FileCloud Version 23.1

About FileCloud for Administrators

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FileCloud

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FileCloud is a scalable, self-hosted, Enterprise File Sharing, Sync and Endpoint Backup solution.

The FileCloud solution is a cloud-agnostic enterprise file services platform. You can self-host it on your on-premises servers and private data centers, or you can host it on public cloud IaaS providers like AWS, Azure or Google Cloud.

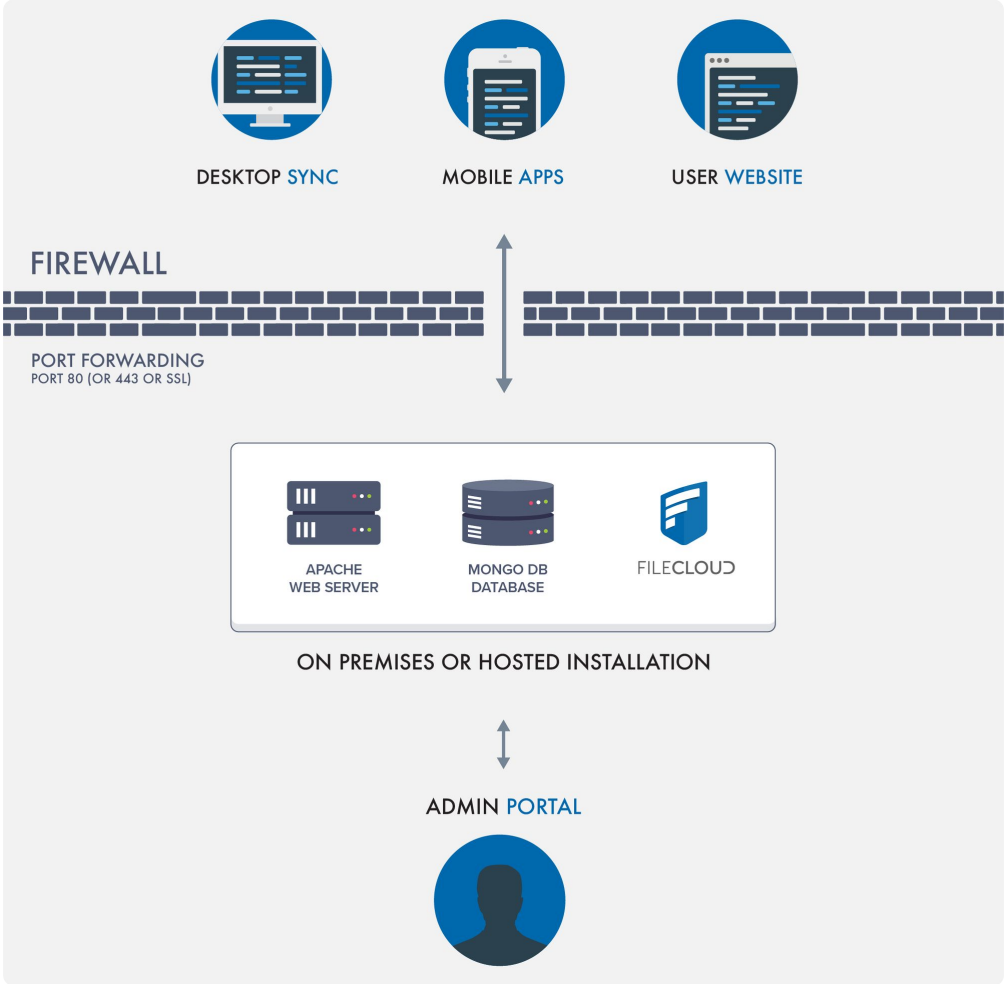
A self-hosted solution such as FileCloud offers the same features and benefits of public cloud SaaS services, but doesn't have many of the drawbacks of public cloud SaaS services, including:

- Issues related to control over critical enterprise and customer data
- Concerns about security and privacy of data
- Issues connected to regulatory compliance for many industries
- Issues related to data residency, sovereignty and ownership of critical data
- lack of customization: organization branding and custom TOS

FileCloud allows you to run your own private cloud storage and sync solution for your employees, customers and clients allowing complete control of your organizational data. FileCloud also allows you to expose your existing organizational folder and file shares (Windows NTFS File Shares, CIFS, NFS, etc.) outside using a web portal and mobile apps without using VPN.

The Underlying Architecture

FileCloud software is typically installed on a server (Linux or Windows). There is an admin portal to configure and manage the system.



Once configured, users can access the FileCloud installation using:

- Web browsers
- Mobile apps
- Desktop clients that keep their desktop folders in sync

See a quick video on the FileCloud Architecture basics.

FileCloud Storage

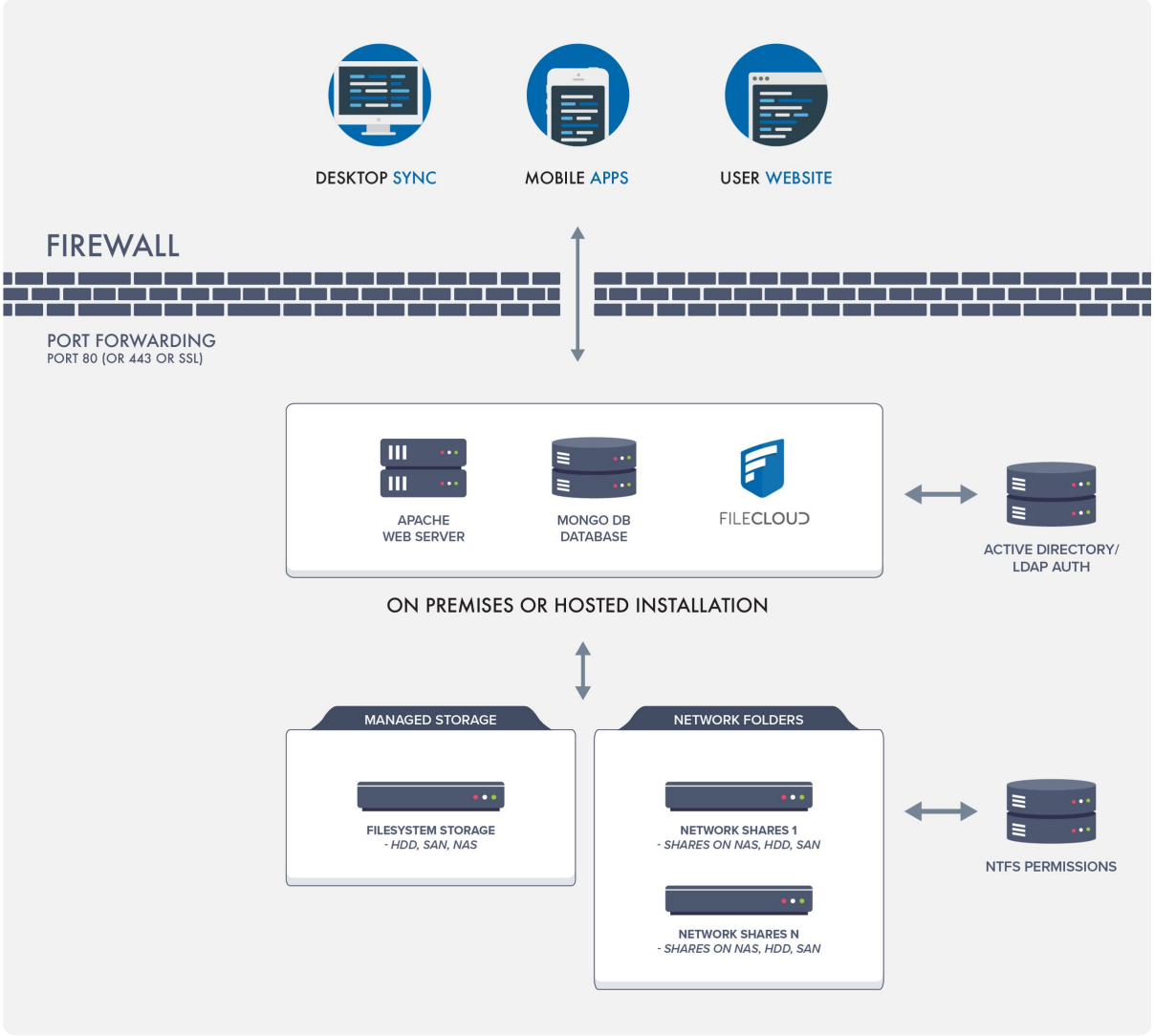
FileCloud can manage and make available two types of storage:

Managed Storage (My Files):

Managed File (My Files) Storage is fully managed storage that is maintained by FileCloud. Users get storage quotas and can access, share, and sync all files in managed storage. This is available in the My Files folder.

Network Shares:

Admins can optionally make available existing organizational folder shares available via FileCloud. Such shares can be accessed via web browser or mobile apps for instant remote access wherever you are. This is available in the Network Shares folders.

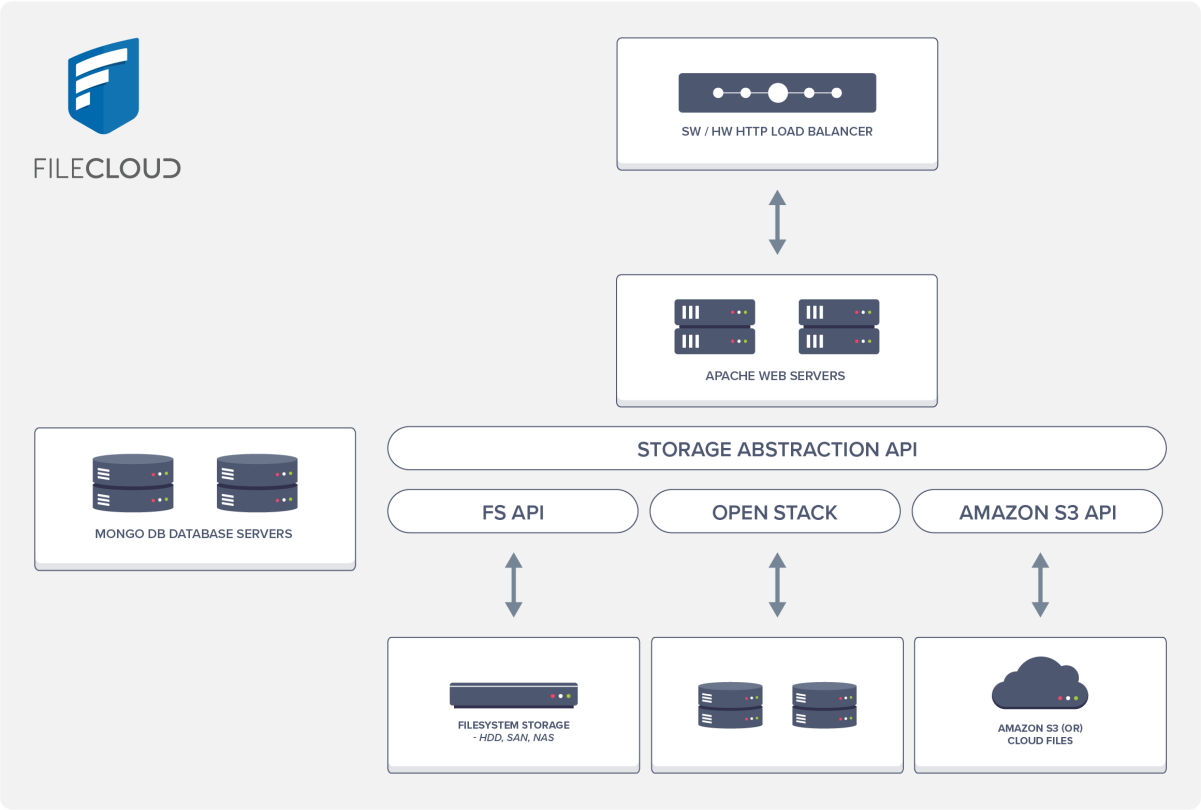


See a quick video on the differences between Managed Storage and Network Shares.

Feature	Managed Storage	Network Shares
Connection	HDD, NAS Drive, CIFS, NFS Network Shares, Amazon S3, Azure Blob Storage	CIFS, NFS Network Shares, Amazon S3, Azure Blob Storage
Sync	Yes (Realtime)	Scheduled sync 30 mins, 60 mins etc. Real time available for folders with limited number of files (100K)
FileCloud Drive	Yes	Yes
Offline Access	Yes via Sync App	Yes via Sync App's Offline Access
Read NTFS Permissions	NA	Yes
Previous Versions Support	Yes	Yes
Recycle Bin Support	Yes	Yes
Text Search	Yes	Yes, when indexing is enabled
Metadata	Yes (starting with 18.1)	Yes
Governance - Retention	Yes	No
Content Classification	Yes	No
DLP	Yes	Yes
DRM	Yes	Yes
Workflows	Yes	Yes
Zero Trust File Sharing	Yes	No
ServerSync	Yes (starting with 17.3)	No
ServerLink Support	Yes	No
Path Limits	No Limits	Subject to 256 max path limits when network shares are in Windows

Large Deployments

For small deployments, you can use FileCloud with Local Storage configuration.
For larger deployments, you would want to use redundant object storage systems like open stack or Amazon S3.
We also recommend using a HA configuration with a database cluster when running a system with many users.



Additional Resources

- FileCloud Tour
- Blog
- Vote for new features!

FileCloud Sizing Guide

This document explains hardware sizing and high availability setup for FileCloud deployments.

- The FileCloud system can be deployed on physical servers
- FileCloud Server can also be deployed in a virtualized environment (VMware, XEN)
- The FileCloud system integrates with any NFS, CIFS, SAN appliance, or s3 compatible object-storage system for file storage

FileCloud Hardware Sizing

The following table shows the underlying usage assumptions used to calculate FileCloud Hardware requirements.

The model assumes:

- a user interacts 60 times per days using one of the FileCloud clients (browser, mobile app, Drive client)
- every user synchronizes data with a Sync client on an average of 2.5 computers

Based on these usage assumptions, FileCloud servers need :

- to handle 290-300 calls per second
- to support 3000 users

FileCloud Performance Model	
Browser + Mobile + Drive Apps	
Browser + Mobile + Drive Client Interactions Per Day	60
No of API calls per Interaction	20
Calls Per Second Per User	0.013889
Desktop Sync App	
% of Users using sync app	250
Sync Check Frequency (secs)	30
Sync App Online (Hours)	24
Calls Per Second per User	0.083333

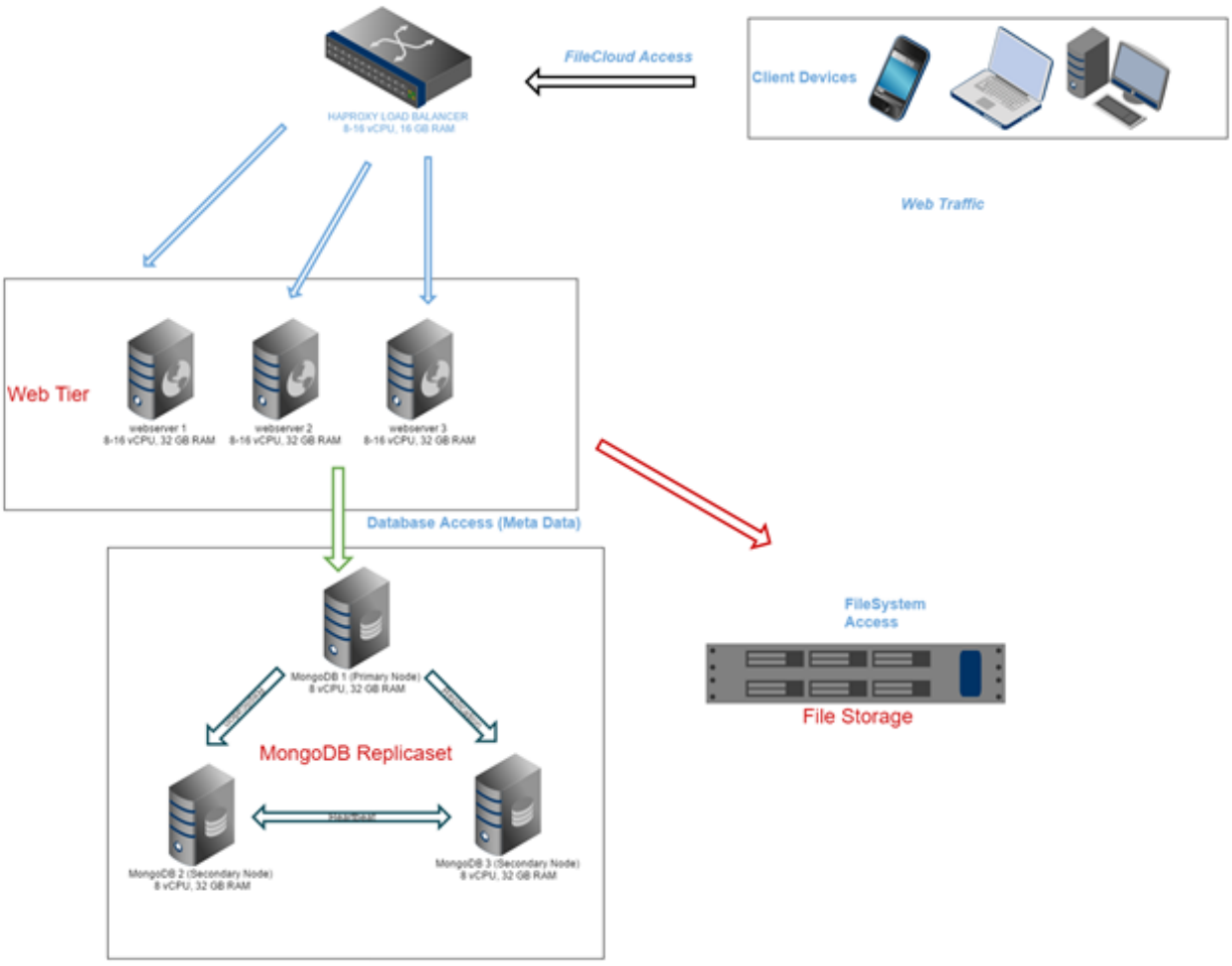
Total Calls Per Second Per User (Sync + other Apps)	0.097222
User Counts	
Total users in installation	3000
Total Calls Per Second	291.67
Server Performance	
Server Handles Requests Per Second	125
Servers Needed	**2.33**
8-16 CPU 2.6 GHz Intel Xeon with 32 GB RAM	~125-150 reqs/sec

To calculate how many web server nodes you will need to support based on number of users, you can use the linked spreadsheet.

FileCloud Sizing Model.xlsx

High-Availability Requirements

The following diagram explains the FileCloud High Availability Setup


FileCloud Access
Client Devices
HAPROXY LOAD BALANCER
8-16 vCPU, 16 GB RAM
Web Traffic
Web Tier
webserver 1
8-16 vCPU, 32 GB RAM
webserver 2
8-16 vCPU, 32 GB RAM
webserver 3
8-16 vCPU, 32 GB RAM
Database Access (Meta Data)
FileSystem Access
File Storage
MongoDB 1 (Primary Node)
8 vCPU, 32 GB RAM
MongoDB Replicaset
MongoDB 2 (Secondary Node)
8 vCPU, 32 GB RAM
MongoDB 3 (Secondary Node)
8 vCPU, 32 GB RAM

<table>
<tr><th>Component</th><th>Requirements</th><th>Notes</th></tr>
<tr><td>Web App Server</td><td>1 AWS m4.2xlarge instance can handle approximately 125-150 FileCloud requests per second.

To handle 3000 users one will require 2-3 web server instances with m4.2xlarge configuration.

AWS m4 instances uses processors identical to Intel E5-2670 v3 processors.

To equate this to a virtualized environment, you will require 3 VM nodes and each node need to have the following specs: 8 vCPUs and 32 GB RAM.

SSDs are recommended for application servers.

<table>
<tr><th>Instance Name</th><th>vCPU Count</th><th>RAM</th><th>Instance Storage</th><th>Network Performance</th><th>EBS-Optimized</th></tr>
<tr><td>m4.large</td><td>2</td><td>8 GiB</td><td>EBS Only</td><td>Moderate</td><td>450 Mbps</td></tr>
<tr><td>m4.xlarge</td><td>4</td><td>16 GiB</td><td>EBS Only</td><td>High</td><td>750 Mbps</td></tr>
<tr><td>m4.2xlarge</td><td>8</td><td>32 GiB</td><td>EBS Only</td><td>High</td><td>1,000 Mbps</td></tr>
<tr><td>m4.4xlarge</td><td>16</td><td>64 GiB</td><td>EBS Only</td><td>High</td><td>2,000 Mbps</td></tr>
<tr><td>m4.10xlarge</td><td>40</td><td>160 GiB</td><td>EBS Only</td><td>10 Gbps</td><td>4,000 Mbps</td></tr>
</table>
</td><td></td></tr>
<tr><td>Load Balancer</td><td>You must have a software (haproxy) or hardware load balancer for the web application servers.

In a virtualized environment, a load balancer is equivalent to a computer with the following specs:

• 1-2 vCPU
• 4-8 GB RAM</td><td>If you choose to go with HAPROXY, you must use one of the specs for the load balancer:

• m4.large</td></tr>
<tr><td>Database Server</td><td>You will need a 3 node MongoDB replica set for FileCloud HA configuration.

• Each node must have the specs of m4.xlarge or equivalent configuration.
• In a virtualized environment it is equivalent to 8-16 vCPU and 16-32 GB RAM.
• More RAM is better for the Database because MongoDB keeps the working set in RAM
• SSDs are recommended for database servers</td><td>You can probably use 1 TB SSD for each of the node.

It is ideal if the MongoDB node VMs can be housed in different physical host.</td></tr>
</table>

Component	Requirements	Notes
Network	For the front-end network, the following is recommended: • A gigabit or 10GigE network leading to a load balancer and from the load balancer to the 3 web app servers. • At least a gigabit Ethernet For internal networking between the servers, the following is also recommend: • At least a Gigabit Ethernet to reduce the potential for bottlenecks.	Each server should have a dedicated connection to: • Database cluster • File storage (CIFS, NFS or SAN).
File Storage	If an average usage is 5-10 GB per user, then you will require: • 25-30 TB space (3000 users) in your storage appliance • Storage must be exposed as CIFS or NFS share in the web application server instances	

Requirements

- Beginning with FileCloud 23.1, FileCloud no longer supports Ubuntu 18.04/20.04, CentOS 7/RHEL 7 and RHEL 8. In addition, FileCloud no longer supports Debian. If you are using any of those OS versions, please migrate to Ubuntu 22.04 LTS or RHEL 9.
- Beginning with FileCloud 23.1, Linux installation and upgrades moved to a new repository system.
  The OS's we currently support are:
  Ubuntu 22.04 LTS
  RHEL 9.x
  Since support for OpenSSL 1.1.1 ends on September 11, 2023, FileCloud 23.1 uses OpenSSL 3.0. which is not available for previous Linux versions, and therefore FileCloud requires installation or update on the Linux versions listed above.

MongoDB 5.0 or above requires use of the AVX instruction set, which is available on select Intel and AMD processors.
If your CPU doesn't have the AVX instruction set, MongoDB 6 will not run.
To check whether your CPU has the instruction set, run:
#lscpu | grep -i avx"

The ability to support FIPS licenses is available in FileCloud Server version 18.2 and later.

To prepare your environment for FileCloud, make sure that you have the required components.

OS Software Requirements

FileCloud Server now supports FIPS licenses in version 18.2 and later.
Enterprises who are subject to the FIPS regulations must install and run a FIPS-enabled operating system. For example, CentOS in FIPS mode.
When using a FIPS-enabled license, FileCloud Admins will see in the Admin Portal:

- Running in FIPS mode is prominently displayed
- SSO features are hidden
- Storage encryption option is always shown

To run FileCloud, use one of the following supported operating systems:

- Windows Server 2016, Windows Server 2019, Windows Server 2022
- Ubuntu 22.04
- RHEL 9.0 onwards

For additional options to install on AWS/Azure, see the Installation page.

Additionally, FileCloud can be run inside a Virtual Machine that can be hosted in almost any operating system including Mac OSX.

You do NOT need to install the software listed in this section.

This software is only listed to inform you of what is installed by the FileCloud installation wizard.
The components are identified as either Required or Optional so you can plan on which optional components you will want to install.
All components can be managed after running the installation wizard using the FileCloud control panel.

Server Software

The following required software is automatically installed by FileCloud's Windows and Linux installers.

Software	Required or Optional	Minimum Version	Recommended Version	Functionality
Apache	Required	2.4.54	2.4.54 and above	Cross-platform Web Server
PHP	Required	8.1.9	8.1.9 in Linux and above	Server-side scripting language designed for Web development
Mongo	Required	4.4.16	4.4.16	Document database that is scalable and provides querying and indexing
PHP-MongoDB driver	Required	1.14 and above	1.14 and above	Provides a minimal API for core driver functionality
Memcached	Optional	*Version included in the installer*	*Version included in the installer*	Memory object caching system that provides pre-caching of NTFS permissions and encryption
SourceGuardian PHP Extension	Optional	*Version included in the installer*	*Version included in the installer*	Encodes and secures PHP files

Software	Required or Optional	Minimum Version	Recommended Version	Functionality
Solr	Optional	*Version included in the installer*	*Version included in the installer*	Enables content search with the following features: • Content search for file types such as txt, pdf, doc, docx, xls, xlsx, ppt, pptx • Regex support for file/folder name searches

Supported Browsers

- Microsoft Edge 15 and above
- Google Chrome 55.0 and above
- Mozilla Firefox 52 and above
- Safari 11 and above

⚠ **For FileCloud Sync and FileCloud Drive applications, Windows 10 is required to run properly.**

Hardware Requirements

Small Installations (~ 100 users)

- Intel(R) Xeon(R) CPU E5-2630L v2 or equivalent Quad Core CPUs (2 GHz or higher) (Higher the better depending on additional configuration such as indexers, SOLr, Preview services etc)
- Windows: 16 GB of RAM (higher is better) Linux: 16 GB (higher is better)
- Storage can be from Physical Disk, SAN, NAS etc
- Free disk space as needed

Larger Installations

To support FileCloud, you might need to setup more powerful configurations to include the following:

- Use redundant object storage systems like open stack or Amazon S3
- Use an HA configuration with a database cluster when running a system with many users

Network Requirements

⚠ If you are using a load balancer, the HTTP response timeout must be set to 5 minutes or more.

Ports

The following are the ports necessary for the operation for FileCloud.

Port No	Purpose	Internal/External	Remarks
80	HTTP Traffic	External	• Port used for http traffic from all clients such as browser, FileCloud sync, FileCloud drive etc., • This port should be opened to WAN if clients needs to access FileCloud over internet. • **For Production, Plain HTTP is NOT RECOMMENDED. ONLY SSL should be used.**
443	HTTPS Traffic	External	• Port used for https traffic from all clients such as browser, FileCloud sync, FileCloud drive etc., • This port should be opened to WAN if clients needs to access FileCloud over internet.
389	LDAP	Internal	• Optional port needed if FileCloud users needs to be authenticated against Active Directory or LDAP server • This port need not be opened to WAN, as only FileCloud server will be using it within LAN.
636	LDAP SSL	Internal	• Optional port needed if FileCloud users needs to be authenticated against a secure Active Directory or LDAP server • This port need not be opened to WAN, as only FileCloud server will be using it within LAN.

ⓘ If MongoDB is set to run on a different computer from the Webserver , then Port 27017 on the computer running MongoDB must be accessible from the Webserver computer in order for it to connect.,

Configuration

Component	Configuration
IP Address	You need a public IP for the server running FileCloud. Typically, this means you need a static IP for the server as dynamic IPs provided by most ISPs keep changing.
Network Connection	You need a good quality network connection to the FileCloud Server. Minimum should be 512 Kbps upload and download for good experience. The faster the connection the better the experience.
Domain Name	You will typically need a top level domain name. For example: cloud.mycompany.com or mycompanycloud.com. You can purchase a domain name from any domain registrar and then point the DNS for that domain name to the public IP of the server that is running FileCloud.
SSL Certificate	You will also need a valid SSL certificate for your domain name to setup and use **https** with your filecloud server for best security.