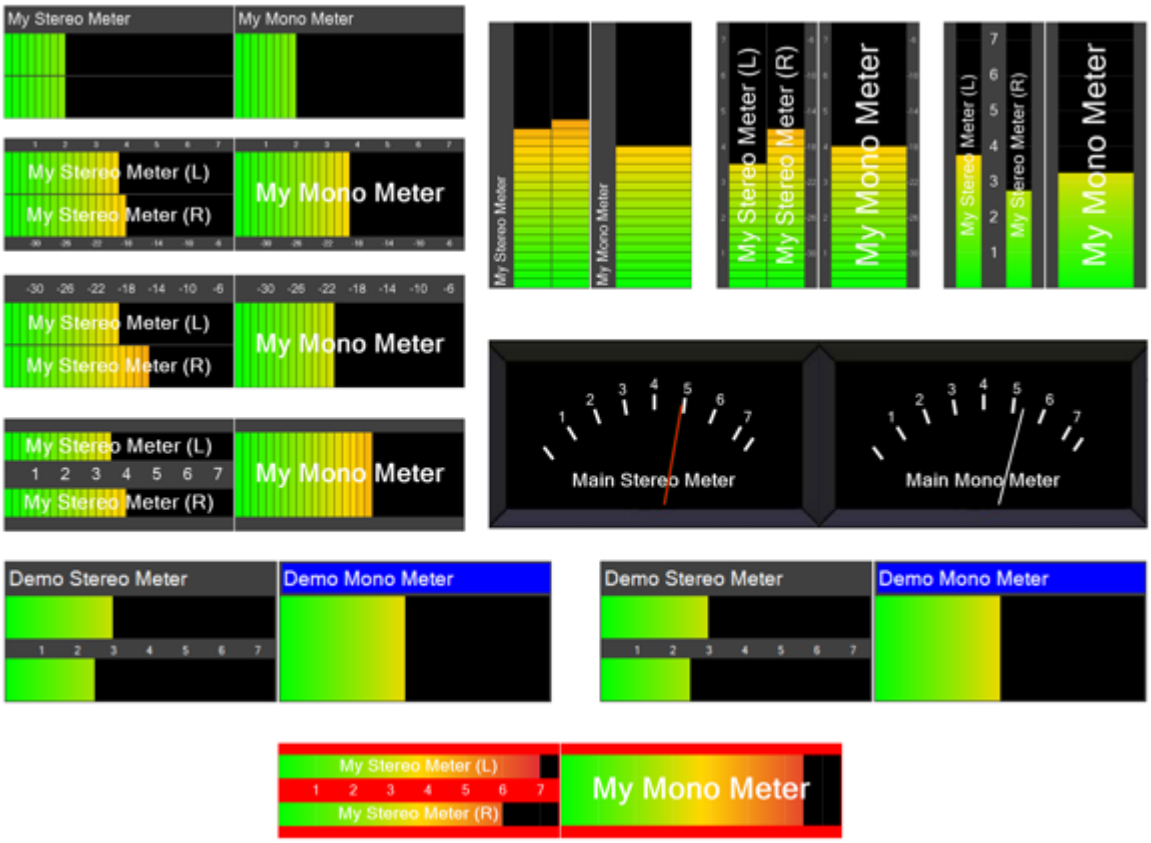
Installation and Reference Manual

v2.21



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Overview

VMeters is an audio level meter application, which can read the levels of multiple audio devices, and broadcast this level info to other copies of the application on other machines on the network.

The meters can be several styles (horizontal/vertical bar meters or a PPM style meter is coming soon), can be stereo/mono and can be resized and repositioned on-screen to suit your needs. You can specify how many meters are shown, how many per row, whether to arrange them vertically or horizontally, and whether they stay on top of other apps.

VMeters can alert you if they become disconnected from their source, or if silence is detected. It can send emails, http posts (to its sister product VClock for example), and log to a file.

System Requirements

VMeters has been tested on Windows 7 (32 and 64 bit), Windows 8 (64 bit) and Windows 10 (64 bit) but should work on any modern Windows Operating System.

It requires Microsoft DotNet v4.5.2 and Microsoft DirectX (including DirectSound – which isn't always installed even if DirectX is).

Note that VMeters V2.0 onwards will NOT support XP, as XP does not support .Net 4.5.2.

Installation

Simply run the installer and answer the few questions that it asks.

Licensing

VMeters requires a license to be a "server" (ie to read values from audio devices), but as many "client" copies (ie connecting to a "server" to acquire its level information) as you like can be run without a license.

Licensing is via a **VMETERS.LIC** file that should be saved in the \ProgramData\Voceware\VMeters folder (or subfolders of each "instance" if an "instance" name is used).

The total number of server meters are counted on the machine across all instances of VMeters. If starting an instance will take the total above the licence amount, the instance will remain unlicenced (and will notify you of the issue).

An unlicensed instance acting as a server will give a warning then run for 15 minutes before it stops reading the audio levels. Client meters will continue to work.

An alternative, at extra cost, is a hardware **Licensing Key**. The USB key will be pre-loaded with a number of server meter instances. This can be transferred between machines easily as the key contains the license information. Please email sales@voceware.co.uk for further details.

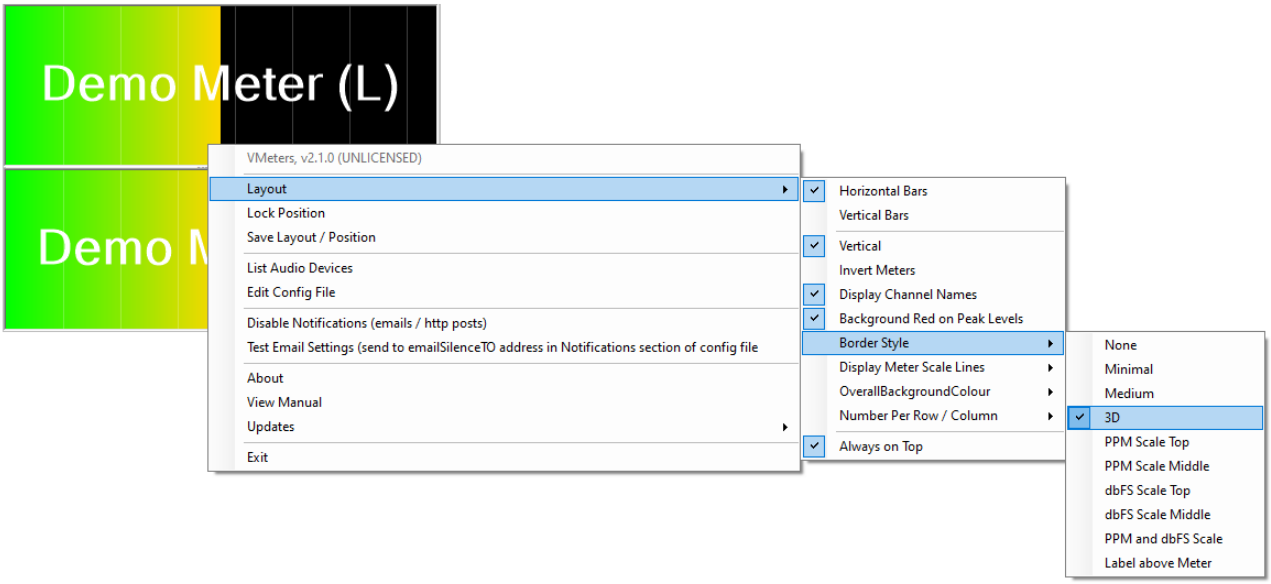
Running multiple instances of VMeters on a single PC

If you pass a single word on the commandline (or a name with spaces if you include them in quotation marks), then VMeters will create a subfolder of \ProgramData\Voceware\VMeters when it first runs, and will store the VMeters.ini file in that folder. It will also look there for the licence file.

Control of the App

Right Click Menu

Once running, you can right-click the application to get to a menu:



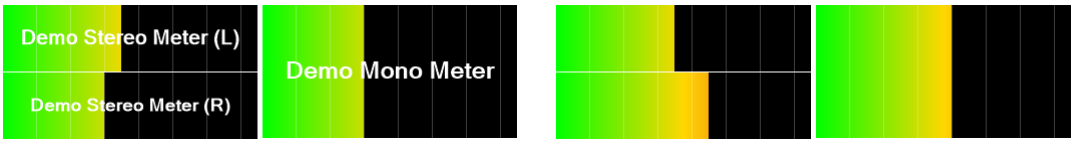
The **Layout** submenu allows you to select the style of the meters and how many meters are shown per row (or column if vertically).

Horiziontal Bars / **Vertical Bars** show levels on a bar in the selected direction. **PPM Meters** shows the levels on a needle-style PPM meter.

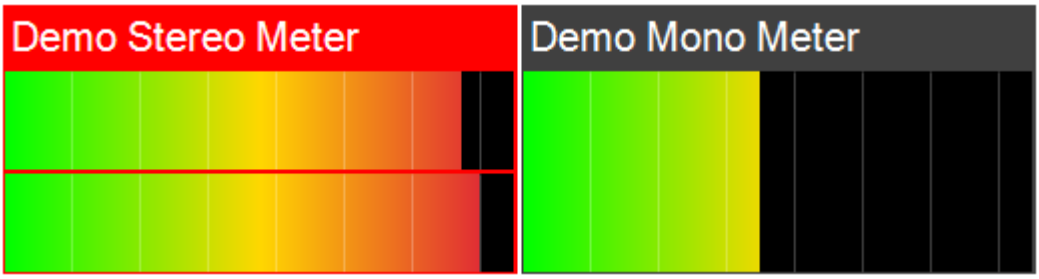
The **Vertical checkbox** selects whether to arrange the meters vertically or horizontally. **Number Per Row / Column** allows you to specify how many meters to show before starting a new row / column. Default is enabled and 10.

Invert Meter will change make the meters display right-to-left (or top-to-bottom). Default is disabled. Not relevant to PPM Meters.

Display Channel Names will display the channel name as text overlayed on the level meter. Not relevant for the "Label Above Meter" Border Style. Default is enabled.

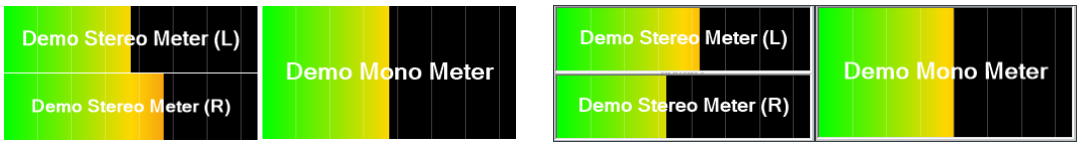


Indicate Peak will light up the grey background red when audio levels are too high (if in view – so for the scales and label above meter border styles). On the PPM Meter it will light a lamp in the top corner. Default is enabled.

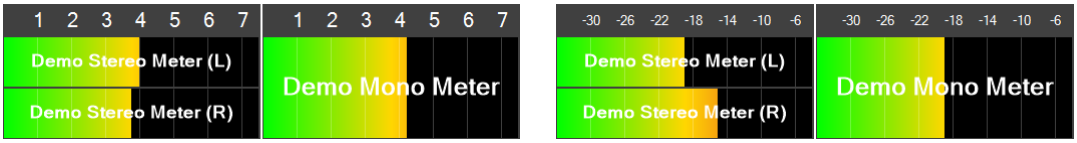


The **Border Style** menu selects between all of the different designs of the meters. Default is "3D". Not relevant to PPM Meters.

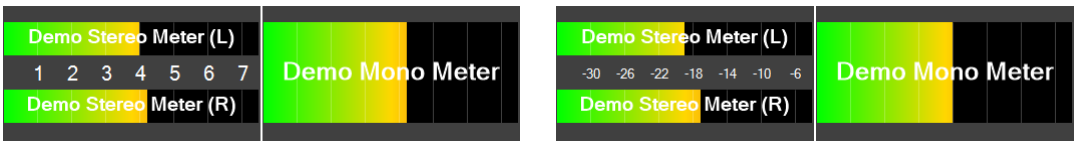
None/Minimal/Medium/3D all show meters only, no scale, and labels are displayed within the meter. Only the border varies:



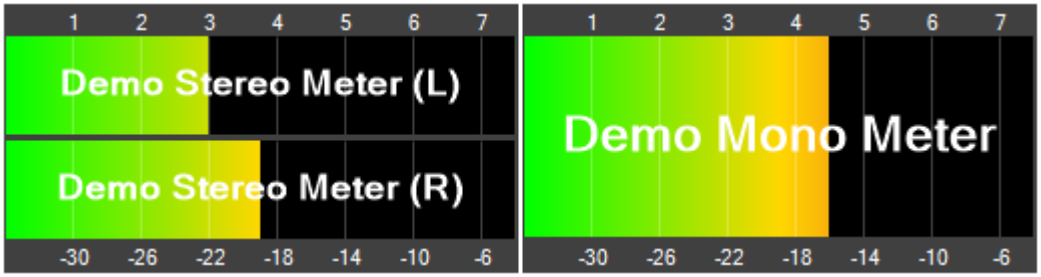
PPM Scale Top / dbFS Scale Top will show a scale on a grey background above the meter. "Top" changes to "left" when the meters are Vertical Bars.



PPM Scale Middle / dbFS Scale Middle will show the scales in between the left and right meters. Note that with a mono meter no scale will be shown.



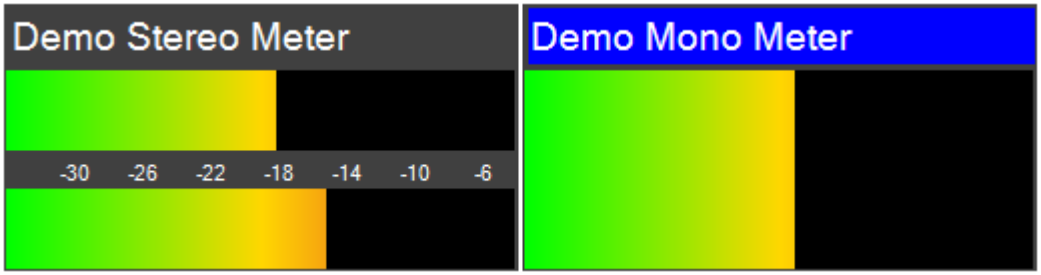
PPM and dbFS Scale will show a scale each side of the meters



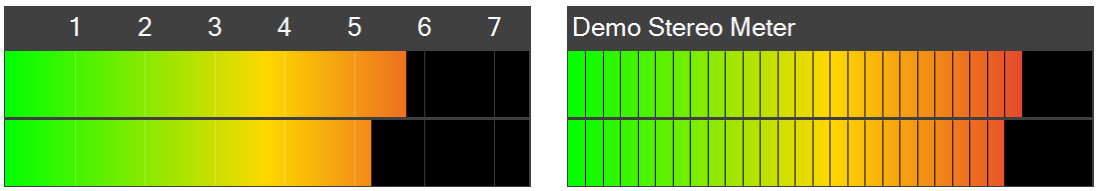
Label Above Meter will show no scale, but will instead display the name of the meter in a grey area above / to the left of the meter, and this will not be shown within the meters themselves. The right meter is also showing a "TitleColour" being set.

Label Above Meter with PPM is as above but will show a PPM scale on the stereo meter (not on the Mono meter).

Label Above Meter with dbFS is as above but will show a dbFS scale on the stereo meter (not on the Mono meter).



Display Meter Scale Lines lets you choose between PPM markings every 4db, block markings every db, or no markings. This can be used with or without actual number scales being displayed with some of the Border Styles. PPM markings is the default. Not relevant to PPM Meters.



Overall Background Colour lets you choose between a white or black background, or a transparent one. These are the small gaps between each

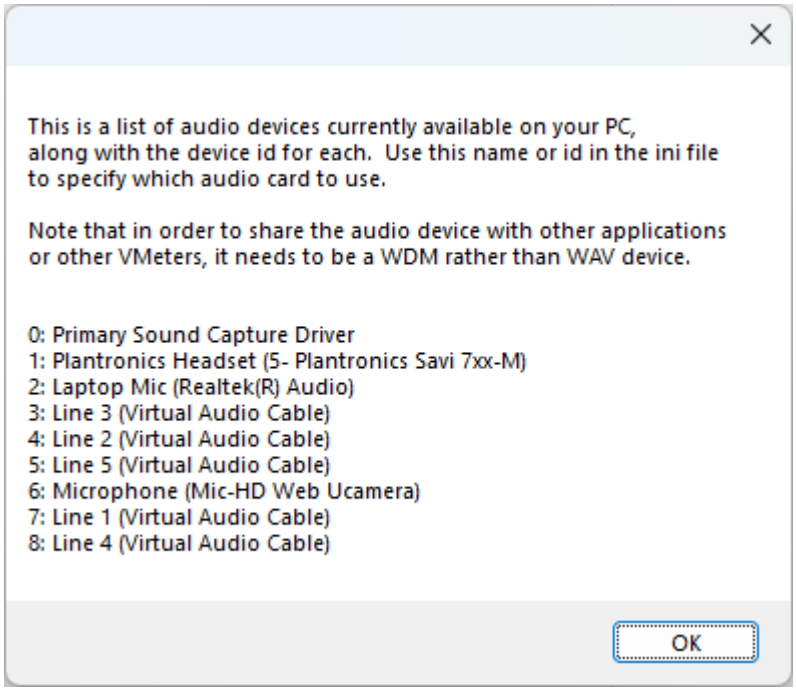
meter panel (they can be larger for the PPM Meter style as the individual PPM Meters retail their proportion). Default is transparent.

Always on Top makes the app stay on top of other applications. Default is enabled.

By default, the position of the app is locked on the screen, so it cannot be moved accidentally. To unlock, simply uncheck the **Lock Position** option. You can then drag the application around by clicking and dragging with the mouse. Hold down the CTRL key whilst dragging to resize the app.

Once you are happy with the new position and layout settings, simply right-click and choose the **Save Layout / Position** option.

To view a list of all audio devices available to VMeters on the machine, choose **List Audio Devices**. This will give a list, along with the channel id to use in the Source setting for each meter in the config file:



Vmeters uses the device names in the INI file, but for ease you can use the ID, which will be replaced by VMeters with the device name when it starts.

You can directly edit the config file (VMeters.ini) by choosing **Edit Config File**. There are extra settings here not available in the right click menus (see later).

Disable Notifications, when ticked, will stop VMeters from sending email or http post notifications when silence is detected or connections are lost. It is designed for maintenance work, etc. It is the only setting that is **not** remembered when the application is restarted.

Test Email Settings will send a test email to the SilenceTo address(es) specified in the Notifications section of the config file. Note that it won't send it to addresses set in each meter section. If it fails, it will tell you the error code returned to help diagnose the issue.

About shows a box with version information (also shown at the top of the right click menu).

View Manual opens this manual.

Updates: Manages the auto-update feature:

> **Check Now**: Checks www.voceware.co.uk immediately and informs you if there is a newer version, asking you if you wish to download and install it
>
> **Manual / Alert / Auto**: Set the mode of the automatic checking. VMeters will check www.voceware.co.uk once every 24 hours for a new version, unless set to manual. **Alert** will simply inform you and you will then have to "check now" to download it. **Auto** will download and apply the update automatically, restarting the application.

Finally, you can **exit** the application.

Other INI file Settings

VMeters is controlled by a simple text file, vMeters.ini, in \Programdata\Voceware\VMeters folder (or subfolder if an "instance" is specified). This has a **[settings]** section.

```
[Settings]
Debug=False
Position=0,0,400,300
Style=HORIZONTALBARS
Vertical=True
Inverted=False
BorderStyle=3D
BackgroundColour=TRANSPARENT
NoPerRow=10
LevelFallRate=1
AlwaysOnTop=True
ShowMeterNames=True
ShowMeterScaleLines=PPM
RedOnPeak=True
0dbReference=-18
PeakReference=-8
BackupPath=
KeepBackups=10
```

Settings control the way VMeters looks and are mainly set by the right click menu. There are a few exceptions:

Debug, if enabled, writes a debug file (to the ProgramData\Voceware\VMeters folder (or subfolder if an "instance" is specified)), containing various information.

LevelFallRate is the rate at which the meter levels fall when audio is removed. A value of 1 (the default) sets the fall rate similar to that of a PPM Meter (24db in 2.7 secs, so 0.857db every 100 mS). A value of 2 will double this rate, 3 will triple, etc.

0dbReference is the dbFS value that represents PPM 4, or 0dbu. This value is usually -18 -20 or -22. Default is -18dbFS. This adjusts the dbFS range of the meters to align the 0dbFSReference at the PPM 4 position, and adjusts the scale display appropriately.

PeakReference is the dbFS level for peak programme, usually 10db above the 0dbReference (so -8 by default). When levels hit this or above, the background will turn red, or peak lamps will illuminate, depending on the "Indicate Peak" setting on the right click menus (RedOnPeak in the ini file).

BackupPath is an optional path to a folder where VMeters will write a zip file containing the current configs. The file is written each time that VMeters is started and each time the config is saved. VMeters will keep the last *n* backups, *n* being set by the **KeepBackups** setting. If BackupPath is blank, the feature is disabled.

VMeters.ini also has information about each Meter in a **[MeterX] section** (where X increments for each meter) – missing settings can be copied in from the MeterExample section of the ini file if they are required):

```
[Meter1]
Name=Demo Meter
Source=DEMO,1
Broadcast=9001
AudioMode=STEREO
AudioOffset=0
SilenceParameters=-75,10[,30]

EmailSilenceStartSubject=VMeters - Silence detected on %NAME%
EmailSilenceEndSubject=VMeters - Audio returned on %NAME%
EmailSilenceStartExtraDetail=
EmailSilenceEndExtraDetail=
EmailSilenceTo=
EmailSilenceCc=
EmailSilenceBcc=

EmailExtendedSilenceStartSubject= VMeters – Extended Silence detected on %NAME%
EmailExtendedSilenceStartExtraDetail=
EmailExtendedSilenceTo=
EmailExtendedSilenceCc=
EmailExtendedSilenceBcc=

EmailLostConnectionStartSubject=VMeters - Lost Connection detected on %NAME%
EmailLostConnectionEndSubject=VMeters - Connection re-established on %NAME%
EmailLostConnectionStartExtraDetail=
EmailLostConnectionEndExtraDetail=
EmailLostConnectionTo=
EmailLostConnectionCc=
EmailLostConnectionBcc=

EmailPlaybackURL=
EmailPlaybackTimeFormat=

PostLocation=
PostSilenceStart=
PostExtendedSilenceStart=
PostSilenceEnd=
PostConnectionLost=
PostConnectionRestored=

FileLocation=
FileFormat=

Hidden=False

TitleColour=#FF0000  (or TitleColour=Blue)
```

Name is a user-friendly name. If **ShowMeterNames** is set to true, this name is displayed on the meter itself. It is also used in any silence emails sent.

Source can be:

AUDIOCARD,name or AUDIOCARD,n

(Connects to a local soundcard or audio driver (Axia, Wheatstone, Dante, etc).

Windows has a habit of changing the order of the audio devices when queried. Traditionally VMeters stored the index of the device, but this leads

to reading the wrong device after a reboot at times. So the device name is preferred.

At startup, VMeters will write an [Available Audio Devices] section to the INI file. This is the same list as right clicking VMeters and choosing "List Audio Devices". You can copy either the name or the number of the device to the Source entry for each meter. If you specify a number, VMeters will convert this to the device name the next time it is restarted.

CLIENT,ipaddress,port

(connects to another VMeter to read level info)

LIVEWIRE,ip,meter

(connects to a Livewire (Axia) Audio Node or Console and display levels for any of its inputs or outputs).

The *meter* value can be:

"MTR ICH *n*" (Input number *n*)
"MTR OCH *n*" (Output number *n*)

If you are not sure which input/output you are interested in, you can telnet to the Node (or Console) on port 93, then type

SRC<return> (for inputs) or
DST<return> (for outputs).

This will give you a list of the channel numbers along with a description of what they do.

PATHFINDER,ip,meter

(connects to an Axia Pathfinder PC or Pathfinder Core Meter Server)

XNodes in particular have a limit to how many connections they can support. Pathfinder can aggregate the connections and provide more connectivity.

The *IP* is the IP address of the Pathfinder machine.

The *meter* value can be:

SRC <IPofXNodeOrConsole>/SourceNumber
DST < IPofXNodeOrConsole >/DestinationNumber

For example:

SRC 192.168.1.1/8
DST 192.168.1.1/1

If you are not sure which input/output you are interested in, you can telnet to the Node (or Console) on port 93 (NOT the Pathfinder PC), then type

SRC<return> (for inputs) or
DST<return> (for outputs).

This will give you a list of the channel numbers along with a description of what they do.

***WHEATSTONE*,ip,meter**

(connects to a Wheatstone Blade and display levels for any of its inputs or outputs). The *meter* value can be:

"INPUT *n*" (Input number *n* (1-8))
"OUTPUT *n*" (Output number *n* (1-8))
"UTILITY *n*" (Utility Mixer *n* (1-4)… where
1 = Mixer 1, Output A
2 = Mixer 1, Output B
3 = Mixer 2, Output A
4 = Mixer 2, Output B

You are specifying a LEFT and RIGHT pair of meters.

***PRONTONET*,*ipaddress*,INPUT|OUTPUT**

(connects to a ProntoNet codec (using the API on port 50031))

Reads level info for the input or output level). Note that the ProntoNet only allows a single API connection, so you can only display either the input or the output level currently. And only if the API is not already in use.

TIELINE*,*ipaddress*,*port*,*user*,*password*,*meters

(connects to a TieLine codec (using a web connection) and receives level information via a web stream).

Meters are in the format c=dec0&c=dec1 (where you need to specify 2 values, the left and right meter you are interested in. Valid values are

c=dec0&c=dec1 – Input 1
c=dec2&c=dec3
c=dec4&c=dec5
c=enc0&c=enc1 … and so on up to 8

DEMO*,*n

(shows random level info, for demo purposes only. *n* is an integer value used as the seed for the random number generator).

Broadcast is the IP Port to broadcast the level information on, for other VMeters to connect to. Leave blank to disable this feature.

AudioMode is optional (default is stereo). It can be "STEREO" (show 2 meters), "MONO" (show 1 meter, an average of left and right), "MONOL" (show 1 meter, taking the LEFT audio level info), or "MONOR" (as MONOL, but take the RIGHT audio level info).

AudioOffset is again optional. By default the meters show audio in the range of -40dbFS to -12dbFS (so -22dbFS as 0dbu with the top level of -12 showing +10dbu peak level (PPM 6.5). The Offset is used to adjust if the audio card isn't lined up to this. For example applying a setting of -10 will move the range to -50dbFS to -22 dbFS. This is applied on the local meter and if the Broadcast setting is enabled, the adjusted value is sent to client VMeters. It is possible to also specify a DBOffset on a client to further adjust this level, but usually a client would be set to 0 and the adjustment would be made at the source.

SilenceParameters is where you specify the dbFS level below which silence is detected, and the duration that it has to be silent for before. Default is -75dbFS for 10 seconds. Range is -100 (ie never detect silence) to 0. Format is "<level>,<durationInSeconds>". A 3rd parameter can be passed for the Extended Silence duration. If omitted, this defaults to double the standard silence duration. The extended silence triggers a 2nd set of alerts to people who are less interested in the short silences, but want to know when something has gone badly wrong 😊

EmailSilenceTo, EmailSilenceCc and EmailSilenceBcc are comma or semi-colon separated list of email addresses to send the silence alerts to. Default is blank. Emails will only be sent if the email settings are defined under the [**Notifications**] section. It is also possible to set some global email addresses in the [**Notifications**] section, so these fields can be left blank unless you have specific people that you want to email for each meter separately.

ExtendedEmailSilenceTo, ExtendedEmailSilenceCc and ExtendedEmailSilenceBcc are the same for the 2nd set of email alerts, when the system has been silent for either double the standard silence duration, or the set value in SilenceParameters.

EmailLostConnectionTo, EmailLostConnectionCc and EmailLostConnectionBcc are similar fields for lost connection alerts.

EmailSilenceStartSubject, EmailSilenceEndSubject, EmailExtendedSilenceStartSubject, EmailLostConnectionStartSubject, and EmailLostConnectionEndSubject are the subject of the email sent for each situation (start meaning when that alert is triggered and end meaning when it is returned to a normal state). In each case, %NAME% can be used as a variable to insert the meter name, as defined in the **Name** setting. Setting this will override the global setting in the Notifications section.

EmailSilenceStartExtraDetail, EmailSilenceEndExtraDetail, EmailExtendedSilenceStartExtraDetail, EmailLostConnectionStartExtraDetail, and EmailLostConnectionEndExtraDetail are text strings that can be added to the

relevant emails when sent. They could be used to give more detail on the audio feed, for example. Setting this will override the global setting in the Notifications section.

EmailPlaybackURL is a URL that can be added to each silence period in the alert emails, to allow you to play the audio from your logging system, if that system supports it. It can replace %START% and %STOP% within the URL with the start and end time of the silence period. (it adds 5 seconds to each end so you get it going silent rather than just playing silence!). There is no global EmailPlaybackURL in the Notifications section. Each meter needs its own, as each station will have a different URL.

The entry can contain HTML, so an example setting would be:

EmailPlaybackURL=<A HREF="https://voceware.co.uk/get_media.cgi;format=mpeg32_mono;channel_id=1;start_timestamp=%START%;end_timestamp=%END%;source=vmeters">Download</A>

The resulting email alerts would look something like:

From: Chris's Mic Silence Detector (VMeters) <chrislogger@voceware.co.uk>
Sent: 07 July 2020 12:41
To: chris@voceware.co.uk
Subject: VMeters - Audio returned on Chris's Mic
Importance: High

VMeters - Audio returned on Chris's Mic.
Silence started at: 07/07/2020 12:41:10
Audio returned at: 07/07/2020 12:41:17
Total Outage: 6 seconds
Download

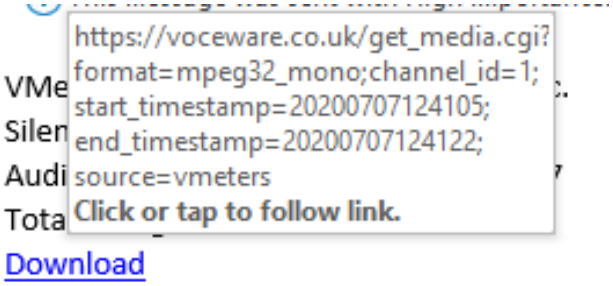
==========
Previous alerts since Midnight this morning:

Silence from 07/07/2020 12:41:07 to 07/07/2020 12:41:10, Total Outage: 3 seconds
Download

Silence from 07/07/2020 12:40:52 to 07/07/2020 12:40:55, Total Outage: 3 seconds
Download

--
Sent from LOGGER at 07/07/2020 12:41:17

The download links would look like:



EmailPlaybackTimeFormat is the format which %START% and %STOP% will be replaced with. The default is "yyyyMMddHHmmss". It uses standard time formatting variables. There is a global EmailPlaybackTimeFormat in the Notifications section, which VMeters will use if the individual meters sections do not contain this setting. The meters section overrides the Notifications section.

PostLocation is the URL to do a HTTP Post to in the event of silence or lost connection alerts. It is possible to set this in the **[Notifications]** section as a global setting as well as each [MeterX] section. Each can have multiple addresses separated by the pipe (|) symbol. The location(s) for the meter with silence, plus the global location(s) will all get posted to.

PostSilenceStart and **PostSilenceEnd** are the data of what is posted on silence (ie the part after the "?"), **PostExtendedSilenceStart** is for the extended silence, and **PostConnectionLost** and **PostConnectionRestored** are what is posted when connection is lost to a master VMeter / Livewire / Wheatstone port.

FileLocation allows you to specify a file to write log entries to. Setting this under each Meter overrides the settings in the Notifications section (see below). The FileLocation can contain variables to specify the filename, for example:

FileLocation=C:\LOGS\%year-%month.LOG

FileFormat specifies what to actually write in the file. Again this uses variables. For example:

FileFormat= %day/%month/%year %hour:%min:%sec:\t%METER\t%CHANNEL\t%STATE\t%DURATION

\t means tab, so the above file would open nicely in Excel.

Hidden allows you to hide this particular meter. All other aspects will function as normal (reading the levels, broadcasting to other meters, silence detection/notification and so on). Default is False.

TitleColour sets the background colour of the title area for Border Styles that contain a Title area. It can be in the format #FF0000 (#RGB), or a standard colour name.

The **[Notifications] section** defines the server properties to use whenever sending emails:

```
[Notifications]
FromName=%CHANNELNAME% Silence Detector (VMeters)
FromAddress=user@gmail.com
SMTPServer=smtp.gmail.com
SMTPUser=user@gmail.com
SMTPPassword=MyPassword
SMTPTimeout=20
TLSPort=587

EmailSilenceStartSubject=VMeters - Silence detected on %NAME%
EmailSilenceEndSubject=VMeters - Audio returned on %NAME%
EmailSilenceStartExtraDetail=
EmailSilenceEndExtraDetail=
EmailSilenceTo=
EmailSilenceCc=
```

```
EmailSilenceBcc=

EmailExtendedSilenceStartSubject=VMeters - Extended Silence detected on %NAME%
EmailExtendedSilenceStartExtraDetail=
EmailExtendedSilenceTo=
EmailExtendedSilenceCc=
EmailExtendedSilenceBcc=

EmailLostConnectionStartSubject=VMeters - Lost Connection detected on %NAME%
EmailLostConnectionEndSubject=VMeters - Connection re-established on %NAME%
EmailLostConnectionStartExtraDetail=
EmailLostConnectionEndExtraDetail=
EmailLostConnectionTo=
EmailLostConnectionCc=
EmailLostConnectionBcc=

EmailPlaybackTimeFormat=yyyyMMddHHmmss

PostLocation=

FileLocation=
FileFormat=%day/%month/%year %hour:%min:%sec\t%METER\t%CHANNEL\t%STATE\t%DURATION
```

FromName is the "pretty" name shown in most email clients. **%CHANNELNAME%** will be replaced with the name of the meter as defined in the **[MeterX]** section. **FromAddress** is the actual email address it is sent from. Note that with some servers (Gmail for example) this must match the user you are logging in as.

SMTPServer specifies the Server to use

SMTPUser and **SMTPPassword** are used to authenticate to the Server if required. Leave blank if not.

SMTPTimeout is how long to wait before giving up sending the email. Default 20 seconds is usually enough.

TLSPort is used mainly for Gmail (set it to 587 for Gmail). Leave as 0 to use standard SMTP Server.

EmailSilenceTo, EmailSilenceCc and EmailSilenceBcc are comma or semi-colon lists of global email recipients if silence occurs.

EmailExtendedSilenceTo, EmailExtendedSilenceCc and EmailExtendedSilenceBcc are the email recipients when an extended silence alert is triggered.

EmailLostConnectionTo/Cc/Bcc are the email recipients when a client loses its connection / re-establishes its connection with its server.

EmailSilenceStartSubject, EmailSilenceEndSubject, EmailExtendedSilenceStartSubject, EmailLostConnectionStartSubject, and EmailLostConnectionEndSubject are the subject of the email sent for each situation (start meaning when that alert is triggered and end meaning when it is returned to a normal state). In each case, %NAME% can be used as a variable to insert the meter name, as defined in the **Name** setting. This can be overridden in the Meters section for each meter.

EmailSilenceStartExtraDetail, EmailSilenceEndExtraDetail, EmailExtendedSilenceStartExtraDetail, EmailLostConnectionStartExtraDetail, and EmailLostConnectionEndExtraDetail are text strings that can be added to the relevant emails when sent. This can be overridden in the Meters section for each meter.

EmailPlaybackTimeFormat is the format which %START% and %STOP% will be replaced with in the EmailPlaybackURL in the Meters section. The default is "yyyyMMddHHmmss". It uses standard time formatting variables. The meters section overrides the Notifications section if the setting exists.

PostLocation is a global setting for the http server to post to on silence/connection loss of any meters. It can be a list of several locations separated by the pipe (|) symbol. The **[MeterX] PostLocation** for the meter with silence will also be posted to if set.

FileLocation allows you to globally specify a file to write log entries to. Setting this under each Meter section (see above) overrides the settings in this Notifications section. The FileLocation can contain variables to specify the filename, for example:
FileLocation=C:\LOGS\%year-%month.LOG

FileFormat specifies what to actually write in the file. Again this uses variables. For example:

FileFormat= %day/%month/%year %hour:%min:%sec:\t%METER\t%CHANNEL\t%STATE\t%DURATION

\t means tab, so the above file would open nicely in Excel.