

Haivision

Furnace™

IP Video System

Software-Only Installation Guide v6.6

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Issue 01

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Table of Contents

About This Guide	5
About Haivision.....	6
Audience	6
Reliability of Information	6
Obtaining Documentation.....	6
Related Documents	7
Service Support.....	7
Document Conventions.....	7
Chapter 1: Installing the Software-Only Module	9
Installation Overview.....	10
Local Administrator Roles	10
Furnace Features Not Available.....	10
Hardware Requirements	11
Software License	11
System Install and Pre-Configuration.....	13
Optional: Create “hvroot” User.....	14
Software-Only Installation (License Server).....	15
Furnace Installation – Phase 1	15
OpenLDAP Setup	18
Furnace Installation – Phase 2	23
Post-Installation Setup	25
Preparing Furnace Cron Jobs	25
Furnace Installation (Non-License Server).....	26
Appendix A: Software-Only Libraries and Troubleshooting	27
Required Packages for CentOS and RHEL	28
Troubleshooting the Software-Only Installation	30
Verify Running Processes	30
Verify Installed Packages	32
Verify Installation Failures	33
Verify OS Settings	33
Verify Hardware Resources	33
Postgres Service	34

Appendix B: Warranty Information	35
Software End User License Agreement.....	35
READ BEFORE USING	35

About This Guide

Welcome to the Software-Only Installation Guide for Haivision’s Furnace™, Version 6.6. This guide describes how to install and license the Furnace Software-Only module on your system.

Topics In This Section

About Haivision	6
Audience	6
Reliability of Information	6
Obtaining Documentation	6
Related Documents	7
Service Support	7
Document Conventions	7

About Haivision

Haivision Network Video is a global leader in delivering advanced video networking, digital signage, and IP video distribution solutions. Haivision offers complete end-to-end technology for video, graphics, and metadata to help customers to build, manage, and distribute their media content to users throughout an organization or across the Internet. Haivision has specific expertise in the enterprise, education, medical/healthcare, and federal/military markets.

Haivision is based in Montreal and Chicago, with technical centers in Beaverton, Oregon; Austin, Texas; and Hamburg, Germany.

Audience

This guide is directed towards qualified service personnel such as technicians and network system administrators who have a basic knowledge of telecommunications equipment, and IP and LAN concepts and terminology.

Reliability of Information

The information contained in this Installation Guide has been carefully checked and is believed to be entirely reliable. However, as Haivision Network Video improves the reliability, function, and design of its products, the possibility exists that this Installation Guide may not remain current.

If you require updated information, or any other Haivision product information, contact:

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Or visit our website at: <http://www.haivision.com>

Obtaining Documentation

You may download the latest software, Release Notes, Quick Start Guide, and other relevant documentation from our Download Center at:

<http://www.haivision.com/download-center/>



NOTE All customers may access the Download Center; however, a login is required. If you do not have a login, select the link to create an account.

Related Documents

In addition to this Installation Guide, the following documents are also available through Haivision's Download Center (see link above):

- Furnace Administration Guide
- Furnace Quick Start Guide
- Furnace API Integrator's Guide
- Furnace Data Ports and Security Policy
- Mantaray Administrator's Guide
- Stingray User's Guide
- Makito X User's Guide
- Makito X Decoder User's Guide

Service Support

Haivision Network Video is committed to providing the service support and training needed to install, manage, and maintain your Haivision equipment.

For more information regarding service programs, training courses, or for assistance with your support requirements, contact Haivision Technical Support via our Support Portal on our website at: <http://www.haivision.com/support/>

Document Conventions

The following document conventions are used throughout this Installation Guide.



TIP The light bulb symbol highlights suggestions or helpful hints.



NOTE Indicates a note, containing special instructions or information that may apply only in special cases.



IMPORTANT Indicates an emphasized note. It provides information that you should be particularly aware of in order to complete a task and that should not be disregarded. IMPORTANT is typically used to prevent loss of data.



CAUTION Indicates a potentially hazardous situation which, if not avoided, may result in damage to data or equipment, or minor to moderate injury. It may also be used to alert against unsafe practices.

CHAPTER 1: Installing the Software-Only Module

This chapter provides the information required to install and license the Furnace Software-Only module on your system.

For a list of the required libraries as well as troubleshooting the installation, see [Appendix A: “Software-Only Libraries and Troubleshooting”](#).

Topics In This Chapter

Installation Overview	10
Local Administrator Roles	10
Furnace Features Not Available	10
Hardware Requirements	11
Software License	11
System Install and Pre-Configuration	13
Software-Only Installation (License Server)	15
Furnace Installation – Phase 1	15
OpenLDAP Setup	18
Furnace Installation – Phase 2	23
Post-Installation Setup	25
Preparing Furnace Cron Jobs	25
Furnace Installation (Non-License Server)	26

Installation Overview

The Furnace is available either as an Appliance or as a Software-Only product.

- With the Appliance, customers will continue to receive a turn-key Haivision Furnace appliance.
- With the Software-Only product, administrators will receive an installation file with a list of dependencies and instructions for installing the software on a customer-supplied server running 64-bit CentOS v6.x or Red Hat Enterprise Linux (RHEL) v6x.

Local Administrator Roles

The local administrator is responsible for all operating system configuration, updates and security. Haivision will provide a package to install the Furnace software on their system; however, the Furnace will only be software running on a machine which the client maintains. When new releases of the Furnace are made available, local administrators will need to install the package provided by Haivision in order to apply the update.

Administrators are responsible for system user accounts, system security, operating system updates and patches, and all other aspects of the operating system. This includes any kind of firewall/access restriction to the device.

Furnace Features Not Available

Some Furnace features are not available on the Software-Only Furnace:

- Updates for the software version are not available via the Furnace Web Interface. Administrators will need to download and install the Furnace update.
- Network settings are not configurable via the Furnace Web Interface.
- The Console UI is not available.
- Administrators are not able to change or update any portion of the operating system through the Furnace Web Interface.

Hardware Requirements

The recommended hardware platforms for the Software-Only version of the Furnace are as follows:

Server Type	Requirements
Portal and General Purpose Server	Dual x Quad Core 2.4 GHz Intel or better processors
	12 GB RAM
	250 GB hard drive or larger
Media Server (VOD)	Dual x Quad Core 2.4 GHz Intel or better processors
	12 GB RAM
	6 x SAS drives (7200RPM or better) - RAID 5 configuration 250 GB storage or more
NVR-C Server (NVR-C)	Dual x Quad Core 2.4 GHz Intel or better processors
	12 GB RAM
	12 x SAS Drives (10,000RPM or better) - RAID 5 configuration 250 GB storage or more



IMPORTANT Haivision is not responsible for a Furnace installation that is not performing when the hardware used is below these specifications. The number of drives and drive speeds is extremely important for Furnace Media and NVR servers.

Software License

After the installation is complete, you will need to provide Haivision Technical Support with the host ID (or `hostid`) of the primary network card (`eth0`) on your system.



TIP To get the `hostid`, you can run the `hvhostid` utility:
`/opt/haivision/usr/bin/hvhostid`

Technical Support will then provide you with a license file that needs to be uploaded to the Furnace Portal Server.

To upload the license file to the Furnace Portal Server:

1. Browse directly to <http://portal/license.php>
2. Supply the haiadmin credentials.
3. Copy and paste the content of the license.hai file into the appropriate fields, and apply the license.

System Install and Pre-Configuration

This section provides a list of steps to complete before starting the installation.

1. Install CentOS 6 or Red Hat Enterprise Linux 6 (64-bit versions only) on your system.

It is recommended to choose any minimal option for installed packages and services at install time, and leave other packages uninstalled unless needed (e.g., Development, Workstation or Virtualization packages that the installer might offer).

2. Temporarily disable SELinux (you can re-enable this once the installation is complete):

- Edit `/etc/selinux/config` and set `SELINUX=disabled`.
- Set `echo 0 > /selinux/enforce` to turn off for remainder of this session.

3. Temporarily disable any local firewall running on the system where the Furnace is being installed.



NOTE Administrators are responsible for any configuration changes necessary to the firewall and SELinux (if enabled) to allow the Furnace application to operate properly.

4. Add/edit these lines in `/etc/sysctl.conf` as follows for best performance:

```
net.ipv4.tcp_max_syn_backlog = 1280
net.ipv4.icmp_echo_ignore_broadcasts = 1
kernel.shmmax = 580319640
kernel.shmall = 580319640
```

5. Make sure your hostname is correctly configured:

- Verify the currently reported hostname with `hostname -f`. Check that it correctly displays the hostname of your server.
- If it returns “unknown”, then `/etc/hosts` is missing the hostname for your system.
- Edit `/etc/hosts` so that your hostname is the **FIRST** item in the list against `127.0.0.1` (as shown in the following example):

```
[root@qa64 ~]# cat /etc/hosts
127.0.0.1 qa64.haivision.local localhost localhost.localdomain localhost4
        localhost4.localdomain4
::1      localhost localhost.localdomain localhost6 localhost6.localdomain6
```

6. It is recommended that you update your current Red Hat or CentOS packages before you install the Furnace.
7. Ensure that Postgres is not installed and remove any appropriate packages if it is.

For details, see [“Postgres Service”](#) on page 34 (in [Appendix A: “Software-Only Libraries and Troubleshooting”](#)).

Optional: Create “hvroot” User

The Furnace software contains some built-in functionality which is only accessible as “root” or “hvroot”: notably, the ability to use the “vfsservice” command to stop and start service daemons.

You may want to make an “hvroot” shell user, either to provide access to these functions, or to “reserve” that username and prevent access to those functions with a disabled hvroot user account.

Software-Only Installation (License Server)

The Furnace Software-Only install consists primarily of a executable supplied by Haivision. Some prerequisites must be satisfied by the customer before installation, notably the installation and maintenance of a local OpenLDAP server on the host system. To install the Furnace Software-Only module on your system, please read the following documentation carefully.

Furnace Installation – Phase 1



NOTE These steps direct you to install license/portals first and then other devices (i.e., non-license servers) afterwards (“[Furnace Installation \(Non-License Server\)](#)” on page 26).

To install the Furnace software on your license server:

1. Install required OS packages.
See “[Required Packages for CentOS and RHEL](#)” on page 28.
2. Add users/groups for haiweb and haidb (as shown in the following example):

```
/usr/sbin/groupadd -r haiweb
/usr/sbin/useradd -r -g haiweb -s /sbin/nologin -d /opt/haivision/usr/www -
c "HaiWeb" haiweb
/usr/sbin/groupadd -g 26 -o -r haidb
/usr/sbin/useradd -M -N -g haidb -o -r -d /opt/haivision/var/lib/pgsql -s
/bin/bash -c "HaiDB Server" -u 26 haidb
```

3. Download the Furnace Software-Only install package from Haivision’s Download Center at <http://www.haivision.com/download-center/>.
4. Contact Haivision Sales to obtain the vfprofile file to match the system’s configuration.
5. Put furnace.run and vfprofile onto the new server.
6. Execute furnace.run:

```
Verifying archive integrity... All good.
Uncompressing Haivision furnace installer .....
Please provide full path to profile: /path/to/vfprofile
... ..
```

7. Update vfprofile permissions.

```
chmod 644 /opt/haivision/etc/vfprofile
```

8. Create a directory called "lock/subsys".

```
mkdir -p "/opt/haivision/var/lock/subsys" || exit 1  
chown haidb:haidb "/opt/haivision/var/lock/subsys"  
chmod go-rwx "/opt/haivision/var/lock/subsys"
```

9. Clean up SELinux tagging for the lock/subsys directory:

```
[ -x /sbin/restorecon ] && /sbin/restorecon "/opt/haivision/var/lock/subsys"
```

10. Set up Postgres to start:

```
In -s /opt/haivision/etc/rc.d/init.d/postgresql /etc/init.d/postgresql  
service postgresql start  
chkconfig --levels 345 postgresql on
```

11. Set up mongo service:

```
In -s /opt/haivision/etc/rc.d/init.d/mongod /etc/init.d/mongod  
service mongod start  
chkconfig --levels 345 mongod on
```

12. Set up nginx service:

```
cp /opt/haivision/etc/init/nginx.conf /etc/init/nginx.conf  
initctl start nginx
```




NOTE A valid localhost SSL certificate must be set up in
/etc/pki/tls/private/localhost.key and /etc/pki/tls/certs/localhost.crt.

13. Set up LDAP:

For details, see the following section, [“OpenLDAP Setup”](#).



IMPORTANT You must first complete the LDAP setup steps as detailed in the following
section, [“OpenLDAP Setup”](#).

OpenLDAP Setup

Furnace uses the OpenLDAP server, local to its “portal” components, for the storage of much of its internal settings. Within the SW environment, customers may have existing OpenLDAP environments on the server on which they wish to install Furnace. To integrate with this running environment, the customer will need to follow the instructions below to insert and initialize the Furnace database within their local OpenLDAP service.

For customers installing on a new system, OpenLDAP will need to be installed and configured completely, in accordance with the instructions below.

For customers intending to integrate, the instructions below should be reviewed to determine the changes required to support the Furnace operation on this system.

To set up openldap:

1. Install openldap.

The package `openldap-servers` is required. It must be a version supporting LDAP Protocol version 3.

2. Prepare the TLS certificate and private key.

The Furnace requires that `openldap` listen on localhost with TLS support (port 636). This requires a private key and SSL certificate.



NOTE Relevant configuration options are pointed out in the LDAP setup instructions below. However, the key and certificate are not provided. To get help with this, contact Haivision Technical Support.

3. Configure `/etc/openldap/slapd.conf`.

You need to create or modify `/etc/openldap/slapd.conf`.

The folder `/opt/haivision/etc/slapd.conf` contains a sample `slapd.conf` file containing the necessary data for Furnace functions.



IMPORTANT If you already have a working openLDAP system, do *not* simply copy this file over because it could destroy your existing LDAP databases.

You need to copy/adapt the appropriate sections below into the `slapd.conf` file for the working system to allow the Furnace LDAP structure to function. Note that you may need to adjust some fields to match the actual paths/filenames in your environment.

If you have installed `openldap-server` specifically to support the Furnace, you can copy the file directly from its location under `/opt/haivision`, and modify the TLS directives to point to the correct key/certificate files (as illustrated in the following example).

```
### Global directives, non-Furnace specific
#These may differ in an already configured system, and should not be
  directly copied into a working LDAP system
pidfile    /var/run/openldap/slapd.pid
argsfile   /var/run/openldap/slapd.args
modulepath /usr/lib/openldap:/usr/lib64/openldap
loglevel   config

###Global directives, minimum required for Furnace
password-hash {MD5}

# Schemas required for Furnace operation
# the exact location may differ on a customer install
include    /etc/openldap/schema/core.schema
include    /etc/openldap/schema/cosine.schema
include    /etc/openldap/schema/inetorgperson.schema
include    /etc/openldap/schema/nis.schema
include    /etc/openldap/schema/ppolicy.schema
moduleload ppolicy.la

#TLS directives are necessary for Furnace and should point to
  pregenerated, working certs for SSL access
TLSCertificateFile /etc/openldap/slapdcert.pem
TLSCertificateKeyFile /etc/openldap/slapdkey.pem

# This schema is provided in the Furnace install
# This should be copied to the relevant area of a working slapd.conf
include    /opt/haivision/var/lib/openldap/vfurnace.schema

#####
# Furnace database configuration
# This should be copied directly into the configured slapd.conf
# NO values should be changed.
#####
database bdb
suffix dc=vfurnace,dc=net
rootdn cn=root,dc=vfurnace,dc=net
rootpw {SSHA}NC6IBiNdQsOCwKJiZG7IbSaUhjLJKOst
```

```
directory /opt/haivision/var/lib/openldap
sizelimit 1000
checkpoint 128 5
monitoring off
overlay pppolicy
access to attrs=userPassword by self write by * auth
access to * by * none
index nisMapName,nisMapEntry          pres,eq,sub
index ou,cn,mail,surname,givenname    pres,eq,sub
index uid,memberUid                   pres,eq,sub
index objectclass,member,vfgroup      pres,eq
```

4. Configure `/etc/openldap/ldap.conf`.

Add the following line in `/etc/openldap/ldap.conf`.

```
TLS_REQCERT      allow
```

5. Configure `/etc/sysconfig/ldap`.

Ensure that LDAPS is enabled in `/etc/sysconfig/ldap`.

```
SLAPD_LDAPS=yes
```

Also in the `ldap` file, you must ensure that `slapd` is AT LEAST listening on localhost for ldap connections (port 636). Here is an example value which allows all access to ldap on port 389, and only allows ldaps/636 traffic over localhost:

```
SLAPD_OPTIONS='-h "ldap:/// ldaps://127.0.0.1:636/"'
```

6. Add LDAP base objects and policy.

Furnace base objects and policy files are in `/opt/haivision/var/lib/openldap`. You need to run `slapadd` to update ldap. Stop `slapd` before running `slapadd`.

```
service slapd stop
slapadd -b "dc=vfurnace,dc=net" -f /etc/openldap/slapd.conf -l
/opt/haivision/var/lib/openldap/baseobjects.ldif
slapadd -b "dc=vfurnace,dc=net" -f /etc/openldap/slapd.conf -l
/opt/haivision/var/lib/openldap/ppolicy.ldif
```



NOTE This action may create files not owned by the correct user. This will be corrected in the next step.

7. Set ownership to ldap.ldap.

Ensure that the ldap service is able to read any files you have created or edited, and the ldap directory under the Furnace installation.



NOTE In this example, the user/group is “ldap” but this may be different on a customer installation.

You should replace “`slapdcert.pem`” and “`slapdkey.pem`” with the correct names for your local certificate/key files.

```
chown ldap.ldap /etc/openldap/slapd.conf
chown ldap.ldap /etc/openldap/slapdcert.pem
chown ldap.ldap /etc/openldap/slapdkey.pem
chown ldap.ldap /etc/sysconfig/ldap
chown -R ldap.ldap /opt/haivision/var/lib/openldap
```

8. Move `/etc/openldap/slapd.d`.

For an OpenLDAP 2.4 style configuration `/etc/openldap/slapd.d` and, if it exists, move it to:

```
mv /etc/openldap/slapd.d /etc/openldap/slapd.d.orig
```

We use `/etc/openldap/slapd.conf` instead of `/etc/openldap/slapd.d`. There is currently no support for using the `slapd.d` method of configuration for the Furnace.

9. Start ldap.

```
service slapd start
```

Furnace Installation – Phase 2

1. Turn on OpenLDAP (ONLY if you have completed the previous section, [“OpenLDAP Setup”](#).)

```
service slapd start
chkconfig --levels 345 slapd on
```

2. Start Haiweb:

```
/opt/haivision/usr/sbin/haiwebctl stop
/opt/haivision/usr/sbin/haiwebctl start
```

3. Copy the file `/opt/haivision/etc/init/vfinit.conf` to `/etc/init/vfinit.conf`.
4. Then start vfinit service:

```
cp /opt/haivision/etc/init/vfinit.conf /etc/init/vfinit.conf
initctl start vfinit
```



NOTE It is not necessary to manually start vfinit via “initctl” after this point. The vfinit service should start automatically on system reboot.

The file must be copied and not simply linked because a symbolic link will not work.

The following query may be used to confirm that vfinit was successfully started:

```
ps ax | grep vfinit
```

5. Put license.hai on the system, and run:

```
/opt/haivision/usr/bin/hvlicense -l license.hai
```



NOTE The above step is optional, pending the tip below. For instructions to obtain a license.hai file, see [“Software License”](#) on page 11.

6. Reboot.



TIP Keep in mind that the Furnace SW portal uses TCP ports 4080 (HTTP) and 4043 (HTTPS).

You should now be able to browse to `http://<server>:4080` and see the Furnace License portal. From here, you can manually go to `http://<server>:4080/license.php` to apply the license, if necessary.

If the license is already applied, you should be able to access the “Log in” link and begin using the Furnace server.

Post-Installation Setup

Preparing Furnace Cron Jobs



NOTE This only applies to license servers.

The following files should be symlinked to their respective `/etc/cron.xxxx` or `/etc/logrotate.d` folder:

- `/opt/haivision/etc/cron.d/vfepg-db2xml`
- `/opt/haivision/etc/cron.daily/vfurnace-db-vacuum`
- `/opt/haivision/etc/cron.d/vfdbbackup`
- `/opt/haivision/etc/cron.d/vfdbbackup-weekly`
- `/opt/haivision/etc/cron.d/vfbuilduuidarchive`
- `/opt/haivision/etc/cron.d/vfrcompile`
- `/opt/haivision/etc/cron.d/vfesf`
- `/opt/haivision/etc/cron.d/vfstat2xml`
- `/opt/haivision/etc/cron.daily/vfnowadmin-purgeexpired.php`
- `/opt/haivision/etc/logrotate.d/nginx`
- `/opt/haivision/etc/logrotate.d/httpd`

As shown below:

```
In -s /opt/haivision/etc/cron.d/vfepg-db2xml /etc/cron.d/vfepg-db2xml
In -s /opt/haivision/etc/cron.daily/vfurnace-db-vacuum
    /etc/cron.daily/vfurnace-db-vacuum
In -s /opt/haivision/etc/cron.d/vfdbbackup /etc/cron.d/vfdbbackup
In -s /opt/haivision/etc/cron.d/vfdbbackup-weekly /etc/cron.d/vfdbbackup-
    weekly
In -s /opt/haivision/etc/cron.d/vfbuilduuidarchive
    /etc/cron.d/vfbuilduuidarchive
In -s /opt/haivision/etc/cron.d/vfrcompile /etc/cron.d/vfrcompile
In -s /opt/haivision/etc/cron.d/vfesf /etc/cron.d/vfesf
In -s /opt/haivision/etc/cron.d/vfstat2xml /etc/cron.d/vfstat2xml
In -s /opt/haivision/etc/cron.daily/vfnowadmin-purgeexpired.php
    /etc/cron.daily/vfnowadmin-purgeexpired.php
In -s /opt/haivision/etc/logrotate.d/nginx /etc/logrotate.d/nginx
In -s /opt/haivision/etc/logrotate.d/httpd /etc/logrotate.d/httpd
```

Furnace Installation (Non-License Server)

The following instructions are a subset of the instructions above, with some omissions and changes. Following the License Server instructions (see [“Furnace Installation – Phase 1”](#) on page 15), make the following changes:

To install the Furnace software on a non-license server:

1. Install required packages.
2. Create required users (they are not used, but should be created).
3. Put software install package on system.
4. Place any needed data files (profile, license...) in position.
5. Execute the installer to completion.
6. Create the symlink for the vfininit startup script, and start vfininit.
7. Import the license.hai file for this server.
8. Do *not* do the setup steps for Postgres, openLDAP, Haiwebctl, MongoDB, or Nginx.
9. Do any post-install steps for system tuning (kernel parameters, etc.).
10. Do *not* do the Post-install steps for setting up Cron jobs, as they apply to the License server only.

APPENDIX A: Software-Only Libraries and Troubleshooting

This appendix lists the libraries required when installing the Furnace Software-Only module and provides information to troubleshoot the installation.



NOTE These packages may be installed via the `yum` command as long as your server is configured to access support package repositories from CentOS / Red Hat.

Topics In This Appendix

Required Packages for CentOS and RHEL	28
Troubleshooting the Software-Only Installation	30
Verify Running Processes	30
Verify Installed Packages	32
Verify Installation Failures	33
Verify OS Settings	33
Verify Hardware Resources	33
Postgres Service	34

Required Packages for CentOS and RHEL

64-Bit Package Name
apr.i686
apr-util.i686
apr-util-ldap
aspell.i686
cracklib
cracklib.i686
expat.i686
file
freetype.i686
gmp
gmp.i686
libcurl
libcurl.i686
libedit.i686
libjpeg.i686
libjpeg-turbo.i686 (CentOS / Red Hat 6.4 or higher)
libpng
libpng.i686
libsmbios-2.2.26-3.2.el6.i686.rpm ^{a b}
libstdc++.i686
libudev.i686
libX11.i686
libXext.i686
libXpm.i686
libxslt.i686
libXv.i686
mysql-libs
mysql-libs.i686
ncompress
net-snmp
net-snmp-libs.i686

64-Bit Package Name (Cont.)
openldap-servers
openssl.i686
pam
pam.i686
pcre
pcre.i686
perl-CGI
perl-DBD-Pg.i686
perl-DBI.86_64
python-libs.i686
tcl.i686
uuid.i686

a. http://linux.dell.com/repo/community/repositories/isv:/dell:/community/el6-x86_64/x86_64/libsmbios-2.2.26-3.2.el6.i686.rpm

b. <https://linux.dell.com/libsmbios/main/yum.html>



NOTE Some required packages (e.g., the .i686 packages) may require access to 32-bit repositories to install successfully.

Troubleshooting the Software-Only Installation

In most cases, it becomes apparent that there is a problem with the Furnace when you cannot access the Web Interface, or if your InStream player or Stingray STB stops playing with a “license server unavailable” error.

The remainder of this section describes how to troubleshoot the Furnace software-only module.

Verify Running Processes

To verify running processes:

1. Verify that the non-Furnace services are up and running.



NOTE This should be done after the license is applied and the system has rebooted.

```
# service slapd status
slapd (pid 1044) is running...

# service postgresql status
postmaster (pid 1598) is running...
```

2. Check that the Haivision Web portal is running:

```
# ps ax | grep httpd
1409 ?    Ss   0:04 /opt/haivision/usr/sbin/httpd
1506 ?    S    0:02 /opt/haivision/usr/sbin/httpd
1507 ?    S    0:02 /opt/haivision/usr/sbin/httpd
1508 ?    S    0:02 /opt/haivision/usr/sbin/httpd
1509 ?    S    0:01 /opt/haivision/usr/sbin/httpd
1510 ?    S    0:01 /opt/haivision/usr/sbin/httpd
1511 ?    S    0:02 /opt/haivision/usr/sbin/httpd
```

3. Check that Furnace services are “Running”.



NOTE The exact listing of processes will be different depending on the system configuration.

```
[root@jamestest ~]# /opt/haivision/usr/bin/vfsservice -l all status
server [local] : service [am] : instance [0] : status [Running] : pid [1640] : cmdline []
server [local] : service [auth] : instance [0] : status [Running] : pid [1628] : cmdline [ ]
server [local] : service [clam] : instance [0] : status [Running] : pid [1632] : cmdline [ ]
server [local] : service [config] : instance [0] : status [Running] : pid [1629] : cmdline
  [--port 4930]
server [local] : service [epg] : instance [0] : status [Running] : pid [1634] : cmdline []
server [local] : service [log] : instance [0] : status [Running] : pid [1641] : cmdline []
server [local] : service [stat] : instance [0] : status [Running] : pid [1633] : cmdline []
```

Verify Installed Packages



NOTE The following is only an example. The exact list of installed packages and version numbers will change depending on system configuration. Use this information when communicating with Haivision Technical Support.

To verify the installed packages, enter:

```
[root@localhost ~]# rpm -qa | grep -e hai -e vf | sort
haidb-9.2.13-1.el6.i686
haidb-libs-9.2.13-1.el6.i686
haidb-pltcl-9.2.13-1.el6.i686
haidb-server-9.2.13-1.el6.i686
hai-furnace-appliance-6.6.0-103.noarch
hai-module-6.6.0-103.i386
hai_mongodb-2.2.2-mongodb_1.el6.x86_64
hai_mongodb-server-2.2.2-mongodb_1.el6.x86_64
hai_nginx-1.10.1-1.el6.ngx.x86_64
hai_nodejs-0.10.38-1.i386
hai_web-2.2.15-53.el6.i686
hai_webkit-5.3.3-27.el6.i686
hai_webkit-bcmath-5.3.3-27.el6.i686
hai_webkit-cli-5.3.3-27.el6.i686
hai_webkit-common-5.3.3-27.el6.i686
hai_webkit-gd-5.3.3-27.el6.i686
hai_webkit-mbstring-5.3.3-27.el6.i686
hai_webkit-pdo-5.3.3-27.el6.i686
hai_webkit-pgsql-5.3.3-27.el6.i686
hai_webkit-xml-5.3.3-27.el6.i686
hai_webkit-xmlrpc-5.3.3-27.el6.i686
hai_web-mod_ssl-2.2.15-53.el6.i686
hai_web-tools-2.2.15-53.el6.i686
vfagent-6.6.0-103.noarch
vfam-6.6.0-103.i386
vfam-helper-6.6.0-103.i386
vfauthd-6.6.0-103.i386
vfbackup-6.6.0-103.i386
vfbridge-6.6.0-103.i386
vfclamd-6.6.0-103.i386
vfconfigd-6.6.0-103.i386
vfcontrolpanel-6.6.0-103.noarch
vfdvbepg-6.6.0-103.i386
vfeasd-6.6.0-103.i386
vfepg-6.6.0-103.i386
vfesf-6.6.0-103.i386
```



```
vffmjpeg-6.6.0-103.i386
vfinit-6.6.0-103.i386
vfmdnsd-6.6.0-103.i386
vfmserver-6.6.0-103.i386
vfnvrd-6.6.0-103.i386
vfportal-clients-6.6.0-103.noarch
vfsatmux-6.6.0-103.i386
vfstatd-6.6.0-103.i386
vfstbimager-clients-6.6.0-103.noarch
vfswitch-6.6.0-103.i386
vfswitch-utils-6.6.0-103.i386
vftheme-client-vfurnace-6.6.0-103.noarch
vfurnace-channel-png-6.6.0-103.noarch
vfurnace-channel-vfi-6.6.0-103.noarch
vfurnace-db-6.6.0-103.noarch
vfurnace-dict-6.6.0-103.noarch
vfurnace-so-base-6.6.0-103.noarch
vfutils-6.6.0-103.i386
```

Verify Installation Failures

To verify the contents of the installation log, enter:

```
# cat /opt/haivision/var/log/hai-install.log
```

Look for any entry that indicates error or failure. If dependencies are not met, they will be indicated as:

```
<packageName> is needed by <furnaceComponent>.
```

Verify OS Settings

To verify the operating system settings:

If the Furnace is not working correctly, try turning off restrictive services such as iptables and SELinux:

- If the Web Interface starts working when iptables is stopped, you will need to review your firewall settings.
- If the Furnace starts working when SELinux is disabled, you will need to review your SELinux policy.

Verify Hardware Resources

Low hardware resources will lead to stuttering and/or corrupt streams. Verify that the minimum requirements have been satisfied.

Postgres Service

Systems experiencing hard shutdowns (i.e., power loss / power off) may experience the Postgres service being unable to start due to a lingering PID file at `/opt/haivision/var/lib/pgsql/data/postmaster.pid`.

If this is found to be the case, follow these steps to delete the `postmaster.pid` file and start Postgres again. Shell access is required.

To check the Postgres service status:

1. Check if Postgres is up and running after server boot:
`service postgresql status`
2. If the return message is "postmaster is stopped", check for the existence of the `postmaster.pid` file:
`ls /opt/haivision/var/lib/pgsql/data/postmaster.pid`
3. If the file exists, delete it:
`rm -f /opt/haivision/var/lib/pgsql/data/postmaster.pid`
4. Start Postgres again:
`service postgresql start`



NOTE Hard shutdowns can result in more serious issues with Postgres or openLDAP which require more advanced recovery techniques. Hard shutdowns should be avoided whenever possible.

APPENDIX B: Warranty Information

Software End User License Agreement

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 - (b) You shall immediately pay to Haivision all amounts due and outstanding as of the date of such termination or expiration; and
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- 6.5. Waiver and Amendment.** No modification, amendment or waiver of any provision of this Agreement shall be effective, unless in writing signed by both parties. No failure or delay by either party in exercising any right, power or remedy under this Agreement, except as specifically provided herein, shall operate as a waiver of any such right, power or remedy. Without limiting the foregoing, any additional legal terms and conditions submitted by You in any other documents, including but not limited to the Entitlement, shall be of no legal force or effect.
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- 6.10. Severability.** If any provision of this Agreement is held by a court of competent jurisdiction to be contrary to law, such provision shall be changed and interpreted so as to best accomplish the objectives of the original provision to the fullest extent allowed by law and the remaining provisions of this Agreement shall remain in full force and effect.
- 6.11. Force Majeure.** Neither party shall be liable to the other party for any failure or delay in performance to the extent that such delay or failure is caused by fire, flood, explosion, war, terrorism, embargo, government requirement, labor problems, export controls, failure of utilities, civil or military authority, act of God, act or omission of carriers or other similar causes beyond its control. If any such event of force majeure occurs, the party delayed or unable to perform shall give immediate notice to the other party, and the party affected by the other's delay or inability to perform may elect, at its sole discretion, to terminate this Agreement or resume performance once the condition ceases, with an option in the affected party to extend the period of this Agreement up to the length of time the condition endured. Unless written notice is given within 30 calendar days after the affected party is notified of the condition, the latter option shall be deemed selected. During an event of force majeure, the affected party shall exercise reasonable effort to mitigate the effect of the event of force majeure.
- 6.12. Entire Agreement.** This Agreement, together with the Entitlement and all other documents that are incorporated by reference herein, constitutes the sole and entire agreement between Haivision and You with respect to the subject matter contained herein, and supersedes all prior and contemporaneous understandings, agreements, representations and warranties, both written and oral, with respect to such subject matter.

- 6.13. Language.** The parties confirm that it is their wish that this Agreement, together with the Entitlement and any other documents relating hereto, have been and shall be drawn up in the English language only. Les parties confirment que c'est leur volonté expresse que ce contrat et tous documents y étant relative, y compris les bons de commande, le avis, le annexes, les autorisations, les pièces jointes et les amendments soient rédigés en langue anglaise seulement.
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 - (c) On the date sent by facsimile (with confirmation of transmission) if sent during normal business hours of the recipient, and on the next business day if sent after normal business hours of the recipient; or
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If you have questions, please contact Haivision Systems Inc., at 4445 Garand, Montréal, Québec, H4R 2H9 Canada or legal@haivision.com.

