

Recommended Technical Environment

for CMS (Chemotherapy Management System)

Server Hardware

The Chemotherapy Management System (CMS) is based on Microsoft Windows Server 2008R2 and Internet Information Services 7.0 or higher and Microsoft SQL Server 2008 (Database). All of our existing hospital implementations have been successfully installed and continue to run on VMWare ESXi (v.5.0 and newer).


JAC are also happy to support CMS running on Microsoft Hyper-V and Citrix XenServer technologies.

The use of Citrix XenApp and XenDesktop is also fully supported and several of our clients already use this, in addition to the server virtualisation, to cost effectively deploy our systems

Our CMS solution is entirely based on virtualised server technology and the following server specifications are suggested for a large sized system:

Type	Operating System	Processor/Cores	RAM (Gb)	Disk (Gb)
Web Server A	MS Server 2008R2 64bit / IIS	Min 1 Processor/ 4 Cores	8	40 (OS)
Web Server B	MS Server 2008R2 64bit / IIS	Min 1 Processor/ 4 Cores	8	40 (OS)
Integration Engine	MS Server 2008R2 64bit	Min 1 Processor/ 2 Cores	6	40 (OS) 100 (DB)
Database Server (Main)	MS Server 2008R2 64bit MS SQL Server 2008 64bit	Min 1 Processor/ 4 Cores	24	40 (OS) 200 (DB)
Database Server (Secondary)	MS Server 2008R2 64bit MS SQL Server 2008 64bit	Min 1 Processor/ 4 Cores	24	40 (OS) 200 (DB)

OS=Operating System DB=Database



The Web Servers are clustered in configuration to load balance activity. Additional Web Servers can be added to further improve resilience and performance for larger implementations.

For maximum business continuity we recommend CMS is deployed from two geographically separate datacentres, so that the full benefit of business continuity/disaster recovery can be realised for the Trust.

In line with industry best practice for virtualisation, we recommend that the physical storage on which the LUNs for the database are provisioned, is not shared with other types of data such as operating systems or storage folders, in order to ensure that application/database performance is optimal.

Web Based Application

CMS is a 100% web-based application. We only require the use of Microsoft Internet Explorer or more specifically IE 7.0, 8.0, 9.0, 10.0 or 11.0 (9, 10, 11 compatibility mode 'ON') in order to use all CMS functionality for a paperless hospital operations. The CMS solution is fully compatible with Microsoft Windows XP, Windows 7 (32 & 64 bit versions) and Windows 8 (32bit & 64 bit versions).

*N.B. Since Microsoft has dropped support for Windows XP from 8th of April 2014, we have followed them as a preventive measure concerning possible security flaws. Vista is therefore the oldest supported Windows version for CMS. IE 7.0 (originally shipped IE version in Vista) and up are also supported.

Our CMS solution is already used today with Citrix XenApp and XenDesktop. Most of our clients use Citrix XenApp to cost effectively deploy applications and icons to their desktop environment – this is possible on Windows Server 2003, 2008 and 2012. We also support Microsoft App-V on Windows Server 2003, 2008 and 2012.

CMS Recommended Network and Bandwidth Requirement

We recommend a minimum of 100Mb/s to each remote site, for accessing the servers. If the WAN link to remote sites is shared with other applications that are data intensive, we recommend 1Gb/s bandwidth should be considered instead, but this depends on data intensity of the other applications and whether paperless CMS workflows are implemented.

Between the two datacentres, in order to support full database resilience, it will be necessary to have at least 1Gb/s of bandwidth in place to ensure that the two SQL servers remain synchronised. We do recommend that the overall WAN topology is resilient in design, although we recognise that cost constraints do not always make this possible.

With JAC's CMS solution, each patient treatment creates approximately 800 Kilobytes (Kb) of data. The database server will therefore require 26Gb of storage to accommodate 5 years of data – we have allowed significantly more than this in the estimates given earlier in this document as the cost of storage is negligible.

Scanned documents would require additional storage capacity – we are happy to link scanned document images directly into our CMS solution but equally recognise that Customers may opt to have a central document management system to which we would integrate our Chemotherapy Management System.

CMS Scalability

CMS is highly scalable and configurable to suit most organisations' needs. CMS can easily be configured on a single site, or a multisite solution hosted from one central location, or remote data centre (cloud solution). We have experience of scaling our system upwards to support more than 300 users.

CMS Quality Validation

CMS has been tested and validated against the latest international 'GAMP® 5' by hospitals delivering chemotherapy services. JAC can provide support and assistance to hospitals wishing to quality assure their chemotherapy service along with validating patient safety in accordance with best practice and emerging EU directives.



Implementation and Support

JAC has over 30 years' experience in Medicines Management. Our team consists of clinical and technical experts who have performed many implementations worldwide for healthcare providers. CMS has been specifically developed to easily interface with most other patient administration, pathology laboratory and pharmacy systems. JAC provides a full turnkey project implementation service that includes project management; technical support; medicines management process improvement consultancy; training; interfacing and data migration.

When the system is operational we support our customers post sale through our ITIL based service desk and can provide 24x7x365 support cover, if requested.

For more information about JAC CMS and our other Medicines Management Solutions, please contact us on:

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