Finance Manager:
nVision™ or Timepiece™ Minimum Specs

SQL Server Specifications and System Requirements

The newest releases from Finance Manager utilize the latest technologies available from Microsoft such as the .NET framework and SQL Server database engine. The purpose of this document is to give an outline of system specs and requirements for hardware planning. Finance Manager's Timepiece and nVision databases support SQL Server Standard 2008 R2 with sp2, 2012, 2014 or 2016 on Windows Server 2008, 2012 or 2016.

nVision and Timepiece were built using the latest security enhancements available from SQL Server and Windows Server. nVision and Timepiece use SQL Server authentication for an added layer of security above Windows Domain authentication only. SQL Server has been made more secure by using Windows password policies. These policies include:

- Password Change – By default, Windows requires users to change their password upon their first successful login. SQL Server can now enforce this rule also.
- Password Expiration – If the local security policy or group policy outlines password expiration, SQL Server can also take advantage of this rule to have the database users' change their passwords on a regular basis.
- Account Lockout – SQL Server can also take advantage of the network policy to lockout an account after multiple failed login attempts.

By utilizing the added security of SQL Server installed on Windows Server 2008, 2012 or 2016 you ensure the highest level of security available from Microsoft.

SQL Server Minimum Hardware Recommendations

There are three levels of the server installation for nVision and/or Timepiece. The levels are classified as Entry Level, Advanced Level and Enterprise Level and can be determined by referring to the Planning and Licensing sections of this document. Please note that the number of users is based on the combined number of nVision and Timepiece users. nVision and Timepiece supports Windows Server 2008, 2012 or 2016 and SQL Server Standard 2008 R2 sp2, SQL Server 2012, 2014 or 2016. Finance Manager recommends keeping current with all Microsoft security and hotfix releases. Where possible, add RAM and CPU upgrades for better performance.

Entry	Advanced	Enterprise
1 – 40 users	41 – 100 users	100+ users
x64 Intel 2.0 GHz or faster	x64 Intel 2.2 GHz Dual Processors or faster	x64 Intel 2.4 GHz Dual Processors or faster
12 GB RAM	16 GB RAM	24 GB RAM

Client Workstation Minimum Hardware Recommendations

There are three levels of workstation requirements for using nVision and/or Timepiece. The nVision and Timepiece client applications can run in both x86 and x64 environments. As with the server recommendations, add faster CPUs or more RAM if your budget allows. The nVision and Timepiece clients run on Windows 7 sp1 and better and require .NET framework 4.5. Microsoft Office 2007 or better is required to view exported spreadsheets and form letters. Min resolution 1024 x 768[1]

Remote Requisitions User	Human Resources User	Payroll, Accounts Payable and Timepiece User
Intel i3	Intel i5	Intel i5 x64
4 GB RAM	4 GB RAM	8 GB RAM
128 GB HD*	128 GB HD*	256 GB HD*

These minimum hardware specifications are designed as a base guideline for ensuring adequate hardware to run the nVision and/or Timepiece SQL databases and client applications. Always take into account the length of time the hardware will be in production and scalability. If you intend on using the server hardware for both the nVision and Timepiece product databases, increase specs by 20%. Other factors to consider when capacity planning are the number of pay checks per pay period, the amount of historical data and the use of the Employee Self Service Portal. Please confer with Finance Manager for capacity planning.

[1] *Users with visual issues should avoid setting the text size to greater than 125%. Doing so many result in some elements missing from dialogs and windows forms.*
* Our installed client application is less than 300mb in size. However, there will be instances where more size is needed for report and stub generation. Hard drive sizes are based on smallest available drives and job description.

Based off of Microsoft SQL Server specs: http://msdn.microsoft.com/en-us/library/ms143506.aspx

Finance Manager Product Compatibility

Microsoft recommends running SQL Server in x64 environment for best results. For those who will use nVision and Timepiece we recommend a x64 SQL server environment as the data migration between systems happens within SQL server. Finance Manager requires an x86 SQL server environment for clients using Timepiece with FM2004 who use an ODBC connection to exchange data between the two systems. Some third-party controls used in nVision and Timepiece are compiled for 'any CPU'. This causes the OS to take some time to determine if the application should be run as x86 or x64. nVision is compiled to target the x86 environment. This is done to help the OS quickly determine how to run the application.

Planning

Three factors are used in capacity planning for an nVision and/or Timepiece server. The number of clients, the number of pay checks in a pay period and the amount of historical data. Example; a district wishes to purchase a new server for 20 clients to run nVision. Normally, this would require the Entry level server with SQL Standard Server + CALs. However, because the district has been using Finance Manager Products for 10 years there is an abundance of historical data that will be converted to nVision. This amount of data along with a normal pay check run of 400 checks per pay period would require at least an Advanced level server. This district would also like to host their Timepiece SQL database on the same server and utilize the Employee Self Service portal. With this in mind, the recommendation now escalates to an Enterprise level server and SQL Standard with Per Core licensing. Once all information is compiled, confer with Finance Manager for capacity planning.

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Other Considerations

SQL server in a Virtual Environment

More and more entities are planning on deploying SQL server in a virtual environment. While this is a perfectly acceptable solution, proper planning and configuration must be carried out to ensure optimal performance. Microsoft and VMware have published Best Practices guides to help in the planning and configuration of these special environments. Some of these best practices include reserving RAM and separate drives for OS, SQL Data and SQL Logs.

SQL Server Performance Best Practices

Microsoft recommends using three physical partitions for installing SQL Server in a high performance environment. The three partitions will consist of the operating system and page file, the SQL databases and the SQL log files. Microsoft recommends using RAID 10 for the log files as it provides better protection from hardware failure and better write performance. RAID 5 is acceptable for the OS and data partitions, although for high performance environments the use of RAID 10 for the SQL data partition is recommended.

Licensing

SQL Standard Edition will be sufficient for most installations. Microsoft offers several licensing models for SQL Server. The licensing model chosen will depend on the hardware and environment. There are two main licensing choices: Per Core and Server + CAL. If a district is interested in utilizing the Employee Self Service Portal, you must use SQL Per Core licensing as the data will be accessed by an external source. For BOCES who may be hosting several clients' data, you may want to look to Enterprise Edition.

Please consult your reseller for guidance on purchasing SQL Server Licensing.

Login and Authentication

nVision and Timepiece use SQL logins for authentication to data. Mixed Mode must be selected during the SQL installation process. Active Directory logins are not available. The nVision Employee Self Service Portal utilizes Active Directory logins for authentication. A small appliance resides within the districts environment which acts as an intermediary between the portal web site and the districts data to secure transmission of data. Employee logins are passed from the web site through the appliance to Active Directory for authentication. Therefore, every employee who is allowed to use the portal must have an Active Directory login.

nVision and Timepiece in a Citrix Environment

The nVision and Timepiece applications can be hosted in a Citrix or Remote Application environment. However, if Citrix is hosted in a virtual environment, proper planning and configuration must be carried out to ensure optimal application performance. Newer versions of Citrix rely on SQL server. Best practices and planning guides have been made available from Citrix, VMware and Microsoft in order to ensure favorable outcomes when employing these solutions.

nVision Approved Signature Pads

To date, there is only one signature pad that has been tested and used with the nVision suite of products. The Topaz SignatureGem LCD 1x5 USB Backlit, model number: T-LBK462-HSB-R. An online search has yielded many results for places to purchase these units. Finance Manager has purchased these units from Computimeonline.com in the past.

"SignatureGem LCD 1x5 includes all the high-quality capture features of a Topaz electronic signature pad with the added feature of an LCD interactive display, allowing users to see "electronic ink" under the pen tip as they sign as well as navigate and display text and graphics. The wide signing area and rugged tempered glass signing surface make this a versatile pad for the most demanding applications".

nVision Scanning and Printing

nVision includes the ability to upload documents directly to the nVision database from within the application through a locally attached TWAIN scanner. We have tried to make the process as generic as possible to eliminate inconsistencies based on various manufacturers and hardware. However, we cannot guarantee compatibility with all scanners as some newer devices limit functionality unless the proprietary device software is used to capture the scan. If this is the case, the user must scan and save the document using the manufacturer's utilities then upload the document to nVision. Verify compatibility using in-house scanners before purchasing new hardware. Test scenarios where the application is being delivered via remote application services (Citrix, VMware View, etc.) to ensure compatibility.

nVision includes many reports, letters and forms for printing. Great care and planning have taken place during development to ensure compatibility and correct formatting of output. Although we cannot recommend a specific printer (manufacturer and model) we have seen great success using HP printing devices.

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