

Voxco Command Center, Voxco Online, and Voxco Dialer - Technical specifications & Recommendations

Recommended server specification:

Specification for SQL server

The SQL server is used to provide shared access to projects data by all the desktop applications and web clients. It is extremely important that the SQL server is adequately sized (CPU, RAM, Networking and Disks) for the type of operations being run.

Item	Requirements
Operating System:	<ul style="list-style-type: none"> ■ Microsoft Windows Server 2008 R2 Standard Server 64-bit – latest service pack ■ Microsoft Windows Server 2012 R2 – latest service pack ■ Microsoft Windows Server 2016 – latest service pack
Software:	<ul style="list-style-type: none"> ■ [Voxco Online/ Command Center 1.10.5 and above] Microsoft SQL Server 2008 R2, SQL Server 2012, SQL Server 2014, SQL Server 2016 – Standard Edition ■ Latest service pack ■ Microsoft .NET Framework 3.5 SP1 must be installed.
Hardware:	<ul style="list-style-type: none"> ■ Memory and CPU is function of your project volume and number of seats on the field. ■ Server-class machine with Dual/Quad-Core Xeon/Opteron Processor. ■ 32 GB RAM min, 64 GB recommended.
Specific settings on SQL server:	<ul style="list-style-type: none"> ■ Auto growth parameter: use a percentage of 10% (not a “Fixed” value) ■ Auto Close parameter should be set to FALSE ■ Auto shrink parameter should <u>never</u> be activated ■ [Voxco Online] CLR Integration must be enabled
Disk capacity:	<ul style="list-style-type: none"> ■ Enterprise class storage IOPS ■ Typically, disk space should be at a minimum 300GB.

Networking:	■ Gigabit TCP/IP enabled
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Specifications for Management Web server

The web server is used to manage project and reporting over the web. To ensure reporting activities do not impact data collection, the number of servers required is dependent on the expected load. This server(s) has to be installed and configured onto your domain prior to Voxco installation.

Item	Requirements
Operating System	Microsoft Windows 2008 R2 Standard Edition Server 64-bit – latest service pack Microsoft Windows Server 2012 R2 – latest service pack
Hardware	Server-class machine with Dual/Quad-Core Xeon/Opteron Processor with a minimum of 8 GB RAM.
Software	<ul style="list-style-type: none"> ■ IIS 7.0 or above with I!6 Compatibility mode (only required for initial installation) ■ Microsoft .NET Framework 4.5 must be installed.
Disk capacity	Typically, 160Gb Hard disk.
Networking	Gigabit TCP/IP enabled

Specifications for Data Collection Web servers (CATI and Online)

The web server(s) must be a dedicated machine for Voxco's solution and should run only the Voxco survey software. In the eventuality that the Voxco solution needs to be accessible outside of your corporate network), you need to consider installing the Web server(s) in a DMZ.

Item	Requirements
Operating System	Microsoft Windows 2008 R2 Standard Edition Server 64-bit – latest service pack Microsoft Windows Server 2012 R2 – latest service pack
Hardware	Server-class machine with Dual/Quad-Core Xeon/Opteron Processor with a minimum of 8 GB RAM.
Software	<ul style="list-style-type: none"> ■ IIS 7.0 or above with I!6 Compatibility mode (only required for initial installation) ■ Microsoft .NET Framework 4.5 must be installed.

Disk capacity	Typically, 80Gb Hard disk.
Networking	Gigabit TCP/IP enabled

Managers and programmers stations (using Command Center Design module)	
Item	Requirements
Operating System	Windows XP Pro, SP2 minimum . Windows 7 Windows 8-8.1 Windows 10
Software	<ul style="list-style-type: none"> ■ Native mode Internet Explorer 8 or 9 or IE 10 ■ Internet Explorer 11 – More info in IE11 EnterpriseMode ■ Voxco Design for scriptwriters (provided by Voxco)
Station Hardware	<i>Assuming there is only Voxco's solution running:</i> Pentium PIV 2.8G, 1Gb Ram or + depending on OS
Disk capacity	Typically, 40G Hard disk. Compared to modern hard disk capacity, disk space is not critical on the stations.
Networking	10/100Mb TCP/IP

Interviewers stations	
Item	Requirements
Operating System	Windows XP Pro, SP2 minimum . Windows 7 Windows 8-8.1 Windows 10
Software	<ul style="list-style-type: none"> ■ Internet Explorer 7.0 (Min Support) or Internet Explorer 8 or 9 or IE 10 ■ Internet Explorer 11 – More info in IE11 EnterpriseMode
Station Hardware	<i>Assuming there is only Voxco's solution running.</i> Pentium PIV, 512Mb RAM or + depending on OS
Disk capacity	Typically, 20G Hard disk. Disk space is not critical on the stations.
Networking	10/100Mb TCP/IP

Supervisors stations	
Item	Requirements
Operating System	Windows XP Pro, SP2 minimum . Windows 7 Windows 8-8.1 Windows 10
Software	<ul style="list-style-type: none"> Native mode Internet Explorer 8 or 9 or IE 10 Internet Explorer 11 – More info in IE11 EnterpriseMode Voxco Supervisor bar (provided by Voxco, if using Voxco Dialer) Microsoft .NET Framework 4.5 must be installed
Station Hardware	<i>Assuming there is only Voxco's solution running.</i> Pentium PIV, 512Mb RAM or + depending on OS
Disk capacity	Typically, 20G Hard disk. Disk space is not critical on the stations.
Networking	10/100Mb TCP/IP

*Note that it is still possible to monitor on Windows XP, but audio monitoring has to be establish manually. This is because SupervisorBar requires Microsoft .Net Framework 4.5 which is not supported under Windows XP.

OTHER RECOMMANDATION

1. UPS (Uninterruptible Power Supply) supporting automatic server shutdown, surge protection and line filtering between AC outlet and server, for each server.
2. If Anti-virus is required, any scanning processes on the servers or workstations, must not be initiated during active field activities.

Installation Environment Best Practices

To ensure the peak performance of your Voxco Solutions, your own network and server performance must also be optimized. This quick reference document outlines best practices that Voxco recommends you follow to ensure that the installation, implementation and usage of our Voxco solutions will yield the best experience possible.

Optimize your Network

Your network performance should be optimized following these best practices:

- **FQDN** (Fully Qualified Domain Name): For increased Network flexibility, whenever possible we recommend the use of FQDN in the set-up and configuration of all Voxco solutions. As well, when your staff is accessing a Voxco Solution, they should do so via FQDN.

- **DNS:** Each of your servers hosting a Voxco component should have access to a DNS server that is able to resolve FQDN to internal or external IP appropriate for their location. Prior to installing the Voxco Solution, be sure to test all DNS entries for and from each server that will host a Voxco component.
- **Bandwidth:** Data transfer can be impacted by processing speed. To ensure optimal performance of the Voxco solutions, your *local* network should be nothing less than Gigabit Ethernet.
If you have a *multi-site* implementation of Voxco solutions, this should be carefully planned to ensure sufficient bandwidth. The sites should be linked by technologies that can guarantee bandwidth, such as black-fiber or MPLS technologies. Please note that Consumer ISPs (cable, DSL and even fiber) often cannot provide guarantees that you will have sufficient bandwidth.
- **Latency:** We recommend 50ms or less. Anything above that delay could result in performance issues.
- **Setup Alerts:** To ensure your network is not maxing out its capacity, the nodes (switch, firewall, routers, multi-site links) should be actively monitored. Alerts should be setup so that when bandwidth, latency, packet drop or other appropriate metrics are exceeding expected thresholds, responsible staff from your organization are notified and can take immediate actions.

Optimize Server Performance

In addition to optimizing your network performance, also have the following in place to ensure your server performance is optimized:

- **Maintenance:** Maintenance tasks that regularly defragment disk drive and delete or move obsolete logs files and recordings should be set up if not already in place.
- **Setup Alerts:** To ensure that you are always up and running, we strongly recommend that your organization have a monitoring system in place for your servers that host Voxco Solutions. Your monitoring system should include *automated alerts* that advise you if CPU and memory are saturated or if you are running out of disk space.

Optimize the set-up and health of your SQL Server

The SQL Server is one of the most critical components of the environment hosting your Voxco installation. Performance problems, such as application lags and delays to load web pages, are frequently caused by SQL Server issues.

To ensure optimal health of your SQL Server, we recommend:

- **SQL Settings.** To avoid unnecessary performance issues, the SQL setting should be:
 - Auto Growth: use a percentage of 10%, fixed value of 500MB or higher may be appropriate for very large DB.
 - Auto Close: must be off.
 - Auto Shrink: must never be activated.
- **Disk configuration**

- As per Microsoft's best practices recommendations the Operating system, SQL Data files and SQL transaction log files should reside on distinct logical drives.
- The tempdb database should, optimally, also have a dedicated logical drive.
- *If your SQL server is virtualized*, make sure you have enough IOPS (Input/Output Operations per second) to sustain the disk activity.
- *If your SQL Server is physical*, use RAID arrays to achieve the optimal disk configuration. A minimum of 6 disks should be present in the server. Of these, 2 in RAID1 for the OS and 4 in RAID5, split in 2 logical drives for the SQL data files and SQL transaction log files.
- The tempdb database should be configured with as many data files as the number of processor core dedicated to SQL server.
- Backups should always be taken on a reliable external storage system.

- **Maintenance plan.** Have a solid maintenance plan in place for your SQL Server. It gives you a plan of the tasks needed to make sure your SQL database is kept at peak performance.
- **Regular Backups.** Your data is precious, losing it could result in significant negative impact on your business. To avoid the risk of any such loss, make sure to perform regular back-ups of the data you collect. We recommend a plan that performs back-ups at the following frequency:
 - Full daily back-up of all databases, and
 - Hourly back-ups of the Transaction Log files

This will not only ensure your data is regularly backed up, but it will also ensure that you maintain optimal disk storage space.

Install a Firewall

To keep your data safe, ensure that your organization has a firewall in place. As a minimum, we recommend you have a firewall between the public and your private network.

Should you wish to put additional firewall protection between your internal zones, make sure the firewalls allow appropriate traffic to go to the Voxco solution (i.e. ensure that internal firewalls are not hindering communication between Voxco components).

Install Anti-Virus/anti-Malware

To protect yourself from any malicious intents, ensure that your organization has anti-virus/anti-malware type software in place on all workstations and servers. But be sure to add Voxco Processes and Installation folders to the Antivirus exclusion list. Failure to do so may cause performance and crashes that are caused by the anti-virus/anti-malware but that are hard to detect.