

## PowerScribe Client Specifications and Minimum Requirements

|                                     | Dictation Client   | PACS/RIS Integrated Dictation Workstations  | Transcription Admin Order Entry   |
|-------------------------------------|--|---|---|
| <b>Processor(s)</b>                 | 2.4 GHz  | Dual-Core or Dual-CPU<br>2.4 GHz<br>-<br>Quad-Core or above<br>1.8 GHz  | 2.4 GHz   |
| <b>Minimum RAM</b>                  | 2 GB   | 4 GB  | 2 GB  |
| <b>CD-ROM Drive</b>                 | Yes  | Yes   | Yes   |
| <b>USB Port</b>                     | USB 1.1 or greater   | USB 1.1 or greater  | USB 1.1 or greater  |
| <b>Network Card</b>                 | Ethernet 10/100/1000   | Ethernet 10/100/1000  | Ethernet 10/100/1000  |
| <b>Minimum HD Free Space</b>        | 5 GB   | 5 GB  | 2 GB  |
| <b>Sound Card</b>                   | Not Required   | Not Required  | Onboard sound or sound card required for MT   |
| <b>Video Settings</b>               | 1024 x 768   | 1024 x 768  | 1024 x 768  |
| <b>RAID</b>                         | n/a  | n/a   | n/a   |
| <b>Backup Drive</b>                 | n/a  | n/a   | n/a   |
| <b>Operating System<sup>1</sup></b> | WIN XP Pro SP3 <sup>2</sup><br>WIN XP Pro 64bit SP3<br>WIN XP Home SP3<br>WIN Vista Home Premium SP2<br>WIN Vista Business SP2<br>WIN 7 Professional SP1<br>WIN 7 Professional SP1 64bit<br>WIN 7 Ultimate SP1<br>WIN 7 Ultimate SP1 64bit<br>WIN 8<br>WIN 8 64bit | WIN XP Pro SP3<br>WIN XP Pro 64bit SP3<br>WIN XP Home SP3<br>WIN Vista Home Premium SP2<br>WIN Vista Business SP2<br>WIN 7 Professional SP1<br>WIN 7 Professional SP1 64bit<br>WIN 7 Ultimate SP1<br>WIN 7 Ultimate SP1 64bit<br>WIN 8<br>WIN 8 64bit | WIN XP Pro SP3<br>WIN XP Home SP3<br>WIN Vista Home Premium SP2<br>WIN Vista Business SP2<br>WIN 7 Professional SP1<br>WIN 7 Professional SP1 64bit<br>WIN 7 Ultimate SP1<br>WIN 7 Ultimate SP1 64bit<br>WIN 8<br>WIN 8 64bit |
| <b>Browser<sup>3</sup></b>          | IE 7.0 – 11.0  | IE 7.0 – 11.0   | IE 7.0 – 11.0   |

<sup>1</sup> PowerScribe runs in 32-bit emulation mode on 64-bit workstations. The 32-bit version of Internet Explorer must be used on 64-bit workstations.

<sup>2</sup> Microsoft Extended Support for Windows XP ended on 8-April-2014. Nuance cannot guarantee supportability on Windows XP environments.

<sup>3</sup> Required for initial installation and for administration applications. Internet Explorer 8, 9, 10, and 11 must be run in Compatibility View mode.

### PowerScribe Server Specifications and Minimum Requirements

|   | Small/Medium<br>Web/File/SQL Server<br><400,000 reports/year   | Large<br>Web/File Server and SQL Server<br>>400,000 reports/year  |   | Recognition<br>Server   |
|---|--|---|---|---|
| <b>Processor(s)</b>                             | Single CPU, 2.4 GHz<br>Multi-Core, 1.6 GHz<br>32 or 64 bit   | Dual-CPU or Multi-Core<br>2.4 GHz<br>32 or 64 bit   | Dual-CPU or Multi-Core 2.4 GHz<br>32 or 64 bit  | 2.4 GHz<br>32 or 64 bit   |
| <b>RAM</b>                                      | 4 GB   | 4 GB  | 4 GB  | 2 GB  |
| <b>CD-ROM Drive</b>                             | Yes  | Yes   | Yes   | Yes   |
| <b>Network Card</b>                             | Ethernet 10/100/1000   | Ethernet 10/100/1000  | Ethernet 10/100/1000  | Ethernet 10/100/1000  |
| <b>C-Drive Partition<br/>Minimum Free Space</b> | 20 GB  | 50 GB   | 50 GB   | 20 GB   |
| <b>Minimum Storage</b>                          | See storage chart  | See storage chart   | 50 GB   | n/a   |
| <b>Video Settings</b>                           | 1024 x 768   | 1024 x 768  | 1024 x 768  | 1024 x 768  |
| <b>RAID</b>                                     | Recommended  | Recommended   | Recommended   | n/a   |
| <b>Operating System</b>                         | WIN 2003 Server SP2<br>WIN 2003 Server R2 w/SP2<br>WIN 2008 Server SP2<br>WIN 2008 Server R2 w/SP2<br>WIN 2012 Serve R2r | WIN 2003 Server SP2<br>WIN 2003 Server R2 w/SP2<br>WIN 2008 Server SP2<br>WIN 2008 Server R2 w/SP2<br>WIN 2012 Serve R2 | WIN 2003 Server SP2<br>WIN 2003 Server R2 w/SP2<br>WIN 2008 Server SP2<br>WIN 2008 Server R2 w/SP2<br>WIN 2012 Serve R2 | WIN 2003 Server SP2<br>WIN 2003 Server R2 w/SP2<br>WIN 2008 Server SP2<br>WIN 2008 Server R2 w/SP2<br>WIN 2012 Serve R2 |
| <b>Browser<sup>4</sup></b>                      | IE 7.0 – 11.0  | IE 7.0 – 11.0   | IE 7.0 – 11.0   | IE 7.0 – 11.0   |
| <b>MS SQL Server</b>                            | SQL Server 2005 SP4<br>SQL Server 2008 SP3<br>SQL Server 2008 R2 SP1<br>SQL Server 2012 SP1                              | n/a   | SQL Server 2005 SP4<br>SQL Server 2008 SP3<br>SQL Server 2008 R2 SP1<br>SQL Server 2012 SP1                             | n/a   |
| <b>Multimedia Runtime Software</b>              | DirectX 9c or later  | DirectX 9c or later   | DirectX 9c or later   | DirectX 9c or later   |

<sup>4</sup> Required for initial installation and for administration applications. Internet Explorer 8, 9, 10, and 11 must be run in Compatibility View mode.

### PowerScribe Server Specifications and Minimum Requirements

|  | <b>PowerExpress<br/>HL7 Gateway</b>  | <b>Test<br/>System</b>  | <b>Telephony<br/>Server</b>  | <b>Fax<br/>Server</b>  |
|--|--|---|--|--|
| <b>Processor(s)</b>                                | Single CPU, 2.3 GHz<br>Multi-Core, 1.6 GHz<br>32 or 64 bit   | Single CPU, 2.3 GHz<br>Multi-Core, 1.6 GHz<br>32 or 64 bit  | Single CPU, 2.3 GHz<br>Multi-Core, 1.6 GHz<br>32 or 64 bit   | Single CPU, 2.3 GHz<br>Multi-Core, 1.6 GHz<br>32 or 64 bit   |
| <b>RAM</b>   | 1 GB   | 2 GB  | 1 GB   | 1 GB   |
| <b>CD-ROM Drive</b>                                | Yes  | Yes   | Yes  | Yes  |
| <b>Network Card</b>                                | Ethernet 10/100/1000   | Ethernet 10/100/1000  | Ethernet 10/100/1000   | Ethernet 10/100/1000   |
| <b>C-Drive Partition<br/>Minimum Free Space</b>    | 20 GB  | 20 GB   | 20 GB  | 20 GB  |
| <b>Minimum Storage</b>                             | n/a  | See storage chart   | n/a  | n/a  |
| <b>Video Settings</b>                              | 1024 x 768   | 1024 x 768  | 1024 x 768   | 1024 x 768   |
| <b>RAID</b>  | n/a  | n/a   | n/a  | n/a  |
| <b>Operating<br/>System</b>                        | WIN 2003 Server SP2<br>WIN 2003 Server R2 w/SP2<br>WIN XP PRO SP3<br>WIN 2008 Server SP2<br>WIN 2008 Server R2 w/SP2 | WIN 2003 Server SP2<br>WIN 2003 Server R2 w/SP2<br>WIN 2008 Server SP2<br>WIN 2008 Server R2 w/SP2<br>WIN 2012 Serve R2 | WIN 2003 Server SP2<br>WIN 2003 Server R2 w/SP2<br>WIN XP PRO SP3<br>WIN 2008 Server SP2<br>WIN 2008 Server R2 w/SP2 | WIN 2003 Server SP2<br>WIN 2003 Server R2 w/SP2<br>WIN 2008 Server SP2<br>WIN 2008 Server R2 w/SP2 |
| <b>Browser</b>                                     | IE 7.0 – 11.0  | IE 7.0 – 11.0   | IE 7.0 – 11.0  | IE 7.0 – 11.0  |
| <b>MS SQL Server</b>                               | n/a  | SQL Server 2005 SP4<br>SQL Server 2008 SP3<br>SQL Server 2008 R2 SP1<br>SQL Server 2012 SP1                             | n/a  | n/a  |
| <b>Other</b>                                       |  |   | PCI Slot Required  | PCI Slot Required<br>MS Word Installed   |
| <b>Multimedia Runtime<br/>Software<sup>2</sup></b> | DirectX 9c or later  | DirectX 9c or later   | DirectX 9c or later  | DirectX 9c or later  |

## System Specification Details

The following section provides additional details and information regarding PowerScribe for Radiology. Please review this information along with the tables provided above.

Operating environments not specifically stated in this document are not supported by Nuance. Customers who deploy PowerScribe in unsupported environments do so at their own risk and take on the responsibility of supporting those environments. Nuance will make best efforts to assist the customer if any issues arise.

Nuance reserves the right to update the PowerScribe specifications periodically throughout the year based on technology changes and customer feedback. Nuance is not responsible for costs incurred due to changes in the system specifications. Please contact Nuance Technical Support or Sales Engineering to ensure that you have the most recent version of the technical specifications.

### Server Storage Requirements

Storage requirements are determined by the number of dictating radiologist accounts on the system, and the report history storage requirements of the customer. The chart below provides guidelines as to the minimum storage requirements for a PowerScribe server. Test system storage requirements follow the same logic. However, test systems typically do not have the same number of user accounts and history capacity requirements as the production server.

The table below is based on the following assumptions, and does not include the C-drive partition minimum free space requirements listed on page 2:

- 10 day audio purge
- 22 day work month
- 15,000 reports/year/radiologist
- 2 minutes per report

| Dictators | Days of Report History Storage |     |     |     |     |     |     |     |     |     |     |     |
|-----------|--------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|           | 30                             | 60  | 90  | 120 | 150 | 180 | 210 | 240 | 270 | 300 | 330 | 365 |
| 200       | 398                            | 423 | 449 | 474 | 500 | 526 | 551 | 577 | 602 | 628 | 653 | 683 |
| 175       | 348                            | 371 | 393 | 415 | 438 | 460 | 483 | 505 | 527 | 550 | 572 | 598 |
| 150       | 299                            | 318 | 337 | 356 | 376 | 395 | 414 | 433 | 452 | 472 | 491 | 513 |
| 125       | 250                            | 266 | 282 | 298 | 313 | 329 | 345 | 361 | 377 | 393 | 409 | 428 |
| 100       | 200                            | 213 | 226 | 239 | 251 | 264 | 277 | 290 | 302 | 315 | 328 | 343 |
| 75        | 151                            | 160 | 170 | 180 | 189 | 199 | 208 | 218 | 228 | 237 | 247 | 258 |
| 50        | 101                            | 108 | 114 | 121 | 127 | 133 | 140 | 146 | 153 | 159 | 165 | 173 |
| 45        | 92                             | 97  | 103 | 109 | 115 | 120 | 126 | 132 | 138 | 143 | 149 | 156 |
| 40        | 82                             | 87  | 92  | 97  | 102 | 107 | 112 | 118 | 123 | 128 | 133 | 139 |
| 35        | 72                             | 76  | 81  | 85  | 90  | 94  | 99  | 103 | 108 | 112 | 117 | 122 |
| 30        | 62                             | 66  | 70  | 73  | 77  | 81  | 85  | 89  | 93  | 97  | 100 | 105 |
| 25        | 52                             | 55  | 58  | 62  | 65  | 68  | 71  | 74  | 78  | 81  | 84  | 88  |
| 20        | 42                             | 47  | 47  | 50  | 52  | 55  | 58  | 58  | 61  | 63  | 66  | 69  |
| 15        | 32                             | 34  | 36  | 38  | 40  | 42  | 44  | 46  | 48  | 50  | 52  | 54  |
| 10        | 22                             | 24  | 25  | 26  | 28  | 29  | 30  | 31  | 33  | 34  | 35  | 37  |
| 5         | 13                             | 13  | 14  | 15  | 15  | 16  | 16  | 17  | 18  | 18  | 19  | 20  |

## ***PowerScribe for Radiology Server Requirements***

Web / File / SQL Server CPU speed in the File Server is one of the primary determining factors in the performance of a PowerScribe for Radiology system. The faster the CPU, the more quickly data will be processed and the more responsive the system will be. Dual-CPU or Multi-core is recommended for higher volume sites.

The production Web/File/SQL Server must be a server class machine; however, the test/backup server can be a desktop workstation if volumes are low.

For environments where the yearly report volume is 400,000 reports/year or greater, the MS SQL Server must be split out to a separate server machine.

The server machine requires a minimum of 4 GB of RAM. However, additional RAM is optimal for very large sites.

If this system will be running printer services or other applications, then you need to add these application's specifications to the PowerScribe for Radiology specifications.

The PowerScribe for Radiology system is not designed to archive reports. For performance reasons it is recommended that the number of historical reports archived on the system does not exceed 500,000. Users will experience system slowness when this limit is exceeded.

## ***Client RAM Configuration***

The minimum specifications for RAM on any PowerScribe for Radiology system should be used only as a baseline.

Note: As 64bit workstations support greater than 4GB RAM, additional RAM on these systems will provide performance benefits as long as the other application (PACS) have native 64bit support.

## ***Dictation Workstation***

For real time recognition, PowerScribe for Radiology requires a 2.4 GHz CPU at a minimum. However, feedback from clients tells us that users are more satisfied with faster processors and increased RAM. We highly recommend that faster machines with additional RAM be used. A soundcard is not required if a USB microphone is used.

If PowerScribe for Radiology will be sharing the PC with applications that are resource intensive (like PACS), then additional RAM is required. A minimum of 4GB of RAM is required in these cases. Please check with your PACS vendor for their integrated workstation specifications.

When sharing a PC with PACS and performing image manipulation and cine-type functions, the PACS system will utilize all CPU resources available. This will significantly reduce the performance of the speech recognition engine when dictating at the same time. In order to eliminate the resource contention in these scenarios, Dual-Core or Dual-CPU workstations are the minimum requirement when sharing a PC with PACS.

In Dual-Core and Dual-CPU environments, Nuance recommends using an affinity setting utility to assign system resources specifically for each application running on the PC, in order to eliminate resource contention. Nuance provides a third party affinity setting tool and documentation with PowerScribe. The affinity setting tool supports Quad-Core environments as well.

USB Devices – Nuance does not recommend or support passive (non-powered) USB hubs or USB cable extensions.

## ***Administrative Workstation***

While the Administrative PC is not expressly specified as a Dictation Workstation, it is important that the administrator be able to dictate into PowerScribe to analyze problems. If the Administrative Workstation will also be running other applications, then you need to add to the RAM and processor requirements.

## ***Transcription Workstation***

Soundcards with headphone jacks are required for PCs without onboard sound, or if the customer wants higher audio quality than onboard sound provides.

An available USB port is required for the foot pedal.

### **Recognition Server**

As with the File Server, the faster the CPU is, the better the system performance will be. However, unlike the file server, you will see no practical gain in performance by using a dual processor configuration on this machine. The Recognition Server does not require a server-class machine.

Nuance recommends one Recognition Server per 100 authors for optimal performance.

### **PowerExpress HL7 Interface Gateway**

The Interface PC will run the PowerExpress interface application between PowerScribe for Radiology and the HIS/RIS. It is important that this machine is solely dedicated to this function as other applications could disrupt the flow of data between the two systems. Terminal Services should not be installed on the interface gateway.

### **Telephony Server**

The PowerScribe for Radiology Telephony option comes with a 4-Port, a 12-Port, or dual 12-Port telephony cards. The 4-Port card is a Full-Height, Short Length PCI card. The card supports both 3.3 and 5 Volt PCI slots on the Telephony Server PC.

The 12-Port card is a Full-Height, Full Length PCI card with a daughter board attached. The card supports both 3.3 and 5 Volt PCI slots on the Telephony Server PC.

#### **Supported Telephony Cards and Driver Versions**

| <b>Dialogic Card Certification</b>   | <b>WIN/2003 Server</b> | <b>WIN/XP</b> |
|--------------------------------------|------------------------|---------------|
| D/4PCIU, Universal, 4 port           | 6.0                    | 6.0/5.1.1     |
| D/4PCIUF, Universal Tele_Fax, 4 port | 6.0                    | 6.0/5.1.1     |
| D/120JCT-LS, universal, 12 port      | 6.0                    | 6.0/5.1.1     |
| D/41PCI, 1/2 size, 4 port            | not supported          | 5.1.1         |

### **Fax Server**

PowerScribe for Radiology can integrate with a RightFax Server for faxing documents directly from the system. The RightFax Server requires the Microsoft Windows Server Operating System.

The PowerScribe for Radiology Faxing option requires a Full Length, Full Height PCI slot on the fax server machine. Multiple PowerScribe for Radiology systems cannot share a single RightFax server.

RightFax requires that a version of Microsoft Word be installed on the fax server machine. The customer must provide this, as it is not included with the PowerScribe for Radiology order. Supported Microsoft Word versions are Word 2000 and Word 2003.

### **Test Server**

The test server is used to test future upgrades, interface modifications and support issues. A separate test server is recommended, as PowerScribe for Radiology is an all live or test environment and does not accommodate a dual environment in the same system setup. This will also require a microphone if no test workstation is available. A server-class machine is not required to run as a test server. A desktop machine will work as well.

### **Bandwidth Requirements**

PowerScribe for Radiology is designed for use in a high volume environment, utilizing a local network configured for 10 Mbps greater speeds. Users should be aware that network traffic from other applications would affect the performance of the PowerScribe for Radiology system. This should be taken into account when planning your implementation.

As PowerScribe for Radiology is a client-server application, it does allow for users to connect to the system from “remote” locations. Users may want to login into the system from home or other office locations. PowerScribe for Radiology does not prevent users from doing this, assuming that they have security access into their corporate network. Nuance does not support Terminal Server to accomplish remote connectivity.

System performance and user satisfaction will vary, depending on the connection that each user has to their hospital or clinic network. For remote or home users Nuance recommends a broadband-type connection (512 kbps with a maximum latency of 50ms) at a minimum. Even in these situations, network bandwidth may vary, depending on the ISP, or general network traffic.

When an author logs into PowerScribe for Radiology for the first time, they must download about 130 MB of language model files. On a broadband connection, this may take 10+ minutes. Once this is completed, only incremental language model updates will occur.

Users should be made aware that their dictated audio files would always have to be uploaded and downloaded from the file server. Audio files are about 1MB per minute of dictation. On a broadband connection, one minute of audio will take about 5-15 seconds to download.

To test bandwidth or throughput, the end user or administrator can use the PowerScribe bandwidth tool. A result of less than 586 kbps or latency higher than 50ms will not provide adequate performance for most users. A result of 586 kbps with latency lower than 50ms will provide for a response time of about 10 seconds for signing and initiating reports. Values above 586 kbps with latency lower than 50ms will provide for faster performance.

### ***Virtual Server Environments***

PowerScribe 5.0 has been qualified in a virtual service environment using VMWare. The virtual environment is for server-side only. The client is not supported in a virtual environment. As a general rule, virtual machines should be configured using the same specifications listed in this document for physical machines, with 10%-15% added to the CPU and RAM specifications to cover VMWare overhead.

It is the customer’s responsibility to acquire, configure, and maintain the virtual environment. Nuance will assist the customer and make recommendations where applicable, and will support the PowerScribe 5.0 product.

### ***Anti-Virus Recommendations***

Nuance recommends anti-virus software on all machines in order to protect the system from potential downtime due to viruses.

Running antivirus software in the real-time mode can compromise the real-time recognition component of PowerScribe software. Antivirus software can be enabled on PowerScribe Servers and all PowerScribe Workstations in real-time mode as long as several exclusions are set.

The current Anti-Virus exclusions are documented and posted on the Customer i-Support site, Solution 10129: PowerScribe for Radiology User Documentation in PN [889575](#) — Customer Technical Administration

### ***Virtual Memory Settings***

Nuance recommends that you set the Virtual Memory to 4092 minimum and maximum. The paging file should be placed on a large, non-operating system drive, preferably a non-database drive as well, for the Web and SQL servers. Recognition, Interface, Telephony and Fax server do not require the Page file to be separated, but can be if the customer wishes.

### ***NIC Settings***

#### **Gigabit Cards:**

Gigabit cards should be set to automatic. The switch should be set the same as the cards plugged into them.

#### **10Mb/100Mb Cards:**



The network link speed and duplex need to be set the same on all servers, workstations, hubs, switches, etc. If there is a mismatch in settings, or if the NICs are left set at Auto Detect, the end users of the system could see degradation in performance as well as recognition. Nuance does not support the Auto-Detect setting.

All of the speeds, listed below, are supported network speeds, and should be set consistently across the network:

- 100Mbps/Full Duplex
- 10Mbps/Full Duplex

Regardless of 100 or 10, MATCH (Duplex) is key. The switch should be set the same as the cards plugged into them.

## ***Roaming Profiles***

Microsoft Windows Roaming Profiles are supported in PowerScribe for Radiology.

## ***SSL***

SSL encryption is supported with the PowerScribe for Radiology platform version 5.0 and above. Customers must supply their own certificate.

## ***Microsoft SQL Server***

A Microsoft SQL Server license is included as part of the PowerScribe software. This license cannot be purchased separately. Nuance embeds Microsoft SQL Server 2008 with the PowerScribe server software.

PowerScribe does not support SQL clustering.

PowerScribe does not support installing the PowerScribe or PowerScribe SDK databases on a SQL Server running other databases or applications.

# **Installation Permissions**

## ***Application and Client Installation***

All installations must be completed under an ID that is a local administrator. Use caution, in that a domain ID that is a local admin may have restricted rights due to active directory permissions. It is best to use the local administrator or Domain user with local admin rights to avoid this issue.

Client Installation – please review client installation information starting on page-4 of the following document:  
<http://dpc.dictaphone.com/content/PROCEDUR/889576.pdf>

## ***SQL Services:***

The SQL Services should run under Local System and be set to automatic.

The PowerScribe for Radiology database installations will create the ID's of sdkuser and psrad. Their permissions will be assigned automatically. Do not modify these.

## ***PowerScribe for Radiology Services:***

Some PowerScribe for Radiology services (Fax and Vocada Services) should be run under an ID that is a local administrator. This ID should be a member of the Local Administrators Group of the SQL / Web server.

## ***HTTP (Internet Services):***

The Iuser <ServerName> account should be used to provide anonymous access to the PowerScribe for Radiology system for file transfers. This account is created during the install of the Internet Services. This account should have full control / access to the PSCRIBESDK\_Data directory on the SQL / Web server to allow the application to function properly.



## Nuance Technical Support

Nuance provides remote Technical Services in order to service Customer PowerScribe for Radiology systems in the most efficient and timely manner possible. Nuance offers the following methods for remote diagnosis and support:

- Direct site-to-site tunnel between the Customer and Nuance
- CISCO VPN with PC Anywhere (IP) or Microsoft Remote Desktop
- Remote Desktop Protocol (RDP) is supported only when using the /Admin or /console commands to attach to the servers, specifically the Interface Server.
- SSL VPNs that do not require any client side software to access a Customer network (i.e., the Citrix Web Connections VPN)
- Juniper Network Secure application Manager (Web VPN)
- DTS (Desktop Streaming) through the Nuance Web site

Technical Support may be reached at 800-833-7776.