TEAM Software
by **WORKWAVE**®

TEMPLACMS
TECHNICAL INFRASTRUCTURE REQUIREMENTS

Customer Name

COMMERCIAL STATEMENT

This document is subject to any terms as per teamsoftware.com/legal.

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INTRODUCTION

The following information is based on current technology implementation options and Templa's experience with a wide range of small, medium and large customers. These recommendations should not be considered absolute, as they have been based on an average customer, so TEAM Software welcome discussion on alternate options, but strongly advise companies that they must be fully accepted by all parties before implementation.

Any reference to systems performance or 3rd party product functionality is offered in an advisory capacity only.

TemplaCMS operates in an integrated environment with the following standard financial accounting packages, whose own technical requirements are available from their respective authors:

- Access Dimensions
- Access SelectPay
- Sage Line 50
- Thesaurus (Ireland)
- HR3 (Australia)

Reference within this document will be made to Microsoft and other third-party hardware and software relating to the basic underlying network, server and client infrastructure. TEAM Software does not supply or install these components, nor should they be assumed as inclusive within any prices that TEAM Software has quoted to the company.

NB: it is the company's or their IT representative's responsibility to ensure that they have all the necessary components to support the effective performance of the TEAM Software-supplied products.

SQL SERVER

The TemplaCMS and Access databases are compatible with SQL Server 2014, 2016, 2017 or 2019.

Whilst TEMPLACMS and Access can be installed on any edition (from SQL Server Express to Enterprise), due to the limitations imposed on processor, CPU and database size for the Express edition this is only considered suitable for smaller installations (up to a maximum of 15 users). Larger installations should consider the Standard edition or above. A full comparison of the editions can currently be found at:

https://www.microsoft.com/en-gb/sql-server/sql-server-2019-comparison

These imposed limitations on resources have to be considered against whether they will be sufficient for the number of users and expected data sizes, and for how long. Microsoft limitations may change on each new version of SQL Server, but the latest checked for 2019 shows the current limits are as follows:

- Lesser of 1 CPU socket, or 4 cores.
- Maximum memory usage 1gb
- Maximum database size of 10gb

Based on the following guideline criteria, using SQL Server Express is unlikely to be an issue where configuration represents:

- Up to 5 TemplaCMS FULL Users (or 6 without Access Dimensions)
- Up to 10 TemplaCMS LITE Users
- Up to 500 Employees

Estimating database size is not an exact science but even without any housekeeping, a 10gb limit should not be reached with the above maximums for about 4 years. TemplaCMS does have inbuilt housekeeping facilities, so we'd recommend turning these on at the outset to slow the rate of growth, although over time SQL may have to be upgraded to the full version.

NB: it is the responsibility of the customer to ensure that the appropriate version of SQL Server is purchased, installed and configured on the requisite server(s).

TEMPLACMS ADMINISTRATION SUITE

The 'TEMPLACMS Administration Suite' comprises three applications:

- **Workflow** – this controls the workflow authorisation process for all modules of the TEMPLACMS application.
- **Gateway** – this handles the two-way integration requirements between TEMPLACMS and any other application (e.g. for the collection of time and attendance information).
- **Batch** – this runs all other scheduled background jobs

Icons exist on the main TEMPLACMS frame (towards the bottom right) to indicate to the end-user that these three sub-applications are running:

- Sub-application is active
- Sub-application is inactive
- Sub-application status is unknown (network visibility issue)

The 'TEMPLACMS Administration Suite' must be perpetually running

These three sub-applications can now be installed as services so that they can be automatically restarted on server reboot; there would be one service per queue which means where multiple batch queues are in existence, multiple services would be running.

NB: it is recommended therefore that these are installed and run either on its own standalone server (or indeed a PC), or on the SQL server.

TEMPLACMS CLIENT APPLICATION

The TEMPLACMS (windows) client requires **MS.NET framework version 4.6.2** to be installed (on the PC or hosted desktop server); however, this is generally pre-loaded on Windows 10.

The client can be installed locally on each PC, or centrally on a shared network drive. The advantage of the latter approach is that upgrades do not need to be rolled out manually to each desktop.

Client application via Terminal Services

For remote access to the TEMPLACMS client application, the installation of a 'Terminal Server' is recommended. As a guide for scaling, you should allow 450mb of RAM per remote user.

NB: it is the responsibility of the customer to install the TemplaCMS client on all relevant hardware (i.e. PC, shared network drive or terminal server desktop), not least because the hardware specification can vary from machine to machine.

ACCESS APPLICATIONS

For most customers, the Access Accounts (i.e. Dimensions) and Payroll (i.e. SelectPay) software will also be installed on the server.   Again, it is the responsibility of the customer to install the client on all relevant hardware.

EMAIL INTEGRATION

TEMPLACMS email integration can be configured in one of two ways:

- **Microsoft Outlook (2003 or above)** – with this option, an email will be sent by automatically controlling the Outlook application. This does require Outlook to be installed and open on the PC. Any sent email will appear to have been manually sent by the logged-in Outlook user and will be recorded in their 'sent box'
- **SMTP server** – this option allows emails to be sent directly from the SMTP server (including Office365 and other web-based services) rather than via a mail client application. This does not, therefore, rely on the mail client being operational, and also does not result in a copy of the email being stored in the 'sent box'.

MS/OFFICE INTEGRATION

MS/Excel

TemplaCMS generates details for export to MS/Excel, though this does not require MS/Excel to be installed on the client PC to achieve this.

MS/Word

The document management features of TemplaCMS require access to a version of MS/Word installed within the same desktop environment as TemplaCMS, as this integration is achieved via automation of MS/Word.

TemplaCMS will support all versions of MS/Word from 2003 and above.

If accessing TemplaCMS via a Terminal Server, it is important to remember that MS/Word would need to be installed and licensed on the server.

Note that where Office365 is licensed this will require the full version of MS/Word that is covered by the licence installed on the desktop.

Integration is not possible with the browser-based Office Online products.

CENTRAL FOLDER STRUCTURE

TemplaCMS

This must be held on a central network drive that is visible to all client users as well as the administration suite (services). The access to this folder must be consistent from all points which can be achieved as a consistently mapped drive letter or by using a full directory/folder (UNC) path.

The central folder contains the following:

- **EventLog** – The event log captures information on all issues encountered by the client or administration application.
- **Gateway** – this folder has a subfolder structure for each external system with which TEMPLACMS communicates. Within this structure, sub-folders cause TEMPLACMS to keep a permanent record of files exchanged externally, either successfully (in the /done folder) or un-successfully (in the /error folder).
- **Semaphore** – this folder contains no data but simply empty files, the existence of which controls the internal TEMPLACMS alerts process; this is done using Microsoft's File System Watcher or, for non-Microsoft networks, by TEMPLACMS polling the semaphore folder every X seconds (as set on System Control).
- **Logos/Images** – Contains any company logos required in the production of documentation.

Access Dimensions

It is recommended that a separate folder area must be held on a central network drive that is visible to all authorised Accounts users, as well as to the Access Dimensions so that all key reports can be saved to this location, e.g. BACS payment files, period and year-end reports (perhaps in separate sub-folders), etc. The access to this folder must be consistent from all points which can be achieved as a consistently mapped drive letter or by using a full directory/folder (UNC) path. All authorised users will need the necessary permissions to such folders and their sub-folders.

Access SelectPay

It is recommended that a separate folder area must be held on a central network drive that is visible to all authorised Payroll users, as well as to the Access SelectPay so that all key reports can be saved to this location, e.g. BACS payment files, pay period reports (preferably in separate sub-folders per payroll & pay period), FPS & EPS files, etc. The access to this folder must be consistent from all points which can be achieved as a consistently mapped drive letter or by using a full directory/folder (UNC) path. All authorised users will need the necessary permissions to such folders and their sub-folders.

ATTACHMENTS

TemplaCMS allows for the attachment of documents to the many areas of the application, including:

- Contracts
- Clients
- Suppliers
- Sites
- Contacts
- Employees
- Quality audits
- Workbills

The attachment process stores the full path to the associated file (of any type) within the database. As a result, all documents attached must be stored on consistently accessible network folders rather than locally on PC drives.

Where sensitive data is contained within attached documents, TEMPLACMS can be set to automatically encrypt these files as they are stored, and decrypt them only when an authorised user requests access. There is a small processing overhead in using encryption, so it is recommended that each type of attachment be reviewed to determine whether encryption is required.

NB: it is the responsibility of the customer to ensure that there is sufficient space on the server for the volume of documents that need to be retained.

VERSION CONTROL

TEMPLACMS is version controlled on both the database and applications. Upgrades must be applied in a synchronised manner as TEMPLACMS performs version checking at log on time, preventing incompatible software from being used against the database.

Once live, a newsletter will be provided with each new release to detail the modifications at this release.

SECURITY

Security

The login window controls access to the entire application and having successfully logged in, the main 'frame' of the application will be displayed. However, each user will be restricted in what they can see and do via the use of "functions", "function groups" and "user roles".

Password complexity and expiry controls can be defined to TEMPLACMS, along with the option to hold passwords either as plain text or encrypted. It is strongly recommended that passwords be encrypted.

Navigation

Access to all areas of the Windows client application is via the 'navigator'. The 'navigator' provides a user-specific menu structure, with the user only ever seeing those functions to which they are authorized.

Session Manager

Every interaction with the application requires the existence of an active 'session', so allowing the user who performed each action to be recorded in the database. Sessions are begun by the login process and ended when the user logs out or closes the application. Current activity will be seen using the "Session manager".

Sub-applications also have a session and if this is ended abnormally, their session record will need to be deleted before the sub-application can be restarted.

HARDWARE SPECIFICATIONS

Servers

TemplaCMS requires access to a 'server' for three distinct purposes:

- SQL Server database
- Remote access (Terminal Services)
- TEMPLACMS administration suite

In a smaller installation the 'TEMPLACMS administration suite' can happily co-exist on the same server as SQL Server and/or Terminal Services. In a larger installation running multiple Batch and Gateway queues, it may be beneficial to install the suite on a dedicated server.

It is not generally recommended that either SQL Server or the 'TemplaCMS administration suite' share server resources with the MS/Exchange mail server, unless the latter has been constrained to prevent overconsumption of server resources, in particular memory.

The sizing of a server depends on several factors, such as:

- Modules in use
- Number of TemplaCMS Full and Lite users
- Number of sites
- Number of employees

Example Server Configurations

Sizing tools exist that can help with sizing a server specific to these factors, but the below offer a broad guide for small, medium and large installations.

SMALL

An installation with:

- 5 office-based users
- 250 employees
- No remote users

For this installation, it is acceptable to run both SQL Server and the TemplaCMS Admin Suite on a single server.

Server	Spec
SQL and Admin server	MS-Windows 2016 or 2019)
	SQL Server 2016 or 2019 (Express)
	4 core CPU
	4gb RAM
	0.5tb SSD
	Year 1 db size: 4.5gb
	Year 5 db size: 6.4gb

MEDIUM

An installation with:

- 10 office-based users
- 800 employees
- 10 remote users

For this installation, it is acceptable to run both SQL Server and the TemplaCMS Admin Suite on a single server. Additionally, a Terminal Server is required for remote users.

Server	Spec
SQL and Admin server	MS-Windows 2016 or 2019)
	SQL Server 2016 or 2019 (Standard)
	8 core CPU
	16gb RAM
	0.5tb SSD
	Year 1 db size: 8.8gb
	Year 5 db size: 15gb
Terminal server	MS-Windows 2016 or 2019
	MS-Terminal Server
	4 core CPU
	8gb RAM
	100gb SSD

LARGE

An installation with:

- 100 office-based users
- 8000 employees
- 100 remote users

For this installation, a separate Terminal Server is required. Additionally, whilst you can run both SQL Server and the TemplaCMS Admin Suite on a single server, it is recommended that the Admin Suite is on a separate server:

Server	Spec
SQL server	MS-Windows 2016 or 2019)
	SQL Server 2016 or 2019 (Standard)
	8 core CPU
	128gb RAM
	1tb SSD
	Year 1 db size: 64.5gb
	Year 5 db size: 126.4gb
Admin server	MS-Windows 2016 or 2019
	4 code CPU
	8gb RAM
	100gb SSD
Terminal server	MS-Windows 2016 or 2019
	MS-Terminal Server
	16 core CPU
	64gb RAM
	0.5tb SSD

Customer Portal – Web Server

If TemplaCMS Customer Portal is to be deployed, then a web server will be needed. Whilst this can share resources with the other servers, this is not generally recommended on security grounds.

The resource requirements of the web server are relatively low, as even with a high number of Customer Portal users the likelihood of many being connected at a time is low.

The recommended minimum server specification is as follows:

- 4gb RAM
- Single quad core processor
- Windows Server 2012 or later
- .Net framework 3.5

The disk requirement on this server is minimal as the Customer Portal does not hold any data itself.

NOTE: The Customer Portal requires access to the TemplaCMS SQL database.

Employee Portal – Web Server

If TemplaCMS Employee Portal is to be deployed, then a web server will be needed. Given the potential volume of users (employees) having access to the Employee Portal, it is generally recommended that this be deployed in a hosted environment (e.g. an Azure virtual machine). In this way, the users will not adversely affect bandwidth into your network.

Depending on the level of EP use, the resource requirements of the webserver will be relatively low for much of the time, with bursts of activity when employees log in to view payslips. The Azure 'burstable' series of VMs is ideal for this sort of requirement. It is recommended that you start with a relatively low spec VM, and then re-size as necessary. For up to 1000 employees an Azure VM as below should represent a good start point:

Description

1 B4MS (4 vCPU(s), 16 GB RAM) x 730 Hours; Windows – (OS only);
Pay as you go; 1 managed OS disks – S4, 100 transaction units

The idea with 'burstable' servers is that the VM is available all the time, but if it's not being used heavily it will build up 'CPU credits' that can then be used to boost performance when required, i.e. around payday. So, if you normally have 2 concurrent users for 13 days, but then after a pay-run, this spikes to 100, the credits accumulated in the 13 minimal-usage days are used to give a burst of speed on the busiest day. Microsoft stat that the above B4 server can run up to 400% of its standard speed by doing this – though obviously for a limited period.

For security and performance reasons, EP has its own SQL Server database rather than sharing the main transactional TemplaCMS database. Data volumes for EP are relatively low, so for most installations, SQL Express (any version) is acceptable.

Data is sent to and retrieved from EP via a set of web services (the SyncAPI) running on the VM. EP does not require access back to the main TemplaCMS server at all. The SyncAPI is entirely passive – all communications with it being initiated from the TemplaCMS Gateway service which passes in authentication details on each call. You do not need a VPN between the TemplaCMS server and the EP VM, but it is recommended that you lock down the VM firewall to only accept traffic to the SyncAPI port from your network's public IP.

Mobile Gateway

The synchronisation of data between the TEMPLACMS server and Templa Mobile devices is handled via a relaying web service known as the 'Mobile Gateway'. Whilst some clients choose to implement their own server for this purpose (or implement it on an existing webserver), TEMPLACMS offers a shared central Azure server for this purpose. No data is held on this server, as the Mobile Gateway simply relays transient messages securely between server and device.

Network clients

Network-based clients of TemplaCMS will be using local PC resources to run the application. There is no minimum specification for the client PC as TEMPLACMS will operate with relatively low resources. However, it is recommended that the PC have at least 512mb RAM.

Whilst TEMPLACMS client windows are re-sizable, it is recommended that the screen size be not less than 1920x1080 to avoid widows rendering with scroll bars.

The TEMPLACMS client application can be run on Windows 7 or Windows 10.

Remote clients

Remote clients (be they desktops, laptops) will connect to the application using 'Microsoft Terminal Server'. As such, the application itself will not be using resources on the client. Any client capable of running a 'remote desktop' connection (including an Apple MAC) will provide acceptable performance.

Communications

For remote access, the performance perceived by the client is heavily dependent on the bandwidth available to both the client and the server. It must be remembered that the Terminal Services server will be utilizing the **upload** bandwidth of the broadband package for each connected remote client, whilst the clients themselves will be utilizing the **download** bandwidth of their broadband package.

For standard 'home' broadband packages, ISPs generally quote high download, whilst restricting upload speeds. For remote clients, this package should be appropriate. When deciding on broadband for the server, however, the upload speed requirements are going to be dependent on the expected concurrent users.

SCHEMATIC

Client users

Server:

SQL server

Terminal services

Templa-CMS Admin suite

Remote Client users
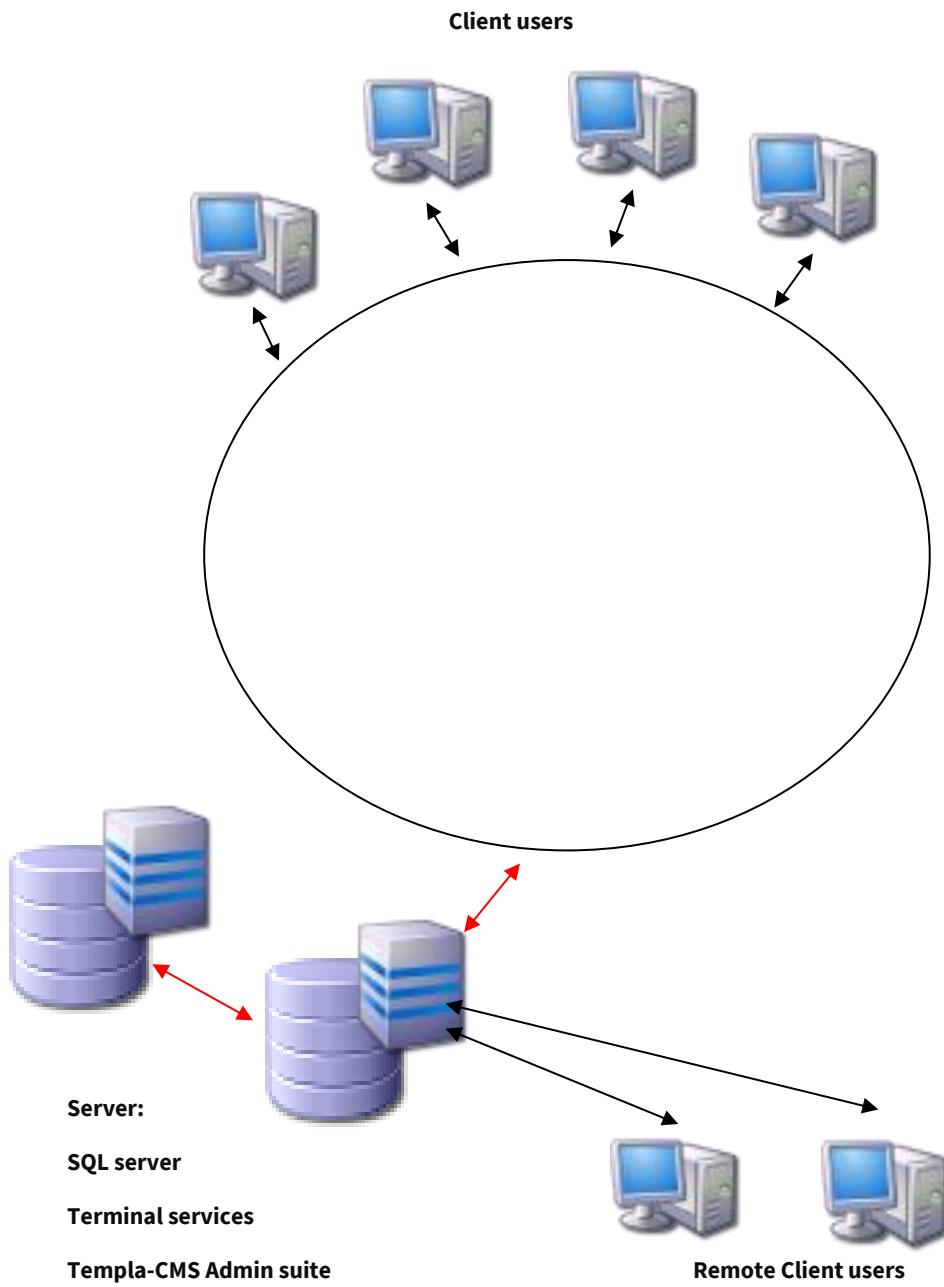
RESPONSIBILITIES

As far as possible, the client's internal IT department or external IT provider should be responsible for the smooth running of the software on their infrastructure.

Client's IT

The following are the responsibility of the client's internal IT department or their external IT provider (not TEAM Software):

SERVER LEVEL

- Remote access, e.g. for TEAM Software, T&A suppliers, etc.
- Server – procurement, installation, setup, maintenance, performance, etc.
- VM Ware / virtualization – procurement, installation & setup, if required
- SQL Server – procurement, installation, setup, permissions, etc.
- Terminal Server setup/configuration, if required
- Backups – scheduling, running, checking, on/off-site considerations, etc.
- Disaster Recovery
- Network – users, access, permissions/security, performance, etc.
- Document Store – management & volumes, e.g. photos, forms, etc.
- TemplaCMS Administration Suite – permanently running services
- Transaction & Event Log management
- Central folder structure permissions & backup requirements

CLIENT LEVEL

- Client – installation of TemplaCMS or Access software on all PC's, laptops, etc.
- .Net Framework 4.5 – installation on all PC's, laptops, hosted desktops, etc.
- MS Office – procurement, installation, setup, etc.
- MS Exchange/Outlook – procurement, installation, setup, integration, etc.
- Redemption.dll – (when using Outlook) installation as required on all PC's, laptops, etc.
- BACS software
- Remote client access

TEMPLACMS MOBILE APPLICATION AND/OR CUSTOMER PORTAL (IF PURCHASED):

- Separate server, as required
- IIS – installation, setup, etc.
- Mobile devices – procurement, setup, download of TemplaCMS application, etc.
- SSL certificate – procurement and application, as required
- Website – linking, button design, etc.

TEAM Software

The following are the responsibility of TEAM Software:

- SQL Server – install or restore required databases
- TemplaCMS:
    - Installation and setup on the central server
    - TemplaCMS Administration Suite services installation
- Access Accounts – installation & setup on the central server
- Access Payroll – installation & setup on the central server

Anything else not mentioned above should be assumed to the responsibility of the client's internal IT department or their external IT provider unless specifically agreed with TEAM Software.