HARMONY

NETWORK ANIMATION SOLUTION

Installation Guide
Linux Operating Systems

Legal Notices

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Publication Date

March 2012

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Installing on Linux

This document explains how to install Toon Boom Harmony 9.2 on Linux (Fedora).

This document assumes that you are familiar with Linux and are capable of working in a command shell.

Throughout this document, we will ask you to create files using a text editor. The console text editor **vi** is commonly used and is part of the Fedora package. Another text editor you can use is **nano**. To launch them just type their name on the command line.

NEdit is a graphical, user-friendly text editor, which may not be installed by default. You can download it from http://www.nedit.org/. Other graphical text editors, such as **kedit** and **gedit** can also be used.

There are three stages required to install Harmony, which are covered in the following topics:

1. Pre-installation, on page 4
2. Harmony Installation, on page 9
3. Configuration, on page 21

After completing these stages, you can verify the integrity of the installation and resolve any configuration issues.

- Troubleshooting, on page 31

Pre-installation

Before installing Harmony, you must perform the following task:

Check Your Minimum Requirements

For the most current Harmony hardware requirements, refer to the white paper **Harmony and Your IT Department**. This is available from:

- Toon Boom Animation Sales Representative
- Toon Boom Animation Support at: **support@toonboom.com**

Product Activation Code

- You must have your Harmony Product Activation Code at hand before you begin the installation.

Check Your Pre-installation Configuration

Configure your computer before installation by performing the following tasks:

Fedora Installation

Following are some considerations for Fedora Linux installation. Explaining how to install Fedora Linux is beyond the scope of this document. For detailed information on how to install Fedora Linux, see the Fedora documentation.

Installing Fedora Linux:

- Download the Fedora Linux documentation from:
  http://docs.fedoraproject.org/
- When installing Fedora Linux, perform a **Custom** installation and select to install **Everything** to ensure that you get all packages necessary to run Harmony.
- When asked, select **Firewall as disabled**. Your file server should be behind a firewall, but should not be configured as one.
- When asked, select SELinux as **disabled**.
- Harmony has been tested and certified for use on the KDE windows manager.
- Harmony works best with a minimum screen resolution of:
  1280 pixels x1024 pixels x 24-bit.
  If Fedora cannot detect your monitor, configure the monitor as a generic CRT or an LCD with this resolution and a 60 Hz refresh rate. Alternatively, consult your monitor manufacturer's documentation.
- If you're new to Linux, we recommend that you create a boot disk to facilitate recovery.

Installing on 64-bit Operating System

When installing a 64-bit Linux distribution, make sure to install the 32-bit compatibility package. Some recent Linux distributions do not provide this package and will require a manual installation of the 32-bit libraries.

The following procedure details the installation of the 32-bit libraries package which is required to run Harmony 9.2 on Fedora 14.

When installing a Fedora 14 64-bit system, the 32-bit libraries package required to run Harmony needs to be installed manually. There is no package in the installer to do this automatically. If the libraries are not installed, attempting to run Stage will return the following:

```
mabouvier@fedora14 bin]$ ./Stage
-bash: ./Stage: /lib/ld-linux.so.2: bad ELF interpreter: No such file or
directory
```

The easiest way is to use yum to install the missing libraries.

To install 32-bit libraries:

1. Create a text file (`harmony_ia32libs.txt`) containing the following list:

   `alsa-lib.i686`

   `alsa-plugins-pulseaudio.i686`

   `bzip2-libs.i686`

   `expat.i686`

   `fontconfig.i686`

   `freetype.i686`

   `glibc.i686`

   `libdrm.i686`

   `libgcc.i686`

   `libICE.i686`

   `libjpeg-turbo.i686`

   `libpng.i686`

   `libselinux.i686`

   `libSM.i686`

   `libstdc++.i686`

   `libtalloc.i686`

   `libtiff.i686`

   `libuuid.i686`

   `libX11.i686`

   `libXau.i686`

   `libxcb.i686`

   `libXcursor.i686`

   `libXft.i686`

   `libXi.i686`

   `libXinerama.i686`

   `libXdamage.i686`

   `libXext.i686`

   `libXfixes.i686`

   `libXmu.i686`

   `libXrandr.i686`

   `libXrender.i686`

   `libXt.i686`

   `libXxf86vm.i686`

   `mesa-dri-drivers.i686`

   `mesa-libGL.i686`

   `mesa-libGLU.i686`

```
nss-softokn-freebl.i686
SDL.i686
zlib.i686
```

2. Use the following command to install the above packages using yum and follow the on screen instructions:

```
$ cat harmony_ia32libs.txt | xargs yum install
```

▸ Yum may detect version conflicts with the 64-bit libraries already installed. For example:

```
Transaction Check Error:
file /usr/share/man/man5/png.5.gz from install of libpng-2:1.2.46-1.fc14.i686
conflicts with file from package libpng-2:1.2.44-1.fc14.x86_64
file /usr/share/alsa/alsa.conf from install of alsa-lib-1.0.24-1.fc14.i686
conflicts with file from package alsa-lib-1.0.23-1.fc14.x86_64
file /usr/share/alsa/cards/HDA-Intel.conf from install of alsa-lib-1.0.24-
1.fc14.i686 conflicts with file from package alsa-lib-1.0.23-1.fc14.x86_64
file /usr/share/alsa/cards/USB-Audio.conf from install of alsa-lib-1.0.24-
1.fc14.i686 conflicts with file from package alsa-lib-1.0.23-1.fc14.x86_64
file /usr/share/alsa/cards/aliases.conf from install of alsa-lib-1.0.24-
1.fc14.i686 conflicts with file from package alsa-lib-1.0.23-1.fc14.x86_64
file /etc/alsa/pulse-default.conf from install of alsa-plugins-pulseaudio-
1.0.24-2.fc14.i686 conflicts with file from package alsa-plugins-pulseaudio-
1.0.22-1.fc13.x86_64
```

▸ The 32-bit libraries are newer than their 64-bit versions. If this happens, you must include the 64-bit libraries in the list of packages. To resolve the above errors , the following packages must to be added to the list:

```
alsa-lib
libpng
alsa-plugins-pulseaudio
```

▸ Once the conflicting packages have been added to the list, run the yum install command again and follow the on screen instructions:

```
$ cat harmony_ia32libs.txt | xargs yum install
```

You can use the `yum provides` *command to find which package contains the required library.*

NOTE: If you have installed the NVIDIA drivers before installing the missing 32-bit libraries, you may need to reinstall the NVIDIA drivers, as libraries required by the NVIDIA driver may have been overwritten.

Disabling SELinux

1. Verify if SELinux is enabled by reading the content of the SELinux config file:

```
more /etc/selinux/config
```

2. Look for the line that starts with `SELINUX=` and ensure that the value is set to disabled:

```
# This file controls the state of SELinux on the system.
# SELINUX= can take one of these three values:
#     enforcing - SELinux security policy is enforced.
#     permissive - SELinux prints warnings instead of enforcing.
#     disabled - No SELinux policy is loaded.
SELINUX=disabled
# SELINUXTYPE= can take one of these two values:
#     targeted - Targeted processes are protected,
#     mls - Multi Level Security protection.
SELINUXTYPE=targeted
```

3. If the value is set to something other than disabled, you must open the file using a text editor to change the value to disabled. Once the file is modified and saved, reboot the computer.

Update NVIDIA Drivers

You must install the recommended drivers for your NVIDIA video card. If you don't, Toon Boom Harmony will not function.

Important note. If you are installing Toon Boom Harmony on a 64-bit system, make sure to install the 32-bit libraries required by Harmony before installing the NVIDIA drivers. If you did install the NVIDIA drivers before the 32-bit libraries, you will need to reinstall the NVIDIA drivers once it is done.

In general, you should use the latest drivers. New drivers tend to resolve past driver issues. If you already have NVIDIA drivers installed, you can find out the version of the installation, by typing:

```
cat /var/log/Xorg.0.log | grep "X Driver"
```

To install the NVIDIA driver:

1. Download the Linux driver from the NVIDIA website:

    http://www.nvidia.com/object/unix.html

2. Switch to text mode when installing video card drivers. Type the following in a shell while logged in as the root user:

    ```
    /sbin/init 3
    ```

3. To install the NVIDIA kernel driver, type the following in a shell while logged in as the root user:

    ```
    sh /[path_to_driver_file]/NVIDIA-Linux-x86-[driver_name].run.sh
    ```

4. Once the NVIDIA driver installation is successful, revert to graphical mode by starting X. In a shell, type:

    ```
    /sbin/init 5
    ```
     OR

    ```
    startx
    ```

NOTE: Some recent Linux Distributions include an open source driver for NVIDIA graphic cards called "Nouveau". This driver must disabled in order to install the NVIDIA drivers. Please refer to the NVIDIA documentation for more information on how to do this.

Resolve Keyboard Shortcut Conflicts and Tweak KDE

Some KDE default keyboard shortcuts conflict with the shortcuts in Harmony and can prevent normal user operation.

To change the keyboard shortcuts and tweak KDE, follow these steps:

1. In the KDE menu, select **Computer > System Settings**. (In earlier versions of KDE, you may need to open the KDE Control Center).
2. In the **System Settings** window, select **Windows Behavior** in the Desktop section (in earlier versions of KDE, open the Look & Feel > Window Behavior menu instead).
3. Click the **Window Actions** tab.
4. In the **Inner window, titlebar and frame** section, do one of the following:
    ‣ Change your keyboard layout to choose Meta key from the Modifier Key option. The Meta key is the Windows Start button on a 104-key keyboard. You must have this type of keyboard to use this option.
        Go to **Desktop > Window Behavior** (in earlier versions, open the Look & Feel > Window Behavior menu). Click the **Actions** tab. In the **Inner window, titlebar and frame** section, select **Meta** as the **Modifier Key**.
        ⇨ If the Meta key is not available in the Modifier Key list, you will need to change your Keyboard Layout. This is set in **Control Center > Regional and Accessibility > Keyboard Layout** (in earlier versions, open the Control Center > Peripherals > Keyboard menu). Select the **Enable keyboard layouts** option and then select a **Keyboard Model** that includes 104 keys.
    ‣ Set all of the **Modifier Key +** options to `Nothing`.
5. There are a few KDE preferences that you should update to optimize Toon Boom Harmony.
    ‣ In the KDE menu, select **Computer > System Settings > Window Behavior**. Click the **Moving** tab to disable these two options. Harmony reacts better and faster when these are disabled:
        ⇨ Display content in moving windows
        ⇨ Display content in resizing windows
    ‣ In the KDE menu, select **Computer > System Settings > Appearance** and select the **Colors** menu. Under the Options tab, disable the following option:
        ⇨ Apply colours to non-KDE4 applications

NOTE: This option may cause Toon Boom Harmony to display incorrect colours in some of the interface controls.

After you have completed all Fedora Linux configurations, you are ready to install Toon Boom Harmony.

Get the Product Activation Code

Before installing Toon Boom Harmony, obtain a Product Activation Code from the Toon Boom licenser so that you can finish the installation process without having to wait for the license to arrive.

To obtain a license, please send the following information to `licensor@toonboom.com`.

- Your name and the name of your company
- Email address of where to send the license file

Harmony Installation

Now that you have verified your minimum requirements, and configured your hardware and software, you are ready to install Toon Boom Harmony.

You will perform the following tasks:

1. Upgrading From a Previous Version of Harmony, on page 9.
2. Install Harmony, on page 19.

Upgrading From a Previous Version of Harmony

This procedure assumes that the USAnimation®, Opus™ and Toon Boom Harmony binaries (program files) are installed on the Toon Boom Harmony server and are mounted by all of the Linux clients. When you update the installation on the server; all clients will load the new binaries from the central mount point

When upgrading previous installations of USAnimation®, Opus™ or Toon Boom Harmony, you should pick a time when Toon Boom Harmony production is slow or stopped. During the upgrade, no users can run any of the USAnimation®, Opus™ or Toon Boom Harmony modules and all rendering jobs must be complete.

To update previous installations:

1. Make sure that no one is running any versions of USAnimation®, Opus™ or Toon Boom Harmony. All USAnimation®, Opus™ or Toon Boom Harmony modules must be closed on the server and on all of the clients.
2. Make sure that all batch rendering and vectorizing is complete or that the queues are empty. You can check the status of Vectorize and Render queues from the Control Center module.
   ‣ In the Control Center module, use the Queue menu **Environment > Vectorize Queue** or **Render Queues** to open the Vectorize and Rendering Queue for all environments. The queues should either be empty or the status of all jobs should be **Completed**.
3. Stop all services running on the server and the clients. Depending on the services you have running, type the following commands, in the order presented, in a shell while logged in as the root user:

   `/etc/init.d/USAnimation_queues stop`

   `/etc/init.d/USAnimation_link_srv stop`

   `/etc/init.d/USAnimation_dbserver stop`

   `/etc/init.d/USAnimation_flexlm stop`

   You must be sure to stop the queues on all rendering machines. If the queues are running, those binaries will be locked and the installer won't be able to update them.

Note: It is not required to delete the startup scripts from /etc/init.d/ as the Harmony install script will update them automatically.

You must be sure to stop the queues on all rendering machines. If the queues are running, those binaries will be locked and the installer won't be able to update them.

4. Backing up configuration files:

   Back up Harmony's configuration files by copying them to a location where you will be able to recover them later on. Go to the folder where the previous version of Harmony is installed and backup configuration files that are in the etc folder:
   ‣ **7.5 and earlier**: /usa/etc
   ‣ **7.8**: /usr/local/ToonBoomAnimation/harmony_7.8/etc
   ‣ **9.2**: /usr/local/ToonBoomAnimation/harmony_9.2/etc

   Back up the following configuration files:

   > `Manager.conf`
   > `Scan.conf` (If a scanner was configured to run with the Harmony Scan module on this computer)
   > `server.ini` (If the server is configure to receive connections from Windows clients)
   > `VectOptions.conf` (If vectorization preset had been added to it)

   If any plug-ins have been added to the Harmony installation, backup these files as well. The plug-ins are located in:
   ‣ **7.5 and earlier**: /usa/lnx86/plugins
   ‣ **7.8**: /usr/local/ToonBoomAnimation/harmony_7.8/lnx86/plugins
   ‣ **9.2**: /usr/local/ToonBoomAnimation/harmony_9.2/lnx86/plugins

You can back up the entire Harmony folder by renaming it to make sure all config files are kept.

Delete or backup the Harmony Installation by renaming the folder where it is installed. Default install location for 7.5 and earlier is /usa.

5. Cleaning the KDE menu.

Shortcut to launch the previous application should be removed from the KDE menu. There are two ways of doing this:

Using the KDE Menu Editor that can be started from the KDE menu. The location will vary depending on the version of Linux installed.

By deleting them from the command line. Change to **/usr/share/applnk/**

> **$ cd /usr/share/applnk/**

Delete the old shortcuts:

⇨ Versions 7.8 and 9.2:

> **$ rm ToonBoom-Harmony_***

⇨ Earlier versions:

> **$ rm USAnimation-***

The shortcuts will be removed from the KDE menu the next time you log in.

6. Uncompress the distribution file.

> **tar xvfz [path_to_distribution_file]/[filename].tar.gz**

7. Change to the directory that was extracted from the tar.gz file.

8. While logged in as the root user, run the install script specifying the options required for your server.
    $ ./install -b -d -l -p -u –kde
    ▸ **-b**: mandatory. This will install the binaries required to run Harmony.
    ▸ **-d**: configures the tbdbserver for auto startup. Required when installing a server.
    ▸ **-l**: configures the Link_srv for auto-startup. Required if the server has window clients.
    ▸ **-p**: Configures the tbprocess for auto-startup. Required if the server will be performing batch processing.
    ▸ **-u**: Updates the dict files in the USA_DB/dicts. This is required when upgrading a server from a previous to Harmony 7.8. This option will only work if –d is also selected.
    ▸ **-kde**: installs Harmony menu shortcuts in the KDE menu.

9. After the installation process is complete, re-start all services. Depending on the services you have running, type the following commands in a shell, in the order presented,while logged in as the root user:

> **/sbin/service USAnimation_flexlm start**
>
> **/sbin/service USAnimation_dbserver start**
>
> **/sbin/service USAnimation_link_srv start**
>
> **/sbin/service USAnimation_queues start**

Restore the files that were previously backed-up

▸ Copy the **server.ini**, **Manager.conf** and any other files you must backup to the new installation. From the backup location to **/usr/local/ToonBoomAnimation/harmony_9.2/etc/**.

Edit usabatch's .cshrc

Before being able to start the Harmony services, you will need to make modification to the .cshrc that is in usabatch's home.

1. If you are not logged in as usabatch, do so by typing the following:

> **$ su – usabatch**

2. Once logged in, open the .cshrc file in usabatch's home using your favorite text editor. I use vi:

> **$ vi .cshrc**

The file used for Harmony 7.8 contains the following:

> **if (-f /usr/local/ToonBoomAnimation/harmony_7.8/etc/usa_cshrc) then**

```
source /usr/local/ToonBoomAnimation/harmony_7.8/etc/usa_cshrc

endif


umask 0
```

The file used for Harmony 7.3 contains the following:

```
if ( -f /usa/etc/usa_cshrc ) then

source /usa/etc/usa_cshrc

endif


umask 0
```

3. Change `/usa/etc/usa_cshrc` to `/usr/local/ToonBoomAnimation/harmony_9.2/etc/usa_cshrc`, so that it looks like this:

```
if ( -f /usr/local/ToonBoomAnimation/harmony_9.2/etc/usa_cshrc ) then

source /usr/local/ToonBoomAnimation/harmony_9.2/etc/usa_cshrc

endif


umask 0
```

4. Save and quit.

Edit other users .cshrc

The `.cshrc` of the all other users of Harmony should be edited to remove the lines that are used to source the `usa_cshrc` file. It is not required to source this file anymore as the path to the application is now added to the PATH variable via the files in `/etc/profile.d`.

```
For version 7.8:


if ( -f /usr/local/ToonBoomAnimation/harmony_7.8/etc/usa_cshrc ) then

source /usr/local/ToonBoomAnimation/harmony_7.8/etc/usa_cshrc

endif


umask 0
```

Edit the /etc/skel/.cshrc

▸ Open the files `/etc/skel/.cshrc` with your favorite text editor and remove the lines that source the `usa_cshrc` file from it as well.

Configuring the License Server
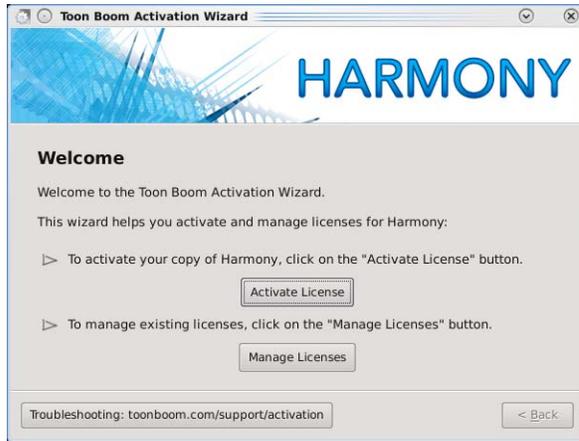
5. To launch the License Wizard go to: /usr/local/ToonBoomAnimation/harmony_9.2/lnx86/bin/ in the terminal.

```
cd /usr/local/ToonBoomAnimation/harmony_9.2/lnx86/bin/
```

Logged as root user, type:

```
./LicenseWizard.
```

6.   Click on **Activate License.**

The Activation Options screen appears:
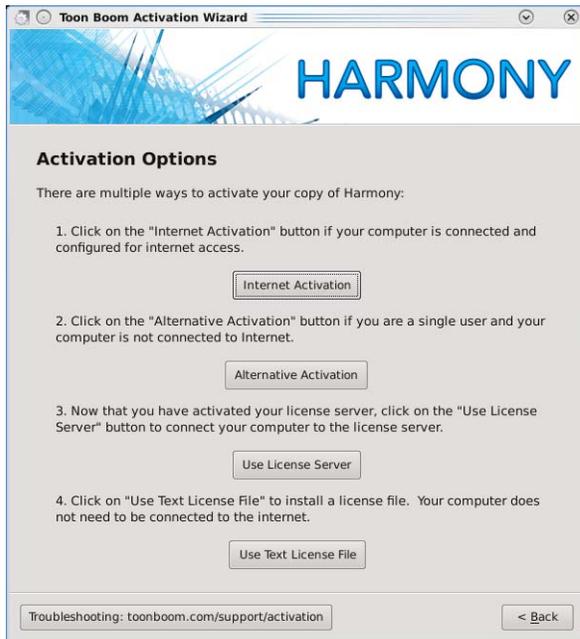
7. Click on **Internet Activation.**

 The Internet Activation Options screen appears:
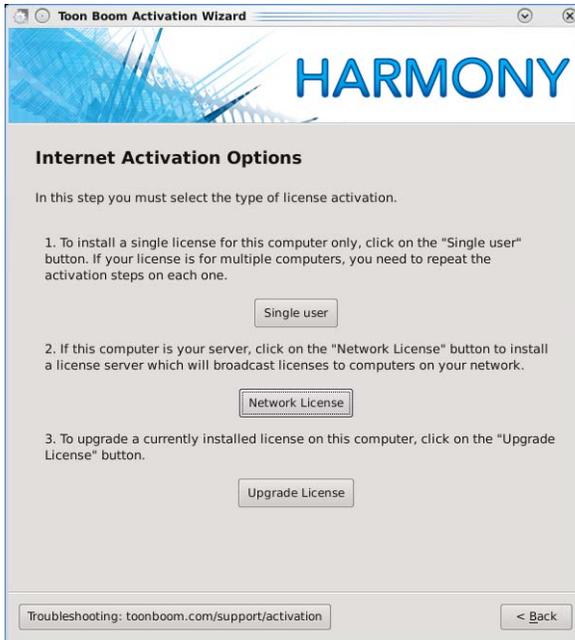
8. Click on **Network License.**

The **Internet Activation - Network License** screen appears:
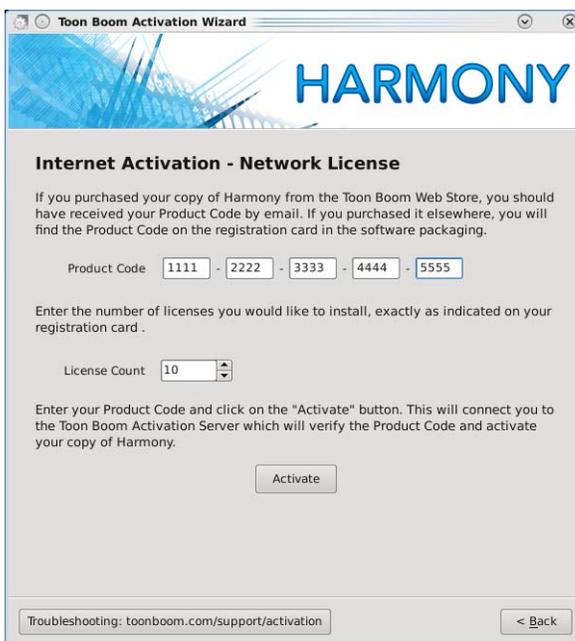
9. Type or copy/paste the **Product Code** and type in the number of licenses this product code grants you.

NOTE: Once activated, server licenses can only be returned to the activation server once. A previously returned licensed cannot be re-activated. Make sure you are activating the license on the correct computer.

10. Click on **Next**.

The **Install License Server** screen appears:
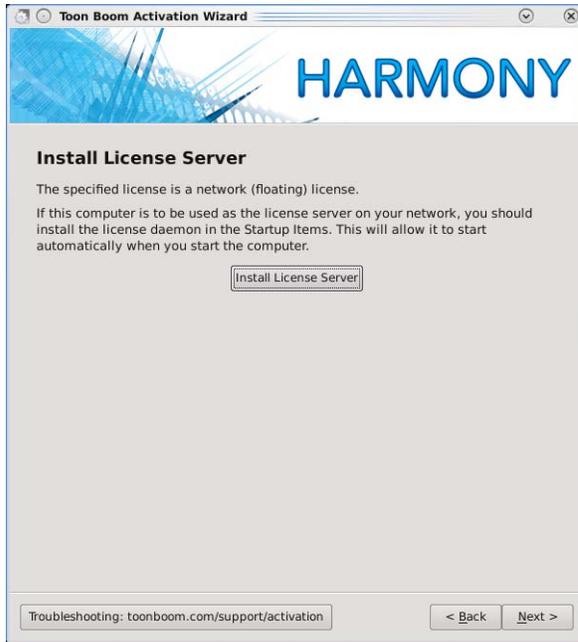
11. Click on **Install License Server**.
    This step will create the `license.dat` file and place it in `/usr/local/flexlm/licenses/license.dat`

    The license.dat created contains the following information:

    SERVER this_host 0 ANY

    VENDOR toonboom

    USE_SERVER

NOTE: Both these steps can be done manually if need be. To configure the License Server service to start automatically at boot, use the following command:

    $ /sbin/chkconfig USAnimation_flexlm on

    To start the license server manually, type the following as the root user:

    $ /etc/init.d/USAnimation_flexlm restart

The **Activation Successful** screen appears:
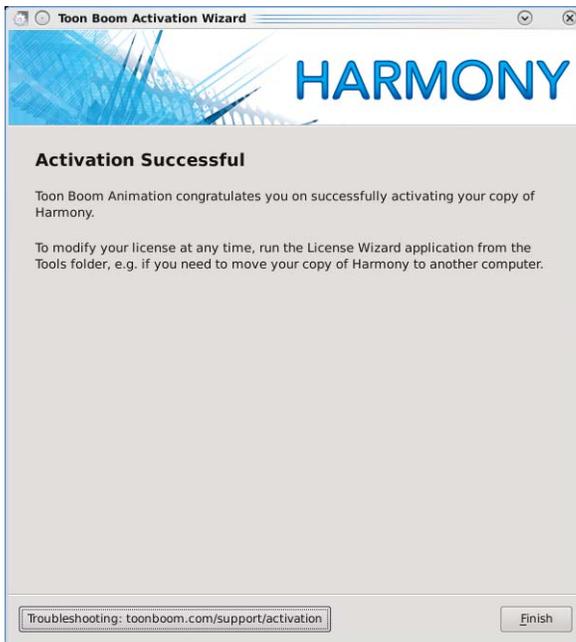
12. Click on **Finish** to exit the wizard.
13. Verify that the FlexLM license is working properly by using the `lmutil lmstat -a` command.

> `$ lmutil lmstat -a`

You can also look at the log:

> `$ less /tmp/lmgrd.log`

If the FlexLM service needs to be restarted, use the following command:

> `$ /etc/init.d/USAnimation_flexlm restart`

Restart the Harmony services

14. Once the license is properly configured, and started, start the Harmony services that are required on your server. They should be started in the following order:

> `$ /etc/init.d/USAnimation_dbserver restart`

> `$ /etc/init.d/USAnimation_link_srv restart`

> `$ /etc/init.d/USAnimation_queues restart`

15. Once the services are started, check the logs to make sure that they have been started properly. Check all the logs to see if the services are running properly. Logs are located in /tmp.

> `/tmp/lmgrd.log`

> `/tmp/tbdbserver.log`

> `/tmp/tbprocess.log`

> `/tmp/Link_srv.log`

16. Start Harmony and open a scene to see if the server works properly.

Updating the nfs export

If the Linux server has Linux or Mac OS X clients, the nfs exports need to be updated with the path of the new Harmony binaries.

```
$ vi /etc/exports
```

1. Change the path of /usa to /usr/local/ToonBoomAnimation/harmony_9.2

```
/USA_DB *(rw,sync)

/usadata000 *(rw,sync)

/usr/local/ToonBoomAnimation/harmony_9.2 *(rw,sync)
```

2. For this change to take effect, you will need to run the following command:

```
$ /usr/sbin/exportfs -r
```

3. You should then test the exports using the showmount command:

```
[root@chewy etc]$ /usr/sbin/showmount -e

Export list for chewy.toonboom.com:

/USA_DB                          *

/usadata000                      *

/usr/local/ToonBoomAnimation/harmony_9.2 *
```

Updating the smb.conf

1. When upgrading a Linux server, a small modification must be made to the usa share path to point to the new install. "**vi /etc/samba/smb.conf**" and change the path under the [usa] share to the path of the new harmony install.

```
[usa]

comment = Harmony binaries & stuff

browseable = yes

read only = no

guest ok = no

create mask = 0777

directory mask = 0777

path = /usr/local/ToonBoomAnimation/harmony_9.2
```

2. Once the file is saved, run the "**testparm**" command to check that you have not made any basic syntactic errors.

```
[root@chewy samba]$ testparm

Load smb config files from /etc/samba/smb.conf

Processing section "[homes]"

Processing section "[printers]"

Processing section "[USA_DB]"

Processing section "[usa]"

Processing section "[usadata000]"

Processing section "[tmp]"

Loaded services file OK.

Server role: ROLE_STANDALONE
```

3. Press Enter to see a dump of your service definitions.

   NOTE: If the **smb.conf** was configured according to the 7.3 documentation, the **testparm** command might return the following error:

```
Level II oplocks can only be set if oplocks are also set.
```

4. To get rid of this error, you need to add the `level2 oplocks = No` parameter in the global section. See the next section for all the parameters that are required in the smb.conf.
5. Then, restart smb:

```
$/etc/init.d/smb restart
```

Verify the parameters required in the smb.conf

1. Verify the configuration of the smb.conf

It is always safe to verify the configuration of the smb.conf.

```
$ vi /etc/samba/smb.conf
```

Parameters needed in the [global] section.

```
encrypt passwords = no


blocking locks = no

oplocks = no

level2 oplocks = no


follow symlinks = yes

unix extensions = no

wide links = yes
```

Default parameters for the shares.

```
[USA_DB]

comment = Harmony Database

browseable = yes

read only = no

guest ok = no

create mask = 0777

directory mask = 0777

path = /USA_DB


[usa]

comment = Harmony binaries & stuff

browseable = yes

read only = no

guest ok = no

create mask = 0777

directory mask = 0777

path = /usr/local/ToonBoomAnimation/harmony_9.2


[usadata000]

comment = Harmony data 000

browseable = yes

read only = no

guest ok = no
```

```
            create mask = 0777

            directory mask = 0777

            path = /usadata000
```
2. Remember to always perform a `testparm` after making changes to the smb.conf

```
        $ testparm
```
3. Restart the smb service.

```
        $ /sbin/service smb restart
```
4. Reboot the server

    If possible, reboot the server to verify that all the services are properly started.

5. Once the server is booted, check all the logs to see if the services are running properly. Logs are located in /tmp

```
    /tmp/lmgrd.log
```

```
    /tmp/tbdbserver.log
```

```
    /tmp/tbprocess.log
```

```
    /tmp/Link_srv.log
```

Installing a New System

Create the usabatch User

After you have installed Fedora Linux, you must create the **usabatch** user account. A number of Toon Boom Harmony services run in the **usabatch** account.

You must also set the **usabatch** user to use the **tcsh** shell and you must create a **.cshrc** file to launch the Toon Boom Harmony environment whenever the user logs on.

You must create user accounts for all Opus and Toon Boom Harmony family users. All user accounts you create on Fedora Linux that will also run Harmony must be set up the same way as the **usabatch** account, except for the user name and password.

To create user accounts:

1. In a shell, login as the "root" user.
2. Using a text editor, create the file **/etc/skel/.cshrc**. This file should contain the following line:

```
    umask 0
```
    Note that this character is a zero.
3. Create the user **usabatch**. In a shell, type:

```
    useradd -m -s /bin/tcsh -r usabatch
```
4. Enter the password for user **usabatch**. In a shell, type:

```
    passwd usabatch
```
    Then, type **usabatch** as a password.

To create additional users repeat steps 3 and 4. Just replace **usabatch** with the user name and password of the new user.

NOTE:

Setting umask to zero (0) ensures that Toon Boom Harmony users are able to read and write all files in the database, which is essential for people to share their work.

5. If you are not logged in as **usabatch**, do so by typing the following:

```
    su – usabatch
```

6. Once logged in, open the .cshrc file in usabatch's home. Using a text editor, add the following lines:

```
if ( -f /usr/local/ToonBoomAnimation/harmony_9.2/etc/usa_cshrc ) then
source /usr/local/ToonBoomAnimation/harmony_9.2/etc/usa_cshrc
endif
```

The **.cshrc** file should now contain the following:

```
if ( -f /usr/local/ToonBoomAnimation/harmony_9.2/etc/usa_cshrc ) then
source /usr/local/ToonBoomAnimation/harmony_9.2/etc/usa_cshrc
endif


umask 0
```

7. Save and quit.
8. Log out of **usabatch** to return to the root user.

Install Harmony

In a client-server network or in a stand-alone set up, you must install Harmony binaries as well as the following services:

- Dbserver: Controls access to the Harmony database.
- License service: Controls the number of licenses and features available to Harmony users.
- Batch Processing: If you are setting up the machine for batch processing this controls batch vectorizing and rendering queues.
- Link Server: If you are installing Harmony on a Linux server that will support Windows clients.

To install Harmony binaries and services, you must run the installation script.

With the product activation code from the licenser, you are ready to install Harmony.

To run the installation script:

1. Decompress the distribution file.

```
tar xvfz [path_to_distribution_file]/[filename].tar.gz
```

2. Change to the directory that was extracted from the tar.gz file.
3. Run the install script as the root user, specifying the options required for your server. There are a number of options that control the installation process. For a typical Harmony server or a stand-alone machine, you would run the installation script with the following parameters:

```
./install -b -d -kde
```

With these options, the binaries are installed, and the database server is installed and set up to start automatically. These options also add Harmony entries to the KDE application menu.

If your Linux server will be serving Windows clients, you must add the **-l** option.

If you are setting up the clients for the batch render, you will add the **-p** parameter. It is not recommended to configure batch processing on the server, as it will slow it down.

Here is a description of all the installation options:

Option	Default Value	Details
-binaries -b	Inactive	Installs binaries and configuration files required to run Harmony applications.
		You must include this option when doing a fresh install or when you upgrade Harmony.
		You must use this option when installing Harmony on the server.

Option	Default Value	Details
`-dbserver` `-d`	Inactive	Installs the **tbdbserver** as a daemon. This is the Harmony database server daemon. It processes data requests from clients on the network. This option also creates a fresh database when there is no **/USA_DB** directory. You must use this option when installing Harmony on the server and on the stand-alone machine.
`-help` `-h`	Inactive	Displays script usage information.
`-kde`	Inactive	Adds Harmony entries to the KDE application menu.
`-linkserver` `-l`	Inactive	Installs the **link_server** daemon. This daemon is required for Linux (or SGI) servers to create symbolic links for Windows clients. If you have Windows clients, you must install this daemon on the server.
`-process` `-p`	Inactive	Installs the **process** daemon. The **process** daemon manages batch processing (vectorizing and rendering) for Harmony. Usually several computers participate in the batch processing pipeline. This parameter is required if this computer is going to batch process any files for Harmony.
`-quiet` `-q`	Inactive	Does not output any information during installation.

`-target`
`<DIRECTORY>`
`-t <DIRECTORY>`
	/usr/local/ ToonBoomAnimation/harmony_9.2	Directory where the installer will install the harmony_9.2 tree.

`-udatedict` `-u`	Inactive	Updates the **dict** files in the database. Needs to be specified when upgrading from a previous version.

Configuration

After installing Harmony, configure database parameters depending on your machine's setup, and configure third-party software.

1. Configure Supporting Software and Hardware, on page 21
2. Configure Harmony, on page 24

Configure Supporting Software and Hardware

Third-party software and hardware must be configured before running Toon Boom Harmony.

You must perform the following tasks:

1. Set Up Licensing, on page 21
2. Configure the Link Server, on page 26
3. Configure Samba, on page 27

Set Up Licensing

Now that you have installed Harmony, you must set up the licensing so that it can run on the server and client machines.

Configuring the license server

1. As the root user, start the License Wizard by typing the following:

   `cd /usr/local/ToonBoomAnimation/harmony_9.2/lnx86/bin`

2. Click on **Activate License**.

The Activation Options screen appears:
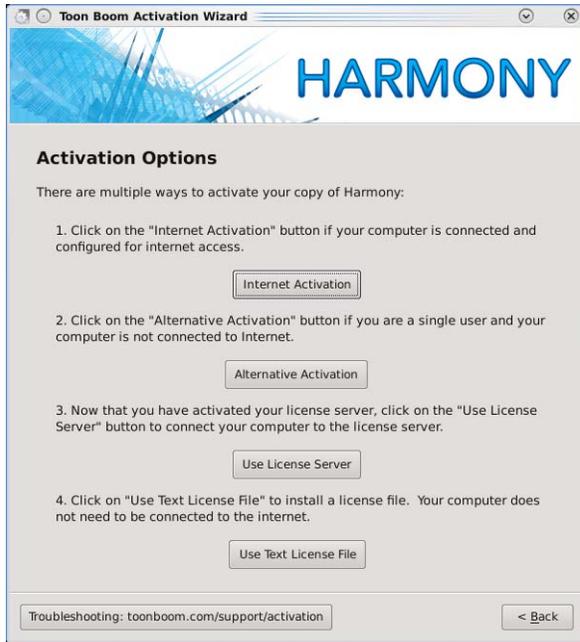
3. Click on **Internet Activation.**

The Internet Activation Options screen appears:
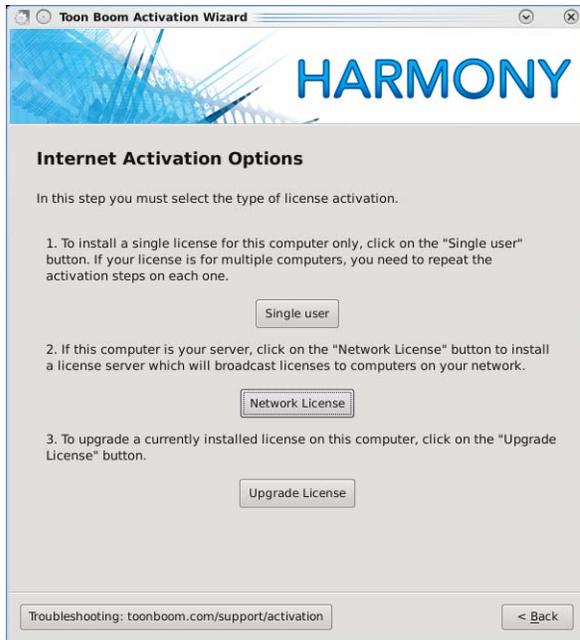
4. Click on **Network License.**

The **Internet Activation - Network License** screen appears:

5. Type or copy/paste the **Product Code** and type in the number of licenses this product code grants you.

NOTE: Once activated, server licenses can only be returned to the activation server once. A previously returned licensed can not be re-activated. Make sure you are activating the license on the correct computer.

6. Click on **Next**.

The **Install License Server** screen appears:

7. Click on **Install License Server.**

This step will create the license.dat file and place it in **/usr/local/flexlm/licenses/license.dat.** The license.dat created contains the following information:

```
SERVER this_host 0 ANY

VENDOR toonboom
```

> **USE_SERVER**

This step will also start the License Server service and will configure it to start automatically.

NOTE: Both these steps can be done manually if need be. To configure the License Server service to start automatically at boot, use the following command:

> **$ /sbin/chkconfig USAnimation_flexlm on**

8. To start the license server manually, type the following as the root user:

> **$ /etc/init.d/USAnimation_flexlm restart**

The **Activation Successful** screen appears:

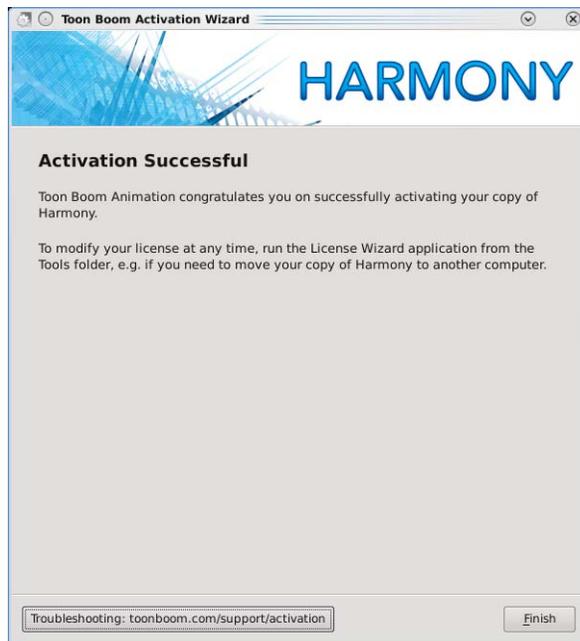9. Click on **Finish** to exit the wizard.
10. Verify that the **FlexLM license** is working properly by using the **lmutil lmstat –a** command.

> **$ lmutil lmstat -a**

You can also look at the log:

> **$ less /tmp/lmgrd.log**

11. If the FlexLM service needs to be restarted, use the following command:

> **$ /etc/init.d/USAnimation_flexlm restart**

Configure Harmony

After installation, you must set up the database configuration for computers running Harmony.

1. Set Up the Database Server, on page 24
2. Create the Toon Boom Harmony File System, on page 25
3. Set Up Linux Clients., on page 29
4. Install Start Application Menu Entries and Batch Processing on Clients, on page 30

Set Up the Database Server

The Dbserver controls all interactions with the contents of the Toon Boom Harmony database. It processes all requests to open, read or update files, keeping track of files that are locked so that others can not edit them.

When installing Harmony on the server for he first time, the Harmony database folder is created automatically. Verify that the folder was created correctly. Look for the **USA_DB** folder in the root folder (**/USA_DB**).

If you do not see the folder there, you will need to create it using the **create_usa_db** script. Type the following command in a shell while logged in as root:

```
/usr/local/ToonBoomAnimation/harmony_9.2/lnx86/bin/create_usa_db /USA_DB
```

Next you need to create and edit the **Dbserver.conf** file to set up the Dbserver. Then you have to run a script that will start the Dbserver.

To set up the Dbserver:

1. Using a text editor, create the file **Dbserver.conf** in **/USA_DB/**.
2. Type the following in the **Dbserver.conf** file:

   Assuming the machine name of the Dbserver is "**harmonyserver**", the lines in Dbserver.conf would look like this:

   ```
   hostname harmonyserver

   port 5678

   debug_port 5680
   ```

   Note: You can find the example of **Dbserver.conf** in **/usr/local/ToonBoomAnimation/harmony_9.2/resources/samples**. You can copy and paste it from there and change it accordingly.
3. Save and close the **Dbserver.conf** file.
4. Change the permissions on the Dbserver.conf file to 644.
   ‣ In a shell, type the following:

   ```
   chmod 644 Dbserver.conf
   ```
5. You must now start the Dbserver service. In a shell, type the following command:

   ```
   /sbin/service USAnimation_flexlm start

   /sbin/service USAnimation_dbserver start

   /sbin/service USAnimation_link_srv start

   /sbin/service USAnimation_queues start
   ```

   A message will appear in the shell indicating that the script has been successful.
6. A log file will be generated in **/tmp/tbdbserver.log**. Check this file to make sure there are no errors written to the log.

Create the Toon Boom Harmony File System

After you set up and start the license and Dbserver, you are ready to create the file system for the Toon Boom Harmony database.

To create the Toon Boom Harmony file system:

1. In a shell, change directories to the root. Type:

   ```
   cd /
   ```
2. Make a directory named **/usadata000**. Type:

   ```
   mkdir usadata000
   ```

   Once you have finished creating **usadata000**, change the permission of:

   ```
   /usr/local/ToonBoomAnimation/harmony_9.2 /USA_DB and /usadata000 to 777.

   chmod -R 777 /usr/local/ToonBoomAnimation/harmony_9.2 /USA_DB /usadata000
   ```

Now you are ready to test your installation on the server/stand-alone machine.

Configuring Harmony to Share Scene Data

This section shows how to share the Harmony data for different network configuration.

Export Harmony Directories for Mac OS X and Linux Clients

Before you can install Harmony on Linux clients, you must export the Toon Boom Harmony directories from the server. The NFS and NFS locking services must be running so that all machines can access the data directories you export.

To start NFS services and export data directories from the server:

1. To share files with other Linux machines, you must start the NFS service. Type the following in a shell:

    ```
    /etc/init.d/nfs restart
    /sbin/chkconfig nfs on
    ```

    ‣   Note that if you are using Fedora 16, this would be:

    ```
    systemctl start nfs-server.service
    /sbin/chkconfig nfs-server on
    ```

2. The NFS lock manager must run on all Linux stations on your network. Without this service, they will not be able to access the database without receiving numerous "read lock" error messages. Type the following in a shell:

    ```
    /etc/init.d/nfslock restart
    /sbin/chkconfig nfslock on
    ```

    ‣   Note that if you are using Fedora 16, this would be:

    ```
    systemctl start nfs-lock.service
    /sbin/chkconfig nfs-lock on
    ```

    Now you are ready to export the Toon Boom Harmony directory.

3. Use a text editor to edit the `/etc/exports` file. Add the names of `/USA_DB`, `/usadata000` and `/usr/local/ToonBoomAnimation/harmony_9.2` directories to the file, like this: #

    ```
    /USA_DB *(rw,sync)
    /usadata000 *(rw,sync)
    /usr/local/ToonBoomAnimation/harmony_9.2 *(rw,sync)
    ```

4. Run the export command to finalize the exports. In a shell, type:

    ```
    /usr/sbin/exportfs -r
    ```

5. To check what is being exported from the server, type the following in a shell:

    ```
    /usr/sbin/showmount --exports
    ```

    A report appears listing all of the shares that are being exported from the server.

Configure the Link Server

If you are running Harmony in a mixed environment where the server is on Fedora Linux and some of the clients are running Windows, you must start the Link Server.

The Link Server makes it possible for Windows machines to communicate with the database.

To configure the Link Server on the server in a mixed network environment:

1. Use a text editor to create the `Link_srv.conf` file in the `/USA_DB` directory. This file must contain the following two lines:

    ```
    hostname harmonyserver
    port 5679
    ```

    Replace `harmonyserver` with the name of the database server. You can find the name of a computer by using the `uname -n` command.

    Note: you can find the example of `Link_srv.conf` under `/usr/local/ToonBoomAnimation/harmony_9.2/resources/samples/`. You can copy and paste it from there and change it accordingly.

2. Change the permissions on the `Dbserver.conf` file to `644`. In a shell, type the following:

```
chmod 644 Link_srv.conf
```

3. Start the Link Server. Type the following in a shell:

```
/etc/init.d/USAnimation_link_srv start
```

A message will appear in the shell indicating that the script has been successful.

4. A log file will be generated in **/tmp/Link_srv.log**. Check this file to make sure there are no errors written to this file.

Configure Samba

Finally, you must modify the **/etc/samba/smb.conf** file. To do this, add entries for each database directory you want to share with Windows clients in the **/etc/samba/smb.conf** file. Then, you must add options to the [Global] section of the file.

Following is an example of entries in the **smb.conf** file. You can add these to the end of the **smb.conf** file.

```
[USA_DB]
comment = Toon Boom Harmony Database
browseable = yes
read only = no
guest ok = no
create mask = 0777
directory mask = 0777
path = /USA_DB
[usa]
comment = Toon Boom Harmony binaries & stuff
browseable = yes
read only = no
guest ok = no
create mask = 0777
directory mask = 0777
path = /usr/local/ToonBoomAnimation/harmony_9.2
[usadata000]
comment = Toon Boom Harmony data 000
browseable = yes
read only = no
guest ok = no
create mask = 0777
directory mask = 0777
path = /usadata000
[usadata001]
comment = Toon Boom Harmony data 001
browseable = yes
read only = no
guest ok = no
create mask = 0777
directory mask = 0777
path = /usadata001/
```

You must also either add or modify the following entries to the [Global] section of **smb.conf**:

```
[global]
```

```
        encrypt passwords = no


        blocking locks = no
        oplocks = no
        level2 oplocks = no


        follow symlinks = yes
        unix extensions = no
        wide links = yes
```

Once you have done all the changes and saved the `smb.conf` file, run the `testparm` command to validate the `smb.conf` configuration file for internal correctness.

```
        testparm
```

Configure the Samba Service to Start at Boot Time

By default, Samba is not set up to run automatically.

To start the Samba service:

1. To configure the Samba to run as a service at boot, type the following in a shell:

```
        /sbin/chkconfig smb on
```

2. To start the Samba service immediately, type the following in a shell:

```
        /sbin/service smb start
```

Configure the server.ini File

Before you install Harmony on Windows clients, you must create the `/usr/local/ToonBoomAnimation/harmony_9.2/etc/server.ini` file on the database server. The `server.ini` file provides information necessary for the Windows configuration wizard to set up a Windows client.

When creating the `server.ini` file, be attentive to spelling and character spacing and case.

The following is an example of the `/usr/local/ToonBoomAnimation/harmony_9.2/etc/server.ini` file. In this example, the database server name is `usaserver` and there are two `usadata` directories, `usadata000` and `usadata001`.

```
        [WizardConfig]

        ServerName=usaserver

        InstallationDrive=C

        UsaShare=usa

        UsadbDrive=C

        UsadbShare=USA_DB

        FileSystem0=C usadata000 usaserver

        FileSystem1=C usadata001 usaserver
```

Do not worry about the references to "Drive C". These references are necessary for Windows clients and will be ignored by Linux.

NOTE:

You can find the example of `server.ini` under `/usr/local/ToonBoomAnimation/harmony_9.2/resources/samples`.
You can copy and paste it from there and change it accordingly.

Any sharing folder name should be case sensitive

Reboot

At this point, you should reboot the Toon Boom Harmony server so that all of the services you just configured will start up.

Set Up Linux Clients.

To run Toon Boom Harmony on Linux clients, you must mount the binaries and data directories stored on the server. To access the directories exported from the server, the network file server (NFS) and NFS locking services must be running.

To start NFS services and mount Toon Boom Harmony directories on clients:

1. To access the mounted directories, you must start the NFS service. Type the following in a shell:

    `/etc/init.d/nfs restart`

    `/sbin/chkconfig nfs on`

    ‣   Note that if you are using Fedora 16, this would be:

    `systemctl start nfs-server.service`

    `/sbin/chkconfig nfs-server on`

2. The NFS lock manager must run on all Linux stations on your network. Without this service, they will not be able to access the database without receiving numerous "read lock" error messages. Type the following in a shell:

    `/etc/init.d/nfslock restart`

    `/sbin/chkconfig nfslock on`

    ‣   Note that if you are using Fedora 16, this would be:

    `systemctl start nfs-lock.service`

    `/sbin/chkconfig nfs-lock on`

Now you are ready to mount the directories from the server.

3. On each client computer, create directories for:
    *   `/usr/local/ToonBoomAnimation/harmony_9.2`
    *   `/USA_DB`
    *   `/usadata000`.

    The directory names must match the names on the Toon Boom Harmony server.

    `mkdir /usr/local/ToonBoomAnimation/harmony_9.2`

    `mkdir /USA_DB`

    `mkdir /usadata000`

4. To mount the directories on the client machine edit the `/etc/fstab` file.

    In the following example, the **server** is the machine name of the database server.

    `server:/USA_DB /USA_DB nfs rw,soft,intr,bg 0 0`

    `server:/usadata000 /usadata000 nfs rw,soft,intr,bg 0 0`

    `server:/usr/local/ToonBoomAnimation/harmony_9.2 /usr/local/ToonBoomAnimation/harmony_9.2 nfs rw,soft,intr,bg 0 0`

    This will cause the Toon Boom Harmony directories to mount with the default version of NFS on your system.

    If you encounter errors, you should try using NFS version 2. In this case, you should modify the fstab file to match the following:

    `server:/USA_DB /USA_DB nfs rw,soft,intr,bg,vers=2 0 0`

    `server:/usadata000 /usadata000 nfs rw,soft,intr,bg,vers=2 0 0`

    `server:/usr/local/ToonBoomAnimation/harmony_9.2 /usr/local/ToonBoomAnimation/harmony_9.2 nfs rw,soft,intr,bg,vers=2 0 0`

5. At a command line, type the mount all command.

    `mount -av`

    To verify that all of the shares are mounted, type the following in a shell:

    `mount`

    A report appears listing all of the shares mounted on the client.

6. To test that the mount has worked, you can open one of the mounted directories and list the contents. You can also open the sample scene in the Stage Module.

    a   To list the contents of the mounted directories, type the following in a shell:

        `cd /usr/local/ToonBoomAnimation/harmony_9.2`

        `ls`

A list appears of the directories in **`/harmony_9.2`**. They are:

        `etc help lang lnx86 Plugins resources Templates`

    b   To open the sample scene in the Stage Module type the following in a shell:

        `Stage`

    c   Select the **Connect to Database** radio button and login using the usabatch user name.

    d   **Open t**he sample scene.

If you have any problems opening the sample scene on a Linux client, see Troubleshooting, on page 31.

Install Start Application Menu Entries and Batch Processing on Clients

To make it easier for users to start Toon Boom Harmony, you should install the application menu entries for KDE. You should also include the -p installation option to start batch processing services on rendering machines.

To install menu entries and batch processing:

1. Go to the directory that contains the Linux installation files.
2. Run the `install` script with the `-p` and `-kde` options.

        `./install -p -kde`

Troubleshooting

If you have any problems running Harmony after installation, review the installation and configuration instructions to make sure you have followed them completely. If you continue to have problems, consult the following list to troubleshoot common installation and configuration problems.

- Problem: License Error When Starting Any Toon Boom Harmony Module, on page 31
- Problem: Unable to Import Sample Scene (Errors with the Dbserver), on page 31
- Problem: Unable to Open Sample Scene on Linux Clients, on page 32
- Problem: Stage Module Will Not Open or Crashes on Startup, on page 32
- Problem: Unable to Display Images in Stage Module, on page 32
- Problem: Exported Directories Not Mounting on Clients, on page 33

Problem: License Error When Starting Any Toon Boom Harmony Module

If you are getting license errors when you start a Toon Boom Harmony module, check the set up and configuration of the license service.

- Make sure that the license.dat file is in the following directory:
  `/usr/local/flexlm/licenses if you are using a license server.`
- Open the license.dat file.
  The license.dat should contain the following information:
  `SERVER this_host 0 ANY`
  `VENDOR toonboom`
  `USE_SERVER`
- Make sure that the license service is running on the license server. In a shell type:

  `/sbin/service USAnimation_flexlm status`

- To see if the service is running on the server. It is not running, start the service with the following command:

  `/sbin/service USAnimation_flexlm start`

- You will have to re-start the Dbserver if the license server was not properly installed or activated. Type the following in a shell:

  `/sbin/service USAnimation_dbserver start`

- If you continue having problems with the license server, locate the file `lmgrd.log` and send it to **support@toonboom.com**. This file is usually in
  `/tmp`.

Problem: Unable to Import Sample Scene (Errors with the Dbserver)

- Check the `Dbserver.log` file. It is usually stored in `/tmp`.
  - ⇨ If there is no log file, re-start the Dbserver. Type the following in a shell:

  `/sbin/service USAnimation_dbserver start`

If there is a log file, the last few lines in the log file will give you some indication as to the problem with the Dbserver.

- If you get an error in the log about the machine name, check the
  `/USA_DB/ Dbserver.conf` file and make sure the hostname matches the machine name of the Toon Boom Harmony server.
- If you get errors about the port number, check that the port name in the `Dbserver.conf` file is not used by another service. Type `netstat -a` in a shell to see a list of port numbers used by the machine. If another service is using the port `5678`, you can change the port number in `Dbserver.conf` to any unused number above 5000.
- Re-start the Dbserver. Type the following in a shell:

  `/sbin/service USAnimation_dbserver start`

Problem: Unable to Open Sample Scene on Linux Clients

- On the Toon Boom Harmony server, check that all of the Toon Boom Harmony directories were exported. The /`USA_DB`, `/usr/local/ToonBoomAnimation/harmony_9.2,` and /`usadata` directories must appear in the `/etc/exports` file. Make sure that the entries in this file match the name of the directories you created on the server.
  In a shell, type the following to make sure the directories have been exported:

  ```
  /usr/sbin/exportfs -r
  ```

  For more information, Export Harmony Directories for Mac OS X and Linux Clients, on page 26.

- On the Linux client, check that you created the data directories and mounted the server directories into those directories. Check the `/etc/fstab` file to see that the data directories are listed and spelled the same way as the directories on the client and on the server.
  List the contents of the mounted directories to see that there are some contents.

  ```
  cd /usr/local/ToonBoomAnimation/harmony_9.2
  ```

  ```
  ls
  ```

  A list appears of the directories in `/usa`. They are:

  ```
  etc help lang lnx86 resources
  ```

- If you do not see anything in the exported directories, type the following in a shell to make sure the server directories have been mounted:

  ```
  mount -a
  ```

  If you are able to list the contents of the exported directories and open the sample scene after manually mounting all shares, check the start up sequence of ypbind and nfs to make sure that nfs is started first. For more information, see "Problem: Exported Directories Not Mounting on Clients" on page 33.

Problem: Stage Module Will Not Open or Crashes on Startup

Periodically, the Stage Module refuses to open, printing an NVIDIA error message in the shell. This may not happen all of the time. Users may report this error after running the application several times successfully.

The NVIDIA error message directs users to instructions in the Read Me file:

```
/usr/share/doc/NVIDIA_GLX-1.0/README.txt
```

Problems with the security module of the PAM system can cause these periodic problems. Follow the instructions in the NVIDIA Read Me to resolve this error.

If you continue to experience problems, verify that the `xorg.conf` file (in `/etc/X11/`) contains the correct driver information (the driver should be `nvidia`, not `nv`).

If this does not resolve the problem, reinstall your NVIDIA driver.

Problem: Unable to Display Images in Stage Module

Your monitor's screen settings must be set to 24-bit per pixel.

Verify your current settings.

- If you are using Fedora, verify the file `/etc/X11/xorg.conf`.

Problem: Exported Directories Not Mounting on Clients

On most Fedora Linux distributions, the **ypbind** service is started after **nfs** by default. This causes directory mounting to fail when your system boots up. This will prevent Linux clients from mounting Toon Boom Harmony directories from the server.

You must make sure the **ypbind** service is started before **nfs**.

To configure the start sequence of ypbind and nfs:

1. Turn the service off and remove it from the startup configuration. Type the following in a shell:

   /sbin/service ypbind stop

   /sbin/chkconfig ypbind off

2. Edit the ypbind startup script located in **/etc/init.d/ypbind**. Find the line reading:

   chkconfig: 27 73

   Change it for:

   chkconfig: 24 73

3. Restart the service. Type the following in a shell:

   /sbin/service ypbind start

   /sbin/chkconfig ypbind on