

# ImageLAN User's Guide

<i>ImageLAN Overview</i> .....	2
<i>Architecture Overview</i> .....	2
<i>System Requirements</i> .....	3
<i>Installing ImageLAN</i> .....	4
<i>Updating ImageLAN</i> .....	5
<i>Activating ImageLAN</i> .....	7
<i>Uninstalling ImageLAN</i> .....	8
<i>Managing LAN clients</i> .....	8
<i>Managing ImageLAN Settings</i> .....	9
<i>Working with LAN Shares</i> .....	13
<i>ImageLAN Optimization Mechanisms</i> .....	15
<i>Working with File Sequence Optimizer</i> .....	19

# ImageLAN Overview

ImageLAN enables transparent, persistent, and easy-to-use access from computers that are not directly attached to the SAN. It offers fault-resistant performance when accessing the shared storage volumes from machines that are not connected to the SAN through the Fibre Channel.

ImageLAN provides an enhanced mechanism for communication between SAN-connected machines and machines that do not have direct access to the shared storage volumes, cutting away breakdowns in read-write operations and connection blackouts to the shared storage.

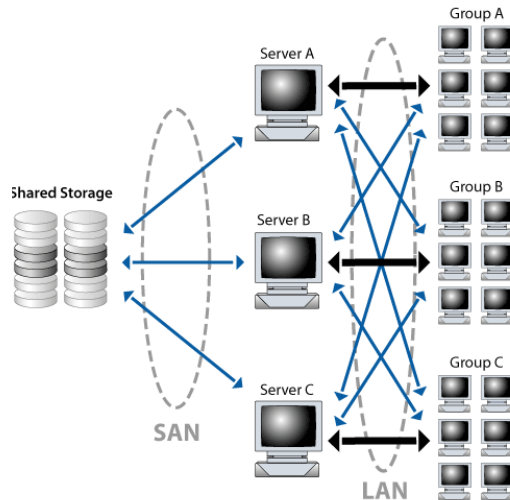
## Architecture Overview

ImageLAN works transparently to users and applications accessing the shared storage from LAN client computers. Shared files are available through the Ethernet for all LAN connected workstations that are added to a SAN definition as LAN client machines. LAN clients mount shared SAN volumes as local drives.

To access the share, LAN clients communicate with the Metadata Master supervising the volume as all SAN Members do, although this communication is absolutely transparent to the end-user. To avoid bottlenecks at the Metadata Master's side, all accesses to the share are performed through SAN Members that are set up as Data Masters.

To ensure persistent and reliable connection, a minimum of two SAN Members must serve as Data Masters. ImageLAN balances the network load by automatically redirecting all requests by LAN clients between the available Data Masters. In case one Data Master breaks down, accesses are automatically and transparently redirected through

an alternative Data Master, thus allowing LAN computers to reconnect to the shared storage volumes in run-time.



## How Does It Works

Consider the following sample scenario - a SAN definition with three computers added as LAN clients and two SAN Member machines serving as Data Masters - *Data Master 1* and *Data Master 2*. The three LAN clients have access to one of the volumes in the SAN definition, which is exported as share. *Data Master 1* and *Data Master 2* serve as gateways to the shared volume.

To avoid excessive burden on any given Data Master, the network load balancing engine ensures that all requests coming from LAN clients are fairly distributed among the available Data Masters. Thus, *Data Master 1* provides access to the volume for *LAN client 1*, while *Data Master 2* provides access for *LAN client 2* and *LAN client 3*.

Should *Data Master 1* disconnect or fail, *LAN client 1* is automatically redirected to the other available Data Master, in this case *Data Master 2*.

While *Data Master 1* is disconnected and *LAN client 1* uses the same Data Master as *LAN client 2* and *LAN client 3* the network traffic is slightly increased. When *Data Master 1* is again available ImageLAN takes care to distribute the network load.

## System Requirements

Each system on which you install ImageLAN must meet the following minimum system requirements:

### Mac OS X machines:

- Power Mac G4 or G5 (700 MHz or faster processor), Intel-based Mac
- Mac OS X Tiger or Mac OS X Tiger Server

**Note:** *No support for Mac OS 9, Mac OS X Jaguar or Mac OS X Server 10.2 and Mac OS X Panther or Mac OS X Panther Server.*

- 128 MB of physical RAM
- 25 MB of available hard-disk space for installation
- Network LAN connection (100 Mb Ethernet or more)
- The following TCP ports - 8100, 8300, 8399 - should not be blocked by a firewall if any.

### Windows machines:

- PC with a PII with a 300 MHz (megahertz) processor clock speed
- Microsoft Windows® 2000 (Service Pack 2 or higher), Microsoft Windows® XP/Server® 2003 or Microsoft Windows® XP 64-bit

**Note:** *No support for Microsoft Windows® 95, Windows®98, Windows® NT or Millennium Edition.*

- 64 MB of RAM
- 2MB of available hard-disk space for installation

- Network LAN connection
- CD-ROM drive (if installation is done from a CDROM)
- The following TCP ports - 7000, 8100, 8101, 8200, 8300, 8399 - should not be blocked by a firewall if any.

**Note:** *Some components may require additional system resources not outlined above.*

### Linux machines:

- PC with an Intel processor
- Red Hat Enterprise Linux Workstation 3.0:
  - 2.4.21-15.EL
  - 2.4.21-15.0.4.EL
  - 2.4.21-20.EL
  - 2.4.21-20.0.1.EL
  - 2.4.21-27.0.2.EL
  - 2.4.21-27.0.4.EL
  - 2.4.21-32.EL
  - 2.4.21-32.0.1.EL
  - 2.4.21-37.EL
- Red Hat Enterprise Linux Workstation 4.0:
  - 2.6.9-11.EL
  - 2.6.9-22.EL
  - 2.6.9-22.0.1.EL
  - 2.6.9-34.EL

**Note:** *Both uni and multiprocessor versions of the kernels are supported.*

**Important:** *Support for these kernels is guaranteed only if you use them with their default Red Hat settings. Changing any of the kernel setting may prevent ImageLAN from operating properly.*

- Ethernet LAN connection with other hosts on the SAN
- CD-ROM drive (if installation is done from a CDROM)
- The following TCP ports - 8100, 8300, 8399 - should not be blocked by a firewall if any.

## Installing ImageLAN

### Before installing ImageLAN, you should:

1. Make sure your systems meet the minimum system requirements (see “System Requirements” on page 3.)
2. Make sure a compatible version of ImageSAN 2.1 is installed on at least one workstation and it has direct access to the SAN volumes.

## Installing ImageLAN

### To install ImageLAN on a Mac OS X and Windows system:

1. (*Windows only*) On the selected computer, log on using an account with administrative privileges.
2. Browse for and double-click the ImageLAN installation file.  
The installation begins.
3. (*Mac OS X only*) Press Authorize and authenticate yourself in the Authenticate dialog.
4. Before continuing, you must accept the terms of the Software license agreement.  
The ImageLAN Configuration Wizard appears.
5. (*optional*) Run the ImageLAN Configuration wizard to connect your computer to an already

configured SAN definition with exported LAN shares.

(*optional, Windows only*) ImageLAN offers you to enable sequence optimization on the shares in the definition. For more information, see “Working with File Sequence Optimizer” on page 19. If you want to enable sequence optimization, refer to “Installing ImageLAN and Enabling Sequence Optimization” on page 4.

6. When prompted, restart your computer and proceed with the installation on another computer.

### To install ImageLAN on a Linux system:

1. Log on to the Linux system as root.
2. In command-line, type:  

```
rpm -i <path to the ImageLAN-2.x.i386.rpm>
```
3. Press Enter and then restart your computer.

## Installing ImageLAN and Enabling Sequence Optimization

The File Sequence Optimizer enhances the performance when processing file sequences. It packs files from a sequence and presents them to the file system as one or more pack files. Thus, disk fragmentation is reduced and processing file sequences is much faster. In the same time, sequence files are treated by all applications and the operating system as separate files. For more information, refer to “Working with File Sequence Optimizer” on page 19.

You can configure and enable sequence optimization during ImageLAN installation on your Windows computer, following the steps described below.

## To install ImageLAN and enable sequence optimization:

1. Install ImageLAN on the Windows computer.  
After the installation finishes, ImageLAN offers you to enable sequence optimization on the LAN shares in the definition.
2. Click Yes.  
The File Sequence Optimizer window appears.
3. Click About.  
The About File Sequence Optimizer dialog appears.
4. Click Activate.  
The Activation method dialog appears.
5. Do one of the following:
  - Select “Automatic activation”, to activate File Sequence Optimizer automatically on your machine and follow the steps described on page 20.
  - Select “Manual activation”, to activate File Sequence Optimizer manually on your machine and follow the steps described on page 20.

File Sequence Optimizer is activated on your machine.
6. In the About File Sequence Optimizer dialog, click OK.  
The File Sequence Optimizer window appears.
7. In the drop-down box, select a share for which to enable sequence optimization.
8. Click Activate.  
The Sequence Settings dialog appears.
9. Do one of the following:
  - Select a setting from the list with pre-defined settings.

- Click browse and browse for a directory containing file sequence, to allow ImageLAN to automatically configure the settings based on its files.
- Manually specify the sequence extension, sequence number width and size of sequence files in the corresponding fields.

### 10. Click OK.

ImageLAN asks you if you want to pack already existing sequence files on the share that match these criteria.

### 11. Click Yes to pack these files or click No to leave the files as they are on the volume.

The File Sequence Optimizer window appears, listing the configuration you have just specified.

### 12. Click Add and configure new sequence settings to add another configuration to the share or choose another share to configure sequence optimization for.

### 13. In the File Sequence Optimizer window, click Close.

### 14. Restart your computer in order the changes to take effect.

**Important:** *If you don't enable sequence optimization with the same configuration on other machines accessing the volume/share, these machines will not see the actual sequence files, but the pack files only.*

## Updating ImageLAN

### Updating Overview

You can update ImageLAN 2.x with a newer version without having to uninstall the previous one from your workstation. The setup program preserves all global settings - SAN definitions, definitions' settings, settings for non-SAN volumes, etc. except

the settings you specify for your machine in the Settings tab page.

On Windows systems, you will not be able to automatically update ImageLAN versions earlier than 2.0.3 with version 2.0.3 or later.

On Mac OS systems, you will not be able to automatically update any earlier version with ImageLAN 2.2. For detailed steps on upgrading ImageLAN, see “Manually Upgrading ImageLAN on Windows and Mac OS” on page 6.

It is highly recommended to update ImageLAN on all machines, as compatibility between different versions is not guaranteed.

## Automatically Updating ImageLAN

### To automatically update ImageLAN on a Mac OS X and Windows system:

1. (*Windows only*) On the selected computer, log on using an account with administrative privileges.
2. Browse for and double-click the new ImageLAN installation file.  
The ImageLAN Setup dialog appears.
3. Select “Update current installation”, and click Next.
4. (*Mac OS X only*) Press Authorize to authorize setup with administrative privileges.  
The Authenticate dialog appears.
5. (*Mac OS X only*) Enter the user name and password, and click OK.
6. Before continuing, you must accept the terms of the Software license agreement.
7. When prompted, restart the computer.

### To automatically update ImageLAN on a Linux system:

1. Log on to the Linux system as root.
2. In command-line, type:  

```
rpm -U <path to the new ImageLAN rpm file>
```
3. Press Enter.

## Manually Upgrading ImageLAN on Windows and Mac OS

### To manually upgrade ImageLAN on Windows and Mac OS:

1. On the machine running ImageSAN, export all SAN definitions you want to preserve. For more information, refer to ImageSAN User's Guide.
2. Uninstall the earlier version of ImageLAN from all LAN clients, choosing to reboot each machine later and shutting it down.
3. On the machine running ImageSAN, uninstall ImageSAN, and choose to reboot the computer immediately after deinstallation.
4. After rebooting the computer, install the new ImageSAN version on it. For more details, refer to ImageSAN User's Guide.
5. Activate ImageSAN on this machine. For detailed steps, refer to ImageSAN User's Guide.
6. Import all SAN definitions you have exported. For detailed steps, refer to ImageSAN User's Guide.  
**Tip:** *You can delete all default SAN definitions created on this computer.*
7. One by one, install the new ImageLAN version on each LAN client computer, using the Connect To option in the Setup Wizard to connect to the imported SAN definitions.

## Activating ImageLAN

By default, ImageSAN has one ImageLAN license activated, which means that only one LAN client computer at a time can access shared SAN volumes. In order to connect more ImageLAN workstations to the SAN, you should activate ImageLAN licenses in the SAN definition from which you want to export LAN shares. All LAN client machines added to the definition will be able to access shares exported from it as long as their number does not exceed the number of licenses.

**Note:** *The definition in which you activate LAN client licenses should be created on a SAN Member computer.*

For more information about managing LAN client licenses, refer to ImageSAN licensing server at:

<https://license.rorke.com>

### To activate ImageLAN licenses automatically:

1. In the About tab of the ImageSAN window, click Activate ImageLAN.  
The Activation Method dialog appears.
2. In the drop-down box, select the SAN definition in which you want to activate the licenses.
3. Choose Automatic Activation and click OK.  
The Automatic Activation dialog appears.
4. Enter your sales order number and password, and click Activate.  
The ImageLAN licenses are activated for this SAN definition.

### To activate ImageLAN licenses manually:

1. In the About tab of the ImageSAN window, click Activate ImageLAN.  
The Activation Method dialog appears.

2. In the drop-down box, select the SAN definition in which you want to activate the licenses.
3. In the Activation Method dialog, choose Manual Activation, and click OK.  
The Manual Activation dialog appears. It displays the serial number of the selected SAN definition.
4. Copy the serial and in a web browser go to <https://license.rorke.com>

**Tip:** *You can click the address of the licensing server in the Manual Activation dialog to enter the licensing site.*

The ImageSAN licensing server home page opens in your web browser.

5. Enter your sales order and password in the corresponding fields, and click Log in.  
You have successfully entered the ImageSAN licensing server. The server displays information about your account.
6. In the Licensing Server menu, click Activate LAN Licenses.  
The Activate LAN Licenses page appears.
7. Select “SAN Definition Serial Number”, paste the serial number of the SAN definition and click Generate.  
ImageSAN licensing server generates an activation key.
8. Copy the Activation key.
9. In the Manual Activation dialog, type the Activation key generated for your ImageLAN licenses, and click Activate.  
The ImageLAN licenses are activated for this SAN definition.

## Uninstalling ImageLAN

When uninstalling ImageLAN from a given workstation, the machine is automatically removed from all SAN definitions in which it participates.

### To uninstall ImageLAN from a Windows system:

1. Display the Control Panel.
2. Double-click the Add/Remove Programs icon.
3. Select ImageLAN and click the Change/Remove. The Setup wizard starts.
4. Select "Remove current installation", and click Next.
5. When prompted, restart the computer.

### To uninstall ImageLAN from a Mac OS X system:

1. In the Finder, browse for and double-click the ImageLAN installation file. The ImageLAN Setup dialog appears.
2. Select "Remove current installation", and click Next.
3. Click Authorize to authorize setup with administrative privileges. The Authenticate dialog appears.
4. Enter the user name and password and click OK.
5. When prompted, restart the computer.

### To uninstall ImageLAN from a Linux system:

1. Log on to the Linux system as root.
2. In command-line, type:  
**rpm -e ImageLAN**
3. Press Enter and then restart your computer.

## Managing LAN clients

### Adding LAN Clients to a SAN definition

ImageLAN allows you to add workstations that are not connected to the volumes over the Fibre Channel to a SAN definition, providing these workstations with access to the shared storage over the LAN.

All machines that are added to a SAN definition as LAN clients can access exported shares of SAN volumes over the LAN, but do not have direct access to SAN volumes over the Fibre Channel. In contrast to SAN Members that access the shared storage volumes over the LAN due to FC to Ethernet failover, LAN clients have access to exported shares of SAN volumes only.

### To add a LAN client to a SAN definition:

1. In the SAN Management tab, select a SAN definition from the drop down box and click Members. The Members Management dialog for the selected SAN definition appears.
2. Click Add Member. The Add Machine to SAN dialog appears. It displays all machines within the IP Range of your machine.
3. Do one of the following:
  - (*Windows*) Click the Browse button to browse for and select the machine you want to add to the definition.
  - (*Mac OS X*) Select a machine from the list of machines ImageLAN has detected.
  - (*Windows*) In the Address field type the IP address or name of the machine you want to add, and click Resolve.

- (*Mac OS X*) In the Address field type the IP address or name of the machine you want to add, and click Add to add it to the list of machines.

4. Enable “Add as LAN Client” to add the selected machine as a LAN client to the SAN definition, and click OK.
5. Repeat the above steps for each new computer you want to add as a LAN client.  
The Members Management dialog lists all computers that are added to the SAN definition and shows you their details.
6. In the Members Management dialog, click Apply.

### To remove a LAN client from a SAN definition:

1. In the SAN Management tab, select a SAN definition from the drop-down box, and click Members.  
The Members Management dialog for the selected SAN definition appears.
2. In the Members list, select a LAN client machine from the list, and click Remove.  
You are prompted to confirm the removal of the selected computer from the SAN definition.
3. Click Yes to confirm.
4. Repeat the above steps for each machine you want to remove from the selected SAN definition.
5. In the Members Management dialog, click Apply.

### Adding Your Computer to a SAN Definition through Another Machine

In case your LAN computer has not been included in a SAN definition, you can use the Add To SAN dialog to add it to the definition(s) on another machine.

### To add a Mac OS or Windows computer to a definition through another machine:

1. In the Utilities tab, click Add To SAN.  
The Add To SAN dialog appears.
2. Select Machine, and type the name or IP address of the necessary workstation, to add your computer to the SAN definition(s) in which it is included.  
**Note:** *To connect to a SAN definition through another computer, this computer should be switched on.*
3. Enable “Add as LAN Client”.
4. If the definition is password-protected, enter the password.
5. Click Connect to add your computer to the SAN definition(s) through the selected machine.

### To add a Linux computer to a definition through another machine:

1. In command-line, type:  
`imagelan alan <machine>`  
  - where **<machine>** is the IP address or DNS name of the machine through which you want to add your computer to the SAN definition(s).
2. Press Enter.
3. (*optional, if the definition is password-protected*)  
Type the password for the definition you want to add your computer to, and press Enter.

## Managing ImageLAN Settings

Aside from specifying the machines, which will access the shared storage as LAN clients, managing ImageLAN settings means to set the SAN Members that will serve as Data Masters, to specify and

manage the LAN shares to be exported to LAN clients.

## Specifying Data Masters

Any SAN Member in a SAN definition can be a Data Master. Data Masters provide LAN clients with access to shared SAN volumes and take care of selecting alternative share paths. Data Masters distribute LAN clients evenly among themselves, and thus reduce the network traffic over the Ethernet. By default, ImageSAN automatically selects all SAN Members in a SAN definition to be Data Masters. Even if you disable all Data Masters in a SAN definition, the Metadata Master will proceed processing requests from LAN clients i.e. will serve as Data Master.

### To specify Data Masters:

1. In the SAN Management tab, select a SAN definition in the drop-down box, and click Advanced.

The Advanced SAN Settings dialog appears.

2. Click Data Masters.  
The Data Masters dialog appears.
3. In the dialog, select the check box of each SAN Member that you want to serve as Data Master.

**Tip:** Clear the check box of each SAN Member that you do not want to serve as Data Master.

4. Click OK.
5. In the Advanced SAN Settings dialog, click OK.

## Creating Shares for LAN Clients

ImageLAN allows you to share entire or partial SAN volumes to machines that are not SAN Members. LAN share is an entire or partial SAN volume that is made accessible to LAN clients over the Ethernet.

You can either share whole volumes that are included in a SAN definition, or limit the access of LAN clients to a directory on a SAN volume. You can also disallow sharing of any resources by removing the share.

### To create shares for LAN clients:

1. In the SAN Management tab, select a SAN definition in the drop-down box, and click LAN Shares.

The LAN Shares Management dialog appears.

2. Click Add LAN Share.  
Empty Edit LAN Share dialog appears.
3. Enter a name for the LAN share in the Name box.
4. Select a volume from the Volume drop-down list.
5. To specify a single directory, do one of the following:

- In the Path box, enter the relative path from the root of the selected volume to the directory you want to share.
- *(Windows only)* Click Browse and select a directory.

**Note:** If you do not specify a single directory, the whole volume you have selected will be shared.

**Important:** When sharing a directory on a volume, you should make sure that nobody deletes this directory, as this will lead to unpredictable results on LAN client computers.

6. Click OK.
7. To create more shares, repeat the steps above.
8. In the LAN Shares Management dialog, click Apply.

**To edit a LAN share:**

1. In the SAN Management tab, select a SAN definition in the drop-down box, and click LAN Shares.

The LAN Shares Management dialog appears.

2. Select a LAN share from the list, and click Edit LAN Share.

The Edit LAN Share dialog appears.

3. In the Name box, enter a new name for the selected LAN share.

4. To change the specified path, do one of the following:

- In the Path box, enter the relative path from the root of the volume to the LAN share.
- (*Windows only*) Click Browse and select a directory.

**Note:** *If you do not specify a single directory, the whole volume will be shared.*

5. Click OK.

The LAN Shares Management dialog appears.

6. Click Apply.

**To delete a LAN share:**

1. In the SAN Management tab, select a SAN definition in the drop-down box, and click LAN Shares.

The LAN Shares Management dialog appears.

2. Select a LAN Share from the list and click Remove LAN Share.

You are prompted to confirm the removal.

3. Click Yes to confirm.

The LAN share is deleted and access to it is denied to all LAN clients in the definition.

4. In the LAN Shares Management dialog, click Apply.

**Managing Share Mount Location (Windows only)**

ImageLAN automatically chooses where to mount all LAN shares it manages. On Windows, a share is mounted as a drive letter specified by Disk Administrator or using the first available drive letter. On Mac OS X, a share is mounted in */Volumes*. On Linux, a share is mounted in the */mnt* directory. In the Mount Locations tab of the Volume Settings dialog for a share you can specify default mount location setting for a particular share on all machines, as well as override the default share mount location for a given machine. The options from which you can choose include:

- *Automatic* - ImageLAN will automatically choose where to mount the share.
- *Do Not Mount* - the share will not be mounted on the machine.
- *Drive Letter* - the share will be mounted as a drive letter that you specify.

**Important:** *This setting is valid for Windows systems only. If you choose this as default setting, but the desired drive letter is already taken or this should be applied for Mac OS X or Linux computers, Automatic will be used as share mount location.*

- *Mount Point* - the share will be mounted in a folder specified by you.

**To set default share mount location:**

1. In the LAN Shares Management dialog, select a share and click Advanced.

The Volume Settings dialog for the selected share appears.

2. Open the Mount Locations tab of the dialog.

All LAN Members in the definition are listed in the tab page with their mount locations for the share.

**Note:** *If you open the dialog for the first time, the default mount location for the share is Automatic.*

3. Beside the default field, click Change.

The Default Mount Location dialog appears.

4. In the dialog, do one of the following:

- Select Automatic, to allow ImageLAN to automatically choose the share mount location on each operating system.
- Select Do Not Mount, to disallow the mounting of the share on each machine.
- Select Drive Letter and in the drop-down box beside it, choose the desired drive letter with which the share to be mounted on each machine.

**Important:** *If the drive letter is already taken on a Windows computer or this setting should be applied for Mac OS X or Linux computers, Automatic will be used.*

- Select Mount Point and in the field below it write down the path to the folder where you want the share to be mounted.

**Note:** *You can use slashes and backslashes in the path description. For example, “/folder” or \folder” will be recognized as a valid path on all platforms. If the path includes a drive letter (for example, “C:\Folder”), on Linux and Mac OS X, the drive letter is skipped and the path is interpreted as “/Folder”. Alternatively, a path without drive letter is interpreted by Windows as derived from the system drive.*

**Important:** *If the folder you set as mount location does not exist on a given computer, this machine will use Automatic as mount location for the share.*

**Warning:** *It is highly advisable not to set a LAN share as mount point for other LAN shares as this may lead to unpredictable results.*

5. In the dialog, click OK.

The Volume Settings dialog appears.

6. Click OK.

The LAN Shares Management dialog appears.

7. Click Apply.

**Important:** *Clicking Apply in the LAN Shares Management dialog will unmount the share from all machines, and then will mount it again in the specified mount location.*

### **To set share mount location for a specific machine:**

1. In the LAN Shares Management dialog, select a share and click Advanced.

The Volume Settings dialog for the selected share appears.

2. Open the Mount Locations tab of the dialog.

All machines seeing the share are listed in the tab page with their mount locations for the share.

3. Select a machine in the list.

The name and IP address of the machine are displayed below the list.

4. In the drop-down box below the machine name, do one of the following:

- Select Default, to use the default share mount location for all machines.
- Select Automatic, to allow ImageLAN to automatically choose the share mount location on the machine according to its operating system.
- Select Do Not Mount, to disallow the mounting of the share on the machine.
- Select Drive Letter and in the drop-down box beside it, choose the desired drive letter with which the share to be mounted on the machine.

**Important:** *If the drive letter is already taken on the computer or you select this setting for Mac*

OS X or Linux computer, Automatic will be used instead.

- Select Mount Point and in the field below it write down the path to the folder where you want the share to be mounted.

**Note:** You can use slashes and backslashes in the path description. For example, “folder” or \folder” will be recognized as a valid path on all platforms. If the path includes a drive letter (for example, “C:\Folder”), on Linux and Mac OS X, the drive letter is skipped and the path is interpreted as “/Folder”. Alternatively, a path without drive letter is interpreted by Windows as derived from the system drive.

**Important:** If the folder you set as mount location does not exist on the computer, it will use Automatic as mount location for the share.

**Warning:** It is highly advisable not to set a LAN share as mount point for other LAN shares as this may lead to unpredictable results.

5. In the Volume Settings dialog, click OK.  
The LAN Shares Management dialog appears.
6. Click Apply.

**Important:** Clicking Apply will unmount the volume from the machine, and then will mount it again in the specified mount location.

## Overriding Permissions for LAN Shares

When volume security is enabled in a SAN definition from which LAN shares are exported, these shares automatically inherit the permissions specified for all volumes. This way, if volume security with ImageSAN security authority is enabled in the SAN definition, users on LAN client machines should log on to ImageLAN in order to mount the shares for which they have rights. For more information, refer to ImageSAN User’s Guide.

You can override these permissions of native or ImageSAN users for a specific share.

### To override permissions for a LAN share:

1. In the LAN Shares Management dialog, select a LAN share from the list, and click Advanced.  
The Volume Settings dialog for the selected share appears.
2. Change the share mount option for each user listed in the pane, using the drop-down boxes in the Permissions column.
3. In the Default drop-down box, select the mount option, which is to serve as the default for all users that are not listed in the pane.
4. Click OK.  
The LAN Shares Management dialog appears.
5. Click Apply.

## Working with LAN Shares

### Authorized ImageLAN Session

To administer ImageLAN and change any of its settings, you must start an *authorized session*. To do so, you need to use an account set up with administrative privileges for your computer. On Windows systems, you can begin an authorized session by logging on to the workstation with an account with administrative privileges. On Mac OS X systems, you begin an authorized session, using the Authenticate dialog in the ImageLAN window.

### **To begin an authorized session on Mac OS X:**

1. In the ImageLAN window, click the lock at the lower left side.  
The Authenticate dialog appears.
2. Type the user name and password for an account with administrative privileges on your computer, and click OK.

The authorized session begins.

### **To begin an authorized session in Windows:**

Simply log on to your computer using an account with administrative privileges.

### **To exit an authorized session on Mac OS X:**

Click the unlocked icon at the lower left side of the ImageLAN window.

### **To exit an authorized session in Windows:**

Log off from your computer and log on with a non-administrative account.

## **Logging On To ImageLAN**

LAN shares, which are protected by volume security with ImageSAN security authority, are not mounted on the workstation until you log on with a valid user name and password in the SAN Login dialog. For information about working with LAN shares from a Linux computer, refer to “Working with LAN Shares from Linux” on page 14.

### **To log on to ImageLAN (Mac OS X and Windows):**

1. Do one of the following:
  - In the Volumes tab of the ImageLAN window, click Login.
  - In the menu bar of Mac OS X, click Login.

- In the taskbar of Windows, click Login.

The SAN Login dialog appears.

2. Type the ImageSAN user name and password, and click OK.

ImageLAN displays a Login Confirmation that provides information about the access rights for LAN shares granted to your account.

To mount shares from another SAN definition, for which you have different account, you should click Logout (in the Volumes tab, the menu bar of Mac OS X, or Windows taskbar) and unmount the currently mounted shares, click Login again and provide user name and password for the shares in the other definition.

## **Working with LAN Shares from Linux**

Once a Linux computer is included in a SAN definition as a LAN client, you can begin working with the volumes or shares in the definition.

If you have not specified different mount location, the mount point for each share is:

```
/mnt /<share_name>
```

This directory is used as mount point even if it already exists. If the path does not exist, a new directory will be created. If the path exists, but it is not a directory, it will not be used and the share(s) will not be mounted.

The mount directory will be removed (as long as it is empty) each time the share is unmounted and re-created when mounting the shares.

## To check what shares are mounted:

1. In command-line, type:  
`mount`

2. Press Enter.

ImageLAN returns a line for each LAN share mounted on the computer.

LAN shares protected by volume security with ImageSAN security authority are not mounted on the computer if no user has logged on to ImageLAN (when performing the `mount` command these volumes/shares do not appear).

## To log on to ImageLAN (Linux):

1. In command-line, type:  
`imgelan login <username>`
2. Press Enter.
3. Type the password for your ImageSAN account, and then press Enter.

All shares, for which your account has Read & Write or Read Only permissions are mounted on the computer.

# ImageLAN Optimization Mechanisms

## Specifying Allocation Optimization Size

ImageLAN sets a default allocation optimization size for all write operations on the storage, which can later be changed locally on each workstation.

The allocation optimization size is the fixed size of the disk space in Megabytes appointed to store data changes resulting from all write operations. For each write operation performed, the information to be saved is allocated in an exact optimization size, even if a much smaller optimization size would be

## ImageLAN Optimization Mechanisms

sufficient. If more space is needed for certain operations, ImageLAN allocates another set of optimization sizes. If after the completion of a write operation, a part of the allocated block is left unused, it is then released.

You can change the default allocation optimization size on each LAN client. This means that when initiating a write operation from a particular workstation, the data will be saved in a block size on the shared storage.

The value for allocation optimization size should be between 0 and 500MB. The default value is set to 10MB.

## To specify the Allocation Optimization Size:

In Settings tab, specify a value between 0 and 500 MB in the Allocation Optimization Size field, and click Apply.

## Video Editing Support Options

Use the following options to configure video editing support.

### Enabling TDIR Support (Windows only)

ImageLAN's TDIR (Time Delay Instant Replay) Support allows Windows users to begin viewing media files while they are still being written as long as the application used supports this feature. When a LAN client is capturing video material on a share, all other workstations with access to the volume can instantly open and view the media file as long as ImageLAN's TDIR Support is enabled on both the capturing workstation and the other computers. By default, ImageLAN's TDIR Support is enabled on each LAN client.

### To enable/disable TDIR Support:

1. In the Settings tab of the ImageLAN window, do one of the following:
  - enable the “Enable TDIR Support” check box, to enable it on your machine.
  - disable the “Enable TDIR Support” check box, to disable it on your machine.
2. Click Apply.

### Enabling Virtualization For Avid (Windows only)

ImageLAN's virtualization for Avid is implemented to solve problems related to the way Avid organizes media when your Avid project uses OMF audio and/or video file formats. OMF file formats include OMF as video format and AIFF and WAVE as audio formats. Should you use any of the above mentioned file formats, whenever you create media in Avid, (through digitizing, importing, creating titles, rendering, etc.) Avid creates an OMF file. It places this file in a folder on your video drive called OMFI MediaFiles.

Problems arise when multiple Avid workstations work on one and the same volume, as they try to use one and the same OMFI MediaFiles folder. This leads to conflicts and eventually corruption of the media database (the \*.mdb file).

The goal of ImageLAN's virtualization for Avid is to create a separate OMFI MediaFiles folder for each Avid workstation working on the same SAN volume. This “private” OMFI MediaFiles folder is used to store the media database of each Avid computer, although all media used by each workstation is stored in the original OMFI MediaFiles folder. ImageLAN takes care to redirect all requests for the media database coming from a certain computer to its “private” OMFI MediaFiles folder, but make Avid application accept it as the original media

database file. All instances of Avid behave as if they are actually working with OMFI MediaFiles folder instead of MachineName\_OMFI MediaFiles folder. Besides, two or more Avid workstations can create files at the same time.

This type of virtualization is implemented without affecting Avid's or any other application functionality.

**Note:** *When your Avid project uses only MXF audio and video file formats (MXF video file format and PCM audio file format), there's no need to enable virtualization for Avid.*

Beside enabling virtualization for Avid, you must also configure your SAN for work with Avid. For a detailed workflow scenario, refer to “Configuring the SAN for Avid” article available at <https://license.rorke.com>.

**Important:** *If you need to enable virtualization for Avid, it is highly advisable to enable it on each Avid workstation.*

Virtualization for Avid is disabled in the following cases:

- ImageLAN virtualization for Avid is disabled.
- A workstation is running in Maintenance mode.
- ImageLAN is uninstalled.
- ImageLAN is not licensed.

### To enable/disable Avid Virtualization Support:

1. In the Settings tab of the ImageLAN window, do one of the following:
  - enable the “Enable Virtualization for AVID” check box, to enable it on your machine.
  - disable the “Enable Virtualization for AVID” check box, to disable it on your machine.
2. Click Apply.

3. Restart the computer in order the changes to take effect.

## Managing Boot Sequence

On Mac OS X machines, ImageLAN allows you to synchronize when the operating system starts with the mounting of the LAN shares on your computer. For example, you can choose synchronous boot sequence if some of your applications will not work if there are no shares mounted. Thus, the operating system will not start until the time during which your workstation attempts to mount the shares expires.

You can also choose asynchronous boot sequence, which allows your workstation to try to mount the shared storage volumes after starting the operating system. In this, you can select unlimited duration as boot sequence or specify timeout in seconds.

On Windows machines, ImageLAN allows you to synchronize when the ImageLAN service starts with the mounting of the shares on your computer. With synchronous sequence, ImageLAN service will not start until the shares are mounted or the timeout for mounting them expires. With asynchronous sequence, ImageLAN service is started regardless of the volumes that are mounted. In this, the timeout for attempting to mount the volumes on the machine is automatically set to zero (0) i.e. Forever.

### To specify synchronous boot sequence:

1. In the Boot Sequence field of the Settings tab, select Synchronous.
2. In the Timeout field, enter the desired duration between 1 and 3600 seconds for the synchronous boot sequence.
3. Click Apply.

### To specify asynchronous boot sequence:

1. In the Boot Sequence field of the Settings tab, select Asynchronous.
2. (*Mac OS X only*) In the Timeout field, enter the desired duration between 0 and 3600 seconds for the asynchronous boot sequence.

**Tip:** *Type zero (0) to set unlimited duration of the asynchronous boot sequence.*

3. Click Apply.

## Test Read/Write Performance

ImageLAN allows you to perform read/write tests on a selected share, in order to check data transfer performance.

### To perform read or write test on a selected volume:

1. In the Utilities tab, select a share from the list, and click Test Performance.  
The Test Performance dialog appears.
2. Select Read or Write from the Test Mode dropdown box.
3. Move the File Size slider to define the size of the test file.

**Tip:** *To define more specific file size, in the box next to the slider specify the unit of measure, using the arrows, and type in the file size value.*

4. Move the Buffer Size slider to define the size of the buffer to be allocated on the disk.

**Tip:** *To define more specific buffer size, in the box next to the slider specify the unit of measure, using the arrows, and type in the buffer size value.*

5. Disable “Turn off file system cache” if you want to turn on the file system cache during the test.

6. Click Start Test to start the test.

7. Click Stop Test to stop the test.

**Tip:** *You can keep a close watch on the test duration in the Duration field below.*

The graph displays the transfer rate in MB/s. You can also view more detailed information (current, average, minimum and maximum rate) in the Performance field.

## Specifying Files and Folder Creation Behaviour (Mac OS X only)

By default, ImageLAN uses the native Unix file systems creation behaviour on HFS+ volumes, in which each file and folder is created with the default creation mask for the user. The creator has Read & Write permissions and everybody else has Read Only permissions. Thus, even if you change the permissions of a specific folder, all its new sub folders will have Read & Write access for the creator, while all other users get Read Only access.

You can choose to use the Windows file systems creation behaviour, in which each file and folder inherits the permissions of its parent folder. This way, when you change the permissions of a specific folder, all new sub folders have the same permissions. You avoid changing permissions on a per-folder basis.

### To specify files and folder creation behaviour on HFS+ shares:

1. In the Settings tab of the ImageLAN window on a Mac OS computer, select one of the following:
  - Native - each new file and folder on the share is created with the default Unix file system creation mask for the user.

- Inherited - each new file and folder on the share is created with the same permissions as its parent folder.

2. In the Settings tab, click Apply.

## Automatically Relaunching the Finder (Mac OS X only)

All changes in a SAN definition regarding mounted shares (such as newly added or removed shares, shares mounted after logging on to ImageLAN, etc.) may not be immediately detected by the Finder. You can click the Refresh Finder button in the Utilities tab of the ImageLAN window in order to update the information in the Finder. Besides, ImageLAN allows you to enable automatic Finder relaunching, which refreshes the Finder info each time there are some changes regarding mounted shares.

By default, this option is disabled and you should enable it with care, as relaunching the Finder too often may lead to freeze and you will have to restart the computer. Besides, all file operations in the Finder (copying files, for example) are cancelled when the Finder is relaunched.

### To enable automatic Finder relaunch:

In the Settings tab of the ImageLAN window, select the “Automatic relaunch of Finder”, and click Apply.

## Configuring Dependencies

ImageLAN allows you to control the services/startup items that require a LAN share to be mounted before they can start up.

You should configure dependencies with care as they may slow down the boot time of your computer. Besides, you should take care not to make dependent on ImageLAN a service/startup item on which ImageLAN is directly or indirectly dependent as this may lead to system deadlock.

### To configure dependencies:

1. In the Settings tab of the ImageLAN window, click Adjust Dependencies.

The Dependencies dialog appears. On Windows machines it lists all services for the computer, and on Mac OS X machines - all startup items.

2. Do one of the following:
  - Enable the check box next to each service/startup item to make it dependent on the mounting of the shares on your computer.
  - Disable the check box next to each service/startup item that you want to be started regardless of the shares mounted on your machine.
3. Click OK.
4. In the Settings tab, click Apply to apply the changes.

## Working with File Sequence Optimizer

### Overview

The File Sequence Optimizer enhances the performance when processing file sequences. It packs files from a sequence and presents them to the file system as one or more pack files. Thus, disk fragmentation is reduced and processing file sequences is much faster. In the same time, sequence files are treated by all applications and the operating system as separate files.

On Windows, the File Sequence Optimizer's options can be managed from the ImageLAN GUI or from the command-line interface.

On Linux, File Sequence Optimizer's options can be managed using the command-line interface. For more details, see "Managing Sequence Optimization on Linux" on page 25.

Each machine that uses the sequence files should enable sequence optimization on the volume using the same configuration settings.

### How It Works?

The File Sequence Optimizer manages sequence files that are stored on specific volume and that match the criteria you define. To distinguish which files should be packed and which should be ignored, the File Sequence Optimizer checks the file type, the number of digits in the file name that designate the file belongs to a sequence and the file size. After you specify these criteria, the File Sequence Optimizer packs sequence files in one or more bigger pack files, making the file system detect only the pack files. This way, each file operation request for files in the sequence is processed as single request for the pack file. Still, this is fully transparent to the operating system and the applications and you can use each sequence file independently as if it is physically located on the file system, but not in the pack file. You can pack already existing file sequences or set the File Sequence Optimizer to pack file sequences that will be stored on the share later. You can define different sequence optimization configurations on the different volumes on your SAN and you can add unlimited number of configurations to a volume/share.

### Activating File Sequence Optimizer

On SAN Member machines, the File Sequence Optimizer is activated together with the ImageSAN license and you do not have to activate it separately. On LAN clients, you will have to activate the File Sequence Optimizer on each machine on which you want to use it. The activation procedure consists of two parts - obtaining an activation key on the licensing server and activating File Sequence

Optimizer on the machine. You can choose between two methods for activation - automatic and manual. Automatic activation connects you to the licensing server, generates an activation key for your File Sequence Optimizer license, and activates it on the computer. In case the machine on which you want to activate File Sequence Optimizer is not connected to the Internet, you should use the manual activation method.

### To activate File Sequence Optimizer automatically on Windows:

1. In the Utilities tab page, click File Sequence Optimizer.  
The File Sequence Optimizer window appears.
2. Click About.  
The About File Sequence Optimizer dialog appears.
3. Click Activate.  
The Activation method dialog appears.
4. Select "Automatic activation," and click Continue.  
The Automatic Activation dialog appears.
5. Enter your sales order number and password, and click Activate.

### To activate File Sequence Optimizer automatically on Linux:

1. In command-line, type:  
`fso autoactivate <username>`
  - where `<username>` is your sales order number.
2. Press Enter.
3. Type your password, and press Enter.

### To activate File Sequence Optimizer manually on Windows:

1. In the Utilities tab page, click File Sequence Optimizer.  
The File Sequence Optimizer window appears.
2. Click About.  
The About File Sequence Optimizer dialog appears.
3. Click Activate.  
The Activation method dialog appears.
4. Select "Manual activation," and click Continue.  
The Manual Activation dialog appears.
5. Copy the File Sequence Optimizer serial number and in a web browser go to <https://license.rorke.com>  
**Tip:** You can click the address of the licensing server in the Manual Activation dialog to enter the licensing site.  
The ImageSAN licensing server home page opens in your web browser.
6. Enter your sales order and password in the corresponding fields, and click Log in.  
You have successfully entered the ImageSAN licensing server. The server displays information about your account.
7. In the Licensing Server menu, click Activate LAN Licenses.  
The Activate LAN Licenses page appears.
8. Select File Sequence optimizer and paste the serial number for your copy of File Sequence Optimizer.
9. Click Generate.  
ImageSAN licensing server generates an activation key.
10. Copy the Activation key.

11. In the Manual Activation dialog, enter the Activation key generated for your copy of File Sequence Optimizer, and click Activate.

### To activate File Sequence Optimizer manually on Linux:

1. To get the serial number of File Sequence Optimizer on your computer, in command-line, type:  
**fso serial**
2. Press Enter.  
ImageSAN displays the serial number of the File Sequence Optimizer on your computer.
3. Copy the File Sequence Optimizer serial number and in a web browser go to <https://license.rorke.com>  
**Tip:** You can click the address of the licensing server in the Manual Activation dialog to enter the licensing site.  
The ImageSAN licensing server home page opens in your web browser.
4. Enter your sales order and password in the corresponding fields, and click Log in.  
You have successfully entered the ImageSAN licensing server. The server displays information about your account.
5. In the Licensing Server menu, click Activate LAN Licenses.  
The Activate LAN Licenses page appears.
6. Select File Sequence optimizer and paste the serial number for your copy of File Sequence Optimizer.
7. Click Generate.  
ImageSAN licensing server generates an activation key.
8. Copy the Activation key.

9. To activate File Sequence Optimizer on your computer, in command-line, type:  
**fso activate <activation key>**

10. Press Enter.

## File Sequence Optimizer Options

Before you pack sequences, you should set the criteria for the files to be packed and define the parameters of the pack file.

You should specify the following options:

- file type
- maximum file size
- number of digits in the file name
- number of sequence files in the pack file

The File Sequence Optimizer can automatically configure these options based on a directory with already existing sequence files. For more details, see “Automatically Configuring Sequence Optimization Options” on page 24.

### Maximum File Size

You should specify the maximum size of a file from the sequence to be included in the pack file. The value you specify is important for the size of the pack file (for more information, see “Number of Sequence Files in the Pack File” on page 22). Each file whose size exceeds the specified maximum file size, will not be packed. Besides, if in the sequence there is a file with greater size, it will be duplicated - one copy will remain outside the pack with its original size and another copy will be stored in the pack file, but its size will not exceed the maximum size you have specified and this will lead to loss of data when processing the sequence.

When specifying maximum file size, you should keep in mind that the value should be multiple of the sector size of the volume on which files sequences will be packed.

By default, the File Sequence Optimizer sets 12MB as maximum file size.

## Number of Digits in File Name

You should specify the minimum number of digits in the file name designating that the file belongs to a sequence. If a given file has less digits in its name than the number you have defined, it will not be packed. If there's a sequence file whose name has less digits than the number you have specified, it will be left outside the pack file and when you process the sequence it will be dropped from it.

The default value set in File Sequence Optimizer is 6 digits. The minimum value can be 3 digits.

## File Type

You should specify the extension of the sequence files that should be packed. This could be any file type - DPX, TGA, JPG, BMP, TIF, etc.

## Number of Sequence Files in the Pack File

The File Sequence Optimizer allows you to specify the number of sequence files that will be placed in each pack file. The value you define is very important, because each pack file has the same physical size on the disk, which is defined by multiplying the number of sequence files to the maximum sequence file size.

For example, if you set the maximum size of the sequence files to 1MB and you define that each pack file will contain 100 sequence files, packing a sequence of 233 files will create 3 pack files each with size 100MB plus 4KB (the size of the package system information). Although the third pack file

will contain only 33 sequence files i.e. will contain information with maximum size 33MB plus 4 KB, its size on the disk will be 100MB plus 4KB.

**Note:** *This setting can be managed only from the command-line interface. When configuring the sequence optimization options through ImageLAN's interface, the pack file always contains 100 sequence files.*

## Configuring Sequence Optimization from the ImageLAN UI

ImageLAN's UI provides user-friendly environment for enabling and configuring sequence optimization on the desired SAN volume(s).

When configuring the sequence optimization settings you can use settings offered in ImageLAN's predefined list, manually define the settings or allow ImageLAN to automatically configure them based on a sample file sequence you specify.

### To configure sequence optimization on a share:

1. In the Utilities tab of the ImageLAN window, click File Sequence Optimizer.  
The File Sequence Optimizer window appears.
2. In the drop-down box, select a share for which to enable sequence optimization.
3. Click Activate.  
The Sequence Settings dialog appears.
4. Do one of the following:
  - Select a setting from the list with pre-defined settings.
  - Click browse and browse for a directory containing file sequence, to allow ImageLAN to automatically configure the settings based on its files.

- Manually specify the sequence extension, sequence number width and size of sequence files in the corresponding fields.
5. Click OK.  
ImageLAN asks you if you want to pack already existing sequence files on the share that match these criteria.
  6. Click Yes to pack these files or click No to leave the files as they are on the volume.  
The File Sequence Optimizer window appears, listing the configuration you have just specified.
  7. Click Add and configure new sequence settings to add another configuration to the share or choose another share to configure sequence optimization for.
  8. In the File Sequence Optimizer window, click Close.
  9. Restart your computer in order the changes to take effect.

**Important:** *If you don't enable sequence optimization with the same configuration on other machines accessing the volume/share, these machines will not see the actual sequence files, but the pack files only.*

### To disable sequence optimization on a share:

1. In the Utilities tab, click File Sequence Optimizer.  
The File Sequence Optimizer window appears.
2. In the drop-down box, select the share for which you want to disable optimization.  
The dialog displays all sequence configurations defined for the share.
3. Select a sequence configuration from the list and click Deactivate.  
ImageLAN asks you if you want to unpack already packed sequence files on the share.

4. Click Yes to unpack these files or click No to leave the files as they are on the share.

**Important:** *If you click No, you will have to manually unpack all sequence files on the share, in order to use them. For information about manually unpacking files, refer to page 25.*

5. Repeat the above step for each sequence configuration you want to remove.
6. Restart the computer.

## Configuring Sequence Optimization Using Command-Line Interface (Windows)

### Typical Workflow

To benefit from the sequence optimization performance using the command-line interface you should do the following:

1. Enable sequence optimization on the desired share.
2. Specify the criteria for the files to be packed.
3. Pack the files sequence in a desired directory on the share.
4. Reboot your machine.

### To enable and configure sequence optimization:

1. In command prompt type:

```
<path to fsp_util.exe > /enable
DRIVE_LETTER
[fileCount=COUNT(100) ]
[fileSize=SIZE_BYTES(12M) ]
[width=NUMBER_WIDTH(6) ]
[ext=FILE_EXTENSION(.dpx) ]
```

where:

## 2 ImageLAN User's Guide

- **DRIVE\_LETTER** is the drive letter of the share on which you enable sequence optimization.
- **fileCount=COUNT (100)** - the value in the parenthesis is the number of sequence files to be included in a pack file.
- **[fileSize=SIZE\_BYTES (12M)]** - the value in the parenthesis is the maximum size allowed for a file in the sequence.
- **[width=NUMBER\_WIDTH (6)]** - the value in the parenthesis is the minimum number of digits in the file name.

**Note:** *The minimum value you can specify is 3 digits.*

- **[ext=FILE\_EXTENSION (.dpx)]** - the value in the parenthesis is the file type.

### 2. Press Enter.

Sequence optimization will be effective only after rebooting your machine, but as you cannot pack existing sequence files on a share with already enabled sequence optimization, before rebooting the computer you should pack the existing file sequences. Alternatively, you can reboot the machine, disable sequence optimization on the share, pack the sequence files and then enable optimization again. For details about disabling sequence optimization, refer to “Disabling Sequence Optimization” on page 25.

## Automatically Configuring Sequence Optimization Options

The File Sequence Optimizer can automatically configure all needed options based on a directory with sequence files. The options configuration it offers is optimized for these sequence files only.

## To automatically configure sequence optimization options:

### 1. In command prompt, type:

```
<path to fsp_util.exe> /config  
<path to dir>
```

where **<path to dir>** is the path to the directory containing sequence files for which you want to enable optimization.

### 2. Press Enter.

The File Sequence Optimizer generates an automatic options configuration for this sequence.

### 3. Type **Y** to accept the configuration and press Enter.

The File Sequence Optimizer offers you to restart your computer now.

### 4. Type **N** to prevent rebooting of the machine and press Enter.

**Tip:** *If you do not want to pack the files on which you have based the sequence optimization configuration, type **Y** and press Enter.*

### 5. Pack the sequence files in this directory and then enable sequence optimization on the share.

## Packing Sequence Files

With File Sequence Optimizer you can pack all sequence files on a share or select just a directory on the share. The File Sequence Optimizer packs files in a directory recursively. This means, that it will pack not only the sequence files in the directory you specify, but also in all of its subdirectories.

## To pack sequence files:

### 1. In command prompt, type:

```
<path to fsp_util.exe> /pack  
<path to directory on the share>
```

### 2. Press Enter.

As the effect of the File Sequence Optimizer is fully transparent to the operating system and the applications, you will not be able to determine whether you have successfully packed files. To verify that you have packed sequence files, you can use the test command of the File Sequence Optimizer. You can use the command only after optimization is effective on the share i.e. after rebooting the machine.

### To test sequence optimization packing:

1. In command prompt, type:  
`<fsp_util.exe> /test <path to packed file>`
2. Press Enter.  
 File Sequence Optimizer returns an answer if the specified file is part of sequence pack.

### Disabling Sequence Optimization

You should disable sequence optimization on specific share when you have already enabled optimization on it but haven't packed already existing files sequences on the share. When sequence optimization is disabled on a share that contains packed sequence files, you will not see these files, but only the pack files. To be able to use the sequence files, you should either unpack them or enable sequence optimization again.

### To disable sequence optimization on a volume:

1. In command prompt, type:  
`<path to fsp_util.exe> /disable DRIVE_LETTER`  
 where **DRIVE\_LETTER** is the drive letter of the share on which you want to disable sequence optimization.
2. Press Enter.
3. Reboot the machine.

## Unpacking Sequence Files

When sequence optimization is disabled on a share on which there are already packed sequence files, you should unpack these files in order to use them.

**Important:** *You should unpack sequence files only after sequence optimization has been disabled on the share.*

### To unpack sequence files:

1. In command prompt, type:  
`<path to fsp_util.exe> /unpack <path to dir on the target share>`
2. Press Enter.  
 File Sequence Optimizer scans recursively the specified folder and unpacks all pack files containing sequence files.

## Managing Sequence Optimization on Linux

Although sequence optimization on Linux works almost the same way as on Windows, there are some minor differences in the workflow. First of all, after each reboot of the system you should load File Sequence Optimizer (fso) drivers and attach the sequence configuration to the share. On the other hand, on Linux besides specifying the share on which sequence files will be optimized, you should also specify a virtual volume and its mount point and ID where sequence files will be visible as separate files but not as packed files.

**Important:** *All file operations to the sequence files should be performed on the virtual volume, but not on the share containing the pack files.*

The workflow for optimizing files sequences on Linux goes through the following stages:

1. Load file sequence optimizer drivers on the machine.
2. Enable sequence optimization, by specifying the sequence configuration settings and the virtual volume where the sequence files will be presented separately.
3. Attach sequence configuration to a given share, by specifying the target share that contains the sequence files that will be packed.

## Loading FSO Drivers

### To load fso drivers:

1. In command-line, type:  
`fso load`
2. Press Enter.

## Enabling Sequence Optimization on a Share

When enabling sequence optimization on a share you should specify the ID of the virtual volume and the type of the sequence files to be optimized. Optionally, you can also specify the following parameters of the sequence configuration:

- number of sequence files to be included in a pack file. By default, fso sets this to 100.
- maximum size allowed for a file in the sequence. By default, fso sets this to 12MB
- minimum number of digits in the file name. By default, fso sets this to 6.

If you do not specify any of the above parameters, file sequence optimizer will use the default values.

### To enable sequence optimization:

1. In command-line, type:  
`fso enable VOLUMEID  
FILE_EXTENSION [-width <number`

```
width>] [-fileCount <number of  
files>] [-fileSize <file size>]
```

where:

- **VOLUMEID** is any string you choose to identify the virtualized volume.
- **FILE\_EXTENSION** is the type of files to be packed.

2. Press Enter.

## Attaching Sequence Optimization to a Share

### To attach sequence optimization to a share:

1. In command-line, type:  
`fso attach LOWER_MOUNTPATH  
MOUNTPATH VOLUMEID`

where:

- **LOWER\_MOUNTPATH** is the mount point where the target share is currently mounted.
- **MOUNTPATH** is the mount point where the virtualized volume will be mounted.
- **VOLUMEID** is the string you have chosen as identification for the virtualized volume.

2. Press Enter.

## Unloading FSO Drivers

### To unload fso drivers:

1. In command-line, type:  
`fso unload`
2. Press Enter.

## Detaching Sequence Optimization from a Share

### To detach sequence optimization from a share:

1. In command-line, type:  
`fso detach MOUNTPATH`  
where **MOUNTPATH** is the mount point where the target share is currently mounted.
2. Press Enter.

## Disabling Sequence Optimization on a Share

### To disable sequence optimization on a share:

1. In command-line, type:  
`fso disable VOLUMEID  
FILE_EXTENSION`  
where:
  - **VOLUMEID** is the string you have chosen as identification for the virtualized volume.
  - **FILE\_EXTENSION** is the type of files to be packed.
2. Press Enter.

