



Snell
Advanced
Media

xFile

Trial Installation Guide Linux



Version History

Table 1: Version Table

Date	Version	Released by	Reason for Change
10/07/2014	1.0	Andy Gingell	Initial release
13/11/2014	1.1	Jeremy Courtney	Title change
13/3/2015	2.0	Andy Gingell	Revised edit for V2.*.*
08/09/2015	2.1	Andy Gingell	Edit for XF rebrand
26/01/2016	2.2	Greg Emerson	Completed rebrand
21/12/2016	2.3	Jon Metcalf	Update Support web links

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1. Introduction

1.1 Purpose

The purpose of this document is to demonstrate how to successfully install and license the xFile Trial software. By following this guide all the xFile applications and services will be installed on to a single host machine.

1.2 Apple ProRes Licensing

Due to licensing requirements, the encoding and decoding of Apple ProRes file formats is not permitted when an X Window system is running a local session i.e. if an X server is running on the xFile Node host machine, Apple ProRes jobs will not be processed.

Linux distributions offering a graphical environment will default to run level 5. Console/server operating systems will default to run level 3.

1.3 Assumptions

- The host machine has at least the minimum specification, including a GPU with correct GPU driver
- You must be able to access the host machine using the local display, keyboard and mouse, or you have remote console access.
- The Trial installation offers a 15 day license which can only be used once on a host machine.
- Output files will contain a watermark.

1.4 Definitions, Acronyms and Abbreviations

Table 2: Table of Terminology

Term	Definition
API	Application Programming Interface. An API specifies how some software components should interact with each other.
APT	Advanced Packing Tool
Destination folder	Folder where finished jobs are written to (access and authorisation is required).
FIMS	Framework for Interoperable Media Services. A framework of service definitions for implementing media related operations using a Service Orientated Architecture (SOA).
GPU	Graphical Processing Unit. They are very efficient at manipulating computer graphics, and their highly parallel structure makes them more effective than general-purpose CPUs for algorithms where processing of large blocks of data is done in parallel.
Install / Installation	Installation of the services within the xFile framework
Locking code	Lock code base on specified locking criteria
License file	Defines the quantity of products available
License Server	Manages product licenses
XF	xFile
Profile (default/user)	Describes a collection of parameters for a given job. User defined profiles and a selection of read only default profiles are available.
REST	Representational state transfer. Rest is a simple way of sending and receiving data between client and server. A RESTful web service is a web API implemented using HTTP and REST principles. Request methods include GET, POST, PUT, DELETE.
xFile Browser	Service which provides access and directory listings for local and remote shares to the client. Enables the use of browse feature in the client.
xFile Deployment	A collection of xFile services which touch the actual media assets. This might be dictated by geographic location and/or SAN configuration. The services which touch the media are the xFile Node, xFile Browser and xFile Watcher.
xFile Node	Service which executes the jobs within the job queue. It performs all data processing (image/audio/metadata).
xFile Server	Service which orchestrates the framework and manages the products, profiles, licenses available within a given server. One server can manage multiple deployments.
xFile Watcher	Service to monitor watch folders and automatically add jobs to the job queue. Monitoring can be based on notification or polling.
SOAP	Simple Object Access Protocol. SOAP is a method of transferring messages, or small amounts of information, over the Internet. SOAP messages are formatted in XML and are typically sent using HTTP (hypertext transfer protocol).
Source file	Location of the source file. Path can be entered explicitly or via the browse feature (access and authorisation is required).
SUDO	Super User Do
YUM	Yellow Dog Update Manager

2. Hardware and Software Requirements

Please refer to the website for details of the hardware and software required to run xFile.

Links to the appropriate Data Sheet:

Alchemist-XF:

https://s-a-m.com/media/2209/alchemyist_xf.pdf

Kronos-XF:

<https://s-a-m.com/media/2933/kronos-xf.pdf>

Quasar-XF

https://s-a-m.com/media/2223/quasar_xf.pdf

For more detailed info, please see Optimising Performance documents here:

Alchemist-XF:

<https://s-a-m.com/media/2877/alchemyist-xf-optimizing-performance.pdf>

Kronos-XF:

<https://s-a-m.com/media/3235/kronos-xf-optimizing-performance.pdf>

Quasar-XF

<https://s-a-m.com/media/2224/quasar-xf-optimizing-performance.pdf>

2.1 Software Prerequisites specific to Linux Installation

Whilst installing, the xFile services will need to run an update tool, such as YUM (Yellow Update Manager) or APT (Advanced Package Tool), to access and manage the installation of required software dependencies. Your choice of update tool will depend on your Linux distribution.

The xFile services are installed as **root** user. Customers can either log on as **root** or configure **sudo** to carry out the installation and management (**sudo** will allow specific users to run as **root** temporarily).

In order to run the xFile Client on a Linux host machine, the machine will need to have a suitable X Windows session running.

3. xFile Architecture

3.1 Overview

The xFile framework benefits from a Service Orientated Architecture (SOA). This SOA design philosophy aids your ability to develop your installation and allow it to grow as your needs evolve.

The minimum required services are:

- xFile Client
- xFile Server
- xFile Node (minimum of one)

Optional Services are:

- xFile Browser
- xFile Watcher

Without the xFile Browser installed and started the **Browse** feature will not work in the client.

Without the xFile Watcher installed and started the **Watch Folders** feature will not work.

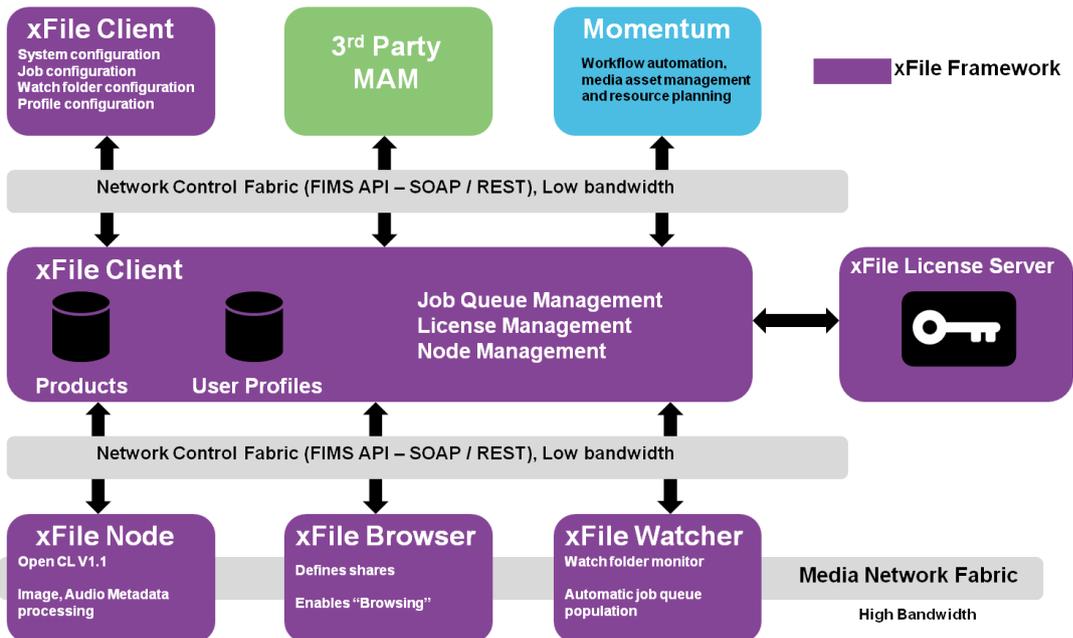


Figure 1: xFile Framework

3.2 Deployment Components

The xFile installer will install all services and the client application onto a single host machine. The package comprises of:

- xFile Client (Client application)
- xFile Server (Service)
- xFile Node (Service)
- xFile Browser (Service)
- xFile Watcher (Service)
- License Server (Service)

xFile Client is the application used to connect to the xFile Server. It can be installed locally on the host or run from a remote computer which is running on CentOS or Redhat. Multiple clients can be connected to a single server. The client offers intelligent profile creation, job creation, visibility of available products (and associated quantity of licenses), framework configuration and status.

Note that remote clients running on Windows 64bit OS, or MAC, can be configured.

xFile Server is the service responsible for the main orchestration of the framework. It organizes the various deployments and their associated services. It manages the job queue, the license server and all job profiles (user and default) for the available xFile products. Job priority can be specified with jobs of an equal priority executed on a first come, first served basis. For a job to start a xFile Node and license must be available.

xFile Node is the service which transforms/converts the video/audio and metadata. For successful operation an OpenCL V1.1 environment is required. This can be achieved using single or multiple GPUs within a host machine.

Details of supported GPUs can be found in the appropriate Datasheet on the website (see section 2 above).

Multiple GPUs within a host machine can be used to increase the speed of processing up to real time.

A deployment can consist of multiple nodes to enable parallel processing of jobs within the queue. The number of xFile Nodes available dictates the number of jobs that can be run in parallel at any one time.

Dependant on the network topology, this service may require authorisation to access the media on specified shares.

xFile Browser is a service which provides access and directory listings for local and remote shares to the client. This enables the “browsing” feature within the client and enhances the user experience when creating new jobs.

Dependant on the network topology, this service may require authorisation to access the media on specified shares.

xFile Watcher is a service which monitors user specified Watch Folders and automatically adds jobs to the job queue when their contents changes. Monitoring can be based on file system notifications or dedicated polling. The user specifies a Profile to be applied to each asset which is copied to a Watch Folder. The processed asset is then written to the associated Drop Folder. Filters and output filenames can be assigned to each Watch Folder.

Dependant on the network topology, this service may require authorisation to access the media on specified shares.

License Service – is the service that manages licensing of the xFile framework. If the license service is not available, or cannot be accessed over the network, products within the framework will not be available for use.

From V2.0.0.0 a base and feature will be required to successfully process media

4. Trial Framework Topology

The xFile software framework benefits from a Service Orientated Architecture (SOA) which has been engineered to support a range of deployments from a single node through to a cluster of nodes within a data centre.

This SOA design philosophy aids your ability to evolve your installation and allow it to grow as your needs change. Whether you want a centralized job queue managing many processing nodes, or prefer singular job queues managing individual nodes, the framework can accommodate your requirements.

The trial employs the following configuration:

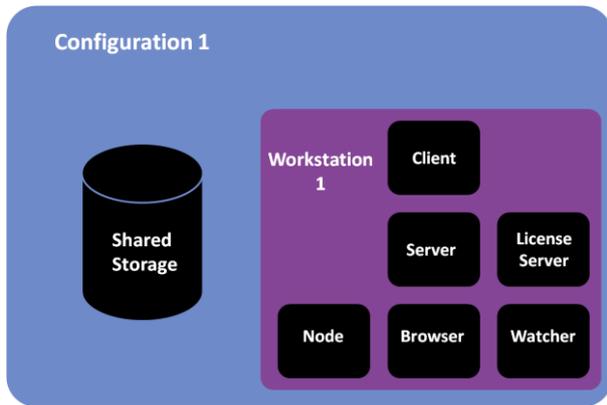
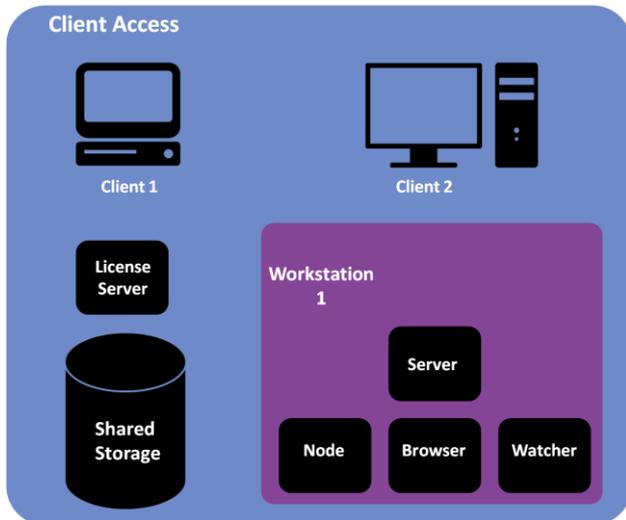


Figure 2: Framework Configuration – Standalone

4.1 Use of the Client

The Client can be installed directly on the workstation/server or it can run remotely on a desktop/laptop. Any number of clients can access a single xFile Server.



4.2 Considerations for Trial Installations

Key Considerations:

1. xFile Node must have one or more GPUs offering an OpenCL environment.
2. xFile Node, Watcher and Browser all require authorisation to access the media files.
3. xFile Node requires high bandwidth access to shares.

5. Package Contents

Download and unzip the xFile Trial package set. It will comprise of:

- xfile-browser-x.x.x.x-Linux- x86_64Trial.rpm
- xfile-node-x.x.x.x-Linux-x86_64Trial.rpm
- xfile-server-x.x.x.x-Linux-x86_64Trial.rpm
- xfile-watcher-x.x.x.x-Linux-x86_64 Trial.rpm
- xfile-client-x.x.x.x-Linux- x86_64Trial.rpm
- safenet-x.x.x-Linux-x86_64Trial.rpm
- installALL.sh
- removeAll.sh
- xFile Client-x.x.x.x-win64.msi

6. Software Installation

The xFile services are installed as **root** user. Customers can either log on as **root** or configure **sudo** to carry out the installation and management (**sudo** will allow specific users to run as **root** temporarily).

6.1 Installing the xFile Services

1. Logon to the host machine using a terminal emulator such as **putty**.
2. Create a temporary directory for the xFile package

For example:

```
/var/tmp/snell
```

and then copy the downloaded xFile Trial zip file to that directory.

3. Change directory to:

```
/var/tmp/snell
```

and then unzip the xFile Trial zip file.

4. To Install all the xFile packages and the license server use the following:

```
[root]# sh installAll.sh
```

At the end of the script you will be asked if you wish to start all the services, respond with **Y** for yes.

5. List each of the xFile services using the following:

```
chkconfig --list | grep -i snell
chkconfig --list | grep -i Safenet
```

6.2 Installing the xFile Client

1. The xFile package set contains both Linux and Windows 64-bit compatible xFile clients. The Linux client has been installed on to the host machine as part of step 4 above. If you require a remote client (this is necessary when decoding or encoding Apple ProRes files) then copy the appropriate xFile Client installer on to a remote workstation.

2. Install the Linux 64-bit xFile Client:

Open a terminal session and type the command:

```
yum -y install xfile-client-x.x.x.x-Linux-x86_64Trial.rpm
```

3. Firewall configuration: there are no **iptables** requirements for a single system deployment with a local xFile Client. However, if you are using a remote xFile Client then the **iptables** will need to be adjusted to allow the client to connect to port 35061 (TCP) on the machine hosting the xFile Server.

7. Trial Operation

1. Launch the **xFile Client**.

To start a Linux xFile Client, open a terminal session and type: **xfile_client**

To start a Windows xFile Client, go to the desktop and double-click on the **xFile** icon.



The xFile Client will now open.

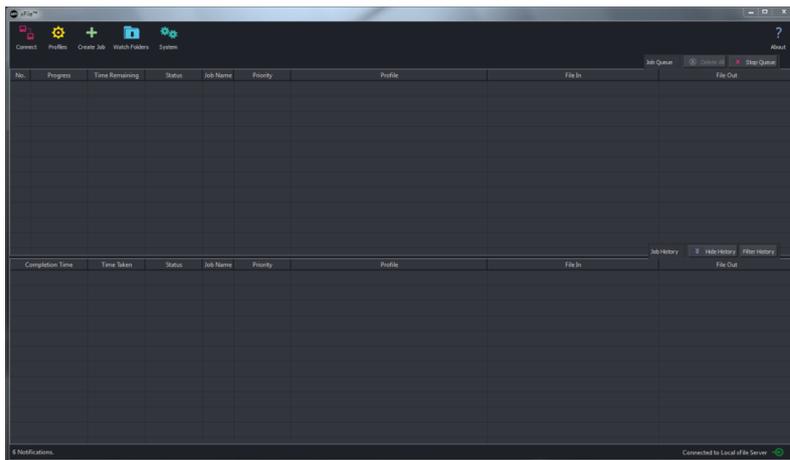
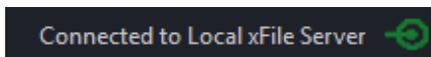
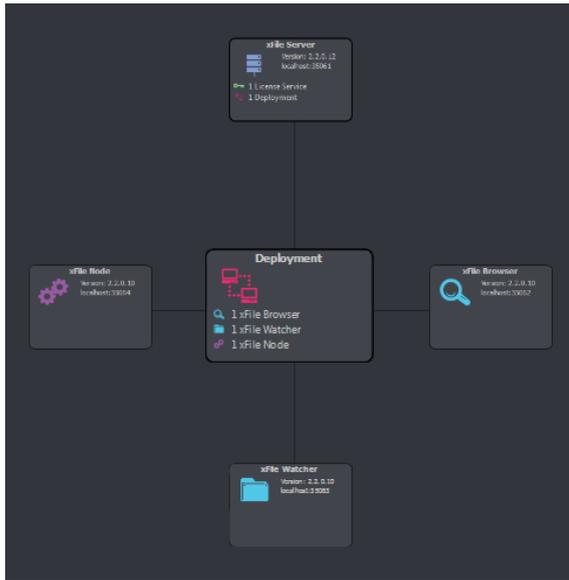


Figure 3: xFile Client

2. The client will automatically **connect** to the **Server**. This can be confirmed by looking at the bottom right corner of the client. Successful connection should look like this:



3. Check the default deployment has been successfully configured. Click on the **System** icon, followed by **Deployment**. The Deployment should appear like this:



Key points of interest:



Connect is used to define the xFile Server you wish to connect to.



Profiles is used to configure **User Profiles**.



Create Job is used to add a new job to the job queue.



Watch Folders is used to manage Watch Folder configuration.



System is used to configure, manage and maintain the xFile deployments and services.



About informs the user of the client version and copyright notices.



Connection to is used to indicate Server connection success (green) or failure (red).

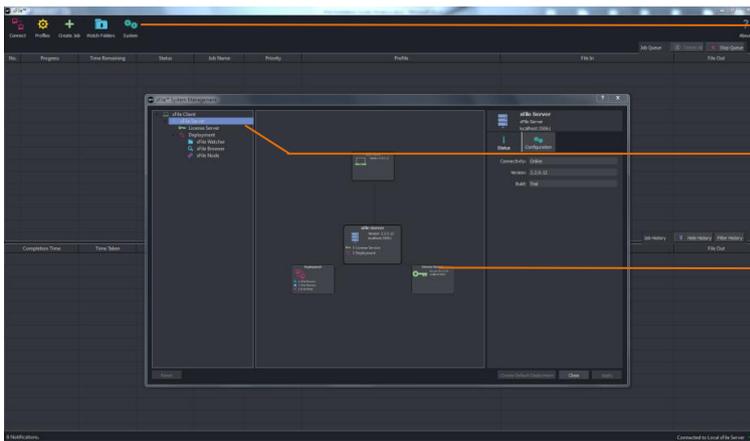
8. Trial Service Status

Click on the **System** button to view a pictorial view of the configured system. As all the services for the Trial are installed on one server the system will automatically configure a **Default** deployment and configure all the services.

Click on the **system** icon to open the system management window.



Now click on the **Deployment**. The output from the selection is displayed below. Note the deployment status is **Online**.

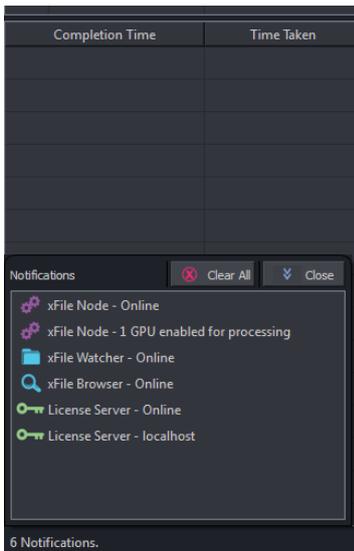


System icon

Select xFile Server

Local deployment and License Server

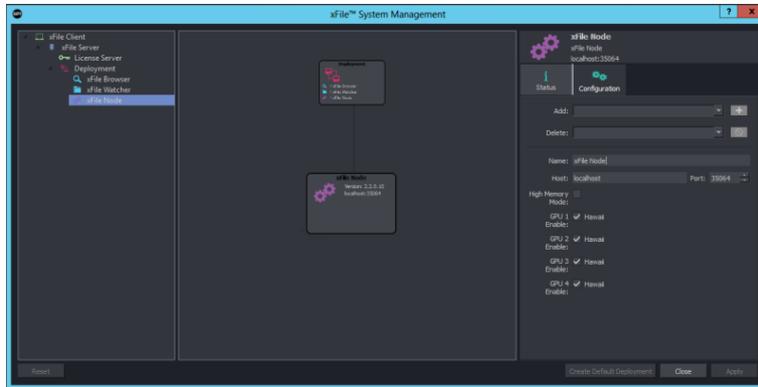
You can also do a quick service status check of the service by clicking on the **Notification** button located in the bottom left of the connected screen.



8.1 Node Configuration

GPUs can be enabled and disabled by changing the configuration of the **xFile Node**. To access this control, click on the Configuration tab of the Node on the **System page**.

The Node's Status tab will show the status of each GPU installed into the host machine. Using this status information the user can decide which GPUs to disable/enable.



Typical reasons for disabling a GPU might be:

- A low specification GPU is installed to drive a monitor
- The system has a mixture of GPUs installed and the user wants to maximise performance.

Remember!

Multiple GPUs should be matched.

If different GPUs are used, higher specification GPUs will only operate at the speed of the lowest specification GPU. It is recommended only GPUs from the same vendor are used within a host machine.

9. Remote Shares

For information regarding Remote Shares, please consult the appropriate User Guide, available from the website here:

Alchemist-XF

<https://s-a-m.com/media/2213/alchemist-xf-user-guide.pdf>

Kronos-XF

<https://s-a-m.com/media/2992/kronos-xf-user-guide.pdf>

Quasar-XF

<https://s-a-m.com/media/2225/quasar-xf-user-guide.pdf>

10. Programs and Features Listing

To view the combined xFile services type the following:

```
-sh-4.1# rpm -qa | grep -i xfile
```

This will return xFile Services details:

```
xfile-node-x.x.x-x.x86_64
xfile-server-x.x.x-x.x86_64
xfile-watcher-x.x.x-x.x86_64
xfile-browser-x.x.x-x.x86_64
xfile-client-x.x.x-x.x86_64
```

To view the xFile License Server details, type:

```
-sh-4.1# rpm -qa |grep -i Safenet
```

This will return xFile License Server details:

```
safenet-x.x.x-x.x86_64
```

NOTE: This print out reflects a host machine that has all the xFile services installed on it. Depending on topology in use this may vary.

11. Services Listing

To check the status of each service, type:

```
-sh-4.1# service xfile_server status
-sh-4.1# service xfile_node status
-sh-4.1# service xfile_watcher status
-sh-4.1# service xfile_browser status
```

NOTE: The services are configured to start automatically if the server is restarted.

To check the License Server status type:

```
-sh-4.1# service safenet status
```

Extracted Output:-

Sentinel RMS Development Kit 8.5.1.2009 Application Monitor
Copyright (C) 2011 SafeNet, Inc.

[Contacting Sentinel RMS Development Kit server on host "localhost"]

| - Feature Information

```
| - Feature name       : "Alchemist_OD_Base"
| - Feature version    : "1.0.0.0"
| - License type       : "Trial License"
| - Trial period        : 15
```

| - Feature Information

```
| - Feature name       : "Alchemist_OD_Feature"
| - Feature version    : "2.0.0.0"
| - License type       : "Trial License"
| - Trial period        : 15
```

| - Feature Information

```
| - Feature name       : "Quasar_OD_Base"
| - Feature version    : "1.0.0.0"
| - License type       : "Trial License"
| - Trial period        : 15
```

| - Feature Information

```
| - Feature name       : "Quasar_OD_Feature"
| - Feature version    : "2.0.0.0"
| - License type       : "Trial License"
| - Trial period        : 15
```

12. Uninstalling the xFile Services

1. Logon to the host machine using a terminal emulator such as **putty**.
2. Change directory to the temporary area where the xFile Trial package was unzipped during installation.
3. To remove all the xFile packages and the license server use the following:

```
[root]# sh removeAll.sh
```

Appendix A. Package Download

The xFile software package is downloaded from the SAM store.

Using your internet browser go to: <http://store.s-a-m.com/xFile>

The screenshot shows the SAM store website. At the top left is the SAM logo (Snell Advanced Media). The navigation menu includes: Home, xFile, Live Conversion, SigMA, Multiviewers, Shopping Cart, Checkout, Login, Create an account, and Contact Us. A blue cart icon shows 'Cart 0 items - £0.00'. The main heading is 'Welcome to the SAM store'. Below this, there's a breadcrumb 'Home > xFile' and a sub-heading 'xFile'. A large image shows a man in a suit holding a glowing globe with various icons around it. Below the image is a paragraph: 'A scalable, file based software framework, xFile combines Snell Advanced Media's image processing expertise with commodity IT equipment to offer the next generation of media processing products. Its Service Orientated Architecture and floating licensing model provides the versatility to evolve and adapt with changing business requirements.' Below this is a sorting and filtering section: 'SORT BY: Default', 'SHOW: 8', and 'Product Compare (0)'. There are two product listings, each with a bird icon: 'Alchemist XF Base Model single license' (Price: £10,000.00) and 'Alchemist XF Trial Version' (Price: £0.00). Each listing has an 'Add to Cart' button.

Scroll down the page and select the xFile product you wish to trial. Please note all product trials use the same xFile trial installer, which will install all products. Each product can be used for 15 days.

Add the **xFile Product** to your Cart, go to the Cart and checkout.

You will have to register or login if you're returning customer, and complete the order.

Once an order has been placed, you will be given access to a download package within the Downloads section of the SAM Store.

Download and store the software package on your server you wish to install.

Appendix B. Communication Matrix – iptable Information.

Table 3: xFile Service Names and Communication Matrix

Source Service	Source Port	Destination Service	Destination Port	TCP/UDP
xFile Client	HIGH PORT	xFile Server	35061,35060	TCP
xFile Client	HIGH PORT	xFile Watcher	35063	TCP
xFile Server	HIGH PORT	xFile Browser	35062	TCP
xFile Server	HIGH PORT	xFile Watcher	35063, 35069	TCP
xFile Server	HIGH PORT	xFile Node	35064	TCP
xFile Server	HIGH PORT	License Server	5093	UDP
xFile Node	HIGH PORT	License Server	5093	UDP

Here is a table that shows the xFile connectivity if the services are distributed. The above table gives the required details to configure the firewalls of all machines in your system.

- If all services are installed on one server, then no Firewall configuration is required.
- If you have a xFile client installed on a remote machine, then the Firewall will need to be open between the xFile Client and the xFile Server, and the xFile Client and the xFile Watcher, as detailed above.