



HOWLER TECHNOLOGIES

HOWLER SCREAMER v1.2.1

RELEASE AND INSTALLATION NOTES

TABLE OF CONTENTS

1.	Introduction	1
2.	Howler Product Architecture	2
2.1	Howlets.....	2
2.2	Howler FrameServer.....	2
2.3	Howler Integration Modules.....	2
3.	Release Notes	3
3.1	Download latest version of Howlets.....	3
3.1.1	<i>Supported operating systems</i>	3
3.1.2	<i>Supported softswitch versions</i>	3
3.2	Check SELINUX setting.....	4
3.3	Enable real-time priority threads.....	4
3.4	Helpdesk registration.....	4
4.	Software Installation	5
4.1	Unpack downloaded software.....	5
4.2	Install Howler Screamer Linux Kernel Module.....	5
4.3	Install Howler FrameServer.....	5
4.4	Install Howlet Integration module.....	6
4.5	Configure your Softswitch.....	6
4.5.1	<i>Asterisk</i>	6
4.5.2	<i>FreeSWITCH</i>	7
4.6	Install Howler Screamer.....	7
5.	Hardware Installation	8
6.	Licence Activation	9
6.1	Obtaining software license keys.....	9
6.2	Live license install.....	9
6.3	Trial license install.....	10
6.4	Upgrade from Trial to Live license.....	10
7.	Howler Technologies Overview	11
8.	Appendix A – Supported CLI Commands	12

1. INTRODUCTION

This document contains the Release and Installation Notes for Release 1.2.1 of the Howler Screamer. This release contains the following codecs:

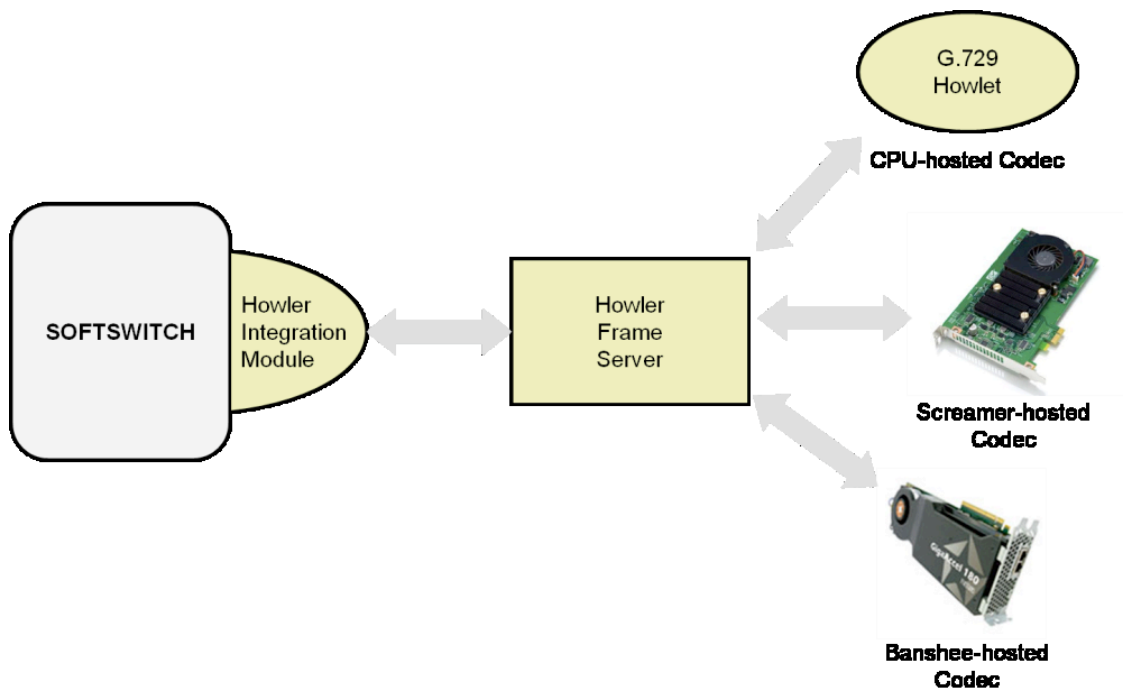
- Howler G.729A Howlet - optimised G.729 Annex A codec

The Howler Screamer is a PCI-E format accelerator card that offloads the CPU intensive operations associated with audio and video transcoding from the main board CPU to a highly optimised cell processor architecture. For full details of which softswitches are supported in this release see section 3.1.2.

Any feedback (good and bad) relating to our products is gratefully received by us. To ensure the quickest possible response please feedback via our on-line Helpdesk. If you are a new user, please register for the Helpdesk and verify yourself as per the instructions in section 3.3. If you are a returning user, log in at <http://support.howlertech.com/login>.

Further details about Howler Technologies' products can be found at <http://www.howlertech.com/>

2. HOWLER PRODUCT ARCHITECTURE



2.1 HOWLETS

'Howlets' refer to the optimised suite of audio and video codecs produced by Howler Technologies, which can run either on your host CPU, or on the Howler Screamer card.

2.2 HOWLER FRAME SERVER

The Howler FrameServer is a separate process which runs on your server and contains the proprietary and patent-indemnified Howlet algorithms, as well as providing support for the Howler Screamer card that off-loads the signal processing from your host CPU.

2.3 HOWLER INTEGRATION MODULES

Howler Integration Modules enable codec and CLI support for the Howler FrameServer in your chosen softswitch or application.

3. RELEASE NOTES

This section contains the pre-installation requisites which must be auctioned BEFORE starting the Howler Screamer installation as described in section 5. There are three steps to carry put:

1. Download the latest version of the Howlets software
2. Check SELINUX settings
3. Register with the Howler Technologies Helpdesk

These steps are detailed below.

3.1 DOWNLOAD LATEST VERSION OF HOWLETS

Please make sure you have the latest Howlets release before starting the installation process. The latest release is available for download at:

<http://www.howlertech.com/support/downloads/>

Supported softswitch vendors/versions are listed below. If you install Howlets on an unsupported platform, you do so entirely at your own risk.

3.1.1 SUPPORTED OPERATING SYSTEMS

This release of the Howler Screamer supports the following Linux distributions:

Distribution	Version	32-bit support?	64-bit support?
RedHat Linux	5	YES	NO
CentOS5 Linux	5.2 or above	YES	NO

The Howler Screamer has not been tested on any versions other than those listed above.

3.1.2 SUPPORTED SOFTSWITCH VERSIONS

Different softswitches are supported via a Howler Integration Module (HIM). This release supports the following softswitch versions:

Vendor	Version	32-bit available?	64-bit available?	Source code patches?
Asterisk	1.4.26.2	YES	NO	YES
Asterisk	1.6.0.15	YES	NO	YES
Asterisk	1.6.1.6	YES	NO	YES
FreeSWITCH	1.0.4	YES	NO	YES

You must have already installed and configured one of the above softswitch versions prior to installing any Howlets. Additional vendor softswitches may be supported based on customer feedback and demand.

3.2 CHECK SELINUX SETTING

Please check that SELINUX is set to 'disabled' before starting the installation process. Edit the file `/etc/selinux/config` and ensure that it contains the line:

```
SELINUX=disabled
```

3.3 ENABLE REAL-TIME PRIORITY THREADS

To fully optimise G.729 transcoding performance make the following additions (shown in red) to `/etc/security/limits.conf`. Replace 'USER_ACC' with the name of the user account you run your softswitch as:

```
USER_ACC soft rtprio 10
USER_ACC hard rtprio 10
root soft rtprio 100
root hard rtprio 100
```

3.4 HELPDESK REGISTRATION

Howler Technologies has an online Helpdesk system that allows you to log and track requests relating to problems, incidents and questions. If you use the Helpdesk to contact us you will receive priority over all other communication channels. All we need is your name and email address, it only takes a minute to register at:

<http://support.howlertech.com/registration>

Please use your organisational (rather than your personal) email address so we can track all requests that come from individuals in your organisation. This also means you have visibility of all requests your colleagues have logged. You will receive a verification email that contains a link to activate your Helpdesk login. Please click on it to activate your account.

Your privacy is important to us. Your details are used ONLY for Helpdesk related activities. For full details please read our privacy policy at <http://www.howlertech.com/privacy/>.

4. SOFTWARE INSTALLATION

This section describes how to install and configure Howlets for your specific softswitch. There are five steps in the procedure:

1. Unpack the downloaded Howler software
2. Install the Howler Screamer Linux Kernel Module
3. Install the Howler FrameServer
4. Install the appropriate Howlet Integration Module for your softswitch
5. Activate your licence

These steps are detailed below.

4.1 UNPACK DOWNLOADED SOFTWARE

Unpack the downloaded `hfs-1.2.1.tar.gz` file and `cd` into the build directory using the following commands:

```
$ cd /tmp
$ tar xvzf hfs-1.2.1.tar.gz
$ cd hfs-1.2.1
```

4.2 INSTALL HOWLER SCREAMER LINUX KERNEL MODULE

Prior to building this module you will need to install at least minimal Linux kernel source (e.g. the kernel-devel package) in order to build the Howler Screamer module against your current kernel.

```
# yum install kernel-devel
```

Once installed, compile and install the Howler Screamer against your current Linux kernel by issuing:

```
# make screamer KDIR=path to kernel headers/source
```

Example:

```
# make screamer KDIR=/usr/src/kernels/2.6.18-164.6.1.el5-i686.
```

4.3 INSTALL HOWLER FRAMESERVER

Build and install the Howler FrameServer via the following command:

```
# make hfs
```

The Howler FrameServer will be installed in `/usr/local/sbin/hfs` and the start-up entry is added to the appropriate `/etc/init.d/rc.d` directories so that it starts automatically at boot-time. It stores its configuration files in `/usr/local/lib/hfs/` and a log file in `/var/log/hfs.log`.

4.4 INSTALL HOWLET INTEGRATION MODULE

Before running the appropriate Howlet Integration Module `make` command check to see if your Asterisk or FreeSWITCH installation is deployed in a non-default location. If it is, you need to set the environment variable `AST_MOD` or `FS_MOD` respectively to point directly to the module path before running the `make` command. You need to install the specific Howlet Integration Module for your chosen softswitch by issuing ONE of the following `make` commands:

Vendor	Version	Command
Asterisk	1.4.26.2	<code>make asterisk-1.4.26.2</code>
Asterisk	1.6.0.15	<code>make asterisk-1.6.0.15</code>
Asterisk	1.6.1.6	<code>make asterisk-1.6.1.6</code>
FreeSWITCH	1.0.4	<code>make freeswitch-1.0.4</code>

These are the ONLY softswitch vendor/version combinations supported in this release. Please note: if your particular softswitch version is not listed above, try installing the closest match. We cannot guarantee that this will work in all instances and it will not be officially supported, but we will try and get you up and running. Please log any problems via the Helpdesk as described in section 3.3. Our open source modules will be available in Q4 2009, these allow you to build Howlets directly against your softswitch source.

4.5 CONFIGURE YOUR SOFTSWITCH

To allow your softswitch to accept G.729 calls, you must configure it to do so. The sections below will show you how to do this, with the relevant modifications shown in red.

4.5.1 ASTERISK

Asterisk users must edit `/etc/asterisk/sip.conf`:

```
[general]
...
disallow=all
allow=g729
allow=ulaw
allow=alaw
```

You must also disable any existing non-Howlet G729 codec modules by editing

`/etc/asterisk/modules.conf`:

```
[modules]
...
```

```
noload => codec_g729.so
```

4.5.2 FREESWITCH

FreeSWITCH users must edit `/usr/local/freeswitch/conf/vars.xml`:

```
<X-PRE-PROCESS cmd="set"  
data="global_codec_prefs=G729,G7221@32000h,G7221@16000h,G722,PCMU,PCMA,GSM"/>
```

```
<X-PRE-PROCESS cmd="set"  
data="outbound_codec_prefs=G729,PCMU,PCMA,GSM"/>
```

You must also disable the existing `mod_g729` by editing

`/usr/local/freeswitch/conf/autoload_configs/modules.conf.xml` and making the following changes:

```
<!-- <load module="mod_g729"> -->  
<load module="mod_howlets">
```

4.6 INSTALL HOWLER SCREAMER

You can now shutdown the server in preparation for installing the Howler Screamer card.

5. HARDWARE INSTALLATION

The Howler Screamer box includes the following components:

- 1x Howler Screamer card (requires 1x PCI-Express 1.0a/1.1 slot)
- 1x Molex to floppy power adapter lead
- 1x low profile bracket (optional)

To install the card carry out the following instructions:

1. Shut down the server, unplug all cables and electrical cords and open the chassis cover
2. Locate an available PCI-Express x1 slot (blue/black) and remove the blanking plate on the rear panel
3. If you are installing the card in a half-height low profile slot, use a screwdriver to carefully swap the attached Full Profile bracket for the included Low profile bracket
4. Position the Howler Screamer card over the PCI-E slot
5. Insert the card bus connector into the slot, and gently push down until it is fully seated. Use the screw removed from the blanking plate to fasten the card to the chassis
WARNING: Inserting the Screamer card into the wrong type of slot can damage your card, your server, or both. The card will not need to be forced into the slot. If in doubt, please contact Howler Support.
6. Connect a floppy power cable to the mini 4-pin power connector on the rear of the card (a Molex-to-Floppy adapter is included for your convenience)
7. Close the chassis, plug in all cables and power cords and turn on the server

Once the server has powered up and your softswitch is operational proceed to section 6 to license the Howlets software.

6. LICENCE ACTIVATION

Howlets can run in 'Trial' or 'Live' modes. In Trial mode you can evaluate the Howlets in two different modes: 'Quality' or 'Performance'. In Live mode, you need a software key to activate the software for the number of channels you have purchased.

6.1 OBTAINING SOFTWARE LICENSE KEYS

You can purchase Howlet software licenses at:

<http://www.howlertech.com/products/howlets/pricing/>

Licenses are available in both fixed and floating versions. A fixed license is bound to a specified single softswitch server. A floating license is shared across several connected softswitch servers and utilised as needed according to the individual softswitch server transcoding channel requirements. Please see the website for more information on licensing options.

6.2 LIVE LICENSE INSTALL

If you have purchased a Live licence, you need to add the licence to the Howler FrameServer. Login to your softswitch console and enter the following command to activate your license key:

```
$$> howlets add license <license key>
```

To confirm the licenses have installed correctly type the following command:

```
$$> howlets licenses
```

The following information will be displayed:

```
The following licenses are installed:
ID                               Max      Expires      Status
014 (Standalone)                 2        (Perpetual)  Active
XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX
Maximum number of available calls(G729):      2
Total number of active calls(G729):           0
Number of available calls(G729):              2
```

6.3 TRIAL LICENSE INSTALL

Howler Technologies allow you to trial the various components of the Howlet Pack prior to purchasing a Live license. Some components offer different trial modes; please review the list below. We acknowledge that customers want to assess both quality and performance of our Howlets. To allow for this the G.729A component can run in one of two trial modes with the following constraints:

Quality mode:

- Call Concurrency: 1
- Call Quality: Excellent
- Maximum Call Length: 2 minutes

Performance mode:

- Call Concurrency: Unlimited
- Call Quality: Low
- Maximum Call Length: 2 minutes

Log in to your softswitch console and enter **ONE** of the following commands to activate the required trial mode:

To evaluate Quality mode:

```
$$> howlets g729a trial quality  
WARNING: G.729A Howlet is in 'quality' trial mode. One  
concurrent call allowed at maximum quality, call duration  
limited to 2 minutes.
```

OR to evaluate Performance mode:

```
$$> howlets g729a trial performance  
WARNING: G.729A Howlet is in 'performance' trial mode. Call  
quality will be artificially lowered. This is not  
indicative of fully licensed call quality. Call duration  
limited to 2 minutes.
```

6.4 UPGRADE FROM TRIAL TO LIVE LICENSE

If you want to upgrade to a Live license you need to disable the trial mode first:

```
$$> howlets g729a trial disable  
G.729A Howlet is no longer in trial mode.
```

You then need to install your Live License as described in section 6.2.

7. HOWLER TECHNOLOGIES OVERVIEW

Howler Technologies has an innovative range of products designed to meet the ever increasing audio and video transcoding demands of end users and Internet Telephony Service Providers.

Headquartered in London, Howler Technologies was founded with one guiding principle in mind: "make it faster, cheaper, better". We strongly believe that IP-based telecommunications solutions make redundant many of the hardware and software based products currently sold by legacy gateway vendors. Racks of power-hungry, air-conditioning-dependent, Intel-based DSP servers are fast becoming obsolete in 21st Century communications solutions.

Highly-optimised, software-based transcoding solutions, running on a parallel-processing platform, require less space, power and cooling, whilst at the same time providing more simultaneous channels. That is what our product set is all about!

Howler Technologies is the first company to leverage the IBM Cell Broadband Engine Architecture (CBEA) for telecommunications applications. The Cell is a radical, parallel-processing microprocessor sometimes called "the supercomputer on a chip". It has a market-proven track record, being a key element in Sony's PS3 gaming platform and IBM's RoadRunner, the world's fastest supercomputer.

Our products provide a high-speed, low-cost platform for compute-intensive media processing such as transcoding, encryption and signal analysis. The affordability and dramatic scalability of the Cell allows us to deliver packet-processing solutions in different form factors for both large and small deployments, replacing the multiple blades needed to host traditional DSP-based solutions.

Howler Screamer is the first product in our Cell range and will be joined by the higher capacity 1U Howler Banshee and 6U Howler Caraya in 2010.

8. APPENDIX A – SUPPORTED CLI COMMANDS

Howlets support the following commands which can be entered via your softswitch command line interface (CLI):

```
> howlets add license <key>
```

Permanently adds the license <key> to the connected HFS instance.

```
> howlets remove license <key>
```

Permanently removes the license <key> from the connected HFS instance.

```
> howlets licenses
```

Shows the status of all installed license keys in the connected HFS instance.

```
> howlets g729a trial performance
```

```
> howlets g729a trial quality
```

```
> howlets g729a trial disable
```

Configures the connected HFS instance into the required trial mode. Please see section 6.3 for more information.

```
> howlets version
```

Displays the current version of the installed Howler Integration Module and connected Howler FrameServer.

```
> howlets help
```

```
> help howlets
```

Syntax softswitch dependent. Displays a list of supported commands.