# Hardware and Software Requirements

PENTAGON 2000SQL™ for Windows

## 2-10 USERS CONFIGURATION

Sample general guideline specification for deployments of 2-10 users.

| FILE SERVER / DATABASE SERVER | |
|---|---|
| Processors | 64-bit, single or dual CPU, 4 or 8 cores per CPU. Increase CPU based on concurrent users as needed. |
| Memory | 32 GB RAM minimum, or better recommended. Increase RAM based on concurrent users as needed. |
| Storage controller | Fast SAS / SCSI / RAID controller with fast caching |
| Drive configuration | RAID 10, fast SCSI / SAS hard disk drives at 15,000 RPM. Fast SSD drives recommended. |
| Power protection | UPS battery to protect the file server |
| Operating system | Windows Server 2019/2022 or higher, Standard Edition or higher |
| SQL Server collation | SQL_Latin1_General_CP1_CI_AS |
| Database | Microsoft SQL Server 2019/2022 or higher, Standard Edition or higher |
| Display resolution | Minimum 1280 x 960, maximum 2048 x 1152 |

| WORKSTATIONS (LOCAL NETWORK) | |
|---|---|
| Processor | i7 or better |
| Memory | 16 GB RAM or better |
| Storage | 200 GB hard disk drive or better (fast SSD drives recommended) |
| Monitor | 27" or better recommended |
| Operating system | Windows 11 Professional |
| Display resolution | Minimum 1280 x 960, maximum 2048 x 1152 |

## Workstations (Remote Access)

Remote Desktop or a Citrix client can be used by various applications: Windows RDP, Mac, iPad, and others. Requirements and performance are mostly based on internet bandwidth, speed, and the capacity of the server the client connects to, which will require a gateway.

## General Sizing Sample

| Configuration | Supports |
|---|---|
| 1 CPU, 4 Cores, 8 GB RAM | 3-5 users |
| 1 CPU, 4 Cores, 14 GB RAM | 6-10 users |
| 1 CPU, 4 Cores, 28 GB RAM | 12-20 users |

## Cloud Specs Samples

Amazon Workspaces or Azure Virtual Desktop: each user is provided with their own personal cloud-based PC, eliminating the need to connect to servers via RDP. Otherwise, use the RDP concept sample below.

## Azure Sample

| Server type | CPU | RAM | Disk |
|---|---|---|---|
| 1 Application server (D4 v2) | 8 | 28 | SSD |
| 1 SQL Server (D4 v2) | 8 | 32 | SSD, or better |
| 3 Terminal servers (D4 v2) | 8 | 28 | SSD, or virtual desktops, 1 for each |

Samples of specific servers using AVD, good for 10-25 users: AVD server as D8as v5 instances (8 vCPUs, 32 GB RAM); SQL Server as an E8as VM (8 vCPUs, 64 GB RAM). See the Microsoft Azure Cloud calculator at https://azure.microsoft.com/en-us/pricing/calculator/?scenario=virtual-machines

- The application server is used as the print services.
- The SQL Server hosts the database; users do not connect to it directly.
- The terminal servers serve about 12-20 RDP users for remote access.
- Customers can start with one or more terminal servers and add more as needed.

## Printers, Backup & Imaging

- **Forms & Reports:** Any LaserJet printer, PCL6 compatible (HP LaserJet PCL6 recommended)
- **Bar-Code Labels:** Any Zebra Technologies bar code printer using ZPL / ZPL II, 203 dpi, 4 inch wide
- **Backup:** Any backup drive with capacity matching the hard drive, or another backup method that supports the SQL database backup program
- **Imaging:** Any TWAIN-compatible scanner with an automatic feeder. A network scanner with a static IP is recommended; remote access requires a third-party 'Remote Scan' program. For large-capacity imaging, a dedicated drive is recommended for storage.

## Fax Server Requirements

The right combination depends on the expected number of faxes sent daily. Choose the combination most applicable to your operations and fax volume.

### Email Fax Services

Send and receive faxes by email directly from Pentagon 2000, no landline or fax machine required. When a document is submitted from Pentagon 2000 to the fax module, it is sent by email to the fax service provider, which delivers the fax to the destination you specified.

## Mandatory Backup Systems

It is imperative to implement a backup system that safely and efficiently backs up your SQL database. Losing this data would cause significant setbacks to both operations and finances. Whichever backup utility you choose, make sure it carries out the SQL maintenance plan.

## Implementation Guidelines

1. Get a Microsoft professional to install your network and SQL Server.
2. Plan your resources months ahead.
3. Assign team leaders with procedures responsibility.
4. Assign power users who will be your in-house experts.
5. Set up your system defaults and tables according to your business practices and company structure.
6. Plan your data conversion.
7. Get training from Pentagon 2000.
8. Practice on the system using your own data by running business cases.
9. Plan your going-live date.
10. Set up a daily automatic SQL database backup maintenance plan.

*You can always call Pentagon 2000 with any question you may have.*