

Voicetronix

PRI Logger
Operations Manual
Version 1.9

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0.0 Notes

Assuming you are logged on as root.

Otherwise have access to the “sudo” command...setup with visudo

Information in this manual is applicable to

1. pri loggers using dchannel signalling
2. pri loggers using voice-level activation (vox)

The logger executable has been renamed to vtlogger. There is a system utility already called logger. Make sure it is located in /usr/local/bin if you want to use the vtchecklogger.pl cron job.

The cron job vtchecklogger.pl now checks for wanpipe errors on startup...and restarts a few times to try to clear them. Remember to modify for your email address so you get the alerts!

The config file channel.conf has been moved from /var/tmp/logger to /etc/vtlogger

1.0 Operations

1.1 Manual Restart logger

1.1.1 Kill vtlogger

Stop any instances of logger that are running.

killall vtlogger

killall vtlogger

It should never take more than two kills to remove vtlogger.

1.1.2 Restart wanrouter

Now you need to restart the wanpipe drivers -

Type **wanrouter restart**

For a 30 channel (single card) logger system, you should see :

```
[root@localhost ~]# wanrouter restart
```

```
Shutting down wanpipe2 interface: wp2aft1
Shutting down wanpipe2 interface: wp2aft2
Shutting down wanpipe2 interface: wp2aft3
Shutting down wanpipe1 interface: wp1aft1
Shutting down wanpipe1 interface: wp1aft2
Shutting down wanpipe1 interface: wp1aft3
Shutting down device: wanpipe2
Shutting down device: wanpipe1
No devices running, Unloading Modules
```

```
Starting WAN Router...
```

```
Loading WAN drivers: wanpipe done.
Starting up device: wanpipe1
Starting up device: wanpipe2
Configuring interfaces: wp1aft1 wp1aft2 wp1aft3
done.
Configuring interfaces: wp2aft1 wp2aft2 wp2aft3
done.
```

Use the **wanrouter status** command to confirm the PRI ports are "connected"

```
[root@localhost ~]# wanrouter status
```

```
Devices currently active:
    wanpipe1 wanpipe2
```

```
Wanpipe Config:
```

Device name	Protocol Map	Adapter	IRQ	Slot/IO	If's	CLK	Baud rate
wanpipe1	N/A	A101/2	169 10	3	EXT 0		
wanpipe2	N/A	A101/2	169 10	3	EXT 0		

```
Wanrouter Status:
```

Device name	Protocol	Station	Status
wanpipe1	AFT HDLC	N/A	Connected
wanpipe2	AFT HDLC	N/A	Connected

If the status is not "Connected", you will need to check your cabling, and your PRI service is up.

1.1.3 Start vtlogger

You should allow ~10 seconds for the wanpipe drivers to settle.

You can start the logger application -

Type **vtlogger**

This runs `/usr/local/bin/vtlogger`

Since logger is built as a daemon, it will return immediately with

```
[root@localhost ~]# vtlogger
```

My pid is 15729

Type 'kill <pid>' to finish

Type 'watch cat /var/tmp/logger/status.conf' to monitor status

Type 'watch tail /var/log/messages' to monitor debug info

See README for more information

You can check it is running with ps or top. For ps, you will see :

```
[root@localhost ~]# ps aux | grep logger
root  25729 18.9  0.1 392828 2524 pts/0  Sl+  13:06  0:01 /usr/local/bin/vtlogger
root  25753  0.0  0.0 4196 644 pts/1   R+   13:06  0:00 grep logger
```

1.1.4 If logger does not start

If logger does not come up, check the system log for logger errors

Type **tail /var/log/messages**

You should see at least some of the logger start sequence :

```
Sep 21 13:56:08 localhost logger: 1 VPB Cards Detected!
Sep 21 13:56:08 localhost logger: 30 VPB Total Channels Detected!
and some errors.
```

You can get more detailed error information :

```
vi /etc/vpb/vpb.conf
change verbose=0 to verbose=1.
```

Restart logger and check the system log again.

1.2 Automatic Restart

A simple and safe way to restart the logger is

Type **init 6**

This will restart the logger box. It will take 4 or 5 minutes to complete.

No operator action required.

The vtchecklogger cronjob will start up logger.

1.3 Check logger is running

Type **ps aux | grep logger**

```
[root@localhost ~]# ps aux | grep logger
root  2601 32.2  0.1 744968 3972 ?    Ssl  Aug27 17635:36 /usr/local/bin/vtlogger
root  16209 0.0  0.0 4660  520 pts/0  D+   11:15  0:00 grep logger
```

or use vtstatus.sh as describe below.

1.4 Check voice channel activity

Type **vtstatus.sh**

Voicetronix Call Logger v1.3.7

Calls recorded : 3839

Vpb-driver-4.1-14

File write errors : 0 File open errors : 0

Process ID (pid) is 11416 |

Channel activity (0=no activity, 1=call recording)

1 to 10 : 0 0 1 1 0 1 0 1 0 0

11 to 20 : 0 0 0 0 0 0 0 0 0 0

21 to 30 : 0 0 0 0 0 0 0 0 0 0

Build Information :

-Vpb driver-4.1 mods enabled -PRI Use channel directories

-Voice Level Activation (VOX) -PRI Fixed channels on startup

-BUSY directory disabled -Multi-directory (Web2) filenames

-Soundcard monitor disabled -No shutdown on write error

-No LAME mp3 support -No SQLITE for database support

This shows number of calls recorded, any buffer overflows, channel activity, and build info.

1.5 Check logger events

tail -f /var/log/messages

```
[root@localhost ~]# tail -f -n 10 /var/log/messages
Oct 4 11:14:13 localhost /usr/local/bin/logger[2601]: [34] Event:IDLE:[33] Vox ON
Oct 4 11:14:13 localhost /usr/local/bin/logger[2601]: [34] event = 1 ch = 34 mode = 0
Oct 4 11:14:13 localhost /usr/local/bin/logger[2601]: [11] Event:IDLE:[10] Vox ON
Oct 4 11:14:13 localhost /usr/local/bin/logger[2601]: [11] event = 1 ch = 11 mode = 0
Oct 4 11:14:20 localhost /usr/local/bin/logger[2601]: [34] Event:OUT_REC:[33] Vox OFF
```

Important : If you see the following errors coming up -

wplaft3: Error: Rx Socket busy! <--these indicate audio stream problems
printk: 9999 messages suppressed.

Then restart the logger box with an **init 6**.

1.6 Check cron jobs

crontab -l

```
[root@localhost ~]# crontab -l
*/5 * * * * /usr/local/sbin/checklogger.pl
0 0 * * 0 cd /var/tmp/logger/recorder;./logpruner.sh
```

checklogger – every 5 minutes check logger is running.

- if not, it fires off an email alert.

logpruner – every sunday at 00:00 remove oldest call records.

-you can change the number of days records you want to keep.

2.0 Maintenance

2.1 Disk usage

You can check disk usage with

df -h

```
[root@localhost ~]# df -h
Filesystem                Size  Used Avail Use% Mounted on
/dev/mapper/VolGroup00-LogVol100  72G  6.6G  62G  10% /
/dev/sda1                  99M   13M   82M  14% /boot
none                       1014M    0 1014M   0% /dev/shm
/dev/md0                   147G   74G   67G  53% /var/tmp/logger/recorder
```

It will give you an indication of how much space you have on your disks.

The figure of interest is the free space on the raid array **md0**, the call record storage.

Not all loggers will have a raid array for /var/tmp/logger/recorder or need one.

Every week , the cron job “logpruner.sh” should be used to delete the oldest files.

The amount of days to keep depends on the disk size, and the amount of call records data you average per week.

Generally, the disk can operate around the 80% full mark.

Lower is ok...you have extra space for call records.

Higher is ok...unless it is high 90's...you are running out of space. Adjust the logpruner cron job to run more often, or prune more records when it is run.

2.2 CPU usage

You can check cpu loading with

top

A reasonable cpu load for a 60ch CAS logger is 0.35.

Cpu activity at 99% indicates a problem. Do a restart.

2.3 Memory usage

You can check memory usage with

free

```
[root@localhost ~]# free
              total    used    free   shared  buffers   cached
Mem:      2074824  2053828    20996        0    116952   1827848
-/+ buffers/cache:    109028  1965796
Swap:      2031608        144   2031464
```

This logger uses most of the 2G RAM for disk caching.

Free memory will sit around the 20M-30M mark.

A system restart will see the used memory start at ~ 95M then climb to ~2G as calls are recorded. This is normal.

2.4 Messages

You can check for logger messages with

ls -al /var/log/messages

Check the size of message files...you may want to clear it delete them after a while.

3.0 Call Records

3.1 Location of Call Records

Calls are recorded to the following directory

/var/tmp/logger/recorder

3.2 Directory Structure

The directory structure is <CHANNEL NUMBER>/<YEAR>/<MONTH>/<DAY>/voicefiles.wav

An example :

/var/tmp/logger/recorder/0001/2006/09/14/callrecord.wav

3.3 File Name Format

The filename are made unique by timestamping.

An example : *21_08_39_4_36_05000_-43.00_-50.00_0.wav*

The first three number are the timestamp in 24 hour notation.

3.4 Finding Call Records

Use the web interface to find call records.

You will need to know the ip address of your logger. Type the following url into the browser

<ipaddress> or **<ipaddress>:/logger2** for some loggers.

Log in. You will need a user name and password. These are created from the “admin” account. Use the search facility, specify channel, and a time range.

The results will be listed. You can download and play these as standard sound files.

3.5 Playing Call Records

The voicefiles are wave (.wav) files that can be played on any windows pc, linux pc or mac.

On Windows, try media player. On linux, try xmms or wavesurfer.

4.0 Important files

4.1 Executable

/usr/local/bin/vtlogger # main executable

4.2 Cron jobs

/usr/local/sbin/checklogger.pl # checks that logger is running...if not, restarts
/var/tmp/logger/recorder/logpruner.sh # removes old call records, to make room for new records

4.3 Web Page Files

/etc/httpd/init.d/logger.conf # web page definition file
/var/www/html/logger2/users.txt # logger users...these can belong to groups if required
/var/www/html/logger2/groups.txt # logger groups...like test, finance, hr
/var/www/html/logger2/chanmap.conf # maps names to channel numbers
/var/www/html/logger2/index.cgi # helper functions for web pages
/usr/bin/vlog # help function for web interface

4.4 Operations Files

/var/tmp/logger/status.conf # shows active channels
/usr/local/bin/vtstatus.sh # shortcut to watch status.conf
/var/tmp/logger/parameter_fifo # used to update vox parameters when logger is running
/usr/local/bin/vtupdatelevels.sh # shortcut to tell logger to reload channel.conf
/var/log/messages # logger events go here...this can grow quickly

4.5 Device configs

/etc/fstab # disk configuration (for raid array mapping)

/etc/vpb/vpb.conf # vpb file locations
/etc/vpb/openpri.conf # PRI card channels

/etc/wanpipe/wanrouter.rc # wanrouter file locations
/etc/wanpipe/wanpipe1.conf # PRI card port 1 settings
/etc/wanpipe/wanpipe2.conf # PRI card port 2 settings
* 60 channel logging systems will have a wanpipe3.conf and wanpipe4.conf

/etc/vtlogger/channel.conf # CAS logger has VOX settings here

5.0 Voice Activity Detection (Vox)

5.1 Vox Basics

Channel activity is monitored constantly in a CAS logger. Recording only occurs when vox level parameters are exceeded. Vox parameters are on-level, off-level and run-on time. These are stored in a file `/var/tmp/logger/channel.conf`

The contents of this file for a 30 channel logger look like this

```
number_of_channel=30
channel_1_runon=5000
channel_1_onlevel=-43
channel_1_offlevel=-50
channel_1_compression=linear
channel_2_runon=5000
channel_2_onlevel=-43
channel_2_offlevel=-50
channel_2_compression=linear
channel_3_runon=5000
```

and so on down to the “channel_30” entries.

5.2 Vox Levels

There are two vox levels.

The “onlevel” determines the signal strength (dB) at which you want to start recording.

The “offlevel” determines the signal strength (dB) at which you want to stop recording.

5.3 Vox Run-on Time

The run-on time is extra recording time (in milliseconds) after the Vox offlevel has been tripped.

Voice channels recordings have periods of silence. Sometimes we want these recorded to make the conversation complete. A normal conversation can have gaps of 5 or 10 seconds. It may not make sense to split up the conversation into separate call records. So we use the vox run-on time to cover the periods of silence. A typical run-on time is 5 seconds.

5.4 Vox for Logger

The signal strength on a idle voice channel should be well below the Vox On parameter. We dont want an idle channel to be recorded.

The signal strength on a active voice channel should be well above the Vox On parameter.

We want an active channel to trigger the vox detection algorithm.

5.5 Modifying Vox parameters

Vox parameters can be modify by editing the file

```
/var/tmp/logger/channel.conf
```

This file contains vox parameters for every channel in the system. These are loaded when logger is started. If logger is already running, modify channel.conf, then use the command

```
vtupdatelevels.sh
```

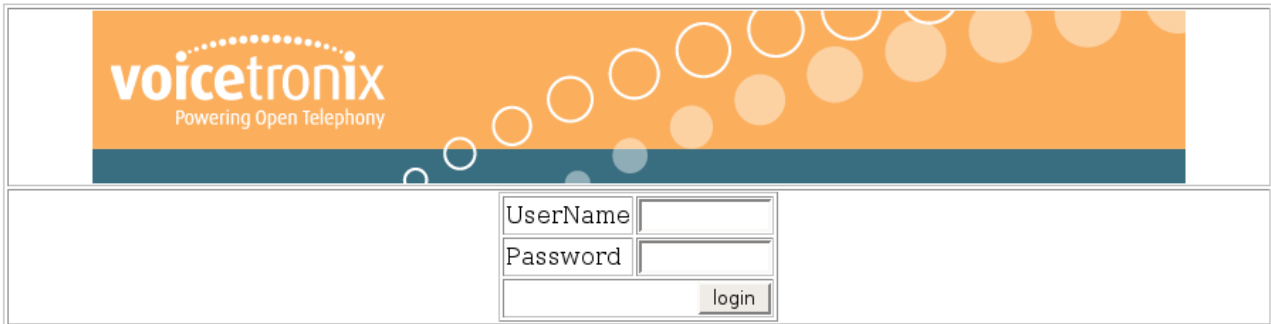
to make logger use the new parameters.


6.0 Web Interface

Launch your browser.

Hit url : **<ipaddress> e.g. 192.168.4.234**

Some older loggers are **<ipaddress>:/logger2 e.g. 192.168.4.2:/logger2**



 Powering Open Telephony	
UserName	<input type="text"/>
Password	<input type="password"/>
<input type="button" value="login"/>	

6.1 Login as Admin

Login as admin.

Contact your IT supervisor or Voicetronix for the admin password.

Note that admin cannot search for call records. Login as a user to search call records.

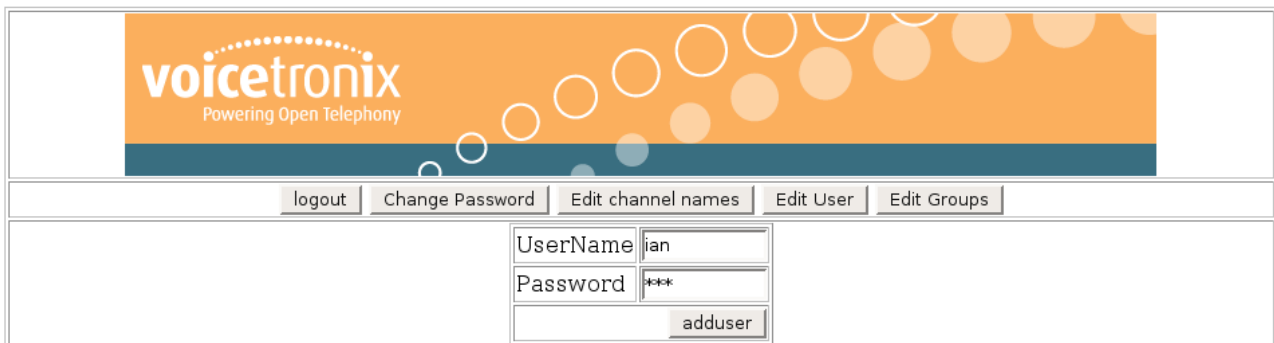
6.2 Creating Users


Create some new users :

Type a name and password.

Hit adduser

Log out.



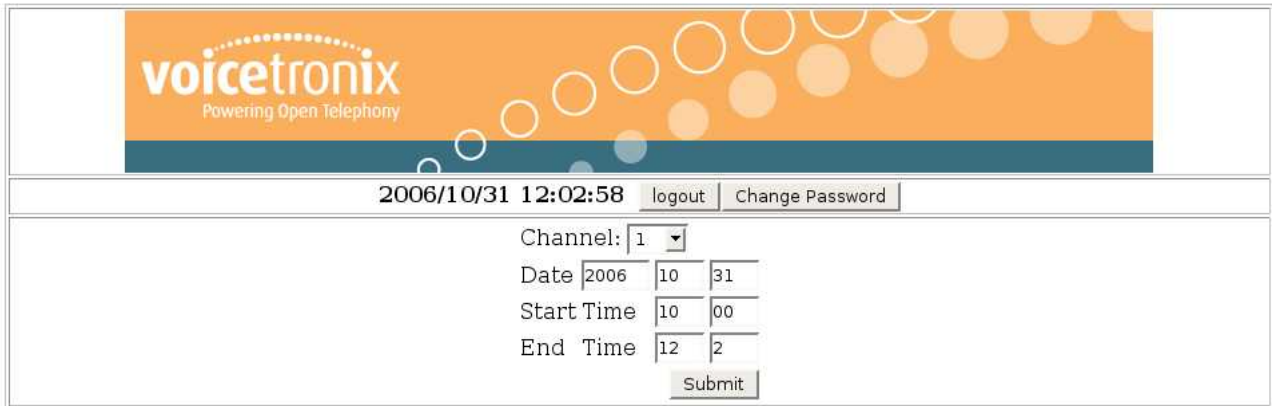
 Powering Open Telephony				
<input type="button" value="logout"/>	<input type="button" value="Change Password"/>	<input type="button" value="Edit channel names"/>	<input type="button" value="Edit User"/>	<input type="button" value="Edit Groups"/>
UserName	jan			
Password	***			
<input type="button" value="adduser"/>				

6.3 Login as a User

Login as a user e.g. Ian

Contact your IT supervisor or Voicetronix for the passwords.

You will be presented with the search interface :



The screenshot shows the Voicetronix search interface. At the top is the Voicetronix logo with the tagline "Powering Open Telephony". Below the logo is a navigation bar with the date and time "2006/10/31 12:02:58" and buttons for "logout" and "Change Password". The main search area contains a "Channel:" dropdown menu set to "1", and three date/time input fields: "Date" (2006, 10, 31), "Start Time" (10, 00), and "End Time" (12, 2). A "Submit" button is located at the bottom right of the search area.

6.4 Search for a Call Record

Set the channel number

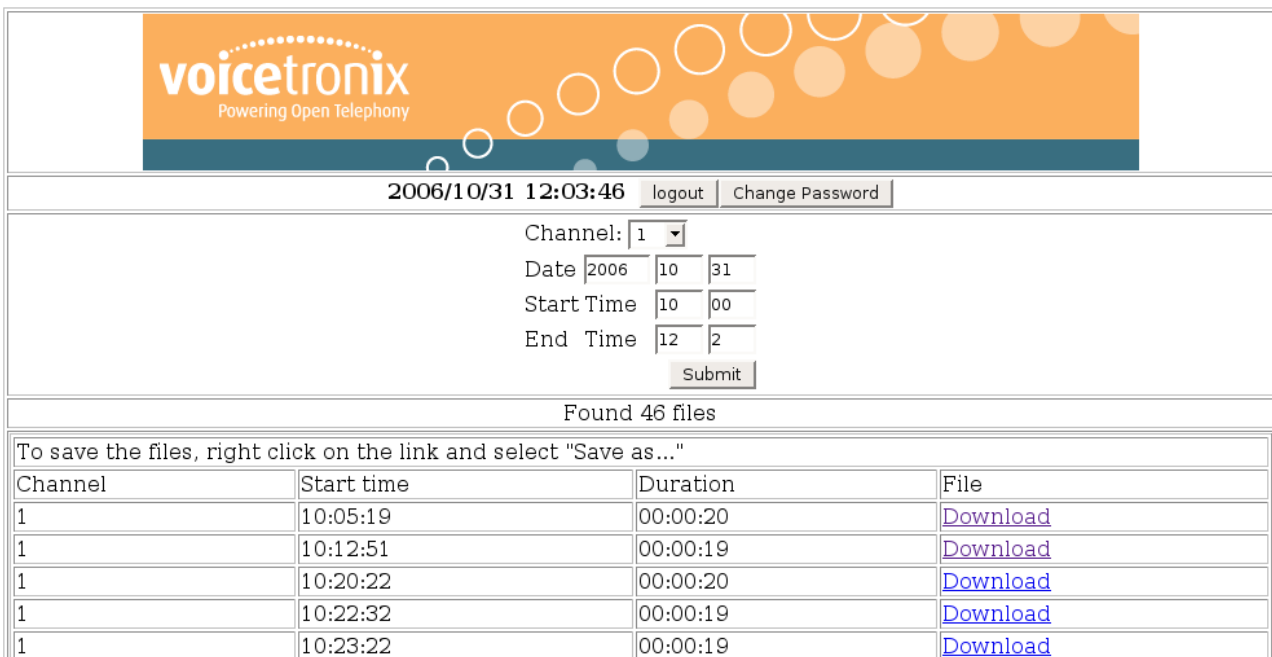
Set the from time

Set the to time.

Click submit.

Results will be displayed

Click Download to listen



The screenshot shows the Voicetronix search results interface. It features the same header and search area as the previous screenshot, but with the date and time updated to "2006/10/31 12:03:46". Below the search area, it displays "Found 46 files". A message states: "To save the files, right click on the link and select 'Save as...'", followed by a table of search results.

Channel	Start time	Duration	File
1	10:05:19	00:00:20	Download
1	10:12:51	00:00:19	Download
1	10:20:22	00:00:20	Download
1	10:22:32	00:00:19	Download
1	10:23:22	00:00:19	Download