Minimum IT Specifications for use with Mitrefinch Applications

Minimum IT Specification

Revised: 15 June 2015

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1 Introduction

This document provides the minimum IT Specifications that are required to host and run Mitrefinch Applications. It is valid for the latest current released versions up to and including 15th June 2015. If you are in any doubt whether you are on the latest version, please contact Mitrefinch Support for confirmation.

This document is intended to cover the high-level requirements from the main TMS applications. For satellite applications i.e. PC Clock, PC Terminal.NET, please refer to the relevant user guides for their individual requirements.

2 Application and Database Server Requirements

2.1 Server Operating Systems

Mitrefinch recommends the use of **Microsoft Windows 2012 R2** as the operating system for hosting the TMS applications.

Microsoft Server 2012 Essentials is also supported but please inform your Project Manager prior to software installation if this is your chosen operating system.

As a minimum server operating system; **Microsoft Windows Server 2008** or higher is required

Linux (any derivative) is NOT supported as an operating system

Apple operating systems are also NOT supported.

It is recommended that all server operating systems are fully service packed and hot-fixed to the latest release.

2.2 Server Hardware

Mitrefinch recommends (as a minimum) the most recent specifications from Microsoft for the operating system and either Microsoft (Microsoft SQL Server 2014) or ORACLE (ORACLE 12c) for the database server platform.

Depending upon the size and scope of the organisation, it may be necessary to spread the system installation across several servers (i.e. database server, file server, web server, etc.) . Please refer to the Mitrefinch Infrastructure Requirements document for this information. When this is necessary, each server should meet the recommended requirements for a single server.

2.2.1 Recommended specification:

For information and those customers who are looking to purchase a specific machine for hosting TMS, the latest specification for Microsoft Server 2012 Essentials should be regarded as the recommended machine specification for running TMS applications:

- Multi Core 2 GHz 64-bit (x64) or faster
- 1 socket (2 sockets maximum)
- 16 GB RAM
- 160 GB Hard drive
- DVD ROM drive
- Gigabit Ethernet adapter
- Super VGA (SVGA) monitor and video adapter with 1024 x 768 or higher resolution
- Suitable backup device or storage solution

(Spec based on recommendations taken from Microsoft Server 2012 Essentials web site)

2.3 Backups

It is IMPERATIVE that the Mitrefinch software and data is backed up at regular intervals. It is entirely the customer's responsibility for ensuring that backups are taken frequently and Mitrefinch advise that test restorations occur regularly to ensure the integrity of these backups.

For those customers who are supplied with Microsoft SQL 2014 Express, Mitrefinch will create backup and install scripts which will backup the SQL database to a separate location. However, it is still the customer's responsibility to ensure that these remote backups are, themselves, backed up.

2.4 Licensing

Mitrefinch do not supply any specific information on the licensing requirements of the TMS application and devices as this responsibility lies with the customer and any specific agreements that they may have with the suppliers of the operating system and database system.

2.5 64-bit operating systems

Although the Mitrefinch applications are 32-bit products, these systems are FULLY supported on 64-bit operating systems.

2.6 Virtual Servers

Virtualisation is a way to remove the link between applications and their underlying components from the hardware supporting them and present a logical view of these resources. This logical view may be very different from the physical view. The reasons for doing this are to reduce the total cost of server ownership, increase availability and reduce downtime, improve security and scalability.

Mitrefinch's software is fully compatible with Microsoft HyperV, VMware, CITRIX and other leading virtualisation technologies.

2.7 Internet Information server (IIS) specification

Mitrefinch Silverlight requires a Windows-based server equipped with Microsoft Internet Information Server (IIS). Microsoft IIS v8.5 is recommended and is shipped with Windows Server 2012 R2.

Depending upon the size and scope of the organisation, the IIS Server can be the same physical machine as the main Mitrefinch file server. For larger organisations, Mitrefinch recommends that the IIS Server and file servers are different machines (whether physical or virtual is the customer's prerogative).

2.8 Server naming

Customers are advised that the only valid characters when naming a server are the characters ‘a’ through ‘z’, the digits ‘0’ through ‘9’ and the hyphen (‘-‘). The underscore character (‘_’) is not a supported character.

2.9 Access to the WEB server across the internet or mobile clocking

In order to be able to access the Web version across the internet and/or using a mobile device, a external IP address will be required.

Mitrefinch will only install the applications for Local Area Network (LAN) access.

For external internet access or mobile clocking, we STRONGLY recommend that you investigate and implement a higher level of security for the T&A.NET webserver than that provided as standard for LAN installations.

The minimum security that the Mitrefinch application requires is TSL (Transport Layer Security) or SSL (Secure Sockets Layer).

However, we believe that any security policy for the T&A.NET application is an important decision and should be taken as part of a more general security audit by the customers’ IT providers.

2.10 Wide Area Network (WAN)/Internet Requirements

2.10.1 Applications:

Mitrefinch do not recommend the use of the TMS/HR Manager application over a WAN without implementing either a thin-client solution (i.e. Citrix, Terminal Server) or use of the Web product.

Depending upon the size of the organisation, the Web Application can produce complex and large web pages that need to be transmitted across the WAN/Internet. At this point, the speed of the application comes down to basic mathematics based upon the speed of the link. Mitrefinch recommends a bandwidth of 2Mb/s when this type of operation is being considered. Slower links will work but the performance will be obviously reduced.

3 Database compatibility & information

3.1 Supported Databases

Mitrefinch TMS and HR share a database that can be hosted by one of the following database management systems:

- Microsoft SQL 2014 **(TMS v6 and above only)**
- Microsoft SQL 2014 Express Edition **(TMS v6 and above only)**
- Microsoft SQL 2012 **(TMS v6 and above only)**
- Microsoft SQL 2012 Express Edition **(TMS v6 and above only)**
- Microsoft SQL Server 2008
- Microsoft SQL Server 2008 Express Edition
- Microsoft SQL Server 2005
- Microsoft SQL Server 2005 Express Edition

- ORACLE 11g
- ORACLE 10g
- ORACLE 9i

3.1.1 Known Restrictions

Database names are not to be in excess of 20 characters long.

4 Disk space requirements

4.1 Time and attendance & Access control:

Mitrefinch recommends that 30GB of disk space is initially allocated for the TMS programs and the data. Obviously, for larger systems or those where lots of history and/or additional backups are being stored then additional hard disk space will be required.

4.2 HR Manager

Mitrefinch recommends that 30GB of disk space is initially allocated for the HR Manger programs and data. Where the customer wishes to store scanned documents within the HR database then this may further increase the storage requirements.

4.3 Flexipay

Mitrefinch recommends that 5GB is initially allocated for the Flexipay programs and associated data.

5 Client PC specification

A client PC is defined as one which will be used to access ANY of the Mitrefinch applications.

5.1 Client Operating Systems

Mitrefinch recommends the use of Microsoft Windows 7 as the preferred operating system but any current operating systems are supported such as Windows 8 or Windows 8.1.

5.2 PC Hardware

5.2.1 Fat Client

Mitrefinch applications can run on PCs with a lower specification than the recommended detailed below but performance cannot be guaranteed.

Mitrefinch strongly recommends that customers should use PCs as close to the recommended specification as possible, budget permitting, to enable maximum future-proofing for further applications and expansion.

Recommended specification:

- 3 Ghz CPU with 4Gb+ RAM
- 100MB Network Connection
- SVGA monitor capable of a minimum of 1280x960+ 32-bit colour
- 10GB+ Free Hard Disk Space

Although the disk space requirements for TMS are negligible, the minimum free hard disk space is to enable the PC to function correctly (i.e. sufficient swap space available).

5.2.2 Thin Client

By definition, a “Thin client” is a network computer without a hard disk drive, which, in client/server applications, is designed to be especially small so that the bulk of the data processing occurs on the server.

As processing occurs elsewhere, the demands on the PC are significantly less than “Fat Client”. Please refer to the supplier of your ‘thin client’ software for their recommend specifications.

5.2.3 Web Module

The latest versions of Internet Explorer should be installed on all clients.

Mozilla Firefox is also supported. Google Chrome (as of September 2015) no longer supports the Silverlight plugin so this is not a supported browser for the Mitrefinch web solution.

Mitrefinch Web TMS (v7) requires the latest version of the browser Silverlight plugin (v5) to operate, this can be obtained from Windows Update or pushed out using group policy meeting this exact customer's requirements.

If applicable, the latest version can be downloaded from:

http://www.microsoft.com/getsilverlight/

5.3 Optional modules

If Lumidigm Biometric registration is being undertaken at a PC then the PC will required a free USB port to enable connection to the enrolment device.

5.4 Cloud Kiosk and Web Enroller

Minimum requirements

PC Specification:

- 1GHz processor with 512MB RAM
- Integrated graphics
- Integrated sound
- 1 USB Port
- Ethernet port
- Windows 7
- Microsoft .Net Framework 2.0
- Mitrefinch TMS T&A.Net V7.13.1.1
- Internet Explorer 8 or higher

Compatible readers:

- Lumidigm Mercury USB reader
- Millennium Proximity USB reader (TMS V7.13 onwards)
- Keyboard

Please Note:

Supported platforms are listed are covered in the following chapter.

5.5 TMS for Mobile

TMS for Mobile is a satellite **TMS** application that runs on a wide range of platforms and devices. Currently the supported platforms are:

- TMS for HTML5 browsers
- TMS for Android
- TMS for BlackBerry
- TMS for iOS
- TMS for Windows Phone 7
- TMS for Outlook

Minimum requirements

This section covers the minimum requirements needed for the product. This includes the **TMS Server** requirements and the requirements of all the supported platforms. The **TMS Server** is the installation of **TMS** that runs the **TMS** web services.

5.5.1 Server

TMS for Mobile communicates with the **TMS Server** and has the following requirements:

- Must have **TMS Server** Version 7.10 or later installed for full functionality. A reduced set of features are available with earlier versions from version 6.23.1 onwards
- Must be public/external for mobile devices to access it
- Must use anonymous authentication.
- Supports SSL security (https) — optional but recommended for external access

5.5.2 TMS for Browsers

TMS for Browsers requires a browser that supports HTML5. The supported browsers are:

- Google Chrome (version 15.0 and above)
- Safari (version 5 and above)
- Opera (Opera 11 and above)
- Internet Explorer (Internet Explorer 6+. Internet Explorer 6 and 7 require the Google Chrome Frame plug-in from **http://code.google.com/chrome/chromeframe/**)
- Firefox (version 13 and above)

5.5.3 TMS for Android

TMS for Android requires Android 2.2. It will run on mobile phones and tablets that use the Android OS.

Please Note:

If your organisation uses ISA authentication, it is possible to configure your Android device to work with this.

5.5.4 TMS for BlackBerry

TMS for BlackBerry requires BlackBerry® OS 6.0.

5.5.5 TMS for iOS

For devices using the iOS use **TMS for Browsers** via Safari on your iPod, iPhone or iPad for online and offline functionality.

5.5.6 TMS for Windows Phone 7

TMS for Windows Phone 7 requires Windows Phone 7.5 or higher. It runs on any device running Windows Phone 7 OS.

5.5.7 TMS for Outlook

TMS for Outlook requires Microsoft Office Outlook 2007 or above and .Net Framework 4 installed. For more details please refer to the **Mitrefinch TMS for Outlook** User manual.

5.6 Mitrefinch Desktop Biometric Sensor

Supported Platforms:

- Windows Vista (32 and 64-bit operating system)
- Windows Server 2008 (32 and 64-bit operating system)
- Windows 7(32 and 64-bit operating system)
- Windows Server 2008 R2 (32 and 64-bit operating system)
- Windows 8 (32 and 64-bit operating system)

5.7 Mitrefinch Desktop Proximity Card Sensor

Supported Platforms:

- Windows Vista (32 and 64-bit operating system)
- Windows Server 2008 (32 and 64-bit operating system)
- Windows 7(32 and 64-bit operating system)
- Windows Server 2008 R2 (32 and 64-bit operating system)
- Windows 8 (32 and 64-bit operating system)

Please Note:

Windows 8.1 driver is not included in the Setup Installer; a separate installer can be obtained from the following URL:

http://www.ftdichip.com/Drivers/D2XX.htm

6 Polling and Processing

A “Polling” PC is the machine on which the Mitrefinch Polling program will be run. This program is an interface by which the clocking terminals and / or access units communicate with the main TMS / Access control database. This is a two-way interface, which involves employee clocking and access transactions being recovered from the terminals and written to the database, and employee details and access rights downloaded from the database to the terminals and units. It also performs other ancillary tasks such as synchronising the terminals with the correct time etc. More than one Polling PC may be required, the number being determined by the number, type and location of the clocking terminals and / or access units, the type of network and the size of the site.

To enable communication, the Polling PC must either have a LAN/WAN connection or, in the case of serial terminals (MF/AC 2/4/600), a serial port.

Where serial terminals are used, Mitrefinch recommend that native serial ports are installed as USB->Serial converters have been known to cause problems. In addition, Mitrefinch recommend a maximum of 25 terminals per serial port. The serial ports must also be enabled within the PC. It is essential that all power saving options be disabled with the exception of graphics / monitors.

In addition to the above, a second application, the Processor, is usually run on the same PC. The purpose of this application is to convert the time & attendance transactions that the Poller has recovered from the terminals into processed hours within the database. Only one such Processor is required for each site.

The recommended specification for a Polling PC is:

Recommended specification:

- 3 Ghz CPU with 4Gb RAM*
- 100MB Network Connection
- SVGA monitor capable of 1024x768 32-bit colour
- 10GB+ Hard Disk Space
- Sufficient spare free serial port(s) (if using Serial communications)

It is possible to run multiple copies of the Poller program on a single Pc, however, this will require more resources (both CPU and Memory) in order to function satisfactorily.

6.1 Poller and Processor as services

These can be run as services either on a dedicated machine or an existing machine. If running on an existing machine, it is advised that this is used for as little other work as possible.

In order to setup Poller and Processor as services, an account will need to be available which has the following user assignment rights with Local Policy:

- Logon as service

- Replace process level token
- Logon as a batch job

And will also require full read/write access to the TMS applications and data directory/database.

For testing connections initially, it is often useful to the relevant account to be provided with Allow login locally privileges.

It is often required to use the poller as a service to print onsite reports in the case of an emergency. Therefore, the relevant printers need to be defined on the machine that is running the services.

If the poller and processor are running as services and wish to be controlled from a separate machine then a full local administrator account will need to be available on the polling/processing machine.

6.2 Poller and Processor as applications

These can be run as applications on a machine, if required, it is advised that this machine is not utilised for any other purpose.

7 Fire Evacuation System (FES)

The optional Mitrefinch Fire Evacuation System (FES) application is designed to be run on a dedicated DOS-based box supplied by Mitrefinch.

The FES PC is connected via an RS232 serial link to another PC on, from which the Windows Polling program will be run. Due to the limitations of RS232 (50 feet), this polling machine should be seated close to the FES PC. The recommended specifications for this PC are outlined in section 4.

In order to produce fire roll-calls directly, a dedicated parallel printer is also required:

Minimum specification:

- 8-page-per-minute laser printer or
- 300-cpm dot-matrix printer

Mitrefinch supplies software that runs as a service to produce fire roll-calls on network printers. As this is running on a separate machine, Mitrefinch cannot guarantee the production of these roll-calls. It is advised that this software is run on the Polling PC physically connected to the FES PC.

With TMS v5.04L and above, FES supports a maximum of 60 Mitrefinch terminals

For TMS version earlier than this, FES will only support a maximum of 30 Mitrefinch terminals

8 Auto-ID (Digitial Imaging)

8.1.1 Cards and Card Printers – Minimum requirements

The Mitrefinch Auto-ID package is designed to produce employee swipe/identity cards. To achieve compatibility with Mitrefinch swipe readers the following guides must be followed:

8.2 Laminated card production

Where the customer is printing barcode badges on paper, to then be laminated, these should be produced on a HP LaserJet-compatible printer. The printer MUST be capable of producing “Carbon Black” output.

Although, carbon impact printers (i.e. Dot Matrix) are compatible with Auto-ID, their practical use should be limited to basic swipe-card production due to the reduced quality of their output.

Mitrefinch advise that DeskJet/Inkjet printers should NOT be used due to the inconsistent nature of being able to produce “Carbon Black” ensuring a valid readable card.

Due to the heating of the card during the lamination process, it is not possible to use wax dye sublimation printers.

Generally, Mitrefinch will recommend a card printer during the pre-sales discussions. Due to the vast array of card printers in existence, it would be impossible to list all compatible printers. Please contact a member of the Mitrefinch Implementation team to discuss suitability or for further advice.

8.3 Capturing images - guidance

Mitrefinch recommends the use of a separate digital camera for capturing images for use with Auto-ID.

These images should be captured in .JPG at a maximum resolution of 1024x768.

9 Mitrefinch applications and Email

TMS, HR Manager & Flexipay support the use of SMTP email.

SMTP (Simple Mail Transfer Protocol) is the standard method of sending email across the Internet. It is supported by Outlook, Exchange, Lotus and all other email-compatible systems. It works equally well in both an interactive environment (TMS) and a non-interactive environment (T&A.Net).