEVEL`='FE'

Specify the events to be logged to the logfiles by setting a combination of characters. From the original documentation:

- F - Errors that could not be recovered
- E - Errors that may be recovered eventually
- W - Warnings
- I - Informations
- D - Debugging output
- J - Even more debugging output

Logfiles are very helpful for finding errors. In the beginning you may protocol everything and later on when being sure that all is well 'FE' should be sufficient.

VBOX_ADMIN_USERNAME The user name of the administrator already defined in the httpd configuration (capital letters are taken into account). This user can review all voice boxes in the VBOX WebGUI and thus is able to start, stop and replay messages of all boxes. **Important:** *The user must have the right 'vbox:all'.*

Common User Specific Settings

VBOX_USER_N The number of users that should get VBOX messages.

VBOX_USER_x_USERNAME The username of the specific user. This username is also used for authentification at the WebGUI. If this username already exists in the httpd configuration (capital letters are taken into account) the rights specified there apply (see documentation for the httpd package). If the username is not defined there the user only gets the right to access the VBOX page in the WebGUI.

VBOX_USER_x_PASSWORD The password of the user. If the user in `VBOX_USER_x_USER` also exists in the configuration of the httpd package the password specified there is used and the content of `VBOX_USER_x_PASS` is meaningless. In all other cases this password is used for authentification at the WebGUI.

VBOX_USER_x_VBOXD_PASSWORD Here you may specify a password for vboxd. It is used only for the login with a vbox client (not with the WebGUI).

VBOX_USER_x_MSN_N Set the number of MSNs to be monitored here.

VBOX_USER_x_MSN_x Set the MSN here on which calls should be picked up.

VBOX_USER_x_MSN_x_START Default Setting: `VBOX_USER_x_MSN_x_START`='yes'

Set this variable to specify if VBOX should be activated on boot for this MSN. This variable is optional. If omitted VBOX is activated on boot here.

VBOX_USER_x_BEEP Default Setting: `VBOX_USER_x_BEEP`='no'

If an acoustic signal should signal new messages for this user this parameter has to be set to 'yes', if not, to 'no'.

Important: *Note the following for this parameter: If the spool directories are situated on a harddisk, the disk may not enter idle mode with vboxbeep activated even if this is specified in the configuration of package HD because the vboxbeep daemon accesses the disk permanently to check for new messages.*

VBOX_USER_x_STD_RINGDEF_N VBOX can pick up calls after a defined number of ringtones depending on the time. This variable defines the number of time ranges to be defined.

VBOX_USER_x_STD_RINGDEF_x Syntax: `VBOX_USER_x_STD_RINGDEF_x`= 'TIME DAYS RINGS'

The parameters in `VBOX_USER_x_STD_RINGDEF_x` are separated by one or more spaces. Time ranges define daytimes (TIME), weekdays (DAYS) and after how may ring tones (RINGS) a call is picked up in the time period. A detailed description of time formats can be found in the appendix of this documentation. By the way, it is not possible to let vbox pick up a call before the first ring. A value of '0' for RINGS disables pick up completely.

These settings are defaults to be used if no special treatment is defined for a caller (see `VBOX_USER_PROFILE_x`), or a special treatment has no definition for RINGS.

You may define, for example, to pick up a call after the first ring in the night but after the fifth ring at all other times. If callers exist that could be of such importance that you want to be woken at night in any case you may define a specific caller section via `VBOX_USER_PROFILE_x` to overwrite the defaults from `VBOX_USER_x_STD_RINGDEF_x`.

User Specific Settings - Time Dependant Programming

VBOX_USER_x_STD_SECDEF_N VBOX may not only pick up calls after different ring-tone counts depending on time, but also decide which announcement should be played, how long the recording time should be, and so on. This variable specifies the number of time ranges to be defined in the following sections.

VBOX_USER_x_STD_SECDEF_x Syntax: `VBOX_USER_x_STD_SECDEF_x=` 'TIME DAYS MESSAGE RECTIME [FLAG] [...]'

The parameters in `VBOX_USER_x_STD_SECDEF_x` are separated by at least one space character. They contain the settings for the 'STANDARD' section that always has to exist to define how callers should be treated for which no caller section exists or that do not transfer their ID.

The specific paramenters are explained below.

`TIME`

The times when the settings should be used.

`DAYS`

The days when the settings should be used.

`MESSAGE`

Announcement for the caller. A message by this name has to be copied to /opt/etc/vbox/ messages resp. config/etc/vbox/messages prior to creation of the archives. Spaces and tabs are not allowed. Even when using a .wav file the entry has to be defined with a .msg suffix. The .wav file is then copied and will be converted to a .msg file at boot time. The program `sox` needed for the conversion will be copied to the router automatically. The variable `VBOX_WAV_FILES` from older vbox versions hence is not needed anymore.

`RECTIME`

Maximum number of seconds used for recording. Default is 60 seconds.

`FLAG`

Additional flags that can be specified:

- `NOANSWER`: The call should not be answered at all.
- `NORECORD`: No message should be recorded.
- `NOTIMEOUTMSG`: No timeout announcement should be played.
- `NOBEEPMSG`: No Beep should be emerged.
- `NOSTDMSG`: No announcement should be played.
- `RINGS=` : Specifies the number of RING's before picking the call up. This flag overwrites the RING's from section [RINGS] and the flag TOLLRINGS.
- `TOLLRINGS=` : Specifies the number of RING's before picking the call up if new messages are present. This flag overwrites the RING's from section [RINGS] and the flag RINGS for new messages.

User Specific Settings - **Caller Specific Configuration**

VBOX_USER_x_PROFILE_N Specifies the number of caller IDs to be assigned to a specific section.

VBOX_USER_x_PROFILE_x Syntax: `VBOX_USER_x_PROFILE_x=`
'CALLERID SECTION_NAME DESCRIPTION'

If VBOX recognizes a call with caller Id submission it checks for a specific treatment defined for the ID. With this variable the caller gets assigned a section (see `VBOX_USER_x_STD_SECDEF_x`).

The first entry in each line is the caller ID number [CALLERID] with area code, but without a prefixing zero. Also caller ID ranges may be set here by the help of 'Unix-Patterns'. After some testing I can verify the following Unix-Patterns as operational:

i.e. numbers from 55511 up to 55514: '5551[1-4]'

Numbers starting with the same digits, i.e. all numbers starting with '555': '555*'

You may also use the wildcard `PHONEBOOK`. In this case all caller IDs stored in /etc/phonebook are assigned to the section [SECTION_NAME]. Obviously you will need an installed OPT phonebook on the router. Set `OPT_TELMOND`='yes' in config/isdn.txt in addition.

The second entry [SECTION_NAME] is the name of the caller section and can be defined freely. It defines VBOX's behaviour if a call from [CALLERID] is recognized. A '-' stands for the caller section 'STANDARD' (`VBOX_USER_x_STD_SECDEF_x`), a '*' for a caller section assgned to the name of the caller provided in [DESCRIPTION]. This entry may include spaces and allows that the WEB Gui also displays the name of the caller in the list of calls received and not only its number. Technically, this entry is therefore meaningless.

Important: *For all callers for which no* `VBOX_USER_x_PROFILE_x` *has been defined or which simply submit no phone number should always the following be entered as a last* `VBOX_USER_x_PROFILE_x`-*line:*

```
'*    -     --- Unknown ---'
```

Only then these calls will be answered on the section 'STANDARD'. (Instead of '— Unknown —' anything else may be specified.)

VBOX_USER_x_SECTION_N Define the number of sections here in which VBOX's behaviour will differ from `VBOX_USER_x_STD_SECDEF_x` (Page 8) and `VBOX_USER_x_STD_RINGDEF_x` (Page 7).

VBOX_USER_x_SECTION_x_NAME The name of the section to be matched with `VBOX_USER_x_PROFILE_x` (Page 9).

VBOX_USER_x_SECTION_x_SECDEF_N Number of time ranges for section definitions (as in `VBOX_USER_x_STD_SECDEF_N` (Page 8))

VBOX_USER_x_SECTION_x_SECDEF_x Syntax: `VBOX_USER_x_SECTION_x_SECDEF_x=`
'TIME DAYS MESSAGE RECTIME [FLAG] [...]'

As in `VBOX_USER_x_STD_SECDEF_x` (Page 8) settings for the behaviour of VBOX may be stored here. Configuration is identical to `VBOX_USER_x_STD_SECDEF_x` (Page 8) and can be reviewed there.

1.1.4. Configuration Example

```
OPT_VBOX='yes'                          # VBOX is activated
VBOX_SPOOLPATH=''                       # Messages are stored in Ramdisk
VBOX_SPOOLDIR_SPACE='4000'              # 4000 KiB are used for the Ramdisk
VBOX_DELETE_OLD_SPOOLDIRS='yes'         # of no interest for Ramdisk
VBOX_COMPRESSION='ulaw'                 # ulaw compression is used
VBOX_FREESPACE='8192'                   # A minimum of 8MiB of free storage has to exist
                                        # for messages to be recorded
VBOX_LOGPATH='/var/log/vbox'            # Logfiles are stored in /var/log/vbox
VBOX_DEBUGLEVEL='FE'                    # Log only errors


VBOX_USER_N='1'                         # Only one user
VBOX_USER_1_USER='user1'                # User name
VBOX_USER_1_PASS='pass1'                # Password
VBOX_USER_1_MSN='1234'                  # Only one MSN is monitored


# Pick up calls after four rings at all times.
VBOX_USER_1_STD_RINGDEF_N     = '1' #TIME         DAYS         RINGS
VBOX_USER_1_STD_RINGDEF_1     =     '*            *            4'


# Play the standard announcementat all times and allow a recording time of 60 seconds.
VBOX_USER_1_STD_SECDEF_N = '1' #TIME     DAYS     MESSAGE          RECTIME [FLAG] [...]
VBOX_USER_1_STD_SECDEF_1 =     '*        *        standard.msg   60'


# All callers are assigned to the standard section
VBOX_USER_1_PROFILE_N = '1' #CALLERID    SECTION_NAME     DESCRIPTION
VBOX_USER_1_PROFILE_1 =     '*           -                -- unkown --'


# No specific sections defined
VBOX_USER_1_SECTION_N           = '0'  #SECTION for VBOX_USER_x_PROFILE_x
VBOX_USER_1_SECTION_1_NAME      = ''
VBOX_USER_1_SECTION_1_SECDEF_N = '0'  #TIME DAYS MESSAGE  RECTIME [FLAG] [...]
VBOX_USER_1_SECTION_1_SECDEF_1 = ''
```

1.1.5. Recording And 'Installing' New Messages

The messages to be used in vbox-configuration have to be copied to the following directory:
opt/etc/vbox/messages.
As an alternative messages may also be stored in the configuration directory:
config/etc/vbox/messages.

The latter is very convenient, because with a router update to a new version only the configuration directory needs to be copied.

In these directories any number of messages may be stored but only those are added to the opt archive which are used in the configuration.

In order to operate vbox without problems the package provides a somewhat neutral standard message you certainly would like to replace with your own announcements. The sounds for 'beep.msg' and 'timeout.msg' may be replaced as well. However, it is not recommended to use a tone that differs much from the known normal beeping of answering machines, because many callers will be confused and never leave a message.

If the messages in the folders are not in ulaw, but in .au or .wav format, they are automatically converted at the start of the router. To convert from .wav format a tool is copied to the opt-archive that needs an additional 180KiB.

Finally, also with a computer without a sound card announcements may be recorded by installing vbox at first and call yourself. The data stored on the router is a message in the correct format and may be used. You may easily load the message from the router by the help of a SCP or SFTP program.

If the messages are stored in the Ramdisk they may be found under:

/var/spool/vbox/<username>/incoming

In other cases they can be found in the directory on the harddisk you set above.

The recorded messages are stored as .msg files with rather cryptic names. (To know which message is in which file you should note the sequence in which the messages were recorded.) Rename the file to something more intuitive and use them in your VBOX configuration then.

1.1.6. For The Future

basically I only adapted the VBOX package by Christph Peus for fli4l version 3.0.0. I did not pay big attention to the size of the binaries which are significantly larger than those of older versions. If I find the time and there is a need for it I will take care of that. New features planned are sending messages via mail and remote access. (Helmut Hummel)

1.1.7. Support

It is obvious but I mention it nevertheless: If you have problems with the configuration or you believe you found a bug please read the documentation to ensure you did not oversee anything. When using complex parameters the danger is great to have produced some errors. Maybe the original documentation (Appendix) may be of help.

If you can't find the culprit post your question to the newsgroup spline.fli4l.opt with a detailed description of the problem, most efficient is an excerpt from the log file. You may find it in the directory specified above. Have fun!

A. Appendix For Package VBOX

A.1. Appendix For Package OPT_VBOX

A.1.1. Time Settings Format Used For Configuration

For some parameters, time and day are expected. The following information about the format is taken from the original documentation:

Time Settings

As of vbox version v2.0.0 different time zones (eg with rings) are provided with minute digits. Individual time entries are separated by commas, details of start and end time by a minus sign. The hours must be given in 24-hour format i.e. from 0 to 23 o'clock.

Supplement to the original document: Time ranges that exceed 00:00 clock must always be defined in two parts up to 00:00 and from 00:00 on. Example: instead of 22-06 write 22-23,00-06.

The times are internally always converted to start and end time, even if only the start time is specified.

Take for example the following times:

20:15-21:14 This times are internally converted to 20:15:00 and to 21:14:59, ie start and stop time will be included! If a time specification has no minutes defined it gets the starting time 0 minutes, and for the stop time 59 minutes will be used. Internally the seconds - which are not adjustable - are treated according to the same scheme.

Example:

- 20 - Conversion to 20:00:00-20:59:59

- 20:15-21:14 - Conversion to 20:15:00-21:14:59

- 08-11 - Conversion to 08:00:00-11:59:59

- 12-15:30 - Conversion to 12:00:00-15:30:59

A time zone is true (matches) if the current time is greater than/equal to the start time and less than/equal to the end time.

A '*' as the only time specification is treated as 'always ', a '-' or '!' as the only time specification as 'never.

Day Values

Individual day values are separated by commas. An indication of start and end times is not possible here.

The following shortcuts can be specified for days:

- MO, MON - for Monday

- DI, TUE - for Tuesday

- MI, WED - for Wednesday

- DO, THU - for Thursday

- FR, FRI - for Friday

- SA, SAT - for Saturday

- SO, SUN - for Sunday

Example: MON,TUE,WED,FRI,SAT,SUN

A.1.2. Package History

Originally this package was made by Christoph Peus for fli4l versions 1.x.x and 2.0.x. It was changed for version 2.1.x by Gerd Walter. Arno Wetzel made the Web GUI that made the installation of vbox-clients on other computers obsolete. I got the package from Christoph Schulz who compiled it for version 2.1.10 and built a small rudimentary remote access function which unfortunately never really worked for me. With the stable fli4l version 3.0.0 I was motivated to renovate the package to provide a solid base for the new release and to include some of its advanced features.

Helmut Hummel in December 2005

A.1.3. The Original VBOX Documentation

The original (german) VBOX documentation can be found in the appendix of the german documentation.

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