Archiver.FS 3.4x User Guide

1) Introduction to Archiver.FS

At its heart Archive Manger is a file archiving solution for network file systems. It is unique in that it does involve any sort of database or data store in the archiving or retrieval process with the exception of a tiny configuration database. Instead it uses dedicated network shares to store archived files in whilst maintaining the directory structures, NTFS permissions and file attributes of all archived files. This makes it incredibly fast, easy to backup, highly cost effective to deploy, very reliable and almost infinitely scalable.

The largest file system we know of that uses Archiver.FS is in the Peta Byte range (1000TB +).

You also get all of the features that you would expect, including the ability to create seamless stubs that end users can use to access archived files without the intervention of IT Support resources. .

A) True Hard links to Archived Files provide seamless access for end users (Windows Vista, Windows 7, Windows 8 and Windows 2008 Server). Other types of link are available to ensure compatibility with older OS's and Mac machines.

B) Support for every file system character set supported by Unicode, which is most of the main languages in the world including for example English, Chinese (Simplified and Traditional), Hindi, Arabic and many others.

C) Support for almost unlimited length file paths (over 32,000 characters long) when Seamless Hard Links (or simple Copy/Move jobs without links) are used.

D) No 3rd party client software or file system drivers to install on client machines. Unlike some products Archiver.FS does not need any client software to be installed on your workstations. With other products this is sometimes necessary to allow the seamless recall of files from an archive. Archiver.FS only uses functionality that is already built into Windows. There is just a small configuration change to implement on each workstation to enable this functionality.

E) Practically unlimited archived file storage with no degradation in performance regardless of how many files are being held in an archive. Archiver.FSs maximum archive size is limited by nothing more than the available second line disk space for archive shares/folders. Archive sizes of several terabytes are common. Database centred archiving solutions are not able to reach anything like this capacity without involving huge costs and complexity.

F) Massively reduced deployment and ongoing support costs. It's a well known fact that raw disk space is cheaper than database space by several orders of magnitude. A 100GB database centred archive solution can cost upwards of £40,000+ to implement. Archiver.FS on the other hand can cost less than £1000 including hardware.

G) Completely reliable and extremely platform tolerant. Archiver.FS is incredibly simple in its operation. Due to this it is the most reliable file archiving product in the world. There is simply very little to go wrong.

H) Brick level security. Databases use a different permissions structure to NTFS volumes. This means that it is almost impossible for a database centred archiving solution to maintain your NTFS file and folder permissions on files that have been migrated into an archive. Needless to say, Archiver.FS doesn't suffer from this problem. NTFS permissions are maintained through a files entire lifecycle.

Archiver.FS uses the .Net framework version which gives it brilliant performance and guaranteed compatibility with all current and upcoming windows platforms including all 64 bit variants, 2008 Server and Windows Vista. In addition, it makes extensive use of multithreading to fully utilize the potential of even 4x quad core processor systems.

2) **Basic Concepts**

Before installing Archiver.FS we recommend that you read and follow the Quick Setup Guide.

Archiver.FS works by migrating old and unused files from your live network shares into an archive share that you have setup on your network.
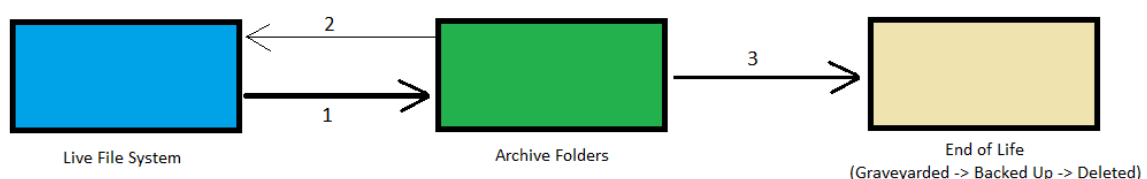
Each job can archive to a different location, they do not all have to archive to the same share. Indeed, when you set up each job the folder you set it to for its destination must be empty.

Once files have remained unused in an archive for the period of time you specify, they can be removed with a graveyard job. This will remove any archived files from the selected Archive jobs archive destination, and transfer them to the location you choose. They can then be backed up using your existing backup solution and deleted.

At all times all files NTFS permissions, file attributes and Created/Modified/Last Accessed dates are preserved. Even the directory structure is preserved from start to finish.

Archive storage space is typically made up of second line storage hardware. Typically this is several years old, and whilst it may have noticeable capacity, its performance will typically be lower than the first line hardware providing the live file system.

This enables organisations to re-use hardware that would otherwise be disposed of, thus significantly increasing the return on investment.

Live File System   Archive Folders   End of Life
(Graveyarded -> Backed Up -> Deleted)

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1. Files that have not been used in the period of time specified are moved to archive storage
2. Files that are needed by users are returned to the live file system
3. Files that remain unused for the period of time specified after being archived are graveyarded to a chosen location, backed up and then deleted.

3) **Versions**

	Trial	Standard	Datacenter
Max number of jobs	5	5	Unlimited
Max files processed per run	250	Unlimited	Unlimited
Directory structure retained	Yes	Yes	Yes
NTFS permissions retained	Yes	Yes	Yes
File attributes retained	Yes	Yes	Yes
Pre + Post job tasks	Yes	Yes	Yes
Various stub types, including Hard Links	Yes	Yes	Yes
Optimised for multi-processor multi-core systems	Yes	Yes	Yes
100% Developed on the .Net framework	Yes	Yes	Yes

4) **Upgrading From a Previous Version**

If you are upgrading from a version prior to Version 3.2 then please contact MLtek support via Support@MLtek.Software.

We are working on migration routines that will enable you to move seamlessly from version 2.x to version 3.2.

If you are upgrading from version 3.2 or later simply uninstall the old version of Archiver.FS, then install the new version.

5) **Clusters and DFS Shares**

Archiver.FS offers full support for both Windows Server clustered shares, and Windows DFS shares.

However, and this is very important...

If you archive content to/from any kind of clustered storage you must NOT use the UNC path to an individual node in that cluster.

For example, say you have two Windows servers, Server1 and Server2 and they are node in a DFS pair. You may have \\Server1\Data and \\Server2\Data, but you must not use these paths. You must specify the true DFS share path e.g. \\DFSShares\Data for example.

The same principal must also be used with Windows clusters.

6) NAS devices, NFS shares, CIFS shares and non-Windows storage

If you are using Archiver.FS in purely a Windows environment that the deployment should be very straight forward. Simply a) Install Archiver.FS on the system you wish the software to run on b) Set up a share on the server that you wish you jobs to archive too ensuring the permissions on the share/folder are set appropriately and c) setup your archive jobs.

If however you would like to archive content to (or from) a location that is not hosted on a Windows based server (or it is a Windows based server but in a separate domain to your live servers) then you will need to do some additional planning and testing

By default Archiver.FS will try to maintain the permissions on any files in the live file system when the files are archived. If you are archiving from a Windows server to another Windows server and they are both in the same domain then all is well and good.

But, if for example you wish to archive from a Windows server to a NAS box with an NFS of CIFS share and that NAS box is not AD integrated then you may have issues. Archiver.FS will not be able to maintain the permissions on archived files because the destination device will not be able to deal with Domain\AD user and group objects with respect of file security.

So how do you know if your planned archiving plan will support the retention of the permissions on you live files when they are archived? There is a very easy test you can do.

1) Log into the machine you wish to install Archiver.FS on with the user account that you with to run Archiver.FS under.
2) Open Windows Explorer and go to the location you wish to archive files too (archive destination).
3) Right click and create a .txt file.
4) Right click on the text file and click on 'Properties'. Try to grant permissions to the file to the users and groups that are referenced in your live file systems security, e.g. the domain based 'Domain Users' group, the domain based 'Accounts Department' group etc.
5) If you can successfully set these domain based permissions then Archiver.FS should work absolutely fine.
6) If you cannot set these permissions then the device does not support AD\Domain integration and if you use it as your archive destination then Archiver.FS will not be able to retain the permissions on your Archived files. What's more, unless you tick the 'Best Efforts Security' option when setting up any jobs that will use this device the jobs may fail.

Different storage architectures can directly affect the functionality of Archiver.FS.

Below is a table which should help highlight the effect different architectures can have.

	DESTINATION	Windows 2003	Windows 2008/2012	AD Integrated NAS	Non-AD Integrated NAS/CIFS/NFS
SOURCE					
Windows 2003		Permissions = OK Attributes = OK Links = Soft Only	Permissions = OK Attributes = OK Links = Soft Only	Permissions = Test Attributes = Test Links = Soft Only	Permissions = No Attributes =Ok Links = Soft Only
Windows 2008/2012		Permissions = OK Attributes = OK Links = Hard & Soft	Permissions = OK Attributes = OK Links = Hard & Soft	Permissions = Test Attributes = Test Links = Probably Hard & Soft, Test	Permissions = No Attributes =Ok Links = Probably Hard & Soft, Test
Non-AD Integrated NAS/CIFS/NFS		Permissions = No Attributes = Test Links = Test	Permissions = No Attributes = Test Links = Test	Permissions = No Attributes = Test Links = Test	Permissions = No Attributes = Test Links = Test
AD Integrated NAS		Permissions = Test Attributes = Test Links = Test	Permissions = Test Attributes = Test Links = Test	Permissions = Test Attributes = Test Links = Test	Permissions = No Attributes = Test Links = Test

7) Installing – Service Account

Before you run the install you need to create a user account that the Archiver.FS Service will use. The user account must:-

- Have 'Full Control' permissions over all the files you will be archiving.

- Have 'Full Control' permissions over the location(s) you will be archiving too.

- Have the 'Create Symbolic Links' right on the machine Archiver.FS is installed on, any machines it will archive content from and any machines it will archive content too.

- Have the 'Manage Auditing and Security Log' right on the machine Archiver.FS is installed on, any machines it will archive content from and any machines it will archive content too.

The easiest way to accomplish this is to make the account a member of the Domain Administrators group.

If the account you are using to run the Archiver.FS Service is not a member of the Domain Administrators group then in addition to requiring suitable NTFS rights to be set up so it can access the required shares with Full Control permissions, it needs to have the two extra rights granted to it.

 It must have these specified on a) the machine it is running on b) any machines it will archive files from c) and machines it will archive files too.

You can grant these rights by either adjusting the Local Security Policy on the relevant machines, or by using Active Directory Group policies.

 Create Symbolic Links = Open 'Local Security Policy' on the machine Archiver.FS is installed on.

The relevant setting can be found under Local Policies -> User Rights Assignment. Edit the Create Symbolic Links entry and add the account you created in step 3. Alternatively you can set the settings using the Default Domain Group policy in Active Directory.

Computer Configuration -> Policies -> Windows Settings -> Security Settings -> Local Policies -> User Rights Assignment.

Manage Auditing and Security Log = When Archive Manger archives a file it makes a copy of it in an archive, copies all attributes and security access options to it and then compares the copy to the original file before deleting the original file.

The security access options not only include the NTFS Access Control Lists, but also the auditing options as well. To replicate the auditing settings the chosen account needs the Manage Auditing and Security Log right

The relevant setting can be found under Local Policies -> User Rights Assignment. Edit the Manage Auditing and Security Log entry and add the Archiver.FS account that you have set up. Alternatively you can set the settings using Default Domain Group policy in Active directory.

Computer Configuration -> Policies -> Windows Settings -> Security Settings -> Local Policies -> Manage Auditing and Security Log.

8) Installing – Prerequisites

Archiver.FS requires the pre-installation of the following components.

1) SQL Express 2008 R2 or later (Download Here)

2) Microsoft .Net Framework v4.0 (Download from Windows Update)

3) SAP Crystal Reports runtime engine for .NET Framework v4.0 (Download Here , Select the latest version, then choose either 32 or 64 bit as appropriate and then download the .MSI installer).

SQL Express and the .Net Framework MUST be installed BEFORE you begin the installation of Archiver.FS. If you have any problems installing Archiver.FS please do not hesitate to contact us via Support@MLtek.Software.

9) Installing - Archive Share

Set up an empty share on your network in the location that you would like to store your archived files. The share should ideally be hosted on a computer running Windows 2008 Server\Windows Vista\Windows 7 or later. If this is not possible then it should be hosted on a machine running at least Windows 2003 Server.

This would typically be a share on a volume hosted on an older second line server that has been reloaded with a later operating system, although ... any empty share on any system running Windows 2000 or later should work.

Set the share permissions to allow 'Full Control' to 'Authenticated Users'', then ensure the NTFS permissions will allow normal users 'modify' rights and the Archiver.FS Service Account created previously 'Full Control'.

If there are entries for 'System', 'Administrator', 'Administrators' or 'Domain Administrators' they should not be removed/changed..

10) Installing - Running the Install

Once you have carried out the above steps, you are ready to install Archiver.FS.

Run the installation routine on the machine you want to install Archiver.FS on, following the instructions on screen.

11) Installing - Configuring your Workstations

If you intend to use Hard Links then you need to enable support for them on your workstations.

Even though Windows Vista, Windows 7 and Windows 2008 Server all support Hard Links out of the box, they ship with the functionality disabled.

To enable them you need to set the following registry keys on each machine.

The example settings below will enable client machines to evaluate links that sit on a dedicated file server, and which link to an archived file stored on either the same file server or another machine.

To ease deployment you can copy and paste the text below into a .reg file which can be imported at logon by logon scripts, or the settings can be distributed via group policies.

Windows Registry Editor Version 5.00

[HKEY_LOCAL_MACHINE\SYSTEM\ControlSet\Control\FileSystem]
"SymlinkLocalToLocalEvaluation"=dword:00000001
"SymlinkLocalToRemoteEvaluation"=dword: 00000001
"SymlinkRemoteToRemoteEvaluation"=dword:00000001
"SymlinkRemoteToLocalEvaluation"=dword:00000001

12) Setting up a New Archive Job

Archive jobs move files from your live file system.

The first step to perform when setting up a new job is to set up the place you want archived files to be moved to. This can be any empty folder on your system that is accessible via a UNC path (\\yourserver\share\folder). This path cannot be in a DFS share.

Once you have set up the folder click on the 'Create Job' button and when the new job screen opens select 'New Archive Job' and click 'begin'

The first step of the wizard involves adding the locations you want to move archive files from. All locations must be added as UNC paths. You can also add to and remove from this list later if you like by editing the job once it has been created. Once you have added the locations click on 'Next'.

The second screen is where you want to move archived files too. Try to keep this path as short as you can, and again it must be a UNC path. Once done click on 'Next'.

The next screen allows you to set various options that control how the job will run.

<u>Action</u> = What exactly do you want the job to do..

Copy -> Copy files that match the criteria specified to the archive. Makes no changes to your live file system, useful for testing purposes.

Move -> Move files that match the criteria specified. Removes files from your live file system and transfers them to the chosen destination. Leaves no links behind. Archived files can be backed up and the deleted.

Move (Folder Shortcuts) -> Move files that match the criteria specified. Removes files from your live file system and transfers them to the chosen destination. Leaves behind Windows shortcuts in each folder that files have been archived from. Users can click on this shortcut and then browse through any archived files. Any files that are used by users can be automatically returned to the live file system by the overnight maintenance job. Archived files must be removed from the archive with a graveyard job.

Move (File Shortcuts) -> Move files that match the criteria specified. Removes files from your live file system and transfers them to the chosen destination. Leaves behind a Windows shortcut for each file that is archived. Users can click on the shortcut to open the file. Any files that are used by users can be automatically returned to the live file system by the overnight maintenance job. Archived files must be removed from the archive with a graveyard job.

Move (Hard Links) -> Move files that match the criteria specified. Removes files from your live file system and transfers them to the chosen destination. Leaves behind a Windows Symbolic link for each file that is archived. Users can click on the link to open the file. Any files that are used by users can be automatically returned to the live file system by the overnight maintenance job. Symbolic links behave exactly like the original file, and have exactly the same name as the original file. Symbolic links are only available in Windows Vista, Windows 7 and Windows 2008 Server. Archived files must be removed from the archive with a graveyard job.

<u>Test Run</u> = Select this option to test run a job. The job will run as if it was going to be run live, but no matter what options you have chosen, no files will actually be moved. Allows you to see how much data a job will archive when it runs properly without this option selected.

<u>Archive Files That Have Not Been Used In</u> = Specifies how long it must be since a file was used before it will be archived. Typically this will be around 3 years. However each organisation is different and careful thought should be given to this setting.

<u>Delete Empty Folders</u> = When archiving you can set Archiver.FS to remove any empty folders from the live file system.

<u>Utilisation</u> = This setting directly affects how much load Archiver.FS will place on your file system. This setting does not set the processor priority of the jobs thread (jobs always run as 'Below Normal' to try and ensure your system remains responsive even if you have 100 jobs running at once), it actually causes Archiver.FS to insert pauses as it runs to lessen the load it will place on your file servers.

Once you have set the required options click on 'next' to move to the scheduling option page.

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You can set each job to run once, on specific days of the week, or even on specific days of each month. Once you have set the schedule for this job click 'Next'.

The final options screen lets you enter email addresses that you would like job completion status notifications sent to. For each address you would like a notification sent too enter the SMTP address and pick the level of notification you want for that address, then click 'Add' to add it to the list of addresses.

Once done click 'Next' to move to the final screen.

The final screen just requires you to enter a name for the job and then click the 'Create Job' button to create the job.

13) <u>Setting up New Graveyard Job</u>

Archive Jobs move files into a set of archive folders.

Graveyard jobs move files out of those archive folders to a location you specify so they can be backed up and then deleted. Graveyard jobs remove files from an archive that have been in the archive for the period of time you specify.

A typical configuration will use archive jobs to remove files from the live file system that have not been used by users in 3 years, and place them in an archive. A graveyard job will then be used to remove files from the archive that have been in the archive, unused by users, for 2 years.

This gives an immediate gain in free space at deployment, whilst providing a managed lifecycle for files in the long term. They are set up in the same way as an archive job with the following exceptions..

1) You do not choose physical folders to remove content from; you choose a job to attach the graveyard job to instead.
2) The location you choose to move files to will normally be backed up to long term storage media after completion, and then deleted.

14) <u>Log Settings</u>

The log settings screen can be accessed via the toolbar on the main interface window.

To enable the reporting of each and every file that Archiver.FS archives, select 'Detailed' logs.

If you wish to use the reporting options then the logging level must be set to 'Detailed'.

15) <u>Notifications</u>

Before Archiver.FS can send any job status notifications you need to tell it which SMTP server it should connect too to send them. This is done in the 'Notification Settings' screen which can be accessed through toolbar on the main interface window.

16) Maintenance Job

When enabled (the default recommended setting) the maintenance job performs several important function when it runs, the main ones being:

- Synchronises Permissions. NTFS file and folder permissions are synchronised between the live file system and archived files.

- Clears log files. Removes any files older that the setting specified in the log settings screen.

- Returns Archived Files. Identifies any archived files that have been used by users and returns them to the live file system.

- Scan The Live File System. If Archiver.FS cannot locate a Shortcuts or Hard Links for an archived file when synchronising permissions, then it can scan the live file system for the missing items. If they are found then the relevant archived files can be relocated to the correct folder in the Archived folder structure to reflect their new place in the live file system.

- Delete or Re-Create Links. If a link to an archived file cannot be found then by default Archiver.FS will re-create the missing link. The behaviour can be changed so that archived files whose links cannot be found will be deleted.

The behaviour of the maintenance job can be altered via the maintenance job option screen, accessed through toolbar on the main interface window.

'Enabled' = Enables/Disables the maintenance job and allows you to set the time it will run each day.

'Synchronise Permissions' = Enabled\Disables the synchronising of permissions between the live file systems and your archives.

'Syncronise Shortcut\Stub Times' = With this option enabled Archiver.FS will verify that the Created\Modified times on Shortcuts and Stubs left behind in place of archived files match the times on the archived files. If they don't then the times on the Shortcuts\Stubs are updated.

'Return Files' = Selecting this option will tell the Maintenance Job to return archived files that users have modified back to the live file system. This behaviour can be modified to return files that users have accessed by selecting the relevant option. Before doing this you must ensure that other products (Antivirus, Backup, etc) are not changing the last accessed date on your files.

'Scan Live File System' = As the maintenance job works it builds up a list of archived files whose Shortcuts or Hard Links cannot be found. With this option enabled the Maintenance Job will scan all of the live locations it know about (all targets that have been added to all jobs) for the missing files. If it finds the missing files it will re-locate the associated archived files so their archived location matches their Shortcuts\Links new live location.

'Delete Archived Folders Whose Links Cannot be Located' = If disabled the missing links will simply be re-created. If this option is enabled the Archived files associated with the missing Shortcuts\Links will be deleted.

17) File Types

Archiver.FS ships with extensive support for a vast number of files. You can use this to select which file types you want to archive and which you don't.

In addition you can add new file types of your own.

This is all done through the 'File types' screen, accessed through toolbar on the main interface window.

18) Pre/Post Job Tasks

It will often be desirable to run some kind of task either before a job starts, or after it completes.

To facilitate this Archiver.FS incorporates the ability to schedule such tasks. This is done using the Pre/Post Job Tasks feature which is accessed through toolbar on the main interface window.

Any command line task can be started. If you need to execute several tasks, or a task includes complicated command switches (like a Windows Backup job) and it does not execute properly, try placing the command into a .bat file and then executing the .bat file with the pre/post job function.

19) Compressing Your Archive

Archiver.FS supports file and folder compression of its archives through standard NTFS File and folder compression.

It is recommended that if you do compress your archive you compress the entire archive by compressing the root folder itself (the actual folder that is shared out to create your archive share).

Right click on the root folder through windows explorer and click on 'Properties'. Tick the 'Compressed' attribute and then click ok. Depending on the size of your archive this might take some time. It is recommended that you perform this action on the server hosting the share, not from another machine over the network.

If you have compressed your archive then new folders and files will be automatically compressed as they are migrated to it.

There is a small performance penalty for the compression as files need to be compressed and uncompressed as they are moved to and from an archive but this is minimal.

If you decide that you wish to uncompress your archive after it has already been compressed then simply uncompress the root folder as above. This will uncompress all the subfolders and files underneath, and new folders and files will not be compressed when they are moved to the archive.