

2020 Insight

System Requirements 13.2



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System Requirements



Introduction

This guide provides information on hardware and software requirements for the installation of 2020 Insight. You should consult this document before making hardware and software purchase decisions for operating an 2020 Insight environment.

Environment Setup and Performance Considerations

Before you begin the process of installing and setting up 2020 Insight, it is important to consider information about the software and hardware environment needed to implement 2020 Insight and associated programs in your environment.

Client-server application considerations

The 2020 Insight system is a client-server application:

- ▶ Clients reside on many computers throughout your manufacturing facility.
- ▶ One or more dedicated computers perform server functions.
- ▶ Server functions are managed by the 2020 Insight subsystem known as inResponse.
- ▶ inResponse receives some of its capability from the Microsoft SQL Server—changes to data help drive the system.

SQL Server considerations

The Microsoft SQL Server also provides full database capability for data storage and management. SQL stored procedures customize your data and perform many data management tasks.

Preinstallation considerations

When planning your hardware and software environment, become familiar with the following information:

- ▶ Typical Installation Overview
- ▶ Setting up a Test Environment
- ▶ Requirements and Performance Management Issues

These topics help you to consider important aspects of an 2020 Insight environment. Planning earlier in the process for these aspects can help with a smoother transition from your legacy system to 2020 Insight.

Installation guidance

The *Installation Guide* provides information on the following topics:

- ▶ Configuring your 2020 Insight environment
- ▶ Installing 2020 Insight
- ▶ Setting up 2020 Insight to interact with third-party software

Customization considerations

Some 2020 Insight system administrators have additional responsibilities beyond the scope of this guide and will find the following information helpful:

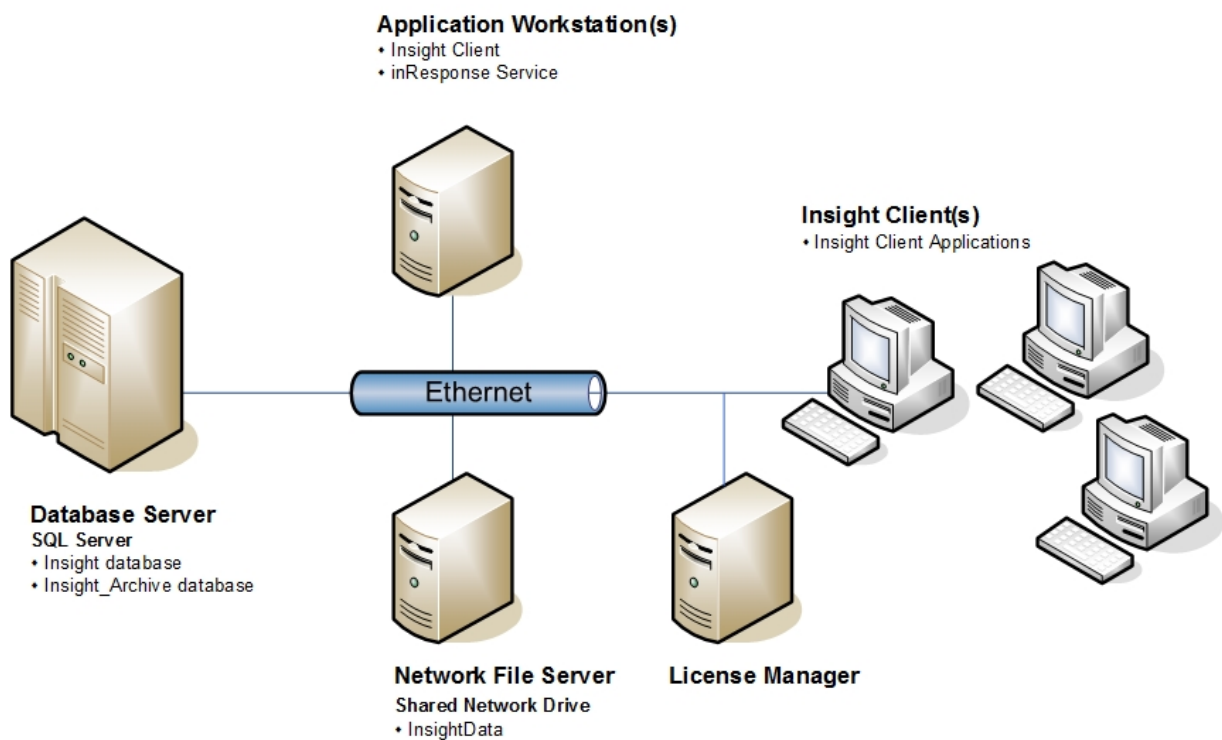
- ▶ The *Customization* chapter provides information that helps you customize your 2020 Insight application. Customization requires understanding and setting up system data.
- ▶ Refer to *Workflow Management* to understand and set up workflow and the inResponse subsystem.

Typical Installation Overview

A typical installation of the 2020 Insight software involves the following main types of systems:

- ▶ License Manager
- ▶ Network File Server
- ▶ Database Server
- ▶ Application Workstation(s)
- ▶ 2020 Insight Client(s)

The following figure illustrates the applications installed on each system. This diagram represents a typical production environment.



Tip

It is possible to install all of these applications on fewer machines, or even on one machine, in a demo or test environment.

Setting up a Test Environment

Because your data is important, you should create a test environment for 2020 Insight. It is essential for the initial phase of setup and configuration, as well as for testing all custom modifications that you might make on site or request from 2020 Technologies Professional Services.

How you set up a test environment depends on how you will use it before, during, and after you migrate your system to 2020 Insight. This could involve buying extra hardware. The 2020 Insight Services Team can assist you in making these decisions.

Supported Versions

This section identifies the system requirements for running the 2020 Insight application.

Windows Active Directory

Domain functional level	Windows Server 2012R2, 2016
Forest functional level	Windows Server 2012R2, 2016

Production SQL Server

Minimum hardware requirement	Depends on number of users
O/S supported*	Refer to Microsoft's SQL Server version requirements.
Database supported**	Microsoft SQL Server 2017 Cumulative Update 4 and higher (14.0.3022.28) Microsoft SQL Server 2019 Cumulative Update 3 and higher (15.0.4023.6) Microsoft SQL Server 2022 RTM and higher (16.0.1000.6)
Drive space required	400 MB initially, plus database file growth depending on usage
.NET Framework required	4.7.1

*Note: Windows Server Standard Edition is sufficient for 2020 Insight. If the hardware configuration exceeds the limits of Standard Edition, Enterprise Edition is required.

**Note: SQL Server Standard Edition is sufficient for 2020 Insight. If further requirements exist or if other databases or legacy systems are to be integrated, an individual assessment is required to identify the appropriate SQL Server edition.

License Manager

O/S supported	Windows Server 2012R2, 2016, 2019, 2022
Drive space required	500 MB

Network File Server

Minimum hardware requirement	Depends on number of users
O/S supported	Windows Server 2012R2, 2016, 2019, 2022
Drive space required	Depends on usage

Application Workstation (A/W)

Minimum hardware requirement	Current market average computer
O/S supported	Windows 8.1, 10, 11, 2012R2, 2016, 2019, 2022 (x64), excluding Starter, RT, Server Core, or Foundation editions
Drive space required	3 GB
.NET Framework required	4.8

With 2020 Construct

Minimum hardware requirement	Same as A/W, plus capable of running supported AutoCAD version
O/S supported	Windows 10, 11 (x64)
2020 Construct	13.0.02.292, 14.0.2, 15
AutoCAD versions supported	With 2020 Construct 13: 2018; with 2020 Construct 14: 2020 (x64); with 2020 Construct 15: 2022 (x64).
Additional drive space required	6 GB

With 2020 Design

Minimum hardware requirement	Same as A/W with NVIDIA GeForce or AMD Radeon with 512 MB or more dedicated memory
O/S supported	Windows 8.1, 10, 11 (x64)
2020 Design versions supported	11.11, 11.12, 12.0, 13.3 - 13.6
Additional drive space required	10 GB

2020 Insight Client (Standard, SFA, OE, or INQ)

Minimum hardware requirement	Current market average computer
O/S supported	Windows 8.1, 10, 11, 2012R2, 2016, 2019, 2022 (x64) (excluding Starter, RT, Server Core, or Foundation editions)
Drive space required	1 GB
Minimum screen resolution	For 4:3 aspect monitors: 1280 x 1024 For widescreen monitors: 1440 x 900 <i>Note: We recommend using monitors with the largest resolution possible, as many 2020 Insight forms are designed to make use of the additional screen area. Although it is possible to use monitors with less than the minimum monitor resolution specified, users may have to take extra time to manipulate the interface to see all of the desired information.</i>
.NET Framework required	4.8

With Fusion

Minimum hardware requirement	Same as standard 2020 Insight client, plus capable of running Fusion
O/S supported	Windows 8.1, 10, 11 (x64) (excluding Starter, RT, Server Core, or Foundation editions)
Fusion versions supported	7, 8, 9
Additional drive space required	1 GB

2020 Insight Browser Client new

Browsers supported	Chrome (PC/Mac), Firefox, Safari, and Edge (Chromium)
Frame size supported	Minimum 4" screen size and minimum 320 pixel resolution width

2020 Construct Maintain Client

Minimum hardware requirement	Same as standard 2020 Insight client, plus capable of running supported AutoCAD version
O/S supported	10, 11 (x64)
2020 Construct	13.0.02.292, 14.0.2, 15
AutoCAD versions supported	With 2020 Construct 13: 2018; with 2020 Construct 14: 2020 (x64); with 2020 Construct 15: 2022 (x64).
Additional drive space required	6 GB

Terminal Server (supporting 2020 Insight Thin Clients [Standard, SFA, OE, or INQ])

Server minimum hardware requirement	Depends on number of users
Server O/S supported	2012R2, 2016, 2019, 2022 (excluding Foundation editions) (x64)
Server drive space required	1 GB
Client minimum hardware requirement	Capable of running RDP
Client OS supported	RDP compatible clients (x86/x64)
.NET Framework required	4.8

Web Server (supporting 2020 Insight Browser Client)

Minimum hardware requirement	Depends on number of users
Server O/S supported	2012R2, 2016, 2019, 2022 (excluding Foundation editions) (x64)
Server drive space required	110 MB

2020 GenPost Client

Minimum hardware requirement	Current market average computer
O/S supported	Windows 8.1, 10, 11, 2012R2, 2016, 2019, 2022 (x64)
Drive space required	50 MB
.NET Framework required	4.8

Reporting

Crystal Reports versions supported	2008, 2011, 2013, 2016, 2020
Microsoft Reporting Services versions supported	2017, 2019, 2022

Financial Integration

Microsoft Dynamics GP:

Great Plains versions supported	10, 2010R2, 2013, 2016, 2018R2
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Intuit Quickbooks

Intuit Quickbooks versions supported	2015, 2016, 2017, 2018, 2019, 2021, 2022, 2023
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Microsoft Dynamics 365 Business Central new

API versions supported	2.0
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Requirements and Performance Management Issues

The 2020 Insight software is a multitiered application that requires effective planning and deployment to ensure optimal system performance. You should consider performance factors in all layers of the 2020 Insight application architecture. As with many enterprise-wide applications, multiple variables affect deployment decisions.

This chapter identifies many factors to consider. Because IT infrastructures are varied and diverse, the recommendations in the following topics are not intended to be absolute recommendations. Rather, they are ideas to consider when implementing 2020 Insight in your environment.

The following topics discuss performance considerations for the 2020 Insight application components:

[Managing the Network File Server](#)  12

[Managing the Database Server](#)  13

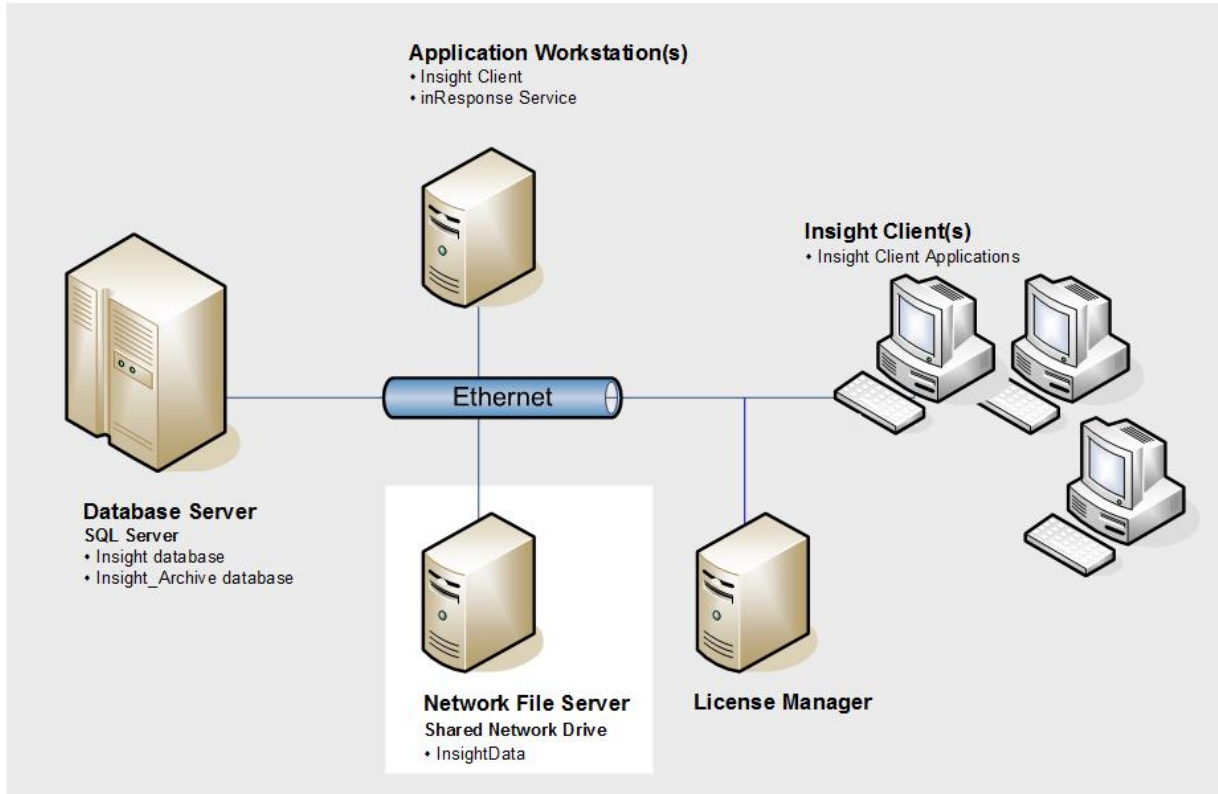
[Managing Application Workstations](#)  19

[Managing 2020 Insight Clients](#)  21

The sections in this topic are intended for the primary production environment of an 2020 Insight software installation. It is understandable that not all recommendations for hardware and configuration can be, nor need to be followed for other parallel installed environments, such as testing or development environments.

Managing the Network File Server

The Network File Server in an 2020 Insight environment stores key output documents, such as CNC machine program files, files of e-mail attachments, and so forth. It also stores intermediate data from third-party systems, such as engineering configurators and point of sale systems.



Miscellaneous recommendations

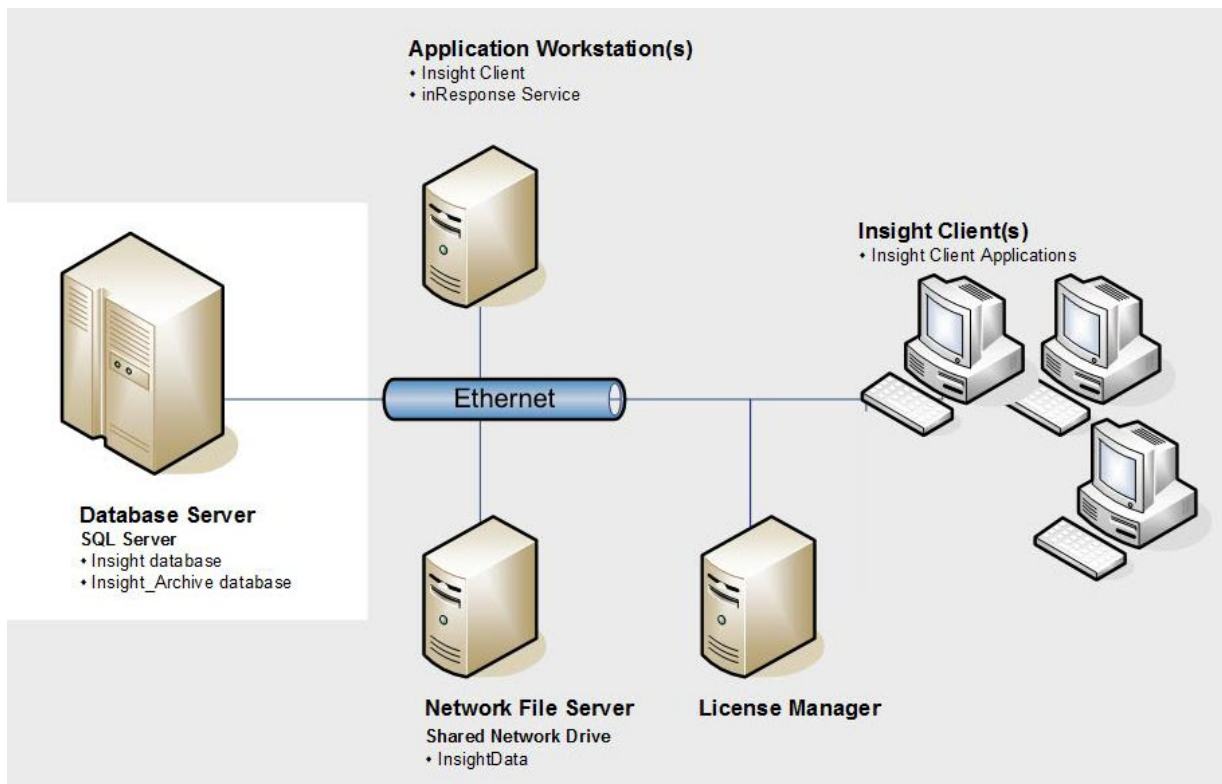
The following list of miscellaneous file server recommendations pertains to 2020 Insight environments:

- ▶ The file server does not have to be a dedicated 2020 Insight server.
If you already have a file server in your environment, you can also use it to support the 2020 Insight environment. However, if the file server is already heavily used by other applications and/or users, consider using a different server as your network file server.
- ▶ The file server should have a minimum of a 1 GB/sec connection to the database server.

Managing the Database Server

The 2020 Insight software is a database-centric application that uses the Microsoft SQL Server database engine for data storage, as well as for some business logic.

The 2020 Insight software has been tested and meets the criteria for the Microsoft Platform Solutions program for SQL Server.



Note

The performance of this database system is the single most important factor in the overall performance of the 2020 Insight system; therefore, it is important to pay close attention to the various factors that can influence database performance.

Factors that affect database performance

- ▶ Server Hardware and Configuration
- ▶ Database Tuning and Maintenance
- ▶ Custom SQL Objects (Queries and Procedures)
- ▶ Purging and Archiving Strategies

SQL Server Hardware and Configuration

A good SQL Server hardware platform is essential to a well running installation of 2020 Insight. Consideration should be given to selecting hardware for your environment that will provide you with the best possible performance and reliability. Also, careful planning should go into the configuration of the chosen hardware, as this can have as much or more impact on performance as the hardware itself.

Overall, extra time and effort spent on selecting and configuring your SQL Server hardware results in better performance, scalability, and reliability.

If you use the 2020 Insight system to run your business, you must ensure it is reliable and resilient. To improve these factors, use redundant hardware wherever possible. Always have your SQL Server connected to an uninterruptible power supply (UPS).

SQL Server hardware recommendations and considerations

Keep the following recommendations in mind when purchasing your SQL Server server:

- ▶ Purchase a name-brand server from a reputable manufacturer.
Avoid assembling your own server with components that have not been certified to work together. Purchasing brand servers lowers your risk of hardware failure and provides you with a single point of contact for support if you experience difficulty with the hardware.
- ▶ Seek expert advice about hardware and how it relates to SQL Server before you buy your SQL Server server. Also, do not assume that the factory configuration of your brand new server is already optimal. Often, it needs to be further tuned and optimized for use with SQL Server.

CPU

In general, it is recommended that you purchase a server with as many CPUs as you can reasonably justify. Higher speed CPUs perform better for 2020 Insight versus slow speed CPUs with more cores.

Memory considerations

Purchase as much memory as possible for your SQL Server because this reduces the amount of input/output (I/O) required to fulfill database reads and writes. Accessing data from memory is much faster than from disk drives. Therefore, you experience better overall performance with more memory.

Disk drives and I/O performance

Use RAID for your data protection. Read about RAID levels within the context of SQL Server. Consider using hardware RAID 10 as the best performing RAID. Make sure that you give preference to more drives versus the size of each. SQL Server is random I/O bound. Therefore, having more drives of smaller size (versus fewer of larger size) is beneficial. Consider more than one I/O controller and spreading drives around them.

Consider Write-Back RAID controller caches, but then ensure that this cache is battery backed and that your SQL Server is protected by UPS.

Tip

See the following Microsoft Knowledge Base article for more information about caching controllers: <http://support.microsoft.com/kb/86903/en-us>

Regarding Windows NT File System (NTFS) Allocation Unit, the best practice for SQL Server is to choose 64 KB because this reduces the likelihood of I/Os that span distinct NTFS allocations, which could result in split I/Os. Please test your backup software for compatibility with this size.

For optimal performance, split SQL Data, SQL Logs, and SQL TempDB onto different hardware drives, RAIDs, and preferably onto different controllers.

You may consider using SSD drives, particularly for the SQL TempDB.

Network considerations

Ensure that your SQL Server is connected to your network with a minimum of 1 GB network connection.

Miscellaneous SQL Server configuration recommendations

The following list concerns general recommendations for optimal SQL Server performance:

- ▶ Always use **Page Checksum** to audit data integrity.
- ▶ Use **NTFS** for security and availability of many SQL Server features.
- ▶ Use **instant file initialization** for performance optimization.
- ▶ Use the **Windows Network Service Account** for security.
- ▶ Choose your **RAID level** carefully. For excellent performance and high reliability of both read and write data patterns, use RAID10. For read-only data patterns, use RAID5.
- ▶ For optimized I/O parallelism, use 64 KB or 256 KB **stripe size** when configuring RAID10 or RAID5.
- ▶ For future scalability and ease of maintenance, use **volume mount points**.
- ▶ To increase bus bandwidth reliability, use **multipathing software**.
- ▶ **Directly attached I/O** is recommended for small- to medium-sized servers.
- ▶ **SAN systems** are recommended for larger servers.
- ▶ NAS systems are not recommended. Use **iSCSI** instead.
- ▶ For **better recoverability**, use an SCSI interface instead of SATA and IDE.
- ▶ For **larger server loads**, use SCSI or SATA with TCQ support.
- ▶ **Store transaction logs separate** from data files. Do not stripe on the same disk as the data files.

- ▶ For **large bandwidth demands** on the I/O bus, use a different bus for the transaction log files.
- ▶ The number of data files within a single file group should equal the number of **CPU cores**.

Database Tuning and Maintenance

Keeping your 2020 Insight databases running smoothly is essential in order to keep your system responsive and reliable. Ultimately, it is the responsibility of the local database administrator to understand and implement the methods and techniques necessary to keep the database environment running optimally. Listed below, in no particular order, are some recommendations and additional links to technical information to this end:

- ▶ Update your SQL Server to the latest available service pack. However, it is a good practice to first deploy the update in an 2020 Insight test environment before applying it to a production environment.
- ▶ If possible, do not run any other databases or instances on your production SQL Server other than those included with the 2020 Insight system.
- ▶ Develop and implement a backup strategy for your SQL Server databases. Consider backing up your databases to local additional drives using the SQL BACKUP DATABASE command and then using your backup software to back up SQL back files. Keep the latest copy readily available on your hard drive. Restoring from a hard drive is much faster than restoring from a tape or other backup solution.

Suggested reading: *Backup Overview (SQL Server)* at <https://docs.microsoft.com/en-us/sql/relational-databases/backup-restore/backup-overview-sql-server?view=sql-server-ver16>

- ▶ Pay attention to the tempdb. The SQL Server internally uses this system database, and it can require maintenance and attention. It can have a significant impact on performance if not managed properly.

Suggested reading: *Optimizing tempdb Performance* at <http://msdn2.microsoft.com/en-us/library/ms175527.aspx>

- ▶ As data is added, updated, and removed from database tables, indexes can become fragmented and lead to degraded query performance if not monitored and rebuilt. 2020 Technologies recommends that you monitor index fragmentation and performance in your 2020 Insight databases on a regular basis, and rebuild indexes as needed.

Suggested reading: *Resolve index fragmentation by reorganizing or rebuilding indexes* at <http://msdn2.microsoft.com/en-us/library/ms189858.aspx>

- ▶ If left unchecked, the volume of transactions in your database can grow to the point where system performance begins to decline. 20-20 Technologies Commercial Corporation strongly recommends that you manage the volume of data in your 2020 Insight databases by performing a regular purging and, optionally, an archiving strategy. The 2020 Insight system comes with built-in functions that you can use to perform these tasks.

See Also: Purging and Archiving

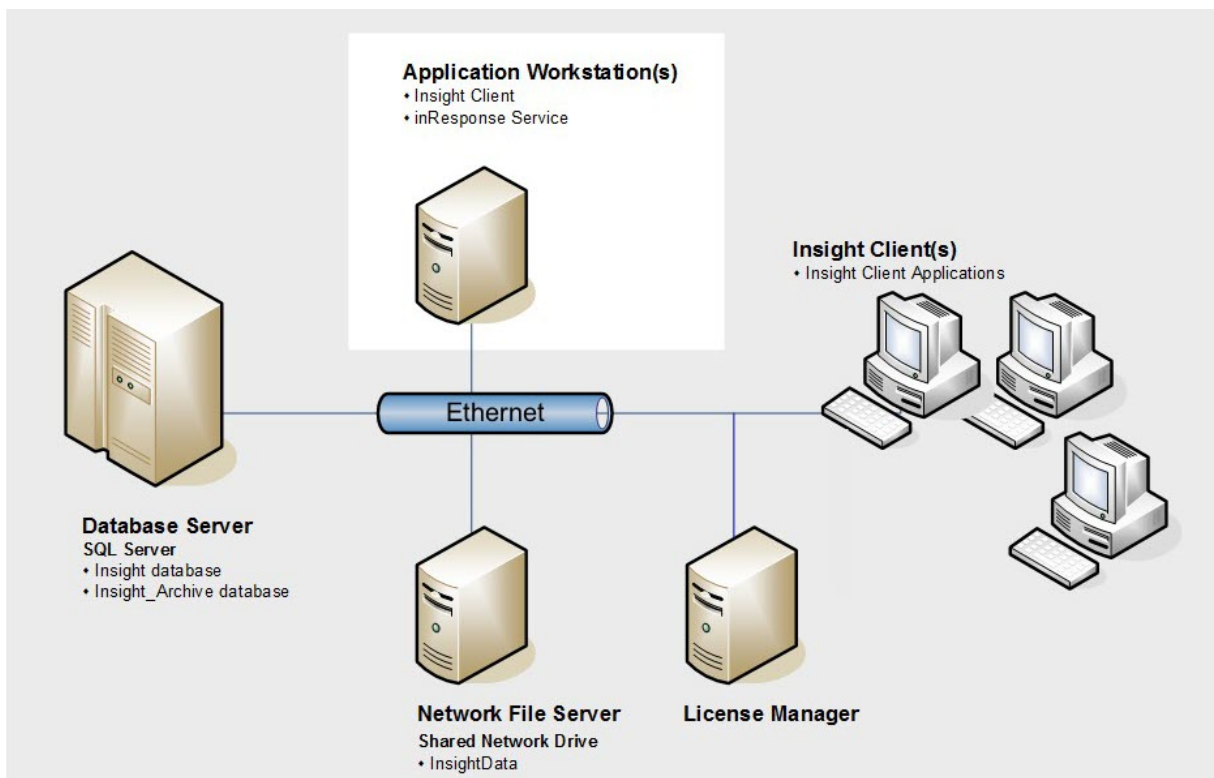
- ▶ Carefully consider the growth options for your 2020 Insight databases. 20-20 Technologies Commercial Corporation generally recommends that you use manual file growth options. In other words, establish and preset a size large enough for your anticipated database growth. If you allow SQL Server to automatically grow the database when needed, it can choose to do

this at an inopportune time and cause a significant disruption in database availability for your users.

Suggested reading: *Using Files and Filegroups to Manage Database Growth* at <http://msdn2.microsoft.com/en-us/library/ms190970.aspx>

Managing Application Workstations

The 2020 Insight environment uses one or more application workstations to perform automated, asynchronous processing of system and user-defined **Actions**. In other words, to deploy inResponse **services**.



Wide Area Network (WAN) considerations

It is sometimes necessary to deploy a task worker in a WAN environment. Some things to consider when making this decision include the following:

- ▶ Consider deploying an application workstation used for printing on the same local network as the printer(s) that it sends reports to. This can improve printing response time for reports with smaller data sets because only the inResponse task string and SQL data travels over the WAN—not the entire print stream.
- ▶ Deploy application workstations that will work with large data sets in such a way that they have fast network access to the Database Server and File Server. inResponse functions, such as 2020 Construct processing, will benefit greatly by having the fastest possible access to these resources. Usually this means installing these workstations on the same local network as the other resources.

Miscellaneous recommendations

The following list of miscellaneous recommendations concerns the installation and deployment of

application workstations:

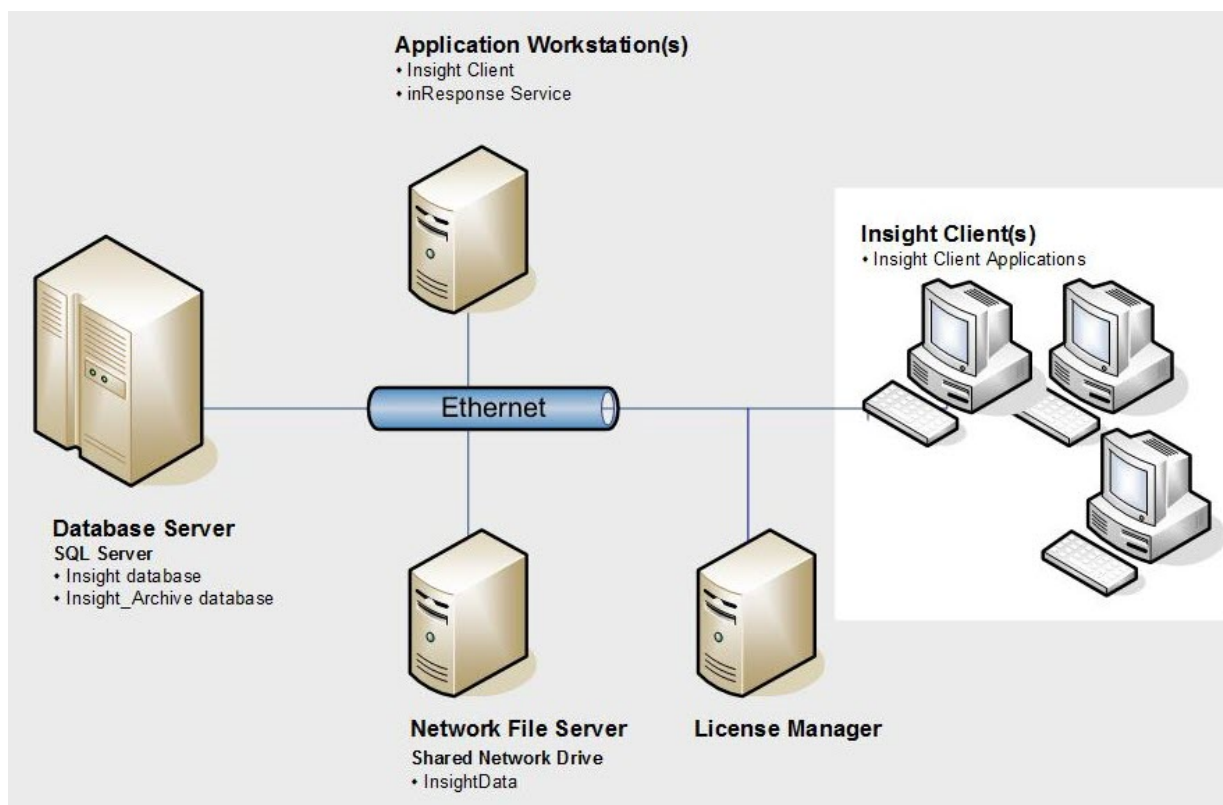
- ▶ Keep application workstations dedicated to their main purpose. In other words, do not use the same computer for other purposes, especially as 2020 Insight clients. Running other applications on these workstations not only affects performance of key functions, but can also introduce unnecessary interruptions of processes if the workstation crashes or if it needs to be restarted for other reasons.
- ▶ Do not configure your database server to also be an application workstation. For the relatively small cost of an application workstation, it is money well spent to ensure that both the SQL Server and the application workstation have a dedicated set of resources. This is a consideration for performance and for fault tolerance because you do not want problems with one system to negatively impact the other.
- ▶ If possible, a 1 Gb/sec connection to the Database Server provides better performance for larger reports and grid results.
- ▶ If you are using the 2020 Construct Processing inResponse function, the **Memory Threshold (mb)** Setting value sets a memory limit (in megabytes) that, when exceeded, causes the function to restart the underlying AutoCAD and 2020 Construct process. Because of the time required to restart AutoCAD, 20-20 Technologies Commercial Corporation recommends that you set this limit as high as is feasible on the application workstation running the function. This minimizes the amount of order line processing time because more order lines can be processed before having to restart AutoCAD and 2020 Construct. The **Memory Threshold (mb)** Setting is defined in the **Engineering Automation** module > 2020 Construct tab of the System Configuration form.
- ▶ If you are using 2020 Construct, disable the Calculation option. To do this, open the **Construct Options** dialog box, select the Order tab, and clear the **Calculation** check box

OR

Edit the imos.ini file and change `SAVE_IDBWG=1` to `SAVE_IDBWG=0`.

Managing Insight Clients

2020 Insight clients are the primary connection between users and the 2020 Insight system. The user interface of the 2020 Insight client manages the setup of the system and initiates and processes business transactions. This user interface consists of a Windows-based interface that uses the standard look and feel of most Windows-based applications.



Minimum configuration

Tip

For workstations where users will use the Sales Orders form, consider using better hardware than what is listed as the minimum. Because this form performs a significant amount of calculations, it benefits from a faster CPU and larger amounts of memory. The performance difference when using upgraded hardware for the Sales Orders form can be quite dramatic.

Wide Area Network (WAN) considerations

It is sometimes necessary to deploy 2020 Insight clients in a WAN environment. If you make this decision, avoid using virtual private connections (VPN) when connecting remote 2020 Insight clients to a database server over a WAN. The amount of data passed back and forth between an 2020 Insight client and the database server is quite substantial. It is recommended that you deploy 2020 Insight clients by connecting them to a Citrix Server or MS Terminal Server on the database server side of the wide area network. This solution provides relatively consistent performance for

the 2020 Insight clients, as long as the bandwidth of the network is sufficient.

Miscellaneous recommendations

The following list of miscellaneous recommendations concerns the installation and deployment of 2020 Insight clients:

- ▶ Do not deploy interactive 2020 Insight clients on either the database server or on the application workstations. Doing so results in a reduction of overall system performance as the client consumes resources normally dedicated to other functions.
- ▶ If possible, a 1 GB/sec connection to the Database Server provides better performance for larger reports and grid results.

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