



# Technology Recommendations

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## NETWORK REQUIREMENTS

Office Size	Minimum Recommended Speed/Bandwidth	
	Upload**	Download
1-5 Users	1 Mbps	6 Mbps
6–20 Users	1 Mbps	10 Mbps
21–50 Users	1 Mbps	10 Mbps
50 Users+	Contact Nightingale for service options	
Network Management	A Service Level Agreement or a managed service contract with the Internet Service Provider (ISP) is highly recommended.	
Firewall	A two tier firewall with both hardware and a software component is highly recommended. The hardware firewall should provide NAT.	
Note:	If a Wireless Network is used, it must be both secure and encrypted to prevent external monitoring and hacking.	

\* when selecting an internet connection type, it has been our experience to anticipate prolonged wait times if minimum speed services are used for general internet and email

\*\* *NOTE:* If using ADM during working hours, minimum upload speeds should equal to or higher than the recommended upload speeds in the table above.

Nightingale has tested the following Network Hardware. HP 2510 switch, HP wireless AP, 3COM switch and wireless AP, DLink 10/100/1000 Ethernet switch, Netscreen 5GT, Checkpoint SOFA, Cisco SOHO switch, Cisco 16 or 24 port 100Mbps Switch Cisco Aironet, WRE54G Range Extenders.

## LOCAL CLIENT SERVER HARDWARE RECOMMENDATIONS (LCS)

Less than 5 HCP/FTE	<p>Minimum Dual Core Intel Xeon Processor 3.0GHz</p> <p>(A second processor slot is recommended for growth)</p> <p>Minimum of 4 GB of RAM memory</p> <p>Minimum of 76 GB Hard Drive space (Mirrored or Raid 0), 15,000 rpm</p> <p>Tape Back Up Device</p>	
Less than 15 HCP/FTE	Web Server	<p>Minimum Dual Core Intel Xeon Processor 3.0GHz</p> <p>Minimum of 4 GB of RAM memory</p> <p>Minimum of 2X73 GB Hard Drive space (Mirrored), 15000 rpm</p>
	Database Server	<p>Minimum Dual Core Intel Xeon Processor 3.0GHz</p> <p>(A second processor slot is optional)</p> <p>Minimum of 4 GB of RAM memory</p> <p>Minimum of 2X73 GB Hard Drive space (Mirrored), must be expandable</p> <p>Tape Back Up Device</p>
Notes:	It is <u>not recommended</u> that the Nightingale Local Client Server(s) co-host any other local services such as print, e-mail, other applications, or file services.	
	Wireless networking is not recommended for the server(s)	
	The above recommendations do not include other system elements that must be present. These include but are not limited to Monitor/Graphics card, Networking cards for the LAN, Keyboards, printer/scanner ports, etc.	
	External RAID 5 Storage Area Network (SAN) is optional for very large operations.	
	Extra Hard Disk storage may be required if Document Management is enabled	
	A UPS is highly recommended to prevent electrical power spikes, surges and failures.	

## LOCAL CLIENT SERVER SOFTWARE COMPONENTS (FOR LCS)

Operating System	Windows XP 2003	Required	Window update must be enabled
	.Net Framework V1.1	Required	Window update must be enabled
	Internet Explore V6.2 SP 1 (or higher)	Required	128 bit Cipher Strength
3 <sup>rd</sup> Party Software	Winblast	Required	3 <sup>rd</sup> party application used to receive electronic laboratory results
	HyperAccess	Required	3 <sup>rd</sup> party application used to send/receive claim submissions to the Ministry of Health and Long Term Care
Data Base	Microsoft SQLServer SQL Encryptionizer	Required	
Security	RSA Agent and Web Admin	Required	
	SSL Certificate	Required	
Document Management	ADM	Optional	
Drug Database	Cerner Multum	Required	Subscription is required
Printing	Meadco ScriptX	Required	Print Control for Nightingale on Demand
Firewall	Windows XP SP2 Firewall	Highly Recommended	Optional if a corporate Firewall such as Checkpoint or Cisco PiX, Netscreen, etc is already in place.

## PERSONAL COMPUTING REQUIREMENTS

	Minimum			Recommended		
	Chip Set	Memory	HD	Chipset	Memory	HD
Desktop	Intel Core 2 Duo 2.0GHz	1GB	60	Intel Core 2 Duo 3.0GHz	2GB	80Gb
Administration (Advanced Document Management)	Intel Core 2 Duo 2.0GHz	1GB	80	Intel Core 2 Duo 3.0GHz	2GB	120Gb
Laptop	Intel Core 2 Duo 2.0GHz	1GB	60	Intel Core 2 Duo 3.0GHz	2GB	80Gb
Tablet	Intel Core 2 Duo 2.0GHz	1GB	60	Intel Core 2 Duo 3.0GHz	2GB	80Gb
<b>UPDATED</b> Operating System	Windows XP Service Pack 3 ** Windows Vista 32 Bit	Window update must be enabled				
Note:	System display should be large enough for comfortable reading and support a minimum of 1024 x 768 screen resolution.					
Note:	These recommendations also include that the system be from a recognized Tier 1 Vendor (Toshiba, IBM, HP, Motion Computing, and DELL), are fully Microsoft compatible, and have a three year onsite warranty.					
Note:	The above recommendations do not include other system elements that must be present. These include but are not limited to Monitor/Graphics card, Networking cards for the LAN, Wireless network cards, Keyboards, printer/scanner ports, Microphones, headphones, batteries, etc.					
Note:	The above recommendations are for the Nightingale application suite only. If other software such as a productivity suite (i.e. Microsoft Office), is added to the system, or the system will execute more than just Nightingale at the same time, these requirements may be insufficient.					

**\*\* Windows XP SP3 is not compatible with ADM Kofax installation.**

## SOFTWARE COMPONENTS

<b>UPDATED</b> Operating System Environment	Windows XP Service Pack 2	Recommended	Windows update must be enabled
	Windows Vista 32 Bit	Recommended	Windows update must be enabled
	Internet Explorer V6.0 Service Pack 2 Or Internet Explorer V7	Required	128 bit Cipher Strength
	Sun Java 1.6 Plug-in Release 7	Required	
Antivirus	Symantec Antivirus Norton Antivirus Trend Micro PC-cillin eTrust	Highly Recommended	Update subscription is required
Spyware Detection	Spybot Ad Aware	Highly Recommended	
Firewall	Windows XP SP2 Firewall Windows Vista Firewall Trend Micro PC-cillin Sygate Personal Firewall	Highly Recommended	Optional if a corporate Firewall such as Checkpoint or Cisco PiX, Netscreen, etc is already in place
<b>UPDATED</b> Fax	Windows XP 2003 Fax Windows Vista Fax	Optional	Local Fax modem is recommended over multi function printer faxes
Other	MS Office, Outlook Express, Lotus Smart Suite, etc.	Optional	These applications may require extra disk space and memory.
Dictation	Dragon Naturally Speaking Medical	Suggested	Please Note that this application has specific hardware requirements that must be included. These include extra memory, a recording capable sound card and extra disk space.

## OTHER HARDWARE

Printer	Most printers within a Microsoft XP/Vista, Windows Server will work
Label Printer	DYMO Label Printer ( <b><i>any other type of label printer is not recommended as the label templates within the application are designed only for the DYMO unit</i></b> )
Card Swipe Reader	Posh MX3 USB
Scanner <b>*UPDATED*</b>	Most <b>TWAIN Compliant scanners</b> within a Microsoft XP/Vista, Windows Server will work
Multifunction	Most Multifunction within a Microsoft XP/Vista, Windows Server will work
Dictation	Phillips Speech Mike 6274 – <b><i>use of Olympus DS-4000 for Smart Scribes Clients</i></b>

## RESTRICTIONS

Real Time Internet Audio/Visual	Prohibited
File Sharing (i.e. Emule, Kazaa, LimeWire, etc.)	Prohibited
Internet “Push” sites (i.e. Stock ticker, weather, news)	Not recommended
Internet Messaging	Not recommended
Security Web policies, Privacy policies	Required
Unauthorized Software loading (i.e. games)	Prohibited

## OTHER REQUIREMENTS

Firewall	<ul style="list-style-type: none"> <li>• Ports 80, 443 must be open for IE functionality</li> <li>• Port 7000 must be open for Real Time functionality</li> <li>• URL *.mynightingale.net must be allowed</li> <li>• No content filtering on *.mynightingale.net</li> </ul>
IE Settings	<ul style="list-style-type: none"> <li>• Review Nightingale Getting Started Workstation Guide</li> </ul>
Wireless Network	<ul style="list-style-type: none"> <li>• Set to 128bit encryption</li> <li>• Use Security Enabled Network</li> </ul>

## OVERVIEW

People work with computers as an everyday part of doing business. Computers have been shown to be a safe and reliable method of conducting business.

The following sections have basic ergonomic suggestions that have been proven to make computers easier to use and are especially useful for those who use computers for significant periods of time.

For more information, please check the following websites:

- Canadian Centre for Occupational Health and Safety (<http://www.ccohs.ca/oshanswers/ergonomics/office/>)
- US Dept of Labor Occupational Safety and Health Administration (<http://www.osha.gov/SLTC/etools/computerworkstations/index.html>)

## CHAIR

The chair is the basis for the ergonomic workstation. Obviously, it must be comfortable, sturdy, and easy to move/adjust, and free of sharp edges. It must be realized that no chair will be perfect for every user.

- Chair seat height should be to lower edge of knee cap (approx ¼ of user's height).
- When seated, user's feet should be flat on the floor with the knees slightly higher than the seat.
- Seat, back support, and arm rests should be padded, with firm padding, and free of sharp edges and corners.
- Chairs should encourage proper posture.
- Armrests should allow the shoulders to be relaxed and the arms close to the body.
- Chair base should have five legs with casters appropriate to the flooring.

## PROPER SITTING POSTURE

Seating posture should be a natural, comfortable position such that minimum awkward or forced movements are required to use the computer equipment. It should be remembered that different people may be comfortable with different postures based on their needs and body types.

- Head should be upright or bent slightly forward
- Shoulders and neck should relaxed
- Forearms and wrists should be straight with the upper arms vertical and relaxed
- Back is fully supported when sitting upright or slightly back.
- Thighs supported by a padded seat and horizontal.
- Lower legs vertical with feet flat on the floor or on a foot block.

## DESK

An appropriate desk will have enough desk space for the computer equipment plus additional space for reading/writing, telephones, files, or other equipment needed by the user.

- Desk should allow the monitor surface to be at least 20inches/50 cm away from the user and directly in front of the user
- Desk space should allow for easy access to keyboards, mice/pointers, CD-ROM/floppy disk drives, printer output tray, printer paper tray etc. without awkward movements.

## MONITOR

Monitors are the most critical part of the ergonomic compute office. Monitors must be large enough, bright enough, and support a high enough resolution as to be easy to read and not cause eye strain.

- Monitor viewing surface should be 20 in/50cm to 40in/100cm from the user's eyes. Flat screen monitors or keyboard drawers can be used to increase the viewing distance in tight spaces.
- Monitor should be in a position to avoid awkward body positions usually directly in front of the user.
- The monitor should be at or slightly below eye level (usually 15-20 degrees below). Bifocal/Trifocal wearers may need the monitor to be even lower.
- Monitors that hum or buzz may be wearing out and should be replaced as the noise may cause headaches.
- Monitors should be placed in a position where they get minimal glare from overhead lights or windows.

## KEYBOARD AND MOUSE

Poor positioning of both the keyboard and the pointing device(s) (mouse) may cause repetitive strain issues and impact productivity as well. They should be placed in a position that allows access with a neutral and relaxed body position.

- Keyboards and mice should be at approximately elbow height and not be too close or too far from the body.
- Keyboards should be comfortable to use and not cause the wrists to bend. Wrist rests can be used to keep the wrists straight.
- Pointing devices should be close to the keyboard to minimize movement and be reachable in a natural manner.
- Sufficient room for the pointing device is needed to stop the user from having to pick up and move the mouse.
- Mice should comfortably fit the hand of the user. Alternate pointers such as track balls can be used for some users.

## LIGHTING

Bright lights including direct sunlight shining on or behind the monitor can wash out the screen image or cause glare. Both will increase eye fatigue.

- Use blinds or drapes on windows to reduce bright sunlight.
- Lower the lighting if required in office environments. Use light diffusers on overhead florescent lights, dimmer switches on incandescent lights or indirect lighting to reduce glare.
- Take frequent breaks to rest the eyes.
- Tilt the monitor down slightly to reduce glare if needed