A We Got Served Step by Step Guide

Terry Walsh

Building a Home Server With Windows 8.1

eBook Edition

Published by We Got Served Ltd.

First published: July 2014

About the Author

Terry Walsh

Terry Walsh is the Owner and Editor of We Got Served (http://www.wegotserved.com), which he established in 2007 to share his own experiences with emerging Home Server platforms.

Since then, the site has grown to cover a wide range of digital home, consumer electronics, and small business product categories but retains at its core the mission to help users make the most of technology.

Terry graduated from the University of Durham in 1995 with a Bachelor of Arts in English Language and Literature and currently works in the telecommunications industry, writing about technology in his spare time. Prior to starting WGS, Terry cut his teeth online in 1993 building and operating a number of successful alternative music websites and communities for UK artists.

Born and raised in Liverpool, England and now living in Silverstone with his wife and two sons, Terry has been awarded Microsoft's Most Valuable Professional Award each year since 2008 for his work on We Got Served.

Over the last two years, Terry has authored a number of Mac and Windows home server guides, including *Using OS X Mavericks Server at Home*, *Windows Home Server 2011 Step by Step*, *Using OS X Lion Server at Home*, *Using OS X Mountain Lion Server at Home*, *25 Essential Windows Home Server Projects* and *Building a Windows Home Theatre PC.* He has also edited a number of titles, including *Using Windows Home Server*, *25 Essential Windows Home Server Projects Volume 2* and *15 Essential Windows 8 Projects.*

You can contact him at terry@wegotserved.co.uk, or via Twitter at @wegotserved.

About We Got Served

We Got Served is a popular technology news and community site which was founded in February 2007. It is written, edited and moderated by a dedicated and knowledgeable team of technology enthusiasts across the world who are focused on bringing you the latest news, reviews, tutorials and support for the products you're using today and will be using tomorrow. We created We Got Served as a place to learn about new technology, help readers make the most of the products and services they use, and most importantly to create a community where readers can learn, discuss and share their experience and knowledge with others in need of support. However you use the site, we hope you enjoy it.

Other Books by Terry Walsh

We Got Served publishes a wide range of guides for Microsoft Windows and Apple Mac OS X. Click the titles below to view online or visit http://store.wegotserved.com.

- 25 Essential Windows Home Server Projects
- Build a Computer From Scratch
- Building a Windows Home Theatre PC
- Manage Your Music and Video Metadata
- Using OS X Lion Server at Home
- Using OS X Mavericks Server at Home
- Using OS X Mountain Lion Server at Home
- Using Windows Server 2012 R2 Essentials
- Windows Home Server 2011 Step by Step

Building a Windows 8 Home Server Reviews

We published the predecessor to this book, ***Building a Windows 8 Home Server***, back in October 2012. A big thank you from us to the readers who have taken a couple of minutes to share their feedback on the book. Writing these books is a labour of love, with a few busy months invested in each title, so your thoughts and suggestions are always welcome - wherever you choose to express them! Here are a few of the reviews we received for ***Building a Windows 8 Home Server.***

Building a Windows 8 Home Server

I purchased this book with the hopes of setting up a home server using Windows 8. Being new to the Windows 8 environment, I was pleased to find out as much about this operating system as I did about the "server" end of it. Straight, easy-to-follow language, great examples. I purchased back in January of 2013, and still open it up for some much needed tips and tricks. New to Windows 8? New to Home Servers? I would recommend this title without reservation. I found it so thorough and spot on, that I will be buying other guides as I need to.

Great information, great instruction, great read!

Terry, you hit it outa the park with this one. It's laid out very well, it's written very well and there's a load of information. You not only have a knack for Microsoft software, you have a knack for writing about it. Never a dull moment. Now, if you could just come through with some cash to pay for all that stuff! Great job all-around.

Excellent DIY Guide

This is an excellent do-it-yourself guide to set up a Windows 8 "home server". It helped me replace my old Windows Home Server (v1) myself - no sweat. Everything I wanted to know (and needed) was clearly explained. As a bonus, it helped me to understand Windows 8 a lot better (in particular File History and Backup). I fully agree with a previous reviewer: great information, great instruction, great read!

About this Book

When I wrote the predecessor to this book, ***Building a Windows 8 Home Server*** in the summer of 2012, home server technology was going through somewhat of a transition. We'd seen Windows Home Server, loved by many (but sadly not enough) shelved by Microsoft as its strategy evolved to focus solely on the small business space.

That resulted in the development of Windows Server 2012 Essentials (and the newer R2 release) - an excellent product that embodies the features and functionality of Windows Home Server, if not the pioneering spirit that sought to truly innovate in home computing. It's an excellent platform that I write about extensively in ***Using Windows Server 2012 R2 Essentials***, but at around £500/$800 it's most definitely priced for business.

On the client side, Microsoft released its all-new Windows 8 operating system in the October of 2012. It was received with confusion. The design of Windows 8 revealed a company in transition as Microsoft tried to figure out how it could blend touch and traditional user interfaces in a single platform.

Out-performed and out-sold in tablets and smartphones and seeing consumer PC sales decline rapidly, Microsoft attempted to mash up two user interface models into a radical new version of Windows that could serve both types of device. The result, if we're being kind, was *conflicted*. If not, it was a *mess*, with desktop users forced to use a new tile-based Start screen that replaced the old Start menu. Touch users forced to enter a touch-agnostic desktop mode to use many applications and change settings. A distracting mental *clunk* each time Windows forced you to switch between modes. Which it did a lot.

They called it a *re-imagination*. Many users called it something else.

But, whilst the controversial user interface redesign took the headlines, there actually was a lot of good stuff in Windows 8 - new features that enabled us to seriously consider using the client version of Windows as a home server. File History, Storage Spaces, UEFI support, Media Streaming enhancements, Cloud Storage integration and a whole lot more. We sold thousands of copies of ***Building a Windows 8 Home Server***, so many users out there clearly thought the same.

In the 18 months that have passed since the release of Windows 8, Microsoft has continued to tweak and re-engineer elements of the platform to soften many of the sharp edges it introduced in the attempt to converge touch and traditional user interfaces. Two releases, Windows 8.1 and the

new Windows 8.1 Update 1, have been issued with new features and further refinements to make life with Windows 8 more comfortable for touch users, desktop and laptop users and, as we'll see, for users thinking of building a home server with Windows 8.1.

That's what we're here to discuss. You just need this book, a copy of the Windows 8.1 operating system, a few recommended apps and some time. Oh and if, like me, you see the release of Windows 8.1 Update 1 as the chance to buy some new hardware, that's okay too - though not strictly necessary! We'll walk through the basics, and stretch into a few more advanced ninja moves - but it's always step-by-step throughout.

Just before we get going, I'd like to express my thanks to a number of volunteers who have helped copy-check the book. When you're heads-down writing these guides, you're often so close to the text that even simple spelling and grammar errors become invisible! (I have an English degree so I'm usually the guy who points these errors out to others!). So a huge thank you to Tim Dondlinger, Crispin Bassett, Geoff Coupe, Paul Donovan, Vernon Dunkley, Barry Dyer, Mike Wager, Deric Ellerby, Kevin Palmer, Andrew Kotynski, Richard Fitzmaurice and Stephen Cole for their thoughtful reviews and guidance.

As ever, I'm delighted to be your guide to Microsoft's latest release of Windows, and whilst we'll take a slightly different path than most through the ins and outs, ups and downs of the OS, I promise it'll be a great adventure.

Let's get going!

Terry Walsh
July 2014

Revision History

v1.0	**July 2014**
	Initial release
v1.01	**July 2014**
	Minor formatting edits and typo fixes.

Contents

Introduction

"Before we dive into the Windows 8.1 software - yes, I'm eager to jump in too, but wait - we should spend a little time discussing the words 'home server'. Or for that matter, 'home hub', 'network storage', 'personal cloud', 'digital hub', 'media server' and any of the hundreds of similar terms that Marketing people the world over have concocted to sell us new hardware and software."

Throughout this book, I'll be using the term "home server", as it's the one that's most familiar to me - but let's not forget, this kind of computer doesn't have to be in the home and, when it comes to Windows 8.1, it's most certainly not a Server, in the traditional sense.

So, for clarity, as this book is all about building a Windows 8.1 home server, let's agree what we mean by a "home server". Just what is a home server?

The problem is the word "server" – it's a term that most people use in a workplace context, perhaps without really understanding what it really means. Ever said, "Oh sure, you can find the document on the server" or missed a deadline because "the server has gone down"? In the workplace (unless you're an IT admin) the server is a mystical, unseen entity that stores our documents and we only really care about it when we can't reach it.

Put simply, a server is just a computer that shares its resources with other computers on a network. It may look a little different to the desktop computers you know on the outside, but on the inside, it's made up of the same components that comprise the computers you use to write your emails, browse websites, and play Call of Duty. It's a computer with an operating system, processor, memory, storage and a network card.

The home server connects to your home network, and for most of us, works in the background to perform a number of really useful tasks. They include:

- Storing and sharing files with other computers in the home, like your tablet, laptop, desktop PC and other devices like smartphones.
- Streaming music, video and photos to connected devices like modern TVs, digital photo frames

and networked media receivers

- Protecting your data (think about all of those music, video and photo files you've collected over the years) by backing up all of your computers each night.

I often use the example of a heating system to bring the concept of home servers to life. You have radiators in each room, connected to a central boiler tucked away in a cupboard, which pumps hot water around pipes to the radiators, which in turn heats the house.

A home server works in exactly the same way with your home network and the PCs around the home. The home server is like the boiler, tucked away out of sight, which stores your data. Your home network, whether it's wireless or wired, acts as the "pipes" that bring your data to the PCs and other networked devices scattered around the home, just like your radiators.

You may decide to treat the PC you nominate as your "home server" a little differently than other devices in the home. As it needs to store a lot of data, you may well want to find a chassis that can take two, four or more hard drives to provide a large centralised pool of storage for all of your data. If you just want to perform basic tasks, you may wish to go for low-powered hardware (as it'll be switched on 24 hours a day) and you won't necessarily need a keyboard or a mouse to control it. You could manage the PC remotely - just like the boiler, once the home server is installed, you can shut it away in a (well-ventilated) cupboard, and should only need to open it again from time to time.

Of course, running Windows 8.1 you can use the "home server" PC just like any other PC in the home - the freedom is yours!

So Why Do You Need a Home Server?

Over the past few years, when talking to people about network attached storage (NAS) devices and Windows Home Server, I'd hear the following question regularly. "Okay, so I get what a home server is and what it does. But I already have a bunch of other computers around the house that can do a lot of that stuff. So why do I need a home server?"

It's a great question. Actually, you *don't* need a home server. Windows PCs and Macs are now so well stuffed with features, that individual computers in your home can share files with each other, back themselves up, and stream music, video and photos to network devices around the home. They rock! Whilst Microsoft has dabbled with dedicated home server operating systems and their partners with dedicated home server hardware, they've realised that many of the features that consumers need - features that required a specialised home server operating system back in 2007 - can just as easily be built into a modern client operating system like Windows 8.1.

So, whilst the concept of a dedicated home server operating system may be outdated, that's not to say you shouldn't dedicate some hardware in your home to typical "home server" duties. Think about all of the data you have stored on computers and hard drives around the home – the thousands of documents, audio tracks, video files and photos. You probably have data scattered all over the place – work files on one PC, music on another (apart from those new tracks that you downloaded on your laptop), photos stored on an external hard drive that you move from PC to PC. It's a mess.

Now think about the next five years, and imagine how much more data you're going to collect. The music you'll buy, photos you'll take, videos you'll shoot and work you'll complete. How are you going to organise it all? Where are you going to store it? What happens to your data if your PC's hard drive fills up, the PC breaks, that external hard drive fails or you simply can't remember where you saved it?

You don't need a home server if you're happy to work tirelessly across multiple computers and devices and live under the shadow of data loss. But imagine a large, centralised resource that is easy to expand, can organise and store that growing torrent of data, allow secure access to those files to the users you specify, backup and protect your data and effortlessly stream your music, video and photos to devices inside the home and indeed remotely, anywhere in the world.

If that sounds like the kind of device you want, then you can build or buy one with Windows 8.1 and configure it to your needs. The good news? I'm going to show you how!

The Perfect Home Server Feature Set

So what kind of features should we look for in decent home server software? In terms of the basics, we certainly need centralised file storage and sharing, media streaming capabilities, user account controls, data backup, remote access and storage management features. Let's take a look at some of those features in turn.

Centralised File Storage and Sharing

Probably the most important requirement for a home server platform is to serve as a centralised hub for your important data. The sheer number of work documents, music, videos, photos and other types of data is exploding in the home. The home server is a perfect place to be able to store, protect and organise those files for use with various devices. Yes, cloud storage definitely has its place in your storage arsenal, but with increasing concerns regarding the privacy of data stored on third-party systems, there's quite literally *no place like home*!

Whether it's on a mobile device such as a smartphone or notebook, tablet, desktop computer or media receiver, we'd expect to be able to access those files with ease on multiple devices running a variety of operating systems, stream entertainment around the home, read, write and copy data to and from the home server.

Included here is the ability to create and share folders with other devices, and in conjunction with the PC's user account controls (see below) quickly and easily configure secure access for family members and guests (if required). A bit obvious to mention (I will anyway) but let's also ensure we have full file management features for data stored on the server from connected clients.

User Account Controls

With multiple family members and guests wishing to access the data stored on the home server, we need to ensure that it can be achieved with the appropriate levels of security. So, we need to be able to create and manage user accounts for access as well as to open and restrict access to shared resources.

Data Backup

What may have once been classed as a value-added feature for a home server is most definitely core today. That centralised resource is perfect for supporting the backup and protection of data and system files on our clients (other PCs on the network), as well as the data stored on the home server itself.

Here we're looking for powerful, yet easily managed data backup, granular filters on the data we would like backing up or not and simple, fast file or full system recovery in case of disaster. Connection to cloud backup services as a secondary layer of data protection is important to many people and useful to most.

Remote Access

We lead increasingly mobile lives, and as a result it's useful for our data to be just a click or a tap away. Remote Access is an area of growing importance for the home server platform, so we're seeking a variety of features in this area. We require easy configuration of remote access to the server through automated router configuration tools (port forwarding). Easy access to the server via a nominated URL/home server website is now common, with dynamic DNS services connecting the pipes to your server's IP address in the background.

When you've connected remotely, it's important to have quick and easy access to your files, and the ability to access other computers on the network is also desired. Of course, in today's mobile world, we're not just talking about access via a computer either – we want the same ability to access the server remotely from a mobile handset and tablet.

Storage Management

As the hub for the family's data, it's likely that a home server is going to pack a fair amount of storage across multiple drives. Managing that storage is vital, and as such, we'll be looking for robust monitoring features and drive management tools including standard reporting of storage capacity and free space, simple ways to add and remove storage as well as the more advanced ability to create storage pools/arrays from multiple disks. Ideally, we'd want to see support for a wide variety of disk types and capacities including the newer, high-capacity 5 and 6 TB drives coming to market.

System Alerts

Should things go awry with our home server for any reason, we want to know about it pronto. So we're interested in seeing what system alerts are available on the platform, and the channels used for notification. Email sending is a requirement, social network and text message alerts possibly a pipe-dream.

Shared Contacts

With a centralised hub storing all of the family's data, there's an increasing need to add a central database of contacts that is then available to be searched by any client on the network, or indeed remotely via the Cloud.

Shared Calendar

In various conversations with Microsoft over the years, I have lost count of the number of times a shared family calendar resource was pitched and rejected in Windows Home Server. The ability to track what's going on at home with a shared resource, accessible on all computers, by all members of the household seems such an obvious feature, I'm baffled why it was never realised.

Cloud Integration

Over the last few years, the debate has raged as to whether the Cloud would render home servers and storage obsolete. Why do you need local storage if you can access your data anywhere on the cloud? But wait, why trust your data with a third party where it could easily get lost, or accessed by hackers (government approved or otherwise?)

Should you be using local storage or cloud storage? The predictable answer is actually **both**. A "hybrid cloud" solution is the one that I'd recommend today - back up all of your essential, precious data at home where you can guarantee easy access. Anything sensitive, you should also keep private and safe. But those files that you need "anywhere access" to, like work documents you may need on the road, a copy of your music files for remote listening, images you'd like to share with family, friends and colleagues? The cloud offers a perfect solution for that data.

So, robust integration with cloud services, and the ability to back up data and synchronise files with a remote cloud server? That would definitely be a bonus.

These are just a few of the features we'll be investigating in Windows 8.1 - some will be provided by Microsoft, others we may have to integrate from third parties. But if we can get all of those features working well, we'll know that Microsoft's latest client operating system can indeed be a great home server.

But that's all in the future - before we even start thinking about the software, we need to have a chat about hardware...

Please Register This Book

Whilst the concept of registering a book may sound a little strange, I heartily invite you to do so! Registering your email with us allows us to inform you of updates and amendments to the book, and let you know about new books we're writing as well as some offers on our other titles.

Hey, if that's not enough, you know us so we'd like to know you too!

So head over to **http://eepurl.com/kZUcH** and spend 23.2 seconds signing up!

Did You Purchase This eBook From Amazon or Apple?

Many of our readers prefer to purchase our eBooks for their Kindle or iPad via Amazon or Apple. If you have purchased this eBook through one of those stores then note that the image quality of screenshots illustrating the walkthroughs will be **heavily** compressed.

Unfortunately, Amazon and Apple place strict limits on the format of eBooks they allow to be sold through their stores. In Amazon's case, the maximum file size for an eBook is just **50 MB** - fine for a text-only work of fiction, but tough for an illustrated guide such as this.

So, firstly, apologies if you experience poor quality graphics from your purchase at Amazon or Apple - that is unfortunately out of our control. However, don't despair - we can get you set up with full quality ePub, PDF and Mobi files that will work on a host of devices, and will look great.

Here's how:

1. Please register your purchase at **http://eepurl.com/kZUcH**

2. Please contact us at **http://www.wegotserved.com/contact-us/** explaining that you purchased this title at Amazon or Apple. Attach an image of your receipt as proof of purchase.

3. We'll set up new download links for you to grab full quality versions of the eBook, which you can simply drag and drop to your favourite mobile device from a PC or Mac via a USB cable. Alternatively, view the PDF directly on a computer.

4. Please purchase your eBooks directly from us at **http://store.wegotserved.com** to avoid future issues (you may get a little money off in the future too!)

Chapter 1

Windows 8.1 Home Server Hardware

Chapter 1: Windows 8.1 Home Server Hardware

"We start our Windows 8.1 home server adventure with a look at suitable hardware. In fact, we're going to build our own home server together in the next chapter, so first let's look at components. Why? Surely it's far easier to just buy a computer off the shelf? They come in all sorts of shapes, sizes and colours. That's very true, but off the shelf computers - unless you're buying from a specialist manufacturer - tend not to make the best home servers. They're built for general purpose - jack of all trades, master of some. "

That said, if you're seeking an easy life then you can't beat a retail PC. The hardware is configured and controlled, the software installed and you can plug in, switch on and get going with Windows 8.1 straight away. If that's what you've done, I doff my cap and warmly invite you to skip the next few chapters. Everyone else: read on.

Building your own rig allows you (forces you, actually) to carefully think through your needs and ensures you get to configure your home server exactly as you want. You may desire a eight-drive megabox, a tiny, low-powered, single-drive system, a chassis that will sit beautifully under the TV, or a hulking beast in the basement. All of these things are possible, but you won't get them from Dell, HP or Acer.

But you *can* most certainly build it yourself - there are thousands, if not millions of components on the market to help you build and configure your home server hardware exactly as you want it. In a world of increasingly closed systems, celebrate the open PC architecture and go crazy with designing your own kick-ass PC!

If you have never built a PC before, it may seem a little daunting from the outside looking in. In reality, with a little bit of research, and the right components, it's actually really easy to build a home server and you'll get a lot more satisfaction the first time you boot it compared to one bought off the shelf! So, let's hop to it, as I walk you through a Windows 8.1 home server self-build.

But What Kind of Home Server Do I Need?

Great question. Yes, you're going to need a bunch of components that, when thrown into a box and jiggled around a bit, are going to be powerful enough to run Windows 8.1 comfortably.

What's comfort? Well, according to Microsoft's hardware requirements for Windows 8.1 you can run the operating system on any system that could run Windows 7. Indeed, with the release of Windows 8.1 Update 1, Microsoft has actually further reduced the hardware requirements to allow the operating system to run on smaller touchscreen devices. That's not a specification I'd recommend for a home server, but it shows that you can get Windows 8.1 running on a very humble device.

Windows 8.1 Update 1 Minimum Requirements

Processor: 1 gigahertz (GHz) or faster with support for PAE, NX, and SSE2.

RAM: 1 gigabyte (GB) (32-bit) or 2 GB (64-bit).

Hard disk space: 16 GB (32-bit) or 20 GB (64-bit).

Graphics card: Microsoft DirectX 9 graphics device with WDDM drive.r

Additional requirements to use certain features:

- To use touch, you need a tablet or a monitor that supports multitouch.
- To access the Windows Store and to download, run, and snap apps, you need an active Internet connection and a screen resolution of at least 1024 x 768.
- Microsoft account required for some features.
- Internet access (ISP fees might apply).
- Secure boot requires firmware that supports UEFI v2.3.1 Errata B and has the Microsoft Windows Certification Authority in the UEFI signature database.
- Some games and programs might require a graphics card compatible with DirectX 10 or higher for optimal performance.
- Watching DVDs requires separate playback software.