



Mac, Windows, or Linux?

A guide to which Claris FileMaker deployment is right for you.

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Introduction.

In the summer of 2001, Claris released a Red Hat Linux version of FileMaker Server. The move thrilled some Claris developers but was a bit ahead of its time and wasn't widely adopted. Shortly after, Claris stopped supporting Linux. As a developer who lives and breathes FileMaker Server deployments, I've been pining for it ever since.

But now it's back! You can now host your FileMaker apps on the world's most popular open-source platform. Use Claris FileMaker Server 19.3 or later to deploy on Ubuntu Linux. In this ebook, we'll highlight why Claris brought Linux back, why they chose Ubuntu, what benefits you'll enjoy from this release, and more.

Claris FileMaker Server is fast, reliable server software used to securely host your FileMaker custom apps on premise so you can share information on any device in real time with your team. Plus, integrate your apps with your existing systems and other technologies. Get 24/7 availability and reliability, remotely manage apps with ease, and save time by automating administrative tasks.

[Learn more](#)

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Why bring Linux back?

In this [blog post](#), Claris notes that their community of Claris developers, IT specialists, and server administrators had increasingly requested Linux. Why? The short answer is cost. With open source, you don't pay for the cost of licensing an operating system (OS), so your FileMaker Server deployment becomes more affordable without compromising stability and performance.

Why Ubuntu?

Ubuntu is a very popular Linux distribution and their Long Term Support (LTS) releases provide the stability and prolonged support that we all look for in stable and secure server deployments.

Which FileMaker deployment should you use?

When selecting your FileMaker Server deployment, you have 2 key options:

1. Use FileMaker Cloud and let Claris take care of the installation and maintenance of the server.

-OR-

2. Use the on-premise (on-prem) version of FileMaker Server and host it inside your network or with your favorite cloud-computing provider. In this case, both the installation and upkeep of the server are your responsibility.

Claris FileMaker Cloud provides a total toolset to create custom apps and share them in the cloud with your teams.

[Learn more](#)

FileMaker Cloud already uses Linux under the hood. So, the latest FileMaker Server release simply makes Linux available via the on-prem version, too.

Depending whether you deploy FileMaker Server on-prem or in the cloud, you'll choose from one of the three options: macOS, Windows, or Linux.

The two on-prem versions of [FileMaker Server](#) — for Windows and macOS — are functionally equivalent. There are no feature differences between FileMaker Server on Windows and macOS beyond the obvious differences due to the OS they run under.

Of course, [FileMaker Cloud](#) has a significantly different feature set.

The Linux version of FileMaker Server includes features from both on-prem FileMaker Server and FileMaker Cloud.

One of the most significant differences of the Linux version is that it doesn't support an old PHP (Hypertext Processor) and XML (Extensible Markup Language) APIs (Application Programming Interfaces). If your web publishing still depends on either of those 2, you'll need to migrate to the FileMaker Data API before switching over to this new version.

Another consideration is that the Linux version doesn't work with the traditional on-prem directory services: Active Directory and Open Directory. Nor does the Linux version support local accounts and groups created in the OS of the server. Instead, you get more prominent support for Active Directory Federation Services (AD FS), which basically turns your Active Directory into an OAuth identity provider. The Linux version provides AD FS authentication for both users and for access to the Admin Console.

Wondering which deployment option to choose? The following summary provides the most relevant differences. Whether on-prem or in the cloud, affordability serves as the overarching benefit of Linux.



Compare features.

	FileMaker Server		FileMaker Cloud
	macOS & Windows	Linux	Linux
XML and PHP API	✓	✗	✗
Turn performance enhancements off	✓	✗	✗
FileMaker Data API	✓	✓	✓
OData API	✓	✓	✓
xDBC API	✓	✓	✓
Server-side plug-ins	✓	✓	✗
Server-side script schedules	✓	✓	✓
Custom backup schedules	✓	✓	✗
Mandatory security rules (encryption at rest, file privileges)	✗	✗	✓
Built-in OAuth identity providers (IdPs)			
Azure AD	✓	✓	✓
Google	✓	✓	✗
Amazon	✓	✓	✗
AD FS	✓	✓	✓
Okta	✓	✓	✓
Claris ID	✗	✗	✓
Custom OAuth IdPs (Ping, Auth0, OneLogin, KeyCloak)	✓	✓	✗
On-prem authentication			
AD / OD	✓	✗	✗
Local	✓	✗	✗
Multiple FileMaker WebDirect secondary machines	✓	✓	✗

- ✓ = as a custom provider
- ✓ = requires a special authentication step
- ✓ = requires the FileMaker Admin API to create the schedules



Three Linux myths debunked.



Linux is always faster.



Running Linux on older hardware is a good idea.



I'll be able to keep my desktop.



MYTH 1: Linux is always faster.

Many developers mistakenly expect Linux to be automatically faster than Windows or macOS (using equivalent hardware, of course). However, we've put this myth to the test.

At Soliant, we've done extensive beta testing with FileMaker through side-by-side comparisons, running the same tests on different types of hardware.

To help with that effort, Soliant created a tool that determines how different versions of FileMaker Server compare to each other and to understand how changes in OS and hardware configurations impact FileMaker operations.

The tool mentioned above — named Punisher — is available on GitHub:
<https://github.com/soliantconsulting/fm-punisher>.

Punisher can produce an output that allows you to see the time (in seconds) it takes to run through particular test scripts using the same type of machine (in this case an AWS t3.large, with varying loads of 1, 5, 10, and 20 concurrent PSoS sessions).

			Version	FileMaker Server 19.5							
			OS	Ubuntu 20.04 LTS (Long-Term Support)				Windows Server 2019			
Script step	Machine type	Cores	Load	1	5	10	20	1	5	10	20
test_JSON_parsing_JSONGetElement_Array	t3.large	2		7.00	28.00	59.00	121.50	7.00	28.50	55.00	122.00
test_JSON_parsing_JSONGetElement_DeleteElement	t3.large	2		8.00	30.00	61.00	122.00	7.00	32.00	63.00	136.50
test_JSON_parsing_JSONGetElement_GetValue	t3.large	2		1.00	5.00	14.00	29.00	2.00	5.00	10.00	23.00

NOTE: Shorter bars mean faster performance.

As the results indicate, some tasks are on par between Windows and Linux, with some a bit faster on one or the other. While the majority of the code base of FileMaker Server is platform agnostic, each operating system requires its own unique approaches. The Windows and macOS versions of FileMaker Server have the benefit of being very mature, already with many optimizations over many versions.

For now, the conclusion is clear: don't expect any dramatic differences in speed between FileMaker Server on Linux and FileMaker Server on Windows or macOS.



MYTH 2:

Running Linux on older hardware is a good idea.

Running Linux on hardware that doesn't support the newer Windows and macOS may have a certain cost-saving appeal. However, older hardware not only has a higher risk of failure, but noticeably lacks the technological and performance improvements of current generation hardware.

FOR DEVELOPERS:

To showcase this reality, we installed FileMaker Server on an early-version Mac Pro, with 4 cores at 3.0GHz. Our speed test showed that it was several orders of magnitude slower than recent hardware that ran at slower clock speeds (2.4GHz).

		Version	FileMaker Server 19.5							
		OS	Ubuntu 20.04 LTS (Long-Term Support)							
		Machine type	Mac Pro				t3.xlarge			
Script step	Cores	Load	1	5	10	20	1	5	10	20
test_JSON_parsing_JSONGetElement_Array	4		11.00	20.00	41.00	104.00	7.00	14.00	29.00	60.00
test_JSON_parsing_JSONGetElement_DeleteElement	4		13.00	21.00	42.00	99.50	8.00	16.00	30.00	63.00
test_JSON_parsing_JSONGetElement_GetValue	4		3.00	12.00	25.00	71.00	2.00	4.00	8.00	18.00

NOTE: Shorter bars mean faster performance.

So, while you may be tempted to extend the life of old hardware by switching it to Linux or by using refurbished servers, this approach may not provide the performance gains your business needs. Linux by itself is not going to make up for any existing hardware deficiencies.



MYTH 3:

I'll be able to keep my desktop.

Linux servers run best without any desktop UI installed on them. No desktop means fewer packages to maintain, which translates into a more robust experience, few required resources (memory, disk space, etc.), and better security.

FileMaker Server supports both the server and desktop* versions of Ubuntu 20.04 LTS. And while it may be tempting to install a desktop on your Linux server to make it easier to administer in the short term, we strongly believe that learning the required command line tools is fairly easy and will be more beneficial over time.

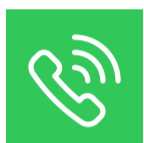
*Ubuntu Desktop is compatible with FileMaker Server 19.5, but has not been fully tested.



Ready to get tactical?



To kick-start your journey, check out the [Linux installation and troubleshooting guide](#) posted in the Claris Community. You'll find useful commands to help you master the new operating system, along with installation information, troubleshooting guidance, and more.



Contact Claris at +1 800-725-2747 to speak to a specialist in the US, or +1 408-727-8227 to speak to a specialist outside of North America.



About Soliant Consulting

Soliant Consulting is a professional services firm specializing in building custom business solutions. For 15 years, Soliant team has helped shape its clients' futures and made their business lives easier. Soliant differentiates by focusing on the client business, not just the technical requirements. Soliant strives to understand what problems clients face, how a solution should meet the business goals, and how they can have a positive impact on the client organization.



About Claris International Inc.

Claris International Inc. is the creator of the world's leading low-code development platform, offering a suite of services that drive digital transformation in companies from every business sector. Best known for its FileMaker app development solution, the company has more than one million active users globally across SMBs and the Fortune 500. Claris is an Apple subsidiary with an unmatched record of business success for more than 20 profitable years. Claris is headquartered in California with operations worldwide, including London, Paris, Munich, Tokyo, Beijing, and Sydney.