

23.01. mSupply client / server installation part 1



- mSupply Server can be installed on a range of Windows OS hardware platforms. Installations of the mSupply Server and client software on these different platforms will not be identical.
- This page includes instructions for installing the mSupply Server and client software on a typical Windows 10 Pro platform. This will include many hardware configuration issues as these have been known to be important for mSupply Server operation and troubleshooting.

Recommended hardware

The following table lists minimum recommended hardware for an mSupply server

Item	Recommendation
OS	64-bit Windows 2008 / 2011 / 2012 / 2016 /2019 or Win 7 / 8 / 10 Pro with latest service packs
Processor	For server Quad core minimum is recommended. Consider adding more core for 15 users or more
Memory	ECC memory Minimum 8Gb +1Gb per user over 8 users
Hard disks	3 Hard drives to run RAID 1 (or 5) Array + Hot Spare. 1 separate Hard disk for primary back up
Network card	Gigabit
RAID controller	RAID 1: Onboard RAID controller is fine
Power supply	Dual hot-swap power supply is best, single power supply acceptable with good power quality

Indicative pricing before local taxes: USD3,000 to USD5,000.

For a Terminal server, the general specification changes in that

- More RAM is needed.
- Hard disks are less important, as no data is stored on the server (unless you are using the same server for both hosting the mSupply server and hosting the terminal sessions).
- An additional Gigabit Ethernet port could be useful

Pricing should be similar.



If you are running a server that is not in a datacentre with proper power protection: Beware of **Solid State Drives** (SSDs) without Power Loss Protection!

At least one country using mSupply on servers in health facilities with SSDs installed has had the bitter experience of the SSDs failing after ungraceful shutdowns due to failing UPSes.



The vast majority of ICT documentation on the internet is written from and for locations enjoying relatively stable power supplies. When the above-mentioned experience happened, there was precious little information available for facilities suffering from the sort of chronic power supply issues which the majority of mSupply users experience. Now there is more literature - refer here : [Surviving SSD sudden power loss](#)

Installation pre-checks

UPS (Interruptible power supply)

- Unless you have extremely reliable power we strongly suggest you install a UPS with external batteries that will provide several hours run time, e.g.:
 - [Eaton EDX1000HXL](#) or
 - [KStar HP910C](#).
- The UPS must be able to communicate with the server (usually with a USB cable) to initiate a graceful shutdown in advance of UPS shutdown.
- For the UPS to protect the server from power surges / spikes, the UPS needs to be connected to a power socket that is properly [earthed](#).

More details on configuration of the UPS is contained below.

ICT capacity

Do you have sufficient in-house ICT capacity to do the rest of the server installation yourself?

- This server hardware belongs to you (or maybe not... see tip below).
- Sustainable Solutions is a software development company and our core business is *not* hardware

However, we know that if the server is not installed and configured correctly, the mSupply software and your medical supplies data is vulnerable. Therefore, in most instances, we end up playing a significant role in installing and configuring the mSupply Server.



Over recent years, with the development of reliable and relatively low-cost cloud based server solutions, more and more mSupply client / server installations have used a cloud based server. In many cases, Sustainable Solutions has provided this cloud based server as a separate service, thus relieving you of any responsibility for installation, configuration and management of the mSupply Server hardware.

Initial server hardware setup

Set up the physical hardware including

- RAID 1 volume with Spare (3 disks total)
 - Separate backups volume
 - OS install with correct region, and keyboard
 - Administrator account called Sussol (mSupply server will operate from this account).
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Miscellaneous server tweaks

There are a number of miscellaneous server tweaks that we recommend:

Remove Windows / OEM bloatware

- Remove all icons pinned to the Start bar except **File Explorer**
 - Remove / uninstall all tiles on the Windows start area
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Hibernation / sleep

- The pc can go to sleep after a few hours so change the power settings to never sleep etc. Even after setting the sleep setting to never you still must go into the advanced settings and change the hibernate setting to never: [How to turn off Hibernation on Windows 10](#)
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Turn off Cortana

Cortana is unhelpful on mSupply servers. It is worth disabling - refer

<https://www.windowcentral.com/how-turn-cortana-and-stop-personal-data-gathering-windows-10>

Automatic updates

- Update Windows when configuring the computer on a good internet connection.
- This will take a long time, so start it when you have something else to do! Don't panic when the update manager reports 0% Complete for a looooong time!
- Set 'Windows Update' to auto download, don't install - refer <https://www.windowcentral.com/how-stop-updates-installing-automatically-windows-10>

Turn on Windows Update Delivery Optimization

While it is good to control when Windows updates take place, it is often beneficial to use [Windows Update Delivery Optimization](#) to minimise bandwidth for Windows Updates. It is recommended to turn on Windows Update Delivery Optimization for the server.

Turn off DEP (Data Execution Protection)

Data Execution Protection (DEP) can interfere with 4D - refer [4D Knowledgebase: Tech Tip: Windows Server 2008 also uses DEP](#), so, we may need to adjust it - refer <https://www.online-tech-tips.com/windows-xp/disable-turn-off-dep-windows/>

- Initially, try things with the default setting (**Turn on DEP for essential Windows programs and services only**)
- Then, if 4D / mSupply has issues, try Turning off DEP for all programs and services:
 - Open **Command prompt (as administrator)**
 - Run the following: `bcdedit.exe /set {current} nx AlwaysOff`

Turn off UAC (User Account Control)

User Account Control (UAC) can interfere with 4D - refer [4D Knowledgebase: Tech Tip: Windows UAC and the "Program Files" directory](#), so, we need to turn it off - refer <https://social.technet.microsoft.com/wiki/contents/articles/13953.windows-server-2012-deactivating-uac.aspx>

- You have the option to turn off UAC via registry by changing the DWORD **EnableLUA** from 1 to 0 in **HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\policies\system**
- You **may** get a notification that a reboot is required. **Reboot anyway.**
- After the reboot, UAC is disabled.

Set correct regional settings including keyboard, copy to 'New user accounts'



Microsoft keeps changing how these settings are accessed.

You'll likely need to hunt around to find them



Be sure to set the correct regional settings, particularly if this is a cloud server which may be

physically located in a different region to the country where the server will be used...

- Go to **Settings → Time & Language → Region & Language → Language**
- Click on Change date, time, or number formats
- A Region window will open, set your preferences on Formats and Location tabs.



Even if you chose the correct keyboard (normally US) during setup, another keyboard (like the UK keyboard) can sometimes still be the default keyboard. Check this by trying to type the @ character... To fix this, you will need to:

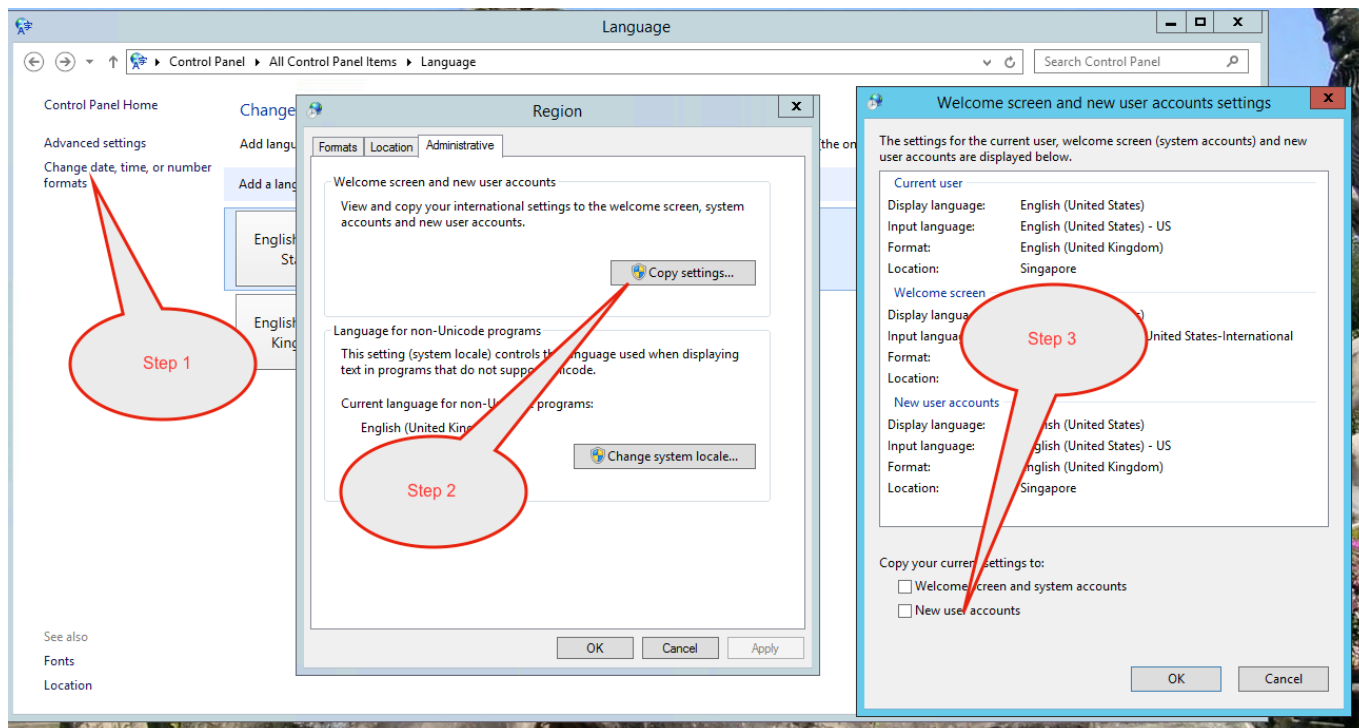
- Add the correct language (e.g. English (Australia)). This will auto select US keyboard
- Move it up to the default position and delete the other language option(s).

Date format

- In the *regional settings* in Control Panel, we recommend that the short date format is set to display only 2 digits for the year (YY, not YYYY). mSupply lists are set up to allow only enough space for 4 digits with most font sizes, but occasionally 4 digit years may be truncated. Having the wrong setting here will only affect display, not the actual data. It does *not* matter if you use DD/MM/YY or MM/DD/YY or YY/MM/DD
- If the display of lists in mSupply overlaps the separator lines, turn off *large font* in the *display* control panel.

Copy to New user accounts

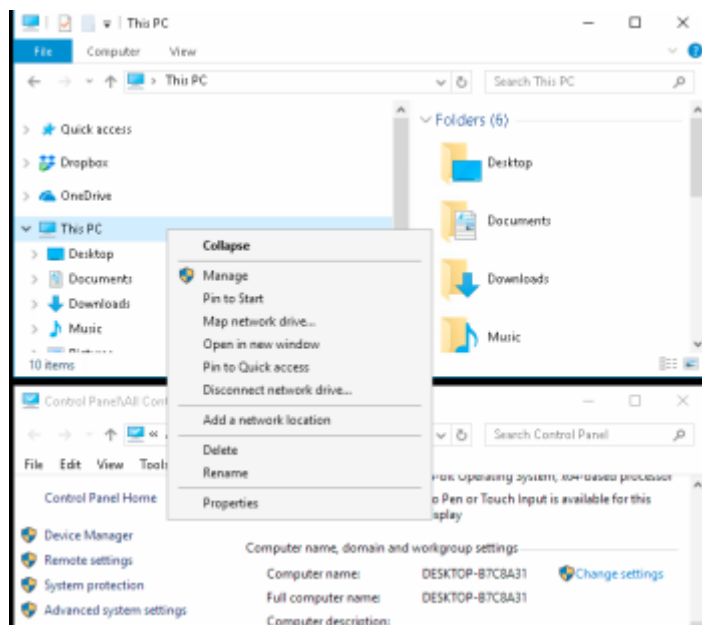
- Click Change date, time or number formats
- Click Administrative tab.
- Click on Copy settings button.
- A window entitled : Welcome screen and new user accounts settings will open.
- Check New user accounts check box.
- Click OK button on same window
- Click Apply button and then OK button on Region window.



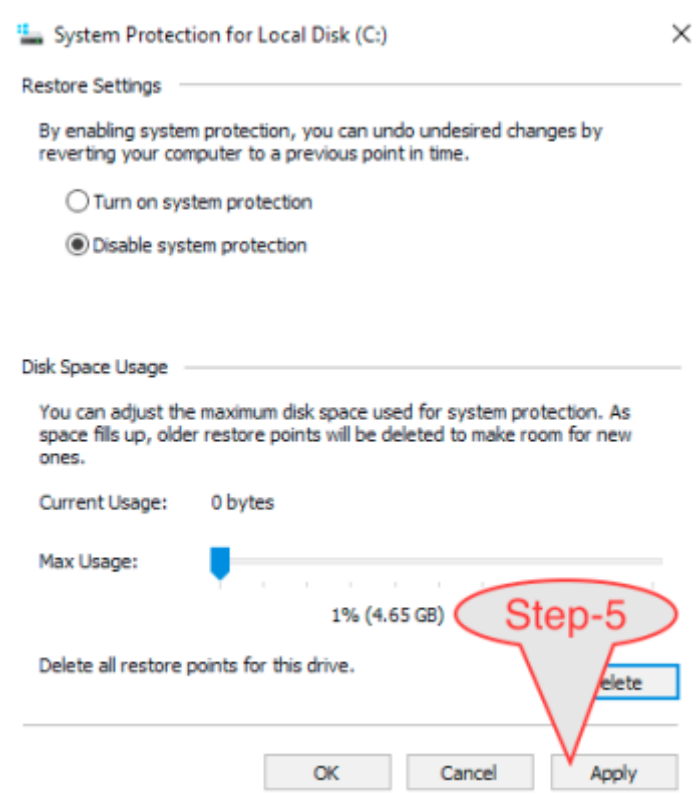
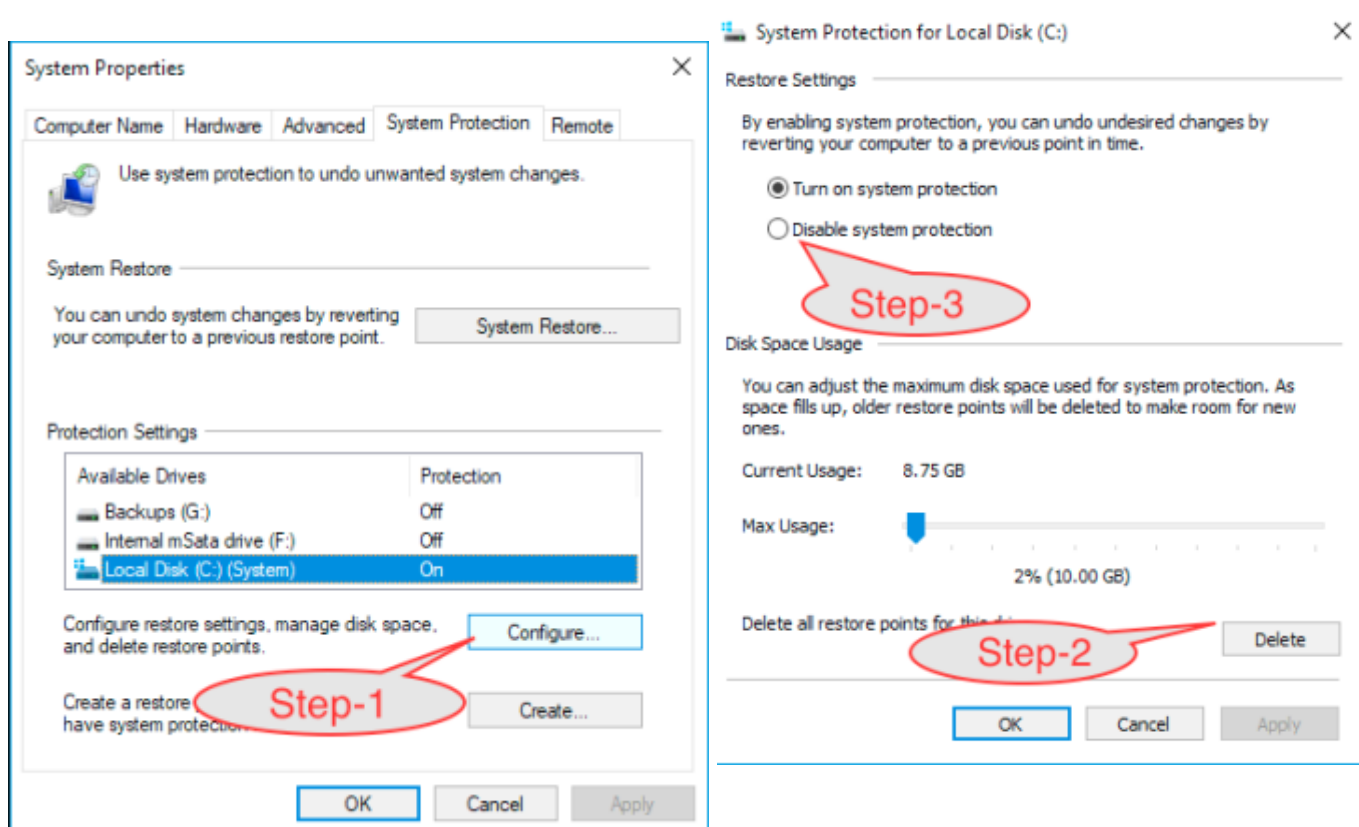
Disable system protection

There have been instances where mSupply has crashed and the Windows OS executes a system restore to a state prior to the mSupply installation / upgrade. To avoid this, disable System Protection:

Go to **File Explorer** → Right click on **This PC** → Click on **Properties**



Go to the **System Protection** tab > Click **Configure** > Click **Delete** > Click **Continue** to Delete > Select **Disable System Protection** > Click **Apply** to save the changes



Remote connectivity efficiency - best performance

Remote access speed gain by disabling visual effects.

- Go to **System** → **Advanced System settings** → **Performance** and choose Adjust for best performance.
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Remote connectivity efficiency - remove background picture

Remote access speed gain by [removing the background picture on the Windows 10 sign-in screen](#).

- Go to **Settings** (keyboard shortcut: Windows + I) > **Personalization** > **Lock screen**.
 - Scroll down and turn **off** the option, **Show Windows background picture on the sign-in screen**.
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Improve Windows Explorer file visibility

To carry out some of the server configuration tasks, file visibility in the Windows OS needs to be improved from the default.

Follow these instructions to [View hidden files and folders in Windows 10](#)

While doing this, make the following changes:

- Always show menus
 - Display the full path in the title bar
 - Show hidden files, folders and drives
 - **Don't** hide empty drives
 - **Don't** hide extensions for known file types
 - **Don't** hide protected operating system files (Recommended)
 - Use check boxes to select items
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These steps need to be followed by the steps in [20.02 mSupply client/server installation part 2](#) and [20.03 mSupply client/server installation part 3](#)

Previous: **[25. Technical Administration](#)** | | Next: **[25.02. mSupply client / server installation part 2](#)**

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