



Hardware and Software Requirements

Version 41

Table of Contents

Milsoft Core Engineering and Operations (E&O)	3
Database SQL Server.....	3
Milsoft Services Server.....	5
Milsoft Services Stand-Alone Server	6
Milsoft DisSPatch® Outage Management System (OMS) Client Machine	7
Milsoft WindMil® (EA) Client Machine	8
WindMilMap® (GIS) Client Machine	9
Milsoft Field Engineering (Field Engineering)	10
Milsoft Visual Analytics Server	11
Milsoft Mobile	12
Milsoft Business Logic Server (BLS) or IVR Server	13
Considerations for All IVR Systems:.....	13
Virtual Machine BLS or IVR Server 24 Lines or Less	14
Considerations Specific to Virtual Systems:.....	14
Virtual Machine BLS or IVR Server 25 Lines or Greater	15
Engine Server.....	15
SQL Server	15
Interactive Voice Response (IVR) User Applications	17

Milsoft Core Engineering and Operations (E&O)

Database SQL Server

Small utilities, defined as having fewer than 100,000 elements in their engineering model (inclusive of map points—poles, pads, pedestals, etc.) and an OMS-SQL DB or GIS-External SQL DB smaller than 500MB with *either* DisSPatch® (OMS) or WindMilMap® (GIS) installed, will require one server that meets the SQL Server specifications. A second server **may** be required if a small utility is using both GIS **and** OMS (see Notes 4 and 5).

Medium utilities, defined as having more than 100,000 and fewer than 1,000,000 elements in their engineering model and an OMS-SQL DB or GIS-External SQL DB larger than 500MB and smaller than 1GB, will require a second server with either OMS or GIS installed. A third server **may** be required if a medium sized utility has both OMS and GIS (see Notes 4 and 5).

For large utilities, defined as having more than 200,000 meter counts or more than 1,000,000 elements in their engineering model or an OMS-SQL DB or GIS-External Tables exceeding 1GB, Milsoft will individually tailor a server configuration for optimal speed.

Additional servers allow “Milsoft Services” to be separated from the Engineering Model/SQL data, thereby improving efficiency. During normal operations, servers will be under-utilized; however, during an outage, full server capability is required.

REQUIRED	RECOMMENDED
Intel Xeon Quad Core 5500	Intel Xeon E5 Quad Core series or higher
Windows Server 2016	Windows Server 2019
16GB RAM	32GB RAM or higher
4 X 150GB 10K SCSI HD (2xRAID 1 Array – 1 for OS & 1 for SQL)	6 x 150GB 15K RPM SCSI HD (3xRAID 1 Array – 1 for OS, 1 for SQL, & 1 SQL log) or SSD drives for optimal performance.
1 Gbps network connection	
SQL Server 2016 (SP2) - Core License	SQL Server 2017 - Core License
.NET 4.6.2 (or above) .NET 3.5 Service Pack 1	

Note 1: For high performance SQL systems, we recommend direct attached storage or a SAN or ISCSI array be used and arrays can then be broken into OS, tempdb, transaction log, database.
<http://technet.microsoft.com/en-us/library/cc966534.aspx>.

Note 2: If VMware is part of the system design, VMware vSphere 5.5+, or 6.X is recommended, along with direct attached storage, fiber channel, or ISCSI SAN. Resources **must be** reserved, not just allocated, if a virtual server is running for Milsoft Core E&O.

Note 3: It is recommended that large utilities use SSD drives with the host system housing VMs.

Note 4: If Core E&O is being loaded onto an established server, ensure that Windows gives priority to "services" not applications (services is the factory preset).

Note 5: If other non-Milsoft applications are running on the server, the server must have additional resources with which to operate. Milsoft applications and services must have reserved resources that meet the "Required Hardware Specifications".

Note 6: It is possible for a small/medium utility to operate with fewer servers if the SQL server has been configured to limit memory consumption. In this case, third party integrations must be minimal to avoid overtaxing the server. Milsoft hardware recommendations are conservative because a server slowdown or failure during a storm can significantly impact performance and functionality. Small/medium utilities that have minimal IT manpower/experience should mitigate this risk by purchasing the "extra" server.

Note 7: **Do not** install Milsoft Field Engineering (FE) / Partner Hub on the same server as WindMilMap® (GIS).

Note 8: Milsoft will end support for Windows Server 2016 Standard on January 11, 2022 in conjunction with Microsoft's end of mainstream support.

<https://support.microsoft.com/en-us/lifecycle/search?alpha=windows%20server%202016>

Note 9: Milsoft will end support for SQL Server 2016 (SP2) on July 13, 2021 in conjunction with Microsoft's end of mainstream support.

<https://support.microsoft.com/en-us/lifecycle/search?alpha=sql%20server%202016>

Please note that while Milsoft is discontinuing support for a particular Microsoft Product, this does not require your organization to update Microsoft products in order to continue to receive Milsoft upgrades. However, Milsoft will no longer test on Microsoft products that are beyond the mainstream support window. The customer will assume all risk associated with a Milsoft upgrade using unsupported Microsoft products. If problems arise from using an unsupported product, Milsoft will ask you to upgrade to supported Microsoft products or roll back to a previous version of our software. Your utility is encouraged to proactively upgrade all Microsoft products and servers to the latest available version as soon as possible.

Milsoft Services Server

This is typically an OMS Server. If the SQL Database is split from Milsoft E&O, or DisSPatch® (OMS) and WindMilMap® (GIS) need to be separated, these specifications may be used for the second/third server(s).

REQUIRED	RECOMMENDED
Intel Quad Core 5500 Xeon	Intel Xeon E5 Quad Core series or higher
Windows Server 2016	Windows Server 2019
16GB RAM	32GB RAM or higher
4 X 150GB 10K SCSI HD (2xRAID 1 Array – 1 for OS, 1 for Applications)	
1 Gbps network connection	
.NET 4.6.2 (or above) .NET 3.5 Service Pack 1	

Note 1: If VMware is part of the system design, VMware vSphere 5.5+, or 6.X is recommended, along with either direct attached storage, fiber channel, or ISCSI SAN. The above Required Resources must be reserved, not just allocated, if a virtual server is running for Milsoft Core E&O.

Note 2: It is recommended that large utilities use SSD drives with the host system housing VMs.

Note 3: In the event non-Milsoft applications are running on this same server, the server **must have the REQUIRED** resources available for Milsoft services at all times. This will allow for efficient operation and stability during high volume usage.

Note 4: If Core E&O is loaded onto an established server, ensure that Windows gives priority to "services" and not "applications" (services is the factory preset).

Note 5: **Do not** install Milsoft Field Engineering (FE) or Partner Hub on the same server as WindMilMap® (GIS).

Note 6: Milsoft will end support for Windows Server 2016 Standard on January 11, 2022 in conjunction with Microsoft's end of mainstream support.

<https://support.microsoft.com/en-us/lifecycle/search?alpha=windows%20server%202016>

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Milsoft Services Stand-Alone Server

The following specifications may be used for the hardware/VM specifications for a single Milsoft Service (Integration Server, DisSPatch Server, CMS, Web Server, Web Outage Viewer, etc.) that has been isolated from the internal server.

REQUIRED	RECOMMENDED
Intel Xeon E-2407	Intel Xeon E-2430
Windows Server 2016	Windows Server 2019
8GB RAM	16GB RAM or higher
Embedded SATA 500GB drive	Perc H310 RAID Controller 2-500GB drives
1 GB Ethernet port	Dual 1 GB Ethernet controllers
.NET 4.6.2 (or above) .NET 3.5 Service Pack 1	

Typically used for Web Outage Viewers where the utility desires to isolate a particular service from the network. Required specifications for stand-alone servers are the minimum requirements for these machines to run efficiently for a single service, additional services will require additional resources.

Note 1: Milsoft will end support for Windows Server 2016 Standard on January 11, 2022 in conjunction with Microsoft's end of mainstream support.

<https://support.microsoft.com/en-us/lifecycle/search?alpha=windows%20server%202016>

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Milsoft DisSPatch® Outage Management System (OMS)

Client Machine

The following are specifications for DisSPatch® (OMS), Calls Manager, Outage Messenger (Outage Management), and Unplugged (Outage Management).

These specifications may also be used for the hardware/VM specifications for a single Milsoft Service (Integration Server, DisSPatch Server, CMS, Web Server, Web Outage Viewer, etc.) that have been isolated from the internal server.

REQUIRED	RECOMMENDED (see Note 1)
Intel I5	Intel I7
Windows 10 (64-bit)	
8GB RAM	16GB RAM or higher
Dual monitor	Dual monitor
100 Mbps network connection	1 Gbps or higher network connection
.NET 4.6.2 (or above)	
.NET 3.5 Service Pack 1	

Required specifications for client machines are the minimum requirements for these machines to run efficiently. New client machines with anything below the recommended specifications should not be purchased.

Note 1: Medium and Large Utilities with External SQL DB \geq 500MB or connectivity model \geq 100,000 elements **must use** the Recommended Minimums.

Note 2: Proper operation of Milsoft web applications, which includes the Web Outage Viewer, requires one of the following web browser versions:

- Firefox 28 or later
- Google Chrome 33.0.1750.117 M or later
- Internet Explorer 11.

Milsoft WindMil® (EA) Client Machine

The following are specifications for WindMil® (EA) and LightTable®:

REQUIRED	RECOMMENDED (see Note 1)
Intel I5	Intel I7
Windows 10 (64-bit)	
8GB RAM	16GB RAM or higher
Dual monitor	Dual monitor
100 Mbps network connection	1 Gbps or higher network connection
.NET 4.6.2 (or above) .NET 3.5 Service Pack 1	

Required specifications for client machines are the minimum requirements for these machines to run efficiently. New client machines with anything below the recommended specifications should not be purchased.

Note 1: Medium and Large Utilities with External SQL DB \geq 500MB or connectivity model \geq 100,000 elements **must use** the Recommended Minimums.

WindMilMap® (GIS) Client Machine

The following are specifications for WindMilMap®:

REQUIRED	RECOMMENDED (see Note 1)
Intel I5	Intel I7
Windows 10 (64-bit)	
8GB RAM	16GB RAM or higher
500GB hard drive 7200 RPM SATA	SSD – Desired-significantly faster/more expensive
100Mbps network connection	1 Gbps or higher network connection
ESRI ArcMap 10.7.1 on 8.7.33.4890 or later ESRI ArcMap 10.6.1 on 8.7.23.2358 through 8.7.31.3930 ESRI ArcMap 10.5.1 on 8.7.7.10591 through 8.7.20.2086 ESRI ArcMap 10.4.1 on 8.6.6.9756 through 8.7.5.10366 ESRI ArcMap 10.3.1 on 8.2.0.7807 through 8.6.5.9539 ESRI ArcMap 10.2.2 on 8.2.0.5122 through 8.2.0.7373 ESRI ArcMap 10.2 on 8.2.0.4968 or older	Small Utility Enterprise License Agreement http://www.esri.com/industries/ela/suela
.NET 4.6.2 (or above) .NET 3.5 Service Pack 1	Dual monitor capability

Required specifications for client machines are the minimum requirements for these machines to run efficiently. New client machines with anything below the recommended specifications should not be purchased.

Note 1: Medium and Large Utilities with External SQL DB \geq 500MB or connectivity model \geq 100,000 elements **must use** the Recommended Minimums.

Milsoft Field Engineering (Field Engineering)

<http://www.partnersoft.com/support/hardware-and-software-requirements/>

Milsoft Visual Analytics Server

The following are specifications for Milsoft Visual Analytics:

REQUIRED	RECOMMENDED
Quad Core Processor	
Windows Server 2016 OR Windows 10 (64-bit)	Windows Server 2019 OR Windows 10 (64-bit)
16GB RAM	
100GB Hard Drive (see Note 1)	

Required specifications for server machines are the minimum requirements for these machines to run efficiently. New server machines with anything below the recommended specifications should not be purchased.

Note 1: The hard drive size is relative to the amount of data a user wants to bring in. If you are connecting to many different data sources with large datasets, the hard drive size will need to be increased.

Note 2: Milsoft will install the following software in order for Milsoft Visual Analytics to run properly: Java 1.7, Tomcat7, MongoDB, MonetDB, SrvStart, SQL Tools/Drivers, Squirrel, and RoboMongo.

Note 3: These are the following port requirements for Milsoft Visual Analytics:

- 587 – SMTP Mail Server (Outbound from Dashboard Server to SMTP Server)
- 443 – Envision Application Server (Inbound to Dashboard Server for user access)
- 1433 – SQL Server Default Port (Outbound from Dashboard Server to OMS SQL Server)
- 27017 – Mongo DB Server (Local Port for Mongo Database for application access)
- 50000 – Monet DB Server (Local Port for Monet Database for application access)

Note 4: Milsoft will end support for Windows Server 2016 Standard on January 11, 2022 in conjunction with Microsoft's end of mainstream support.

<https://support.microsoft.com/en-us/lifecycle/search?alpha=windows%20server%202016>

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Milsoft Mobile

The following are specifications for Milsoft Mobile:

***THIS PRODUCT REQUIRES MILSOFT OMS TO FUNCTION**

REQUIRED	RECOMMENDED
iPad Pro 12.9" (1 st generation) iPad Pro 12.9" or 10.5" (2 nd generation)	iPad Pro 12.9" or 11" (3rd generation)
A9x Processor A10x Processor	A12x Processor
4GB RAM	4GB RAM
32GB Storage Capacity	64GB Storage Capacity
Internet Connectivity	LTE Connection (see Note 2)
Hardware VPN (see Note 3)	

Required specifications for mobile devices are the minimum requirements necessary for the mobile application to operate without errors. New devices with anything below the recommended specifications should not be purchased.

Note 1: The first generation 9.7" iPad Pro does not meet the requirements because it was produced with only 2GB of internal RAM.

Note 2: While a cellular (LTE) ready iPad is not required for the application to operate, field use may exceed Wi-Fi coverage. Additionally, non-cellular (Wi-Fi only) iPads do not contain a GPS chip/receiver and instead use the known location of certain Wi-Fi routers to determine position based on the IP address.

Note 3: The customer must be able to establish a VPN tunnel between the Milsoft OMS server and a Milsoft Mobile cloud server.

Milsoft Business Logic Server (BLS) or IVR Server

Considerations for All IVR Systems:

1. For systems enabling both payments and two-way texting features, the BLS that will receive inbound texts must be installed on a server separate from the IVR Engine that collects payment data. Milsoft recommends a DMZ VM for the text receiver BLS. A DMZ Client/VM for a secondary BLS (the text receiver) is required for security.
2. If other non-Milsoft applications are running on the server, the server must have additional resources with which to operate. Milsoft applications and services must have reserved resources that meet the "Required Hardware Specifications".
3. Milsoft normally supplies the Dell R630 for an IVR server. If the customer elects to deploy IVR Server using their own VM, they must comply with the system requirements listed on this document.
4. For systems enabling credit card payments, the server on which the IVR Engine resides is in scope for Payment Card Industry Data Security Standard (PCI-DSS) regulations and must reside in a secure network. See Milsoft's PA-DSS Implementation Guide for more information.

REQUIRED	RECOMMENDED
Intel Quad Core 5500 Xeon	Intel Xeon E5 Quad Core series or higher
Windows Server 2016	Windows Server 2019 (see Note 3)
8GB RAM	16GB RAM or higher
2 X 300GB 10K SAS HD RAID 1 Array	
1 Gbps network connection	
SQL Server 2016 (SP2) – Core License	SQL Server 2017 – Core License

Note 1: Milsoft will end support for Windows Server 2016 Standard on January 11, 2022 in conjunction with Microsoft's end of mainstream support.

<https://support.microsoft.com/en-us/lifecycle/search?alpha=windows%20server%202016>

Note 2: Milsoft will end support for SQL Server 2016 (SP2) on July 13, 2021 in conjunction with Microsoft's end of mainstream support.

<https://support.microsoft.com/en-us/lifecycle/search?alpha=sql%20server%202016>

Note 3: Server 2019 will only be supported for IVR V46 and higher.

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Virtual Machine BLS or IVR Server 24 Lines or Less

Considerations Specific to Virtual Systems:

1. We also recommend direct attached storage, fiber channel, or ISCSI SAN.
2. **We require resources to be reserved**, not just allocated on a VM.

REQUIRED	RECOMMENDED
2 vCPU	4 vCPU
Windows Server 2016	Windows Server 2019 (see Note 3)
8GB RAM	16GB RAM or higher
C Drive 100GB Thick Provisioned, Lazy Zeroed D Drive 200GB Thick Provisioned, Lazy Zeroed	
1 Gbps network connection	
SQL Server 2016 (SP2) – Core License	SQL Server 2017 – Core License
VMware vSphere 5.5+	VMware vSphere 6.X

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<https://support.microsoft.com/en-us/lifecycle/search?alpha=windows%20server%202016>

Note 2: Milsoft will end support for SQL Server 2016 (SP2) on July 13, 2021 in conjunction with Microsoft's end of mainstream support.

<https://support.microsoft.com/en-us/lifecycle/search?alpha=sql%20server%202016>

Note 3: Server 2019 will only be supported for IVR V46 and higher.

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Virtual Machine BLS or IVR Server 25 Lines or Greater

This IVR system is a two server split configuration.

Engine Server

REQUIRED	RECOMMENDED
2 vCPU	4 vCPU
Windows Server 2016	Windows Server 2019 (see Note 3)
16GB RAM	32GB RAM or higher
C Drive 100GB Thick Provisioned, Lazy Zeroed D Drive 200GB Thick Provisioned, Lazy Zeroed	
1 Gbps network connection	
VMware vSphere 5.5+	VMware vSphere 6.X

SQL Server

REQUIRED	RECOMMENDED
2 vCPU	4 vCPU
Windows Server 2016	Windows Server 2019 (see Note 3)
16GB RAM	32GB RAM or higher
C Drive 100GB Thick Provisioned, Lazy Zeroed D Drive 200GB Thick Provisioned, Lazy Zeroed	
1 Gbps network connection	
SQL Server 2016 (SP2) – Core License	SQL Server 2017 – Core License
VMware vSphere 5.5+	VMware vSphere 6.X

Note 1: Microsoft will end support for Windows Server 2016 Standard on January 11, 2022 in conjunction with Microsoft's end of mainstream support.

<https://support.microsoft.com/en-us/lifecycle/search?alpha=windows%20server%202016>

Note 2: Microsoft will end support for SQL Server 2016 (SP2) on July 13, 2021 in conjunction with Microsoft's end of mainstream support.

<https://support.microsoft.com/en-us/lifecycle/search?alpha=sql%20server%202016>

Note 3: Server 2019 will only be supported for IVR V46 and higher.

September 12, 2019

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Interactive Voice Response (IVR) User Applications

Thick Client Applications: Milsoft OCM, Porche OCM, CrewCall

Web Applications: Web CSI, BLS

REQUIRED	RECOMMENDED
Intel I3	
Windows 10	
8GB RAM	16GB RAM
500MB Hard Drive space	1GB Hard Drive Space
Google Chrome, FireFox, Internet Explorer 11 (BLS – Compatibility View off, Web CSI – Compatibility View on)	Internet Explorer 11
Adobe Acrobat Reader 10+	
Java Standard Edition 7 V11+	
1152x864 or greater screen resolution	
Sound Card/Speakers/Microphone	
Windows Media Player	

Required specifications for client machines are the minimum requirements for these machines to run efficiently. New client machines with anything below the recommended specifications should not be purchased.

BLS can use: Google Chrome, FireFox, or Internet Explorer 11 with Compatibility View off

Web CSI requires: Internet Explorer (IE) 11 with Compatibility View on